

The Mission and Role

Tuesday, 3 January 2023 11:21

MCAPS Goals, Mission:



FY23 Principles

Empower customers across all industries through the unique value of the Microsoft Cloud

- Remain customer obsessed
- Regional skill at scale
- Focus on growth and share
- Digital First
- Simplify and optimize

Customer Success Unit (CSU) Priorities

Accelerate value through consumption, new/expanded solution areas, technical intensity, and cross-cloud/industry scenarios



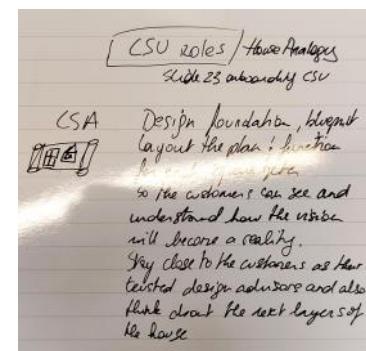
Connected Customer Experience strategy

The Connected Customer Experience (CCE) is our long-term, One Microsoft strategy for delivering a differentiated end-to-end customer experience focused on enabling our Microsoft mission by **delighting** our customers and **exceeding** their expectations in every interaction through a connected customer experience.



Cloud Solution Architect

- Builds cloud architectures and advanced workloads
- Showcases Azure security -> to accelerate consumption + to deliver world-class support
- Teams up with Customer Engineers (CE) on aligning at engagement work.
- Move to more pinned CSAs



Connected Customer Experience

The Connected Customer Experience (CCE) is our long-term, One Microsoft strategy for delivering a differentiated end-to-end customer experience focused on enabling our Microsoft mission by **delighting** our customers and **exceeding** their expectations in every interaction through a connected customer experience.

Customers depend on us to understand their business and partner closely with them to accelerate value and achieve their desired outcome. They want us to know and guide them better, to support them better, and to help modernize and transform them. Customer want a **seamless experience across all of the interactions with us**, whether they are through **product, digital or human modalities**.

To meet our customers' needs, we are continuing to drive and build upon our long-term Connected Customer Experience strategy to help them achieve their business goals through our products and solutions.

We strive to create enduring/lasting success for customers.

How we do this:

- Optimized orchestration
- Technical upskilling of customers
- Listen and learn and take their feedback back to engineering teams to influence next gen platforms and capabilities
- All this comes together to help customers maximize their business outcomes and accelerate consumption.

In Customer Success, we help customers establish the foundations for **enduring success** by supporting them proactively, creating value, and building trust.

We achieve this by **delivering optimized orchestration** across engagements, **technical intensity**, and **championing their feedback** to engineering teams to deliver world-class cloud services and

support that helps customers
maximize their business outcomes and accelerate consumption.

My Own Interpretation

Personalized:

Blended:

Empowered:

Pervasive: The extent to which something is present or felt throughout a particular area or group. In the context of customer relations, it might refer to the extent to which a company's values and practices are present in all interactions with customers, or the extent to which a company's customer service is consistently high quality and effective in addressing customer needs and concerns.

Technical Intensity: level of technical expertise and knowledge that is required to effectively communicate with and assist customers. In the context of the cloud this refers to the level of understanding that the cloud architect has of technical concepts and systems, and the ability to communicate this understanding to customers in a way that is clear and helpful. A cloud architect with high technical intensity would be able to effectively address technical questions and concerns from customers, and help them understand how to use cloud-based systems and technologies to meet their needs.

Adaptive: the ability to adapt and respond effectively to changing circumstances or requirements. The ability to anticipate and respond to the needs of the customers and the changing landscape of cloud technologies. We are able to continuously learn and adapt our skills and approaches in order to meet the needs of our customers and ensure the success of cloud-based solutions.

Simplicity: the ability to present complex technical concepts and systems in a clear, straightforward manner and easy to understand. We also strive to create solutions that are easy for the customer to use and maintain, and clearly communicate the benefits and potential challenges of different approaches to the customer. This way, we can help customers feel more confident and comfortable with the solutions they are implementing.

Iterative: The use of an iterative process in the design and development of cloud based solutions. This could involve working with the customer to identify their needs and requirements, prototyping and testing different approaches, and refining the solution based on feedback and testing. It allows to continuously improve and refine the solution, ensuring that it meets the changing needs and goals of the customer. By using an iterative approach, we ensure that the final solution is tailored to the specific needs and goals of the customer.

My Own Mission and Checklist from all of the above

"Our mission is to:

"Be committed to deliver an unparalleled level of service to my customers, with a focus on personalization, blending technical expertise with business acumen, and ensuring that our values and practices are present in all interactions.

Our technical intensity allows us to **effectively communicate with and assist customers in leveraging the power of cloud technologies**, and our **adaptive** nature enables us to **continuously learn and evolve** in order to meet their changing needs. We strive to **create solutions that are simple and easy to use and understand**, and our **iterative process** ensures that the final product is tailored specifically to their unique goals and requirements. Our ultimate goal is to **empower our customers** through exceptional service and innovative cloud-based solutions."

My Daily Checklist:

1. Personalize service for each customer
2. Blend technical expertise with business acumen
3. Ensure company values and practices are present in all interactions with customers
4. Maintain high technical intensity in communication and assistance to customers
5. Stay adaptive and open to learning and evolution
6. Strive to create simple and easy-to-use solutions for customers
7. Use an iterative process to deliver tailored solutions that meet customers' specific needs and goals
8. Empower customers through exceptional service and innovative cloud-based solutions

Measurable outcome ACR increase

KPI's

Tuesday, 3 January 2023 12:11

FY23 Core Priorities(1/2)

#	Core Priority Title	Core Priority (What will you focus on in the upcoming period to drive impact for the business?)	Critical Indicators of Success (How will you measure success?)
1	Customer & Partner Value	Create value by accelerating consumption of solutions and support	<p>Consumption Impact: Drive transformational journey for your customers by owning technical activities per CSA accountabilities defined in Microsoft Customer Engagement Methodology (MCEM) based on customer business and technical direction, resulting in accelerated deployments of Azure Core Solution Area aligned Products. Optimize customer workloads using Well-Architected across all pillars (incl. Security). Accelerate and expand engagements to win key workloads via customer scenarios. Update milestones weekly in MSX to ensure accurate reporting.</p> <p>Expansion Impact: Retain & expand usage as well as action unhealthy baseline erosion/churn of landed Azure Core workloads by leveraging customer scenarios & value-based delivery (VBD) & applicable IP.</p> <p>Unified Revenue Impact: Identify customer scenarios for customer-funded activities, resulting in both increased Unified Consumed Revenue (UCR) & Azure Consumed Revenue (ACR) Work with CSAM to define consumption & VBD activity milestones in the Customer Success Plan (CSP).</p>
2	Connected Customer Experience	Deliver an easy & connected experience	<p>Accelerate Time to Value: Prioritize the use of repeatable IP through VBD to accelerate customer outcomes. Ensure a connected "One Microsoft" customer experience, teaming for success across your EOU/territory by executing per the stakeholder map & stakeholder engagement plan in the account plan.</p> <p>Positive Customer Experience: Ensure customer satisfaction, as measured by Customer Health Index (CHI) & CSAT, Cloud Ready Score (CRS) by unblocking & accelerating opportunities via weekly technical scrums with account team. Leverage Azure Core - UAT/OneAsk/Technical Insider Program to devise solutions for blockers.</p> <p>Customer Objectives Met: Lead Azure Core technical delivery as outlined in Customer Success Plan (CSP), to enable realization of customer priorities & objectives.</p>

FY23 Core Priorities(2/2)

#	Core Priority Title	Core Priority (What will you focus on in the upcoming period to drive impact for the business?)	Critical Indicators of Success (How will you measure success?)
3	Customer & Partner Trust	Build trust through customer centricity & technical capability	<p>Be The Trusted Advisor: As a trusted advisor and thought leader guide your customers towards successful transformation journey by providing thought leadership by constructively challenging customer thinking using your subject matter expertise, IP & industry/market insights.</p> <p>Growth in Specialization & mastery across skills: Complete all required training on time. Grow your proficiency by leveraging role skilling plan & self-skilling options such as technical learning paths, workshops, OpenHacks, LevelUps, & certifications. Complete technical accreditation/attestation in prioritized workloads.</p> <p>Community Leadership: Actively contribute to the success of others by engaging with your local & global communities, mentoring & contributing repeatable IP.</p>
4	Diversity & Inclusion	Microsoft's mission is to empower every person and every organization on the planet to achieve more. As employees we come together with a growth mindset, innovate to empower others and collaborate to realize our shared goals. Each day we build on our values of respect, integrity, and accountability to create a culture of inclusion where everyone can thrive at work and beyond.	Each individual to write their own Critical Indicators of Success for this Core Priority in the Connect Tool.
5	Compliance	Personally, commit to generate and protect Microsoft trust by living Microsoft's values, culture, and Trust Code in every decision.	<p>All Roles:</p> <ul style="list-style-type: none"> • Integrity & ethical behaviors modeled every day. Full adherence to Company policies and processes. 100% of mandatory Compliance Trainings completed timely. • Cooperation and help on remediation actions with audits, investigations and other compliance processes & controls. Proactive identification of risks inherent to the role and timely escalation of concerns.

CSA Role Training

Thursday, 5 January 2023 10:00

CAF

WAF

The Azure WAF will help you to **design, build, and continuously improve** a secure, reliable, and efficient application. In this module, we'll introduce you to the framework, along with the **pillars and principles** that are essential to a great Azure architecture.

The Azure WAF is a set of **guiding tenets** that can be used to **improve the quality of a workload**. The framework consists of five pillars of architectural excellence.

Cost Optimization

Cost optimization



Cost optimization is ensuring that the money your organization spends is being used to maximum effect.

Questions to ask:

Where you are at?
Where are you struggling, what are you having trouble with? What is your CFO trying to do?

To give the customer the lay of the land, show the stages of cost optimization and the sort of things you want to do at different stages in your journey

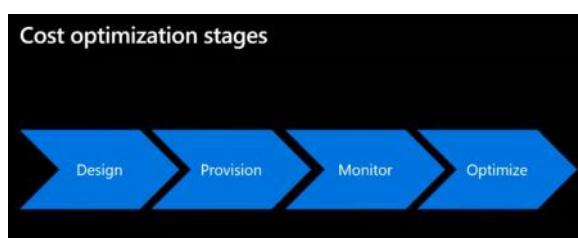
Cost Optimization stages:

Design: when you develop a new workload, conceptualizing it, determining what your business requirements are, what can it cost, what are your requirements along the line of reliability and performance, security, what kind of business value do you want it to deliver for you. That is the early stage of design.
You can already do things at that stage that are best practices to make sure you are cost efficient all the way through.

Provision: This is where you are going through the different building blocks, picking them out and setting them up, start building it out.

Monitor: You want to keep tabs on how it is been used, what you have been spending, and constantly reviewing internally with the right stakeholders to make sure that everything is happening that you want to be happening in terms of this workload.

Optimize: This only comes at the end because there is a lot of things you can do along the way to make sure you are still in a good position at the end.
What are the things you can do now that it is running, to make it run more cost efficiently to make sure that it is appropriately sized and delivering on business value but at the right level for you.



High impact techniques you need to know up front and apply

High impact "monitor" and "optimize" techniques

Increase cost awareness

- Budgets
- Alerts
- Tagging

Increase cost awareness

- Budgets
- Alerts
- Tagging

Eliminate cloud waste

- Shut down unused resources
- Right-size underutilized resources
- Autoscaling and autoshutdown

Take advantage of offers

- Hybrid Benefit
- Reservations

You want to only spend what you need to spend. All of this comes back to what you need in terms of reliability and performance, etc.....



1. Check the Advisor Score to start with.

2. Approaches:

- a. 2 Approaches to optimize:

- i. Technical: low hanging fruits. How do we immediately save money by reducing the waste
- ii. Azure Advisor: This is a great tool that displays all the possible recommendations that could potentially save you a lot of money.

Doing something immediately to save money. Come back and think about the long term strategic approach.

Reducing Waste:

Customer can have a boatload of underutilized VM's or unattached disks.

Azure's philosophy is pay for what you use, anything that is not used, is a waste.

Example:

How to figure out if you have unattached disks

[Identify unattached Azure disks - Azure portal - Azure Virtual Machines | Microsoft Learn](#)
[Find and delete unattached Azure managed and unmanaged disks - Azure Virtual Machines | Microsoft Learn](#)

Home > Microsoft.ManagedDisk-20230105104454 | Overview > tsumanageddisk

rg-test

Resource group

Search

Create Manage view Delete resource group Refresh Export to CSV Open query Assign tags Move Delete

Overview Activity log Access control (IAM) Tags Resource visualizer Events

Resources Recommendations

Filter for any field... Type equals all Location equals all Add filter

Showing 1 to 1 of 1 records. Show Hidden types No grouping List view

Name	Type	Location
tsumanageddisk	Disk	West Europe

Settings

PowerShell

```
checkunmanageddisk.ps1
1 # Set $deleteUnattachedDisks=1 if you want to delete unattached Managed Disks
2 # Set $deleteUnattachedDisks=0 if you want to see the Id of the unattached Managed Disk
3 $deleteUnattachedDisks=1
$storageAccountName="rg-test-AZ0015"
$resourceGroup="rg-test-20230105104454"
$diskId=$storageAccountName-$resourceGroup-$deleteUnattachedDisks
$diskId
# ManagedBy property stores the Id of the VM to which Managed Disk is attached to
# If ManagedBy property is $null then it means that the Managed Disk is not attached to a VM
PS /home/jmeli> ./checkunmanageddisk.ps1
/subscriptions/382a1f24-a2f2-46ba-a104-a9efeb8ffeb5/resourceGroups/RG-TEST/providers/Microsoft.Compute/disks/tsumanageddisk
PS /home/jmeli> ./checkunmanageddisk.ps1
/subscriptions/382a1f24-a2f2-46ba-a104-a9efeb8ffeb5/resourceGroups/RG-TEST/providers/Microsoft.Compute/disks/tsumanageddisk
PS /home/jmeli> ./checkunmanageddisk.ps1
/subscriptions/382a1f24-a2f2-46ba-a104-a9efeb8ffeb5/resourceGroups/RG-TEST/providers/Microsoft.Compute/disks/tsumanageddisk
PS /home/jmeli> ./checkunmanageddisk.ps1 -Verbose
Deleting unattached Managed Disk with Id: /subscriptions/382a1f24-a2f2-46ba-a104-a9efeb8ffeb5/resourceGroups/RG-TEST/providers/Microsoft.Compute/disks/tsumanageddisk

Deleting unattached Managed Disk with Id: /subscriptions/382a1f24-a2f2-46ba-a104-a9efeb8ffeb5/resourceGroups/RG-TEST/providers/Microsoft.Compute/disks/tsumanageddisk
Name : 073edee7-b06b-4c3d-ab87-bbbb7labc35a
StartTime : 1/5/2023 9:49:06 AM
EndTime : 1/5/2023 9:49:37 AM
Status : Succeeded
Error :

Deleted unattached Managed Disk with Id: /subscriptions/382a1f24-a2f2-46ba-a104-a9efeb8ffeb5/resourceGroups/RG-TEST/providers/Microsoft.Compute/disks/tsumanageddisk
```

PowerBI Cost Management App

Microsoft Power BI BI Workspace Azure Cost Management App | Data updated 2/19/20

Welcome to Azure Cost Management

Getting Started:
The Azure Cost Management Power BI App is meant to assist in analyzing and managing your cloud cost within Power BI. You can utilize the Azure Cost Management app to monitor costs, usage trends and identify cost optimization options to reduce your expenditures.

You can use the app as is, or you can download it into [Power BI Desktop](#) and join with additional data to create customized reports to get holistic views of your overall business cost.

Learn more about the Azure Cost Management Power BI template App
Visit aka.ms/CostMgmt/ACMinsights for additional information on the Cost Management template app
To create customized visualizations from scratch, see: [Connect to Azure Cost Management in Power BI Desktop](#)

Learn more about Azure Reservations and Azure Hybrid benefits
What are Azure Reservations?
Additional information on [Azure Hybrid Benefit](#)
Azure Cost Management documentation: aka.ms/CostMgmt/Docs
Azure Cost Management video channel: aka.ms/CostMgmt/Video
Azure Cost Management updates: aka.ms/CostMgmt/Blog

Provide Feedback
Have an idea or suggestion? Visit aka.ms/ACMTemplateAppFeedback to post your thoughts.

Filters

Search: Filters on all pages Date is (All)

Microsoft Power BI BI Workspace Azure Cost Management App | Data updated 2/19/20

VM RI Coverage (shared recommendation)

Select date range: 12/1/2019 - 8/20/2020

Select the Reservation Type: P1Y (selected) P3Y

This report shows the split between On-Demand and RI VM usage over the selected time period and provides recommendation for VM RI purchases at shared scope.

Select the drill down filter to see the RI coverage for a particular region, instance size flexibility group and VM Size. More information on [Reservations](#).

Drill down filter for region, instance size group and VM Size

On-Demand Usage ● **On Demand Usage** ● **RI Usage**

Usage by On-demand and RI

RI/Usage ● **On Demand Usage** ● **RI Usage**

CHARTS: CPU/Hour vs Date (Dec 2019 - Mar 2020)

Recommendations for shared scope. These recommendations are calculated by evaluating your last 7 days of usage.

Instance Flexibility Group	Location	SKU	Recommended Quantity	Normalized Size	Recommended Quantity Normalized	Item Scope
B1 Series	westus2	Standard_B1	1.00	Standard_B1	1.00	P1Y Shared
B1 Series	japanesewest	Standard_B1	2.00	Standard_B1	2.00	P1Y Shared
B1 Series	centralus	Standard_B1s	1.00	Standard_B1s	1.00	P1Y Shared
B1 Series	westus	Standard_B1s	1.00	Standard_B1s	1.00	P1Y Shared
D1 Series	westus	Standard_D1	1.00	Standard_D1	1.00	P1Y Shared
D1 Series	eastus2	Standard_D4s_v4	1.00	Standard_D4s_v4	1.00	P1Y Shared
D1 Series	southeastasia	Standard_D4s_v4	1.00	Standard_D4s_v4	1.00	P1Y Shared
D1 Series	centralindia	Standard_D4s_v4	2.00	Standard_D4s_v4	2.00	P1Y Shared
D1 Series	centralus	Standard_D4s_v4	2.00	Standard_D4s_v4	2.00	P1Y Shared
D1 Series	eastus2	Standard_D2s	2.00	Standard_D2s	2.00	P1Y Shared
D1 Series	eastus2	Standard_D2	2.00	Standard_D2	2.00	P1Y Shared
D1 Series	eastus2	Standard_D1	2.00	Standard_D1	2.00	P1Y Shared
D1 Series	eastus2	Standard_D0	2.00	Standard_D0	2.00	P1Y Shared
D1 Series	eastus2	Standard_D0s	2.00	Standard_D0s	2.00	P1Y Shared
D1 Series	eastus2	Standard_D0	2.00	Standard_D0	2.00	P1Y Shared
D1 Series	eastus2	Standard_D0s	2.00	Standard_D0s	2.00	P1Y Shared
Total			140.00			

Filters

Search: Filters on all pages Date is (All)

There are certain prereqs in order to fully benefit from the dashboard. EA Admin,....

For customers that have stringent rules on data sharing and are not able to share the data out, there are other ways to look at cost.

We have direct API calls. So if you can't run this app, you can use the

The Direct APIs for Cost Optimization

In the event your customer cannot not In the event your customer cannot not share the reports with you due to data sovereignty regulations, or does not have access to [ACM PowerBI App](#), due to lack of EA Admin authority, the customer can still download all the reports directly using the following APIs

Table reference	Description
AutoFitComboMeter	Data included in the app to normalize the RI recommendation and usage to the smallest size in the instance family group.
Balance summary	Summary of the balance for Enterprise Agreements.
Budgets	Budget details to view actual costs or usage against existing budget targets.
PriceSheets	Applicable meter rates for the provided billing profile or EA enrollment.
RI charges	Charges associated to your reserved instances over the last 24 months.
RI recommendations (shared)	Reserved instance purchase recommendations based on all your subscription usage trends for the last 7, 30, or 60 days.
RI recommendations (single)	Reserved instance purchase recommendations based on your single subscription usage trends for the last 7, 30, or 60 days.
RI usage details	Consumption details for your existing reserved instances over the last month.
RI usage summary	Daily Azure reservation usage percentage.
Usage details	A breakdown of consumed quantities and estimated charges for the given billing profile in the EA enrollment.
Usage details amortized	A breakdown of consumed quantities and estimated amortized charges for the given billing profile in the EA enrollment.

Azure savings plans for compute

[What is Azure savings plans for compute? - Microsoft Cost Management | Microsoft Learn](#)

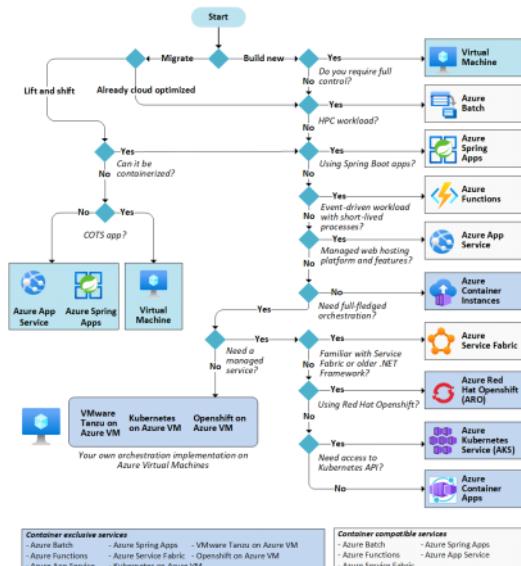
For dynamic workloads where you need to run different sized virtual machines or that frequently change datacenter regions, consider a compute savings plan. Savings plans provide flexible benefit application and automatic optimization.

How do you keep the cost from going back up where it was?

Here you need a long term strategic approach. Everything you want to put into Azure must be vetted.

Everything you put in unoptimized is going to incur unnecessary cost and is going to go through the same waste producing scenario.

To do this, first figure out what the most optimal way is to onboard the workload into Azure.
You want to leverage decision trees :



Commercial off-the-shelf (COTS) is marketing lingo for turnkey software and hardware that can be purchased, leased or licensed by the general public.

COTS products can be used "out of the box" without modification. The term has its roots in the military.

Create a Cost Target Workbook and go through it regularly. Set the target. Budgets per department, team,...

Azure Target (Sample)

Per Month
Target \$ 500,000

Target for each Group, Team, or Subscription Owner the past three month run-rate reduced proportionately to fit within your budget

• Target is the estimated Monthly Budget per Team
• Variance is the savings per month

Team/Group	Aug	Sep	Oct	Nov	Dec
Apps Engineering	\$ 106,424	\$ 96,958	\$ 90,732	\$ 84,770	\$ 86,418
IT Infrastructure	\$ 203,098	\$ 198,818	\$ 195,888	\$ 187,041	\$ 194,933
HR	\$ 263	\$ 223	\$ 506	\$ 563	\$ 593
Finance	\$ 76,604	\$ 74,262	\$ 72,884	\$ 70,368	\$ 70,611
Security and Compliance	\$ 83,644	\$ 75,558	\$ 62,682	\$ 66,102	\$ 90,102
Center of Excellence	\$ 44,037	\$ 40,123	\$ 41,592	\$ 38,899	\$ 42,126
Legal dept	\$ 95,167	\$ 76,108	\$ 77,429	\$ 73,227	\$ 74,569
Research and Development	\$ 124,914	\$ 110,496	\$ 100,894	\$ 92,693	\$ 95,403
Sales teams	\$ 463	\$ 622	\$ 729	\$ 749	\$ 882
Helpdesk and Support teams	\$ 1,205	\$ 880	\$ 856	\$ 824	\$ 856
Total	\$ 735,817	\$ 674,040	\$ 644,194	\$ 615,232	\$ 656,493

Team/Group	Target	Variance
Apps Engineering	\$ 70,290	\$ (22,770)
IT Infrastructure	\$ 170,935	\$ (25,021)
HR	\$ 500	\$ 71
Finance	\$ 50,742	\$ (22,204)
Security and Compliance	\$ 45,000	\$ (30,618)
Center of Excellence	\$ 30,000	\$ (11,354)
Legal dept	\$ 60,182	\$ (19,117)
Research and Development	\$ 71,485	\$ (33,395)
Sales teams	\$ 715	\$ 25
Helpdesk and Support teams	\$ 768	\$ (157)
Total	\$ 500,616	\$ (76,493)

Azure Target (Sample)

Azure Resource Optimization



Azure Migrate Tool

Azure Migrate tool – (onboarding assistance Sample)

The dashboard provides an overview of the migration assessment, including readiness, cost details, and monthly cost estimates. It also lists a table of current assessments.

NAME	GROUP	STATUS	MACHINES	LOCATION	RATING CRITERION	CONFIDENCE RATING
assessment_5_16_2019_17_34_29	day2	OutOfSync	0	North Europe	Performance-based	*****
assessment_5_20_2019_17_42_6	Mygroup	Ready	6	North Europe	Performance-based	*****
assessment_5_22_2019_22_56_13	Day2_group	Outdated	14	North Europe	Performance-based	****

Azure Backstage Session on Cost Optimization

[Cost Optimization: Two reasons why you should believe us when we say you can optimize your Azure costs - Events | Microsoft Learn](#)

References:

[Microsoft Cost Management REST APIs | Microsoft Learn](#)

[Using the Azure Cost Management API to Cut Your Cloud Costs | Nordic APIs |](#)

[Azure Billing Enterprise APIs - Reserved Instance Recommendation | Microsoft Learn](#)

[Cost Optimization: Two reasons why you should believe us when we say you can optimize your Azure costs - Events | Microsoft Learn](#)

Operational excellence

Operational excellence

< >

Operational excellence is about ensuring that you have full visibility into how your application is running and ensuring the best experience for your users. Operational excellence includes making your development and release practices more agile, which allows your business to quickly adjust to changes.

By taking advantage of modern development practices such as **DevOps**, you can enable faster development and deployment cycles. You need to have a good monitoring architecture in place so that you can detect failures and problems **before** they happen or, at a minimum, before your customers notice. **Automation** is a key aspect of this pillar to remove variance and error while increasing operational agility.

DevSecOps

Implementing security practices into your devops processes

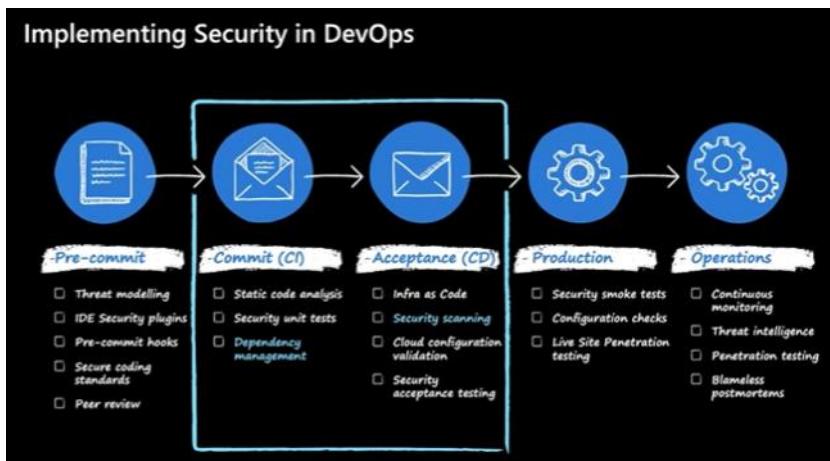
Getting security practices in your devops environment. Moving security from the end of the development stage to when you start to plan, develop, build and push it. In every step you add bits and pieces of security checks.

When you have done the development, now it's time for the security team to do their thing. Traditionally this doesn't go well with the Agile approach as you need to prioritize actions based on security findings. Adding small security checks in every development step will ensure it takes less time as you fix the security findings before they arrive during production



Configuration checks: in devtest the config might not be the same as prod and you might have forgotten smth or made a misconfig.

Implementing all of the above is dependent on the knowledge of the Team of Devs, and if you can get the security Team work with the devs. (You can start with the CICD pipelines, integrate checks like a Dependency Scanning, VeraCode Scan,....)

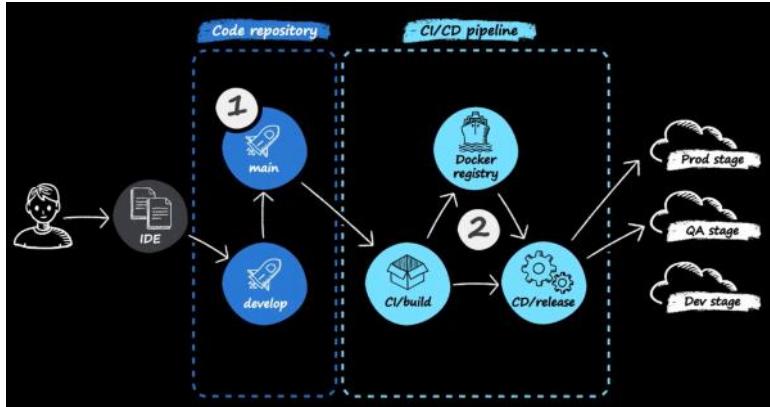
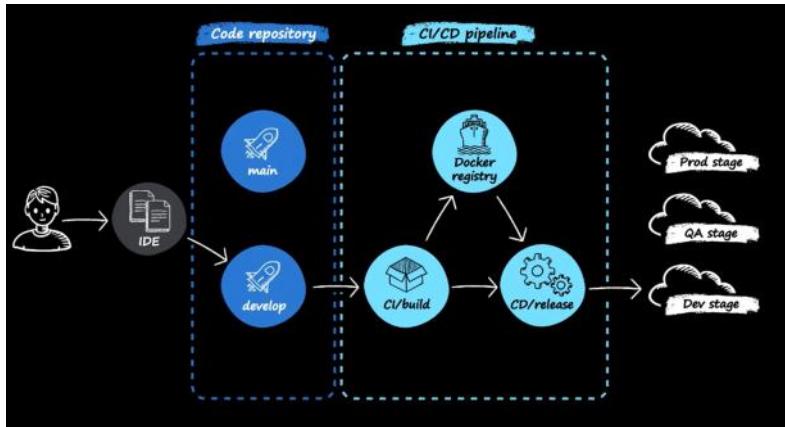


Focus on Dependency management and security scanning:

According to the statistics, in the development we use more than 75% of third party libraries, and they may contain a lot of vulnerabilities. If we cover dependency management we will cover a lot of these vulnerabilities. If we do a security scanning of the application, we may cover OWASP Top 10.

By doing these we will cover a lot of the potential security threats.

Demo:



In Azdo:

A screenshot of the Azure DevOps Pipeline interface. The pipeline is named 'DevSecOpsContainerCI'. It shows a sequence of tasks: 'Get sources' (using DevSecOpsContainer as the source and master as the branch), 'AppSec' (using 'Run on agent'), 'Run Credential Scanner' (using 'Credential Scanner'), 'WhiteSource Bolt' (using 'WhiteSource Bolt'), 'Dependency Check via OWASP' (using 'OWASP Dependency Check'), and 'Publish OWASP check results' (using 'Publish Test Results'). Below the pipeline tasks, there is a task for 'Build and push WebGoat container'.

ZAP comes in later after you build the application.

Static Security Analysis

Dynamic Security Analysis: to do this the scanner needs to have a compiled and running application.

This is what is done here with the ZAP scanner. It takes your compiled application,

[Container Vulnerability Scanning • Anchore](#)

License	Risk Level	Occurrences
GPL 2.0	High	1
LGPL 2.1	Medium	1
MIT	Low	22
BSD 3	Low	3
BSD 2	Low	1
BSD	Unknown	24

Vulnerability	Library	Description	Top Fix
Medium	6.1	jquery-3.3.1.js	jQuery before 3.4.0, as used in Drupal, contains a security vulnerability due to a mishandling [Query.prototype, {}, ...] because of Object.prototype pollution. If an unsanitized source object contained an enumerable __proto__ property, it could extend the native Object.prototype.

#198 Update azure-pipelines.yml for Azure Pipelines

on DevSecOpsContainerCI Retained by release

[Run new](#)

[Summary](#) [Tests](#) [Releases](#) [Scans](#) [WhiteSource Bolt Build Report](#)

Security Vulnerabilities (7)

Vulnerability	Library	Description	Top Fix
Medium	6.1 jquery-3.3.1.js	jQuery before 3.4.0, as used in Drupal, Backdrop CMS, and other products, mishandles <code>Query.extend(true, {}, ...)</code> because of <code>Object.prototype pollution</code> . If an unsanitized source object contained an enumerable <code>__proto__</code> property, it could extend the native <code>Object.prototype</code> .	Upgrade to version 3.4.0 https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-11358
Medium	6.1 jquery-3.3.1.min.js	jQuery before 3.4.0, as used in Drupal, Backdrop CMS, and other products, mishandles <code>Query.extend(true, {}, ...)</code> because of <code>Object.prototype pollution</code> . If an unsanitized source object contained an enumerable <code>__proto__</code> property, it could extend the native <code>Object.prototype</code> .	Upgrade to version 3.4.0 https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-11358
Medium	6.1 bootstrap-3.1.1.min.js	In Bootstrap before 4.1.2, XSS is possible in the collapse data-parent attribute.	Upgrade to version 4.1.2, XSS is possible in the collapse data-parent attribute. https://github.com/twbs/bootstrap/pull/26630
Medium	6.1 bootstrap-3.1.1.min.js	In Bootstrap before 4.1.2, XSS is possible in the data-container property of tooltip.	Upgrade to version 4.1.2, XSS is possible in the data-container property of tooltip. https://github.com/twbs/bootstrap/pull/26630

#198 Update azure-pipelines.yml for Azure Pipelines

on DevSecOpsContainerCI Retained by release

[Run new](#)

[Summary](#) [Tests](#) [Releases](#) [Scans](#) [WhiteSource Bolt Build Report](#)

Summary

3 Run(s) Completed (1 Passed, 2 Failed)

410
Total tests: +410





[Bug](#) [Link](#) [Filter by test or run name](#) [Tags](#) [Test run](#) [Column Options](#)

Test	Duration	Failing since	Failing build	Tags
pkg:javascript:jquery@2.2.4.min	0:00:00.000	19 Nov 2019	101	
pkg:javascript:jquery@2.2.4.min	0:00:00.000	19 Nov 2019	101	
pkg:javascript:jquery@3.3.1	0:00:00.000	19 Nov 2019	101	
pkg:javascript:jquery@3.3.1	0:00:00.000	19 Nov 2019	101	
pkg:javascript:jquery@3.3.1	0:00:00.000	19 Nov 2019	101	
pkg:javascript:jquery@3.3.1	0:00:00.000	19 Nov 2019	101	
pkg:npm:axios@0.17.1	0:00:00.000	19 Nov 2019	101	
pkg:npm:axios@0.17.1	0:00:00.000	19 Nov 2019	101	

#198 Update azure-pipelines.yml for Azure Pipelines

on DevSecOpsContainerCI Retained by release

[Run new](#)

[Summary](#) [Tests](#) [Releases](#) [Scans](#) [WhiteSource Bolt Build Report](#)

Summary

3 Run(s) Completed (1 Passed, 2 Failed)

410
Total tests: +410





[Bug](#) [Link](#) [Filter by test or run name](#) [Tags](#) [Test file](#) [Owner](#) [Aborted \(+1\)](#)

Test	Duration	Failing since	Failing build	Tags
OWASP App Scan (All)	0:00:14.843			
Information Disclosure - Suspicious Comments	0:00:00.000	9 Dec 2019	Current build	
Web Browser XSS Protection Not Enabled	0:00:00.000	9 Dec 2019	Current build	
X-Content-Type-Options Header Missing	0:00:00.000	9 Dec 2019	Current build	
X-Frame-Options Header Not Set	0:00:00.000	9 Dec 2019	Current build	
Dependency Check (412083)	0:00:00.000			
pkg:javascript:bootstrap@3.1.1	0:00:00.000	19 Nov 2019	101	

extern / DevSecOpsContainer / Pipelines / DevSecOpsContainerCI / #198 / Published artifacts

[Run new](#)

[Artifacts](#)

[Published](#)

Name	Size
✓ anchor_report	65 KB
└─ main_report.html	65 KB
✓ Dependency Check	331 KB

Anchore Vulnerability Scan Results			
Vulnerability ID	Package	Severity	Fix
CVE-2011-3374	apt-1.4.9	Negligible	None
CVE-2017-18018	coreutils-8.26-3	Negligible	None
CVE-2019-5094	e2fslibs-1.43.4-2	Unknown	1.43.4-2+deb9u1
CVE-2019-5094	e2fsprogs-1.43.4-2	Unknown	1.43.4-2+deb9u1
CVE-2011-3374	libapt-pkg5.0-1.4.9	Negligible	None
CVE-2017-6519	libavahi-client3-0.6.32-2	Negligible	None
CVE-2017-6519	libavahi-common3-0.6.32-2	Negligible	None
CVE-2017-6519	libavahi-common-data-0.6.32-2	Negligible	None
CVE-2010-4051	libc6-2.24-11+deb9u3	Negligible	None
CVE-2010-4052	libc6-2.24-11+deb9u3	Negligible	None
CVE-2010-4756	libc6-2.24-11+deb9u3	Negligible	None
CVE-2015-8985	libc6-2.24-11+deb9u3	Negligible	None
CVE-2017-1000408	libc6-2.24-11+deb9u3	Unknown	2.24-11+deb9u4
CVE-2017-1000409	libc6-2.24-11+deb9u3	Unknown	2.24-11+deb9u4
CVE-2017-15670	libc6-2.24-11+deb9u3	Unknown	2.24-11+deb9u4
CVE-2017-15671	libc6-2.24-11+deb9u3	Unknown	2.24-11+deb9u4

Performance Efficiency

Performance efficiency

Performance efficiency is matching an application's available resources with the demand that it's receiving. Performance efficiency includes scaling resources, identifying and optimizing potential bottlenecks, and optimizing your application code for peak performance.

For an architecture to perform well and be scalable, it should properly **match the resource capacity to the demand**. Traditionally, cloud architectures accomplish this balance by scaling applications dynamically based on activity in the application. Demand for services changes, so it's important for your architecture to be able to **adjust to demand**. By designing your architecture with performance and scalability in mind, you'll provide a great experience for your customers while being cost-effective.

Backstage Session on VM's
[Performance Efficiency: Fast & Furious: Optimizing for Quick & Reliable VM Deployments - Events | Microsoft Learn](#)

How to optimize for quick and reliable VM deployments.

What Can YOU Do?

- *General Rule of Thumb: Latest is Greatest*
- **Image Specific Tips**
 - Use the latest distro releases
 - Use the "latest" image version
 - Put your images in Azure's Platform Image Repository or Shared Image Gallery
- **Premium Virtual Machines SKUs vs. Standard Virtual Machine SKUs**
 - Sizing
- **Premium Storage vs. Standard Storage**
- **Availability Zones & VM Scale Sets with Flexible Orchestration vs. Availability Set**

Reliability

Reliability

Designing for reliability includes maintaining uptime through small-scale incidents and temporary conditions like partial network outages. You can ensure that your application can handle localized failures by integrating high availability into each component of the application and eliminating single points of failure.

Every architect's worst fear is having an architecture fail with no way to recover it. A successful cloud environment is designed in a way that **anticipates failure at all levels**. Part of anticipating failures is designing a system that can recover from a failure within the time frame that your stakeholders and customers require.

Security

Security

< >

Security is ultimately about protecting the data that your organization uses, stores, and transmits. The data that your organization stores or handles is at the heart of your securable assets. This data might be sensitive data about customers, financial information about your organization, or critical line-of-business data that supports your organization.

Data is the most valuable piece of your organization's technical footprint. In this pillar, you'll focus on securing access to your architecture through **authentication** and **protecting your application and data from network vulnerabilities**. You should also protect the integrity of your data with tools like encryption.

You must think about security throughout the life cycle of your application, from **design and implementation to deployment and operations**. The cloud provides protection against a variety of threats, such as network intrusion and DDoS attacks. However, you still need to build security into your application, processes, and organizational culture.

Key takeaways:

- The Azure WAF helps you to design, build, and continuously improve a secure, reliable, and efficient application.
- 2

The Azure WAF is a set of guiding tenets that can be used to improve the quality of a workload. The framework consists of five pillars of architectural excellence, which are cost optimization, operational excellence, performance efficiency, reliability, and security.

- 3
- In addition to these pillars, there are some consistent design principles that you should consider throughout your architecture, such as enabling architectural evolution, using data to make decisions, educating and enabling, and automation.

[Putting it all together: WAF and CAF for Azure - US Partner Community Blog - Microsoft](#)

Differences and similarities between CAF and WAF

CAF provides organization-level guidance from the journey perspective, focusing on a **portfolio of workloads** and helping technical professionals and business decision makers define business, technology, and people strategies and act on those strategies to adopt Azure successfully.

Meanwhile, the WAF supports technology professionals in the architecture design and optimization of **individual workloads**. Both CAF and WAF can be used concurrently by organizations as they plan, prepare, deploy, and manage their Azure investments. While each framework provides unique content from a different granularity perspective, both frameworks deliver the same value, that is, helping customers adopt Azure successfully.

Key Take-aways

CAF provides organization-level guidance from the journey perspective, focusing on a portfolio of workloads and helping technical professionals and business decision makers define business, technology, and people strategies and act on those strategies to adopt Azure successfully.

2 Meanwhile, WAF supports technology professionals in the architecture design and optimization of individual workloads.

3 CAF and WAF frameworks are often employed not as discrete motions but as part of a lifecycle of best practices, guidance, documentation, assessments, and design principles. Each framework has a significant role to play in the continuum of guiding a customer's journey at the right elevation for critical decision-making.

Architecture Design Fundamentals

Friday, February 10, 2023 10:39 AM

Design thinking is a mindset and approach to learning, collaborating, and problem solving. In practice, the design process is a structured framework for identifying challenges, gathering information, generating potential solutions, refining ideas, and testing solutions."

Harvard's teaching and learning lab

"Design thinking is a **mindset and approach** to learning, collaborating, and problem solving. In practice, the design process is a **structured framework** for identifying challenges, gathering information, generating potential solutions, refining ideas, and testing solutions."

[Harvard's teaching and learning lab](#)

Design thinking is a mindset and an approach to learning, collaborating, and problem solving. The below steps walks through the five design thinking principles.

Step 1

Empathize



For whom do you want to solve this problem?

Step 2

Define



What do you want to solve?

1 2 3 4 5

Ideate



Which ideas could solve the problem?

Prototype



What exactly is the solution?

Test



What does the audience think about the solution?

The design thinking process involves circular and recursive steps, meaning you can move back and forth between the stages until you finalize a product. While we will talk about the steps linearly, the steps can be used in a non-linear way and repeated multiple times when applying them to any given problem.

Discover

With the visual below, you will see that the discover phase involves empathy-building and the problem definition. In other words, in the discovery phase, you define the problem, and you build empathy for the people for which you are designing. In this stage, you learn about your users, gather information about their needs, and empathize with them. Some ways you can investigate include: collecting data through surveys, user testing, interviews, and direct observations. It is only when you have discovered the feelings and challenges of your user that you can define the issue that needs to be solved and then develop an innovative solution.

DESIGN THINKING



Ideation

In the ideation phase, you move from identifying the users' challenges to brainstorming solutions for your users. You want to move beyond the obvious answers and explore unexpected solutions when you brainstorm. You want to brainstorm without filtering or limiting your ideas. Do not worry if the concept is practical; think up as many ideas as possible. It is more about quantity than quality in this stage.

Prototyping

In the prototyping phase, you bring one of your ideas to life through a rapid process. Whether a physical prototype or a draft of a process, prototyping is anything that develops the ideas in your head so that others can experience them.

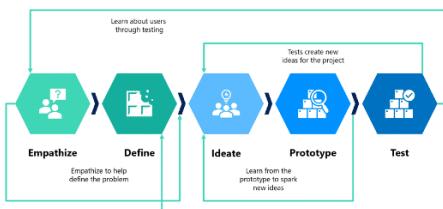
Testing

In the try or testing phase, you share your prototype with your users, observe their reactions, and gather feedback.

Based on your users' reactions and the observations you make, you will then reflect on what you learned and refine your prototype. You may have to redefine the problem, gather more information, or simply refine your prototype.

It will depend on the testing phase as to your next steps, and you will continue the process until you have a finished product.

DESIGN THINKING: Really a non-linear process



The graphic above reframes the five design thinking principles to show how the process is non-linear by nature. The path to success is iterative when you collaborate to build something new. You build upon each step, improving the overall design by applying new information gained through experimentation and failed attempts.

From
<https://learningplayer.microsoft.com/rcontents/45437/scormcontent/index.html#/lessons/1CAnJXlUDkb3dueeNIz7GS14WVCHlw>

Design thinking case study

The following story of the [\\$25 Embrace baby Incubator](#) helps demonstrate the practical principles of design thinking.

Around 2015, a professor challenged students at the [Stanford Design School](#) to design a less expensive incubator for babies born prematurely in Nepal. Nepal had a reasonably high infant mortality rate, and students were motivated to do something about it. They talked to doctors in Nepal to understand how they could design a cheaper incubator for hospitals so that more premature infants could benefit from them. But it wasn't until the students decided to actually travel to Nepal that they made any headway on the project. When they got to Nepal, the students met with families and doctors to see the problem for themselves. During the trip, they experienced firsthand the anxiety and despair of parents who could not save their premature babies.



Traditional baby incubator.

This mission of empathy helped them define who their users were and the specific problem they were facing. The students discovered that there were, in fact, many donated incubators in the hospitals, but surprisingly these incubators were mainly empty. They realized that less expensive incubators would not solve the problem since most premature babies were born far from hospitals, in rural areas, without access to incubators regardless of cost. The students changed their perception of what was needed and began thinking about how babies in rural areas could stay warm for long periods. They used pictures, videos, and storytelling of their experiences visiting Nepal to pinpoint the exact problem and brainstorm solutions. They stopped thinking of the doctors as their users and started thinking about the desperate parents who needed to give their babies a chance to survive in rural

With each suggested innovation or prototype, they returned to the question on their whiteboard: Are we helping parents in rural areas save their babies' lives?

The design they eventually chose was for an infant warmer, which looks like a mini sleeping bag. They made it with a material that retains heat, so parents can throw it into a pot of boiling water to get hot and retain the heat for a few hours. The baby is wrapped tightly inside the warmer, with a unique hood to keep the face exposed which still heats the baby's head. The baby is kept warm for the time it takes for the parents to reach the nearest hospital, even if it's a few hours away.



Diagram of a portable baby incubator prototype called "Embrace."

The students who undertook this project didn't stop with a prototype. They formed a company called "Embrace" and started manufacturing the product, which sells for a mere \$25. Embrace now has programs in 11 different countries and has helped over 50,000 premature and low birth weight infants.

And all it started with the design thinking process.

The five principles of design thinking

Empathize

"Empathy makes you a better innovator, the most successful products we have created come from the ability to meet the unmet, unarticulated needs of customers."

Satya Nadella, CEO Microsoft

Many companies use design thinking (or a variation of it) to develop new products and services.

Microsoft specifically focuses on the design thinking process when creating products for everyone to use – including people with disabilities, like blind or deaf people. This is called "[Inclusive Design](#)".

Use the [video controls to interact](#) with the video.

As with the story of the \$25 Embrace baby incubator, the team needed to reframe their thinking around the problem after focusing on the user-centric research they performed in Nepal. They consulted the experts (doctors) and the people impacted the most by the problem (the parents) to understand and empathize with their situation. The students immersed themselves in the users' physical environment to gain a deeper and personal understanding of the issues and motivations that brought them there in the first place.

Empathy allows design thinkers to put aside their assumptions to gain true insight into users and their needs.

Define

As with the empathize phase, defining the problem statement must be a human-centered process. This is why we start the design thinking process with empathy. Once you understand your users, their motivations and goals, you can gather that information to build the problem statement based on their needs. You should not define the problem as your own desires or your company's needs. Instead, you should use your newfound perception of the users' needs and phrase the problem statement accordingly.

Ideate

Now that you have defined the problem, you can collaborate with your peers and the customer to ideate solutions. Ideation is another way to say that you brainstorm as many ideas as possible to start coming up with viable solutions. Ideation sessions work best when teams strip away job titles and egos to collaborate as equals. Diversity of ideas unlocks paths to novel solutions. For example, a CEO might not have the perspective of an executive assistant that leads to useful input on a new design or solution.

Rules for brainstorming

Select a card to flip it over.

Encourage wild ideas	Build on the ideas of others	Stay focused on the topic
Be Visual	One conversation at a time	Go for quantity

It's the wild ideas that often create real innovation. It is always easy to bring ideas down to earth later!	Think in terms of 'and' instead of 'but.' If you dislike an idea. Challenge yourself to build on it and make it better.	You will get better output if everyone is disciplined.
Try to engage the logical and the creative sides of the brain. A quick sketch can help make your idea more understandable to someone else.	Allow ideas to be heard and built upon.	Set a big goal for a number of ideas and surpass it! Remember, there is no need to make a lengthy case for your idea since no one is judging. Ideas

It's the wild ideas that often create real innovation. It is always easy to bring ideas down to earth later!

Think in terms of 'and' instead of 'but.' If you dislike an idea. Challenge yourself to build on it and make it better.

You will get better output if everyone is disciplined.

Try to engage the logical and the creative sides of the brain. A quick sketch can help make your idea more understandable to someone else.

Allow ideas to be heard and built upon.

number of ideas and surpass it! Remember, there is no need to make a lengthy case for your idea since no one is judging. Ideas should flow quickly.

Prototype

A prototype is a first draft, "mock-up," or rough model of something built to test a concept or process. The following image displays several prototypes of Braun electric razors.



Prototypes of Braun electric razors.

The prototyping phase is not an isolated step in the design thinking process. You build each prototype based on the germination of an idea for a solution that transpired from the ideation phase. The prototype is a physical or digital manifestation of ideas that serves as a hypothesis that you and the users must test.

Prototypes should be inexpensive to create, and you can think of them as rapidly constructed proofs of concept.

The solutions identified during the first three phases serve as parameters for building the prototypes.

By the end of this phase, we want to determine the best possible solution out of our pool of options.

To do this, we work from a process of elimination; build the prototypes one by one, evaluate their effectiveness, then improve or reject them based on users' experiences.

Test

Although design thinking diagrams show testing as the final phase of the process, the results that testing uncovers drive iterative innovations to the ideation and prototyping phases. Each iteration through building new or refining existing prototypes, testing them, and brainstorming improvements based on lessons learned leads to a better understanding of how people perceive, behave, think, and feel toward the product. These loops through each phase of the design thinking process lead to a more profound knowledge of the product or solution and its users.

From <https://learningplayer.microsoft.com/rgcontents/45437/scormcontent/index.html#/lessons/aF0inJrCIVPTmJa_pJff8MUu849g66e>

The ADS process typically begins with a scoping call to gather the initial requirements and gauge whether an ADS is the appropriate next step. During the scoping call, you may realize that an ADS is not the proper engagement with the customer. Perhaps they don't clearly understand their business process or want to understand Microsoft's services better. In these cases, there are alternatives to the collaborative problem-solving approach of an ADS, such as:

From <https://learningplayer.microsoft.com/rgcontents/45437/scormcontent/index.html#/lessons/91_Igk2k_PVNVS2ErSEiomGAB6-O3L>

Why do we need an ADS?

Imagine a scenario where a medium-sized business wants to modernize its data warehouse and web applications by migrating to and taking advantage of the cloud. They currently operate a data center with an IT staff that maintains servers, manages their data, and develops applications that they deploy to those servers. No one on their staff has cloud expertise, and they have researched enough about cloud-based solutions to come up with a preliminary plan for migration. Still, they are not confident that they can successfully execute their plan without putting their data at risk and wasting valuable time that they need to keep operating their day-to-day business.

The company contacts Microsoft because they have an Enterprise Agreement, and moving to Azure makes the most sense from the other cloud offerings. They do not have the expertise they need to successfully migrate to Azure and take full advantage of the cloud. You are the expert.

From <https://learningplayer.microsoft.com/rgcontents/45437/scormcontent/index.html#/lessons/91_Igk2k_PVNVS2ErSEiomGAB6-O3L>

This scenario echoes the challenges of countless organizations struggling to evaluate, envision, plan, and execute their cloud strategy. Conducting an ADS helps formalize the process of guiding organizations through these challenges, bringing together Microsoft experts and correct representation from the customer (more on this later) in a collaborative environment that demonstratively produces results.

How does an ADS work?

Now that we understand an architecture design session's high-level goals, let's dive into the mechanics of a typical session.

Let's revisit our fictitious scenario once more:

From <https://learningplayer.microsoft.com/rgcontents/45437/scormcontent/index.html#/lessons/91_Igk2k_PVNVS2ErSEiomGAB6-O3L>

A medium-sized business wants to modernize its data warehouse and web applications by migrating to and taking advantage of the cloud.

Step 1

First contact



ChtDSQzVMVlzz5Go-M365CO22_Ideation_003.jpg

The customer has a goal. In our scenario, they want to migrate to the cloud and modernize their data and application solutions. The first contact can come in the form of an initial email or a phone call but ultimately results in what is often called a **scoping call**. This call is where you or someone in your organization captures the initial details and, ideally, enough information to determine whether an ADS is the correct next step.

1 2 3 4

Step 2

Planning



Z-Q27P9VGseSTQBF-M365CO22_Ideation_004.jpg

If conducting an ADS is the appropriate next step, you spend ample time documenting what you know about the customer's current situation and goals. You assemble your team to deliver the ADS to ensure you have your side's correct technical and business representation. You may start gathering relevant sample architectures or build an initial candidate architecture to use as a starting point during the ADS. Finally, you figure out the logistics of where and when to conduct the ADS and who should be involved.

1 2 3 4

Step 3

Delivery



FOGO7TQAMJew0gMs-M365CO22_Hub50_005_CMYK.tif

Now comes the fun part! The ADS delivery can take place over one to multiple days and is a highly interactive engagement with the customer. During this time, you dig deeper into the customer's current state, vision, and possible execution plan, create candidate architectures, and ultimately obtain signoff from the stakeholders for the next steps.

1 2 3 4

Step 4

Fortune is in the follow-up



LjW4gFX99LToHz6W-WIN22_HybridWork_014.jpg

The ADS process does not end with the delivery. Immediately after delivering the ADS, you need to follow up with the participants to share your notes, distribute cleaned-up architecture diagrams, figure out follow-up meeting details, formalize the agreed-upon next steps, and deliver the expected artifacts.

In our fictitious scenario, we want the customer to have a concrete plan for migrating to Azure. The plan includes how they will upskill their team to operate in the cloud effectively, the most likely cloud architecture and/or hybrid architecture across the appropriate number of phases, and how Microsoft can directly support their effort or bring in a partner to assist with the migration. Ultimately, they understand the best way to take advantage of the cloud and modernize their data estate and applications.

1 2 3 4

There are three primary phases of an ADS:

Select a card below to flip and learn more.

Phase 1:
Preparation

Phase 2:
Delivery

Phase 3:
Follow up

You will need significant time for planning prior to the engagement and for collaboration during the engagement.

You will identify the opportunity and current state, whiteboard, and develop possible solutions for the future state, and propose an implementation plan.

An ADS is one effective way to land on a shared vision and scope.

Preparation

A successful architecture design session relies on preparation. After the ideation or opportunity definition session, perform the following checklist of items to prepare for the ADS:

Schedule a time	+
Schedule a location	+
Schedule resources	+
Build an agenda for the ADS delivery	+
Prepare preliminary documentation and architectural diagrams	+
Do your homework about the customer and their industry	+

You should typically plan on 1-2 days for a design session

- If you are planning an in-person ADS, ensure you have whiteboards and a projector
- If the ADS is virtual, establish the meeting platform (such as Microsoft Teams) and make sure that attendees have ample bandwidth for a video-based call and working audio/video equipment
- For hybrid deliveries, where there is a mix of in-person and virtually-connected attendees, you have additional considerations:

- When attendees are scattered between those meeting on-location, people connecting virtually from home or an office, and even attendees remotely connecting from another in-person location like a branch conference room, people can feel left out if they don't have a way to interact easily. Instead of working with physical whiteboards, use digital options like Microsoft Whiteboard or Klaxoon. Use a projector for on-site attendees to easily see the shared whiteboard, and encourage them to bring a laptop to interact with remote attendees in real-time.
- Make sure the on-site and remote conference rooms have a projector and audio/video equipment with a high-quality conference call-type microphone that clearly picks up the voices of all participants in the room
- Coordinate breaks across time zones and establish meeting reconnect procedures in case anyone gets disconnected from the call
- Designate a spokesperson/coordinator from each location where there is more than one attendee to prevent situations where people try to speak over one another to get their point across

Experts from your team and a cross-cutting panel of technical and business stakeholders from the customer

Establish milestone goals in advance so that the ADS doesn't get consumed discussing a single topic

- Gather any architecture diagrams of the existing state that the customer shared with you
- Create a baseline architecture; even if you only have the basic building blocks, it's good to come prepared with something you can modify during or after the session
- Review the architecture for the project's workload, industry, and technology, and prepare to explain any gaps
- Create or find relevant demos; this leads to greater agility when the customer asks about specific Microsoft products or services, especially in the context of competitive offerings or your proposed architecture

- Study any public information that you can find about your customer's organization, including their history, their customers, product types, future plans, and financial reports
- Research the people filling different roles in the company, especially those who will participate in the ADS; plan to find common ground and understand their background and strengths
- Understand the organization's industry, including recent news that you can bring up during the ADS to establish a rapport or to add more relevance to your conversations
- Learn common terminology in the organization's industry so you can better understand the business context during the discovery phase of the delivery

From <<https://learningplayer.microsoft.com/rgcontents/45437/scormcontent/index.html#/lessons/QungFZeOo7lc-VN7au7xTSIR8UJM7k>>

Delivery

At its core, the delivery outcomes are to:

Confirm	+
Conduct	+
Facilitate	+
Document	+

Confirm the objectives and validate the agenda that you created during the preparation phase

Conduct a detailed discovery session:

- Do a deep dive into the customer's challenges and their current state
- Understand their business and technical requirements
- Record the current state and stakeholders

Facilitate

—

Facilitate an envisioning session:

- Help the customer envision potential solutions with available technical capabilities
- Identify upskilling opportunities to enable the customer to execute the plan and/or maintain the new architecture
- Drive to consensus on the best possible solution
- Identify and define POC or Pilot opportunities

Obtain and document customer confirmation and engagement for the next steps

From <<https://learningplayer.microsoft.com/rgcontents/45437/scormcontent/index.html#/lessons/QungFZeOo7Jc-vN7aul7xTSIR8UJM7k>>

The discovery session

The discovery session is one of the first and most important steps during the delivery. Understanding the customer state to the greatest degree possible helps you avoid making improper assumptions and gives you the knowledge to devise a best-suited plan for their needs.

During this session, your primary objectives are listening, asking detailed questions about their environment and business processes, and documenting the information. **Avoid solutioning** during this phase. Technically-minded people tend to come up with solutions during these conversations. The critical thing to remember is that you are there to ask questions and fully understand the current state. Coming up with solutions happens later during the process, starting with the envisioning phase.

Discovery Preparation

As you prepare your questions for the discovery session, keep the following goals in mind:

- Ensure customer background and business strategy are understood
 - bullet Clarify the project background and its drivers/aims
 - bullet Cover the technology landscape
 - bullet Go over the usage scenarios for the solution from the perspective of their internal and external users
 - bullet Collect functional and non-functional requirements

Use the following guidelines when preparing your questions:

Ensure the customer background and business strategy are understood

Click to flip ↗

Clarify the project background and its drivers/aims

↗

Cover the technology landscape

↗

Go over the usage scenarios for the solution from the perspective of their internal and external users

↗

Collect functional and non-functional requirements

↗

Identify security considerations (TLS, identity, authorization, etc.)

↗

Work with the account team or research their market and any key drivers they may be facing to modernize or migrate. Look for public statements and news articles about company direction. Also, take the time to see what MSX details we have on the customer, including success engagement and opportunities.

For the requested discovery session, try to ensure you have a firm grasp of what the customer is trying to accomplish. After completing the work, what will they have achieved both technically and for their business?

- Do they require a hybrid solution or 100% cloud?
- What is the team's current technology competency if they maintain the solution?
- Has the customer proposed technologies they'd like to use?

With the information you have, try to gain perspective of the users who will be using or dependent on this system or solution. What will their experience be? How is it today?

F and non F requirements:

The customer may provide this ahead of time, but often you'll need to gather these details. It is certainly something to ask for in preparation for the discovery session, and the customer may be organized enough to have it available. Depending on the scenario, you may need to work with the customer to develop a plan and help them gather these details.

Identify security considerations (TLS, identity, authorization, etc.)

- This is the shortest line item with the most critical implication for success. Whether it's coming from on-premises to the cloud or figuring out how to enable external users to access an application, ask the customer if they have an access and authorization strategy in place.
- Identify external connections and integration points (APIs, business intelligence).

Compliance considerations (HIPAA, PCI, GDPR, etc.)

Compliance requirements have a strong influence on the solution design. Depending on the compliance rules, for example, you may need to add extra security measures, think about what type of data you store, the level of encryption, and where you store the data.

The envisioning session

Following the discovery session, you clearly understand where the customer is starting from. The envisioning session is your opportunity to help the customer define where they need to go. Remember, you are the expert that can help the customer understand the art of the possible. Your knowledge of Azure and other Microsoft products and services and your understanding of cloud architecture are vital to driving the proposed future-state discussion and whiteboarding process.

From <<https://learningplayer.microsoft.com/rcontents/45437/scormcontent/index.html#/lessons/0ungFZeOo7Jc-VN7auI7xTSR8UJM7k>>

Envisioning checklist

The envisioning portion of the ADS delivery is a brainstorming process between you, your team (if applicable), and the customer. As you drive this conversation, be sure to cover the following items:

- Key functionalities and capabilities of the solution to meet functional requirements and goals
- Components of the proposed solution (e.g., app services, data services, client-side software, identity services, etc.)
- Security considerations (TLS, identity, authorization, etc.)
- Compliance considerations (HIPAA, PCI, SOC 1/2, GDPR, CCPA, etc.)
- Identify external connections and integration points (APIs, business intelligence)
- Map requirements and scenarios to the components of the proposed solution
- Identify and define POC or Pilot opportunities

Follow-up

During the ADS, you and your customer planned a high-level architecture and conceptual design for a solution that addresses their organization's business goals and technical requirements. After the ADS, you'll deliver the following:

- bullet Summary of the ADS engagement with the customer, including the agreed-upon project goals, requirements, and concerns
- bullet A proposed timeline of solution deliverables, including deliverables for POC or pilot if applicable
- bullet Final architecture diagrams for the customer to sign off (Visio, PowerPoint illustration, etc.)
- bullet Special areas of concern, such as security, compliance, and compatibility
- bullet Proposed Microsoft and open-source/3rd party technologies to be used for the solution, listing any trade-offs amongst differing technology options
- bullet Complete a deployment plan with specific examples, covering development, staging, and production targets where applicable
- bullet Showcase the capabilities of your solution to deliver business value on-premises or in the cloud

Try to minimize the time between delivering the ADS and sending your first email to the customer. Establishing the communication protocols and sharing the ADS artifacts right away is crucial to fostering a solid relationship with your customer.

Best practices of an ADS

Dealing with customers

We all want pleasant interactions with our customers, which is what we should strive for. However, that won't always be the case, and we should be prepared and have some tools for dealing with a demanding customer. If we happen to have an unpleasant interaction with a customer, below are some things we can do to help alleviate the situation:



Listen

Try to truly hear what they are saying. Empathy goes a long way in a positive customer support role. Try to understand what they are saying even if they aren't explicitly saying it. Never try to talk over or argue with them, and never cut them off, even if you know what they are about to say. This is the basis of building a favorable rapport with a customer.



Stay calm

If a customer is agitated, responding in kind is never the solution. Take as many deep breaths as needed and act like whatever happened never did. Remember, whatever is agitating the customer more than likely has nothing to do with you.



Empathize!

Remember, they are human, and we are all bound to have bad days. Never take anything said personally. Act as if everyone is watching at all times. Listening and staying calm are critical parts of empathizing with what a customer may be dealing. Be reassuring without being condescending.

Necessary preparatory work

When we show up to the present moment with all of our senses, we invite the world to fill us with joy. The pains of the past are behind us. The future has yet to unfold. But the now is full of beauty simply waiting for our attention.

Ensure the customer is ready

+

Identify the proper stakeholders

+

Know the client

+

Just because we feel the customer is ready for an ADS doesn't always mean they agree. There are other times when they may think they are, but we feel they aren't. A meeting to discuss this with the customer is a significant step as it can avoid wasted time and helps build rapport with the customer.

Find out who needs to approve and who can champion the project internally.

Review as much publicly available information about the client as possible. Know their competitors. Did they just do a modernization project? Have they recently spent a lot of money on IT-related investments? These things can give you insight into why your client may be inclined to do something.

What happens when requirements change

Doug Baldwin says, "Change is inevitable; change will always happen, but you have to apply direction to change, and that's when it's progress." While we would love for situations to stay the same and follow set paths, that isn't always the case. Requirement changes aren't always bad and sometimes can be great! Here are a few things we can do when our requirements change:

Get the new requirements

+

Find out if the timeline change changed

+

Try to find out why

+

While this may seem obvious, we can too often fall into the trap of knowing that our requirements have changed and even understanding why but never getting concrete language and updated documentation on the new requirements. We can't lose sight of the most crucial piece, the requirements.

Often, when requirements change, it is spurred by something in the organization that has caused a change in the timeline. Always verify the timeline after any conditions change.

Did the budget change? Was someone replaced? Did an audit happen? Knowing why the requirements changed can help you focus on a customer and ensure that their new needs meet their goals.

Dealing with intracompany conflict

A lot of company structures have departments that may cause overlap in a project. It's only natural to see corporate versions of "turf wars." What can you do if you

encounter this?



Do not take sides

Taking sides is the absolute worst-case scenario. Regardless of how much you may like a customer or they like you, it would be best if you remembered that you are the company's vendor, not the person. Forgetting this and choosing a side can only backfire on you and the company.



Try to listen to all sides

Being empathetic while remaining the voice of the expert is the goal. Listening to all sides allows you to hear what the company truly wants and needs.

Knowing when and how to use the parking lot

When you are on a focused topic and a customer brings up an idea that may not be 100% related, you should understand and use the parking lot. The parking lot isn't just a place to keep the conversation on track, but a place to help keep the focus on the topic while still acknowledging the idea or concern. This simple act underscores your desire to hear the customer and track the input for action at a later time.

Explain its purpose upfront



Ensure the parking lot is visible



Make sure you address the parking lot issues before you end the meeting



You want the customer to know what it is and how you'll use it before the meeting.

The parking lot allows everyone to see the issue to prevent repeats and give the requestor acknowledgment that they've been heard.

Addressing these issues allows you to schedule any necessary meetings and ensure that you and your team cover the additional topics as part of the follow-up communications.

How to get the right people in the room

Identify decision-makers, skill-sets, and personas (if possible). Try to get the people you need for signoff and people that can add value to the ADS. If you know there are some extreme politics at play, take that into account in who you invite.

Do not duplicate skill-sets if possible.

Getting the right people in the room is vital so all participants can make the most of that time.

Power leaves early

Because of the strain on their time, you need to show you can solve their problem quickly without any added fluff to get their signoff before leaving.

Where is the best location to have the ADS?

Understand that while there isn't one right place to have an ADS, there is the correct place. That could be at the client site or a Microsoft demo center. Some things to note and keep in mind when scheduling:

Do the stakeholders spend a lot of time outside of the office? +

Have you hosted the stakeholders in the past? +

A benefit of having the ADS outside the office is that you can be confident that you will likely get all the time allotted to participants with no walk-up interruptions. A benefit of having the ADS at the company is that you can guarantee more people may be available, but you may have to deal with walk-up interruptions.

If so, the stakeholders may regularly travel to outside locations for appointments, and you can use this fact to more easily get them to a Microsoft location outside of the office.

Having built up a rapport previously with the customer is a great way to gauge where you can hold an ADS.

How to scale the ADS

Many ADS deliveries involve more than just you and one or two other people from the Microsoft side. Depending on the customer's requirements, you may need to include additional subject matter experts (SMEs) to help address and design aspects of the architecture you lack the knowledge to tackle. For example, suppose your expertise is in cloud infrastructure, but the customer has data and analytics workloads and concerns.

It would be best if you considered bringing in a subject matter expert to help you ask the right questions during the discovery phase and design the architecture for the data and analytics components. This example scenario highlights one of the reasons for scaling your ADS. When you need to expand your team to cover several parts of a complex set of requirements, you scale the ADS. While bolstering your ADS with extra help solves problems caused by knowledge gaps, it also adds new challenges. Consider a scenario where a customer wants to modernize their cloud architecture. They previously migrated from on-premises data centers into an infrastructure-as-a-service (IaaS) architecture composed primarily of virtual machines. They manage customer records and some of their internal business data in Dynamics 365. They plan to re-architect and re-platform their deployed applications, databases, and data

processing tools into various platform-as-a-service (PaaS) and serverless offerings. The customer wants to take advantage of event-based patterns and other features cloud-first architectures provide. Understandably, the customer's requirements are quite complex and involve expertise in several knowledge areas. Suppose your primary discipline is in application development, and this is your customer, and you own the ADS. **How do you prepare for and organize the ADS when you have so many moving parts?**

Here are things to consider, keeping the example scenario in mind:

Assess the required knowledge areas	+
Get a subject matter expert (SME) team together	+
Manage technical and organizational responsibilities	+
Plan for additional collaboration review/design steps in the pre, delivery, and post-delivery phases	+
Eliminate redundancies	+
Produce a cohesive solution	+
Be the one voice of Microsoft to your customer	+

Whether the customer provides information about their scenario through a scoping call or other means before an ADS, it is crucial to assess the required knowledge area and determine where you need to involve other team members. In our sample scenario, you would need infrastructure, data, and BizApps experts, to name a few.

Now that you have assessed the required knowledge areas and identified the supporting roles for a successful ADS, it is time to assemble your team of subject matter experts. This step involves coordinating schedules, conducting internal meetings to discuss the customer scenario, and perhaps some initial work creating candidate architectures to bring to the ADS.

When you scale your ADS and involve more people in the process, you need to manage organizational details like who participates in the ADS vs. playing a supporting role before and after the session. Also, consider technical responsibilities like who owns certain parts of the proposed architecture.

Having a larger team means contending with more perspectives on the proposed architecture and the following steps to build it. Even though you add more people to work on a complex problem, it still takes time to review changes, coordinate meetings, go through rounds of feedback and revisions, and ensure everyone's voice is heard.

When different teams work on parts of an architecture in isolation, there is a high probability that aspects of the architecture overlap. For example, in our scenario, one team might tackle connecting to Dynamics 365 from an Azure Synapse Analytics pipeline to load data into the data lake for downstream processing. At the same time, another team adds Azure Machine Learning (AML) to an Azure Synapse Analytics workspace as a linked service to build an AML pipeline that creates a customer retention prediction model endpoint. These two teams initially work in isolation, but both add an Azure Synapse Analytics workspace with a different name. When the teams meet later to go over the proposed architecture, it becomes apparent that having two Azure Synapse Analytics workspaces is redundant. Hence, as a group, you decide to collapse those down to a single workspace.

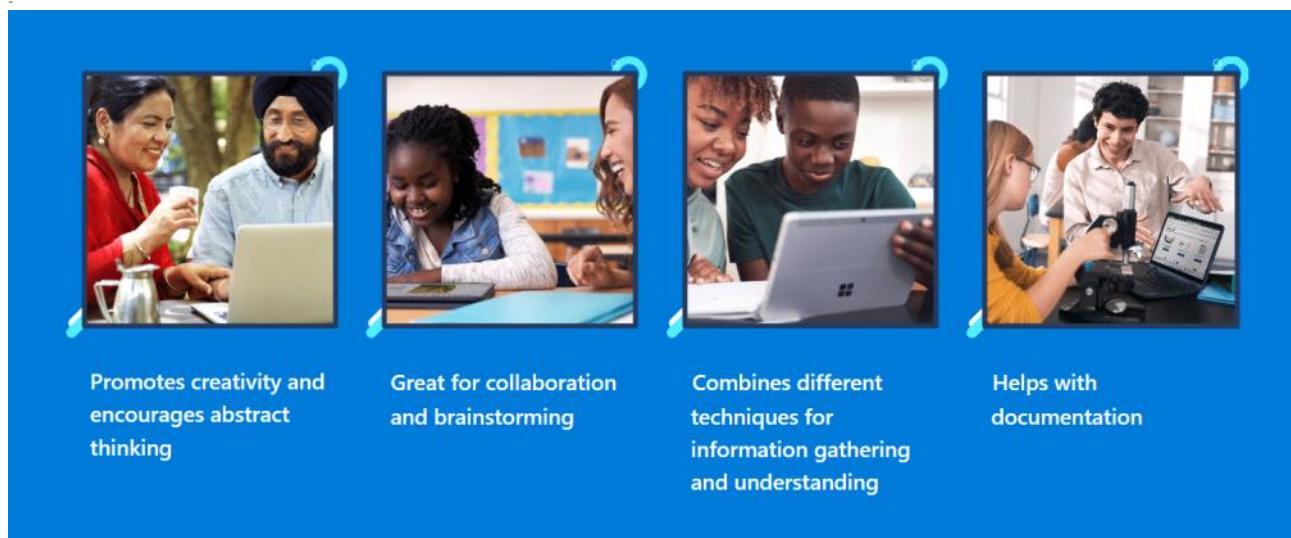
In this same customer scenario, one team might recommend migrating a SQL Server database hosted on an Azure VM to an Azure SQL Database. In contrast, another team assumes that the database would be an Azure SQL Managed Instance when preparing a high-availability, disaster recovery (HA/DR) solution. When the groups meet to document the solution details and prepare the customer presentation, they realize that the lack of communication between both teams resulted in incompatibilities between both parts of the recommended architecture. As the owner of the customer engagement, you work with the team to resolve the compatibility issues and produce a cohesive solution for the customer.

Earlier in this module, we discussed dealing with intracompany conflict when detecting a rift in the customer's organization. However, the conflict could be on your side if your team members contradict one another or present competing agendas to the customer. A lack of solidarity within your team can erode your customer's trust, and you appear disorganized and could come across as incompetent in those scenarios. Instead, you should address such issues internally or through side conversations as necessary, so you present a unified, cohesive, and collaborative representation of Microsoft's values to the customer to put them at ease.

Effectiveness of whiteboarding

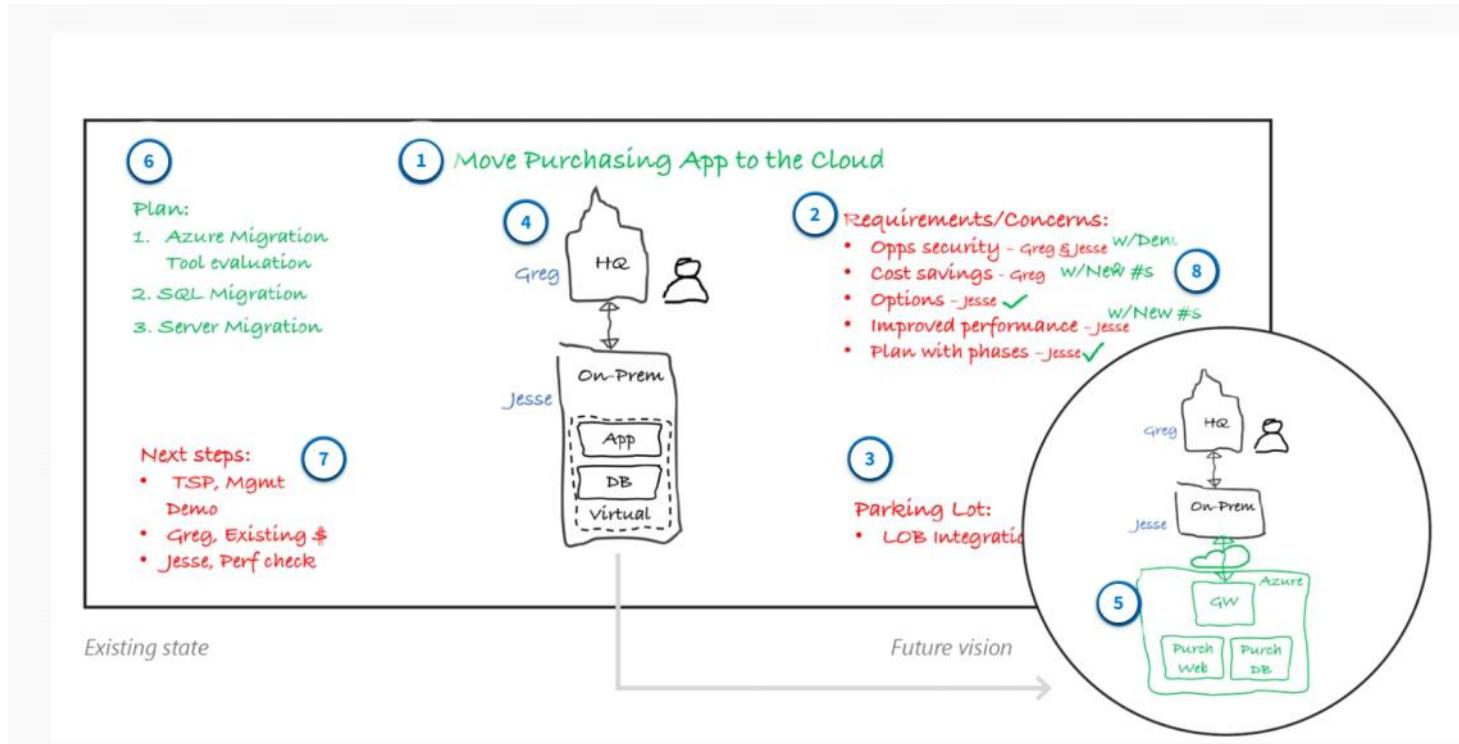
During the ideation and collaboration phases, you will need to work with your customer and your team to brainstorm and capture requirements, ideas, problem definition, future state, and plan of action. To do this effectively, you should use a whiteboard.

There are benefits to whiteboarding as a collaboration process with your peers or the customer. Whiteboarding:



Proven practice whiteboard layout

Consider starting with a proven practice whiteboard layout to help capture the essential components of the collaborative exercise.



Project goal (problem hypothesis)

Write down the project goal to help focus everyone on the desired outcomes.

Requirements and concerns

< >

Begin with the items you've listed from the discovery session. Make sure that everyone gets a chance to be heard. Write down names next to each person's requirements or concerns.

Parking lot

< >

Acknowledge out-of-scope items. Help people set these concerns aside for later and focus back on the topic at hand.

Current state

< >

Diagram the current state and ownership in black. The customer may help diagram this on the whiteboard if they are present for this session. Be careful with technical depth, and focus on the system details that affect the desired design outcomes.

Future vision (solution hypothesis/value proposition)

< >

Capture a high-level view of what the customer really wants in green before diving into technologies. Help customers envision the potential opportunities with Microsoft technologies. If working exclusively within your team, this is where you work together to brainstorm the future state of the project as a whole as well as the selected PoC, pilot, or demo.

Implementation plan

< >

Break the plan into clear steps so each attendee can track the project schedule and budget flexibility.

Next steps

< >

Assign immediate action items during the meeting.

Verify with all stakeholders that their requirements and concerns have been sufficiently addressed with the solution and plan. If working exclusively within your team, verify that each of the needs and concerns is addressed by your selected PoC, pilot, or demo. Close with agreement on the next steps.

Tips and tricks

DO

- Use simple shapes and flows
- Use different colors (if available)
- Take time to listen and confirm your understanding
- Be open to starting again
- Provide space to allow for common understanding before moving on
- Think aloud while drawing
- Pass the pen and/or encourage participation
- Slow down

AVOID

—

- Using complex shapes
- Criticizing drawing styles
- Focusing on the “art” vs. the intention
- Whiteboarding everything (sometimes, it’s not the best medium)
- Letting the technology be the focus (sometimes the best use of time is a napkin, not showing off your Surface pen)
- Drawing a simple shape and then circling it repeatedly or destroying the marker

When to use different whiteboarding or alternative tools

Use a whiteboard/easels when:

- Trying to obtain a shared understanding
- Conveying a complex topic with a small audience (7 +/- 2)
- Looking for a deeper understanding of a topic, flow, or architecture

Use sticky notes, notepads, etc. when:

- You need a low friction way to gather a bunch of ideas quickly (popcorn effect)
- You are looking for a small group decision (voting)
- Quickly combining “like with like”
- Creating a “safe zone” for ideas
- Breaking up a log jam to keep the conversation moving

Use group exercises or alternatives when:

- Gathering quantitative data (i.e., surveys)
- You need additional stakeholders not currently present
- Informing/enforcing learning rather than convincing
- Information is for background, not currently relevant

TOOLS

Whiteboard

<https://whiteboard.microsoft.com/> Download the Windows application or use the web version at <https://whiteboard.microsoft.com/>. If you are using Microsoft Teams, select the Share option in the meeting, then select Microsoft Whiteboard under the Whiteboards category. This shares a simplified version of Microsoft Whiteboard directly in teams. If you have guests in the call who are not members of the Microsoft tenant, this is an easy way to share the whiteboard with them to collaborate.

Microsoft Whiteboard has a learning curve, so you should practice using it before employing it in a whiteboarding session with a customer. Here are some Microsoft Whiteboard learning resources to get you started:

- <https://365trainingportal.com/whiteboard/>
- <https://support.microsoft.com/office/use-whiteboard-in-microsoft-teams-7a6e7218-e9dc-4ccc-89aa-b1a0bb9c31ee>
- <https://support.microsoft.com/office/microsoft-whiteboard-help-d236aef8-fcdf-4b5e-b5d7-7f157461e920>

Cloudmaker <https://cloudmaker.ai> This third-party tool provides a fast way to create Azure architecture diagrams (called blueprints) with a full array of Azure icons. You can add members to your organization to share access. Export diagrams in ARM (Azure Resource Management templates), PNG, or SVG formats. When you are done creating a blueprint, add properties to all services, like names, tags, MSI, sizes, etc. Publish the blueprint, go to Pipelines and create a new deployment. Then you can do a direct deployment or have it use Azure DevOps to create deployment pipelines.

Azure icons <https://cds-icons.azurewebsites.net> This is a collection of icons in SVG format you can easily add to Visio or PowerPoint architecture diagrams.

ebsites.net/

Azure icons and glyphs This is another resource for SVG icons and glyphs used in Azure and other Microsoft products and services.

<https://azure.microsoft.com/patterns/styles/glyphs-icons/>

Azure architecture icons An official collection of Azure architecture icons, including Azure product icons, to help you build a custom architecture diagram for your next solution.

<https://docs.microsoft.com/azure/architecture/icon/s/>

Azure sample architectures Jump-start your whiteboarding with architecture diagrams, reference architectures, example scenarios, and solutions for typical workloads on Azure.

<https://docs.microsoft.com/azure/architecture/browse/>

Outcome

Capture your whiteboarding exercise by taking a photo (if physically drawn), screenshot, or exporting the whiteboard. Refine the whiteboard “sketch” in Visio, PowerPoint, or a similar tool, then add it to the customer presentation and share the artifact as a separate document.

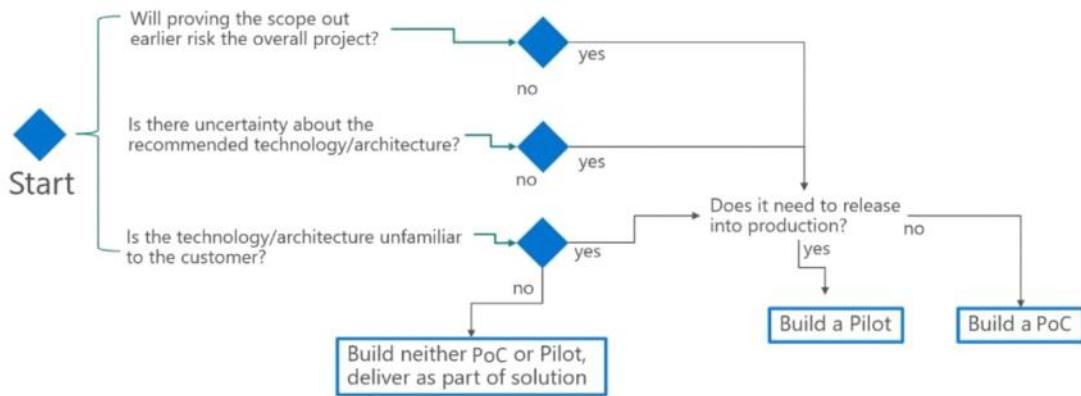
Decide between a PoC or pilot

One of the outcomes of the ADS is identifying opportunities for a PoC or a Pilot. One of these options should add value to the customer based on their needs and concerns. To help assess prospects for a PoC or pilot, complete the [decision tree](#) below for each PoC or pilot opportunity, then complete the [planning checklist](#) with your team.

There are alternatives to creating PoCs and pilots or jumping right into building the solution. There may be no good opportunities for creating a PoC or pilot. Before committing to designing and building a solution with your customer, you should ensure this is the best engagement option. A product briefing or demonstration may better provide information on Microsoft services and offerings.

Decision tree - PoC or pilot?

When choosing between implementing a PoC or a pilot for a given scope, consider the following questions to help you make your decision:



Decision	Answer
Will proving the scope out earlier de-risk the overall project?	Y/N
Is there uncertainty about the recommended technology/architecture?	Y/N
Is the technology/architecture unfamiliar to the customer?	Y/N

If you answered **No** to all the questions above, build neither a PoC nor pilot and deliver as part of the solution.

If you answered **Yes** to any of the questions above, answer the following questions to decide whether to build a pilot or a PoC:

Decision	Answer
Does it need to release into production?	Y/N

If you answered **Yes**, build a pilot. If you answered **No**, build a PoC.

Building a pilot that runs in your customer's Azure subscription is most likely your goal. However, sometimes you need to proof-out to de-risk certain aspects of the design by creating a PoC. There are some benefits to doing this:



Builds confidence



Creates trust



Ensures a successful pilot

As a consultant and advisor to your customer, you most likely want to build a pilot to achieve your customer's goals more quickly. However, do not diminish the value of proofs of concept, as you or the customer may create them en route to the pilot.

A PoC is meant to overcome customer objections by demonstrating the solution will solve the problem for which it is designed. Treat a PoC as a continuous learning and improvement process for the solution. A rapid execution tempo of the PoC helps validate the customer's requirements while giving them confidence in your ability to deliver on your promises. A successful PoC can serve as evidence that your practice can use for future engagements with your customer or new ones. Often, the output of a PoC can be added to your toolbox for demonstrations or used to accelerate future solutions.

Do not confuse a PoC with a pilot

Many fail to recognize the difference between a PoC and a pilot. The difference is simple. **A PoC should never go to production.** When you create a PoC, you usually do not build an entire solution but parts of the solution that you must prove or validate. Because the PoC does not have a path to a production release, we do not apply the same best practices for optimal performance and stability.

A pilot, on the other hand, is built for production. However, it is deployed in a phased approach with initially a subset of users, expanding the customer base over time.

Planning Checklist

As you conduct the ADS and evaluate POC or pilot opportunities and requirements, be sure to do the following:

- Establish proof points
- Identify exclusions, risks, and issues (refine solution functionality)
- List project pre-requisites (legal, funding, technical, etc.)
- List required resources
- Note long-term project plans (continued maintenance, training, handover to customer's technical staff)
- Establish parameters of communication (primary proof-testing, preferred means of communication, frequency of meetings, whether conducted in person or virtually, and how often)
- Identify candidates for technology or design POC/prototype
- Identify an opportunity for a pilot
- Consider if POC or pilot is appropriate as the next step
- Establish solution deliverables, including for POC or pilot if applicable

Outcome

Create a document or add slides to your customer presentation that lists and describes the candidate PoC, pilot, or a demo for this engagement.

What is Active Listening

- Start from here [Architecture Design Fundamentals \(microsoft.com\)](#)

We want to ensure that we truly hear what our customers say to us through verbal and nonverbal communication. One way we can ensure we accomplish this is to use active listening. Wikipedia **defines active listening** as “the practice of preparing to listen, observing what verbal and non-verbal messages are being sent, and then providing appropriate feedback for the sake of showing attentiveness to the message being presented. According to a study conducted by Albert Mehrabian, 55% of communication is non-verbal. Non-verbal cues such as tone, inflection, gestures, and facial expression provide the listener with further insight into what the speaker is trying to convey”. We will discuss how to implement active listening with our customers effectively.

Implement active listening techniques to uncover the optimal solution for a customer

These are the main components of active listening that we will use with our customers:

Comprehension



Retaining



Responding



Comprehension

The first step in the listening process is comprehension. According to Wikipedia, “Comprehension is a shared meaning between parties in communication.” You can help prepare yourself for better comprehension by preparing for what you expect to be said, organizing what the customer communicates, and summarizing it back to the speaker. Comprehension is also picking up on not just what the speaker says but how they say it. There can be cultural norms too that can give clues for comprehension.

Retaining

The second step to active listening is remembering the information shared. Retaining information doesn't mean cramming every bit of new data. As you already know, memories are fallible. Don't try to pack everything you've heard, as the brain has a limited capacity to process multiple things at once, but focus on critical items and overarching themes.

Responding

Listening isn't one-sided. It's an interaction between you and the other person. The speaker will pick up on verbal and non-verbal clues to see if you are listening. The speaker will then adapt to this input and may adjust their communication.

Three steps to help with your response are below:

- Paraphrase: Repeat what the speaker said in your own words.
- Clarify: Ask questions to ensure you truly understand what they said.
- Summarize: Return the main points of what you've heard back to the customer and the intent of the message you received.

However, we can do more and show our customers that we are active listening using non-verbal cues:

From <https://learningplayer.microsoft.com/rgcontents/45437/scormcontent/index.html#/lessons/41_depYDd47zQ2--slchu9L4yk8O8jk3>

Smile:

You can use slight smiles while the customer is talking to communicate happiness and agreement with the information they convey. You can add head nods to drive home further this non-verbal cue.

From <https://learningplayer.microsoft.com/rgcontents/45437/scormcontent/index.html#/lessons/41_depYDd47zQ2--slchu9L4yk8O8jk3>

EyeContact:

While eye contact is always good, too much can be very intimidating. Find the happy medium and apply that amount of eye contact while the customer speaks. Eye contact and occasional smiling and head nods can convey positive messages to the customer.

From <https://learningplayer.microsoft.com/rgcontents/45437/scormcontent/index.html#/lessons/41_depYDd47zQ2-schu9L4yk8O8Ik3>

Posture

Your posture is one of your strongest non-verbal statements. You can show disinterest or other negative signals with bad posture. Lean slightly in or to one side as the customer is talking and potentially rest your head on your hand. Try to gauge how your posture is received and adjust for the best results.

From <https://learningplayer.microsoft.com/rgcontents/45437/scormcontent/index.html#/lessons/41_depYDd47zQ2-schu9L4yk8O8Ik3>

Some verbal clues that we can use to be active listeners are as follows:

Remembering



Questioning



Summarization



Remembering

If you've had any previous interactions with the customer, bringing those up can help prove that you've listened to them in the past and encourage them to speak more in the present. Continue this throughout the conversation, and make sure to use their name and reiterate crucial points as they talk.

From <https://learningplayer.microsoft.com/rgcontents/45437/scormcontent/index.html#/lessons/41_depYDd47zQ2-schu9L4yk8O8Ik3>

Questioning

Asking relevant questions at the appropriate time shows that you have been listening and are actively engaged with the customer. This gives them peace that they are being heard and helps you clarify essential points to ensure you didn't miss them.

From <https://learningplayer.microsoft.com/rgcontents/45437/scormcontent/index.html#/lessons/41_depYDd47zQ2-schu9L4yk8O8Ik3>

Summarization

Repeating what you've heard from the customer is vital for both you and the customer. The customer gets to listen to what they've said and can then add or modify if they didn't convey what they wanted, and it gives you the chance to ensure that you have everything so you can deliver positive results for the customer.

From <https://learningplayer.microsoft.com/rgcontents/45437/scormcontent/index.html#/lessons/41_depYDd47zQ2-schu9L4yk8O8Ik3>

Apply active listening skills to customer situations

1 Actively track what your customer is saying. Provide constant feedback with statements such as "I see" and "I understand." These are called "tracking statements" that let your customer know you are following the conversation.

2 Don't interrupt for any reason.

3 Avoid distractions. Turn off your cell phone if possible, which you can do conspicuously to let the customer know they have your full attention.

4 Repeat what you've heard. Doing so has the added benefit of allowing the customer to listen to your interpretation of what they said and make adjustments if necessary.

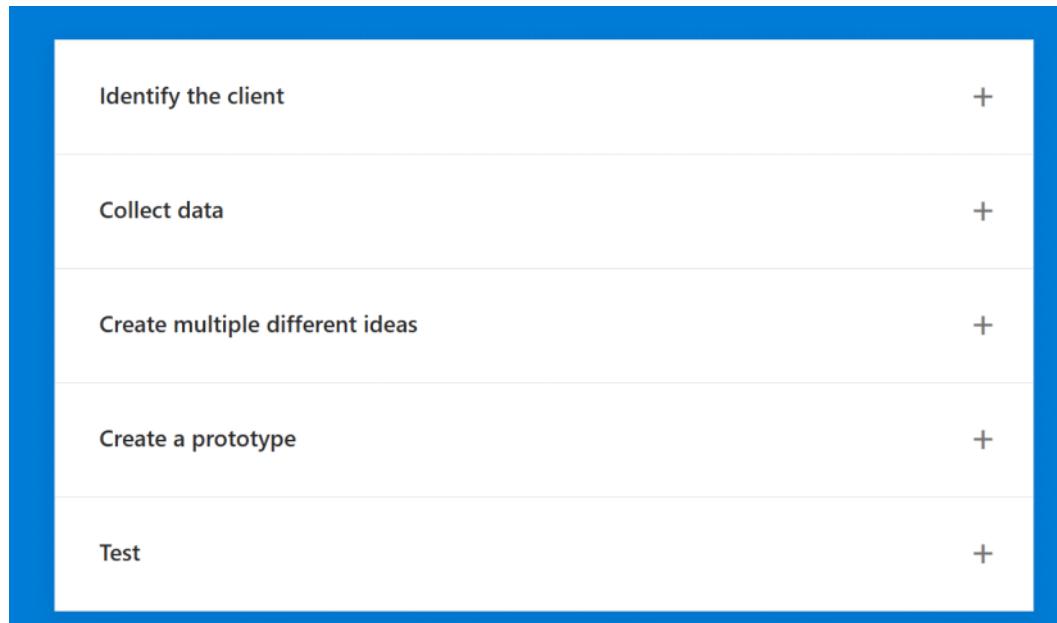
5 Ask questions. This will help both you and the customer clarify the problem and help find solutions.

6 Never become defensive or argue. A customer is still human and can have a bad day. They may take it out on you, but listen to their issue and know it's not personal.

7 Be empathetic. Show the customer that you understand their needs and concerns. Be their hero. Build trust. Be personal and relate with your customer if possible.

Design thinking exercises

You learned the five design thinking principles at the beginning of this module. Now that you have completed ADS fundamentals and active listening topics, let us combine these principles through a simple design thinking exercise. Use the design thinking process to create the perfect house for your client.



Identify the client

—
List your target audience here. Your chosen audience can be friends, family, or coworkers – be as specific as possible.

Collect data

—
Interview your client to understand their needs/preferences. Use questions such as:

- Do you like large or small spaces?
- Do you like light or dark areas?
- Do you like privacy or shared spaces?
- How much time do you spend outdoors?
- Are you more comfortable in hot or cold temperatures?
- What is your daily routine?
- Do you have any physical limitations?
- What do you like/not like about your current house?

Use active listening skills to acknowledge their requirements and concerns. Empathize with them to better understand their perspective and needs. Do not make assumptions based on what you already know about your client.

Create multiple different ideas

—
Using rough sketches, create several ideas and options for your client and present them to understand which qualities/features your client prefers. Think big! Do not constrain yourself at this stage, and do not spend too much time creating these sketches – at this stage, the ideas should convey only the minimum details.

Create a prototype

—
Using the medium of your choice, create a prototype house that meets all the criteria specified by your client.

You can build this prototype using:

- A drawing
- Paper structures
- Visio diagram
- Any other tool you are comfortable using.

Test

—
Give your client a tour of your prototype house. Ask for feedback – what does the client like/not like about your model? If you have time, iterate on the model and re-test. What did you learn in subsequent rounds of this process that you would not have if you skipped straight to the final product?

CAF

Friday, March 3, 2023 2:26 PM

Short Explanation:

The CAF is our comprehensive guidance on how to deliver a successful cloud implementation. It's a set of guidance and processes to help provide structure to the considerations and decisions needed when choosing to adopt Cloud Services as part of an organization's IT strategy.

[GearUp Portal \(microsoft.com\)](#)

To be successful with the Ready methodology we set some tools and guidance Ready sits at the center of the CAF. It's the point where the customer is make their first technical decision and start to shape what the Cloud Environment will look like. The Crown jewels are the Azure Landing Zones, which are a big part of the Cloud Adoption Journey. We continuously refine the We have the AZL conceptual architecture. We include this to help customers, and we recognize that every ones requirements are subtley different, so it should be taken and adjusted where needed to make sure it's a great fit for how organizations need to deliver their services.

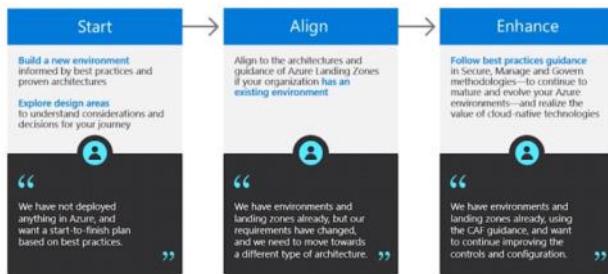
Building these Cloud Architectures, how?

We highlight ref arch and implementations within the AZL section, that can help cmrs get to a great outcome. Example: ALZ Accelerator, Azure portal based implementation based implementation based experience, that delivers a fantastic set of opinionated configuration that distills down a huge amount of experience into a deployment process that is intended to help customers start quickly. To be found on the front page of the ALZ section in the CAF.

The journey to that target architecture:

START (GREENFIELD) | ALIGN (BROWNFIELD) | ENHANCE based on new requirements like adding additional Security,...

Assess the stage of your cloud journey



There is content for this in the CAF Ready methodology today.

So we pick you up wherever you are.

Common examples, ways customers are using this to be successful:

Think about how customers take their first steps, similar to constructing a building. The design and architecture are important step and starting with strong foundations is vital to supporting this building as it grows upwards. Same is true with cloud environments, the design and first decisions set strong foundations to enable safe and scalable growth through migrations or innovation with new services. Build a fantastic platform with things like Landing Zones.

Hybrid and multi cloud scenarios:

Use Ready methodology to create their Azure footprint as their core and use Azure ARC and Azure Migrate to manage workloads and ultimately move them into these Azure Landing Zones.

- [aka.ms/ALZ](#)
- [aka.ms/landingzonereview](#)

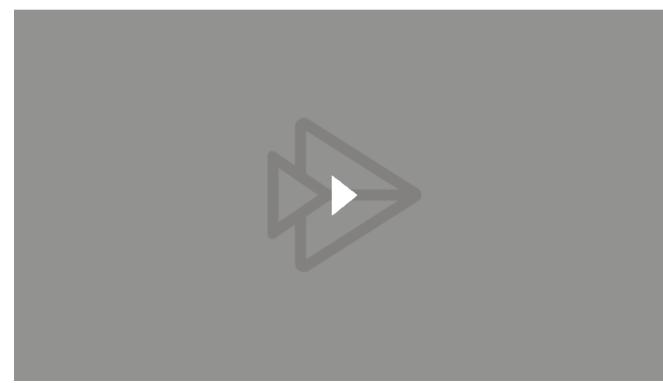
Objectives:

You should be able to:

- 1 Explain how the Ready methodology fits into the overall Cloud Adoption Framework.
- 2 Explain the customer journey with Azure Landing Zones and the concept of start align and enhance.
- 3 Describe the Azure Landing Zone conceptual architecture.
- 4 Describe the Azure Landing Zone design areas.
- 5 Identify investment areas for a new and existing Azure Customer.

The Microsoft End-to-End Security Story lesson provides the learner with an example of how to effectively articulate the strength of Microsoft's security value proposition to a customer.

[Microsoft Stream](#)



Learning Objectives

After completing this lesson, you will be able to:

- **Identify** and describe the four principles of security at Microsoft.
- **Apply** knowledge of digital transformation to begin a customer conversation around security.
- **Identify** strategies to tune transformation pitch to a particular audience.
- **Summarize** "Zero Trust".
- **Discuss** the factors (four) that set Microsoft apart from other security vendors.
- **Explain** the strength of Microsoft's security story.
- **Suggest** options for a customer to get started on their security journey with Microsoft.
- **Define** "Security Posture" and discuss the role of security investment.

- 05:37 and the rates are only accelerating.
- 05:39 Change and transformation
- 05:41 and just the new normal.
- 05:42 Just know that you're not alone in this. Nearly every organization is undergoing some form of significant transformation because customers need companies that can interact with mobile apps and the cloud. With existing market dynamics disrupted, organizations are forced to transform to compete with the likes of Amazon, Uber and traditional competitors that are also digitally transforming.
- 08:16 guidance for securely integrating
- 08:18 cloud and on premises?
- 08:20 As are they receiving questions
- 08:22 from their executive team and
- 08:24 board of directors about media
- 08:26 reports of companies impacted by
- 08:28 ransomware or other attacks?
- 08:30 Is there industry regulated and
- 08:32 therefore requires more extensive change
- 08:35 reviews and auditing by third parties?
- 08:38 Have they experienced an incident?
- 08:40 If so, were they willing to share
- 08:42 the factors that led U to it?

- 19:41 Secondly,
- 19:41 it puts a burden on your security teams
- 19:43 to manage the integration of so many tools.
- 19:46 With that said,
- 19:47 we're not proposing a wholesale
- 19:48 rip and replace.
- 19:50 We share partnerships with some
- 19:51 of those same vendors.
- 19:52 O let's take a look at this together
- 19:54 and see where we can help you optimize.
- 19:56 Make the most out of your security
- 19:59 investment and improve your posture
- 20:01 across your Indian landscape.
- 20:02 Thank you so much for listening.
- 20:04 We hope this will help you prepare to
- 20:06 talk to your customers about security.
- 20:08 This is also a great opportunity to
- 20:10 position yourself as a trusted advisor
- 20:13 while making your customers more secure.
- 20:15 Thanks.

From <<https://msit.microsoftstream.com/video/1ad20840-98dc-b478-9a38-f1e7c732d6d8>>

>

Explain buzzwords

- Digital transformation
- Zero Trust
- Security

Microsoft is here to help your security transformation



Visibility

Microsoft processes over 24 trillion signals every day using advanced machine learning (ML) and artificial intelligence

Expertise

Microsoft employs 8,500 security experts, investing \$5B in the past 5 years and will invest \$20B in the next 5 years on security R&D.

End to End

Integrating security solutions across data, identities, networks, infrastructure, and more

Response

Assist with investigating and recovering from attacks

Take action

- Introduce Microsoft's capabilities
- Provide objective Secure Scores
- Let customer know security experts are ready to help

MIP WAF CAF Assessments

On-the-job training: Microsoft end-to-end security story job shadow

Friday, March 3, 2023 3:29 PM

On-the-job training: architecture design fundamentals job shadow

Friday, March 3, 2023 3:39 PM

On-the-job training: value-based delivery framework job shadow

Friday, March 3, 2023 3:40 PM

We thank you for your affiliation.
The contract and the general conditions have been sent to you by email.
The PCARD+ card will be delivered when we have submitted it and that we have received your final confirmation.

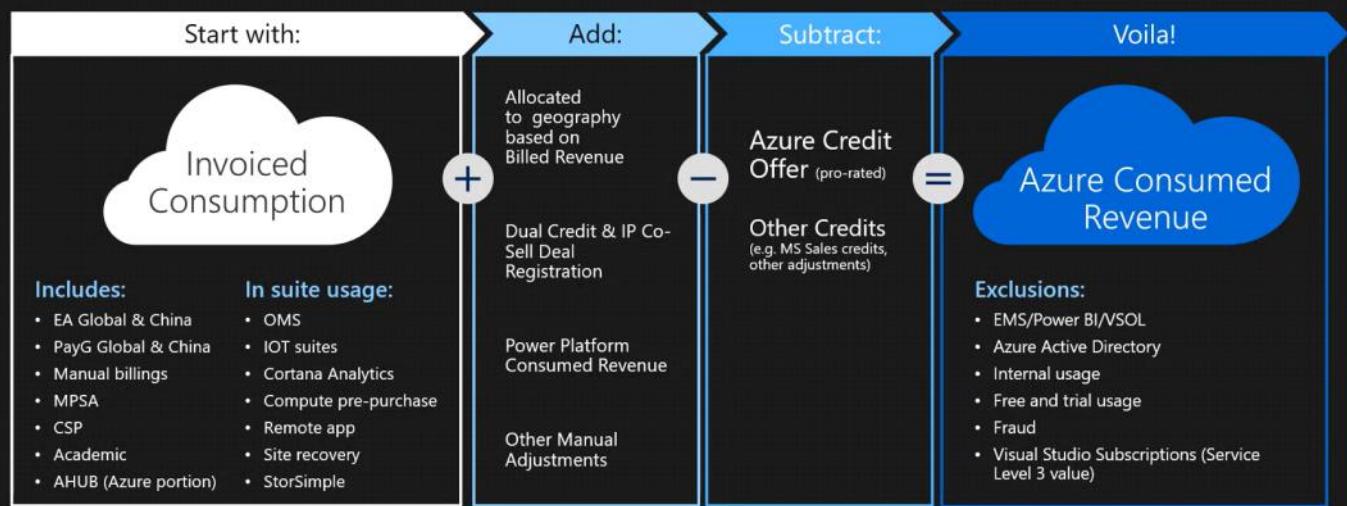
Car Policy:

- Check this within the 2nd week:
For new hires, all relevant information will be available on the Fleet Logistics website, for which they will get an access pass code a few days after they started working for Microsoft. [Company Car Policy Belgium \(sharepoint.com\)](#)
[Travel and transportation \(sharepoint.com\)](#)
- Interested in the Mobility Budget, can I use it and when?
[PowerPoint-presentatie \(sharepoint.com\)](#)

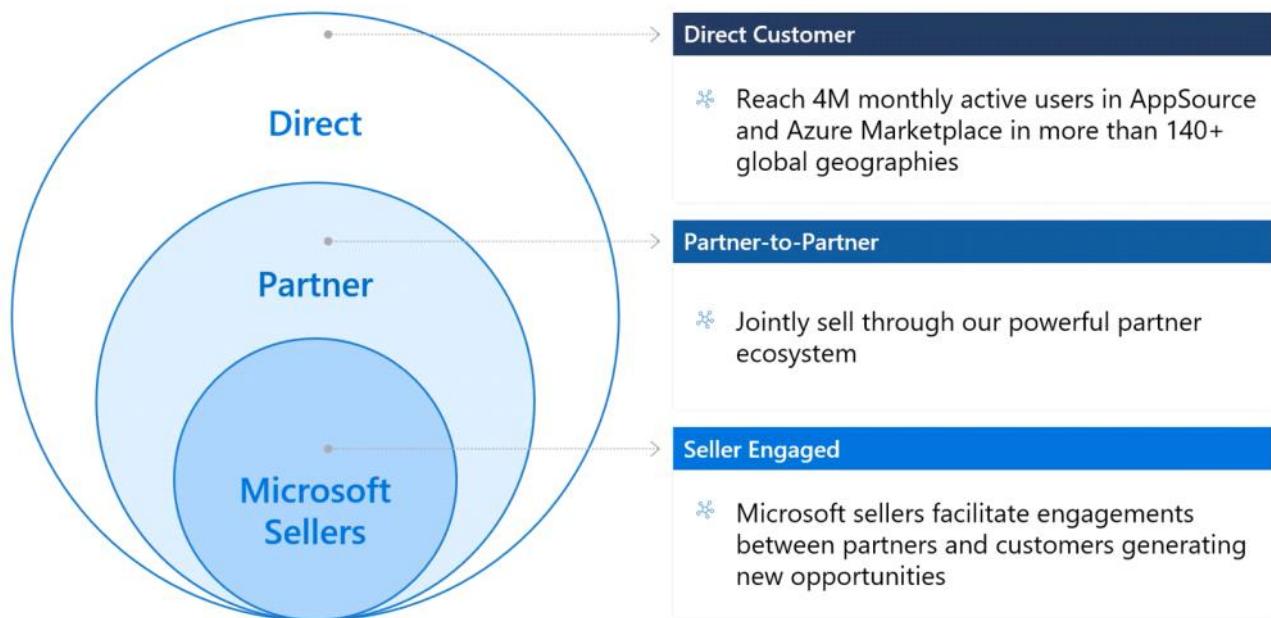
Vivalearn Activities:

- 01/2023
 2022 Security Foundations Course
 Module 1
 Module 2
 Module 3

Azure Consumed Revenue (ACR) *then we make some alterations...*



Three channels to co-sell with Microsoft



Azure Marketplace

- ➡ Azure Marketplace sales land within the RSD in MS Sales
- ➡ The percentage of the sales amount that will retire Azure Billed Revenue quota varies based on the type of service and channel
- ➡ Web Apps
 - Not currently transacted in the Marketplace
- ➡ Azure Active Directory
 - Not currently transacted in the Marketplace

	EA Direct	EA Indirect	Web Direct (MAA)
Azure	✓	✓	✓
Marketplace	✓	✓	✓
VM	<ul style="list-style-type: none"> • 20% of Marketplace charge • Lands with end customer account team in MS Sales (TPID level) 	<ul style="list-style-type: none"> • 20% of Marketplace charge • Lands with end customer account team in MS Sales (TPID level) 	<ul style="list-style-type: none"> • 20% of Marketplace charge • Lands with generic subsidiary account in MS Sales
Non VM			<ul style="list-style-type: none"> • 100% of Marketplace charge • Lands with generic subsidiary account in MS Sales
Billing cadence	<ul style="list-style-type: none"> • Billed quarterly, in arrears 	<ul style="list-style-type: none"> • Billed quarterly, in arrears 	<ul style="list-style-type: none"> • Billing cadence depends on artifact type

Note: Azure Consumed Revenue only includes "pull through" consumption from marketplace for metered azure services and does not include the licensing usage component. For example, if a customer buys a Barracuda VM, the licensing fees based on VM usage paid to Barracuda are not included, but the actual VM usage \$ are.

FY21 Azure IP Co-Sell Incentive

Earn upfront ACR credit against your quota

Calculation will be based on ACV in two tranches

Maximum Deal Registration cap will be applied at \$200K per deal for Bundled (10% of \$2M)

Maximum Deal Registration cap will be applied at \$100K per deal for BYOL (5% of \$2M)

Tranche	Deal Reg Value Bundled Deal	Deal Reg Value BYOL Deal
Upper Tranche (ACV >=\$1M)	10% of ACV	5% of ACV
Lower Tranche (ACV \$25K – \$999K)	\$15K per deal	\$5K per deal

Note: Upper tranche deals will be required to visually share proof-of-execution through the deal validation calls to be qualified

DAF will not qualify as standard POE. Deal will be paid at lower tranche level

Track it in Mint

View the Compensation Actual by Product in the [Mint Reports page](#). Click on any metric containing total Azure Consumed Revenue metric. View the results in the chart to see credit applied to the ACR – IP Co-Sell Service Comp Group

[Link to Incentive Compensation Guide for Azure IP Co-Sell](#)



Partner Reported ACR promotes SaaS co-selling

The Partner Reported ACR (PRACR) program is an exclusive joint-sales program for top partners with premier Azure SaaS solutions. PRACR aligns Microsoft field incentives with actual end-customer Azure consumption to minimize channel conflict for SaaS solutions across business models, licensing, and HQ countries.

For included solutions consuming Azure on a partner's tenant, seller compensation is brought to parity solutions deployed directly to a customer's tenant:

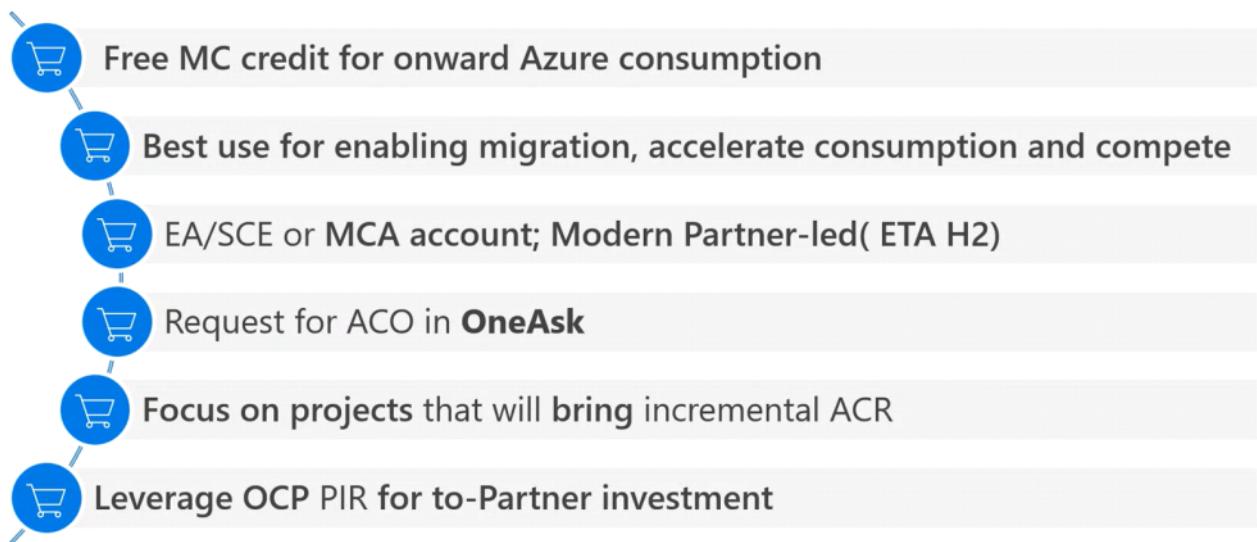
- Up-front via existing Azure IP Co-sell deal registration
- Over time, based on actual end-customer Azure consumption, as reported via partner submissions.

Objectives & Success KPIs

Objectives	Success Metrics
<p>Accelerate Azure IP Co-sell with global, high-consumption, SaaS publishers</p> <p>Support customer and top partner preference in deployment options</p>	<p>Wins registered, pipeline shared, ACV</p> <p>Engagement lift (pipeline, avg deal size)</p> <ul style="list-style-type: none">• PRACR set vs. other SaaS publishers• PRACR set before/after program inclusion

Azure Credit Offer (ACO)

Overview and design principles



ACO impacts ACR

ACO and other credit types, impact on ACR

	Deducted from Gross ACR			Not deducted from Gross ACR	
Type of Credit	Azure Credit Offer (ACO) 	Contractual Corrections 	Operational Corrections 	Make it right 	Funds Transfer and others
Submission Path	OneAsk	Azure OPS		Azure OPS	
Description	<ul style="list-style-type: none"> Compete Funding Dev/test Discount 	<ul style="list-style-type: none"> Mispricing Exchange rate Consumption Credit 	<ul style="list-style-type: none"> Accidental purchase/conversion Cancel auto-renew 	<ul style="list-style-type: none"> Engineering/product Gap/Delay SLA 	<ul style="list-style-type: none"> Utilization Transfer Planned usage Offset utilization

PAYGO vs. MACC ACR adjustment



Data & AI Consumed Revenue

FY21 Metric Deck
Section 1 – Definition & Scope

1.1 Metric Definition				
One-line Definition: ADS Consumed Revenue	Detailed Definition: <ul style="list-style-type: none"> ACR ADS, 1st party services only A-14 and Worldwide Total, derived as historical RR + growth following the LRP expectation for 2021 target. Azure Consumed Revenue = Enterprise ACR + SMC-C ACR + SMC-SMB ACR Hard target by month Strategic pillar guidance (WW and month) 	Business Objective & Alignment to Solution Area Priority: Drive Azure market share for data estate and increase customer base	In Scope Products / Workloads: <ul style="list-style-type: none"> 1st party Azure Data Services Out of Scope Products / Workloads: <ul style="list-style-type: none"> 3rd party data ISV co-sell win and usage from the Azure Market Place. These plays will be covered with Comp Adjustments. 	YoY Changes: <ul style="list-style-type: none"> Removed: 3rd party data ISVs: Cloudera/Hawks, MapR, MongoDB, Datastax, Teradata, Elastic, Informatica Removed Azure Marketplace ISVs
Data Source: Azure Health Report				

1.2 Segment Scope		
Enterprise		SMC
Major Commercial	✓	Enterprise Growth (China only) ✓
Strategic Commercial	✓	SM&C Commercial - Corporate ✓
Major Public Sector	✓	SM&C Education - Corporate ✓
Strategic Public Sector	✓	SM&C Government - Corporate ✓
Education (under Major Public Sector)	✓	SM&C Commercial - SMB ✓
		SM&C Education - SMB ✓
		SM&C Government - SMB ✓

1.3 Compensation Alignment	
	You can visit here for details on Compensation Alignment.

ADS Azure Data Services.
This is also corrected in the scorecard

FY21 Data & AI ACR Service Levels

Azure FRA Group 2		Azure FRA Group 3
SQL Data Modernization on Azure		SQL DB SQL DB MI SQL on IaaS SQL on IaaS VM
SQL Data Modernization on Azure Total		Analysis Services Azure Data Explorer Azure Data Explorer VM Azure Data Lake Data Catalog Data Factory Data Share Databricks Databricks VM FHIR HDInsight SQL DW Stream Analytics
Cloud Scale Analytics Total		Bot Service Cognitive Services Machine Learning Machine Learning VM Search
AI Total		Digital Twins IoT Central IoT Hub Maps Time Series Insights Windows 10 IoT Core Services
IoT Total		Cosmos DB OSS DBs on Azure Redis on Azure
OSS Data Modernization on Azure Total		Blockchain Event Hubs Genomics Notification Hubs Power BI SQL Server Stretch DB
Rest of ADS Total		

Azure App Innovation ACR

FY21 Metric Deck
Section 1 – Definition & Scope

1.1 Metric Definition																																					
One-line Definition: ACR contributed by Microsoft Azure Intelligent Apps	Detailed Definition: <ul style="list-style-type: none"> This metric measures the consumption revenue of Microsoft Azure App Innovation ACR (excl non-SMSG and internal usage revenue) for all Pricing levels, all customer segments Azure Consumed Revenue = Enterprise ACR + SMC-C ACR + SMC-SMB ACR <table border="1"> <thead> <tr> <th colspan="2">Application Services</th> </tr> </thead> <tbody> <tr><td>API Management</td><td>Media Services Xamarin University</td></tr> <tr><td>App Center</td><td>Red Hat OpenShift App Configuration</td></tr> <tr><td>App Service</td><td>Service Bus Visual Studio Online</td></tr> <tr><td>Azure DevOps</td><td>SignalR GitHub ACR</td></tr> <tr><td>Azure Lab Services</td><td>Azure Stack – App Service Azure Spring Cloud</td></tr> <tr><td>Biz Talk Services</td><td>Azure Stack – Functions Cloud</td></tr> <tr><td>Container Instances</td><td>HockeyApp</td></tr> <tr><td>Event Grid</td><td>Mobile Engagement</td></tr> <tr><td>Functions</td><td>Mobile Services</td></tr> <tr><td>Logic Apps</td><td>Service Fabric Mesh</td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="2">Service Influencer</th> </tr> </thead> <tbody> <tr><td>AKS, Service Fabric, ARO, AML (VMs)</td><td></td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="2">AI</th> </tr> </thead> <tbody> <tr><td>Cognitive Search</td><td></td></tr> <tr><td>Cognitive Services*</td><td></td></tr> <tr><td>Bot Service</td><td></td></tr> <tr><td>Azure Machine Learning</td><td></td></tr> </tbody> </table>	Application Services		API Management	Media Services Xamarin University	App Center	Red Hat OpenShift App Configuration	App Service	Service Bus Visual Studio Online	Azure DevOps	SignalR GitHub ACR	Azure Lab Services	Azure Stack – App Service Azure Spring Cloud	Biz Talk Services	Azure Stack – Functions Cloud	Container Instances	HockeyApp	Event Grid	Mobile Engagement	Functions	Mobile Services	Logic Apps	Service Fabric Mesh	Service Influencer		AKS, Service Fabric, ARO, AML (VMs)		AI		Cognitive Search		Cognitive Services*		Bot Service		Azure Machine Learning	
Application Services																																					
API Management	Media Services Xamarin University																																				
App Center	Red Hat OpenShift App Configuration																																				
App Service	Service Bus Visual Studio Online																																				
Azure DevOps	SignalR GitHub ACR																																				
Azure Lab Services	Azure Stack – App Service Azure Spring Cloud																																				
Biz Talk Services	Azure Stack – Functions Cloud																																				
Container Instances	HockeyApp																																				
Event Grid	Mobile Engagement																																				
Functions	Mobile Services																																				
Logic Apps	Service Fabric Mesh																																				
Service Influencer																																					
AKS, Service Fabric, ARO, AML (VMs)																																					
AI																																					
Cognitive Search																																					
Cognitive Services*																																					
Bot Service																																					
Azure Machine Learning																																					
Data Source: Azure Health Report	Business Objective & Alignment to Solution Area Priority: Ensure customers are developing intelligent applications with Azure as the preferred platform																																				
	In Scope Products / Workloads: <ul style="list-style-type: none"> Application Services (including AKS & Service Fabric) AI Out of Scope Products / Workloads: <p>*Cognitive Services excludes Bing Services (SLA: Bing Autosuggest v5, Bing Autosuggest v7, Bing Custom Search, Bing Entity Search, Bing Search v5, Bing Search v7, Bing Speech, Bing Spell Check v5, Bing Spell Check v7)</p> <p>Context: Bing Services no longer meet Azure Security Benchmark and will be deprecated by Azure Global. meters remain live for 3 more years, but only support existing customers.</p>																																				
	YoY Changes: <ul style="list-style-type: none"> Added: Virtual Studio Online, GitHub, Azure Spring Cloud, CPaaS, Azure ML, App Configuration 																																				

Blue: FY21 new services | Yellow: deprecated services, but needed for historical revenue

1.2 Segment Scope		
Enterprise		SMC
Major Commercial	✓	Enterprise Growth (China only) ✓
Strategic Commercial	✓	SM&C Commercial - Corporate ✓
Major Public Sector	✓	SM&C Education – Corporate ✓
Strategic Public Sector	✓	SM&C Government – Corporate ✓
Education (under Major Public Sector)	✓	SM&C Commercial – SMB ✓
		SM&C Education – SMB ✓
		SM&C Government - SMB ✓

1.3 Compensation Alignment	
	You can visit here for details on Compensation Alignment.

1.1 Metric Definition

<u>One line Definition:</u>	<u>Detailed Definition:</u>	<u>Business Objective & Alignment to Solution Area Priority</u>	<u>In Scope Products / Workloads</u>	<u>YoY Changes</u>
\$ Azure Consumed Revenue for Azure Security services	All Azure Consumed Revenue (ACR) attributed to Azure Security services as defined by the Service Level 4 eligible services . All actuals from the meters that roll up under the eligible SL4s will be credited.	Connecting the security oriented M365 sales motion to the Azure Security motion is key to delivering a coherent security message to customers to drive broader sales of both M365 and Azure. This metric will ensure we cascade responsibility for Azure Security at the field level and drive aligned comp for both M365 and Azure Security.	ACR for Azure Security Service Level 4 services	Net new
<u>Upstream Actuals Data Source:</u> Azure Health Report			<u>Out of Scope Products / Workloads</u> All other services not outlined in the eligible list	

1.2 Segment Scope

Enterprise	SMC
Major Commercial ✓	Enterprise Growth (China only) ✓
Strategic Commercial ✓	SM&C Commercial - Corporate ✓
Major Public Sector ✓	SM&C Education - Corporate ✓
Strategic Public Sector ✓	SM&C Government - Corporate ✓
Education (under Major Public Sector) ✓	SM&C Commercial - SMB ✓
	SM&C Education - SMB ✓
	SM&C Government - SMB ✓

FY21 Azure Security ACR eligible services

updated March 23, 2020

Service Level 4

Application Gateway WAF v2
WAF Application Gateway
Azure Firewall
Azure DDOS Protection
Azure Front Door Service
Azure Bastion
Azure Firewall Manager
Network Watcher
Azure Active Directory Domain Services
Azure Active Directory B2C
Azure Dedicated HSM
Key Vault
Azure IoT Security
Azure Active Directory for External Identities
Security Center
Workload Protection for App Services
Advanced Threat Protection - Azure Container Registry
Advanced Threat Protection - Azure Kubernetes services
Advanced Threat Protection - Storage
Sentinel
Log Analytics
Insight and Analytics
Azure Monitor
Advanced Data Security - SQL Database

Azure Customer Adds

FY21 Metric Deck
Section 1 – Definition & Scope

1.1 Metric Definition

<u>One-line Definition:</u> Nr. of Net Azure Customer Adds with Azure consumption >=\$5k per mo. (both Ent. and SMC-C)	<u>Detailed Definition:</u> <ul style="list-style-type: none"> ACA measures net customer adds = EOP customers above thresholds – EOP customers below thresholds for two consecutive months. A consuming Customer is defined by having ACR >=\$Threshold in EOP mo. >=\$5,000 for Enterprise & SMC-Corporate. A Customer drop (churn) is calculated if the customer drops below the \$5K monthly threshold for a consecutive 2 months. 	<u>Business Objective & Alignment to Solution Area Priority:</u>	<u>In Scope Products / Workloads:</u> <ul style="list-style-type: none"> All Azure workloads are in Scope. 	<u>YoY Changes:</u> <ul style="list-style-type: none"> Removed: Deal Registration ACR 																		
<u>Data Source:</u> Azure Health Report	<p>ACR</p> <p>FY20 YTD Gross Adds</p> <table border="1"> <thead> <tr> <th>Category</th> <th>Value</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>ACR</td> <td>31%</td> <td>68%</td> </tr> <tr> <td>DR, NDC</td> <td>68%</td> <td>31%</td> </tr> </tbody> </table> <p>FY20 YTD Churned</p> <table border="1"> <thead> <tr> <th>Category</th> <th>Value</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>ACR</td> <td>29%</td> <td>65%</td> </tr> <tr> <td>DR, NDC</td> <td>65%</td> <td>29%</td> </tr> </tbody> </table>	Category	Value	Percentage	ACR	31%	68%	DR, NDC	68%	31%	Category	Value	Percentage	ACR	29%	65%	DR, NDC	65%	29%		<u>Out of Scope Products / Workloads:</u> <ul style="list-style-type: none"> Deal registration to be removed. Power Platform revenue does not count towards the ACA 5k threshold. 	
Category	Value	Percentage																				
ACR	31%	68%																				
DR, NDC	68%	31%																				
Category	Value	Percentage																				
ACR	29%	65%																				
DR, NDC	65%	29%																				

1.2 Segment Scope

Enterprise	SMC
Major Commercial ✓	Enterprise Growth (China only) ✓
Strategic Commercial ✓	SM&C Commercial - Corporate ✓
Major Public Sector ✓	SM&C Education – Corporate ✗
Strategic Public Sector ✓	SM&C Government – Corporate ✓
Education (under Major Public Sector) ✓	SM&C Commercial – SMB ✗
	SM&C Education – SMB ✗
	SM&C Government - SMB ✗

No deal registration included. This is true consumption.

1.3 Compensation Alignment

You can visit [here](#) for details on Compensation Alignment.

ACR, Success Engagements & Milestones

ACR = Azure Consumed Revenue = measures the actual consumption of azure services used by our customers, which often differs (depending on the licensing model) from azure billed (managed as billed revenue in opportunities,e.g. Pre-Commitments).

However, it is crucial that **azure billed deals are tied to concrete consumption plans**, which are to be reflected in engagements.

What is a Success Engagement?

A success engagement should encompass one single customer project, with a defined scope and deliverables, timing (beginning and end date), outcome, with as consequence the change in the consumption.

Create a new success engagement when...

1. there is defined **interest from the customer** on a workload/solution and...
2. **there is significant impact (Strategic or in size)**, such that you want to manage the engagement/project

What is an Engagement Milestone?

Milestones (within an engagement) represent a meaningful change in the amount of consumption expected, supporting the creation and management of the consumption pipeline.

1. Milestones are **deliverables defined by a timeline and an incremental amount** of monthly consumption (Est. Monthly Usage).
2. Each engagement should have **at least ONE milestone**. However, it could (and often should, as it tracks the entire project cycle) have various milestones (e.g. Pre-Commit PoC -> Production) to better reflect and manage pipeline.

CONFIDENTIAL — FOR PLANNING PURPOSES ONLY

Core components Engagement:

- Engagement Name & Description
- Engagement Status
- Owner
- Est. Start & Est. Complete Date
- Primary Partner / MS Services involved
- Solution Area (Infra vs D&AI) and Sales Play
- Engagement Narrative & Engagement Next Steps
- Competitor & Threat Level
- Primary Sponsor
- Business / Checklists
- Azure Preferred Region

Core components Milestone:

- Milestone Name
- Milestone Status & Status Reason
- Help Needed
- Milestone Est. Date
- Workload
- Milestone Category
- Non-Recurring Flag
- Est. Monthly Usage

Engagement Creation in practice (In parallel with MSX CRM Demo)

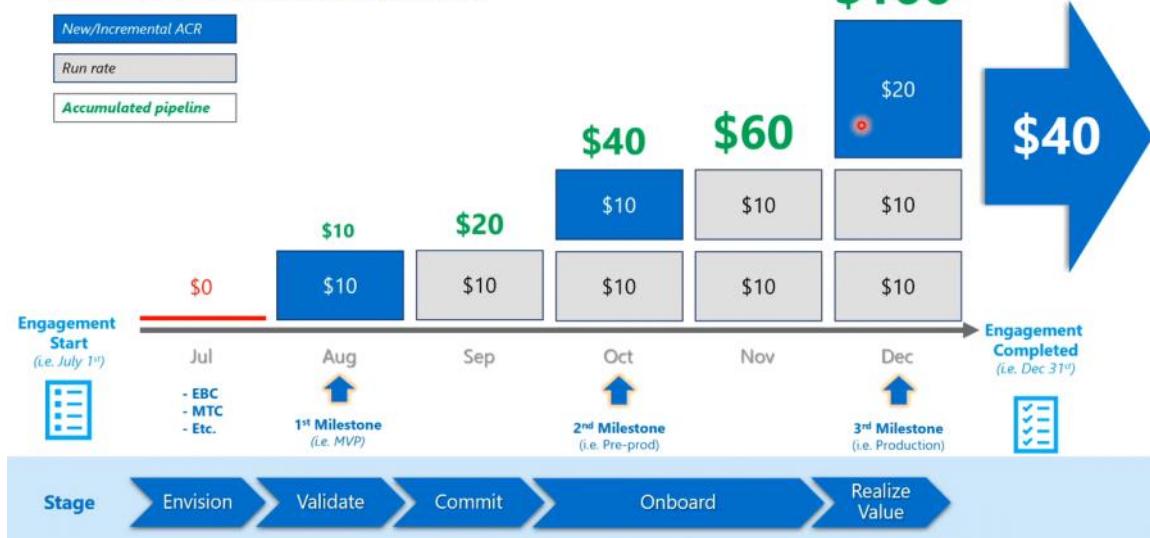
- Where: MSX CRM is the sole location for managing success engagements.
- If engagement is not in MSX, it doesn't exist!
- Engagements status :
 - In Progress : When work is going on
 - Closed-cancelled: No work carried out
 - Closed-completed: Work finished; milestones delivered
 - Unknown: Generally not to be used locally – Used by corp for bulk engagements
- Engagement Stage : Maturity of activities and tasks carried out define the stage of engagement.
- Milestone Rules:
 - At a minimum, each engagement should have ONE milestone for the full amount of the Est. Monthly Usage.
 - Milestones can be positive or negative, representing **incremental** growth or decline.
 - Milestone Est date: Date of project Go live (when your tasks are completed)
 - Milestone Status : **On track**, **At Risk**, **Blocked**, Completed
 - Create only ONE milestone per month in an engagement. Creating multiple milestones for the same month in an engagement will throw off the consumption pipeline view. Day in the month does not count (1st and 31st are treated same).
 - For months without a milestone, it is assumed that there is no incremental change to the monthly usage.

Close success engagement after the project is delivered !

Required to close milestones if it is completed, if they have landed in the actuals close as completed. If not landed yet, we need to change the date to a future date.

The Economics of a Success Engagement

How milestones create additional ACR



What is an MVP is removed after a POC, what to do? Milestone can have a negative value as well. Recommendation is to have one milestone per month. If do-able put a net value you expect.

If you expect reduction put a negative milestone that month,...

In the range of 30% or higher you want to track, anything lower you don't need it. But if something changes that will have an impact, you need to be able to justify it and explain it.

For big losses in ACR, like removing SAP infra that will have significant impact, first discuss with your manager.

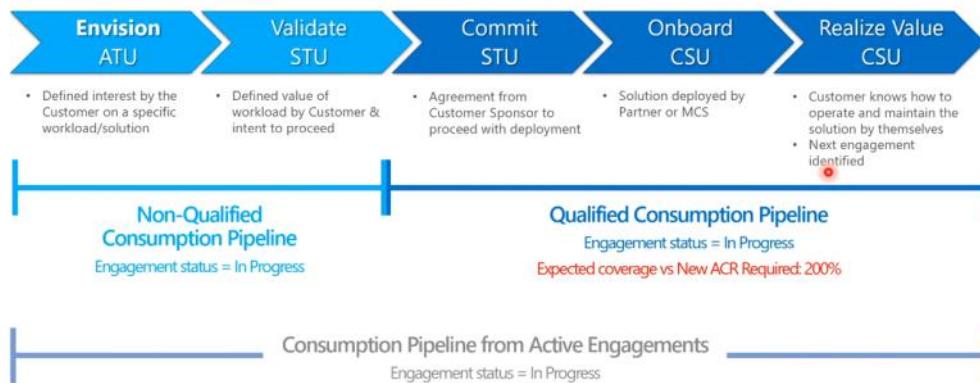
General recommendation is to manage in pipeline material changes and per month net value.

The Economics of a Success Engagement-non recurring

How milestones create additional ACR



Success Engagements and Qualification Stages



CSAM is now Responsible and Accountable (Consumption and Delivery Execution) for Account Team activities.

Orchestration

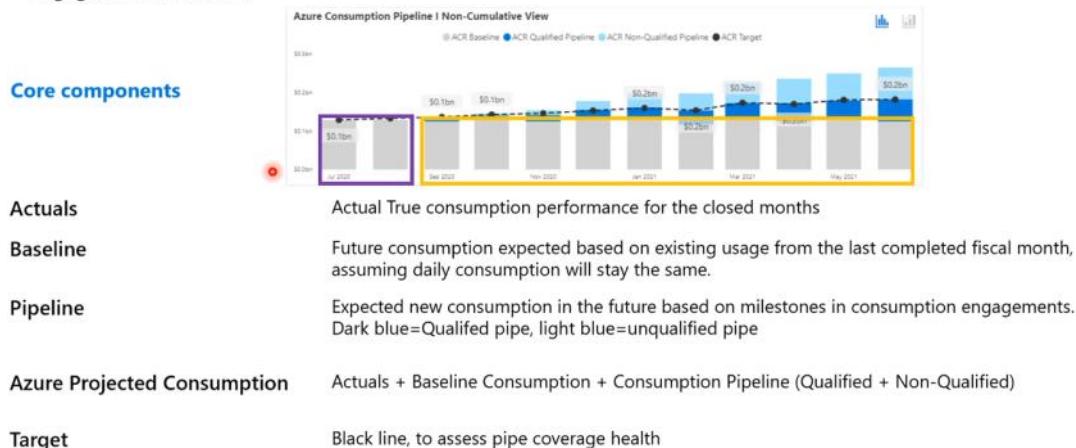
Phase	Activities/Deliverables	Accountabilities				
		Accountable	Responsible	Support	Consult	Inform
● Envision	<ul style="list-style-type: none"> Success Engagement creation in MSX* Define & drive strategic intent for a solution Identify executive sponsor and budget Align with delivery partner Showcase the possibilities within a solution area Draft Solution and Operational Health Plan 	AE	ATS	ADE, CSA, SE, DA, STU	OCP	
	<ul style="list-style-type: none"> Technical briefing & demo Evaluate & refine competitive strategy Prove business case through PoC/MVP Refine solution & operational health plan with customer sponsor 	STU	STU, DA, ATS	CSAM, CSA, ADE	-	AE
● Validate	<ul style="list-style-type: none"> Architectural Design Sessions Delivery of MVP into production leveraging partners/MCS Define technical close requirements Win technical decision & agreement to deployment plan Right size support agreement 	CSAM	CSAM, SSSP	ADE, CSA, DA, SE	CE	AE, ATS
	<ul style="list-style-type: none"> Customer Technical Readiness Plan Finalize solution & operational health plan w/ customer Orchestrates and confirms establishment of project team and plan 	CSA	CSA, ADE, MCS SSSP	CSAM, DA, IE, OCP, MCS SSSP, SE, DA, CE		AE, ATS
● Commit	<ul style="list-style-type: none"> Project implementation and enable production grade capabilities Execute customer learning and solution & operational health plan Orchestrates customer delivery governance and strategic customer escalations & blockers across 3 clouds Monitor progress against Success Engagement milestones 	STU	STU, CSAM, CSA, ADE	CE, OCP	AE, ATS	
	<ul style="list-style-type: none"> Technical Blocker Remediation Project portfolio management and governance for MCS 	AE	AE, ATS	ADE, CSAM, CSA	CE, DA	
● Onboard	<ul style="list-style-type: none"> Monitor progress against Success Engagement milestones Actual True consumption performance for the closed months 	CSA	CSA, CSAM, ADE	IM+, CE		AE, ATS
	<ul style="list-style-type: none"> Technical Blocker Remediation Project portfolio management and governance for MCS 	CSAM	CSAM, CSA, CE, ADE	IM+	-	AE, ATS
● Realize Value	<ul style="list-style-type: none"> Solution optimization and recommendation Track & report on customer Business Value Realization Orchestrates resources to measure and realize value of solution 	CE	CE, CSAM, CSA, IM+	ADE	AE, ATS, DA	
	<ul style="list-style-type: none"> Solution optimization and recommendation Track & report on customer Business Value Realization Orchestrates resources to measure and realize value of solution 	ADE	ADE, CSAM, MCS	CSA, SE, DA		AE, ATS

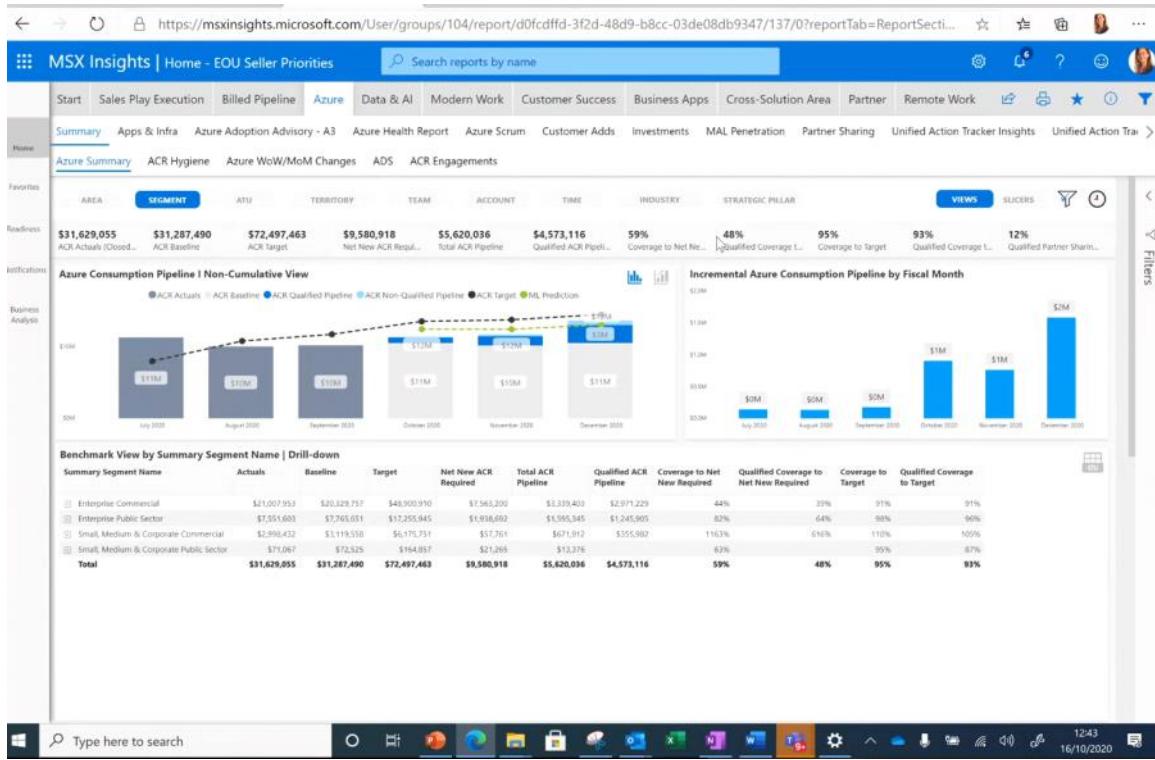
MICROSOFT CONFIDENTIAL

7

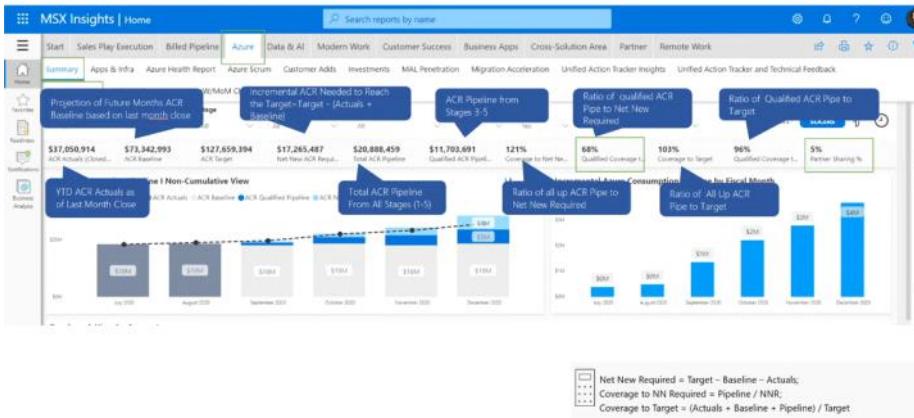
Aggregating across engagements creates total consumption pipeline

Consumption pipeline is an estimate of future consumption based on a bottom-up aggregation of actuals and engagement milestones.





MSXi: A view of the Pipeline Health



Qualified coverage to target needs to be 200%

Scenario 1 – What is the Opportunity?



The Challenge:

- Not enough pipeline to cover targets
- Very low pipe qualification

Actions:

- Make sure pipeline reflects reality and contains all projects that are worked on +leverage ATU team to identify customer ambitions/ new workloads to be migrated to azure/etc
- Review hygiene scenarios - [Pipe Hygiene assistant app](#)
- Assure an early involvement of partners that will deploy solution to boost pipe velocity

Pipeline Hygiene Assistant – Exceptions Dictionary

The screenshot shows a web-based application titled "Data Dictionary". At the top, there are tabs for "Billed", "Consumption" (which is selected), and "Services". On the right side of the header, there are four icons: a magnifying glass, a gear, a person, and a speech bubble, with the gear icon highlighted by a red box.

The main content area contains several sections of text, each describing a specific exception category:

- Engagement Exceptions:** Information is incorrect or missing, resulting in an inaccurate pipeline and forecast.
- Stalled at Envision for >30d** – Engagement has been in the 1-Envision stage for more than 30 days.
- Stalled at Validate or Commit for >60d** – Engagement has been in the 2-Validate or 3-Commit stage for more than 60 days.
- Engagement Status Unknown at Validate** – Engagement Status is Unknown at or above 2-Validate stage.
- No Engagement Narrative at Validate** – Engagement Narrative is missing at or above 2-Validate stage.
- No Milestones at Validate** – Engagement at 2-Validate stage AND zero future Milestones (i.e. Milestone Est. Date >= current date).
- No Partner Sharing at Validate** – Consent To Send To Partner is No (outbound) AND Partner Referral is null (inbound from Partner Center) AND engagement stage is at or above 2-Validate.
- No Primary Sponsor at Validate** – Primary Sponsor is missing at or above 2-Validate stage.
- No Preferred Azure Region at Commit** – Workload Type is Azure AND Preferred Azure Region is missing at or above 3-Commit stage.
- Milestone Exceptions:** Information is incorrect or missing, resulting in an inaccurate pipeline and forecast.
- At-Risk or Blocked and Not Updated for >30d** – Milestone Status is At-Risk or Blocked and milestone has not been modified in 30+ days.
- Past Due Not Completed/Canceled** – Current date is after Milestone Est. Date AND Milestone Status is On-Track or At Risk or Blocked.
- Non-Qualified Due in Next 3M** – Engagement Stage is either 1-Envision or 2-Validate AND Milestone Category is Production AND Milestone Est. Date is within the next 90 days.
- Zero Pipeline** – Est. Change in monthly Usage (WL Type = Azure) or Est. Change in active users/devices (WL Type = MWP or D365) is zero.
- Milestones Status is Unknown** – Milestone Status is missing.

A note at the bottom states: **Please note: Inactive engagements are not evaluated for hygiene exceptions**.

2022 Security Foundations

Tuesday, January 24, 2023 9:58 AM

Basic security principles:



Slow down.

You are at risk of making a mistake when in a rush.



Be vigilant.

Do not leave doors open to sensitive information.



Verify then proceed.

Do your due diligence. When all checks out, only then proceed.

Resources

Visit these resources for additional tools and information available to you.

MSProtect

Empowering Your Passion

For digital security best practices, information and resources, visit [MSProtect](#).



For privacy resources and guidance visit the [Privacy Portal](#).

| REPORT IT NOW

To report any security concern go to [ReportItNow](#).



Download the Insider Threat one-page [here](#).

- Thank you for taking the time to learn more about security and how to adopt healthy security habits to better protect you, the company, and our customers.
- We have learned with the events of the past like the Colonial Pipeline Attack, Solar Winds, and the T-Mobile breaches, attacks are real.
- And they can come from anywhere.
- The only way to protect against them is to make sure everyone is committed to security.
- While the security team is here to help keep you safe, there's no single solution for security.
- We rely on you to take an active role in embracing a security mindset and making security a critical element of our culture at Microsoft.
- And remember zero trust or bust, no exceptions

Anti-Trust

Friday, January 13, 2023 9:16 AM



101s for Competition Law @ Microsoft

These 101s explain key competition law topics that often come up in our work.
Got questions? **Get in touch!** We'd love to help: CLG@microsoft.com.

STRATEGIC, SAFE COMPETITOR DISCUSSIONS

For Microsoft to successfully empower its customers in this digital transformation era, we sometimes need to collaborate and share information with competitors. Every organization is a potential partner, so there are many pro-competitive reasons for us to have discussions with companies that may be our competitors in other contexts.

However, discussions with competitors raise the risk of collusion - an agreement between competitors that reduces competition. Collusion is illegal around the world and strictly forbidden by Microsoft's fair competition policy. Collusion can take various forms – fixing prices, limiting output, bid-rigging, and dividing customers or markets. Collusion can also happen when competitors share sensitive business information that enables them to coordinate prices or strategy in a way that reduces competition. If you think there is any risk that collusion might be happening, either by Microsoft or by our partners or competitors, contact CELA.

Here are the key principles to have discussions with our competitors strategically and safely:



It is always fine to:

- ✓ Share publicly available information;
- ✓ Evangelize Microsoft products & services; or
- ✓ Negotiate over deal prices or terms.



Check with CELA if you want to have a strategic discussion with someone who might compete with us, especially if it's about:

- Product/feature roadmaps; or
- Confidential information for joint sales motions.



Never do, or facilitate our partners or competitors doing, any of the following with actual/potential competitors:

- Disclosing future pricing, discounting, strategy or competitive plans;
- Disclosing confidential cost information or customer terms;
- Agreeing not to compete on pricing or terms;
- Coordinating bids in a competitive auction; or
- Allocating markets or customers to avoid competition.

The bottom line is: if you think actual or potential competitors – whether that involves Microsoft or our partners – may be agreeing to something that could limit competition, let CELA know immediately or raise the issue through buscond@microsoft.com.

Resale Price Maintenance

Microsoft should not set or dictate the prices that our partners charge their customers. This practice is called “resale price maintenance,” and it can lead to significant liability for Microsoft and its employees.



It is always fine to:

- ✓ Have a manufacturer's suggested retail price (MSRP) or estimated retail prices (ERP), which are non-binding guidelines for resale pricing;
- ✓ Set whatever price or discounts we want with our partners;
- ✓ Support partners and be in the room when they are negotiating sales terms; and
- ✓ Require partners to pass through to their customers a discount we gave them.



Check with CELA if you want to:

- Set a maximum resale price for a partner; or
- Set up an agency model with a partner where Microsoft retains title and pricing control.

CCC Deep Dive - Competition Law



Never:

- “Advise” a partner on its prices to customers;
- Approve a partner’s prices to customers;
- Control partners’ margins; or
- Set price floors, or a minimum resale price.



2. Abuses of dominance

With great power, comes great responsibility: guidance to foster our success while not abusing our market position

Focus: Abuse of Dominance

What you need to know

Companies with potentially “dominant” products may be held to higher standards when engaging with competitors, partners, and customers.

As a rule, “High-Share Products” have to be considered as potentially dominant by Microsoft employees.

Companies that violate those standards may face liability for “abusing” their market position.

CCC Deep Dive - Competition Law

There are **five** types of commonly scrutinized conduct:

- 1 Exclusive dealing
- 2 Loyalty-inducing discounts
- 3 Tying and bundling
- 4 Discrimination and refusals to deal
- 5 Predatory pricing



Current List of High Share Products (“HSPs”)

Products that arguably have 30%+ share in some market



All versions (including mobile and online-only) of the above products are considered High Share. Any suite, subscription plan, or license (e.g., M365/O365, Software Assurance, or CAL) including or associated with any of the above products and services should be treated as if it is High Share.



Exclusive Dealing

Requiring or paying a counterparty to exclusively do business with you



Exclusive or single-source deals are often efficient for both parties, but competition law risk may arise when requiring exclusivity or near-exclusivity in exchange for **discounts** or **access** to high-share products.

CCC Deepdive - Competition Law



Even if it concerns a low-share product, an exclusivity should by principle:

- be justified by an investment of Microsoft resources in the project
- never be based solely on a desire to exclude a competitor from access to a customer or partner
- be no broader than necessary to get the deal done
- be no longer than necessary to recoup our investment, which in most cases should be in 1-3 years.



Loyalty-Inducing Discounts

Discount structures that provide price breaks for supplier loyalty



Discount programs are almost always procompetitive and good for customers. But certain discount structures, when applied to HSPs, can inhibit customers' ability to switch to competing products.

Examples

CCC Deep Dive - Competition Law

- First-Unit Discounts
- Market Share Discounts
- Minimum Purchase Requirements
- Seat Commitments
- Windfall Payments (that only pay out on large purchase commitments)



Long Term Contracts (> 3 years)

Always keep in mind the customer's best interest – we should not abuse our strength in one product market to force customers into longer contracts than they want or "lock" them in so other companies don't have opportunities to compete.

Long-term contracts are more likely to be anticompetitive when they involve High Share Products (market share >30%).



✓ By way of principle, no antitrust review is needed for contract lengths over 3 years that involve only products and services that are not considered High Share.



No antitrust review needed for contract lengths up to 5 years involving High Share Products if:

- ✓ The proposal for a longer term originated with the customer, not Microsoft; and
- ✓ Microsoft or our partner are not offering material incentives to the customer in exchange for or on the condition of accepting a longer term.

CCC Deep Dive - Competition Law *If any of these criteria is not met, the contract must be reviewed and approved by CELA.*



Agreements over 5 years involving High Share Products must always be reviewed and approved by CELA.

The Microsoft logo, consisting of four colored squares (blue, green, red, yellow) followed by the word "Microsoft".

Tying and Bundling

Coercing customers to buy products or services in a bundle



Occurs when a company:

- requires that a customer purchase one product in order to obtain a second (a "**hard tie**"); or
- prices a bundle of products so low that it would be economically irrational to buy them separately (an "**economic tie**").

When one of the products in a bundle or tied offer has market power, the other product can be viewed as having an unfair advantage.

Hard Tie:

CCC Deepdive - Competition Law

- "In order to buy HSP Product X, you must also buy Product Y."
- "You can buy Product Y or Bundle X+Y, but you can't buy HSP Product X alone."

Economic Tie:

- "You can buy HSP Product X for \$5 and Product Y for \$5 or you can buy Bundle X+Y for \$4."



Example: people buying windows to use internet explorer.

Tying / bundling

Best practices



Bundles which do not involve High Share Products generally do not raise antitrust issues



If you want to offer a bundle which involves any High Share Product:

- Customers must be able to buy all High Share Products involved standalone; and
- The total price of the bundle should be higher than the standalone price(s) of all High Share Products components of the bundle;
- The price of the bundle should be higher than the COGS of the low share components.

Check with CELA if you have concerns that competitors will be unable to compete or be driven out the market by a bundle containing any High Share Product.



Should never:

- Sell High Share Products only on the condition the customer purchase a separate product;
- Include any High Share Product in a bundle if it is not available standalone;
- Price a bundle of several products involving any High Share Product at or lower than the price of the High Share Products standalone.



Discrimination and Refusals to Deal



Firms typically have the freedom to decide whether to partner or transact with others and on which terms. In some very limited cases, however, dominant firms can face liability if they:

- Discriminate between similar partners or customers (i.e., treat similar partners and customers on different/unequal terms); or
- Refuse to supply or offer equivalent discounts.

Example

CCC Deepdive - Competition Law

Company A and Company B are indirect partners operating in the EEA. Typically, indirect partners are not permitted to sell directly to end-customers. Company A is given an exception and is permitted to sell directly; Company B is told it cannot and informed its contract will be terminated if it does.



Smart Partner Differentiation

Our starting principle is to treat similarly situated partners the same, so they can compete with one another on an equal footing. When we provide different support, our decisions are fair to all partners: objective, transparent, and justified by business or customer needs.



It is always safe to treat partner equally – when in doubt, offer similarly situated partner the same incentives.



We can provide extra support through incentives or other different treatment to partners who can better serve our customers, if:

- ✓ We have objective and transparent justifications for doing so; and
- ✓ Those justifications are grounded in a legitimate business interest or customer need.

We should be able to explain our reasoning and back it up with documentation. If it's not clear whether our justifications are sufficient, please reach out to CELA for assistance.



We should never treat partners differently if:

- It is because another partner asked us to;
- It is with the intent to limit competition or interfere in a bid; or
- We do not have a legitimate business justification that can be explained and verified.



Predatory Pricing

Pricing below cost to drive competitors out of the market



CCC Deepdive - Competition Law

Low prices are rarely challenged as competition law violations, but competition law risk can arise when dominant companies set prices below costs with the intention of driving competitors out of the market. Though customers may see lower prices in the short term, competition may be reduced in the long term.



Questions?

Thank you

aka.ms/competitionlaw

EMEA: cmaske@microsoft.com

v-mpfleiger@microsoft.com

CORP: clg@microsoft.com

CCC Deepdive - Competition Law



If we are competing with a partner on a particular product, we cannot price this product higher than the price we are offering to the customer directly: margin squeeze.

[Competition Law Trainings \(sharepoint.com\)](#)

Pause. Think. Ask.

If you are unsure whether a decision may harm trust, then:

Pause to slow down and consider the situation.

Think about whether it's in line with Microsoft values.

Ask questions and seek help – even confidentially.



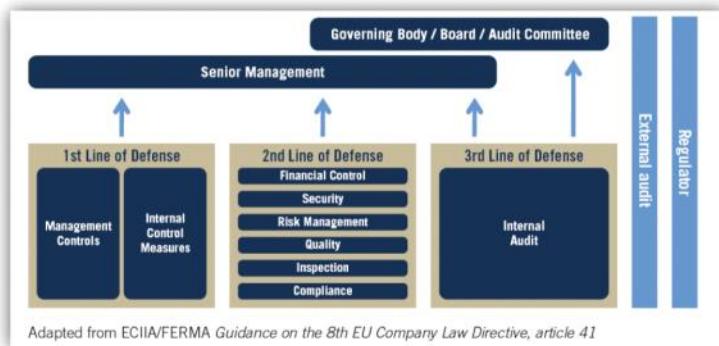
Learn more at www.microsoftintegrity.com

Compliance at MS



Compliance Objective

Providing leadership, consulting services & monitoring in support of management's business objectives and their responsibility to mitigate risks mainly related to corruption



Compliance is every employee's responsibility!

Compliance at MS - BLCR



BLCR -Business Led Compliance Rythm - is an initiative launched in FY19

- to **standardize** the Compliance **rhythm** across the regions and
- increase **business accountability and ownership** of Compliance

BLCR required

BLCR Recommended

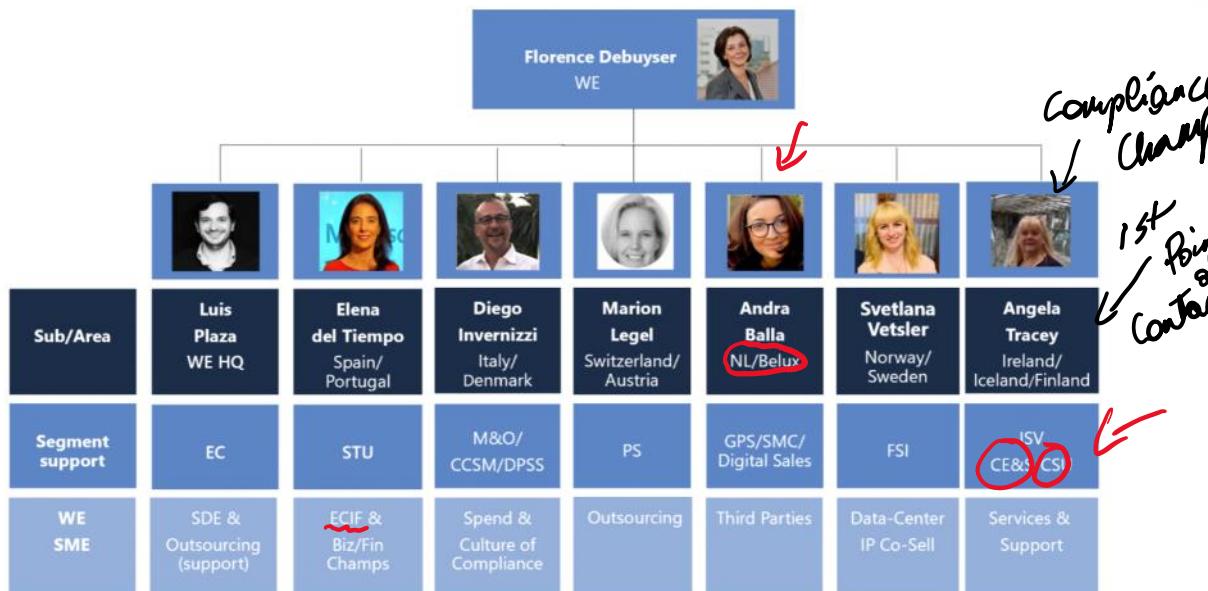


P:\jdoob\BLCR\FY19.pdf

Compliance is every employee's responsibility!

WE Compliance (C&C) org*

Show conversation. You have an unread message

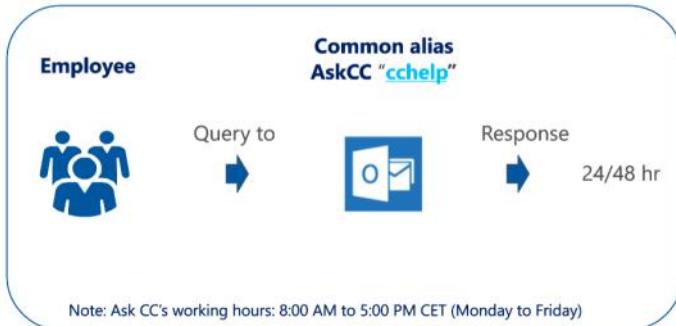


*as of Nov 2023

Compliance support



- **C&C Managers:** The primary responsibility for monitoring Compliance in the subsidiaries remains with the respective C&C Subsidiary Manager
- **Business Champs:** Business Champs support the Business Unit Lead in the support of the Business Unit BLCR and act as primary point of contact for Compliance related question for the Unit
- **AskCC:** Do you have a Compliance question? AskCC may help you:



Risk Areas



Anti-Corruption

Ethical Sales -
Side Agreements
Pull Forwards
Prohibited activities
Discounts

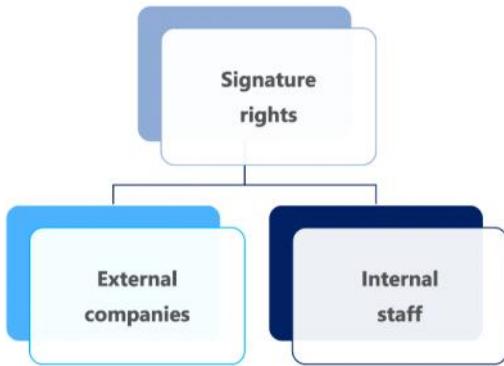
Partner Management

Spend -
Purchase Process
(centralized
PO creation
in some
organizations)

ECIF -
End Customer
Investment Funds

TGH -
Travel, Gifts &
Hospitalities

Conflict
of Interest &
Moonlighting



Signature Policy

Strict approval for both sales and purchases

Your responsibility



- Take your training
- Know the policies
- Understand and comply with the policies
- Identify potential risks
- Report potential risks
- If in doubt, AskCC or your Compliance Champs or reach out to C&C Manager

Pause. Think. Ask.

If you are unsure whether a decision may harm trust, then:

Pause to slow down and consider the situation.

Think about whether it's in line with Microsoft values.

Ask questions and seek help – even confidentially.

 Learn more at www.microsoftintegrity.com.

Useful resources to self serve

- [MS Policy](#): Microsoft policies
- [Employee Expense Reimbursement Policy](#)
- [Employee Expense Reimbursement Procedure](#)
- Learning Hub [Integrity Skills](#) (incl link to [Standards of Business Conduct](#))

Where to go if you have a question?

- [Ask CC <cchelp@microsoft.com>](#): WE C&C for guidance and help if you cannot find what you are looking for in the policy send an email to the above or ask
- Your Manager
- Your local Compliance champ
- For Privacy related questions: reach out to the WE Privacy office: [PrivWE@microsoft.com](#)

Where to go if you want to report a concern

- Your (skip) manager
- Your local C&C team
- Your local CELA team
- HR
- Business Conduct and Compliance alias: [buscond@microsoft.com](#)
- Via [microsoftintegrity.com](#)

*) For questions that requires sharing of personal or sensitive information, including any sales deals details and for self reporting compliance failures, reach out to your local C&C team

Your resources

Integrity concern



It starts with trust.

Integrity and respect build trust with our customers, partners, and each other. That's who we are. When something's not right, we share our concern so we can fix it.

Ask for help at www.microsoftintegrity.com.

Raising a concern

When something is not right, speak up so that we can address the problem.

Your confidentiality is protected.

What happens when you escalate?

- Independent review by investigators from OLC
- The review is confidential
- The goal is to clarify what happened
- Report out

No Retaliation

Our success depends on you letting us know if something's not right

We understand that it's not easy to speak up

That is why we do not tolerate retaliation.

How managers should handle Concerns

- Take Responsibility to listen and act
- Take the concern seriously
- Be committed to solve the problem
- Take steps to protect the person's confidentiality



Web: MicrosoftIntegrity.com
[Report Side agreements here](#)



Email: buscond@microsoft.com



Phone: 1-877-320-6738 or
International Collect +1-720-904-6844



Fax: 1-425-708-7177

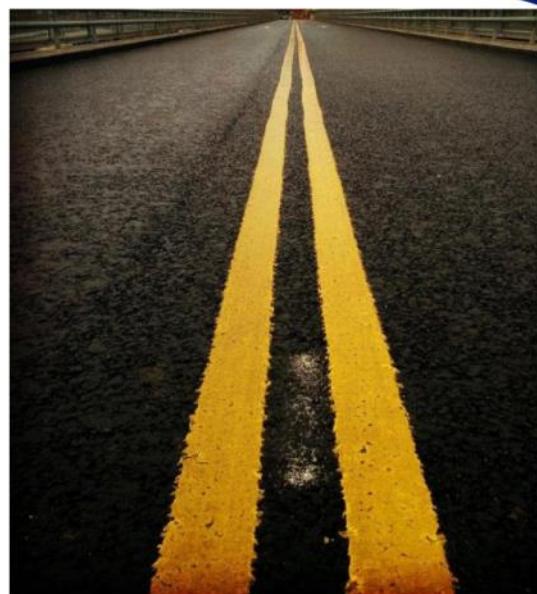


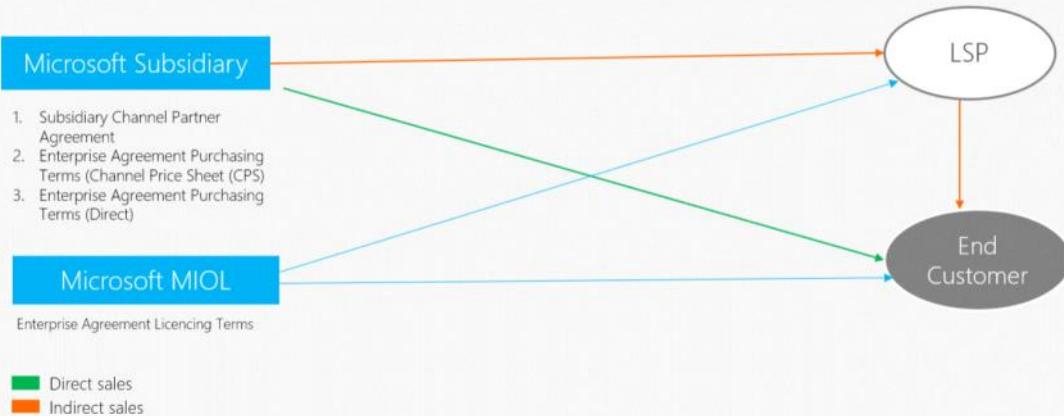
Mail:
Office of Legal Compliance
Microsoft Corporation One
Microsoft Way Redmond,
WA 98052 United States



Topics

1. Corporate Structure
2. Contracts
3. Anti-corruption
4. Antitrust
5. Marketing law
6. Privacy





*MIOL = Microsoft Ireland Operations Limited

*LSP = Licensing Solution Partners

Standard agreements

Microsoft only uses standard agreements unless non-standard is approved



Volume Licensing

MBSA
EA
Enrollment
CSP

Services

MBSA
WO
ESOW
Premier

Other Agreements

NDA
MOU/LOI
Supplier agreements
Sponsorship agreements

MBSA frame agreement. The umbrella agreement. All others come under this agreement. It is evergreen. In Europe is by Ireland.



Prohibited: A side agreement is any binding arrangement, written or spoken, that promises a customer or partner something that is not contained in the contract documents processed and approved through the standard contracting and ordering process at Microsoft.

Alias: [EmpGuide ESAP \(policies\) or VLAR \(escalations\)](#)



Custom Agreements (CA)

	
General rule When you make any sales, marketing, or MS services agreement regardless of your organization, you must follow MS standard processes and documentation. In most cases you have to <ul style="list-style-type: none">• use standard program templates (including authorized amendments)• or use CELA-approved templates to document agreements	CA requirements CA are agreements that are not based on a standard program template or a CELA-approved template. Requirements: <ul style="list-style-type: none">• CA accurately reflects the totality of the agreement• CA are properly documented, reviewed, approved signed and stored in ART Tool• Examples of CA: MOU - Memorandum of Understanding, LOI - Letter of Intent or comfort letter

[Link to Custom and Side agreement Policy](#)

[Link to ART Tool](#)

The Anti-Corruption Policy prohibits corruption

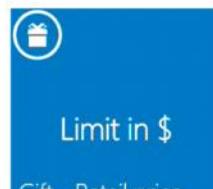
Microsoft prohibits paying bribes in any commercial transactions worldwide

Microsoft prohibits giving travel, gifts or hospitality to government officials, unless exception applies



Gift Policy – Government Officials

Rule



Exception

Travel, Gift & Hospitality (TGH) Tool

1. Policy Requirements
2. Government's pre-approval for travel & lodging
3. Microsoft's GM pre-approval
4. Pay and categorize correctly

Travel, lodging, gifts and meals

No price-fixing

No market division

No coordination of business
strategies

No minimum price-fixing
with channel partners

We currently treat these products as High Share around the world



Windows



XBOX



Windows Server

Microsoft SQL Server



Office



SharePoint



Exchange

Key points on high-share products:

- No bundle/tying
- No predatory pricing
- No loyalty rebates
- No discrimination



Strong = kind

Clear

It should be clear that marketing is marketing

Sender

Clear who is responsible for the marketing

Information

It is prohibited to exclude important information

Proof

We need to be able to prove what we say



Obligations to customers

- Consent to processing
- Inform about WHAT and WHY we are processing the personal data
- Registry excerpts
- No authorized transfer



Internal obligations

- Security measures
- Agreements with vendors
- Internal training
- Always contact Privacy Lead when processing personal data

Alias: [PrivWE or SMPPWE](#)

[Data Protection and Privacy - Seller Readiness Resources Europe \(sharepoint.com\)](#)

Agenda

- Welcome to WE CSU
- Our Leader Our Team
- Mission & Vision
- Our scope: Cloud, Playbook, OKRs
- MCEM
- Our collaboration platform
- Your Skilling & Development
- Sustainable & Inclusive CSU
- Q&A

WE Together



"In a consumption-based business, customer success is all that matters, because it builds on itself over time."

Amy Hood
Microsoft CFO

Source: [Businessweek](#) - "How Microsoft revolutionized its sales force"

Consumption is the priority

Our Leader



JAMEL GAFSI
GM WE EUROPE - Microsoft
[\(32\) Jamel Gafsi, Ph.D | LinkedIn](#)

Born and raised in Tunisia, studied in Germany, PhD in France. Currently lives in Paris, with his wife and 3 children. Before Microsoft, taught at university and was Founder/CEO of European software delivery Start-up. His Microsoft journey began in 2006. Today GM of Western Europe Customer Success organization, with a team of 1500+ spread throughout 12 countries.

The customer is always first, our people are our currency, agility is paramount, results are supreme. President of Microsoft Engineering Center Paris, diverse and international R&D organization, where he designed and delivered a wide range of innovations and features across a multitude of product families.

Lead the Windows Media business development and partnership activities across EMEA. Lead M&A activity for Microsoft Windows Mobile Europe. Jamel sponsors the association "Elles Bougent" (motivating girls in high-school in France to pursue computer science and Technology) and "Tunispoir" (renovating + equipping schools in poor villages in Tunisia).

Do what you say
Say what you do

With the digital transformation landscape more complex than ever, it's never been clearer that every organization will need to put customer always at the center, do the right thing for our customers FIRST.

WE CSU is THE Trusted Technology Advisor to our Customers, delivering Value that

- Accelerates THEIR Digital Transformation & Cloud Adoption
- Strongly reflects THEIR Priorities.

Jamel Gafsi
Microsoft WE CSU GM

- Put the customer in the center
- Value in accelerating digital transformation

Our People in FY23

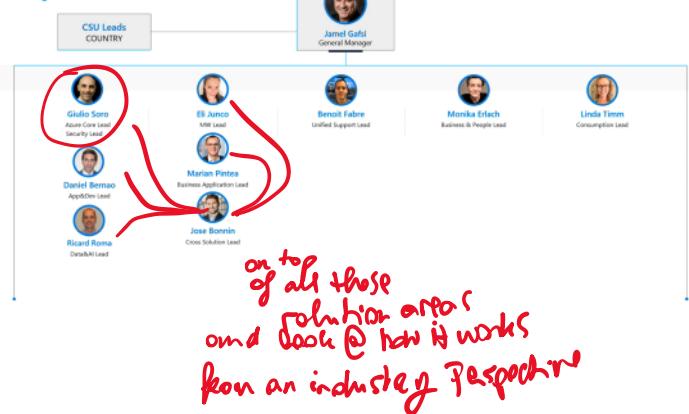


→ 80% external → FRESH IDEAS
→ lot of opportunity

*Numbers as of October 2022

WE CSU Leadership Team

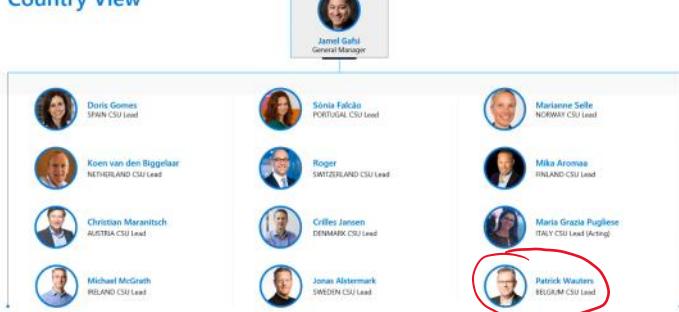
HQ View



ATV
STU

WE CSU Leadership Team

Country View



Opportunities
Emerging
Risks

Roles and Responsibilities explained – CSU

Collaborating to **jointly** and **proactively** accelerate value through consumption, new/expanded solution areas, technical intensity, and cross-cloud/industry scenarios, while improving our customers' experience.

WE Country Teams	Shared focus	Area Team
<ul style="list-style-type: none"> Build a world class team by attracting, nurturing and growing technical talents to CSU and to Microsoft Be accountable for delivering the expected contribution performance across all workloads, delivery execution across workloads, customers and partners while deeply aligning with other segments in the country Accelerate value through consumption, expanded solution areas, technical intensity, cross-cloud and industry scenarios Drive our customers and partners through expertly delivered supported and focused engagement Be our Customers' Trusted Advisors and proactively work with each of them on the NEXT-BEST Workload 	<ul style="list-style-type: none"> Clarify the Roles Models for the CSU Organization Streamline & optimize the engagement model to deliver and engage with our customers (e.g., CSAMs, CES, CSAs, CSMs) Continue to drive learnings and evolve engagement to scale and improve cloud deliveries through and with internal & external partners Engage cross-Area-Country for accelerated execution & transformation 	<ul style="list-style-type: none"> Build a World Class Team across WE <ul style="list-style-type: none"> Attract, hire & grow talents, leaders & communities Drive the CCT transformation and cultural change Coach, inspire & enable for accelerated scaling Drive Growth via Hyper-growth <ul style="list-style-type: none"> Set unified direction through concrete framework on priority Actions/Programs Drive for Cross-Segment Alignment to scale usage Role Model <ul style="list-style-type: none"> Enable, Accelerate, Escalate & Unblock Drive customer centric & learning through select customer and partner deep engagements Perform and Innovate <ul style="list-style-type: none"> Drive cross-area consolidation, consolidated area performance and operational excellence Be the Corp's proxy to subs. to reduce disruption and noise Drive area Innovation and influence Corp: Amplify our voice by leveraging our scale

MISSION

Empower customers across all industries through the unique value of the Microsoft Cloud

FY23

WE CSU Vision & Priorities

WE CSU is THE Trusted Technology Advisor to our Customers, delivering Value that (i) accelerates THEIR Digital Transformation & Cloud Adoption and (ii) strongly reflects THEIR Priorities



Consumption is the accountability of the whole company



Seller's
Perig to the card
→ To our
cups

CSU will put
in place solution
work w/ STO to put in place
solution.

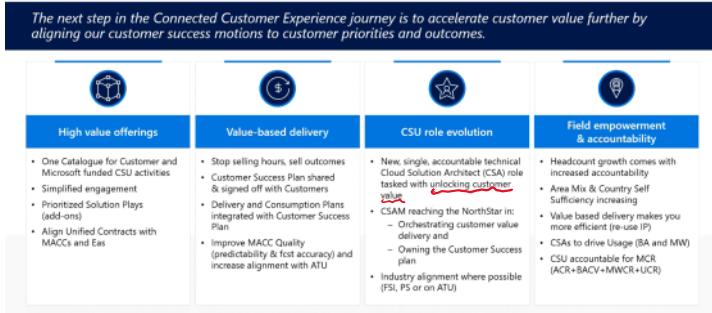
→ think this process, you
see another poppy (for re-

Sample Bol

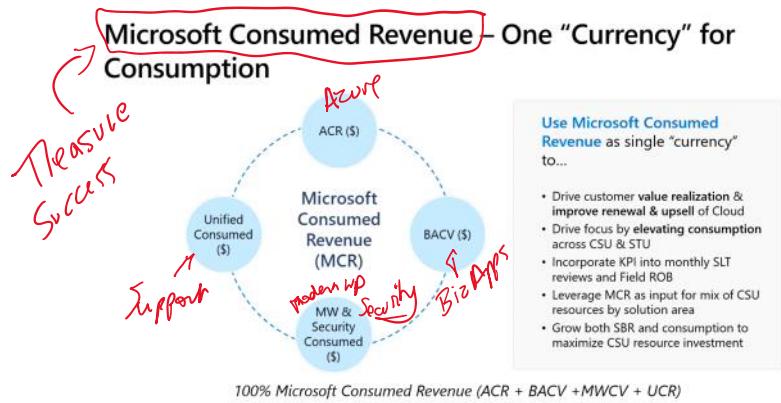


of life
whole company

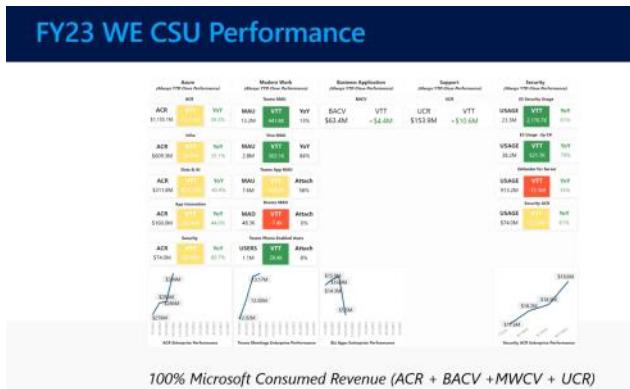
FY23 WE CSU: Align everything we do to our Customer Priorities



Our Scope Cloud, Playbook, OKRs



Faster
200% YoY



Take to ATM / ST
to get D1 specific

T U

S V

A new era for sales

Our role has evolved to partnering with our customers until they realize the value of our solutions and achieve their outcomes.

Every role comes together and plays a part in our sales process with our customers outcomes at the center.

Remaining Customer Obsessed

Every person has an opportunity and obligation to build long-term customer relationships built on trust, our promise to deliver on commitments, and the increased value our solutions bring to our customers.

Less	More
1 Telling	Listening first
2 Pitching	Consulting on the customer's needs
3 Siloed conversations	Connected discussions across "every room in the house"
4 Single product recommendations	Unified cross-team solutions
5 Focusing solely on the most immediate wins	Solving our customers immediate needs and their longer-term goals

Microsoft Confidential

Our Solution Plays connect with MCEM Stages



Video

End2End Demo: From MSX & Customer Priorities, to requesting a CSA, to dispatch, activity tracking and reporting back to the customer

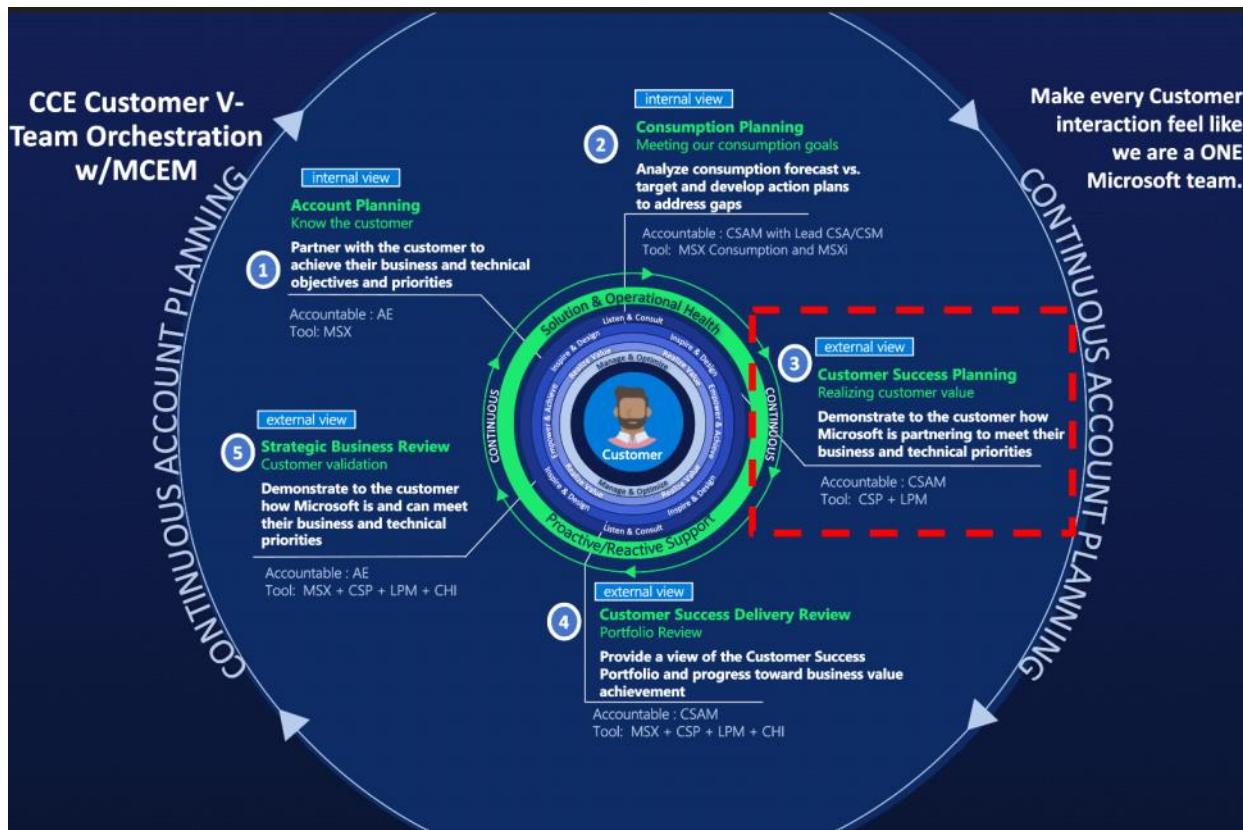
FY23 CSU Business Model Evolution



Plan Refresh Week - Customer Success Planning

Thursday, January 26, 2023 11:05 AM

Core: Customers have to be at the center of all that we do.



Customer Success Planning supports the **Connected Customer Experience (CCE)**

Customer Success Planning enables customers and Microsoft to be more proactive about customer goals and **ensures alignment and insight** into the work MSFT is driving to achieve customer objectives and priorities.



Customer Success Plans allow you to **directly trace the impact of your work** on customer objectives and priorities

The ability to prioritize, plan, and deliver targeted Opportunities with **clarity and predictability** of Microsoft deliverables leads to **accelerated cloud adoption and consumption**



Talk to customers about what matters to them, and **meet and exceed your quotas faster**

From: aka.ms/SPaCEcompanion

Customer Success Planning

From: aka.ms/SPaCEcompanion



What is Customer Success Planning?

Customer Success Planning **demonstrates to the customer how Microsoft is partnering to accelerate value realization**

1

What is Customer Success Planning?

Customer Success Planning **demonstrates to the customer how Microsoft is partnering to accelerate value realization while achieving their priorities.** The output of Customer Success Planning are Customer Success Plans – used to facilitate mutual agreement, alignment, and commitment to activities required to achieve the customer's target outcomes.

Customer Success Planning is a partnership with our customers to achieve their objectives and priorities

2

Who Participates in Customer Success Planning?

The **CSAM is accountable** for Customer Success Planning. However, creating and maintaining plans **requires support across the Customer V-team.**

- **ATU:** Accountable for up-to-date capture of Customer Objectives and Priorities in the MSX Account Plan
- **STU:** Accountable for identifying outcomes, guiding business case and implementation decisions, and maintaining active Opportunities
- **CSU:** Accountable for identifying outcomes, guiding architecture and implementation decisions, analyzing consumption (deployment) forecast vs. target and developing action plans to address gaps, and maintaining active Opportunities & Milestones
- **ISD:** Accountable for maintaining active Consulting Projects

Customer Success Planning is a team sport involving the entire Customer V-team and led by the CSAM*

3

RoB of Customer Success Planning

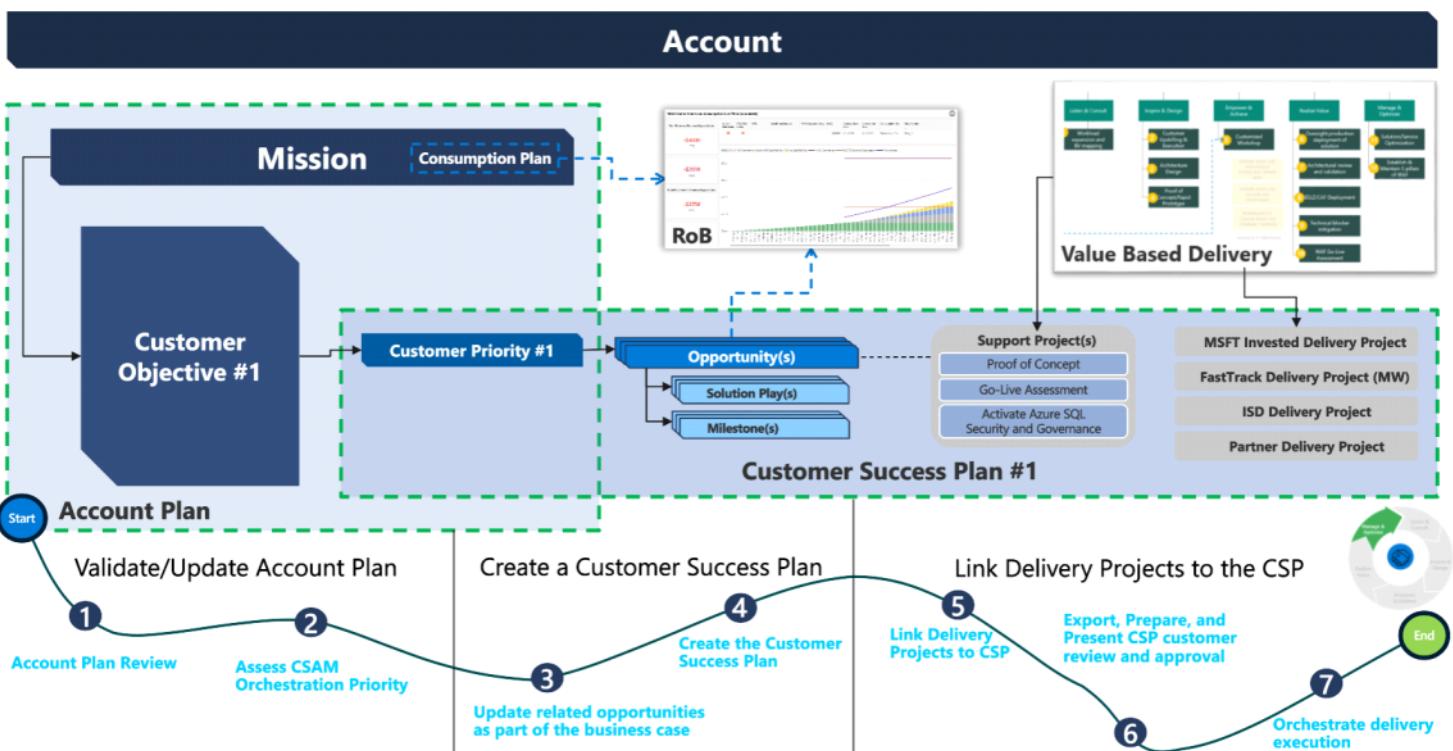
The Customer Success Portfolio should be **reviewed monthly** with the customer during the Customer Success Delivery Review (CSDR) and during the Strategic Business Review as appropriate, led by the CSAM **to validate that we are working on the right things and will meet their target outcomes.**

The CSAM is accountable for updating the Customer Success Plan (CSP), covering the CSP in the CSDR, and including Customer V-team members where appropriate

* dependent on prioritization and available capacity

Come together make the self promise a reality while we work as a team within this context. Cmr will immediately get that value or not.

Account Plan & Consumption Plan & Customer Success Plan Connection



What is Value Based Delivery?

<http://aka.ms/VBD>

Value Based Delivery is a framework focused on driving customer outcomes by aligning CSU technical deliveries to the customer priorities within the Account plan to help drive billed and consumed opportunities.

Why we are doing this

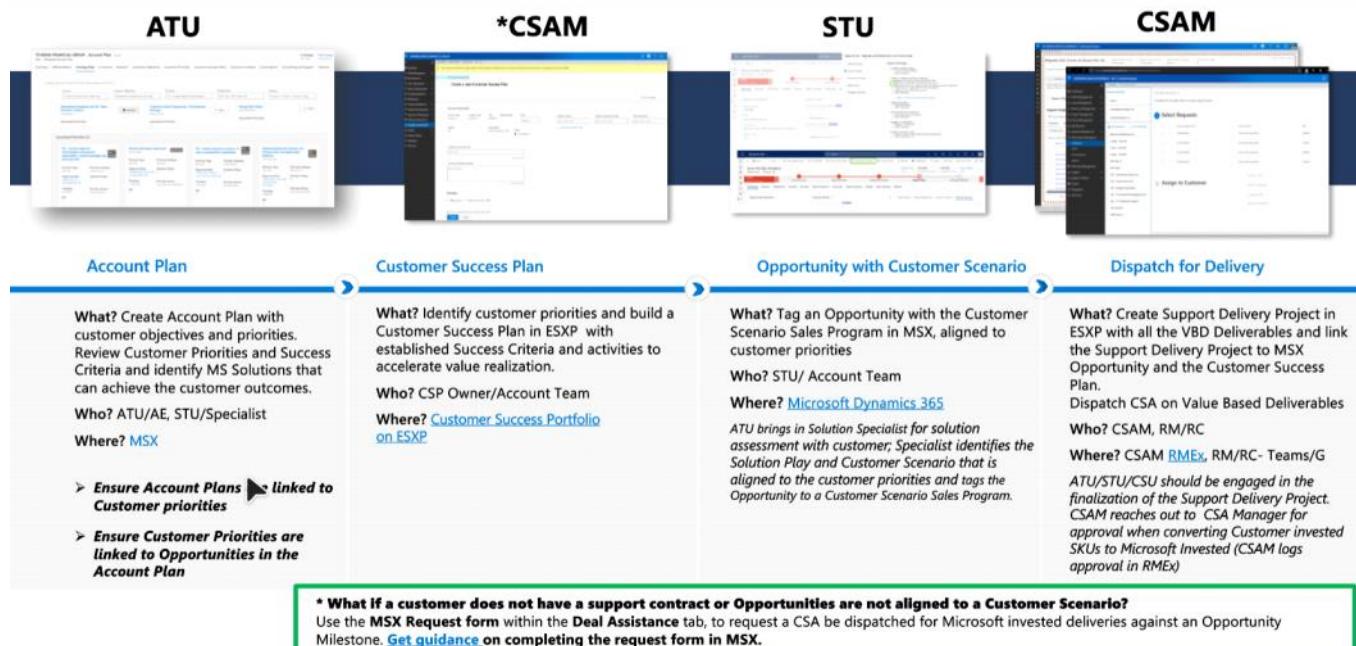
Joint investment of Microsoft Funded and Customer Funded to ensure successful outcomes

Access to Customer Success CSAs to deliver consistent engagement with high quality through the MCEM stages

Demonstrates solution and impact to the customer in order to advance the opportunity



How – four stages to executing Value Based Delivery



Using Azure as an example - leveraging VBD to sign a deal and drive consumption of ACR

Customer Scenario: Migrate SQL Server to Azure SQL MI and IaaS

Pre-Sales activity to get a deal signed

MCEM Phase	MCEM Activity	VBD Activity	IP Name	TPM Contact
Listen & Consult	Consume signals, leads, information and insights	Workload Expansion and Business Value Mapping	Workload Expansion for Migration to Azure SQL Managed instance	Bryce Seibel
Inspire & Design	Capture Customer Needs	Customer Upskilling and Execution	Upskilling Plan and Execution for Migration to Azure SQL Managed instance	Bryce Seibel
Inspire & Design	Create Architecture	Customized Workshop	Customized Workshops for Migration to Azure SQL Managed instance	Bryce Seibel
Inspire & Design	Create Architecture	Architecture Design	Architecture Design Services for Migration to Azure SQL Managed instance	Bryce Seibel
Empower & Achieve	Deliver Technical/Business Proof	Proof of Concept/Rapid Prototype	Proof of Concept for Migration to Azure SQL Managed instance	Bryce Seibel
Realize Value	Perform Technical Validation	Architectural Review and Validation (Technical Validation)	Architectural Review Session for Migration to Azure SQL Managed instance	Bryce Seibel
Realize Value	Deploy Azure landing zone and validate workload architecture design using Well-Architected Review	Build/Deploy Solution (Includes ESILZ, CAF)	Azure Landing Zone Deployment for Migration to Azure SQL Managed instance	Bryce Seibel
Realize Value	Mitigate Technical Blockers	Technical Blocker Mitigation	Technical Blocker Mitigation for Migration to Azure SQL Managed instance	Bryce Seibel
Realize Value	Oversight of MVP/Io production deployment	Oversight Production Deployment	Production Deployment Checklist for Migration to Azure SQL Managed instance	Bryce Seibel
Realize Value	Complete Go-Live Assessment	Go-Live Assessment	Go-Live Assessment for Migration to Azure SQL Managed instance	Bryce Seibel
Manage & Optimize	Drive ongoing health & proactive	Establish & Maintain 5 Pillars of WAF	Establish Well-Architected for Migration to Azure SQL Managed instance	Bryce Seibel

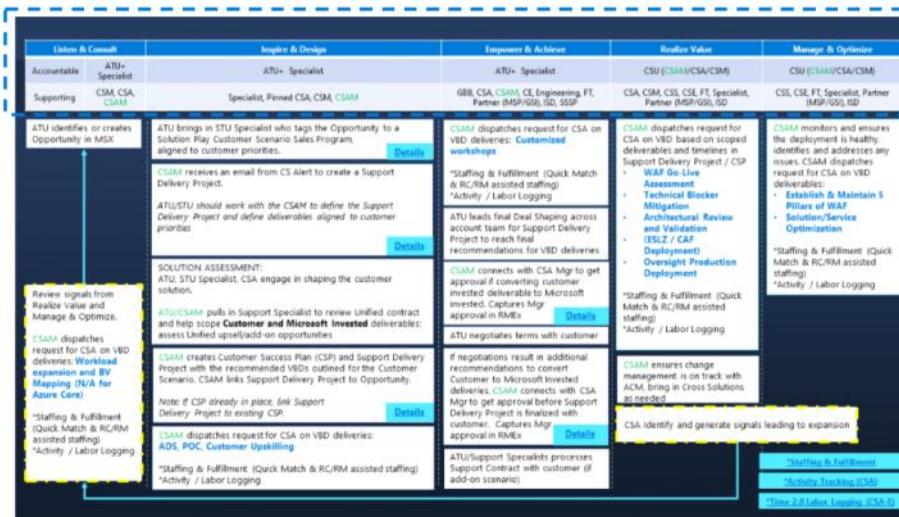
MS Invested Customer Invested

For any feedback regarding Titles, please go to [VBD and MIP Field Feedback](#)

Last Updated: 12/5/2022 6:09:23 AM PST Next Refresh: 12/5/2022 7:09:23 AM PST

Post – Sales to drive consumption

Executing on VBD is a Team Sport!



- Check out the accountable and supporting roles throughout the end-to-end VBD process.
- VBDs are not the sole responsibility of the CSAM, for customer success and value, VBDs must be a Team Sport!

Italy Case: One Microsoft (Italcementi)

Stefania Rossi



Heidelberg Materials (Italcementi) & Microsoft Strategic Partnership - Success Plan

Stefania Rossi (CSAM)
24/01/2023

Jointly developed Partnership Ambitions and Opportunities



"Reimagine Heidelberg Materials as a digital, sustainable, industrial tech company" in the cement industry through connected and smart digital products and services powered by AI, while making sustainability a top priority.

Microsoft and Heidelberg Materials establish a co-innovation and digital delivery partnership to enable, innovate and scale software product and service offerings to Heidelberg Cement's internal and external customers.

Accelerate Digital Delivery & Enable the Data Estate

Jointly refine, plan and execute the overall digital strategy & delivery in a programmatic way. Prepare the Data Estate including connectivity, raw data and data refining for use by software applications, services and API's.

Create SaaS Applications

A new need and opportunity arises to create sophisticated SaaS applications either not currently available in the open market or not deemed good or bespoke enough to satisfy current and future needs including potential external customers.

Scale SaaS Applications (internally and then externally)

Scaling SaaS products from prototype to robust and reliable adoption and continuous end user satisfaction internally and externally requires both intensive "productization" efforts

Migrate on the Cloud

Migrate 5000 servers from on-prem to Azure native to enable the core of Digital Transformation and reduce carbon footprint.

Security

Safeguard people, production and enterprise data, and infrastructure with a comprehensive approach (clients, servers, IT-OT)

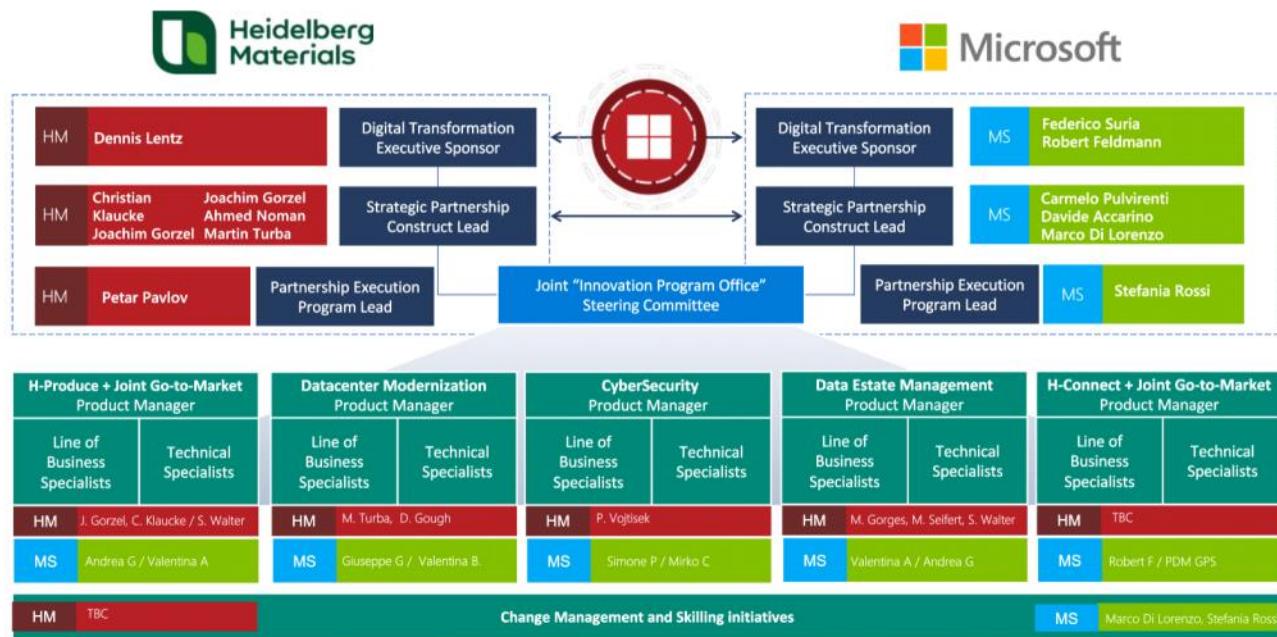
Digital Employee Experience

Enable modern remote and secure work.
Allow employees to easily and securely access corporate applications, data, and resources from any device, anywhere.
Modernize Endpoints and improve collaboration;
Deploy Group CRM on Dynamics 365

Sustainability

Enable understanding of how the organization is managing risks and opportunities related to environmental, social, and governance criteria (ESG)

Partnership Governance Model



Overall Partnership Program Governance & Meetings

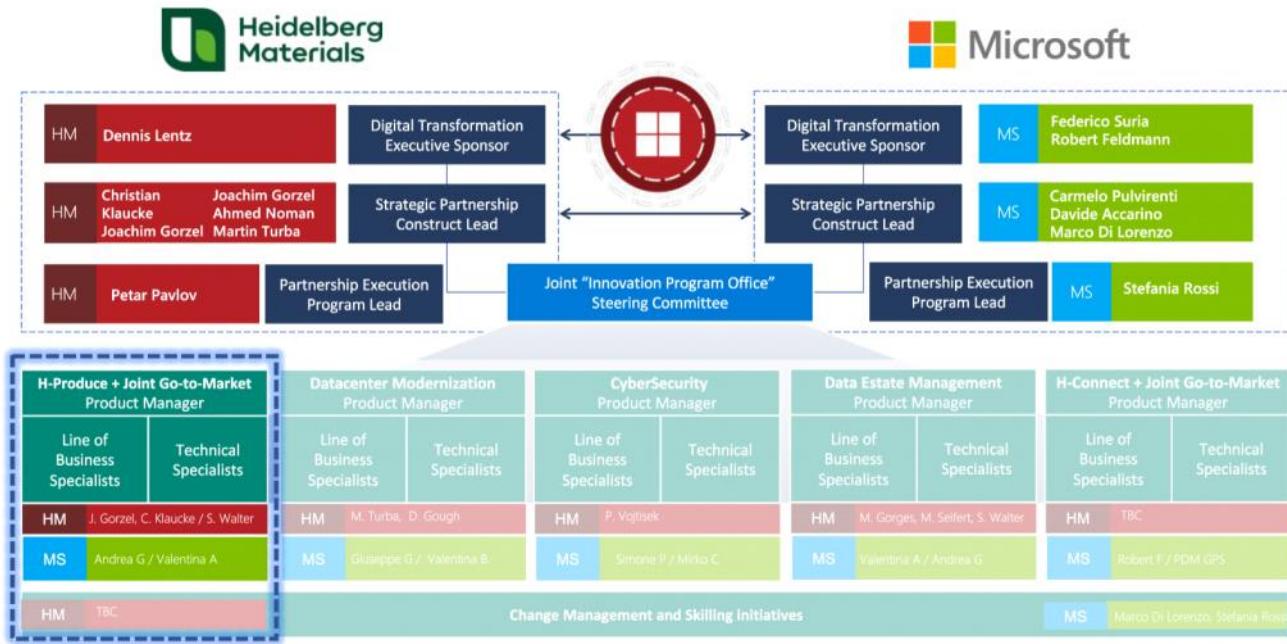


Areas	Objectives	Microsoft & ISD	Heidelberg Materials	Frequency	Recurrence
Partnership Exec Board	<ul style="list-style-type: none"> Review Partnership progress and remove stoppers Take strategic decisions Coach and guide to the teams Align pillars and escalate if needed 	<ul style="list-style-type: none"> Attendees: Davide Accarino, Stefania Rossi, Marco Di Lorenzo Sponsors: Federico Suria, Robert Feldmann 	<ul style="list-style-type: none"> Attendees: Christian Klaucke, Andreas Löber, Joachim Gorzel Sponsor: Dennis Lenz 	Quarterly	Next 23/1
Kitchen Cabinet	* Weekly discussion on a round table of top of mind regarding MS-HM Strategic Partnership	<ul style="list-style-type: none"> Attendees: Robert Feldmann, Stefania Rossi, Marco Di Lorenzo, Davide Accarino, Philippe Lemaitre, Carmelo Puvirenti 	<ul style="list-style-type: none"> Attendees: Christian Klaucke, Andreas Löber, Joachim Gorzel 	Weekly	Every Friday at 8.30
H Produce Track + Joint Go-to-Market	<ul style="list-style-type: none"> Solution Factory Weekly Review Solution Factory baseline for apps creating value from data (Sol. Factory) Collaboration for finalization of Solutions Factory playbook 	<ul style="list-style-type: none"> Attendees: Robert Feldmann, Stefania Rossi, Marco Di Lorenzo 	<ul style="list-style-type: none"> Attendees: Christian Klaucke, Joachim Gorzel 	Weekly	Monday at 16.00
	<ul style="list-style-type: none"> Innovation Stage Evaluate 3P solutions/ISV for Solutions Factory/IDP (Shopping Window for market solutions, for make vs buy decisions) 	<ul style="list-style-type: none"> Attendees: Robert Feldmann, Stefania Rossi, Marco Di Lorenzo 	<ul style="list-style-type: none"> Attendees: Christian Klaucke, Joachim Gorzel 	Weekly	Tuesday at 17.00
	<ul style="list-style-type: none"> Industrial Data Platform Workshop to evaluate and validate final architecture for IDP Production of fine planning activities and unblocking milestones 	<ul style="list-style-type: none"> Attendees: Robert Feldmann, Marco Di Lorenzo, Andrea Gandini, Valentina Alto, Karsten Strebaek 	<ul style="list-style-type: none"> Attendees: Christian Klaucke, Joachim Gorzel, Sebastian Walter 	Monthly	Next 16/12
	<ul style="list-style-type: none"> Remote Operations Center (with McKinsey) Remote Operations Center Pilot in NAM Advisory in scaling IDP and Solutions Factory w/w in 140 plants 	<ul style="list-style-type: none"> Attendees: Robert Feldmann, Marco Di Lorenzo, Stefania Rossi, Davide Accarino, Andrea Bez 	<ul style="list-style-type: none"> Attendees: Christian Klaucke, Joachim Gorzel, Sebastian Walter 	Weekly	Friday at 11.00
Data Center Migration Track + Cybersecurity	<ul style="list-style-type: none"> Keep track of collaboration status with ISD Architecture related to DC Move Project to start in June 2023 	<ul style="list-style-type: none"> Attendees: Stefania Rossi, Marco Di Lorenzo, Carmelo Puvirenti, Valentina Barstocchi 	<ul style="list-style-type: none"> Attendees: Martin Turba, Dean Gough, Omerta Zdenek Sponsor: Andreas Löber / Christian Klaucke 	Bi-weekly	Steerco monthly Status update bi-weekly at 15.00 Tuesday Sprint Review To be started

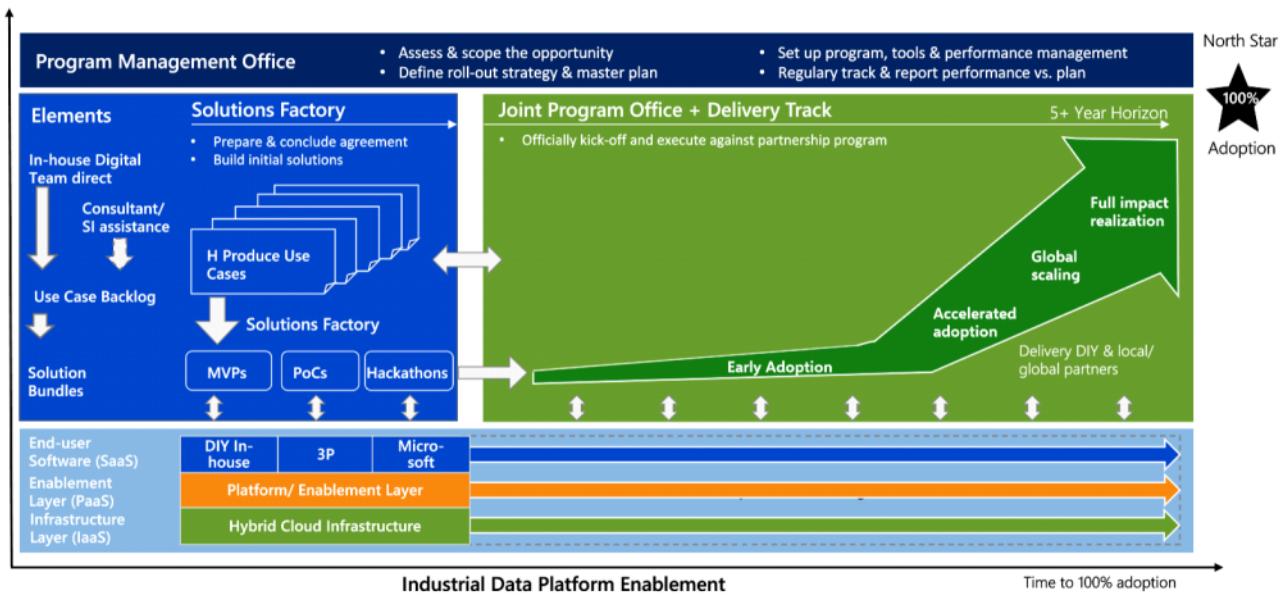
The Microsoft Team

Central Orchestrating Unit				
Davide Accarino Account Executive 	Stefania Rossi Customer Success Account Manager 	Marco Di Lorenzo Account Technology Strategist 	Robert Feldmann Director Industry 	
Solution Sales		Customer Success		ISD Microsoft
Valentina Alto SSP Data & AI 	Giuseppe Guerrasio CSA Azure Core 	Nelson Del Villar CSA-Engineering Infra 	Carmelo Pulvirenti Account Executive 	
Laura D'Ambra SSP Modern Work 	Simone Banchieri CSA App Innovation 	Massimiliano Curti CSM Teams Phone 	Valentina Baistrocchi Project Mgr 	
Clarissa Molino SSP BizApps 	Andrea Gandini CSA Data & AI 	Francesco Riccio CSM Dynamics & Power Platform 	Philippe Lemaitre Program Delivery Manager 	
Andrea Carrer SSP Unified Support 	Stefano Zeglio CSA-Engineering Infra 	Victoria Doditoiu Incident Mgr 		
Andrea Bez SSP Azure Core 	Mirko Cavallini CSA-Engineering Security 	Simone Verza CSA-Engineering Infra 		

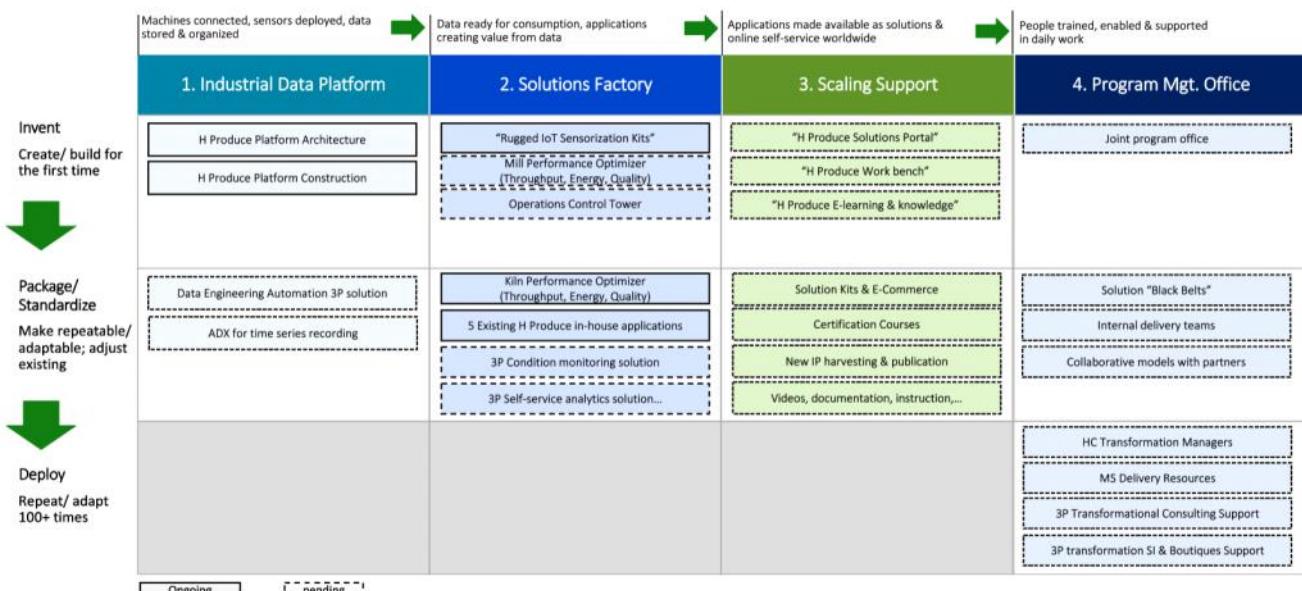
Partnership Governance Model



Three horizon journey towards Global Adoption (H Produce focus)



H Produce “What” – First year of priorities



High Level Plan for H Produce (Production Plants Unit)

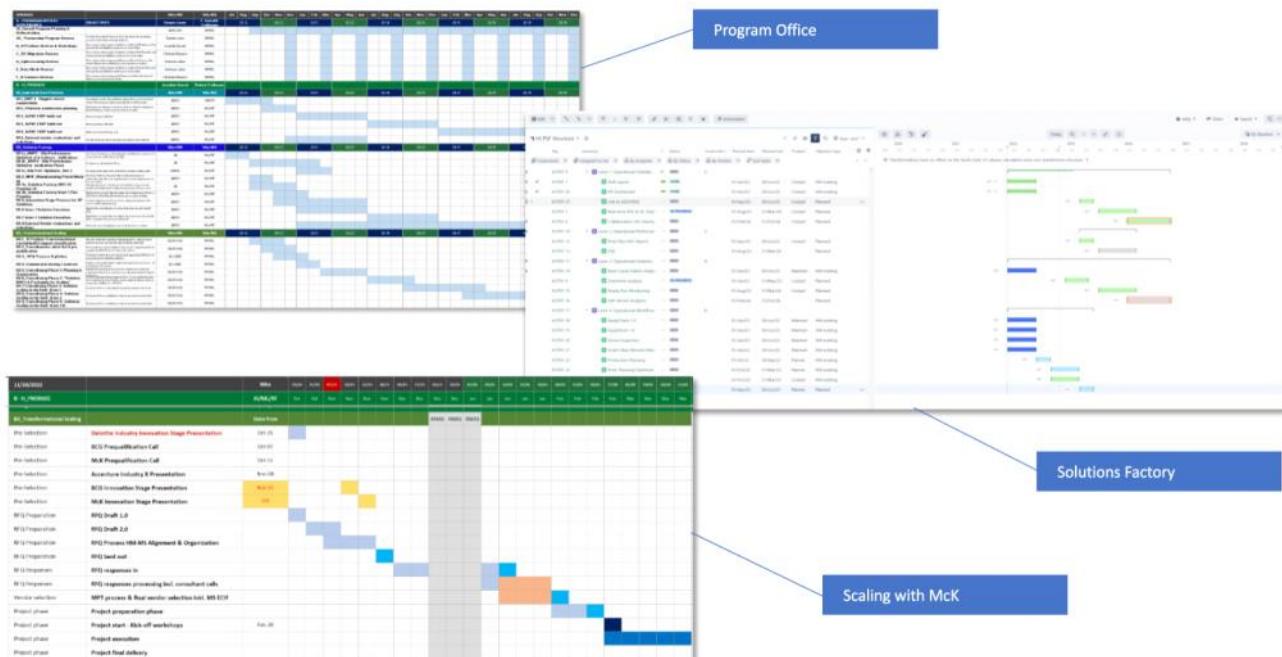
Microsoft Heidelberg Materials

Priority	Area	Activities	2023					Status	Highlights (Main evidences, risks, issues)	Partners	Financial Coverage (MSFT/Cust)
			Q1	Q2	Q3	Q4	Q1				
H Produce Enable the OT-IT integrated Data Estate for H Produce to create a scalable platform for all manufacturing related needs both for HC Group and external customers	1. Industrial Data Platform (MVP1)	<ul style="list-style-type: none"> MVP1 – Rugged IoT Sensorization Kits MVP1 Scaling on 140 plants worldwide 	100%					Green	Main Evidences: MVP1 closed 14/10 active in 2 plants – scaling roadmap to be confirmed	Microsoft ISD	
	1. Industrial Data Platform (Data Governance and Plantlink)	<ul style="list-style-type: none"> High level architecture and responsibilities inter HM teams defined (Plantlink vs Maintain) VBD: Architecture Design Session for Cataloging, Classifying, and Mapping Lineage of Data Sets with Microsoft Purview VBD: Azure landing zone Deployment for Cataloging, Classifying, and Mapping Lineage of Data Sets with Microsoft Purview 	100%					Green	Main Evidences: Series of workshops completed and validated responsibilities inter HM teams. Draft technical roadmap to be validated and confirmed. VBD to be confirmed and scheduled accordingly	Microsoft ISD	<ul style="list-style-type: none"> 520k ECIF for McKinsey (Phase 0) MS Investment → Data & AI Cloud Solution Architect 1h per week Enterprise Skilling Initiative
	2. Solutions Factory (Predict and Maintain)	<ul style="list-style-type: none"> VBD: Architectural Review Session for Analytics Scenario with Synapse, Power BI, and Azure Machine Learning VBD: Technical Blocker Mitigation for Analytics Scenario with Synapse, Power BI, and Azure Machine Learning 						Green	Main Evidences: Draft technical roadmap to be validated and confirmed. VBD to be confirmed and scheduled accordingly	Microsoft ISD	
	3. Remote Operations Center and Scaling	<ul style="list-style-type: none"> ROC Pilot in NAM Governance and Advisory in Scaling of IDP and Solutions Factory 						Green	Main Evidences: Mck Staffing complete. Kickoff Friday 27/2	McKinsey	

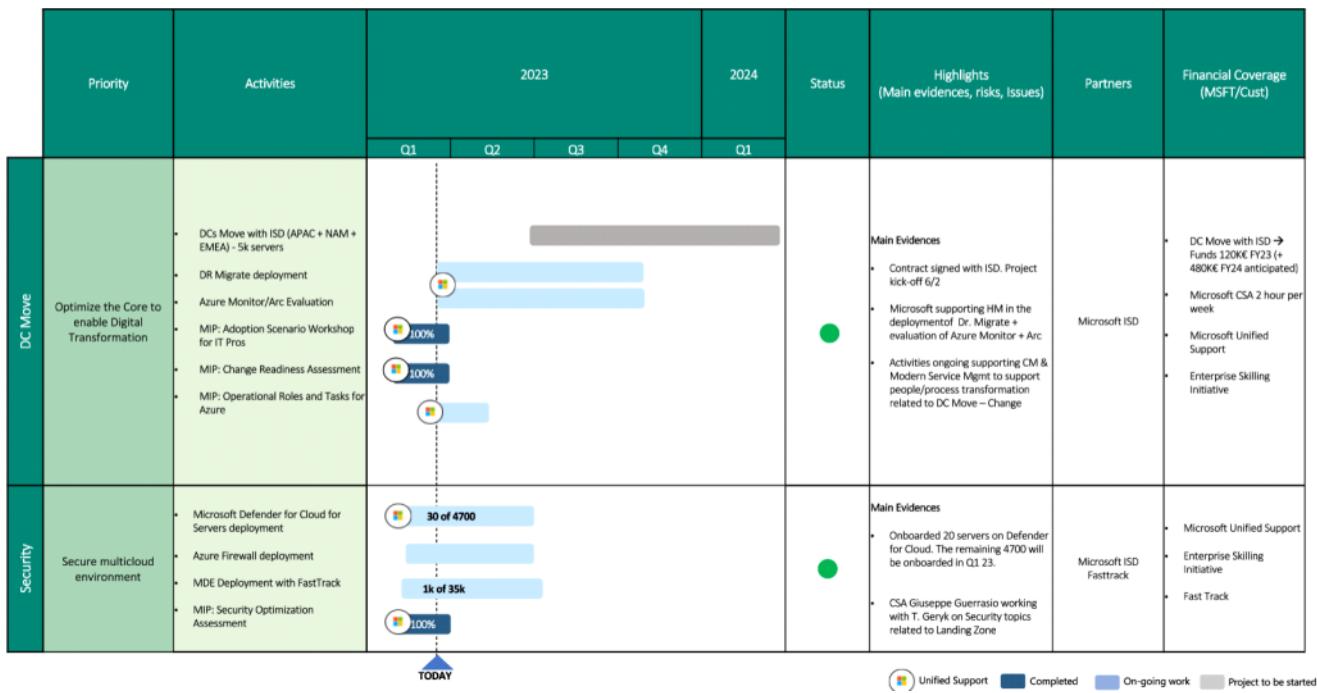
TODAY

★ Unified Support [Blue Box] Completed [Light Blue Box] On-going work [Grey Box] Project to be started

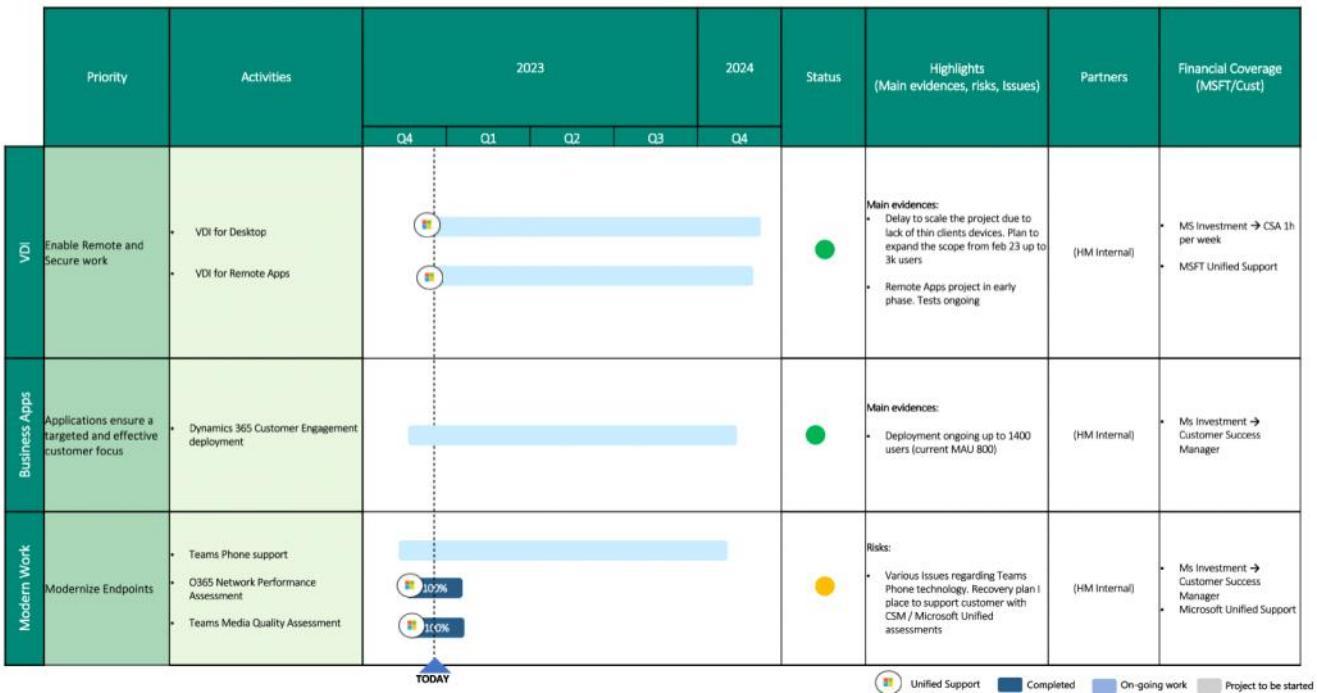
Tracking tools for H Produce initiatives



High Level Plan for DC Move & Security



High Level Plan for Digital Employee Experience



Netherlands Case: VBD Engagement Collaboration in Process & Tools

Robin Santifort

connected the customer priority->solution play->CUSTOMER SCENARIO->VBD Selection->Customer Success Plan

MSX – Account Plan Priority

Dynamics 365 | MSX D365 | Search

Eneco Holding N.V. - Account Plan - Saved
Plan - Enterprise Account Plan

Summary ROTH Strategy Map 3 Horizons Research Customer Objectives **Customer Priorities** Customer Success Plans Customer Contacts Consumption Consulting and Support

1-Full Plan Type Bart Bohnenn Actual Owner

Active Customer Priorities

Group By: (no grouping) ✓

Customer Obj...	Priority Type	Priority Subtype	Microsoft Prior...	Time Frame	Account Name	Pricing Level	Customer Top...	
Agile Cloud Enablement	Operational	Business	Power & Utili...	Zarreen Moore	10/31/2024	Eneco Holdin...	Top	Yes
Cyber Security end to end IT/OT	Operational	Technical	Security	Jean-Pierre v...	6/30/2023	Eneco Holdin...	Top	Yes
Digitalization of energy Process	Smart services	Business	Power & Utili...	Taco Langmu...	6/30/2023	Eneco Holdin...	Top	No
Heat Solutions Development	Increasing th...	Business	Power & Utili...	Bart Bohnenn	6/30/2023	Eneco Holdin...	Top	Yes
Intelligent Asset management	Increasing th...	Business	Power & Utili...	Taco Langmu...	6/30/2023	Eneco Holdin...	Top	No
Intelligent Data Driving Organization (IDO)	Exchanging s...	Technical	Data and AI	Nedim Arna...	12/31/2025	Eneco Holdin...	Top	Yes
LH - DIGITAL - B2C Services - Orion Release	Customer loy...	Business	Power & Utili...	Mickey Navis	6/30/2023	Eneco Holdin...	Top	Yes
LH - Digital Assetmanagement	Exchanging s...	Business	Power & Utili...	Bart Bohnenn	7/1/2024	Eneco Holdin...	Top	No
LH - INTEGRATION - Energy & Trade (EET)	Share of sust...	Business	Power & Utili...	Taco Langmu...	6/30/2023	Eneco Holdin...	Top	Yes
LH - INTEGRATION - Energy & Trade (EET) ...	Operational	Business	Power & Utili...	Leon de Jager	12/31/2025	Eneco Holdin...	Top	Yes

MSX – Priority and Opportunities

Dynamics 365 | MSX D365 | Search

Cyber Security end to end IT/OT - Saved Priority

Active Status 6/30/2023 Jean-Pierre van den Eijnden Microsoft Priority Owner

Summary Solution Plays Partners Customer Contacts Competitors Content Opportunities Leads Actions

Customer Priority Opportunities

Topic	Opportunit...	Opportunit...	Account	Owner	Recommend...	Active Sale...	Solution Ar...	Solution Play	Status	Consumpti...	Status Reas...
Azure Security Go Big - Apps & Infra - Azure DevOps - X-F2HN3...	Consumpti...	Eneco Holding	Jean-Pierre van...	Uncommitt...	Empower ...	Security	Secure Mu...	Lost	Closed	N/A	
Centralize Cyber Intelligent Control Center	7-35IPWK...	Consumpti...	Eneco Holding	Taco Langmu...	Uncommitt...	Listen & C...	Security	Defend Ag...	Open	In-Progress	In Progress
Cybersecurity Roadmap and Optimization 2021	7-0000598...	Consumpti...	Eneco Holding	Dominik Eichle...	Uncommitt...	Empower ...	Security	Secure Mu...	Lost	Closed	N/A
Eneco Defender for Cloud / Servers	7-XKDLDE...	Consumpti...	Eneco Holding	Jean-Pierre van...	Upside	Inspire & ...	Security	Secure Mu...	Open	In-Progress	In Progress
Eneco Defender for IoT	7-0001924...	Consumpti...	Eneco Holding	Jean-Pierre van...	Upside	Inspire & ...	Security	Secure Mu...	Open	In-Progress	In Progress
Eneco Sentinel	7-WF7D55...	Consumpti...	Eneco Holding	Jean-Pierre van...	Commitme...	Empower ...	Security	Defend Ag...	Open	In-Progress	In Progress
FZV-SD-ENECO-Mission Critical Control Frame	7-33QJET3...	Billed	Eneco Holding	Zarreen Moore	Upside	Inspire & ...	Security	Other	Lost	N/A	N/A

MSX – Opportunity & Solution Plays

This screenshot shows the Dynamics 365 MSX D365 interface for an opportunity named "Eneco | Sentinel". The opportunity is in the "Saved" state and has been active for 3 months. The main navigation bar includes "Search", "Save", "Save & Close", "New", "Close Billed", "Close Consumption", "Refresh", "Check Access", "Copy Opportunity", "Recalculate Opportunity", "Share", and "Help". The top right shows the account "Eneco Holding N.V.", owner "Jean-Pierre van den Eijnden", and dates "6/30/2023" and "8/31/2023".

The opportunity summary includes sections for "Opportunity Information" (Opportunity Id: 7-WF7D5SAWW, Title: Eneco | Sentinel, Customer Need: Central pane of glass for security events and automation, Opportunity Intent: Consumption, Account: Eneco Holding N.V., Customer Decision Maker: Justin Broeders, Billed Status: Open, Est. Billed Close Date: 6/30/2023), "Customer Priorities" (Cyber Security end-to-end IT/OT Type: Technical | Top Priority: Yes), "Solution Plays" (Solution Play: Defend Against Threats with SIEM plus XDR, Solution Area: Security, Primary: Yes), and "Opportunity Score" (Opportunity Score has not been calculated). The "Comments" section contains several entries from Jean-Pierre van den Eijnden dated 23/01/2023, 06/02/2023, and 27/12/2022.

MSX – Opportunity & Solution Plays

This screenshot shows the Dynamics 365 MSX D365 interface for the same opportunity "Eneco | Sentinel". The opportunity is in the "Saved" state and has been active for 31 months. The main navigation bar and top right information are identical to the previous screenshot.

The opportunity summary includes sections for "Opportunity Information" (Opportunity Id: 7-WF7D5SAWW, Title: Eneco | Sentinel, Customer Need: Central pane of glass for security events and automation, Opportunity Intent: Consumption, Account: Eneco Holding N.V., Customer Decision Maker: Justin Broeders, Billed Status: Open, Est. Billed Close Date: 6/30/2023), "Customer Priorities" (Cyber Security end-to-end IT/OT Type: Technical | Top Priority: Yes), and "Solution Plays" (Solution Play: Defend Against Threats with SIEM plus XDR, Solution Area: Security, Primary: Yes). A large blue circle highlights the "Solution Plays" section.

The "Comments" section contains several entries from Jean-Pierre van den Eijnden dated 23/01/2023, 06/02/2023, and 27/12/2022. To the right of the opportunity summary, there is a detailed "Security - Defend Against Threats with SIEM Plus XDR" section with numbered steps:

- Primary roles:** Security Spec & Security Cloud Solution Architect (CSA); SMC; MW Spec/Security Spec
- Secondary roles:** Security TS, Partner, Industry Solutions (IS), FastTrack (FT), FastTrack Modern Work Architect (IT MWA), Account Technology Strategist, CSAM, Enterprise Digital Specialist, Support Specialist, Services Executive
- Map stakeholders:**
 - Map stakeholders using stakeholder map.
 - Role: Security Specialist
 - SIEM/XDR Seller guide ↗
- Orchestrate team:**
 - Outline team and actions and collaborate with the Sales specialist to assess potential handoff to attach.
 - Role: Security Specialist, Security CSA
- Select or confirm customer scenario(s):**
 - Protect Endpoints from Ransomware
 - Secure Collaboration and Prevent Phishing
 - SOC Optimization
 - Role: Security Specialist
 - + Select "Customer Scenario", Sales Program(s)
- Capture customer need:**
 - Capture Customer Need using the SIRM + XDR Compete assets, Provisioning workshop, SIRM + XDR Workshops, MDO & MUL Usage Workshop, MIC, EBC, ILC
 - Role: Security Specialist
 - Defend Against Threats with SIEM plus XDR pitch deck - with speaker notes ↗
 - Defend Against Threats with SIEM plus XDR pitch deck - customer ready ↗
 - Compete assets ↗
 - Unisourcing workshops ↗
 - IC ↗
- Build a roadmap:**

MSX – Opportunity Customer Scenarios

Outlook Email Customer Scenario

REMINDER: ACTION NEEDED: Please Create New Customer Scenario Delivery Project for Opportunity #7-WF705SAWV Eneco | Sentinel

From: CS Alerts & Alerts<CSAlerts@outlook.com>
Sent: Friday, October 14, 2022 7:31 PM
To: Robin.Sentinel@eneconet.nl; Jean-Pierre van den Eijnden<jvan.eijnden@microsoft.com>

Get CSAlerts mailbox for CSAM notification <CSAlerts-CSAM@microsoft.com>; Jean-Pierre van den Eijnden<jvan.eijnden@microsoft.com>

Action Needed: ACTION NEEDED: Please Create New Customer Scenario Delivery Project for Opportunity #7-WF705SAWV Eneco | Sentinel".
Importance: High

Hi,

You are receiving this notification because you are listed as a CSAM for Eneco Holding N.V. (2013807). "Customer Scenario | Security | Protect Endpoints from Ransomware" has been added to Opportunity #7-WF705SAWV Eneco | Sentinel". Please validate with your Account Team to confirm the customer commitment.

Opportunity MCEM Stage: Empower & Achieve

The next step is to **create a Support Delivery Project in BMDX**.

Here is some additional information to help with creating the Support Delivery Project.

- Suggested Support Delivery Project Title: "Customer Scenario | Security | Protect Endpoints from Ransomware"
- Recommended Value Deliverables (VBDs) to add to the Support Delivery Project.
 - Security Microsoft Defender for Cloud Apps - Fundamentals (SPC1)
 - Security Microsoft Defender for Endpoint - Fundamentals (SPF1)
 - Security Microsoft Defender for Identity - Fundamentals (SPF2)
 - Security Microsoft Defender for Identity Operations (SPHO)
 - Security Microsoft Defender for Cloud - Fundamentals (SPF3)
 - Advanced Microsoft Defenses for Office 365 (NFO2)
 - Endpoint Workshop for End-to-End Security (E2E)
 - Microsoft Threat Protection for Microsoft 365 - Fundamentals (M365FW)
 - Architectural Review Session for Modern Security Operations (SQLA)
 - Solution Optimization for Modern Security Operations (SOV)
 - Advanced Office 365 Threat Investigation and Response Tools (S2X)
 - Architecture Design Session for Modern Security Operations (SDO)

• Click the new Support Delivery Project to MSX Opportunity #7-WF705SAWV Eneco | Sentinel".

Feedback: We would love to hear your feedback on this article and the resource. We've made it easy to feedback.

MSX – Account Plan Customer Success Plan

The screenshot shows the Dynamics 365 interface for the 'MSX Holding N.V. - Account Plan' page. The left sidebar includes sections for My Work, Pipeline, Relationship, Partner, and Resources. The main content area displays a table of 'Associated Customer Success Plans'. One row, 'Security Solutions Optimization', is highlighted with a blue oval. The table columns include CSP Name, Status, Approved Date, Microsoft Sponsor, CSP Owner, Priority Name, Top Priority, and Tim.

CSP Name	Status	Approved Date	Microsoft Sponsor	CSP Owner	Priority Name	Top Priority	Tim
RIO Customer R&D: Orion Releases	IN_DELIVERY_ON_T...	---	Mickey Navis	Dorine Beverwijk	IH - DIGITAL - R&D Services	Yes	202...
Energy Trade Solutions	PLANNING	---	Taco Langmuir	Dorine Beverwijk	U1 - INTEGRATION - Energy &...	Yes	202...
Security Solutions Optimization	PLANNING	---	Jean-Pierre van den Eijnden	Dorine Beverwijk	U1 - INTEGRATION - Energy &...	Yes	202...
Dynamics 365 Finance & Operat...	PLANNING	---	Mickey Navis	Dorine Beverwijk	Cyber Security end-to-end IT/...	Yes	202...
RIO Data Project 2022	PLANNING	---	Nedim Arnaudovic	Dorine Beverwijk	Heat Solutions Development	Yes	202...
Agile Cloud Enablement Workload	PLANNING	---	Zainab Moore	Dorine Beverwijk	Intelligent Data Driving: Organ...	Yes	202...
					Agile Cloud Enablement	Yes	202...

ESXP – Customer Success Plan

The screenshot shows the Enterprise Services Experience (ESXP) interface for the 'Customer CSP' page. The left sidebar includes sections for Profile Management, Resource Management, Project Management, Pursuit Management, Expense Management, Relationship Management, Offerings Management, Support Delivery, Unit Management, Insights, and Self Serve. The main content area displays a table of 'Current Customer Success Plans'. One row, 'Security Solutions', is highlighted with a blue oval. The table columns include Customer Success Plan name, Status, Objectives and Priorities, Description, Success Criteria, Top Priority, Timeframe, and Owner.

Customer Success Plan name	Status	Objectives and Priorities	Description	Success Criteria	Top Priority	Timeframe	Owner
Apple Cloud Enab...	Planning	Test	Business Applications implementation for Heat	---	---	---	Dorine Beverwijk
RIO Data Project	Planning	Blablabla	M365 E5 and Azure Security Solutions Optimization together with Capgemini partner	---	---	---	Dorine Beverwijk
Dynamics 365.0	Planning	M365 E5 and Azure Security Solutions Optimization together with Capgemini partner	Energy Trade Platform is landing on a Mission Critical Application Landing Zone in Eneco	---	---	---	Dorine Beverwijk
Security Solutions	Planning	M365 E5 and Azure Security Solutions Optimization together with Capgemini partner	Energy Trade Platform is landing on a Mission Critical Application Landing Zone in Eneco	---	---	---	Dorine Beverwijk
Energy Trade Sol...	Planning	M365 E5 and Azure Security Solutions Optimization together with Capgemini partner	Energy Trade Platform is landing on a Mission Critical Application Landing Zone in Eneco	---	---	---	Dorine Beverwijk

ESXP – Customer Success Plan Details

Account information

Account name	Customer name	Approved date	Status	Customer sponsor	Customer success plan owner	Microsoft sponsor
TRD	MS Sales ID 2023861	2023861	Planning	Austin Broders	Donnee Beversluij	Jean-Pierre van den Linden

Industry: Power & Utilities **Sub segment**: Major - Commercial Other

Customer Success Plan title: Security Solutions Optimization

Summary and target outcomes: M365 ES and Acure Security Solutions Optimization together with Capgemini partner.

Priorities (1)

Priority Name	Description	Success Criteria	Top Priority	Type	Subtype	Horizon	Key Customer Contact	MSFT Priority Owner
Control Security and to end EUCI	Control pane of glass for security events and automation using a cloud SIEM solution	Security Insights Cost Reduction Raise security posture Reduce risk profile	Yes	Technical	Security	Horizon 2	Austin Broders	Jean-Pierre ...

VBD Titles into Support Project

MCEM Phase	MCEM Activity	VBD Activity	IP Name
Realize Value	Perform technical validation	Architectural Review and Validation (Technical Validation)	Architecture design session for Microsoft Defender for Endpoint
Realize Value	Perform technical validation	Architectural Review and Validation (Technical Validation)	Architecture design session - Microsoft Defender for Endpoint
Inspire & Design	Capture Customer Needs	Customer Upskilling and Execution	Secure Endpoints with Zero Trust: Microsoft Defender for Endpoint - 4 Day
Inspire & Design	Analyze digital signals to maintain and optimize customer success [internal]	Solution/Service Optimization	Secure Endpoints with Zero Trust: Microsoft Defender for Endpoint - 4 Day
Manage & Optimize	Analyze digital signals to maintain and optimize customer success [internal]	Solution/Service Optimization	Secure Endpoints with Zero Trust: Microsoft Defender - 4 Day
Manage & Optimize	Analyze digital signals to maintain and optimize customer success [internal]	Solution/Service Optimization	Secure Microsoft Defender - Advanced Documentation with Power BI
Empower & Achieve	Deliver Technical/Business Proof	Proof of Concept/Rapid Prototype	Secure Microsoft Defender for Endpoint - Fundamentals
Inspire & Design	Show Technical Ability	Show Technical Ability	Show Technical Ability for Microsoft Defender for Endpoint
Inspire & Design	Capture Customer Needs	Customer Upskilling and Execution	Workshop/Call - Co-creation session with Microsoft Account Managers and Microsoft Defender for Endpoint

MS Invested **Customer Invested**

For any feedback regarding Titles, please go to [VBD and MIP Field Feedback](#).

Last Updated: 2/25/2023 3:04:26 AM PST Next Refresh: 2/25/2023 4:04:26 AM PST

Consumption Opportunity Management

Patrick Jundt

Building Blocks of Consumption Opportunity

What is a Consumption Opportunity?

Consumption opportunity track the progress of projects that drive consumption (consumed revenue, active usage, etc.) and facilitate orchestration across the account team

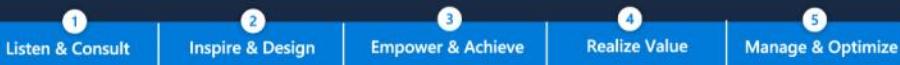
Create a new consumption opportunity in MSX D365 when ...

1. there is defined interest from the customer
- AND
2. there is need to track project through the Microsoft Consumption Process

Core Components

- Solution Play/ Checklist
- Est. Cons. Start Date & Est. Cons. Completion Date
- Primary Competitor
- Comments

MCEM Consumption Opportunity Stage



Microsoft Confidential

46

How Milestones Create Consumption Pipeline



Milestone Customer Commitment Definitions

MCEM Stages | 1-Listen & Consult | 2-Inspire & Design | 3-Empower & Achieve | 4-Realize Value | 5-Manage & Optimize

MCEM Changes:

- Individual milestones within an opportunity can be committed at different times depending on the nature of the project
- STU owns Uncommitted milestones and driving to commitment regardless of stage
- CSU owns Committed milestones and driving to completion regardless of stage (except where partner or ISD led – STU will remain the owner)
- Committed Pipeline is used to calculate Pipeline Based Outlook (PBO)

Committed:

- MCEM Stages 2-5 [target close rate > 95%]**
- Customer sponsor has agreed to the outcome of the milestone
 - Milestone est. due date and value have been confirmed with the customer
 - Delivery and customer resources, and required budget are available (CSA/CSM, ISD, partner, customer IT, FastTrack, etc.)
 - Customer contact ready and briefed on the next steps

Uncommitted:

- MCEM Stages 1-4 [low probability of completion]**
- (Default value for a milestone)
 - Customer sponsor has NOT agreed to the outcome of the milestone or
 - Competitive situation with low likelihood of MS win

Committed Pipeline Metrics:

- Committed Pipeline = Sum of Committed Milestones
- Committed Coverage to Net New Required = Committed Pipeline / (Budget or Target – Projected Baseline – Closed Month Actuals)
- Pipeline Based Outlook (PBO) = Closed Month Actuals + Projected Baseline + Committed Pipeline excluding Blocked Milestone Status

Updated on 11/11/22

Microsoft Confidential

Consumption Pipeline Creation & Maintain-1

Change with MCEM
NO Change with MCEM

Quick Create: Opportunity

SUMMARY

Title	GCR Consumption Pipeline Demo
Customer Need	...
Account	[Red Box]
Customer Priority	...
Opportunity Intent	Consumption [Red Box]
Est. Cons. Start Date	10/1/2022
Est. Cons. Completion Date	12/1/2022
Solution Area	Data and AI [Red Box]
Solution Play	Enable Customer Success [Red Box]
Currency	US Dollar

Save and Open | Save and Close | Cancel

GCR Consumption Pipeline Demo Saved

MCEM Action for 3 minutes

Close Consumption [Red Box] 5

Listen & Consult (3 Min) 3

Inspire & Design

Empower & Achieve

Realize Value

Manage & Optimize

Timeline

3. New MCEM Sales Process for consumption opportunity.

4. Compete Threat Level, Preferred Azure Region, Azure Capacity Type remains unchanged.

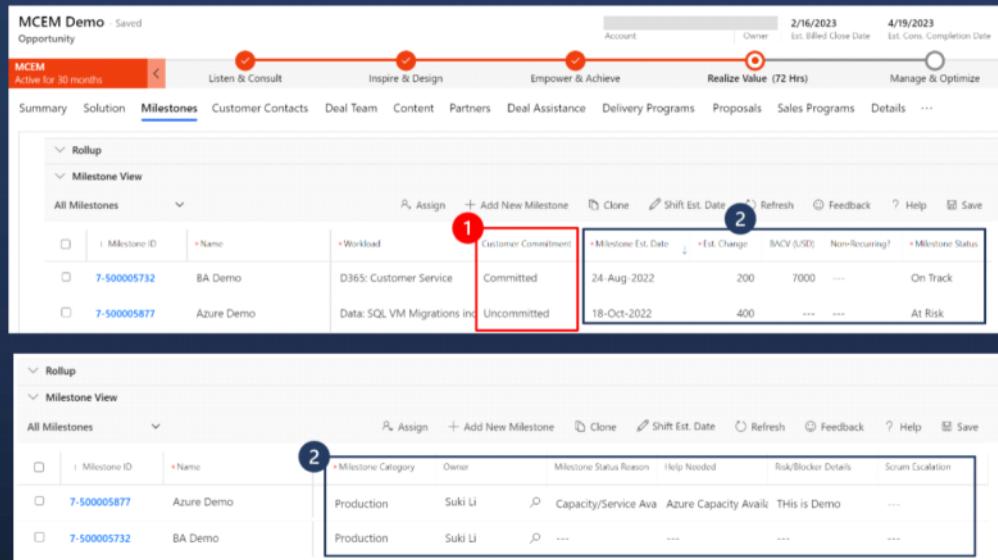
5. Close Consumption when it's completed/cancelled/duplicated/lost. Close reason is selected after you click Close Consumption.

- Select Oppty Intent=Consumption for Consumption only oppty
- Solution area and Solution play is mandatory for non-SMB accounts. Select appropriate/multi solution play. DO NOT use Others unless all listed plays are not appropriate.

49

Consumption Pipeline Creation & Maintain-2

 Change with MCEM
 NO Change with MCEM



MCEM Demo - Saved Opportunity

Account Owner 2/16/2023 4/19/2023
Est. Billed Close Date Est. Cons. Completion Date

MCEM Active for 30 months Listen & Consult Inspire & Design Empower & Achieve Realize Value (72 Hrs) Manage & Optimize

Summary Solution **Milestones** Customer Contacts Deal Team Content Partners Deal Assistance Delivery Programs Proposals Sales Programs Details ...

Rollup
Milestone View

All Milestones

Milestone ID	Name	Workload	Customer Commitment	Milestone Est. Date	Est. Change	BACV (USD)	Non-Recurring?	Milestone Status
7-500005732	BA Demo	D365: Customer Service	Committed	24-Aug-2022	200	7000	---	On Track
7-500005877	Azure Demo	Data: SQL VM Migrations Inc.	Uncommitted	18-Oct-2022	400	---	---	At Risk

Rollup
Milestone View

All Milestones

Milestone ID	Name	Milestone Category	Owner	Milestone Status Reason	Help Needed	Risk/Blocker Details	Scrum Escalation
7-500005877	Azure Demo	Production	Suki Li	Capacity/Service Ava	Azure Capacity Avail	This is Demo	---
7-500005732	BA Demo	Production	Suki Li	---	---	---	---

1. Key change:

- **Customer Commitment= Uncommitted/Committed**

2. For rest of the key milestone field, it remains unchanged.

Microsoft Confidential

50

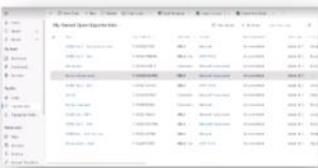
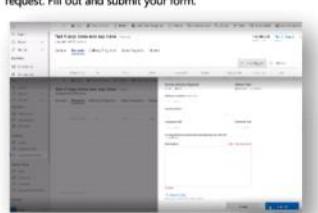
Completion date: project milestone. When the project ends?
 Project running until dev 2024. Est. for the whole project. Within the project, different milestones.
 Cmr tells you I will enable 300 seats by end of oct 1st milestone. 2,d I will enable another 500 users by end of december.
 You have your oppty and it is in stage 5 but the cmr is telling you I have a plan to extend for another 1000 users, you have the option at stage 5 to add an additional milestone or you can create an additional oppty.
 The qs is do we need to manage the consumption plan at stage 5? As long as it is not in the system and you know the customer has a plan to add an additional 1000cmr it would be great to add another oppty. That is the best option. Full consumtion oppty fy24 etc....

Team Accountabilities

Patrick Jundt

ATU Value-Based Delivery How-To Guide

Value Based Delivery is a framework focused on driving customer outcomes by aligning CSU technical deliveries to the customer priorities within the Account plan to help drive billed and consumed opportunities. Account team members play a critical role in ensuring we plan, sell and deliver against customer priorities.

ATU Accountabilities	For Value Based Delivery aligned to a support contract	No Support Contract: Submit dispatch requests via MSX for single MSFT invested deliveries
<p>1 Maintain always-on, quality Account Planning with a laser focus on Customer Priorities and Customer Success Criteria</p> <p>2 Coach all v-team members to lead with customer value, whether it's a billed revenue or consumption opportunity we need to start with the value the customer is looking to realize</p> <p>3 Ensure all customers have right-sized, right-resourced Unified agreements. Drive the sales motion with STU and CSU</p> <p>4 Bring CSAM in early to better enable alignment and hold them accountable for creation and maintenance of Consumption planning and Customer Success Plans</p> <p>5 Set up a customer v-team Rob (across ATU, STU, CSU, ISD) to ensure we orchestrate according to our Microsoft Customer Engagement Methodology (MCEM)</p>	<p>1 Create Account Plan with customer objectives and priorities</p>  <p>2 Collaborate around Customer Priorities: Work with STU counterparts and other stakeholders to determine which MSFT solutions are best for the customer and tag opportunity to the appropriate customer scenario sales program</p>  <p>3 Review the Value Based Delivery IP offering: Review the catalogue of IP</p> 	<p>1 Navigate to MSX and click Opportunity in the left-hand screen navigation</p>  <p>2 Once inside the Opportunity, Go to the Milestones tab. Find a milestone with no active request. Or add a milestone to your Opportunity. (You cannot create requests in milestones that already have one)</p>  <p>3 Within the milestone, go to the request tab and create a new request. Fill out and submit your form.</p>  <p>4 After submitting the form, your new request will show up under your request tab in MSX.</p> <p>Submitted requests will be sent to GCXP for triage and responded within 48 business hours of request</p> 

Resources

1. Value based delivery for the ATU – Quick view: <https://aka.ms/vbdforatu>
2. Value Based Delivery Catalogue of Titles: <https://aka.ms/vbdfinder>
3. Value Based Delivery resources: <https://aka.ms/vbdresources>
4. Value Based Delivery demos: <https://aka.ms/vbdexecution>

*The STU typically tags opportunity; however, Account teams can tag opportunity if needed

STU Value-based Delivery How-To Guide

Value Based Delivery aligns the CSU technical deliveries to the customer priorities within the Account Plan, based on the associated Solution Play and Customer Scenario for each priority. Specialist team members are essential to align the customer scenario to each opportunity.

STU Accountabilities	For VBD, transactional, single MIP or custom deliveries aligned to a support contract	No Support Contract: Request via MSX for single MSFT invested deliveries
<p>1 Lead with customer value in all billed revenue & consumption opportunities - CSA and CSM assignments will be made on business outcomes.</p> <p>2 Position Unified, DE and EDE add-on offers and include in overall deal package as the way to get the right mix of program management and technical resources from MSFT.</p> <p>3 Partner with the CSAM in creating and maintaining Consumption plans by providing the priorities, plays and anticipated outcomes and changes in consumption that result from your sales activities. These become the delivery milestones that the CSAM will manage.</p> <p>4 Ensure opportunities have the right customer scenario sales program linked in MSX to trigger CSU activity (e.g.: VBDs)</p> <p>5 Partner with the CSAM to align the value-based delivery activities and recommended IP for the customer to achieve their desired outcomes. Ensure the opportunity has been qualified.</p>	<p>1 Review Customer Priorities: Review the customer priorities and Success Criteria and identify the MSFT solution(s) that can best achieve customer outcomes</p>  <p>2 Add the Customer Scenario: Determine which Customer Scenarios tied to the Solution play best for the customer by tagging the opportunity to the appropriate customer scenario sales program</p> 	<p>1 Navigate to MSX and click Opportunity in the left-hand screen navigation</p>  <p>2 Once inside the Opportunity, Go to the Milestones tab. Find a milestone with no active request. Or add a milestone to your Opportunity. (You cannot create requests in milestones that already have one)</p>  <p>3 Within the milestone, go to the request tab and create a new request. Fill out and submit your form.</p>  <p>4 After submitting the form, your new request will show up under your request tab in MSX.</p> <p>Submitted requests will be sent to GCXP for triage and responded within 48 business hours of request</p> 

Resources

1. [Value Based Delivery for STU](#)
2. [Updating an opportunity with a Customer Scenario demo](#)
3. [VBD Titles Catalogue](#)

CSU Value-based Delivery How-To Guide

Value Based Delivery an activity with a set of recommended IP to drive customer outcomes. The activity aligns the CSU technical deliveries to the customer priorities within the Account Plan, based on the associated Solution Play and Customer Scenario for each priority. Specialist team members are essential to align the customer scenario to each opportunity.

CSU Accountabilities	Consumption Pipeline creation	Request via MSX for single MSFT invested deliveries
<p>1 Consumption Opportunities are tracking the project (consumption) Status As CSU we are responsible for setting realistic Milestones</p> <p>2 Discover the customer project runtime and competitors and update the Opportunity and Milestone</p> <p>3 Update Consumption stages</p> <p>4 Ensure opportunities have the right Solution Play assigned</p> <p>5 Update Milestones for every blocked Milestone, there needs to be a UAT linked to it.</p>	<p>1 Select Opty Intent=Consumption for Consumption only opty</p> <p>2 Solution play is mandatory for non-SMB accounts Select appropriate/multi solution play. DO NOT use Others unless all listed plays are not appropriate.</p> <p>3 Within the milestone, go to the request tab and create a new request. Fill out and submit your form.</p> <p>4 After submitting the form, your new request will show up under your request tab in MSXP. Submitted requests will be sent to GCXP for triage and responded within 48 business hours of request</p>	
<p>Resources</p> <ol style="list-style-type: none"> FY23Q3 MCEM Training.pptx (sharepoint.com) 	<p>1 Create Request in MSX via Deal Assistance demo video</p>	

UAT = Unified Action Tracker

Milestone Customer Commitment Definitions

MCEM Stages 1-Listen & Consult 2-Inspire & Design 3-Empower & Achieve 4-Realize Value 5-Manage & Optimize

MCEM Changes:

- Individual milestones within an opportunity can be committed at different times depending on the nature of the project
- STU owns Uncommitted milestones and driving to commitment regardless of stage
- CSU owns Committed milestones and driving to completion regardless of stage (except where partner or ISD led – STU will remain the owner)
- Committed Pipeline is used to calculate Pipeline Based Outlook (PBO)

Committed:

- MCEM Stages 2-5 [target close rate >95%]**
- Customer sponsor has agreed to the outcome of the milestone
 - Milestone est. due date and value have been confirmed with the customer
 - Delivery and customer resources, and required budget are available (CSA/CSM, ISD, partner, customer IT, FastTrack, etc.)
 - Customer contact ready and briefed on the next steps

Uncommitted:

- MCEM Stages 1-4 [low probability of completion]**
- (Default value for a milestone)
 - Customer sponsor has NOT agreed to the outcome of the milestone or
 - Competitive situation with low likelihood of MS win

Committed Pipeline Metrics:

- Committed Pipeline = Sum of Committed Milestones
- Committed Coverage to Net New Required = Committed Pipeline / (Budget or Target – Projected Baseline – Closed Month Actuals)
- Pipeline Based Outlook (PBO) = Closed Month Actuals + Projected Baseline + Committed Pipeline excluding Blocked Milestone Status

Updated on 11/11/22

Microsoft Confidential

Key Take-aways

Julia Miranda Wittlin

Key take - aways

From account plan, going to solution plays, customer scenarios and the CSP, orchestration is key in the MCEM process

While CSU is responsible for selecting and delivering VBDs, ATU and STU play a key role to assure we are addressing the priorities of our customers

Whenever we have a billable opportunity, we need to have a consumption one linked to it. This way, we make sure our customers are getting the best out of our solutions

When ATU, STU and CSU come together, following the 5 stages of MCEM, we guarantee we deliver our best to our customers

There is a strong ask that committed milestones are being transferred over to CSU. They should be moved to CSU. In WE, stage 3 where we have the work that needs to be done. Here there are many milestones committed but still owned by STU. (for now it's 50% owned by CSU, but needs to be 95%) -> please do a proper handover of these committed milestones.

If smth moves into committed, within 7 days the specialist needs to hand it over to CSU. Needs to be real scrutiny and vetting of the milestones.

There is going to be a lot of rigor around this over the last weeks. Corp is pushing hard to make sure this is taken care of.

MIP vs. VBD – An Overview

	Managed IP (MIP)	Value Based Delivery (VBD)
Scheduling	MIPs need to be delivered in consecutive days /a block of time.	VBDs can be broken up over the course of days/weeks, based on customer and individual's availability.
Duration	A MIP should be delivered for the listed number of days listed on the MIP datasheet.	Based off of average efforts estimated by the CSA or CSA-E – the listed duration on the datasheet is an estimate but can be more or less, whatever time is needed to deliver the customer outcome. <i>Example: If the VBD Activity is estimated to take 24 hours, but it takes the CSA 12 hours or 30 hours, that is fine.</i>
Deliverable	MIP content and scope is focused on a fixed outcome.	VBDs are designed to guarantee activity specific outcome, with flexible scope for the customer (CSA can decide which topics to cover based off of customer need), while aligning with MCEM. <i>Example: ESLZ VBD has Design Landing Zone with 8 design areas. CSA can choose to cover 3 based off of the customer's needs.</i>
Content	MIP content is comprised and restricted only to Managed Intellectual Property of Microsoft.	VBD IP content will leverage MIP, Community IP, as well as both internal and external resources – whatever content is helpful for delivering the Value Based Deliverable.
Accreditation Process	Going through the complete accreditation process is required to deliver a MIP, sometimes with Master Trainer Review and Knowledge measures.	Self-attestation for VBD (this includes any MIP Content included in the VBD Delivery Guide/Learning Path)
Person who Delivers	Traditionally, MIPs have been delivered by CSA-Es (CEs).	VBDs are intended to be delivered by both CSA and CSA-Es.
Delivery	Standard format for delivery with step-by-step instructions that should be followed by the CSA or CSA-E delivering the MIP.	Not restricted to a traditional MIP delivery – VBD creates a consistent experience, leverage existing assets (like MIP), and is customizable in how it is delivered to meet the customer's needs. It is not meant to be followed step-by-step like MIP.

Escalating Customer and Partner Experience (CPE) Issues to GetHelp

Thursday, January 26, 2023 2:04 PM

Have you ever...

WE ARE HERE TO HELP!

- Experienced challenges when attempting to get an existing customer issue resolved after following the existing support path?
- Had a partner with an open support case that was dissatisfied with the length of time involved in resolving their issue?
- Needed presales or post sales licensing support?
- Had programmatic and regulatory privacy, compliance and audit questions?

Who can contact GetHelp

Anyone with a @Microsoft.com identity can create a GetHelp case with our team.
Our services are not available directly to customers and partners, but that engagement is possible if the submitter requests it when submitting a GH case*.

Our Top Submitters

Commercial Sales	Solution Area Specialists	Customer Success Account Managers	Digital Account Managers	Partner Development Managers	Account Managers	Channel Sales Managers

*excluding LicenseQ and Privacy programs

Key areas of support

In CCSE we work on **recovering customers, reducing escalations and resolving critical situations** while leveraging these **insights** to ultimately transform the customer support experience. What we resolve today, shapes our customers & partners' experiences tomorrow.



Technical

Provide support, escalation management, and guidance to our customers, partners, and field regarding technical issues for all product areas. Including the following:

- Escalation support for customers to address concerns related to their existing support case
- Orchestration of support confidence calls requests
- Provide guidance or facilitate internal resources to address inquiries related to Microsoft products or services that are out-of-scope for support delivery teams (i.e.: *Engineering engagement for services reliability concerns, after Service Incidents support including customer confidence calls, exception requests, clarification for a feature roadmap, etc.*)



Licensing & Billing

Provide presales and post sales licensing & billing support, including guidance, proactive & reactive support, and escalation management. This area includes:

- **LicenseQ:** Offer guidance to field sales and selected partners through licensing complexities so they can provide the right solutions at the right price, empowering every customer and user to achieve more
- **PSSST:** A field-funded, customer & partner facing team that anyone with Corpnet access can use to request assistance with commercial (Volume Licensing) post-sales issues



Partner Programs

Provides escalation support to our partners and field for scenarios where a case has been opened with partner support and the partner is dissatisfied with the engagement or length of time in resolving their issue. This includes issues related to:

- Microsoft Partner Network (MPN)
- Cloud Solution Provider (CSP)
- Co-Sell
- Marketplace
- Incentives
- Vetting



Privacy

The CSS Privacy Team manages global privacy, compliance and audit requests. This includes support for regulatory privacy questions related to GDPR and Schrems II ruling.



Examples of scenarios in scope

The customer/partner has opened a case with support and is **dissatisfied with the engagement or the length of time** involved in resolving their issue

The support engineer's manager has been engaged but no improvement and/or the **customer is dissatisfied with the solution**

A customer is complaining about **an unknown charge from Microsoft**

Customer/partner purchased online services licenses but **it's not appearing on their account/tenant**

You have **presales licensing or compliance** related questions

If you need to engage with Customer Experience Team (CXP) for O365, D365, and Azure to **request customer confidence calls**

Customer is struggling with D365 implementation or their partner relationship and you need **guidance on how to assist them**

Partner **incentives** and issues related to **Partner Center**

Consumer vs Commercial



With GetHelp you can submit cases for **Home Users** (Consumers), this maybe someone you meet or that has reached out to you, a friend or family member, anyone who's support experience is not what you would expect. Before submitting a case it's important that they have tried our **normal support channels first** as this is the **fastest way to get assistance**.

Whilst they both use the GetHelp system it's important to know **there's a difference** in the way these cases are handled



Consumer

- Cases are automatically routed to our **front-line CSS** outsource partners who will work with the customer directly
- Cases are handled by Tier 3 level engineers
- **Updates are not provided proactively** to reduce risk of privacy violations
- Reactive updates are available by submitting a request in the GetHelp tool



Commercial

- Cases are managed by **GetHelp team members**
- GetHelp relationship managers engage with the customer and appropriate line of business support to progress the case
- **Regular updates are provided** on the progress of the case

Escalate Now

	Definition
	Submitter
	Customer profile
	Escalation type
	Delivery partners
	Response time
	Engagement level
	Submission entry
	Learn more

Escalation process for Premier/Unified Support

Only available to CritSit Managers, Incident Managers, CSAMs, CSAM Managers, SAMs/ISOs

Customers with Premier/Unified Support across the CSS commercial business

Time Sensitive Escalation

Escalation into CSS delivery only

15 – 30 minutes, 24x7

Short-term, transactional engagement to quickly unblock a specific problem with an existing support case over the next few hours

[CSSCSI tool](#)

[Aka.ms/EscalateNow](#)

Vs.



Customer & Field Engagement

Program and tool that facilitates the resolution of customer, partner and field related escalations when standard support channels fail to satisfy the submitter

Field employees who need help with an existing support case or situation

All customers (Commercial, partner, consumer)

Complex cases, unresolved Escalation

Escalations into all necessary teams

4 business hours, 24x5

Deeper engagement to manage the issue over the next few days/weeks to resolve complex scenarios.

[GetHelp Portal](#)

[GetHelp Information](#)

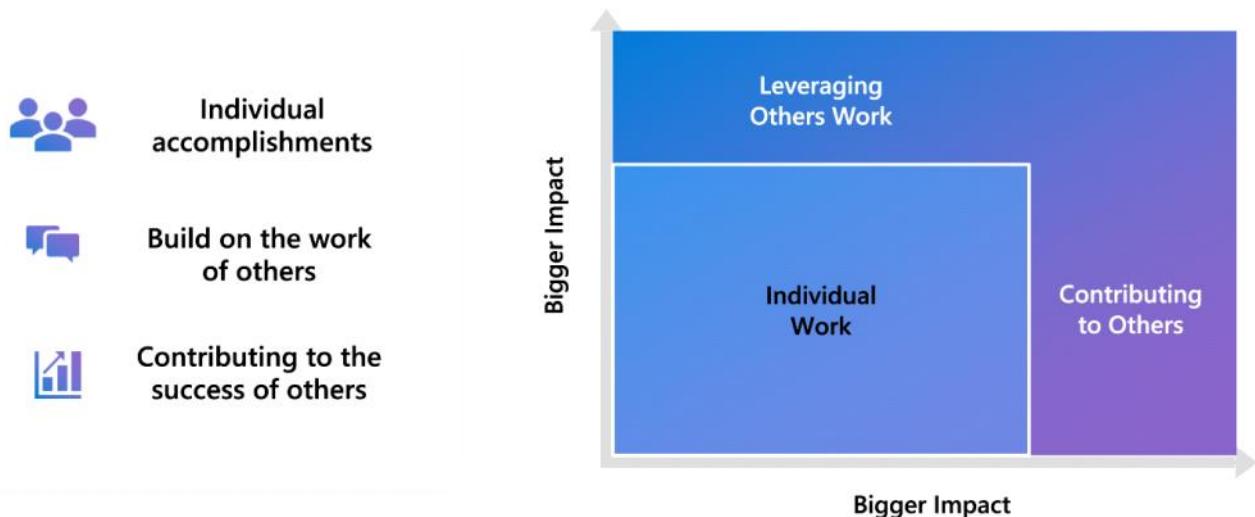
[CSAM Role Training – Reactive Escalations & GetHelp Scope](#)

Welcome to MCAPS Day 2

Wednesday, January 11, 2023 6:09 PM

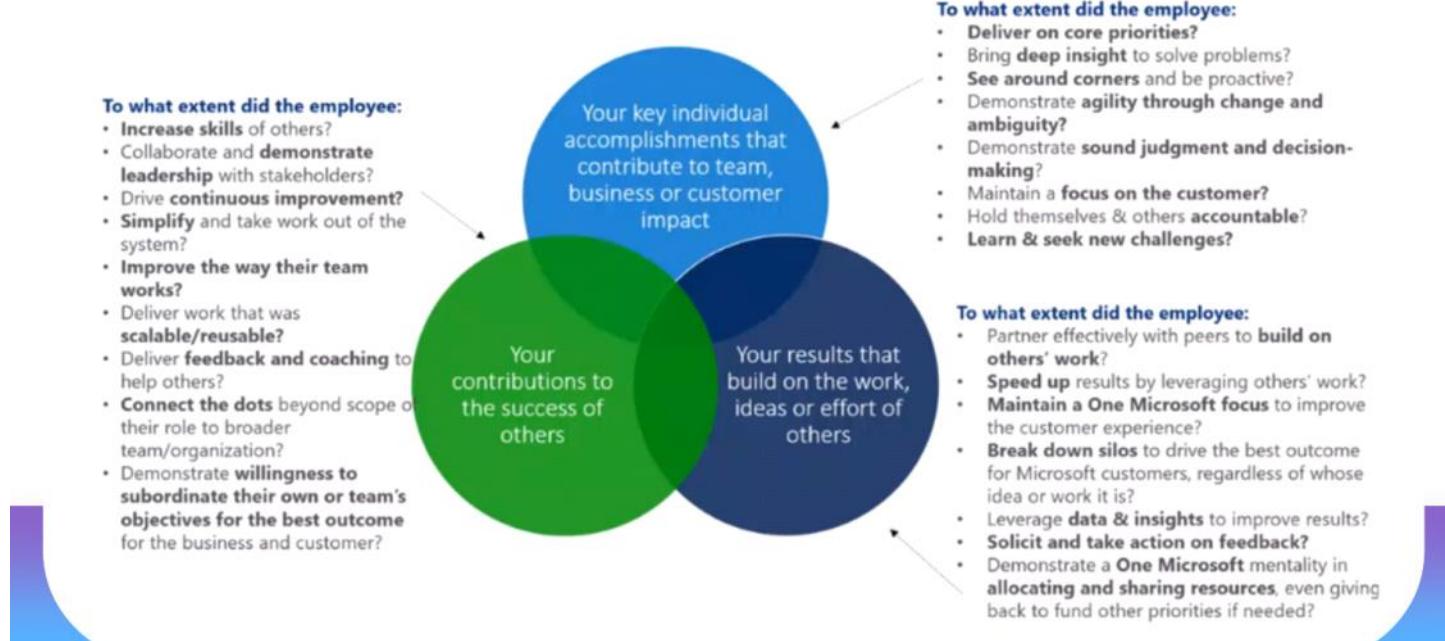
MICROSOFT

Impact means making a difference



Microsoft

Circles of impact



Activity vs. impact



Activity

- Got my MINT at 105%
- Delivered speeches to sports NGO
- Created PowerApps to share best practices
- Decision drivers: Project plans, politics, intuition



Impact

- Transformed manufacturing readiness to smart working with 105% overachievement
- Increased our talent pipe by 75 by delivering a speech to sports NGOs.
- Elevated best practices that led to Customer's win by creating a cross-org PowerApps

What's New for Roles with Orchestration

Planning: AE led and pulls in wider audience for Account Planning

Consult: Leads Listen & Consult stage, pulling in Specialist or others as needed. Situation, others may lead stage (eg Specialist where ATU (AE/ATS) cannot scale, CSA/CSM for motion, Consulting Account Executive for pure implementation projects)

Consult: Pulls in other Specialist, ISD Services Exec, others as needed in Listen and Consult customer situation if leading stage

Consult: Syncs with ATU (AE/ATS) on whether Opportunity should be part of larger one if stage

Consult: Initiates Expansion Opportunities (Solution Area dependent)

Consult: Pulls in other Specialist as needed based on customer situation if leading stage

Consult: Syncs with ATU (AE/ATS) on whether Opportunity should be part of larger one if stage

Consult: Pulls in other eg Specialist as needed based on customer situation if leading stage

Consult: Syncs with ATU (AE/ATS) on whether Opportunity should be part of larger one if stage

artifact that reflects our customer's priorities and Microsoft's strategy to create and solutions and services.

summary and, most importantly, a way to connect the priorities and objectives.

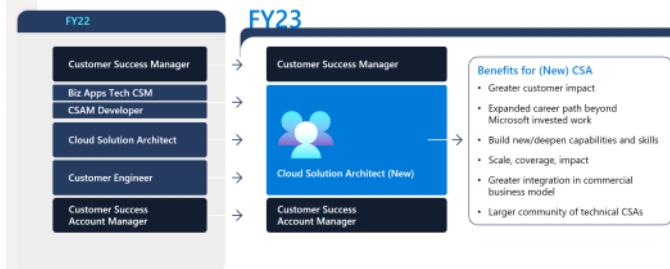
of the account plan

CORE PRINCIPLES

MCEM Orchestration Principles



★CSU role evolution CSA evolution and capability excellence



★CSU role evolution The New CSA Role



Role Evolution
Create a new role that evolves & combines the **Cloud Solution Architect** (CSA), **Customer Engineer** (CE) and **BA Tech CSM** (T-CSM) roles to accelerate customer outcomes and simplify CSU customer facing roles into the new Cloud Solution Architect (CSA) role.

Vision
The Cloud Solution Architect will be the accountable technical role tasked with **unlocking customer value** by delivering **technical solutions** leading to execution of **consumption and operational health engagements** for our customers.

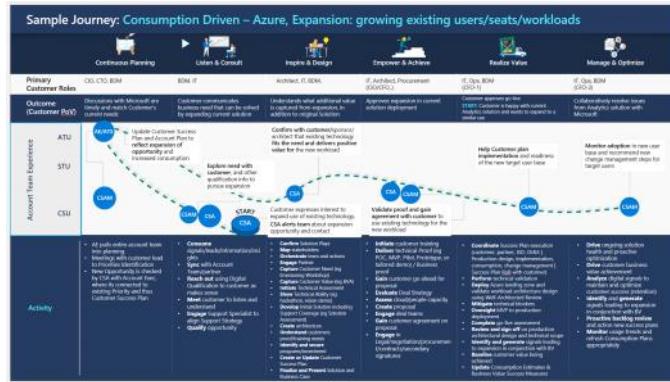
Role Focus

- Customer and Partner Centricity:** Enable customers to achieve their outcomes by pro-actively enabling cloud and designing well architected solutions
- Business Impact:** Bring business, industry, and technical expertise to help the adoption and optimization of Microsoft technology solutions
- Technical Leadership:** Understand customer/partner requirements, desired outcomes and technology needs & become a trusted technical advisor

R&R Executing on Committed Pipeline R&R

Role	Responsibilities
STU/ Specialists	<ul style="list-style-type: none"> Responsible for all uncommitted milestones regardless of Opportunity stage Identify and share opportunities with partners/ISD Secure customer commitment and timeframe to deploy milestone Move milestone from uncommitted to committed in MSK Meet with CSU milestone owner to hand off accountability and align on timeline, value.
CSU/CSA	<ul style="list-style-type: none"> Responsible for Committed Milestones regardless of stage** Take ownership from Specialist on committed milestones in MSX** Committed milestones should not be uncommitted unless the customer has decided to stop/change work and without conversation with Specialist. Use Blocked or At-Risk status. CSU lead the Triage for unassigned committed Milestones with ISD, GPS, Fast Track, AMMP, other programs
GPS/CS-E	<ul style="list-style-type: none"> Engage weekly with STU/CSU LT weekly to ensure: <ul style="list-style-type: none"> Partners are aligned/shared Opportunities before milestones are committed Ensure Partners are delivering milestones on time Ensure Partner quality and capability within the area for each solution area
ISD	<ul style="list-style-type: none"> Participate in weekly ACR Pipeline Triage Partner with Specialist and CSU to identify opportunities for delivery of pipeline
BG Lead	<ul style="list-style-type: none"> Participate in weekly ACR Pipeline Triage Align programs and funding/ECAF to Execution of top Milestones

** apart from just partner/ISD led where STU keep responsibility to update milestone status



If you think as CSA there is an opportunity, an opportunity can be created in MSK. Help the team qualify and take it for the closure.

MSK4: Customer Success Manager for the ATU
If the STU doesn't do this job and come to your stage, or the customer says I didn't want to deploy but I only wanted to do the POC, then you are accountable.

Tip: Sync up with Specialist to discuss the account and opportunities and share updates,... Do it once a week for an hour etc...

In the bi-weekly, the Customer Success Manager will go through the accounts, based on this process and do an update.

The most important is how they see you. If you contribute to them being successful, they will work with you.

Tip: Ask the Specialist: Where is the MSK id?

CSA is not supposed to touch production environment. If already deployed, support, support ticket needs to be created. CSA will not have access to it....

One Ask: to raise request, needs opprty id, you want help by a Global Black Belt.

CSP: Customer Success Plan (We create owned and accountable by the CSAM, you contribute to it.)

Major focus: Qualified: Total Pipeline. There is a dashboard for this. They get tracked.

Consumption milestone: the moment a resource is created, it is committed and will not go back, it will get transferred to the CSU. Here it becomes a bit micromanaged.

If you do a cost optimization exercise and you downsize and it results in a negative ACR, you put a cost optimization action in the system as this is expected from you.

Milestone: Committed pipeline metric (Learn to understand these)

Quota: 1 million. Today 200k-200k net new. What is the committed coverage?

Look at committed pipeline divided by the budget or target minus projected baseline.

There is a logic: MS will check every month what was the top ACR 3 months.

Quota: 1 million. It will be taken into account.

Most of the time it needs to be positive. If it is 100% you are safe. You have enough in the pipe. We keep measuring that as much as possible.

The pipeline based outside, we look at it as well. In Jan we expect 1million, what is the committed pipeline.

Terminology:

Recurring: because it returns, every month...

Non-Recurring: because it can happen that we have a spike in the summer, so once we will scale

Listen & Consult

Wednesday, January 11, 2023 12:44 PM

What is Listen and Consult about?

Listen and Consult is both a stage in MCEM and a best practice for how we engage.

With MCEM, we take a consultative approach to customer engagements. This means insightfully listening to deeply understand our customer's business needs and key priorities, and demonstrating awareness through situational fluency, adapting to the customer circumstances, industry trends, opportunities, and desired results.

To gain insight, we use both our interpersonal and digital listening skills before we make recommendations, demonstrating that we care and seeking to build trust. Asking questions and using the power of silence to gather insights enables us to discover new sales opportunities.

We have learned that platform and solutions are not enough—thought leadership in how to apply them is key! We have created the **Digital Transformation 7 (DT7) questions** to help us listen and consult, and ultimately mold the Microsoft Cloud around what the customer is trying to achieve.

The DT7 questions are:

Question 1:	What of your application portfolio really needs to go away, rather than be migrated to the cloud?
Question 2:	How do you think about collaborative applications? or Have you ever thought about using a low-code no-code capability to replace legacy applications?
Question 3:	Do you think it is time to look at more professionally developed SaaS offerings?
Question 4:	How do you think about ISV applications that run on our portfolio?
Question 5:	How are you leveraging your data estate to support your digital transformation?
Question 6:	How are you thinking about cloud native applications and prioritizing the work of your developers and your in-house expertise?
Question 7:	What is your cyber strategy and how are you thinking of security as the foundation for your digital strategy?

Just as we listen and consult with our customers, listening and demonstrating curiosity to your colleagues and Microsoft partners is equally important, enabling Microsoft teams and partners to bring our very best approaches and solutions to our customers.

Listen and Consult is also the first stage of an MCEM opportunity. This stage is all about spending time listening to customers to understand their needs and desired outcomes and getting to opportunity qualification. When you create an opportunity in MSX, you choose an initial Solution Play that most closely matches the customer situation. The checklist for that Solution Play will guide you through all 5 stages of the opportunity, including the first Listen and Consult. In the Inspire and Design stage, you will confirm which Solution Plays you need, and go deeper into workshops with the customer to uncover their needs and desired outcomes more thoroughly.

From <<https://microsoft.intrepidaigle.com/class/foundations/pages/syllabus/week-2>>

Things to consider in Listen and Consult

Sales has long celebrated pitching as the key to successful sales conversations. With pitch perfect, you have been told you will be on the road to a yes. But a pitch is a one-way conversation and involves telling the customer about their needs and how your offering can meet them. It assumes you already know your customer's needs and business requirements. **MCEM Involves rethinking our approach to the pitch.** While we still need to hone our ability to pitch, we should strive not to lead with it and, instead, to first listen and gain deep insights to build our value proposition around.

In Listen and Consult, we build the understanding of our customer's needs and collaborate across our account team to consult on the customer's desired outcomes.

In account planning, the outcomes of the **DT7 questions** allow us to more deeply understand our customer needs holistically and create more opportunities. In Listen and Consult the **DT7 questions** enable us to go deeper by opportunity and solution area.

The Listen and Consult stage is usually led by the Account Executive (AE), but in some scenarios, it can be led by other roles. For example, when an AE does not have capacity, a Specialist may lead the stage. For expansion projects, a CSU role may take the lead. For implementation projects, ISD leads this stage. You will learn more about this in the **Role Orchestration** section of this module.

Leads still exist with MCEM, and a lead may initially come from a partner. When this is the case, it is important to collaborate with the partner during the Listen and Consult stage as you uncover a customer's desired outcome. Even if a lead does not come from a partner, it is important to consider how partners can help with the overall solution. In the Inspire and Design stage, engaging partners is a standard MCEM activity.

By the end of this stage, we should have a **qualified opportunity**. You will learn more about qualification questions later in this training

From <<https://microsoft.intrepidaigle.com/class/foundations/pages/syllabus/week-2>>

Example pre-scope call:
Sync between sales and AE..

Listen and Consult case study

Paul: Thanks for joining us. My name is Paul and I'm a Microsoft sales associate. The team is getting ready to meet with Bluecliff, so come join Naomi and me on a quick sync. Hi, Naomi, thank you for meeting up before we sync with Andrea from Bluecliff.

Naomi: Thank you, Paul. I looked at their numbers and have notes from our previous conversation with Andrea. This will give us the chance to talk about a few ideas on how to increase revenue, reduce cost, and better innovate to serve their clients.

Paul: Yeah, they're really focused on keeping that small town feel, especially as they're recovering from some tough years.

Naomi: Agricultural markets have been shrinking. We have an opportunity to have them think about adopting cloud-based services.

Paul: I really feel we can get them to embrace moving some of their business to digital. Working in Azure is really going to help us win this deal.

Naomi: I love the excitement, Paul. Just remember, it's not just about getting their business, it's also about listening to their needs.

Paul: Naomi's right. While we had a good conversation to start uncovering their needs, we need to make sure that we're really listening and addressing all of their concerns. Okay, let's review some of those other conversations.

Naomi: Great idea.

- Hi, Andrea. It was so great of you to meet with us. We really appreciate all of your insights.

Andrea: I've heard a lot of good things coming from our team about the solutions you have to offer.

Paul: I had a discussion with your colleague, Francesca, about some of your technical requirements.

Andrea: Yes, we're really trying to grow our products and base.

Naomi: What are some of the products you're hoping to grow?

Andrea: We're looking to keep our small town feel for our customer experience.

-Paul: That's great. Could you walk us through what that experience is like?

Andrea: Absolutely.

Paul: Thanks for spending time with Naomi and me. Listening and letting our customers share their needs is crucial in developing an innovative solution for them. Planning is key. Naomi and I have some work to do in helping them achieve their goals and appreciate you joining us today.

From <<https://microsoft.intrepidaigle.com/class/foundations/pages/syllabus/week-2>>

Verifiable outcomes and exit criteria

Verifiable Outcomes

- Identify the customer's needs
- Customer needs and requirements defined
- The right solution(s) to serve
- All the customer's needs are met

Exit Criteria

- Identified opportunity



Listen and Consult Activities with Roles* and Content**

Activity	Content	Roles
Consume signals/leads/information/insights	Account/Territory Targeting, Prospecting Accounts, Ind assets (IPS, ICC)	AE Led/Specialist
Sync with Account Team/partner		AE Led/Specialist
Reach out using Digital Qualification to customer as makes sense		AE Led/Specialist
Meet customer to listen and understand	Ind assets (IPS, ICC)	AE Led/Specialist
Engage Support Specialist to align Support Strategy		AE Led/Specialist
Qualify opportunity	Solution Play, Enablement/Consumption Guide	AE Led/Specialist

This shows standard orchestration. ISD Accounts will have ISD roles. Additional role/orchestration guidance include Industry, CT, SMC, CSU Expansion. Detail of roles per Solution Play are in Checklists/Orchestration Guide **Content shows baseline asset types, actual content links in Checklists

Inspire & Design

Thursday, January 12, 2023 9:59 AM

Verifiable Outcomes

- Solution Plays confirmed and team orchestrated
- Partners identified and engaged
- Customer reviewed and endorsed the business value
- Customer Success Plan created
- Technical/Business proof requirements identified

Exit Criteria

Customer aligned to solution

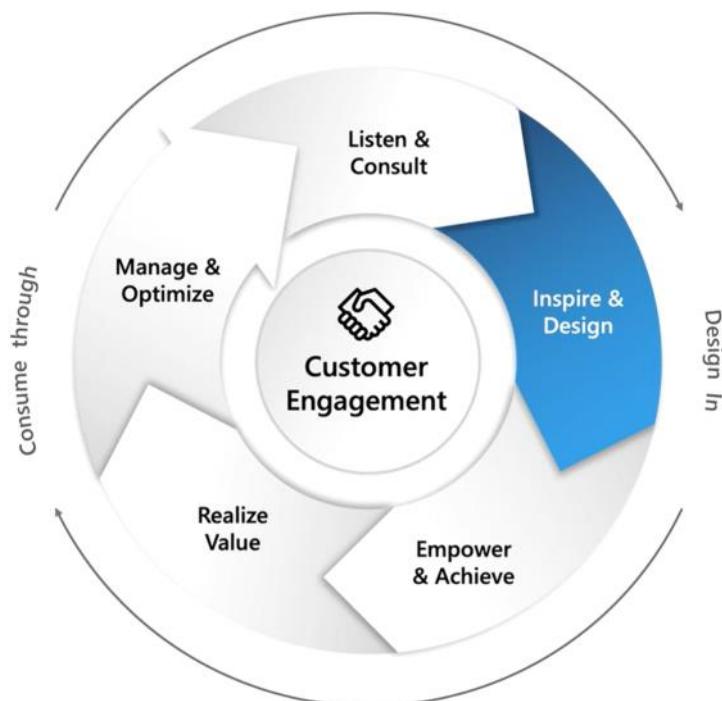
At our best

- Insightfully listening
- Situationally fluent
- Building relationships and trusted advisership
- Building value
- Using business acumen
- Negotiating

What is Inspire & Design about?

Inspire and Design builds on the conversations from Listen and Consult that led to a qualified opportunity. There are many activities in Inspire and Design, but ultimately, we are driving to:

- **Go deeper** to understand the customer needs and business value they are trying to achieve
- Understand what technical and business proof customers require for the solution
- **Present a solution and business case** that solves the needs that have been identified



Inspire and Design Activities with Roles* and Content**

Activity	Content	Roles
Confirm Solution Plays	Solution Play card/Guidance/ Checklist	AE/Specialist
Map stakeholders	Stakeholder map (Room of house)	AE/Specialist
Orchestrate team and actions		AE/Specialist
Engage Partner		AE/Specialist/Channel Sales
Capture Customer Need (eg Envisioning Workshop)	Envisioning Content*, Case Studies, BDM Pitch deck (Soln Play), Compete assets, Envisioning workshops, MTC, EBC, IEC	AE/Specialist
Capture Customer Value (eg BVA)	Biz Value Assets/Tool, Biz Value Documents/Tool	AE/Specialist
Initiate Technical Assessment		Technology Specialist, Cloud Solution Architect, Partner
Show Technical Ability (eg hackathon, vision demo)	Demos	Specialist, Technology Specialist, Cloud Solution Architect, Partner
Develop Initial Solution including Support Coverage	Product/Solution docs(incl IS/SA), DWR, OneAsk, ECIF, Programs	AE/Specialist
Create architecture	Product/Solution docs(incl IS/SA)	Specialist, Technology Specialist/Cloud Solution Architect
Understand customers proof/training needs		Specialist, Technology Specialist/Cloud Solution Architect
Identify and secure programs/investment		AE/Specialist
Create or Update Customer Success Plan		CSAM
Finalize and Present Solution and Business Case	Compete assets	AE/Specialist

*This shows standard orchestration. ISD Accounts will have ISD roles. Additional role/orchestration guidance include Industry, CT, SMC, CSU Expansion. Detail of roles per Solution Play are in Checklists/Orchestration Guide **Content shows baseline asset types, actual content links in Checklists

Initiate Technical Assessment:

In some cases, such as with Azure application innovation or data and AI, a technical assessment to understand the customer's technology landscape may be required.

Show technical ability:

The next activity is used where needed to showcase how our technology can meet the customer's needs. This may have been done in workshops already and does not involve doing proof of concepts, pilots, or MVP, which come later. These would be things like doing a hackathon or vision demo.

Create architecture:

In the create architecture activity, the technical members of the deal team work on the conceptual architecture for the solution and where possible, the implementation architecture or its key components. These implementation details will enable us to accelerate the realized value stage where implementation takes place. We will include these as part of the solution design presented later.

Understand customer proof/training needs:

In the understand customer's proof and training needs activity, spend time with the customer to understand any technical or business proof they need, including if any training is needed through the Enterprise Skills Initiative or training partners. Technical proof can include a minimum viable product, proof of concept, pilot, white papers, and/or customer technical visits.

Remark:

Many activities in the Inspire and Design stage are led by the AE or the Specialist. Depending on the specific activity and scenario, other roles such as the Cloud Solution Architect, Technology Specialist, Customer Success Account Manager or partners will be involved.

Things to consider

The standard opportunity flow has Specialists as the primary role and pulling in others as needed; however, as described in the *Get familiar with MCEM* module, this can differ depending on the situation.

As an opportunity might cover **multiple solution areas**, collaboration is needed across teams. The culmination of work resulting in a joint proposal is key in these situations.

The complexity of the **capture customer value activity** can vary from being not needed, as simple as a total cost of ownership analysis, to as complex as a delivering a business value assessment. When you determine that a business value assessment is needed, the solution presented to your customer needs to pivot accordingly and align to the business value assessment outcomes. In addition, the further MCEM stages will also change to reflect these outcomes. For example, the final proposal, implementation, and monitored metrics post implementation will pivot around business value assessment outcomes.

In this stage, you spend more time uncovering our customer's needs, building out a proposed solution for them, and getting their go ahead for that solution.

In the next stage, any technical or business proof work that the customer required for the solution and final contracting with the customer occurs. Ensure that you are working with the roles for the next stages activities to continue the opportunity.

Empower & Achieve Stage?

Verifiable Outcomes

- The proposed solution is confirmed by the customer
- The Customer Success Plan is reviewed and updated
- And the Customer has committed to the proposal

At our best

- Insightfully listening
- Situationally fluent
- Building relationships and trusted advisement
- Building value
- Using business acumen
- Negotiating

From <https://microsoft.intrepidagile.com/class/foundations/pages/syllabus/week_4>

Exit Criteria

The customer agreement is in place

The Empower and Achieve stage builds on the Solution and Business Case presented in the Inspire and Design stage. The activities of this stage help our customers confidently select the correct solution and contract with us.

You can empower your customers through learning and firsthand experiences with the proposed solution, talking to other customers and Microsoft executives. As you engage your customer, continue to listen, build trust, and tailor solutions to their needs. The end goal is to have a customer agreement in place that is customer focused and customer led.

By the end of this module, you will be able to:

- Understand how to empower the customer with technical and business proof
- Understand what is needed to drive towards contracting with the customer



Empower and Achieve Activities with Roles* and Content**

Activity	Content	Roles
Initiate customer training		Specialist, AE, Training Program Manager
Deliver technical Proof (eg POC, MVP, Pilot, Prototype, or tailored demo) / Business proof	TDM Pitch decks(Prod), Demos, Partner pitch decks, Product/Solution docs(incl IS/SA), Product Workshops, MTC	Specialist, Technology Specialist/Cloud Solution Architect
Gain customer go ahead for proposal		Specialist, AE
Evaluate Deal Strategy		Specialist, AE, Commercial Executive
Assess cloud/people capacity	Lead this activity!	Technology Specialist, Cloud Solution Architect, FastTrack
Create proposal	Biz Value Documents/Tool, ECIF	Specialist, AE
Engage deal teams	Deployment Guide (Acquisition Execution Playbook), CIP(Community Intel Prop)	Specialist, AE, Commercial Executive
Gain customer agreement on proposal		Specialist, AE
Engage in Legal /negotiation/procurement/contracts/secondary signatures		Specialist, AE, Commercial Executive

*This shows standard orchestration. ISD Accounts will have ISD roles. Additional role/orchestration guidance include Industry, CT, SMC, CSU Expansion. Detail of roles per Solution Play are in Checklists/Orchestration Guide **Content shows baseline asset types, actual content links in Checklists

Things to consider in Empower and Achieve

Driving technical and business proof

Training customers on the proposed solution is a great way of proving the technology works. Therefore, in this stage we have the Initiate Customer Training activity. The Enterprise Skills Initiative or partners conduct the technical proof training. Once the solution works and the customer decides to implement, training the customers' staff for solution adoption is also important - training needs identified during workshops in Inspire and Design are incorporated as part of the implementation during the Realize Value stage for this.

Technical proof, in addition to technical training for our customer and staff can consist of the following, based on the situation:

Technical papers

- Customer visits to other technical staff
- Tailored demonstrations
- Proofs of Concept
- Pilots
- MVPs
- And Prototypes

Business proof is about establishing a relationship based on confidence between Microsoft and our customer's executives, helping drive the deal to closure.

Contracting the deal

The deal contracting process is sometimes complex and requires the involvement of partners, Industry Solutions Delivery, Support, and the customer. This complexity can extend to secondary contracts being signed after primary contracts.

In the Empower and Achieve stage, you delivered deep technical and/or business proof, and procured agreement/contractual agreement/signatures from our customer for final deal completion.

In the next stage, Realize Value, you will implement the agreed solution for the customer and set baseline metrics to monitor solution health.

Continue collaborating with the relevant roles for the next stage's activities.

Realize Value

Tuesday, January 17, 2023 1:14 PM

Customer outcomes

- Customer engages with the delivery team
- Customer executes the readiness plan
- Customer approves go live

At our best

- Insightfully listening
- Situationally fluent
- Building relationships and trusted advisement
- Using business acumen

Verifiable Outcomes

- Resources aligned against the delivery plan
- Change management plan in place
- Solution delivered against agreed outcomes

Exit Criteria

- Outcomes met and baseline metrics in place

From <<https://microsoft.intrepidagile.com/class/foundations/pages/syllabus/4-realize-value>>

What is Realize Value about?

The Realize Value stage begins after the customer agreement is in place. Following the agreed upon Customer Success Plan, Microsoft and our partners work together to deliver solutions that meet our customer's desired outcomes.

As you plan for delivery, your customer's immediate needs and long-term goals should remain at the forefront. The end goal is successful implementation, achieving the baseline metrics agreed upon and meeting your customer's outcomes.

Realize Value Activities with Roles* and Content**

Activity	Content	Roles
Coordinate Success Plan execution (customer, partner, ISD, CE&S Production design, implementation, consumption, change management Success Plan RoB with customer)	Customer Success Plan, Product/Solution Assets, Deployment Guide (Landing Execution Playbook), MIP	CSAM, CSA, CSM <i>L> if not available CSA will lead</i>
Perform technical validation		CSA
Deploy Azure landing zone and validate workload architecture design using Well-Architected Review	CSA Delivery Guide: <u>Enterprise Scale Landing Zones with CAF Ready</u>	CSA
Mitigate technical blockers		CSA
Oversee MVP to production deployment	<i>MVP moved expanded or removed</i>	CSA
Complete go-live assessment	Azure Well-Architected Review, Azure Advisor	CSA
Review and sign off on production architectural design and technical scope		CSA
Identify and generate signals leading to expansion in conjunction with BV	<i>ignored now opties engage based on expansion project</i>	CSA
Baseline customer value being achieved		CSAM, CSA
Update Consumption Estimates & Business Value Success Measures	<i>update milestones of final Consumption estimates</i>	CSAM, CSA

This shows standard orchestration. ISD Accounts will have ISD roles. Additional role/orchestration guidance include Industry, CT, SMC, CSU Expansion. Detail of roles per Solution Play are in Checklists/Orchestration Guide **Content shows baseline asset types, actual content links in Checklists

often lead by CSA or CSAM but sometimes lead by ISD role or Partner !!

The Microsoft account team will update consumption elements, following the activities and tasks from the Success Planning and Consumption Execution (SPaCE) guidance.

The Customer Success team will manage and execute delivery projects contained within the Customer Success Plan (CSP).

If an **Industry Solutions Delivery led project** is included as part of the CSP, the **Customer Success Account Manager** will orchestrate and engage the project manager and Consulting Account Executive (ConAE) early in the process.

Why is value realization important?

Your customers chose Microsoft in large part because of their trust in you and your recommendations. By serving as their strategic partner through this transitional stage, you show your commitment to their long-term success and open the door for additional opportunities.

We've got this fabulous opportunity to help our customers through our mission, "empower every person on the planet," it's an awesome mission. To do that well, we have to listen to customers in a way we haven't always been able to in the past, we have to understand what they're trying to achieve. We have to remember what they're trying to achieve as we execute, and our competitive differentiation will certainly be the technical depth in capabilities of our products. But it's also our ability to relentlessly focus on the customer outcome and become the customer's partner of choice, who they know that when they work with us, we will get them to that outcome. That digital experience connecting through from the first understanding of the customer's outcome, maturing it, learning from it, understanding it, and constantly executing against it, is the best way we can make sure our customers choose Microsoft every time. And of course, that's why it's important to our customers. When we can help them use our technology to achieve their goals reliably and they know that they can expect us to focus on their outcomes, not only do we become their preferred partner, but we enable their success every day, we enable the careers of the people we work with on the customers side, we become you know, the machine that helps them succeed.

Geoff Maxwell

Their constant communication really made the process smooth. Role orchestration is critical so there's not only one leader giving flexibility in the plan. It takes many individuals to help customers realize the value of the service we provide them and show the strength of One Microsoft.

Paul and I will continue to review the customer success plan, as well as all the other details along the way. Just as Paul and I can flex who leads and who supports, your team can do it to you.

In this stage, you implemented a relevant solution for your customer, verified their outcomes were met, and set baseline metrics to monitor solution health. In the next stage, the solution will be proactively monitored and adjusted to meet new and existing needs. Continue collaborating with the relevant roles for the next stage's activities.

Manage & Optimize

Tuesday, January 17, 2023 1:52 PM

Verifiable outcomes

- Customer Success Plan updated.
- Customer health metrics agreed with proactive monitoring
- Next set of customer needs identified
- Business Value and Success Outcomes monitoring in place
- Customer can operate and maintain solution

At our best

- Insightfully listening
- Situationally fluent
- Building relationships and trusted advisorieship
- Building value
- Using business acumen

Exit criteria

- Opportunity done and next steps identified

From <<https://microsoft.intrepidagile.com/class/foundations/pages/syllabus/5-manage--optimize>>

What is Manage and Optimize About?

Based on the Customer Success Plan, during Manage and Optimize you will continue to build long-term customer relationships based on trust, on your commitment to deliver, and on the increased value Microsoft brings to the customer. This is the core tenet of customer health.

You will concentrate on **driving positive customer health**, by:

- Engaging with your customers constructively
- Managing problems effectively
- Collaborating across your team proactively
- Delivering customer aligned priorities
- And optimizing the customer solution

Health includes looking at the overall health of the solution and evaluating whether the solution is healthy and if business value is being achieved. You also ensure health is in place by proactively looking at whether the solution needs optimizing or whether legacy systems need to be turned off. During your engagements with the customer in this stage, if you learn of a new customer need, contacting the account team will enable them to engage the customer and further help your customer solve their problems.



WE Academy – MCEM Starts with a Great Account Plan

24 January 2023

Agenda

- Account Planning Overview
- 3 Horizons & Business Value
- SPaCE & Consumption
- Partner Alignment
- Q&A and Wrap

Our Biggest Learnings

Customer Priorities as Pivot: Business Problems -> Technical Solutions -> Products

Over-index on Background/Looking Back vs Go-Forward Plan

Partner & Competitor Landscaping

Defining, Resourcing & Monetising Horizon 2&3

Account Planning FY23: our focus

- ✓ **Emphasis on Articulated Business Value:** deeper focus on 3H and business value frameworks with explicit execution plans; pivoted on customer's business processes, problems and data => ***much deeper on Business Applications, Platform & Digital Feedback Loop***
- ✓ **Simplified Templates & Frameworks:** Specified 'must haves' and recommended approaches
- ✓ **Accelerated Cadence & Operations:** focus on Q4 delivery to accelerate H1 (esp S500 + Top Majors)*
- ✓ **Lead on Success Plan:** connected consumption/usage/success plans tied to business priorities and shared with custo
- ✓ **Dedicated Training & Facilitation:** expert external facilitation to scale faster & drive consistent quality
- ✓ **Improved Insights & Inputs:** Customer-specific market intelligence (Databook) & better propensity/engagement
- ✓ **Clearer Accountabilities x Role:** Expectations for preparation & contribution as well as participation

*Red/blue approach ensures teams with EA renewal/MACC impending in Q4/Jul1 get appropriate timelines



Account Planning FY23: Objectives

- ✓ **Quality Plans:** quality, consistent, open, validated account plans that are internally coherent between their different elements AND externally consistent between customers
- ✓ **More, Better Pipeline:** accelerated pipeline of Billed revenue opportunities, ACR engagement pipeline, experiential pipeline (EBC, MTC, etc), Acquisition etc
- ✓ **Accelerated Activities:** accelerated involvement & leverage of key programs (MCAP, Catalyst, AMMP, IDO, SPaCE)
- ✓ **Experiential Engagements:** improved early stage investment on POC/Pilots; clear Customer Flow plans for key experiences
- ✓ **Tighter Resourcing Alignment:** ISD, partner, marketing, MSFT execs, pre-sales investment.....
- ✓ **Faster Time-to-action & Time-to-value:** Planning completed BETTER AND EARLIER to allow Q1 to focus on executing vs planning

*Red/blue approach ensures teams with EA renewal/MACC impending in Q4/Jul1 get appropriate timelines

A tiered model of Account Planning

	Resources	Strategic (\$500)	Majors (Full)	Majors (Medium)
Industry Knowledge	Identify unique local trends effecting the customer	•	•	
	Articulate the challenges the local industry is facing	•	•	
	Identify opportunities being uncovered within the local industry	•	•	
Customer Business Knowledge	Record the customer's vision and mission	•	•	•
	Articulate the CXO level strategic Objectives declared in annual reports or budgetary documents	•	•	
	Identify the business model the customer has deployed	•	•	
	Express the Key Growth Areas identified and Challenges facing the customer	•	•	•
Customer Priorities	Document the Account Team's shared vision and aspiration for the customer	•	•	
	Document the key business priorities, desired outcomes, and identify the accountable BDMs	•	•	
Solution & Action Plan (for each Priority)	Document the key technical priorities, desired outcomes, and identify the accountable TDMs	•	•	•
	Identify the new Microsoft solution / services capabilities and that will enable customer's priorities and outcomes	•	•	•
	Identify the consumption strategy that will enable customer's priorities and outcomes	•	•	
	Recruit account team identify sales plays, partners solutions and applicable competitors	•	•	•
	Create an action plan to develop priorities and insulate the competition	•	•	

Key Ingredients for a top Plan

- **IDTA + 3 Horizons Plan** – aligned to top customer priorities; articulating the scale, timing & dependencies of an opportunity
- **Business Value Analysis** – leveraging Business Value Trees, Catalyst, ISD-led BVA + Industry
- **Priorities Plan:** 3H -> BVA -> Key Priorities w/aligned IPS & Sales Plays; leverage the Strategy Map
- **Stakeholder Map & Executive Engagement Plan** (including experiential e.g. EBC, MTC, Co-Innovation etc)
- **Success Plan & Customer Engagement:** consumption & Usage Plan (3 clouds, not just Azure) – including Skilling & Support. Success plans should be shared with and vetted by customer
- **Partner Alignment** (including ISD)
- **Insights-driven & Outside-In** (market insights, customer insights, high engagement, high propensity)

What are Industry and Digital Transformation Acceleration (IDTA) workshops?

Baseline abt opp @ crs } → internal



- Teamwide examination of an expanded account-based potential
- Structured ideation
- A shared vision
- Stronger business decision maker approaches
- Documented actions to accelerate the opportunities
- Learn-it-all mindset
- <http://aka.ms/idtacceleration>

- IDTA is a workshop delivered by the account team leadership, typically the **Account Technology Strategist (ATS)**
- IDTA contributors should be as broad and inclusive as possible in order to facilitate diverse and rich inputs into the strategy plan for the account
- The workshop accelerates the full account team to a transformational selling motion
- The IDTA program provides a proven structure and set of resources to help achieve the following outcomes:
 - more leads
 - more opportunities
 - more engagements
 - higher trend line of year over year billed revenue and Azure Consumed Revenue (ACR)

Confidential information. For internal Microsoft use only.

10

What are Industry and Digital Transformation Acceleration (IDTA) workshops?



Industry + Digital Transformation Acceleration

The Industry + Digital Transformation Acceleration (IDTA) workshop is about bringing the full Account Team together and accelerate your Account's Industry and Digital Transformation (DT) opportunity. The result is a stronger, deeper account plan that aligns to the customer's needs over three horizons.

IDTA is delivered by the Account Team Leadership, typically the Account Technology Strategist, to the full Account Team (ATU, STU, CSU, Industry Solutions, GPS).

The IDTA program materials provide a proven structure and set of resources to deliver IDTA. If you would like to facilitate IDTA, use the [IDTA Registration Form](#) to initiate operational support and register your delivery.

- Industry + Digital Transformation Acceleration...
- Industry and DT Acceleration Pre-Work Instructions
- Industry and DT Acceleration Facilitation Guide
- Industry and DT Acceleration Facilitation Deck
- IDTA Demonstration
- IDTA Calendar Initiation Template
- Industry and DT Acceleration Overview and Details
- Refreshed 3Horizons Library Experience

[Industry + Digital Transformation Acceleration \(sharepoint.com\)](#)

Confidential information. For internal Microsoft use only.

11

to understand our's long term goal ↗ *short term* ↗ *Innovate* ↗ *3 Horizons framework*

3 Horizons framework, definitions & key concepts

VISION

HORIZON 1



Operational enhancements

OPERATIONAL

The customer must do this to remain in business or prevent financial loss

- Reduce costs
- Optimize operations
- Maximize revenue streams

HORIZON 2



Iterations on current offerings

INNOVATIVE

The customer must do this to remain relevant in a fast-moving market

- Innovate within traditional industry boundaries
- Create new digital products and

HORIZON 3



Creation of entirely new offerings

TRANSFORMATIONAL

The customer must do this to define a new market

- Innovate across industry boundaries
- Redefine industry definitions
- Create new customer needs

works well with partners (Breakthrough to more to offer to different industries in market!)

- Reduce costs
- Optimize operations
- Maximize revenue streams
- Defend market share
- Improve customer satisfaction
- Automate processes

Sample initiatives

- Innovate within traditional industry boundaries
- Create new digital products and services
- Create new customer experiences
- Innovate in the cloud

Sample initiatives

- Innovate across industry boundaries
- Redefine industry definitions
- Create new customer needs
- Grow exponentially through network and partners

Sample initiatives

Confidential information. For internal Microsoft use only.

*to 'n' industries
lead to NPS growth!*

13



Access and Navigate 3 Horizons in the Account Plan in D365

1. Open the account plan in D365 from the link in the Ready to Review email or from the Account Plans tab in D365.
2. Click on the 3 Horizons tab.
3. Use the filters above the map to change the view.
4. Hover the mouse over a bubble to view a summary of the Priority Horizon information.

The 3 Horizons map is built from the following data entered by the account team on a Customer Priority and is aligned to the Customer Objectives.

A. Horizon 1, 2 or 3.

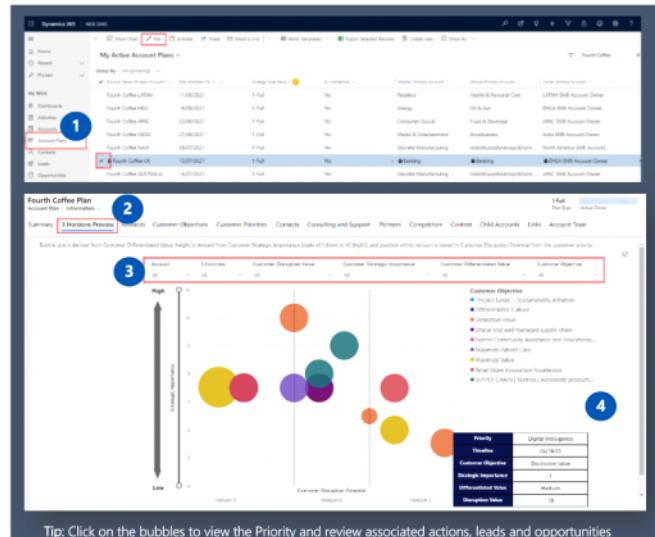
- B. **Customer Differentiated Value.** The higher the value the higher the disruption i.e., the bigger the bubble
- **Value 1-4** indicates the increasing scale of improvements to existing offerings
 - **Value 4-7** indicates the increasing scale of customer's existing offerings to the next level of innovation
 - **Value 7-10** indicates the increasing scale of transformational business value enabling customer to enter new markets

C. Customer Disruption Potential

- a. **Small, Medium or High** - how the priority brings or builds value to our customer to gain differentiated value to their customers (comparing to our customer's competitors)
- b. X-axis of the 3-Horizons view

F. Customer Strategic Importance

- a. **1 = Low, 10 = 10 High** - what's the relevance of the priority to accomplish customer strategy?
- b. Y-axis of the 3-Horizons view



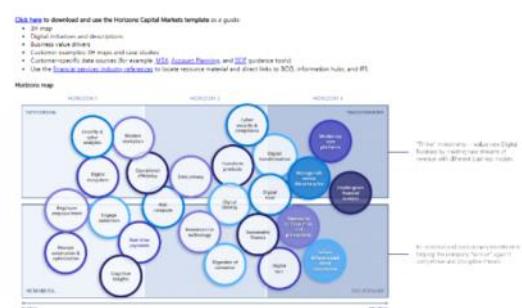
Confidential information. For internal Microsoft use only.

14

3H Help, Experts + Pre-Built Templates

[3Horizons Library \(sharepoint.com\)](#)

[3Horizons Library \(sharepoint.com\)](#)



[Horizons Playbook \(sharepoint.com\)](#)

[Horizons Playbook \(sharepoint.com\)](#)

Business Value Analysis

Example: Final Workshop Deliverable IDO Transformation Roadmap

(A) Services-led BVS w/IDO and LED



[BVS-IDO Envisioning Workshop - Readiness March 2022.pptx \(sharepoint.com\)](#)
[Biz Apps Hub \(microsoft.com\)](#)

Stakeholder Engagement



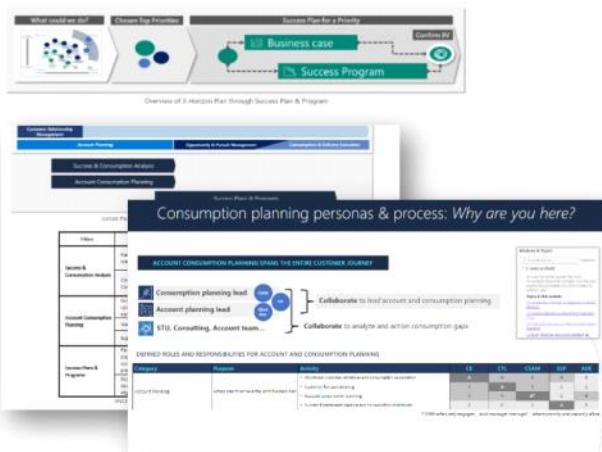
- Current & Desired State Map (Stakeholders & Influence)
- Mapped to Key Initiatives
- Known Engagement w/MSFT (MEI)
- LinkedIn / Sales Navigator
- Experiential Engagement Plan – MTC, EBC, ETC
- Governance Model e.g. ABI
- Exec Engagement Model
- Account Based Marketing for TOP customers

[MSX Insights | Report Catalog \(microsoft.com\)](#)
[MSX Insights | Report Catalog \(microsoft.com\)](#)
[Guidance - Engaging Multiple Execs](#)

Success Planning & Customer Engagement

academy

Session this Thursday!



Ensure list of engagement are properly captured

- Document consumption engagements in **MSX**
- Refresh the consumption plan (CSAMs)

Define, share and vet with your customer:

- Customer priorities (should be registered in customer language in **MSX**)
- Customer Success Plans for chosen top customer priorities (CSAMs)

Customer Success Plans should be shared with and agreed upon with the **customer**

Leverage **SPaCE** model & guidance for R&R
Refer to the [Orchestration playbook](#) for Customer Success Plan details

[Introduction, Purpose, & Objectives of SPaCE Guidance \(sharepoint.com\)](#)

[What is a Customer Success Plan? \(sharepoint.com\)](#)

academy

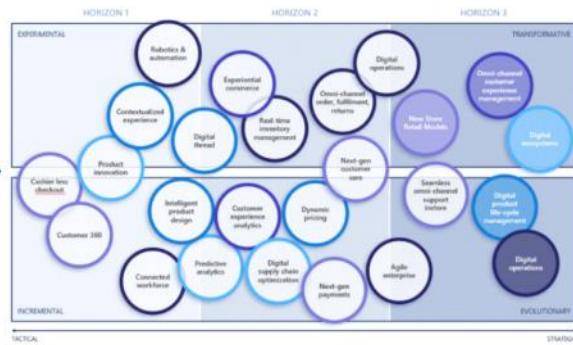
Partner Engagement.

Partner Ecosystem



Partner Map should have GSI leading where possible to scale unless incumbent

Enterprise Level Horizons Map for Retail



Horizon Map should have GSI/ISV included in every circle.
This is also where Local and GISV are present and should be included

Insights Driven

HIGH ENGAGEMENT (MEI)

HIGH PROPENSITY (BG)

CUSTOMER INSIGHTS (DATABOOK, Application Landscaping)

CUSTOMER INSIGHTS (LINKEDIN, SOCIAL, WEB)

MARKET INSIGHTS (INDUSTRY, CMO)

Databook + Microsoft



Evergreen Account Planning Made Easier With Databook

What is Databook?

Databook's insights helps Microsoft's go-to-market Team create and win bigger deals, faster. Save 20.5 hours per account with strategic enablement on demand.

Information available:

- Financial performance metrics and analysis
- Key C-Level stakeholders
- Use Case and Strategic Priority alignment
- Databook Propensity to Buy™ score
- Unlimited PoV downloads for Key Accounts



Know Your Customer

Keep track of all your accounts with tactical, up-to-date information. Be meeting-ready in minutes with custom Executive POV decks.



Industry-Specific Insights

Access a repository of key developments and thought leadership on specific accounts and industries.



Align with Prospect Priorities

Uncover the strategic priorities of an account to understand buying needs. Automatically align with relevant use cases to form the right pitch.



Messaging that Resonates

Leverage external buying signals from Databook insights for impactful discovery and executive outreach.



All Selling, No Busywork

Efficiently fill in MSX fields for account planning and prepare for upcoming meetings.



Find Stakeholders Faster

Identify key buyers and executive compensation drivers by role to gain consensus.



Contact microsoft@trydatabook.com for access today!

trydatabook.com

Confidential information. For internal Microsoft use only.

20

Databook -> helps MS understand cmr and cmr industry in much more level of detail

REAL outside-in perspectives



The grid displays 12 different Databook reports and dashboards, numbered 1 through 12, illustrating various analytical and strategic insights:

- 1. Ahold Delhaize Point-of-View: A dashboard showing a video feed of a team in a meeting room.
- 2. Ahold Delhaize Strategic Priorities: A report detailing strategic priorities across various business units.
- 3. Ahold Delhaize Management Intent: A dashboard showing internal strength and ranking, and recent decisions.
- 4. Executive Summary: A high-level summary of executive priorities and recent changes.
- 5. Value Driver Performance for Ahold Delhaize: A circular diagram showing value driver performance across different categories.
- 6. Move-The-Needle Business Assessment: A dashboard showing business assessment results for various categories.
- 7. Outside-In Business Case for Ahold Delhaize: A dashboard showing growth, D&A, and profit metrics.
- 8. Ahold Delhaize Performance Summary: A summary dashboard showing overall performance metrics.
- 9. Ahold Delhaize Fmc Group Overview: A detailed overview of FMCG group performance.
- 10. Recommended Microsoft Solutions for Ahold Delhaize (1/2): A list of recommended Microsoft solutions for Ahold Delhaize.
- 11. Recommended Microsoft Solutions for Ahold Delhaize (2/2): A continuation of the list of recommended Microsoft solutions.
- 12. Microsoft Case Studies for Ahold Delhaize: A collection of case studies related to Ahold Delhaize.

Key resources for Account Planning

Account Planning Portal (E&O)	ATU and Industry	MCEM – Microsoft Customer Engagement Methodology
Account Planning E&O SharePoint site	ATU Hub	Account Planning MCEM powered by MSX
MSX DOCS Account Planning	FY23 Industry Hub	Consumption Pipeline Management
Provide feedback on the Account Plan IDEAS site	Commercial Strategy Execution Portal – Industry	Marketing Insights for Sellers MSX Documentation
Getting access to MSX D365 Account Planning tool	Commercial Guidance	Solution Area – Specific Resources
MSX D365 permissions	CompeteHub	Microsoft Transform
Account Planning permissions	FY23 Commercial Strategy and Execution – Landing	Solution Plays
3 Horizons framework	Seller Guide	Azure (GearUp)
3 Horizons Library	Orchestration	Biz Apps Hub
3 Horizons Playbook: Commercial , Public Sector	FY23 Account Orchestration Guide	OnRamp for Modern Work
IDTA workshop	FY23 How Roles Work Together	Security
Industry + Digital Transformation Acceleration (IDTA)	Partner	GDC Landing Page
Register IDTA workshop for support	GPS Insights Hub	Commercial Licensing
Account Plan Export Wizard	Co-sell Hub	
MSX Docs - Account Plan PowerPoint Export	Other	
Account Plan Export short video	Customer Ready Stories and Search Customer Stories	Reporting & Other Tools
	Contactability	MSX Insights
	Red Carpet Overview	<ul style="list-style-type: none"> • Introduction to MSX Insights • Full user readiness resources • MSX Content Readiness
		CPE Account Profiles

Confidential information. For internal Microsoft use only.



Objectives -

After completing this class, you will be able to:

Learn how to facilitate **online** deliveries with high degree of engagement and effective landing of information

Learn about key adult education principles and how these principles apply to **online** deliveries

Demonstrate your learning

Agenda

-
- A thumbnail image showing two people in a meeting room. One is seated at a desk with a laptop, and the other is standing. To the right, a vertical list of agenda items is shown:
- The Tools
 - Prepare to present
 - Adult Learning Principles
 - Roles and Responsibilities
 - Facilitation Skills
 - Wrap up
 - Challenge

The Tools



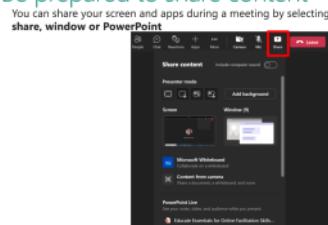
Meeting clients

- Desktop
 - Desktop client (PC, Mac), Web client (Edge, Chrome)
- Mobile
 - Android, iOS
- Desk phones
 - 3PB phones and phones optimized for Teams
- PSTN phones
 - Dial-in, dial-out
- Room systems
 - Skype Room Systems v2, Surface Hub
- Cloud Video Interop
 - 3rd party solutions to integrate with existing room systems

	Mejo	Oveme
Audio		✓
Video	✓	planned
View	✓	✓
Screen sharing	✓	✓
Action messages	planned	planned

Do ensure you are not sharing

Be prepared to share content



Role of thumb's
↳ put all the
resources i want to
share, put all of them
on 1st screen.
keep teams(chat) on the 1st Screen.

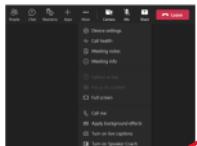
Multi screen

Other option

Window sharing
↳ Pick and
choose which

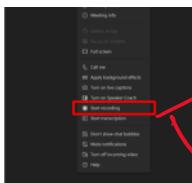
app you want
to share. You
can move around

Recording On Teams



THIS ARE
NOT RECORDING
IT'S RECORDING
THE SCREEN

using Sunshine Days !!



THIS UNCHECKED
not recorded
internal cov
downscaled
it scales

→ share - You
can move around
between different
apps while keeping the whole

Background effects on Teams

Two screenshots of the Microsoft Teams settings. The top one shows the 'Background settings' screen with several background options. The bottom one shows the 'Background effects' screen with various meeting-related options like 'Backgrounds' and 'Background colors'.

→ backgrounds (blended with)

Teams Live Captions & Reactions

A screenshot of the Microsoft Teams settings. A red box highlights the 'Live captions' option under 'Meeting info'. Another red box highlights the 'Reactions' option under 'Meet info'.

Breakout Rooms

A screenshot of the Microsoft Teams 'Create Breakout rooms' interface. A red box highlights the 'Add rooms' button at the bottom right.

Step-1

Access Breakout rooms
from the Teams invite
and create required
number of rooms.

Breakout Rooms

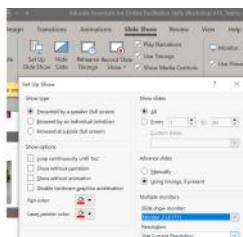
A screenshot of the Microsoft Teams 'Assign participants' interface for breakout rooms. A red box highlights the 'Assign participants' button at the top left.

Step-2

Upon creation, assign
participants to each
room, manually or
automatically.

Prepare to share your presentation

- Change your presentation option to use only your second screen if available (strongly advised).
- Use your main screen for chat windows, participant list and demo preparation if needed.



Additional Tools in Teams



Polling on Teams

- Add @Forms bot to your presentation before starting
- Use the available Forms Bot to share Poll in the chat windows typing @Forms in the chat.



Slow Shared

Teams Poll



- For deeper analysis (who/what was responded etc.) you can use the Forms Website (open it on the non-shared screen)
<https://forms.office.com/>

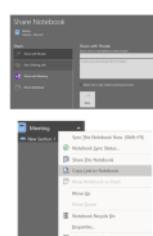
Collaboration tool



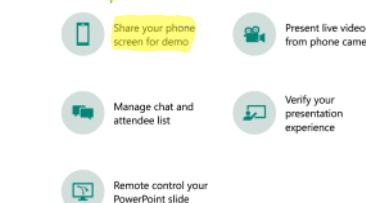
MICROSOFT WHITEBOARD (LIMITED TO SAME TENANT MEETINGS) MEETING ANNOTATION TOOL (VISIBILITY LIMITED TO THE SAME ORGANIZATION) ONENOTE SHARING

OneNote Sharing

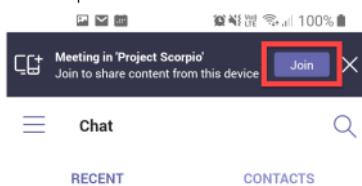
- A OneNote Notebook can be created before the delivery and shared with the attendees
- Attendees could then leverage the web-app or use the free OneNote App
- As a facilitator, you will present the OneNote App when needed



Teams companion mode



Teams companion mode



Microsoft Teams Resources

- Additional resources
 - More modules can be found at <https://aka.ms/TeamsAcademy>
- Feedback
 - Feedback for features: <https://microsoftteams.uservoice.com/>
- Teams and Office 365 evolves constantly!
 - Stay up-to-date with <https://aka.ms/Teamsblog>

"You are the messenger. Technology can provide an endless supply of gadgets and bells and whistles to enhance your presentation, but ultimately it is your message and your delivery that will move the audience to take action."

- Timothy J. Koegel

Prepare to Present



example
one expects
one gets
one expects
one gets
one expects
one gets

Preparing for Remote Delivery – Scoping!

- Scoping is the Key, not only expectations but also format of delivery
- Book a short (10 mins) 'tech check' with the customer
- Ask if customer wants/like to use 'web camera'

...Pln,1

Preparing for Remote Delivery - Scoping:

- Scoping is the Key, not only expectations but also format of delivery
- Book a short (10 mins) 'tech check' with the customer
- Ask if customer wants/like to use 'web camera'
- Discuss the tools needed (OneNote/Teams/Whiteboard etc...)

Preflight check

> Do a full check by joining the meeting the day before

> Join the meeting at least 15-20 minutes early

> Bring a bottle of water

> Be prepared for unplanned issues:

Internet
Multiple monitors
Device
Headset
Etc.



• One LIV. user gets LIV.
• User expects session
• Now peers workshop
• If user prefers another
platform do
+ tests w/ user.

(/JV can discuss
selected Ds/Dx, border issues?/J

Break → Part time on the Screen

"Zoomit" →

Adult Learning Principles



Ground Rules

- Be punctual
- Minimize distractions
- Be present
- Anticipate, interact, ask questions
- Ask them to advise you if they need to step away
- Use Timer for breaks
- Inform workplace limitations
- Be patient

*• let me know if u need to step away
and for how long
• if I have some challenges with bandwidth*



Traditional Learning:

- Lecture
"Sage on Stage"
Filling empty vessels
Passive interaction

This shows what should not be done in a facilitated style of learning. This describes the traditional style of learning



Video

Lecturer

Discussion:

Why is learning different as an Adult?



Perfect pause window 3 seconds
To avoid awkward silences, let them know it's not necessary to use the mic, give a thumbs up, write in the chat
Try to avoid pointing one person out to engage. Maybe one way to put it is to say lets hear it from the middle four or the first four from the alphabetical list

Adult Learning Principles



To avoid the teacher student role of delivery. That our students as a source of learning (I would like to hear from you and your experience...). This might add value to the already existing content.

Utilize real life examples, they help put things into context.

Content: student centric approach. Be sensitive to the needs of your学员. Make sure it is relevant and adding value to their situation, help them reach short-term gains or even long-term gains.

Motivate your attendees, make them want to learn the material in a fun way.

Challenge: training is a great opportunity to apply the learning. Could be a challenge you created, knowledge from this session (testbed), chances to retain the info about this solution increases.

Feedback: is crucial for the trainer and for the attendees. Important to give feedback. To do this you have to engage with them, participating with them.

Best practices rule of thumb, start with the positives, then move on to areas of improvements.

Learning Styles:

So whenever you look at the different styles of learning that there I would say with categories of learning styles you've got the visual learners, you've got auditory learners and you've got kind of static learners. Now visual learners are the people who usually like to look at something to absorb information better than listening or reading. Could be a flow chart could be a demo but they like to look at something to understand it better.

Would be a sight full of test or illustration or diagrams, but the need to look at something to understand it better. So if you're doing a presentation, make sure you've got the visual learners who usually listen to they. They better understand the topic when they're listening to something, so could be you know.

What's the most important? Most of the time it is what the trainer is delivering and then you have the kinetic learners. Kinesthetic learners are the ones who like to perform an activity of sorts to understand and absorb that information the best. So in any given scenario in any given class, you will notice that there are different types of learners in there. You can't say that one person is a visual learner, one person confirms to only one learning style. One person could be placed under different learning styles like for example.

So you could fall under different categories or you could fall under all three categories. So as a trainer, it is your responsibility that you're catering to all three styles of delivery. So for the visual learner, ensure you've got good illustrations, diagrams, charts, etc. for the auditory learner, make sure you've got a very easy to follow speech, make sure you've got a good tone, etc. for the kinetic learner, make sure you've got some sort of activity in place. Could be a challenge, could be a lab activity, anything that helps them.

Gives them the opportunity to apply them.

Alright, so these are all of the learning principles and our learning principles. This helps you understand why it is different when you're learning as an adult versus when you're learning as a child.

.....

Adult learning principles

Effective Adult Learning:

- Give enough information for foundation
- Engage them - Allow students to contribute
- Reinforce learning with real world examples
- Challenge them to seek answers

....thoughts?

Roles and Responsibilities



Discussion:

What is the most important responsibility you have as an Facilitator?



Agenda, Timekeeping, adding value
Facilitate the exchange of knowledge/opinion...
The audience feels encouraged to ask questions, that it is a safe space; they leave the workshop knowing more than when they started.
The motivate the attendees
Using humor, stories, etc. (risk of digressing (risk to lose track of what you're focusing on))
Making sure the value is delivered
Parking lot for questions
Be sure we have a good mix especially when the audience have different technical level
Online training is different from offline training. I think it is necessary to keep students online at all times, whether it is easy to have a conversation or to ask for feedback regularly.
Interaction is very important.

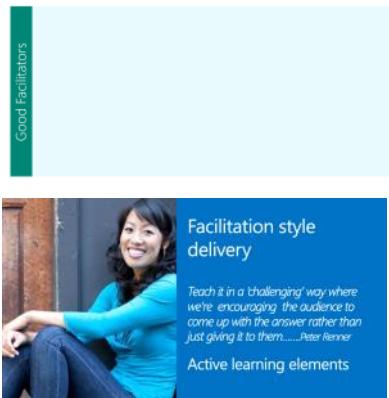
.....debrief
Preparation
Follow Workshop Guide
Accountable
Presence
Engage the group
Scale appropriately



Pre-Delivery – Customer Expectations

- Assess participants' knowledge level on product/technology
- Confirm the number of attendees and evaluate attendees' roles & responsibilities
- Understand the customer's drivers
- Set expectations about the offering, desired outcomes – scope and non-scope
- Use MIP detailed for discussion, where applicable
- Discuss the pre-requisites (Azure subscription, tools to be used)
- Plan for a short (5-10 min) Tech check-with the customer
- Welcome Mail with detailed scope

What Makes you a Good Facilitator?



Facilitation Skills



Being inclusive, that's true if you have a that was audience, that really helps

But yes, making sure that you are having everybody on board. I mean you're not delivering to robots and they're gonna do human errors. They're bound to make errors. They're bound to ask something twice to understand it better. So cater to have be patient.

Being flexible is also important. Alright, so now just to add to the existing list that has already been shared, a couple of things that at least for me I feel would stand out in a good facilitator. One would be of course inclusion like it was already mentioned. It's very important that you're not biased while delivering any sessions. And when I say biased biased to a specific group of people biased to a specific type of attendee, maybe the more active ones.

Not including the others. You have to be included and make sure everybody is on board and they don't need process. Take time to see if people are learning or not. You're not a lecturer, you're not there to just deliver content. You're there to make sure that you're facilitating in the learning process and they are able to grasp information which is being passed on to them. So take time to see if people are learning. Could that be could be done through knowledge checks, could be done by, you know, posing questions at them to understand if they're understanding it given top or not. Also something that's

Not everybody might be able to do, but I feel every time I come across an instructor who knows how to use humor effectively. Subtle humor... I would say that quality or that trade really stands out. I think it's somewhere on the lines of what Karilis mentioned. Don't be boring. But of course, do not try to utilize humor or humor if you're not good with using it. And I'm personally not good at using humor, adding human interest to my deliveries at any point, so I don't try but.

Not including others. You have to be able to identify what's going on based on how they don't just do what you're telling them. Take time to figure out what's learning is and, to not just do what you're telling them. Make sure that what you're facilitating in the learning process and they are able to grasp information which is being passed on to them. So take time to see if people are understanding what you're telling them. If they're not, then go back and re-explain the concepts, rephrasing them at times to understand if they are understanding a given topic or not. Also something that's not everybody might be able to do, but I feel every time I come across an instructor who knows how to teach, they have a certain way of doing it. It's not necessarily what they say, it's how they say it. It's somewhere on the lines of what Karla mentioned. Don't be boring. But of course, do not try to be funny all the time. There's a balance there. The problem is not good at using humor, adding humor into my deliveries at any point, so I don't try that.

But I didn't attempt but adding a quick "I would say Limerick here and there would really light up the room." I mean, I did not do that. Right. Uh, with that, let me actually dive into the real facilitation skills. So the skills that you need to have as a facilitator. So, I'm gonna work on when we talk about facilitation skills, I'm gonna do those. So these are the skills that most of us have. So, I'm gonna do those. So, I'm gonna do those. Just enjoy yourself, covering all these points. The first one talks about preparation for the class. So like, I said, one of the first things that you have to do is to prepare for the class.

Facilitator has to be prepared well for the class. For this you could use the workshop guides that are available. You can try to practice your delivery, if you still doubt the content, you can always bring along a copy of the material. So, you can always have a copy, know the structure of your workshop so that anybody has any questions relating to a topic, which might come at a later stage, you will be able to respond to it. So, you will be able to be positioned to be asked later and to be addressed later. So try to prepare well for the class.

Right. That's the first skill which is preparing well for the class. The second skill talks about how you start the class. How can I start when I'm preparing well for the class? I need to have a few quick things to say when I start the class.

facilitators start off by just diving into the session.

Ohh, I would say the best way to start a course would be to start with a round of introductions for multiple reasons. Firstly to establish a level of credibility for yourself amongst the attendees. So during the introductions you can start by introducing yourself. Let the attendees know for how long you've been in the space or working on this product. You can share your you know if any related certifications

Uh, take time to set the ground rules. Take time to set the agenda and discuss the class contract. Discuss the parking lot. You know, rules around that. So take time to discuss all of the I would say. Contractual. Not really, but logistical things around you're given session so that they are also eased into the session and there's not abrupt forced into the corner with all the details in the conductor.

Every session should have a good mix of theory. That's being not. Apart from that, you know, some demos, some activities that they can carry out. So it's your responsibility or it's a skill. I would say that

You can also debrief them on certain topics, maybe after a discussion you can put in a quick debrief slide that highlights what they see as the topic we covered on today. So, sharing those exercises.

that helps them understand that these are the topics we covered so far. So planning these exercises properly framing them, you know, using the debrief method really.

For that very reason, it's necessary that you transition smoothly. You can make use of Rd. markers you can make use of summarizing options, maybe at the end of each module you can summarize the you know given. I would say topic that this is what we spoke about. You can try to link the learning process that OK now well remove them on to the next module and this is how we'll work through it. And this is

what we will, you know, be covering in the next one which will add to it. You can make use of Rd. markers which I've been using all through.
You know, so that everybody has a mental note that it can be covered. So so many modules so far and. OK, I have Karlis Singh and that.

OK yeah, I am very of the time. I will be sure to come with that: So yeah, you can make use of these transitions and start you know, make sure that you're moving from 1 module to another smoothly.

Yeah, you can make use of these transitions and make sure it's, you know, smooth when you're moving from 1 module and hopping from 1 module to the other. OK, Karlis said it's showing that the training ends in 17 minutes in your customer call.

OK. And uh, so yeah, that's one skill to keep in mind, which is transition and the last skill that I'm going to be talking about is gatekeeping. Now, as a trainer, I think this is the most challenging skill that you

have to focus on, which is how do you manage the different kind of attendees that are there? You've got dominant attendees. You've got quiet attendees. You've got disconnected attendees. So dominant attendees are the ones who are participating in each and every, you know, The Who are, I would say, over the active, the quiet attendee is not so much the.

You set it as you know you set the scope at the very beginning that this is going to be an interactive session. I would like for everyone to interact so that you're encouraging everybody to pull into discussions and in the whole learning process.



[View Details](#) [Edit](#) [Delete](#)

Wrap Up



Closing the class: Wrap-up

What is a wrap up?

Why is it important?

What is the most effective way to approach it?

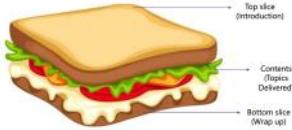
What does the class get out of it?

What does the trainer get out of it?

How would you position a wrap up?

It's important. I mean you cannot close a session abruptly. That OK? This was the end of the module. OK. That was all for the modules. Cover at a high level. Of course. You don't have to dive into each one of them again. But at a high level, at least list all the topics that you covered and then proceed to close the session. Now to emphasize the importance of a wrapper was I made a sandwich. I've got something I know as the sandwich model.

From: https://teams.microsoft.com/microsoft365/_api/v1.0/meetings/1234567890



So consider your remote delivery as or even in person you can save, but consider your delivery as a sandwich where the top slice makes the top side of things where the bottom slice and the sandwich and doesn't make contact, the graham cracker is the bottom slice. So that's your top slice, top slices, then you've got the contents in the center, which is the actual delivery. So you know the different modules that you'll be.

Covering the actual content to read about and then at the bottom we've got the wrap up, which is the bottom slice. Now without the bottom slice, it's not really a sandwich, which means without the wrap up, it's not really a wrap up.

That's why it's important that you have a proper wrap up in place now to give you a little understanding of the structure of the wrap up on your screen is a quick flow that you can follow for a wrap up. Of course, it's not necessary that you have to, you know, take each and every item from this list, but I would say this is a flow that you could follow some items. You can keep some items, you can choose to remove. So I would say for the wrap up session for the actual wrap up, keep it short, keep it concise and crisp.

Cover only the key takeaways or the main learning points. Also, if you have the time, try to link it to the objectives that OK, we covered this so far, this is how it's going to help you in implementing it and so. So try to link it to their success and individual action plans that they may have in place that if they're doing a project, this will be able to be implemented in 30 days or 60 days or 90 days. So maybe you can briefly touch on those that those are the places that also link to the objectives that you are expected to follow.

You should always do this. Let's not in the beginning we've taken the time to review what the expectations were. I would say this is a good time to go back on that. Make sure everything is covered and, you know, make sure that everything has been fulfilled.



Wrap-up

What did "you" learn today?

Anything surprising?
What points stand out?



Note for the wrap of today's session. Quickly recapping the modules. So we started off by discussing the tooling side of things. So teams, what's what it means to utilize, how you can prepare to present adult learning principles, you know roles and responsibilities that you have as a trainer as a facilitator in this case, what are the different facilitation skills that you need to work on or won't for a facilitated style of delivery, the importance of wrap up and how you should implement a wrap up and how it's necessary for.

Your Challenge



Create a ten-minute recording, be on Teams with an attendee, at least one, hit the record button. Present a slide deck or a p. o. presentation. Try to time it (10-12 it's fine), you can choose any topic. Please ensure it is in English.

Try to incorporate your learnings from today and demonstrate those in your delivery (intro, wrap-up, pause for questions,...)

This is a pre-recording for credit. If unable to find attendees, the trainer will be the attendee.

Practice what you have learned

Create a 10-minute video

Your choice of content

Present using the Adult Learning Principles and using a Facilitation style delivery





Resources

1. The Exceptional Presenter goes Virtual – Timothy Koegel
2. Teaching cross-culturally – GlobeSmart resources on HR Web
[About GlobeSmart](#)
[GlobeSmart tool login](#)
3. The Art of Teaching Adults – Peter Renner
4. Training for Impact: How to link training to business needs and measure the results – Dana Robinson, James Robinson

"Your virtual presentation must be relevant, or it will be ignored. It must be engaging, or it will be forgotten. It must keep moving, or it will be abandoned."

- Timothy J. Koegel

Questions on today's presentation?

Trainer alias: shdogra

Continuous Learning

Tuesday, 3 January 2023 12:13

FY23 Certification and Corp trainings

FY23 Skilling Core Principles		CBD	Learning Opportunity			Time		
Centrally Assigned Required	8-31	MCEM: Foundations			2			
	9-30	Launching New Sales Habits Workshop (area based)			4			
	11-30	Insightful Listening OLT			2			
	11-30	Situational Fluency OLT			2			
	Varies	Culture & Compliance Placeholder (all year)			6			
Business Required	5/31	Certification: Azure Solution Architect Expert (if already earned, renew and complete Azure Security Engineer)			80-100			
		Total Required Hours			96-116			
		CSU Aligned						
Business Recommended	Role Basics	WAF Well Architected Framework ✓	CAF Cloud Adoption Framework ✓	Architecture Design	10			
	Security		MCEM Orchestration	VBD Value Based Delivery				
	Tools		Success Measures					
	Solution Area Aligned							
	Technical Learning Paths			30-40				
			Technical Application Workshop			8-16		
			OpenHack			24		
			Hands-on technical Labs			8-16		
			LevelUp Workshops			2-4		
			Total Recommended			82 - 100		

Microsoft Confidential

- **MyRole** ([Onboarding](#) / [Skill Development](#)) (Role based curated skill development – To be launched on 30th July)
- [MSLearn](#) (Learning Path for technical skills development)
- **Open Hacks** [here](#)
- **Additional Digital readiness** ([Live Shows, on-demand recordings](#))
- **Apps & Infra and Data & AI WW Leadership and Sales Community calls** (you will receive the invitation by mid July, if not reach out to [Christian Linacre](#))
- **Your Azure Communities including engineering connection** ([join here](#) / [more information here](#))
- **Peer to Peer Learning** (1:1 Buddy Program - *Corp guidance to be provided shortly for local execution by your Area.* Managers can go to the [Skills Acceleration page](#) for more information)
- **TSI Landing Programs** (*You will receive the communication from local Field Enablement Manager*)
 - Monthly Areas Learning days and learning events
 - On-demand learning resources
 - Area Azure Cert Champs
 - Monthly area celebration and recognition – In partnership with Area Leadership
 -

Sustainability Course

Wednesday, 4 January 2023 12:15

Record -> measure and disclose carbon footprint, and track
 Report -> publicly track our progress against goals with annual environmental sustainability report
 Reduce -> smart building solutions helped reduce our gross energy consumption, continuous improvement in our datacenters have made them much more energy efficient than traditional on-prem solutions.
 Incentives for low carbon ops system wide
 Replace -> rely exclusively on 100% renewable energy on all our operations facilities and Datacenters globally by 2025.

Remove -> becoming carbon negative by 2030 means doing more than being net zero, it means removing carbon from the atmosphere.
 Microsoft only uses removal projects that meet our key criteria: NET NEGATIVITY, SCIENTIFIC VERIFICATION, POSITIVE SOCIAL IMPACT

Goal
 Microsoft will be carbon negative by 2030
 Remove the equivalent of all (historical emissions) carbon we have emitted by 2050

Water

MS has committed to be water positive by 2030!
 Means replenish more water in water stressed basins where we operate than we consume and measured across our entire global operational footprint while also improving access to drinking water or sanitation services.

For 1.5 million people, through partnerships with nongovernmental organizations like water.org.

What does it mean to replenish water?



Reaching Water Positive by 2030



Water Strategy Maturity Model

Creating Value Beyond Stewardship



Partnerships

The Water Resilience Coalition is an initiative of the United Nations Global Compact CEO Water Mandate. Founded by seven companies, including Microsoft, the coalition has

Water.org Water.org is a global nonprofit organization working to bring safe, accessible, and cost-effective water and sanitation to underserved communities. Water.org

Carbon and Energy

Wednesday, 4 January 2023 12:15

Report -> measure and disclose carbon footprint, and track
 Report -> publicly track our progress against goals with annual environmental sustainability report
 Reduce -> smart building solutions helped reduce our gross energy consumption, continuous improvement in our datacenters have made them much more energy efficient than traditional on-prem solutions.
 Incentives for low carbon ops system wide
 Replace -> rely exclusively on 100% renewable energy on all our operations facilities and Datacenters globally by 2025.

Remove -> becoming carbon negative by 2030 means doing more than being net zero, it means removing carbon from the atmosphere.
 Microsoft only uses removal projects that meet our key criteria: NET NEGATIVITY, SCIENTIFIC VERIFICATION, POSITIVE SOCIAL IMPACT

Goal
 Microsoft will be carbon negative by 2030
 Remove the equivalent of all (historical emissions) carbon we have emitted by 2050

What is the energy transition

Change in an energy system. We lived through many energy transitions from wood to coal, from coal to oil and gas

This refers to the global energy shift from fossil energy to low carbon energy sources, batteries

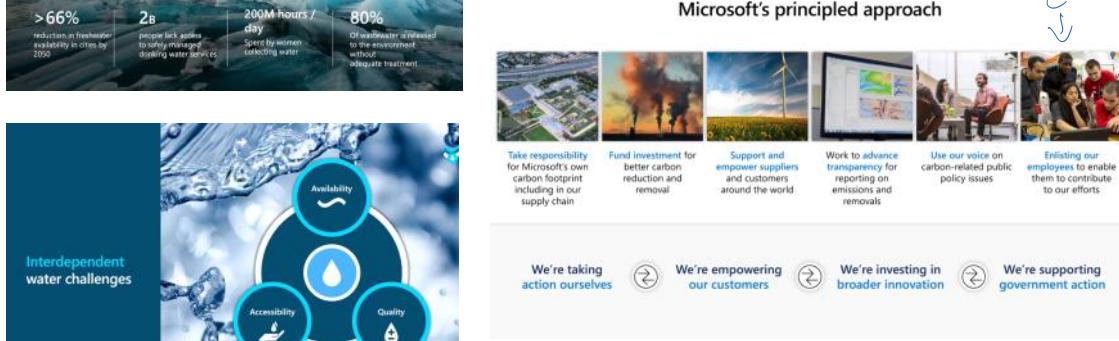
Right now, it is in a very accelerated timeframe compared to the previous transition, which folded over many decades and here we have 20 years to figure it out.

Zero carbon to low carbon sources: nuclear or also biofuels that are not all necessarily renewable fuel or sources.

Renewable: wind, solar, hydro, biomass



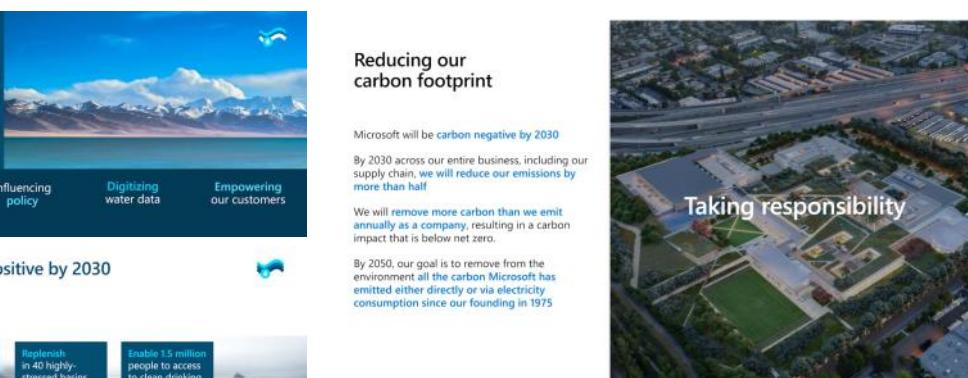
Microsoft's principled approach



Reducing our carbon footprint

Our water commitments

Water positive by 2030



Reducing our carbon footprint

Reduce water use intensity

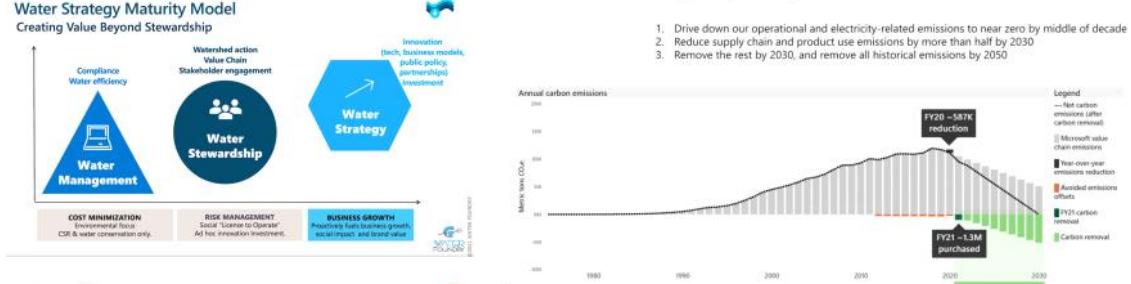
Replenish in 40 highly-stressed basins where we have operations more than we consume globally.

Enable 1.5 million people to access to clean drinking water and sanitation.

Carbon neutrality: this is relying on carbon offset that includes avoiding emissions or reducing emissions like not cutting trees down

Carbon negative: we will pull more carbon from the atmosphere. Leaving the atmosphere cleaner than we found it

Microsoft's carbon negative pathway



Microsoft completed a Request for Proposals for carbon removal in 2020

We received proposals from 79 applicants representing 189 projects in over 40 countries. We published project information from all proposals.



To achieve this we rely heavily on carbon removal to which the market is not functional right now. MS did something that was new last year. MS did a request in 2020

Microsoft completed a Request for Proposals for carbon removal in 2020

- We received proposals from 79 applicants representing 189 projects in over 40 countries. We published project information from all proposals.
- Of 55M metric tons proposed for this year, **only ~2M met our prerequisites**. We purchased more than 1.3M metric tons from 15 organizations. Demand is far outstripping high-quality supply.
- We assess projects based on their durability - how long they guarantee that carbon stays out of the atmosphere. **More than 99 percent of our total volume was from short-term natural solutions (<100 yrs)**, which we plan to shift to long-term engineered solutions (>1,000 yrs) in the coming decade.



aka.ms/carbonremovalwhitepaper
aka.ms/msfcarbonprojectsubmissions

Climate Innovation Fund Emerald Technology Ventures

Through our Climate Innovation Fund (CIF), we have invested \$10 million in the Emerald Technology Ventures \$100 million Global Water Impact Fund, whose other investors also include Temasek, Ecolab, and Sinopec Water.



We can't meet our carbon negative commitment without carbon removal.
Clear accounting of carbon removal is vital.
Additionality, durability, and leakage are crucial criteria but lack clear standards.
Corporations do not yet have an easy way to source affordable, high-integrity carbon removal.
We can't do it alone. We need other corporate buyers to accelerate market development.

The solution to help this carbon removal market up is



Climate Innovation Fund

\$1 billion over the next four years
Accelerate the development of technologies for carbon reduction and removal technologies as well as solutions that address broader climate focus areas

Digitizing water data

We use our technology to better understand where water stress is emerging and optimize water replenishment investments across a region. Through our AI for Earth program we are supporting projects in each of these areas:

- The Vector Center
- The Freshwater Trust & Upstream Tech
- Leadership Council for Justice and Accountability



Customer story: Ecolab and ADM Monitoring and optimizing water consumption



Customer story: Vector Center Responding to the world's water crises with AI



Customer story: BasinScout Platform & Freshwater IoT Improving groundwater and surface water



What does it mean for an organization like Microsoft to be **water-positive by 2030?**

- The organization recycles rainwater for use in toilets and datacenter cooling.
- The organization replenishes more water than it consumes.
- The organization cleans and filters water prior to consumption.
- The organization seeks to leverage seawater as a resource.

What does it mean to **replenish water**?

- Make early-stage investments in desalination technology.
- Change physical characteristics of local areas to allow rainwater to return to soil, or allow water to remain in basins.
- Transport water from areas of abundance to areas of scarcity.
- A way to measure how efficiently water is used.

What is **water intensity**?

- The extent to which water is used to cool datacenters.
- The concentration of minerals in groundwater.
- The speed of water flow through irrigation and cooling systems.
- A way to measure how efficiently water is used.

How many hours do **women** spend gathering water each day, globally?

We can't do it alone. We need other corporate buyers to accelerate market development.

Climate Innovation Fund

Investment in innovation for sustainability

This is crucial to



Developing new tools, deepening our engagement

Tools to better track and reduce carbon

Microsoft Sustainability Calculator, a Power BI dashboard shows the estimated emissions from Azure services.

New offerings that go further, providing insight across Scopes 1, 2 and 3 and material circularity related to all Microsoft Azure services

24/7 matching solution with Vattenfall to give customers ability to choose the green energy they want

More transparency on carbon performance of Microsoft products

Co-innovation with customers and partners: Transform to Net Zero coalition



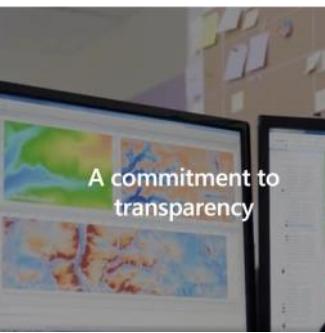
We'll advocate for the needed changes in laws and regulations

The need to expand global basic and applied research efforts on carbon to develop the breakthrough technologies needed to achieve net zero global emissions

The removal of regulatory barriers to help catalyze markets to enable carbon-reduction technologies to scale more quickly.

The use of market and pricing mechanism so people and businesses can make more informed carbon decisions.

The empowerment of consumers through transparency based on universal standards to inform purchasers about the carbon content of goods and services



New transparency report, and a new public pledge

Disclose the carbon footprint of our services and solutions.

Support strong industry-wide standards for transparency and reporting on carbon emissions and removal, and we will apply these ourselves.

We have signed the United Nations' 1.5-degree Business Ambition Pledge and encourage other companies to join us.

We publicly track our progress with a new annual environmental sustainability report.

RABO Bank project: made a proposal to MS RFP last summer, and engaged in detailed discussion with them. MS pays rabobank to generate carbon credit, the landholders and farmers they paid to do that work have planted and cultivated trees in agroforestry projects around the world

- The speed of water flow through irrigation and cooling systems.
- A way to measure how efficiently water is used.

How many hours do **women spend gathering water** each day, globally?

- 2 hours a day, on average
- 500,000 hours
- 20 million hours
- 200 million hours**

Waste

Zero waste by 2030

Circular economy

Aims to eliminate waste and pollution by decoupling economic activity from the use of virgin resources by designing products from recycled materials that go on to be reused and eventually recycled or composted.

Example: MS Circular Centers, located on our Datacenter campuses and regions, that reuse and repurpose components from the millions of servers and related hardware that powered Azure.

With MS Circular Centers, we will reuse and repurpose 90% of datacenter servers and hardware by 2025.

We also apply circular economy principles, to the way we design devices and packaging, operate buildings and track our waste output using data.



This growth is due to the ever-growing number of electronic devices that consumers in the globe are demanding.

By 2050, it's predicted that there will be a 100 million ton of e-waste discarded annually.

This is because of poor material and waste management system we are currently in. The trash society discards greenhouse gas emissions, it's polluting land, it clogs our water ways, it depletes natural resources and it contaminates the very air we breathe.

Defining Zero Waste

Zero Waste, as defined by Zero Waste International Alliance and third-party certifying bodies (like TRUE and UL), means 90% or greater overall diversion from landfill, incineration, and the environment for solid, non-hazardous wastes.



The Linear Economy in Practice

The **linear economy** is an extractive, industrial model that takes raw materials from the environment to produce goods. Once those goods have reached their end-of-life, they are trashed as opposed to cycled back into production.



Principles of a Circular Economy



The Circular Economy in Practice

Microsoft & Eon, a New York City tech startup, built Connected Products, a digital system for fashion and retail companies.

Eon's leading IoT platform is powered by Azure. It generates a digital identity for every item and enables brands to build new fashion industry circular system business models.

Azure Cloud then enables Eon to scale this process with confidence and security.

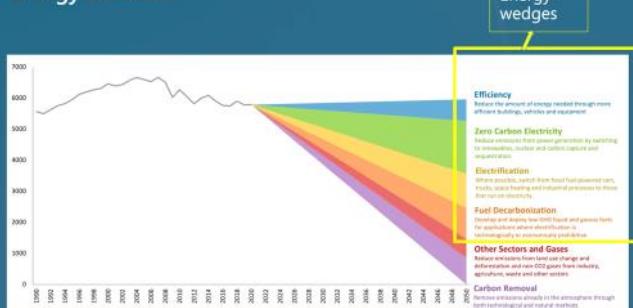
Microsoft's cognitive services is used to attach an imprinted or embedded tag within each of the garments, such as QR code, RFID, NFC or bluetooth LE. It enables data to be associated with the item and captured across its lifecycle.

The Microsoft commitment: zero waste by 2030



RABOBank project: made a proposal to MS RFP last summer, and engaged in detailed discussion with them. MS pays rabobank to generate carbon credit, the landholders and farmers they paid to do that work have planted and cultivated trees in agroforestry projects around the world

Energy transition



Energy transition framework



Transform to Net Zero

A cross-sector initiative to accelerate the transition to a net zero global economy



Reduce Scope 1 emissions

Reduce direct emissions (produced through refining, manufacturing, refrigerant, etc.)





First circular center is in Amsterdam: it's a facility and a building next to the DC. When a server gets decommissioned, it gets brought into the circular center, people that work there will disassemble parts from that machine and will use those parts to make for another server that needs it for whatever reason. If parts cannot be reused or repurposed, they get sent to a recycling vendor to finalize the recycling of all the materials.

It's unique and not seen across any other tech companies.

Increasing reuse of servers and components through Circular Centers.

By 2025, 90 percent of servers and components within our regional datacenter network will be reused.



There is a huge carbon saving by implementing the localized circular centers, not only just for the transportation miles that get saved. But also because we don't need to buy additional spare parts. Instead we can be our own spare parts supply chain.

Reduce direct emissions (produced through refining, manufacturing, refrigeration, etc.)



Electrify campus fleet by 2030

Diesel-free datacenter back-up generation by 2030

Reduce Scope 2 emissions

Reduce indirect emissions (purchased electricity, heat, steam, etc.)



Improve datacenters and facilities' energy efficiency

Power datacenters and facilities with 100% renewable energy by 2025

Migrating to the Microsoft cloud reduced our carbon footprint

Microsoft moved over 2000 applications from on-premises to the cloud



*Carbon footprint reductions will vary depending on your specific server usage, renewable energy purchases you make, and other factors. For details, please refer to The carbon benefits of cloud computing published by Microsoft in 2018.



Renewable energy purchases

Additionality
Regionality
Climate justice



The closer the wind and solar farm to our dc the more likely it can power our datacenters



The company

Vattenfall is a leading European energy company. Currently, we are working with them on multiple Azure projects for their energy solutions. Azure Energy team also signed power purchase agreements (PPA) to provide energy to Microsoft buildings and datacenters.

The challenge

Vattenfall needed to create the monitoring and level of transparency to ensure that it is achieving its commitment to 100% renewable energy in each hour of consumption. Vattenfall also wants to produce and onboard its approximately 2,000 customers.

Case study

Currently, the solution is being piloted at Vattenfall and Microsoft HQ in Sweden and will also be used for the upcoming Sweden Data Center. [\[link\]](#)

The solution

Vattenfall and Microsoft piloted the world's first hourly matching of renewable energy. We have jointly developed a first-of-its-kind solution, providing customers with a new level of transparency into their electricity consumption and making it easier to move from year-linked data to hourly data based on source of origin. The solution uses IoT Central, Azure Data Lake, Azure SQL, Azure Function, and Power BI.

Reduce Scope 3

Reduce emissions from our value chain
· upstream [supply chain] *and*
· downstream [use of our products]



Supplier Code of Conduct

Reduce scope 3 emissions by more than half by 2030

Products: electricity, fuel of planes, gas the trucks are using....
Use of devices like surface and xbox....

Engaging very closely with suppliers, requirement to report scope 1,2,3 emissions, enable the suppliers to reduce these scope 1 and 2 emission
July 2020 update to our supplier code of conduct to request them to reduce their emissions in line with the Paris agreement roadmap and report scope 1,2,3 emissions



Customer engagement

Measure and reduce one's organization's carbon emissions and transition to cleaner resources—while enhancing brand and adding value to bottom line



Record and Report carbon emissions

Reduce carbon emissions

Replace carbon intensive energy sources with lower carbon sources

Remove:
think ahead with carbon capture and removal tech

Employee productivity session-onboarding

Monday, January 9, 2023 10:35 AM

MIP-Azure Well Architected

Thursday, January 12, 2023 11:39 AM

MIP- Well Architect Cost Optimization Assessment

Thursday, January 12, 2023 11:39 AM

[WAF-Cost Opt Office Hours \(ATZ\)-20220318_110156-Meeting Recording.mp4 \(sharepoint.com\)](#)

[GearUp: Well-Architected \(microsoft.com\)](#)

Use these checklists:

Preview: WAF Cost Optimization - Gather process

[GearUp: Well-Architected \(microsoft.com\)](#)

CSU Azure Cost Optimization Process: Analyze

[GearUp: Well-Architected \(microsoft.com\)](#)

WAF Cost Optimization - Advice process

[GearUp Portal \(microsoft.com\)](#)

Spot VM Cost Optimization

<https://gearup.microsoft.com/download/22ee3389-410e-42bf-62cb-08da24a202f1>

Alternative to ACM Dashboard

Monday, 24 April 2023 17:23

[GitHub - sairashaik6677/azure-costmanagement-dashboard: Azure Cost Management Dashboard](#)

Azure Enable Community Call 24042023

Monday, 24 April 2023 17:08

[GitHub - sairashaik6677/azure-costmanagement-dashboard: Azure Cost Management Dashboard](https://github.com/sairashaik6677/azure-costmanagement-dashboard)

The screenshot shows a Microsoft Power BI report titled "Cost Optimization | Confidential|Microsoft ...". The main dashboard features several key metrics:

- Iteration:** OLA Cost Optimization in Sep'22
- Vertical:** All
- Key Metrics:**
 - Monthly Invoice:** \$1,066K
 - Recommended Monthly Savings:** \$436K
 - Optimized Monthly Savings:** \$368K
 - Monthly Invoice Post Optimization:** \$698K
- Cost Category:** ANI TECHNOLOGIES PVT LTD
- Cost Breakdown:** OLA Money Prod, OLA Money Management, OLA EV, Prod Ola Cabs, OLA Non Prod
- Cost Components:** Cost, Advised By, Actions Taken, Recommended Monthly Savings, Optimized Monthly Savings
- Recommendations:** Azure Advisor Recommendations, Infrastructure Deep Dive, Reservations
- Security:** Log Analytics agent should be installed on virtual machines and virtual machine scale sets, File integrity monitoring should be enabled on machines, Adaptive network hardening recommendations should be applied on internet facing virtual machines, Secure transfer to storage accounts should be enabled, Install endpoint protection solution on virtual machines, Microsoft Defender should be enabled for Critical Services.
- Potential Benefits:** Prevent potential security breaches, Upgrade your SKU or add more instances to ensure fault tolerance, Enable Azure backup for SQL on your virtual machines, Add a second region to your production workloads on Azure Cosmos DB, Improve PostgreSQL availability by removing inactive logical replication slots.
- Resources Impacted:** 672, 185, 124, 79, 69, 22
- Reliability:** Enable Backups on your Virtual Machines, Ensure business continuity through application gateway resilience, SQL aware backups with no-infra for backup, centralized management, AG integration and point-in-time restore.
- Potential Benefits:** Protection of your Virtual Machines, Improve the availability of your production workloads, Improve PostgreSQL availability by removing inactive logical replication slots.
- Resources Impacted:** 1,118, 17, 5, 1, 1
- Performance:** Total: 1,151
- Operational Excellence:** Total: 1,142

The screenshot shows a Microsoft Power BI report titled "Cost Management Savings Dashboard | Confidential|Microsoft ...". The main dashboard features a summary of total savings:

- Total Savings:** \$30,110,864
- Reservations and Savings Plan Savings:** \$30,110,864
- Total Savings:** \$90,268,390

The dashboard also includes a section for "Savings by Month" and a table for "Total Savings" breakdown:

Meter Category	Meter Sub Category	Subscription Name	Date
All	All	All	2023 (Year) + March (Mo...)
Tags	Resource Location	Resource Group	ResourceName
All	All	All	All
Reservation	\$28,229,428 Savings Used / Utilized	+ (\$1,323,379) Savings Unused / Underutilized	= \$26,906,048 Savings
Savings Plan	\$3,204,816 Savings Used / Utilized	+ \$0 Savings Unused / Underutilized	= \$3,204,816 Savings
Azure Commitment Discount (ACD)	\$172,382,100 PayG Cost	- \$112,224,575 ACD Cost	= \$60,157,525 ACD Savings over PayG

Cost Management Savings Dashboard | Confidential Microsoft ...

Total Savings

Meter Category	Meter Sub Category	Subscription Name	Date
All	All	All	2023 (Year) + March (Mo...)
<input type="checkbox"/> Advanced Data Security	Resource Location	Resource Group	ResourceName
<input type="checkbox"/> Advanced Threat Protection	All	All	All
<input type="checkbox"/> API Management			
<input type="checkbox"/> App Configuration			
<input type="checkbox"/> Application Gateway			
<input type="checkbox"/> Anomaly Insights			

Savings Plan

\$28,229,428	+	(\$1,323,379)	=	\$26,906,048
Savings Used / Utilized		Savings Unused / Underutilized		Savings

Azure Commitment Discount (ACD)

\$3,204,816	+	\$0	=	\$3,204,816
Savings Used / Utilized		Savings Unused / Underutilized		Savings

Reservations and Savings Plan Savings

\$172,382,100	-	\$112,224,575	=	\$60,157,525
PayG Cost		ACD Cost		ACD Savings over PayG

Reservations and Savings Plan Savings

30,110,864

Total Savings

\$90,268,390



Savings Utilized			Savings Unused / Underutilized		
MeterCategory	No.of Hours	Savings	MeterCategory	No.of Hours	Savings Unused
Virtual Machines	6,960,696	\$61,285,973	Redis Cache	10,178	(\$151,857)
SQL Database	6,751,634	\$21,699,114	SQL Database	139,739	(\$935,339)
Redis Cache	636,121	\$1,297,915	Virtual Machines	288,206	(\$11,807,935)
Total	14,348,451	\$84,283,003	Total	438,123	(\$12,094,831)

Savings Utilized

\$1.0M

\$0.8M

\$0.6M

\$0.4M

\$0.2M

\$0.0M

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Instance Level Savings Utilized

Day	MeterCategory	No.of Hours	1 Savings	2 Savings	3 Savings	4 Savings	5 Savings	6 Savings	7 Savings						
1	Virtual Machines	245,076	\$2,106,539	240,124	\$2,083,345	249,220	\$2,196,364	269,721	\$2,464,494						
2	March	36,643	\$343,116	35,985	\$338,690	47,719	\$461,776	71,336	\$732,557						
3	ICM-MultiTenant-UAT	8,149	\$54,478	8,161	\$54,494	11,152	\$79,788	16,940	\$136,772						
4	EadsV5 Series	216	\$5,101	207	\$5,030	929	\$19,635	2,356	\$50,992						
5	EastUS	1	\$13			199	\$5,081	2,352	\$50,857						
6	imtd0rgpprmfry					90	\$2,621	240	\$6,989						
7	imtd0vrmesdt1						\$262	24	\$699						
8	imtd0vrmesdt3						\$262	24	\$699						
9	imtd0vrmesdt4						\$262	24	\$699						
Total		\$09,480	\$2,893,114	497,716	\$2,861,487	\$07,908	\$3,005,908	\$51,513	\$3,356,566	\$52,968	\$3,358,210	\$54,567	\$3,375,578	\$55,048	\$3,38...

Microsoft Power BI My workspace Cost Management Savings Dashboard | Confidential/Microsoft ...

Pages File Export Share Chat in Teams Get insights Subscribe to report Edit ...

Savings Dashboard Reservations Savings Savings Plan Savings ACD Savings

\$172,382K PayG Core \$112,225K ACD Cost \$60,158K ACD Savings over PayG

Filters

Instance Level Savings Utilized	Day		1		2		3		4		5		6		7	
MeterCategory	No. of Units	Savings	No. of Units	Savings	No. of Units											
Advanced Data Security	8	\$2,166	8	\$2,174	8	\$2,205	8	\$2,217	8	\$2,218	8	\$2,219	8			
March	8	\$2,166	8	\$2,174	8	\$2,205	8	\$2,217	8	\$2,218	8	\$2,219	8			
Icertis-AccessManagement	0	\$148	0	\$149	0	\$149	0	\$149	0	\$150	0	\$151	0			
SQL Database	0	\$148	0	\$149	0	\$149	0	\$149	0	\$150	0	\$151	0			
centralindia	0	\$125	0	\$126	0	\$126	0	\$126	0	\$126	0	\$126	0			
westindia	0	\$111	0	\$111	0	\$111	0	\$111	0	\$111	0	\$111	0			
WestUS	0	\$111	0	\$111	0	\$111	0	\$111	0	\$112	0	\$114	0			
IC-IcertisDeveloperNetwork-PROD	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0			
IC-Partner-SellService	0	\$34	0	\$36	0	\$46	0	\$46	0	\$46	0	\$46	0			
ICM-ABB-Prod	0	\$11	0	\$11	0	\$11	0	\$11	0	\$11	0	\$11	0			
ICM-AlbuvNL-Prod	0	\$11	0	\$11	0	\$11	0	\$11	0	\$11	0	\$11	0			
ICM-ABBY	0	\$11	0	\$11	0	\$11	0	\$11	0	\$11	0	\$11	0			
ICM-ABS-PROD	0	\$11	0	\$11	0	\$11	0	\$11	0	\$11	0	\$11	0			
ICM-Accenture-PROD	0	\$23	0	\$23	0	\$23	0	\$23	0	\$23	0	\$23	0			
ICM-Accenture-UAT	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0			
ICM-Aerospace-UAT	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0			
ICM-Airplus-Prod	0	\$11	0	\$11	0	\$11	0	\$11	0	\$11	0	\$11	0			
ICM-Alcon-PROD	0	\$111	0	\$111	0	\$111	0	\$111	0	\$111	0	\$111	0			
ICM-ALDI-PROD	0	\$111	0	\$111	0	\$111	0	\$111	0	\$111	0	\$111	0			
ICM-Allianz-PROD	0	\$111	0	\$111	0	\$111	0	\$111	0	\$111	0	\$111	0			
ICM-Amaren-PROD	0	\$111	0	\$111	0	\$111	0	\$111	0	\$111	0	\$111	0			
ICM-Apple-UAT	0	\$34	0	\$34	0	\$34	0	\$34	0	\$34	0	\$34	0			
ICM-APTIV-PROD	0	\$111	0	\$111	0	\$111	0	\$111	0	\$111	0	\$111	0			
ICM-Azure-POC	0	\$46	0	\$46	0	\$60	0	\$69	0	\$69	0	\$69	0			
ICM-RAII-JIAT	0	\$111	0	\$111	0	\$111	0	\$111	0	\$111	0	\$111	0			
Total	2,708,605	\$1,947,459	2,941,102	\$1,974,451	2,982,197	\$1,911,598	2,999,256	\$1,607,570	2,903,621	\$1,177,131	2,250,243	\$1,766,933	3,400,474	\$1,1		

Microsoft Power BI My workspace Cost Management Dashboard | Public

Pages

Monthly Usage and Purchases

Year	Month	Cost
2023	March	\$173,911.880
2023	April	\$105,107,462
2022	December	\$164,243,565
Total		\$766,146,126

Monthly Usage Cost

Monthly Usage Cost

Year	Month	Cost
2022	December	\$114,095,819
2023	January	\$111,010,721
2023	February	\$117,621,344
2023	March	\$112,224,575
2023	April	\$55,242,460
Total		\$510,194,919

Microsoft Power BI My workspace Cost Management Dashboard | Public

Pages

Monthly Usage and Purchases

Monthly Purchase and Refunds

Year	Month	Day	ChargeType	ProductOrderName	Cost
2023	January	3	Purchase	Azure Redis Cache Premium, P1, US Central, 3 Years	\$13,145
2023	January	17	Purchase	Azure Redis Cache Premium, P1, US Central, 3 Years	\$184,030
2023	January	2	Purchase	Azure Redis Cache Premium, P1, US East 2, 3 Years	\$13,145
2023	January	3	Purchase	Azure Redis Cache Premium, P1, US East 2, 3 Years	\$13,145
2023	January	17	Purchase	Azure Redis Cache Premium, P1, US East 2, 3 Years	\$72,298
2023	January	2	Purchase	Azure Redis Cache Premium, P1, US East 2, 3 Years	\$46,008
2023	January	3	Purchase	Azure Redis Cache Premium, P1, US East, 3 Years	\$13,145
2023	January	17	Purchase	Azure Redis Cache Premium, P1, US East, 3 Years	\$190,603
2023	January	3	Purchase	Azure Redis Cache Premium, P1, US South Central, 3 Years	\$6,573
2023	January	17	Purchase	Azure Redis Cache Premium, P1, US South Central, 3 Years	\$6,573
2023	January	3	Purchase	Azure Redis Cache Premium, P1, US West 2, 3 Years	\$6,573
2023	January	17	Purchase	Azure Redis Cache Premium, P1, US West 2, 3 Years	\$6,573
2023	January	2	Purchase	Azure Redis Cache Premium, P1, US West, 3 Years	\$13,145
2023	January	3	Purchase	Azure Redis Cache Premium, P1, US West, 3 Years	\$6,573
2023	January	17	Purchase	Azure Redis Cache Premium, P1, US West, 3 Years	\$85,443
2023	January	17	Purchase	Azure Redis Cache Premium, P2, AP Southeast, 3 Years	\$79,003
2023	January	2	Purchase	Azure Redis Cache Premium, P2, AU Southeast, 3 Years	\$13,167
2023	January	17	Purchase	Azure Redis Cache Premium, P2, AU Southeast, 3 Years	\$39,501
Total					\$255,951,207

Monthly Usage and Cost by Service

MeterCategory	No.of Units	Cost
Advanced Data Security	921	\$638,237
Advanced Threat Protection	262,513	\$603,726

Microsoft Power BI My workspace Cost Management Dashboard | Public

Pages: Daily Usage and Purch...

Resource Level View

Reservation and OnDemand

Savings Plan and OnDemand

Metrics

Deployment pipelines

Logs

Workspaces

My workspace

Cost Management Dashboard

Cost Management Savings Data

Cost Optimization - Power BI

Cost Management Dashboard

Daily Usage and Cost by Service

MeterCategory	Day	No.of Units	Cost	No.of Units	Cost	No.of Units	Cost	No.of Units	Cost	No.of Units	Cost	No.of Units	Cost	No.of Units	Cost
Virtual Machines	1	192,491.54	\$3,437K	192,909.04	\$3,051K	197,721.51	\$39,089K	193,374.82	\$7,051K	193,448.99	\$1,396K	196,300.08	\$1,693K	197,000.57	\$35,050K
Total		192,491.54	\$3,437K	192,909.04	\$3,051K	197,721.51	\$39,089K	193,374.82	\$7,051K	193,448.99	\$1,396K	196,300.08	\$1,693K	197,000.57	\$35,050K

Microsoft Power BI My workspace Cost Management Dashboard | Public

Pages: Resource Level View

Tags: All

Resource Location: All

Resource Group: All

Resource Name: All

Daily Usage Units and Cost

Daily Usage Units and Cost

MeterName	Day	No.of Units	Cost	No.of Units	Cost	No.of Units	Cost	No.of Units	Cost	No.of Units	Cost	No.of Units	Cost	No.of Units	Cost																						
Virtual Machines	1	98K	\$1,119K	99K	\$1,380K	98K	\$1,017K	99K	\$426K	98K	\$423K	99K	\$290K	98K	\$496K	99K	\$820K	98K	\$747K	99K	\$797K	98K	\$783K	99K	\$605K	98K	\$702K	99K	\$798K	98K	\$824K	99K	\$829K	98K	\$842K	99K	\$839K
Total		98K	\$1,119K	99K	\$1,380K	98K	\$1,017K	99K	\$426K	98K	\$423K	99K	\$290K	98K	\$496K	99K	\$820K	98K	\$747K	99K	\$797K	98K	\$783K	99K	\$605K	98K	\$702K	99K	\$798K	98K	\$824K	99K	\$829K	98K	\$842K	99K	\$839K

Cost Management Savings Dashboard | Cost Management Dashboard | Cost Optimization - Power BI

https://msit.powerbi.com/groups/me/reports/0f0fe600-85a3-4cf1-a364-3037e3256850/ReportSection6e39a6d8a647360bbc0b

Cost Management Dashboard | Public

Microsoft Power BI My workspace

Pages

File Export Share Chat in Teams Get insights Subscribe to report Edit ...

Resource Level View

Reservation and OnDemand

Savings Plan and OnDemand

Daily Reservation Usage Units and Cost

Day	MeterName	1	2	3	4	5	6	7	8	9	10	
	No.of Units	Cost	No.of Units									
B12ms	48.00	\$0	48.00	\$0	39.93	\$0	23.98	\$0	24.00	\$0	25.23	\$0
B16ms	119.88	\$0	120.00	\$0	120.00	\$0	119.75	\$0	120.00	\$0	119.98	\$0
B2ms	24.00	\$0	24.00	\$0	24.00	\$0	24.00	\$0	24.00	\$0	9.00	\$0
B4ms	96.47	\$0	96.00	\$0	96.00	\$0	97.00	\$0	96.00	\$0	78.05	\$0
D1 v2/D51 v2	524.27	\$0	470.97	\$0	3,478.88	\$0	8,875.70	\$0	8,856.90	\$0	8,806.18	\$0
D11 v2/D51 v2												
D12 v2/D512 v2												
D13 v2/D513 v2	1,054.08	\$0	1,051.20	\$0	1,540.85	\$0	2,437.95	\$0	2,443.02	\$0	2,499.45	\$0
D14 v2/D514 v2	197.28	\$0	194.25	\$0	313.01	\$0	574.42	\$0	576.00	\$0	555.87	\$0
D16 v2/D16 v3	361.77	\$0	353.52	\$0	820.65	\$0	1,745.02	\$0	1,715.55	\$0	1,802.30	\$0
D16a v4/D16as v4	528.00	\$0	535.55	\$0	575.00	\$0	719.98	\$0	719.93	\$0	718.95	\$0
D16ads v5	120.00	\$0	119.98	\$0	120.00	\$0	119.50	\$0	120.00	\$0	120.00	\$0
D16ds v4	48.00	\$0	48.00	\$0	48.00	\$0	48.00	\$0	48.00	\$0	48.00	\$0
D16ds v5	96.00	\$0	96.00	\$0	96.00	\$0	96.00	\$0	96.00	\$0	96.00	\$0
D16s v4	48.00	\$0	47.98	\$0	48.00	\$0	48.00	\$0	48.00	\$0	48.00	\$0
D16s v5												
D2 v2/D52 v2	8,856.49	\$0	8,921.27	\$0	9,646.11	\$0	11,004.77	\$0	10,994.83	\$0	11,031.46	\$0
D2 v3/D2s v3	398.67	\$0	374.02	\$0	591.35	\$0	1,101.22	\$0	1,080.00	\$0	1,022.85	\$0
D2a v4/D2as v4												
D2ads v5												
D2ds v5												
D2s v5												
D3 v2/D53 v2	174.72	\$0	174.97	\$0	196.69	\$0	214.19	\$0	256.68	\$0	263.68	\$0
Total	36,642.84	\$0	35,984.89	\$0	47,718.98	\$0	71,335.69	\$0	71,248.59	\$0	71,838.73	\$0

Daily Savings Plan Usage Units and Cost

Day	1	2	3	4	5	6	7	8	9	10		
	No.of Units	Cost										
Total	36,642.84	\$0	35,984.89	\$0	47,718.98	\$0	71,335.69	\$0	71,248.59	\$0	71,838.73	\$0

MS Insights | MSX India

Search for reports by name

India AES Dashboard

Opportunities Guidance Acc WA Dashboard Milestone Details Acc ACR CRS Measures CRS Trends Acc CRS Recommendations Acc Dashboard

Confidential\Microsoft Extended Learn more

Multi Factor Authentication Usage

Category	Value	Count	Percentage
Network Topology and Connectivity	Usage of Azure Bastion	15	2
Network Topology and Connectivity	Usage of NSGs	15	10

Customer is Unresponsive

By Customer Commitment

Revenue (Yearly)

By Opportunity Stage

Milestone Status

AI Score [AS] is (All)

TopParent is (All)

77°F Mostly clear

8:52 PM 4/24/2023

General Cost Optimization Notes

Tuesday, October 25, 2022

9:08 AM

ME Prep Work BEFORE Kickoff Call

1. Go to C&B portal and type in name of company
2. Get EA number
3. Click on reserved instances
 - a. 60 days lookback
 - b. All recommendations
4. Download shared and single (share between multiple subscriptions, single is per subscription)
5. When uploading data to PowerBI -> click transform and find new data then click apply changes!! CHECK TO MAKE SURE EA NUMBER IS MATCH

SCREENSHOT NOTES

Window shift S

NICs network interface card!!!

PowerBI cost management app
 1 month!! Only holds 90 days of data. Can only use this 2 more months and then you have to refresh it.
 Every 3 months, refresh the data
 Scope : enrollment number

Bottom 6 boxes don't change
 This is where you can see your overall costs
 Get to filters
 Go through usage by public
 Compare subscriptions pricing, see what's spending more, drill down in different ways,
 (region)
 Take screenshots of overview, top5 usage drivers, hybrid benefit (AIB page)

Tell them you can export and send link for scheduling refresh
 Go through up to the workbook tab
 Cost management power BI app

mers

** jump back into architecture review with them

<https://aka.ms/costopter/ACMApp>
 For powerBI
 Ea.azure.com
 To find ea number
 Survey
[Assessments | Microsoft Learn](#)

Survey Answer Explanations
[Azure Well-Architected Cost Optimization Questions | Microsoft Documentation](#)
[Microsoft Learn](#)
 Excel Version
[PDF Questionnaire Content.xlsx \(sharepoint.com\)](#)

Day 1: Set up directions (Day 1 Session 2)
 1. Click Core Well-Architected Review
 2. Name the assessment : Cost Optimization
 Assessment + Date
 3. Click Core Well-Architected Review
 3. Click Core Well-Architected Review

Welcome back everyone!
 This is the survey session where we will be assessing your workload. I am going to be leading you through the first part of the assessment which will consist of you providing information on what we are going to generate recommendations from the survey results, and then import those recommendations into DevOps for you. Did you make a decision about where to host it in devops or github? Broadfield DEVOPS
 This session is really designed to be an open discussion about your current cost management and answer the questions with as much detail as possible. This helps me to get a better understanding of your environment and to better prioritize the recommendations.

Send assessments link : [Assessments | Microsoft Learn](#)
 Sign in to account
 Change name to cost management and date..
 Click import
 Select subscription (Prod-hana) a lot of info is Q&A
 All resource groups
 Have to click none of the above
 Struggling -> don't click! they'll get recommendations. Wait more info, don't click
 Do you want to see more information
 End : export to csv send me CSV

Ending Remarks:

Use this assessment as much as you want!
 These are just practices for your industry. This is your benchmark, you can work through these recommendations and get that number as high. So click back see more. Shows x number of recommendations
 We will prioritize these for a 30-60 day plan etc.
 they all have links to different resources

Was a 61 now 75.
 Score was deflated because there were a few things there that you did Example: spot VMs, didn't need them so we made them leave them. We were able to focus on what you need and that brought you

We reprioritized because we know more about our workload They don't spot VMs because there are a few purposes for it as Work where spot VMs would be beneficial Wanted to make it more useful for CommonSpirit

Focus less on budgets, set a budget!! over

Day 1: KickOff Call Flow (Day 1 Session 1)

1. Go through power BI
2. Launch cost management app and have them connect their data

Link for me:
[Analyze Azure costs with the Azure AI Page | Microsoft Learn](#)

Find the right app | Microsoft AppSource

3. While that is connecting to data, Deploy Azure monitor workbook Deploying Azure Monitor Workbook

1. Email customer cost optimization workload work book
2. Go into azure portal

3. Azure monitor (type it or click it)

4. Go to workload monitor on side panel

5. Click on update button

6. Click advanced editor icon

7. Delete and replace code with commented in file and keep them

a. Use notepad, but you can open the file in any text editor

8. Click apply

10. Click deploy

11. Filter by whatever subscription is in there and load that they want to focus on

12. ***TAKE SCREENSHOTS

- Cost info set subscription to only 1
- Filter by resource groups
- All resource groups
- Make sure to scroll down and see everything

4. Jump back to cost management app

**date range from last month!

Overview

Split is the day that it is getting charged. Once a month there will be

a spike
Usage by subscriptions
• Can compare by prod and nonprod
Want to have more spending in prod because that's where business is coming from
Top 5 usage drivers

Usage by resource
• Drill down into super fine details about each resource type
Ex) storage, block blob. Tells you how many blobs
• Filter can broken-down prices
• Filters on the side. NOT GOING TO CUSTOMIZE ANYTHING, filters can put additional. We are not going to be doing this for them
AHUB

KOMAL
VM RI Coverage
• Explain diagrams

RI Savings
• Scope, SKU, region need to line up with the resource you want the reservation instance to apply to -> if they don't line up, then it is unassigned
• Show where your saving (high level savings)
RI Chargeback
• Look at your RI reservations, summary of savings. Show you where and how your RI benefits are getting applied
Breakdown of unused resources
• Click on unused reservation
RI Purchases
Pricsheet
• Likes a calculator what prices you will pay. Not a calculator! Can export it

5. If there's time go through that dashboard with them (power BI reservation report)
Email recommendations to them
Talk about lot of information on term 1 or term 3
Status page
Enrollment numbers
Get about 25% savings with single snapshot
For compute and non compute resources
* note: breakeven points: pay as you go vs reserved reservations. 1 year and 11 months you will get a month free
**snapshot in time, this is static information, reach out for snapshot. It is coming from MSFT backend reservations which is not visible to our customers

6. [Jump back to slides] Survey after Q&A Survey this afternoon
We ask a lot of questions about your environment and that's where we're going to come up with a lot of our recommendations from

Day 2 Cost Optimization Prep (me stuff)

Link for directions to upload info to git
<https://www.azure.com/Windows/DevOps/development/GitHub>

Successful command example!!!
GitHub
/PnP-DevOps.ps1.ps1
git add .
git commit -m "2022_10_25_Cost_Optimization_10_25_2022.csv written"
git push
User: [REDACTED] Will be prompted. Cost_Optimization_10_25_2022.csv written
https://github.com/jennifermcd/Cost_Optimization_Recommendation-Oct-25.
name: Levi's AZ Cost Optimization Assessment

DevOps
PnP-DevOps.ps1.ps1
C:\Users\jennifermcd\Desktop\CostOpt
[CostOpt_OptimizedAssessment_Nov_7_2022_10_25_Plan.ps1.ps1]
git add .
git commit -m "2022_10_25_Cost_Optimization_10_25_2022.csv written"
https://dev.azure.com/jennifermcd/Cost_Optimization_Recommendation-Oct-25/_git/_api/contents?path=CostOpt_OptimizedAssessment_Nov_7_2022.csv&rev=unseeksem30qveriv2kanckq-ur1
"CostOpt_OptimizedAssessment_Nov_7_2022.csv"
name: Levi's AZ Cost Optimization Assessment Nov 2022"

Day 1 of Cost Optimization Assessment
Welcome back everyone hope you had a good afternoon yesterday.
Agenda for today: I'm going to lead you through some of the basics of cost optimization and then I am going to walk through our advisor with you.
We're going to get you started with importing your recommendations from the survey yesterday into a DevOps project.
I'm going to send you a link to DevOps. If one of you could share your screen, I'm going to walk you through it.

<https://dev.azure.com/>
Login to GitHub
Create a new repository and name it Cost Optimization Recommendations October 2022
Make the repository private
Have them send me the link to the repository

• No access is fine
• Check the first box for access to repos
Save personal token
I'm going to run some commands on my end to upload the recommendations into your repository

Boards > Backlogs
Show them around
Tell them the point is to create a checklist of actionable items so that you and your team can have an organized list of things to work on.
As we check these items off of our list, we are working towards a better environment.
Hand it off to Komal to talk to you about Azure Advisor
We are working to organize these and what they mean

DevOps Personal Access Tokens
• Click little person icon right next to profile circle in upper right
Click Boards > Boards > Settings > Backlogs > Select Epics > Save and Close

Azure Advisor
Look at cost Underneath recommend atom, click on cost, on side panel Download this as a CSV and send to me as well. This will see a lot during Azure advisor talk to savings plan > purchase savings plan for compute could uncok

Azure Monitor Workbook Walk Through

- Do we have an idea of which workload we want to focus on?
- When it says Subscription All, choose that instead

General

- This is a map of your resources. You get to see where they're laid out all over the world, based on your Azure regions. Something to note is that there can be an impact. It may vary between locations based on demand and local infrastructure costs, also the cost of transmission going across regions, so just something to keep in mind.
- Looks like most of your resources are concentrated in one place.
- But there's that looks like they're in the middle of the ocean your global resources, related to networking.
- At the top, where you have the most resources, green is less, yellow is medium level of usage.
- Overall, it's a good idea to understand where your resources are because there is an ingress/egress charge of moving between your data centers and talk to the different regions. These cost optimize available by consolidating where your resources are located.
- Ask if there is any reason why there are resources in wacky locations

Resources Per Subscription and Virtual machines per SKU

Most are in X series

Have a total of 4 different types of resources

Here is a breakdown of your tagged or untagged resource groups. Tagging is great because it makes it easier to understand your costs and better organize your environment. You can use Azure Policy to help enforce and audit tag compliance of all of your resources. Tagging consistently, making it easier to manage and organize your resources.

If you scroll further down, you can look at your tagged resource groups and your untagged resource groups. If you look on the right, there's that arrow. You can use that to download the file into an excel and use that to programmatically tag all of your untagged resources. Run a powershell script on that excel

Under that, in Resource Type: select All, shows you all of your untagged resources

Makes it easier for you to organize and tag your resources.

To the top!

Compute:

- Here you can see in the top section your Azure Advisor Recommendations. You don't have AADB attached.
- Historically, disks were not deleted when the VMs were. There are some flatten options.
- Check the level of detail you can scroll down underneath VMs. Scroll more to the right, under additional information annual savings amount, shows you your current SKU. Shows you your current usage and gives you recommendations for how to change from one to another, and it also tells you the potential savings for the year or month.
- If you wanted to go to the owner of the VM and why they should change it, it gives you an in-depth breakdown of network usage, CPU usage, memory. To justify why it should be moved to the lower SKU.

Scroll

Shows VMs that do not have AADB enabled. Are you using hybrid benefits?

- Concept of using your ON Premises or your out of the box licensing for your Azure environment. An example would be using a license that you can use your SQL database licensing into your Azure SQL accounts. Using your out of Azure license in Azure. This tends to be a very cost effective solution. We did the math it's almost always cheaper to buy your own license and use them in Azure. Just something to think about.

Scroll

Further down there are also recommendations for hybrid benefits for linux as well. Do you use any linux VMs?

Scroll

Here is a list of VMs in a stopped state. You are still paying to store the disk while they are stopped such as disks, need to think about why they are stopped. Is it going to be retired?

Scroll

List of all of your VMs in this subscription and different SKUs. Open up Standard and then you can see the exact VM. You can see what region they are in and lots of information on each.

Scroll

Here is a list of your websites and their status. The goal here would be to move from premium V2 to premium v3 and also having reserved instances for app services. Scroll toward the right, see more information, status, resource groups and then tier. Shows you the health of your environment.

Scroll

AKS

To the top!

Data

SQL databases that are not using hybrid benefits. This is very similar to what we just saw with the virtual machines for windows and linux but with SQL databases and SQL licensing instead.

To the top!

Storage

We were just in data now click storage. Sometimes customers ask us what the difference is between data and storage. Data here is just SQL related. Storage would be your storage accounts, block blob, data disks.

Suggestions...

Moving from general purpose storage to general purpose v2, moving to more modern version is better performance for very similar costs. It's a pretty seamless process switching those over

Scroll

Information on recovery vault application status

Scroll

At the bottom here are your persisted disks. Disks that either need to be deleted or removed because the VMs they were attached to are no longer in use. Sometimes we see disks being made but not used for DR purposes, something to be aware of in case they are for DR and need to be kept up and running.

To the top!

Networking

- Unattached public IP address with the VMs because that is often what happens when you have been left behind with the disk.
- Very similar is the attached NICs

Scroll

Firewalls that have recommendations or network traffic

VPN Gateways

These are gateways that are not currently having traffic in the last 14 days. They could be underutilized

Reviewing this workbook every couple of weeks is great for checking about unattached resources that are accumulating costs without you knowing!

Scroll

To the top!

Performance

Very VPM based.

In Virtual Machine Performance select a VM. This tells you about your VM, compute, memory, IOPS, datadisk IOPS.

Shows you what you are going to your design engineers, you can tell them why you need to lower the SKU, prove by showing that their need for

Azure Cost Management PowerBI

App Walk Through

This application only holds about 3 months of data at a given time. You do have to refresh this every 90 days.

...

Only looking at past month. Can filter by different subscriptions and resources groups based off of location. Just want to mention that one spike - typically when you bought your VMs. You can see when you get charged on the same day. Pick the subscription we've been using. Buttons numbers don't change, but the graph does. Pretty average or even here.

Usage by Subscription

Show you top 5, read out top 5. Something to note, colors in top and bottom graphs are not related. Also, you can export this thing. In the bottom file, you can click export. You can send it to your finance team or anyone else it might be useful for. You can export as excel, pdf, or directly to PPT. For budget reviews, you can take this information at a high level and then to customize these graphs so that they are more relevant to your preferences.

Top 5 Usage Drivers

Show you exactly what you're spending on. First off, if you wanted to look at storage in only your block blob across your entire environment, you click meter category and click storage. Then Meter calculations. Looking at your exact costs. Not something you can typically see in management and billing portal in Azure.

Windows Server AHB Usage

This goes more into depth on Azure Hybrid Benefit. Hybrid benefit can be configuring for up to 10 VMs per license. You can do up to 10 VMs per license. Goal is to use those licenses, especially if you have a limited amount, for those bigger VMs rather than the smaller ones.

Kudos?

VM in Coverage Shared

This one is for your shared scope. Gives you information about your 1 or 3 year reservations and looking at your recommendations. This is only showing for VMs, it does not include non-compute resources. You can buy the collect set of VMs in the smallest VM size in that family. Buy a smaller size in a larger quantity. You can also move reservations from a larger size to the other way around.

VM in Coverage Single

Same information for single reserved instance as well as this next page. Same kind of process, just for a single scope here.

RI Savings

Telling you how much you're saving based off of your total reserved instance usage. Set at X month

RI Unused

Here we can see if we have any unused reserved instances. Select charge type unused reservations. This is a bit weird because it doesn't line up with those 3 categories being scope, SKU and region. Select it's automatic, so look at reserved instance name in your portal under reservations to confirm that it is unused.

RI Purchases

The number of reserved instances purchased within the last month. Shows you how often you are purchasing reserved instances.

Pricsheet

This is your discounted price from your enterprise agreement account and purchase with it. If you had a MACC, if you had a MACC it would show up here as well.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with anyone else. It can be anyone else who may need access in your organization can access it. Your finance team or managers can have access to this.

This powerBI can be saved and shared with anyone else that has a powerBI. They don't need admin. It can be shared with

compute is only at 4% on this SKU when it could be 80% on a smaller SKU. Just showing health and performance of your VMs

Scroll
To the Top!
Cost Implications
Set Subscription
Filter by resource group
Resource group All

Sometimes it works sometimes it doesn't! Shows you information where you can see public IP addresses that are unattached. Shows what you spent in the last month, as you delete them, you can keep track of the cost implications behind it.

Costs in the last month

PowerBI Recommendations

- Here are your reservation recommendations:
 - Something to note about this dashboard is that it's not just your compute resources, it's also your non-compute resources. We have about 35 different services that we provide reservations for, so there's a lot more in here.
 - Something to note, This is all static information. We pulled this data this morning from our backend and it does not get updated if you perform any of the recommendations on here.
 - On the upper left of the dashboard, You can change the amount of savings for 1 year vs 3 years. The 3 year is discounted more heavily so you will see larger amounts of savings with the 3 year plan than the 1 year plan
 - There is a whole list of different resources under EA currently, list a few XMAS.
 - Also single or shared. Single is that one subscription at a subscription level scope. Shared would be multiple subscriptions at a tenant level. Single tends to be a little more discounted because you lose the flexibility of moving between subscriptions if you need to.
 - Something else to note in this dashboard is the breakeven point. In X months, your Pay As You Go Rate would equal your reserved instances rate for anything else. Essentially, anything after that would be free. Giving you an idea of the amount of savings you can expect over time. You can use this for if you know a particular resource is going to be up for 20 months, reserved instances would be the best route to go.
- Any other questions here?
 - Also something to note is that reserved instances are broken up 3 different things:
 1. scope - single or shared
 2. Region: you can only buy reserved instances in certain regions so that they relate to your resources
 3. SKU

Sharing Cost Management App

- Click edit app in upper right
- Click access
- Add yourself as admin so that everyone can access and share as needed
- Since you're in EA account, it should be able to go to any account
- Then click on app then share from app

Costopt Opportunities updates

Tuesday, March 7, 2023 10:15 AM

[Azure Disks Standard SSD billable transaction cap blog \(microsoft.com\)](#)

Interesting discussions about AHB in Teams

Wednesday, March 1, 2023 12:19 PM

[2/24 8:17 PM] Andres Naranjo (HE/HIM/HIS)

Bulent Ozkir.... I've been reading up on this topic, and I have some thoughts on your example above of the AHB calculator.

So I think you might, maybe, perhaps be misunderstanding the numbers. When in the top box labeled "Enter the number of core licenses you own that are covered with active Software Assurance or Windows Server Subscriptions" you put the number 8, are you assuming that you have 8 licenses entitling you each to 16 virtual processors? Because as I read it, I think it just means "How many virtual processors can you cover with the licenses you currently get through Software Assurance or Windows Server Subscriptions". So in other words, when you put in the number 8 there, you can only cover 1 server because remember each Windows License in SA can be applied to either a single machine with 16 processors, or 2 machines with 8 processors apiece.

In your example, with a B1S server, when you have licensing to cover 8 processors, you could apply the licensing to ONE and only ONE B1S server. It would be a waste of a license because you're leaving 7 processors worth of license benefit unused.

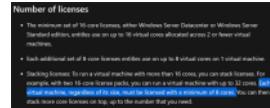
If you look at the AHB calculator, as I did this morning, the example it gave me is this:

In this example, someone owns licenses for 40 processors. Therefore, if they wanted to deploy some D4v2 servers, each of which has 8 virtual processors, they can cover with those licenses up to 5 servers deployed, with a remainder of 0 processor licenses. Therefore they would be FULLY utilizing their licenses.

BUT, notice the number on the right labeled "With Azure Hybrid Benefit per month" of \$2135... I believe that is the compute cost for the server, the difference of \$1543.95 being the licensing costs (what AHB covers). Remember, for servers the total cost is :

Cost of Compute + Cost of OS License. AHB only covers the cost of license.

I suspect that might answer your question and the calculator is working fine...



The screenshot shows the 'Windows Server VMs' tab of the AHB calculator. It includes fields for 'Enter the number of core licenses you own that are covered with active Software Assurance or Windows Server Subscriptions' (set to 40), 'Enter planned Azure deployment of Windows Virtual Machines' (set to 5), and 'Region' (set to Central US). The 'Instance size' dropdown is set to 'D4v2 (2 vCPUs, 256 GB RAM, 400 GB SSD, \$1,000/hour)'. The 'Hours / Month' dropdown is set to '720'. Below these, a yellow circle highlights the 'Display Virtual Machines based on instance size selection' link. The calculator displays monthly and annual savings estimates.

Monthly estimates	
Without Azure Hybrid Benefit per month	\$2,679.20
With Azure Hybrid Benefit per month	\$2,135.25
Savings across eligible Virtual Machines per month	\$1,543.95
(42.0% savings)	

Annual estimates	
Your estimated annual savings on Azure across all virtual machines	\$18,527.400

Calculator is to help estimate savings usage when using the Azure Hybrid Benefit for Windows Server licenses. Does not include Software Assurance. Your virtual savings may vary.

[2/24 8:23 PM] Bulent Ozkir

If I have 1 B1S VM, how much do I have to pay for Windows Server licensing as part of my EA or SA? Per the hybrid benefit calculator, I am saving some money on the right. Am I? How? An Azure Licensing Specialist may shed light on this.

[2/24 8:26 PM] Bulent Ozkir

I read our documentation carefully, and I seriously think for Windows VMs, any vCore less than 8 looks like a bad deal. Because license must stack up to 8 vCores per server in my EA or SA.

[2/24 8:38 PM] Andres Naranjo (HE/HIM/HIS)

I don't know what the cost for a Software Assurance contract is. Sorry. That typically happens way above my role. A Software Assurance contract is signed between a customer and Microsoft to provide a series of benefits to the customer, not just licensing. As part of the agreement, the customer gets a series of benefits, like the ability to upgrade software when a new version is released, at no additional cost (for example on-premise SQL versions, Office, or SharePoint, or Exchange or System Center), the ability to access a certain level of Microsoft Support, the ability to use Office via a web browser, and others. One benefit is the get a certain number of licenses for products, like SQL, and Windows. Those licenses can be used on servers on-premise or in the cloud. These are the licenses you can apply, if you wish, via AHB to your Windows Servers in Azure. AHB is meant to give you flexibility to apply licenses you may have already due to a licensing deal with Microsoft, or a Software Assurance contract, to Azure resources, thus preventing you from having to pay for even more licenses. The idea is to remove roadblocks customers may have in their migration to Azure.

So I can't answer how much you have to pay to buy a windows license in Software Assurance. But as I understand it when you get SA, for one price, you get a whole bunch of things, not just Windows Licenses, so it is hard to break it down to what just a license for windows cost in SA.

[2/24 8:41 PM] Andres Naranjo (HE/HIM/HIS)

Hopefully I'm not adding to your confusion...

[2/24 8:44 PM] Bulent Ozkir

This statement is very decisive statement. "Each virtual machine, regardless of its size, must be licensed with a minimum of 8 cores." Link: [Azure Hybrid Benefit for Windows Server | Microsoft Learn](#)

[2/24 8:53 PM] Andres Naranjo (HE/HIM/HIS)

correct. basically it is saying that you cannot break up a windows license into smaller units than 8 processors. So if you have a server with 1 processor, and you apply one of these licenses, the license covers the licensing cost fully, but you're leaving 7 licenses worth of benefit unused.

If you have a server with let's say (I am making this up) 7 processors, when you apply a license for 8 processors, then you're leaving one processor license unused.

If you have a server with 12 processors, then you have to apply 2 licenses, at 8 processors licensed each.

The first license covers the first 8 processors, leaving 4 processors uncovered by license #1.

The second license covers the remaining 4 processors, and you are leaving 4 processor licenses unused (wasted?)

If you have a server with 16 processors, one windows license for 16 virtual processors covers all of them, no licensed processors remain, no waste.

Edited

[2/24 8:55 PM] Bulent Ozkir

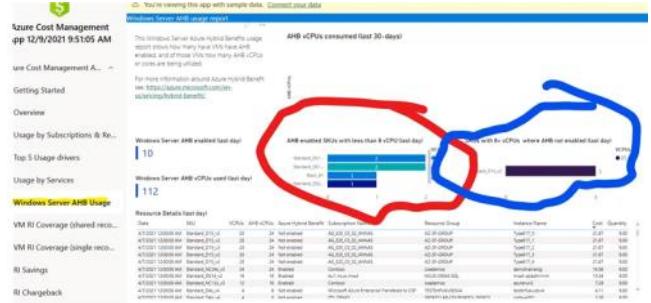
It says "each server". So every server will be licensed separately. So If I have a small machine, it will be licensed as 8 cores whatsoever.

[2/24 8:58 PM] Andres Naranjo (HE/HIM/HIS)

yes.

for a one processor machine, the savings of applying a AHB license are so small that it's pretty much not worth using it. That's why as part of the Well Architected Framework Cost Optimization Assessment (WAFCOA) we recommend not to apply AHB licenses to servers with less than 8 processors, and instead focus on applying them to servers with more than 8 processors.

<<https://teams.microsoft.com/l/message/19:69d3841450234f4cb845288868f178a0@thread.tacv2/1677266265636?tenantId=72f988bf-86f1-41af-91ab-2d7cd011db47&groupId=d3067aee-27cf-45f1-9bf8-60a66e4d6511&parentMessageId=1676961183688&teamName=Azure Enable Community&channelName=WAF - Cost Optimization&createdTime=1677266265636&allowXTenantAccess=false>>



RI Dashboard info

Tuesday, February 21, 2023 3:54 PM

Azure RI Recommendations

Estimated RI Savings subject to continued compute usage pattern of past 60 days.

Reservation Purchases

Term	# of Reservation Purchases
1 Year	~60
3 Years	~100

Reservation Recommendations

Term	Estimated RI Savings (USD)
1 Year	~100K
3 Years	~150K

RI Type : **all**
RI Scope : **Single** Shared

Usage Lookback Period : **60 days**
7 days 30 days

RI Recommendations :
Top 5 Top 10 Top 15 **ALL**

Show 1 Year Forecast

RI Recommendation Details
Recommendation Summary

Tr	Enro	Subscription	RI Cat	Service	Region	Recom	Upfront Rese	Current	Projected Co	Estimate	Curre
1	P1Y	6908975 1ff3d54b-a17d-4564-8916-4f9764f48509	Managed	Premium_SQL	centralus	1	1.5K	1.6K	1.6K	61.1 (3.71%)	USD
2	P1Y	6908975 911c19ad-06e6-4577-9448-c	virtualma	Standard_BI	centralus	1	512.0	946.6	582.7	363.9 (38.44%)	USD
3	P3Y	6908975 911c19ad-06e6-4577-9448-c	virtualma	Standard_BI	centralus	1	988.0	946.6	400.1	546.6 (57.74%)	USD
4	P1Y	6908975 f46e85fd-d14d-447c-8a00-5	virtualma	Standard_BI	centralus	1	512.0	946.7	582.7	363.9 (38.44%)	USD
5	P3Y	6908975 f46e85fd-d14d-447c-8a00-5	virtualma	Standard_BI	centralus	1	988.0	946.7	400.1	546.6 (57.74%)	USD
6	P1Y	6908975 b90d8de3-5489-4f85-8c18-b	virtualma	Standard_BI	centralus	1	512.0	946.6	582.7	363.9 (38.44%)	USD
7	P3Y	6908975 b90d8de3-5489-4f85-8c18-b	virtualma	Standard_BI	centralus	1	988.0	946.6	400.1	546.6 (57.74%)	USD

RI Term	# RIs	Upfront Reservation Opportunity(USD)	Savings Payment(USD)
P3Y	79	118.909K	77.570K
P1Y	62	62.259K	44.425K

What are RIs
How to Buy RIs

How RI benefit is Applied
How to Verify RI Benefit is Applied

What are Cosmos DB Reservations

Estimated Yearly RI Savings

64.81K % Savings

45.02%

Break-even point (Months) 0 31

Scope: Subscription **Shared** Single

Term Enrollment Subscription RI Category Service Instance Break-even point (Months) Period Total Annual Cost Projected Cost (Based on RI) Estimated RI Savings Region

Term	Enrollment	Subscription	RI Category	Service Instance	Break-even point (Months)	Period	Total Annual Cost	Projected Cost (Based on RI)	Estimated RI Savings	Region
P3Y	69089758	1ff3d54b-a17d-4564-8916-4f9764f48509	virtualmachines	Standard_D4ds_v4	23	60	30,785.00	19,715.59	11,069.41	centralus
P3Y	69089758	1ff3d54b-a17d-4564-8916-4f9764f48509	virtualmachines	Standard_D16_v3	23	60	29,622.31	19,236.33	10,385.98	centralus
P3Y	69089758	1ff3d54b-a17d-4564-8916-4f9764f48509	virtualmachines	Standard_D53_v2	18	60	18,390.33	9,094.49	9,295.84	centralus
P3Y	69089758	573ea522-49fd-4d9a-a5a4-81518acf26ea	virtualmachines	Standard_B2ms	15	60	15,147.04	6,401.17	8,745.87	centralus
P3Y	69089758	3763fa24-164a-426d-93ca-9447b96c88a3	virtualmachines	Standard_B4ms	14	60	9,010.17	3,574.57	5,435.60	northcentral
P3Y	69089758	1ff3d54b-a17d-4564-8916-4f9764f48509	virtualmachines	Standard_D2_v2	12	60	6,398.66	2,127.82	4,270.84	centralus
P3Y	69089758	3763fa24-164a-426d-93ca-9447b96c88a3	virtualmachines	Standard_D4s_v3	22	60	9,326.33	5,601.05	3,725.28	centralus
P3Y	69089758	3763fa24-164a-426d-93ca-9447b96c88a3	sqldatabase	SQLDB_GP_Compute_Gen5	16	60	5,322.35	2,403.73	2,918.61	northcentral
P3Y	69089758	1ff3d54b-a17d-4564-8916-4f9764f48509	virtualmachines	Standard_D8as_v4	24	60	7,030.04	4,748.76	2,281.28	centralus
P3Y	69089758	3763fa24-164a-426d-93ca-9447b96c88a3	virtualmachines	Standard_B4ms	14	60	3,646.56	1,460.04	2,186.52	centralus
P3Y	69089758	1ff3d54b-a17d-4564-8916-4f9764f48509	virtualmachines	Standard_D52_v2	12	60	2,559.55	851.13	1,708.42	centralus
P3Y	69089758	3763fa24-164a-426d-93ca-9447b96c88a3	virtualmachines	Standard_D2s_v3	20	60	2,813.89	1,597.83	1,216.06	centralus
P3Y	69089758	1ff3d54b-a17d-4564-8916-4f9764f48509	virtualmachines	Standard_D2as_v4	14	60	1,893.18	761.33	1,131.85	centralus
Total							143,967.01	79,153.35	64,813.67	

Duplicate of Page 1 +

36 months, breakeven months is at 23months. The spend with Ris will equal what you would have been paying as PAYG so essentially everything after that is free.

Say PAYG: 10dollars for this one, you will breakeven with 10dollars at 23months and everything above that is free.

Instance give flexibility: Buy RI Std_DS1_v2: Ratio 8

0 $8 \times \text{Std_DS1_v2} \rightarrow \text{ratio 1} \Rightarrow \text{RI discount} \rightarrow 8/8 \Rightarrow$

~~applies to all 8~~

0 $2 \times \text{Std_DS2_v2} \rightarrow \text{ratio 2} = \frac{\text{ratio 10}}{2 \times 2}$

$1 \times \text{Std_DS3_v2} \rightarrow \text{ratio 4} = \frac{1 \times 4}{2 + 2 + 1} = 8$ Applies to all 3 VM's

0 $1 \times \text{Std_DS5_v2} \rightarrow \text{ratio 16} = \frac{1 \times 16}{16/8} = 2$

~~half of discount applies~~

0 $1 \times \text{Std_DS5_v2} \rightarrow \text{ratio 16} + \text{extra RI for Std_DS4_v2}$
 $(\text{ratio : } 8)$

$8+8=16$

Both reservations combine and apply the discount on entire VM

$$\begin{aligned}\text{Percentage of decrease} &= (16 - 8) / 16 \\ &= 8 / 16 \\ &= 0.5 \\ &= 50\%\end{aligned}$$

$$\begin{aligned}&\frac{8}{16} \\ &16/16 = 1 \\ &1 \text{ DS5_v2} \\ &\sqrt{16}\end{aligned}$$

Dv2 and DSv2-series - Azure Virtual Machines | Microsoft Learn

Size	vCPU	Memory: GiB	Temp storage (SSD): GiB	Max data disks	Max cached and temp storage throughput: IOPS/MBps (cache size in GiB)
Standard_DS1_v2 ¹	1	3.5	7	4	4000/32 (43)
Standard_DS2_v2	2	7	14	8	8000/64 (86)
Standard_DS3_v2	4	14	28	16	16000/128 (172)
Standard_DS4_v2	8	28	56	32	32000/256 (344)
Standard_DS5_v2	16	56	112	64	64000/512 (688)

Instance flexibility Ratios

<https://isfratio.blob.core.windows.net/isfratio/ISFRatio.csv>

Virtual machine size flexibility - Azure Reserved VM Instances - Azure Virtual Machines | Microsoft Learn

Percentage Calculator

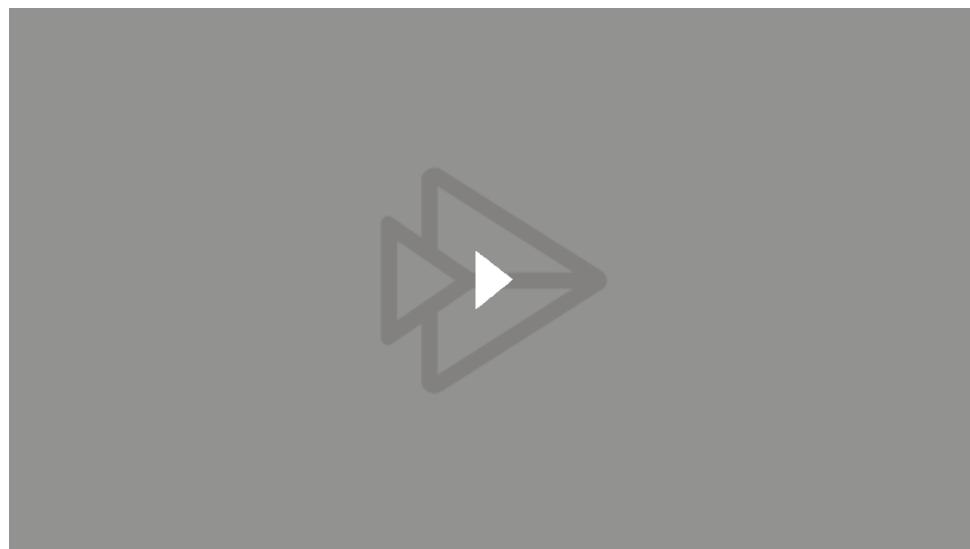
Buy RI $\sqrt{1} \times B1s \Rightarrow \text{ratio 2}$

Apply to $1 \times B2s \Rightarrow \text{ratio 8} \Rightarrow$

Azure savings plan for compute field session

Thursday, January 12, 2023 11:39 AM

[Microsoft Stream](#)

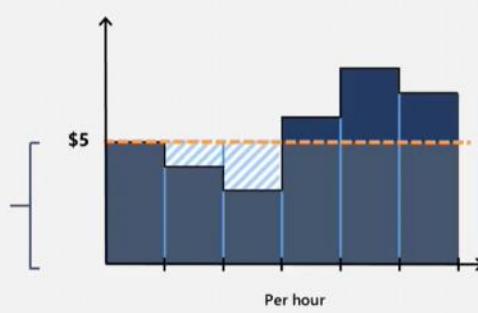


Introducing Azure savings plan for compute

Customers save money across compute services globally by committing to spend a fixed hourly amount for 1 or 3 years

If usage is at or below \$5 per hour

- Billed at lower prices & covered by the plan's hourly commitment.
- No additional costs are incurred.
- Note: They'll spend at least \$5 every hour no matter their usage.



If usage is above \$5 per hour

- First \$5 of usage is billed at lower prices & covered by the plan's hourly commitment.
- Amount above \$5 billed at pay-as-you-go prices and added to invoice separately.

Savings start immediately and are automatically applied every hour as customers use participating compute products and services, regardless of Azure region, instance series and operating system. They'll get lower saving plan prices on usage up to their \$5 hourly commitment.

Savings Plan solves customer pain points with reservations

Easy and flexible way for customers to save on compute costs



Unlock significant cost savings

up to 65% compared
to pay-as-you-go pricing



Optimize savings automatically

across participating services globally
up to the hourly commitment



Save on their terms

by customizing the plan's term length,
scope, billing frequency, and hourly
commitment to fit their needs



Example: M32dms v2 in Japan East

Pay-as-you-go
\$10/hour

Savings plan (1-year)
\$7/hour

Save 30%

Savings plan (3-year)
\$3.5/hour

Save 65%



The screenshot shows the 'Add a plan' page with the following steps highlighted:

- Name: 'Compute_SavingsPlan'
- Billing subscription: 'Compute_SavingsPlan'
- Term length: '1 year' (radio button selected)
- Hourly commitment in USD: '\$10'
- Billing frequency: 'Monthly' (radio button selected)
- Apply to any eligible resource: 'Shared across the subscription's billing profile' (radio button selected)

Microsoft confidential. Internal only.

Saving plan is a broadly appealing offer that provides automated flexibility



Azure savings plan for compute

Most flexible savings for dynamic workloads while
accommodating for planned or unplanned changes

Savings compared to
pay-as-you-go

Save up to 65%

Commitment type

Spend a fixed hourly dollar amount on compute services collectively
(i.e. Spend \$5/hour on compute services for 1 year)

Savings apply

Across participating services globally,
up to the hourly commitment

Term

1 or 3 year

Payment options

Upfront or monthly

Cancellation

No cancellations*

- Centralized budgeting and procurement
- Dynamic workloads (i.e., follow-the-sun)
- Actively evolving IT roadmap
- Automated cost optimization across multiple services



Reservations (Reserved Instances)

Greatest cost savings for stable, predictable
workloads with no planned changes

Save up to 72%

Usage of a specific virtual machine type in a particular Azure region
(i.e. D2v4 virtual machine in Japan East for 1 year)

Directly to the identified compute service
in a particular region

1 or 3 year

Upfront or monthly

Up to \$50,000 USD

- Distributed budget management
- No planned changes to IT architecture
- Preference for manual cost optimization
- Price sensitive

Microsoft confidential. Internal only.

Flexibility savings plan: CMRs don't have to worry about trading in or optimizing their spend
They can buy a new savings plan to increase their commitment.

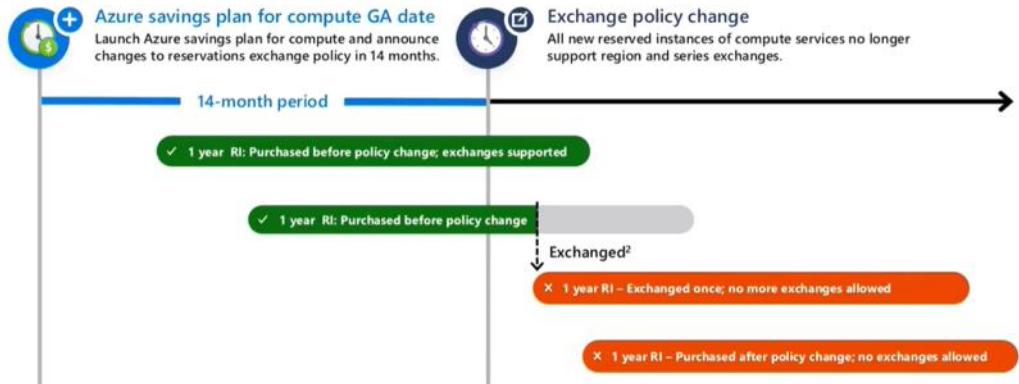
AKS, AVD is covered.

AVS ???

Changes to Reserved Instances of compute services policy

Reserved Instances of compute services¹ purchased on or after January 1, 2024, will no longer be eligible for exchanges for instance series or regions.

Purchases made prior to January 1, 2024 will reserve the right to exchange one more time after the policy change goes into effect.



For a limited time, customers may trade in eligible³ reserved instances for an [Azure savings plan for compute](#).

Microsoft confidential. Internal only.

¹VM, Dedicated Host, and App Service reserved instances.
²Exchanges are systematically processed as a cancel and repurchase. Therefore, all exchanges after the policy effective date are treated as new purchases and will no longer support exchanges.

³VM, Dedicated Host, and App Service reserved instances.

A customer wants to choose an RI to save money then have the frustration to have to exchange it a few times, to optimize the consumption.

If the customer wants the flexibility, we advise to purchase the savings plan

If a customer has a very specific VM they need, they know they're going to need the next three years, and they want to get the lowest cost, that's where the RI makes sense.

The option for exchanges related to compute, no exchanges anymore (you have until Jan 2024)
Option to trade in RI for savings plan. If concerned about exchange, they can exchange to cost savings plan

Any remaining commitment available (remaining value will be shifted to their savings plan), they can choose to purchase the savings plan with that amount (6m left on RI, can be traded in and used for savings plan).

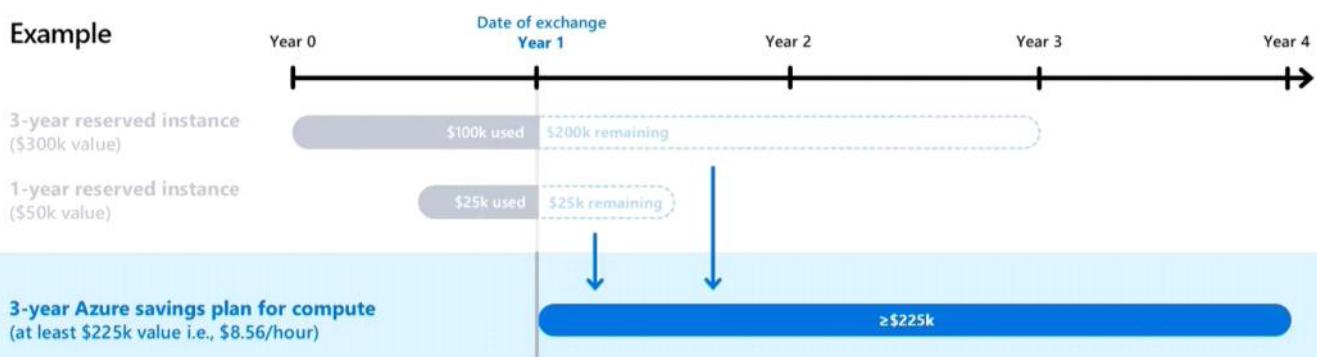
The customer can trade in a RI for a savings plan.

Trading Reserved Instances for an Azure savings plan for compute

For a limited time, customers may trade in eligible¹ Reserved Instances for an Azure savings plan for compute.

- Customer must purchase an Azure savings plan for compute that is [greater or equal in total value](#) than the prorated remaining value of their existing RI commitment
- The new Azure savings plan for compute starts a [net new term](#) from the trade in date

Example



Microsoft confidential. Internal only.

¹VM, Dedicated Host, and App Service reserved instances.

Evolving our compute saving options to better serve our customers

Our dual offer approach provides a simpler pricing experience to address customers' needs



- Expand saving options with a new, flexible offer
- Address more scenarios with easy management
- Automated region and series flexibility (no manual exchanges needed)

Save up to 65%

More flexible, broader savings

Microsoft Azure	aws*
Azure savings plan for compute	Compute savings plan
	Convertible RI

*AWS up to 66% only if you upfront on a 3 year commitment

Save up to 72%

Greatest savings, less flexible

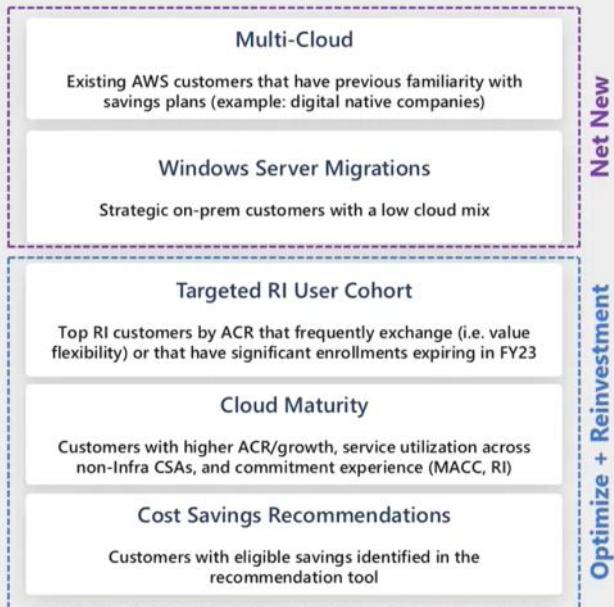
Microsoft Azure	aws
Reserved Instances	EC2 Instance Savings Plan

- Simpler pricing experience with Azure
- Two competitive offers for different compute usage needs and patterns, compared to four from AWS
- Includes the ability to pay monthly at no additional cost

AWS has 4 different options. Azure has 2 offers, AWS has 4.
We charge the same price, whether you pay up front or monthly, in AWS you pay premium for monthly payments

Launch magnitude & customers with the highest likelihood of adoption

Savings plan expected to account for ~20% of usage by the end of FY23



Key metrics of success: *focusing on the right customers and outcomes*

- Percent of total dollars saved reinvested on Azure
- Number of net new Azure customers
- Evidence of winning more deals and increasing deal velocity/competitiveness
- Percent of predictable ACR in commitment-based offers (SP+RI)

*Not an exhaustive list – customer targeting examples are for illustrative purposes

Purchasing an Azure savings plan for compute

Azure Portal

→ Azure Portal
→ Cost Management + Billing Section
→ Products + Services
→ Savings plans

Azure Advisor

→ Azure Advisor
→ Recommendations
→ Cost
→ Description

For illustrative purposes only.

Field insights on Azure savings plan for compute

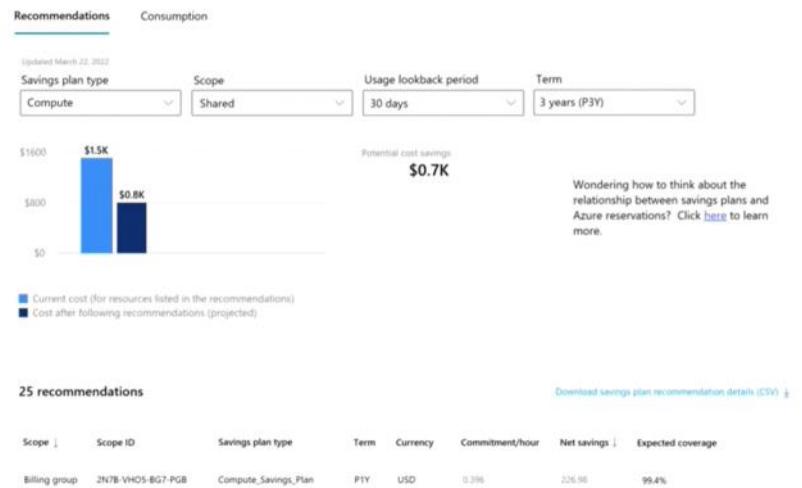
Savings plan recommendations and insights are available in [Account 360](#). These insights include:

- Recommendations and potential cost savings at multiple data scopes (billing group, enrollments, subscription, resource group)
- A list of the savings plans that the customer has already purchased (with scope, hourly commitment, and other info)
- Consumption insights for each savings plan, including cost savings and utilization info
- Downloads with additional info

[Learn more](#)

Microsoft confidential. Internal only.

Azure Savings Plans



Account 360?? To see what's recommended for the customer

Savings plan adds new Azure deal-making capabilities



Expanding the Azure commitment offers

- Savings plan for compute adds another commitment option in Azure
- Lead with savings plan to optimize compute workloads
- Commitment offers include RIs, Pre-purchase plans and commitment tiers



Introducing a new negotiated discount capability

- Negotiated savings plan discount applies a single flat discount on top of the savings plan price for all participating services
- Field empowerment aligned with ACD enable agility to win deal agility

Discount empowerment for savings plan

Negotiated discount applies a single flat concession on top of the savings plan price for all participating services

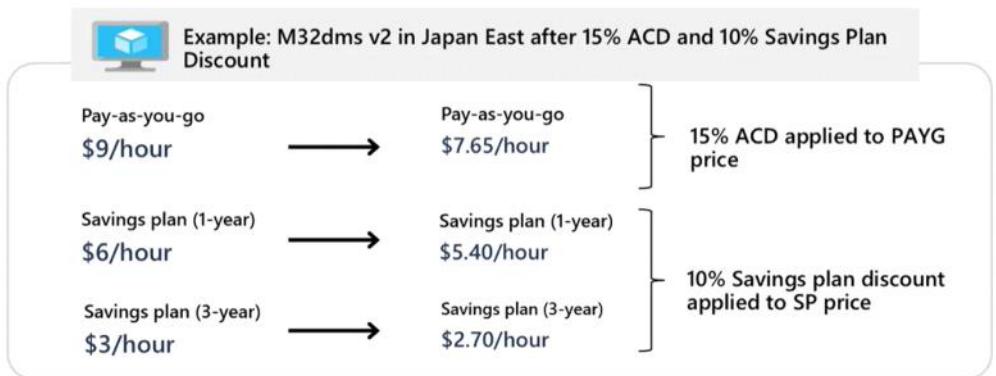
Field empowerment*

- Savings plan field empowerment aligns to current ACD policy - up to 15% discount

	Blue	Yellow	Red / Teal
Savings plan discount	5%	10%	15%

How it works?

- Savings plan discount and ACD can be different
- ACD will continue to apply only on Azure PAYG rates
- Savings Plan discount applies to SP price rates



Compute savings plans and Microsoft Azure Consumption Commitment (MACC)

Paying for a savings plan (upfront or monthly) during the MACC coverage period count towards the MACC

Example: MACC coverage period: 01 January 2022 to 31 December 2022



Microsoft confidential. Internal only.

Pricing is for illustrative purposes only.

SPD different than ACD

Customer wants to sign a MACC and opt for ACD 10%

ACD discount is 10% and Savings plan is 50%

The ACD discount does nothing to discount the savings plan discount.

You can apply a savings plan discount. If you give savings plan of
Savings plan discount

- You can apply a negotiated savings plan discount to savings plans (20%) all the savings plan discount would be reduced 20%. That would be stacked!!!!
- Savings plan will receive the same 1.5 multiplier as the RI.



Azure savings plan for compute

- GearUp page: [Latest assets and demos found here](#)
- Learn more: [Azure savings plan for compute homepage](#)
- Blog: [Tech Community Blog](#)
- Review documentation: [Microsoft Documentation](#)
- Training and Skilling: [Learning Module](#)
- Overview and demo: [Azure Enablement Video](#)
- Ignite Session: [Optimize your investment on Azure and maximize business value recording](#)
- Technical YouTube Training: [Understanding Azure Savings Plan for Compute](#)

For additional guidance and questions email:
savingsplans@microsoft.com

Additional Resources

Savings Plan discussions

woensdag 8 maart 2023 17:40

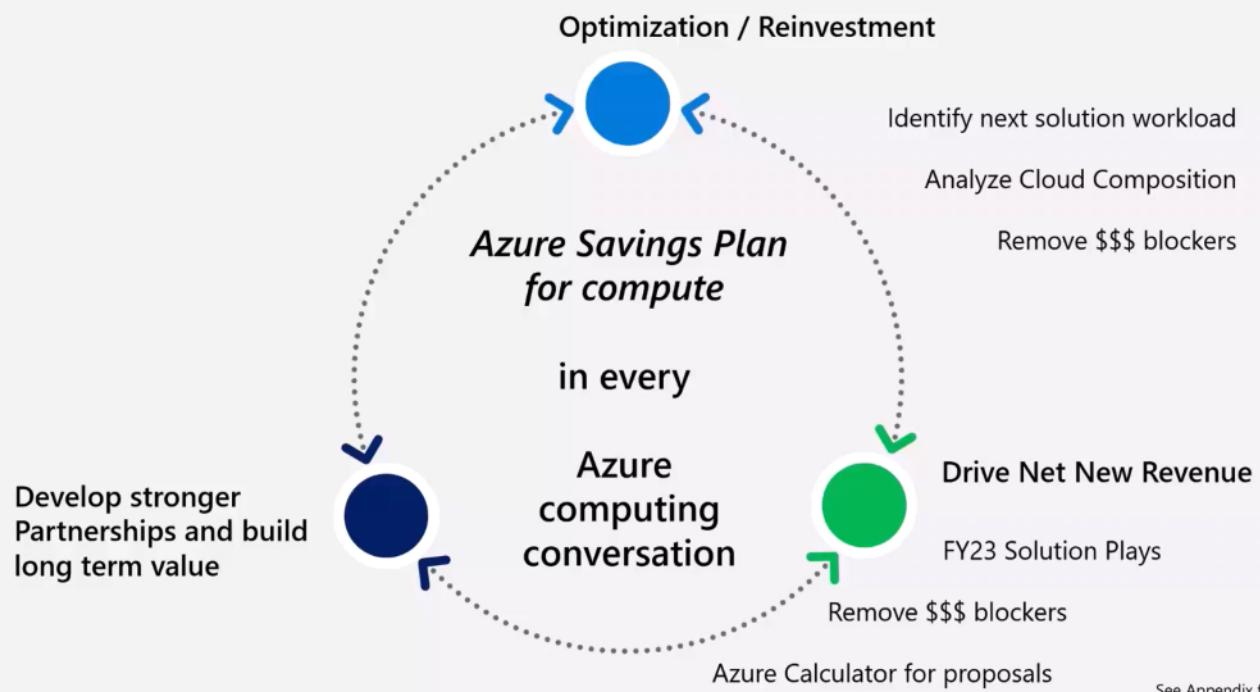
Question... when you say: "if the customer enters a different amount than the proposed amount inside a new savings plan, how can we know the savings ratio % for that specific amount?" When they enter the amount, do they purchase it or are you just trying to help them do a pre-purchase estimate? So I have learned that after you purchase a Savings Plan (SP), it can take up to 5 days to show up in the Savings Plan dashboard in the Azure Portal. From that dashboard you will then be able to track consumption of the SP and savings accrued. (same is the case for Reservations). I didn't know this because in our internal labs we can't do reservations or savings plans. So to answer your question, IF they purchase a SP less than what was recommended, they can check after a few weeks to see what their consumption and savings are. IF they are wanting to know this before making a purchase, I don't know of a tool that would show them that. To the best of my knowledge it doesn't exist.

Also, I don't believe the savings amount changes. As I understand it, you enjoy an x% savings in the cost of resources you consume up to your purchase total. After that you pay as you go. You get the same x% whether you buy the amount that was recommended, or half that amount, or more than that amount. What changes is the value you are realizing from the SP. If you buy half the recommended amount of SP, then you're paying more in Pay as you Go, than you would if you purchased the recommended amount.

If you have not done so already, I recommend you take a look at the aka.ms/customer360 Savings Plans recommendations, internally: click on the arrow on the top right (highlighted) and you will get something like this: You can see the effects of the recommendations from SP for a given customer. You can filter by single, shared, resource group scopes, do analysis based on 30 or 60 days of usage, and also 1Y or 3Y term. BUT, it is also useful to look in the table at the bottom to see specifics for each subscription. The column on the right shows you the expected coverage % of the recommendation. The recommendations made, exposed through Azure Advisor don't show you this number for expected coverage. The Savings Plans recommendations are not made so that the SP amount covers 100% of the compute use. They use a modeling logic, to calculate what the saved amount would be using hundreds of different purchase amounts, and calculates what will be the optimal purchase amount, even when that amount covers only let's say 77% of the compute use. The amount above that is called overage, and would be pay as you go. If you download the data as a CSV from the link below the graphic, you can play with it in excel, and see how the numbers break out, in terms of actual dollars and cents, after you use some slicers on the data. Also, as I learned last week, it is possible for customers to obtain the same DETAILS about the Savings Plans recommendations using the Benefit Recommendations API()1Benefit Recommendations - List - REST API (Azure Cost Management) | Microsoft Learn1, although the data comes back in a json format and it is raw, so you will have to still do some processing/formatting on it

<https://learn.microsoft.com/en-us/rest/api/cost-management/benefit-recommendations/list?tabs=HTTP#code-try-0>

Savings plan a tool to accelerate growth through targeted motions



Add a plan

Basics Review + buy

Savings plan helps you save money on Azure products and services but with additional flexibility. By committing to a consistent amount of usage for 1 or 3 year terms, you receive significant savings on compute resource as you use them.

Name *

Billing subscription *

Apply to any eligible resource * Shared across the subscription's billing scope (Srivatsan) Only in the subscription (TestGTM001) In a specific resource group in the selected subscription In a management group of the selected subscription

Term length * 3 years 1 year

Hourly commitment in USD *

Billing frequency * Monthly All upfront

Plan cost

Monthly cost of plan **USD 6.806,52/month**

Total cost of plan **USD 6.806,52**

Total does not include taxes.

Savings plans do not apply to operating system, software, storage, or networking charges.

[Close details](#)

Add a plan

Basics Review + buy

Savings plan helps you save money on Azure products and services but with additional flexibility. By committing to a consistent amount of usage for 1 or 3 year terms, you receive significant savings on compute resource as you use them.

Name *

Billing subscription *

Apply to any eligible resource * Shared across the subscription's billing scope (Srivatsan) Only in the subscription (TestGTM001) In a specific resource group in the selected subscription In a management group of the selected subscription

Term length * 3 years 1 year

Hourly commitment in USD *

Billing frequency * Monthly All upfront

Plan cost

Monthly cost of plan **USD 6.806,52/month**

Total cost of plan **USD 6.806,52**

Total does not include taxes.

Savings plans do not apply to operating system, software, storage, or networking charges.

[Close details](#)

Add a plan

Basics Review + buy

Savings plan helps you save money on Azure products and services but with additional flexibility. By committing to a consistent amount of usage for 1 or 3 year terms, you receive significant savings on compute resource as you use them.

Name *

Billing subscription *

Apply to any eligible resource * Shared across the subscription's billing scope (Srivatsan) Only in the subscription (TestGTM001) In a specific resource group in the selected subscription In a management group of the selected subscription

Term length * 3 years 1 year

Hourly commitment in USD *

Billing frequency * Monthly All upfront

Plan cost

Monthly cost of plan **USD 6.806,52/month**

Total cost of plan **USD 6.806,52**

Total does not include taxes.

Savings plans do not apply to operating system, software, storage, or networking charges.

[Close details](#)

Recommendations based on the last 30d of your compute usage, also takes into account RI's,

Basics Review + buy

Savings plan helps you save money on Azure products and services but with additional flexibility. By committing to a consistent amount of usage for 1 or 3 year terms, you receive significant savings on compute resource as you use them.

Name *

Billing subscription *

Apply to any eligible resource * Shared across the subscription's billing scope (Srivatsan) Only in the subscription (TestGTM001) In a specific resource group in the selected subscription In a management group of the selected subscription

Term length * 3 years 1 year

Hourly commitment in USD *

Billing frequency * Monthly All upfront

Plan cost

Monthly cost of plan **USD 6.806,52/month**

Total cost of plan **USD 6.806,52**

Total does not include taxes.

Savings plans do not apply to operating system, software, storage, or networking charges.

[Close details](#)

Add a plan

Basics Review + buy

Savings plan helps you save money on Azure products and services but with additional flexibility. By committing to a consistent amount of usage for 1 or 3 year terms, you receive significant savings on compute resource as you use them.

Name *	Compute_SavingsPlan_09-14-2022_01-30
Billing subscription *	TestGTM001
Apply to any eligible resource *	<input checked="" type="radio"/> Shared across the subscription's billing scope (Srivatsan) <input type="radio"/> Only in the subscription (TestGTM001) <input type="radio"/> In a specific resource group in the selected subscription <input type="radio"/> In a management group of the selected subscription
Term length *	<input checked="" type="radio"/> 3 years <input type="radio"/> 1 year
Hourly commitment in USD *	0.259
Billing frequency *	<input type="radio"/> Monthly <input checked="" type="radio"/> All upfront

Plan cost

Total cost of plan: USD 6,806.52

Total does not include taxes.

Savings plans do not apply to operating system, software, storage, or networking charges.

[Close details](#)

[Home](#) > Cost Management > Billing > Billing scopes > Srivatsan > Savings plans

Add a plan

Basics Review + buy

Name	Compute_SavingsPlan_09-14-2022_01-30
Scope	Shared across the subscription's billing scope (Srivatsan)
Term	3 years
Hourly commitment (USD)	0.259/hour
Billing subscription	TestGTM001
Billing frequency	Upfront

Information

- Savings plan discount will automatically apply to matching resources. You don't need to redeploy or associate the savings plan to resources to get the discount. How savings plan discount is applied
- Payment will be processed using the payment method on file for the selected subscriptions
- Savings plans are noncancelable. Commercial Licensing Terms

Legal terms

[View terms](#)

[Previous](#) [Buy now](#)



[Home](#) > Cost Management > Billing > Billing scopes > Srivatsan

Srivatsan | Savings plans

[Billing profile](#)

[Search](#) [Add](#) [Columns](#) [Refresh](#) [Feedback](#)

Scope: All 7-day Utilization: All Reset filters

Succeeded									
Name	Status	Expiration date	Purchase date	Term	Scope	Product name	Commitment/hour	Last Day Utilization	
Compute_SavingsPlan_09-14-2022_01-30	Succeeded	08/24/2023	08/24/2022	One Year	Shared	Compute_Savings_Plan	0.001 USD	138%	
RG_Compute_SavingsPlan_08-25-2022_15-48	Succeeded	08/09/2023	06/09/2022	Three Years	Single subscription - S...	Compute_Savings_Plan	0.001 USD	121%	
SharedAll_SavingsPlan	Succeeded	07/03/2023	07/03/2022	One Year	Single resource group ...	Compute_Savings_Plan	0.04 USD	0%	
Compute_SavingsPlan_09-14-2022_01-30	Succeeded	05/07/2023	05/07/2022	One Year	Single subscription - C...	Compute_Savings_Plan	0.001 USD	146%	

[... > Srivatsan | Savings plans >](#)

Savings plan

[Search](#) [Rename](#) [Feedback](#)

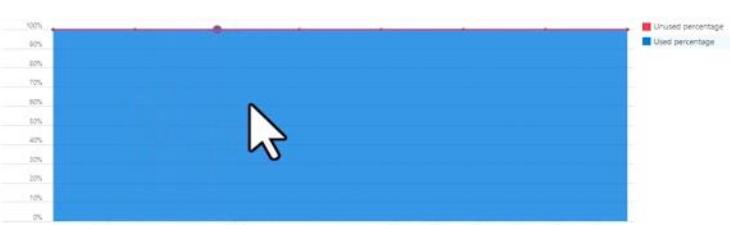
[Overview](#) [Access Control \(IAM\)](#) [Settings](#) [Configuration](#) [Renewal](#) [Properties](#) [Support + troubleshooting](#) [New Support Request](#)

Essentials

Savings plan name	Compute_SavingsPlan_08-25-2022_15-48	Expiration date	08/24/2023
Savings plan ID	00000000-0000-0000-0000-000000000000	Product name	Compute_Savings_Plan
Status	Succeeded	Scope	Shared
Savings plan order ID	00000000-0000-0000-0000-000000000000	Commitment/hour	0.001
Term	One Year	Billing frequency	Monthly (see payment schedule)

Utilization over time

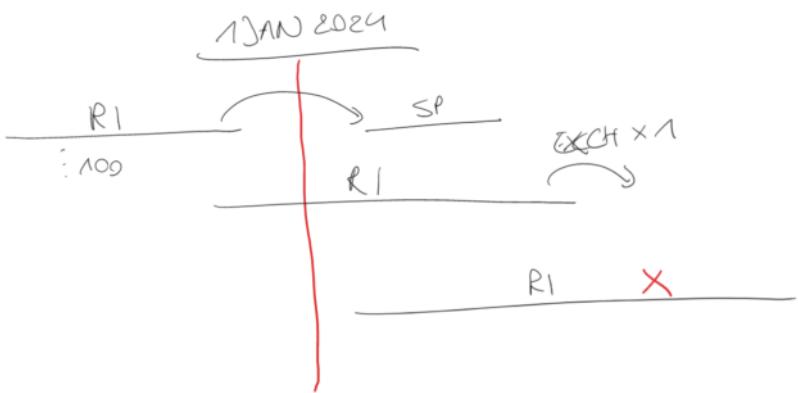
Show last: [7d](#) [1m](#) [3m](#) [Custom](#)



Unused percentage
Used percentage

Utilization data may be delayed by up to 24 hours. The data displayed for the last day may be inaccurate.





FAQs

Tuesday, February 21, 2023 10:44 AM

What is the Azure Savings plan for compute?

Help grow their cloud consumption while being cost optimized.

Customers can commit to an hourly commitment let's say 5dollars an hour for 1 or 3 Years. Customers will get a reduced savings plan price vs PAYG on a select compute services

What are the benefits of the Azure savings plan for compute?

- Save significantly vs PAYG prices.
- Savings automatically applied to your compute environment. The savings will plan will look at your entire compute environment to see where it can be applied, regardless of instance size, family, and region and identifies what services it can be applied to and makes sure the customer gets the highest savings with a savings plan.
Example: VM running, with savings plan we get a 5% savings, with another VM customers going to get 20% savings. It's going to apply to the VM with 20% savings, because he'll have the highest saving that way.
- Flexibility: not tied to specific instance series, region, os,... customers can modernize workloads, adapt their compute environments to their business needs, without having to worry about savings plans been impacted.
- Flexibility: With savings plans you can choose the billing frequency, hourly commitment, where it can be applied to and the term length.

How does the Azure savings plan for compute work?

Example: Purchase a savings plan for 1 year for 5dollars per hour. If below or at this amount, you are going to be billed at the lower prices, you're going to be billed 5dollars per hour regardless of the usage.

If for an hour, your usage is above this commitment you'll get billed PAYG pricing on a separate line item.

Understand Savings plan for Compute Q&A



Azure
Savings Pl...

- Azure reservations and Azure savings plans do not stack. You get one or the other. Potentially Azure reservations would typically apply first because it's a bigger discount and then if you've maxed out that commit to the Azure reservation then if that type of resource was the most attractive discount for that hour the Azure Savings Plan would then kick in past the Azure reservations amount of commit you have.
- Even if I credit before the first of January 2024 I can still trade essentially once past the first of January 2024 because hey that would then create a new one but that new one would be subject to the 1st of Jan 2024, I can't trade in past that point.
- Savings plans do not have any trade-ins or refunds, there's nothing to trade into. It is completely flexible and the whole point is you're committed to use this amount hourly for one or three years to get the nice discount so you can't then change your mind six months down the line, after making that commitment.

FAQ

<https://azure.microsoft.com/en-us/pricing/offers/savings-plan-compute/#faq>

Can I cancel a plan or modify the hourly amount of a savings plan?

Savings plans **cannot be modified or cancelled once the commitment to spend is made**. If your usage needs grow beyond your current savings plan, **you may purchase another savings plan to cover the additional usage**.

How is Azure savings plan for compute and Reserved Instances (aka RIs) different and how do they work together?

- RI's -> Stable predictable workloads
- Savings plan -> Dynamic workloads that have planned or unplanned changes
- RI + Savings plans **can work together.**-> RI's will be applied first, everything that's left over for the compute usage is picked up by the savings plans.

aka.ms/savings plan-compute

How do customers apply the Azure savings plan to specific management, subscription, or resource groups?

The screenshot shows the Azure portal interface for managing savings plans. The title bar reads "Contoso Computer Services | Savings plans". On the left, there's a sidebar with various navigation items: Overview, Access Control (IAM), Settings (which is selected), Configuration, Renewal, Properties, Support + troubleshooting, and New Support Request. At the top right, there are "Search", "Save", and "Discard" buttons. Below the sidebar, the main content area has a heading "Scope". A description explains that the savings plan's scope can cover one subscription, one resource group, one management group or multiple subscriptions. It then details four options: **Shared** (selected), **Management group**, **Single subscription**, and **Single resource group**. The "Shared" option is described as applying to matching resources in eligible subscriptions within the billing context, while "Management group" applies to matching resources in the list of subscriptions that are part of both management group and billing scope.

[GearUp: Well-Architected \(microsoft.com\)](#)

Cost Optimization

Cost optimization



Cost optimization is ensuring that the money your organization spends is being used to maximum effect.

Questions to ask:

Where are you at?

Where are you struggling, what are you having trouble with? What is your CFO trying to do?

To give the customer the lay of the land, show the stages of cost optimization and the sort of things you want to do at different stages in your journey

Cost Optimization stages:

Design: when you develop a new workload, conceptualizing it, determining what your business requirements are, what can it cost, what are your requirements along the line of reliability and performance, security, what kind of business value do you want it to deliver for you. That is the early stage of design.

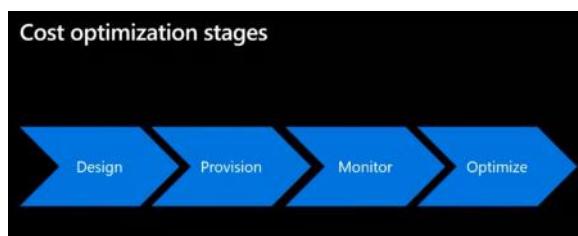
You can already do things at that stage that are best practices to make sure you are cost efficient all the way through.

Provision: This is where you are going through the different building blocks, picking them out and setting them up, start building it out.

Monitor: You want to keep tabs on how it is been used, what you have been spending, and constantly reviewing internally with the right stakeholders to make sure that everything is happening that you want to be happening in terms of this workload.

Optimize: This only comes at the end because there is a lot of things you can do along the way to make sure you are still in a good position at the end.

What are the things you can do now that it is running, to make it run more cost efficiently to make sure that it is appropriately sized and delivering on business value but at the right level for you.



High impact techniques you need to know up front and apply

High impact "monitor" and "optimize" techniques

Increase cost awareness

- Budgets
- Alerts
- Tagging

High impact "monitor" and "optimize" techniques

Increase cost awareness

- Budgets
- Alerts
- Tagging

Eliminate cloud waste

- Shut down unused resources
- Right-size underutilized resources
- Autoscaling and autoshutdown

Take advantage of offers

- Hybrid Benefit
- Reservations

You want to only spend what you need to spend. All of this comes back to what you need in terms of reliability and performance, etc.....

Deep Dive into Cost Optimization:

How can we save money?



How can we save money?



Reduce Waste

Move up the
Azure stack

Engineer for Cloud
(ADO)

1. Check the Advisor Score to start with.

2. Approaches:

- a. 2 Approaches to optimize:
 - i. Technical: low hanging fruits. How do we immediately save money by reducing the waste
 - ii. Azure Advisor: This is a great tool that displays all the possible recommendations that could potentially save you a lot of money.

Doing something immediately to save money. Come back and think about the long term strategic approach.

Reducing Waste:

Customer can have a boatload of underutilized VM's or unattached disks.

Azure's philosophy is pay for what you use, anything that is not used, is a waste.

Example:

How to figure out if you have unattached disks

[Identify unattached Azure disks - Azure portal - Azure Virtual Machines | Microsoft Learn](#)
[Find and delete unattached Azure managed and unmanaged disks - Azure Virtual Machines | Microsoft Learn](#)

```
checkunmanageddisk.ps1
1 # Set $deleteUnattachedDisks=1 if you want to delete unattached Managed Disks
2 # Set $deleteUnattachedDisks=0 if you want to see the Id of the unattached Managed Disks
3 $deleteUnattachedDisks=1
4 $managedDisks = Get-AzDisk
5 foreach ($disk in $managedDisks) {
6     if ($disk.ManagedBy -eq null) {
7         # If ManagedBy property is $null then it means that the Managed Disk is attached to
8         # nothing. PowerShell stores the Id of the VM to which Managed Disk is attached to
9         # so if ManagedBy property is $null then it means that the Managed Disk is not attached to a VM
10
11 PS /home/jmeli1/.checkunmanageddisk.ps1
12 /subscriptions/382a1f24-a2f2-46ba-a184-a9efeb8ffeb5/resourceGroups/RG-TEST/providers/Microsoft.Compute/disks/tstunmanageddisk
13 PS /home/jmeli1/.checkunmanageddisk.ps1
14 /subscriptions/382a1f24-a2f2-46ba-a184-a9efeb8ffeb5/resourceGroups/RG-TEST/providers/Microsoft.Compute/disks/tstunmanageddisk
15 PS /home/jmeli1/.checkunmanageddisk.ps1
16 /subscriptions/382a1f24-a2f2-46ba-a184-a9efeb8ffeb5/resourceGroups/RG-TEST/providers/Microsoft.Compute/disks/tstunmanageddisk
17 PS /home/jmeli1/.checkunmanageddisk.ps1
18 Deleting unattached Managed Disk with Id: /subscriptions/382a1f24-a2f2-46ba-a184-a9efeb8ffeb5/resourceGroups/RG-TEST/providers/Microsoft.Compute/disks/tstunmanageddisk
19
20 Deleting unattached Managed Disk with Id: /subscriptions/382a1f24-a2f2-46ba-a184-a9efeb8ffeb5/resourceGroups/RG-TEST/providers/Microsoft.Compute/disks/tstunmanageddisk
21
22 Name : 073edee7-b0b6-4c3d-ab87-8bbb71abc35a
23 StartTime : 1/5/2023 9:49:06 AM
24 EndTime : 1/5/2023 9:49:37 AM
25 Status : Succeeded
26 Error :
```

Deleted unattached Managed Disk with Id: /subscriptions/382a1f24-a2f2-46ba-a184-a9efeb8ffeb5/resourceGroups/RG-TEST/providers/Microsoft.Compute/disks/tstunmanageddisk

PowerBI Cost Management App

Microsoft | Power BI | BI Workspace

Azure Cost Management App | Data updated 2/19/2020

File Export Share Chat in Teams Comment Subscribe ...

You're viewing this app with sample data. [Connect your data](#)

Welcome to Azure Cost Management

Getting Started:

The Azure Cost Management Power BI App is meant to assist in analyzing and managing your cloud cost within Power BI. You can utilize the Azure Cost Management app to monitor costs, usage trends and identify cost optimization options to reduce your expenditures.

You can use the app as is, or you can download it into [Power BI Desktop](#) and join with additional data to create customized reports to get holistic views of your overall business cost.

Learn more about the Azure Cost Management Power BI template App
Visit aka.ms/CostMgmt/ACMinsights for additional information on the Cost Management template app
To create customized visualizations from scratch, see: [Connect to Azure Cost Management in Power BI Desktop](#)

Learn more about Azure Reservations and Azure Hybrid benefits
[What are Azure Reservations?](#)
Additional information on [Azure Hybrid Benefit](#)
Azure Cost Management documentation: aka.ms/CostMgmt/Docs
Azure Cost Management video channel: aka.ms/CostMgmt/Video
Azure Cost Management updates: aka.ms/CostMgmt/Blog

Provide Feedback
Have an idea or suggestion? Visit [aka.ms/ACMTemplateAppFeedback](#) to post your thoughts.



Filters

Search

Filters on all pages

Date is (All)

Diving de

Diving deeper into Azure cost optimization (Part 2)

- [00:00] Introduction
 - [01:03] Cost Optimization with direct API calls
 - [06:23] How to sustain your cost savings with a long-term, strategic approach
 - [12:43] Azure Targets - How to ensure you stay within your budget forecast
 - [08:15] Workload pre-assessment - Azure Migrate Tool
 - [22:10] Azure architecture scenario cost optimization exercise

 Related episodes to watch:

- [Start optimizing your Azure costs | Cost Optimization Ep. 1](#)
 - [Diving deeper into Azure cost optimization \(Part 1\) | Cost Optimization Ep. 2](#)

✓ Resources:

- [Well-Architected Framework Cost Optimization Documentation](#)
 - [Well-Architected Framework Cost Optimization online course](#)
 - [Azure Cost Management PowerBI App](#)
 - [Unattached disks automation and reserved instance info](#)
 - [Azure consumption API](#)
 - [Azure Migration Tool Documentation](#)

There are certain prereqs in order to fully benefit from the dashboard. EA Admin,....

For customers that have stringent rules on data sharing and are not able to share the data out, there are other ways to look at cost.

We have direct API calls. So if you can't run this app, you can use the

The Direct APIs for Cost Optimization

In the event your customer cannot not In the event your customer cannot not share the reports with you due to data sovereignty regulations, or does not have access to ACM PowerBI App, due to lack of EA Admin authority, the customer can still download all the reports directly using the following APIs

Table reference	Description
AutoFitComboMeter	Data included in the app to normalize the RI recommendation and usage to the smallest size in the instance family group.
Balance summary	Summary of the balance for Enterprise Agreements.
Budgets	Budget details to view actual costs or usage against existing budget targets.
PriceSheets	Applicable meter rates for the provided billing profile or EA enrollment.
RI charges	Charges associated to your reserved instances over the last 24 months.
RI recommendations (Shared)	Reserved instance purchase recommendations based on all your subscription usage trends for the last 7, 30, or 60 days.
RI recommendations (single)	Reserved instance purchase recommendations based on your single subscription usage trends for the last 7, 30, or 60 days.
RI usage details	Consumption details for your existing reserved instances over the last month.
RI usage summary	Daily Azure reservation usage percentage.
Usage details	A breakdown of consumed quantities and estimated charges for the given billing profile in the EA enrollment.
Usage details amortized	A breakdown of consumed quantities and estimated amortized charges for the given billing profile in the EA enrollment.

Azure savings plans for compute

[What is Azure savings plans for compute? - Microsoft Cost Management | Microsoft Learn](#)

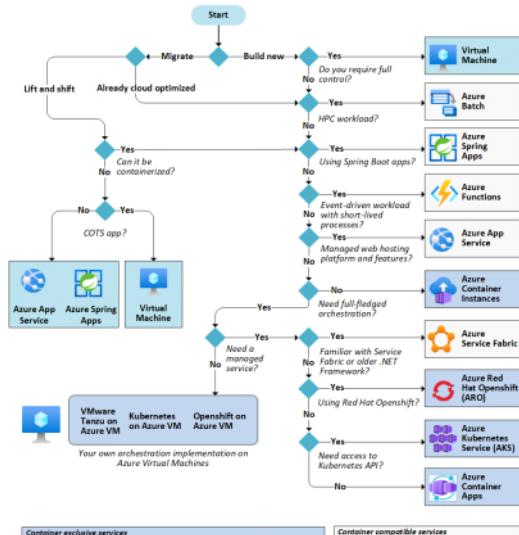
For dynamic workloads where you need to run different sized virtual machines or that frequently change datacenter regions, consider a compute savings plan. Savings plans provide flexible benefit application and automatic optimization.

How do you keep the cost from going back up where it was?

Here you need a long term strategic approach. Everything you want to put into Azure must be vetted.

Everything you put in unoptimized is going to incur unnecessary cost and is going to go through the same waste producing scenario.

To do this, first figure out what the most optimal way is to onboard the workload into Azure.
You want to leverage decision trees :



Commercial off-the-shelf (COTS) is marketing lingo for turnkey software and hardware that can be purchased, leased or licensed by the general public.

COTS products can be used "out of the box" without modification. The term has its roots in the military.

Create a Cost Target Workbook and go through it regularly. Set the target. Budgets per department, team,...

Azure Target (Sample)

Per Month					
Target	\$ 500,000				
Target for each Group, Team, or Subscription Owner the past three month run-rate reduced proportionately to fit within your budget					
• Target is the estimated Monthly Budget per Team					
• Variance is the savings per month					
Azure spend by Team / Group					
Team/Group	Aug	Sep	Oct	Nov	Dec
Apps Engineering	\$ 106,424	\$ 96,958	\$ 90,732	\$ 84,770	\$ 86,418
IT Infrastructure	\$ 203,098	\$ 198,818	\$ 195,888	\$ 187,041	\$ 194,933
HR	\$ 263	\$ 223	\$ 506	\$ 563	\$ 593
Finance	\$ 76,604	\$ 74,262	\$ 72,884	\$ 70,368	\$ 70,611
Security and Compliance	\$ 83,644	\$ 75,558	\$ 62,682	\$ 66,102	\$ 90,102
Center of Excellence	\$ 44,037	\$ 40,123	\$ 41,592	\$ 38,899	\$ 42,126
Legal dept	\$ 95,167	\$ 76,108	\$ 77,429	\$ 73,227	\$ 74,569
Research and Development	\$ 124,914	\$ 110,496	\$ 100,894	\$ 92,693	\$ 95,403
Sales teams	\$ 463	\$ 622	\$ 729	\$ 749	\$ 882
Helpdesk and Support teams	\$ 1,205	\$ 880	\$ 856	\$ 824	\$ 856
Total	\$ 735,817	\$ 674,040	\$ 644,194	\$ 615,232	\$ 656,493
Per Month					
	Target	Variance			
	\$ 70,290	\$ (22,770)			
	\$ 170,935	\$ (25,021)			
	\$ 500	\$ 71			
	\$ 50,742	\$ (22,204)			
	\$ 45,000	\$ (30,618)			
	\$ 30,000	\$ (11,354)			
	\$ 60,182	\$ (19,117)			
	\$ 71,485	\$ (33,395)			
	\$ 715	\$ 25			
	\$ 768	\$ (157)			
	\$ 500,616	\$ (76,493)			

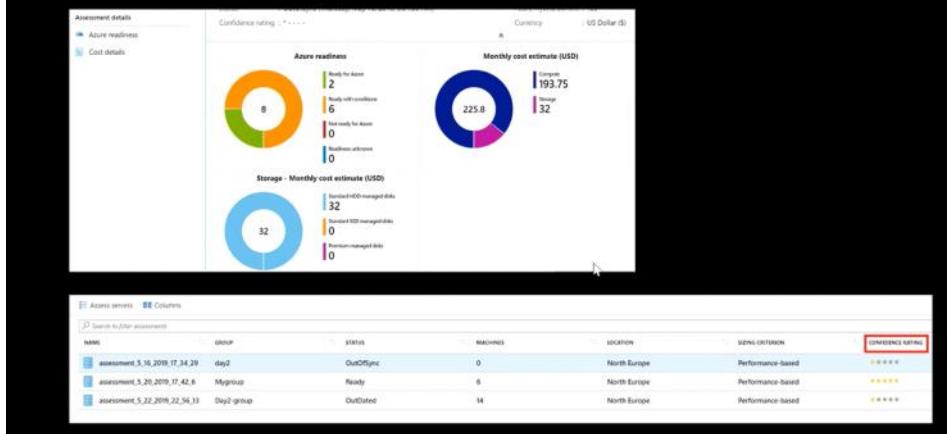
Azure Target (Sample)

Azure Resource Optimization



Azure Migrate Tool

Azure Migrate tool – (onboarding assistance Sample)



Azure Backstage Session on Cost Optimization

[Cost Optimization: Two reasons why you should believe us when we say you can optimize your Azure costs - Events | Microsoft Learn](#)

References:

[Microsoft Cost Management REST APIs | Microsoft Learn](#)

[Using the Azure Cost Management API to Cut Your Cloud Costs | Nordic APIs |](#)

[Azure Billing Enterprise APIs - Reserved Instance Recommendation | Microsoft Learn](#)

[Cost Optimization: Two reasons why you should believe us when we say you can optimize your Azure costs - Events | Microsoft Learn](#)

Learning Path Accreditation Readiness

Wednesday, February 15, 2023 7:59 PM

[ARP: Well-Architected Cost Optimization Assessment - LearningPath \(microsoft.com\)](#)

Useful LINKS:
[Azure Enablement Show | Microsoft Learn](#)

Technical Learning

Advisor Clinic 1: RI

<https://learn-video.azurefd.net/vod/player?show=azure-enablement&ep=advisor-clinic-lower-costs-with-azure-virtual-machine-reservations>

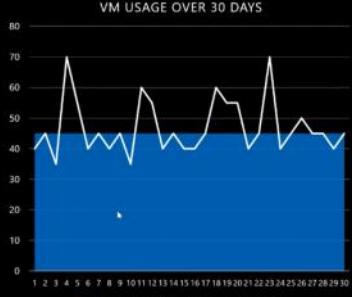
[Advisor Clinic: Lower costs with Azure Virtual Machine reservations | Microsoft Learn](#)

How reservation recommendations are calculated

1. Hourly usage past 7, 30, 60 days
2. Simulates costs with and without reservations
3. Simulate costs for different quantities
4. Recommends quantity that maximizes savings

How reservation recommendations are calculated

VM USAGE OVER 30 DAYS



1. Hourly usage past 7, 30, 60 days
2. Simulates costs with and without reservations
3. Simulate costs for different quantities
4. Recommends quantity that maximizes savings

Does this recommendation from Azure Advisor take into account the customer discounts?
Yes, they do they take into account the on demand or pay as you go rates for the customers

Does the reservation recommendation include rightsizing stuff that I also get through Advisor:
Not today, the team is working on bringing them together so that the reservation recommendation takes into account the right sizing recommendation as well

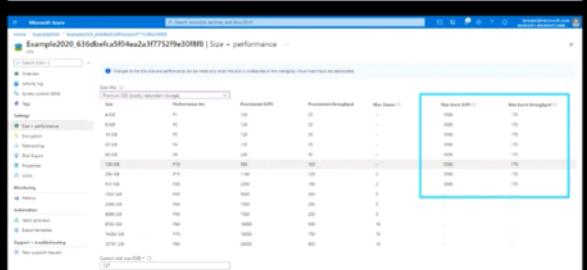
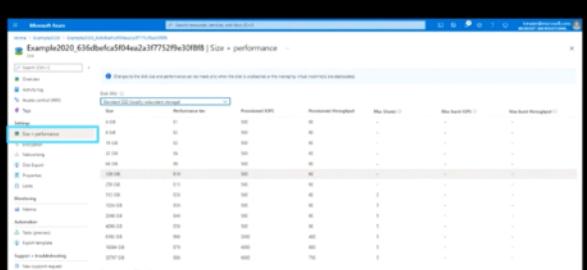
There are different ways that you can get your reservations and recommendations:
Powerbi app, portal cost management

Advisor Clinic 2: Upgrade VM disks to premium

[Advisor Clinic: Upgrade your Azure Virtual Machines to premium disks | Microsoft Learn](#)

Upgrade Standard Disk to Premium Disk

- This recommendation identifies VMs capable of pairing with premium disks for low latency use cases
- Ideal for production workloads, especially Big Data, SQL and other transactional databases
- Offers bursting capabilities



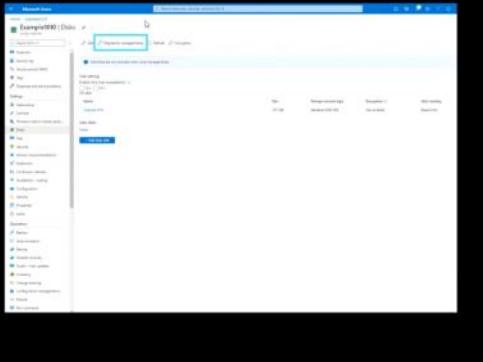
Bursting = all about performance under heavy load. 2 different versions available and configurable.

1. On demand: available every time you need it, you pay for that and it's available for you to use when you need it. It's great to have in your back pocket if you don't have consistent workload, or expect that you may have large changes in your overall throughput.

2. the next option is a credit based model. In this model you have the ability to credit yourself with additional bursting capability when you're operating below the thresholds that we have. In this case you're able to burn those credits by bursting when you need it without any other cost implications.

Upgrade VM from Unmanaged Disks to Managed

- Abstract the management of underlying blob storage
- Greater scale (50k disks per sub, per region)
- 99.99% availability for production workloads
- Integrated support for Availability Sets & Zones
- Granular role-based access control



We try to automate a lot of these processes and abstract a lot of the managed layer of this storage. Customers that are currently using unmanaged disks, they could upgrade and take advantage of what it really helps to do is scaling and automation, compatible with Availability Sets and Availability Zones, as you scale your deployments into other regions, other zones, you don't have to manage individually those tolerances and those capabilities you expand and contract.

<https://learn.microsoft.com/en-us/shows/azure-enablement/advisor-clinic-upgrade-your-azure-virtual-machines-to-managed-disks>

Implement cost control, budget, forecast and allocation

[Implement cost control, budget, forecast and allocation | Microsoft Learn](#)

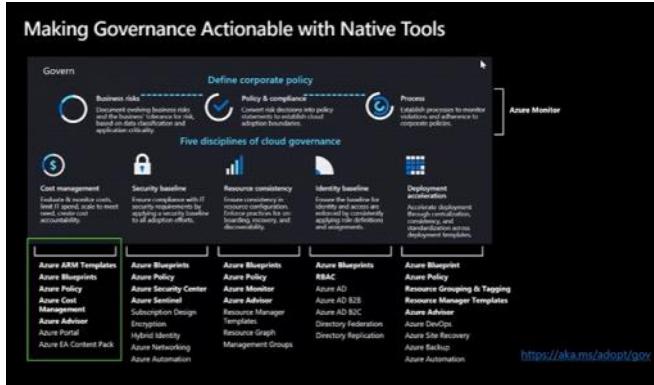
[00:00] Introduction
[00:36] Importance of cost management in cloud governance
[01:35] Role & Responsibility across cost management
[02:35] How to look at and implement cost management measures
[06:25] How to configure alerts in Azure cost management tools
[06:49] Customizable Azure cost management alerts
[07:23] Demo: How to use policy to help with resource tagging
[10:11] Demo: How Azure Advisor helps with cost management
[12:22] Cost management best practices
[15:10] Cost management best practices and role & responsibility

Cost Management is one of the biggest concerns our customers have when they talk about governance, in fact cost is probably one of the leading areas they want to get into. Probably because they had an unexpected bill, they don't understand their forecast or their budget. The CAF covers this in great detail under the Govern methodology.



Who looks after cost management in the Cloud ?

It's a team sport. I expect to see the CFO, the LOB App Owners, Central IT department, they all need to come together to define what the business risks are, what policy should we put into place, where do we need to have compliance, what are the processes that we need to wrap around this. We provide a lot of tools out of the box to do this.



If you're just looking to get started, on the CAF there is a nice overview of the cost management discipline

aka.ms/govern

Govern
Methodology
Benchmark assessment
Governance foundation
Inspire the foundation

Azure Load Testing is now generally available: Learn how to generate high-scale load and get actionable insights for building resilient apps and services. [Learn more >](#)

[Microsoft](#) | [Learn](#) [Documentation](#) [Training](#) [Certifications](#) [Q&A](#) [Code Samples](#) [Assessments](#) [Shows](#) [Events](#)

Azure Product documentation | Architecture | Learn Azure | Develop | Resources

[Filter by title](#)

Cloud Adoption Framework for Azure
About the framework
What's new
• Scenario
• Adoption journeys
• Strategy
• Plan
• Ready
• Adopt
• Govern
• Overview
• Methodology
• Benchmark
Initial governance foundation
Governance foundation improvements
• Governance guide
• Governance considerations
• Disciplines of cloud governance
• Implement disciplines of cloud governance
• Cost management
• Overview of cost management
• Download the template
• Understand business risks
• Risk tolerance metrics and indicators
• Sample Cost Management policies
• Policy compliance processes

Cost Management discipline overview

Article | 12/01/2022 | 2 minutes to read | 6 contributors | [Feedback](#)

The Cost Management discipline is one of the Five Disciplines of Cloud Governance within the Cloud Adoption Framework governance model. For many customers, governing their costs is a major concern when adopting cloud technologies. Balancing performance demands, adoption pacing, and cloud services costs can be challenging. This is especially relevant during major business transformations that implement cloud technologies. This section outlines the approach to developing a Cost Management discipline as part of a cloud governance strategy.

Note
Cost Management discipline does not replace the existing business terms, accounting practices, and procedures that are involved in your organization's financial management of IT-related costs. The primary purpose of this discipline is to identify potential cloud-related risks related to IT spending, and provide risk-mitigation guidance to the business and IT teams responsible for deploying and managing cloud resources.

The primary audience for this guidance is your organization's cloud architects and other members of your cloud governance team. The decisions, policies, and processes that emerge from this discipline should involve engagement and discussions with relevant members of your business and IT teams, especially those leaders responsible for owning, managing, and paying for cloud-based workloads.

Policy statements

Acceptable policy statements and the resulting architecture requirements serve as the foundation of a Cost Management discipline. Use sample policy statements as a starting point for defining your Cost Management policies.

Caution

Azure Load Testing is now generally available: Learn how to generate high-scale load and get actionable insights for building resilient apps and services. [Learn more >](#)

[Microsoft](#) | [Learn](#) [Documentation](#) [Training](#) [Certifications](#) [Q&A](#) [Code Samples](#) [Assessments](#) [Shows](#) [Events](#) | [Search](#)

Azure Product documentation | Architecture | Learn Azure | Develop | Resources | [Portal](#) | [Raw](#)

[Filter by title](#)

— / Operating model / [Govern](#)

Cost Management tools in Azure

Article | 12/01/2022 | 2 minutes to read | 6 contributors | [Feedback](#)

The Cost Management discipline is one of the Five Disciplines of Cloud Governance. This discipline focuses on ways of establishing cloud spending plans, allocating cloud budgets, monitoring and enforcing cloud budgets, detecting costly anomalies, and adjusting the cloud governance plan when actual spending is misaligned.

The following is a list of Azure native tools that can help mature the policies and processes that support this discipline.

Tool	Azure portal*	Azure Cost Management + Billing	Power BI	Desktop connector	Azure Policy
Budget control	No	Yes	No	Yes	
Monitor spending on single resource	Yes	Yes	Yes	No	
Monitor spending across multiple resources	No	Yes	Yes	No	
Control spending on single resource, manual sizing	Yes	Yes	No	Yes	
Estimate spending	No	No	No	No	

DEMO ACM:
DEMO TAG POLICY
DEMO ...

Model virtual machine costs with the Azure Cost Estimator Power BI Template --> NOT WORKING (blob cost API not accessible, several errors)

[Model virtual machine costs with the Azure Cost Estimator Power BI Template | Microsoft Learn](#)

[Create a business case for cloud migration - Cloud Adoption Framework | Microsoft Learn](#)

Home

Name	Status	Date modified	Type	Size
azure-virtual-machine-cost-estimator	Green	2/16/2023 9:13 AM	Microsoft.MicrosoftP...	10,117 KB
on-premises-compute-unit-lists	Green	2/16/2023 9:16 AM	Microsoft Excel Work...	11,715 KB

Jamel - Microsoft

- Apps
- Attachments
- Azure Landing Zone - De
- Bekert
- Cargolux
- FODBUZA
- MCT-Resources

4 Videos on Savings Plan for Compute

Introduction to Azure savings plan for compute

<https://learn.microsoft.com/en-us/shows/azure-enablement/introduction-to-azure-savings-plan-for-compute>

- 00:00 - Introduction
- 01:07 - What is the Azure savings plan for compute?
- 01:54 - What are the benefits of the Azure savings plan for compute?
- 03:54 - How does the Azure savings plan for compute work?
- 04:35 - How do customers setup and purchase an Azure savings plan?
- 06:10 - How do customers check the status of their savings plan?
- 07:07 - How do customers apply the Azure savings plan to specific management, subscription, or resource groups?
- 08:00 - How is Azure savings plan for compute and Reserved Instances (aka RIs) different and how do they work together?
- 09:31 - Where do customers go to learn more about Azure savings plan for compute?

What is the Azure savings plan for compute?

Latest offering for our customers to help grow your cloud consumption while being optimized. It helps grow their cloud consumption while being cost optimized. Customers can commit to an hourly commitment let's say \$5 dollars an hour for 1 or 3 Years. Customers will get a reduced savings plan price vs PAYG on a select compute services

What are the benefits of the Azure savings plan for compute?

- Save significantly vs PAYG prices.
- Savings automatically applied to your compute environment. The savings plan will look at your entire compute environment to see where it can be applied, regardless of instance size, family, and region and identifies what services it can be applied to and makes sure the customer gets the highest savings with a savings plan.
- Example: VM running, with savings plan we get a 5% savings, with another VM customers going to get 20% savings. It's going to apply to the VM with 20% savings, because he'll have the highest saving that way.
- Flexibility: not tied to specific instance series, region, os,... customers can modernize workloads, adapt their compute environments to their business needs, without having to worry about savings plans been impacted.
- Flexibility: With savings plans you can choose the billing frequency, hourly commitment, where it can be applied to and the term length.

How does the Azure savings plan for compute work?

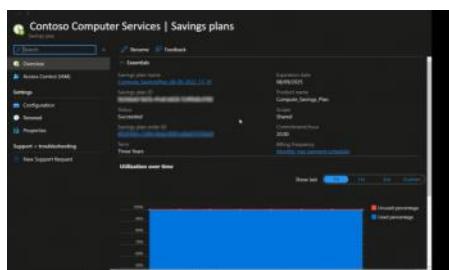
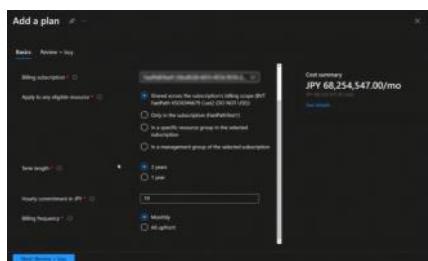
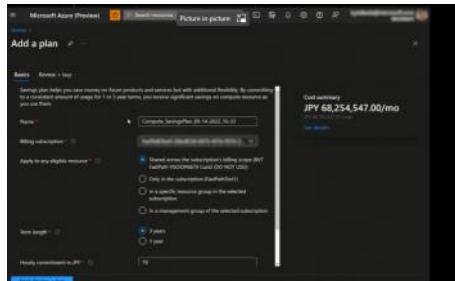
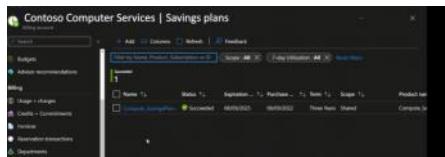
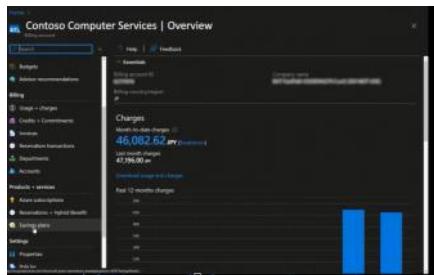
Example: Purchase a savings plan for 1 year for \$5 dollars per hour. If below or at this amount, you are going to be billed at the lower prices, you're going to be billed \$5 dollars per hour regardless of the usage.

If for an hour, your usage is above this commitment you'll get billed PAYG pricing on a separate line item.

How do customers setup and purchase an Azure savings plan?

How do customers setup and purchase an Azure savings plan?

How do customers check the status of their savings plan?



How do customers apply the Azure savings plan to specific management, subscription, or resource groups?

Post purchase, what can be changed?

How is Azure savings plan for compute and Reserved Instances (aka RIs) different and how do they work together?

- RI's -> Stable predictable workloads
- Savings plan -> Dynamic workloads that have planned or unplanned changes
- RI + Savings plans can work together.-> RI's will be applied first, everything that's left over for the compute usage is picked up by the savings plans.

aka.ms/savings plan-compute

FAQ <https://azure.microsoft.com/en-us/pricing/offers/savings-plan-compute/#faq>

Can I cancel a plan or modify the hourly amount of a savings plan?

Savings plans cannot be modified or cancelled once the commitment to spend is made. If your usage needs grow beyond your current savings plan, you may purchase another savings plan to cover the additional usage.

Optimize your investment on Azure and maximize business value

[Optimize your investment on Azure and maximize business value \(microsoft.com\)](https://www.microsoft.com/en-us/azuresolutions/)

Transcript of the session

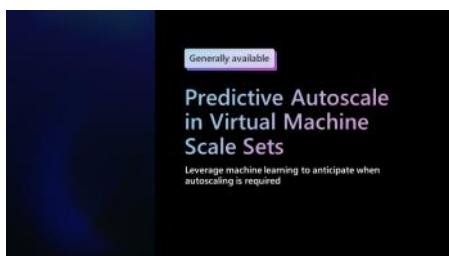
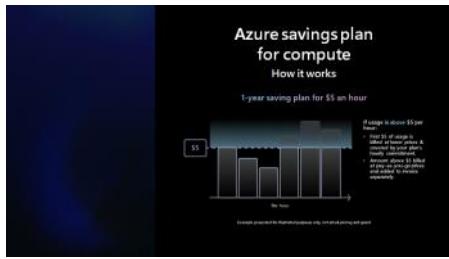
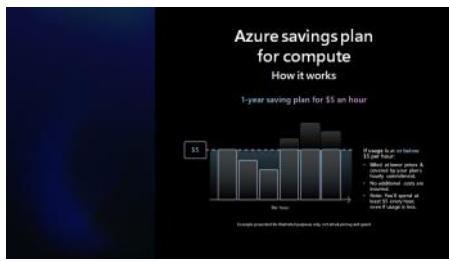


BRK15

Slidedeck



BRK15



Understand Savings plan for Compute Q&A



Azure Savings Pl...

- Azure reservations and Azure savings plans do not stack. You get one or the other. Potentially Azure reservations would typically apply first because it's a bigger discount and then if you've maxed out that commit to the Azure reservation then if that type of resource was the most attractive discount for that hour the Azure Savings Plan would then kick in past the Azure reservations amount of commit you have.
- Even if I credit before the first of January 2024 I can still trade essentially once past the first of January 2024 because they would then create a new one but that new one would be subject to the 1st of Jan 2024, I can't trade in past that point.
- Savings plans do not have any trade-ins or refunds, there's nothing to trade into. It is completely flexible and the whole point is you're committed to use this amount hourly for

one or three years to get the nice discount so you can't then change your mind six months down the line, after making that commitment.

WAF Notes - COP

dinsdag 10 januari 2023 7:59

<https://www.cloudzero.com/blog/azure-cost-optimization>

Cloud Cost Optimization - Microsoft Azure

- Cloud cost optimization is a combination of strategies, techniques, best practices, and tools that not only help reduce cloud costs but also maximize the business value of using the cloud. Optimizing cloud costs isn't just about reducing costs; it's also about aligning costs with business goals.
- An increase in costs is not necessarily a problem if it's accompanied by an increase in revenue. One of the most important goals is to ensure that costs correlate with productive and profitable activities.
- There are three fundamental drivers of cost in Cloud which should be kept in mind while architecting solutions : compute, storage, and outbound data transfer.
- Additionally there are 3 types of Azure Cost Optimization Techniques : Resource-based, Usage-based and Pricing-based.
- [According to Microsoft Azure WAF\(well architected framework\)](#) - focus should be on generating incremental value early. Each service in MS Azure (e.g. Azure AKS, SQL database etc) can have its own cost optimization techniques but in general below are some generic strategies which can be followed to reduce cost in Microsoft Azure.
 - Review Pricing and Billing Information : Azure provides billing details explaining the cost of cloud services. This information can be leveraged to identify high-cost areas and generate savings. Understanding cloud costs helps in informed decisions
 - Start early with cost optimization : This includes Azure services, tools, and resources to organize and track cost and usage data, enhance control through consolidated billing and access permission, enable better planning through budgeting and forecasts, and further lower cost with resources and pricing optimizations. [Microsoft recommended 7 ways to optimize costs in Azure is a good place to start.](#)
 - Choose right pricing model (payment options) for the use case : Opt for reserved or spot instances. Flexibility is key for business
 - Set budgets : Cloud costs can be controlled by ensuring everyone knows the goals and budgets of each project. Setting a monthly budget to plan is a good step. It helps to measure cost vs output.
 - Implement processes to identify resource waste (or idle resources) & prevent cloud sprawl : A cloud cost optimization strategy helps identify unused and unattached resources and remove them to eliminate unnecessary expenses. Resources should be de-provisioned immediately when job finishes. For example [Delete unattached disks](#), idle load balancers etc. Cloud sprawl refers to the unchecked proliferation of an organization's cloud instances, services and service providers. It can lead to unexpected costs, security vulnerabilities and management overhead.
 - Tag Azure resources : A good resource tagging policy can save costs. For example, resources with non-production tags can be de-provisioned or shut down in holidays or when not used. Tags helps to analyze and attribute expenditure. Tags makes it easier to accurately identify the usage and cost of systems, which then allows transparent attribution of IT costs to individual workload owners. This helps measure return on investment (ROI) and gives workload owners an opportunity to optimize their resources and reduce costs. Tagging resources increases the amount of data monitoring tools can obtain.
 - [Refer Azure Advisor](#) recommendations regularly and take actions if needed. [Azure Advisor helps in reducing cost & increasing operational excellence.](#)
 - Right size services/resources : [For example to right size VM's start with four main metrics](#) - CPU, memory, I/O and networking. [Azure cost optimization & Right Sizing Full list](#)
 - Have capacity planning : use autoscaling of resources to avoid overspend
 - Limit data transfer fees : [These charges are labelled as Bandwidth pricing](#). Private endpoints can be very useful. Limiting egress through Private IPs can be a good strategy to reduce egress charges. It is recommended to reduce the number of Public IPs in an architecture which is beneficial both from a cost as well as

- security perspective. Ensure that systems that swap a lot of data are together in same cloud/region. Start with an assessment of cloud provider's transfer fees. Then, adjust the cloud architecture to minimize the necessary data transfers. For example, move on-premises applications that frequently access cloud-hosted data into the cloud to eliminate hops. Data transfers from Azure services to Azure CDN are free of charge. Customers can consider Azure CDN for applications with higher outbound data transfer requirements, such as streaming services, for example. There can be some rule/metric in place, for example, no more than 15% of cloud expenditure should be spent on data transfer.
- Azure Hybrid Benefit (AHB)/Bring-your-own-license (BYOL) : Azure Hybrid Benefit is a licensing benefit that helps to significantly reduce the costs of running workloads in Azure Cloud. Its an azure based program that providing BYOL to Azure and it available for Enterprise customers with Software Assurance that provides license mobility. It works by reuse on-premises Software Assurance-enabled Windows Server, RedHat, SUSE and SQL Server licenses on Azure. Azure Hybrid Benefit can lead to the highest level of savings on VMs i.e. up to 82% off pay-as-you-go pricing.
 - Use Azure cost monitoring tools regularly : Azure Cost Management + Billing. This suite of tools tracks spending across individual Azure services, provides future bill forecasts and alerts users when they go over budget. Cost Management is a free tool built into the Azure portal. It collects data and enables analysis that can help save costs on Azure services. Azure provides additional tools for cost planning and optimization, including the Azure Advisor, Cost Calculator, Cost Analysis, Azure Budgets, and Cloudyn, which lets track resource usage and expenditure for Azure alongside other clouds.
 - Azure cost analysis : Once workloads run in Azure, use the cost analysis feature in the Azure portal to understand how much each workload will cost. This tool also forecasts future spending based on current configurations.
 - [Leverage Azure Dev/Test Pricing](#) : Azure provides deep discounts on services if they are used for development and testing: For example Run Windows and SQL Server VMs with no charge for Microsoft software (same price as Linux instances), Up to 55% discount on Azure SQL Database,Up to 50% discount on Logic Apps etc.
 - [Leverage B-series VMs](#) : B-Series VMs grant discounts of between 15-55% compared to equivalent VMs. Identify if there are workloads that need to be available but only occasionally require high performance or throughput, and can be moved to B-Series VMs. Azure offers B-Series virtual machines, designed for applications that are typically idle and then have sudden bursts of usage. A B-Series VM usually runs with a low, baseline level of CPU power, and as long as this low level is suitable for the workload, customers accumulate credits which can be utilized in "bursts".
 - Make use of storage tiering : Storage can become very costly if not optimized properly. Azure Blob Storage model offers Premium, Hot, Cool, and Archive storage tiers with pricing to match, so customers can discover what's right for them. Less frequent data can be archived.
 - Base VMs stop/start schedule on your usage : It's highly recommended to perform an analysis of usage patterns and availability so as to create a VM stop/start schedule that is optimal. This custom scheduling can be combined with autoscaling for better cost-effectiveness in the long run. Azure Automation Runbooks gives the tools needed to implement automatic stop/start functions (can be very helpful for non-production environments).
 - (Choosing the right technology) Switching workloads to containers : Check workload affinity and consider switching to containers. Hosting costs will reduce. Although it's not always possible, aim should always be for 100% VM utilization to ensure costs are optimal. This can be done by monitoring metrics with Azure Monitor and using auto-scaling.
 - (Choosing the right technology) Serverless : This can save lot of costs. Serverless functions runs on demand, based on user-defined triggers. Serverless computing is best suited for compute-intensive workloads that run intermittently.
 - Avoid undifferentiated heavy lifting and leverage managed services : For example moving away from traditional databases to PaaS options (elastic databases).
 - Identify and minimize Software License Costs : Software licensing is a major component of cloud operating costs. Manual license management is challenging,

- increasing the risk of paying for unused software licenses. Migrating to an open source equivalent product/software can save millions.
- Choose the right region : Azure pricing often varies by regions -- with the North American regions typically being the cheapest -- so selecting a certain region could save money. If possible, move workloads to a less expensive region.(consider network latency and packet loss)

Further References

- [The comprehensive WAF Cost Optimization documentation.](#)
- [Overview of Azure Cost optimization pillar & Principles](#)
- [Cloud cost-optimization simulator](#)
- [Mastering Cloud Cost Optimization: The Principles](#)
- [Optimize Azure costs](#)
- [How to optimize your cloud investment with Cost Management](#)
- [Azure Cost Optimization Techniques](#)
- [Azure Cost Optimisation - Azure Architecture Blog](#)

Cost Optimization session Ewoud

Thursday, February 2, 2023 2:36 PM

Spot vm instances:

Nature of your workload is important

You identified your stateless workload is no longer available

You have to redeploy it. Someone was expected to work but they have been taken out of their job.

Reserved Instances

2 options:

Pre-purchase: pay everything at once

Monthly

Why choose pre-purchase over monthly?

At the end of the 5 year MACC, they still have the option to extend for one year. At the end they still have to spend a lot of money, but they can spend it on reservations that they are consuming for 3 years.

If cmr doesn't spend his MACC they get penalty, so they use this trick to complete their MACC. (this argument is not documented but does happen)

Built-in flexibility:

Automatic renewal: not for every service

Cancellation

Exchanged for another reservation of same type.

Who can purchase?

MWA, EA individual PAYG, CSP

Who cannot: ms employees, sponsor, visual studio,....

Tracking reservations: via azure portal

Managing: change scope, add users, split, optimize

Notifications: purchase, upcoming expiry, renewal, cancellation,.... Differences between EA and PAYG

VM Reservation:

Automatic discount that match scope and attributes

Only covers the VM compute cost. Not storage

Applies to usage

Discount hourly,

Use it or lose it.

Buying process:

Buy via portal

Apply specific scope

Instance size flexibility

Set auto renewal

VM Reservation flexibility:

Change scope, subscription owner, ISF, you can split or merge reservation orders

Cancel or exchange within limitations

Today you can cancel up to 50k a year (you bought reservations, at a certain point you say I bought too much, you want to cancel, it's possible. But you will pay 12% cancellation fee)

ISF = Many RIs can work on many VMs @ the same time

Single D8_v3 RI purchase in USEast
1 VM family

RI moves from D8_v3 to D4_v3

only half the other half is paid fully

	VM	Cores	Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
App 1	D8_v3 - Win HUB	8	USEast	X	X	X																					
App 2	D8_v3 - Linux	8	USEast		X	X	X	X	X																		
App 3	D4_v3 - Windows	4	USEast			X	X	X	X	X	X	X	X	X	X	X											
App 4	D4_v3 - RHEL	4	USEast				X	X	X	X	X	X	X	X	X	X											
App 5	D16_v3 - Win HUB	16	USEast					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	RI Cores Used			8	8	8	8	8	8	8	8	4	4	8	8	8	8	4	4	0	0	8	8	8	8	8	

Different VM Sizes (# of cores)
Different Operating System

RI shared by two D4_v3 VMs

losing money

Exchange at any time

EXCHANGE

Exchange Azure Reserved VM Instances as your project needs change ...



- Customers can exchange a RI for another RI (instance, datacenter, and term) at any time
- The time remaining will serve as a credit applied to the new RI purchase
- The new RI purchase must be of equal or greater value than the pro-rated amount
- The new RI purchase will be for the full 1-year or 3-year term

Example

Exchange in month 8

1 yr D3v2 VM USE2 = \$1298

→
\$432

The remaining balance of \$432 will be applied to the new L8 purchase and only \$5,319 will be charged to the customer

Cancel at any time

CANCEL

... or cancel at any time for a prorated refund if you find you no longer need the compute capacity you purchased ...



- Customers can cancel a RI at any time during the term
- A pro-rated refund will be provided back to their original purchase instrument (credit card, MC, or overage invoice)
- A 12% early termination fee will be applied to the pro-rated refund
- Customers will be capped at \$50k USD in cancelled funds per rolling 12-month period
- Cancellation will be calculated pro-rata per hour interval

WAS SPECIFIC TO AG INSURANCE, They have automation



Manage Reservations for Azure resources

- When you purchase a reservation, two objects are created: Reservation Order and Reservation
- Actions such as split, merge, partial refund, or exchange create new reservations under the Reservation Order.
- Example split:
 - Month 1
 - buy reservation for 10 VM instances, scope = subscriptionA
 - Result:
 - 1 Reservation Order: abc123
 - 1 Reservation ID: 111 (10VM's)
 - Month 5
 - Split 7 VM instances to scope = subscriptionA
 - Result:
 - 1 Reservation Order: abc123
 - 1 Reservation ID: 222 (3VM's)
 - 1 Reservation ID: 333 (7VM's)

22

It is not you have bought RI that it is guaranteed you have the capacity to use that compute power



On-demand capacity reservation



Enables IT organizations to reserve compute capacity for a virtual machine size in any public Azure region.

The reservation can be for any length of time and supports most VM sizes

To guarantee you have capacity in a specific data center



Capacity reservation



- Defined by: VM size, Location, Quantity
- PAYG, can be deployed/deleted at any time, no term commitment
- Can be combined with reserved instances to avail term commitments discounts.

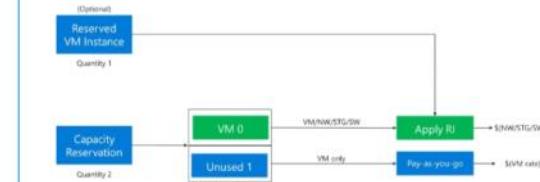




Capacity reservation



- Defined by: VM size, Location, Quantity
- PAYG, can be deployed/deleted at any time, no term commitment
- Can be combined with reserved instances to avail term commitments discounts.



Priced at the same rate as the underlying VM size,
Even if the reservation isn't used

24



Capacity Reservation vs Reserved Instances



	On-demand Capacity Reservation	Reserved Instances
Term	No term commitment required. Can be created and deleted as per the customer requirement	Fixed term commitment of either one-year or three-years
Billing discount	Charged at pay-as-you-go rates for the underlying VM size	Significant cost savings over pay-as-you-go rates
Capacity SLA	Provides capacity guarantee in the specified location (region or availability zone)	Does not provide a capacity guarantee. Customers can choose "capacity priority" to gain better access, but that option does not carry an SLA
Region vs Availability Zones	Can be deployed per region or per availability zone	Only available at regional level

25

Storage reservations



A discount on capacity for block blobs and for Azure Data Lake Storage Gen2 data



Fixed capacity for the term of the reservation



Available as a 1 or 3-year offer, for 100TB or 1PB



Discount is hourly; use it or lose it

BUYING PROCESS

Buy in portal – based on region, access tier and redundancy options.
Pay upfront or monthly.
Buy in blocks of 100TB or 1PB. You can combine blocks.
Example: 2 x 100TB = 200TB reservation.
No splitting capacity across subscriptions.
No auto renewals. You receive 30-day and day of expiration notifications.

BUILT-IN FLEXIBILITY

Exchange based on unused portion.
Prorated value applies to new reservation.
New reservation must be equal or greater in value.

26

SQL Database reservations



A discount on the compute cost (vCores) of SQL DBs – single, elastic or managed instance



Available as 1 or 3-year offer



Discount is hourly; use it or lose it



Can apply to concurrent databases

BUYING PROCESS

Buy in portal.
Pay upfront or monthly billing.
Buy based on total amount of compute (vCores) used within a region and deployment type.
Does not auto renew.

BUILT-IN FLEXIBILITY

Exchange based on unused portion.
Prorated value applies to new reservation.
New reservation must be equal or greater in value.
Immediate termination of reservation available for up to \$50K per 12 months (12% ETF may apply).

App Services reservations



A discount on Azure App Services Isolated Stamp Fee



Available as 3-year offer only



Discount is hourly; use it or lose it



Available for purchase in portal



Pay upfront or with monthly billing



Does not auto renew

BUYING PROCESS

Buy based on number of markup units which is equal to the number of Azure Data Explorer engine cluster cores in production.
Pair with VM reservations to reduce the cost of your Azure Data Explorer Cluster.

BUILT-IN FLEXIBILITY

Exchange based on unused portion.
Prorated value applies to new reservation.
New reservation must be equal or greater in value.
Immediate termination of reservation available for up to \$50K per 12 months (12% ETF may apply).

Azure savings plan for compute

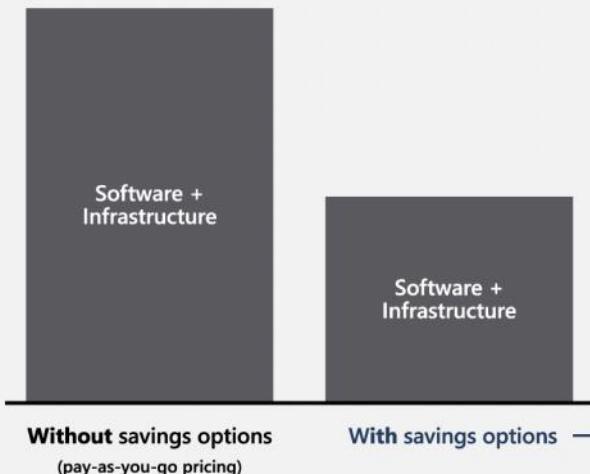
Ewoud Smets



Expanding our cost saving options for Azure compute

Accelerate cloud adoption with new growth opportunities

Compute cost



Savings options

Software

Windows Server and SQL Server workloads → Bring your existing on-premises licenses to Azure with **Azure Hybrid Benefit**

Infrastructure

Stable, predictable workloads → Get lower prices on a specific virtual machine in a particular Azure region with **Reserved Instances**

Interruptible workloads → Access low-cost unused Azure compute capacity at scale with **Spot Virtual Machines**

NEW!

Consistent compute spend → Unlock lower prices on compute services by committing to spend a fixed hourly amount with **Azure savings plan for compute**

Saving plan is cross region not like RI

Unlock significant cost savings



Get better pricing across a broad set of compute services worldwide

- Save up to 65% compared to pay-as-you-go prices on select compute services
- Achieve greater savings with longer-term plans
- Save even more by combining with other saving options such as Azure Hybrid Benefit



Example: M32dms v2 in Japan East

Pay-as-you-go

\$10/hour

Savings plan (1-year)

\$7/hour

Save 30%

Savings plan (3-year)

\$3.5/hour

Save 65%

Note: Pricing is for illustrative purposes only and are not actual

Optimize savings automatically

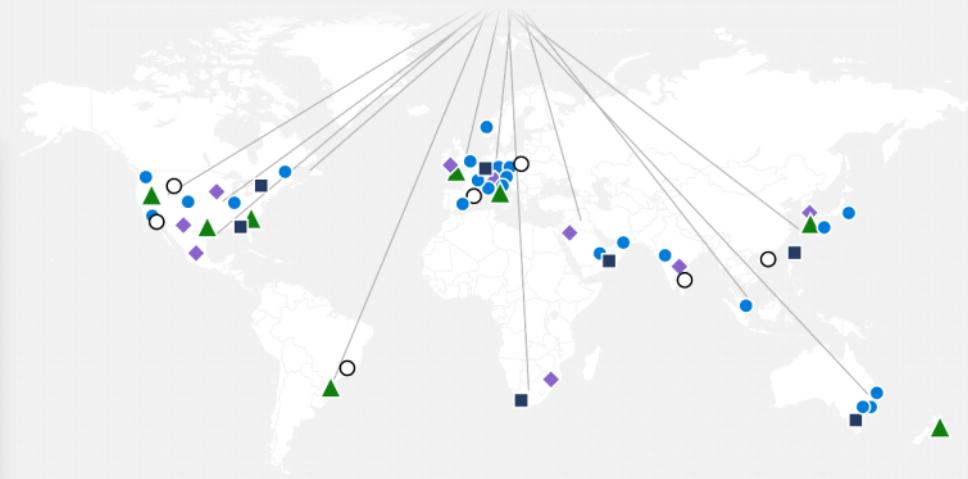


Compute usage across the world is covered by the plan at reduced prices, helping you get more value from your cloud investment

- Save on compute usage regardless of region, instance series, or operating system
- Biggest savings are automatically applied first, allowing you get the best value from your hourly commitment
- Modernize workloads and continue saving as needs change over time

For illustrative purposes only. Refer to the Azure geographies page for global availability.

Azure savings plan for compute



Compute products and services covered by the plan:

- Azure Virtual Machines*
- ▲ Azure Functions Premium Plan
- Azure Container Instances
- Azure Dedicated Host
- ◆ Azure App Service**

*Does not include BareMetal Infrastructure, A, G, and GS series.

**App Service includes only upgraded premium and isolated services (Premium v3 and Isolated v2)

Save on your terms



Quick and easy to purchase with flexible plan options to fit customers' needs

- 1 Save on compute usage by choosing a 1- or 3-year term

The screenshot shows the 'Add a plan' page in the Microsoft Azure portal. The 'Term length' section is highlighted with a blue box and a circled '1'. The '1 year' radio button is selected. Other options like '3 years' and 'All upfront' are shown but not selected.

Example presented for illustrated purposes only

Save on your terms



Quick and easy to purchase with flexible plan options to fit customers' needs

- 1 Save on compute usage by choosing a 1- or 3-year term
- 2 Get help setting the optimal hourly commitment amount with personalized recommendations based on your recent usage

The screenshot shows the 'Add a plan' page in the Microsoft Azure portal. The 'Hourly commitment in USD' input field is highlighted with a blue box and a circled '2'. The value '5.00' is entered in the field. Below it, the 'Billing frequency' section shows 'Monthly' selected.

Example presented for illustrated purposes only

Save on your terms



Quick and easy to purchase with flexible plan options to fit customers' needs

- 1 Save on compute usage by choosing a 1- or 3-year term
- 2 Get help setting the optimal hourly commitment amount with personalized recommendations based on your recent usage
- 3 Enjoy flexible payment options—pay all upfront or monthly at no extra cost

Microsoft Azure

Home > Cost Management + Billing > Contoso Billing Profile > Add a plan

Basics Review + buy

Savings plan helps you save money on Azure products and services but with additional flexibility. By committing to a consistent amount of usage for 1 or 3 year terms, you receive significant savings on compute resource as you use them.

Name * Compute_SavingsPlan

Billing subscription * ContosoSubscription

Term length * 1 year

Hourly commitment in USD * 5.00

Billing frequency * Monthly

Apply to any eligible resource * Shared across the subscription's billing scope (Contoso Billing Profile)

Cost summary
USD 3,650.00/mo
USD 43,800.00 total

See details

Next: Review + buy

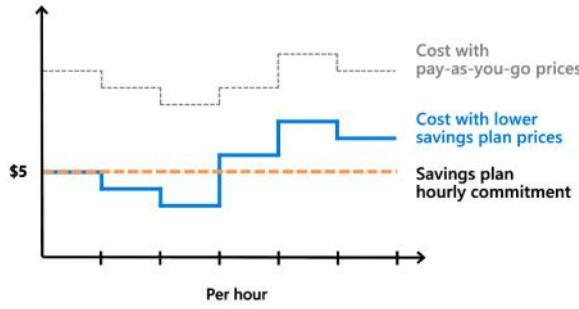
Example presented for illustrated purposes only

Purchasing an Azure savings plan for compute

How Azure savings plan for compute works | example



Review personalized recommendations in Azure portal based on recent usage and consider future needs to determine the optimal hourly commitment after savings are applied.



Select a 1-year savings plan for \$5 per hour to be applied across entire account.

Total commitment dollar value is \$43,800.

$$\begin{aligned} &\$5 \text{ per hour} \\ &24 \text{ hours per day} \\ &\times 365 \text{ days per year} \\ &\underline{\$43,800 \text{ amount due}} \end{aligned}$$

Choose to pay \$43,800 upfront or \$3,650 monthly for no extra cost.



Example presented for illustrated purposes only, not actual pricing and spend.

Purchasing an Azure savings plan for compute

Azure Portal

The screenshot shows the Azure Portal's cost management interface. On the left, there's a sidebar with various navigation options like Overview, Access control (IAM), Cost alerts, Budgets, Advisor recommendations, Billing, Invoices, Payment methods, Reservation transactions, Invoice sections, Products + services, Azure subscriptions, Recurring charges, Reservations + Hybrid Benefit, and Savings plans. A red arrow highlights the 'Savings plans' link. The main area displays 'Amount due' (\$1,011.82), 'Upcoming invoices' (Billing period 9/1/2022 - 9/30/2022, Pre-tax total so far \$9.93), and 'This month's top products by charges'. At the bottom, there are 'Pay now' and 'View invoices' buttons.

Azure Advisor

The screenshot shows the Azure Advisor interface. It has tabs for Overview, Advisor Score (presented), and Recommendation Status (Active). Under the 'Recommendations' tab, there's a list with 'Cost' selected. Other items include Security, Reliability, Operational excellence, Performance, and All recommendations. Below this, there are sections for Monitoring, Configuration, and Settings. A red arrow points to the 'Cost' link. A yellow box highlights a specific recommendation: 'By virtual machine reserved instance to save money over pay-as-you-go costs'.

For illustrative purposes only.

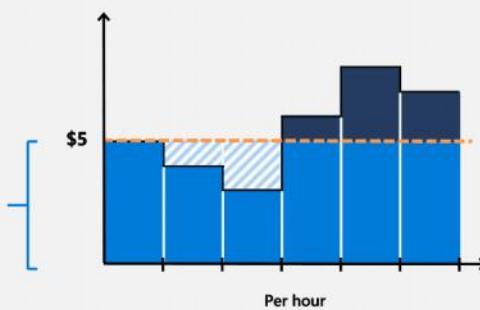
Using the Azure savings plan for compute

How Azure savings plan for compute works | example

Savings start immediately and are automatically applied every hour as you use select compute products and services, regardless of Azure region, instance series and operating system. You'll get lower saving plan prices on usage up to their \$5 hourly commitment.

If usage is at or below \$5 per hour

- Billed at lower prices & covered by the plan's hourly commitment.
- No additional costs are incurred.
- Note: You'll spend at least \$5 every hour no matter your usage.



If usage is above \$5 per hour

- First \$5 of usage is billed at lower prices & covered by the plan's hourly commitment.
- Amount above \$5 billed at pay-as-you-go prices and added to invoice separately.

Example presented for illustrated purposes only, not actual pricing and spend

03 - Options for different usage needs and patterns

Aligning saving option to fit customer needs

Cost saving options for different compute usage needs and patterns



Azure savings plan for compute

Most flexible savings for dynamic workloads while accommodating for planned or unplanned changes



Reserved Instances

Greatest cost savings for stable, predictable workloads with no planned changes

Savings compared to pay-as-you-go

Save up to 65%

Save up to 72%*

Commitment type

Spend a fixed hourly dollar amount on compute services collectively (e.g. Spend \$5/hour on compute services for 1 year)

Usage of a specific virtual machine type in a particular Azure region (e.g. D2v4 virtual machine in Japan East for 1 year)

Savings apply

Across select services globally, up to the hourly commitment

Directly to the identified compute service in a particular region

Term

1 or 3 year

1 or 3 year

Payment options

Upfront or monthly

Upfront or monthly

Cancellation

No cancellations

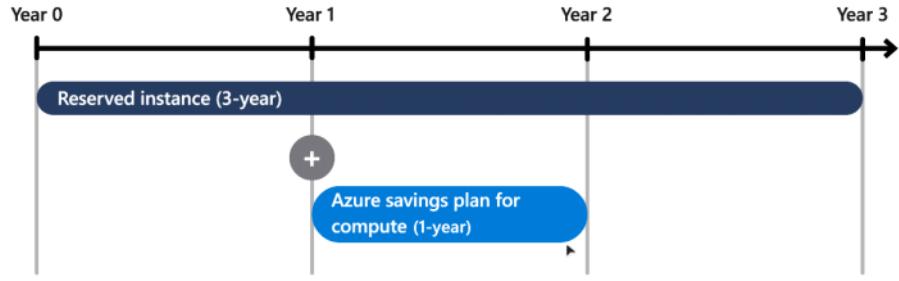
Up to \$50,000 USD

*The 72 percent saving is based on one M32ts Azure VM for SUSE Linux Enterprise + 24x7 Support OS in the West US 2 region running for 36 months at a pay-as-you-go rate of ~\$1,976.11/month; reduced rate for a 3-year reserved instance of ~\$552.85/month. Azure pricing as of February 22, 2022. Prices subject to change. Actual savings may vary based on location, instance type, or usage.

Customers may have both Azure savings plan for compute and Reserved Instances

We automatically maximize customer benefit and savings across eligible usage each hour

- When usage can be covered by either Reserved Instances or Azure savings plans for compute, reserved instances are used first, as they provide greater savings and have a more targeted scope
- Azure savings plan for compute will apply to the remaining eligible usage until the commitment is fully consumed
- Once a Reserved Instance or Azure saving plan for compute is fully consumed or expired, you will then be billed on a pay-as-you-go basis



Each term is unique and based on date of purchase

Shadowing Arnold WAF Cost Optimization Assessment

Thursday, January 26, 2023 5:04 PM

Not gonna take a lot of your time.
Going to go through this, so you know what you need

For now, I just want to show you what traditionally is a scoping call to get you ready for what to expect

Well-Architected Cost Optimization Assessment

Scoping Call

Conditions and terms of use

© Microsoft Corporation. All rights reserved.

You may use these training materials solely for your personal internal reference and non-commercial purposes. You may not distribute, transmit, resell or otherwise make these training materials available to any other person or party without express permission from Microsoft Corporation. URL's or other internet web site references in the training materials may change without notice. Unless otherwise noted, any companies, organization, domain names, email addresses, people, place and events depicted in the training materials are for illustration only and are fictitious. No real association is intended or inferred. THESE TRAINING MATERIALS ARE PROVIDED "AS IS"; MICROSOFT MAKES NO WARRANTIES, EXPRESS OR IMPLIED IN THESE TRAINING MATERIALS. 1

1 For a more detailed description of confidentiality, see the slide at the end of the presentation.

Microsoft Confidential

2

This is for your eyes only.
A lot of the recommendations

The messaging is this is private engagement. The thing that is not mentioned, is that there is no recording of these workshops.
I'm going to be the one sending out the meetings and managing that, as we get closer to the dates.
Any concerns with that?

Agenda



Introduction to Well-Architected Cost Optimization Assessment



Engagement Agenda



Audience and Prerequisites



Logistics and Next Steps



The last day, you can send the meeting for the executive closeout call

We are going to go about what we're doing how we're doing,....

Today is the intro about what it is

Introduction

Well-Architected Cost Optimization Assessment Overview

Microsoft Confidential

4

WACOA short for

Overview

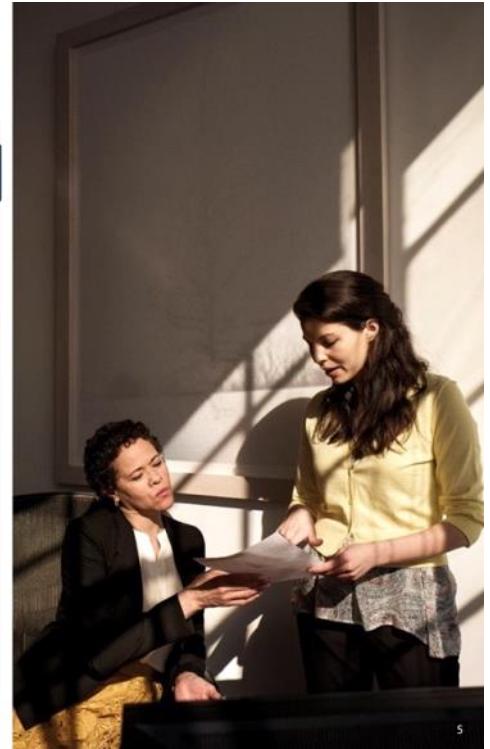
Microsoft Azure Well-Architected Framework

- Architecture guidance and best practices, created for architects, developers and solution owners, to improve the quality of their workloads, based on 5 aligned and connected pillars

Cost Optimization	Operational Excellence	Performance Efficiency	Reliability	Security

<https://aka.ms/architecture/framework>

Microsoft Confidential



5

On the first day I'll spend a few minutes explaining these as there will be non-technical people in the call.

All the guidance come from there, all the guidance that comes from this engagement comes from here.

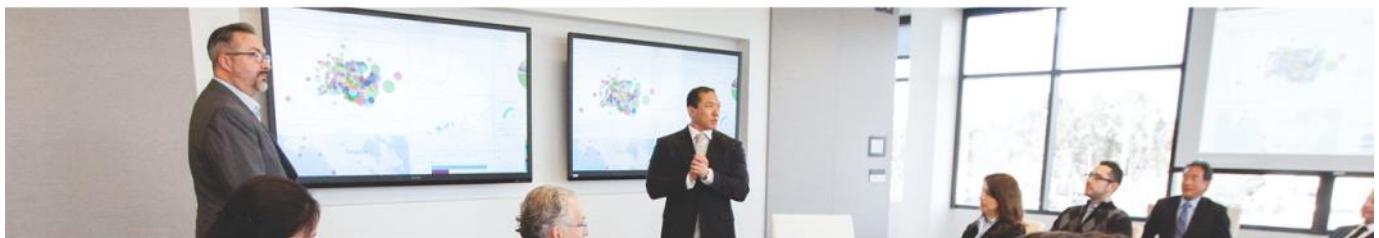
What is specifically this assessment:

These are go back motion, assessments.

The point of this, you already have workloads in the cloud, we use this to go back, to do things right, to evaluate the cost of the workloads. It will help you eliminate waste, be more efficient, gives you full visibility into where money is spent.

We give you a couple of things,

Overview



What is a Well-Architected Cost Optimization Assessment?



- The Well-Architected Cost Optimization Assessment assesses an Azure workload against the Cost Optimization pillar of the Microsoft Azure Well-Architected Framework.
- The main goal of this delivery is to assess your Azure environment and maximize its efficiency; help you track costs; and recommend optimizations that will improve the cost profile of your environment.
- This 3-day engagement begins with a deployment of ACM PowerBI dashboard, Reservation Dashboard and a Workbook which looks for underutilized and idle resources followed by a WAF Cost Optimization Survey Q/A.
- The deliverables include a final report with findings and suggestions.

Microsoft Confidential

6

BI Reservation db, and a powerful workbook,...

After this, we do the meat and potatoes for this and go through the WAF assessment review. It is a survey, a Q&A we are going to do together. You get a final report, all the assessments the knowledge, the tools,...

Power BI Question...

Engagement Agenda

Engagement Approach

Microsoft Confidential

7

What will be Assessed?

Delivery Scope



- One Workload selection
 - A customer workload is a collection of assets (infrastructure, applications, and data) that supports a common business goal or the execution of a common business process.
- Up to 8 Subscriptions in the same tenant



Delivery flow

Discovery from the selected Azure subscriptions to identify potential optimizations based on a questionnaire, Azure Advisor, ACM PowerBI Dashboard, Reservation Dashboard, and a Workbook.



Out of Scope

Guarantee cost reduction or potential savings
Remediation during the assessment delivery
Customization of dashboards

Microsoft Confidential

8

Scope is 1 workload, we gotta choose one. Sometimes not every cmr has thought about it. Maybe not fully fleshed out. I'm very flexible, if you do have something in mind that we can target. Everything that makes the workload tick, the compute, data, storage, networking,...

We can look at the workload and look at the subs where it lives, then you want to look at a different sub that is not part of the workload.

Shared Services,....

At the end I am going to ask you to send an email and send me the subs it makes my work easier for the report.

We are going to do a discovery on those subscriptions, we are going to identify potential optimizations, we're gonna look at these tools and we're gonna scope those tools then the workload, that's gonna be solely the questionnaire. It's an online questionnaire. As we go through the questionnaire we go through the workload.

What is out of scope: no guarantee of any cost reductions (it could be you're doing everything right) we're not gonna be touching or changing anything. No worries of change management, no remediations. Preferably not because it will throw things off.

After the workshop you can take it onboard and do remediations.

In terms of dashboards, power bi, the workbook is a json script. For the powerbi there is support for it.

Those tools are given to you as is.

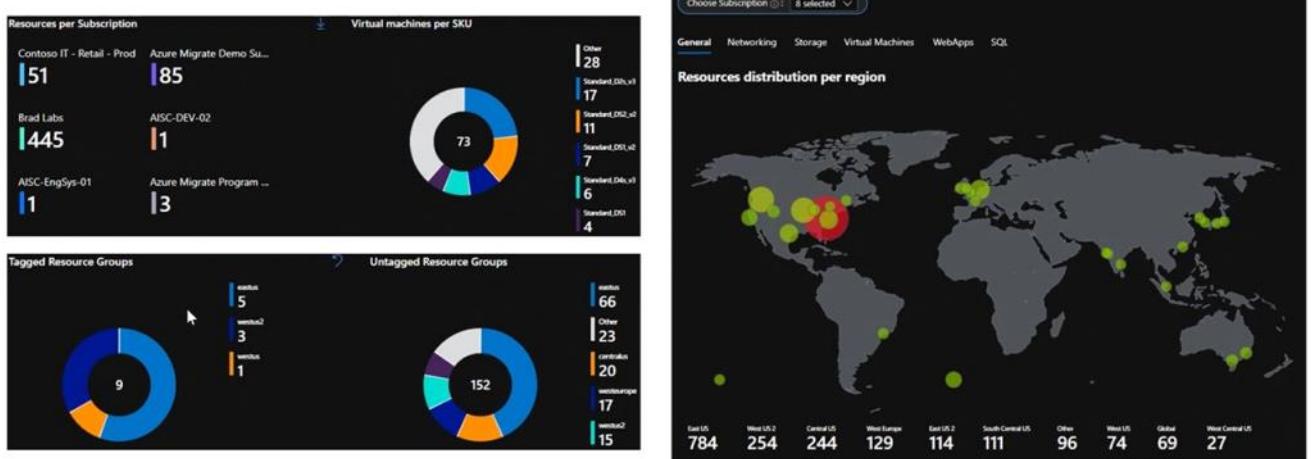
Let us look at these tools:

It is essentially a single pane of glass instead of going scavenging in different sections, we are giving it to you in one place.

It pulls data from your subscriptions.

Well-Architected Cost Optimization Azure Monitor Workbook

An Azure Monitor Workbook will be deployed. It helps identify waste and resources optimization opportunities that will enable you to maximize the efficiency of your cloud spend.

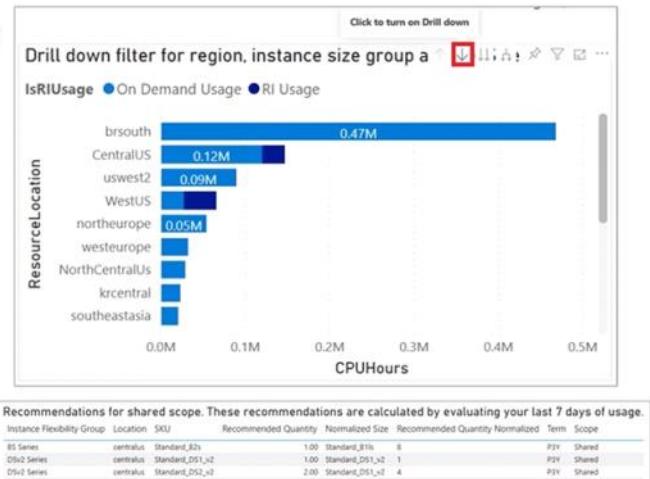
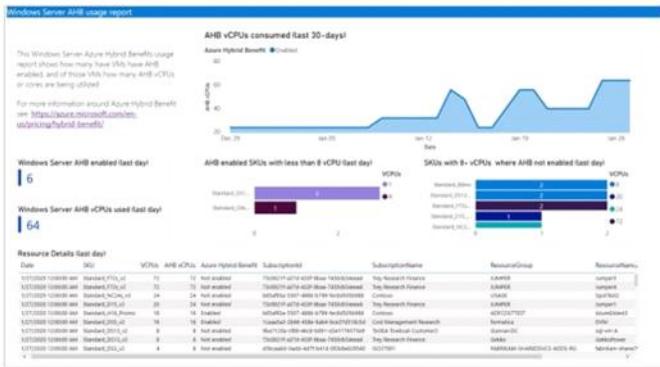


Publicly available dashboard. Needs 1 power bi pro license. No license? We can do 30 days trial. The plan is to do it together in the workshop but we can do it ahead of time, you can email me, no issues with that that way we can hit the ground running from day 1

Azure Cost Management Power BI Application

The Cost Management Application provides insights into which subscriptions or resource groups consume the most resources. It also provides visibility into spending trends and overall usage.

Refer to: <https://aka.ms/costmgmt/ACMApp>



Explain this,....

Do you have access have you seen this?

Does it look familiar? If yes,...

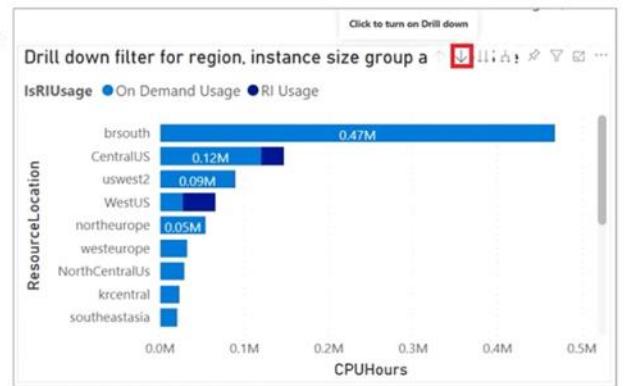
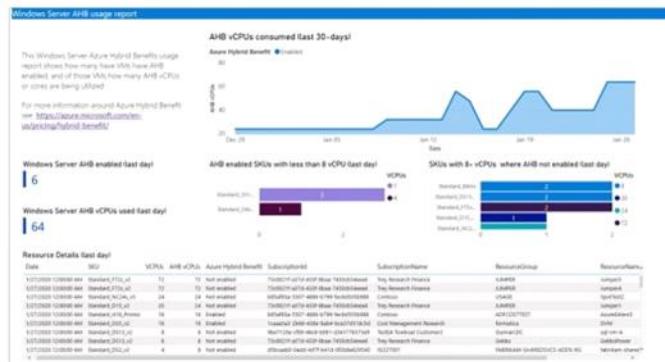
If it is already running, we can do that.

<https://appsource.microsoft.com/en-us/product/power-bi/costmanagement.azurecostmanagementapp?exp=upn&partnerid=msft>

Azure Cost Management Power BI Application

The Cost Management Application provides insights into which subscriptions or resource groups consume the most resources. It also provides visibility into spending trends and overall usage.

Refer to: <https://aka.ms/costmgmt/ACMApp>



Recommendations for shared scope. These recommendations are calculated by evaluating your last 7 days of usage.						
Instance Flexibility Group	Location	SKU	Recommended Quantity	Normalized Size	Recommended Quantity Normalized	Term Scope
D5 Series	centralus	Standard_D8s_v2	1.00	Standard_D8s_v2	0	P3Y Shared
D6v2 Series	centralus	Standard_D6s_v2	1.00	Standard_D6s_v2	1	P3Y Shared
D6v2 Series	centralus	Standard_D6s_v2	2.00	Standard_D6s_v2	4	P3Y Shared
D2v2 Series	centralus	Standard_D1_v2	2.00	Standard_D1_v2	2	P3Y Shared
D2v2 Series	centralus	Standard_D1_v2	2.00	Standard_D1_v2	8	P3Y Shared
D2v2 Series High Memory	centralus	Standard_D14_v2	2.00	Standard_D14_v2	16	P3Y Shared
Total			10.00			

Microsoft Confidential

They have a finops analyst and been launching this practice 6 months ago.
The customer wants to see this as a benchmark for them. He is curious at what this is.

Arnold: says yes. The one activity assessment, will go with the rational then he's going to send a sample report.

Reservation Recommendation PowerBI Dashboard

PowerBi Dashboard reports on all services with reservation opportunity with a lookback period of 60 days.

- Breakeven point (months)
- Estimated RI Savings
- Publish to workspace for internal visibility



Charges covered by reservation

- Reserved Virtual Machine Instance
- Azure Storage reserved capacity
- Azure Cosmos DB reserved capacity
- Azure Data Factory data flows
- SQL Database reserved vCore
- Azure Synapse Analytics
- Azure Databricks
- App Service stamp fee
- Azure Database for MySQL
- Azure Database for PostgreSQL
- Azure Database for MariaDB
- Azure Data Explorer
- Azure Cache for Redis
- Azure Dedicated Host
- Azure Disk Storage reservations

The cool thing is this one reports on all oppts , here you have not only azure vms cosmos, synaps, databricks cache for redis ,....

We have a site we could link and see the entirety of the oppties. It will report from all of that. I'm going to be getting that for the account team. I can send it ahead of time and hit the ground running day 1.

It is stale data. We are going to get back 60days. When you look at this, and let it sit there and look at it 6 months later. If you want to get refreshed data, you can reach out to me, We can get you the data in a new csv file....

Who's Who | SEIC's Microsoft Account Team

Core Account Team



Damon Young
Account Executive
damyoung@microsoft.com



Lori Kim
Senior CSAM
lorikim@microsoft.com



Angelyn Koblegrad
Commercial Executive
angelynk@microsoft.com

MW / Apps & Innovation	Azure	Security / Compliance / Surface	Unified Support / CSM
Jonathan Herbstman Biz Apps Sr. Specialist joherbst@microsoft.com	Abi Egberongbe Sr. CSA – Azure PaaS DSE aegberongbe@microsoft.com	James Singh Director, Cyber Security and Threat Intelligence, O365 & Azure jimmysin@microsoft.com	Neha Ozga Incident Manager v-negoza@microsoft.com 24x7 Sev A Management: 1.888.859.7425
Craig Canton Dir SSP MW crcanton@microsoft.com	Jatin Grover Dir Specialist – Apps/Infra SSP jagrover@microsoft.com	Cheryl Gary Compliance Technical Specialist for Modern Workplace & Security chgarys@microsoft.com	Kevin Marquez Enterprise Support Sales Specialist kemarizu@microsoft.com
Kamal Vellore Yuvaraj Apps & Innovation SSP kayvara@microsoft.com	Andrew Korin Dir Specialist – Data/AI SSP andrewkorin@microsoft.com	Paige Oliver Surface SSP paegeoliver@microsoft.com	Ben Katzma Sr. CSM bekatzma@microsoft.com

Question: does it include savings plan?

We don't have it yet.

Azure Well-Architected Review

Welcome to Microsoft Assessments

Customers can evaluate their business strategies and receive curated guidance from Microsoft Assessments.

Available assessments

Azure Well-Architected Review

Examine your workload through the lenses of reliability, cost management, operational excellence, security and performance efficiency [30 minutes].

Cloud Journey Tracker

Identify your cloud adoption path based on your needs with this tracker and navigate to relevant content in the Cloud Adoption Framework for Azure. [15 mins]

Azure Well-Architected Review

Examine your workload through the lenses of reliability, cost management, operational excellence, security and performance efficiency [30 minutes].

Assessment name *

Azure Well-Architected Review - Sep 14, 2021 - 5:08:55 PM

Azure Advisor Recommendations

Sign in with your Azure Portal Credentials
to allow Azure Advisor recommendations to be included in this assessment

Sign in

Choose your interests

Reliability

In a cloud environment you scale out rather than buying higher-end hardware to scale up. While it's always desirable to prevent all failure, focus your efforts in minimizing the effects of a single failing component.

Security

Security is one of the most important aspects of any architecture. It provides confidentiality, integrity, and availability assurances against deliberate attacks and abuse of your valuable data and systems. Losing these assurances can negatively impact your business operations and revenue, as well as your organization's reputation in the marketplace. In the following series of articles, we'll discuss key architectural considerations and principles for security and how they apply to Azure.

Cost Optimization

An effective architecture achieves business goals and ROI requirements while keeping costs within the allocated budget.

<https://aka.ms/architecture/review>



Microsoft Confidential

This is the well architected review, let me show you a sample.

Shows demo

Showing how the report looks like:

Executive Summary

Areas of focus

Number of recommendations per focus area:

-  7 Capacity & Service Availability Planning
-  5 Governance
-  4 Application Design

Capacity & Service Availability Planning

Top 5 out of 7 recommendations:



Focus Area relative weight

Relative weight indicates the average importance of recommendations in this section

59

[Consider removing idle Managed Disks](#)

[Review DV2 and DV3 VMs and consider upgrading to a more modern SKU](#)

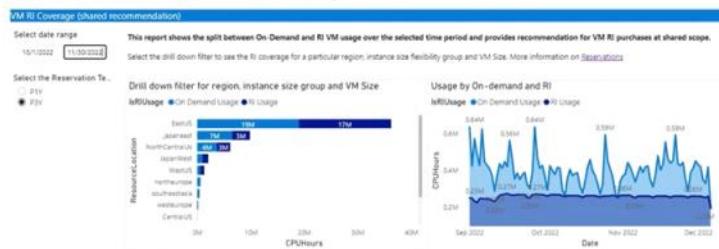
[Review Virtual Machines with low utilization](#)

[Consider using B-Series VMs for suitable workloads](#)

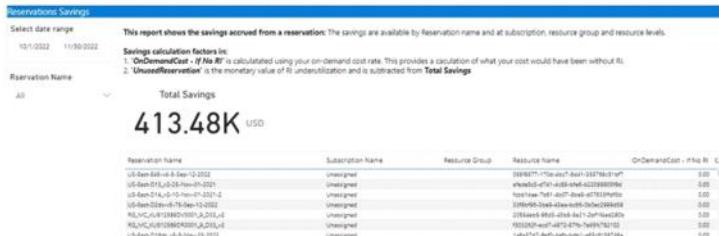
[Consider using Spot VMs for suitable workloads](#)



VM Reserved Instance opportunity



VM Reserved Instance usage



Subscription Observations

Priority	Type	Finding	Issues	Recommendations (Take Action)	Resources
Do First	Remove Waste	Consider removing idle Managed Disks	A managed disk that is not attached to any resources (i.e. a Virtual Machine or a AKS cluster) is considered idle and should be reviewed. Even though the resource is not in use, it is still charged.	Remove resources not in use. https://docs.microsoft.com/en-us/azure/virtual-machines/disks/find-unattached-disk	Review WACOA Workbook, idle disk
Do First	Reservations	Reservations opportunities are high for VMs, and several PaaS services provisioned in environment.	If you have consistent resource usage that supports reservations, buying a reservation gives you the option to reduce your costs.	Review and purchase reservations when needed. What are Azure Reservations? Microsoft Docs	Check Reservation Dashboard
Do First	Storage Account Upgrade	Analyze your storage usage and consider migrating it to Storage Account v2 to be able to use modern features such as data lifecycle management	V2 rates are lower and enable data tiering as well as other features, no downtime while upgrading	Review benefits of V2 storage https://docs.microsoft.com/en-us/azure/storage/common/storage-account-upgrade?tab=azureshell	Review WACOA Workbook, Storage. Review Azure Advisor
Re-Think	Azure Hybrid Benefit	Leverage AHB for Linux VMs Leverage AHB for SQL Databases Leverage AHB for Windows VMs	Hybrid benefit allows you to reuse licenses that you purchased for on-premises in Azure. Only pay for the infrastructure costs of the virtual machine because the licensing for Windows Server is covered by the Software Assurance benefit.	Review with internal teams and MS account team https://azure.microsoft.com/en-us/pricing/hybrid-benefit/	Review ACM PowerBI Dashboard. Compare against list from WACOA Workbook. Review Azure Advisor
Plan for	Resize and Upgrade VM's from Legacy SKU's	Review Virtual Machines with low utilization. Review DV2 and DV3 VMs and consider upgrading to a more modern SKU	Review and resize Virtual Machines with low utilization that are either flagged by the Advisor or identified during the assessment.	Resize machines https://docs.microsoft.com/en-us/azure/virtual-machines/sizes	Review WACOA Workbook, SKU and VM List. Review Azure advisor. Use performance/telemetry tools.

Microsoft Confidential

32

Executive Summary

Areas of focus to raise your Review Score

Number of recommendations per focus area:

Critical (0-33) Moderate (34-66) Excellent (67-100)

Capability Score

80

A cost-effective workload is driven by business goals and the return on investment (ROI) while staying within a given budget. The principles of cost optimization are a series of important considerations that can help achieve both business objectives and cost justification. A capability program will enable you to begin optimizing the core components needed to manage your cloud environment.

- 1 Deployment & Testing
- 8 Capacity & Service Availability Planning
- 6 Application Design
- 1 Health Modeling & Monitoring
- 1 Networking & Connectivity



Application Design

Top 5 out of 6 recommendations:

Excellent (0-33) Moderate (34-66) Critical (67-100)

Focus Area relative weight

Relative weight indicates the average importance of recommendations in this section

53

[Configure auto-scale policies for your workload \(both in and out\)](#)

[Define a capacity plan for your workload](#)

<https://learn.microsoft.com/zh-tw/architecture/framework/cost-optimize-autoscale>

[Consider selective backups for VMs](#)

[Use App Service Premium \(v3\) plan where possible](#)

[Choose appropriate region for workload deployments](#)



Shows also the slide of the deliverable:

Deliverables

Azure Monitor Workbook	Azure Cost Management (PowerBI)	Final Report
<p>WAF Cost Optimization Workbook</p> <ul style="list-style-type: none"> Resources per subscription Resource & Resource Group tagging VM skus Networking Storage App Service Plans SQL Server / MI / DB AHUB Log Analytics Data Ingestion Orphaned resources Windows & SQL HUB Dv2 to Dv3 resize opportunity App Service state (Web & Functions), VM state (Stopped/Deallocated) Storage Accounts and Recovery Services Vaults Replication Storage Accounts not V2 type 	<ul style="list-style-type: none"> Account Overview Usage by Subscriptions and Resource Groups Top 5 Usage drivers Usage by Services Windows Server AHB Usage VM RI Coverage (shared recommendation) VM RI Coverage (single recommendation) RI Savings, Chargeback, Purchases <p>Reservation Dashboard</p> <ul style="list-style-type: none"> Reservation Recommendations for all eligible services (Single and Shared) 1 and 3 year term breakdown Breakeven point (Months) 	Management-level closeout presentation of the findings and their impact to cost optimization.

Microsoft Confidential

13

Then the next thing we can do, it's optional

We have a ps script that works with azdo or gh takes the findings and puts it into a scrumboard agile experience you can take to assign tasks for people to complete and manage the actions that way

Either azure devops or github:

Azure DevOps Recommendations Import

The screenshot shows the Azure DevOps Backlog board for the 'WAF_V2_Demo Team'. The board is organized into columns: State, Effort, Business Value Area, and Tags. There are several items listed, including:

- Item 1: Epic - Application Design
- Item 2: Epic - Health Modeling & Monitoring
- Item 3: Epic - Networking & Connectivity
- Item 4: Epic - Security & Compliance
- Item 5: Epic - Operational Procedures
- Item 6: Epic - Deployment & Testing
- Item 7: Epic - Operational Model & DevOps
- Item 8: Epic - Governance
- Feature: Review and consider elevated security capabilities for Azure... (with a note: Make sure that all regulatory requirements are known and...)
- Feature: Ensure naming conventions and resource tagging for all...
- Item 9: Epic - Uncategorized

Each item has a detailed description and a list of tasks associated with it. For example, the 'Application Design' epic has tasks related to diagnostic logs, key vaults, and application configuration.

Microsoft Confidential

GitHub Recommendations Import

The screenshot shows the GitHub Issues page for the 'WAF_V2_Demo' repository. The issues are categorized into two main sections:

- Operational Excellence - Operational Procedures**: Last updated 11 minutes ago. Contains 1 open issue and 0 closed issues. Issues include:
 - #442942 Diagnostic logs should be enabled in App Service for 4 App services
 - #442943 Key Vault secrets should have an expiration date for 1 Virtual machine
 - #442943 Key Vault secrets should have soft delete enabled for 2 Key vaults
 - #442946 FTTS should be required in your Function App for 1 App service
- Security - Application Design**: Last updated 11 minutes ago. Contains 10 open issues and 0 closed issues. Issues include:
 - #442942 Consider storing application configuration in a dedicated management system like Azure Key Vault
 - #442943 Implement defenses that detect and prevent commodity attacks
 - #442944 Use CDNs to optimize delivery performance to users and obfuscate hosting platform from us

At the bottom of the page, there is a 'Filters' section and a 'Issues' search bar.

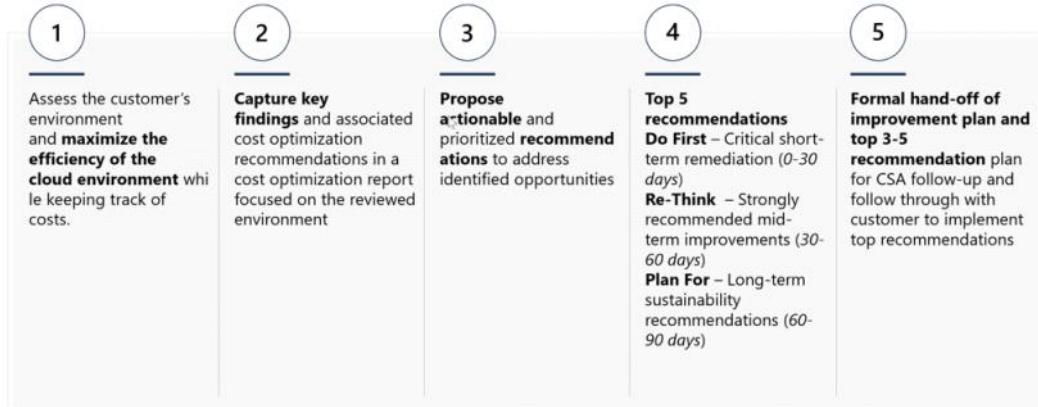
Microsoft Confidential

Explain the outcomes,

Based on this we are going to prioritize (he explains the do first rethink,...)

You'll see this in the report and last part is a formal handoff to the CSA.

Key Outcomes



Microsoft Confidential

16

It's 3 days,

First day can be 3-5 hours 2nd day can be 2-4 hours last day can be exec report could be 30m 1 or 2 hours. With some other cmrs it could be 2 days.

We do the deployments the first day, because it needs time to get the data sometimes we run into problems,...

Sample Agenda and High-Level Scope



Here you see who should be on the call,...

Especially for the workload , this gives you the chance to talk to each other,...it's great if you guys can get around the table and talk about this and I'll be there to assist.

Day 2 we can review all of the stuff you get from the dashboard. We can look at everything and start seeing what comes up.

The afternoon, I work independently on the report.

One of the reasons why I like to do it 3 days, what works for me from 9am to 2pm days1 etc...
From between 10am to 2pm has been working for me.

February 20th if you want we can fit it all into 2 days

Audience / Stakeholders

- Cloud Architect / Administrator
- Solution Owner
- Enterprise Admin
- Finance Owner
- Executive / Management Level (Executive Closeout Meeting)



Navigation icons: back, forward, search, etc.

Microsoft Confidential

19

One more thing, for powerbi db needs to have enterprise admin rights.
We need that person to pull the data. If you want to use a read only no problem, works as well.

Requirements and Prerequisites

Successful delivery of the engagement is dependent on customer involvement in all aspects of the engagement. Customer must ensure that the below requirements are provided. Without them, you won't be able to deliver it successfully. Customer will provide the resources, and undertake the following specified responsibilities:

- Minimum "Read" access to all subscriptions in scope (Deploy Azure Monitor Workbooks)
- Enterprise Admin account for Azure EA (enterprise agreement) to deploy the Azure Cost Management PowerBI dashboard.
- Windows client machine with internet access and Office applications running [Microsoft Power BI desktop](#).
- Customer must reserve correct people to participate the knowledge sharing and hands-on activities, such as:
 - Azure Administrators or Architects
 - Those people should have the following skills:
 - Experience with Azure management portal
 - Background in Azure compute services
 - PowerShell / scripting
- Software Requirements: Power BI Pro License; Power BI Desktop; and Windows 10 version 14393.0 or higher

Navigation icons: back, forward, search, etc.

Microsoft Confidential

20

I'll send you all of this,

Option 2

Requirements and Prerequisites – Option 2

The customer can also create a cloud-only account and share its credentials with the Customer Engineer to be used during this engagement.

In this scenario, the customer will not need to be available during the entire delivery.

- User requirements:

- Minimum "Read" access to all subscriptions in scope;
- Billing-Reader Access to all subscriptions in scope

All other requirements related to the Dashboard (PowerBI pro license, Customer with access to the EA portal, etc..) remain valid. If the CE has been given access to the customer's environment, some tasks can be performed without customer's engagement.

Left this blank, Do you want to discuss this absorb it, look at what you want to target and then come back to me? Circle back to me.

Logistics and Next Steps

Engagement Date:

, 2023

Engagement Location:

Individual Teams Meetings to be sent out as we get closer to engagement date

Specific Topics of Interest:

Microsoft Confidential

23

If you have any topics specific cost related.

I'm the one that'll do the assessment for you.



Well-Architected Cost Optimization Assessment

Engagement Kick-Off
Presented by: Lauren Kirkwood
Date: 2/7

Conditions and terms of use

© Microsoft Corporation. All rights reserved.

You may use these training materials solely for your personal internal reference and non-commercial purposes. You may not distribute, transmit, resell or otherwise make these training materials available to any other person or party without express permission from Microsoft Corporation. URL's or other internet web site references in the training materials may change without notice. Unless otherwise noted, any companies, organization, domain names, email addresses, people, place and events depicted in the training materials are for illustration only and are fictitious. No real association is intended or inferred. THESE TRAINING MATERIALS ARE PROVIDED "AS IS"; MICROSOFT MAKES NO WARRANTIES, EXPRESS OR IMPLIED IN THESE TRAINING MATERIALS. 1

1 For a more detailed description of confidentiality, see the slide at the end of the presentation.

Agenda



Introductions



Overview



Engagement Agenda



Deployments



Survey



Microsoft Confidential

Introductions

Please introduce yourself and provide some background:



Your name



Your role



Current projects and/or activities
you've been working on



Microsoft Confidential

Overview

Microsoft Azure Well-Architected Framework

- Architecture guidance and best practices, created for architects, developers and solution owners, to improve the quality of their workloads, based on 5 aligned and connected pillars



<https://aka.ms/architecture/framework>

Microsoft Confidential



5

Overview



What is a Well-Architected Cost Optimization Assessment?



- The Well-Architected Cost Optimization Assessment assesses an Azure workload against the Cost Optimization pillar of the Microsoft Azure Well-Architected Framework.
- The main goal of this delivery is to assess your Azure environment and maximize its efficiency; help you track costs; and recommend optimizations that will improve the cost profile of your environment.
- This 3-day engagement begins with a deployment of ACM PowerBI dashboard, Reservation Dashboard and a Workbook which looks for underutilized and idle resources followed by a WAF Cost Optimization Survey Q/A.
- The deliverables include a final report with findings and suggestions.

Microsoft Confidential

6

What will be Assessed?

Delivery Scope

- One Workload selection
 - A customer workload is a collection of assets (infrastructure, applications, and data) that supports a common business goal or the execution of a common business process.
- All Subscriptions must be in the same tenant



Delivery flow

Discovery from the selected Azure subscriptions to identify potential optimizations based on a questionnaire, Azure Advisor, ACM PowerBI Dashboard, Reservation Dashboard, and a Workbook.



Out of Scope

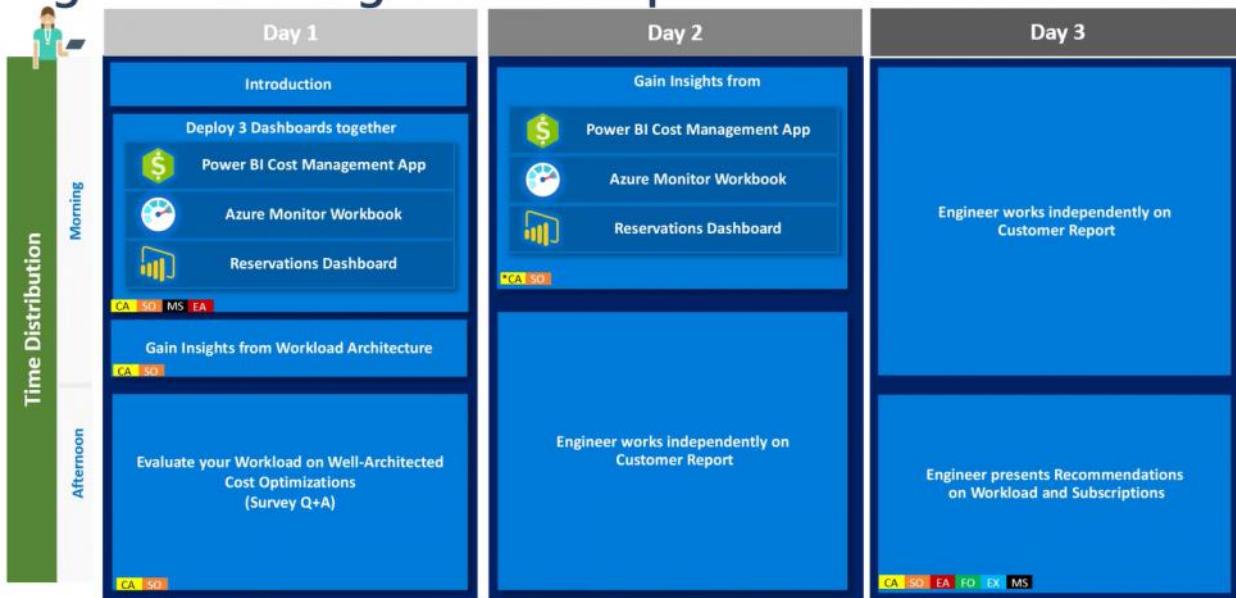
Guarantee cost reduction or potential savings
Remediation during the assessment delivery
Customization of dashboards



Microsoft Confidential

7

Agenda and High-Level Scope



*Can be performed independently by the Microsoft Engineer if access to the customer environment has been granted

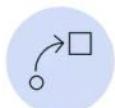
Cost optimization design principles



Choose the correct resources



Set up budgets and maintain cost constraints



Dynamically allocate and de-allocate resources



Optimize workloads, aim for scalable costs



Continuously monitor and optimize cost management

Design for cost



- Capture clear requirements.
- Estimate the initial cost.
- Define policies for the cost constraints defined by the organization.
- Identify shared assets.
- Plan a governance strategy.



- Check the cost of resources in various Azure geographic regions.
- Choose a subscription that is appropriate for the workload.
- Choose the right resources to handle the performance.
- Compare consumption-based pricing with pre-provisioned cost.
- Use proof-of-concept deployments.
- Choose managed services when possible.

Monitor cost

Monitor

- Create spend reports
- Use tags to build reports
- Use Azure built-in roles for cost
- Respond to alerts and have a response plan according to the constraints
- Adopt both proactive and reactive approaches for cost reviews
- Analyse the cost at all scopes by using Cost analysis
- Detect anomalies
- Use Visualization tools to analyse cost information.

Microsoft Confidential

12

Optimize cost

Optimize

- Review the underutilized resources
- Continuously take action on the cost reviews
- Use discount prices
 - Azure Reservations
 - Savings plan for Compute
 - Azure Hybrid Benefit
- Have a scale-in and scale-out policy
- Reevaluate design choices

Microsoft Confidential

13

Managing cloud spend across the organization is becoming increasingly difficult



IT executives

We need to better understand cloud spend across the company to ensure we are getting the most from our budget.



Finance teams

We need to improve forecast accuracy of cloud spend and drive more accountability from project owners.



Business units

We need to optimize the cloud usage and costs of our projects to show an even stronger ROI.

Current state of cloud financial management

Past	Current state	Challenges	Impact
Technology teams had to get approvals from Finance on what they will be spending, what the costs will be, and its outlook	Success in quicker cloud service deployment	Costs as after thought	<ul style="list-style-type: none">Unexpected spikes in costsDegrading profitability
	Determination to meet company goals and get services up and running	Inadequate communication	<ul style="list-style-type: none">Cross-organizational conflictsDelay in critical projects
	Faster and better product releases at lower costs	Lack of technical skillset	<ul style="list-style-type: none">Run into scaling issuesSlows or halts cloud adoption
	Faster migration to due to COVID-19	Misalignment on cloud governance	<ul style="list-style-type: none">Lack of team's collaboration to set a robust organizational-wide governance strategy

RACI card

Top Cost Optimization Challenges: Collaboration is a challenge as organizations transition to "shared responsibility" cloud management models

 Forecasting, shared costs	Before workload implementation it's very difficult to get good cost estimates, because most cloud vendors only show list price. Even when an actual price is given (such as during service creation), the prices often scale significantly based on load (which is unknown). - IT LEAD
 Reducing waste or unused resources	Reducing waste is difficult, because often projects are marked as complete and handed off to the operations team, but there is not always a clear task to review usage after a period of time to make sure it still makes sense. - IT LEAD
 Lack of Accountability	Teams are not taking cost optimization into consideration. If performance needs are not being met, teams are able to identify that and will resize resources appropriately... they are not checking to see if the same performance can be met using a smaller resource size. Teams are also not implementing other controls to optimize spend such as lifecycle policies, log retention policies, etc. - FINANCE
 Aligning Finance to IT teams	The biggest challenge that I face is determining whether the proposed architecture / resources are appropriately sized. Teams will generally guess on resource sizing without doing more due diligence and research. This is hard for me to confirm because it requires application specific knowledge. - FINANCE

Example RACI Chart

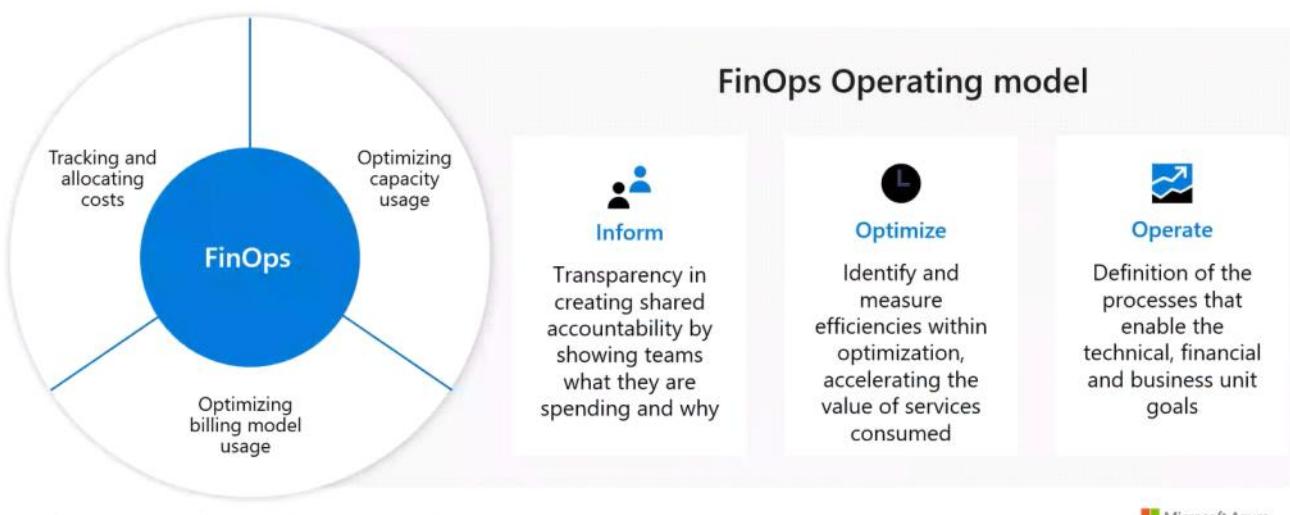
Project Deliverable (or Activity)	Project Manager	Strategist	Designer	Front End Developer	Back End Developer	Responsibility
Design site map	C	R	A	I	I	Accountable
Design wireframes	C	A	R	I	I	Responsible
Create style guide	A	C	R	C	I	Consulted
Code templates	A	I	C	R	C	Informed

Implications: As cloud cost optimization becomes more collaborative, organizations would benefit from guidance on roles and responsibilities (e.g. RACI matrix).

Microsoft Azure

FinOps is a framework that accelerates business value

Operating models for Technical and Financial leadership: Share the same language and processes to **monitor cloud spend and maximize the value** of cloud adoption



Just to summarize, its not about just saving money,...

FinOps Stakeholders

FinOps Team Structure

A Cloud Center of Excellence(CCoE)

FinOps Stakeholders

A Cloud Center of Excellence (CCoE) will span both technical & financial teams with the intent to:



Manage the cloud strategy



Manage Governance



Share best practices



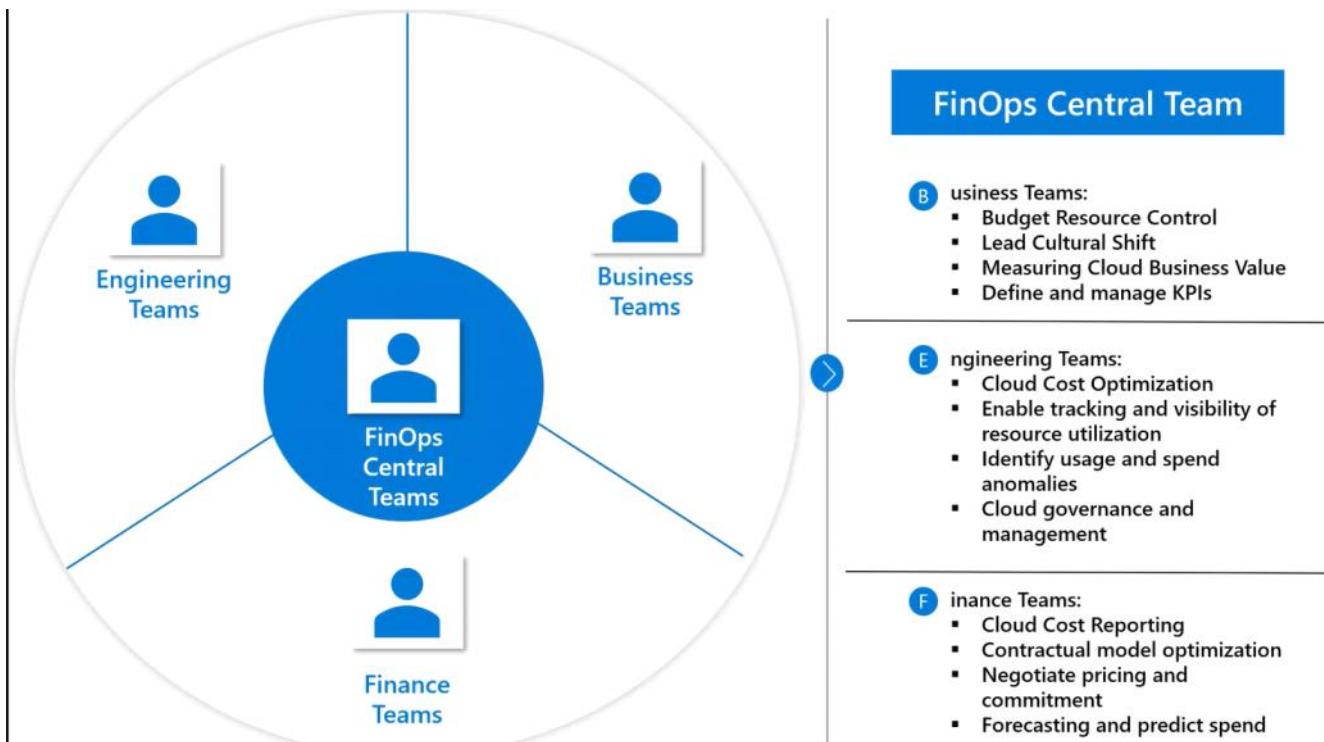
Infrastructure Changes



Cost and Pricing Optimization



Reference: [What is FinOps/FinOps Team Structure by Finops Foundation \(www.finops.org\)](http://www.finops.org)



FinOps Stakeholder Responsibility

Goal: Make cloud data ***visible, transparent, and actionable*** to entire organization to drive financial accountability and accelerate cloud business value realization

FinOps Teams	Responsibility	Actions
Engineering	<ul style="list-style-type: none"> ▪ Map and track cloud spend ▪ Identify units to be tracked ▪ Define a management & governance ▪ Set tagging strategy & compliance ▪ Lead FinOps Initiative 	<ul style="list-style-type: none"> ▪ Lead charge of FinOps Initiative ▪ Drive accountability for cloud spend ▪ Identify FinOps team stakeholders ▪ Analyze and track usage across environment and subscriptions
Finance	<ul style="list-style-type: none"> ▪ Define budgets and forecast ▪ Trending & variance analysis ▪ Direct Chargebacks ▪ Reservation and Commitment usage monitoring and alerting in place 	<ul style="list-style-type: none"> ▪ Analyze details on where cloud spend is deriving from and supply any financial outcomes that can be attributed to those cloud solutions
Business	<ul style="list-style-type: none"> ▪ Set KPIs and budgets throughout organization ▪ Create benchmark scorecards ▪ Build a FinOps team ▪ Aligning organization on FinOps ▪ Shift in Culture of Financial Accountability 	<ul style="list-style-type: none"> ▪ Gather team of Business leaders to better understand of how they use cloud solutions to drive business value ▪ Business ownership will also help you communicate any new requirements downstream.

FinOps | Inform

Build cost transparency and clarity through the Inform phase by identifying organizational units and mapping them to cloud resources for further analysis

Goal: Make cloud data **visible, transparent, and actionable** to entire organization

FinOps Teams	Responsibility	Actions
IT	<ul style="list-style-type: none">▪ Map and track cloud spend▪ Identify units to be tracked▪ Define a management & governance▪ Set tagging strategy & compliance▪ Lead FinOps Initiative	<ul style="list-style-type: none">▪ Lead charge of FinOps Initiative▪ Drive accountability for cloud spend▪ Identify FinOps team stakeholders▪ Analyze and track usage across environment and subscriptions
Finance	<ul style="list-style-type: none">▪ Define budgets and forecast▪ Trending & variance analysis▪ Direct Chargebacks▪ Reservation and Commitment usage monitoring and alerting in place	<ul style="list-style-type: none">▪ Analyze details on where cloud spend is deriving from and supply any financial outcomes that can be attributed to those cloud solutions
Business	<ul style="list-style-type: none">▪ Set KPIs and budgets throughout organization▪ Create benchmark scorecards▪ Build a FinOps team▪ Aligning organization on FinOps▪ Shift in Culture of Financial Accountability	<ul style="list-style-type: none">▪ Gather team of Business leaders to better understand of how they use cloud solutions to drive business value▪ Business ownership will also help you communicate any new requirements downstream.

FinOps | Optimize

Implement some high-value/low-effort optimizations in the Optimize phase to build experience and engagement for future, more involved activities

Goal: Provide actionable recommendations to realize savings opportunities and increase efficiency in their cloud environment

FinOps Teams	Responsibility	Actions
IT	<ul style="list-style-type: none">▪ Overall spend optimization process▪ Determine product efficiency (ex. refactor, re-size, re-architect)▪ Leverage Billing constructs (Spot, Reserved Instances)	<ul style="list-style-type: none">▪ Rightsizing instances▪ Deletion of unused resources▪ Create Stop/Start of resources▪ Commitment management▪ Continous rightsizing▪ Supplier price management
Finance	<ul style="list-style-type: none">▪ Create priorities for areas to target in optimization▪ Analyze spending trends and variations▪ Start to manage and track budgeting▪ Determine accurate cloud spend forecast models	<ul style="list-style-type: none">▪ Partner with IT team to analyze and track billing data to determine cloud spend and forecasting▪ Export cost reports for invoicing▪ Manage usage and cost of cloud subscription▪ Customer service charges such as chargeback to departments
Business	<ul style="list-style-type: none">▪ Monitor the effectiveness of optimization▪ Tracking FinOps KPIs▪ Driving accountability amongst the Team	<ul style="list-style-type: none">▪ Continue to build cultural shift and drive accountability to be efficient and effective in your cloud environment

FinOps | Operate

Enabling cross-units to create effective cloud spend management and governance policies

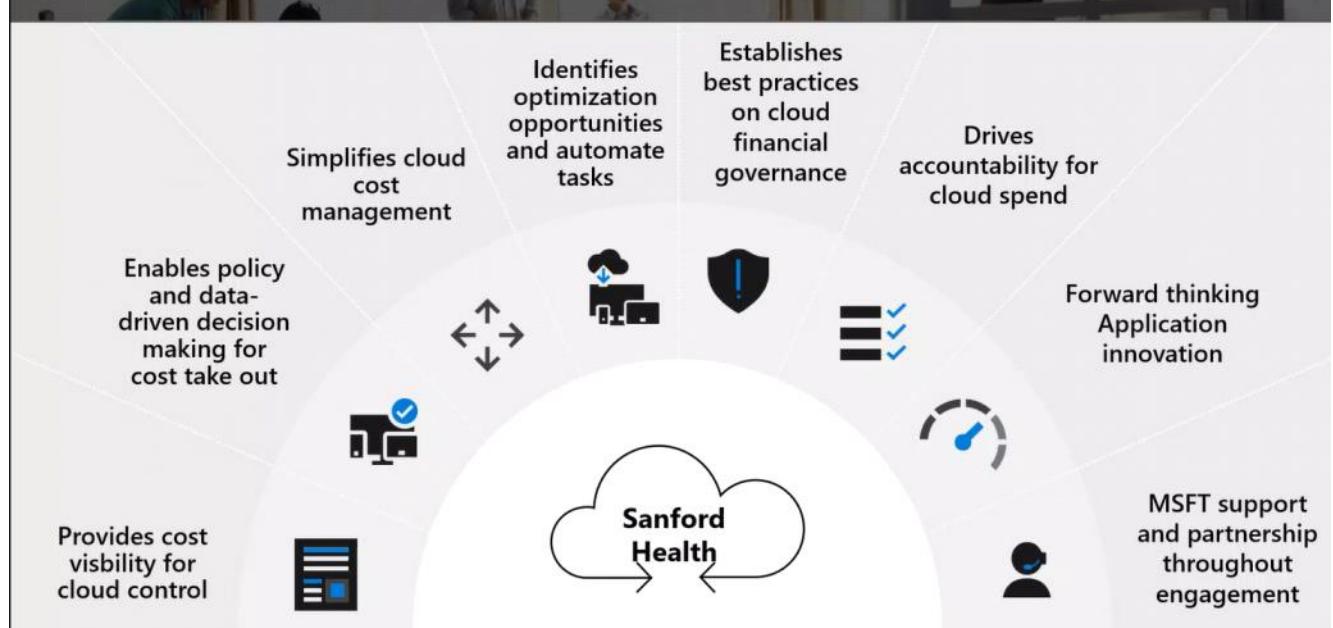
Goal: Continuous improvement of the overall FinOps process to define, automate, and drive empowerment to achieve high cloud ROI

FinOps Teams	Responsibility	Actions
IT	<ul style="list-style-type: none">▪ Define governance and controls▪ Define responsibilities and processes▪ Continuously improve and automate▪ Continuously educate your team on why FinOps is important▪ Create enterprise-wide cloud business case	<ul style="list-style-type: none">▪ Gather teams to set expectations moving forward and recommend trainings on both technical topics and internal processes
Finance	<ul style="list-style-type: none">▪ Execute real time decision real-time cloud spend data to stakeholders▪ Centralize rate optimization ownership▪ Develop business cases for cloud-based workloads	<ul style="list-style-type: none">▪ FinOps actions are recorded, prioritized, and delivered against organization's KPIs
Business	<ul style="list-style-type: none">▪ Empower teams to take action that leads to quantifiable results for the business▪ Ensure organizational enablement▪ Align strategic plans to business▪ Incentivize teams to motivate to take further actions around optimization▪ Measure business value achieved	<ul style="list-style-type: none">▪ Ongoing strategic reviews with stakeholders on optimization opportunities are planned and executed

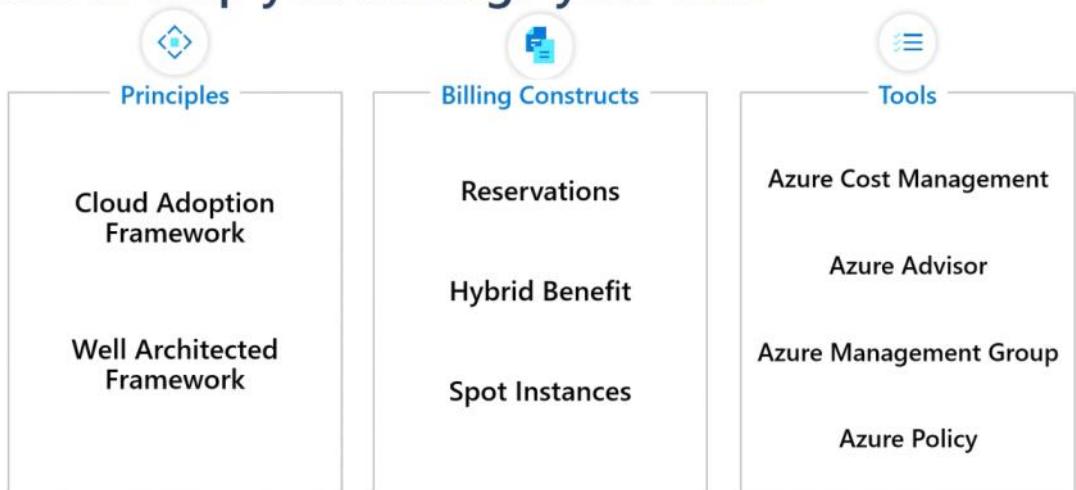


How can Microsoft help you develop your FinOps practice and what tools are available?

Azure FinOps



Microsoft provides principles, tools and billing constructs to help you manage your cost



Microsoft provides solutions to continuously optimize your environment



	Principles, Billing Constructs, Tools?	Functionality	Goal
Cloud Adoption Framework		Principles	Pre-migration To enable desired business outcomes and adopt to cloud with confidence
Well Architected Framework		Principles	Post-migration To improve the quality of the workloads based on guiding pillars of architectural framework
RIs/Hybrid Benefit/Spot		Billing Constructs	Cost savings benefits to provide deep discounts on Azure cloud services To reduce the total cost of ownership for predictable workloads
Azure Advisor		Tools	Recommendations to optimize and properly manage services To provide actionable steps to improve the cost effectiveness, performance, Reliability (formerly called High availability), and security of your Azure resources.
Azure Cost Management		Tools	Monitor cloud spend, drive organizational accountability, and optimize cloud efficiency To enables cloud spend transparency that leads to better investment decisions by providing you the tools to monitor, allocate, and optimize your cloud costs
Azure Policy		Tools	Active control and governance at scale for your Azure resources To enforce how cloud resources are configured accordingly based on regulatory compliance, resource consistency, security, and cost management
Azure Management Groups		Tools	Efficiently apply governance controls and manage groups of Azure subscriptions To efficiently management access, policies, and compliance for your Azure Subscription environment at scale

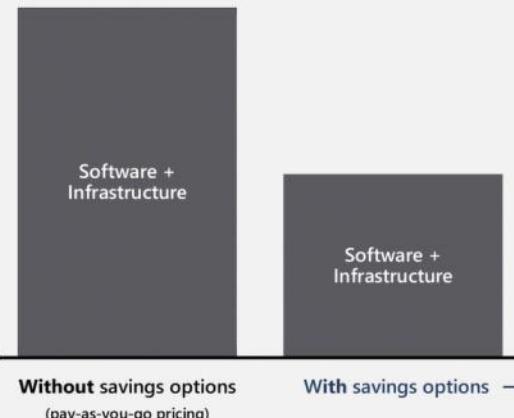


Introducing new Azure Savings Plan for Compute

Expanding our cost saving options for Azure compute

Accelerate cloud adoption with new growth opportunities

Compute cost



Savings options

Software

Windows Server and SQL Server workloads → Bring your existing on-premises licenses to Azure with **Azure Hybrid Benefit**

Infrastructure

Stable, predictable workloads → Get lower prices on a specific virtual machine in a particular Azure region with **Reserved Instances**

Interruptible workloads → Access low-cost unused Azure compute capacity at scale with **Spot Virtual Machines**

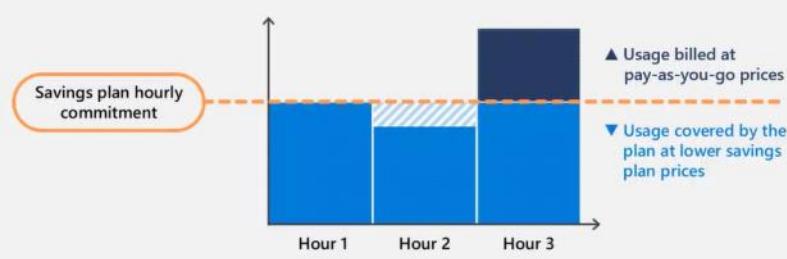
NEW!

Consistent compute spend → Unlock lower prices on compute services by committing to spend a fixed hourly amount with **Azure savings plan for compute**

Introducing Azure savings plan for compute

Easy and flexible way to save on compute costs

Save money across compute services globally by **committing to spend a fixed hourly amount for 1 or 3 years**, unlocking lower prices until you reach your hourly commitment.



Unlock significant cost savings

up to 65%* compared to pay-as-you-go pricing



Optimize savings automatically

across select services globally up to the hourly commitment



Save on your terms

by customizing the plan's term length, scope, billing frequency, and hourly commitment to fit your needs



*Customers may see savings estimated to be between 11 percent and 65 percent. The 65 percent savings is based on one M64dsv2 Azure VM for CentOS or Ubuntu Linux in the East US region running for 36 months at a pay-as-you-go rate of ~\$4,868.37/month vs. a reduced rate for a 3-year savings plan of ~\$1,703.44/month. Based on Azure pricing as of October 2022. Prices subject to change. Actual savings may vary based on location, instance type, or usage.

How does it work from a billing perspective?

Does the billing automatically handle any discount on the resources we use?

Does it apply to all the resources or resources where the RI is applied?

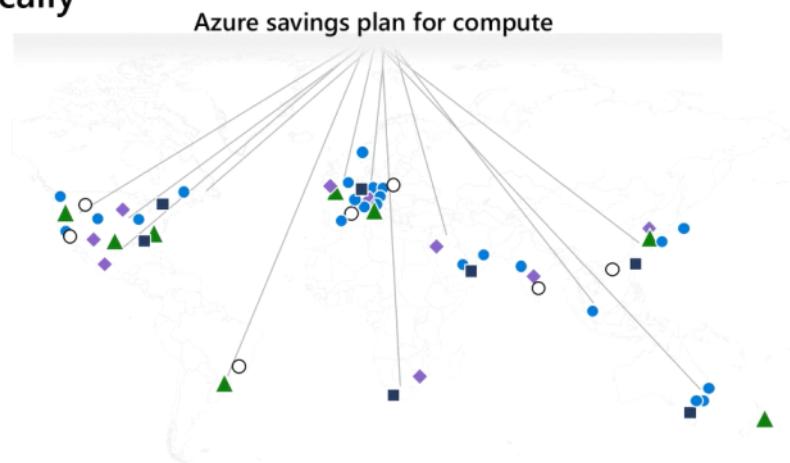
You can use RI and savings plan at the same time

Optimize savings automatically



Compute usage across the world is covered by the plan at reduced prices, helping you get more value from your cloud investment

- Save on compute usage regardless of region, instance series, or operating system
- Biggest savings are automatically applied first, allowing you get the best value from your hourly commitment
- Modernize workloads and continue saving as needs change over time



For illustrative purposes only. Refer to the Azure geographies page for global availability.

Compute products and services covered by the plan:

- Azure Virtual Machines*
- ▲ Azure Functions Premium Plan
- ◆ Azure Container Instances
- Azure Dedicated Host

*Does not include BareMetal Infrastructure, A, G, and GS series.

**App Service includes only upgraded premium and isolated services (Premium v3 and Isolated v2)

Save on your terms



Quick and easy to purchase with flexible plan options to fit customers' needs

- 1 Save on compute usage by choosing a 1- or 3-year term

Microsoft Azure | Search resources, services, and docs (S+D)

Home > Cost Management > Billing > Contoso Billing Profile > Add a plan ...

Basics Review + buy

Savings plan helps you save money on Azure products and services but with additional flexibility. By committing to a consistent amount of usage for 1 or 3 year terms, you receive significant savings on computer resource as you use them.

Name * Compute_SavingPlan

Billing subscription * ContosoSubscription

Term length * 1 year

Hourly commitment in USD * 5.00

Billing frequency * Monthly

Apply to any eligible resource * Shared across the subscription's billing scope (Contoso Billing Profile)

Next: Review + buy

Example presented for illustrative purposes only

Save on your terms



Quick and easy to purchase with flexible plan options to fit customers' needs

- 1 Save on compute usage by choosing a 1- or 3-year term
- 2 Get help setting the optimal hourly commitment amount with personalized recommendations based on your recent usage

The screenshot shows the 'Add a plan' wizard in the Microsoft Azure portal. The 'Basics' step is selected. A 'Name' field contains 'Compute_SavingsPlan'. The 'Billing subscription' dropdown is set to 'ContosoSubscription'. Under 'Term length', the '1 year' radio button is selected. An 'Hourly commitment in USD' input field shows '5.00'. The 'Billing frequency' dropdown has 'Monthly' selected. In the 'Apply to any eligible resource' section, the 'Shared across the subscription's billing scope (Contoso Billing Profile)' radio button is selected. At the bottom, a 'Next: Review + buy' button is visible.

Example presented for illustrated purposes only

Save on your terms



Quick and easy to purchase with flexible plan options to fit customers' needs

- 1 Save on compute usage by choosing a 1- or 3-year term
- 2 Get help setting the optimal hourly commitment amount with personalized recommendations based on your recent usage
- 3 Enjoy flexible payment options—pay all upfront or monthly at no extra cost

This screenshot is identical to the one above, showing the 'Add a plan' wizard in the Microsoft Azure portal. It displays the 'Basics' step with the same configuration: name 'Compute_SavingsPlan', billing subscription 'ContosoSubscription', 1-year term, \$5.00 hourly commitment, monthly billing, and shared scope. The 'Next: Review + buy' button is also present at the bottom.

Example presented for illustrated purposes only

Save on your terms



Quick and easy to purchase with flexible plan options to fit customers' needs

- 1** Save on compute usage by choosing a 1- or 3-year term
- 2** Get help setting the optimal hourly commitment amount with personalized recommendations based on your recent usage
- 3** Enjoy flexible payment options—pay all upfront or monthly at no extra cost
- 4** Streamline savings according to budget needs—scope plan to a subscription, resource group, management group or entire account

Example presented for illustrated purposes only

Cost saving options for different compute usage needs and patterns

	Azure savings plan for compute	Reserved Instances
Savings compared to pay-as-you-go	Save up to 65%	Save up to 72%*
Commitment type	Spend a fixed hourly dollar amount on compute services collectively (e.g. Spend \$5/hour on compute services for 1 year)	Usage of a specific virtual machine type in a particular Azure region (e.g. D2v4 virtual machine in Japan East for 1 year)
Savings apply	Across select services globally, up to the hourly commitment	Directly to the identified compute service in a particular region
Term	1 or 3 year	1 or 3 year
Payment options	Upfront or monthly	Upfront or monthly
Cancellation	No cancellations	Up to \$50,000 USD

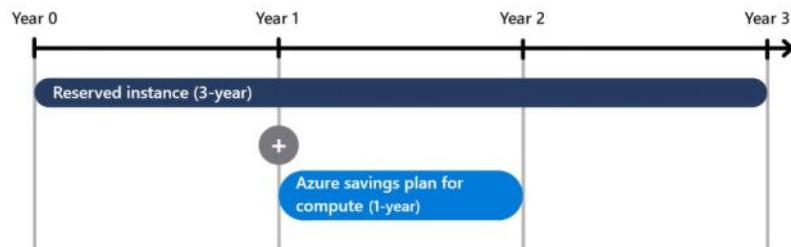
*The 72 percent saving is based on one M32ts Azure VM for SUSE Linux Enterprise + 24x7 Support OS in the West US 2 region running for 36 months at a pay-as-you-go rate of ~\$1,976.11/month; reduced rate for a 3-year reserved instance of ~\$552.85/month. Azure pricing as of February 22, 2022. Prices subject to change. Actual savings may vary based on location, instance type, or usage.

Qs: any downside if we took our current average spend and looked at azure savingsplan as a way to use our money more efficiently?
If you aren't using such consistent resources, cost savings plan is good way

Customers may have both Azure savings plan for compute and Reserved Instances

We automatically maximize customer benefit and savings across eligible usage each hour

- When usage can be covered by either Reserved Instances or Azure savings plans for compute, reserved instances are used first, as they provide greater savings and have a more targeted scope
- Azure savings plan for compute will apply to the remaining eligible usage until the commitment is fully consumed
- Once a Reserved Instance or Azure saving plan for compute is fully consumed or expired, you will then be billed on a pay-as-you-go basis



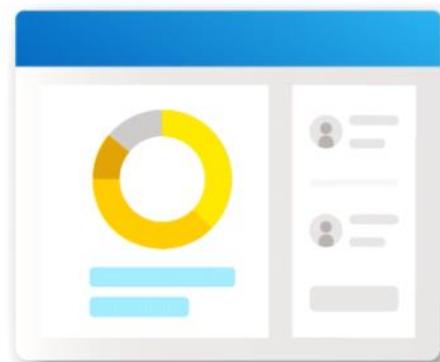
Each term is unique and based on date of purchase



Survey & Deployments

Survey & Deployments

- Azure Well-Architected Review (Q/A) Survey
 - Well-Architected Cost Optimization Workbook
 - Azure Cost Management PowerBi App
 - Reservation Recommendation PowerBi Dashboard
- Access



Microsoft Confidential

40

Deliverables

Azure Monitor Workbook	Azure Cost Management (PowerBI)	Final Report
<p>WAF Cost Optimization Workbook</p> <ul style="list-style-type: none">• Resources per subscription• Resource & Resource Group tagging• VM skus• Networking• Storage• App Service Plans• SQL Server / MI / DB AHUB• Log Analytics Data Ingestion• Orphaned resources• Windows & SQL HUB• Dv2 to Dv3 resize opportunity• App Service state (Web & Functions), VM state (Stopped/Deallocated)• Storage Accounts and Recovery Services Vaults Replication• Storage Accounts not V2 type	<ul style="list-style-type: none">• Account Overview• Usage by Subscriptions and Resource Groups• Top 5 Usage drivers• Usage by Services• Windows Server AHB Usage• VM RI Coverage (shared recommendation)• VM RI Coverage (single recommendation)• RI Savings, Chargeback, Purchases <p>Reservation Dashboard</p> <ul style="list-style-type: none">• Reservation Recommendations for all eligible services (Single and Shared)• 1 and 3 year term breakdown• Breakeven point (Months)	Management-level closeout presentation of the findings and their impact to cost optimization.

Microsoft Confidential

41

Well-Architected Cost Optimization Azure Monitor Workbook

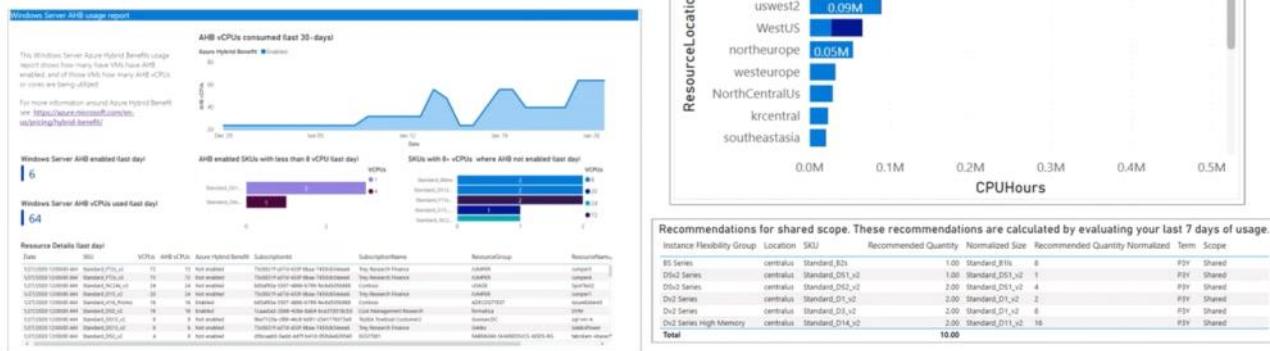
An Azure Monitor Workbook will be deployed. It helps identify waste and resources optimization opportunities that will enable you to maximize the efficiency of your cloud spend.



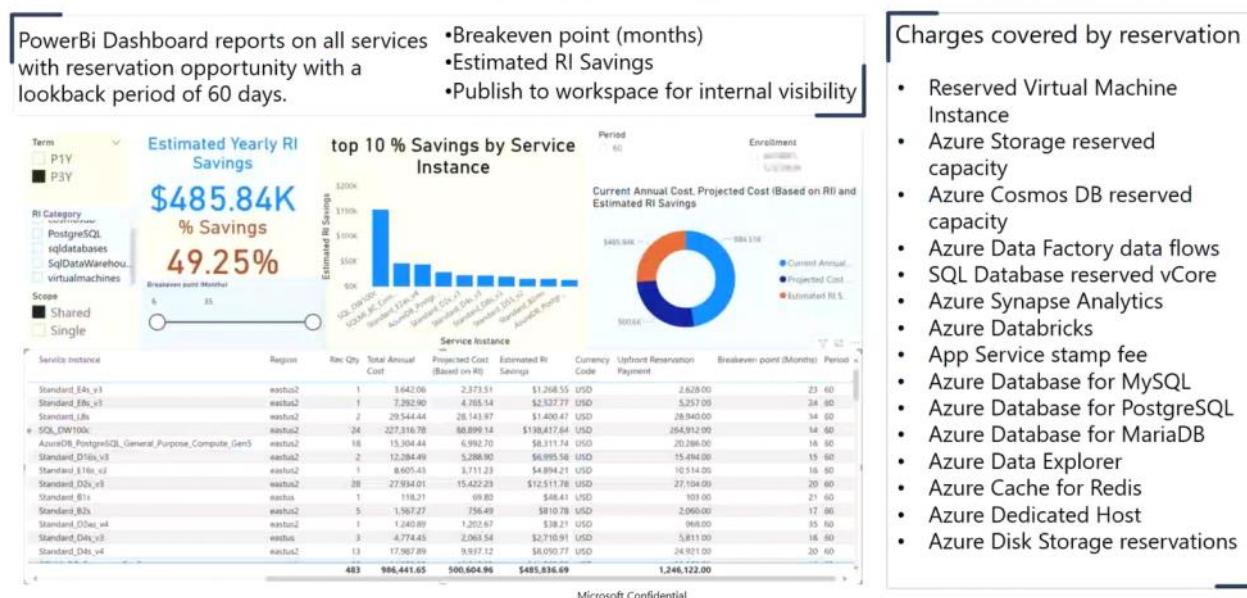
Azure Cost Management Power BI Application

The Cost Management Application provides insights into which subscriptions or resource groups consume the most resources. It also provides visibility into spending trends and overall usage.

Refer to: <https://aka.ms/costmgmt/ACMApp>



Reservation Recommendation PowerBi Dashboard



Azure DevOps Recommendations Import

WAF_V2_Demo Team

Backlog Analytics Feature Timeline Epic Roadmap + New Work Item View as Board Column Options ...

Order Work Item Type Title State Effort Business Value Area Tags

+ 1	Epic	> Application Design	New	Business	
2	Epic	> Health Modeling & Monitoring	New	Business	
3	Epic	> Networking & Connectivity	New	Business	
4	Epic	> Security & Compliance	New	Business	
5	Epic	> Operational Procedures	New	Business	
6	Epic	> Deployment & Testing	New	Business	
7	Epic	> Operational Model & DevOps	New	Business	
8	Epic	> Governance	New	Business	
Feature	Review and consider elevated security capabilities for Azure Key Vault	New	Business		
Feature	Make sure that all regulatory requirements are known and understood	New	Business		
Feature	Enforce naming conventions and resource tagging for all key vaults	New	Business		
9	Epic	> Uncategorized	New	Business	

WAF_V2_Demo Team

Board Analytics Feature Timeline Epic Roadmap View as Backlog

Active 2/3 Resolved 1/3 Closed 0/0

New item	42542 Diagnostic logs should be enabled in App Service for 4 App services	Open	Dawn LaChemann	Active
New item	42543 Firewall should be enabled on Key Vault for 4 Key vaults	Open	Dawn LaChemann	Active
New item	42544 Vulnerability assessment should be enabled on your SQL servers for 1 SQL server	Open	Dawn LaChemann	Active
New item	42545 FTPS should be enabled in your Function App for 1 App service	Open	Dawn LaChemann	Active
New item	42546 Key vault secrets should have an expiration date for 1 Microsoft.KeyVault.DataVaultSecrets	Open	Dawn LaChemann	Resolved

Azure Well-Architected Review

The screenshot shows the Microsoft Assessments landing page. At the top, it says "Welcome to Microsoft Assessments" and "Customers can evaluate their business strategies and receive curated guidance from Microsoft Assessm". Below this, there's a section titled "Available assessments" with two cards:

- Azure Well-Architected Review**
Examine your workload through the lenses of reliability, cost management, operational excellence, security and performance efficiency [30 minutes].
- Cloud Journey Tracker**
Identify your cloud adoption path based on your needs with this tracker and navigate to relevant content in the Cloud Adoption Framework for Azure. [15 mins]

To the right, there's a "Sign in with your Azure Portal Credentials" button and a "Sign in" link. Below that, there's a "Choose your interests" section with three checkboxes: Reliability, Security, and Cost Optimization. Each checkbox has a brief description underneath.

<https://aka.ms/architecture/review>

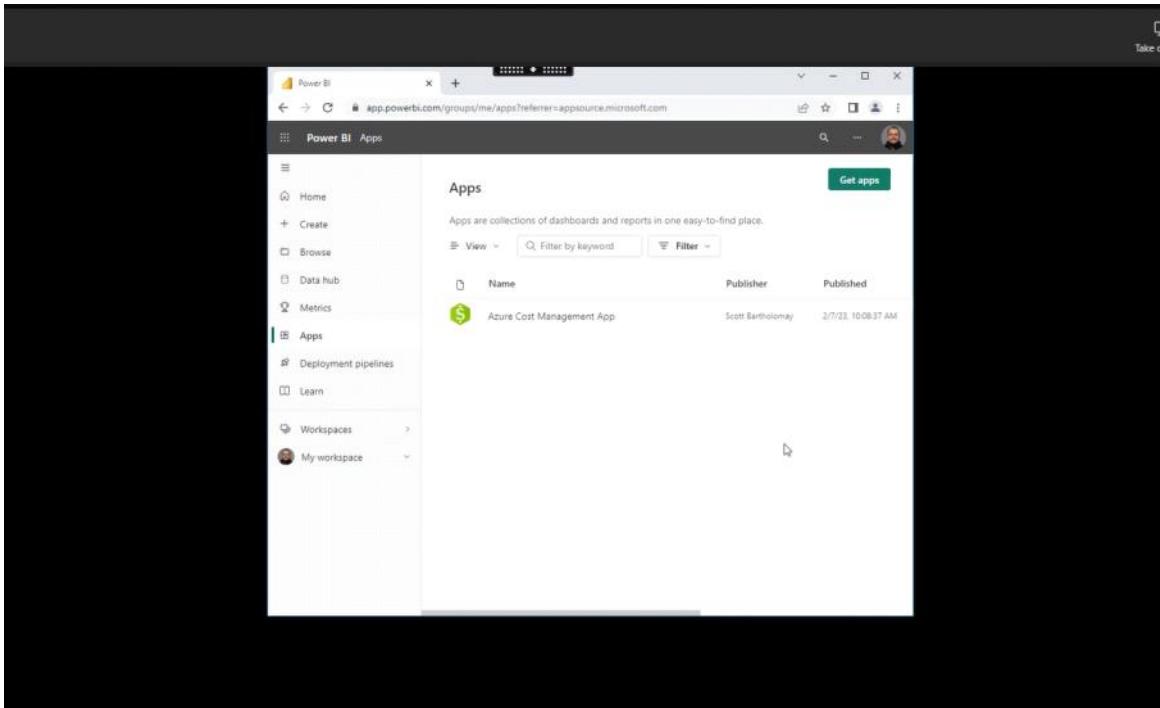
The screenshot shows a dark blue slide with the text "Q&A" in large white letters. At the bottom, there's a horizontal line, the text "Microsoft Confidential", and the number "40".

Get into the deployments:

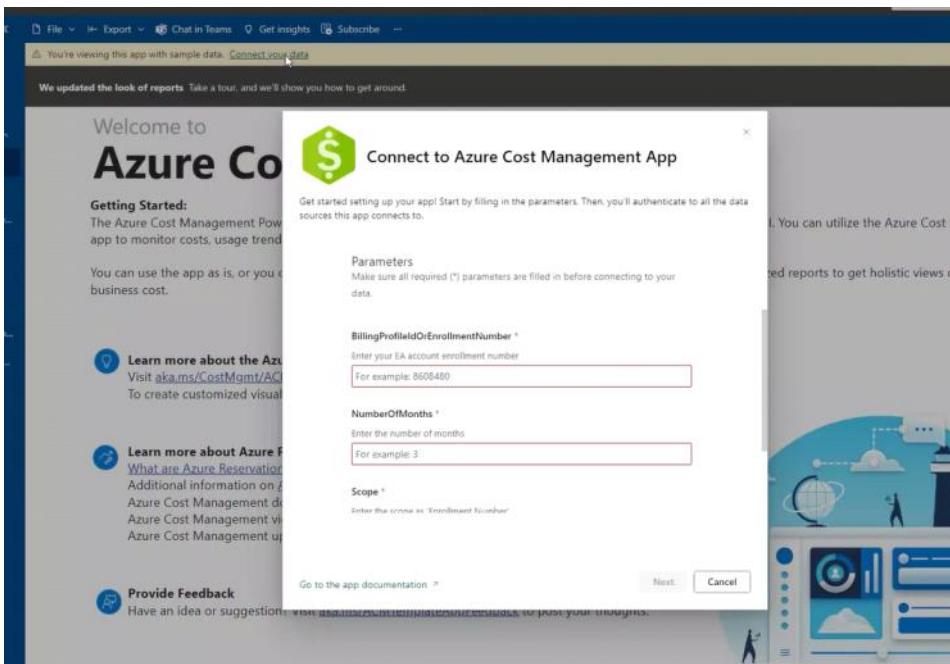
I'm going to send you a link, whoever has the power BI license needs to open this link.

<https://aka.ms/costmgmt/ACMApp>

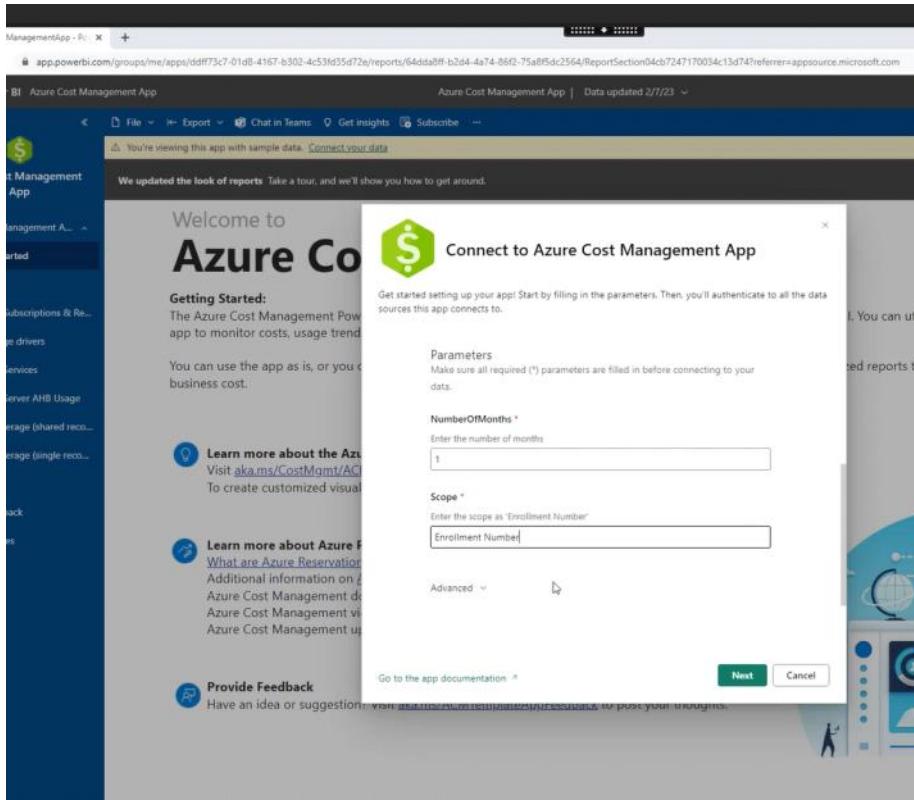
Client sharing screen and us assisting with it.



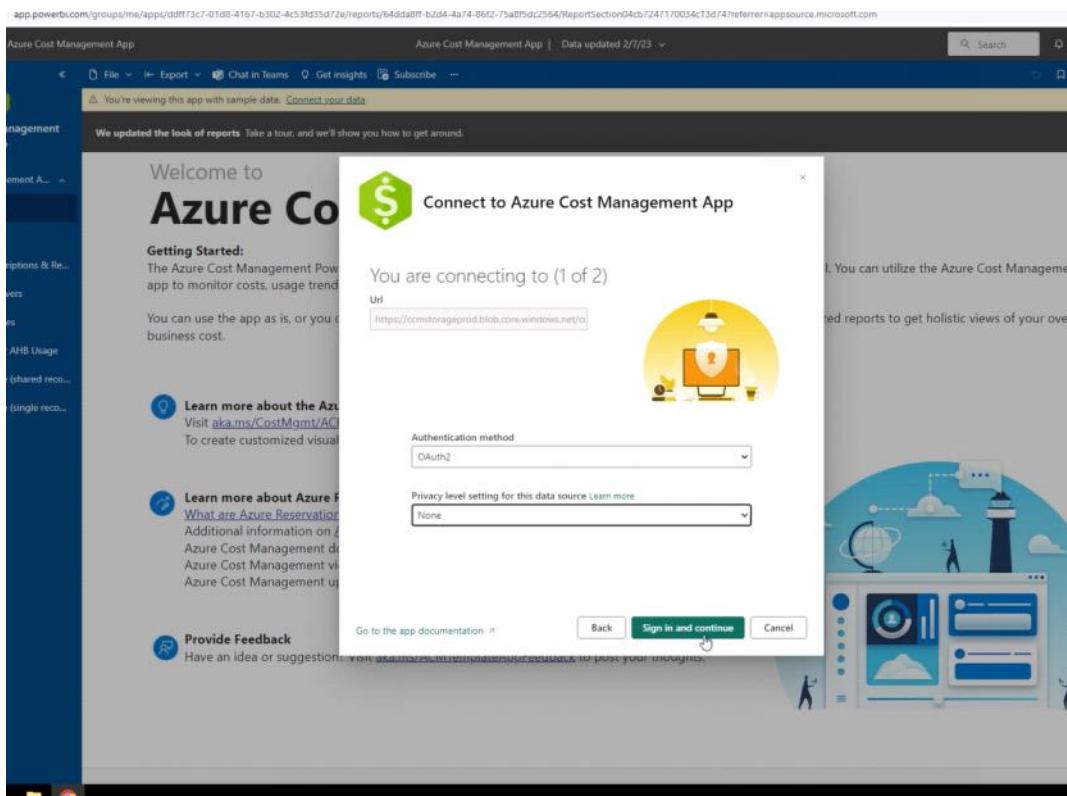
A screenshot of the "Azure Cost Management App" within Power BI. The title bar says "Power BI - Azure Cost Management App" and the URL is "app.powerbi.com/group/me/apps/ddff73c7-01d8-4167-b302-4c53fd35d72a/reports/64ddabff-b3d4-4a74-86f2-75a8f5dc2564/ReportSection04cb7247170034c13d74?referrer=appsource.microsoft.com". The left sidebar has sections for Getting Started, Overview, Usage by Subscriptions & Resources, Top 5 Usage drivers, Usage by Services, Windows Server AHB Usage, VM RI Coverage (shared rec...), VM RI Coverage (single rec...), RI Savings, RI Chargeback, RI Purchases, and Pricesheet. The main content area welcomes the user to "Azure Cost Management" and provides links to learn more about the app, Azure Reservations, and Azure Hybrid benefits. It also includes a "Provide Feedback" section and a "Start tour" button. On the right, there are filters for Date (in All) and a search bar. A large circular graphic on the right side illustrates cloud computing concepts like storage, processing, and connectivity.

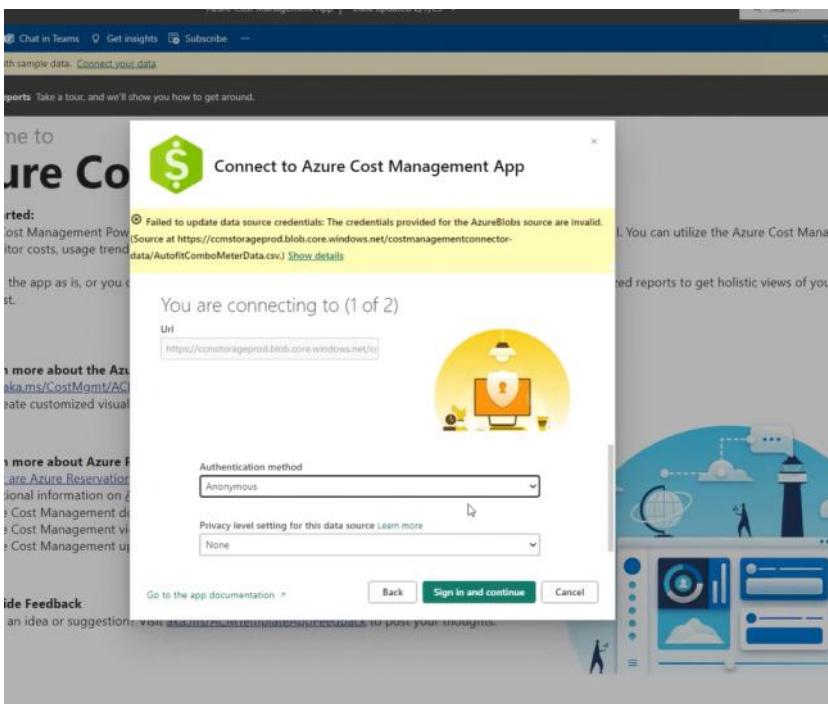
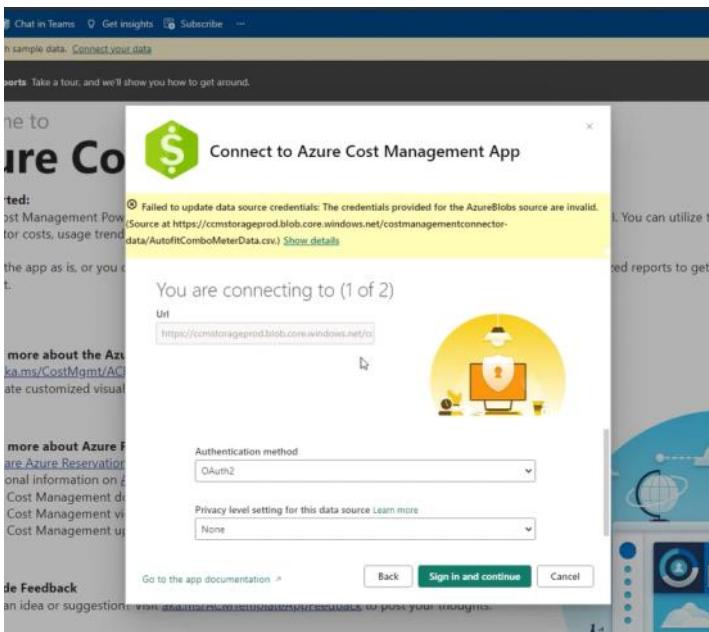


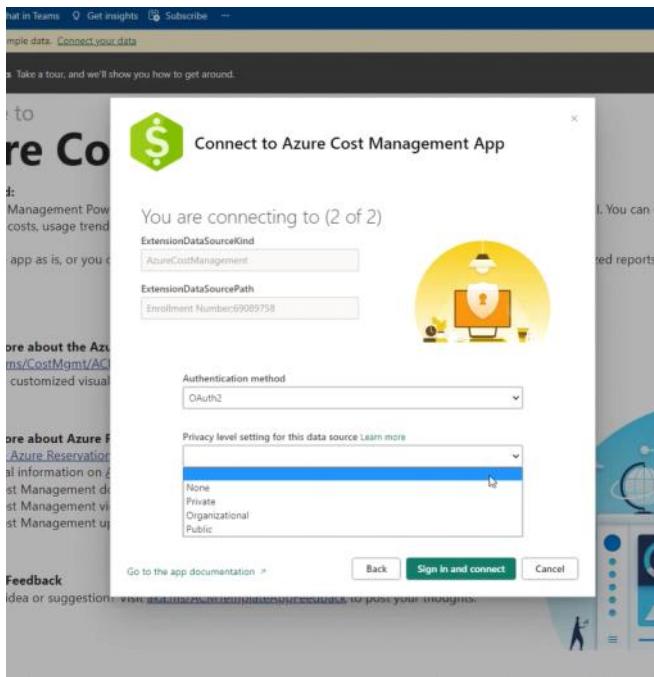
Ea.azure.com



Number of months one as it takes a lot of time.







Privacy level none,
Let it load and watch it to make sure it is working

We are going to move to the Azure monitor workbook:

Drop me your email and I can send you the workbook
Walk through how to install a workbook

Name	Type	Last Viewed
Winner Regional Healthcare Center - Office 365	Subscription	a day ago
Windom Area Hospital - Office 365	Subscription	a day ago
Webster Bethesda Home - Office 365	Subscription	a day ago
Watford City McKenzie County Healthcare Systems - Office 365	Subscription	a day ago
Viborg Pioneer Memorial Hospital - Office 365	Subscription	a day ago
Sidney Health Center - Office 365	Subscription	a day ago
Sanford Health Plan - Software Development - Prod	Subscription	a day ago
Sanford Health Plan - Software Development - Dev	Subscription	a day ago
Sanford Enterprise Resource Hub	Subscription	a day ago
Sanford Azure Data Center - Tech Infrastructure	Subscription	a day ago
Ottoville Area Health Services - Office 365	Subscription	a day ago
Orange City Area Health System - Office 365	Subscription	a day ago

This screenshot shows the Microsoft Azure portal interface. The top navigation bar includes the AzureCostManagementApp - Reloading tab, the Monitor - Microsoft Azure tab, and the portal.azure.com URL. The Microsoft Azure logo is at the top left, followed by a search bar and user information (Sharthol@CantonHealth). The main content area is titled "Monitor | Workbooks | Gallery". On the left, a sidebar lists various monitoring categories: Overview, Activity log, Alerts, Metrics, Logs, Change Analysis, Service Health, and Workbooks (which is selected). Below these are "Insights" sections for Applications, Virtual Machines, Storage accounts, Containers, Networks, SQL (preview), Azure Cosmos DB, Key Vaults, Azure Cache for Redis, Azure Data Explorer Clusters, Log Analytics workspaces, Azure Stack HCI (preview), and Service Bus (preview). A "Managed Services" section is also present. The central workspace shows tabs for All, Workbooks, Public Templates, and My Templates. A filter bar allows "Filter by name or category" and "Subscription: Armeur Douglas County Memorial Hosp...". Resource Group is set to "All" and there are "Reset filters" and "Quick start" buttons. A "Recently modified workbooks (0)" section is shown.

This screenshot shows the Microsoft Azure portal interface, specifically the "Monitor | Workbooks | Workbook 1" page. The top navigation bar is identical to the previous screenshot. The main content area is titled "Monitor | Workbooks | Workbook 1". The left sidebar is identical to the first screenshot, showing the "Workbooks" category as selected. The central workspace displays a message: "This Workbook has no content." with a small icon of a blue owl. Below this message is a button labeled "+ Add" with a dropdown arrow. The rest of the page is blank.

AzureCostManagementApp - Po Monitor - Microsoft Azure

Microsoft Azure

Monitor | Workbooks | Workbook 1

Search

- Overview
- Activity log
- Alerts
- Metric
- Logs
- Change Analysis
- Service Health
- Workbooks**
- Insights
- Applications
- Virtual Machines
- Storage accounts
- Containers
- Networks
- SQL (preview)
- Azure Cosmos DB
- Key Vaults
- Azure Cache for Redis
- Azure Data Explorer Clusters
- Log Analytics workspaces
- Azure Stack HCI (preview)
- Service Bus (preview)
- ... Insights Hub
- Managed Services

Shown below is a JSON representation of the current item.
Any changes you make here will be reflected when you press 'Apply'.

Template Type: **Gallery Template** **ARM Template**

```
{
  "version": "Notebook/1.0",
  "items": [],
  "fallbackResourceIds": [
    "Azure Monitor"
  ],
  "$schema": "https://github.com/Microsoft/Application-Insights-Workbooks/blob/master/schema/workbook.json"
}
```

Apply Cancel

AzureCostManagementApp - Po Monitor - Microsoft Azure

Microsoft Azure

Monitor | Workbooks | Workbook 1

Search

- Overview
- Activity log
- Alerts
- Metric
- Logs
- Change Analysis
- Service Health
- Workbooks**
- Insights
- Applications
- Virtual Machines
- Storage accounts
- Containers
- Networks
- SQL (preview)
- Azure Cosmos DB
- Key Vaults
- Azure Cache for Redis
- Azure Data Explorer Clusters
- Log Analytics workspaces
- Azure Stack HCI (preview)
- Service Bus (preview)
- ... Insights Hub
- Managed Services
- Managed Prometheus
- Azure Managed Grafana
- Azure Monitor SCOM managed instance

Shown below is a JSON representation of the current item.
Any changes you make here will be reflected when you press 'Apply'.

Template Type: **Gallery Template** **ARM Template**

```
{
  "query": "resources\n  where tags == '' or tags == '{}'\n  where type in- ((ResourceType)) or '*' in- ((ResourceType))\n  project Name,id, subscriptionId\r\n\r\n",
  "size": 0,
  "title": "Untagged Resources",
  "nodeDetailsPage": "No untagged Resources found",
  "nodeDetailsDisplayStyle": 3,
  "showExportToExcel": true,
  "queryType": 1,
  "resourceType": "microsoft.resourcegraph/resources",
  "crossComponentResources": [
    {
      "Subscription": [
        {
          "gridSettings": {
            "rowInit": 1000,
            "filter": true
          }
        },
        "conditionalVisibility": [
          {
            "parameterName": "ShowUntaggedResources",
            "comparison": "isEqualTo",
            "value": "Yes"
          },
          {
            "name": "query > 10"
          }
        ],
        "conditionalVisibility": [
          {
            "parameterName": "SelectedTab",
            "comparison": "isEqualTo",
            "value": "General"
          },
          {
            "name": "Group General",
            "styleSettings": [
              "showBorder": true
            ]
          }
        ]
      },
      "fallbackResourceIds": [
        "Azure Monitor"
      ],
      "$schema": "https://github.com/Microsoft/Application-Insights-Workbooks/blob/master/schema/workbook.json"
    }
  ]
}
```

Apply Cancel

AzureCostManagementApp - Po Save As - Microsoft Azure

Microsoft Azure

Monitor | Workbooks | Workbook 1

Search

- Overview
- Activity log
- Alerts
- Metric
- Logs
- Change Analysis
- Service Health
- Workbooks**
- Insights
- Applications
- Virtual Machines
- Storage accounts

General Compute Data Storage Networking Monitoring Performance Cost Information

Subscription: All

Resources distribution per region

Save As

Title:

Please enter a name
A report name is required.

Subscription: Armour Douglas County Memorial Hospital - Office 365

Resource group:

Location: (US) East US

Save content to an Azure Storage Account:

AzureCostManagementApp - Microsoft Azure | Save As - Microsoft Azure

Microsoft Azure

Home > Monitor

Monitor | Workbooks | Workbook 1

Search resources, services, and docs (G+)

General Compute Data Storage Networking Monitoring Performance Cost Information

Subscription: All

Resources distribution per region

Region	Count
Central US	913
Global	288
North Central US	114
Other	20
East US	18
South Central US	9
East US 2	7
Canada Central	3
West Central US	3
West US 2	2

Resources per Subscription

Subscription	Count
Armour Douglas County...	13
Burke Community Mem...	7
Other	29

Virtual machines per SKU

SKU	Count
Standard E0ms	16
Other	29

Save As

Title:

Please enter a name.
A report name is required.

Subscription:

Resource group:

Location:

Save content to an Azure Storage Account.

Apply Cancel

You can call it whatever you like
Cost management
FinOps

...

AzureCostManagementApp - Microsoft Azure | Save As - Microsoft Azure

Microsoft Azure

Home > Monitor

Monitor | Workbooks | Workbook 1

Search resources, services, and docs (G+)

General Compute Data Storage Networking Monitoring Performance Cost Information

Subscription: All

Resources distribution per region

Region	Count
Central US	913
Global	288
North Central US	114
Other	20
East US	18
South Central US	9
East US 2	7
Canada Central	3
West Central US	3
West US 2	2

Resources per Subscription

Subscription	Count
Armour Douglas County...	13
Burke Community Mem...	7
Other	29

Virtual machines per SKU

SKU	Count
Standard E0ms	16
Other	29

Save As

Title: Cost Management Feb 2023

Subscription:

Crookston Riverview Health - Office 365

Hancock Kishman Memorial Healthcare Center - Office 365

Information Technology - Software Development

Inwood Fellowship Village - Office 365

Janestown Regional Medical Center - Office 365

Mattoon Health Center - Office 365

Microsoft Azure Enterprise

Microsoft Azure Enterprise - GSS Migration

Microsoft Azure Enterprise Sanford Marketing

Orange City Area Health System - Office 365

Ortonville Area Health Services - Office 365

Sanford Azure Data Center - Tech Infrastructure

Sanford Enterprise Resource Hub

Sanford Health Plan - Software Development - Dev

Sanford Health Plan - Software Development - Prod

Sidney Health Center - Office 365

Viborg Pioneer Memorial Hospital - Office 365

Watford City McKenzie County Healthcare Systems - Office 365

Webster Bethesda Home - Office 365

Windom Area Hospital - Office 365

Winnert Regional Healthcare Center - Office 365

Apply Cancel

For subscriptions, choose one.
Choose a rg where you want to save the workbooks.

The screenshot shows the Microsoft Azure Monitor Workbooks interface. On the left, there's a navigation sidebar with various monitoring and management options like Overview, Activity log, Metrics, Logs, Change Analysis, Service Health, and Workbooks. The main area displays a world map titled "Resources distribution per region" with green dots representing resource locations. Below the map is a bar chart showing the count of resources by region: Central US (913), Global (288), North Central US (114), Other (20), East US (18), South Central US (9), East US 2 (7), Canada Central (3), West Central US (3), and West US 2 (2). To the right, there's a "Save As" dialog box for "Azure Monitor". It includes fields for Title (Cost Management Feb 2023), Subscription (Microsoft Azure Enterprise Sanford Marketing), Resource group (shnktl-prod), Location ((US) East US), and a dropdown menu for Recommended regions. At the bottom of the dialog are "Apply" and "Cancel" buttons.

You can change this after the fact.

You can use tags and group resources like that.

The location of the workbook is the rg but not limiting the resources.

This screenshot is nearly identical to the one above, showing the same Azure Monitor Workbooks interface and "Save As" dialog box. The main difference is the timestamp at the bottom right of the screen, which reads "10:18 AM".

You can filter to one you want to look at.

Home > Monitor

Monitor | Workbooks | Cost Management Feb 2023

Search ...

Workbooks Edit ⌂ ⌂ ⌂ ? Help Auto refresh: Off

Overview Activity log Alerts Metrics Logs Change Analysis Service Health Workbooks Insights Applications Virtual Machines Storage accounts Containers Networks SQL (preview) Azure Cosmos DB Key Vaults Azure Cache for Redis Azure Data Explorer Clusters Log Analytics workspaces Azure Stack HCI (preview) Service Bus (preview) Insights Hub Managed Services Managed Prometheus Azure Managed Grafana Azure Monitor SCOM managed instance

General Compute Data Storage Networking Monitoring Performance Cost Information

Subscription: Microsoft Azure Sanford Marketing

Resources distribution per region

Region	Count
Central US	441
East US	9
Global	4
East US 2	1

Resources per Subscription

Microsoft Azure Enterprise... 455

Virtual machines per SKU

SKU	Count
Standard_DS4_v4	38
Standard_DS3_v2	8
Standard_DS2_v2	8
Standard_DS1_v2	7
Standard_A3	3
Standard_A2	3

Look at the map, this is a map of the resources, you get to see where they are based on the Azure region.

The resources that look like they are in the middle of the ocean are your global, networking etc....

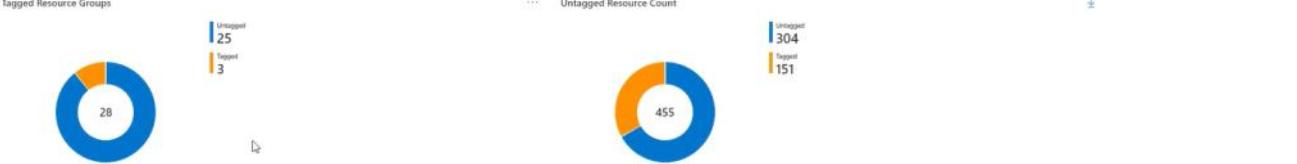
Does this make sense to you?



Looks like most of them are in the standard

Tagged vs Untagged Resource Groups

Tags are a crucial part of organizing your Azure resources into a taxonomy. When following best practices for tag management, tags can be the basis for applying your business policies with Azure Policy or tracking costs with Cost Management. No matter how or why you use tags, it's important that you can quickly add, change, and remove those tags on your Azure resources. To see if your Azure resource supports tagging, see Tag support. Consider using Azure Policy to place mandatory Tag rules such as Enforce Tags on Resource Groups and inheritance on the Resources. <https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-tag-policies>



This is a breakdown of tags vs untagged rg, looks like something to focus on.

You can download a file

into Excel and use that to programmatically tag all those resources just by running a pwsh script on that.

Select All resource types.

Shows you a list of all your untagged resources. Just a good idea of knowing where your resources are, you can optimize by consolidating where your resources are located

Resource Type: All			
Untagged Resources			
Name	↑↓	subscriptionId	↑↓
shmidt-prod-sq1/aa\$Antimalware	1ff3d54b-a17d-4564-8916-49f764f48509		
shmidt-prod-sq1/1/Microsoft/Monitor	1ff3d54b-a17d-4564-8916-49f764f48509		
shmidt-prod-sq1/ql/aasExtension	1ff3d54b-a17d-4564-8916-49f764f48509		
shmidt-prod-sq2	1ff3d54b-a17d-4564-8916-49f764f48509		
shmidt-prod-sq2/aa\$Antimalware	1ff3d54b-a17d-4564-8916-49f764f48509		
shmidt-prod-sq2/1/Microsoft/Monitor	1ff3d54b-a17d-4564-8916-49f764f48509		
shmidt-prod-sq2/ql/aasExtension	1ff3d54b-a17d-4564-8916-49f764f48509		
shmidt-prod-xconnect-1	1ff3d54b-a17d-4564-8916-49f764f48509		
shmidt-prod-xconnect-1/Microsoft:	1ff3d54b-a17d-4564-8916-49f764f48509		
open files of this type		1ff3d54b-a17d-4564-8916-49f764f48509	
folder		1ff3d54b-a17d-4564-8916-49f764f48509	

[Go back to the top.](#)

Click on compute

Workbooks Edit Data Storage Networking Monitoring Performance Cost Information

Subscription: Microsoft Azure Enterprise Sanford Marketing

Filter By: Resource Group

Resource Group: All

Compute Group

Azure Advisor Cost recommendations

Group	AffectedResource	Impact	resourceGroup	AdditionalInfo	subscriptionId	Recommendation
Right-size or shutdown underutilized virtual machines (8)	r80marketingclusterpublic1	High	r80marketingpublic-rg	!AnnualSavingsAmount	Microsoft Azure Enterprise Sanfor	Right-size or shutdown underutilized virtual machines
	r80marketingclusterpublic2	High	r80marketingpublic-rg	!AnnualSavingsAmount	Microsoft Azure Enterprise Sanfor	Right-size or shutdown underutilized virtual machines
	smikit-prod-cs2	High	smikit-prod	!AnnualSavingsAmount	Microsoft Azure Enterprise Sanfor	Right-size or shutdown underutilized virtual machines
	smikit-prod-sql-haproxy	High	smikit-prod	!AnnualSavingsAmount	Microsoft Azure Enterprise Sanfor	Right-size or shutdown underutilized virtual machines
	smikit-qa-cs1	High	smikit-qa	!AnnualSavingsAmount	Microsoft Azure Enterprise Sanfor	Right-size or shutdown underutilized virtual machines
	smikit-qa-ct2	High	smikit-qa	!AnnualSavingsAmount	Microsoft Azure Enterprise Sanfor	Right-size or shutdown underutilized virtual machines
	smikit-qa-sql-haproxy	High	smikit-qa	!AnnualSavingsAmount	Microsoft Azure Enterprise Sanfor	Right-size or shutdown underutilized virtual machines
	smikit-qa-sql-2019	High	smikit-qa	!AnnualSavingsAmount	Microsoft Azure Enterprise Sanfor	Right-size or shutdown underutilized virtual machines

Here you can see your advisor recommendations

You can click on the arrow

This recommendation is based on rightsizing or shutting down underutilized vms

Right-size or shutdown underutilized virtual machines (8)										
	VM Name	Region	VM Size	Location	OSType	OsVersion	LicType	Notes	Action	
1	shmkrt-prod-public1	High	r80mrktngpublic-rg	AnnualSavingsAmount	Microsoft Azure Enterprise Sanfor	Right-size or shutdown underutilized virtual machines				
2	shmkrt-prod-public2	High	r80mrktngpublic-rg	AnnualSavingsAmount	Microsoft Azure Enterprise Sanfor	Right-size or shutdown underutilized virtual machines				
3	shmkrt-prod-cd2	High	shmkrt-prod	AnnualSavingsAmount	Microsoft Azure Enterprise Sanfor	Right-size or shutdown underutilized virtual machines				
4	shmkrt-prod-soli-haproxy	High	shmkrt-prod	AnnualSavingsAmount	Microsoft Azure Enterprise Sanfor	Right-size or shutdown underutilized virtual machines				
5	shmkrt-qd-cd1	High	shmkrt-qd	AnnualSavingsAmount	Microsoft Azure Enterprise Sanfor	Right-size or shutdown underutilized virtual machines				
6	shmkrt-qd-cd2	High	shmkrt-qd	AnnualSavingsAmount	Microsoft Azure Enterprise Sanfor	Right-size or shutdown underutilized virtual machines				
7	shmkrt-qd-soli-haproxy	High	shmkrt-qd	AnnualSavingsAmount	Microsoft Azure Enterprise Sanfor	Right-size or shutdown underutilized virtual machines				
8	shmkrt-qd-sql-2019	High	shmkrt-qd	AnnualSavingsAmount	Microsoft Azure Enterprise Sanfor	Right-size or shutdown underutilized virtual machines				

Virtual Machines										
For customers with Software Assurance, Azure Hybrid Benefit for Windows Server allows you to use your on-premises Windows Server licenses to run Windows virtual machines on Azure at a reduced cost. This article discusses how to deploy new VMs with Azure Hybrid Benefit for Windows Server enabled, and how you can update any existing running VMs. For more information about Azure Hybrid Benefit for Windows Server licensing and cost savings, see the Azure Hybrid Benefit for Windows Server licensing page .										
Windows VMs and VM scale sets without Azure Hybrid Benefit enabled										
WindowsId	VMName	VMRegion	VMSize	VMLocation	OSType	OsVersion	LicType			
1	shmkrt-prod-cd1	shmkrt-prod-cd1	shmkrt-prod	Standard_D16_v3	centralus	WindowsServer	2012-R2-Datacenter			
2	shmkrt-prod-cd2	shmkrt-prod-cd2	shmkrt-prod	Standard_D16_v3	centralus	WindowsServer	2012-R2-Datacenter			
3	shmkrt-prod-soli-1	shmkrt-prod-soli-1	shmkrt-prod	Standard_D4ds_v4	centralus	WindowsServer	2019-Datacenter			
4	shmkrt-prod-soli-3	shmkrt-prod-soli-3	shmkrt-prod	Standard_D4ts_v4	centralus	WindowsServer	2019-Datacenter			
5	shmkrt-prod-xconnect-1	shmkrt-prod-xconnect-1	shmkrt-prod	Standard_D4ds_v4	centralus	WindowsServer	2019-Datacenter			
6	shmkrt-qd-qd-1	shmkrt-qd-qd-1	shmkrt-qd	Standard_D4ds_v4	centralus	WindowsServer	2019-Datacenter			
7	shmkrt-qd-qd-2	shmkrt-qd-qd-2	shmkrt-qd	Standard_D4ts_v4	centralus	WindowsServer	2019-Datacenter			
8	shmkrt-qd-qd-3	shmkrt-qd-qd-3	shmkrt-qd	Standard_D4ds_v4	centralus	WindowsServer	2019-Datacenter			
9	shmkrt-qd-xconnect	shmkrt-qd-xconnect	shmkrt-qd	Standard_D4ds_v4	centralus	WindowsServer	2019-Datacenter			

Azure Hybrid benefit.

These are net new workloads according to cmr.

Same thing for linux vms (give more info here)

Stopped state machines

SQL licensing question? Coming up on the next tab one of the tabs.

No app service or AKS

Click DATA

The screenshot shows the Azure Workbooks interface for Cost Management Feb 2023. The top navigation bar includes 'Workbooks', 'Edit', 'Search', 'Help', and 'Auto refresh: Off'. The 'Data' tab is selected. The left sidebar lists various services like Redis, Data Clusters, and Logspaces. The main content area displays two sections: 'Azure Advisor Cost recommendations - Data' and 'Azure SQL Databases not using Hybrid Benefit'. The 'Data' section shows a green checkmark indicating cost recommendations are followed. The 'SQL' section shows a message stating no results found due to hybrid benefit usage or no databases deployed.

For sql licenses questions, are they leveraging their cloud enrollment licenses in the best way possible.

Answer: in the recommendations we will recommend resources and tools that will help you identify that.

The screenshot shows the Azure Monitor interface for Cost Management Feb 2023. The top navigation bar includes 'Home', 'Monitor', 'Workbooks', 'Edit', 'Search', 'Help', and 'Auto refresh: Off'. The 'Storage' tab is selected. The left sidebar lists services like Overview, Activity log, Metrics, Logs, Change Analysis, Service Health, and Workbooks. The main content area displays 'Storage Group' insights under 'Azure Advisor Cost recommendations - Storage', showing a green checkmark for cost recommendations followed. Below this, there is a section for 'Storage accounts' with a note about general-purpose v2 storage accounts.

Data and storage differences

Storage accounts										
General-purpose v2 storage accounts support the latest Azure Storage features and incorporate all of the functionality of general-purpose v1 and Blob storage accounts. General-purpose v2 accounts are recommended for most storage scenarios.										
1. General-purpose v2 accounts deliver the lowest per-gigabyte capacity prices for Azure Storage, as well as industry-competitive transaction prices.										
2. General-purpose v2 accounts support default account access tiers of hot or cool and blob-level tiering between hot, cool, or archive.										
3. General-purpose v2 accounts allow you to also use lifecycle management to optimize your storage cost.										
Storage accounts which are not v2										
booteddiag7rdjktwngs	booteddiag7rdjktwngs	Standard_LRS	Standard	Storage	grf0external-rg	centralus	Microsoft Azure Enterprise Sanforc			
booteddiagkppbyho4nsw	booteddiagkppbyho4nsw	Standard_LRS	Standard	Storage	grfinternal-rg	centralus	Microsoft Azure Enterprise Sanforc			
booteddiagkhvajnjhafpk	booteddiagkhvajnjhafpk	Standard_LRS	Standard	Storage	rbo30mrktkinginternalrg	centralus	Microsoft Azure Enterprise Sanforc			
booteddiagyvovysmctk6	booteddiagyvovysmctk6	Standard_LRS	Standard	Storage	rbo30mrktkingpublic-rg	centralus	Microsoft Azure Enterprise Sanforc			
booteddiagkch4pd3ugdc	booteddiagkch4pd3ugdc	Standard_LRS	Standard	Storage	rbo30mrktkinginternalrg	centralus	Microsoft Azure Enterprise Sanforc			
rbo30xtrg5dag	rbo30xtrg5dag	Standard_LRS	Standard	Storage	rbo3test_rg	centralus	Microsoft Azure Enterprise Sanforc			
cs21ff5d54ba17dx4564v891	cs21ff5d54ba17dx4564v891	Standard_LRS	Standard	Storage	cloud-shell-storage-eastus	eastus	Microsoft Azure Enterprise Sanforc			
H1982centralus	H1982centralus	Standard_LRS	Standard	Storage	securitydata	centralus	Microsoft Azure Enterprise Sanforc			
p7yfhv73ae7cdig	p7yfhv73ae7cdig	Standard_GRS	Standard	Storage	shmkrt-prod	centralus	Microsoft Azure Enterprise Sanforc			
sanfordsqlprodbackups	sanfordsqlprodbackups	Standard_GRS	Standard	Storage	shmkrt-prod	centralus	Microsoft Azure Enterprise Sanforc			
shmktproddiag316	shmktproddiag316	Standard_LRS	Standard	Storage	shmkrt-prod	centralus	Microsoft Azure Enterprise Sanforc			
Recovery Vaults Replication										
export_data.xlsx										Show all

Recovery Vaults Replication										
Vault Storage replication type										
recoveryvault	recoveryvault	RecoveryVaultName	RecoveryVaultLocation	RVRG	SubscriptionName	skutier				
shmktprodak01	shmktprodak01	centralus	shmkrt-prod	Microsoft Azure Enterprise Sanford Marketing	Standard					

Better for performance for similar cost from v1 to v2

Unattached disks										
DiskId	DiskName	DiskSizeGB	SKUName	SKUTier	resourceGroup	Location	TimeCreated	subscriptionId		
shmktprod-sq1_0sDisk_1_00744:	shmktprod-sq1_0sDisk_1_0074426753e64dc9d6e34fb...	127	Standard_LRS	Standard	shmkrt-prod	centralus	2017-06-06T21:37:19.5629984Z	Microsoft Azure Enterprise Sanforc		
shmktprod-sq1_0sDisk_1_4b12b	shmktprod-sq1_0sDisk_1_4b12b	127	Standard_LRS	Standard	shmkrt-prod	centralus	2017-06-06T18:32:45.0512395Z	Microsoft Azure Enterprise Sanforc		
shmktprod-sq1_0sDisk_1_b7adfa8d514c9db95464...	shmktprod-sq1_0sDisk_1_b7adfa8d514c9db95464...	127	Standard_LRS	Standard	shmkrt-prod	centralus	2017-06-06T23:33:14.2269347Z	Microsoft Azure Enterprise Sanforc		
shmktprod-sq1_0sDisk_1_d597fb	shmktprod-sq1_0sDisk_1_d597fb0de305440ba1f5389f...	127	Standard_LRS	Standard	shmkrt-prod	centralus	2017-06-13T17:39:32.9342426Z	Microsoft Azure Enterprise Sanforc		
shmktprod-sq1_0sDisk_1_f4cf8ef53fa48d8b9860167fd...	shmktprod-sq1_0sDisk_1_f4cf8ef53fa48d8b9860167fd...	127	Standard_LRS	Standard	shmkrt-prod	centralus	2017-06-13T17:06:23.6178381Z	Microsoft Azure Enterprise Sanforc		
shmktprod-sq1_0sDisk_2_23e7c8621	shmktprod-sq1_0sDisk_2_23e7c8621fb4845b0e8a789491...	1023	Standard_LRS	Standard	shmkrt-prod	centralus	2017-06-13T17:06:23.6178381Z	Microsoft Azure Enterprise Sanforc		
shmktprod-sq1_0sDisk_2_4cb773337	shmktprod-sq1_0sDisk_2_4cb7733372634049952386d76...	1023	Standard_LRS	Standard	shmkrt-prod	centralus	2017-06-08T18:32:45.0359035Z	Microsoft Azure Enterprise Sanforc		
shmktprod-sq1_0sDisk_2_b4fedbd1	shmktprod-sq1_0sDisk_2_b4fedbd1219442a9abae50d1c2...	1023	Standard_LRS	Standard	shmkrt-prod	centralus	2017-06-06T23:33:14.2269347Z	Microsoft Azure Enterprise Sanforc		
shmktprod-sq1_0sDisk_2_b7b78f893	shmktprod-sq1_0sDisk_2_b7b78f893a6d45324bd8aa8ee6fbc...	1023	Standard_LRS	Standard	shmkrt-prod	centralus	2017-06-13T17:39:32.9342426Z	Microsoft Azure Enterprise Sanforc		
shmktprod-sq1_0sDisk_2_30b2b1	shmktprod-sq1_0sDisk_2_30b2b1fb191dc44ed584f0ea...	127	Standard_LRS	Standard	shmkrt-prod	centralus	2017-06-06T23:58:33.5004634Z	Microsoft Azure Enterprise Sanforc		
shmktprod-sq1_0sDisk_2_7b9fe1	shmktprod-sq1_0sDisk_2_7b9fe1fb80e3e400daa50d8dbc...	127	Standard_LRS	Standard	shmkrt-prod	centralus	2017-06-08T19:11:22.0649923Z	Microsoft Azure Enterprise Sanforc		

Sometimes disks made not used for disaster recovery, thing to look at to make sure they are not necessary.
Some ops do generate orphaned disks.

Microsoft Azure

Home > Monitor

Monitor | Workbooks | Cost Management Feb 2023

Search

Workbooks Edit ⌂ ⌂ ⌂ ⌂ ⌂ ? Help Auto refresh: Off

Resource Group: All

Networking Group

Azure advisor recommendations - Networking

You are following all of our cost recommendations for Networking.

Recommendations for Application Gateways

Review Application Gateways which include backend pools with no targets. Resources listed with 2 red signs are considered idle.

Application gateways with empty backend pools

You don't have any Application Gateways with empty backend pools.

AzureCostManagementApp - Portal Microsoft Azure Microsoft Azure Enterprise Sanc... portal.azure.com/?view/Microsoft_Azure_Monitoring/AzureMonitoringBrowseBlade/_/workbooks

Microsoft Azure

Search

Workbooks Edit ⌂ ⌂ ⌂ ⌂ ⌂ ? Help Auto refresh: Off

Resource Group: All

Networking Group

Azure advisor recommendations - Networking

You are following all of our cost recommendations for Networking.

Recommendations for Application Gateways

Review Application Gateways which include backend pools with no targets. Resources listed with 2 red signs are considered idle.

Application gateways with empty backend pools

You don't have any Application Gateways with empty backend pools.

Recommendations for Public IP Addresses

Review unattached Public IP addresses, as they may represent additional cost. This query will also show Public IPs attached to idle network cards.

PublicIPId	IPName	SKUName	resourceGroup	Location	AllocationMethod	subscriptionId
R80Public_IP_Internal_Test	R80Public_IP_Internal_Test	Basic	cpr8internal-rg	centralus	Dynamic	Microsoft Azure Enterprise Sanfor...
vnet-marketing-gateway-pip	vnet-marketing-gateway-pip	Basic	sanford-marketing-network	centralus	Dynamic	Microsoft Azure Enterprise Sanfor...
vsec-marketing-hub-internal-fw1-pip	vsec-marketing-hub-internal-fw1-pip	Basic	sanford-marketing-network	centralus	Static	Microsoft Azure Enterprise Sanfor...
sanford-network-test1-pip	sanford-network-test1-pip	Basic	sanford-network-test	centralus	Dynamic	Microsoft Azure Enterprise Sanfor...

Recommendations for Azure Firewall

Review Azure Firewall without network traffic. These resources are billed hourly, consider reconfiguring or deleting them if they are not in use.

Azure Firewall: All Time range: Last 28 days

No Firewall resources are selected. Please select Azure Firewall.

Cmr is using nVNA's third party

Microsoft Azure

Home > Monitor

Monitor | Workbooks | Cost Management Feb 2023

Search resources, services, and docs (S+)

Workbooks Edit ⌂ ⌂ ⌂ ? Help Auto refresh: Off

Overview Activity log Alerts Metrics Logs Change Analysis Service Health Workbooks Insights Applications Virtual Machines Storage accounts Containers Networks SQL (preview) Azure Cosmos DB Key Vaults Azure Cache for Redis Azure Data Explorer Clusters Log Analytics workspaces Azure Stack HCI (preview)

General Compute Data Storage Networking Monitoring Performance Cost Information

Subscription: Microsoft Azure Enterprise Sanford Marketing

Filter By: Resource Group

Resource Group: All

Monitoring Group

Log analytics workspaces

Workspace	Resource Group	Location	Retention (days)	Daily Cap (GB)	Licence	Subscription
DefaultWorkspace-1f3d54b-a17d	default/resourcegroup-cus	centralus	30	--	standalone	Microsoft Azure Enterprise Sanford
DefaultWorkspace-1f3d54b-a17d	default/resourcegroup-eus	eastus	30	--	pernode	Microsoft Azure Enterprise Sanford
SHWindowsAnalytics	mms-eus	eastus	7	0.5	free	Microsoft Azure Enterprise Sanford
shmkt-oms	shmkt-prod	eastus	7	0.5	free	Microsoft Azure Enterprise Sanford

Shows the retention days, sometimes cmrs have 90d iso 30days, does it look good for you? It looks reasonable.

Home > Monitor

Monitor | Workbooks | Cost Management Feb 2023

Search resources, services, and docs (S+)

Workbooks Edit ⌂ ⌂ ⌂ ? Help Auto refresh: Off

Overview Activity log Alerts Metrics Logs Change Analysis Service Health Workbooks Insights Applications Virtual Machines Storage accounts Containers Networks SQL (preview) Azure Cosmos DB Key Vaults Azure Cache for Redis Azure Data Explorer Clusters Log Analytics workspaces Azure Stack HCI (preview) Service Bus (preview) Insights Hub Managed Services Managed Prometheus Azure Managed Grafana

General Compute Data Storage Networking Monitoring Performance Cost Information

Subscription: Microsoft Azure Enterprise Sanford Marketing

Filter By: Resource Group

Resource Group: All

Performance Group

Virtual Machine: Yes AKS: No AppService: No Storage Account: No Time Range: Last hour

Resource Details

List of Resources: Yes

Resources tagged

Resource	type	resourceGroup
shmkt-oms	Automation Account	shmkt-prod
shmktprodcommerce	Azure Cache for Redis	shmkt-prod
shmkt-prod	Virtual network (classic)	shmkt-prod
CPr0ExternalCluster-AvailabilitySet	Availability set	cpr0external-rg
CPr0InternalCluster-AvailabilitySet	Availability set	cpr0internal-rg
r030mrktingclusternal-Avail	Availability set	r030mrktinginternal-rg
R00vechVikingClusterpublic-Aval	Availability set	r00vechVikingpublic-rg
R00vechVikingClusterinternal-Aut	Availability set	r00vechVikinginternal-rg
vscs-marketing-fw	Availability set	sanford-marketing-network

Very vm perf focused

Microsoft Azure

Search resources, services, and docs (q+)

Shanthi@SanfordHealth-SANFORDHEALTHPONDERANCE...

Home > Monitor

Monitor | Workbooks | Cost Management Feb 2023

Workbooks Edit Help Auto refresh: Off

Virtual Machine Performance

Virtual Machine: shmkt-prod-sql1 Network Interface Card: All

Overview

vmid	vmSize	Properties	nicid	DiskSKU	SKUTier	DiskTier	diskSizeGB	DiskIOPSReadWrite	DiskMBpsReadWrite	subscription
shmkt-prod-sql1	Standard_A8_v2	{"Memory":16,"vCPUs":8}	shmkt-prod-sql1145	Standard_LRS	Standard	Standard	127	500	60	Microsoft

CPU

Memory

Tells you about a particular VM iops network

You can go to your engineer and tell them why they need to increase performance or not etc....

Does not have an All option in the dropdown

AzureCostManagementApp - P: Monitor - Microsoft Azure Microsoft Azure Enterprise Sanc... portal.azure.com/#view/Microsoft_Azure_Monitoring/AzureMonitoringBrowseBlade/_/workbooks

Microsoft Azure

Search resources, services, and docs (q+)

Shanthi@SanfordHealth-SANFORDHEALTHPONDERANCE...

Home > Monitor

Monitor | Workbooks | Cost Management Feb 2023

Workbooks Edit Help Auto refresh: Off

Virtual Machine Performance

Virtual Machine: 11 selected Network Interface Card: All

Overview

vmid	vmSize	Properties	nicid	DiskSKU	SKUTier	DiskTier	diskSizeGB	DiskIOPSReadWrite	DiskMBpsReadWrite	subscription
shmkt-prod-sql1	Standard_A8_v2	{"Memory":16,"vCPUs":8}	shmkt-prod-sql1145	Standard_LRS	Standard	Standard	127	500	60	Microsoft
buntu	Standard_B1ms	{"Memory":2,"vCPUs":1}	buntu601	Standard_LRS	Standard	Standard	30	500	60	Microsoft
cpri0externalcluster1	Standard_D2_v2	{"Memory":7,"vCPUs":2}	CPri0ExternalCluster1-eth0	Standard_LRS	Standard	Standard	100	500	60	Microsoft
cpri0externalcluster2	Standard_D2_v2	{"Memory":7,"vCPUs":2}	CPri0ExternalCluster2-eth0	Standard_LRS	Standard	Standard	100	500	60	Microsoft
cpri0internalcluster1	Standard_D2_v2	{"Memory":7,"vCPUs":2}	CPri0InternalCluster1-eth0	Standard_LRS	Standard	Standard	100	500	60	Microsoft
cpri0internalcluster2	Standard_D2_v2	{"Memory":7,"vCPUs":2}	CPri0InternalCluster2-eth0	Standard_LRS	Standard	Standard	100	500	60	Microsoft
r8030marketingclusterinternal1	Standard_D2_v2	{"Memory":7,"vCPUs":2}	r8030marketingclusterinternal1-eth0	Standard_LRS	Standard	Standard	100	500	60	Microsoft
r8030marketingclusterinternal2	Standard_D2_v2	{"Memory":7,"vCPUs":2}	r8030marketingclusterinternal2-eth0	Standard_LRS	Standard	Standard	100	500	60	Microsoft
shmkt-qa-sql-2	Standard_D4ds_v4	{"Memory":16,"vCPUs":4}	shmkt-qa-sql-2298	Premium_LRS	Premium	P10	127	500	100	Microsoft

CPU

Memory

portal.azure.com/#view/Microsoft_Azure_Monitoring/AzureMonitoringBrowseBlade/-/workbooks

Microsoft Azure

Home > Monitor

Monitor | Workbooks | Cost Management Feb 2023

Search Workbooks Edit Filter Help Auto refresh: Off

Overview Activity log Alerts Metrics Logs Change Analysis Service Health Workbooks Insights Applications Virtual Machines Storage accounts Containers Networks SQL (preview) Azure Cosmos DB Key Vaults Azure Cache for Redis Azure Data Explorer Clusters Log Analytics workspaces Azure Stack HCI (preview) Service Bus (preview) Insights Hub Integrated Services Managed Prometheus Azure Managed Grafana

Virtual Machine Performance

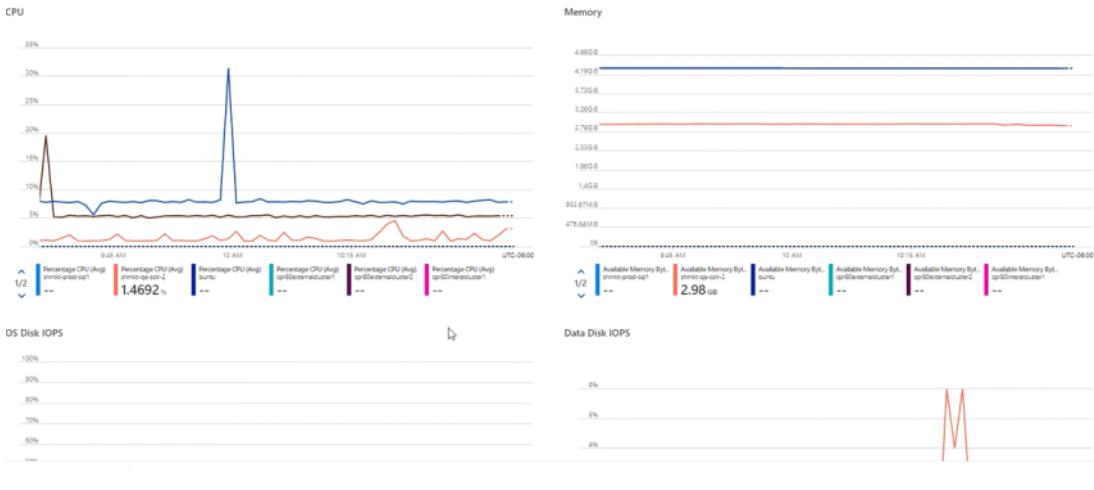
Virtual Machine: 11 selected Network Interface Card: All

Overview

vmSize	Properties	nicId	DiskSKU	SKUTier	DiskTier	diskSizeGB	DiskIOPSReadWrite	DiskMbpsReadWrite	subscriptionId
Standard_A8_v2	{"Memory":16,"vCPU":8}	shmitk-prod-sql1145	Standard_LRS	Standard	127	500	60	60	Microsoft Azure Enterprise Sanfor
Standard_B1ms	{"Memory":2,"vCPU":1,"urntul01		Standard_LRS	Standard	30	500	60	60	Microsoft Azure Enterprise Sanfor
Standard_D2_v2	{"Memory":7,"vCPU":2,"CPRI0ExternalCluster1-eth0		Standard_LRS	Standard	100	500	60	60	Microsoft Azure Enterprise Sanfor
Standard_D2_v2	{"Memory":7,"vCPU":2,"CPRI0ExternalCluster2-eth0		Standard_LRS	Standard	100	500	60	60	Microsoft Azure Enterprise Sanfor
Standard_D2_v2	{"Memory":7,"vCPU":2,"CPRI0InternalCluster1-eth0		Standard_LRS	Standard	100	500	60	60	Microsoft Azure Enterprise Sanfor
al1	{"Memory":7,"vCPU":2,"r830Marketingclusterinternal1-eth0		Standard_LRS	Standard	100	500	60	60	Microsoft Azure Enterprise Sanfor
al2	{"Memory":7,"vCPU":2,"r830Marketingclusterinternal2-eth0		Standard_LRS	Standard	100	500	60	60	Microsoft Azure Enterprise Sanfor
Standard_D4ds_v4	{"Memory":16,"vCPU":4,"shmitk-sq-sql-2209		Premium_LRS	Premium	P10	127	500	100	Microsoft Azure Enterprise Sanfor

CPU Memory

OS Disk IOPS Data Disk IOPS



Home > Monitor

Monitor | Workbooks | Cost Management Feb 2023

Search Workbooks Edit Filter Help Auto refresh: Off

Overview Activity log Alerts Metrics Logs Change Analysis Service Health Workbooks Insights Applications Virtual Machines Storage accounts

General Compute Data Storage Networking Monitoring Performance Cost Information

Cost Information

Subscription:

Filter By: Resource Group

Resource Group: <query pending>

This Tab will show Information about idle resource that have impact on cost

Note: The cost information available in this tab relates to the previous month. If the resources was created less than 30 days ago, check the cost management blade.

*Billing reader permission as a minimum is needed to populate cost information

Microsoft Azure

Home > Monitor

Monitor | Workbooks | Cost Management Feb 2023

Search Workbooks Edit Help Auto refresh: OFF

General Compute Data Storage Networking Monitoring Performance Cost Information

Cost Information

Subscription: Microsoft Azure Enterprise Sanford Marketing

Filter By: Resource Group

Resource Group: All

This Tab will show Information about idle resource that have impact on cost

Note: The cost information available in this tab relates to the previous month. If the resources was created less than 30 days ago, check the cost management and billing blade.

*Billing reader permission as a minimum is needed to populate cost information

Unattached Managed Disks cost

DiskID	Last Month Cost	Currency	DiskSizeGB	SKUName	SKUTier	DiskRQ	Location	TimeCreated	subscriptionid
shmkt-prod-sql1_disk2_23a7c6621	40.95444444444444	USD	1023	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-13T17:06:23.6178381Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql1_disk2_3cb773637	40.95444444444444	USD	1023	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-08T18:32:45.0356035Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql1_disk2_b4fedbd01	40.95444444444444	USD	1023	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-08T23:33:14.2269947Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql1_disk2_b7b78993	40.95444444444444	USD	1023	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-13T17:39:52.9342426Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql1_disk2_1_00744c	5.879399999999999	USD	127	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-06T21:37:19.5829984Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql1_OsDisk_1_4b13b	5.879399999999999	USD	127	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-08T18:32:45.0512395Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql1_OsDisk_1_b7dfc	5.879399999999999	USD	127	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-08T23:33:14.2269947Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql1_OsDisk_1_d597fb	5.879399999999999	USD	127	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-13T17:39:52.9342426Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql1_OsDisk_1_f4cf8e1	5.879399999999999	USD	127	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-13T17:06:23.6178381Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql2_disk1_0741c407e	40.95444444444444	USD	1023	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-06T28:38:33.4379629Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql2_disk2_342c5161e	40.95444444444444	USD	1023	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-08T19:11:22.0649923Z	1ff3d54b-a17d-4564-8916-497f64f48509

Filter by rg keep it as all

Microsoft Azure

Home > Monitor

Monitor | Workbooks | Cost Management Feb 2023

Search Workbooks Edit Help Auto refresh: OFF

Subscription: Microsoft Azure Enterprise Sanford Marketing

Filter By: Resource Group

Parameter name: Filter By
Current value: Resource Group

Resource Group: All

This Tab will show Information about idle resource that have impact on cost

Note: The cost information available in this tab relates to the previous month. If the resources was created less than 30 days ago, check the cost management and billing blade.

*Billing reader permission as a minimum is needed to populate cost information

Unattached Managed Disks cost

DiskID	Last Month Cost	Currency	DiskSizeGB	SKUName	SKUTier	DiskRQ	Location	TimeCreated	subscriptionid
shmkt-prod-sql1_disk2_23a7c6621	40.95444444444444	USD	1023	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-13T17:06:23.6178381Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql1_disk2_3cb773637	40.95444444444444	USD	1023	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-08T18:32:45.0356035Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql1_disk2_b4fedbd01	40.95444444444444	USD	1023	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-08T23:33:14.2269947Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql1_disk2_b7b78993	40.95444444444444	USD	1023	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-13T17:39:52.9342426Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql1_OsDisk_1_00744c	5.879399999999999	USD	127	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-06T21:37:19.5829984Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql1_OsDisk_1_4b13b	5.879399999999999	USD	127	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-08T18:32:45.0512395Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql1_OsDisk_1_b7dfc	5.879399999999999	USD	127	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-08T23:33:14.2269947Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql1_OsDisk_1_d597fb	5.879399999999999	USD	127	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-13T17:39:52.9342426Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql1_OsDisk_1_f4cf8e1	5.879399999999999	USD	127	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-13T17:06:23.6178381Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql2_disk1_0741c407e	40.95444444444444	USD	1023	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-06T28:38:33.4379629Z	1ff3d54b-a17d-4564-8916-497f64f48509
shmkt-prod-sql2_disk2_342c5161e	40.95444444444444	USD	1023	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-08T19:11:22.0649923Z	1ff3d54b-a17d-4564-8916-497f64f48509

Info about spend track of all the cost implications....

Screenshot of the Microsoft Azure Monitor Workbooks Cost Management Feb 2023 page. The left sidebar shows navigation links for Overview, Activity log, Alerts, Metrics, Logs, Change Analysis, Service Health, and Workbooks. The main content area displays a table titled "Approximate cost of Windows VMs and VMSS without Hybrid Benefit enabled".

WindowsID	Last Month Cost	Currency	Approximate AHUB savings	Last Month Cost with AHUB	VMName	VMRG	VMSize	VMLocation	OSType
shmkt-prod-cd1	1270.811653800988	USD	559.411290003195	711.4003637977931	shmkt-prod-cd1	shmkt-prod	Standard_D16_v3	centralus	Windows
shmkt-prod-cd2	1270.444840531292	USD	559.2498221139049	711.1980259413084	shmkt-prod-cd2	shmkt-prod	Standard_D16_v3	centralus	Windows
shmkt-prod-cm	447.0647649751195	USD	197.0363705420476	250.5701055433072	shmkt-prod-cm	shmkt-prod	Standard_A8_v2	centralus	Windows
shmkt-prod-solr-1	326.6493658191839	USD	143.79105083360474	182.85831498557917	shmkt-prod-solr-1	shmkt-prod	Standard_D4ds_v4	centralus	Windows
shmkt-prod-solr-2	326.6514604363879	USD	143.7612568407635	182.82931475340956	shmkt-prod-solr-2	shmkt-prod	Standard_D4ds_v4	centralus	Windows
shmkt-prod-solr-3	326.6523784222558	USD	143.79237698147702	182.8600014407784	shmkt-prod-solr-3	shmkt-prod	Standard_D4ds_v4	centralus	Windows
shmkt-prod-scomct-1	326.409380883568	USD	143.72956524484462	182.8551164863118	shmkt-prod-scomct-1	shmkt-prod	Standard_D4ds_v4	centralus	Windows
shmkt-dev-web	506.6129002326554	USD	263.5093906824149	335.10350153024054	shmkt-dev-web	shmkt-dev	Standard_D8s_v4	centralus	Windows
shmkt-qa-cd1	375.06065187251573	USD	165.101699529182343	209.9569529182343	shmkt-qa-cd1	shmkt-qa	Standard_D5s_v2	centralus	Windows
shmkt-qa-cd2	375.0693174656929	USD	165.10551354869802	208.96380391729488	shmkt-qa-cd2	shmkt-qa	Standard_D5s_v2	centralus	Windows
shmkt-qa-solr-1	326.6195876606384	USD	143.7921922488213	182.85976631724255	shmkt-qa-solr-1	shmkt-qa	Standard_D4ds_v4	centralus	Windows

The table also includes a section titled "Approximate cost of Linux VMs without Hybrid Benefit enabled" which states "The query returned no results.".

Feel free to look around the next days, you can always follow up after the assessment.

We can now jump back into the cost management app

Please refresh your page

Screenshot of the Power BI Azure Cost Management App. The left sidebar shows navigation links for Getting Started, Overview, Usage by Subscriptions & Regions, Top 5 Usage drivers, Usage by Services, Windows Server AHU Usage, VM RI Coverage (shared recos), VM RI Coverage (single recos), RI Savings, RI Chargeback, RI Purchases, and Pricesheet. The main content area displays a welcome message and the title "Azure Cost Management".

Welcome to Azure Cost Management

Getting Started:
The Azure Cost Management Power BI App is meant to assist in analyzing and managing your cloud cost within Power BI. You can utilize the Azure Cost Management app to monitor costs, usage trends and identify cost optimization options to reduce your expenditures.

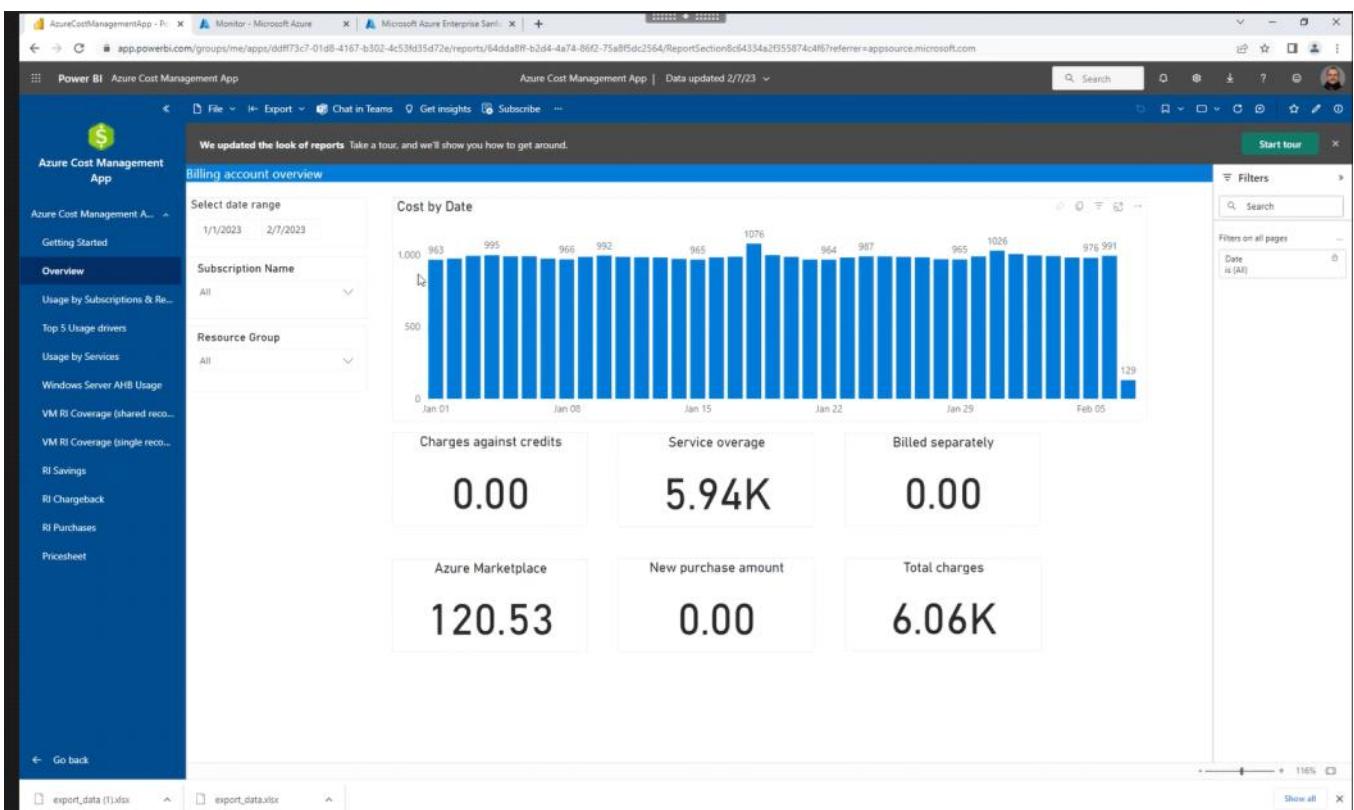
You can use the app as is, or you can download it into [Power BI Desktop](#) and join with additional data to create customized reports to get holistic views of your overall business cost.

Learn more about the Azure Cost Management Power BI template App
Visit aka.ms/CostMgmt/ACMinisights for additional information on the Cost Management template app. To create customized visualizations from scratch, see: [Connect to Azure Cost Management in Power BI Desktop](#).

Learn more about Azure Reservations and Azure Hybrid benefits
What are [Azure Reservations](#)?
Additional information on [Azure Hybrid Benefit](#)
Azure Cost Management documentation: aka.ms/CostMgmt/Docs
Azure Cost Management video channel: aka.ms/CostMgmt/Video
Azure Cost Management updates: aka.ms/CostMgmt/Blog

Provide Feedback
Have an idea or suggestion? Visit aka.ms/ACTemplateAppFeedback to post your thoughts.

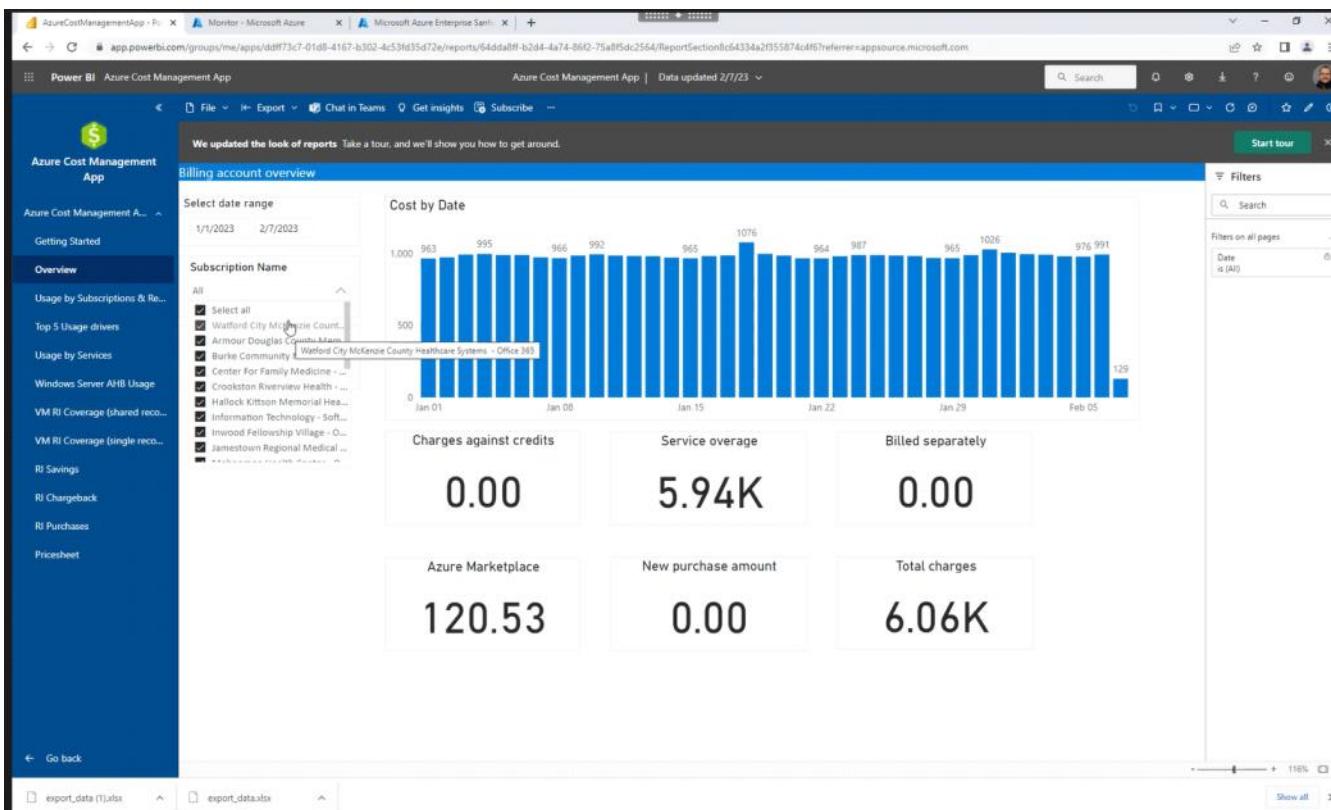




Set the daterange, should be good (last month)

This app can only hold 3 months of data so you need to refresh it.

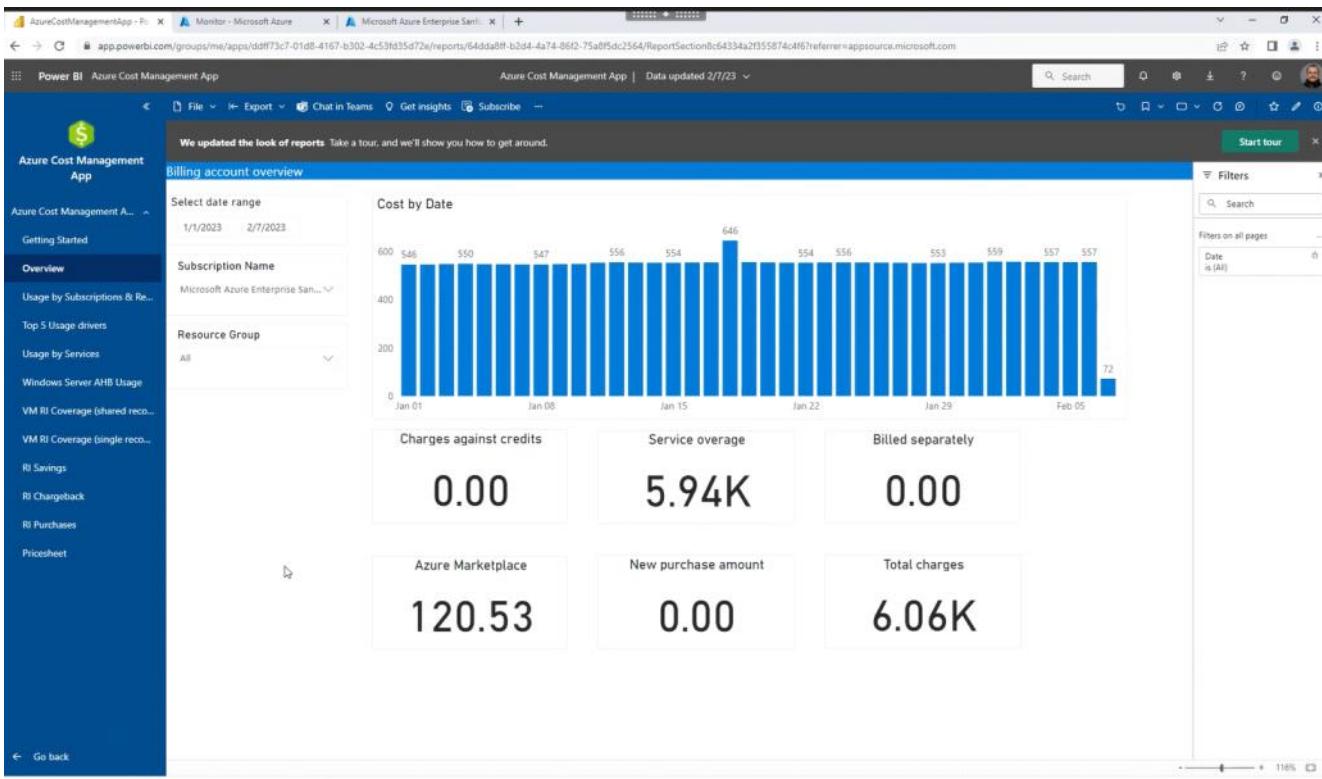
You can filter by sub



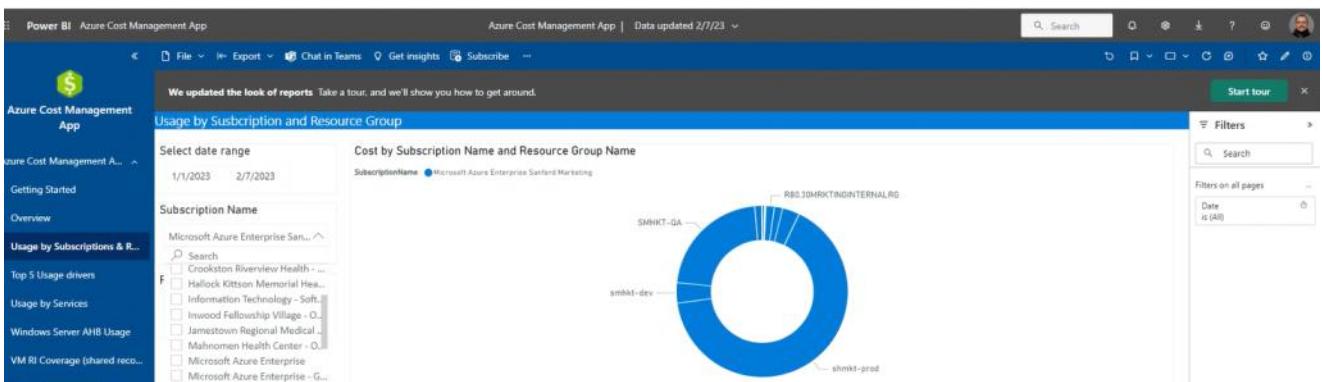
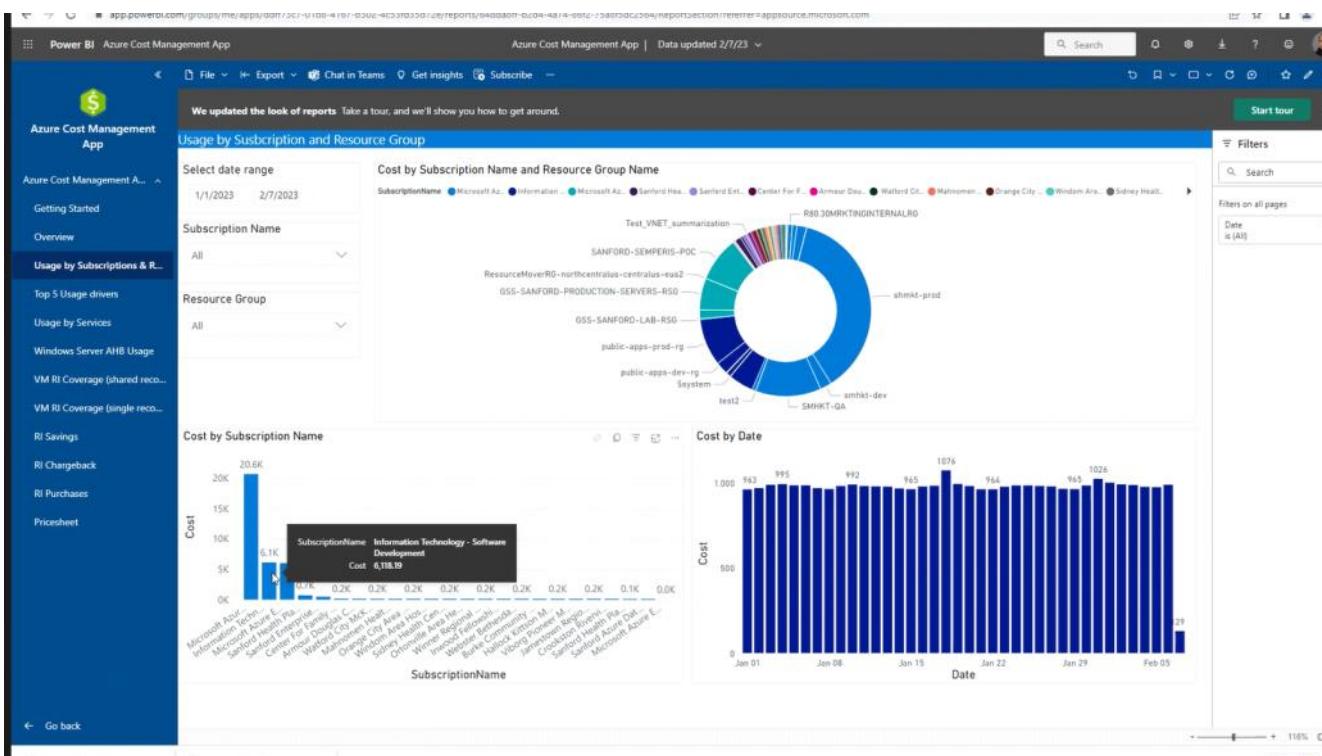
Do you have any RI?

You can pick the sub we were looking at and RG.





Right now only top graph changes when filtered, the boxes in the bottom are overall numbers



Power BI | Azure Cost Management App | Azure Cost Management App | Data updated 2/7/23

We updated the look of reports. Take a tour, and we'll show you how to get around.

Usage by Subscription and Resource Group

Select date range: 1/1/2023 - 2/7/2023

Cost by Subscription Name and Resource Group Name

SubscriptionName: Microsoft Azure Enterprise Sandford Marketing

Cost by Subscription Name

Cost: 20.6K

SubscriptionName: Microsoft Azure Enterprise Sandford Marketing

Cost by Date

Cost: 668

Date: Jan 15

Cost: 546

Date: Jan 01

Cost: 547

Date: Jan 08

Cost: 554

Date: Jan 15

Cost: 554

Date: Jan 22

Cost: 553

Date: Jan 29

Cost: 559

Date: Feb 05

Cost: 72

Go back

export_data.xlsx

Show all

This sub is the bulk of their bill

Power BI | Azure Cost Management App | Azure Cost Management App | Data updated 2/7/23

We updated the look of reports. Take a tour, and we'll show you how to get around.

Top 5 Usage drivers

Select date range: 1/1/2023 - 2/7/2023

Cost by Date and Meter Category

Meter Category: Storage

Cost: 1,000

Date: Jan 01

Date: Jan 08

Date: Jan 15

Date: Jan 22

Date: Jan 29

Date: Feb 05

Cost by Date and Meter Name

Meter Name: D16 v3/D16s v3

Cost: 400

Date: Jan 01

Date: Jan 08

Date: Jan 15

Date: Jan 22

Date: Jan 29

Date: Feb 05

Go back

This is just showing your TOPS

Between the two graphs, the bottom and top graph colors are not related.

Something else to note, you can export everything. You can export and send it to your finance team, excel , pdf or PowerPoint. For budget reviews you can take it as it

Power BI | Azure Cost Management App | Azure Cost Management App | Data updated 2/7/23

We updated the look of reports. Take a tour, and we'll show you how to get around.

Usage by Services

Select date range: 1/1/2023 - 2/7/2023

Cost by Date and Meter Category

Meter Category: All

Cost: 400

Meter Subcategory: Application Gateway

Cost: 300

Meter Subcategory: Application Gateway

Start tour

Filters

Search

Filters on all pages

Date is (All)

Filters on this page

Date is (All)

Filters on all pages

Date is (All)

Power BI Azure Cost Management App

Azure Cost Management App | Data updated 2/7/23

We updated the look of reports. Take a tour, and we'll show you how to get around.

Usage by Services

Select date range: 1/1/2023 - 2/7/2023

Meter Category: All

Meter Subcategory: All

Cost by Date and Meter Category

Details

Date	Subscription Id	Subscription Name	Resource Group	Meter Category	Meter Subcategory	Region
2/7/2023 12:00:00 AM	1478f72-8880-4285-b15c-66a37ce3a0da	Watford City McKenzie County Healthcare Systems - Office 365	WAT-0365-RG	Bandwidth		All Region
2/7/2023 12:00:00 AM	1478f72-8880-4285-b15c-66a37ce3a0da	Watford City McKenzie County Healthcare Systems - Office 365	WAT-0365-RG	Bandwidth	Inter-Region	Inter-Region
2/7/2023 12:00:00 AM	1478f72-8880-4285-b15c-66a37ce3a0da	Watford City McKenzie County Healthcare Systems - Office 365	WAT-0365-RG	Bandwidth		North America
2/7/2023 12:00:00 AM	1478f72-8880-4285-b15c-66a37ce3a0da	Watford City McKenzie County Healthcare Systems - Office 365	WAT-0365-RG	Storage	General Block Blob	Iowa
2/7/2023 12:00:00 AM	1478f72-8880-4285-b15c-66a37ce3a0da	Watford City McKenzie County Healthcare Systems - Office 365	WAT-0365-RG	Storage	Premium SSD Managed Disks	Iowa
2/7/2023 12:00:00 AM	1478f72-8880-4285-b15c-66a37ce3a0da	Watford City McKenzie County Healthcare Systems - Office 365	WAT-0365-RG	Storage	Standard Page Blob	Iowa
2/7/2023 12:00:00 AM	1478f72-8880-4285-b15c-66a37ce3a0da	Watford City McKenzie County Healthcare Systems - Office 365	WAT-0365-RG	Storage	Tables	Iowa
2/7/2023 12:00:00 AM	1478f72-8880-4285-b15c-66a37ce3a0da	Watford City McKenzie County Healthcare Systems - Office 365	WAT-0365-RG	Unassigned		Unassigned
2/7/2023 12:00:00 AM	1478f72-8880-4285-b15c-66a37ce3a0da	Watford City McKenzie County Healthcare Systems - Office 365	WAT-0365-RG	Virtual Machines	BS Series Windows	Iowa
2/7/2023 12:00:00 AM	1478f72-8880-4285-b15c-66a37ce3a0da	Watford City McKenzie County Healthcare Systems - Office 365	WAT-0365-RG	Virtual Network	Peering	Iowa
2/7/2023 12:00:00 AM	60d5c3d0-ba7a-49ed-bf03-a4ef6ee04c99	Amour Douglas County Memorial Hospital - Office 365	ARM-0365-RG	Bandwidth		All Region
2/7/2023 12:00:00 AM	60d5c3d0-ba7a-49ed-bf03-a4ef6ee04c99	Amour Douglas County Memorial Hospital - Office 365	ARM-0365-RG	Bandwidth	Inter-Region	Inter-Region
2/7/2023 12:00:00 AM	60d5c3d0-ba7a-49ed-bf03-a4ef6ee04c99	Amour Douglas County Memorial Hospital - Office 365	ARM-0365-RG	Bandwidth	Inter-Region	North America
2/7/2023 12:00:00 AM	60d5c3d0-ba7a-49ed-bf03-a4ef6ee04c99	Amour Douglas County Memorial Hospital - Office 365	ARM-0365-RG	Storage	Premium SSD Managed Disks	Iowa

Filters on this page: Date is (All)

Filters on all pages: Date is (All)

Start tour

Go back

export_data (1).xlsx

export_data.xlsx

Show all

This shows exactly what you're spending where.

Meter cat filters down to service type

Keep drilling down ...

Difficult to see typically on the cost management.

(Question, as part of those overall recommendations, will you be making recommendations along the lines of if you are moving to a PAAS service you would be able to) Here it is more generic.

In the cost optimization is where we are working with you and go into more details.

Question: How do we spend our money better while still retaining the same service?

Power BI Azure Cost Management App

Azure Cost Management App | Data updated 2/7/23

We updated the look of reports. Take a tour, and we'll show you how to get around.

Windows Server AHB usage report

This Windows Server Azure Hybrid Benefits usage report shows how many have VMs have AHB enabled, and of those VMs how many AHB vCPUs or cores are being utilized.

For more information around Azure Hybrid Benefit see <https://azure.microsoft.com/en-us/pricing/hybrid-benefit/>

Windows Server AHB consumed (last 30-days)

Azure Hybrid Benefit: Enabled

Windows Server AHB enabled (last day)

8

Windows Server AHB vCPUs used (last day)

64

AHB vCPUs consumed (last 30-days)

AHB enabled SKUs with less than 8 vCPU (last day)

SKU	VCPUs
Standard_D4s_v3	5
Standard_A8s_v2	1
Standard_D2s_v3	1
Standard_D4s_v4	1

SKUs with 8+ vCPUs where AHB not enabled (last day)

SKU	VCPUs
Standard_D16s_v3	2
Standard_A8v2	1
Standard_D32s_v3	1

Resource Details (last day)

Date	SKU	VCPUs	AHB vCPUs	Azure Hybrid Benefit	Subscription Name	Resource Group	Instance Name	Cost	Quantity
2/7/2023 12:00:00 AM	Standard_D16s_v3	16	16	Not enabled	Microsoft Azure Enterprise Sanford Marketing	shmkrt-prod	shmkrt-prod-c01	5.07	3
2/7/2023 12:00:00 AM	Standard_D16s_v3	16	16	Not enabled	Microsoft Azure Enterprise Sanford Marketing	shmkrt-prod	shmkrt-prod-c02	5.07	3
2/7/2023 12:00:00 AM	Standard_D16s_v4	8	8	Not enabled	Microsoft Azure Enterprise Sanford Marketing	shmkrt-dev	shmkrt-dev-web	2.41	3
2/7/2023 12:00:00 AM	Standard_A8s_v2	8	8	Not enabled	Microsoft Azure Enterprise Sanford Marketing	shmkrt-prod	shmkrt-prod-cm	1.80	3
2/7/2023 12:00:00 AM	Standard_D12s_v2	4	4	Not enabled	Microsoft Azure Enterprise Sanford Marketing	SMHKT-QA	shmkrt-qc-c01	1.51	3
2/7/2023 12:00:00 AM	Standard_D12s_v2	4	4	Not enabled	Microsoft Azure Enterprise Sanford Marketing	SMHKT-QA	shmkrt-qc-c02	1.51	3
2/7/2023 12:00:00 AM	Standard_D12s_v4	4	4	Not enabled	Microsoft Azure Enterprise Sanford Marketing	SMHKT-QA	shmkrt-qc-sql-2019	1.51	3
2/7/2023 12:00:00 AM	Standard_D12s_Promo	4	4	Not enabled	Microsoft Azure Enterprise Sanford Marketing	SMHKT-QA	shmkrt-qc-web	1.51	3
2/7/2023 12:00:00 AM	Standard_D4t_v4	4	4	Not enabled	Microsoft Azure Enterprise Sanford Marketing	shmkrt-mrd	shmkrt-mrd-c01	1.37	3

Filters on this page: Date is (All)

Filters on all pages: Date is (All)

Start tour

Go back

It is across all subs, not filtered.

Power BI Azure Cost Management App | Azure Cost Management App | Data updated 2/7/23

We updated the look of reports Take a tour, and we'll show you how to get around.

VM RI Coverage (shared recommendation)

Select date range: 1/1/2023 - 2/7/2023

Select the Reservation Term: P3Y

Resource Location: Drill down filter for region, instance size group and VM Size

Usage by On-demand and RI: IsRIUsage (On Demand Usage)

Recommendations for shared scope. These recommendations are calculated by evaluating your last 30 days of usage.

Instance Flexibility Group	Location	SKU	Recommended Quantity	Normalized Size	Recommended Quantity Normalized	Term	Scope
B5 Series	northcentralus	Standard_B2s	1.00	Standard_B1ms	8	P3Y	Shared
B5 Series High Memory	centralus	Standard_B2ms	16.00	Standard_B1ms	64	P3Y	Shared
B5 Series High Memory	centralus	Standard_B4ms	2.00	Standard_B1ms	16	P3Y	Shared
B5 Series High Memory	northcentralus	Standard_B4ms	6.00	Standard_B1ms	48	P3Y	Shared
D4v2 Series	centralus	Standard_D2av4	2.00	Standard_D2av4	2	P3Y	Shared
D4v2 Series	centralus	Standard_D8av4	1.00	Standard_D2av4	4	P3Y	Shared
D4v4 Series	centralus	Standard_D4dv4	8.00	Standard_D2av4	16	P3Y	Shared
D5v2 Series	centralus	Standard_D5S2_v2	2.00	Standard_D5S1_v2	4	P3Y	Shared
D5v2 Series	centralus	Standard_D5S2_v2	5.00	Standard_D5S1_v2	20	P3Y	Shared
D5v3 Series	centralus	Standard_D5S3_v3	2.00	Standard_D5S2_v3	2	P3Y	Shared
D5v3 Series	centralus	Standard_D24S3_v3	3.00	Standard_D5S2_v3	6	P3Y	Shared
Dv2 Series	centralus	Standard_D2_v2	5.00	Standard_D1_v2	10	P3Y	Shared
Total			55.00		216		

Go back

export_data.xlsx export_data.xlsb Show all

Gives info about 1 or 3y reservations and looking at different scope. Only shows VM's.

Power BI Azure Cost Management App | Azure Cost Management App | Data updated 2/7/23

We updated the look of reports Take a tour, and we'll show you how to get around.

VM RI Coverage (single recommendation)

Select date range: 1/1/2023 - 2/7/2023

Subscription Name: All

Select the reservation term: P3Y

Subscription Name: Drill down filter for region, instance size

Usage by On-demand and RI: IsRIUsage (On Demand Usage)

Recommendations for single scope. These recommendations are calculated by evaluating your last 30 days of usage.

Subscription Name	Instance Flexibility Group	Location	SKU	Recommended Quantity	Normalized Size	Recommended Quantity Normalized	Term	Scope
Watford City McKenzie County Healthcare Systems - Office 365	B5 Series High Memory	centralus	Standard_B2ms	16.00	Standard_B1ms	16.00	P3Y	Single
Armen Douglas County Memorial Hospital - Office 365	B5 Series High Memory	centralus	Standard_B2ms	16.00	Standard_B1ms	16.00	P3Y	Single
Burke Community Memorial Hospital - Office 365	B5 Series High Memory	centralus	Standard_B2ms	16.00	Standard_B1ms	16.00	P3Y	Single
Center For Family Medicine - Office 365	B5 Series High Memory	centralus	Standard_B2ms	16.00	Standard_B1ms	16.00	P3Y	Single
Crookston Riverview Health - Office 365	B5 Series High Memory	centralus	Standard_B2ms	16.00	Standard_B1ms	16.00	P3Y	Single
Halsick Kishon Memorial Healthcare Center - Office 365	B5 Series High Memory	centralus	Standard_B2ms	16.00	Standard_B1ms	16.00	P3Y	Single
Inwood Fellowship Village - Office 365	B5 Series High Memory	centralus	Standard_B2ms	16.00	Standard_B1ms	16.00	P3Y	Single
Jamesstown Regional Medical Center - Office 365	B5 Series High Memory	centralus	Standard_B2ms	16.00	Standard_B1ms	16.00	P3Y	Single
Makoshien Health Center - Office 365	B5 Series High Memory	centralus	Standard_B2ms	16.00	Standard_B1ms	16.00	P3Y	Single
Microsoft Azure Enterprise - GSS Migration	B5 Series	northcentralus	Standard_B2s	1.00	Standard_B1ms	2.00	P3Y	Single
Microsoft Azure Enterprise - GSS Migration	B5 Series High Memory	centralus	Standard_B4ms	1.00	Standard_B1ms	2.00	P3Y	Single
Total			55.00		216			

Go back

export_data.xlsx export_data.xlsb Show all

Same info except for a single scope. You can filter by subscription.
Both same report, one allows you to filter.

We updated the look of reports Take a tour, and we'll show you how to get around.

Reservations Savings

Select date range This report shows the savings accrued from a reservation: The savings are available by Reservation name and at subscription, resource group and resource levels.

Savings calculation factors in:
1. 'OnDemandCost - If No RI' is calculated using your on-demand cost rate. This provides a calculation of what your cost would have been without RI.
2. 'UnusedReservation' is the monetary value of RI underutilization and is subtracted from Total Savings

Reservation Name Total Savings

(Blank)

Reservation Name Subscription Name Resource Group Resource Name OnDemandCost - If No RI Cost with RI Savings Charge Type

Filters

Search

Date is (All)

If you did have any, this would be populated.

We updated the look of reports Take a tour, and we'll show you how to get around.

Reservations Chargeback

Select date range This report can help you understand where and how much RI Benefit was applied and to which region, SKU, subscription or resource group:

The cost shown is the prorated reservation cost for all reservations that were active in the time period. Select a reservation name to see how much of the RI benefit was applied to a particular region, SKU, subscription or resource group. 'UnusedReservation' is the monetary value of RI underutilization.

Reservation Name Subscription Name Resource Group Resource Name Cost Charge Type

Filters

Search

Date is (All)

For any unused Ris.

If the scope region does not line up. If you are in central or you set up in another region.
This is the cost you're paying for something you're not using.

Power BI Azure Cost Management App | Azure Cost Management App | Data updated 2/7/23 | Search | Chat in Teams | Get insights | Subscribe | Start tour

We updated the look of reports. Take a tour, and we'll show you how to get around.

Reservations Purchases

Select date range: 11/1/2019 - 1/31/2020

This report shows any RI purchases over the selected time period.

Event Date	Event Type	Reservation Order Name	Reservation Order Id	Description	Quantity	Amount	Currency

Filters: Date is (All)

Go back | export_data (1).xlsx | export_data.xlsx | Show all

Power BI Azure Cost Management App | Azure Cost Management App | Data updated 2/7/23 | Search | Chat in Teams | Get insights | Subscribe | Start tour

We updated the look of reports. Take a tour, and we'll show you how to get around.

Pricesheet

Meter Category

Offer Id	Part Number	Meter Category	Meter Subcategory	Meter Name	Currency Code	Included Quantity	Unit of Measure	Unit Price
MS-AZ-USGOV-00179	IOT-00088	Key Vault	Operations	USD	0.00	1000000	1.00	
MS-AZ-USGOV-00179	IOT-00090	Key Vault	Premium HSM-protected RSA 2048-bit key	USD	0.00	1	1.00	
MS-AZ-USGOV-00179	IOT-00092	Log Analytics	Free Data Analyzed	USD	0.00	1 GB	0.00	
MS-AZ-USGOV-00179	IOT-00094	Log Analytics	Premium Data Analyzed	USD	0.00	1 GB	3.5	
MS-AZ-USGOV-00179	IOT-00096	Log Analytics	Standard Data Analyzed	USD	0.00	1 GB	2.2	
MS-AZ-USGOV-00179	IOT-00098	Automation	Basic Runtime	USD	0.00	500 Minutes	1.00	
MS-AZ-USGOV-00179	IOT-00100	Automation	Free Runtime	USD	0.00	500 Minutes	0.00	
MS-AZ-USGOV-00179	IOT-00110	Automation	Configuration Management	USD	0.00	1/Month	6.5	
MS-AZ-USGOV-00179	IOT-00113	IoT Hub	Free Unit	USD	0.00	1/Day	0.00	
MS-AZ-USGOV-00179	IOT-00115	IoT Hub	S2 Unit	USD	0.00	1/Dow	8.5	
MS-AZ-USGOV-00179	IOT-00117	IoT Hub	S3 Unit	USD	0.00	1/Dow	0.00	
MS-AZ-USGOV-00179	IOT-00119	Automation	Configuration Management	Azure Note	USD	0.00	1	0.00
MS-AZ-USGOV-00179	3I4-00024	Redis Cache	Basic	C5 Cache	USD	0.00	10 Hours	4.5
MS-AZ-USGOV-00179	3I4-00025	Redis Cache	Basic	C6 Cache	USD	0.00	10 Hours	8.4
MS-AZ-USGOV-00179	3I4-00028	Redis Cache	Standard	C0 Cache	USD	0.00	100 Hours	5.5
MS-AZ-USGOV-00179	3I4-00030	Redis Cache	Standard	C1 Cache	USD	0.00	100 Hours	13.6
MS-AZ-USGOV-00179	3I4-00032	Redis Cache	Standard	C2 Cache	USD	0.00	10 Hours	2.2
MS-AZ-USGOV-00179	3I4-00034	Redis Cache	Standard	C3 Cache	USD	0.00	10 Hours	4.5
MS-AZ-USGOV-00179	3I4-00036	Redis Cache	Standard	C4 Cache	USD	0.00	10 Hours	5.2
MS-AZ-USGOV-00179	3I4-00038	Redis Cache	Standard	C5 Cache	USD	0.00	10 Hours	10.5
MS-AZ-USGOV-00179	3I4-00040	Redis Cache	Standard	C6 Cache	USD	0.00	10 Hours	21.6
MS-AZ-USGOV-00179	3I4-00042	Redis Cache	Basic	C0 Cache	USD	0.00	100 Hours	2.2
MS-AZ-USGOV-00179	3I4-00044	Redis Cache	Basic	C1 Cache	USD	0.00	100 Hours	5.5
MS-AZ-USGOV-00179	3I4-00046	Redis Cache	Basic	C2 Cache	USD	0.00	10 Hours	0.6
MS-AZ-USGOV-00179	3I4-00048	Redis Cache	Basic	C3 Cache	USD	0.00	10 Hours	1.8
MS-AZ-USGOV-00179	3I4-00050	Redis Cache	Basic	C4 Cache	USD	0.00	10 Hours	2.3
MS-AZ-USGOV-00179	3I4-00116	Redis Cache	Premium	P1 Cache	USD	0.00	10 Hours	5.5
MS-AZ-USGOV-00179	3I4-00118	Redis Cache	Premium	P2 Cache	USD	0.00	10 Hours	11.1
MS-AZ-USGOV-00179	3I4-00140	Redis Cache	Premium	P3 Cache	USD	0.00	10 Hours	22.1
MS-AZ-USGOV-00179	3I4-00142	Redis Cache	Premium	P4 Cache	USD	0.00	10 Hours	44.4
MS-AZ-USGOV-00179	4WP-00002	SQL Database	Single Basic	B DTU	USD	0.00	10/Day	1.6
MS-AZ-USGOV-00179	4WP-00004	SQL Database	Single Standard	S1 DTU	USD	0.00	1/Day	0.6
MS-AZ-USGOV-00179	4WP-00006	SQL Database	Single Standard	S1 DTUs	USD	0.00	1/Day	2.4
MS-AZ-USGOV-00179	4WP-00008	SQL Database	Single Premium	P1 DTU	USD	0.00	1/Day	15.4
MS-AZ-USGOV-00179	4WP-00010	SQL Database	Single Premium	P2 DTU	USD	0.00	1/Day	30.0
MS-AZ-USGOV-00179	4WP-00012	SQL Database	Single Premium	P6 DTU	USD	0.00	1/Day	120.0
MS-AZ-USGOV-00179	4WP-00014	SQL Database	Single Standard	S1 Secondary DTUs	USD	0.00	1/Day	0.6
MS-AZ-USGOV-00179	4WP-00016	SQL Database	Single Standard	S1 Secondary DTUs	USD	0.00	1/Day	0.8
MS-AZ-USGOV-00179	4WP-00018	SQL Database	Single Standard	S2 Secondary DTUs	USD	0.00	1/Day	2.1

Filters: Date is (All)

Go back | export_data (1).xlsx | export_data.xlsx | Show all

Discounted price for your EA price and discount with us.

Have you used the pricing calculator?

Does not apply the discounts. Is more generalized.

This one you can use as it applies to you. You can put it on Excel and calculate it....

Next thing we will go over is the Reserved Instance Dashboard.

Is there prebuilt report to dump this pricesheet and calculate automatically???

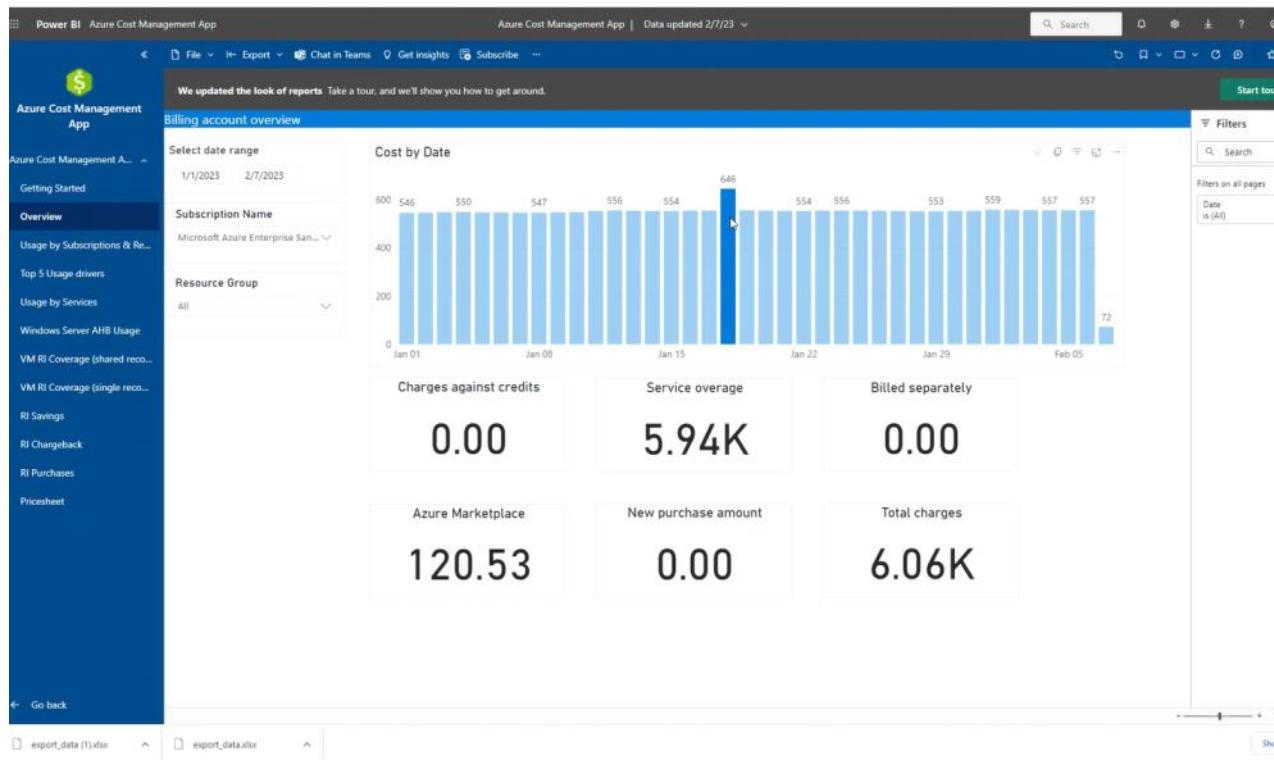
Not possible as of right now.

About the Dashboard?

One last thing on this it can be saved and shared, published to a workspace,.....

Last thing:

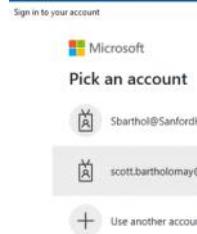
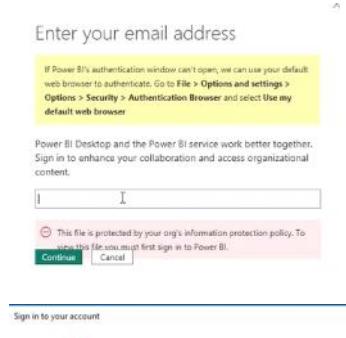
Send you an email with the RI recommendation dashboard.

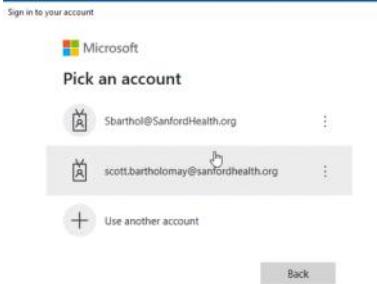


Question about this spike?

Not sure (Lauren) -> I'll check into that.

Power BI RI db:





This file is restricted

Your organization has protected the file with a sensitivity label. To request access, contact your team's Power BI admin.

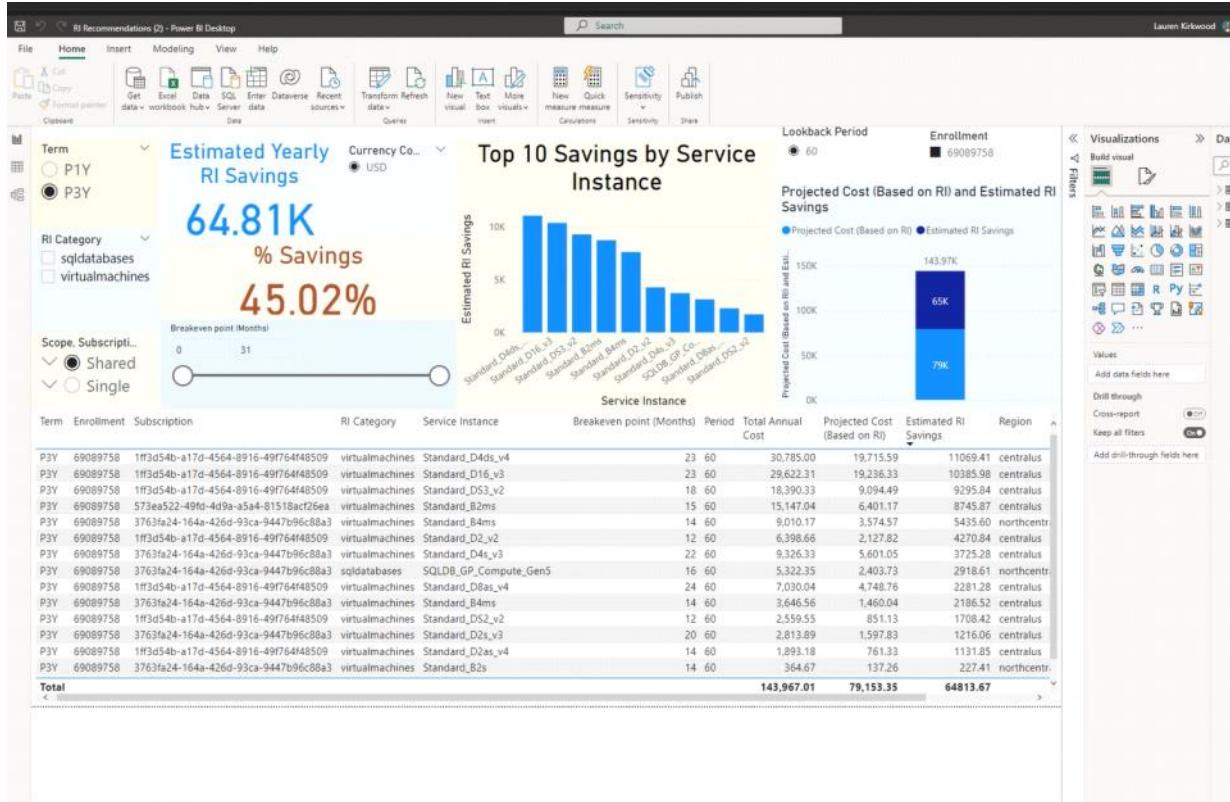
[Learn more](#)

[Close](#)

Cmr will try again with another account.

Lauren proposes to share her screen and figure out access later:

She shares the db and her screen



Cool about this (35services with RI)
Pis static, pulled data this morning from MS backend.

This is using rates from your enrollment.

Qs: can it include rightsizing recommendations?
(Lauren, don't think)

Something to note, the breakeven point. Means that for this example in 23m out of your 3y term your PAYG will equal your RI. Gives you an idea of amount of savings you can get.

RI's based off -> same scope, single or shared, same region,... SKU.

Do you want to see any combination here?

Qs: any way to see this with cost savings?

(In the cost calculator there is an option, but will be generic, but not related to your particular situation.)

Qs: Is there a way we can get that?? (Qs -> check with the CSAM,...)

The customer wants at the very least to contract between RI and savings plans.
Gives the most flexibility. This will help looking at calculated risks for jumping into RI's.....

2nd Session Azure Assessment Q & A

The screenshot shows the Microsoft Assessments homepage. At the top, there is a banner with two people looking at a screen. Below the banner, there is a section titled "Welcome to Microsoft Assessments" with a brief description. Three assessment cards are displayed:

- AZASSESSMENT**
Azure Well-Architected Review
Examine your workload through the lenses of reliability, cost management, operational excellence, security and performance efficiency.
🕒 80 minutes
Azure
Save
- AZASSESSMENT**
Microsoft Cloud for Healthcare Learner Self-Assessment (Preview)
This Learner Self-Assessment is built to guide you during your Microsoft Cloud for Healthcare learning journey. It will provide you with unique insights into actions you may take to advance your learning journey. It will also provide recommendations on learning...
🕒 10 minutes
Azure
Save
- AZASSESSMENT**
Power Platform Adoption Assessment
Power Platform's low code approach to solution delivery has enabled thousands of organizations around the world to use technology to transform their business. It does this by enabling more people than ever before to create applications. Integrate int...
🕒 10 minutes
Microsoft Power Platform
Save

The screenshot shows the Microsoft Learn Assessments page. At the top, there is a navigation bar with various links. Below the navigation bar, there is a section titled "MICROSOFT ASSESSMENTS" with a card for the "Azure Well-Architected Review".

AZASSESSMENT
Azure Well-Architected Review
Examine your workload through the lenses of reliability, cost management, operational excellence, security and performance efficiency.
Start Assessment

Overview

Azure Well-Architected Review

[Azure Well-Architected Review - Feb 7, 2023 - 10:09:03 PM](#)

[View guidance](#) 0 of 2 pages complete

WAF Configuration

* What workload type do you want to evaluate?

Core Pillars

* What pillars would you like to evaluate?

Azure Well-Architected Review

Examine your workload through the lenses of reliability, cost management, operational excellence, security and performance efficiency.

Assessment name *

Azure Well-Architected Review - Feb 7, 2023 - 1:09:03 PM

Overview

Azure Well-Architected Review

[Azure Well-Architected Review - Feb 7, 2023 - 10:09:03 PM](#)

[View guidance](#) 0 of 2 pages complete

WAF Configuration

* What workload type do you want to evaluate?

Core Pillars

* What pillars would you like to evaluate?

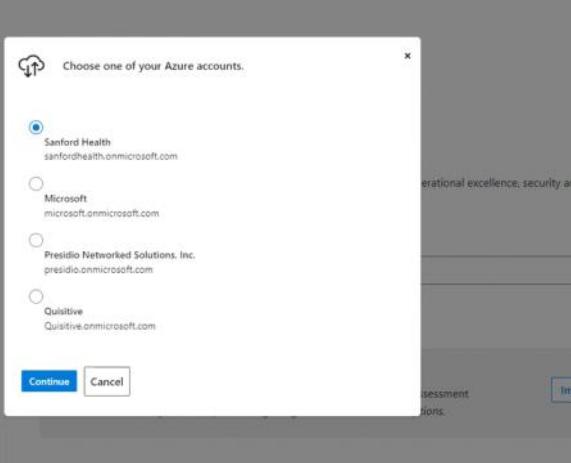
Azure Well-Architected Review

Examine your workload through the lenses of reliability, cost management, operational excellence, security and performance efficiency.

Assessment name *

Cost Management Assessment - Feb 7, 2023

...



Azure Well-Architected Review

Examine your workload through the lenses of reliability, cost management, operational excellence, security and performance efficiency.

Assessment name *

Cost Management Assessment - Feb 7, 2023

Azure Advisor Recommendations



Azure Well-Architected Review

Examine your workload through the lenses of reliability, cost management, operational excellence, security and performance efficiency.

Assessment name *

Cost Management Assessment - Feb 7, 2023

Azure Advisor Recommendations

Subscription: fff3d54b-a17d-4564-8916-49f764f48509
Resource Group: All Resource Groups

Last refreshed Feb 7, 2023, 1:10:19 PM

Start →

Overview

Azure Well-Architected Review

Cost Management Assessment - Feb 7, 2023

[View guidance](#)

1 of 2 pages complete

WAF Configuration

✓ What workload type do you want to evaluate?

Core Pillars

* What pillars would you like to evaluate?

WAF Configuration

What workload type do you want to evaluate?

Select an option below. For the Data Services assessment, see Data Services | Well-Architected Assessment in the Assessments Portal.

- Core Well-Architected Review
- Azure Machine Learning
- Internet of Things
- SAP On Azure (Preview)
- Analytics
- Azure Stack Hub (Preview)

← Back

Next →

Microsoft | Learn Documentation Training Certifications Q&A Code Samples Assessments Shows Events

Assessments FAQ & Help

Learn / Assessments / Browse /

Overview Guidance

Azure Well-Architected Review

Cost Management Assessment - Feb 7, 2023

[View guidance](#)

2 of 11 pages complete

WAF Configuration

✓ What workload type do you want to evaluate?

Core Pillars

✓ What pillars would you like to evaluate?

Cost Optimization

- How are you modeling cloud costs of this workload?
- How do you govern budgets and application lifespan for this workload?
- How are you monitoring costs of this workload?
- How do you optimize the design of this workload?
- How do you ensure that cloud services are appropriately provisioned?
- What considerations for DevOps practices are you making in this workload?
- How do you manage compute costs for this workload?
- How do you manage networking costs for this workload?
- How do you manage storage and data costs for this workload?

← Back

Add a note here.

Next →

✓ What pillars would you like to evaluate?

Cost Optimization

- How are you modeling cloud costs of this workload?
- How do you govern budgets and application lifespan for this workload?
- How are you monitoring costs of this workload?
- How do you optimize the design of this workload?
- How do you ensure that cloud services are appropriately provisioned?
- What considerations for DevOps practices are you making in this workload?
- How do you manage compute costs for this workload?
- How do you manage networking costs for this workload?
- How do you manage storage and data costs for this workload?



How are you modeling cloud costs of this workload?

Cost modeling is an exercise where you create logical groups of cloud resources that are mapped to the organization's hierarchy and then estimate costs for those groups. The goal of cost modeling is to estimate the overall cost of the organization in the cloud.

Cloud costs are being modelled for this workload. ⓘ

The price model of the workload is clear. ⓘ

Critical system flows through the application have been defined for all key business scenarios. ⓘ

There is a well-understood capacity model for the workload. ⓘ

Internal and external dependencies are identified and cost implications understood. ⓘ

Cost implications of each Azure service used by the application are understood. ⓘ

The right operational capabilities are used for Azure services. ⓘ

Special discounts given to services or licenses are factored in when calculating new cost models for services being moved to the cloud. ⓘ

Azure Hybrid Use Benefit is used to drive down cost in the cloud. ⓘ

None of the above.

None of the above

Azure Well-Architected Review
Cost Management Assessment - Feb 7, 2023

[View guidance](#) 4 of 11 pages complete

WAF Configuration

- ✓ What workload type do you want to evaluate?

Core Pillars

- ✓ What pillars would you like to evaluate?

Cost Optimization

- How are you modeling cloud costs of this workload?
- How do you govern budgets and application lifespan for this workload?
- How are you monitoring costs of this workload?
- How do you optimize the design of this workload?
- How do you ensure that cloud services are appropriately provisioned?
- What considerations for DevOps practices are you making in this workload?
- How do you manage compute costs for this workload?
- How do you manage networking costs for this workload?
- How do you manage storage and data costs for this workload?

Cost Optimization

How do you govern budgets and application lifespan for this workload?

Budgets are assigned to all services in this workload. ⓘ

There is a cost owner for every service used by this workload. ⓘ

Cost forecasting is done to ensure it aligns with the budget. ⓘ

There is a monthly or yearly meeting where the budget is reviewed. ⓘ

Every environment has a target end-date. ⓘ

Every environment has a plan for migrating to PaaS or serverless to lower the all up cost and transfer risk. ⓘ

There is a clear understanding of how budget is defined. ⓘ

Budget is factored into the building phase. ⓘ

There is an ongoing conversation between the app owner and the business. ⓘ

There is a plan to modernize the workload. ⓘ

Azure Tags are used to enrich Azure resources with operational metadata. ⓘ

The application has a well-defined naming standard for Azure resources. ⓘ

Role Based Access Control (RBAC) is used to control access to operational and financial dashboards and underlying data. ⓘ

None of the above.

[← Back](#) [Next →](#)

Question about modernization plans and asking more details about it.

How are you monitoring costs of this workload?

Consider the metrics for each resource in the workload. For each metric, build alerts on baseline thresholds.

- Alerts are set for cost thresholds and limits. ⓘ
- Specific owners and processes are defined for each alert type. ⓘ
- Application Performance Management (APM) tools and log aggregation technologies are used to collect logs and metrics from Azure resources. ⓘ
- Cost Management Tools (such as Azure Cost Management) are being used to track spending in this workload. ⓘ
- None of the above.

[← Back](#)

[Next →](#)

Use 3rd party management alerting monitoring platform (solarwinds)

How do you optimize the design of this workload?

Continue to monitor and optimize the workload by using the right resources and sizes.

- The application was built natively for the cloud. ⓘ
- There is an availability strategy defined and cost implications of it are understood. ⓘ
- This workload benefits from higher density. ⓘ

How do you optimize the design of this workload?

Continue to monitor and optimize the workload by using the right resources and sizes.

- The application was built natively for the cloud. ⓘ
- There is an availability strategy defined and cost implications of it are understood. ⓘ
- This workload benefits from higher density. ⓘ
- Data is being transferred between regions. ⓘ
- Multi-region deployment is supported and cost implications understood. ⓘ
- The workload is designed to use Availability Zones within a region. ⓘ
- None of the above.



[Next →](#)

Talk about redundancies ->3rd party firewall instances, multiple db instances, in a cluster, multiple web instances behind lb, HA design behind a single AZ
Check one to not get recommendations on it.

Workload designed before AZ's.

How do you ensure that cloud services are appropriately provisioned?

Deployment of cloud resources of a workload is known as provisioning.

- Performance requirements are well-defined. ⓘ
- Targets for the time it takes to perform scale operations are defined and monitored. ⓘ
- The workload is designed to scale independently. ⓘ
- The application has been designed to scale both in and out. ⓘ
- Application components and data are split into groups as part of your disaster recovery strategy. ⓘ
- Tools (such as Azure Advisor) are being used to optimise SKUs discovered in this workload. ⓘ
- Resources are reviewed weekly or bi-weekly for optimization. ⓘ
- Cost-effective regions are considered as part of the deployment selection. ⓘ
- Dev/Test offerings are used correctly. ⓘ
- Shared hosting platforms are used correctly. ⓘ
- None of the above.

Azure Advisor helps to optimize and improve efficiency by analyzing usage telemetry and consolidates it into performance recommendations.

1. Only doing availability monitoring

How do you ensure that cloud services are appropriately provisioned?

Deployment of cloud resources of a workload is known as provisioning.

- Performance requirements are well-defined. ⓘ
- Targets for the time it takes to perform scale operations are defined and monitored. ⓘ
- The workload is designed to scale independently. ⓘ
- The application has been designed to scale both in and out. ⓘ
- Application components and data are split into groups as part of your disaster recovery strategy. ⓘ
- Tools (such as Azure Advisor) are being used to optimise SKUs discovered in this workload. ⓘ
- Resources are reviewed weekly or bi-weekly for optimization. ⓘ
- Cost-effective regions are considered as part of the deployment selection. ⓘ
- Dev/Test offerings are used correctly. ⓘ
- Shared hosting platforms are used correctly. ⓘ
- None of the above.

[← Back](#)



She checks boxes where this is not applicable or they don't need any recommendations for this.

Azure Well-Architected Review

Last Management Assessment - Feb 7, 2023

[View guidance](#)

7 of 11 pages complete

WAF Configuration

✓ What workload type do you want to evaluate?

Core Pillars

✓ What pillars would you like to evaluate?

Cost Optimization

✓ How are you modeling cloud costs of this workload?

✓ How do you govern budgets and application lifespan for this workload?

✓ How are you monitoring costs of this workload?

✓ How do you optimize the design of this workload?

✓ How do you ensure that cloud services are appropriately provisioned?

▢ What considerations for DevOps practices are you making in this workload?

▢ How do you manage compute costs for this workload?

▢ How do you manage networking costs for this workload?

▢ How do you manage storage and data costs for this workload?

Cost Optimization

What considerations for DevOps practices are you making in this workload?

- There is an automated process to deploy application releases to production. ⓘ

The time it takes to perform a complete environment deployment should align with recovery targets. Automation and agility also lead to cost savings due to the reduction of manual actions and errors.

- Test-environments are deployed automatically and deleted after use. ⓘ

There is awareness around how the application has been built and is being maintained (in house or via an external partner).

- There is awareness regarding the ratio of cost of production and non-production environments for this workload.

▢ ⓘ

- None of the above.

[← Back](#)

[Next →](#)

Azure Well-Architected Review

Cost Management Assessment - Feb 7, 2023

[View guidance](#)

7 of 11 pages complete

WAF Configuration

- ✓ What workload type do you want to evaluate?
- Core Pillars
- ✓ What pillars would you like to evaluate?
- Cost Optimization
- ✓ How are you modeling cloud costs of this workload?
- ✓ How do you govern budgets and application lifespan for this workload?
- ✓ How are you monitoring costs of this workload?
- ✓ How do you optimize the design of this workload?
- ✓ How do you ensure that cloud services are appropriately provisioned?
- ☐ What considerations for DevOps practices are you making in this workload?
- ☐ How do you manage compute costs for this workload?
- ☐ How do you manage networking costs for this workload?
- ☐ How do you manage storage and data costs for this workload?

Cost Optimization

What considerations for DevOps practices are you making in this workload?

- There is an automated process to deploy application releases to production. ⓘ
The time it takes to perform a complete environment deployment should align with recovery targets. Automation and agility also lead to cost savings due to the reduction of manual actions and errors.
- Test-environments are deployed automatically and deleted after use. ⓘ
There is awareness around how the application has been built and is being maintained (in house or via an external partner).
- There is awareness regarding the ratio of cost of production and non-production environments for this workload. ⓘ
- None of the above.

[← Back](#)

[Next →](#)

Azure Well-Architected Review

Cost Management Assessment - Feb 7, 2023

[View guidance](#)

8 of 11 pages complete

WAF Configuration

- ✓ What workload type do you want to evaluate?
- Core Pillars
- ✓ What pillars would you like to evaluate?
- Cost Optimization
- ✓ How are you modeling cloud costs of this workload?
- ✓ How do you govern budgets and application lifespan for this workload?
- ✓ How are you monitoring costs of this workload?
- ✓ How do you optimize the design of this workload?
- ✓ How do you ensure that cloud services are appropriately provisioned?
- ☐ What considerations for DevOps practices are you making in this workload?
- ☐ How do you manage compute costs for this workload?
- ☐ How do you manage networking costs for this workload?
- ☐ How do you manage storage and data costs for this workload?

Cost Optimization

How do you manage compute costs for this workload?

- Appropriate SKUs are used for workload servers. ⓘ
- Appropriate operating systems are used in the workload. ⓘ
- A recent review of SKUs that could benefit from Reserved Instances for 1 or 3 years or more has been performed. ⓘ
- Burstable (B) series VM sizes are used for VMs that are idle most of the time and have high usage only in certain periods. ⓘ
- VM instances which are not used are shut down. ⓘ
- Spot virtual machines are used. ⓘ
- PaaS is used as an alternative to buying virtual machines. ⓘ
- Costs are optimized by using the App Service Premium (v3) plan over the Premium (Pv2) plan. ⓘ
- Zone to Zone disaster recovery is used for virtual machines. ⓘ
- The Start/Stop feature in Azure Kubernetes Services (AKS) is used. ⓘ
- None of the above.

Replicate, failover and fallback your business-critical virtual machines with networking infrastructure and want to avoid the cost and complexity of

Additional question on B series, asking extra question on if they have some VM's that could benefit from this?

Cost Optimization

How do you manage compute costs for this workload?

- Appropriate SKUs are used for workload servers. ⓘ
- Appropriate operating systems are used in the workload. ⓘ
- A recent review of SKUs that could benefit from Reserved Instances for 1 or 3 years or more has been performed. ⓘ
- Burstable (B) series VM sizes are used for VMs that are idle most of the time and have high usage only in certain periods. ⓘ
- VM instances which are not used are shut down. ⓘ
- Spot virtual machines are used. ⓘ
- PaaS is used as an alternative to buying virtual machines. ⓘ
- Costs are optimized by using the App Service Premium (v3) plan over the Premium (Pv2) plan. ⓘ
- Zone to Zone disaster recovery is used for virtual machines. ⓘ
- The Start/Stop feature in Azure Kubernetes Services (AKS) is used. ⓘ
- None of the above.

[← Back](#)

[Next →](#)

The one checked because they don't use AKS so we don't surface recommendations

Cost Optimization

How do you manage networking costs for this workload?

- Service Endpoints or Private Link are used for accessing Azure PaaS services. ⓘ
- Hub and spoke design pricing is understood. ⓘ
- Microsoft backbone network is preferred. ⓘ
- DDoS attack mitigation plans and capabilities are in place. ⓘ
- Azure Front Door, Azure App Gateway or Web Application Firewall is used. ⓘ
- The workload is connected between regions (using network peering or gateways). ⓘ
- Azure resources are connecting to the internet via on-premises. ⓘ
- Public IPs and orphaned NICs are regularly cleaned up. ⓘ
- None of the above.

No PAAS Services

Hub and spoke -> fallback cost for the connectivity spokes and peering

DDOS -> Using Front Door.

Asked more details: no details shared but is in place.

Been very useful

Cost Optimization

How do you manage networking costs for this workload?

- Service Endpoints or Private Link are used for accessing Azure PaaS services. ⓘ
- Hub and spoke design pricing is understood. ⓘ
- Microsoft backbone network is preferred. ⓘ
- DDoS attack mitigation plans and capabilities are in place. ⓘ
- Azure Front Door, Azure App Gateway or Web Application Firewall is used. ⓘ
- The workload is connected between regions (using network peering or gateways). ⓘ
- Azure resources are connecting to the internet via on-premises. ⓘ
- Public IPs and orphaned NICs are regularly cleaned up. ⓘ
- None of the above.

How do you manage storage and data costs for this workload?

Most cloud workloads adopt the polyglot persistence approach. Instead of using one data store service, a mix of technologies is used. To establish a cost estimate, assess the types of data you need to store for each workload.

- Reserved capacity is used for data in block blob storage. ⓘ
- Data is organized into access tiers. ⓘ
- Life-cycle policy is used to move data between access tiers. ⓘ
- Shared disks are leveraged for suitable workloads. ⓘ
- Reserved premium disks (P30 & above) are used. ⓘ
- Bursting for P20 and below disks is utilized for suitable workloads. ⓘ
- For database workloads, data and log files are stored on separate disks. ⓘ
- Unused storage resources (e.g. unattached disks, old snapshots) are periodically cleaned up. ⓘ
- Selective disk backup and restore for Azure VMs is used. ⓘ
- None of the above.

Azure Disks offer variety of SKUs and sizes to satisfy different workload needs. Cost-performance of existing disk use cases. You can leverage disk bursts from this feature are improving OS boot time, handling batch jobs and more.

How do you manage storage and data costs for this workload?

Most cloud workloads adopt the polyglot persistence approach. Instead of using one data store service, a mix of technologies is used. To establish a cost estimate, assess the types of data you need to store for each workload.

- Reserved capacity is used for data in block blob storage. ⓘ
- Data is organized into access tiers. ⓘ
- Life-cycle policy is used to move data between access tiers. ⓘ
- Shared disks are leveraged for suitable workloads. ⓘ
- Reserved premium disks (P30 & above) are used. ⓘ
- Bursting for P20 and below disks is utilized for suitable workloads. ⓘ
- For database workloads, data and log files are stored on separate disks. ⓘ
- Unused storage resources (e.g. unattached disks, old snapshots) are periodically cleaned up. ⓘ
- Selective disk backup and restore for Azure VMs is used. ⓘ
- None of the above.

How do you manage storage and data costs for this workload?

Most cloud workloads adopt the polyglot persistence approach. Instead of using one data store service, a mix of technologies is used. To establish a cost estimate, assess the types of data you need to store for each workload.

- Reserved capacity is used for data in block blob storage. ⓘ
- Data is organized into access tiers. ⓘ
- Life-cycle policy is used to move data between access tiers. ⓘ
- Shared disks are leveraged for suitable workloads. ⓘ
- Reserved premium disks (P30 & above) are used. ⓘ
- Bursting for P20 and below disks is utilized for suitable workloads. ⓘ
- For database workloads, data and log files are stored on separate disks. ⓘ
- Unused storage resources (e.g. unattached disks, old snapshots) are periodically cleaned up. ⓘ
- Selective disk backup and restore for Azure VMs is used. ⓘ
- None of the above.

← Back



Recommendations for your workload

Actionable items to consider implementing to improve your workload across the five pillars of the Microsoft Azure Well-Architected Framework

Your overall results

CRITICAL Room to improve. It looks like there are key items needing attention. Review the recommendations to see what actions you can take to improve your results.

CRITICAL 0-33 MODERATE 33-67 EXCELLENT 67-100 Your result: 28/100

Categories that influenced your results

Cost Optimization CRITICAL

You can find out how to improve on individual categories by reviewing the recommendations below in the report.

Export to CSV

Learn how to import your CSV into Azure DevOps using a PowerShell script.

Export csv and get it emailed by the cmr so we can upload it into DevOps etc....

When ready, we walk cmr through this dashboard

Recommendations Unanswered Sort By: All ▾

Cost Optimization CRITICAL

Cost breakdown: CRITICAL 0-33 MODERATE 33-67 EXCELLENT 67-100 Your result: 28/100

51 recommended actions

Show less ▾

- Use Azure Advisor
- Organize data into access tiers
- Consider reserved capacity for Storage
- Look for Public IPs and orphaned NICs
- Shut down VM instances not in use
- Consider reserved instances
- Select the right operating system
- Delete or deallocate unused resources in test environments
- Differentiate between production and non-production configuration
- Consider utilizing disk bursting
- Define performance requirements
- Consider the cost of data transfers and make sure cross-region peering is used efficiently
- Collect logs and metrics from Azure resources
- Cleanup Storage regularly
- Define a naming convention
- Learn if there are any discounts available for the services already in use
- Enforce naming conventions and resource tagging for all Azure resources
- Understand the Azure services used and cost implications
- Define a capacity model
- Consider 8-series VMs
- Map application dependencies
- Consider using shared disks for suitable workloads
- Consider using reserved Premium disks
- Use App Service Premium (v3) plan where possible
- Set up alerts for cost limits and thresholds
- Monitor utilization of compute resources
- Leverage the hybrid use benefit
- Choose appropriate region for workload deployments
- Review Azure Advisor recommendations periodically
- Define end-date for each environment
- Set up a disaster recovery strategy that splits the application components and data into defined groups
- Utilize the PaaS pay-as-you-go consumption model where relevant
- Understand the cost implications of Availability Zones**
- Understand cost implications of availability strategy
- Define clear responsibilities for alerts
- Use cost modeling to identify opportunities for cost reduction
- Use developer SKUs for dev/test purposes
- Consider VM Zone to Zone DR
- Develop a plan to modernize the workload

<https://azure.microsoft.com/en-us/global-infrastructure/availability-zones/>

These are going to be exported in DevOps which will create an actionable itemlist to work through,...

I am going to prioritize these into a 30,60,90 days plan for you guys and we're going to go through these in the close out session.

You can use this assessment as much as you want, you can go back to this 6 months from now,...

Anything else you'd like me to do for you today.

AUTOMATION TO PERIODICALLY NOTIFY OF BEST PRACTICES WOULD BE HELPFUL

Customer wants to know about periodic or monthly mails to help inform about unused disks public ips, it will help make it easier. Cmr is a team of one.

Going back to the qs of the customer:

The screenshot shows the Microsoft Azure Monitor Workbooks interface. The title bar reads "Monitor | Workbooks | Cost Management Feb 2023". The left sidebar includes sections for Overview, Activity log, Alerts, Metrics, Logs, Change Analysis, Service Health, and Workbooks. Under Insights, there are sections for Applications, Virtual Machines, Storage accounts, Containers, Networks, SQL (preview), Azure Cosmos DB, Key Vaults, Azure Cache for Redis, Azure Data Explorer Clusters, Log Analytics workspaces, Azure Stack HCI (preview), Service Bus (preview), and Insights Hub. Under Managed Services, there are sections for Managed Prometheus and Azure Managed Grafana. The main content area displays "Compute Group" recommendations from "Azure Advisor Cost recommendations". A table lists "AffectedResource", "Impact", "resourceGroup", "AdditionalInfo", "subscriptionId", and "Recommendation" for various resources. Below this, a section titled "Virtual Machines" provides information about Azure Hybrid Benefit for Windows Server. At the bottom, there are two Excel files: "export_data.xlsx" and "export_data.xlsx" with a "Show all" button.

Details

The screenshot shows a "Details" modal with a search bar at the top. It contains a list of configuration settings:

- annualSavingsAmount: 1188
- savingsCurrency: USD
- savingsAmount: 99
- recommendationMessage: Change from Standard_D16_v3 to Standard_F16s_v2
- recommendationType: SkuChange
- MaxTotalNetworkP95: 0
- subscriptionId: 1ff354b-a17d-4564-8916-49f764f48509
- MaxMemoryP95: 29
- deploymentId: 8083e4bc-249d-4504-83a0-d525a9a15f1c
- currentSku: Standard_D16_v3
- MaxCpuP95: 24
- targetSku: Standard_F16s_v2
- regionId: uscentral
- Duration: 7
- roleName: SHMKT-PROD-CD2

At the bottom right of the modal is a "Show all" button.

MaxMemoryP95	29
deploymentId	6083e4bc-249d-4504-83a8-d525a9a15f1c
currentSku	Standard_D16_v2
MaxCpuP95	24
targetSku	Standard_F16s_v2
regionId	uscentral
Duration	7
roleName	SHMKT-PROD-CD2

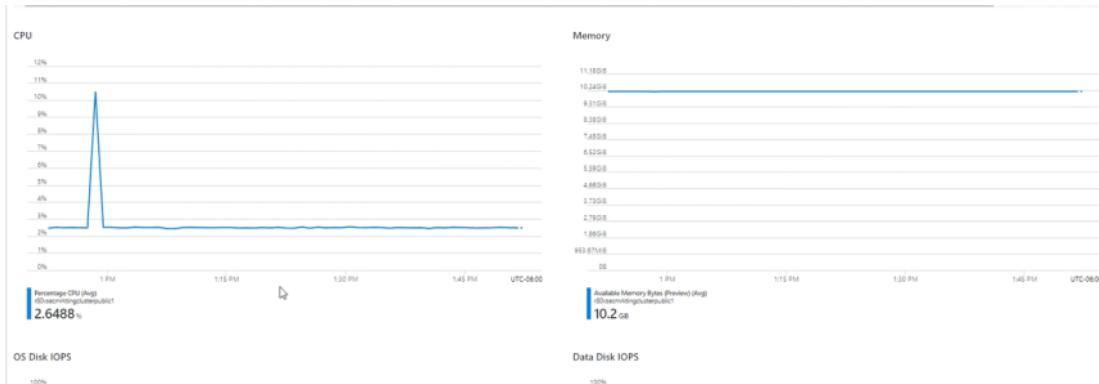
Where does this come from? (recommendation Azure Advisor and look at performance and understand where this comes from)

Virtual Machine Performance

Virtual Machine: R80vssecMarketingClusterpublic1 Network Interface Card: All

Overview

vmId	vmSize	Properties	nicId	DiskSKU	SKUTier	DiskTier	diskSizeGB	DiskIOPSReadWrite	DiskMBpsReadWrite	subscription
r80vssecMarketingClusterpublic1	Standard_DS3_v2	{"Memory":112,"vCPUs":14}	eth0	Standard_LRS	Standard	Standard	100	500	60	Microsoft



Shadowing lkirkwood 8/2

Wednesday, February 8, 2023 4:37 PM

Send link to devops

dev.azure.com

Cmr creates new project

Person needs to have permission

Needs PAT Token

Lauren works to put them on their azure board and goes through it

The screenshot shows the 'Work items - Boards' page in Azure DevOps. The URL is https://dev.azure.com/703586952/Cost%20Optimization%20-%20February%202023/_workitems/recentlyupdated/. The page displays a grid of work items with columns for ID, Title, Assigned To, State, Area Path, Tags, Comments, and Activity Date. The work items are listed under the 'Recently updated' filter. The first item is 'Consider using shared disks for suitable workloads'. The last item is 'Purchasing a savings plan for compute could unlock lower prices f...'. The 'Assigned To' column shows several entries for 'atfield, Robert (External)'. The 'Activity Date' column shows various times from 2/8/2023 9:50:05 AM to 2/8/2023 9:50:53 AM.

ID	Title	Assigned To	State	Area Path	Tags	Comments	Activity Date
50	Consider using shared disks for suitable workloads	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:05 AM
52	Use data lifecycle policy	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:05 AM
51	Define a clear once model for individual services	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:05 AM
50	Understand the operational capabilities of Azure services	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:05 AM
49	Map application dependencies	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:04 AM
48	Consider Platform as a service (PaaS) options	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:04 AM
47	Consider spot VMs	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:04 AM
46	Set up alerts for cost limits and thresholds	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:03 AM
45	Consider B-series VMs	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:03 AM
44	Consider using reserved Premium disks	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:03 AM
43	Use App Service Premium (v3) plan where possible	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:02 AM
42	Monitor utilization of compute resources	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:02 AM
41	Set up a disaster recovery strategy that splits the application comp...	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:02 AM
40	Use cost modeling to identify opportunities for cost reduction	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:02 AM
39	Define clear responsibilities for alerts	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:02 AM
38	Understand the cost implications of Availability Zones	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:01 AM
37	Utilize the PaaS pay-as-you-go consumption model where relevant	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:01 AM
36	Understand cost implications of availability strategy	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:01 AM
35	Define end-date for each environment	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:00 AM
atfield, Robert (External)	View Azure Advisor recommendations periodically	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:50:00 AM

The screenshot shows the 'Work items - Boards' page in Azure DevOps. The URL is https://dev.azure.com/703586952/Cost%20Optimization%20-%20February%202023/_workitems/recentlyupdated/. The page displays a grid of work items with columns for ID, Title, Assigned To, State, Area Path, Tags, Comments, and Activity Date. The work items are listed under the 'Recently updated' filter. The first item is 'Governance'. The last item is 'Purchasing a savings plan for compute could unlock lower prices f...'. The 'Assigned To' column shows several entries for 'atfield, Robert (External)'. The 'Activity Date' column shows various times from 2/8/2023 9:49:50 AM to 2/8/2023 9:49:53 AM.

ID	Title	Assigned To	State	Area Path	Tags	Comments	Activity Date
3	Governance	Unassigned	New	Cost Optimization - February ...			2/8/2023 9:49:50 AM
4	Health Modeling & Monitoring	Unassigned	New	Cost Optimization - February ...			2/8/2023 9:49:51 AM
5	Application Design	Unassigned	New	Cost Optimization - February ...			2/8/2023 9:49:51 AM
6	Azure Advisor	Unassigned	New	Cost Optimization - February ...			2/8/2023 9:49:51 AM
7	Operational Procedures	Unassigned	New	Cost Optimization - February ...			2/8/2023 9:49:52 AM
8	Networking & Connectivity	Unassigned	New	Cost Optimization - February ...			2/8/2023 9:49:52 AM
9	Deployment & Testing	Unassigned	New	Cost Optimization - February ...			2/8/2023 9:49:52 AM
10	Capacity & Service Availability Planning	Unassigned	New	Cost Optimization - February ...			2/8/2023 9:49:53 AM
11	Purchasing a savings plan for compute could unlock lower prices f...	Unassigned	New	Cost Optimization - February ...	Cost Optimization		2/8/2023 9:49:53 AM

The screenshot shows a Microsoft Azure Boards work item details page. The work item is an EPIC item titled "Governance". It has the following details:

- State:** Unassigned
- Area:** Cost Optimization - February 2023
- Iteration:** Cost Optimization - February 2023
- Description:** Click to add Description
- Discussion:** Add a comment. Use # to link a work item, ! to link a pull request, or @ to mention a person.
- Planning:**
 - Priority: 2
 - Risk: 1
 - Effort: 1
 - Business Value: 1
 - Time Criticality: 1
- Deployment:** To track releases associated with this work item, go to Releases and turn on deployment status reporting for Boards in your pipeline's Options menu. Learn more about deployment status reporting.
- Development:** Add link
- Related Work:** Add an existing work item as a parent
- Classification:**
 - Value area: Business

Recent updates show several tasks related to governance, such as "18 Cleanup Storage regularly", "17 Define a naming convention", "15 Enforce naming conventions and resource tagging for all Azure resources", "16 Learn if there are any discounts available for the services already in use", "32 Leverage the hybrid use benefit", and "40 Use cost modeling to identify opportunities for cost reduction".

Quick overview on how to use them and give them examples

Customer interested in n. 11

He wants to know what he needs to do here.

The customer doesn't know how to execute the task. He wants to know how and where to look?

Lauren answer by telling him to go under recommendations for Azure Advisor. Filter on Subscription.

The screenshot shows the Microsoft Azure Advisor Overview page. The user is filtering recommendations by subscription. The interface displays four main sections:

- Subscription:** A dropdown menu showing a list of subscriptions, with "inwood Fellowship Village - Off..." selected. Other options include "Jamesstown Regional Medical C...", "Mahnomen Health Center - Off...", "Microsoft Azure Enterprise - GS...", "Microsoft Azure Enterprise Sanf...", "Orange City Area Health Syst...", "Ortonville Area Health Services ...", and "Sanford Azure Data Center - Te...". Buttons for "Apply" and "Cancel" are at the bottom.
- Security:** Shows 63 recommendations across three impact levels: High (30), Medium (20), and Low (13). Below it, there are 114 impacted resources.
- Reliability:** Shows 5 recommendations across three impact levels: High (1), Medium (4), and Low (0). Below it, there are 35 impacted resources.
- Performance:** Shows 6 recommendations across three impact levels: High (3), Medium (3), and Low (0). Below it, a message states: "You are following all of our performance recommendations" and provides a "View list" button.

A "Try Advisor score" section is also present on the right side of the page.

Home > Advisor

Advisor | Advisor score

Search Feedback Download as CSV Download as PDF

Subscription equals Microsoft Azure Enterprise Sanford Marketing Recommendation Status equals Active Add Filter

Reserved Instances Configuration equals 3 years, 30 days

No grouping

Recommendations

- Cost: 2
- Security: 47
- Reliability: 4
- Operational excellence: 5
- Performance: -
- All recommendations: 58

Score history Monthly

Score by category

Category	Impact	Percentage
Cost (save 71,200 USD)	Red	14%
Security	Grey	No data
Reliability	Blue	100%
Operational excellence	Blue	85%
Performance	Blue	100%

Description Potential yearly savings based on retail ... Cost score impact* Impacted resources Last updated

Description	Potential yearly savings based on retail ...	Cost score impact*	Impacted resources	Last updated
Buy virtual machine reserved instances to save money over pay-as-you-go costs	38,753.96 USD 66%	66%	1 Virtual machine	2/08/2023, 06:04 AM
Purchasing a savings plan for compute could unlock lower prices	32,461.00 USD -	-	1 Subscription	2/08/2023, 03:45 AM

*These are potential impact on the Advisor Cost score. Empty means we are actively working on this recommendation to be in Advisor score model.

Is Advisor score experience helpful?

Home > Advisor

Advisor | Advisor score

Search Feedback Download as CSV Download as PDF

Subscription equals Microsoft Azure Enterprise Sanford Marketing Recommendation Status equals Active Add Filter

Reserved Instances Configuration equals 3 years, 30 days

No grouping

Recommendations

- Cost: 2
- Security: 47
- Reliability: 4
- Operational excellence: 5
- Performance: -
- All recommendations: 58

Score history Monthly

Score by category

Category	Impact	Percentage
Cost (save 71,200 USD)	Red	14%
Security	Grey	No data
Reliability	Blue	100%
Operational excellence	Blue	85%
Performance	Blue	100%

Description Potential yearly savings based on retail ... Cost score impact* Impacted resources Last updated

Description	Potential yearly savings based on retail ...	Cost score impact*	Impacted resources	Last updated
Buy virtual machine reserved instances to save money over pay-as-you-go costs	38,753.96 USD 66%	66%	1 Virtual machine	2/08/2023, 06:04 AM
Purchasing a savings plan for compute could unlock lower prices	32,461.00 USD -	-	1 Subscription	2/08/2023, 03:45 AM

Home > Advisor | Advisor score >

Add a plan

Feedback Download as CSV Download as PDF Create alert

Your recommendations have been loaded

Recommendation details

We analyzed your compute usage over the last 30 days and recommend adding a savings plan to increase your savings. The savings plan unlocks lower prices on select compute services when you commit to a fixed hourly amount for 1 or 3 years. As you use select compute services globally, your usage is covered by the plan at reduced prices. During the times when your usage is above your hourly commitment, you'll simply be billed at your regular pay-as-you-go prices. With savings automatically applying across compute usage globally, you'll continue saving even as your usage needs change over time. Savings plan are more suited for dynamic workloads while accommodating for planned or unplanned changes while reservations are more suited for stable, predictable workloads with no planned changes. Saving estimates are calculated for individual subscriptions and the usage pattern observed over the last 30 days. Shared scope savings plans are available in purchase experience and can further increase savings. Learn more

Impacted resources

Microsoft Azure Enterprise Sanford Market... No grouping

Active (1) Postponed & Dismissed

Postpone Dismiss

Select	Subscription	Recommended actions	Potential yearly savings based on reta...	Last updated	Action
<input type="checkbox"/>	Microsoft Azure Enterprise Sanford Marketing	Consider adding a savings plan for compute for an hourly commitment of 7,133 USD	32,461.00 USD	2/08/2023, 03:45 AM	Postpone Dismiss

*You can save up to the stated amount if you purchase single subscription savings plan and your future usage follows the same pattern as the last 30 days. Your actual savings may vary.

Is this recommendation helpful?

Microsoft Azure

Search resources, services, and docs (G+)

Home > Advisor | Advisor score > Add a plan >

Add a plan

[Next: Review + buy](#)

Basics [Review + buy](#)

Savings plan helps you save money on Azure products and services but with additional flexibility. By committing to a consistent amount of usage for 1 or 3 year terms, you receive significant savings on compute resource as you use them.

Name *	Compute_SavingsPlan_02-08-2023_09-59	Cost summary
Billing subscription	Loading...	-/mo - total See details
Apply to any eligible resource	<input type="radio"/> Shared across the subscription's billing scope <input checked="" type="radio"/> In a specific resource group in the selected subscription <input type="radio"/> In a management group of the selected subscription	
Term length	<input checked="" type="radio"/> 2 years <input type="radio"/> 1 year	
Hourly commitment in USD	Enter an amount	
Billing frequency	<input checked="" type="radio"/> Monthly <input type="radio"/> All up front	

Cost summary

-/mo
- total
[See details](#)

Is this retail price or based on our EA or discount?

Does the monthly revenue amount on reserved plan include RI? No.

Advice asked whether to go for RI or savings plans

The STU adds or RI lack of flexibility. There is some flexibility because you can change within that SKU Family.

Question: can we baseline or change the amount we pay per...?

Under a savings plan you're committing to an dollar month, and is across all of your services within a specific scope.

STU is sharing her screen:

<https://learn.microsoft.com/en-us/azure/cost-management-billing/manage/ea-portal-vm-reservations>

The screenshot shows a Microsoft Learn page for Azure Cost Management - Billing. The main article title is "Azure EA VM reserved instances". It includes sections like "In this article" (Reservation exchanges and refunds, Reservation costs and usage, Reserved instances API support, Azure reserved virtual machine instances, Next steps), "Feedback" (Feedback icon), "Additional resources" (Training, Documentation), and "Related articles" (View Azure Reservation purchase and refund transactions - Microsoft Cost Management, View Azure reservation utilization - Microsoft Cost Management, Change an Azure reservation directory - Microsoft Cost Management). The left sidebar has a navigation tree for "Cost Management + Billing documentation" including Overview, Quickstarts, Tutorials, Concepts, How-to guides, EA roles in Azure, Azure EA portal administration, EA billing administration, Azure tasks in Microsoft Customer Agreement, Azure EA agreements and amendments, Enterprise enrollment invoices, View and download EA usage details, Azure EA pricing, Azure Enterprise REST APIs, and "Azure EA VM reserved instances". A "Download PDF" button is also present.

What happens if I over or under commit? Can I make frequent adjustments? -> need clarity on the caveats

Customer wants to look at savings plan rather than RI's

Customer wants to know the % savings of RI vs Savings Plan.

Lauren goes back to Azure Advisor:

The screenshot shows the Azure Advisor interface. The main area displays the "Advisor score" section with a score of 75%. It includes a chart showing the advisor score over time from Dec to Feb, and a table of performance metrics: Cost (save 71,200 USD), Security (No data), Reliability (100%), Operational excellence (85%), and Performance (100%). Below this, there are five cards: Cost (2 recommendations), Security (47), Reliability (4), Operational excellence (5), and Performance (58). A table lists recommendations: "Buy virtual machine reserved instances to save money over pay-as-you-go costs" (Description: Buy virtual machine reserved instances to save money over pay-as-you-go costs, Potential yearly savings based on retail ...: 38,753.96 USD, Cost score impact: 66%, Impacted resources: 1 Virtual machine, Last updated: 2/08/2023, 06:04 AM) and "Purchasing a savings plan for compute could unlock lower prices" (Description: Purchasing a savings plan for compute could unlock lower prices, Potential yearly savings based on retail ...: 32,461.00 USD, Cost score impact: 66%, Impacted resources: 1 Subscription, Last updated: 2/08/2023, 09:45 AM).

Confusion about 1VM clicking through you see more

Microsoft Azure | Advisor | Advisor score > Buy reserved instances

Feedback Download as CSV Download as PDF Create alert

Microsoft Azure Enterprise Sanford Market... No grouping

Active (7) Postponed & Dismissed

Select	Virtual machine	Recommended quantity	Recommended actions	Potential yearly savings based on retail pricing	Subscription	Term, look-back period	Last updated	Action
<input type="checkbox"/>	Standard_DS3_v2 virtual machines in centralus	5	Buy reserved instances to save over pay-as-you-go...	9,168.92 USD (51%)	Microsoft Azure Enterprise Sanford Marketing	3, 30	2/08/2023, 06:03 AM	Postpone Dismiss
<input type="checkbox"/>	Standard_DL8s_v4 virtual machines in centralus	1	Buy reserved instances to save over pay-as-you-go...	2,249.99 USD (32%)	Microsoft Azure Enterprise Sanford Marketing	3, 30	2/08/2023, 06:04 AM	Postpone Dismiss
<input type="checkbox"/>	Standard_DS2_v2 virtual machines in centralus	2	Buy reserved instances to save over pay-as-you-go...	1,684.98 USD (67%)	Microsoft Azure Enterprise Sanford Marketing	3, 30	2/08/2023, 06:03 AM	Postpone Dismiss
<input type="checkbox"/>	Standard_D2as_v4 virtual machines in centralus	2	Buy reserved instances to save over pay-as-you-go...	1,116.28 USD (60%)	Microsoft Azure Enterprise Sanford Marketing	3, 30	2/08/2023, 06:03 AM	Postpone Dismiss
<input type="checkbox"/>	Standard_D4ds_v4 virtual machines in centralus	8	Buy reserved instances to save over pay-as-you-go...	10,918.03 USD (36%)	Microsoft Azure Enterprise Sanford Marketing	3, 30	2/08/2023, 06:02 AM	Postpone Dismiss
<input type="checkbox"/>	Standard_D16s_v3 virtual machines in centralus	2	Buy reserved instances to save over pay-as-you-go...	10,245.84 USD (35%)	Microsoft Azure Enterprise Sanford Marketing	3, 30	2/08/2023, 06:03 AM	Postpone Dismiss
<input type="checkbox"/>	Standard_D2_v2 virtual machines in centralus	4	Buy reserved instances to save over pay-as-you-go...	3,369.92 USD (67%)	Microsoft Azure Enterprise Sanford Marketing	3, 30	2/08/2023, 06:03 AM	Postpone Dismiss

< Previous Done 1 / 1 Next >

Home > Advisor

Advisor | Cost

Search Feedback Download as CSV Download as PDF Create alert Create recommendation digest Try Advisor score

Overview Getting started Advisor score

Subscription equals Microsoft Azure Enterprise Sanford Marketing Recommendation Status equals Active Add Filter

Reserved Instances Configuration equals 3 years, 30 days

No grouping

Recommendations

- Cost
- Security
- Reliability
- Operational excellence
- Performance
- All recommendations
- Monitoring
- Alerts (Preview)
- Recommendation digests

Total recommendations: 2 Recommendations by impact: 1 Impact: High

Impacted resources: 1 Potential yearly savings based on retail pricing: 71,215 USD

For more cost management and optimization capabilities, visit Cost Management.

Impact ↑	Description ↑	Potential yearly savings based on retail pricing ↑	Impacted resources ↑	Last updated ↑
High	Purchasing a savings plan for compute could unlock lower prices	32,461.00 USD 1 Subscription	1	2/08/2023, 03:45 AM
High	Buy virtual machine reserved instances to save money over pay-as-you-go costs	38,753.96 USD 1 Virtual machine	1	2/08/2023, 06:04 AM

Settings Configuration Support + troubleshooting

Addressing questions from previous day:

Going back to Power BI Cost management Power BI DB
Apparently issues with the one from yesterday

The screenshot shows a Microsoft Edge browser window. The main page is a Power BI report titled "Azure Cost Management App". A modal dialog box is open in the center of the screen with the title "Connect to Azure Cost Management App". The dialog contains the following text and fields:

Get started setting up your app! Start by filling in the parameters. Then, you'll authenticate to all the data sources this app connects to.

Parameters
Make sure all required (*) parameters are filled in before connecting to your data.

BillingProfileIdOrEnrollmentNumber *
Enter your EA account enrollment number
For example: 8608480

NumberOfMonths *
Enter the number of months
For example: 3

Scope *
Enter the scope as 'Enrollment Number'

At the bottom of the dialog, there are "Next" and "Cancel" buttons. The status bar at the bottom of the browser shows the time as 10:21 AM and the date as 2/8/2023.

Answer to look at where the spike comes from

Power BI - Azure Cost Management App 2/8/2023 10:20:17 AM

Azure Cost Management App 2/8/2023 10:20:17 AM

We updated the look of reports Take a tour, and we'll show you how to get around.

Billing account overview

Select date range: 1/1/2023 - 2/8/2023

Subscription Name: Microsoft Azure Enterprise San...

Resource Group: All

Cost by Date

Date	Cost
Jan 01	546
Jan 02	550
Jan 03	547
Jan 04	556
Jan 05	554
Jan 06	646
Jan 07	554
Jan 08	556
Jan 09	553
Jan 10	559
Jan 11	557
Jan 12	558
Feb 05	119

Charges against credits: 0.00

Service usage: 7.00K

Billed separately: 0.00

Azure Marketplace: 140.21

New purchase amount: 0.00

Total charges: 7.14K

Filters

Search:

Filters on all pages

Date: is (All)

We updated the look of reports Take a tour, and we'll show you how to get around.

Top 5 Usage drivers

Select date range: 1/18/2023 - 1/18/2023

Cost by Date and Meter Category

Meter Category	Cost
Virtual Machines	402
Storage	110
Unassigned	96
SQL Database	249
Azure DevOps	0

Meter Category

- Azure DevOps
- SQL Database
- Storage
- Unassigned
- Virtual Machines

Cost by Date and Meter Name

Meter Name	Cost
D16 v3/D16s v3	114
D4ds v4	84
D3 v2/D3 v2	81
10 DTUs	114
Unassigned	0

Meter Name

- 10 DTUs
- D16 v3/D16s v3
- D3 v2/D3 v2
- D4ds v4
- Unassigned

Filters

Search:

Filters on all pages

Date: is (All)

Azure Cost Management App - Power BI

Power BI | Azure Cost Management App 2/8/2023 10:20:17 AM

We updated the look of reports Take a tour, and we'll show you how to get around.

Usage by Services

Select date range: 1/17/2023 - 1/18/2023

Meter Category

- All
- Search
- Select all
- Advanced Threat Protection
- Azure App Service
- Azure Bastion
- Azure Cognitive Search
- Azure Cosmos DB
- Azure DevOps
- Azure DNS
- Azure Front Door Service
- Azure Monitor

Cost by Date and Meter Category

Meter Category

- Advanced Threat Protection
- Azure App Service
- Azure Bastion
- Azure Cognitive Search
- Azure Cosmos DB
- Azure DevOps
- Azure DNS
- Azure Front Door Service
- Azure Monitor

Details

Date	Subscription Id	Subscription Name	Resource Group	Meter Category	Meter Subcategory
1/18/2023 12:00:00 AM	1478672-b880-4285-b35c-66a37ce5eeda	Watford City McKenzie County Healthcare Systems - Office 365	WAT-O365-RG	Bandwidth	
1/18/2023 12:00:00 AM	1478672-b880-4285-b35c-66a37ce5eeda	Watford City McKenzie County Healthcare Systems - Office 365	WAT-O365-RG	Bandwidth	Inter-Region
1/18/2023 12:00:00 AM	1478672-b880-4285-b35c-66a37ce5eeda	Watford City McKenzie County Healthcare Systems - Office 365	WAT-O365-RG	Bandwidth	Inter-Region
1/18/2023 12:00:00 AM	1478672-b880-4285-b35c-66a37ce5eeda	Watford City McKenzie County Healthcare Systems - Office 365	WAT-O365-RG	Storage	General Block Blob
1/18/2023 12:00:00 AM	1478672-b880-4285-b35c-66a37ce5eeda	Watford City McKenzie County Healthcare Systems - Office 365	WAT-O365-RG	Storage	Premium SSD Managed C
1/18/2023 12:00:00 AM	1478672-b880-4285-b35c-66a37ce5eeda	Watford City McKenzie County Healthcare Systems - Office 365	WAT-O365-RG	Storage	Standard Page Blob
1/18/2023 12:00:00 AM	1478672-b880-4285-b35c-66a37ce5eeda	Watford City McKenzie County Healthcare Systems - Office 365	WAT-O365-RG	Storage	Tables
1/18/2023 12:00:00 AM	1478672-b880-4285-b35c-66a37ce5eeda	Watford City McKenzie County Healthcare Systems - Office 365	WAT-O365-RG	Unassigned	Unassigned
1/18/2023 12:00:00 AM	1478672-b880-4285-b35c-66a37ce5eeda	Watford City McKenzie County Healthcare Systems - Office 365	WAT-O365-RG	Virtual Machines	B5 Series Windows
1/18/2023 12:00:00 AM	1478672-b880-4285-b35c-66a37ce5eeda	Watford City McKenzie County Healthcare Systems - Office 365	WAT-O365-RG	Virtual Network	Peering
1/18/2023 12:00:00 AM	60d5c3f0-ba7a-49ed-bff3-a4effee04c99	Armour Douglas County Memorial Hospital - Office 365	ARM-O365-RG	Bandwidth	
1/18/2023 12:00:00 AM	60d5c3f0-ba7a-49ed-bff3-a4effee04c99	Armour Douglas County Memorial Hospital - Office 365	ARM-O365-RG	Bandwidth	Inter-Region
1/18/2023 12:00:00 AM	60d5c3f0-ba7a-49ed-bff3-a4effee04c99	Armour Douglas County Memorial Hospital - Office 365	ARM-O365-RG	Storage	General Block Blob

We updated the look of reports Take a tour, and we'll show you how to get around.

Usage by Services

Select date range: 1/17/2023 - 1/18/2023

Meter Category

- Unassigned

Meter Subcategory

- All

Cost by Date and Meter Category

Meter Category

- Unassigned

Details

Subscription Id	Subscription Name	Resource Group	Meter Category	Meter Subcategory	Region	Cost
13 12:00:00 AM	f46e5f6d-14d-447c-8a00-5355e035f213	Imwood Fellowship Church - Office 365	INV-O365-RG	Unassigned	Unassigned	0.96
13 12:00:00 AM	573ea532-4f9d-4d9a-a5a-8151baef26ea	Jamestown Regional Medical Center - Office 365	jms-a365-rg	Unassigned	Unassigned	0.96
13 12:00:00 AM	de909055-d821-4efb-ba7e-d71bcb5bc5	Mahnomen Health Center - Office 365	MAH-O365-RG	Unassigned	Unassigned	0.96
13 12:00:00 AM	1ff9d54b-a17d-4564-b916-49f764485059	Microsoft Azure Enterprise Sanford Marketing	Unassigned	Unassigned	Unassigned	89.95
13 12:00:00 AM	1ff9d54b-a17d-4564-b916-49f764485059	Microsoft Azure Enterprise Sanford Marketing	Unassigned	Unassigned	Unassigned	2.16
13 12:00:00 AM	1ff9d54b-a17d-4564-b916-49f764485059	Microsoft Azure Enterprise Sanford Marketing	Unassigned	Unassigned	Unassigned	2.16
13 12:00:00 AM	790303b0-2799-4343-8a4a-363668248855	Orange City Area Health System - Office 365	OCH-O365-RG	Unassigned	Unassigned	0.96
13 12:00:00 AM	bb0e89f7-09af-4d6e-b043-d413616535	Ortonville Area Health Services - Office 365	ORT-O365-RG	Unassigned	Unassigned	0.96
13 12:00:00 AM	6b2adaaf-54cc-437e-b2cb-f9385c174579	Sidney Health Center - Office 365	SDY-O365-RG	Unassigned	Unassigned	0.96
13 12:00:00 AM	82ddff13-cb34-4300-b66-d798373526	Viborg Pioneer Memorial Hospital - Office 365	VBG-O365-RG	Unassigned	Unassigned	0.96
13 12:00:00 AM	5142853-0633-449f-9821-0e68faaa491d	Webster Bethesda Home - Office 365	WEB-O365-RG	Unassigned	Unassigned	0.96
13 12:00:00 AM	19313bfb-5de7-4ebd-b7cd-8984135c2a51	Windom Area Hospital - Office 365	wdm-O365-RG	Unassigned	Unassigned	0.96
13 12:00:00 AM	911c19ad-06e6-4577-9448-c42da3ab613	Winter Regional Healthcare Center - Office 365	WIN-O365-RG	Unassigned	Unassigned	0.96
13 12:00:00 AM	1478672-b880-4285-b35c-66a37ce5eeda	Watford City McKenzie County Healthcare Systems - Office 365	WAT-O365-RG	Unassigned	Unassigned	0.96

Bring this up with billing support as this is unassigned. Just a support ticket

Any other questions?

Rights is something of a concern to be able to see everything (power bi,...)

Explain sharing access,...

Azure Cost Management App 2/8/2023 10:20:17 AM

+ New + Upload

We updated the look of workspaces Take a tour, and we'll show you how to get around.

All	Name	Type	Owner	Refreshed	Next refresh	Endorse
Report	AzureCostManagementApp	Report	Azure Cost Management App	2/8/23, 10:25:14 AM	—	—
Dataset	AzureCostManagementApp	Dataset	Azure Cost Management App	2/8/23, 10:25:14 AM	2/9/23, 12:00:00 AM	—

Access

Add admins, members, or contributors. [Learn more](#)

Enter email addresses

Member

Add

Search

NAME	PERMISSION
Scott Bartholomay	Admin

Close

Explains the day tomorrow

Shadowing lkirkwood 9/2

Thursday, February 9, 2023 5:02 PM



Well-Architected Cost Optimization Assessment

Lauren Kirkwood
Cloud Solution Architect - Engineer

 Microsoft

What we'll cover today

- Cloud Strategy
- Engineering Principles
- Assessment observations
- Recommendations
- Next Steps



Run Well-Architected cloud workloads— to create business value

✓ Invest in **these actions**:

- Manage budget
- Improve workloads security
- Increase incident response
- Streamline internal processes
- Find costly mistakes
- Enhance workload performance



To avoid **these consequences**:



Expenses, losses



Broken Trust



Damages

Microsoft Azure Well-Architected Framework

Architecture guidance and best practices, created for architects, developers and solution owners, to improve the quality of their workloads, based on 5 aligned and connected pillars

Cost
Optimization



Operational
Excellence



Performance
Efficiency



Reliability



Security



<https://aka.ms/wellarchitected/framework>

Overcoming workload quality inhibitors

Cost Optimization	Operational Excellence	Performance Efficiency	Reliability	Security
				
<ul style="list-style-type: none">No cost and usage monitoringUnclear on underused or orphaned resourcesLack of structure/billing managementBudget reductions due to lack of support for cloud adoption by LT/board	<ul style="list-style-type: none">Lack of rapid issue identificationNo deployment automationAbsence of communication mechanisms and dashboardsUnclear expectations and business outcomesNo visibility on root cause for events	<ul style="list-style-type: none">No monitoring new servicesNo monitoring current workloads healthNo design for scalingLack of rigor and guidance for technology and architecture selection	<ul style="list-style-type: none">Unclear on resiliency features/capabilities for better architecture designLack of data back up practicesNo monitoring current workloads healthNo resiliency testingNo support for disaster recovery	<ul style="list-style-type: none">No access control mechanism (authentication)No security threat detection mechanismLack of security thread response planNo encryption process

<https://aka.ms/wellarchitected/framework>

Best practices to drive workload quality

Cost Optimization	Operational Excellence	Performance Efficiency	Reliability	Security
				
<ul style="list-style-type: none">Azure Hybrid BenefitReserve InstancesShutdownResizeMove to PaaS	<ul style="list-style-type: none">DevOpsDeploymentMonitorProcesses and cadence	<ul style="list-style-type: none">Design for scalingMonitor performance	<ul style="list-style-type: none">Define requirementsTest with simulations and forced failoversDeploy consistentlyMonitor healthRespond to failure and disaster	<ul style="list-style-type: none">Identity and access managementInfra protectionApp securityData encryption and sovereigntySecurity operations

<https://aka.ms/wellarchitected/framework>

What changes for Cloud strategy?



Culture



Skills + disciplines



Success



Delivery



Business alignment



Is it just about the bill?

What are some of the indirect benefits?

Efficient cloud operations improve operational costs and increase innovation

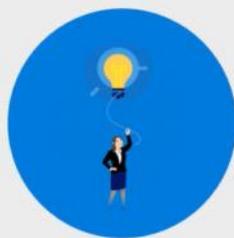
Automate operational lifecycle to minimize errors

Move to PaaS where possible to transfer more of the stack responsibility to Azure

Reduce your carbon emissions and make more sustainable decisions. Connect to the [Microsoft Sustainability Calculator](#)



How did Microsoft save money?



Reduced Waste



Moved up the Azure stack



Engineered for Cloud

Engineering Principles & Optimization

New Engineering - consider when focusing on reducing costs:

- Azure app services: ensure Premium is used appropriately
- Move App Services to auto-scale
- Resource Group tagging
- Eliminate Classic Azure resources
- Move Pre-Production Environments (PPE) where possible to B-series VMs
- Clean Up unused/under-used Disks
- Ensure Azure Hybrid Benefit is applied
- Right-size VMs
- Use IaaS VM snoozing
- PaaS SQL resize
- Use Reserved Instances
- Re-evaluate Geo Redundant Storage
- Move PPE storage to Standard vs. Premium
- Move workloads to Gen 2 storage
- Budgets and Alerts
- Unified Telemetry: 100% onboarding for all components
- Analyze and understand cost drivers by using Cost Management pane

Overview of Assessment

During this Assessment, we covered key features, services, and important guidance for maintaining and optimizing Azure environments.

We recommend following the guidance contained in the [Microsoft Azure Well-Architected Framework](#) which can be used to improve the quality of Azure workloads.

The Framework consists of five pillars of architecture excellence, with Cost Optimization the focus of this assessment.

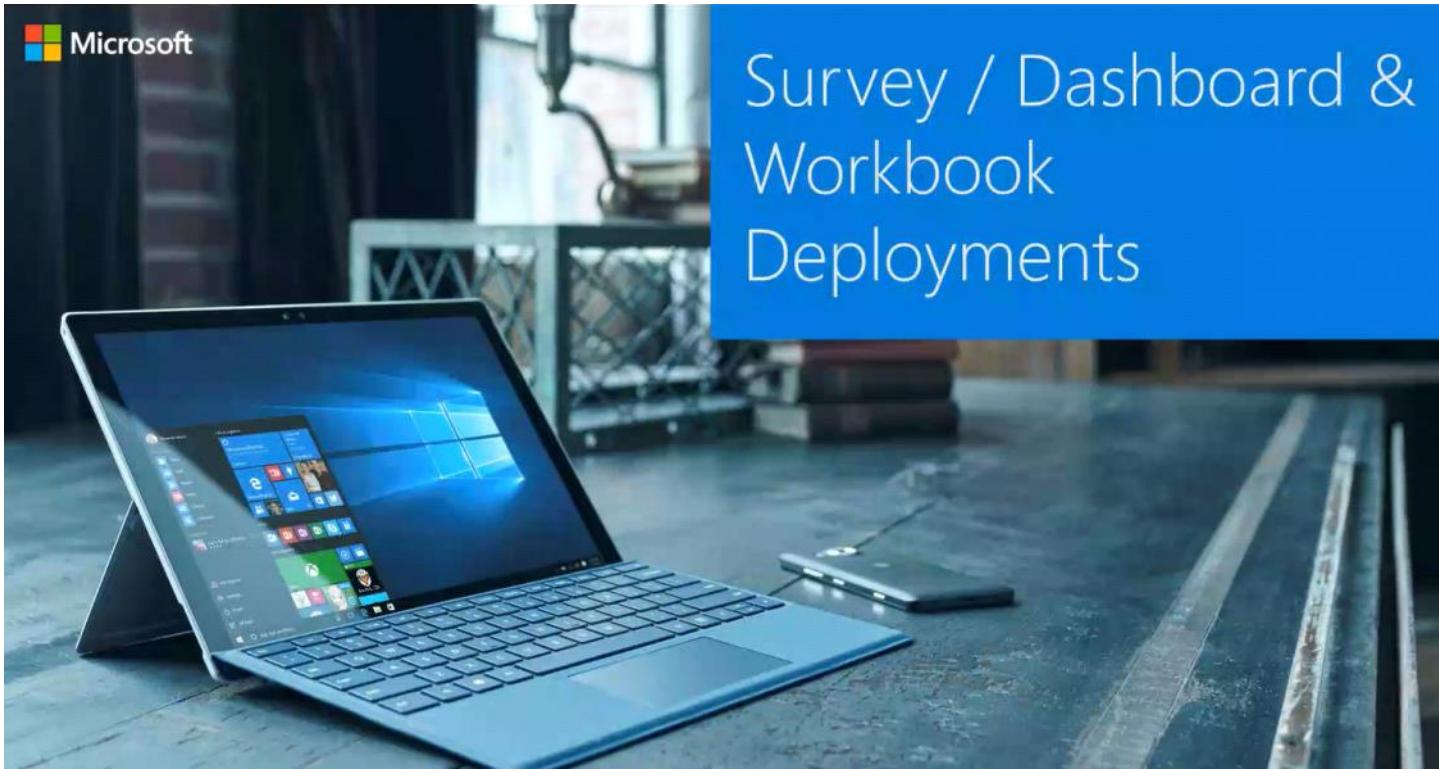
- **Cost Optimization**
- Operational Excellence
- Performance Efficiency
- Reliability
- Security

Sanford Health's Main Azure Resources

Azure DevOps
Azure Front Door Service
SQL Database
Storage
Virtual Machines



Survey / Dashboard & Workbook Deployments



Azure Forecasting Calculators

[Virtual Machines](#)

Virtual Machines

REGION: West US 2 OPERATING SYSTEM: Windows TYPE: (OS Only) TIER: Standard

CATEGORY: All INSTANCE SERIES: All INSTANCE: E64as v5: 64 vCPUs, 512 GB RAM, 0 GB Temporary storage, \$6.5r

Virtual machines: 1 x 730 Hours

Savings Options

Save up to 72% on pay-as-you-go prices with 1-year or 3-year Reserved Virtual Machine Instances. Reserved Instances are great for applications with steady-state usage and applications that require reserved capacity. [Learn more about Reserved VM Instances pricing.](#)

Compute (E64as v5)

- Pay as you go
- 1 year reserved (~41% discount)
- 3 year reserved (~62% discount)

\$2,639.60 Average per month (\$0.00 charged upfront)

OS (Windows)

- License included
- Azure Hybrid Benefit

\$2,149.12 Average per month (\$0.00 charged upfront)

= \$4,788.80 Average per month (\$0.00 charged upfront)

[Chat with Sales](#)

[Pricing Calculator | Microsoft Azure](#)

[Azure Hybrid Benefit](#)

Save big on Azure by using your existing on-premises Windows Server and SQL Server licenses on the cloud with no additional cost.

[Request a pricing quote](#) [Try Azure for free](#)

Azure Hybrid Benefit Savings Calculator Why Azure Hybrid Benefit? Customer story FAQs More

[Azure Hybrid Benefit – hybrid cloud | Microsoft Azure](#)

[Windows Virtual Machines Pricing](#)

Request a pricing quote Try Azure for free

Overview Pricing table Explore savings Purchase options Resources FAQ Virtual Machines

Provision Windows and Linux Virtual Machines in seconds

Azure Virtual Machines gives you the flexibility of virtualization for a wide range of computing workloads with support for Linux, Windows Server, SQL Server, Oracle, IBM SAP, and more. All current generation Virtual Machines include load balancing and auto-scaling at no cost. For optimal performance, we recommend pairing your Virtual Machines with [Managed Disks](#). Standard storage charges apply.

[Pricing - Windows Virtual Machines | Microsoft Azure](#)

Azure Monitor / Log Analytics

Use Monitor | Usage and Estimated costs to:

Understand the components (cost meters) involved

Right Size Components

- Number of Metrics
- Notifications (email, sms, etc.)
- Polling Frequency
- Retention

[Monitor | Usage and estimated costs](#)

Subscription: Contoso Hotels Tenant - Production Meter Category: 7 selected Meter Name: 46 selected

The table below shows estimated monthly costs* for monitoring features based on the last 31 days usage.

Subscription Name	Meter Category	Meter Name	Price	Monthly Usage
Contoso Hotels Tenant - Production	Shared Services	Data ingestion	\$0.00	346.67 GB
Contoso Hotels Tenant - Production	Shared Services	Data Retention	\$0.00	624.25 GB
Contoso Hotels Tenant - Production	Network Watcher	Diagnostic Tool API	\$0.00	58.00 credits
Contoso Hotels Tenant - Production	Network Watcher	Network Logs Ingested	\$0.00	7.40 GB
Contoso Hotels Tenant - Production	Network Watcher	Traffic Analytics Processing	\$0.00	5.39
Contoso Hotels Tenant - Production	Alert	Metrics Monitored	\$0.00	77.62 metrics
Contoso Hotels Tenant - Production	Alert	System Log Monitored at 10 Minute..	\$0.00	0.98
Contoso Hotels Tenant - Production	Alert	System Log Monitored at 15 Minute..	\$0.00	0.97
Contoso Hotels Tenant - Production	Alert	System Log Monitored at 5 Minute ..	\$0.00	0.97
Contoso Hotels Tenant - Production	Notifications	Email	\$0.00	7025.00 emails
Contoso Hotels Tenant - Production	Insight and Analytics	Included per Node	\$0.00	12.97 GB

Usage Charts

Mobile data ingestion per solution (last 31 days)

Data reported per solution (last 30 days)

551.1 TB

LogManagement: 298.5 TB, Security: 155.16 TB, Infrastructure: 72.38 TB, Compliance: 11.53 TB, ContainerLogs: 9.65 TB, ApplicationLogs: 1.75 TB, SecurityWhitelisted: 1.1 TB, Total: 484.85 GB

Azure Well-Architected Review

Welcome to Microsoft Assessments

Customers can evaluate their business strategies and receive curated guidance from Microsoft Assessment.

Available assessments

Azure Well-Architected Review Examine your workload through the lenses of reliability, cost management, operational excellence, security and performance efficiency [30 minutes].	Cloud Journey Tracker Identify your cloud adoption path based on your needs with this tracker and navigate to relevant content in the Cloud Adoption Framework for Azure. [15 mins]
---	---

<https://aka.ms/architecture/review>

Azure Well-Architected Review

Examine your workload through the lenses of reliability, cost management, operational excellence, security and performance efficiency [30 minutes].

[Sign in with your Azure Portal Credentials](#) to allow Azure Advisor recommendations to be included in this assessment [Sign in](#)

Reliability
In a cloud environment you scale out rather than buying higher-end hardware to scale up. While it's always desirable to prevent all failure, focus your efforts in minimizing the effects of a single failing component.

Security
Security is one of the most important aspects of any architecture. It provides confidentiality, integrity, and availability assurances against deliberate attacks and abuse of your valuable data and systems. Losing these assurances can negatively impact your business operations and revenue, as well as your organization's reputation in the marketplace. In the following series of articles, we'll discuss key architectural considerations and principles for security and how they apply to Azure.

Cost Optimization
An effective architecture achieves business goals and ROI requirements while keeping costs within the allocated budget.

Subscriptions Assessed

The following subscription was in the tenant was in scope for this assessment

Subscription Name	Type
Microsoft Azure Enterprise Sanford	Enterprise Agreement

Well-Architected Cost Optimization Azure Monitor Workbook

The deployed Azure Monitor Workbook should be leveraged to continually identify waste, optimize resources, and maximize the efficiency of your cloud spend.

Resources per Subscription	Virtual machines per SKU																				
Microsoft Azure Enterpr... 455	<table border="1"><caption>Virtual machines per SKU</caption><thead><tr><th>SKU</th><th>Count</th></tr></thead><tbody><tr><td>Standard.D4v4</td><td>8</td></tr><tr><td>Standard.D2 v2</td><td>8</td></tr><tr><td>Standard.DS3 v2</td><td>7</td></tr><tr><td>Standard.A3</td><td>3</td></tr><tr><td>Standard.A0 v2</td><td>3</td></tr><tr><td>Other</td><td>9</td></tr></tbody></table>	SKU	Count	Standard.D4v4	8	Standard.D2 v2	8	Standard.DS3 v2	7	Standard.A3	3	Standard.A0 v2	3	Other	9						
SKU	Count																				
Standard.D4v4	8																				
Standard.D2 v2	8																				
Standard.DS3 v2	7																				
Standard.A3	3																				
Standard.A0 v2	3																				
Other	9																				
Tagged Resource Groups	Untagged Resource Count																				
<table border="1"><caption>Tagged Resource Groups</caption><thead><tr><th>Group</th><th>Count</th></tr></thead><tbody><tr><td>Unlabelled</td><td>25</td></tr><tr><td>Labelled</td><td>3</td></tr></tbody></table>	Group	Count	Unlabelled	25	Labelled	3	<table border="1"><caption>Untagged Resource Count</caption><thead><tr><th>Category</th><th>Count</th></tr></thead><tbody><tr><td>General</td><td>441</td></tr><tr><td>East US</td><td>9</td></tr><tr><td>Global</td><td>4</td></tr><tr><td>East US 2</td><td>1</td></tr><tr><td>Total</td><td>304</td></tr><tr><td>Unused</td><td>151</td></tr></tbody></table>	Category	Count	General	441	East US	9	Global	4	East US 2	1	Total	304	Unused	151
Group	Count																				
Unlabelled	25																				
Labelled	3																				
Category	Count																				
General	441																				
East US	9																				
Global	4																				
East US 2	1																				
Total	304																				
Unused	151																				

Azure WAF Cost Assessment Workbook

General Compute Data Storage Networking Monitoring Performance Cost Optimization

Resources distribution per region

Region	Count
Central US	441
East US	9
Global	4
East US 2	1

Summarizes what was looked at, positive points and areas for improvements

Well-Architected Cost Optimization Azure Monitor Workbook

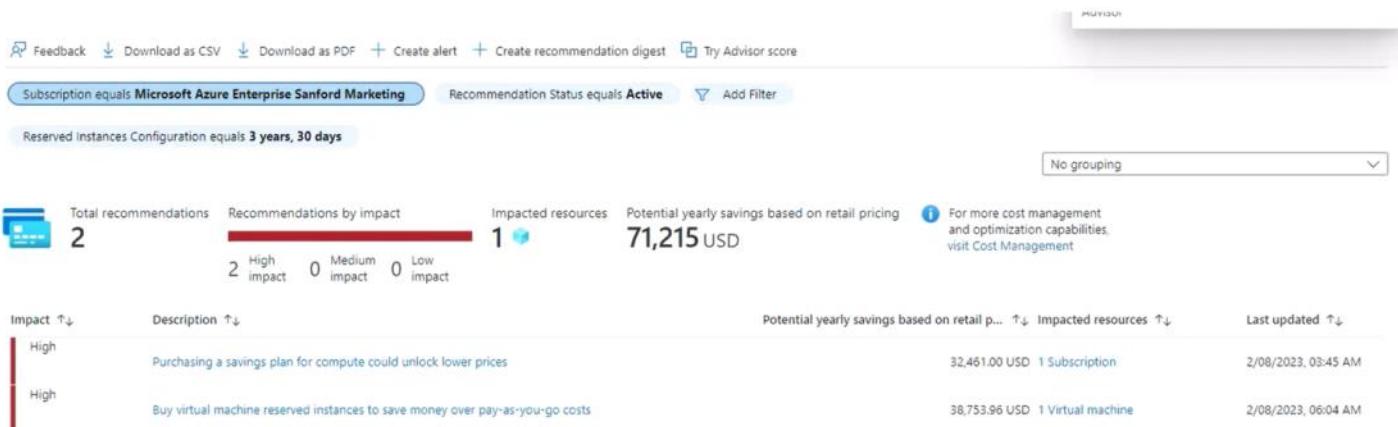
Unattached Disks

Unattached disks													
DiskId	DiskName	DiskSizeGB	SKUName	SKUTier	resourceGroup	Location	TimeCreated						
shmkt-prod-sql1_OsDisk_1_d59f7bd6b3b5440ba1f15389f5530e7	shmkt-prod-sql1_OsDisk_1_d59f7bd6b3b5440ba1f15389f5...	127	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-13T17:39:52.934246Z						
shmkt-prod-sql1_OsDisk_1_f4cfbeaf53fa48db09b0167fd90a1	shmkt-prod-sql1_OsDisk_1_f4cfbeaf53fa48db09b0167fd...	127	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-13T17:06:23.6178381Z						
shmkt-prod-sql1_disk2_23e7c8621fb4845b0e8e789491de24	shmkt-prod-sql1_disk2_23e7c8621fb4845b0e8e7894919...	1023	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-13T17:06:23.6178381Z						
shmkt-prod-sql1_disk2_3cb77363726340e9952386d76832b744	shmkt-prod-sql1_disk2_3cb77363726340e9952386d7683...	1023	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-08T18:32:45.0356035Z						
shmkt-prod-sql1_disk2_b4fedb6d1219442a9ba5e50d8c2...	shmkt-prod-sql1_disk2_b4fedb6d1219442a9ba5e50d8c2...	1023	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-06T23:32:14.2269347Z						
shmkt-prod-sql1_disk2_b7b78f893a6d4524bd8aa8edfbcb5...	shmkt-prod-sql1_disk2_b7b78f893a6d4524bd8aa8edfbcb5...	1023	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-13T17:39:52.934246Z						
shmkt-prod-sql2_OsDisk_1_30b2bf191dc44ad5849e3ae89781	shmkt-prod-sql2_OsDisk_1_30b2bf191dc44ad5849e3ae...	127	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-06T23:58:33.5004634Z						
shmkt-prod-sql2_OsDisk_1_7b9fefa80e3e4066aa50d8dbc0ea2	shmkt-prod-sql2_OsDisk_1_7b9fefa80e3e4066aa50d8dbc...	127	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-08T19:11:22.0649923Z						
shmkt-prod-sql2_OsDisk_1_bbb0391b60eb4a01bd33642f105b	shmkt-prod-sql2_OsDisk_1_bbb0391b60eb4a01bd33642f...	127	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-06T21:48:08.6034389Z						
shmkt-prod-sql2_disk2_0741cd7886134c5907907d3f6aa60027	shmkt-prod-sql2_disk2_0741cd7886134c5907907d3f6aa...	1023	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-06T23:58:33.4379629Z						
shmkt-prod-sql2_disk2_342c5161e1234631a84c83894ce11bb	shmkt-prod-sql2_disk2_342c5161e1234631a84c83894ce...	1023	Standard_LRS	Standard	shmkt-prod	centralus	2017-06-08T19:11:22.0649923Z						

Azure Advisor

Sanford Health's potential yearly savings \$71,215

Purchasing a savings plan for compute \$32,461



Question about combo between savings plan and/or reservations (RI is applied first because it gives you the greater discount, it aligns the savings plan on top of that with your variable compute, and everything that is not aligned to that is PAYG)

If the amount that's in the savingsplan goes down
You're locked in. If you spend less, you lose it. +Better to get a base price you're sure you're hitting.

We want to make a savings plan commit for 20k a month, is the discount for RI the same as savings plan?

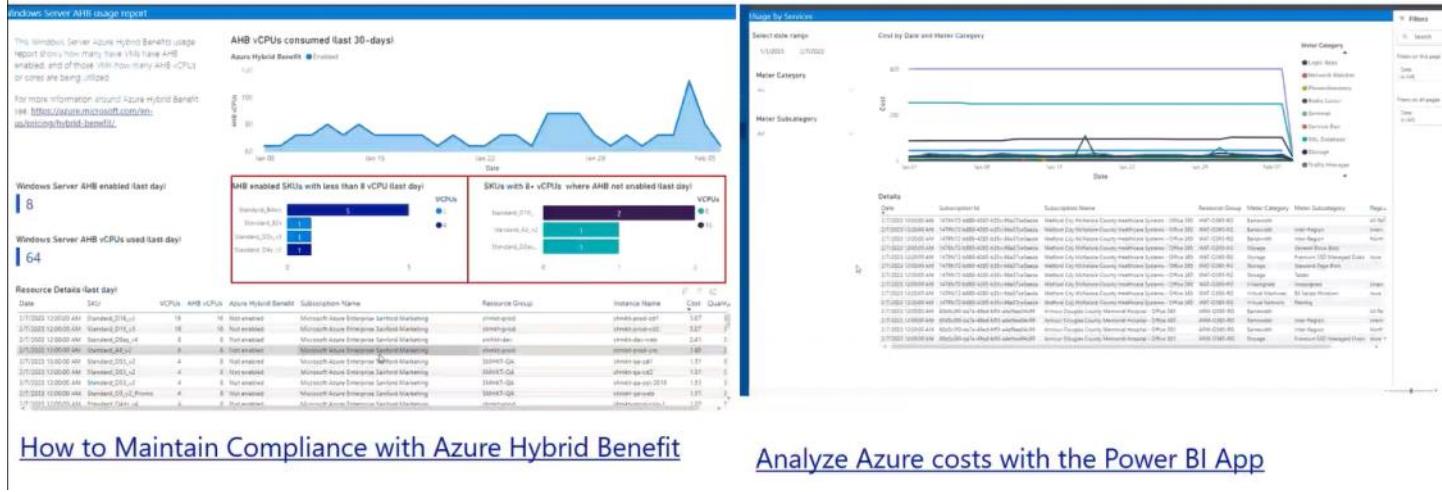
Because 3year is long, if our spend goes up or down in year 2 or 3 are we allowed to adapt the

committed amount?

Azure Cost Management Power BI Application

The Cost Management Application provides insights into which subscriptions or resource groups consume the most resources. It also provides visibility into spending trends and overall usage.

Refer to: <https://aka.ms/costmgmt/ACMApp>



How to Maintain Compliance with Azure Hybrid Benefit

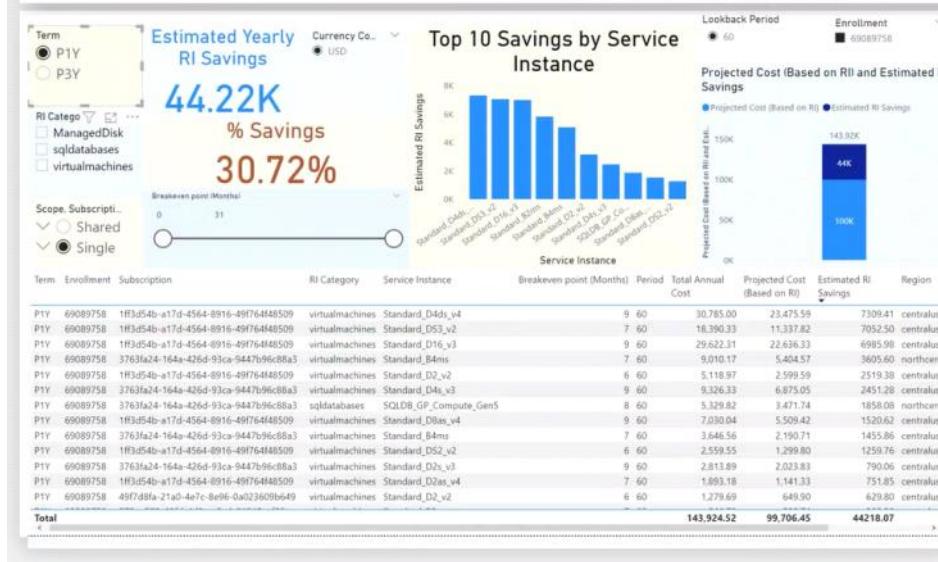
Analyze Azure costs with the Power BI App

You can talk to your specialist about the licensing they will help you get that figured out

Reservation Recommendation PowerBI Dashboard

PowerBI Dashboard reports on all services with reservation opportunity with a lookback period of 60 days.

- Breakeven point (months)
- Estimated RI Savings
- Publish to workspace for internal visibility



Charges covered by reservation

Managed Disk

SQL Databases

Virtual Machines

Reservations

<input checked="" type="checkbox"/> Virtual machine	<input type="checkbox"/> SQL Database
<input checked="" type="checkbox"/> Azure Blob Storage	<input type="checkbox"/> Azure Dedicated Host
<input checked="" type="checkbox"/> Azure Database for PostgreSQL	<input type="checkbox"/> Azure Managed Disks
<input checked="" type="checkbox"/> Azure Data Explorer	<input type="checkbox"/> SUSE Linux
<input checked="" type="checkbox"/> Azure Red Hat OpenShift	<input type="checkbox"/> App Services
<input checked="" type="checkbox"/> Data Factory	<input type="checkbox"/> Azure SQL Edge
<input checked="" type="checkbox"/> Virtual Machine software reservation	<input type="checkbox"/> JBoss EAP Integrated Support (App Service)
<input checked="" type="checkbox"/> Azure Synapse Analytics (data warehousing only)	<input type="checkbox"/> Azure Cosmos DB
<input checked="" type="checkbox"/> Azure Database for MySQL	<input type="checkbox"/> Azure Database for MariaDB
<input checked="" type="checkbox"/> Azure Databricks	<input type="checkbox"/> Azure Cache for Redis
<input checked="" type="checkbox"/> Red Hat Plans	<input type="checkbox"/> Azure VMware Solution
<input checked="" type="checkbox"/> Azure VM Backup	<input type="checkbox"/> Azure Files Resilient Capacity
<input checked="" type="checkbox"/> Azure Arc-enabled SQL Managed Instance	<input type="checkbox"/> Azure Synapse Analytics Pre-Purchase Plan
<input checked="" type="checkbox"/> Azure Backup	

VM Reserved Instance opportunity – Single Scope – 1 year Term



VM Reserved Instance opportunity – Single Scope – 3 year term



VM Reserved Instance opportunity – Shared Scope – 1 year Term



VM Reserved Instance opportunity – Shared Scope – 3 year term



Observations & Recommendations



What is going well

Sanford is following these Engineering Principles and Optimizations well!

- Awareness of resource placement in regions
- Utilizing Burstable (B) series virtual machines
- Forecasting costs
- Utilizing Azure Front Door Service

Well-Architected Cost Optimization Assessment

Report generated: 2/8/2023



Executive Summary

Areas of focus to raise your Review Score

Number of recommendations per focus area:



Capability Score

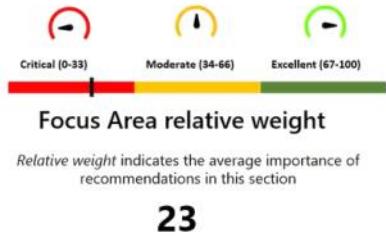
28

A cost-effective workload is driven by business goals and the return on investment (ROI) while staying within a given budget. The principles of cost optimization are a series of important considerations that can help achieve both business objectives and cost justification. A capability program will enable you to begin optimizing the core components needed to manage your cloud environment.

 6	Governance
 2	Networking & Connectivity
 5	Health Modeling & Monitoring
 14	Capacity & Service Availability Planning
 17	Application Design
 3	Deployment & Testing
 2	Operational Procedures
 2	Azure Advisor

Governance

Top 5 out of 6 recommendations:



Governance can assist with cost management. This work will benefit your ongoing cost review process and will offer a level of protection for new resources.

[Cleanup Storage regularly](#)

[Define a naming convention](#)

[Enforce naming conventions and resource tagging for all Azure resources](#)

[Learn if there are any discounts available for the services already in use](#)

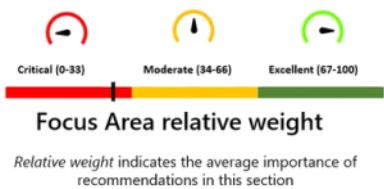
[Leverage the hybrid use benefit](#)



Naming tagging -> helps getting organized
Beneficial to utilise as many discounts as are applicable

Networking & Connectivity

Top 2 out of 2 recommendations:



[Consider the cost of data transfers and make sure cross-region peering is used efficiently](#)

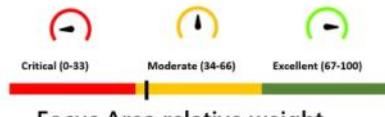
[Understand cost implications of hub and spoke design](#)



Explain briefly etc....

Health Modeling & Monitoring

Top 5 out of 5 recommendations:



Focus Area relative weight
Relative weight indicates the average importance of recommendations in this section

34

[Collect logs and metrics from Azure resources](#)

[Look for Public IPs and orphaned NICs](#)

[Define clear responsibilities for alerts](#)

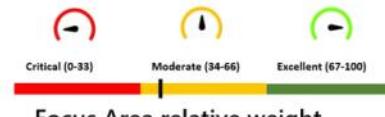
[Set up alerts for cost limits and thresholds](#)

[Use data lifecycle policy](#)



Capacity & Service Availability Planning

Top 5 out of 14 recommendations:



Focus Area relative weight
Relative weight indicates the average importance of recommendations in this section

36

[Consider reserved capacity for Storage](#)

[Consider utilizing disk bursting](#)

[Define performance requirements](#)

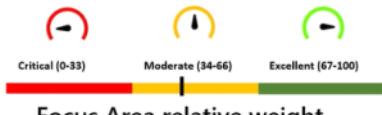
[Select the right operating system](#)

[Shut down VM instances not in use](#)



Application Design

Top 5 out of 17 recommendations:



Focus Area relative weight

Relative weight indicates the average importance of recommendations in this section

46

[Consider reserved instances](#)

[Understand the Azure services used and cost implications](#)

[Define a capacity model](#)

[Differentiate between production and non-production configuration](#)

[Organize data into access tiers](#)



Deployment & Testing

Top 3 out of 3 recommendations:



Focus Area relative weight

Relative weight indicates the average importance of recommendations in this section

63

[Delete or deallocate unused resources in test environments](#)

[Consider the ratio of non-production to production environments](#)

[Use developer SKUs for dev/test purposes](#)



Operational Procedures

Top 2 out of 2 recommendations:

[Utilize the PaaS pay-as-you-go consumption model where relevant](#)

[Define end-date for each environment](#)



Focus Area relative weight

Relative weight indicates the average importance of recommendations in this section

65



Azure Advisor

Top 2 out of 2 recommendations:

[Buy virtual machine reserved instances to save money over pay-as-you-go costs for 7 Virtual machine\(s\)](#)

[Purchasing a savings plan for compute could unlock lower prices for 1 Subscription\(s\)](#)



Focus Area relative weight

Relative weight indicates the average importance of recommendations in this section

10



Recommendations: write yourself, add info that is relevant

Prioritized Recommendations- Do First

Priority	Type	Finding	Context/ Documentation	Recommendations [Take Action]
Do First	Reduce Waste	Remove idle resources like unattached disks, application gateways, managed disks, public IP addresses, and storage	Consider removing idle Managed Disks Consider removing idle Public IP Addresses Cleanup Storage regularly	Use Azure Monitor Cost Optimization Workbook to review idle resources and reduce waste. It is recommended to review idle resources on a biweekly cadence.
Do First	Deployment & Testing	Use developer SKUs for dev/test purposes	https://azure.microsoft.com/en-us/pricing/dev-test/	It is recommended that more expenditure be used for production environments than dev/test environments. Thus, using developer SKUs for dev/test purposes helps to cut costs.
Do First	Health Modeling & Monitoring	Define clear responsibilities for alerts and set up alerts for cost limits and thresholds	https://learn.microsoft.com/azure/architecture/framework/cost/design-model#organization-structure https://learn.microsoft.com/azure/architecture/framework/cost/monitor-alert#respond-to-alerts	Define broad responsibilities for relevant alerts. Use the Azure Cost Management tool to set those alerts. When alerts are triggered, respond to the alerts by determining short- and long-term action plans to aid in revising budgets.
Do First	Deployment and Testing	Delete or Deallocate unused resources in test environments. Consider the ratio of costs for non-prod and prod environments	If your workload or environment is not in use, then you should be able to decommission it. The same should occur if you are introducing a new service or new feature. https://azure.microsoft.com/en-us/pricing/details/devops/azure-devops-services/	It is recommended that more expenditure be used for production environments than dev/test environments Use developer SKUs for dev/test purposes. https://azure.microsoft.com/en-us/pricing/dev-test/
Do First	Health Modeling and Monitoring	Use Data Lifecycle Policy Define an end-date for each environment	https://docs.microsoft.com/azure/storage/blobs/storage-lifecycle-management-concepts	Define an end-date for each workload and ensure that data is being moved into an appropriate access tier based on latency requirements and frequency of access.

Prioritized Recommendations- Do First

Priority	Type	Finding	Context/ Documentation	Recommendations [Take Action]
Do First	Governance	Define and enforce naming conventions and resource tagging.	https://learn.microsoft.com/azure/architecture/framework/cost/design-governance#enforce-resource-tagging	Define and enforce a naming convention that helps to quickly identify the resource's type, associated workload, environment, etc.
Do First	Governance	Learn if there are any discounts available for the services already in use	https://azure.microsoft.com/en-us/pricing/	

Prioritized Recommendations- Re-Think

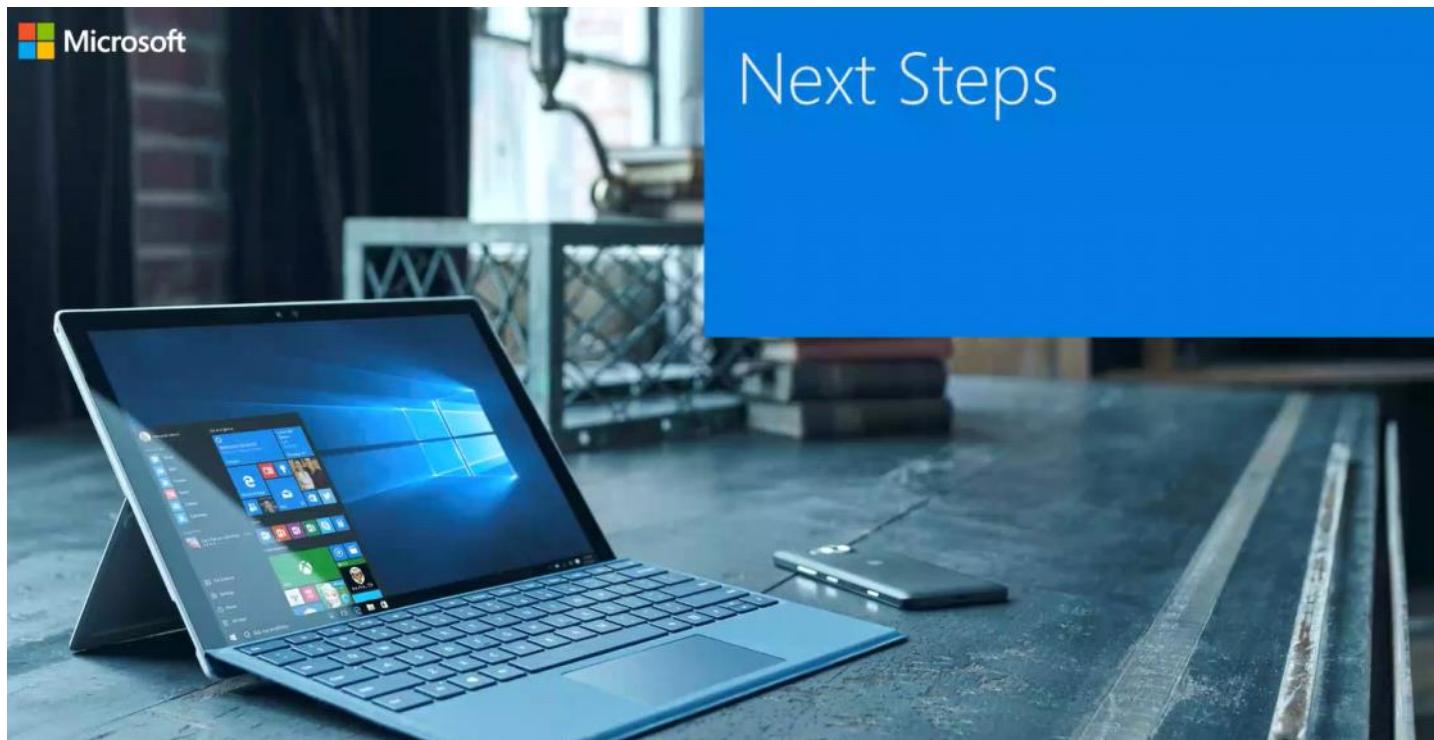
Priority	Type	Finding	Context/ Documentation	Recommendations [Take Action]
Re-Think	Capacity & Service Availability Planning	Consider reserved capacity for storage	https://learn.microsoft.com/azure/storage/blobs/storage-blob-reserved-capacity	Review these resources and consider moving them to Reserved Instances. This information can be found in Azure Advisor or in the RI Recommendations Power BI
Re-Think	Capacity & Service Availability Planning	Consider using reserved Premium disks, shared disks for suitable workloads, and disk bursting Separate data and log disks	https://learn.microsoft.com/azure/virtual-machines/disks-reserved-capacity https://learn.microsoft.com/azure/virtual-machines/disks-shared https://learn.microsoft.com/azure/virtual-machines/disk-bursting	Review storage needs for your disks to ensure minimum disk related costs
Re-Think	Health Modeling & Monitoring	Collect logs and metrics from Azure resources	https://learn.microsoft.com/azure/azure-monitor/platform/data-platform-logs	Collect and review metrics from Azure resources to identify where your spend is going, and whether those expenses are necessary.
Re-Think	Application Design	Organize data into access tiers	https://learn.microsoft.com/azure/cloud-adoption-framework/ready/considerations/storage-options	Review your storage options to best support your performance and cost needs. When moving data into a particular access tier, consider the frequency of access that is necessary of the data and other related cost limitations.
Re-Think	Application Design	Differentiate between production and non-production configuration	https://learn.microsoft.com/azure/architecture/framework/cost/design-resources#subscription-and-offer-type	Consider different billing models for production vs non-production environments. Billing structures can range from free, pay-as-you-go, one-time purchase fee, or a managed offering with support and licensing monthly costs
Re-Think	Governance	Leverage the hybrid use benefit	https://azure.microsoft.com/en-us/pricing/hybrid-benefit/	Implement Azure Hybrid Benefit into both Windows and Linux machines to take advantage of reduction in costs. Use the Azure Hybrid Benefit Savings Calculator to calculate monthly and annual cost and savings amounts.

To complete within 60D

Prioritized Workload Recommendations – Plan For

Priority	Type	Finding	Context/ Documentation	Recommendations (Take Action)
Plan For	Capacity & Service	Define performance requirements and a capacity model	https://learn.microsoft.com/azure/architecture/framework/cost/tradeoffs#cost-versus-performance-efficiency https://learn.microsoft.com/azure/architecture/framework/scalability/capacity	Having a clear understanding of your performance requirements and capacity model benefits cost savings as you will be able to identify where you can trade certain features such as, reliability, performance efficiency or security, for lower costs.
Plan For	Networking & Connectivity	Understand cost implications of hub and spoke design	https://learn.microsoft.com/azure/architecture/networking/hub-spoke-vwan-architecture	By understanding and utilizing the hub and spoke architecture, you can save costs by removing the necessity of network virtual appliances and instead using managed services.
Plan For	Capacity & Service	Select the right operating system	https://learn.microsoft.com/azure/architecture/guide/technology-choices/compute-decision-tree	Choose the right operating system and service for each of your workloads to ensure lowest prices for only necessary services.
	Availability Planning	Understand the Azure services used and cost implications	https://learn.microsoft.com/azure/architecture/framework/cost/design-initial-estimate	
Plan For	Azure Advisor	Consider using reserved instances for virtual machines or savings plans for compute.	https://aka.ms/azure-advisor-portal	Save up to 72% of pay-as-you-go pricing when committing to one-year or three-year plans for reserved instances or up to 65% of pay-as-you-go pricing when committing to one-year or three-year savings plans. Use them together to achieve highest savings customized to your usage.
Plan For	Networking & Connectivity	Be aware of cross-region data transfer costs	https://learn.microsoft.com/azure/architecture/framework/cost/provision-networking#peering	Review costs of both egress and ingress traffic on all peering connections.
Plan For	Operational Procedures	Utilize the pay-as-you-go consumption model where relevant	https://learn.microsoft.com/azure/architecture/framework/cost/design-price	Use pricing calculators to compare the costs of workloads running on a consumption-based price versus a fixed price to determine the better option.

To complete within 90D



Additional Microsoft Training recommendations

Well Architected Cost Governance Implementation

Review Performance of environment and assess need for best practices

Well Architected Reliability Assessment

Review Reliability of environment and learn about monitoring tools and best practices

Well Architected Security Assessment

3 Day workshop to develop Security recommendations from an assessment

Well Architected Performance Efficiency Assessment

Review Performance of environment and assess need for best practices

Resources

Access all Showcase resources at microsoft.com/ITShowcase

- Resize VMs: <https://learn.microsoft.com/en-us/azure/virtual-machines/resize-vm?tabs=portal>
<https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/move-support-resources>
- Mapping App Dependencies: <https://learn.microsoft.com/en-us/azure/azure-monitor/vm/vminsights-maps>
- Enabling/Disabling Marketplace Purchases by Subscription: <https://learn.microsoft.com/en-us/azure/cost-management-billing/manage/ea-azure-marketplace#enabling-azure-marketplace-purchases>



Microsoft

Thank you
Sanford Health

Special thanks to:

Scott Bartholomay, Robert Hatfield & Dennis Kaufman

© 2020 Microsoft Corporation. This document is for informational purposes only. MICROSOFT MAKES NO WARRANTIES, EXPRESS OR IMPLIED, IN THIS PRESENTATION.
The names of actual companies and products mentioned herein may be the trademarks of their respective owners.

Shadowing 14/2 Emmanuel Knafo

Tuesday, February 14, 2023 3:03 PM

Intro about climate talking about ticks: climate change, global warming, dog, caught a tick, lime disease,...
CSAM not let her kids roll in grass.

CSAM -> intro and then hand off with Emmanuel

He is also part of the team that created this MIP. :-)

Round of introductions

Durham:

Stephanie: Interested in learning more about app, cost understand better how to optimize things

Terry Madsen: manager and CISO

Jason: PM for security going for a workload he is responsible for

Alex Rodd: manager for apps, learn what we can get from the solution, how to look at cost opt,...

Brad Cormier: handles servers, storage, cloud,... Tech Specialist

Can you show agenda of the 3 days to see if they need to be here throughout the engagement, can hop out and back in

Today we will install the deliverables,....

If we have time in the morning, start the survey otherwise we can push it to tomorrow or afternoon depending on what folks want to do.

Day 2 mostly independent, we'll sync if we need your assistance

Day 3 the presentation of all the results, based on the dashboards, the survey answers (morning or afternoon, or tomorrow to give you back some time, based on our conversations)

Any questions before we start?

Agenda and High-Level Scope



Who's gonna take the lead for the workbook?

So I can send it, it's a json file, even though it ends with workbook. I'll just send it by email.

Don't worry about preserving this, in the end I'll give you an Azure DevOps ,...
Everything will be in a single repo afterwards?

Who is going to do the Power BI Dashboard? Jason.

Checking if Brad received the e-mail.

Sharing his screen, Emmanuel will walk him through the Azure portal to install it.

Could you reuse or create a resourcegroup where you would hold the Azure workbook. It's the only thing you'd have in there

Home > rg-costoptimization Resource group

Search Overview Essentials

Subscription (move) : Microsoft Azure Enterprise
Subscription ID : 1fc6773a-f3f0-4cc8-ab1e-eb6889ef1c70
Tags (edit) : Owner : CS-IT

Deployments : No deployments
Location : Canada East

Resources Recommendations

Filter for any field... Type equals all Location equals all Add filter

Showing 0 to 0 of 0 records. Show hidden types

Name ↑ Type ↑↓ Location ↑↓

No resources match your filters
Try changing or clearing your filters.

Create resources Clear filters

Microsoft Azure Search resources, services, and docs (G+)

Home > rg-costoptimization Resource group

Policies Properties Locks

Cost Management Cost analysis Cost alerts (preview) Budgets Advisor recommendations

Monitoring Insights (preview) Alerts Metrics Diagnostic settings Logs Advisor recommendations Workbooks

Automation Export template

Support + troubleshooting

Subscription (move) : Microsoft Azure Enterprise
Subscription ID : 1fc6773a-f3f0-4cc8-ab1e-eb6889ef1c70
Tags (edit) : Owner : CS-IT

Deployments : No deployments
Location : Canada East

Resources Recommendations

Filter for any field... Type equals all Location equals all Add filter

Showing 0 to 0 of 0 records. Show hidden types

Name ↑ Type ↑↓ Location ↑↓

No resources match your filters
Try changing or clearing your filters.

Create resources Clear filters

Home > rg-costoptimization rg-costoptimization | Workbooks | Workbook 1

Search Workbooks Done Editing

This Workbook has no content.

Use the add button below to add items.

Add

Policies Properties Locks

Cost Management Cost analysis Cost alerts (preview) Budgets Advisor recommendations

Monitoring Insights (preview) Alerts Metrics Diagnostic settings Logs

All Unread By Date ↑

From Subject Received

Today

Emmanuel Knafo **azure workbook** **Tue 2023-02-14 9:14 AM**

EDB EDE: Want to run Postgres in Kuber... Tue 2023-02-14 9:04 AM

Brent Kimberley RE: Ms purview trial inquiry Tue 2023-02-14 8:51 AM

Julian Torres Santelli Well-Architected Cost Optimization ... Tue 2023-02-14 8:49 AM

Jason Ingram RE: Ms purview trial inquiry Tue 2023-02-14 8:42 AM

Wayne Ward RE: Identity Security and Security Aw... Tue 2023-02-14 8:19 AM

Brent Kimberley Ms purview trial inquiry Tue 2023-02-14 8:01 AM

azure workbook

Emm To Brad Cormier 9:14 AM

Retention Policy 7 Year Delta Expires 2030-02-14

CostOptimizationWorkload.work... 436 KB

You don't often get email from emmanuel.knafo@microsoft.com. Learn why this is important

Arrr Type
Ness Link
Eclip Incic
Durf Jam
NAT Cost
Ms ;

Home > rg-costoptimization

rg-costoptimization | Workbooks | Workbook 1

Resource group

Search Workbooks Edit File Help Auto refresh: Off

Policies Properties Locks

Cost Management Cost analysis Cost alerts (preview) Budgets Advisor recommendations

Monitoring Insights (preview) Alerts Metrics Diagnostic settings Logs Advisor recommendations Workbooks

Automation Export template

Support + troubleshooting New Support Request

General Compute Data Storage Networking Monitoring Performance Cost Information

Subscription: All

Resources distribution per region

Region	Count
Canada Central	2.1k
Global	122
West Europe	53
East US	2
Canada East	1
Unknown	1

Only one sub:

General Compute Data Storage Networking Monitoring Performance Cost I

Subscription: All

Select Resources All Subscriptions Microsoft Azure Enterprise

Region	Count
Canada Central	2.1k
Global	122
West Europe	53
East US	2
Canada East	1
Unknown	1

We're going through your permission to see the subs, if you wouldn't have access to other subs I will not see it.

I hope you're okay if I take some screenshots for the analysis, you'll see them in the report to comment and analyse on.

I want a nice shot of the map, so maybe uncheck that all

Resources distribution per region

Region	Count
Canada Central	2.1k
Global	122
West Europe	53
East US	2
Canada East	1
Unknown	1

Resources, it might be as small as an alert rule or a VM or public IP

There is 53 resources in West Europe, it surprises me. It makes sense to have everything in Canada Central or Canada East

The 53 in WE is peaking my interest

The green dot on the bottom is not Antarctica, these are global resources (alert rules,..)

Showing small trick, open another tab in the browser,

A screenshot of the Azure Resource Graph Explorer interface. At the top, there's a navigation bar with tabs for 'Remedy', 'Exchange (Hybrid)', 'Exchange Online', 'Azure Portal', 'Lansweeper', 'Township of Brock', 'Server Administrati...', and 'Microsoft Azure'. Below the navigation bar is a search bar with the placeholder 'Search resources, services, and docs (G+/?).'. The main area is titled 'Azure Resource Graph Explorer' and shows a 'Query 1' section with the number '1'. To the left of the query section is a sidebar with tabs for 'Categories' and 'Table'. The 'Categories' tab is selected, displaying a list of resource types such as 'advisorresources', 'alertsmanagementresources', 'appserviceresources', 'chaosresources', 'communitygalleryresources', 'desktopvirtualizationresources', 'edgeorderresources', 'extendedlocationresources', 'guestconfigurationresources', 'healthresourcechanges', 'healthresources', 'iotsecurityresources', 'kubernetesconfigurationresources', 'maintenanceresources', 'networkresources', 'patchassessmentresources', 'patchinstallationresources', 'policyresources', 'recoveryservicesresources', 'resourcechanges', 'resourcecontainerchanges', 'resourcecontainers', and 'resources'. The 'Table' tab is also present but not selected.

This is Kusto Query Language, looks a lot like SQL. It's basically the language of monitoring. The queries of this workbook are written in this language.

Table: you have all the inventory

A screenshot of the Azure Resource Graph Explorer interface. At the top, there's a navigation bar with tabs for 'Remedy', 'Exchange (Hybrid)', 'Exchange Online', 'Azure Portal', 'Lansweeper', 'Township of Brock', 'Server Administrati...', and 'Microsoft Azure'. Below the navigation bar is a search bar with the placeholder 'Search resources, services, and docs (G+/?).'. The main area is titled 'Azure Resource Graph Explorer' and shows a 'Query 1' section with the number '1'. To the left of the query section is a sidebar with tabs for 'Categories' and 'Table'. The 'Categories' tab is selected, displaying a list of resource types such as 'advisorresources', 'alertsmanagementresources', 'appserviceresources', 'chaosresources', 'communitygalleryresources', 'desktopvirtualizationresources', 'edgeorderresources', 'extendedlocationresources', 'guestconfigurationresources', 'healthresourcechanges', 'healthresources', 'iotsecurityresources', 'kubernetesconfigurationresources', 'maintenanceresources', 'networkresources', 'patchassessmentresources', 'patchinstallationresources', 'policyresources', 'recoveryservicesresources', 'resourcechanges', 'resourcecontainerchanges', 'resourcecontainers', and 'resources'. The 'Table' tab is also present but not selected.

If you click on the resources table

A screenshot of the Azure Resource Graph Explorer interface. At the top, there's a navigation bar with tabs for 'Remedy', 'Exchange (Hybrid)', 'Exchange Online', 'Azure Portal', 'Lansweeper', 'Township of Brock', 'Server Administrati...', and 'Microsoft Azure'. Below the navigation bar is a search bar with the placeholder 'Search resources, services, and docs (G+/?).'. The main area is titled 'Azure Resource Graph Explorer' and shows a 'Query 1' section with the number '1'. To the left of the query section is a sidebar with tabs for 'Categories' and 'Table'. The 'Categories' tab is selected, displaying a list of resource types such as 'resourcecontainerchanges', 'resourcecontainers', 'resources', '/datascanners/scannername', 'B4codes.cloudamqp/servers', 'admincenter', 'agentextension', 'azuremonitorwindowsagent', 'azuresecuritylinuxagent', 'azuresiterecovery', 'citrix.services/xenappessentials (Citrix Virtual Apps Essentials)', 'citrix.services/vendesktopessentials (Citrix Virtual Desktops Essentials)', 'crypteron.datasecurity/apps', 'customscriptextension', 'dell.storage/filesystems', 'dynatrace.observability/monitors (Azure Native Dynatrace Service)', 'github.enterprise/accounts (GitHub AE)', 'gridpro.evops/accounts', 'gridpro.evops/accounts/eventrules', 'gridpro.evops/accounts/requester', 'gridpro.evops/accounts/views', 'incapsula.waf/accounts', 'linuxagent.azuresecuritycenter', 'linuxagent.azuresecuritycenter.arct', 'linuxagent.sqlserver', and 'linuxosupdateextension'. The 'Table' tab is also present but not selected.

Can you run the query

The screenshot shows the Azure Resource Graph Explorer interface. On the left, there's a navigation tree with categories like 'resources' and 'resourcecontainers'. The main area is titled 'Query 1' with the query '1 resources'. Below the query editor is a table of results with columns: id, name, type, tenantId, kind, location, resourceGroup, and subscriptionId. The results show various Azure resources across different regions and resource groups. At the bottom, it says 'Results: 2278 (Duration: 00:01.117)'.

Let's hone in in the West Europe, if you go back in the query...

Giving instructions on query to write

```
resources  
| where location == 'westeurope'
```

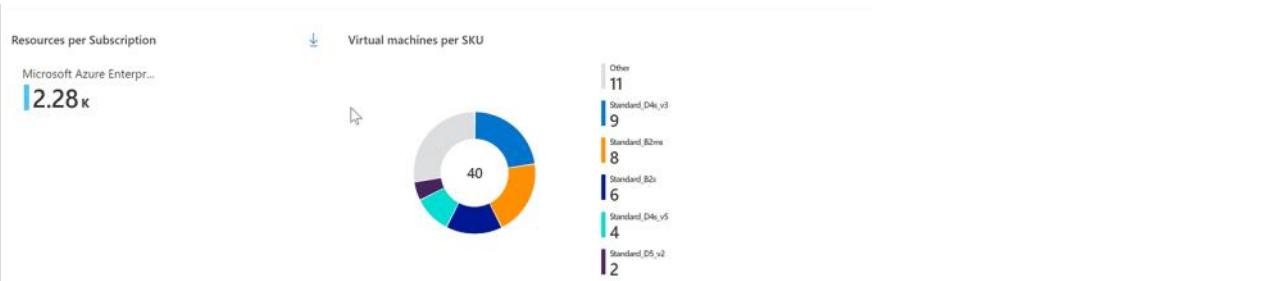
This screenshot shows the same Azure Resource Graph Explorer interface, but with a modified query: '1 resources | where location == 'westeurope''. The results table now shows only resources located in West Europe, specifically in 'westeurope' region. The table has the same columns as before, and at the bottom, it says 'Results: 53 (Duration: 00:00.460)'.

Looks like the ARC extensions...

When they originally wanted to use this, it was not available in Canada.

Giving tips on using Kusto Query Language, everything under the Azure monitor umbrella,...it has some auto -completion when you start typing.

That's useful if you want (you have certain tags that you're using), today if you wanted to see those tags in a second column in the query, you could do so...



Other: other vm skus that you're using they are just not in the TOP 5.
Gives you a nice breakdown of the VM's you're using today

Tagged vs Untagged Resource Groups

Tags are a crucial part of organizing your Azure resources into a taxonomy. When following best practices for tag management, tags can be the basis for applying your business policies with Azure Policy or tracking costs with Cost Management. No matter how or why you use tags, it's important that you can quickly add, change, and remove those tags on your Azure resources. To see if your Azure resource supports tagging, see Tag support.

Consider using Azure Policy to place mandatory Tag rules such as [Enforce Tags](#) on Resource Groups and inheritance on the Resources.

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/management/tag-policies>



You tagged all your resource groups, clearly that's important for you. In terms of untagged resources, half of them.

The reason they didn't do it, because of the feature of tagging for cost.

How did the resources get tagged? Through Azure policy? Yes, the resources inherited the tag from the resources.

The newer ones are the ones that are not tagged: because of the tag on sub feature. They tag on RG

First goal: knowing who the contact is for everything, the team

Second goal: to be able to see costs with respect to different tags

rg-costoptimization | Workbooks | Workbook 1

Resource group

Policies **Properties** **Locks**

Cost Management

- Cost analysis**
- Cost alerts (preview)**
- Budgets**
- Advisor recommendations**

Monitoring

- Insights (preview)**
- Alerts**
- Metrics**
- Diagnostic settings**
- Logs**
- Advisor recommendations**
- Workbooks**

Workbooks **Edit** **Help** **Auto refresh: Off**

Show tagged resource g...: Yes Show un-tagged resource...: Yes Show un-tagged resource...: Yes

Tagged Resource Groups				Untagged Resource Groups			
resourceGroupName	RGTags	RGLocation	Subscription	resourceGroupName	RGLocation	SubscriptionName	Subscription
ApplicationProxy-rg	{"Owner":"CS-IT - Infrast	canadacentral	Micros	rg-prd-health-encounter	canadacentral	Microsoft Azure Enterprise	Micros
automation-rg	{"Owner":"CS-IT - Infrast	canadacentral	Micros	securitydata-rg	canadacentral	Microsoft Azure Enterprise	Micros
AVD-Dev-Vendor-rg	{"Owner":"CS-IT - Infrast	canadacentral	Micros				
AVD-Health-Prod-rg	{"Owner":"CS-IT - Infrast	canadacentral	Micros				
AVD-Legal-Prod-rg	{"Owner":"CS-IT - Infrast	canadacentral	Micros				
AVD-Prod-ArcGIS-rg	{"Owner":"CS-IT - Appl	canadacentral	Micros				
AVD-Prod-Encounter-rg	{"Owner":"CS-IT - Infrast	canadacentral	Micros				
AVD-Prod-Vendor-rg	{"Owner":"CS-IT - Infrast	canadacentral	Micros				
AVD-Region-Prod-rg	{"Owner":"CS-IT - Infrast	canadacentral	Micros				
databricks-rg-databricks-dev-anal	{"Environment":"DEV","A	canadacentral	Micros				
databricks-rg-databricks-prd-anal	{"Environment":"PRD","A	canadacentral	Micros				

Do you have a custom DH for cost? No using the built in one

Resource Type: 0 selected

Filter items

Untagged Resource:

Select

This query could not find any resources. Please set Resouce Type.

All

Parameter name: Resource Type

Current value: <unset>

Error: This parameter is required but has no value set.

App Service

App Service plan

Availability set

Azure Database for PostgreSQL single server

List of all untagged resources

Untagged Resources

Name	SubscriptionId
ag-automation	1fc6773a-f3f0-4cc8-ab1e-eb6889ef1c70
CC-AZ-AVD3-0/AzurePolicyforWin	1fc6773a-f3f0-4cc8-ab1e-eb6889ef1c70
CC-AZ-AVD3-0/DependencyAgent	1fc6773a-f3f0-4cc8-ab1e-eb6889ef1c70
CC-AZ-AVD3-0/joindomain	1fc6773a-f3f0-4cc8-ab1e-eb6889ef1c70
CC-AZ-AVD3-0/MDE.Windows	1fc6773a-f3f0-4cc8-ab1e-eb6889ef1c70
CC-AZ-AVD3-0/Microsoft.PowerSh	1fc6773a-f3f0-4cc8-ab1e-eb6889ef1c70
CC-AZ-AVD3-0/MicrosoftMonitor	1fc6773a-f3f0-4cc8-ab1e-eb6889ef1c70
AVD_Vendor	1fc6773a-f3f0-4cc8-ab1e-eb6889ef1c70
CC-AZ-AVD4-0_OsDisk_1_17c011e	1fc6773a-f3f0-4cc8-ab1e-eb6889ef1c70
CC-AZ-AVD4-0/AzurePolicyforWin	1fc6773a-f3f0-4cc8-ab1e-eb6889ef1c70
CC-AZ-AVD4-0/joindomain	1fc6773a-f3f0-4cc8-ab1e-eb6889ef1c70
CC-AZ-AVD4-0/MDE.Windows	1fc6773a-f3f0-drvRah1e-ab6889ef1c70

⚠ Results were limited to the first 1000 rows.

Limit is on the workbook experience, but you can always download a full list, blue arrow on the right you can export a csv and open it with Excel for further processing.

That's it for the first tab

General Compute Data Storage Networking Monitoring Performance Cost Information

Subscription: All

Filter By: Resource Group

Resource Group: All

Compute Group

Azure Advisor Cost recommendations

Group	AffectedResource	Impact	resourceGroup	AdditionalInfo	SubscriptionId
asrseeddisk-PRDEPAPP-PHYSICAL	Medium	rg-financedr	[{"_meterIdToken": "8a49"}]	Microsoft Azure Enterprise	
asrseeddisk-PRDEPAPP-PHYSICAL	Medium	rg-financedr	[{"_meterIdToken": "8a49"}]	Microsoft Azure Enterprise	
asrseeddisk-PRDHCMAP-PHYSICAL	Medium	rg-financedr	[{"_meterIdToken": "8a49"}]	Microsoft Azure Enterprise	
asrseeddisk-prddbsvr-dev_sda-d5c	Medium	rg-financedr	[{"_meterIdToken": "8a49"}]	Microsoft Azure Enterprise	
asrseeddisk-prddbsvr-dev_sdb-efe	Medium	rg-financedr	[{"_meterIdToken": "ab6d"}]	Microsoft Azure Enterprise	
asrseeddisk-prddbsvr-dev_sdc-10c	Medium	rg-financedr	[{"_meterIdToken": "ab6d"}]	Microsoft Azure Enterprise	
asrseeddisk-prddbsvr-dev_sdd-b8f	Medium	rg-financedr	[{"_meterIdToken": "ab6d"}]	Microsoft Azure Enterprise	

Compute Group							
Azure Advisor Cost recommendations							
Group	AffectedResource	Impact	resourceGroup	AdditionalInfo	subscriptionid		
You have disks which have not been attached to a VM at least once.							
	asrseeddisk-PRDEPAPP-PHYSICAL-0	Medium	rg-financedr	{"_meterIdToken": "8a49"}	Microsoft Azure Enterprise		
	asrseeddisk-PRDEPAPP-PHYSICAL-1	Medium	rg-financedr	{"_meterIdToken": "8a49"}	Microsoft Azure Enterprise		
	asrseeddisk-PRDHCMAP-PHYSICAL-0	Medium	rg-financedr	{"_meterIdToken": "8a49"}	Microsoft Azure Enterprise		
	asrseeddisk-PRDHCMAP-PHYSICAL-1	Medium	rg-financedr	{"_meterIdToken": "8a49"}	Microsoft Azure Enterprise		
	asrseeddisk-prddbsvr-dev_sda-d5c	Medium	rg-financedr	{"_meterIdToken": "ab6d"}	Microsoft Azure Enterprise		
	asrseeddisk-prddbsvr-dev_sdb-efe	Medium	rg-financedr	{"_meterIdToken": "ab6d"}	Microsoft Azure Enterprise		
	asrseeddisk-prddbsvr-dev_sdc-10c	Medium	rg-financedr	{"_meterIdToken": "ab6d"}	Microsoft Azure Enterprise		
	asrseeddisk-prddbsvr-dev_sdd-b8l	Medium	rg-financedr	{"_meterIdToken": "ab6d"}	Microsoft Azure Enterprise		
	asrseeddisk-prddbsvr-dev_sde-1be	Medium	rg-financedr	{"_meterIdToken": "ab6d"}	Microsoft Azure Enterprise		
	asrseeddisk-prddbsvr-dev_sdf-d5	Medium	rg-financedr	{"_meterIdToken": "ab6d"}	Microsoft Azure Enterprise		

Let's do a small diversion cause it's related, open the resource graph explorer again (2nd browser tab)

Engineer asks if they use this?

Customer says it's not the most accurate for us.

Advisor | Cost

Search Feedback Download as CSV Download as PDF Create alert Create recommendation digest Try Advisor score

Overview Getting started Advisor score

Subscription equals all Recommendation Status equals Active Add Filter

Reserved Instances Configuration equals 3 years, 30 days

No grouping

Recommendations

Cost

Total recommendations: 5 Recommendations by impact: 10 Impacted resources: 59,865 CAD

For more cost management and optimization capabilities, visit Cost Management.

Impact ↓	Description ↑	Potential yearly savings based on retail pricing ↑	Impacted resources ↑	Last updated ↑
High	Purchasing a savings plan for compute could unlock lower prices	19,626.00 CAD	1 Subscription	2/14/2023, 09:08 a.m.
High	Consider SQL PaaS DB reserved instance to save over your pay-as-you-go costs	4,302.00 CAD	1 Subscription	2/14/2023, 01:25 a.m.
High	Buy virtual machine reserved instances to save money over pay-as-you-go costs	30,494.57 CAD	1 Virtual machine	2/14/2023, 08:51 a.m.
High	Consider Blob storage reserved instance to save on Blob v2 and Datalake storage Gen2 costs	5,442.00 CAD	1 Subscription	2/14/2023, 08:32 a.m.
Medium	You have disks which have not been attached to a VM for more than 30 days. Please evaluate if you still need the disk.		9 Disks	2/14/2023, 01:17 a.m.

< Previous Page 1 of 1 Next >

Savings plan is not accurate as they don't have a sub that allows it

Buy reserved instances

We don't have 3 machines.....

This recommendation was calculated based on your VM usage trend over the last 30 days and the suggested quantity is based on what will maximize your savings. This quantity may not be the number of virtual machines deployed in that region. Learn how recommendations are calculated

Recommended quantity: 3
Currently deployed virtual machines: 0
Standard_D8s_v3 virtual machines in canadacentral

VIRTUAL MACHINE	RESOURCE GROUP
We could not find any virtual machines.	

Buy reserved instances

[Feedback](#) [Download as CSV](#) [Download as PDF](#) [Create alert](#)

Active (10) Postponed & Dismissed

[Postpone](#) [Dismiss](#)

Select	Virtual machine	Recommended quantity	Recommended actions	Potential yearly savings based on retail...	Subscription	Term, look-back period
<input type="checkbox"/>	Standard_B2s virtual machines in canadacentral	6	Buy reserved instances to save over pay-as-you-go costs	1,874.71 CAD (52%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_NV16as_v4 virtual machines in canadacentral	1	Buy reserved instances to save over pay-as-you-go costs	6,694.86 CAD (54%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_B2ms virtual machines in canadacentral	7	Buy reserved instances to save over pay-as-you-go costs	4,375.20 CAD (56%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_NV4as_v4 virtual machines in canadacentral	1	Buy reserved instances to save over pay-as-you-go costs	1,679.33 CAD (54%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_D2s_v3 virtual machines in canadacentral	2	Buy reserved instances to save over pay-as-you-go costs	1,377.40 CAD (59%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_D4s_v5 virtual machines in canadacentral	2	Buy reserved instances to save over pay-as-you-go costs	2,859.35 CAD (45%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_D2s_v5 virtual machines in canadacentral	1	Buy reserved instances to save over pay-as-you-go costs	715.13 CAD (60%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_D4s_v4 virtual machines in canadacentral	1	Buy reserved instances to save over pay-as-you-go costs	1,435.11 CAD (33%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_D51_v2 virtual machines in canadacentral	1	Buy reserved instances to save over pay-as-you-go costs	518.50 CAD (67%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_D8s_v3 virtual machines in canadacentral	3	Buy reserved instances to save over pay-as-you-go costs	8,964.98 CAD (61%)	Microsoft Azure Enterprise	3, 30

This recommendation was calculated based on your VM usage trend over the last 30 days and the suggested quantity is based on what will maximize your savings. This quantity may not be the number of virtual machines deployed in that region. Learn how recommendations are calculated

Recommended quantity: 3

Currently deployed virtual machines: 0

Standard_D8s_v3 virtual machines in canadacentral

VIRTUAL MACHINE RESOURCE GROUP

We could not find any virtual machines.

Customer doesn't see information correctly here.

Buy reserved instances

[Feedback](#) [Download as CSV](#) [Download as PDF](#) [Create alert](#)

Active (10) Postponed & Dismissed

[Postpone](#) [Dismiss](#)

Select	Virtual machine	Recommended quantity	Recommended actions	Potential yearly savings based on retail...	Subscription	Term, look-back period
<input type="checkbox"/>	Standard_B2s virtual machines in canadacentral	6	Buy reserved instances to save over pay-as-you-go costs	1,874.71 CAD (52%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_NV16as_v4 virtual machines in canadacentral	1	Buy reserved instances to save over pay-as-you-go costs	6,694.86 CAD (54%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_B2ms virtual machines in canadacentral	7	Buy reserved instances to save over pay-as-you-go costs	4,375.20 CAD (56%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_NV4as_v4 virtual machines in canadacentral	1	Buy reserved instances to save over pay-as-you-go costs	1,679.33 CAD (54%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_D2s_v3 virtual machines in canadacentral	2	Buy reserved instances to save over pay-as-you-go costs	1,377.40 CAD (59%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_D4s_v5 virtual machines in canadacentral	2	Buy reserved instances to save over pay-as-you-go costs	2,859.35 CAD (45%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_D2s_v5 virtual machines in canadacentral	1	Buy reserved instances to save over pay-as-you-go costs	715.13 CAD (60%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_D4s_v4 virtual machines in canadacentral	1	Buy reserved instances to save over pay-as-you-go costs	1,435.11 CAD (33%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_D51_v2 virtual machines in canadacentral	1	Buy reserved instances to save over pay-as-you-go costs	518.50 CAD (67%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_D8s_v3 virtual machines in canadacentral	3	Buy reserved instances to save over pay-as-you-go costs	8,964.98 CAD (61%)	Microsoft Azure Enterprise	3, 30

This recommendation was calculated based on your VM usage trend over the last 30 days and the suggested quantity is based on what will maximize your savings. This quantity may not be the number of virtual machines deployed in that region. Learn how recommendations are calculated

Recommended quantity: 1

Currently deployed virtual machines: 1

Standard_NV16as_v4 virtual machines in canadacentral

VIRTUAL MACHINE RESOURCE GROUP

CC-AZ-AVD7-0 avd-prod-arcgis-rg

Home > Advisor | Cost >

Buy reserved instances

[Feedback](#) [Download as CSV](#) [Download as PDF](#) [Create alert](#)

Active (10) Postponed & Dismissed

Postpone Dismiss

Select	Virtual machine	Recommended quantity	Recommended actions	Potential yearly savings based on retail...	Subscription	Term, look-back period
<input type="checkbox"/>	Standard_B2s virtual machines in canadacentral	6	Buy reserved instances to save over pay-as-you-go costs	1,874.71 CAD (52%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_NV16as_v4 virtual machines in canadacentral	1	Buy reserved instances to save over pay-as-you-go costs	6,694.86 CAD (54%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_B2ms virtual machines in canadacentral	7	Buy reserved instances to save over pay-as-you-go costs	4,375.20 CAD (56%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_NV4as_v4 virtual machines in canadacentral	1	Buy reserved instances to save over pay-as-you-go costs	1,679.33 CAD (54%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_D2s_v3 virtual machines in canadacentral	2	Buy reserved instances to save over pay-as-you-go costs	1,377.40 CAD (59%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_D4s_v5 virtual machines in canadacentral	2	Buy reserved instances to save over pay-as-you-go costs	2,859.35 CAD (45%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_D2s_v5 virtual machines in canadacentral	1	Buy reserved instances to save over pay-as-you-go costs	715.13 CAD (60%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_D4s_v4 virtual machines in canadacentral	1	Buy reserved instances to save over pay-as-you-go costs	1,435.11 CAD (33%)	Microsoft Azure Enterprise	3, 30
<input type="checkbox"/>	Standard_D51_v2 virtual machines in canadacentral	1	Buy reserved instances to save over pay-as-you-go costs	518.50 CAD (67%)	Microsoft Azure Enterprise	3, 30

This recommendation was calculated based on your VM usage trend over the last 30 days and the suggested quantity is based on what will maximize your savings. This quantity may not be the number of virtual machines deployed in that region. Learn how recommendations are calculated

Recommended quantity: 7

Currently deployed virtual machines: 8

Standard_B2ms virtual machines in canadacentral

VIRTUAL MACHINE	RESOURCE GROUP
wb-hq-epoch-p1	rg-poolh-p1-rg
sc-as-addc-p1	rg-azuredconnect
sc-as-priview2-s1	rg-dev-datainventory
sc-AZ-DC-P1	rg-domaincontroller
sc-AZ-FRDC-P1	rg-domaincontroller
sc-as-prddc6	rg-domaincontroller
sc-as-dbrmon-p1	rg-prd-aqlinsights
sc-as-pool9-p1	rg-pool9

Do you have any reservations today?

Home >

Reservations

[Add](#) [View cart \(0\)](#) [Columns](#) [Refresh](#) [Exchange](#) [Auto renew](#) [Archive](#) [Role Assignment](#) [Feedback](#) [View FAQs](#) [Download](#)

Now billing users can use cost management + billing to view and manage all Reservations without having explicit RBAC access to individual Reservations. Click here to go to Cost Management + Billing

Filter by Name, Product, Subscription or ID Scope: All Type: All Region: All Renewal: All Archived: No 7-day Utilization: All Reset filters

All 3	Succeeded 2	Expiring 1								
<input type="checkbox"/> Name ↑	Status ↑	Expiration ... ↑	Scope ↑	Type ↑	Product name ↑	Region ↑	Renewal ↑	Quantity ↑	Last Da... ↑	7-day ... ↑
Blob_RI_03-08-2022_10-52	Expiring	03/07/2023	Single subscription - Microsoft Azure Ent...	Azure Blob Storage	cool_lrs_data_stored_100 tb	Canada Central	Off	3	100%	100%
VM_RI_03-08-2022_11-15	Succeeded	04/06/2023	Single subscription - Microsoft Azure Ent...	Virtual machine	Standard_D5_v2	Canada Central	Off	2	100%	100%
VM_RI_05-18-2022_09-08	Succeeded	05/17/2023	Single subscription - Microsoft Azure Ent...	Virtual machine	Standard_D4s_v3	Canada Central	Off	10	100%	100%

They also have reservations

Home > Microsoft Sentinel > Microsoft Sentinel

Microsoft Sentinel | Settings

Selected workspace: 'csitlogs'

[Create](#) [Manage view](#) [...](#)

Filter for any field... Name ↑ csitlogs

General Overview Logs News & guides Search

Threat management Incidents Workbooks Hunting Notebooks Entity behavior Threat intelligence MITRE ATT&CK (Preview)

Content management Content hub (Preview) Repositories (Preview) Community

Configuration Data connectors Analytics Watchlist Automation Settings

Microsoft Sentinel pricing

Microsoft Sentinel is billed based on the volume of data ingested for analysis in Microsoft Sentinel. Microsoft Sentinel offers a flexible and predictable pricing model. There are two ways to pay for the Microsoft Sentinel service: Commitment Tiers and Pay-As-You-Go. The cost for Microsoft Sentinel depends on the pricing tier selected. Learn more about Microsoft Sentinel pricing.

This does not include the Azure Log Analytics price for ingesting data. Learn more about [Log Analytics pricing](#).

100 GB/day 50% discount over Pay-as-you-go **Current tier**

200 GB/day 55% discount over Pay-as-you-go

300 GB/day 57% discount over Pay-as-you-go

400 GB/day 58% discount over Pay-as-you-go

500 GB/day 60% discount over Pay-as-you-go

1 TB/day 61% discount over Pay-as-you-go

2 TB/day 63% discount over Pay-as-you-go

5 TB/day 65% discount over Pay-as-you-go

Pay-as-you-go Per GB

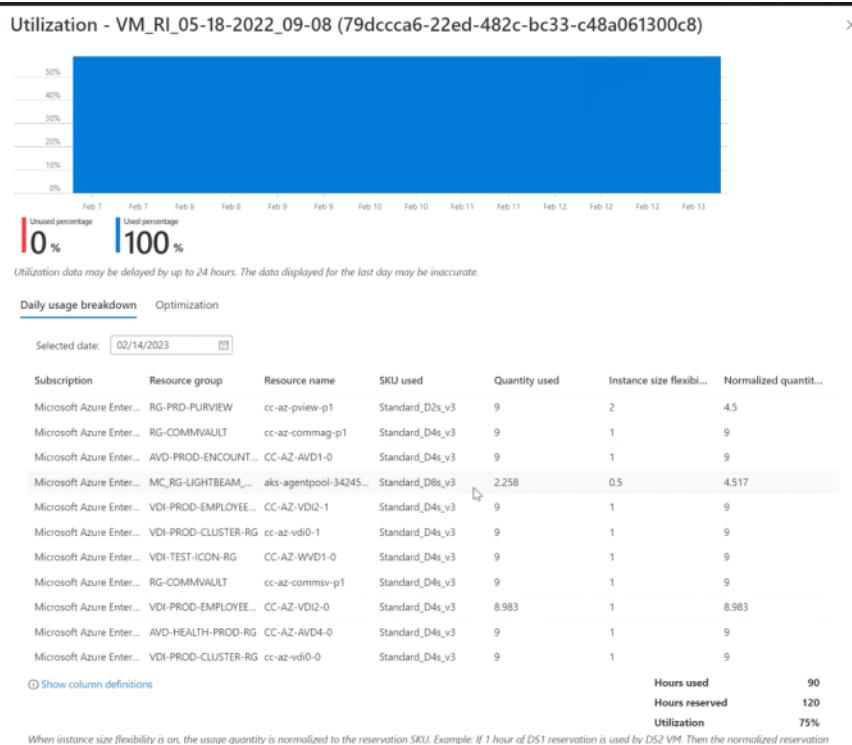
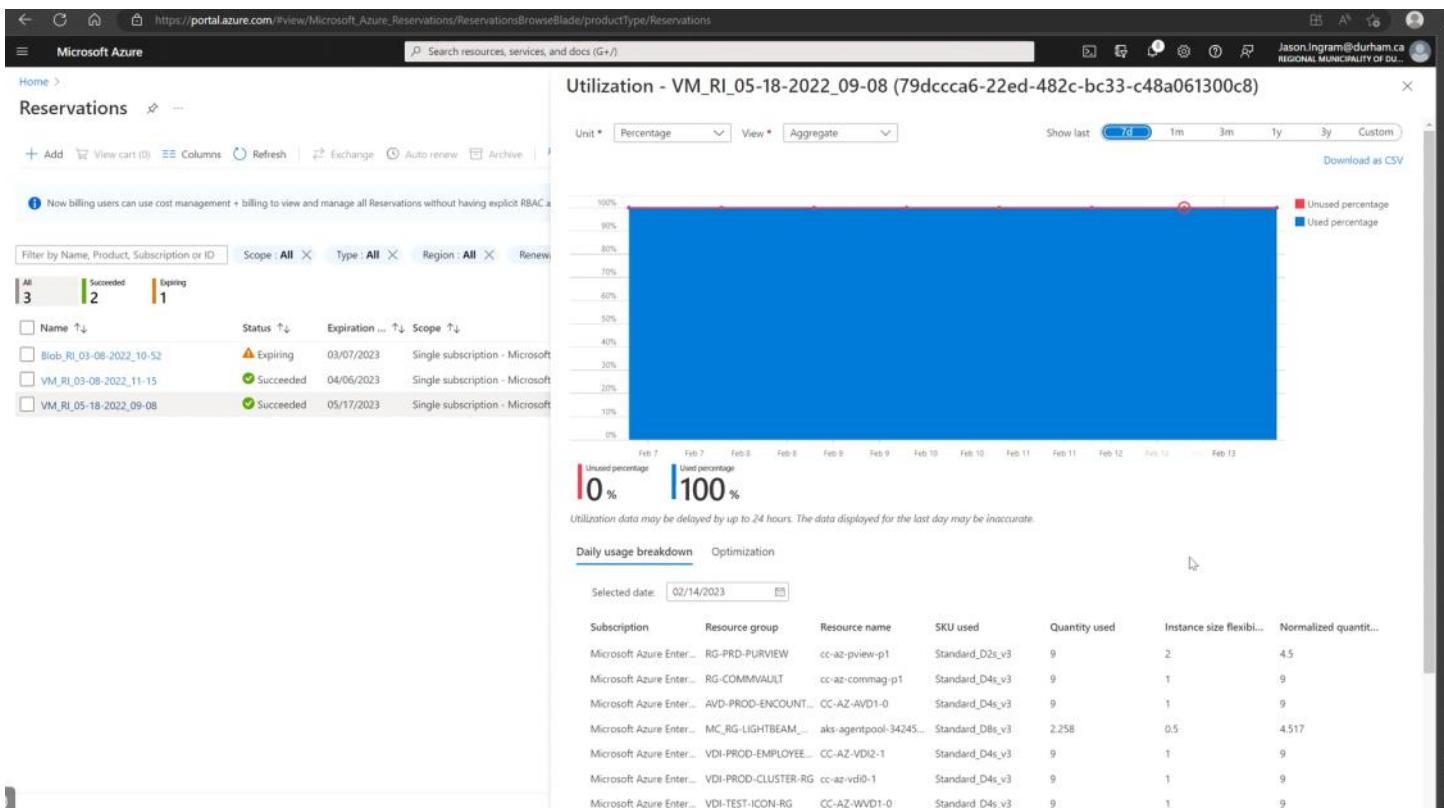
You can increase your workspace data retention to **90 days for free** because you are a Microsoft Sentinel customer. [Configure retention](#)

Data ingestion (Last 31 days)

Data retained per solution (Last 31 days)

In terms of resizing for the B series?

You can do instance flexibility. In the same SKU family, it allows you to resize.



When instance size flexibility is on, the usage quantity is normalized to the reservation SKU. Example: If 1 hour of D51 reservation is used by D52 VM, then the normalized reservation

If you have bought it at a certain size, instead you take 2 smaller ones in the same family of half a size, it will apply. 0.5 is because it's half as small.

Is it only a specific version or new?

Emmanuel shares the full list:

<https://learn.microsoft.com/en-us/azure/virtual-machines/reserved-vm-instance-size-flexibility>

https://learn.microsoft.com/en-us/azure/virtual-machines/reserved-vm-instance-size-flexibility

FOR INSTANCE SIZE FLEXIBILITY:

Instance size flexibility ratio for VMs

CSV below has the instance size flexibility groups, ArmSkuName and the ratios.

Instance size flexibility ratios?

Azure keeps link and schema updated so that you can use the file programmatically.

View VM size recommendations

Azure shows VM size recommendations in the purchase experience. To view the smallest size recommendations, select Group by smallest size.

Name	Region	Instance flexibility group	vCPUs	RAM (GB)	Term	Billing frequency	Recommendations based on	Group by smallest size (preview)
Standard_DS1_v2	West US 2	DSv2 Series	1	3.5	Three years	Monthly	10 - See details	<input checked="" type="radio"/>
Standard_DS1_v3	Brazil Southeast	DSv3 Series	2	8	Three years	Monthly	9 - See details	<input type="radio"/>
Standard_DS2_v2	West Europe	DSv2 Series	2	7	Three years	Monthly	9 - See details	<input type="radio"/>
Standard_DS1_v2	East US 2	DSv2 Series	1	3.5	Three years	Monthly	7 - See details	<input type="radio"/>
Standard_DS2_v3	East US 2	DSv3 Series	2	8	Three years	Monthly	5 - See details	<input type="radio"/>
Standard_D4s_v3	West Europe	DSv3 Series	4	16	Three years	Monthly	3 - See details	<input type="radio"/>
Standard_DS4_v3	West Europe	DSv3 Series	8	32	Three years	Monthly	3 - See details	<input type="radio"/>
Standard_DS1_v3	East US 2	Dv2 Series High Memory	20	140	Three years	Monthly	3 - See details	<input type="radio"/>
Standard_DS1_v2	East US	DSv2 Series	1	3.5	Three years	Monthly	4 - See details	<input type="radio"/>
Standard_DS2_v3	Southeast Asia	DSv3 Series	2	7	Three years	Monthly	4 - See details	<input type="radio"/>
Standard_DS1_v2	Canada Central	DSv2 Series	1	3.5	Three years	Monthly	3 - See details	<input type="radio"/>
Standard_DS2_v2	East US	DSv2 Series	2	7	Three years	Monthly	3 - See details	<input type="radio"/>
Standard_DS2_v2	West US 2	DSv2 Series	2	7	Three years	Monthly	3 - See details	<input type="radio"/>
Standard_DS2_v3	West US 2	DSv3 Series	2	8	Three years	Monthly	2 - See details	<input type="radio"/>
Standard_F2	Southeast Asia	F Series	2	4	Three years	Monthly	3 - See details	<input type="radio"/>

He's providing added value right here and there!! The customer wasn't aware they had this option.

2 questions for the workload, do we want to keep it for 1 or 3 years, second question, we want to stay within this family.

If you have a big vm and you know you won't need this size, you might want to resize first and then reserve.

Customer has a permission issue for him to watch the advisor recommendation on cost savings

Add a plan

Basics Review + buy

Savings plan helps you save money on Azure products and services but with additional flexibility. By committing to a consistent amount of usage for 1 or 3 year terms, you receive significant savings on compute resource as you use them.

Name *

Billing subscription *

Cost summary
-/mo
- total
[See details](#)

Subscriptions available for purchase
Old Finance Microsoft Azure Enterprise (3cd116c7-01a8-4081-b7d6-4df54efb7745)

Subscriptions not available for purchase
Microsoft Azure Enterprise (you do not have owner permissions on the subscription) (1fc6773a-f3f0-4

Term length: 3 years
 1 year

Hourly commitment in CAD:

Home > Advisor

Advisor | Cost

Search: Feedback: Download as CSV Download as PDF Create alert Create recommendation digest Try Advisor score

Subscription equals all Recommendation Status equals Active Add Filter

Reserved Instances Configuration equals 3 years, 30 days

No grouping

Recommendations

- Cost
- Security
- Reliability
- Operational excellence
- Performance
- All recommendations
- Monitoring
- Alerts (Preview)
- Recommendation digests
- Settings
- Configuration
- Support + troubleshooting
- Support + troubleshooting

Total recommendations: 5 Recommendations by impact: Impacted resources: 10 Potential yearly savings based on retail pricing: 59,865 CAD

Impact ↑ Description ↑ Potential yearly savings based on... ↑ Impacted resources ↑ Last updated ↑

Impact	Description	Potential yearly savings based on...	Impacted resources	Last updated
High	Purchasing a savings plan for compute could unlock lower prices	19,626.00 CAD · 1 Subscription	2/14/2023, 09:08 AM	
High	Consider SQL PaaS DB reserved instance to save over your pay-as-you-go costs	4,302.00 CAD · 1 Subscription	2/14/2023, 01:25 AM	
High	Buy virtual machine reserved instances to save money over pay-as-you-go costs	30,494.57 CAD · 1 Virtual machine	2/14/2023, 08:51 AM	
High	Consider Blob storage reserved instance to save on Blob v2 and DataLake storage Gen2 costs	5,442.00 CAD · 1 Subscription	2/14/2023, 08:32 AM	
Medium	You have disks which have not been attached to a VM for more than 30 days. Please evaluate if you still need the disk.	9 Disks	2/14/2023, 01:17 AM	

< Previous Page 1 of 1 Next >

Home > Advisor | Cost > Add a plan

Add a plan

Feedback: Download as CSV Download as PDF Create alert

Your recommendations have been loaded.

Recommendation details

We analyzed your compute usage over the last 30 days and recommend adding a savings plan to increase your savings. The savings plan unlocks lower prices on select compute services when you commit to spend a fixed hourly amount for 1 or 3 years. As you use select compute services globally, your usage is covered by the plan at reduced prices. During the times when your usage is above your hourly commitment, you'll simply be billed at your regular pay-as-you-go prices. With savings automatically applying across compute usage globally, you'll continue saving even as your usage needs change over time. Savings plan are more suited for dynamic workloads while accommodating for planned or unplanned changes while reservations are more suited for stable, predictable workloads with no planned changes. Saving estimates are calculated for individual subscriptions and the usage pattern observed over last 30 days. Shared scope savings plans are available in purchase experience and can further increase savings. [Learn more](#)

Impacted resources

Microsoft Azure Enterprise No grouping

Active (1) Postponed & Dismissed

Postpone Dismiss

Select	Subscription	Recommended actions	Potential yearly savings based on...	Last updated	Action
<input type="checkbox"/>	Microsoft Azure Enterprise	Consider adding a savings plan for compute for an hourly commitment of 4.114 CAD	19,626.00 CAD	2/14/2023, 09:08 AM	Postpone Dismiss

Home > Advisor | Cost > Add a plan > Add a plan

Basics

Review + buy

Savings plan helps you save money on Azure products and services but with additional flexibility. By committing to a consistent amount of usage for 1 or 3 year terms, you receive significant savings on compute resource as you use them.

Name *

Billing subscription *

Apply to any eligible resource * Shared across the subscription's billing scope Only in the subscription (Microsoft Azure Enterprise) In a specific resource group in the selected subscription In a management group of the selected subscription

Term length * 3 years 1 year

Hourly commitment in CAD * View recommendations

Billing frequency * Monthly All upfront

Cost summary: CAD 3,003.22/mo CAD 108,115.92 total See details

[Next: Review + buy](#)

How does savings plan for compute work?

It's more flexible but you don't see the same savings as the reservations.
You can purchase it, a lot like the reservations, but it's much more flexible. You're only locked in for 30d at a time.
If you know you need your vm of that size for a year or 3, go for RI as the savings will be better.
If you're just starting, you might be building your app, not sure for how long you'll need it,... in that case go for a savings plan
If you wanna optimize ad interim, then go for the savings plan.

You're committing for a year but you can update it every 30 days.

It's a 3 day engagement but il won't need to hog your time the full 3 days.

Coming back to the workbook:

Compute Group							
Azure Advisor Cost recommendations							
Search							
Group	AffectedResource	Impact	resourceGroup	AdditionalInfo	subscriptionid		
	asrseeddisk-prddbsvr-dev_sda-d5c	Medium	rg-financedr	{"_meterIdToken": "ab6d"}	Microsoft Azure Enterprise		
	asrseeddisk-prddbsvr-dev_sdb-efe	Medium	rg-financedr	{"_meterIdToken": "ab6d"}	Microsoft Azure Enterprise		
	asrseeddisk-prddbsvr-dev_sdc-10c	Medium	rg-financedr	{"_meterIdToken": "ab6d"}	Microsoft Azure Enterprise		
	asrseeddisk-prddbsvr-dev_sdd-b8f	Medium	rg-financedr	{"_meterIdToken": "ab6d"}	Microsoft Azure Enterprise		
	asrseeddisk-prddbsvr-dev_sde-1b5	Medium	rg-financedr	{"_meterIdToken": "ab6d"}	Microsoft Azure Enterprise		
	asrseeddisk-prddbsvr-dev_sdf-de5	Medium	rg-financedr	{"_meterIdToken": "ab6d"}	Microsoft Azure Enterprise		
	asrseeddisk-prddbsvr-dev_sdg-91f	Medium	rg-financedr	{"_meterIdToken": "ab6d"}	Microsoft Azure Enterprise		
Right-size or shutdown underutilized virtual machines (3)							
	cc-az-commmsv-p1	High	rg-commvault	{"recommendationMess	Microsoft Azure Enterprise		
	cc-az-lightbeam-p1	High	rg-lightbeam	{"annualSavingsAmount	Microsoft Azure Enterprise		
	cc-az-pview-p1	High	rg-prd-purview	{"recommendationMess	Microsoft Azure Enterprise		

It's pulling the Az advisor recomm through the query.

The recommendations are based on a 30D look back. This is what you gonna save if you keep using the VM the way you were using it in the last 30D + 3YR Reservation.

I will give you in the dashboard and the reservations workbook, you can see the differences and it is a good and useful tool when you wanna buy RIs

Virtual Machines							
Windows VMs and VM scale sets without Azure Hybrid Benefit enabled							
WindowsId	VMName	VMRG	VMSize	VMLocation	OSType	OsVersion	
wh-hq-epoch-p1	wh-hq-epoch-p1	epoch-p1-rg	Standard_B2ms	canadacentral			
cc-az-ndes-p1	cc-az-ndes-p1	intune-rg	Standard_B2s	canadacentral	WindowsServer	2019-Datacenter	
cc-az-addc-p4	cc-az-addc-p4	rg-azureadconnect	Standard_B2ms	canadacentral	WindowsServer	2022-datacenter-g2	
cc-az-azdns-p1	cc-az-azdns-p1	rg-azuredns	Standard_B2s	canadacentral	WindowsServer	2019-Datacenter	
CC-AZ-FRDC-P1	CC-AZ-FRDC-P1	rg-domaincontroller	Standard_B2ms	canadacentral	WindowsServer	2019-Datacenter	
cc-az-prddc6	cc-az-prddc6	rg-domaincontroller	Standard_B2ms	canadacentral	WindowsServer	2019-Datacenter	
cc-az-pview-p1	cc-az-pview-p1	rg-prd-purview	Standard_D2s_v3	canadacentral	WindowsServer	2022-datacenter-g2	
cc-az-apppxy-p1	cc-az-apppxy-p1	applicationproxy-rg	Standard_B2s	canadacentral	WindowsServer	2019-Datacenter	
cc-az-apppxy-p2	cc-az-apppxy-p2	applicationproxy-rg	Standard_B2s	canadacentral	WindowsServer	2019-Datacenter	
cc-az-pshost-p1	cc-az-pshost-p1	automation-rg	Standard_B2s	canadacentral	WindowsServer	2019-Datacenter	
cc-az-commag-p1	cc-az-commag-p1	rg-commvault	Standard_D4s_v3	canadacentral	WindowsServer	2019-Datacenter	

This is another bug one, this is pointing out you might be able to benefit. Do you have Software Assurance in your license?

You can save by leveraging those Software Assurance licenses (Windows for your on prem). The licenses on prem can also apply to your Azure VM. It is your responsibility to monitor the number of licenses. The chances are you can leverage your own licenses and apply them. (BYOL). The ones you use onprem you can simultaneously use them in the cloud.

Click on the link in that purple box. Go to the linked page. Certainly for the ones you are migrating,...

(NOT CLEAR ANSWER, my action is to look for a clearer answer, with the link below)

[Azure Hybrid Benefit FAQ | Microsoft Azure](#)

Standard -> 180DAYS while you are migrating

Datacenter edition -> you can definitely use it both on-prem and Azure

rg-costoptimization | Workbooks | Workbook 1

	cc-az-apppxy-p1	cc-az-apppxy-p1	applicationproxy-rg	Standard_B2s	canadacentral	WindowsServer	2019-Datacenter
	cc-az-apppxy-p2	cc-az-apppxy-p2	applicationproxy-rg	Standard_B2s	canadacentral	WindowsServer	2019-Datacenter
	cc-az-pshost-p1	cc-az-pshost-p1	automation-rg	Standard_B2s	canadacentral	WindowsServer	2019-Datacenter
	cc-az-commag-p1	cc-az-commag-p1	rg-commvault	Standard_D4s_v3	canadacentral	WindowsServer	2019-Datacenter

Linux VMs without Azure Hybrid Benefit enabled

All applicable Linux VMs have the Azure Hybrid Benefit enabled

This means either it is applied or you don't have any Linux VMs it should apply to.

rg-costoptimization | Workbooks | Workbook 1

Virtual Machines in a Stopped State

You have no VMs in a stopped state

If for whatever reason, you snooze your VM's, you shut down the VM but you don't deallocate it, you are still incurring compute cost. This is a dashboard that will help you flag those. (my note: you can also see if you are fully benefiting from the reservations as you pay the full amount and if you are not running your vm, you actually paying for nothing)

Home > rg-costoptimization

rg-costoptimization | Workbooks | Workbook 1

Resource group

Search Workbooks Edit Help Auto refresh: Off

Policies Properties Locks

Cost Management

- Cost analysis
- Cost alerts (preview)
- Budgets
- Advisor recommendations

Monitoring

- Insights (preview)
- Alerts
- Metrics
- Diagnostic settings
- Logs
- Advisor recommendations

Workbooks

All virtual machines

Group	VMID	VMSKU	TotalDataDisks	TotalNICs	VMLocation	resourceGroup
> Standard_D2s_v3 (2)						
> Standard_D2s_v5 (1)						
> Standard_D4s_v3 (9)						
> Standard_D4s_v4 (1)						
> Standard_D4s_v5 (4)						
> Standard_D5_v2 (2)						
> Standard_DS1_v2 (1)						
> Standard_E2s_v4 (1)						
> Standard_F64s_v2 (2)						
> Standard_NV16as_v4 (1)						
> Standard_NV4as_v4 (1)						

Azure App Service

Azure App Service

Save with Premium v3 reserved instances

When you commit to an Azure App Service Premium v3 reserved instance you can save money. The reservation discount is applied automatically to the number of running instances that match the reservation scope and attributes - you don't need to assign a reservation to a specific instance to get the discounts.

Determine the right reserved instance size before you buy

Before you buy a reservation, you should determine the size of the Premium v3 reserved instance that you need. The following sections will help you determine the right Premium v3 reserved instance size.

Use Autoscale appropriately

Autoscale can be used to provision resources for when they're needed or on demand, which allows you to minimize costs when your environment is idle.

Web Apps	WebAppId	Type	WebAppLocation	Status	SubscriptionName
ASP-functionappv3d50-81d6-premium (1)					
	functionappv3d50	functionapp	canadacentral	Running	Microsoft Azure Enterprise
ASP-rgdevmydurham311-b538 (2)					
	logic-dev-mydurham311-transit	functionapp.workflowapp	canadacentral	Running	Microsoft Azure Enterprise
	logic-test-mydurham311-transit	functionapp.workflowapp	canadacentral	Running	Microsoft Azure Enterprise
ASP-rgprdmydurham311 (1)					
	logic-prd-mydurham311-transit	functionapp.workflowapp	canadacentral	Running	Microsoft Azure Enterprise
asp-logic-prd-health-encounter-1 (1)					
	logic-prd-health-encounter-1	functionapp.workflowapp	canadacentral	Running	Microsoft Azure Enterprise

Web Apps	WebAppId	Type	WebAppLocation	Status	SubscriptionName
ASP-functionappv3d50-81d6-premium (1)					
	functionappv3d50	functionapp	canadacentral	Running	Microsoft Azure Enterprise
ASP-rgdevmydurham311-b538 (2)					
	logic-dev-mydurham311-transit	functionapp.workflowapp	canadacentral	Running	Microsoft Azure Enterprise
	logic-test-mydurham311-transit	functionapp.workflowapp	canadacentral	Running	Microsoft Azure Enterprise
ASP-rgprdmydurham311 (1)					
	logic-prd-mydurham311-transit	functionapp.workflowapp	canadacentral	Running	Microsoft Azure Enterprise
asp-logic-prd-health-encounter-1 (1)					
	logic-prd-health-encounter-1	functionapp.workflowapp	canadacentral	Running	Microsoft Azure Enterprise
hostingplan-dev-webapi-lowqfs (1)					
	webapp-dev-webapi-durham-lowc	app	canadacentral	Running	Microsoft Azure Enterprise

If there were any red ones, that would indicate maybe you have it stopped for a reason, maybe you did it for a reason, coz you still incur charges.
The other purpose is to list an v2 instances you might need to convert into v3

Web Apps							
Status	SubscriptionName	ResourceGroup	skutler	workers	maxworkers	planid	Pr
Running	Microsoft Azure Enterprise	rg-prd-purview-adbconnector	ElasticPremium	1	20	asp-functionappv13d50-81d6-pre	
Running	Microsoft Azure Enterprise	rg-dev-mydurham311	WorkflowStandard	1	20	asp-rgdevmydurham311-b538	
Running	Microsoft Azure Enterprise	rg-dev-mydurham311	WorkflowStandard	1	20	asp-rgdevmydurham311-b538	
Running	Microsoft Azure Enterprise	rg-prd-mydurham311	WorkflowStandard	1	20	asp-rgprdmydurham311	
Running	Microsoft Azure Enterprise	rg-prd-health-encounter	WorkflowStandard	1	20	asp-logic-prd-health-encounter-1	
Running	Microsoft Azure Enterprise	rg-lowqfs	PremiumV2	1	30	hostingplan-dev-webapi-lowqfs	

Explain the benefits of v3...

MS encourages you to use the latest SKUs, there are incentives to do that.
It's a recurring theme in terms of optimization, you see that in storage as well.

Azure Kubernetes Service

- Enable cluster autoscaler to automatically adjust the number of agent nodes in response to resource constraints
- Consider using Azure Spot VMs for workloads that can handle interruptions, early terminations, or evictions. For example, workloads such as batch processing jobs, development and testing environments, and large compute workloads may be good candidates to be scheduled on a spot node pool.
- Utilize the Horizontal pod autoscaler to adjust the number of pods in a deployment depending on CPU utilization or other select metrics.
- Use the Start/Stop feature in Azure Kubernetes Services (AKS).

The screenshot shows the AKS configuration page. It lists a single cluster named 'aks-lb-cluster'. The cluster details include:

- Group: aks-lb-cluster (1)
- id: aks-lb-cluster
- ProfileName: agentpool
- Sku: Basic
- Tier: Paid
- mode: System
- AutoScaleEnabled: false
- SpotVM: Not Spot VM (highlighted in red)
- VMSize: Standard_D8s_v3

You're on the Paid plan, I'd doublecheck. It looks like a load balancer cluster.
This is for a vendor specific app. It is a PoC and customer needs this
If it's vendor specific you wanna follow their specs

If you're learning AKS, and not in PROD, you wanna leverage spot VMs cause you don't care that it's always up, you can do so, there is also a Free Tier for AKS.

The screenshot shows the 'rg-costoptimization' workbook in the Azure portal. The main area displays 'Azure Advisor Cost recommendations - Data' with the message: 'You are following all of our cost recommendations for Data'. The left sidebar includes sections for Policies, Properties, Locks, Cost Management (Cost analysis, Cost alerts (preview), Budgets, Advisor recommendations), Monitoring (Insights (preview), Alerts, Metrics, Diagnostic settings, Logs, Advisor recommendations), and Workbooks (selected). The top navigation bar shows 'Workbooks' is active.

Cmr has some SQL, and they are following all recommendations in that case.

Storage accounts

General-purpose v2 storage accounts support the latest Azure Storage features and incorporate all of the functionality of general-purpose v1 and Blob storage accounts. General-purpose v2 accounts are recommended for most storage scenarios.

1. General-purpose v2 accounts deliver the lowest per-gigabyte capacity prices for Azure Storage, as well as industry-competitive transaction prices.
2. General-purpose v2 accounts support default account access tiers of hot or cool and blob level tiering between hot, cool, or archive.
3. General-purpose v2 accounts allow you to also use lifecycle management to optimize your storage cost

Storage accounts which are not v2												
storageaccount	↑↓	StorageAccountName	↑↓	SKUName	↑↓	SKUTier	↑↓	SAKind	↑↓	AccessTier	↑↓	resourceGroup
durhamnsgflowlogstorage		durhamnsgflowlogstorage		Standard_LRS		Standard		Storage				rg-zscnt-01
rgzscnt01diag		rgzscnt01diag		Standard_LRS		Standard		Storage				rg-zscnt-01
dbstoragerfj7wzusgi		dbstoragerfj7wzusgi		Standard_GRS		Standard		BlobStorage		Hot		databricks-rg-databricks-dev-analytics-02-0qx6vl
dbstoragexscts4ols6xou		dbstoragexscts4ols6xou		Standard_GRS		Standard		BlobStorage		Hot		databricks-rg-databricks-prd-analytics-02-mi3prv
1f2221canadacentral		1f2221canadacentral		Standard_LRS		Standard		Storage				securitydata-rg

You can convert those into v2 and you can do this without any downtime, you can also take advantage of lifecycle policies. If you haven't opened up a file for 2 years you can move it to a colder tier to further optimize. I'll provide the links and recommendations, you'll want to take care of that.

Home > rg-costoptimization

rg-costoptimization | Workbooks | Workbook 1

Resource group

Search: ...

Workbooks Edit ⌂ ⌄ ⌅ ⌆ ⌇ ? Auto refresh: Off

- Policies
- Properties
- Locks
- Cost Management**
 - Cost analysis
 - Cost alerts (preview)
 - Budgets
 - Advisor recommendations
- Monitoring
 - Insights (preview)
 - Alerts
 - Metrics
 - Diagnostic settings
 - Logs
 - Advisor recommendations

Recovery Vaults Replication

recoveryVault	↑↓ RecoveryVaultName	↑↓ RecoveryVaultLocation	↑↓ RVRG	↑↓ SubscriptionNa
financeVault	financeVault	canadacentral	rg-financedr	Microsoft Azure
lowqfs-backup-vault	lowqfs-backup-vault	canadacentral	rg-lowqfs	Microsoft Azure

Vault Storage replication type

This query could not run because some parameters are not set. Please set: subscriptionId, resourceGroupVault, vaultName

It is ASR for their fleet server, the vendor is responsible for the backup component for that app

Recovery Vaults Replication

Subscription	↑↓ RVRG	↑↓ SubscriptionName	↑↓ skuTier	↑↓ skuName	↑↓ subscriptionId
rg-financedr	Microsoft Azure Enterprise	Standard	R50	1fc6773a-f3f0-4cc8-ab1e-eb6889	
rg-lowqfs	Microsoft Azure Enterprise	Standard	R50	1fc6773a-f3f0-4cc8-ab1e-eb6889	

Is it georedundant? Here we look at the SKU.
Here, the original servers are on prem.

This screen is reminding you of another oppy for optimization. Sometimes you have Recovery vaults in a non prod env. In that case best to not leverage the geo redundancy as it is expensive.

Unattached disks

The query returned no results.

The recovery vault ones are often unattached, you (might) not see them.

By the way, you have the full sourcecode, if you want it to bring back the recovery vault ones to match advisor, you can go in and tweak the code. You'll see the queries look like the KQL we did.

Workbooks Edit ⌂ ⌄ ⌅ ⌆ ⌇ ? Auto refresh: Off

General Compute Data Storage **Networking** Monitoring Performance Cost Information

Subscription: All

Filter By: Resource Group ▾

Resource Group: All ▾

Networking Group

Azure advisor recommendations - Networking

You are following all of our cost recommendations for Networking

Subscription: All

Filter By: Resource Group

Resource Group: All

Monitoring Group**Log analytics workspaces**

Workspace	↑↓	Resource Group	↑↓	Location	↑↓	Retention (days)	↑↓	Daily Cap (GB)	↑↓	Licence	↑↓	Subscription
DefaultWorkspace-1fc6773a-f3f0-4	↑	defaultresourcegroup-cca	↑	canadacentral	30	--	permode	↑	Microsoft Azure Enterprise			
DurhamActiveDirectoryWorkspace	↑	durhamactivedirectoryworkspacerc	↑	canadacentral	30	--	pergb2018	↑	Microsoft Azure Enterprise			
csitlogs	↑	logana-rg	↑	canadacentral	90	--	standalone	↑	Microsoft Azure Enterprise			
log-dev-analytics-01	↑	rg-dev-analyticsplatform	↑	canadacentral	30	--	pergb2018	↑	Microsoft Azure Enterprise			
log-NetworkSecurity	↑	rg-networksecurity	↑	canadacentral	7	0.5	free	↑	Microsoft Azure Enterprise			
log-prd-analytics-01	↑	rg-prd-analyticsplatform	↑	canadacentral	30	--	pergb2018	↑	Microsoft Azure Enterprise			
logPrdSqlInsights	↑	rg-prd-sqlinsights	↑	canadacentral	30	--	pergb2018	↑	Microsoft Azure Enterprise			

It will tell you your LAW, sometimes you don't want to retain it that long,....
If I saw a big retention day, the cost is high, you might not want to keep it.

Workbooks Edit 🗃️ ⏪ ⏴️ 🎯 ? Help 🔄 Auto refresh: Off

Performance Group

Virtual Machine: Yes Global AKS: No AppService: No Storage Account: No Time Range: Last hour



Resource Details

List of Resources: Yes

Resources tagged

Resource	↑↓	type
Failure Anomalies - ai-fa-azuredata	↑	microsoft.alertsmanagement/smardetectoralerule
Failure Anomalies - wstestgpetersc	↑	microsoft.alertsmanagement/smardetectoralerule
Failure Anomalies - logic-mydurha	↑	microsoft.alertsmanagement/smardetectoralerule
Failure Anomalies - logic-prd-healt	↑	microsoft.alertsmanagement/smardetectoralerule
Failure Anomalies - appinsightspv13	↑	microsoft.alertsmanagement/smardetectoralerule
Failure Anomalies - appinsightspv14	↑	microsoft.alertsmanagement/smardetectoralerule
svc-az-automation	↑	Automation Account
aa-dev-analytics-01	↑	Automation Account
aa-prd-analytics-01	↑	Automation Account
svc-az-automation/Add-Licensed-1	↑	Runbook
svc-az-automation/Cessation-Test	↑	Runbook

Canada Central 2.1k Global 122 West Europe 53 East US 2 Canada East 1 Unknown 1

rg-costoptimization | Workbooks | Workbook 1

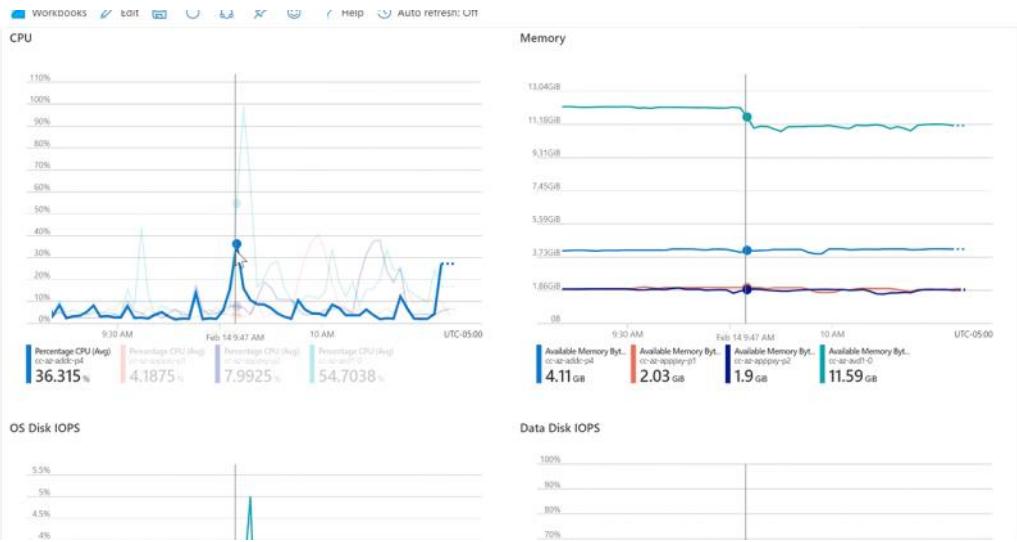
Virtual Machine Performance

Virtual Machine: 4 selected Network Interface Card: All

Overview

vmId	vmSize	Properties	nicId	DiskSKU	SKUTier	DiskTier	diskSizeGB
cc-az-addc-p4	Standard_B2ms	{"Memory":8,"vCPUs":2,"...}	cc-az-addc-p4892	StandardSSD_LRS	Standard	127	
cc-az-apppxy-p1	Standard_B2s	{"Memory":4,"vCPUs":2,"...}	cc-az-apppxy-p1175	StandardSSD_LRS	Standard	127	
cc-az-apppxy-p2	Standard_B2s	{"Memory":4,"vCPUs":2,"...}	cc-az-apppxy-p2863	StandardSSD_LRS	Standard	127	
cc-az-avd1-0	Standard_D4s_v3	{"Memory":16,"vCPUs":4,"...}	CC-AZ-AVD1-0-nic	StandardSSD_LRS	Standard	127	

You can see how the VMs compare in terms of overall perf



Why is it here, when you are trying to rightsize. Some of them, the CPU is very low constantly. They don't pass 40%, maybe the VMs should be resized. The first 2 are burstable. (your performance drops,...)

Sometimes vendors still require you to use a certain minimum. In that case you don't have that flexibility.

If you have similar kind of VMs you can compare,...

Home > rg-costoptimization

rg-costoptimization | Workbooks | Workbook 1

Resource group

Search

Workbooks Edit File Help Auto refresh: Off

Policies Properties Locks

Cost Management

- Cost analysis
- Cost alerts (preview)
- Budgets
- Advisor recommendations

Monitoring

- Insights (preview)
- Alerts
- Metrics
- Diagnostic settings
- Logs
- Advisor recommendations

Workbooks

General Compute Data Storage Networking Monitoring Performance Cost Information

Cost Information

Subscription: Microsoft Azure Enterprise

Filter By: Resource Group

Resource Group: All

This Tab will show Information about idle resource that have impact on cost

Note: The cost information available in this tab relates to the previous month. If the resources was created less than 30 days ago, check the cost management and billing blade.

*Billing reader permission as a minimum is needed to populate cost information

Unattached Managed Disks cost

The query returned no results.

Approximate cost of Windows VMs and VMSS without Hybrid Benefit enabled

WindowsId	Last Month Cost	Currency	Approximate AHUB savings	Last Month Cost with AHUB	VMName	VMBG
cc-az-apppxy-p1	\$1,851,305,736,399.91	CAD	\$22,824,944,785,162,923	\$29,026,360,951,236,627	cc-az-apppxy-p1	applicationpro
cc-az-apppxy-p2	\$1,853,624,530,942.42	CAD	\$22,825,965,518,520,853	\$29,027,659,012,415,66	cc-az-apppxy-p2	applicationpro
cc-az-pshost-p1	\$1,852,469,038,820,615	CAD	\$22,825,456,870,888,832	\$29,027,012,167,931,783	cc-az-pshost-p1	automation-rg
wh-hq-epoah-p1	\$96,108,013,659,357,68	CAD	\$42,306,747,612,849,25	\$53,801,266,046,508,43	wh-hq-epoah-p1	epoah-p1-rg
cc-az-ndes-p1	\$51,847,824,724,556,92	CAD	\$22,823,412,443,749,955	\$29,024,412,280,806,967	cc-az-ndes-p1	intune-rg
cc-az-addc-p4	\$96,120,915,139,279,92	CAD	\$42,312,426,844,311,02	\$53,808,488,294,968,896	cc-az-addc-p4	rg-azureadcon
cc-az-azdns-p1	\$51,852,465,744,564,306	CAD	\$22,825,455,420,757,205	\$29,027,010,323,807,1	cc-az-azdns-p1	rg-azuredns
cc-az-commag-p1	\$248,893,681,740,768,73	CAD	\$109,562,998,702,864	\$139,330,683,038,482,33	cc-az-commag-p1	rg-commvault
cc-az-commssv-p1	\$381,071,821,812,149,6	CAD	\$167,747,815,961,708,26	\$213,324,005,850,441,35	cc-az-commssv-p1	rg-commvault
cc-az-pview2-s1	\$96,118,766,745,936,04	CAD	\$42,311,481,121,561,044	\$53,807,285,624,375	cc-az-pview2-s1	rg-dev-datainv
CC-AZ-DC-P3	\$6,092,956,163,393,8	CAD	\$42,300,119,303,125,946	\$53,792,836,602,6785	CC-AZ-DC-P3	rg-domaincont

Approximate cost of Linux VMs without Hybrid Benefit enabled

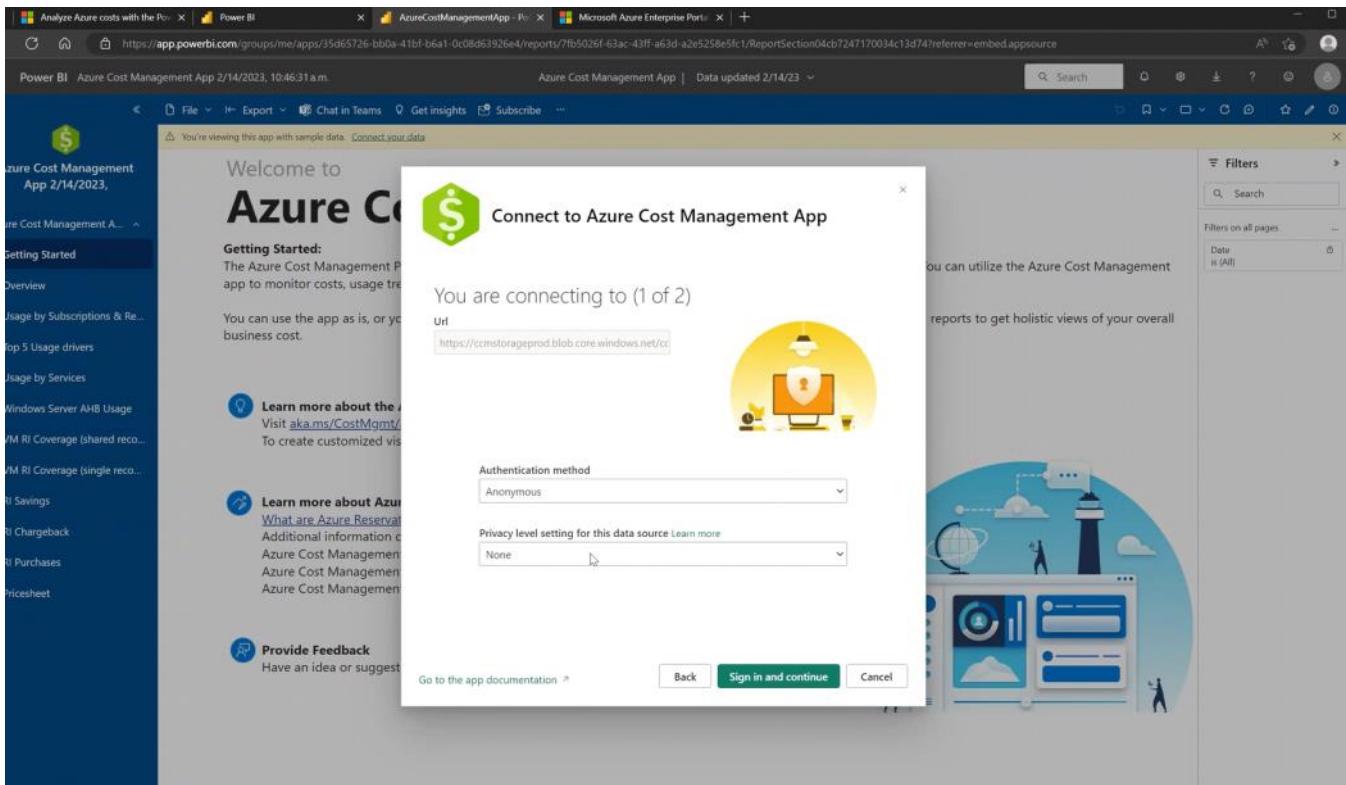
The query returned no results.

Now it's a good time for a break!

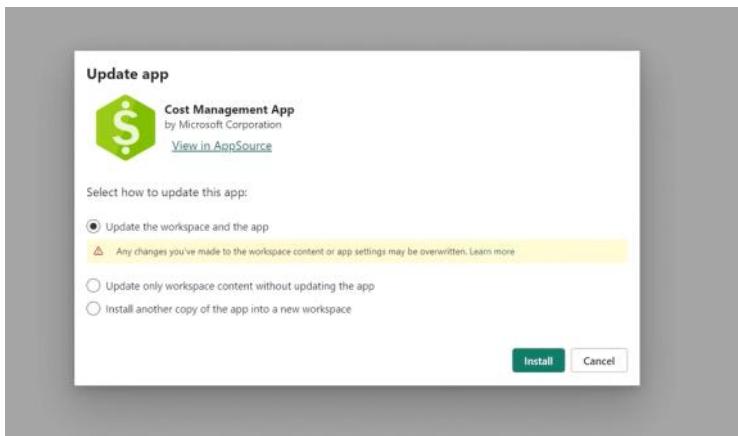
We'll then jump to the Cost Management Power BI App.

Follow the guidance here:

Follow the guidance here:
<https://learn.microsoft.com/en-us/azure/cost-management-billing/costs/analyze-cost-data-azure-cost-management-power-bi-template-app>



Putting anonymous will not open this up to the world, it saves data to a storage account but that is on us, MS



You can ignore this, cancel

You're viewing this app with sample data. Refresh is in progress.

Welcome to Azure Cost Management

Getting Started:
The Azure Cost Management Power BI App is meant to assist in analyzing and managing your cloud cost within Power BI. You can utilize the Azure Cost Management app to monitor costs, usage trends and identify cost optimization options to reduce your expenditures.

You can use the app as is, or you can download it into [Power BI Desktop](#) and join with additional data to create customized reports to get holistic views of your overall business cost.

Learn more about the Azure Cost Management Power BI template App
Visit aka.ms/CostMgmt/ACMinights for additional information on the Cost Management template app
To create customized visualizations from scratch, see: [Connect to Azure Cost Management in Power BI Desktop](#)

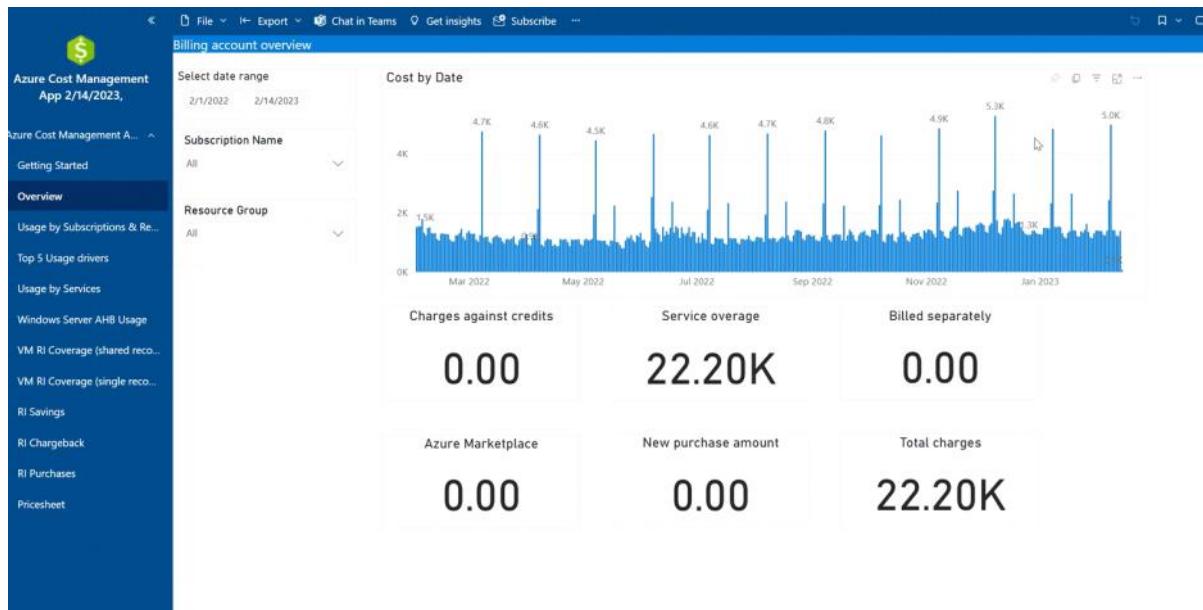
Learn more about Azure Reservations and Azure Hybrid benefits
[What are Azure Reservations?](#)
Additional information on [Azure Hybrid Benefit](#)
Azure Cost Management documentation: aka.ms/CostMgmt/Docs
Azure Cost Management video channel: aka.ms/CostMgmt/Video
Azure Cost Management updates: aka.ms/CostMgmt/Blog

Provide Feedback
Have an idea or suggestion? Visit aka.ms/ACMTemplateAppFeedback to post your thoughts.



We'll have to wait a bit, it might take 15m or less.

Now that we have everybody here, let's let that roll and do the survey if you're okay with that.



The peaks in your graph is the reservations kicking in.

Assessment part:

<http://aka.ms/wellarchitected/review>

Using a backup solution installed in VMs from commvault for the assessment

Assessments FAQ & Help

Learn / Assessments / Browse /

Overview

Azure Well-Architected Review

Azure Well-Architected Review - Feb 14, 2023 - 10:54:18 AM

View guidance 0 of 2 pages complete

WAF Configuration * What workload type do you want to evaluate?

Core Pillars * What pillars would you like to evaluate?

Azure Well-Architected Review

Examine your workload through the lenses of reliability, cost management, operational excellence, security and performance efficiency.

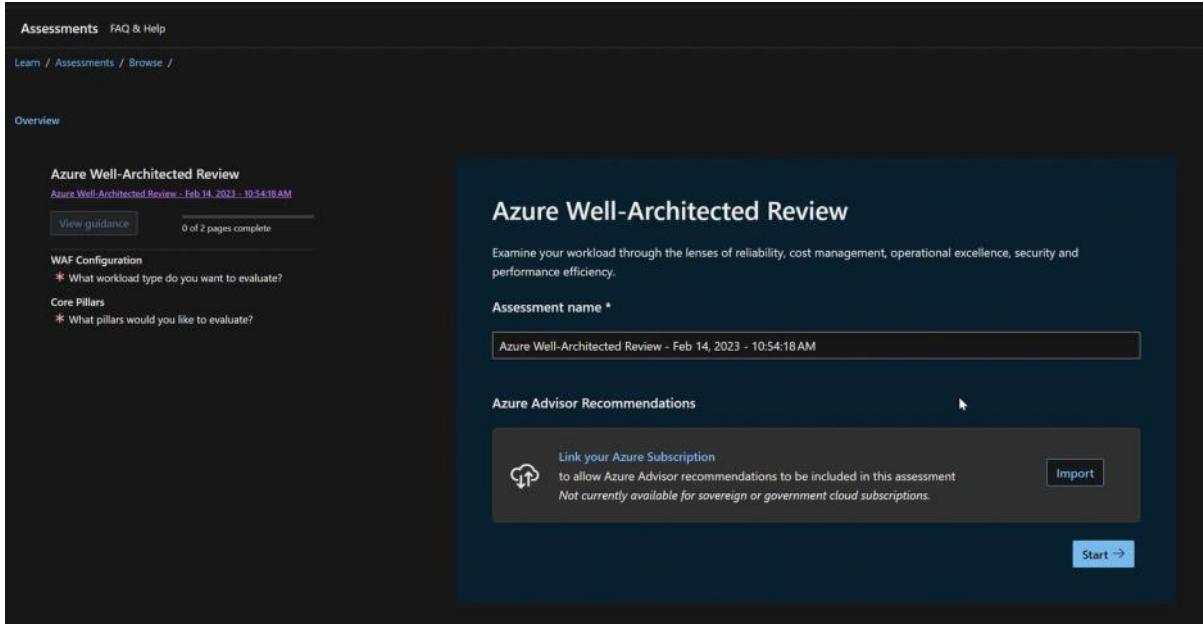
Assessment name *

Azure Well-Architected Review - Feb 14, 2023 - 10:54:18 AM

Azure Advisor Recommendations

Link your Azure Subscription Import Not currently available for sovereign or government cloud subscriptions.

Start →



The reason you want to log in is to save the actual results, once we have the results you can export them into a csv files and email me.

Which workload did we decide to work on?
Backup system in production

Overview Guidance

Azure Well-Architected Review

Azure Well-Architected Review - Feb 14, 2023 - 10:54:18 AM

View guidance 2 of 11 pages complete

WAF Configuration ✓ What workload type do you want to evaluate?

Core Pillars ✓ What pillars would you like to evaluate?

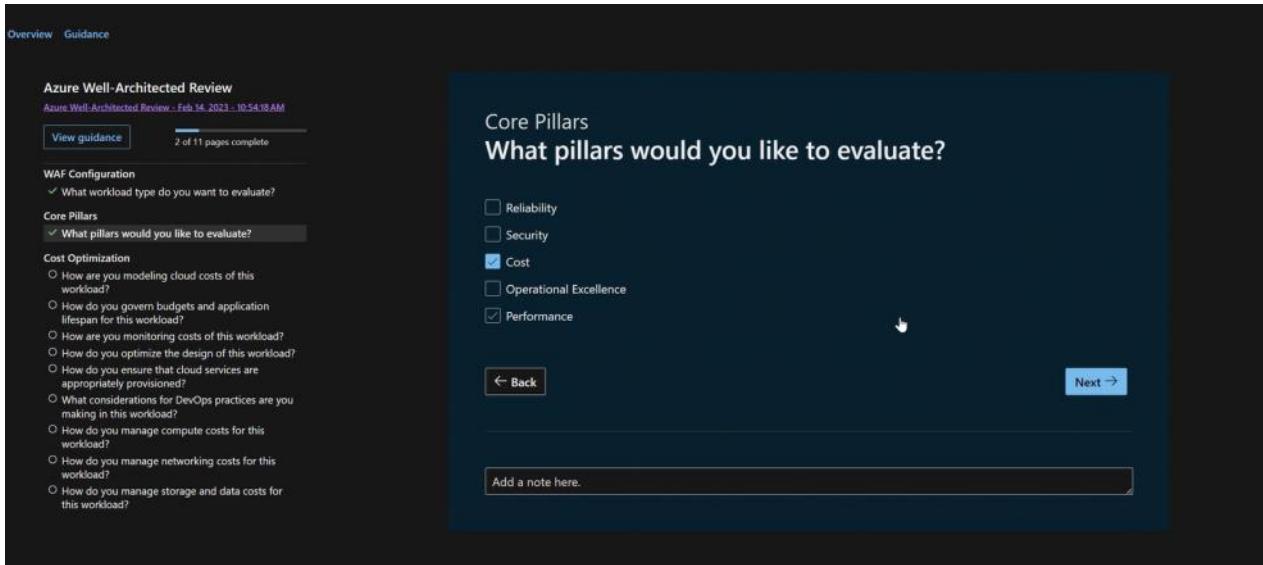
Cost Optimization

- How are you modeling cloud costs of this workload?
- How do you govern budgets and application lifespan for this workload?
- How are you monitoring costs of this workload?
- How do you optimize the design of this workload?
- How do you ensure that cloud services are appropriately provisioned?
- What considerations for DevOps practices are you making in this workload?
- How do you manage compute costs for this workload?
- How do you manage networking costs for this workload?
- How do you manage storage and data costs for this workload?

Reliability Security Cost Operational Excellence Performance

← Back Next →

Add a note here.



What pillars would you like to evaluate?

Cost Optimization

- How are you modeling cloud costs of this workload?
- How do you govern budgets and application lifespan for this workload?
- How are you monitoring costs of this workload?
- How do you optimize the design of this workload?
- How do you ensure that cloud services are appropriately provisioned?
- What considerations for DevOps practices are you making in this workload?
- How do you manage compute costs for this workload?
- How do you manage networking costs for this workload?
- How do you manage storage and data costs for this workload?

How are you modeling cloud costs of this workload?

Cost modeling is an exercise where you create logical groups of cloud resources that are mapped to the organization's hierarchy and then estimate costs for those groups. The goal of cost modeling is to estimate the overall cost of the organization in the cloud.

Cloud costs are being modelled for this workload. ⓘ
 The price model of the workload is clear. ⓘ
 Critical system flows through the application have been defined for all key business scenarios. ⓘ
 There is a well-understood capacity model for the workload. ⓘ
 Internal and external dependencies are identified and cost implications understood. ⓘ
 Cost implications of each Azure service used by the application are understood. ⓘ
 The right operational capabilities are used for Azure services. ⓘ
 Special discounts given to services or licenses are factored in when calculating new cost models for services being moved to the cloud. ⓘ
 Azure Hybrid Use Benefit is used to drive down cost in the cloud. ⓘ
 None of the above.

[← Back](#) [Next →](#)

You can do the same assessment for other workloads, you could compare, if different teams are working on different workloads, this sort of promotes optimal cloud usage... If you go back to this and do the assessment again, you could see the progress..

Customer shows his workload

Home > Resource groups >

Resource groups Regional Municipality of Durham (durhamregion.ca)

+ Create Manage view ...

rg-Commvault Resource group

Subscription (move) Microsoft Azure Enterprise

Subscription ID : 1c6773a-f3f0-4cc8-ab1e-e6b889ef1c70

Tags (edit) : Owner : CS-IT - Infrastructure CostCategory : CommVault

Deployments : 1 Failed 8 Succeeded

Location : Canada Central

Resources Recommendations

Filter for any field... Type equals all Location equals all Add filter

Name	Type	Location	...
cc-az-commag-p1	Virtual machine	Canada Central	...
cc-az-commag-p112	Network interface	Canada Central	...
cc-az-commag-p1_DataDisk_1	Disk	Canada Central	...
cc-az-commag-p1_OsDisk_1_ac143d0fa1940fa90b264acaa159014	Disk	Canada Central	...
cc-az-commiv-p1	SQL virtual machine	Canada Central	...
cc-az-commiv-p1	Virtual machine	Canada Central	...
cc-az-commiv-p1459	Network interface	Canada Central	...
cc-az-commev-p1_DataDisk_0	Disk	Canada Central	...
cc-az-commev-p1_OsDisk_1_9775e5336e2b429b9fc7a7d9fb9b1112	Disk	Canada Central	...
ep-commVault	Private endpoint	Canada Central	...
ep-commVault.nic.e1200d4e-6a02-4291-8885-27ba42828232	Network interface	Canada Central	...
stcommVault	Storage account	Canada Central	...

Cloud costs are being modelled for this workload. ⓘ
 The price model of the workload is clear. ⓘ

Critical system flows through the application have been defined for all key business scenarios. ⓘ
 There is a well-understood capacity model for the workload. ⓘ
 Internal and external dependencies are identified and cost implications understood. ⓘ
 Cost implications of each Azure service used by the application are understood. ⓘ
 The right operational capabilities are used for Azure services. ⓘ
 Special discounts given to services or licenses are factored in when calculating new cost models for services being moved to the cloud. ⓘ
 Azure Hybrid Use Benefit is used to drive down cost in the cloud. ⓘ
 None of the above.

Azure Well-Architected Review
Azure Well-Architected Review - Feb 14, 2023 - 10:54:10 AM
View guidance 3 of 11 pages complete

WAF Configuration
✓ What workload type do you want to evaluate?

Core Pillars
✓ What pillars would you like to evaluate?

Cost Optimization
✓ How are you modeling cloud costs of this workload?
 How do you govern budgets and application lifespan for this workload?
 How are you monitoring costs of this workload?
 How do you optimize the design of this workload?
 How do you ensure that cloud services are appropriately provisioned?
 What considerations for DevOps practices are you making in this workload?
 How do you manage compute costs for this workload?
 How do you manage networking costs for this workload?
 How do you manage storage and data costs for this workload?

Cost Optimization
How do you govern budgets and application lifespan for this workload?

Budgets are assigned to all services in this workload. ⓘ
 There is a cost owner for every service used by this workload. ⓘ
 Cost forecasting is done to ensure it aligns with the budget. ⓘ
 There is a monthly or yearly meeting where the budget is reviewed. ⓘ
 Every environment has a target end-date. ⓘ
 Every environment has a plan for migrating to PaaS or serverless to lower the all up cost and transfer risk. ⓘ
 There is a clear understanding of how budget is defined. ⓘ
 Budget is factored into the building phase. ⓘ
 There is an ongoing conversation between the app owner and the business. ⓘ
 There is a plan to modernize the workload. ⓘ
 Azure Tags are used to enrich Azure resources with operational metadata. ⓘ
 The application has a well-defined naming standard for Azure resources. ⓘ
 Role Based Access Control (RBAC) is used to control access to operational and financial dashboards and underlying data. ⓘ
 None of the above.

← Back Next →

Spending a minute on naming convention:
<https://learn.microsoft.com/en-us/azure/cloud-adoption-framework/ready/azure-best-practices/resource-naming>

Here we have the recommended one.

Cost Optimization



How do you optimize the design of this workload?

Continue to monitor and optimize the workload by using the right resources and sizes.

The application was built natively for the cloud. ⓘ
 There is an availability strategy defined and cost implications of it are understood. ⓘ
 This workload benefits from higher density. ⓘ
 Data is being transferred between regions. ⓘ
 Multi-region deployment is supported and cost implications understood. ⓘ
 The workload is designed to use Availability Zones within a region. ⓘ
 None of the above.

← Back Next →

In this case because it was made for the cloud vm and storage, I would check that.

Higher density: If you had this on AKS and multiple different APPS running on that, elastic pools on SQL,...

RPO and RTO -> a backup system does it on prem and here it takes all the data and replicates it to the cloud

How do you ensure that cloud services are appropriately provisioned?

Deployment of cloud resources of a workload is known as provisioning.

- Performance requirements are well-defined. ⓘ
- Targets for the time it takes to perform scale operations are defined and monitored. ⓘ
- The workload is designed to scale independently. ⓘ
- The application has been designed to scale both in and out. ⓘ
- Application components and data are split into groups as part of your disaster recovery strategy. ⓘ
- Tools (such as Azure Advisor) are being used to optimise SKUs discovered in this workload. ⓘ
- Resources are reviewed weekly or bi-weekly for optimization. ⓘ
- Cost-effective regions are considered as part of the deployment selection. ⓘ
- Dev/Test offerings are used correctly. ⓘ
- Shared hosting platforms are used correctly. ⓘ
- None of the above.

← Back

Next →

Devtest could be interesting in the future for PoC, there is no SLAs and could help reduce cost of these types of workloads.

Cost Optimization

What considerations for DevOps practices are you making in this workload?

- There is an automated process to deploy application releases to production. ⓘ
- There is a difference in configuration for production and non-production environments. ⓘ
- Test-environments are deployed automatically and deleted after use. ⓘ
- There is awareness around how the application has been built and is being maintained (in house or via an external partner). ⓘ
- There is awareness regarding the ratio of cost of production and non-production environments for this workload. ⓘ
- None of the above.

← Back

Next →

Add a note here:

Cost Optimization

How do you manage networking costs for this workload?

- Service Endpoints or Private Link are used for accessing Azure PaaS services. ⓘ
- Hub and spoke design pricing is understood. ⓘ
- Microsoft backbone network is preferred. ⓘ
- DDoS attack mitigation plans and capabilities are in place. ⓘ
- Azure Front Door, Azure App Gateway or Web Application Firewall is used. ⓘ
- The workload is connected between regions (using network peering or gateways). ⓘ
- Azure resources are connecting to the internet via on-premises. ⓘ
- Public IPs and orphaned NICs are regularly cleaned up. ⓘ
- None of the above.

← Back

Next →

How do you manage storage and data costs for this workload?

Most cloud workloads adopt the polyglot persistence approach. Instead of using one data store service, a mix of technologies is used. To establish a cost estimate, assess the types of data you need to store for each workload.

- Reserved capacity is used for data in block blob storage. ⓘ
- Data is organized into access tiers. ⓘ
- Life-cycle policy is used to move data between access tiers. ⓘ
- Shared disks are leveraged for suitable workloads. ⓘ
- Reserved premium disks (P30 & above) are used. ⓘ
- Bursting for P20 and below disks is utilized for suitable workloads. ⓘ
- For database workloads, data and log files are stored on separate disks. ⓘ
- Unused storage resources (e.g. unattached disks, old snapshots) are periodically cleaned up. ⓘ
- Selective disk backup and restore for Azure VMs is used. ⓘ
- None of the above.

← Back

View guidance →

How do you manage storage and data costs for this workload?

Most cloud workloads adopt the polyglot persistence approach. Instead of using one data store service, a mix of technologies is used. To establish a cost estimate, assess the types of data you need to store for each workload.

- Reserved capacity is used for data in block blob storage. ⓘ
- Data is organized into access tiers. ⓘ
- Life-cycle policy is used to move data between access tiers. ⓘ
- Shared disks are leveraged for suitable workloads. ⓘ
- Reserved premium disks (P30 & above) are used. ⓘ
- Bursting for P20 and below disks is utilized for suitable workloads. ⓘ
- For database workloads, data and log files are stored on separate disks. ⓘ
- Unused storage resources (e.g. unattached disks, old snapshots) are periodically cleaned up. ⓘ
- Selective disk backup and restore for Azure VMs is used. ⓘ
- None of the above.

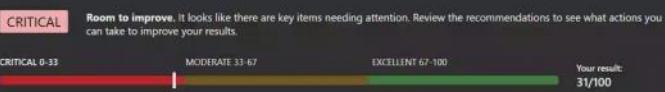
← Back

⟳

Recommendations for your workload

Actionable items to consider implementing to improve your workload across the five pillars of the Microsoft Azure Well-Architected Framework

Your overall results



Categories that influenced your results

Cost Optimization

CRITICAL

You can find out how to improve on individual categories by reviewing the recommendations below in the report.

Export to CSV

Learn how to import your CSV into Azure DevOps using a PowerShell script.

Next Steps

Identified and classified business critical applications.

Ensure you have identified and classified the applications in your portfolio that are critical to business functions. Enterprise organizations typically have a large application portfolio, so prioritizing where to invest time and effort into manual...

Review, identify, and classify business critical applications >

Identified how long the workload can be down for, and how much data it's acceptable to lose in a disaster.

Derive these values by conducting a risk assessment, and make sure you understand the cost and risk of downtime and data loss. These are nonfunctional requirements of a system and should be dictated by business requirements.

Define RPO and RTO for your workload >

Be aware of your resource limits in Azure.

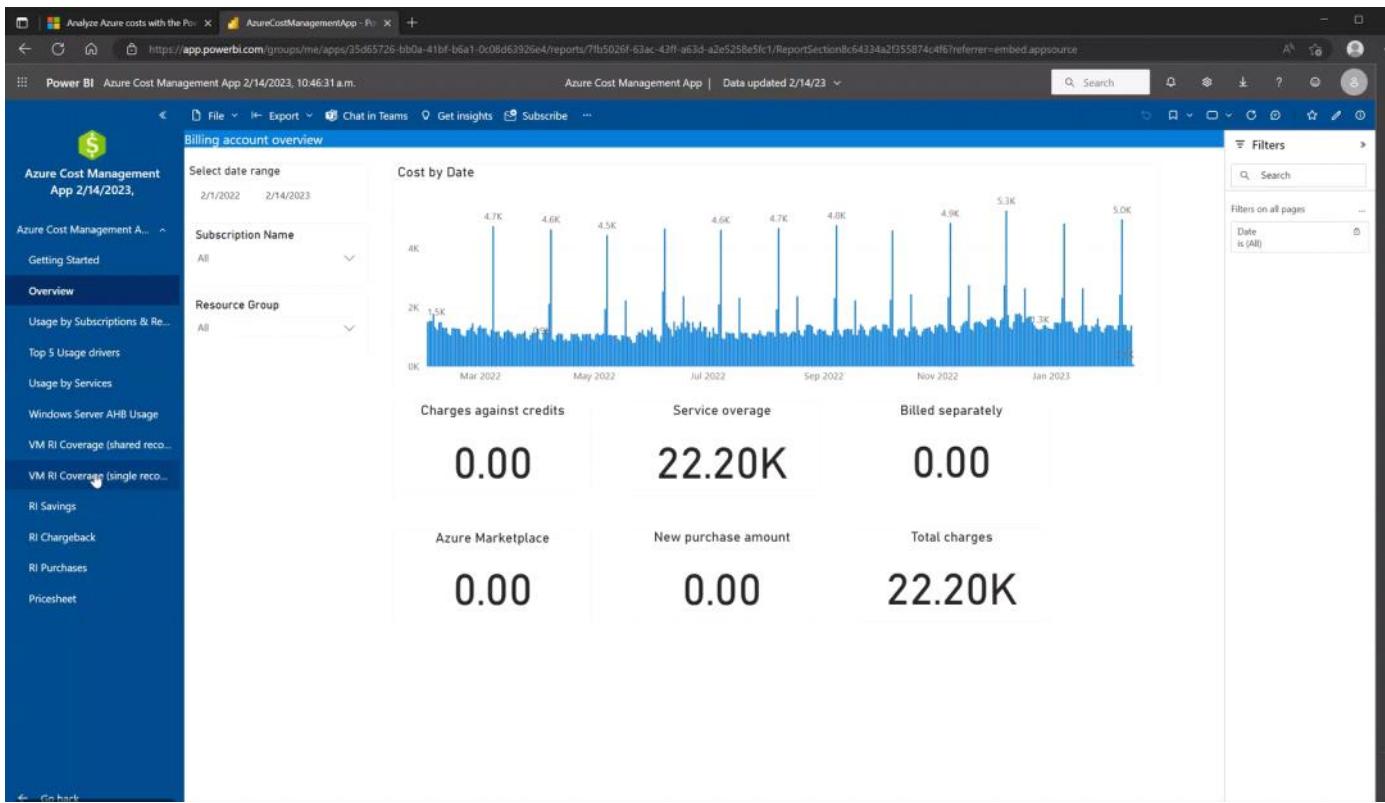
Azure Resource Manager (ARM) enforces limits and quotas on how many resources of each type you can provision per Azure Subscription, and even per Azure Region. Some limits are a hard maximum, while others are a soft limit tha...

Review limits >

Score looks low because there were many options that didn't apply and you couldn't check it. Send me csv per e-mail

Disclaimer:
Hope is going through that for other workloads, more app service, which makes more sense for the questionnaire.

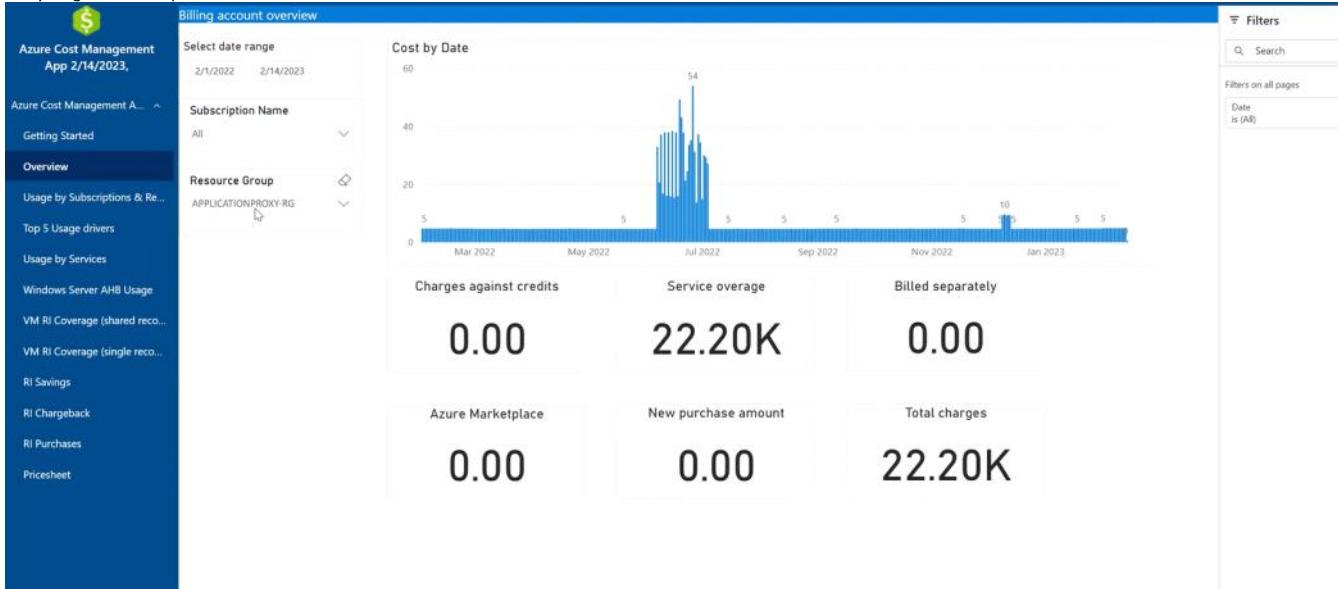
I wouldn't panic because the score is 31, but at least you went through the process.



Daterange we went back a year.
You have a years worth of data.

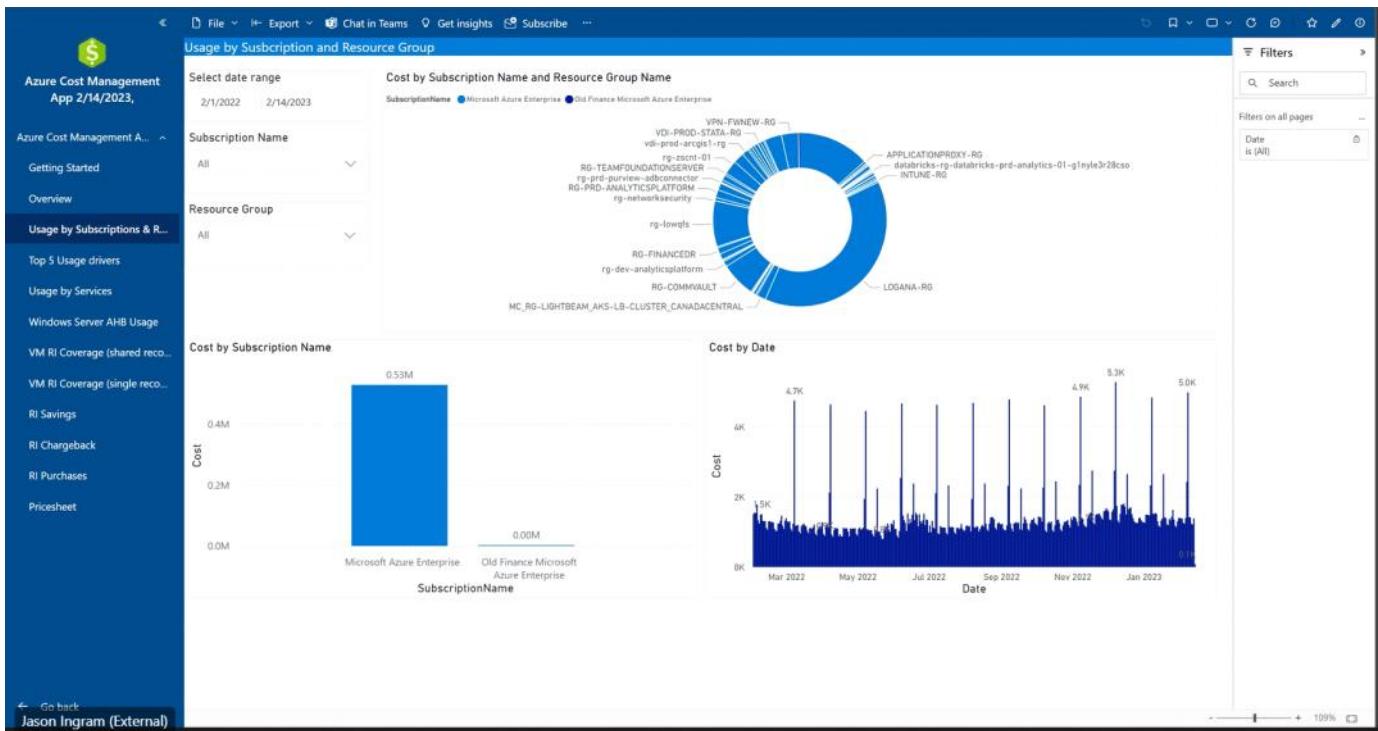
There are filters, but those 6 tiles they are basically fixed. Even though you change things, it stays fixed.

Everything else will adapt.

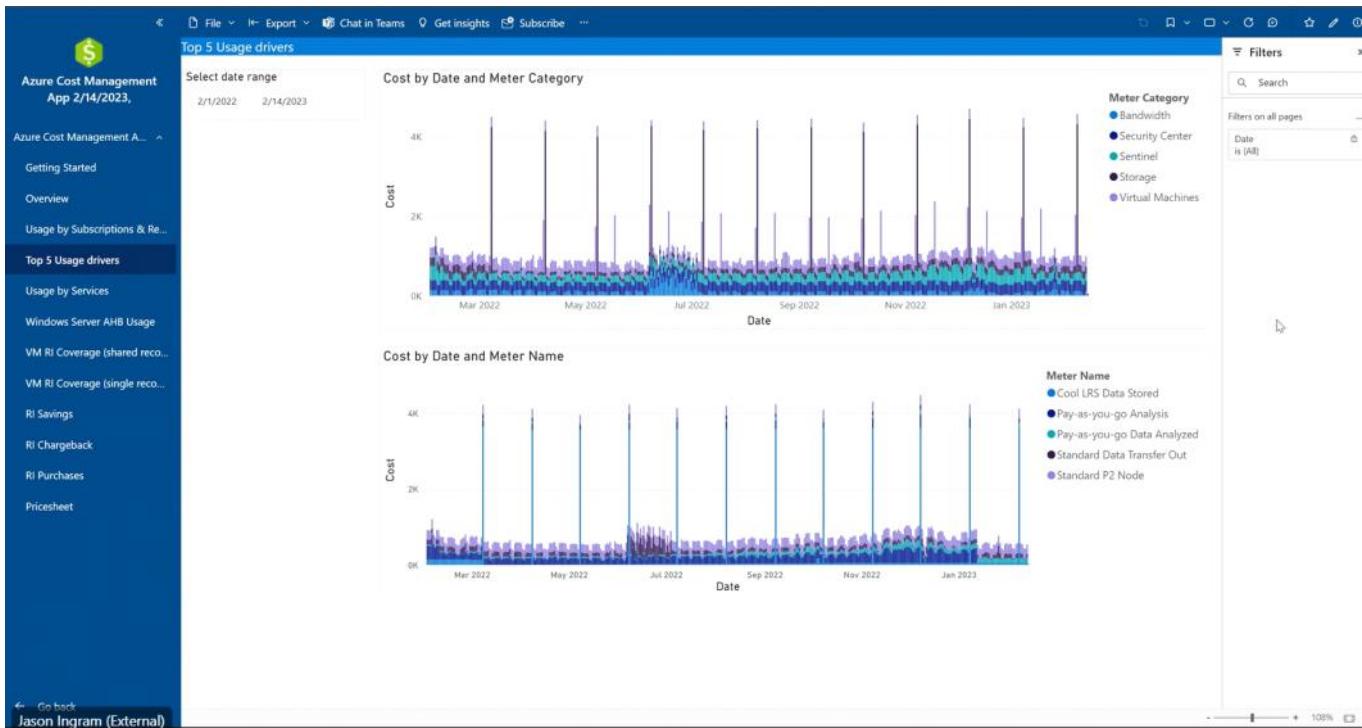


The visualization should help you figure something out. Is the trend going up and down. It allows you to see discontinuities.
The shorter bumps, might be the VM reservations.

It's up to you to leverage this and make sure everything makes sense, nothing is out of place.



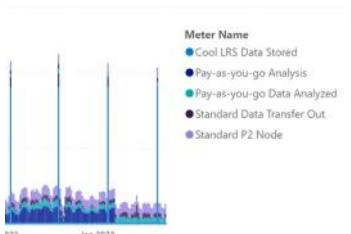
Here I see Logana is an important resource group (that's sentinel)
The second biggest one: it is the reservations (unnamed resourcegroups)
This shows how naming is important



Meter category: it's your top 5 but not necessarily in order of usage, but alphabetically. If I have to guess it's the Turqoise one, or VM because of the RI.

The Meter Name is telling you which SKUs or type of this service.

When I see this



Here the blue is gone, interesting one.

Also an interesting one:



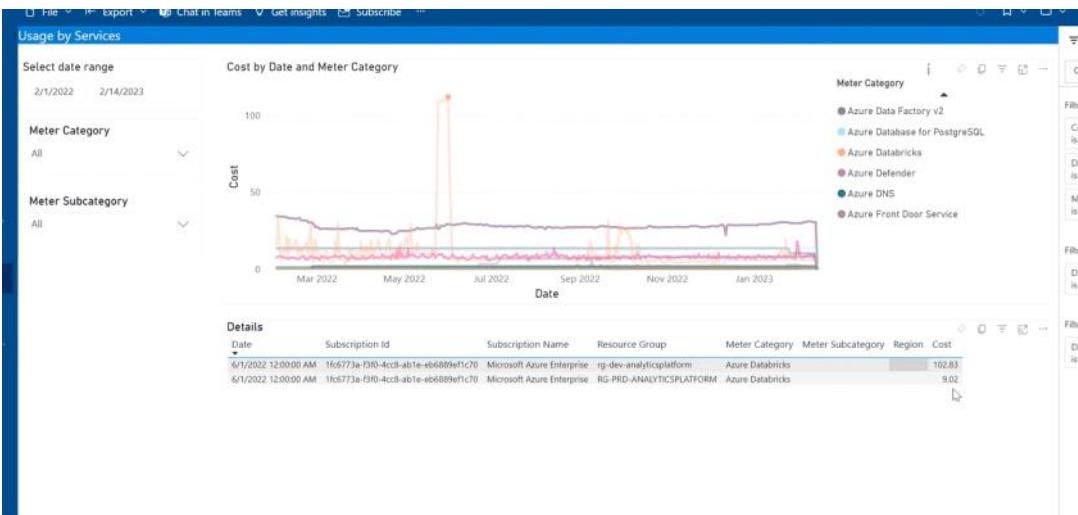
Screenshot of the Azure Cost Management App 2/14/2023 showing the 'Usage by Services' section. The main area displays a line chart titled 'Cost by Date and Meter Category' for the period from 2/1/2022 to 2/14/2023. The chart shows a significant spike in cost around July 2022. The legend on the right lists various meter categories with corresponding colored dots. Below the chart is a detailed table of cost data with columns for Date, Subscription Id, Subscription Name, Resource Group, Meter Category, Meter Subcategory, and Region.

Date	Subscription Id	Subscription Name	Resource Group	Meter Category	Meter Subcategory	Region
2/14/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise		Advanced Threat Protection	Advanced ARM service layers	
2/14/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise		Advanced Threat Protection	Azure DNS service layers	
2/14/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise		Azure Defender	Microsoft Defender for Containers	
2/14/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise		Security Center	NULL	
2/14/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise		Workload Protection for App Services		
2/14/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise		SQL Database	LTR Backup Storage	CA Central
2/14/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise		SQL Managed Instance	SQL Managed Instance - LTR Backup Storage	CA Central
2/14/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise		Virtual Network	IP Addresses	
2/14/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise		APPLICATIONPROXY-RG	Standard HDD Managed Disks	
2/14/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise		Storage	Standard SSD Managed Disks	
2/14/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise		APPLICATIONPROXY-RG	Standard SSD Managed Disks	CA Central
2/14/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise		Storage	BS Series Windows	CA Central
2/14/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise		APPLICATIONPROXY-RG	Virtual Machines	
2/14/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise		Virtual Network	Private Link	
2/14/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise		AUTOMATION-RG	Configuration Management	

You can narrow by service

Screenshot of the Azure Cost Management App 2/14/2023 showing the 'Usage by Services' section. The main area displays a line chart titled 'Cost by Date and Meter Category' for the period from 2/1/2022 to 2/14/2023. The chart shows a significant spike in cost around July 2022. The legend on the right lists specific services with corresponding colored dots. Below the chart is a detailed table of cost data with columns for Date, Subscription Id, Subscription Name, Resource Group, Meter Category, Meter Subcategory, Region, and Cost.

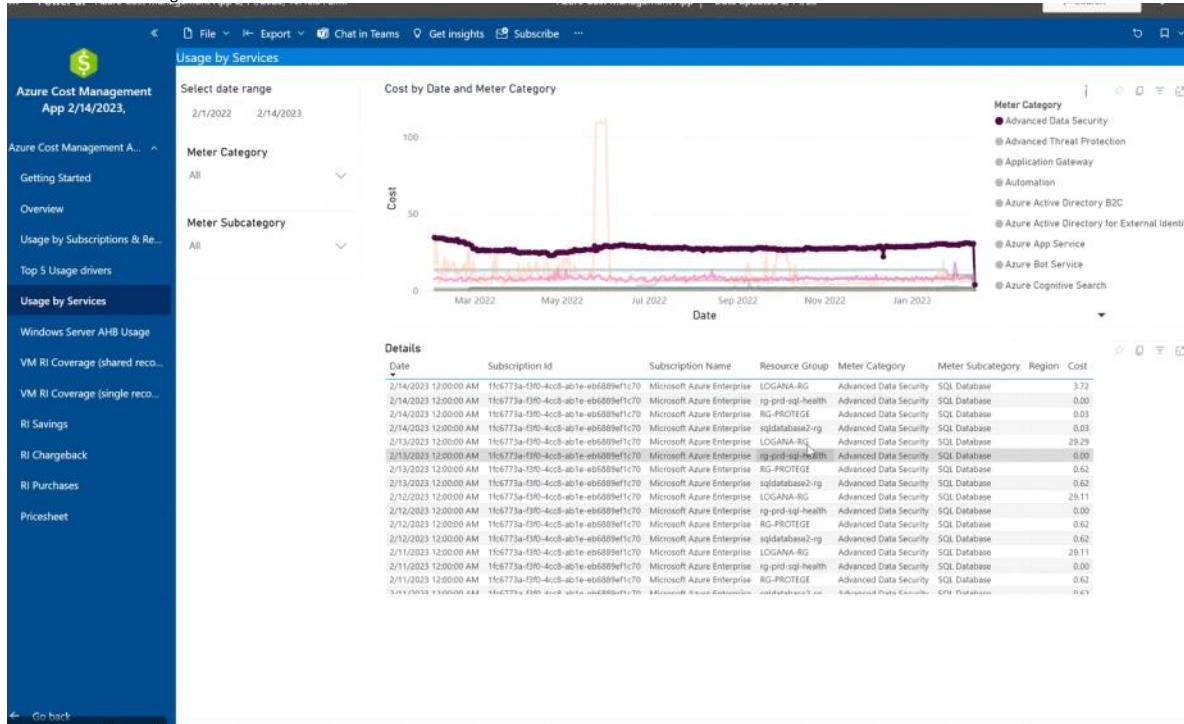
Date	Subscription Id	Subscription Name	Resource Group	Meter Category	Meter Subcategory	Region	Cost
2/1/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise	RG-PRD-ANALYTICSPLATFORM	Azure Databricks			5.92
2/12/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise	RG-PRD-ANALYTICSPLATFORM	Azure Databricks			5.34
2/11/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise	RG-PRD-ANALYTICSPLATFORM	Azure Databricks			5.96
2/10/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise	RG-PRD-ANALYTICSPLATFORM	Azure Databricks			5.83
2/9/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise	RG-PRD-ANALYTICSPLATFORM	Azure Databricks			6.17
2/8/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise	RG-PRD-ANALYTICSPLATFORM	Azure Databricks			5.93
2/7/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise	RG-PRD-ANALYTICSPLATFORM	Azure Databricks			6.00
2/6/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise	RG-PRD-ANALYTICSPLATFORM	Azure Databricks			6.12
2/5/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise	RG-PRD-ANALYTICSPLATFORM	Azure Databricks			5.75
2/4/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise	RG-PRD-ANALYTICSPLATFORM	Azure Databricks			7.24
2/3/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise	RG-PRD-ANALYTICSPLATFORM	Azure Databricks			5.51
2/2/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise	rg-dev-analyticplatform	Azure Databricks			1.34
2/2/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise	RG-PRD-ANALYTICSPLATFORM	Azure Databricks			5.66
2/1/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise	rg-dev-analyticplatform	Azure Databricks			3.70
2/1/2023 12:00:00 AM	116773a-f90-4cc8-ab1e-eb6889hf1c70	Microsoft Azure Enterprise	RG-PRD-ANALYTICSPLATFORM	Azure Databricks			5.64



When you see a peak, you could definitely explain that....

This thing can be shared, if your team that's using databricks has access to this, if you democratize that data to all the respective owners, they could see for themselves....

There is value in sharing these kind of dashboards.



Using defender for cloud for on prem servers too

AzureCostManagementApp - Microsoft Edge | Microsoft Sentinel - Microsoft Edge

<https://app.powerbi.com/groups/me/apps/35d65726-bb0a-41bf-b6a1-0c08d63926e4/reports/7fb5026f-63ac-43ff-a63d-a2e5258e5fc1/ReportSection4253dae2c5f1e59b097?referrer=embed.appsource>

Power BI Azure Cost Management App 2/14/2023, 10:46:31 a.m. | Data updated 2/14/23 | Search | ?

Windows Server AHB usage report

This Windows Server Azure Hybrid Benefits usage report shows how many have VMs have AHB enabled, and of those VMs how many AHB vCPUs or cores are being utilized.

For more information around Azure Hybrid Benefit see <https://azure.microsoft.com/en-us/pricing/hybrid-benefit/>

AHB vCPUs consumed (last 30-days)

Windows Server AHB enabled (last day)

AHB enabled SKUs with less than 8 vCPU (last day)

SKUs with 8+ vCPUs where AHB not enabled (last day)

Windows Server AHB vCPUs used (last day)

Resource Details (last day)

Date	SKU	VCPUs	AHB vCPUs	Azure Hybrid Benefit	Subscription Name	Resource Group	Instance Name	Cost	Quantity
2/14/2023 12:00:00 AM	Standard_F64s_v2	64	64	Not enabled	Microsoft Azure Enterprise	rg-lowqfs	vm-dev-model	5.66	0.75
2/14/2023 12:00:00 AM	Standard_D4s_v4	4	4	Not enabled	Microsoft Azure Enterprise	rg-PowerBI	vm-dev-worker	1.03	2.00
2/14/2023 12:00:00 AM	Standard_A0ms_v2	2	2	Not enabled	Microsoft Azure Enterprise	rg-AZUREADCONNECT	cc-az-addc-p1	0.39	2.00
2/14/2023 12:00:00 AM	Standard_B0ms	2	2	Not enabled	Microsoft Azure Enterprise	rg-DEV-DATANVENTORY	cc-az-pine2-v1	0.26	2.00
2/14/2023 12:00:00 AM	Standard_B0ms	2	2	Not enabled	Microsoft Azure Enterprise	rg-DOMAINCONTROLLER	cc-az-DC-P3	0.26	2.00
2/14/2023 12:00:00 AM	Standard_B0ms	2	2	Not enabled	Microsoft Azure Enterprise	rg-DOMAINCONTROLLER	cc-az-prd06	0.26	2.00
2/14/2023 12:00:00 AM	Standard_B0ms	2	2	Not enabled	Microsoft Azure Enterprise	rg-PROTFCF	cc-az-temm-n1	0.26	2.00

Azure Cost Management App 2/14/2023, 10:46:31 a.m. | Data updated 2/14/23 | Search | ?

VM RI Coverage (shared recommendation)

Select date range: 2/1/2023 - 2/14/2023

Select the Reservation Type: P3Y

Select the Reservation Type: P1Y

Drill down filter for region, instance size group and VM Size

IsRIUsage: On Demand Usage | RI Usage

IsRIUsage: On Demand Usage | RI Usage

Usage by On-demand and RI

Resource Location: canadacentral

Instance Flexibility Group	Location	SKU	Recommended Quantity	Normalized Size	Recommended Quantity Normalized	Term	Scope
B5 Series	canadacentral	Standard_B2s	6.00	Standard_B1ms	48	P3Y	Shared
B5 Series High Memory	canadacentral	Standard_B2ms	7.00	Standard_B1ms	28	P3Y	Shared
D5v2 Series	canadacentral	Standard_D51_v2	1.00	Standard_D2s_v3	1	P3Y	Shared
D5v3 Series	canadacentral	Standard_D2s_v3	2.00	Standard_D2s_v3	2	P3Y	Shared
D5v3 Series	canadacentral	Standard_D0s_v3	3.00	Standard_D2s_v3	12	P3Y	Shared
D4v4 Series	canadacentral	Standard_D4s_v4	1.00	Standard_D2s_v4	2	P3Y	Shared
D4v5 Series	canadacentral	Standard_D2s_v5	1.00	Standard_D2s_v5	1	P3Y	Shared
D4v5 Series	canadacentral	Standard_D4s_v5	2.00	Standard_D2s_v5	4	P3Y	Shared
NV4v4 Series	canadacentral	Standard_NV4as_v4	1.00	Standard_NV4as_v4	4	P3Y	Shared
NV4v4 Series	canadacentral	Standard_NV4as_v4	1.00	Standard_NV4as_v4	1	P3Y	Shared
Total			25.00		103		

Question, why not more subscriptions?

It might be trickier?

For the customer it would multiply the effort.

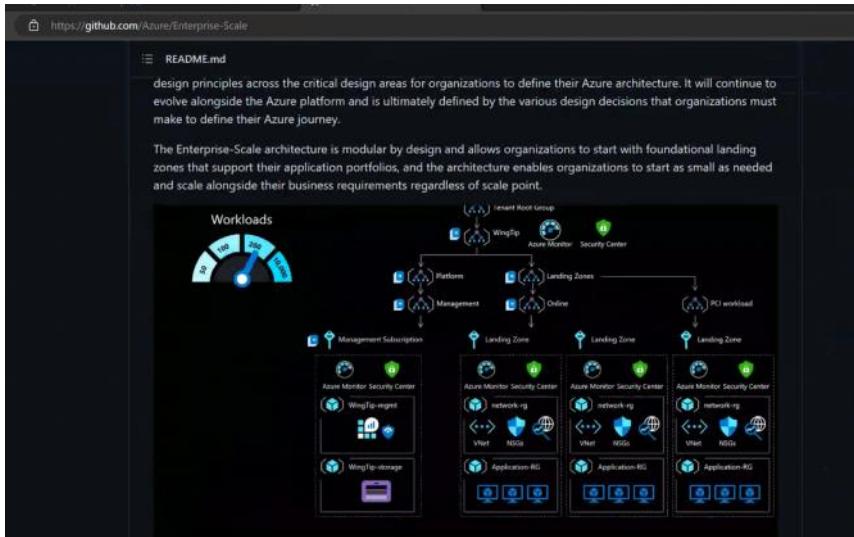
There is no disadvantages doing it with the resource groups.

Eventually when you (not sure if you heard about landing zones), become more complex in your cloud consumption, you're going to need more subscriptions.

Sharing a link: <https://github.com/Azure/Enterprise-Scale>

Showing growth and scaling

I think it's inevitable that one day you'll need to do that.

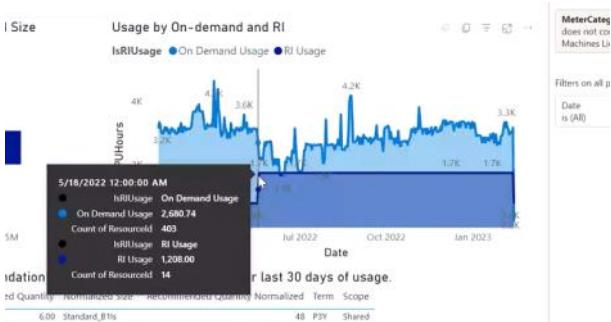


The reason why you want to break things down into subs, you can use azure policy more. If I apply Azure policy in my one sub, I'm forcing things only on one sub, it might break some apps not others. It's one of the reason,...

It's one bill, that's where the enrollment comes in, the enrollment account can have multiple subs and have one bill.

Typically we see one enrollment number, but multiple subs.

If you feel you have a challenge today, that's the reason you're sticking to one sub, know that challenge is resolved with multiple subs too. Things are workable.



The dark blue is good, you're not overbuying.

This screenshot shows the 'VM RI Coverage (single recommendation)' page. It includes a chart for 'Usage by On-demand and RI' and a table of 'Recommendations for single scope'.

VM RI Coverage (single recommendation)

Select date range: 2/1/2022 - 2/14/2023. Select the drill down filter to see the RI coverage for a particular region, instance size flexibility group, VM Size or a subscription. More information on [Reservations](#).

Subscription Name: All. Drill down filter for region, instance size group and VM Size.

Select the reservation term: P3Y. IsRIUsage: On Demand Usage, RI Usage.

Subscription Name: Microsoft Azure Ente... CPUHours: 1.08M, 0.50M.

Usage by On-demand and RI: CPUHours vs Date (Apr 2022 to Jan 2023).

Recommendations for single scope. These recommendations are calculated by evaluating your last 30 days of usage.

Subscription Name	Instance Flexibility Group	Location	SKU	Recommended Quantity	Normalized Size	Recommended Quantity Normalized	Term	Scope
Microsoft Azure Enterprise	B5 Series High Memory	canadacentral	Standard_B2ms	7.00	Standard_B1ms	28	P3Y	Single
Microsoft Azure Enterprise	B5 Series	canadacentral	Standard_B2s	6.00	Standard_B1s	48	P3Y	Single
Microsoft Azure Enterprise	D5v3 Series	canadacentral	Standard_D2v3_s	2.00	Standard_D2v3_s	2	P3Y	Single
Microsoft Azure Enterprise	D5v3 Series	canadacentral	Standard_D2v3_v5	1.00	Standard_D2v3_v5	1	P3Y	Single
Microsoft Azure Enterprise	Dsv2 Series	canadacentral	Standard_D2s_v4	1.00	Standard_D2s_v4	2	P3Y	Single
Microsoft Azure Enterprise	Dsv2 Series	canadacentral	Standard_D2s_v5	2.00	Standard_D2s_v5	4	P3Y	Single
Microsoft Azure Enterprise	D5v2 Series	canadacentral	Standard_D2v2_s	3.00	Standard_D2v2_s	12	P3Y	Single
Microsoft Azure Enterprise	D5v2 Series	canadacentral	Standard_D2v2_v2	1.00	Standard_D2v2_v2	1	P3Y	Single
Microsoft Azure Enterprise	NV64v4 Series	canadacentral	Standard_NV14s_v4	1.00	Standard_NV4s_v4	4	P3Y	Single
Microsoft Azure Enterprise	NV64v4 Series	canadacentral	Standard_NV4s_v4	1.00	Standard_NV4s_v4	1	P3Y	Single
Total				25.00		103		

The same screen because you have one sub

This is also recommending reservations on the bottom.

Explaining single vs shared. It's a no brainer to do the share. Some might not want the extra complexity as they don't want to handle the chargeback stuff, due to mergers,.....

Here, recommended to do shared

Power BI - Azure Cost Management App 2/14/2023, 10:46:31 a.m. Azure Cost Management App | Data updated 2/14/23 ▾

Reservations Savings

Select date range This report shows the savings accrued from a reservation: The savings are available by Reservation name and at subscription, resource group and resource levels.

3/8/2022 2/14/2023

Savings calculation factors in:

1. **'OnDemandCost - If No RI'** is calculated using your on-demand cost rate. This provides a calculation of what your cost would have been without RI.
2. **'UnusedReservation'** is the monetary value of RI underutilization and is subtracted from **Total Savings**.

Reservation Name Total Savings **27.62K CAD**

Reservation Name	Subscription Name	Resource Group	Resource Name	OnDemandCost - If No RI	Cost with RI	Savings	Charge Type
Blob_RI_03-08-2022_10-52	Microsoft Azure Enterprise	RG-COMMVAULT	stcommvault	48,493.13	39,710.00	8,783.13	Usage
VM_RI_03-08-2022_11-15	Microsoft Azure Enterprise	VPN-FWNEW-RG	cc-az-vpnfw-p1	10,756.86	5,240.79	5,516.07	Usage
VM_RI_03-08-2022_11-15	Microsoft Azure Enterprise	VPN-FW2-RG	CC-AZ-VPNFW-P2	10,756.79	5,240.76	5,516.03	Usage
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	RG-COMMVAULT	cc-az-commag-p1	1,856.36	1,061.80	794.56	Usage
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	AVD-PROD-ENCOUNTER-RG	CC-AZ-AV01-0	1,854.58	1,060.70	793.80	Usage
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VDI-PROD-CLUSTER-RG	cc-az-vd0-0	1,852.82	1,059.77	793.05	Usage
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VDI-PROD-CLUSTER-RG	cc-az-vd0-1	1,794.11	1,009.03	751.09	Usage
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VDI-PROD-EMPLOYEEPORTAL-RG	CC-AZ-VD2-0	1,758.28	1,005.70	752.58	Usage
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VDI-PROD-EMPLOYEEPORTAL-RG	CC-AZ-VD2-1	1,671.11	955.84	715.27	Usage
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VDI-PROD-EMPLOYEEPORTAL-RG	CC-AZ-VD3-3	1,440.09	823.70	616.39	Usage
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VDI-PROD-ARC01-RG	CC-AZ-VD3-2	1,419.79	823.53	616.26	Usage
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VDI-PROD-ARC01-RG	CC-AZ-VD3-0	1,418.87	823.00	615.87	Usage
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VDI-PROD-ARC01-RG	CC-AZ-VD3-1	1,418.82	822.97	615.85	Usage
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	RG-COMMVAULT	cc-az-commag-p1	775.60	445.18	330.42	Usage
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	AVD-HEALTH-PROD-RG	CC-AZ-AV04-0	502.82	287.60	215.22	Usage
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VDI-TEST-ICON-RG	CC-AZ-WD1-0	416.09	237.99	178.09	Usage
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	MCRG	aks-agentpool-16535686-vmss	271.81	155.47	116.34	Usage
Total			4f5effc7-cbd3-4fc8-81d3-4f983ee0b6e	0.00	145.12	145.12	UnusedReservation
Total				88,600.00	60,963.07	27,616.93	

Go back Jason Ingram (External)

File Export Chat in Teams Get insights Subscribe ...

Reservations Chargeback

Select date range This report can help you understand where and how much RI Benefit was applied and to which region, SKU, subscription or resource group:

The cost shown is the prorated reservation cost for all reservations that were active in the time period. Select a reservation name to see how much of the RI benefit was applied to a particular region, SKU, subscription or resource group. *'UnusedReservation'* is the monetary value of RI underutilization.

3/8/2022 2/14/2023

Reservation Name

Reservation Name	Subscription Name	Resource Group	Resource Name	Cost
Blob_RI_03-08-2022_10-52	Microsoft Azure Enterprise	RG-COMMVAULT	stcommvault	39,710
VM_RI_03-08-2022_11-15	Microsoft Azure Enterprise	VPN-FWNEW-RG	cc-az-vpnfw-p1	5,240
VM_RI_03-08-2022_11-15	Microsoft Azure Enterprise	VPN-FW2-RG	CC-AZ-VPNFW-P2	5,240
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	RG-COMMVAULT	cc-az-commag-p1	1,061
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	AVD-PROD-ENCOUNTER-RG	CC-AZ-AV01-0	1,060
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VDI-PROD-CLUSTER-RG	cc-az-vd0-0	1,059
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VDI-PROD-CLUSTER-RG	cc-az-vd0-1	1,009
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VDI-PROD-EMPLOYEEPORTAL-RG	CC-AZ-VD2-0	1,005
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VDI-PROD-EMPLOYEEPORTAL-RG	CC-AZ-VD2-1	955
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VDI-PROD-ARC01-RG	CC-AZ-VD3-3	823
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VDI-PROD-ARC01-RG	CC-AZ-VD3-2	823
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VDI-PROD-ARC01-RG	CC-AZ-VD3-1	823
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	RG-COMMVAULT	cc-az-commag-p1	822
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	AVD-HEALTH-PROD-RG	CC-AZ-AV04-0	445
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	CC-AZ-WD1-0	287	
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VDI-TEST-ICON-RG	CC-AZ-WD1-0	237
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	MCRG	aks-agentpool-16535686-vmss	32
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VDI-PROD-STATA-RG	CC-AZ-VD5-0	12
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	RG-PRO-PURVIEW	cc-az-priwv-p1	11
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VM_RI_05-18-2022_09-08	cc-az-vd4-0	7
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VDI-PROD-CASEWORKS-RG	79dc0a6-22ad-482c-bc33-48fa061300c8	4
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	VM_RI_03-08-2022_11-15	(x)315988-d957-43e2-a263-c53178d4d9b3	4
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	AVD-PROD-MOBILEPLAN-RG	cc-az-avt-0	0
VM_RI_05-18-2022_09-08	Microsoft Azure Enterprise	MCRG	aks-lbpool-86294315-vmss	0
Total				60,983

Reservations Purchases

Select date range: 11/1/2019 - 2/8/2023

Event Date	Event Type	Reservation Order Name	Reservation Order Id	Description	Quantity	Amount	Currency	
8/7/2022 11:54 AM	Purchase	VM_RI_03-08-2022_11-15	4918d831-6bf1-4569-a205-d4d7059ebef8	Standard_DS_v2 canadacentral 1 Year cool_in_data_stored, 100 tb canadacentral 1 Year	2.00	1,019.32	CAD	
8/8/2022 6:48:32 PM	Purchase	blob_RI_03-08-2022_10-53	16054466-e0a7-4d55-aed9-154ab90e96c9	cool_in_data_stored, 100 tb canadacentral 1 Year	3.00	3,546.99	CAD	
8/18/2022 4:26:34 PM	Purchase	VM_RI_05-18-2022_09-08	02a06908-e272-403a-991d-180e524799b6	Standard_D4s_v3 canadacentral 1 Year	10.00	1,190.00	CAD	
9/7/2022 2:03:13 PM	Purchase	VM_RI_03-09-2022_11-15	4918d831-6bf1-4569-a205-d4d7059ebef8	Standard_DS_v2 canadacentral 1 Year	2.00	1,019.32	CAD	
9/8/2022 11:15:16 AM	Purchase	blob_RI_01-08-2022_10-53	16054466-e0a7-4d55-aed9-154ab90e96c9	cool_in_data_stored, 100 tb canadacentral 1 Year	3.00	3,546.99	CAD	
9/18/2022 2:59:23 AM	Purchase	VM_RI_05-18-2022_09-08	02a06908-e272-403a-991d-180e524799b6	Standard_D4s_v3 canadacentral 1 Year	10.00	1,190.00	CAD	
10/7/2022 10:48:19 PM	Purchase	VM_RI_03-09-2022_11-15	4918d831-6bf1-4569-a205-d4d7059ebef8	Standard_DS_v2 canadacentral 1 Year	2.00	1,019.32	CAD	
10/8/2022 10:33:56 AM	Purchase	blob_RI_01-08-2022_10-53	16054466-e0a7-4d55-aed9-154ab90e96c9	cool_in_data_stored, 100 tb canadacentral 1 Year	3.00	3,546.99	CAD	
Total:							148.00	64,496.40

This is your cost with your contract

Pricesheet

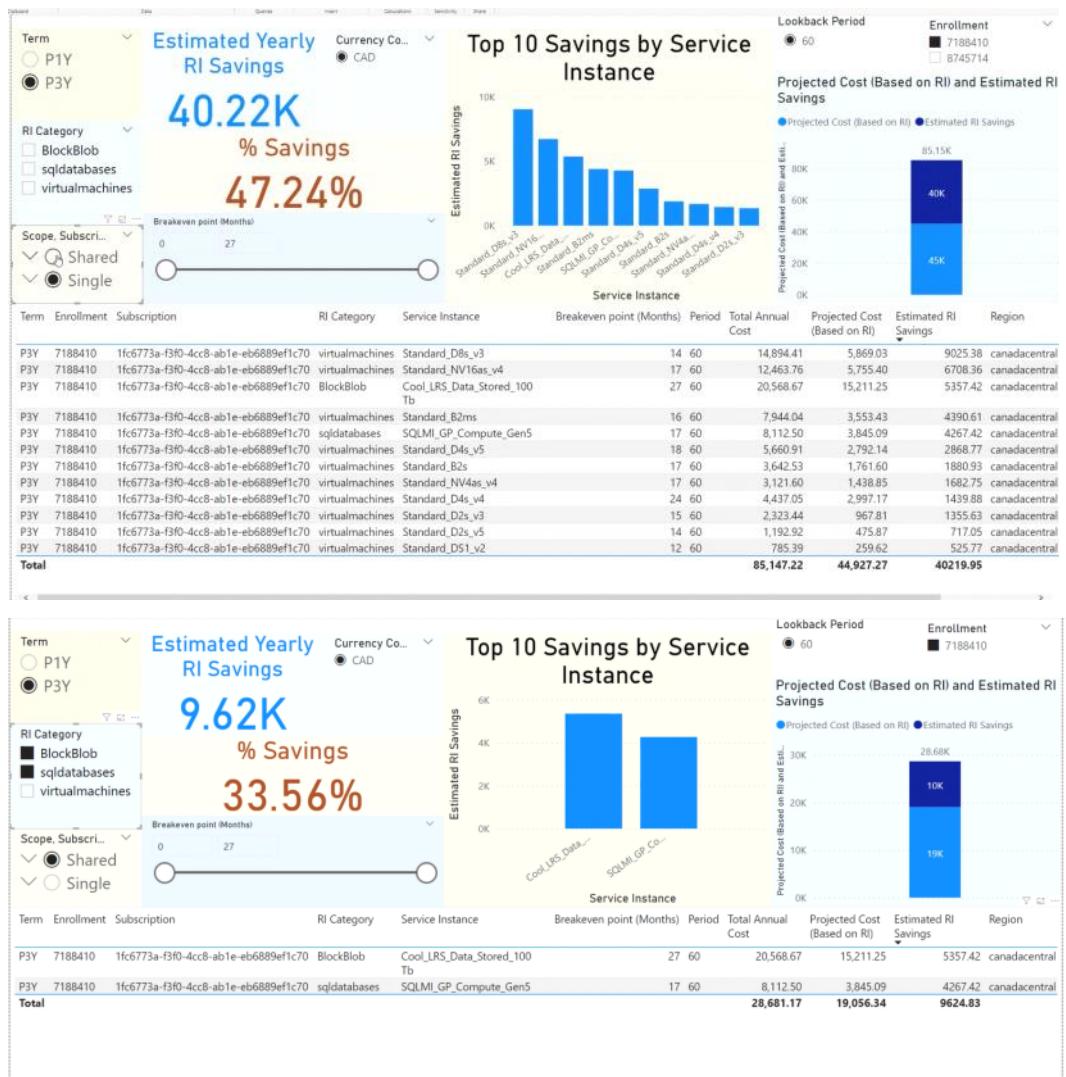
Meter Category	Offer Id	Part Number	Meter Category	Meter Subcategory	Meter Name	Currency Code	Included Quantity	Unit of Measure	Unit Price
All	MS-AZB-0148P	997-02782	Virtual Machines	Dv2/Dv2 Series	D2 v2/Dv2 v2	CAD	0.00	10 Hours	1.87
MS-AZB-0148P	997-02784		Virtual Machines	Dv2/Dv2 Series	D2 v2/Dv2 v2	CAD	0.00	10 Hours	1.87
MS-AZB-0148P	997-02788		Virtual Machines	Dv2/Dv2 Series Windows	D2 v2/Dv2 v2	CAD	0.00	10 Hours	1.87
MS-AZB-0148P	997-02790		Virtual Machines	Dv2/Dv2 Series	03 v2/Dv2 v3	CAD	0.00	10 Hours	3.75
MS-AZB-0148P	997-02792		Virtual Machines	Dv2/Dv2 Series Windows	03 v2/Dv2 v3	CAD	0.00	10 Hours	3.75
MS-AZB-0148P	997-02794		Virtual Machines	Dv2/Dv2 Series Windows	03 v2/Dv2 v3	CAD	0.00	10 Hours	3.75
MS-AZB-0148P	997-02796		Virtual Machines	Dv2/Dv2 Series	04 v2/Dv4 v2	CAD	0.00	10 Hours	7.49
MS-AZB-0148P	997-02798		Virtual Machines	Dv2/Dv2 Series	04 v2/Dv4 v2	CAD	0.00	10 Hours	7.49
MS-AZB-0148P	997-02800		Virtual Machines	Dv2/Dv2 Series	04 v2/Dv4 v2	CAD	0.00	10 Hours	7.49
MS-AZB-0148P	997-02804		Virtual Machines	Dv2/Dv2 Series Windows	04 v2/Dv4 v2	CAD	0.00	10 Hours	7.48
MS-AZB-0148P	997-02806		Virtual Machines	Dv2/Dv2 Series	05 v2/Dv5 v2	CAD	0.00	10 Hours	18.97
MS-AZB-0148P	997-02808		Virtual Machines	Dv2/Dv2 Series	05 v2/Dv5 v2	CAD	0.00	10 Hours	14.97
MS-AZB-0148P	997-02812		Virtual Machines	Dv2/Dv2 Series Windows	05 v2/Dv5 v2	CAD	0.00	10 Hours	14.97
MS-AZB-0148P	997-02816		Cloud Services	Dv2 Series	D2 v2	CAD	0.00	100 Hours	9.34
MS-AZB-0148P	997-02820		Cloud Services	Dv2 Series	D2 v2	CAD	0.00	100 Hours	9.34
MS-AZB-0148P	997-02822		Virtual Machines	Dv2/Dv2 Series	D2 v2/Dv2 v2	CAD	0.00	100 Hours	7.30
MS-AZB-0148P	997-02824		Virtual Machines	Dv2/Dv2 Series	D2 v2/Dv2 v2	CAD	0.00	100 Hours	8.96
MS-AZB-0148P	997-02826		Virtual Machines	Dv2/Dv2 Series Windows	D2 v2/Dv2 v2	CAD	0.00	100 Hours	9.34
MS-AZB-0148P	997-02828		Virtual Machines	Dv2/Dv2 Series Windows	D2 v2/Dv2 v2	CAD	0.00	100 Hours	7.39
MS-AZB-0148P	997-02830		Virtual Machines	Dv2/Dv2 Series Windows	D2 v2/Dv2 v2	CAD	0.00	100 Hours	8.96
MS-AZB-0148P	997-02832		Virtual Machines	Dv2/Dv2 Series Windows	D2 v2/Dv2 v2	CAD	0.00	100 Hours	7.30
MS-AZB-0148P	997-02834		Cloud Services	Dv2 Series	D2 v2	CAD	0.00	100 Hours	9.36
MS-AZB-0148P	997-02848		Virtual Machines	Dv2/Dv2 Series	01 v2/Dv3 v2	CAD	0.00	100 Hours	9.34
MS-AZB-0148P	997-02849		Virtual Machines	Dv2/Dv2 Series	01 v2/Dv3 v2	CAD	0.00	100 Hours	9.34
MS-AZB-0148P	997-02852		Virtual Machines	Dv2/Dv2 Series Windows	01 v2/Dv3 v2	CAD	0.00	100 Hours	9.34
MS-AZB-0148P	997-02853		Cloud Services	Dv2 Series	D4 v2	CAD	0.00	10 Hours	9.84
MS-AZB-0148P	997-02857		Cloud Services	Dv2 Series	D5 v2	CAD	0.00	10 Hours	17.28
MS-AZB-0148P	997-02858		Virtual Machines	Dv2/Dv2 Series	01 v2/Dv3 v2	CAD	0.00	100 Hours	8.96
MS-AZB-0148P	997-02860		Virtual Machines	Dv2/Dv2 Series	01 v2/Dv3 v2	CAD	0.00	100 Hours	8.96
MS-AZB-0148P	997-02864		Cloud Services	Dv2 Series	D3 v2	CAD	0.00	100 Hours	9.36
MS-AZB-0148P	997-02866		Virtual Machines	Dv2/Dv2 Series	01 v2/Dv3 v2	CAD	0.00	100 Hours	9.34
MS-AZB-0148P	997-02872		Virtual Machines	Dv2/Dv2 Series	01 v2/Dv3 v2	CAD	0.00	100 Hours	9.34
MS-AZB-0148P	997-02877		Virtual Machines	Dv2/Dv2 Series	01 v2/Dv3 v2	CAD	0.00	100 Hours	9.34
MS-AZB-0148P	997-02878		Virtual Machines	Dv2/Dv2 Series Windows	01 v2/Dv3 v2	CAD	0.00	100 Hours	9.34
MS-AZB-0148P	997-02881		Virtual Machines	Dv2/Dv2 Series	01 v2/Dv3 v2	CAD	0.00	100 Hours	9.34
MS-AZB-0148P	997-02883		Virtual Machines	Dv2/Dv2 Series	01 v2/Dv3 v2	CAD	0.00	100 Hours	9.34
MS-AZB-0148P	997-02885		Virtual Machines	Dv2/Dv2 Series Windows	01 v2/Dv3 v2	CAD	0.00	100 Hours	9.34
MS-AZB-0148P	997-02887		Virtual Machines	Dv2/Dv2 Series	01 v2/Dv3 v2	CAD	0.00	100 Hours	9.34
MS-AZB-0148P	997-02889		Virtual Machines	Dv2/Dv2 Series	01 v2/Dv3 v2	CAD	0.00	100 Hours	9.34
MS-AZB-0148P	997-02890		Virtual Machines	Dv2/Dv2 Series Windows	01 v2/Dv3 v2	CAD	0.00	100 Hours	9.34
MS-AZB-0148P	997-02895		Virtual Machines	Dv2/Dv2 Series	04 v2/Dv4 v2	CAD	0.00	10 Hours	8.94
Total:							14.97	14.97	

Talking about Reservations dashboard for tomorrow for 30min. Do a touchpoint tomorrow at a convenient time.

Tomorrow reservation db and ask additional questions

Shadowing 15/2 Emmanuel

Tuesday, February 14, 2023 5:58 PM



DevOps:

Emmanuel is actually creating his own azdevops and sharing the repo and then allowing them to clone the repo so they have everything they need

Workload Analyzed – CommVaultBackup App

Resource Name	Type	Resource Group	Subscription	Region	SKU
<All Types/Topics in this column is an example, please enter your Topics from your analysis of the data>	<All below content in this column is an example, please enter what you find from your analysis of the data>	<All below content in this column is an example, please enter what you find from your analysis of the data>	<All below content in this column is an example, whatever the reco is, please include Links to Guides, Articles, and References here from https://azure.microsoft.com/en-us/ so that the customer can take an action on the recos>	<All below content in this column is an example, please enter what you find from your analysis of the data>	
cc-az-commag-pl	Virtual Machine	Rg-Commvault	Microsoft Azure Enterprise	Canada Central	Standard D4S v3
cc-az-commsv-pl	SQL VM	Rg-Commvault	Microsoft Azure Enterprise	Canada Central	
cc-az-commsv-pl	VM	Rg-Commvault	Microsoft Azure Enterprise	Canada Central	
stcommvault	Storage Account	Rg-Commvault	Microsoft Azure Enterprise	Canada Central	

Delivery Knowledge Check

Tuesday, February 21, 2023 1:45 PM

How is data collected for use in the RI Power BI Dashboards?

- CSV exports from Azure Portal
- Azure REST APIs
- CSV output from C+AI portal
- Kusto queries

If the account running the WAF cost optimization workbook has the Billing Reader RBAC assignment, cost related information about idle resource that have impact on cost will be populated?

- True
- False

To whom should the Scoping email be sent to? (Choose 3 answers)

- CSAM Manager
- CSAM
- Microsoft Account Team
- Customer Point of Contact

What are the key activities in the Pre-scoping (internal) phase? (Choose 6 answers)

- Identify Partner stakeholders.
- Agree on workshop logistics.
- Validate required customer technical and operational stakeholders.
- Understand broad customer context and previous Microsoft engagements.
- Identify customer stakeholders & leadership sponsors.

- Identify customer stakeholders & leadership sponsors.
- Share assessment details.
- CSAM provide CE/CSA access to customer's Services Hub workspace
- Extract with CSAM Reservation recommendations from C+AI
- Identify potential workload(s).



What are the key activities in the Pre-scoping (internal) phase? (Choose 6 answers)

- Identify Partner stakeholders.
- Agree on workshop logistics.
- Validate required customer technical and operational stakeholders.
- Understand broad customer context and previous Microsoft engagements.
- Identify customer stakeholders & leadership sponsors.
- Share assessment details.
- CSAM provide CE/CSA access to customer's Services Hub workspace
- Extract with CSAM Reservation recommendations from C+AI
- Identify potential workload(s).



Not correct?

What are the key objectives in the Pre-Closeout (internal) phase? (Choose 3 answers)

- Address any questions or comments from the customer.
- Detailed knowledge transfer with CSA for post engagement follow-up
- CE/CSA/CSAM top 3-5 recommendation alignment
- Create application improvement plan in Services Hub
- Formal top 3-5 recommendation handoff to CSA

What are the key objectives in the Pre-Closeout (internal) phase? (Choose 3 answers)

- Address any questions or comments from the customer.
- Detailed knowledge transfer with CSA for post engagement follow-up
- CE/CSA/CSAM top 3-5 recommendation alignment
- Create application improvement plan in Services Hub
- Formal top 3-5 recommendation handoff to CSA

Not correct?

The setup of the ACM Power BI App should occur during the scoping phase

- True
- False

How many days is the cost optimization assessment?

- 5
- 4
- 3

Which role is responsible in the Pre-scoping phase to get contextual information from the Account team?

- CSAM
- Account Manager
- CSA

- CSA
- Account Tech Strategist
- CE
- Service Executive

How many Azure subscriptions can be included in the Well-Architected Cost Optimization Assessment?

- 6
- 4
- As many as the customer wants
- 8

Which tool can be used to get insights on the performance metrics for Azure VMs to make more calculated decisions on resizing?

- Azure Service Health
- Activity logs
- Azure Monitor

A post scoping call email is provided in the IPKit and should be sent which confirms the logistics and pre-requisites of the assessment.

- True
- False

The RI Dashboard provides Reservations insights for Storage Accounts Only?

False

True

Which of the following are available in the WAF Cost Optimization Workbook?
(Choose the best answer(s))

Idle Network Interfaces

Application Gateways with empty backend pool

Idle Public IPs

Idle or Images Disks

Windows VMs Not Using AHUB

Load Balancers with empty backend pool

App Services in Stopped State

All of the above



For the survey questions you need to come up with your own questions based on your experience and know-how in that specific area (proven through certifications & accreditations).

True

False

Admin, Member, Contributor and Viewer access can be granted to non EA admins who have a Power BI Pro License to access the Azure Cost Management Power BI App?

True

Power BI App?

- True
 False

The setup of the RI Dashboard should occur during the scoping phase

- True
 False

What are the key activities in the Scoping phase? (Choose 4 answers)

- Deploy WAF Cost Optimization workbook
- Agree on workshop logistics
- Validate ACM Power BI App prerequisites are met.
- Review what is in and out of scope
- Validate required customer technical and operational stakeholders.
- Install ACM Power BI App



The close out meeting should include IT decision makers

- True
 False

False

Switching Azure Global and any other region like US Government or China is seamless because the staged credentials will be used again for the different Azure environments.

True

False

Which of the following assessment activities can the CE perform independent of the customer if the customer provides the CE a cloud-only account with Reader access on the subscriptions in scope? (Choose 4 answers)

- Run the WAF cost optimization Workbook
- Review Subscriptions in scope via the Azure portal
- Deploy the RI Dahsboard
- Configure Budgets and Alerts
- Deploy Azure Cost Management Power BI App
- Review Azure Monitor VM and Storage insights and Log Analytics Workbook

Which of the following assessment activities can the CE perform independent of the customer if the customer provides the CE a cloud-only account with Reader access on the subscriptions in scope? (Choose 4 answers)

- Run the WAF cost optimization Workbook
- Review Subscriptions in scope via the Azure portal
- Deploy the RI Dahsboard
- Configure Budgets and Alerts
- Deploy Azure Cost Management Power BI App
- Review Azure Monitor VM and Storage insights and Log Analytics Workbook

The delivery Recommendations and Optimizations Plan is an Excel spreadsheet

- True
- False

What are the key activities in the Reporting phase? (Choose 3 answers)

- Create improvement plan in Services Hub with top 5 recommendations
- Well Architected Cost Optimization improvement plan positioned.
- Detail recommendations to address identified risks in an actionable format.
- Add recommendations as backlog items in Azure DevOps
- Prioritize recommendations according to risk, applying a categorization or Do First (short-term), Plan for (mid-term), and Re-Think (long-term).

Not correct?

What are the key activities in the Reporting phase? (Choose 3 answers)

- Create improvement plan in Services Hub with top 5 recommendations
- Well Architected Cost Optimization improvement plan positioned.
- Detail recommendations to address identified risks in an actionable format.
- Add recommendations as backlog items in Azure DevOps
- Prioritize recommendations according to risk, applying a categorization or Do First (short-term), Plan for (mid-term), and Re-Think (long-term).

What are the key activities in the Closeout phase? (Choose 4 answers)

- Address any questions or comments from the customer.
- Add recommendations as backlog items.
- Define next steps for the highest priority recommendations.
- Detail recommendations to address identified risks in an actionable format.
- Well Architected Cost Optimization improvement plan positioned.
- Prioritize recommendations according to risk, applying a categorization or short-term, mid-term, and long-term.

Not correct?

What are the key activities in the Closeout phase? (Choose 4 answers)

- Address any questions or comments from the customer.
- Add recommendations as backlog items.
- Define next steps for the highest priority recommendations.
- Detail recommendations to address identified risks in an actionable format.
- Well Architected Cost Optimization improvement plan positioned.
- Prioritize recommendations according to risk, applying a categorization or short-term, mid-term, and long-term.



Which tool can be used to get insights on the transactions for Azure Storage accounts to better apply the life cycle management policy?

- Azure Monitor
- Azure Service Health
- Activity logs

What are the key objectives of the Assessment phase?

- Remediate the subscriptions in scope
- Confirm application workload(s) for the assessment
- Assess the subscriptions and a workload in scope through the lens of the relevant Well Architected tenant and provide actionable recommendations to optimize these subscriptions and workload.
- Deploy Azure WAF Cost optimization Workbook

Online Assessment Results

Your Score: 84% (21 points)

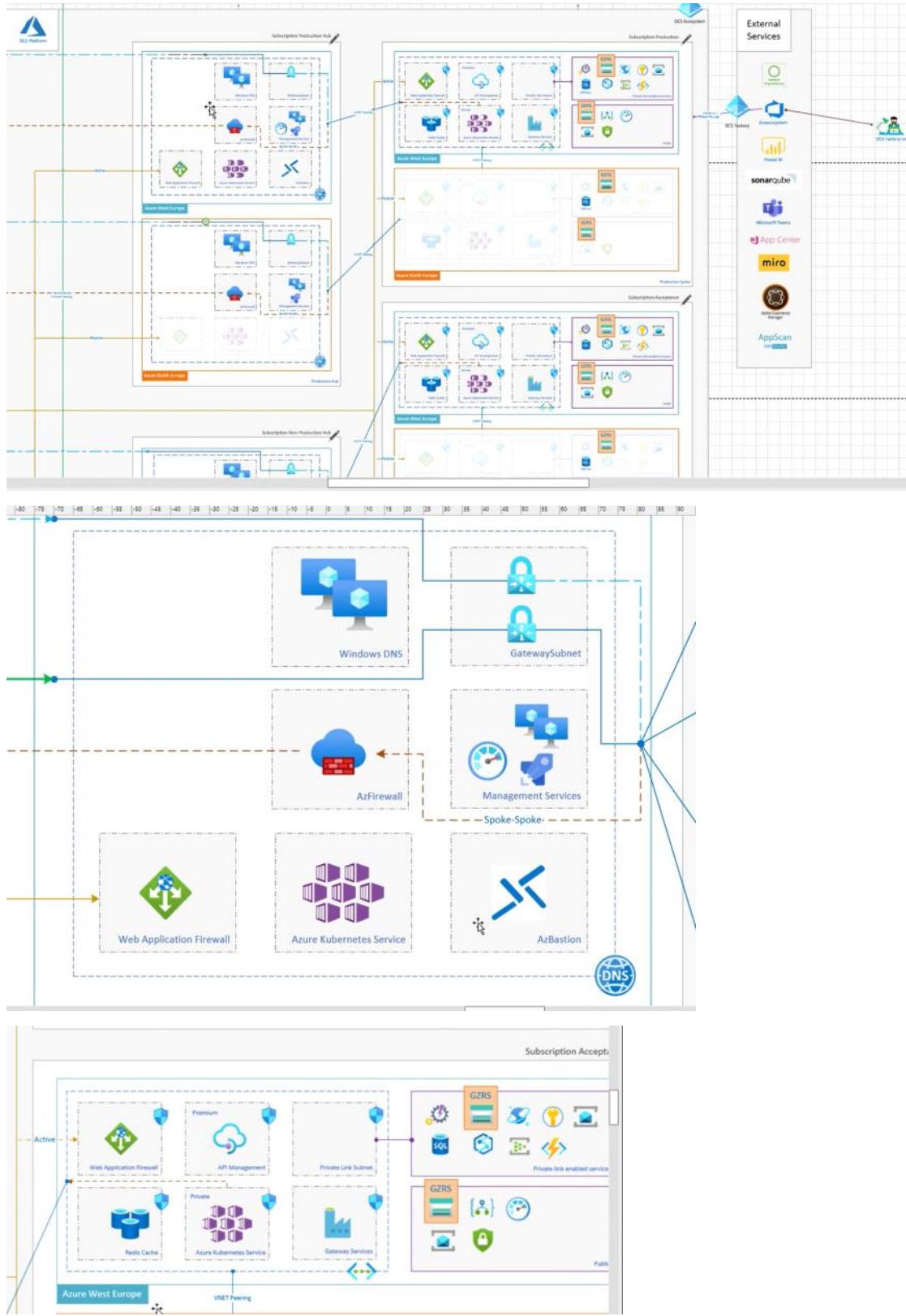
Passing Score: 80% (20 points)

CONGRATULATIONS!

You have completed the knowledge check for IP Skills Assessment_Well-Architected Cost Optimization Assessment_Delivery KM

Exit

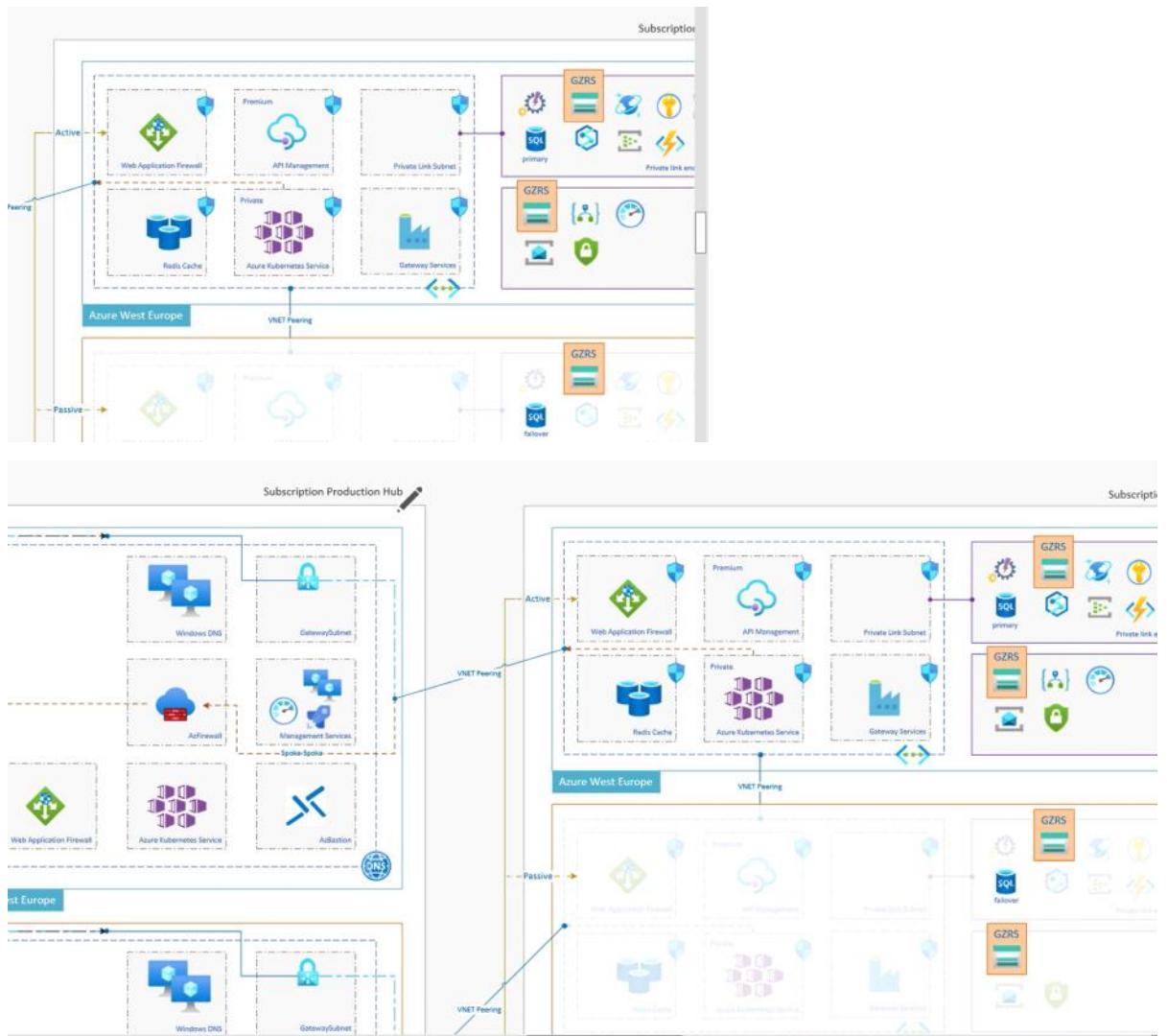




Real app is running on the AKS cluster per env in the commons, the AKS clusters do give instructions to the AKS clusters where the actual app is hosted
The heavy workloads are located in the env subs

They use ARGOCD in commons because fluxdb was not available at the time.

User data and storage userdata are all located in the envs subs



SUBS-DCS-Rese
7a6070c3-8ea-48ba-a9f8-a552b8afeeae Owner €923.67
Only used by infra team, is research sub, like a sandbox, has same resources, but automatically shutdown around 7pm and starts again in the morning

SUBS-DCSCommonsTPOps-NonProd	287b9a9e-d14b-41ed-992e-23e5e92f5fd5	Reader	€82.17
SUBS-DCSCommonsTPOps-Prod	9869939a-1eb9-4aed-9db4-534113d8eedd	Reader	€2,907.18

Monitoring subs

Tpois subs only used for alerts and monitoring and not log ingestion

Home >

Log Analytics workspaces

DCS Ecosystem

X

+ Create	Open recycle bin	Manage view	Refresh	Export to CSV	Open query	Assign tags			
Filter for any field...		Subscription equals 10 of 11 selected		Resource group equals all		Location equals all		+ Add filter	
								No grouping	List view
Showing 1 to 22 of 22 records.									
Name ↑↓		Resource group ↑↓		Location ↑↓		Subscription ↑↓			
<input type="checkbox"/>	dcs-log-d-we-001	dcs-rg-sharedservices-d-we		West Europe		SUBS-DCS-Dev		...	
<input type="checkbox"/>	dcs-log-np-ne-001	dcs-rg-sharedservicescommons-np-ne		North Europe		SUBS-DCSCommons-NonProd		...	
<input type="checkbox"/>	dcs-log-np-we-001	dcs-rg-sharedservicescommons-np-we		West Europe		SUBS-DCSCommons-NonProd		...	
<input type="checkbox"/>	dcs-log-p-ne-001	dcs-rg-sharedservicescommons-p-ne		North Europe		SUBS-DCSCommons-Prod		...	
<input type="checkbox"/>	dcs-log-p-ne-002	dcs-rg-platformcommons-p-ne		North Europe		SUBS-DCSCommons-Prod		...	
<input type="checkbox"/>	dcs-log-p-ne-004	dcs-rg-sharedservices-p-ne		North Europe		SUBS-DCS-Prod		...	
<input type="checkbox"/>	dcs-log-p-we-001	dcs-rg-sharedservicescommons-p-we		West Europe		SUBS-DCSCommons-Prod		...	
<input type="checkbox"/>	dcs-log-p-we-002	dcs-rg-sharedservices-p-we		West Europe		SUBS-DCS-Prod		...	
<input type="checkbox"/>	dcs-log-p-we-003	dcs-rg-platformcommons-p-we		West Europe		SUBS-DCSCommons-Prod		...	
<input type="checkbox"/>	dcs-log-p-we-004	dcs-rg-digitaldelivery-p-we		West Europe		SUBS-DCS-Prod		...	
<input type="checkbox"/>	dcs-log-r-we-001	dcs-rg-sharedservices-r-we		West Europe		SUBS-DCS-Rese		...	
<input type="checkbox"/>	dcs-log-r-we-002	dcs-rg-platformsandbox-r-we		West Europe		SUBS-DCS-Rese		...	
<input type="checkbox"/>	Showing 1 to 22 of 22 records.			West Europe		SUBS-DCS-Rese		...	
Name ↑↓		Resource group ↑↓							
<input type="checkbox"/>	dcs-log-p-we-004	dcs-rg-digitaldelivery-p-we							
<input type="checkbox"/>	dcs-log-r-we-001	dcs-rg-sharedservices-r-we							
<input type="checkbox"/>	dcs-log-r-we-002	dcs-rg-platformsandbox-r-we							
<input type="checkbox"/>	dcs-log-s-ne-001	dcs-rg-sharedservices-s-ne							
<input type="checkbox"/>	dcs-log-s-we-001	dcs-rg-sharedservices-s-we							
<input type="checkbox"/>	dcs-log-s-we-002	dcs-rg-platform-s-we							
<input type="checkbox"/>	dcs-log-t-we-001	dcs-rg-sharedservices-t-we							
<input type="checkbox"/>	DefaultWorkspace-7a6070c3-8eea-48ba-a9f8-a552b8afeaae-WEU	defaultresourcegroup-weu							
<input type="checkbox"/>	DefaultWorkspace-9869939a-1eb9-4aed-9db4-534113d8eedd-WEU	DefaultResourceGroup-WEU							
<input type="checkbox"/>	DefaultWorkspace-98d40751-4e2b-4af0-b9e8-8199e2936e8b-WEU	DefaultResourceGroup-WEU							
<input type="checkbox"/>	DefaultWorkspace-cba08209-5ebe-49d3-8740-dcb900d14755-WEU	DefaultResourceGroup-WEU							
<input type="checkbox"/>	tpops-law-shared-d-we-01	tpops-rg-shared-d-we							
<input type="checkbox"/>	tpops-law-shared-p-we-01	tpops-rg-shared-p-we							

One law used by Sentinel, taking half of the cost, it is using the commons prod

Around 30k per month for law

Colruyt - Well-Architected Cost Optimization Assessment - D1 and D2

8:07

Take control Pop out Chat People Raise React View Notes Apps More Camera Mic Share

Jatin Rai

20230404_ProAct_CostMgmt_March.pptx • Last Modified: Sun at 11:06 PM

File Home Insert Design Transitions Animations Slide Show Record Review View Help

AutoSave Search (Alt+Q)

Clipboard Paste Copy Format Painter

Layout New Reuse Slide Reset Section Slides

Font B T S Aa Aa Aa Paragraph

Text Direction Align Text Convert to SmartArt

Shape Fill Shape Outline Quick Styles Shape Effects

Find Replace Select

Record Present in Teams

Find Library Presentation Template

Azure Usage – Resource Type Top10

Subscription	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total	Diff. Oct-Nov
microsoft.servicebus/namespaces	2.310€	2.519€	2.340€	2.441€	2.536€	2.489€	2.745€	2.785€	2.821€	2.465€	2.139€	2.640€	57.678 €	23,4%
microsoft.network/applicationgateways	2.227€	2.429€	2.236€	2.354€	2.444€	2.400€	2.574€	2.257€	1.872€	1.781€	1.594€	1.934€	57.143 €	21,3%
microsoft.network/azurefirewalls	1.887€	2.073€	1.954€	2.017€	2.432€	2.394€	2.885€	2.438€	2.164€	2.119€	1.898€	2.432€	65.254 €	28,1%
microsoft.network/ddosprotectionplans	2.510€	2.738€	2.521€	2.653€	2.757€	2.705€	2.897€	2.701€	2.683€	2.627€	2.325€	2.647€	68.553 €	13,9%
microsoft.documentdb/databaseaccounts	2.515€	2.943€	2.696€	3.161€	3.579€	3.803€	4.506€	4.388€	4.351€	4.498€	3.967€	4.635€	79.411 €	16,9%
microsoft.datafactory/factories	5.384€	5.943€	882€	155€	144€	141€	295€	273€	276€	5.119€	5.023€	5.172€	146.100 €	3,0%
microsoft.apimanagement/service	6.791€	5.334€	4.911€	5.173€	5.370€	5.268€	5.644€	5.261€	5.227€	7.428€	7.256€	7.891€	27.578 €	8,8%
microsoft.sql/servers	4.854€	8.829€	10.685€	10.777€	8.568€	7.910€	8.447€	7.875€	7.802€	7.742€	6.863€	7.777€	152.934 €	13,3%
microsoft.compute/virtualmachinescalesets	7.038€	8.929€	8.242€	5.728€	6.900€	7.037€	12.015€	17.133€	16.275€	17.046€	15.506€	18.169€	243.691 €	17,2%
microsoft.operationalinsights/workspaces	21.401	25.456€	19.469€	14.793€	15.584€	16.870€	29.329€	24.272€	22.713€	25.164€	23.842€	29.950€	369.229 €	25,6%
Total per month (Resource type top 10)	56.917€	67.195€	55.936€	49.253€	50.314€	51.017€	71.338€	69.382€	66.185€	75.989€	70.412€	83.247€	1.275.348 €	18,2%

Home >

API Management services

DCS Ecosystem

+ Create Manage view Refresh Export to CSV Open query Assign tags

Filter for any field... Subscription equals 10 of 11 selected Resource group equals all Location equals all Add filter

No grouping List view

Showing 1 to 5 of 5 records.

Name	Status	Tier	Type	Location	Resource group	Subscription
dcs-apim-d-we-001	Online	Developer	API Management service	West Europe	dcs-rg-sharedservices-d-...	SUBS-DCS-Dev
dcs-apim-p-we-001	Online	Premium	API Management service	West Europe	dcs-rg-sharedservices-p-...	SUBS-DCS-Prod
dcs-apim-r-we-001	Updating	Developer	API Management service	West Europe	dcs-rg-platformsandbox-r...	SUBS-DCS-Rese
dcs-apim-s-we-001	Online	Premium	API Management service	West Europe	dcs-rg-sharedservices-s-we	SUBS-DCS-Syst
dcs-apim-t-we-001	Online	Developer	API Management service	West Europe	dcs-rg-sharedservices-t-we	SUBS-DCS-Test

dcs-apim-d-we-001 API Management service | Directory: DCS Ecosystem

Search Developer portal Delete Open in mobile

Overview

- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Events

Settings

- Properties
- Locks

APIs

- APIs
- Products
- Subscriptions
- Named values

Essentials

Resource group (move) [dcs-rg-sharedservices-d-we](#)

Status Online

Location West Europe

Subscription (move) [SUBS-DCS-Dev](#)

Subscription ID a11078f8-08c4-4917-a62c-48515bc512f3

Tags (edit)

Description : Development APIM

Fu... : preferences;lists:receipts;warranties;boilerplate;communicatio...

Version : 0.1.18 GitRepoName : platform-APIManagement

ApplicationContact : Placeholder ApplicationName : Xtra

Environment : Development trops_monitoring : monitor_enabled

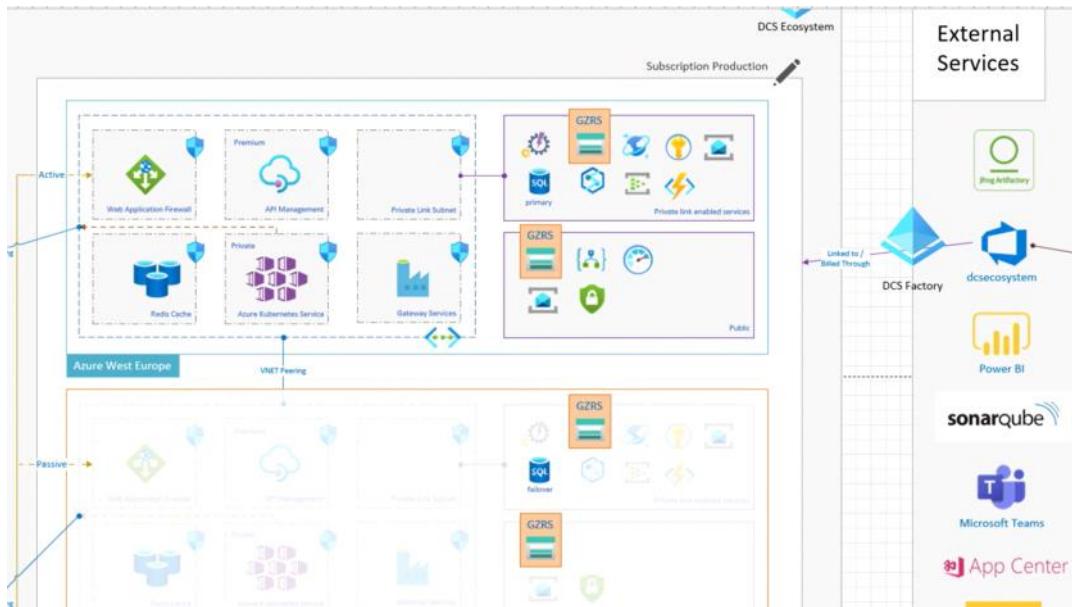
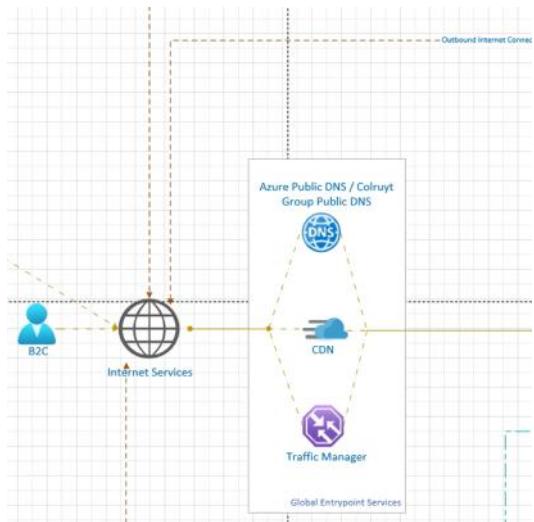
Developer portal URL <https://apimportal.dev.internal.dcescosystem.be>

Gateway URL <https://api.dev.internal.dcescosystem.be>

Tier Developer (No SLA)

Virtual IP (VIP) addresses public: 20.71.208.161, private: 10.159.144.69

Platform Version stv1



https://dcsecosystem.atlassian.net/wiki/spaces/RUN/pages/1303511430/DRP+BCP

Confluence Home Recent Spaces Teams Apps Templates Create

RUN Knowledge Base / Procedures & processes / DRP & BCP

Overview Blog Analytics Calendars Space Settings

draw.io Diagrams

Meeting notes in space

Pages

- The Run Organization
- Procedures & processes
 - ITIL processes
 - Troubleshooters
 - How-Tos
- DRP & BCP
 - 20230217: DRP meeting
 - CG questions around DRP validation
- Known Error Database (KEDB)

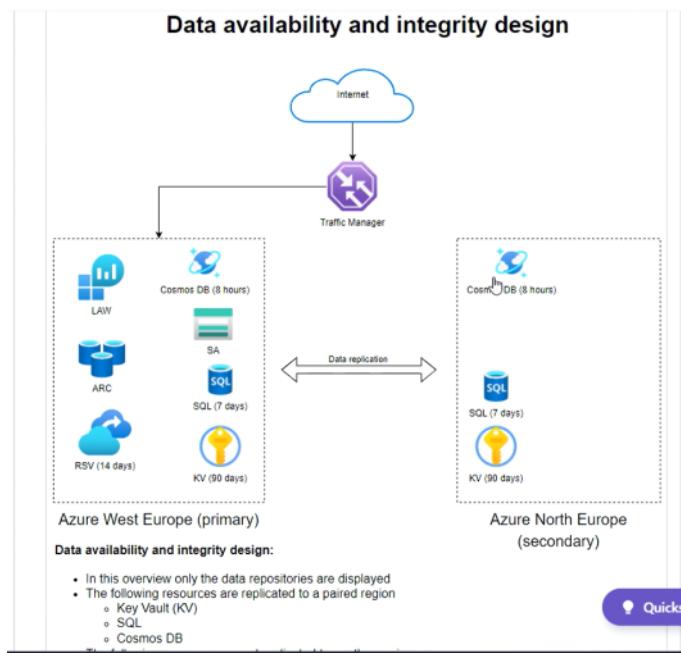
AS-IS Disaster Recovery (DR)

- Recovery Time Objective (RTO) and Recovery Point Objective (RPO) are unclear as they were never added as requirement. AS-IS situation is that these values are not defined. [Can CG confirm if it's ok to](#)

Impact from availability and data integrity perspective:

- No impact on the functionality of the application. Resources are configured with

Quick



TAG INHERITANCE

https://portal.azure.com/#view/Microsoft_Azure_CostManagement/Menu/-/config/openedBy/AzurePortal

Microsoft Azure

Home > Cost Management: SUBS-DCSCommons-Prod

Cost Management: SUBS-DCSCommons-Prod | Manage subscription

Subscription: SUBS-DCSCommons-Prod (change)

Scope: SUBS-DCSCommons-Prod

Tag Inheritance (preview) **Disabled**

Use tag inheritance to group resource costs.

Manage your cost

- Budgets: Get notified or trigger custom actions before you exceed your budget.
- Exports: Schedule automated exports of your data on a daily, weekly or monthly basis.
- Connectors for AWS: View and manage your Azure and AWS costs in one place.

Manage your subscription

- Management groups: Organize subscriptions into management groups to manage cost across...
- Resource groups: Manage applications and related resources deployed to resource groups.
- Resources: Manage individual resources to apply tags for reporting or resize to reduce costs.
- Properties: Additional details about the subscription.

You may also be interested in

- Exports
- Access control
- Tags
- Policies
- Resource locks
- Activity log
- Support + troubleshooting
- New support request

Tag inheritance (preview)

Use [Tag inheritance to group resource costs](#). Learn more

Automatically apply subscription and resource group tags to new usage data.

When the resource has a tag with the same name:

- Keep the resource tag
- Use the subscription or resource group tag

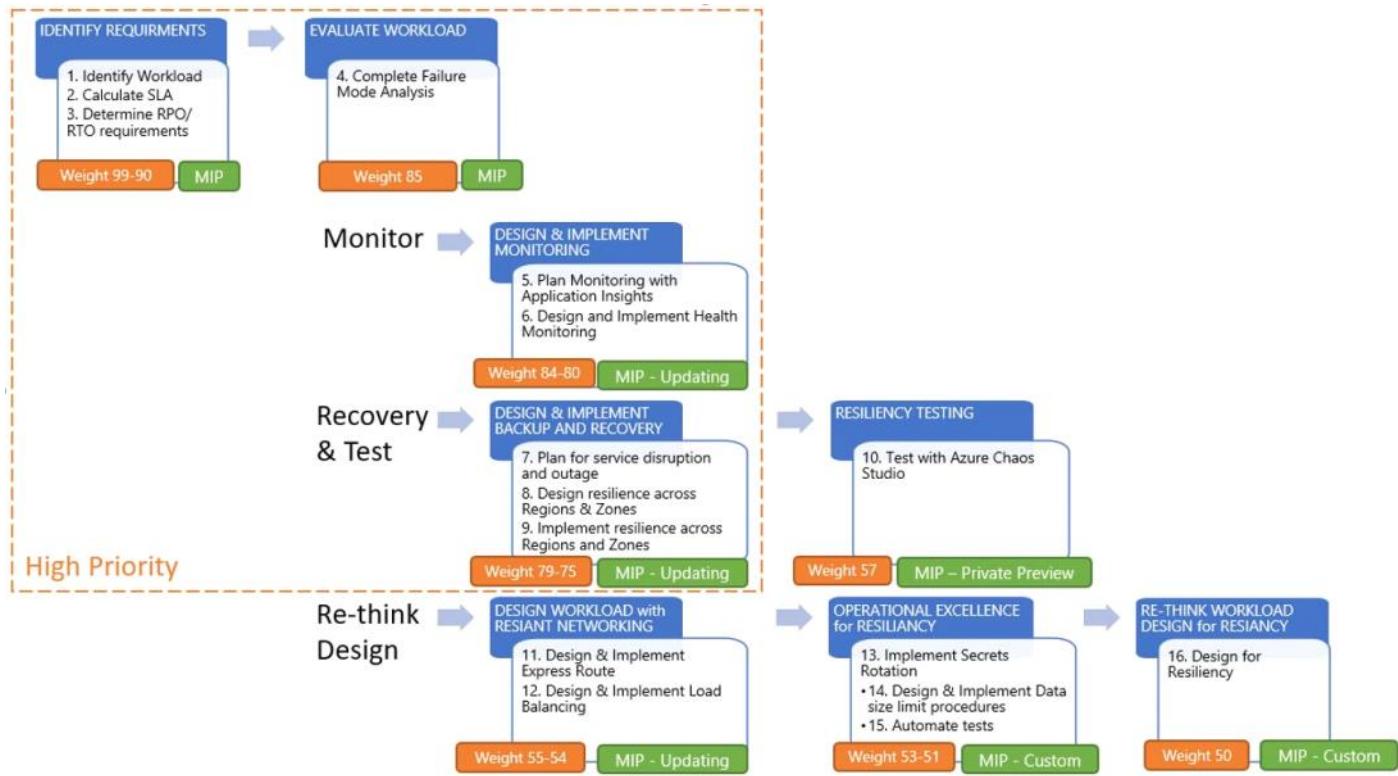
Note: Inherited tags will start being applied within 24 hours and will apply to all data this month.

Apply Cancel Give feedback

MIP - Well Architected Reliability Assessment

Monday, February 27, 2023 10:19 AM

[Overview of Well-Architected Reliability Assessment Delivery version 2 - In Production | MIP](#)
[Delivery Documentation \(mipdocs.azurewebsites.net\)](#)



Shadowing Tanya on Schréder Assessment

Wednesday, March 1, 2023 11:18 AM



Today we will do a kickoff and discuss the terms,....

After the kickoff great to have some kind of design a demo, would be great

Then we'll start the assessment on our assessment website

Tomorrow we will continue with the assessment, we will check Azure Advisor recommendations, and the workbook
We will discuss the SLA and if not in place we will discuss it based on our Azure SLA's

Once we have all of this I will prepare recommendations for you,...

Once done, we will upload recommendations as backlog items in Azure DevOps, or Github.

You will have,....

If any questions feel free to ask:

Microsoft Azure Well-Architected Framework

Architecture guidance and best practices to optimize the quality of Azure workloads, based on 5 aligned and interconnected pillars

Tanya Golovina <https://aka.ms/architecture/framework>

Why is Reliability Important?

Failures happen.

Reliable applications require *resilience*

Reliability



Reliability is the 'what'.

It is the goal for production systems, to ensure availability of their services.

The goal is to maintain reliable systems, with the appropriate level of availability/uptime.

Resilience



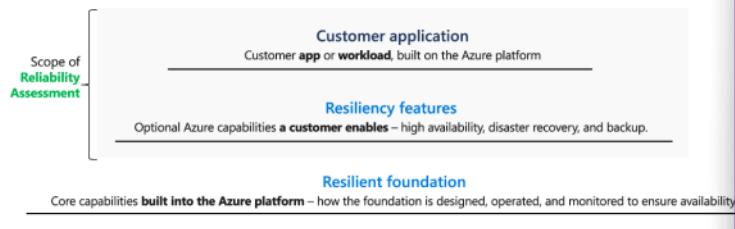
Resilience is the 'how'.

It is the way in which production systems can achieve reliability.

The objective is not to avoid any and all failures – it is to **respond to failure in a way that avoids downtime and data loss**.

Usually we discuss the most critical one during this engagement and then you can take the same approach to assess the other applications.

Building reliable systems is a shared responsibility



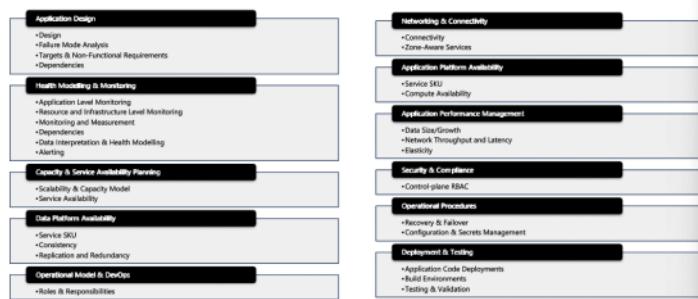
Here the scope if one single app or workload, end to end...
We will discuss the resilience features already in place for your applications and then we will give you our recommendations on how to improve it.

What are Reliability Assessments?

- Comprehensive end-to-end review of an existing application or proposed design, to identify critical reliability optimizations
- Covers a range of technical topics from Compute, Data and Networking to DevOps, but always through a focused *reliability* lens
- Designed to identify critical risks to the reliability of an application deployed to Azure
- Deliver prioritized and actionable recommendations to address each area of concern

Then we will discuss different areas, like a 360 degree feedback

Domain Areas



Really important to discover all dependencies and discover
Some extra questions about deployment and testing (time it takes to go to prod, stress test, any FMA?)

Goal for this assessment:
Give you an action plan, how we can help you to improve it

Assessment Goals



Commitment

Secure your commitment to take actions on the top recommendations



Action Planning

Prioritize an action plan to drive the executions of the top recommendations



Execution Support

Align Microsoft stakeholders to support you after the assessment



Reporting

You, CSAM and CSA will track and measure the implementations of improvement plan

Review Flow & Where to Start

	1. Always start with the big-picture and work top-down	Understand the architectural context and business purpose of the application Walk through the critical system flow and explore each component including shared services and dependencies
	2. Explore expectations for reliability: RTO, RPO, NFRs, SLAs	Goal is to identify risks, especially those preventing the application from meeting expectations Do these expectations apply to the whole application?
	3. Failure-Mode Analysis	How will the system respond if any part(s) failed including application code; work level by level
	4. Deep dive into key technical domains	

Start with the big picture, design list of all components, explore rto rpo nfrs slas
Failure mode analysis; test and see how your system responds in case of failures on any

(example Azure Monitor, most common questions, cmr needs to have least of key metrics and thresholds? With FMA you can define the critical failure modes for your app and define key metrics to measure.
Then, deep dive into technical domains,...

Common Definitions

Important Targets and Measures

- **RTO** (Recovery Time Objective) – Interval between an outage and restoration
- **RPO** (Recovery Point Objective) – Interval of allowable data loss
- **SLA** (Service Level Agreement) – Contractual availability level
- **SLO** (Service Level Objective) – Internal desired availability level

It's really important to have all these goals. If you don't have the key targets in place it's hard to define the requirements for the application.
(If you have 4 9s, then you need to use all reliability offerings we have (use Availability Zones, highest SKUs, Have redundancy for network connection, dedicated network bandwidth for the connection on prem.)

During this assessment

RTO: duration of outage
RPO: Duration of data loss allowable during DR
SLA: between business and IT support
SLO: same it's usually not published but must be greater or equal to this SLA

Common Definitions

Important Targets and Measures

- **Attainment Interval** – The period over which the SLA is measured (for Azure, one month)
- **MTTD** (Mean Time To Detect) – Average time to detect a failure
- **MTTR** (Mean Time To Recover) – Average time to recover from a failure
- **Prioritize SLA/SLO/RTO/RPO**
- Note: All measures should be taken as a confidence interval on a continuous distribution (e.g. 95% of failures are less than RTO)

Example: SLA 95% in that case you use Availability Zones, instead of multiregion deployments etc...
That's why it is important to define this SLA to have the requirements of your app

Explore Expectations for Reliability

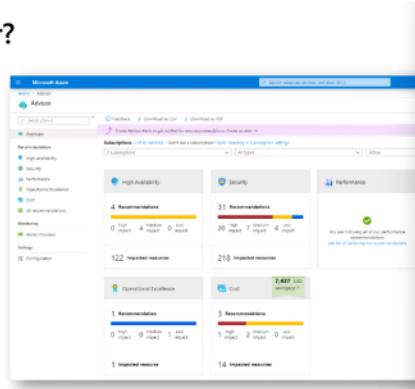
- Identify aspects that prevent the application from meeting reliability expectations
 - What is the goal state?
- Service Level Availability (SLA)
 - Azure service SLAs are specified in an availability percentage (e.g. 99.99%) over a month
 - What is required?
- Calculating a Composite SLA Estimate for an Application
 - Composite SLA measurement
 - Does not account for bad code
 - Provides maximum overall availability

Tanya Golovina files areas that need work

We will have the Azure Advisor recommendations:

What is Azure Advisor?

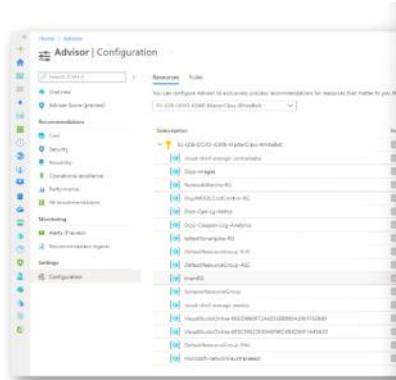
- Free tool
- Compare against Microsoft best practices
- Identify critical risks to reliability
- Prioritized and actionable recommendations
- Updates every hour



I hope you are already aware of this and recommendations,...
It is really important to follow all the recommendations

Azure Advisor

- Filter Recommendations
 - By Subscription(s)
 - By Resource Group(s)
- Postpone or Dismiss
 - Dismiss
 - Other product
 - Business reason
- Postpone
 - Temporary situation
 - Planned future change



We can also use the workbook we have and use this to share recommendations in this workbook.

Any questions so far, feel free to ask?

The screenshot shows a Microsoft Excel spreadsheet titled 'Reliability Assessments'. The 'Failure Mode Analysis' sheet contains two rows of data:

Failure Mode	Impact	Probability	Risk
Power Outage	System downtime	Medium	Medium

Introduction to Failure Mode Analysis

"Almost all (92%) of the catastrophic system failures are the result of incorrect handling of non-fatal errors explicitly signaled in software."

"In 58% of the catastrophic failures, the underlying faults could easily have been detected through simple testing of error handling code."

Source: Yuan, D. et al (2014) "Simple Testing Can Prevent Most Critical Failures: An Analysis of Production Failures in Distributed Data-Intensive Systems." 11th USENIX Symposium, 978-931971-16-4.

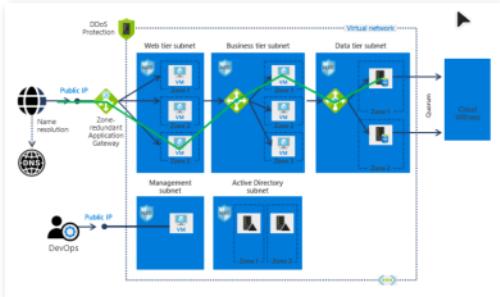
Failure Mode Analysis Process

1. Identify all components in the system
 - Include external dependencies
2. For each component, identify potential failures that could occur.
 - A single component may have more than one failure mode.
 - Consider read failures and write failures separately
3. Rate each failure mode according to its overall risk.
 - Likelihood of the failure
 - Impact on the application
4. For each failure mode, determine how the application will respond and recover.

2 separate between different types of failures, read or write, different impact different mitigation steps. You need to have that for each failure mode

You need to define how your system will respond and recover for each failure mode
After that you'll have your key metrics, thresholds,....

Failure Mode Analysis Walk-Through



The easiest way to start is to have all components of the application

1. Identify each potential failure
2. Rate failure according to overall risk
3. Determine how application will respond and recover

How can we test Failure Modes?

- "Natural Causes"
 - Environment is configured to produce the failure
 - e.g. Create a file and then test an API trying to create an existing file so it can fail
 - Very limited and fragile
- Fault Injection
 - Errors are injected from the dependencies of the component, causing a failure mode
 - Wider range of testing, tied to implementation
 - Start simple
- Common methods for injecting Azure service "faults"
 - Compute: Role restarts, Scale-out, Scale-in
 - Networking: NSG rules to block/unblock communication to dependent services
 - Storage: Customer initiated failover
 - SQL: Manual failover of SQL database instances

Tanya Golovina

Example: change nsg rules, stop restart services, do a failover,....

- The composite SLA of a **sequential** set of operations is the product of their SLAs

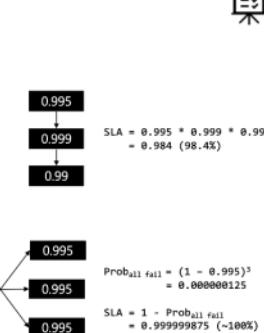
Reliability Assessments

- For **parallel** (redundant) components, the composite SLA is the probability of at least one path being available at a given time
- To calculate the probability of at least one path being available, we can first consider the probability of none of the paths being available.

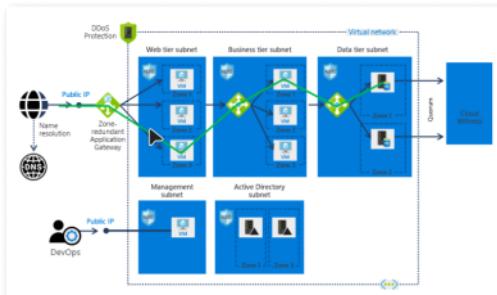
Pathwise Analysis of Operations

- Follow the operation flows through a system and try to identify all the components involved in a given operation
- The composite SLA of a **sequential** set of operations is the product of their SLAs
- For **parallel** (redundant) components, the composite SLA is the probability of at least one path being available at a given time
 - To calculate the probability of at least one path being available, we can first consider the probability of none of the paths being available.
 - Failure probability is $1 - \text{SLA}$ for each path
 - Stage fail rate is $(1 - \text{SLA})^N$ for N components (assuming that only path is needed, for now)
 - Therefore, the probability of at least one path being available is $1 - (1 - \text{SLA})^N$

Give an example with highest SLA like 4 9s.



Pathwise Analysis of Operations



- Pathwise Analysis applied to sample architecture
- Exclude Management and Active Directory components
- Use the Composite SLA Estimator worksheet
- 99.9% Composite SLA Estimate

How to perform this, it's better to have a sample architecture. We exclude management (azure monitor, , AD). There is no direct impact. We use our SLA Estimator tool (it's an excel file)

Have you done this before you moved or built the application in the cloud?

Answer is NO

What about the failure mode analysis?

Not done by customer

Then, I'll share this ppt with you and some additional resources

Additional Reliability Resources

Designing Reliable Applications
[Building Resilient and Reliable Azure Applications](#)
[Error Handling for Resilient Cloud Applications](#)
[Cloud Application Resiliency Patterns](#)
[Cloud Application Availability Patterns](#)

Operating Reliable Applications
[Site Reliability Engineering Resources](#)

Theoretical
[Reliability and Availability Engineering](#)



I will stop sharing my screen.

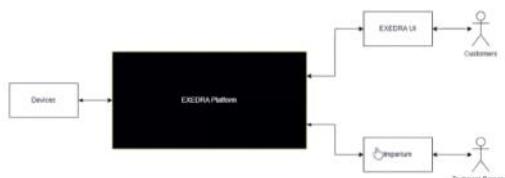
Who can present for us the application?

Customer is going to share 2 documents. (HLD and LLD)

Screenshot of a web browser showing a Confluence page titled "Infrastructure Overview". The page contains a minimalist diagram of the EXEDRA Platform architecture.

Infrastructure Overview

Minimalistic



EXEDRA Minimalistic Overview

The Diagram above, shows us "EXEDRA Platform" as a black box and that is purely intentional as this black box will be opened in the next sections: Detailed, and Excentric.

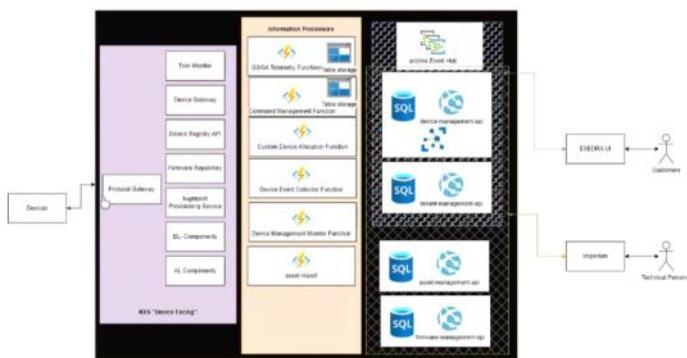
Looking at the User-Facing Products we have two UIs, with different SLA thresholds

Product	Description	Customer facing	SLA
EXEDRA UI	CMS tool that allows the customer to inspect the status of their devices, Configure Calendars, check Historical data, request Live data, and more. This product is	☒	99,995%
Imperium	An Administrative Platform that allows CSS and project administrators to operate directly on the	✗	TBD

For cmrs 3 entry points. Technical UI (black box) critical SLA's are at

Devices -> connection through azure vpn

Detailed



Device facing is kubernetes based.

Information processing is using azure functions

Azure functions inside kubernetes but using storage accounts

Other are API's that don't need to be exposed to the public.

Customer facing: each of the APIs has a database that it consumes and writes to (SQL or IOT Hub)
IOT Hub -> will be end of life.

Streaming elements: event hub event grid service hub

Web App SQL service customers

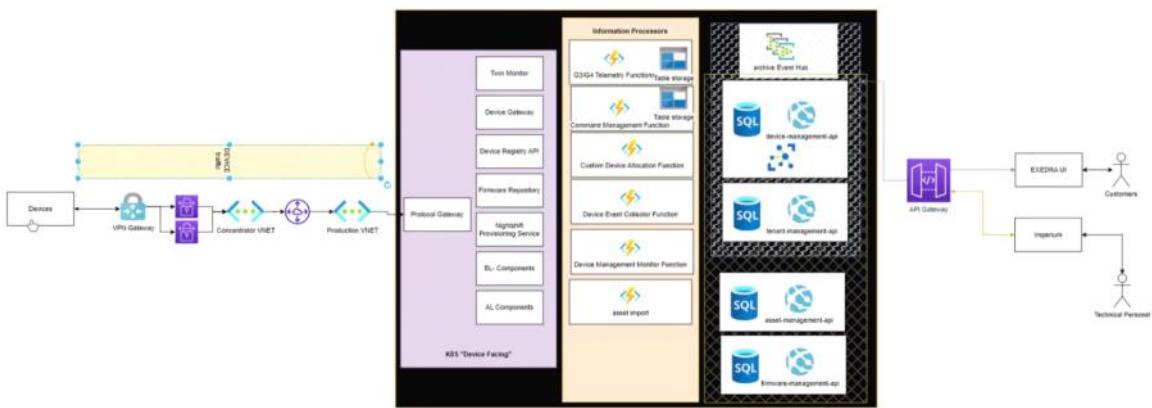
K8S -> core and heart of the operations, alerts for devices.

Everything else is reactor of changes in IoT hub

Device manager monitor function: tells how long

Component	Description	Customer Facing	SLA
Device Management API	RESTful API that serves all operations related to Devices: <ul style="list-style-type: none"> Query Devices Send Device Specific Commands <ul style="list-style-type: none"> Firmware Upgrades Reset Factory Defaults Custom Commands etc Track device status etc Swagger Docs	✗	99,995%
Tenant Management API	RESTful API that serves all operations related to Tenants: <ul style="list-style-type: none"> Get/Create/Update Tenants Get/Create/Update Groups Manage Adaptive Lighting Groups Swagger docs	✗	TBD
Asset Management API	RESTful API that serves all operations related to assets: <ul style="list-style-type: none"> Get Assets Import Assets Delete Assets Update Assets Get asset components (luminaire types, protectors, etc) Swagger docs	✗	TBD
Firmware Management API	RESTful API that serves Firmware related operations	✗	TBD

Networking

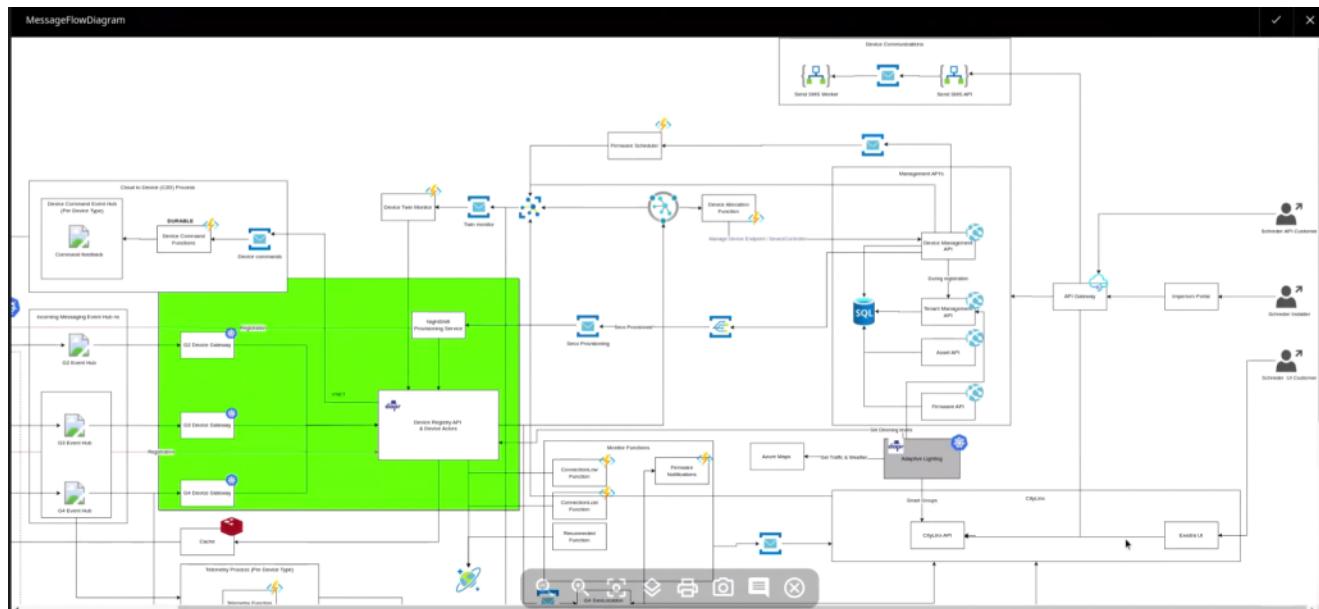
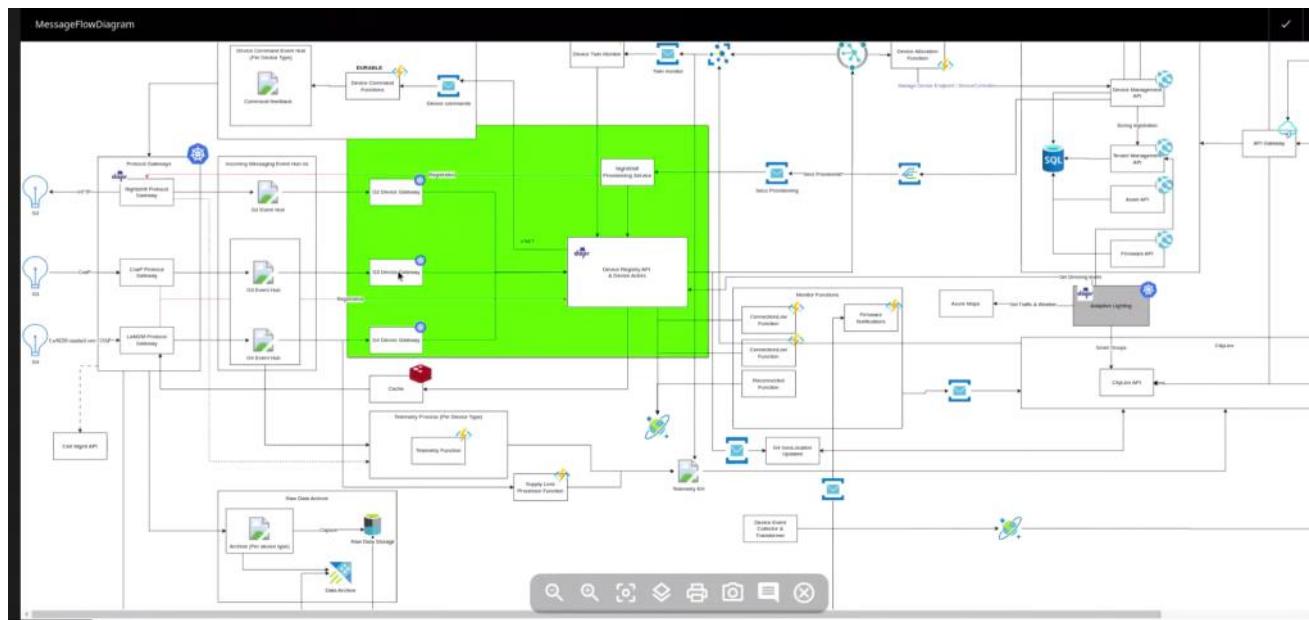


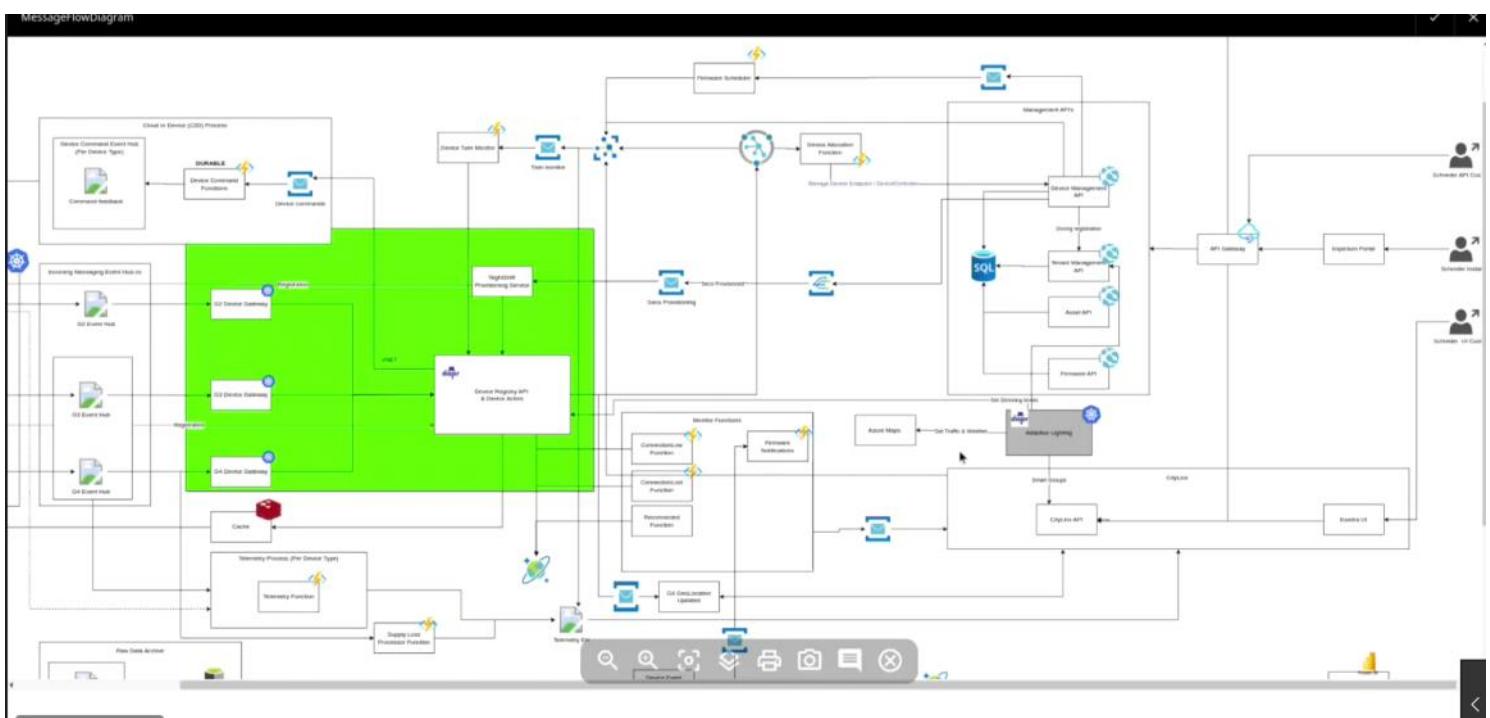
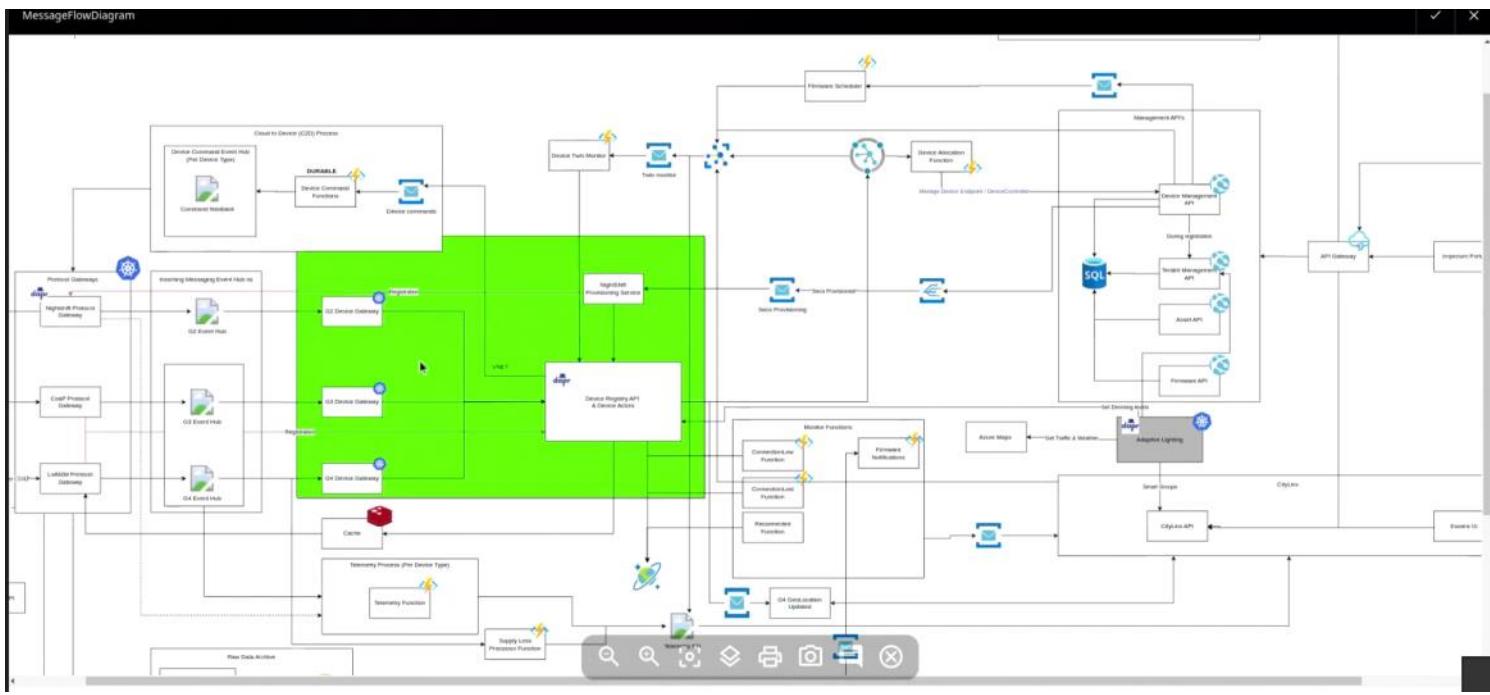
Vpn gateway, concentration vnet, vnet peers to prod vnet and reaches vnet,

Api gateway that forwards traffic to apis themselves.

App gateway between ui and other components

VPN connection: Active/Passive from telco providers
IP Address used for VPN Gateway is global tier, has more resiliency.





Implementation?

Region: Replicated throughout 3 regions. Main one is WE
West US2 and Australia East to reduce latency and networking cost

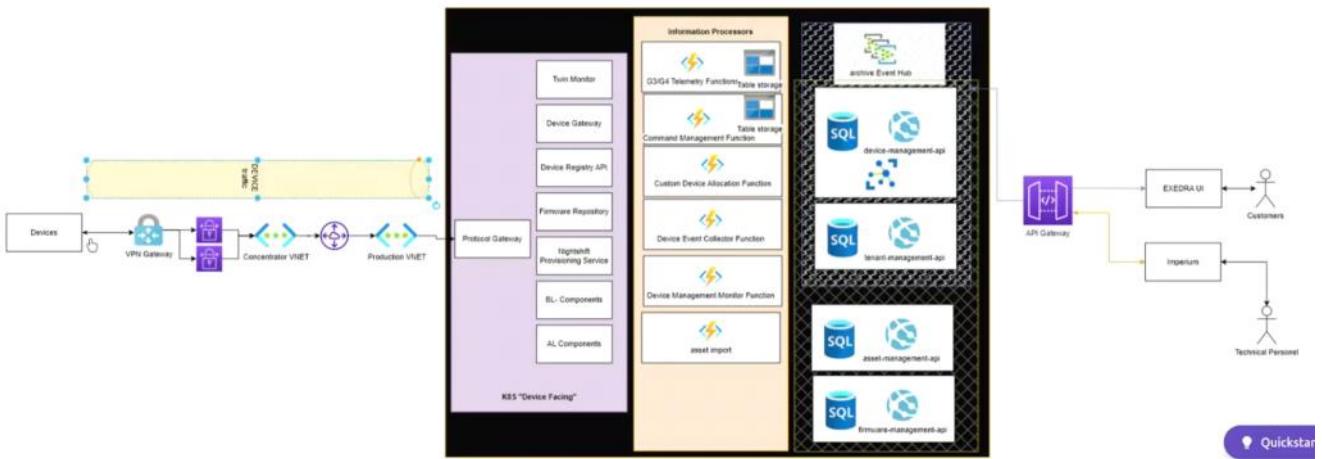
For DR only in the same continent.

For example if Azure Function not available in WE, redundancy in WE?
They will deploy them in NE (Azure pipelines have imports, they redeploy it in north europe)
They do DR using Azure pipelines,...

For management API not only deploying management API itself, it is deploying keys, keyvaults,...
In their scenarios it is more atomic, they want to be able to independently redeploy apis etc...

If the whole region is unavailable?
They redeploy manually using pipelines

Networking



They don't know how to make all of these components redundant.

[Guidance](#) [Answer Summary](#)

Recommendations for your workload

Actionable items to consider implementing to improve your workload across the five pillars of the Microsoft Azure Well-Architected Framework



Big challenge on the networking how to solve it.

Now, they can redeploy in NE because it takes a full day. They cannot connect it because of IP overlap, they think they need to redo peering,....

Rerouting the traffic is where the biggest challenge is!!

Using Availability Zones? Yes, wherever they can (3 Azs)
 Azure Function
 Cosmos DB

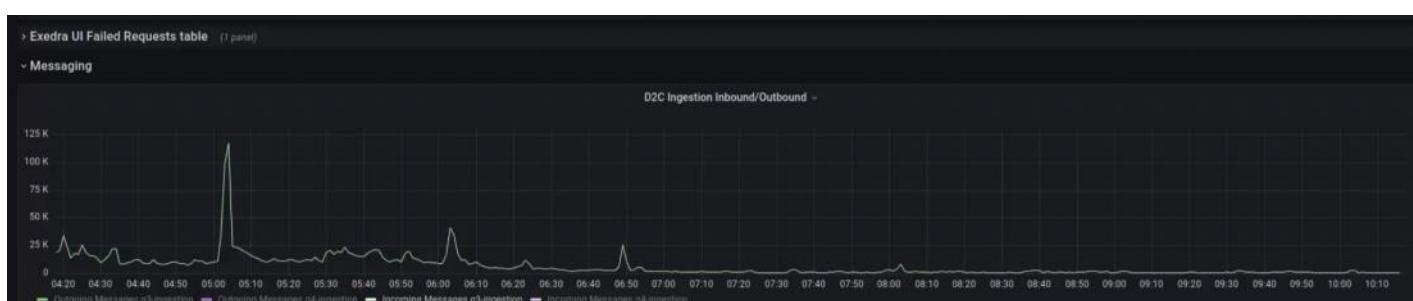
Even KIIS: Agent pools.

Storage Accounts: no redundancy. Need to debate internally.

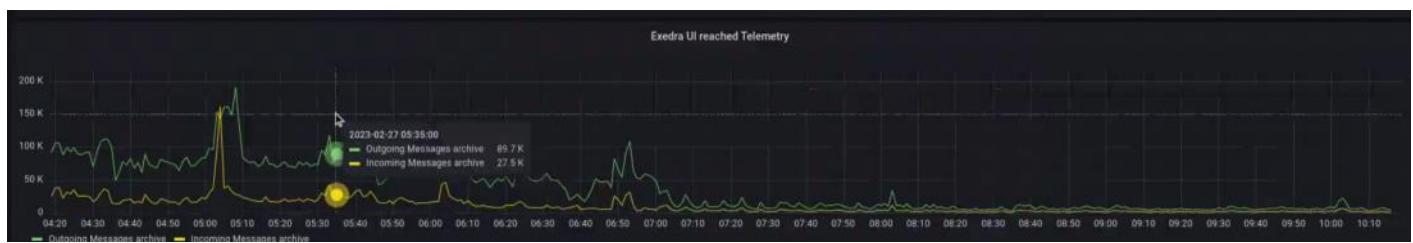
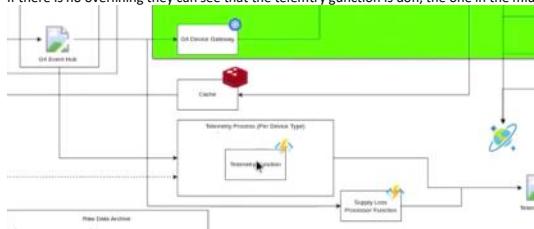
The same in different regions.

What about the monitoring?

They are using Azure Monitor. Grafana to present data



If there is no overlining they can see that the telemetry function is done, the one in the middle



Here they know if nbelow zero something is down

Alerts for exceptions, not just resource starvation, also behavior alerting. Correlation between platform and app metrics (not mature but in some scenarios they have)



Strategy was to focus on the critical paths, and not being bothered by alarms that are not relevant. They are working on making them useful again. They are finetuning grafana and it becomes their go to. At the same time 1000s of updates, they had abandoned it but bringing it back to life. Working with a partner to further monitor and pinpoint issues in prod for each of these components we have.

From business point of view:

In the smart city market. In the outdoor lighting industry

Monitor and control 1000s of lightpoints, by definition they are considered public assets, even from a terrorism point of view this is a critical asset.

Security is paramount + performance.

We want to make sure that when we receive a telemetry from one of these objects we want to see them in a UI as fast as we can in milliseconds. We need to (triangle) Security/Performance/Reliability. To translate this blueprint, into something more businesslike.

Something reliable, near real-time data without compromising security.

What is the security event management system?

They have a specific requirement from the devices (constraint), cannot deploy IoT edge. Very low memory, low resources, constraint devices. They operate based on cellular connectivity, the way these are connected using S2S tunnel, connecting to a VPN Gateway. All the security is granted by firmware hardware mechanisms + Telco security provider. On top of that they are partnering with a company on security. They have a KMS, issuing certs,....

The devices are communicating all the alarms from a hardware Point Of View. 3 different layers of security. One device, stand alone, Communication Layer, Platform and Application Security (this is the scope of this assessment).

From cmr use case, since not using TCP

Sentinel is going to be used this year.

We're using Qualys.

They have a SOC running 24/7 serviced by an MS Partner.

They will transition to Azure Sentinel for these cases.

Can you share the document with me as this will be helpful for the analysis and recommendations?

The next steps we will do the assessment.

When we will finish the assessment you will share the CSV file with me. Group of questions that we will discuss.

Usually we do this during this meeting together. We use this assessment to have a guideline for this discussion. It is important so I can take notes,...

0 of 2 pages complete

[View guidance](#)

WAF Configuration

- * What workload type do you want to evaluate?

Core Pillars

- * What pillars would you like to evaluate?

WAF Configuration

What workload type do you want to evaluate?

Select an option below. For the Data Services assessment, see Data Services | Well-Architected Assessment in the Assessments Portal.

- Core Well-Architected Review
- Azure Machine Learning
- Internet of Things
- SAP On Azure (Preview)
- Analytics
- Azure Stack Hub (Preview)

[← Back](#)

[Next →](#)

Add a note here.

Assessments FAQ & Help

Learn / Assessments / Browse /

[Overview](#) [Guidance](#)

Azure Well-Architected Review

Azure Well-Architected Review - Feb 27, 2021 - 10:34:34 AM

2 of 15 pages complete

[View guidance](#)

WAF Configuration

- ✓ What workload type do you want to evaluate?

Core Pillars

- ✓ What pillars would you like to evaluate?

Reliability

- What reliability targets and metrics have you defined for your application?
- How have you ensured that your application architecture is resilient to failures?
- How have you ensured required capacity and services are available in targeted regions?
- How are you handling disaster recovery for this workload?
- What decisions have been taken to ensure the application platform meets your reliability requirements?
- What decisions have been taken to ensure the data platform meets your reliability requirements?
- How does your application logic handle exceptions and errors?
- What decisions have been taken to ensure networking and connectivity meets your reliability requirements?
- What reliability allowances for scalability and performance have you made?

Core Pillars

What pillars would you like to evaluate?

- Reliability
- Security
- Cost
- Operational Excellence
- Performance

[← Back](#)

[Next →](#)

Add a note here.

teams.microsoft.com is sharing your screen. [Stop sharing](#) [Hide](#)

03/03/2021 10:34:34

teams.microsoft.com Num al...

INFO - Home ➔ How To Build A...

- ✓ What pillars would you like to evaluate?

Reliability

- What reliability targets and metrics have you defined for your application?
- How have you ensured that your application architecture is resilient to failures?
- How have you ensured required capacity and services are available in targeted regions?
- How are you handling disaster recovery for this workload?
- What decisions have been taken to ensure the application platform meets your reliability requirements?
- What decisions have been taken to ensure the data platform meets your reliability requirements?
- How does your application logic handle exceptions and errors?
- What decisions have been taken to ensure networking and connectivity meets your reliability requirements?
- What reliability allowances for scalability and performance have you made?
- What reliability allowances for security have you made?
- What reliability allowances for operations have you made?
- How do you test the application to ensure it is fault tolerant?
- How do you monitor and measure application health?

What reliability targets and metrics have you defined for your application?

Availability targets, such as Service Level Agreements (SLA) and Service Level Objectives (SLO), and Recovery targets, such as Recovery Time Objectives (RTO) and Recovery Point Objectives (RPO), should be defined and tested to ensure application reliability aligns with business requirements.

- Recovery targets to identify how long the workload can be unavailable (Recovery Time Objective) and how much data is acceptable to lose during a disaster (Recovery Point Objective). ⓘ
- Availability targets such as Service Level Agreements (SLAs) and Service Level Objectives (SLOs). ⓘ
- Availability metrics to measure and monitor availability such as Mean Time To Recover (MTTR) and Mean Time Between Failure (MTBF). ⓘ
- Composite SLA for the workload derived using the Azure SLAs for all relevant resources. ⓘ
- SLAs for all internal and external dependencies. ⓘ
- Independent availability and recovery targets for critical application subsystems and scenarios. ⓘ
- None of the above.

[← Back](#)

[Next →](#)

What is the SLA for the whole scope of the application?
Only the UI 99%

Service Level			
Platform Availability	Availability of the User Interface	Maintainability	Uptime
Platform Availability	Availability of the User Interface	Maintainability	99%

RTO/RPO: 24hours

3rd: Tested it on 2 components? 30 to 1hour but not on all

Independent: AKS, Azure Functions, UI -> do you have separate SLA for these subsystems?

learn.microsoft.com/en-us/learn/modules/azure-architecture-review/sessions/bd0f1e6d15-4358-80c8-4f0b63340177mode=questionnaire&id=azure-architecture-review&revision=bdf0f1e6d15-4358-80c8-4f0b63340177

WAF Configuration

- ✓ What workload type do you want to evaluate?

Core Pillars

- ✓ What pillars would you like to evaluate?

Reliability

- ✓ What reliability targets and metrics have you defined for your application?
- How have you ensured that your application architecture is resilient to failures?
- How have you ensured required capacity and services are available in targeted regions?
- How are you handling disaster recovery for this workload?
- What decisions have been taken to ensure the application platform meets your reliability requirements?
- What decisions have been taken to ensure the data platform meets your reliability requirements?
- How does your application logic handle exceptions and errors?
- What decisions have been taken to ensure networking and connectivity meets your reliability requirements?
- What reliability allowances for scalability and performance have you made?
- What reliability allowances for security have you made?
- What reliability allowances for operations have you made?
- How do you test the application to ensure it is fault tolerant?
- How do you monitor and measure application health?



How have you ensured that your application architecture is resilient to failures?

Resilient application architectures should be designed to recover gracefully from failures in alignment with defined reliability targets.

Deployed the application across multiple regions. ⓘ

Removed all single points of failure by running multiple instances of application components. ⓘ

Deployed the application across Availability Zones within a region. ⓘ

Performed Failure Mode Analysis (FMA) to identify fault-points and fault-modes. ⓘ

Planned for component level faults to minimize application downtime. ⓘ

Planned for dependency failures to minimize application downtime. ⓘ

None of the above.

[← Back](#) [Next →](#)

How have you ensured that your application architecture is resilient to failures?

Resilient application architectures should be designed to recover gracefully from failures in alignment with defined reliability targets.

- Deployed the application across multiple regions. ⓘ
- Removed all single points of failure by running multiple instances of application components. ⓘ
- Deployed the application across Availability Zones within a region. ⓘ
- Performed Failure Mode Analysis (FMA) to identify fault-points and fault-modes. ⓘ
- Planned for component level faults to minimize application downtime. ⓘ
- Planned for dependency failures to minimize application downtime. ⓘ
- None of the above.

[Next →](#)

Reliability

- ✓ What pillars would you like to evaluate?
- Reliability**
- ✓ What reliability targets and metrics have you defined for your application?
 - ✓ How have you ensured that your application architecture is resilient to failures?
 - How have you ensured required capacity and services are available in targeted regions?
 - How are you handling disaster recovery for this workload?
 - What decisions have been taken to ensure the application platform meets your reliability requirements?
 - What decisions have been taken to ensure the data platform meets your reliability requirements?
 - How does your application logic handle exceptions and errors?
 - What decisions have been taken to ensure networking and connectivity meets your reliability requirements?
 - What reliability allowances for scalability and performance have you made?
 - What reliability allowances for security have you made?
 - What reliability allowances for operations have you made?
 - How do you test the application to ensure it is fault tolerant?
 - How do you monitor and measure application health?



How have you ensured required capacity and services are available in targeted regions?

Azure services and capacity can vary by region, so it is important to understand if targeted regions offer required capabilities.

- Built a capacity model for the application ⓘ
- Planned for expected usage patterns. ⓘ
- Confirmed Azure service availability in required regions. ⓘ
- Confirmed Availability Zones are available in required regions. ⓘ
- Validated required capacity is within Azure service scale limits and quotas. ⓘ
- Validated all APIs/SDKs against target run-times and languages for required functionality. ⓘ
- Aligned with Azure roadmaps for required preview services and capabilities. ⓘ
- None of the above.

[Next →](#)

Capacity: they were on dynamic because they hit limits they moved to premium

How have you ensured required capacity and services are available in targeted regions?

Azure services and capacity can vary by region, so it is important to understand if targeted regions offer required capabilities.

Built a capacity model for the application ⓘ

Planned for expected usage patterns. ⓘ

Confirmed Azure service availability in required regions. ⓘ

Confirmed Availability Zone are available in required regions. ⓘ

Validated required capacity is within Azure service scale limits and quotas. ⓘ

Validated all APIs/SDKs against target run-times and languages for required functionality. ⓘ

Aligned with Azure roadmaps for required preview services and capabilities. ⓘ

None of the above. Are any preview services/capabilities required in production?

[← Back](#) [Next →](#)

One preview feature used for api connector b2c

How are you handling disaster recovery for this workload?

Disaster recovery is the process of restoring application functionality in the wake of a catastrophic failure. It might be acceptable for some applications to be unavailable or partially available with reduced functionality for a period of time, while other applications may not be able to tolerate reduced functionality.

Application is available across multiple regions in an active-active configuration. ⓘ

Application is deployed across multiple regions in an active-passive configuration in alignment with recovery targets. ⓘ

Traffic is routable to the application in the case of a regional failure. ⓘ

Defined a backup strategy in alignment with recovery targets. ⓘ

Defined a disaster recovery strategy to capture recovery steps for failover and failback. ⓘ

Failover and failback steps and processes are automated. ⓘ

Successfully tested and validated the failover and failback approach at least once. ⓘ

Decomposed the application into distinct subsystems with independent disaster recovery strategies. ⓘ

Network connectivity redundancy for on-premises data/application sources. ⓘ

None of the above.

[← Back](#) [Next →](#)

VPN connectivity? Dedicated for one single workload? You don't use this connection to your on-prem env. From the def. it is dedicated.

(is there any redundant connection? Like using ER and VPN as failover path). Cmr is using VPN Active/Passive (inside the VPN Gateway) -> this is then not checked. In case this VPN gateway will be unavailable, is there any redundancy? Then no.

VPNW1AZ (done by partner)

We will check that.

What decisions have been taken to ensure the application platform meets your reliability requirements?

Designing application platform resiliency and availability is critical to ensuring overall application reliability.

Application processes are stateless. ⓘ

Session state is non-sticky and externalized to a data store. ⓘ

Application configuration is treated as code and deployed with the application. ⓘ

Application platform services are running in a highly available configuration/SKU. ⓘ

Application platform components are deployed across Availability Zones or Availability Sets. ⓘ

Leveraged platform services are Availability Zone aware. ⓘ

Application platform components are deployed across multiple active regions. ⓘ

Load balancing is implemented to distribute traffic across multiple nodes. ⓘ

Health probes are implemented to check the health of application components and compound application health. ⓘ

Queuing and reliable messaging patterns are used to integrate application tiers. ⓘ

Client traffic can be routed to the application in the case of region/zone/network outages. ⓘ

Procedures to scale out application platform components are automated. ⓘ

None of the above.

2nd: One component is not. It is on the roadmap to make it non-sticky

Designing application platform resiliency and availability is critical to ensuring overall application reliability.

What decisions have been taken to ensure networking and connectivity meets your reliability requirements?

- Application processes are stateless. ⓘ
- Session state is non-sticky and externalized to a data store. ⓘ
- Application configuration is treated as code and deployed with the application. ⓘ
- Application platform services are running in a highly available configuration/SKU. ⓘ
- Application platform components are deployed across Availability Zones or Availability Sets. ⓘ
- Leveraged platform services are Availability Zone aware. ⓘ
- Application platform components are deployed across multiple active regions. ⓘ
- Load balancing is implemented to distribute traffic across multiple nodes. ⓘ
- Health probes are implemented to check the health of application components and compound application health. ⓘ
- Queuing and reliable messaging patterns are used to integrate application tiers. ⓘ
- Client traffic can be routed to the application in the case of region/zone/network outages. ⓘ
- Procedures to scale out application platform components are automated. ⓘ
- None of the above.

← Back Next →

Client traffic can be routed... it is either region zone or network here

[Home](#) > [Azure Cosmos DB](#) > **hyp-shared-prd-we-gateway-infrastructure**

Activity log Add Container Refresh Move Data Explorer Enable geo-redundancy Delete Account

Containers

ID	Database	Throughput (RU/s)
adaptive-lighting-api-state-store	gateway-state	4000 (Max Throughput)
device-collector-state-store	gateway-state	4000 (Max Throughput)
state-store	gateway-state	26000 (Max Throughput)
device-collector-summary-store	gateway-state	4000 (Max Throughput)
g2-protocol-gateway-state-store	gateway-state	4000 (Max Throughput)
adaptive-lighting-api-state-store	adaptive-lighting	4000 (Max Throughput)
adaptive-lighting-group-runs	adaptive-lighting	4000 (Max Throughput)

Monitoring
Show data for last: 1 hour, 24 hours, 7 days, 30 days

Requests: Total, Http 2xx, Http 400, Http 401, Http 403, Http 429, Http 5xx

Estimated Cost (hourly): Throughput, Storage

No data to display

[Home](#) > [Azure Cosmos DB](#) > **hyp-shared-prd-we-gateway-infrastructure**

hyp-shared-prd-we-gateway-infrastructure | Replicate data globally

Replicate data globally

Click on a location to add or remove regions from your Azure Cosmos DB account.
Each region is billable based on the throughput and storage for the account. [Learn more](#)

Configure regions
Multi-region writes ⓘ

Add region Disable Enable

Configure the regions for reads, writes and availability zone supported in selected regions and can only be configured when a new region is added.

Regions	Reads Enabled	Writes Enabled	Availability Zone	Action
West Europe				

There seems to be inconsistency in terms of availability zone feature for sql server and cosmos db

What decisions have been taken to ensure the data platform meets your reliability requirements?

Designing data platform resiliency and availability is critical to ensuring overall application reliability.

- Data types are categorized by data consistency requirements. ①
- Data platform services are running in a highly available configuration/SKU. ②
- Data is replicated across multiple regions. ③
- Data is replicated across Availability Zones. ④
- Data is backed-up on zone/geo-redundant storage. ⑤
- Active geo-replication is used for data platform components such as storage and databases. ⑥
- Application traffic can be routed to data stores in the case of region/zone/network outages. ⑦
- Read operations are segregated from update operations. ⑧
- Load balancer health probes assess data platform components. ⑨
- Data restore processes have been defined to ensure consistent application state when data is corrupted or deleted. ⑩
- Data restore processes have been validated and tested to ensure consistent application state when data is corrupted or deleted. ⑪
- None of the above.

Next one all checked except one

This one was made static by hand. 2 replicas but they removed it due to the purpose of this component, the cost doesn't justify the usage of more instances.

The screenshot shows two side-by-side Azure resource management pages. On the left, the 'Load balancing | Load Balancer' page displays a list of load balancers under 'Load Balancing Services'. One item is selected: 'hyp-shared-prd-we-device-logging-repo-internal-lb'. On the right, the 'hyp-shared-prd-we-device-logging-repo-internal-lb' resource details page is shown. It includes sections for 'Essentials' (Resource group: 'hyp-shared-prd-we-device-logging-source', Location: 'West Europe', Subscriptions: 'Scheduler Hyperion Subscription'), 'Backend pool' (2 backend pools), 'Load balancing rule' (2 rules), 'Health probe' (device-logging-repo-probe (Tcp:89)), and 'Tags' (tags: 'environment: PRO', 'version: 2.7.0.4'). Below these are sections for 'Configure high availability and scalability for your applications' (Balance IPv4 and IPv6 addresses, Build highly reliable applications).

This screenshot shows the 'Virtual network gateways' section of the Azure portal. A specific gateway named 'hyperion-vpngw' is selected. The 'Overview' tab is active, displaying basic information like SKU (VpnGatewayA), Gateway type (VPN), and Vpn type (Route-based). The 'Metrics' tab is also visible, showing two line graphs: 'Total tunnel ingress' and 'Total tunnel egress'. The 'Metrics' section includes a 'Show data for last' dropdown with options from '1 hour' to '30 days'.

Network traffic monitored by security partner, response plan? Not sure.

This screenshot shows a Microsoft Learn session titled 'What decisions have been taken to ensure networking and connectivity meets your reliability requirements?'. The page includes a sub-section 'Identifying and mitigating potential network bottle-necks or points-of-failure supports a reliable and scalable foundation over which resilient application components can communicate.' Below this is a list of checkboxes for reliability decisions:

- All single points of failure have been eliminated from application communication flows.
- Health probes are configured for Azure Load Balancer(s) to assess application traffic flows and compound health.
- Azure Load Balancer Standard or Zone redundant application gateways are used to load balance traffic across Availability Zones.
- Redundant connections from different locations are used for cross-premises connectivity (ExpressRoute or VPN).
- A failure path has been simulated for cross-premises connectivity.
- Zone redundant gateways are used for cross-premises connectivity (ExpressRoute or VPN).
- Network traffic is monitored, and a response plan is in place to address network outages.
- None of the above.

At the bottom, there are 'Back' and 'Next →' buttons, and a note input field with placeholder text 'Add a note here.'

She is mentioning network watcher

The partner forwards event through event log and consume it elsewhere

WAF Configuration

- ✓ What workload type do you want to evaluate?

Core Pillars

- ✓ What pillars would you like to evaluate?

Reliability

- ✓ What reliability targets and metrics have you defined for your application?
- ✓ How have you ensured that your application architecture is resilient to failures?
- ✓ How have you ensured required capacity and services are available in targeted regions?
- ✓ How are you handling disaster recovery for this workload?
- ✓ What decisions have been taken to ensure the application platform meets your reliability requirements?
- ✓ What decisions have been taken to ensure the data platform meets your reliability requirements?
- ✓ How does your application logic handle exceptions and errors?
- ✓ What decisions have been taken to ensure networking and connectivity meets your reliability requirements?
- What reliability allowances for scalability and performance have you made?
- What reliability allowances for security have you made?
- What reliability allowances for operations have you made?
- How do you test the application to ensure it is fault tolerant?
- How do you monitor and measure application health?

External



What reliability allowances for scalability and performance have you made?

Resilient applications should be able to automatically scale in response to changing load to maintain application availability and meet performance requirements.

The application has dedicated cross-premises bandwidth. ⓘ

Components with sensitive latency requirements are collocated. ⓘ

Gateways (ExpressRoute or VPN) have been sized according to expected cross-premises network throughput. ⓘ

Expected throughput passing through security/network appliances has been tested and autoscaling is configured based on throughput requirements. ⓘ

Autoscaling is enabled for application components and integrated with Azure Monitor. ⓘ

Autoscaling has been tested and the time to scale in/out has been measured. ⓘ

Tested and validated defined latency and defined throughput targets per scenario and component. ⓘ

Calculated target data sizes and associated growth rates per scenario and component. ⓘ

teams.microsoft.com is sharing your screen. [Stop sharing](#) [Hide](#) ts. ⓘ

Biggest POF was using service bus for high throughput
Moved to event hub. If not enough increase partitions per topics,...
For the DBS it goes back to increase SKUs,..

They have been calculated for the next 6M to 1Y and eventhub for years.

What reliability allowances for security have you made?

Identifying and addressing security-related risks helps to minimize application downtime and data loss caused by unexpected security exposures.

The identity provider (AAD/ADFS/AD/Other) is highly available and aligns with application availability and recovery targets. ⓘ

All external application endpoints are secured? i.e. Firewall, WAF, DDoS Protection Standard Plan, etc. ⓘ

Communication to Azure PaaS services secured using Virtual Network Service Endpoints or Private Link. ⓘ

Keys and secrets are backed-up to geo-redundant storage. ⓘ

The process for key rotation is automated and tested. ⓘ

Emergency access break glass accounts have been tested and secured for recovering from identity provider failure scenarios. ⓘ

Are break glass AAD accounts setup and secured? ⓘ

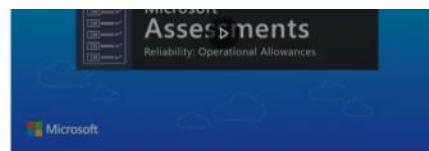
None of the above.

[← Back](#) [Next →](#)

Add a note here.

They are in the process of maturing the keyvault approach

- Reliability**
- ✓ What reliability targets and metrics have you defined for your application?
 - ✓ How have you ensured that your application architecture is resilient to failures?
 - ✓ How have you ensured required capacity and services are available in targeted regions?
 - ✓ How are you handling disaster recovery for this workload?
 - ✓ What decisions have been taken to ensure the application platform meets your reliability requirements?
 - ✓ What decisions have been taken to ensure the data platform meets your reliability requirements?
 - ✓ How does your application logic handle exceptions and errors?
 - ✓ What decisions have been taken to ensure networking and connectivity meets your reliability requirements?
 - ✓ What reliability allowances for scalability and performance have you made?
 - ✓ What reliability allowances for security have you made?
 - What reliability allowances for operations have you made?
 - How do you test the application to ensure it is fault tolerant?
 - How do you monitor and measure application health?



What reliability allowances for operations have you made?

Operational processes for application deployment, such as roll-forward and roll-back, should be defined, sufficiently automated, and tested to help ensure alignment with reliability targets.

- Application can be automatically deployed to a new region without any manual operations to recover from disaster scenarios. ⓘ
- Application deployments can be rolled-back and rolled-forward through automated deployment pipelines. ⓘ
- The lifecycle of the application is decoupled from its dependencies. ⓘ If the application lifecycle is closely coupled with that of its dependencies it can limit the operational agility of the application, particularly where new releases are concerned.
- The time it takes to deploy an entire production environment is tested and validated. ⓘ
- None of the above.

[← Back](#)

[Next →](#)

What reliability allowances for operations have you made?

Operational processes for application deployment, such as roll-forward and roll-back, should be defined, sufficiently automated, and tested to help ensure alignment with reliability targets.

- Application can be automatically deployed to a new region without any manual operations to recover from disaster scenarios. ⓘ
- Application deployments can be rolled-back and rolled-forward through automated deployment pipelines. ⓘ
- The lifecycle of the application is decoupled from its dependencies. ⓘ
- The time it takes to deploy an entire production environment is tested and validated. ⓘ
- None of the above.

[← Back](#)

[Next →](#)

Add a note here.

From zero to all: 5,5 hours

30m to 1 hour for updates.

It depends of the new version. IaC is sometimes well tested in dev and test and when in prod we have a surprise.

Azure Well-Architected Review

Azure Well-Architected Review - Feb 27, 2024 - 10:14:14 AM

13 of 15 pages complete

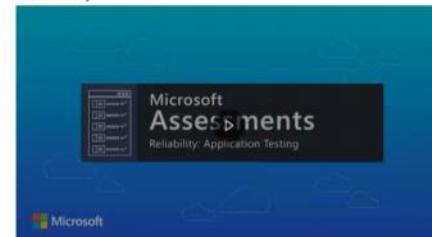
[View guidance](#)

WAF Configuration

- ✓ What workload type do you want to evaluate?
- Core Pillars**
- ✓ What pillars would you like to evaluate?
- Reliability**

 - ✓ What reliability targets and metrics have you defined for your application?
 - ✓ How have you ensured that your application architecture is resilient to failures?
 - ✓ How have you ensured required capacity and services are available in targeted regions?
 - ✓ How are you handling disaster recovery for this workload?
 - ✓ What decisions have been taken to ensure the application platform meets your reliability requirements?
 - ✓ What decisions have been taken to ensure the data platform meets your reliability requirements?
 - ✓ How does your application logic handle exceptions and errors?
 - ✓ What decisions have been taken to ensure networking and connectivity meets your reliability requirements?
 - ✓ What reliability allowances for scalability and performance have you made?
 - ✓ What reliability allowances for security have you made?
 - What reliability allowances for operations have you made?
 - How do you test the application to ensure it is fault tolerant?
 - How do you monitor and measure application health?

Reliability



How do you test the application to ensure it is fault tolerant?

Application workloads should be tested to validate reliability against defined reliability targets.

- The application is tested against critical Non-Functional requirements for performance. ⓘ
- Load Testing is conducted with expected peak volumes to test scalability and performance under load. ⓘ Is Load testing performed using expected peak volumes? i.e. do you test application's performance under load?
- Chaos Testing is performed by injecting faults. ⓘ
- Tests are automated and carried out periodically or on-demand. ⓘ
- Critical test environments have 1:1 parity with the production environment. ⓘ
- None of the above.

Load testing is hard to replicate data from devices.

Gateway hard to test since proprietary protocols and tools to test.

Everything else they have is typically done for others.

They have integration tests that run twice a day.

- ✓ How have you ensured required capacity and services are available in targeted regions?
- ✓ How are you handling disaster recovery for this workload?
- ✓ What decisions have been taken to ensure the application platform meets your reliability requirements?
- ✓ What decisions have been taken to ensure the data platform meets your reliability requirements?
- ✓ How does your application logic handle exceptions and errors?
- ✓ What decisions have been taken to ensure networking and connectivity meets your reliability requirements?
- ✓ What reliability allowances for scalability and performance have you made?
- ✓ What reliability allowances for security have you made?
- ✓ What reliability allowances for operations have you made?
- ✓ How do you test the application to ensure it is fault tolerant?**
- How do you monitor and measure application health?



How do you test the application to ensure it is fault tolerant?

Application workloads should be tested to validate reliability against defined reliability targets.

- The application is tested against critical Non-Functional requirements for performance. ⓘ
- Load Testing is conducted with expected peak volumes to test scalability and performance under load. ⓘ
- Chaos Testing is performed by injecting faults. ⓘ
- Tests are automated and carried out periodically or on-demand. ⓘ
- Critical test environments have 1:1 parity with the production environment. ⓘ
- None of the above.

[← Back](#)

[Next →](#)

Hard to have a 1:1 parity. They need to simulate Half of million devices sending millions of messages. They have simulators but not their yet.

- ✓ How have you ensured that your application architecture is resilient to failures?
- ✓ How have you ensured required capacity and services are available in targeted regions?
- ✓ How are you handling disaster recovery for this workload?
- ✓ What decisions have been taken to ensure the application platform meets your reliability requirements?
- ✓ What decisions have been taken to ensure the data platform meets your reliability requirements?
- ✓ How does your application logic handle exceptions and errors?
- ✓ What decisions have been taken to ensure networking and connectivity meets your reliability requirements?
- ✓ What reliability allowances for scalability and performance have you made?
- ✓ What reliability allowances for security have you made?
- ✓ What reliability allowances for operations have you made?
- ✓ How do you test the application to ensure it is fault tolerant?**
- How do you monitor and measure application health?



How do you test the application to ensure it is fault tolerant?

Application workloads should be tested to validate reliability against defined reliability targets.

- The application is tested against critical Non-Functional requirements for performance. ⓘ
- Load Testing is conducted with expected peak volumes to test scalability and performance under load. ⓘ
- Chaos Testing is performed by injecting faults. ⓘ
- Tests are automated and carried out periodically or on-demand. ⓘ
- Critical test environments have 1:1 parity with the production environment. ⓘ
- None of the above.

[← Back](#)

[Next →](#)

Add a note here.

They stripped down on cost for metrics

How do you monitor and measure application health?

Monitoring and measuring application availability is vital to qualifying overall application health and progress towards defined reliability targets.

- The application is instrumented with semantic logs and metrics. ⓘ
- Application logs are correlated across components. ⓘ
- All components are monitored and correlated with application telemetry. ⓘ
- Key metrics, thresholds, and indicators are defined and captured. ⓘ
- A health model has been defined based on performance, availability, and recovery targets and is represented through monitoring dashboard and alerts. ⓘ
- Azure Service Health events are used to alert on applicable Service level events. ⓘ
- Azure Resource Health events are used to alert on resource health events. ⓘ
- Monitor long-running workflows for failures. ⓘ
- None of the above. Do you monitor any long running application workflows and operationalise failure scenarios?

[← Back](#)

[View guidance →](#)

Add a note here.

Share csv file with me and we will share the recommendations,...
Azure Devops.

Tomorrow we will go through Azure Advisor....

Please send the design of the application as well.

For tomorrow we will check the SLA and we will check all Advisor Recommendations and discuss them.

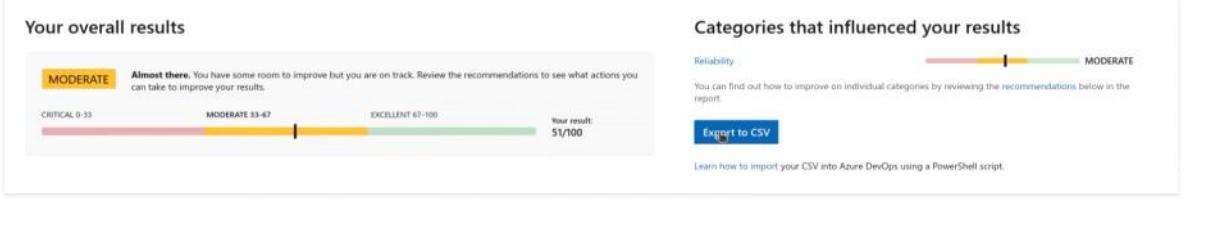
Please check the emergency break glass account as it is a high priority recommendation.

That is all from my side, if any

Azure SQL availability most important thing.

Recommendations for your workload

Actionable items to consider implementing to improve your workload across the five pillars of the Microsoft Azure Well-Architected Framework



Azure Advisor recommendations

Group	Problem	AffectedResource	Severity	Solution	resourceGroup
~Add a second region to your production workloads on Azure Cosmos DB (5)	Add a second region to your production workloads on Az... Add a second region to your production workloads on Az... Add a second region to your production workloads on Az...	hyp-shared-prd-ae-gateway-infra hyp-shared-prd-ae-gateway-infra hyp-shared-prd-ae-gateway-infra	Medium Medium Medium	Add a second region to your production workloads on Az... Add a second region to your production workloads on Az... Add a second region to your production workloads on Az...	hyp-shared-prd-gat... hyp-shared-prd-gat... hyp-shared-prd-gat...
~Avoid being rate limited from metadata operations (1)	Avoid being rate limited from metadata operations	hyp-shared-prd-ae-gateway-infra	Medium	Avoid being rate limited from metadata operations	hyp-shared-prd-gat...
~Use NAT gateway for outbound connectivity (13)	Use NAT gateway for outbound connectivity Use NAT gateway for outbound connectivity Use NAT gateway for outbound connectivity Use NAT gateway for outbound connectivity	hyp-shared-prd-ae-internet-vnet hyp-shared-prd-ae-spillover hyp-shared-prd-ae-miet hyp-shared-prd-wa-internet-vnet	Medium Medium Medium Medium	Use NAT gateway for outbound connectivity Use NAT gateway for outbound connectivity Use NAT gateway for outbound connectivity Use NAT gateway for outbound connectivity	hyp-shared-prd-net... hyp-shared-prd-net... hyp-shared-prd-net... hyp-shared-prd-net...

TIPS: Tanya does the same assessment on her own website and takes notes herself

She intentionally not show all the detailed recommendations.

This plan is based on the conversations and not just on the website because sometimes or mostly it is not true or not the most important recommendation based on the customer conversation.

This is mostly based on the conversation.

Optimization Plan

Top Recommendations

- Identify possible failure points in the system with failure mode analysis(FMA) [Failure mode analysis - Azure Architecture Center | Microsoft Learn](#)
- Eliminate all single points of Failure, use Availability Sets/Availability Zones for VMs [Resiliency and dependencies - Microsoft Azure Well-Architected Framework | Microsoft Learn](#)
- Design Resilience across Availability Zones(Azure SQL DB, Cosmos DB) [Azure services that support availability zones | Microsoft Learn](#)
- Design for scaling and plan for growth [Design for scaling - Microsoft Azure Well-Architected Framework | Microsoft Learn](#)
- Implement redundant network connection to on-prem data sources [Have redundant network connections to on-prem data sources](#)

If you want to give added benefits from your expertise you can give demos.

Tanya purposefully didn't show all the detailed slides but will send them.

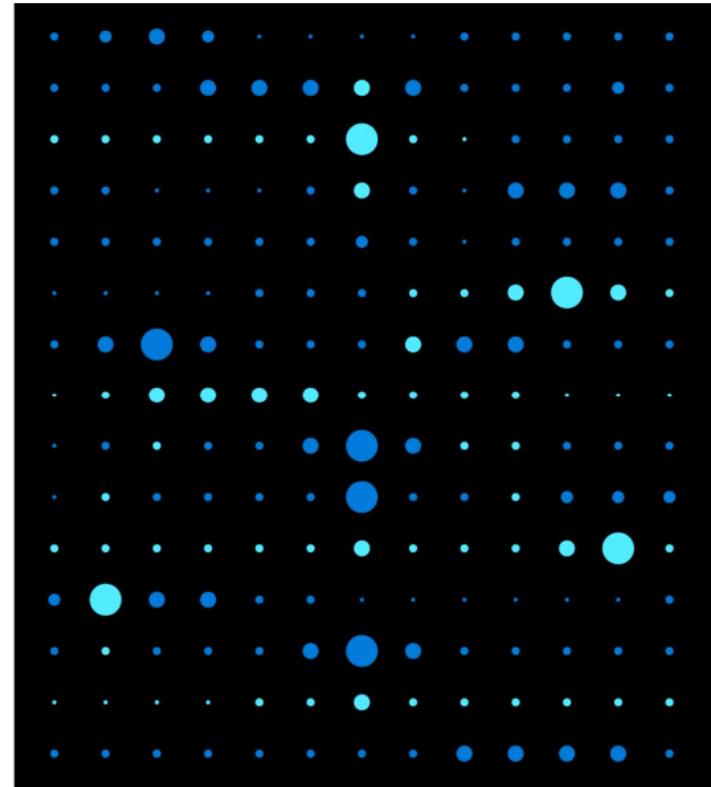
She stayed on the line with an engineer having access to Azure DevOps to import the workitems.

Extra Resources: BCDR CO

Thursday, February 9, 2023 3:22 PM



BCDR Cost Optimizations



BCDR Cost Control challenges

Challenges to control cost effectively without compromising on quality and implementation flexibility

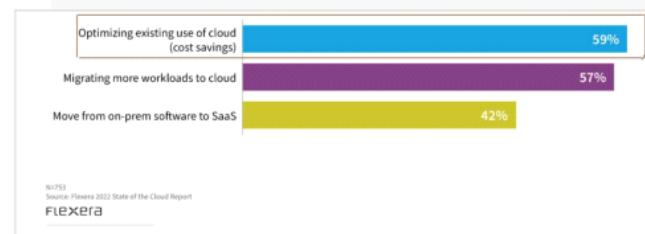
→ Growing data volume & waste

- Accelerated digital transformation, Growing data estate ('133ZB (2018) → 175ZB (2025))
- Cloud waste also increased 2% in 2021, from 30% in 2020 to 32% in 2021*

→ Growing cost & complexity

- Management cost due to multiple BCDR tools

Cost optimization is the top cloud initiative for 2022 across organization



* Flexera Report

Plan and Optimize without constraints

Plan & optimise Azure BCDR costs with transparency, accuracy and efficiency to maximize cloud potential



- Budget your costs using our [Pricing Calculator UPDATED](#)
- Save up to 24% of Backup Storage costs using [Reserved Capacity NEW](#)



- Enable [Smart Tiering](#) for [Archive](#) for LTR data [NEW](#)
- Analyze backup costs with patterns and insights under [Backup Reports](#) to right-size your backup storage
- Reduce Storage footprint with [Selective Disk Backup](#), Clean-up backups on [inactive/deleted datasources](#)
- Choose right Storage [Redundancy](#) for your vaults & right policy for your Backups
- Use optimized [policy](#) for Database Backups

Budget your costs using Pricing Calculator

Get a comprehensive view of costs across all your workloads to help you plan better

→ Estimate & plan

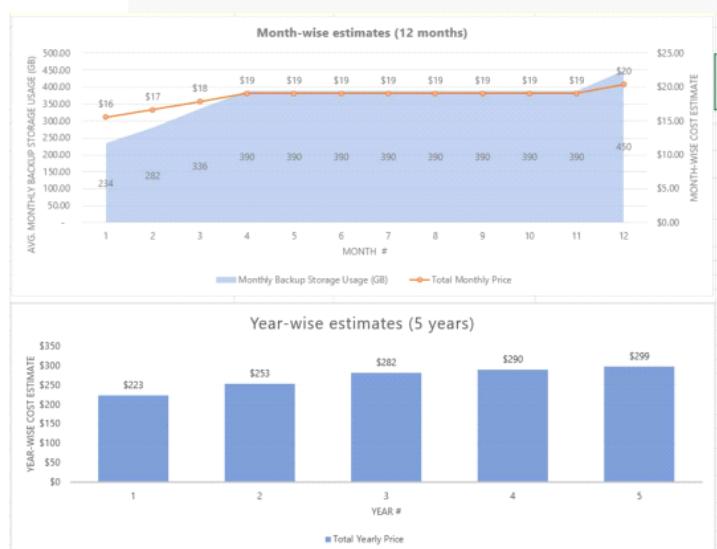
Budget your costs better by understanding the potential growth pattern of your backup storage

→ Timeline view of costs

Get month-wise and year-wise estimates per workload

→ Tailored to your needs

Customize more than 15 variables to fit your requirements



Reduce cost with Reserved Capacity for Azure Backup

Save up to 24% on Backup Storage cost by pre-committing usage

→ Variable commitment options

Maximize savings with one-year or three-year terms. The more you pay up-front, the more you save.

→ Lower costs with reserved capacity

Pay upfront or pay on a monthly basis at no additional cost

→ Subscription flexibility

Apply reserved capacity pricing to a single subscription or across multiple subscriptions

Backup Storage Commitment*	Discounts	
	1 Year	3 Year
100TB/month	12%	20%
1PB/month	16%	24%

*Reserved Capacity SKUs are available for Portal purchase at Redundancy & Region level

Purchase Backup Storage Reservation on Azure Portal

Save up to 24% on Backup Storage cost by pre-committing usage

→ Choose Reservations based on usage

E.g.: 3-year 100TB/month GRS Vault in US East

→ Recommendations based on usage

Based on customer's history of usage, we recommend Reservations SKUs which eases customer decision making

→ Reservation scope

Available for a single subscription, multiple subscriptions (shared scope), and management groups

Select the product you want to purchase

Azure Backup Reserved Capacity provides a significant discount over pay-as-you-go prices by allowing you to pre-purchase Azure Backup storage capacity for a period of 1 or 3 years. [Learn More](#)

Scope: Shared Billing subscription: Avr95022022test1|123abc-123abc-123abc-123...

Recommended: All Products

Filter by name, region, or instance...	Region: East US	Redundancy: Select a value	Size: Select a value	Term: Three Years	Reset filters

1-6 of 6

Vault Tier	Redundancy	Size	Region	Term	Billing frequency	Recommended quantity
Standard	GRS	100 TB	East US	Three Years	Monthly	0
Standard	URS	1 PB	East US	Three Years	Monthly	0
Standard	URS	100 TB	East US	Three Years	Monthly	0
Standard	RA-GRS	100 TB	East US	Three Years	Monthly	0
Standard	RA-GRS	1 PB	East US	Three Years	Monthly	0

Recommendations based on: 30 day usage [Learn more](#)

Page 1 of 1 [Previous](#) [Next](#)

Add to cart [Close](#) Monthly price: <price> USD per % Estimated savings

*Reserved Capacity SKUs are at Redundancy & Region level

Make right cost vs. durability trade-off while configuring backup

Optimally use storage redundancy choices - LRS and ZRS based on business needs

→ GRS by default

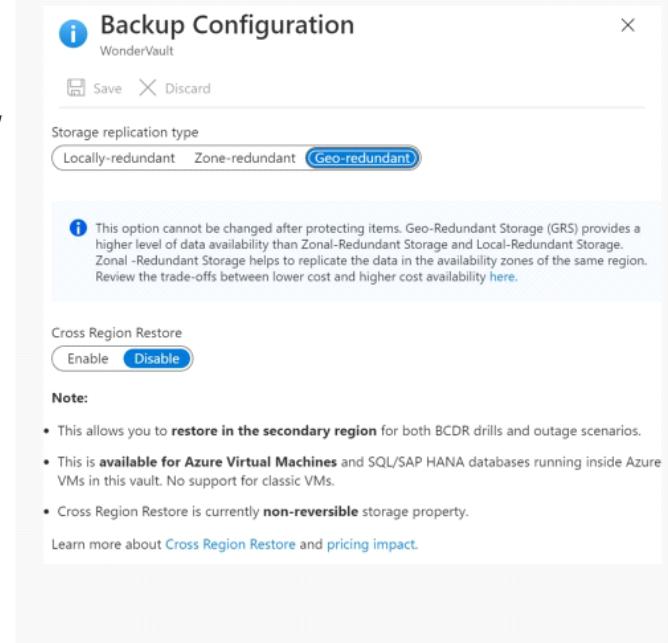
All new vaults are GRS as customers want their backup to follow strict compliance guidelines that require having a secondary copy in a different region

→ Choose LRS for dev/test environments

Dev/test environments do not need this higher protection. LRS Storage costs ~50% of that of GRS

→ Use ZRS redundancy where applicable

ZRS option will be Generally Available in Q4CY22 across supported geos



Reduce Cost with Selective Disk backup

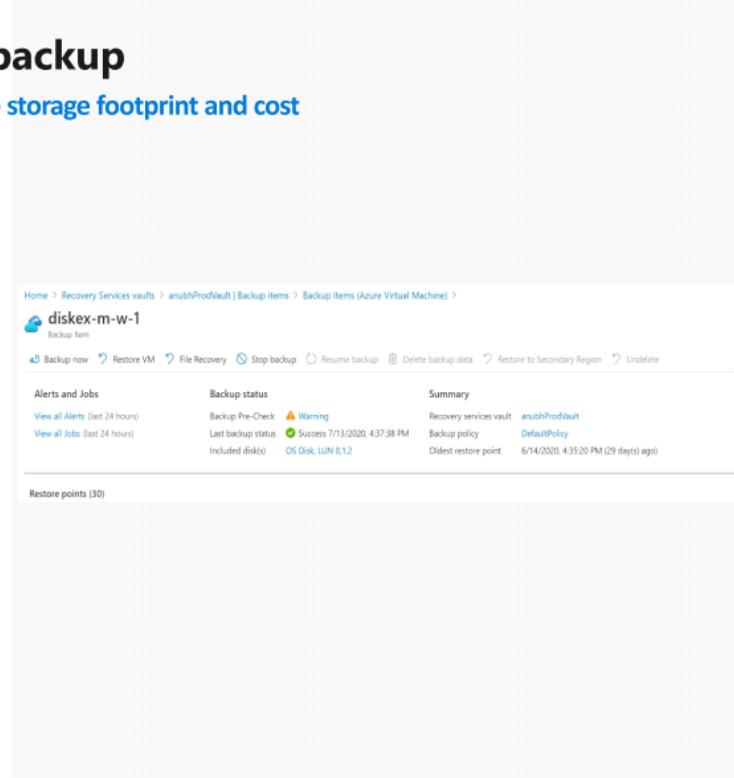
With selective disk backup you can reduce your backup storage footprint and cost

→ Choose disks with critical data only

Backup disks with critical data only attached to the VM to minimize the backup storage costs

→ OS Disk-only backups

If using other backup solutions for your databases, you can backup OS disk only to optimize backup cost



Reduce cost by eliminating inactive data source backups

Audit periodically to identify inactive data source backups and clean up to reduce cost

→ Clean-up inactive data sources

View such inactive data sources that have not had backup in a defined period (90 days in the example) and revisit their backup status

→ Audit inactive data sources periodically

Go through a clean-up process regularly to optimize your costs

Backup Instance	Container	Resource Group	Policy	Latest Recovery Point	Vault
master	TestSQL	deberg1	HourlyLogBackup	14/6/2020, 8:03:33 am	AZUREF
model	TestSQL	deberg1	HourlyLogBackup	15/6/2020, 1:45:31 am	AZUREF
msdb	TestSQL	deberg1	HourlyLogBackup	14/6/2020, 8:02:03 am	AZUREF
tempdb	ultratestdb001	ultratestdb001	adbalicu001	testing123	AZUREF
tempdb	ultratestdb002	ultratestdb002	adbalicu001	testing123	AZUREF
tempdb0001	testdb0001	adbalisqng4	(none)	3/11/2020, 10:55:14 am	AZUREF
testing	afaccount1	azuresql1	(none)	30/10/2020, 3:00:55 am	AZUREF
share1	afaccount	azuresql1	(none)	15/4/2020, 3:02:55 am	AZUREF
ds	AZUREMIA			MABPNAb33330ff-16f7-4e1f-a321-c3291a0c040d	AUTH0

Reduce cost by optimizing policy configuration

Choose relevant policy tailored to workloads to reduce cost

→ Use weekly full+ daily differentials policy

For database backups, choose to have weekly full backups instead of daily full backups. This helps reduce the cost significantly

→ Use lower retention for dev/test environment

For dev/test backup data, configure with lower retention, especially if you do not have compliance or business needs. This will reduce overall backup storage footprint.

Backup Item	Container	Resource Group	Policy	Vault	Azure Resource
master	hanamachine2	SAPHANA	SAPHANABackupPolicy	SAPHANAULT2	hanamachine2
model	hanamachine2	SAPHANA	SAPHANABackupPolicy	SAPHANAULT2	hanamachine2
msdb	hanamachine3	SAPHANA	SAPHANABackupPolicy	SAPHANAULT3	hanamachine3

Reduce cost with Smart Tiering to Vault-archive

Move your Long-Term Retention data with automatic smart tiering to Vault-archive

→ Intelligently Move Recovery Points to archive Tier

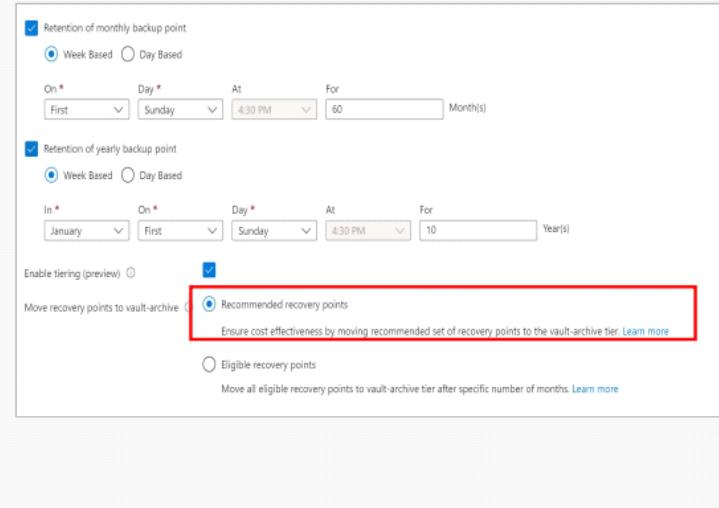
Enable Simple Setting in the backup Policy to move recovery points at scale.

→ Granular Control

Use PowerShell and CLI to move selective recovery point to Vault-archive

→ Intelligent Recommendation for Azure Virtual Machines

View and move the recommendations for guaranteed cost savings



[Attaching Azure Backup and Azure Site Recovery to Virtual Machines](#)

[Make all things redundant - Azure Application Architecture Guide | Microsoft Learn](#)

[Mission-critical baseline architecture on Azure - Azure Architecture Center | Microsoft Learn](#)

- Redundancy. Your application must be deployed to multiple regions. Additionally, within a region, we strongly recommend that you use [availability zones](#) to allow for fault tolerance at the datacenter level. Availability zones have a latency perimeter of less than 2 milliseconds between availability zones. For workloads that are "chatty" across zones, this latency can introduce a performance penalty and incur bandwidth charges for interzone data transfer.

From <<https://learn.microsoft.com/en-us/azure/architecture/framework/mission-critical/mission-critical-application-design#global-distribution>>

Active/active model. An active/active deployment strategy is recommended because it maximizes availability and provides a higher composite service-level agreement (SLA). However, it can introduce challenges around data synchronization and consistency for many application scenarios. Address the challenges at a data platform level while considering the trade-offs of increased cost and engineering effort.

From <<https://learn.microsoft.com/en-us/azure/architecture/framework/mission-critical/mission-critical-application-design#global-distribution>>

Design considerations

- Proper configurations. It's not uncommon for transient problems to cause cascading failures. For example, retry without appropriate back-off exacerbates the problem when a service is being throttled. You can space retry delays linearly or increase them exponentially to back off through growing delays.
- Health endpoints. You can expose functional checks within application code by using health endpoints that external solutions can poll to retrieve application component health status.

From <<https://learn.microsoft.com/en-us/azure/architecture/framework/mission-critical/mission-critical-application-design#global-distribution>>

Design recommendations

Here are some [common software engineering patterns](#) for resilient applications:

Pattern	Summary
Queue-Based Load Leveling	Introduces a buffer between consumers and requested resources to ensure consistent load levels. As consumer requests are queued, a worker process handles them against the requested resource at a pace that's set by the worker and by the requested resource's ability to process the requests. If consumers expect replies to their requests, you need to implement a separate response mechanism. Apply a prioritized order so that the most important activities are performed first.
Circuit Breaker	Provides stability by either waiting for recovery or quickly rejecting requests rather than blocking while waiting for an unavailable remote service or resource. This pattern also handles faults that might take a variable amount of time to recover from when a connection is made to a remote service or resource.
Bulkhead	Attempts to partition service instances into groups based on load and availability requirements, isolating failures to sustain service functionality.
Saga	Manages data consistency across microservices that have independent datastores by ensuring that services update each other through defined event or message channels. Each service performs local transactions to update its own state and publishes an event to trigger the next local transaction in the saga. If a service update fails, the saga runs compensating transactions to counteract preceding service update steps. Individual service update steps can themselves implement resiliency patterns, such as retry.
Health Endpoint Monitoring	Implements functional checks in an application that external tools can access through exposed endpoints at regular intervals. You can interpret responses from the endpoints by using key operational metrics to inform application health and trigger operational responses, like raising an alert or performing a compensating rollback deployment.
Retry	Handles transient failures elegantly and transparently. <ul style="list-style-type: none">- Cancel if the fault is unlikely to be transient and is unlikely to succeed if the operation is attempted again.- Retry if the fault is unusual or rare and the operation is likely to succeed if attempted again immediately.- Retry after a delay if the fault is caused by a condition that might need a short time to recover, like network connectivity or high-load failures. Apply a suitable back-off strategy as retry delays increase.
Throttling	Controls the consumption of resources used by application components, protecting them from becoming over-encumbered. When a resource reaches a load threshold, it defers lower-priority operations and degrading non-essential functionality so that essential functionality can continue until sufficient resources are available to return to normal operation.

From <<https://learn.microsoft.com/en-us/azure/architecture/framework/mission-critical/mission-critical-application-design#global-distribution>>

- For scenarios that target an SLO that's greater than or equal to 99.99%, we recommend a minimum of three deployment regions to maximize the composite SLA and overall reliability. Calculate the [composite SLA](#) for all user flows. Ensure that the composite SLA is aligned with business targets.

From <<https://learn.microsoft.com/en-us/azure/architecture/framework/mission-critical/mission-critical-application-platform>>

- In a single geography, prioritize the use of regional pairs to benefit from SDP serialized rollouts for planned maintenance and regional prioritization for unplanned maintenance.

From <<https://learn.microsoft.com/en-us/azure/architecture/framework/mission-critical/mission-critical-application-platform>>

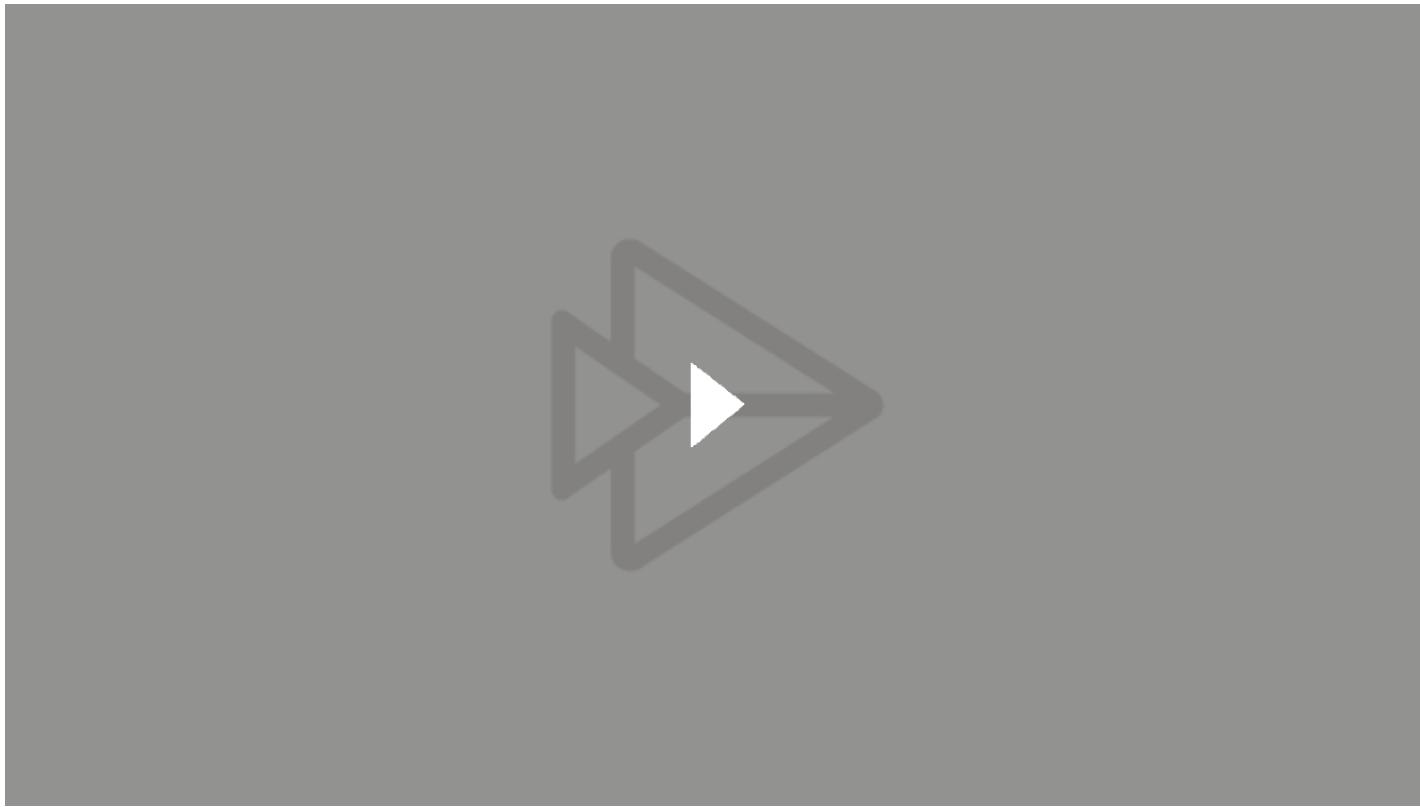
MIP-Well Architected Cost Optimization Implementation

Monday, March 13, 2023 9:33 AM

MIP - Well Architected Cost Optimization Implementation Readiness Session

Wednesday, March 1, 2023 12:09 AM

[Microsoft Stream](#)



[Overview of Well-Architected Cost Optimization Implementation Delivery | MIP Delivery Documentation \(mipdocs.azurewebsites.net\)](#)

[Pre-Scoping | MIP Delivery Documentation \(mipdocs.azurewebsites.net\)](#)

- Overview and Agenda
- Scoping
- Remediation Packages
 - Hybrid Benefits
 - SKU and Storage Optimization
 - Reservations
 - Waste Reduction
- Close Out
 - Close Out Meeting

Break-out with the Specialist: internal meeting.
If we can leverage the specialist as they're there to help us implement RI's, AHUB,....

Learning Path Accreditation Readiness-AHUB,Reservations,...

Monday, March 13, 2023 9:33 AM

RI Demonstration: Instance Flexibility

[What are Azure Reservations? - Microsoft Cost Management | Microsoft Learn](#)

[How an Azure reservation discount is applied - Microsoft Cost Management | Microsoft Learn](#)

[View Azure reservation utilization - Microsoft Cost Management | Microsoft Learn](#)

[Manage Azure Reservations - Microsoft Cost Management | Microsoft Learn](#)

[View Azure reservation utilization - Microsoft Cost Management | Microsoft Learn](#)

[Microsoft Volume Licensing - Microsoft Software Assurance
Software-Assurance-MSCOM-Frequently-Asked-Questions.pdf](#)

AHUB For Windows Servers

[Azure Hybrid Benefit for Windows Server | Microsoft Learn](#)

Use rights

- Windows Server Standard edition: Licenses must be used either on-premises or in Azure, but not at the same time. The only exception is on a one-time basis, for up to 180 days, to allow you to migrate the same workloads to Azure.
- Windows Server Datacenter edition: Licenses allow simultaneous usage on-premises and in Azure. Dual Use Rights don't apply for licenses allocated for [Unlimited Virtualization Rights](#), below.

From <<https://learn.microsoft.com/en-us/windows-server/get-started/azure-hybrid-benefit>>

AHUB for SQL Servers

[Change the license model for a SQL VM in Azure - SQL Server on Azure VMs | Microsoft Learn](#)

Limitations

Changing the license model is:

- Only supported for the Standard and Enterprise editions of SQL Server. License changes for Express, Web, and Developer are not supported.
- Only supported for virtual machines deployed through the Azure Resource Manager model. Virtual machines deployed through the classic model are not supported.
- Available only for the public or Azure Government clouds. Currently unavailable for the Azure China region.

Additionally, changing the license model to [Azure Hybrid Benefit](#) requires [Software Assurance](#).

Note

Only SQL Server core-based licensing with Software Assurance or subscription licenses are eligible for Azure Hybrid Benefit. If you are using Server + CAL licensing for SQL Server and you have Software Assurance, you can use bring-your-own-license to an Azure SQL Server virtual machine image to leverage license mobility for these servers, but you cannot leverage the other features of Azure Hybrid Benefit.

[Azure Hybrid Benefit - Hybrid Cost Calculator | Microsoft Azure](#)

License: 1 8core license or one 2-processor license = 16 cores vCPU.

8 core license applied no matter if you have a VM with lower vCPU, hence why we look at VMs with 8vCPUs to apply the benefit to, otherwise you would use it on lower cost VM's $100/8=12.5$ so can be applied to 12VMs with 1core (actually they will use 1 license each and these are 8core licenses)

Azure Hybrid Benefit Savings Calculator

[Windows Server VMs](#) [SQL Server VMs](#) [Azure SQL Managed Instance](#) [Azure SQL Database](#)

Enter the number of core licenses you own that are covered with active Software Assurance or Windows Server Subscriptions

100

Monthly estimates

Without Azure Hybrid Benefit per month €1,337.913

With Azure Hybrid Benefit per month €955.652

Savings across eligible Virtual Machines per month **€382.261**
(28.6% savings)

Enter planned Azure deployment of Windows Virtual Machines

[Learn more about Windows Server instances >](#)

Region

Annual estimates

Azure Hybrid Benefit Savings Calculator

Windows Server VMs SQL Server VMs Azure SQL Managed Instance Azure SQL Database

Enter the number of core licenses you own that are covered with active Software Assurance or Windows Server Subscriptions



Enter planned Azure deployment of Windows Virtual Machines

[Learn more about Windows Server instances >](#)

Region



Instance size



Hours / month

Eligible Virtual Machines based on instance size selection

Monthly estimates

Without Azure Hybrid Benefit per month €1,337.913

With Azure Hybrid Benefit per month €955.652

Savings across eligible Virtual Machines per month €382.261

(28.6% savings)

Annual estimates

Your estimated annual savings on Azure across all virtual machines Your estimated annual savings on Azure across all databases €4,587.128

Calculator is to help estimate savings range when using the Azure Hybrid Benefit for Windows Server licenses that include Software Assurance. Your actual savings may vary.

For SQL the same per 8 cores

Azure Hybrid Benefit Savings Calculator

Windows Server VMs SQL Server VMs Azure SQL Managed Instance Azure SQL Database

Enter the number of SQL Server license cores with Software Assurance



Enter planned Azure deployment of SQL Server Instances

Region

License type



Operating system

Instance size



Hours / month

Save up to 85% over standard pay-as-you-go rate leveraging Windows Server and SQL Server licenses with Azure Hybrid Benefit

Eligible Virtual Machines with SQL Server Enterprise edition based on your Instance selection



Monthly estimates

Without Azure Hybrid Benefit per month €11,262.838

With Azure Hybrid Benefit per month €2,952.825

Savings across eligible Virtual Machines per month €8,310.013

(73.8% savings)

Annual estimates

Your estimated annual savings on Azure across all virtual machines Your estimated annual savings on Azure across all databases €99,720.154

Calculator is to help estimate savings range when using the Azure Hybrid Benefit for SQL Server licenses that include Software Assurance. Your actual savings may vary.

SQL MI Standard is literally 1 per core, so for an instance with 4 cores you would need 4 standard edition licenses and only 1 Enterprise license

Azure Hybrid Benefit Savings Calculator

Windows Server VMs SQL Server VMs **Azure SQL Managed Instance** Azure SQL Database

Enter the number of SQL Server license cores with Software Assurance

Standard Edition	Enterprise Edition
4	1

Enter planned Azure deployment of SQL Server Instances

Region	Type:
West Europe	Single Instance
Tier:	General Purpose
Instance	Hours / month
4 cores €1.016/hour	730

Eligible number of Single Instance General Purpose instances based on your Instance selection i

2

Monthly estimates

Without Azure Hybrid Benefit per month	€1,481.953
With Azure Hybrid Benefit per month	€927.614
Savings across eligible Virtual Machines per month	€554.339 (37.4% savings)

Annual estimates

Your estimated annual savings on Azure across all virtual machines Your estimated annual savings on Azure across all databases **€6,652.066**

You have a 180-day grace period to use licenses both on-premises and in the cloud to facilitate migration. This calculator is to help estimate savings range when using the Azure Hybrid Benefit for SQL Server licenses that include Software Assurance. Your actual savings may vary.

Ratio 1 standard edition to 1 core
1 Enterprise Edition to 2 cores

Azure Hybrid Benefit Savings Calculator

Windows Server VMs SQL Server VMs Azure SQL Managed Instance **Azure SQL Database**

Enter the number of SQL Server license cores with Software Assurance

Standard Edition	Enterprise Edition
4	1

Enter planned Azure deployment of SQL Server Instances

Region	Type:
West Europe	Single Database
Tier:	General Purpose
Instance	Hours / month
4 cores €1.016/hour	730

Eligible number of Managed Instance General Purpose instances based on your Instance selection i

2

Monthly estimates

Without Azure Hybrid Benefit per month	€1,481.953
With Azure Hybrid Benefit per month	€927.614
Savings across eligible Virtual Machines per month	€554.339 (37.4% savings)

Annual estimates

Your estimated annual savings on Azure across all virtual machines Your estimated annual savings on Azure across all databases **€6,652.066**

You have a 180-day grace period to use licenses both on-premises and in the cloud to facilitate migration. This calculator is to help estimate savings range when using the Azure Hybrid Benefit for SQL Server licenses that include Software Assurance. Your actual savings may vary.

Centrally managed Hybrid benefit for SQL

Reduce costs with Azure Hybrid Benefit by assigning your SQL Server licenses with active Software Assurance (or a SQL subscription) to Azure. Azure Hybrid can now be configured and applied at broader scopes instead of at the resource level. [Learn more about SQL VM registration](#)

From <https://portal.azure.com/#view/Microsoft_Azure_Reservations/CreateBlade/referrer/BillingAdminBrowse_Command/billingScopeId/%2Fproviders%2FMicrosoft.Billing%2FbillingAccounts%2F8608480/productType/AzureHybridBenefit>

[What is centrally managed Azure Hybrid Benefit? - Microsoft Cost Management | Microsoft Learn](#)

Centrally managing Azure Hybrid Benefit at a scope-level covers the following common Azure SQL resources:

- SQL Databases
- SQL Managed Instances
- SQL Elastic Pools
- SQL Server on Azure VMs

From <<https://learn.microsoft.com/en-us/azure/cost-management-billing/scope-level/overview-azure-hybrid-benefit-scope#qualifying-azure-resources>>

Optimize centrally managed Azure Hybrid Benefit for SQL Server

From <<https://learn.microsoft.com/en-us/azure/cost-management-billing/scope-level/tutorial-azure-hybrid-benefits-sql>>

Step 1: Choose a scope
Choose the scope to which you want to apply Azure Hybrid Benefit. The benefit will automatically apply to [eligible Azure SQL Server resources](#) usage in the selected scope.
 Shared across all eligible subscriptions in Contoso (Demo) (Billing account ID: 8608480)
 Specific subscription
02022013 ngjenn subscription 1 (de7d3beb-0367-4d6d-a7... ▾

Step 2: Choose coverage
If you have available licenses, you can assign them to cover your Azure workloads. The hybrid benefit you assign below will be managed in Centrally Managed Azure Hybrid Benefit, not at the resource level. [See eligibility and conversion details](#)

Standard Licenses *	10
Enterprise licenses *	7
Total normalized core licenses	38

How is this calculated? ⓘ

Based on detectable usage the past 3 days:
• You may assign more if you plan to increase your usage. For example, you may assign licenses to [cover planned usage for the upcoming year](#).
For a more detailed view of detected usage, [see usage details](#)

Normalized core licenses

The total number of **normalized core licenses** (NCL) created by SQL license assignment for a specific scope is applied. For more information about NCL, see [How Azure applies assigned SQL licenses to hourly usage](#).

From <https://www.bing.com/search?q=what+does+NCL+mean+sql+server+licence&cvid=d6576951e37e4095b0e0dd8ef381e4a5&aqs=edge_69157.5557j0i1&FORM=ANNTA1&PC=U531>

[How Azure applies centrally assigned SQL licenses to hourly usage - Microsoft Cost Management | Microsoft Learn](#)

AHUB Resources

Monday, March 13, 2023 4:11 PM

[Windows Server 2022 Licensing & Pricing | Microsoft](#)

VBD: Protect your Data and Ensure Business Resiliency with BCDR:

Attach Azure Backup and ASR to Every Production VM both New and Go Back

Tuesday, March 14, 2023 10:30 AM

[Protect your Data and Ensure Business Resiliency with BCDR | MIP Delivery Documentation \(mipdocs.azurewebsites.net\)](https://mipdocs.azurewebsites.net)

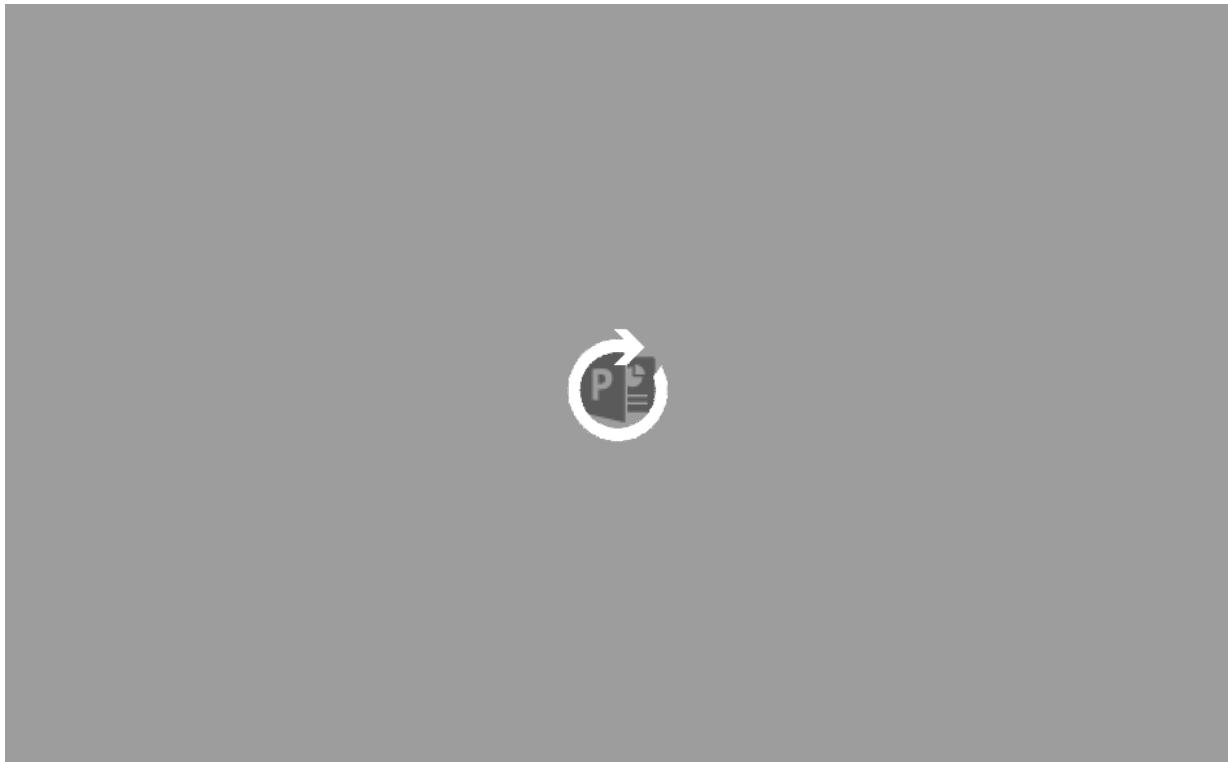
[VBD Deep Dive Trainings \(sharepoint.com\)](https://sharepoint.com)

Useful Links

Tuesday, 2 May 2023 15:45

[Auto-Enable Backup on VM Creation using Azure Policy - Azure Backup | Microsoft Learn](#)

[Azure Backup L300 Customer Deck](#)



Agenda

- 1 Overview of the Customer Scenarios**
- 2 Use Case**
- 3 Walkthrough of VBD Activities**
 - Objectives
 - IP Delivery
 - Collateral
- 4 Next Steps**
- 5 Closeout & Resources**

MIP vs. VBD – An Overview

	Managed IP (MIP)	Value Based Delivery (VBD)
Scheduling	MIPs need to be delivered in consecutive days /a block of time.	VBDs can be broken up over the course of days/weeks, based on customer and individual's availability.
Duration	A MIP should be delivered for the listed number of days listed on the MIP datasheet.	Based off of average efforts estimated by the CSA or CSA-E – the listed duration on the datasheet is an estimate but can be more or less, whatever time is needed to deliver the customer outcome. <i>Example: If the VBD Activity is estimated to take 24 hours, but it takes the CSA 12 hours or 30 hours, that is fine.</i>
Deliverable	MIP content and scope is focused on a fixed outcome.	VBDs are designed to guarantee activity specific outcome, with flexible scope for the customer (CSA can decide which topics to cover based off of customer need), while aligning with MCEM. <i>Example: ESLZ VBD has Design Landing Zone with 8 design areas. CSA can choose to cover 3 based off of the customer's needs.</i>
Content	MIP content is comprised and restricted only to Managed Intellectual Property of Microsoft.	VBD IP content will leverage MIP, Community IP, as well as both internal and external resources – whatever content is helpful for delivering the Value Based Deliverable.
Accreditation Process	Going through the complete accreditation process is required to deliver a MIP, sometimes with Master Trainer Review and Knowledge measures.	Self-attestation for VBD (this includes any MIP Content included in the VBD Delivery Guide/Learning Path)
Person who Delivers	Traditionally, MIPs have been delivered by CSA-Es (CEs).	VBDs are intended to be delivered by both CSA and CSA-Es.
Delivery	Standard format for delivery with step-by-step instructions that should be followed by the CSA or CSA-E delivering the MIP.	Not restricted to a traditional MIP delivery – VBD creates a consistent experience, leverage existing assets (like MIP), and is customizable in how it is delivered to meet the customer's needs. It is not meant to be followed step-by-step like MIP.



An Overview & Case Study: Protect Your Data and Ensure BCDR

OVERVIEW | Attach Azure Backup and ASR to every production VM *Protect in Azure*

	Name	Information						
Solution Play	Protect your data and ensure business resiliency with BCDR	Protect against ransomware, minimize business disruptions, and achieve cost efficiency with in-cloud backup, on-prem to cloud backup, and Microsoft SaaS backup. BCDR is processes and tools that protect, restore, and keep your operations running during unpredictable events.						
Customer Scenario	Attach Azure Backup and Azure Site Recovery to every VM	Uses multiple Azure regions in failover and automatically backs up mission critical workloads running in Azure						
Hero Product	Azure Backup and Azure Site Recovery	<table border="1"> <thead> <tr> <th colspan="2">Stakeholders</th> </tr> <tr> <th>Microsoft</th> <th>Customer</th> </tr> </thead> <tbody> <tr> <td>CSA/E Azure Core CSAM ATS</td> <td>VP Infrastructure CIO CISO</td> </tr> </tbody> </table>	Stakeholders		Microsoft	Customer	CSA/E Azure Core CSAM ATS	VP Infrastructure CIO CISO
Stakeholders								
Microsoft	Customer							
CSA/E Azure Core CSAM ATS	VP Infrastructure CIO CISO							

MICROSOFT CONFIDENTIAL / FOR INTERNAL USE ONLY

Details | Attach Azure Backup and ASR to every production VM

Customer Current State



Mission Critical Applications can not afford data loss

Lacks local and regional replication strategy. Mission critical applications without holistic backup, recovery, replication strategy could cause total data loss in the case of a catastrophic occurrence.

Seeking Backup and Recovery Cost Reductions

Missing end to end backup, replication, recovery processes in case of outages, compliance, ransomware, data corruption can cost on average \$12k/minute to the business

Large scale on-prem data replication/backup processes drives backup costs up.

Delivered Value



Immediate & Total Data Recovery

Diverse workload support; safeguard from data loss for any reason (malicious threats or accidental deletion)

Cost efficient data protection

Single pane of glass to manage, operate, govern and plan backups. Predict backup cost and leverage cheaper storage based on business requirements (such as archive which is 1/10 cost of standard). Eliminate costly CAPEX DC cost with cloud backup options.

Aligned Programs



Unified Support

Value Based Deliverables (next page)



What was the Issue: Company employee user profiles & files suddenly became encrypted by ransomware gangs seeking compensation by mimicking 'Cobalt Strike' penetration testing tool

How They Recovered: In less than 2 hours after the attack was discovered, all compromised VMs were shut down, and every suspected targeted device was isolated.

Rebuild could begin immediately thanks to Azure Backup . . .

With Azure Backup in place, they had a way to successfully rebuild and restore every lost file and every user profile without delay because they had weekly backup copies of every server across their entire environment.

What's Next: Increase backup frequency with Azure Backup to every VM every night & increase retention policies

Customer Success Story : Pepsi Bottling & the Cobalt Strike Ransomware Attack (9/21)

100

Applications

1600

Employees

2000

Devices

2

Hours to Isolate Attack using MDE

7

Hours to complete restoration using Azure Backup

\$0

Dollars Paid to Data Lost from Attackers

0GB

Full story here: [Microsoft Customer Story-G&J Pepsi reflects on overcoming a ransomware attack, offers insights from the other side](#)

OVERVIEW | Backup On-Prem data and SaaS data to Azure

Protect to Azure

	Name	Information				
Solution Play	Protect your data and ensure business resiliency with BCDR	Protect against ransomware, minimize business disruptions, and achieve cost efficiency with in-cloud backup, on-prem to cloud backup, and Microsoft SaaS backup. BCDR is processes and tools that protect, restore, and keep your operations running during unpredictable events.				
Customer Scenario	Backup On-Prem data and SaaS data to Azure	Use Azure to be a secondary, highly resilient location for workloads running in existing datacenters or data in SaaS Solutions, offering backup & recovery				
Hero Product	Trusted Ecosystem of ISVs Azure Site Recovery	<p>Stakeholders</p> <table border="1"> <thead> <tr> <th>Microsoft</th> <th>Customer</th> </tr> </thead> <tbody> <tr> <td>CSA/E Azure Core CSAM ATS</td> <td>VP Infrastructure CIO CISO</td> </tr> </tbody> </table>	Microsoft	Customer	CSA/E Azure Core CSAM ATS	VP Infrastructure CIO CISO
Microsoft	Customer					
CSA/E Azure Core CSAM ATS	VP Infrastructure CIO CISO					

Great 5 ISVs: COMMVAULT, VEEAM,...



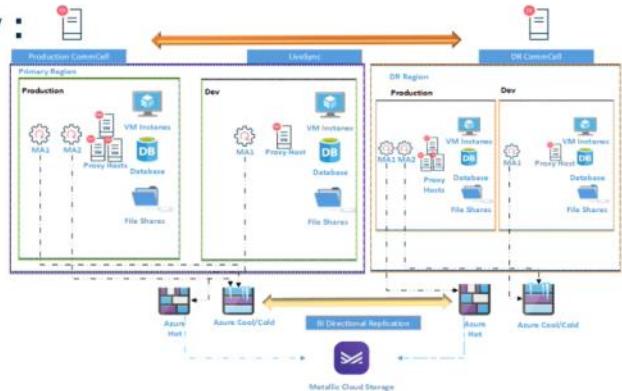
Customer Success Story :

bhp: data migrations & SaaS application protection

Deal Anatomy: Commvault BKRC subscription + PS

Problem Statement: BHP embarked on a global DC migration to Microsoft Azure. With DellEMC hardware that is running on extended support expiring and in Feb 2023, BHP needed to have 100% confidence in a replacement data protection solution for their SAP HANA environment and it needed to be suitable for a cloud first deployment. Key areas of remediation and improvement included; a reduced TCO, operational transition, high performance, and feature rich cybersecurity capabilities

Proposed Solution: Commvault completed a POC in order to demonstrate product capabilities and provide an environment for penetration testing. With the Complete portfolio, we provided a cloud secure multi-cloud platform to enable BHP to deploy and operate SAP HANA in line with their business requirements. In showing off our capabilities, we were 100% centered around the backup of the ERP environment to Azure with focus points on encryption, single orchestration layer, ransomware protection, backup lifecycle management, and enhanced performance against the existing environment.



How did solution address customer needs:

- Cybersecurity and ransomware protection
- Azure & SAP Certified
- Highly responsive PS team and alignment to deployment deadlines
- Vendor neutral multi-cloud support
- Validation against backup immutability pattern

Future Workloads:

- MCSS for 3rd copy / immutable data
- Transition of up to 18PB of data to Azure
- 5 further DC migrations to cloud
- SaaS application protection via Metallic
- AVS workload migration
- BHP Petroleum Avamar replacement



Commvault and Microsoft INTERNAL ONLY

Sales Program Name Tagging for Customer Scenarios

Azure Specialists can tag an MSX Opportunity with "Customer Scenario" Sales Programs:

- Add by looking up the Customer Scenario Sales Program name.
- Manually search for the Customer Scenario by entering in an "*" and then the Customer Scenario name.



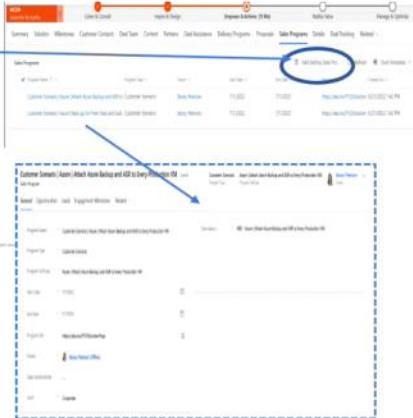
BCDR: Protect Your Data

- Customer Scenario | Azure | Attach Azure Backup and ASR to Every Production VM
- Customer Scenario | Azure | Backup OnPrem Data and SaaS Data to Azure

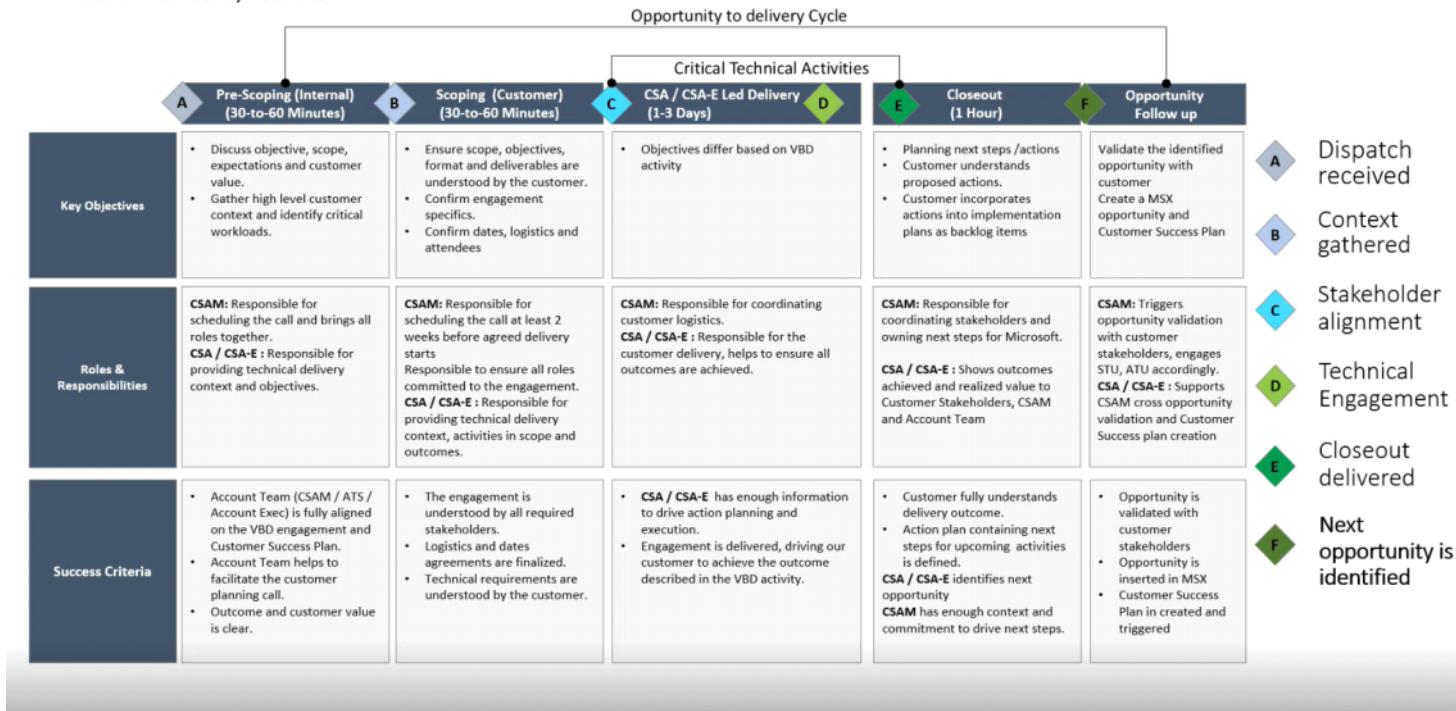
Action for Specialists & ATU: Tag these Sales Programs to MSX Opportunities

aka.ms/azurecorecustomerscenarios and aka.ms/vbexecution

MSX Guidance - Tagging Azure Core Customer Scenarios as Sales Programs.docx



Azure Core Value Based Deliveries | Common Engagement Model CSAM & CSA / CSA-E



Attach Azure Backup and ASR to Every Production VM Customer Scenario Delivery w/VBD

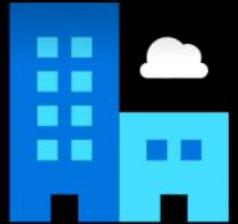
VBD Activity	SKU Description	Avg. Expected Effort	Activity Delivered Outcome
Customer Upskilling Plan and Execution	This VBD is designed to help identify knowledge gaps and build a digital capability and skilling plan that describes the knowledge customers need to achieve success with the adoption, operational, governance, and migration plans for this customer scenario. Additional workshops or training needs based off of the Customer Upskilling Plan can be delivered via a Custom delivery or traditional MIP.	1 Day	<ul style="list-style-type: none"> Increased digital cloud capability and digital skills. Prepared for a successful digital transformation.
Architecture Design	This VBD examines in detail the customer's business objectives and requirements and produces an optimal, desired-state architecture based on best practices.	3 Days	<ul style="list-style-type: none"> Create a prototype design for your solution architecture. Prepared to deploy the prototype.
Proof of Concept / Rapid Prototype	This VBD delivers a functional, small-scale version of the solution that customers can then use to determine its feasibility and reinforce design decisions. This will enable you to demonstrate customers that the architecture design is feasible. The Proof of Concept might include complete scenarios and integration with customer's existing infrastructure, solutions, and applications.	3 Days	<ul style="list-style-type: none"> Understand and validate the architecture design. Achieve the desired outcomes with the architecture design. Have greater clarity about the needs of a full-scale implementation.
Architecture Review and Validation	This VBD reviews and validates the architecture for your solution after the Proof of Concept (POC). We share the learnings from across Microsoft with customer teams. Finally, we draft production deployment plans based on the customer's business production requirements.	1 Day	<ul style="list-style-type: none"> The final production architecture is agreed upon between you and the Microsoft stakeholders. The production deployment is ready.
ESLZ / CAF Deployment**	This engagement will design and implement a Microsoft Azure landing zone reference architecture. The landing zone customers create will support most Azure workloads and can be scaled out as customer needs evolve.		
Technical Blocker Mitigation	This VBD seeks to address any existing blockers on technology adoption or migration. We will prioritize the workaround to help remediate the blocker.	3 Days	<ul style="list-style-type: none"> Seek to unblock technology adoption. Seek to unblock migration and modernization.
Oversight Production Deployment	This VBD provides oversight for a Production Deployment of the solution architecture as agreed upon in the architecture review and validation. As Microsoft engineer you will overview the deployment to ensure that the solution being deployed is aligned to deliver the desired outcome while ensuring that best practices and patterns are followed.	3 Days	<ul style="list-style-type: none"> Production deployment of the solution architecture is overseen
WAF Go-Live Assessment	This VBD will assess the customer's pre-production Azure workload, create a "Go-Live" plan, and prepare for a successful deployment. Also, you will examine the technical and operational decision points to determine a Go/No-Go decision. Finally, you will receive actionable recommendations to help you to reduce the downtime and risks to your solution in Production.	3 Days	<ul style="list-style-type: none"> Complete a checklist of go/no-go decision points. Identify any key risks to the workload deployment and propose recommendations to address those risks. Capture all key findings and associated recommendations in a "Go-Live" report. Receive guidance to implement critical, short-term recommendations.
Establish & Maintain 5 Pillars of WAF**	This VBD will provide the customer with an extensive assessment and help them to identify opportunities to improve their Well-Architected state. We apply the following shared architecture principles: reliability, cost optimization, operational excellence, performance efficiency, and security. This VBD activity is mapped to the delivery of existing Well-Architected Assessment MIPs.	Scoped	<ul style="list-style-type: none"> Build workloads with confidence using proven best practices. Design and manage workloads that show results using actionable & simple-to-use deep technical resources. Know where to focus to optimize these workloads.
Solution/Service Optimization**	This VBD reviews deployed solution architecture through both technical design and operational interviews. We will provide and implement optimization recommendations for deployed solution to help improve the health of the customer solution and enhance the overall value to their business. This VBD activity is mapped to the delivery of existing Well-Architected Implementation MIPs.	Scoped	<ul style="list-style-type: none"> Implementation of the workload specific capabilities based off of Well-Architected Assessment recommendations (the Establish & Maintain 5 pillars of WAF VBD).

***Note: This VBD Activity is considered to be a cross Customer Scenario SKU, in that the Learning Path and Delivery Guide will be consistent across all Customer Scenarios.*

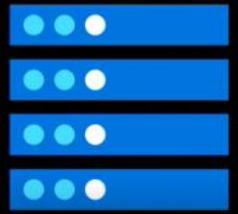
aka.ms/InfraSP4CS1
aka.ms/InfraSP4CS2



Microsoft Azure




Upskilling Plan VBD: Attach Azure Backup and ASR



Attach Azure Backup and ASR Upskilling and Execution Plan

This engagement is designed to help you build and deliver your digital capability and skilling plan that describes the knowledge you need to achieve success with the adoption, operational, governance, and migration plans.

This is a one (1) day activity which can be delivered via remotely or onsite.

Objectives	Outcomes
<ul style="list-style-type: none">▪ Identify and define the digital skills you need for successful digital transformation.▪ Establish a skilling plan to leverage your persona.▪ Enable your key roles to address Cloud Challenges via new ways of working.	<ul style="list-style-type: none">▪ Increased digital cloud capability and digital skills.▪ You are prepared for a successful digital transformation.

Microsoft Confidential

15

Learning Path

Tuesday, March 14, 2023 3:21 PM

Azure Backup: 12 hours

[Design a solution for backup and disaster recovery - Training | Microsoft Learn](#)

[Design for backup and recovery - Training | Microsoft Learn](#)

[Protect your virtual machines by using Azure Backup - Training | Microsoft Learn](#) **5-30 min each**

[Monitor and back up resources for Azure administrators - Training | Microsoft Learn](#) **7 hours content**

[Configure virtual machine backups - Training | Microsoft Learn](#) **1h15**

[Implement Azure Backup for SAP workloads on Azure VMs - Training | Microsoft Learn](#)

ASR: 3 hours

[Introduction to Azure Site Recovery - Training | Microsoft Learn](#)

[Design your site recovery solution in Azure - Training | Microsoft Learn](#)

[Protect your Azure infrastructure with Azure Site Recovery - Training | Microsoft Learn](#)

Conducting a POC with Delivery Guide

Monday, 20 March 2023 12:20

MIPs involved:

[ARP: Well-Architected Reliability Recovery Design and Implement - LearningPath \(microsoft.com\)](#)

[SSG IP Release - Activate Azure with Recovery Services - All Documents \(sharepoint.com\)](#)

Step 1: Preparing for the delivery

- Review Architecture Design Artifacts (Day 1 of WAF Reliability and Recovery MIP:<https://aka.ms/WAFRelRecoveryMain>)

Step 2: Scoping

- Architecture Design Review should be completed first & scope determined
- Scoping questions: <https://aka.ms/WAFRelRecoveryScopeCall>
- Refer to scoping instructions in WAF Reliability and Recovery: <https://aka.ms/WAFRelRecoveryScoping>

Please use these [Templates](#) to send the scoping call mail, send follow up email to the customer and download Scope and Close Out Templates.

Step 3: Kickoff

- Refer to delivery guide: <https://aka.ms/WAFRelRecoveryDeliveryGuide>

Step 4: Proof of Concept

Refer to delivery guidance by Service: <https://aka.ms/WAFRelRecoveryImplement>

Step 5: Customer close out

Use MIP Docs: <https://aka.ms/WAFRelRecoveryCloseOut>

- Include Decision Makers in close out meeting
- Increase awareness of improvement recommendations
- Resource requests fully understood
- Recommendations can be implemented

Please use these [Templates](#) to send the scoping call mail, send follow up email to the customer and download Scope and Close Out Templates.

Step 6: Recording deliverables and next steps

Produce deliverables

- WAF Reliability Implementation Recovery Executive Summary
- All Deployment Templates or artifacts

From <https://eng.ms/docs/microsoft-customer-partner-solutions-mcaps-core/customer-experience-and-support/customer-success/azure-core/resource-center/vbd/protect-your-data/attach-bcdr/proof_of_concept/deliveryguide>

Objectives

- Implement Azure Site Recovery
- Test implementation and failover and fallback process
- Auto enable a VM with Azure Backup
- Enable Azure Backup
- How to restore a VM/SQL Server
- Monitor site recovery with Monitor Logs
- Create and configure a Recovery Services vault
- Set up for disaster recovery (Azure to Azure)

Deliverable Standards

- Successful failover & fallback design
- Production ready design guidance
- Estimated time to delivery is 2 days

From <https://eng.ms/docs/microsoft-customer-partner-solutions-mcaps-core/customer-experience-and-support/customer-success/azure-core/resource-center/vbd/protect-your-data/attach-bcdr/proof_of_concept/deliveryguide>

What is a PoC?

A PoC:

- Is evidence that demonstrates that a business model or idea is feasible.
- Is a quick demonstration that the solution will work to solve the business problem.
- Usually involves one to three features or capabilities that you prove to work.
- Can be in one technology or multiple technologies.
- Is usually geared toward a particular scenario and proves what the customer needs to know to make the technical or security decision.
- Is only used as a demonstration; it will not go into production.
- Is IT-driven and enablement-driven.



What is a pilot?

A pilot is:

- A test run or trial of a proposed action or product.
- More long term than a PoC.
- A higher return on investment (ROI) than a PoC.
- Often measured in weeks or months.
- Built in a pre-production or trial environment with the intent that it will then go into production.
- Adoption-driven and consumption-driven.



Legal and Corporate Affairs (LCA) compliance

Ensure that your actions are always LCA-compliant. Be aware of the following compliance issues when working in a customer's environment:

- You are not allowed to touch their keyboards or screens.
- There can be no demo or alteration in their environment.
- If you do need to touch something, a contract is required and a partner or Microsoft Services needs to get involved. Without a contract, Microsoft will be liable.
- LCA approval is needed when dealing with governance. Microsoft cannot give intellectual property (IP) away for free. A legal contract or several legal contracts must be in place and/or the customer pays for the IP.
- You need to get disclosure guidance when dealing with non-disclosure agreements (NDAs), a product roadmap, NDA features, or anything not released to the general public.
- In a pilot, do not use a trial Microsoft Developers Network (MSDN) environment, and do not use any environment that you own.

Licensing restrictions

The question around licensing is what type of environment to use.

When conducting a PoC or pilot:

- Use properly-licensed software.
- Ask the opportunity owner to make sure that this has been correctly handled.

Phase I : Preparation

The PoC and pilot process

There are three main phases for every PoC and pilot:

- I. Preparation
- II. Execution
- III. Follow up

Select each tab to learn about the phases of the process and get some peer insights.

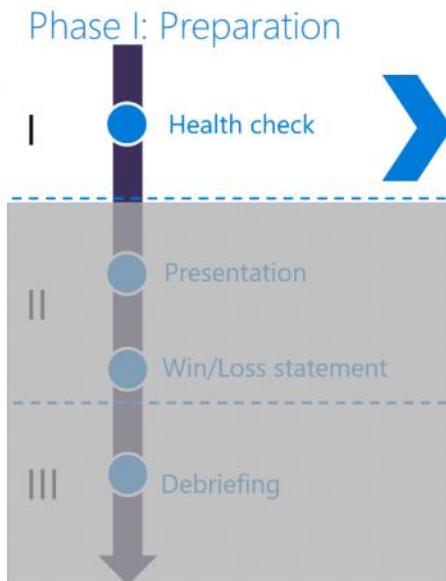
Phase I : Peer insight

Phase II : Execution

Phase II : Peer insight

Phase III : Follow up

Phase III : Peer insight



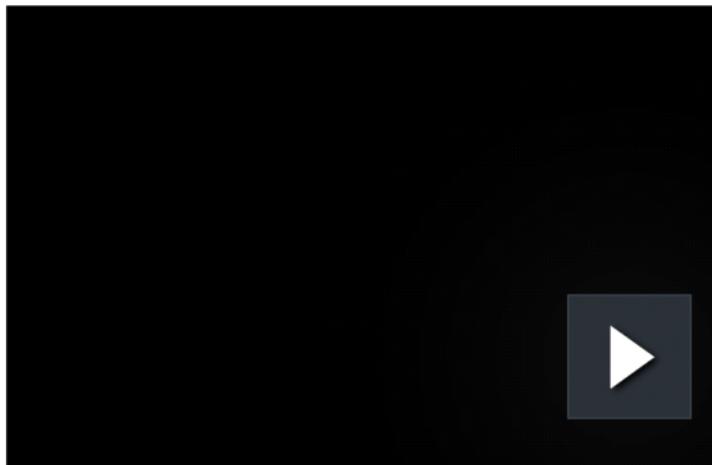
Health check considerations:

- Do you have a good technical close plan, including the key decision makers and Microsoft potential?
- Can you deliver the needed assurance without a PoC or switch this to a pilot?
- What are the detailed scope and decision criteria agreed to by the customer?
- If you met the criteria, will the customer buy or deploy?
- Risk analysis
- Evaluating the setting
- Doing the preparation
- Workloads and human resources
- Presentations of PoC/pilot health status
- Technical prerequisites
- Go/no go decision
- Final specification of project plan

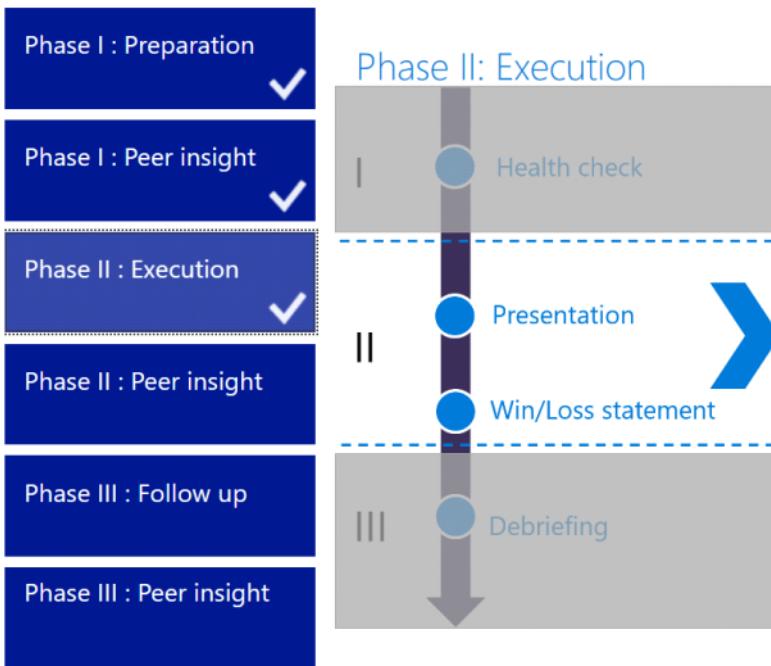


Phase I: Peer insight

Watch this one-minute video as Jutta Heinel, Senior Specialist Manager STU, explains what sellers should be doing during the preparation phase.



The most important elements of preparation have to do with making sure the proof of concept of pilot actually drive the technical decision forward and that the selected approach is the most efficient way to go. So, it's important that the seller goes through the health check, think about risk mitigations, and finding the right team. If there are too many open topics or the effort too high, then it's time to make a go or no go decision. It can be very helpful in this stage to get your manager's input, as they may have more perspective on helping win the deal.

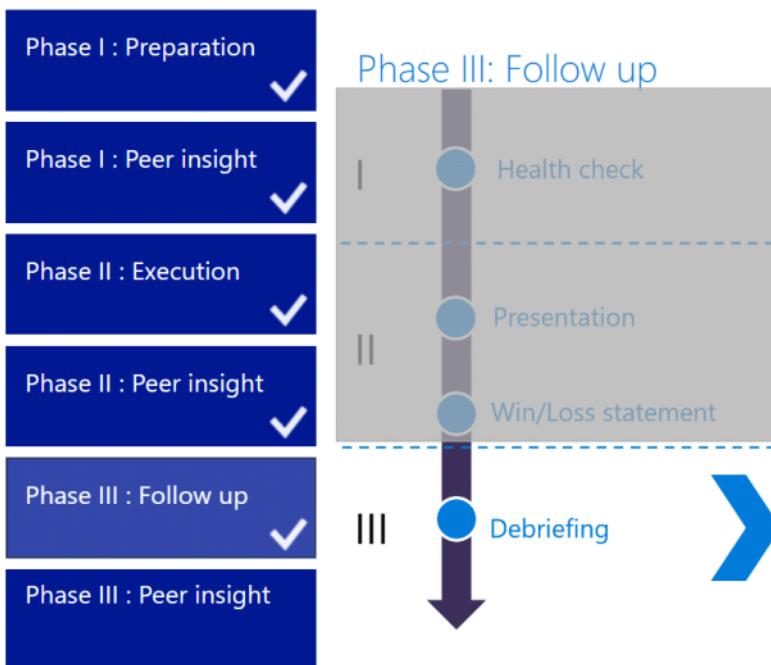


During the execution phase:

- Determine who will kick off the presentation.
- Schedule the meeting in the morning, if possible.
- Prepare the demos and slides.
- Conduct a dry run to refine the presentation.
- Get feedback.
- Involve the customer.
- Complete the win/loss statement.

Phase II: Peer insight

In the execution phase, the managers should review the timeline and milestones. Additionally, they can play the role of an escalation manager if there are unexpected issues. And at the end, the manager can give valuable feedback and participate at the dry run, so that we all continue to learn and grow.



During the follow up phase consider:

- If debriefing of criteria was met/not met.
- Investment of the customer stakeholders.
- Initiating deployment.
- Finding a partner and training.
- The lessons learned in the meeting.
- Corrections or extensions of PoC/pilot guidance.
- The archival of valuable deliverables.

Phase III: Peer insight

In the follow-up phase, sellers should be finishing up anything committed to the customer, especially anything having to do with closing the deal and initiating deployment. Another key element is to determine which of the customer's decision criteria we've met and which we've not met and what we need to do to meet those criteria. Finally, there are internal steps you need to take. We have to make sure we have documented our IP, as well as set up a lessons learned meeting.

It is important for sellers to spend most of the time as preparation. In the preparation phase, we have to ensure that all requirements from the customer are well-known or risks are discovered, resources are allocated, and there's a common understanding about the content. If everything in the preparation phase is carefully done, we have done the first step for a successful PoC.

To make a PoC successful, you have to execute all of these phases, just like you would for any complex project. This is the only chance to ensure high-quality, avoid risk, and make sure we drive the technical decision to close.

Roles and responsibilities

Technical Specialists (TSs) are responsible for driving the technical decision.

If a PoC or pilot is needed, the TS is responsible for ensuring that the right partners and resources are involved.

- Ensure that you are aware of the partners in your product and service area or region.
- Be aware of their key service offerings and Microsoft Services around your product service area

The customer, partner, or Microsoft pays for the PoC or pilot. Depending on the size of the contract, the ROI, and the cost of sale, one group may cover it all, or it could be a combination of all three covering the cost.

It is important to ensure that the customer has some kind of investment in the PoC or pilot. If they do not, this can be a red flag signaling that the customer does not yet see value in the solution.

- The TS should:
 - Trigger the discussion about who pays for the PoC/pilot.
 - Raise any issues or considerations to the rest of the team, so the team can make the right decision.
- The account executive (AE) can then support the TS to convince the partner to pay for it or have the required information to see if end-customer investment funding (ECIF) is appropriate and available.

Change management

Change management is the practice of administering changes with the help of tested methods and techniques in order to avoid new errors and minimize the impact of changes. It is better to drive a customer to do a pilot than a PoC because:

The customer is heavily involved in a pilot.

There is a higher probability that the customer will implement the change.

It is ideal for a pilot to include a cross-section of users so that any potential issues or problems that arise during the pilot and can be addressed.

Select each tile to learn about the elements of change management.

Understanding

Often a user is comfortable and familiar with their old technology and has difficulty moving into a new technological solution. Change management keeps this in mind and helps the user understand the reasons behind this change and the impact this change will make. This understanding of the change is part of a pilot and gets addressed to everyone who has a stake in the project.

Follow up

The pilot includes a detailed follow up that is achieved through surveys or focus groups. The feedback can prove and improve the change.

Prosci® change management training

This page contains links to some additional trainings around change management. The first two webinars listed are highly recommended.

All of the following links **require you to create a free account** at <http://portal.prosci.com>.

Please use your ALIAS@microsoft.com when creating the account.

Foundational Prosci® Webinars

- The Five Tenets of Change Management ([one-hour webinar](#))
- The Prosci® Methodology ([one-hour webinar](#) and [four PDF tutorials](#))
- How to Apply the ADKAR Model ([75-minute webinar](#))
- How to Leverage the Five Levers ([75-minute webinar](#))
- Roles in Change Management ([four PDF tutorials](#))
- How to Manage Resistance ([70-minute webinar](#))
- Integrating Change Management and Project Management ([five PDF tutorials](#))

Active learning: Build your competency

It is important to continue to build your skills and stay sharp when it comes to conducting a PoC or pilot.

A natural progression is: Scripted demo -> Custom demo -> PoC -> Pilot

1. Plan a pre-health check, and then review this with your manager.
2. Meet with your onboarding buddy to learn tips and tricks for conducting a PoC and pilot.
3. When you have a PoC or pilot scheduled, find one that is coming up and ask to shadow the TS through the process. Ensure you are heavily involved in the preparation and follow-up phases.
4. Run a PoC or pilot on your own.

It is recommended that you do a PoC or pilot once per quarter. It is important to know the ins and outs of each, continue to build your skills and competency, and stay sharp.

Getting commitment for POC

Monday, 20 March 2023 12:34



Synapse CSE Engagement Model



http://aka.ms/engage_dw_cse



Engagement model - Success by Design

POCs, Implementation Guidance, Escalations



MIKE: Sure. I'm senior specialist within the GBB,focused on Synapse and I work in the Americas time zone.

SANJAY: Great to have you with us. And Keshav, please go ahead.

KESHAV POKKULURI: Hey, everyone, My name is Keshav Pokkuluri. I'm part of the

Azure Synapse program management team.
I'm a group program manager and I run the
Worldwide Customer Success chapter.
SANJAY: Fantastic. Rahul, please go ahead.
RAHUL ATHALE: Hello, everyone. My name is Rahul
and I'm the director for Cloud Skill Analytics.
I sit at the CSU corporate headquarters
team, focusing on the analytics workloads.
SANJAY: All right, Mike, let's get started with you.
So, why is it important to accelerate the

time period required from opportunity

creation to commitment?

MIKE: Well, Sanjay, as most of us in the field

know, time is critical in almost every

deal and, in fact, time often kills deals.

There's any number of things that can happen,

not the least of which we're all experiencing right now.

So, close early and often is always the watchword

for anyone in the field, and so that overarches

every answer to this question.

But with respect to Synapse, what we're

trying to do is get customers to the point where

they can realize value. Actualize that value.

And so getting them to the point where we can

prove with their own use case the value that

Synapse brings to the table is crucial.

And getting them there fast is crucial.

Secondly, again with respect to Synapse,

there are significant threats to us imposed

by competitors like Snowflake. In fact, Snowflake is very adept at doing very quick POCs.

And so time is of the essence when we have to respond to a competitive threat from someone

like Snowflake. And lastly, as we all know, consumption needs to happen as soon as

possible for us to make our numbers. And so, the sooner we can get a customer to a commitment decision, the sooner onboarding can occur, the sooner we can start collecting revenue for ADS.

SANJAY: So, what are some of those challenges that are actually faced by the field sellers during this process?

MIKE: Yeah. So, um, so there's a lot of different challenges, and maybe more challenges than the time that we have to discuss them.

But some of the major challenges are the lack of a solid business case. I think that a lot of sellers—all of us have sort of felt the urgency imposed on a customer to get started quickly or respond to a competitor that's already in there. And so we sometimes don't take as much time as we, as we ought to, to firm up and get acceptance on a business case. And that is a crucial early requirement for a successful POC. Sort of a companion to the business case issue is to obtain executive sponsorship. It's not enough to simply have the IT organization want to do a POC to appease their own curiosity. We need to have an executive who not only is sponsoring all of the activities to remove blockers, but also to follow through on the commitment upon the successful completion of the POC, and that's critical. A lot of times we have trouble scoping accurately and effectively a use case that's going to not only be attainable for us, but also that's—that reflects the customer's own requirements. And so the last thing that we want to happen is to finish a POC and have it actually not prove anything. Or have the customer still have remaining questions, or we didn't test that query, or we didn't test that load routine. And so we need to be very careful in how we scope these use cases so that the POC can both be accomplished quickly—and also be effective. And then last but not least, we have to be sensitive to the amount of perceived customer effort. So when we do our POCs, we need to be able to insulate the customer from having to do a lot of this work so that the POCs can go smoothly, and quickly, and the customer doesn't get the impression during the POC process that, upon implementation, it's going to be ten times more complicated, and then default to a competitive solution that appears easy, like Snowflake is wont to do.

SANJAY: Thank you, Mike. Now let me ask a difficult question to Keshav, actually. So, Keshav, what's the difference between a POC, pilot, and an MVP?

KESHAV: So, let's start with the acronyms, a POC or a POT, which is a proof of concept or a proof of technology is an exercise the customer goes through to validate that all the critical requirements are met so that they can commit with confidence, right? So, this is an exercise the customer goes through. It is not a migration, it's not a full scope of the project.

On the other hand, a pilot is an exercise that the customer undertakes when they have already committed to the technology of the service.

For example, they might have already committed to Azure, but they're not sure if they're Synapse or any of the other services that we have with overlapping futures. So, in those scenarios, they'll start with the pilot. The key difference is that in a POC or a POT the code quality is not of paramount importance because you're not going to reuse the code in the future. This is just to kind of showcase the technology or showcase some of the doubts the customer has about the product and, kind of, gain their

confidence. But on the other hand, on a pilot, we actually will reuse the code to go into production.

SANJAY: So now—fantastic. Thank you. So, let me ask the next question to Rahul.

So, why do customers do a POC?

RAHUL: Well, Sanjay, the simple answer is customers need evidence that our solution can do what we claim that it does before even they commit to a full-fledged project or a full-fledged deal, right? Additionally, what we have seen is a POC can help create some consensus among the key stakeholders. You can find acceptance among some end users and you can showcase your solution and its features, thereby helping the customer's key decision-makers take some concrete decision, right? So, for all of these reasons that I mentioned about, we see customers looking to do their POCs.

SANJAY: Great. So, now the next question is, what are some of those, you know, common points of failure for a POC?

KESHAV: Let me get started and I'll have the others pitch in. See, the first thing why a POC fails is what I alluded to just three minutes back, which is a scope creep. A POC is not your migration project. It is just to—kind of—an exercise to focus on one or two features, it's not a demo.

What happens is, in many scenarios, whether it is due to the customer eagerness or our eagerness to showcase everything that we have in our product, we'll put the scope of the POC as covering every feature and it ends up being like a three-month, four-month, five-month exercise. I think that is the first misstep.

The second one is the evaluation criteria has to be clear, right? In the sense that, what do you want to achieve out of this POC? We have had many scenarios where we go into a POC based on some evaluation criteria and the customer comes back after a four-week exercise saying, "Oh, now

I want to test this one also." That's the

second reason. The third one is infrastructure.

You need to make sure that all the

infrastructure that is required for the

POC is ready before you start the POC.

You can't go working on access, you can't

go working on creating your vendor IDs for

that particular customer midway through a POC.

That actually causes delays. And last but not

the least, from my perspective, I think Mike

spoke about it a few minutes back, is the

customer commitment to the POC. If we push

the POC on to the customer, if they are not

interested in executing the POC, we will not

have access to their data, we will not have

access or clear-cut definition of the goals

of the POC, or objectives of the POC,

so we may end up doing an exercise that

is not of value to the customer. And I'm

not even going into some of the technical

reasons that I'm not going to go there.

But I want to open up to see if Mike or

Rahul had any other points to share.

RAHUL: Sure, I'd like to add some, some of the

common points of failure, right?

Whatever Keshav said is completely to this

spot on. Customers sometimes not having

some skin in the game, right? Getting a POC

also matters a lot in it failing. But skin in the game,

I mean, it can be any form of investment, right?

In terms of customer's resources actually

working hand in hand with Microsoft resources

throughout the duration, or some kind of—some

kind of a paid kind of a POC, or some kind of skin in the game has to be there so that the likelihood of it failing is much more minimized.

SANJAY: So now I'm going to ask you my most important question. So we have lots of data and AI specialists I'm sure watching this video.

They—let's say they've done the pitch, they showed the demo. The hardest part is, how do you get commitment from the customers? How do you get to the POC stage after opportunity validation?

KESHAV: So, ideally we would not want to do a POC because I think the best-case scenarios we are able to do a great demo or give them a proof of technology so that a customer can relax and start using our service or start committing to our service. But there is an ideal scenario, but in most practical scenarios customer wants to do a POC, either because they have some concerns on what the service can do or cannot do for them or maybe there's the competitor whose done a POC showcasing certain great points. So for us to go ahead and get a commitment from the customer for a POC, the first thing is we need to realize that the customer has to be committed, right? I think the customer wants to do the POC.

We should not use it as a sales tool and kind of say, let's go start in the POC, right?

I think we've seen that in some scenarios and as we discussed sometime back that is one of the reasons why we fail, because customer is not interested in doing a POC.

The second thing that we need to do is, in order to get the customer to a POC, we need to make sure that we understand the pain points or the concerns they have.

For example, the customer may think that others sell it for a three-second dashboard. I'm not sure service is able to do that. That's a great way to kind of go ahead and project a few. It's saying, we can actually

do a proof of concept to alleviate this concern
of yours, where we can get a dashboard
done in three seconds. And, obviously,
once we have some kind of customer
interest peak where the customer is ready
to go ahead and start a POC, or a POT,
then we can work on the next technical
steps of on-site assessment etcetera,
on finalizing the scope of the POC.

But getting the customer commitment and
identifying the reason why the customer wants
to do a POC I think is the right first step.

Mike? Rahul? Any points you guys want to add?

RAHUL: Yeah. I mean, getting the commitment as
high up as possible at the executive sponsorship
at the customer site is very important, right?

To move it to, from the validation to the
actual POC stage. The higher up you have
some commitment that shows seriousness
in the customer, not only doing the POC
but also even moving beyond the POC, right?

So we don't—all of us here are not just going
to disappear after the POC is done.

We want to make sure that the POC
evolves into the actual, final big workload, right?
So that's why it is very important to engage
the executive sponsor, whoever that is.

You're not going to go to the C-level,
but at least higher up in the chain, who is
actively engaged at either the kickoff of the
POC session as well as at the final redoubt
session, right? So that is very important
for the whole continuity and the next big step.

SANJAY: Awesome. Mike?

MIKE: Yeah, I wanted to add one thing
and it's really a follow-on to what
we discussed previously and what Keshav
was saying. Ideally we don't want to do
POCs, we want to move directly into
pre-production with a pilot after having
demonstrated our technology and discussing it.

But the discovery process and how
that feeds and informs the scoping of
the POC really requires us to understand
what aspects of the environment, what
behaviors are going to be the most
influential for the customer. And we've
all been involved in POCs where we have
encountered behavior with the software
that did not demonstrate the type of performance
or the type of functionality that we wanted.

And so it's very important to be deliberate
about what we include in the POC and prior
to actually giving the customer visibility we
discuss internally to eliminate those use cases
that might not be favorable, given what we
know about our product, or given, you know,
any other considerations—whether that's load
time delays, whether that's query optimization,
whether that's ease of use, perceived ease of use.
So take your time and discuss internally.

Leverage the best practices and the
experience that all of our teams collectively
have to offer any individual seller and their teams locally.

SANJAY: Awesome. All right, next question.
So what are the activities that are expected
from the field team before the POC actually starts?

KESHAV: Let me start. See, we talked multiple times
about customer commitment, customer
commitment, right? I wanted to just qualify
what that commitment means. In addition
to showing interest, we want to make
sure that the customer has few resources,
both in terms of human as well as
technological resources dedicated to this POC.

We need to have at least one or two stakeholders
who participate in the POC from our side.

While we may build the POC, we don't
understand their data ecosystem, we
don't understand their network ecosystem.
So, we need somebody who's committed
from them to work with us during the
duration of the POC. And I think this is

best secured by our field team who work

with the customers on a daily basis.

I think that is an important first step.

The next step is please make sure that

the customer has the required Azure

subscriptions, any EAS that need to

be signed, any NDAs that need to be signed,

the documents that need to be signed.

We've seen that many times the customer

loses interest in the POC because while

they say, "OK, let's get started with the POC,"

it takes almost anywhere from 4 to 12

weeks for us to get these other things in place.

We don't want to get into—we don't start

there and we want to move very

quickly past that. The third one is, make

sure that we have the right Azure infrastructure

set up for teams like the customer success

engineering team, or the GBB team,

or the CSA team to come and start

the POC right away. That means do

we have the right AD settings?

Do we have the right networking

security data readiness, right?

Lot of times, remote access policies—

I've been in some POCs, my team

has been POCs, where we had to

wait for almost 12 weeks to get our

ID created to start the POC. So, we

don't want to be in scenarios like this.

I think all these are activities where

we cannot work with the customer after

we get engaged and delay the POC.

I think this is where, if the field team

works through this, I think it will help us.

And obviously we are making some

changes on our engagement models

so that we give these details ahead

of times to the field teams so

that they are ready with this.

SANJAY: All right, thank you so much.

So how do you approach a complex POC?

KESHAV: Let's define what is a complex POC.

Many customers might not be satisfied
with a demo that we have created,
which kind of showcases many of your
features. They would have some kind of
complex ETL mechanism or complex
reporting mechanism that is built on legacy
systems and evolved over years or
decades in some scenarios. Each of..

RAHUL: ETL was the hardest thing, you know, obviously.

KESHAV: Yeah, yeah. So, I think, from that perspective,
they would want to kind of say, "come
and prove this" and, see, I think the first
step in delivering a complex POC is have
a structured engagement model.

You can't be successful in a complex
POC by just looping in N number of
people, right? I think many people in a team
doesn't mean that POC will be successful.

Have a structured engagement model,
but more importantly, have a knowledgeable
team. The team that actually knows the
service, the product, or the customer use
case who can deliver success.

Then the third one is have the right
support infrastructure, whether it is the
product group that can help you, the
GBB team, or the CSA team. And in
some scenarios the engineering team
that actually is building the product
to come and help, if required.

The next one is, make sure that you
are aware of the best practices of the
teams that are engaged in delivering
the POC or understand the best practices.

Like, for example, the architecture is
based on the solution and products using
a proper structured fit/gap analysis or any of
the other best practices that you use.
Second, if the customer team is actually—
in some scenarios, customers say, "OK,

we will do the POC, you guide us."

In those scenarios, you need to make sure that the customer is knowledgeable about the new features that the product has, the best practices either of loading or query performance. That means we need to go out and train customer to do it.

And last and most important is, just make sure that you use features that are GA. Don't try to use any private preview features. While they may be nice and shiny, they may not work as expected in all customer scenarios and they may not give you the results that you need.

I think these are some best practices

that my team uses in terms of delivering a complex POC. But as you can see, a POC is not an activity of one team, right?

One team may front-end it or may program manage it. It involves various stakeholders. The product team has a role to play, the GBB team has a role to play, the CSA team as role to play, and more importantly, the field team has a role to play because they are the ones who are working with the customer.

They understand what the customer is looking towards the POC. In case we become way too technical and geeky, the field team has to bring us and saying, this is what the customer is looking for, stick to that.

SANJAY: So, Keshav, your team has done lots of POCs for so many years, right? What does the success by design mean to you in this case?

KESHAV: So, I think, let me start with the anecdote on why we are calling it a success by design, right? I think we realized that in many scenarios lot of variables have to come in place for a customer to be successful, right? I think basically success was left to chance, right? Saying you need

to have the right team. As I said, we need

to have these five things aligned for a

customer to be successful in a POC, right?

We need to have the right team, right

knowledge, right infrastructure.

So, we did not—we realized that success

was left to chance. We thought we should

have a more structured engagement

for customers to be successful, so,

with a bit of pun intended, we—we

called our engagement model as success

by design means, as you can see from

the slide that I'm projecting, we divided

the customer life cycle into five phases, right?

We are calling it as the evaluate phase,

which is where the POC come in.

Design, development, and optimize and operate.

What we try to do is take a proactive approach,

saying, what can go wrong when customer

is going through each of these phases, right?

And what can we proactively do before

something goes wrong so that we can

actually minimize the chance of something

going wrong. And if you see, during the

evaluation phase, we previously talked

about a solution fit/gap analysis, saying

that the architecture that we came from

the POC is it addressing the customer

pain points? Or a product fit/gap analysis.

Are we using the right services? Is, first of

all, Synapse the right service for the

customer use case? Maybe they have a

lot of transactional items, have a lot of inserts.

Maybe there is another service within

our Azure data ecosystem which

is more suited for this, right?

So, in this way, we actually come up

with a list of services that we proactively

engage with the customer and do so that

we minimize the chance of any failure.

So, this is a structural engagement model,

as you can see. While we are talking about a

POC, it goes beyond a POC, it goes into

a pilot model when the customer is,

in terms of implementation, or in many

scenarios for someone for large

customers post-implementation also.

SANJAY: Thank you, Keshav. So, now my next

question is for Rahul. So how do you run an MVP?

RAHUL: Thanks, Sanjay. So, yeah, if you—if you

look at this slide, I mean it might look

technical right now, but don't get alarmed

by that. So, we in the CSU, right?

Mostly the CSAs. During any MVP execution,

what is very important is to have a clear

understanding of your customer's business

challenge. Whether it is demand forecasting

in the retail industry, customer 360 degree,

or pure-play data warehousing, right?

Data warehousing and reporting and all of that.

Any—any of these challenges listed there, right?

Just to understand, what are they trying to solve?

Really recommend our CSAs is to avoid having

discussions on product features and what is

coming next, what is available now, and

rather than focus their efforts and energies

in trying to understand the entire end-to-end

analytics ecosystem—that's the future-state

vision, right? And lead the conversation.

We recommend our CSAs to lead the conversation

about how the business challenges fall

into one of our standard reference architectures,

which is shown on the slide. I know it's a little bit

technical, so don't get into the details of that,

but underlying any business problem

for an MVP this is pretty much the left-hand side

to right-hand side ecosystem, the reference

architecture, that we try to follow.

Now, the benefits of this are, obviously

it helps customers solve some of their

underlying capabilities, right?

Whatever their business challenges are,

it boils down to these capabilities of, I need

some elastic data storage, I need machine learning capabilities, I need on-demand compute clusters, and hence, for them listed, those on the slide, as terms of what these business challenges translate into: capabilities. And you take those capabilities and start building a vision, by an MVP vision for the customer about how this is going to happen for them. And rather help them solve their business challenge. We are not even going to talk about, yeah, Databricks is going to do this or Synapse is going to do this.

It's—it's a whole ecosystem that is going to be iteratively built as part of the MVP. Again, you will not get the whole end-to-end thing in one go. You start small, with a small project, maybe a small business problem that the customer is trying to solve.

It may not have all of the components of the reference architecture, but that's your MVP, right? That's your first step.

Then the subsequent steps is, you kind of get feedback from the customers.

You go to production with that MVP, you get feedback, you bring it back in, you make changes to your reference architecture, and go to the next business challenge or the—or even with the same business challenge. You can expand the scope, right? So that's how we typically run a successful MVP.

SANJAY: Next question for you. So what are the best practices to run an MVP?

RAHUL: Yes, that's an excellent question, right?

I mean one of the—one of the key success things I've seen is—yes, CSAs out there are going to help provide some directional guidance in terms of how to do an MVP and what should happen, but what I've seen personally, is it is very important to partner with either a customer who might have an

existing GSI or a niche partner.

It is very important as part of one

of the best practices to take them

along in confidence and start building

this MVP architecture. One of the reasons

is, as I think Keshav was alluding to earlier is,

we don't sit at the customer site day-in, day-out,

right? Sometimes it's all outsourced to the partner.

They are very well-versed about how

their entire data ecosystem operates.

They understand the business knowledge.

They understand the data elements.

So always make sure you can rely on

some of the partners, if at all they are present.

If it's a new partner, then you're in the

same boat. The second step is, have

this clear visibility given to the customer,

saying that, this is going to be an evolution

of your entire analytics, cloud-scale

analytics ecosystem. You're not going to get

done with just one project, right? That's a best practice.

Over a period of time—now that time will vary

based on the size of the customer—you're going

to start small. Execute a small project.

There's going to be some learning curve

because if they have not done this, something

similar in Azure, there's going to be some

learning curves, learn from that.

It's not going to be perfect in this first project,

maybe a second, third project is going to be

much better and better. Just don't discount

the fact that my first project is not helping me.

The—the best practice is the CSAs or whoever

is working on that MVP has to clearly paint this

picture to the customers ahead of time.

So, that's—that's something that as a second

best practice I can—I can recommend here.

SANJAY: Thank you so much. All right.

My last question to all of you, all right.

So, I am a data and AI specialist in the field

and I'm not getting enough commitment

from this customer for a POC.

What do I do? Mike, I'll start with you.

MIKE: Thanks, Sanjay. So,

the first thing is, is to make sure, as

we've emphasized a couple of times during

this discussion, that we have an understanding

of the business case, the urgency, and

executive sponsorship, and that this isn't

just technology for technology's sake.

A lot of times our competition is selling

across multiple groups within the corporation.

And so we need to make sure that we are

also targeting the line of business, executives

in the C-suite, as well as folks in the data science,

as well as in the business analyst, and IT

communities across the board in order to

build consensus and triangulate where the

priorities are for the business. If we are seen

as an advocate for the business to accomplish

its goals, we can get the proper commitment.

SANJAY: Great! Anything else you would like

to add, Keshav or Rahul?

KESHAV: Yeah, sure. See, I think, continuing

what Mike was saying, right?

If you're not getting commitment for a POC,

I think there two reasons: one either the

customer has made addition on a competing

technology, right? Or, second is maybe we are

not selling to the right stakeholders. A lot of times

I think we hear this discussion about selling to

IT versus selling to business. So if you are selling

to IT, maybe they are more worried about a

migration, which is more of a technology

strap than a business use case or a business

use that the end users may see. So I think

in those scenarios as Mike was alluding

a couple of minutes back, selling to business

and making sure they understand the value

of the service and the value it brings to the

end users will go a long way in getting that

commitment for the POC.

SANJAY: Thank you so much.

RAHUL: Yeah. One thing—one thing I'd like to add is,
it's—even if there—you're not getting commitment,
it doesn't harm to check with other business
groups in the organization. Especially for large
enterprises and commercial customers, right?

Again, it's not going to be exclusively us out there.

We get it. Same with the cloud, it's a

multi-cloud strategy. It's going to be

multi-technology strategy, also, right?

So, even if you don't get any, if you get

stuck in a validation for one group, don't

lose hope. It's thought there are going to

be some other doors that would be opened.

I would still not feel so for that particular account,

right? We have a very good—good end-to-end

story here and it's just a matter of time that

all these customers start opening up their doors to us.

SANJAY: Thank you so much to all of you for your time today.

RAHUL: Thanks, Sanjay. Thanks for the opportunity as well.

MIKE: And thanks to everybody in the audience.

SANJAY: Yes, thanks to all of you for watching this short readiness video.

Customized Workshop

Tuesday, 21 March 2023 11:58

[Welcome to Customized Workshop for Attach Azure Backup and ASR to every production VM - Learning Path | MIP Delivery Documentation \(mipdocs.azurewebsites.net\)](#)

Architecture Review Session for Azure Backup and Azure Site Recovery to Virtual Machines

Monday, 27 March 2023 10:41

[Delivery Guide: Architecture Review Session for Azure Backup and Azure Site Recovery to Virtual Machines | Azure Core Resource Center \(eng.ms\)](#)

Step 3: Architecture Review Sessions

High Level guidance:

- Discuss with customer PoC learnings
- Highlight customer decisions and tradeoffs
- Adjust Architecture based on learnings and business requirements
- Consider Well-Architected pillars to scale architecture.

Examples include, but are not limited to:

- Automation capabilities for Azure Backup & ASR
- Establishing RPO/RTO requirements for workloads
- Aligning to Azure resiliency best practices
- Automated execution of data restoration and disaster recovery, including DR testing
- Reviewing data recovery and disaster recovery plans
- Enforcing data protection and business continuity standards using governance policy
- Reviewing Recovery Vault(s) and Encryption standards
- Reviewing AHUB benefits for use with ASR
- Coaching customers around best practices for scaling and agility

From <https://eng.ms/docs/microsoft-customer-partner-solutions-mcaps-core/customer-experience-and-support/customer-success/azure-core/resource-center/vbd/protect-your-data/attach-bcdr/architecture_review/deliveryguide>

VBD: Azure Landing Zone Deployment

Monday, 27 March 2023 13:56

[VBD Deep Dive-Azure Landing Zone Deployment - March 21, 2023 -Meeting Recording.mp4
\(sharepoint.com\)](#)

[Azure Landing Zone - VBD Delivery Deep Dive.pptx \(sharepoint.com\)](#)

MIP: Well Architected Reliability and Recovery Design & Implement

Monday, 27 March 2023 16:24

[SSG IP Release - Well-Architected Reliability Recovery Design & Implement - All Documents \(sharepoint.com\)](https://sharepoint.com)

Delivery Outline

Requirements	
<p>Participants</p> <ul style="list-style-type: none">▪ Solution Owner, Solution Architect, Cloud Architect, Network Architect, <p>Skill Requirements</p> <ul style="list-style-type: none">▪ Strong Azure Infrastructure knowledge <p>Time Commitment</p> <ul style="list-style-type: none">▪ Three-day engagement with relevant roles	<p>Delivery Requirements</p> <ul style="list-style-type: none">▪ Have a valid subscription and business application where to deploy backup, restoration, and recovery implementation▪ Scoping call with a field engineer to prepare what access and resources might be needed for backup and site recovery design.

Phase 1		
Planning for Deployment	Define and agree on the scope	<ul style="list-style-type: none">▪ Validate scope and prerequisites
Day 1 and Day 2	Planning and design	<ul style="list-style-type: none">▪ Overview of Azure services related to backup and site recovery▪ Application architecture review▪ Design and plan for resilience and backup strategy for Azure workload▪ Design data restoration plan▪ Design Site Recovery strategy

Phase 2		
Deployment	Deploy recovery solution	<ul style="list-style-type: none">▪ Implement Site Recovery▪ Run a disaster recovery drill
Day 3	Implementation	<ul style="list-style-type: none">▪ Perform deployment and determine next steps▪ Discussion on fail over and fail back• Prepare final reports and recommendations• Review summarized deployment report

Get Licensing Ready Platform: Free Training, Exams,...

Monday, March 13, 2023 5:22 PM

[Get Licensing Ready](#)

[Licensing Azure services in the EA and SCE v21.40.pdf \(getlicensingready.com\)](#)

FY 32 Cost Optimization Playbook MS

Monday, March 13, 2023 5:33 PM

[FY23 Optimization Playbook.docx \(sharepoint.com\)](#)

Activate Azure Monitor

Thursday, February 9, 2023 6:45 PM

Extra Resources

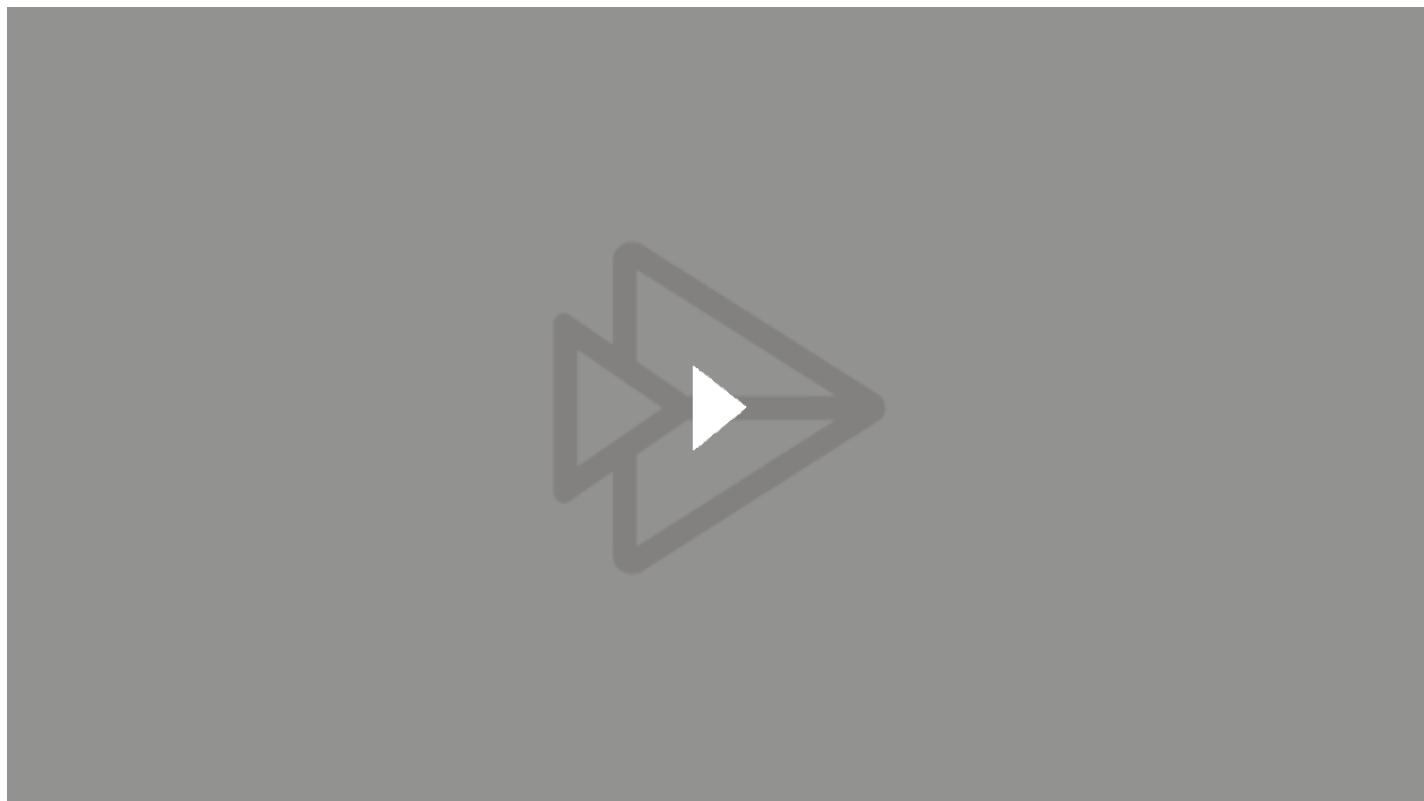
Thursday, February 9, 2023 6:46 PM

FY23 Azure Monitor LevelUp Workshop - Sept 13-2022



Azure
Monitor L...

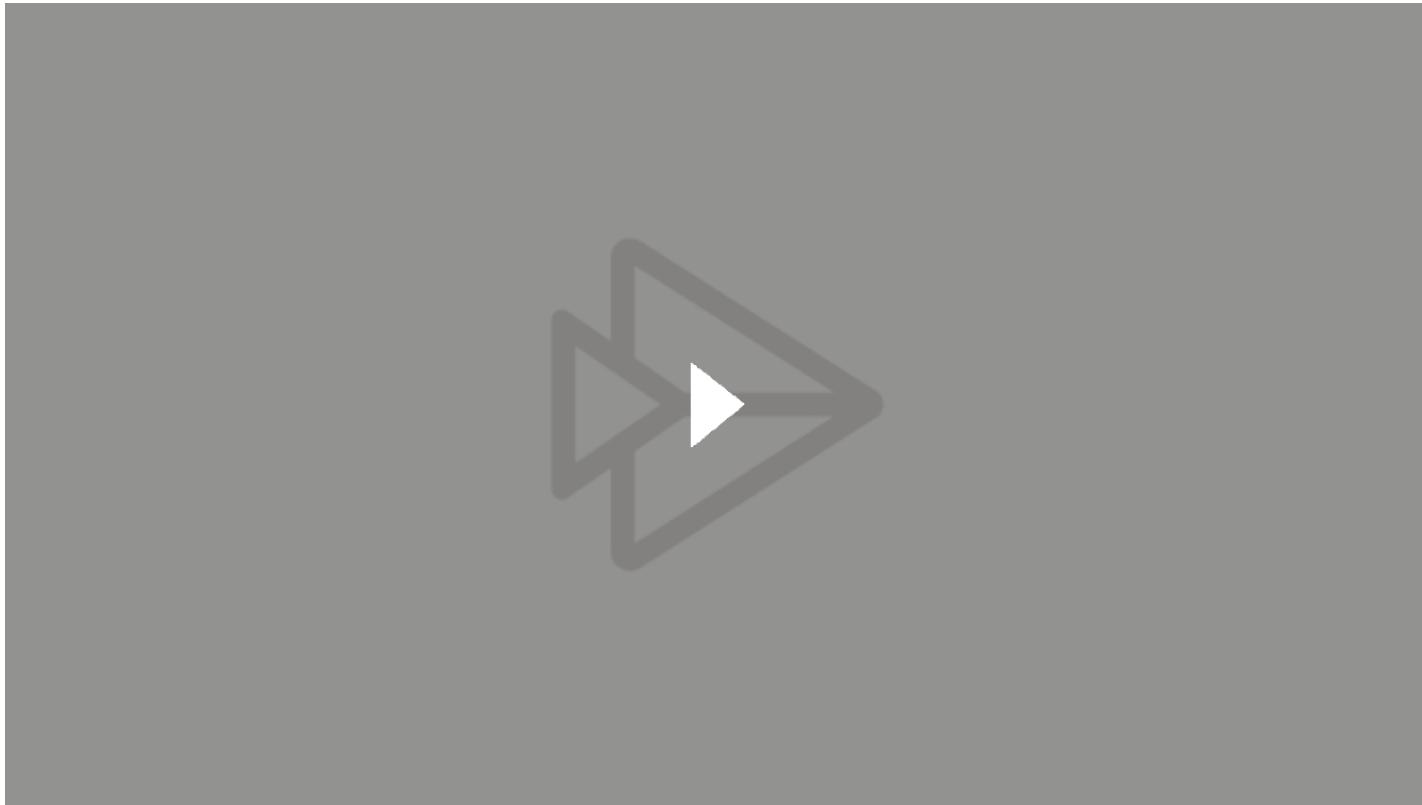
[Microsoft Stream](#)



Mip reliability

Thursday, February 2, 2023 2:20 PM

[Microsoft Stream](#)



[Licensing Documents \(microsoft.com\)](#)
[Microsoft Azure | Microsoft Volume Licensing](#)

Archive Storage

Cost-efficient & compliant long-term retention on Azure!

The diagram illustrates the storage hierarchy:

- Hot:** Frequently accessed data.
- Cool:** Less frequently accessed data.
- Archive:** Rarely accessed data.
- Rarely accessed data:** Indicated by a blue bracket covering the Archive and Rarely accessed data categories.

	Hot	Cool	Archive	Rarely accessed data
PER TB PER MONTH	\$18.40	\$10.00	\$1.00	\$1.00
PER 10K READ OPERATIONS	\$0.004	\$0.01	\$5.00	\$5.00
RETRIEVAL TIMES	Immediate (HDD)	Immediate (HDD)	Hours	Hours
USE CASE EXAMPLES	Cloud native application data	Server backups	Backup LTR/Archive	Backup LTR/Archive

Write Directly

- Single API call write to Archive tier

Store & manage cost-effectively

- \$1/TB
- Up to 22% additional discount through **Reserved capacity pricing**

Restore efficiently

- No early recall fee for CopyBlob from Archive**
- Priority retrievals ~1 hour

Azure Blob Storage | Reserved Capacity Pricing

Reduce storage costs by up to 38% while achieving price-predictability with this differentiator!

Purchase Options

- Billing Frequency:**
All Upfront or Monthly Payments
- Purchase Scope:**
Single Subscription or Shared Resource Group
- Portal recommendations:**
Based on current usage (e.g., 100TB of LRS Cool in US East)
- Eligible subscriptions:**
EA, PAYG, CSP

Reservation discounts (compared to Pay-go pricing) for all redundancy options

Commitment Duration	Capacity Buckets	Reservation discounts (Hot, Cool)	Reservation discounts (Archive)
1-Year	100 TB	18%	11%
	1 PB	22%	15%
3-Year	100 TB	34%	18%
	1 PB	38%	22%

*For any customers with >10PB BCDR Data reach out to ecosystem@service.microsoft.com

Protect on-prem to Azure

Configuring Azure Blob Storage

Tiers

Early deletion penalty:

- Cool storage (less than 30 days)
- Archive storage (less than 180 days)
- No penalty when moving cool (inferred) storage to Archive tier



Soft-Delete

Access pattern See [here](#)

Hot tier (Frequent / Low-latency access)

- Test/Dev or Disaster Recovery data,
- Backup/archive data for analysis/discovery, backup/archive catalog



Storage account locks

Cool tier (Infrequent / Low-latency access)

- Monthly backups of on-prem workloads



Immutability*

Archive tier (Rare / High-Latency access)

- LTR Backups of on-prem workloads



Defender for Storage

Redundancy

LRS (3 copies, 1 DC)

- Offsite for On-prem workloads

(RA-)GRS (6 copies, 2 regions)

- Use (RA-)GRS to protect against region failures (and on-demand cross-region recovery). ZRS typically not required

*AmVault, Rubrik & Veritas support immutability. Veeam support expected in Q3/4CY22. For Dell use Dell's PowerProtect Cyber-recovery

[Security recommendations for Blob storage - Azure Storage | Microsoft Docs](#)

Customer Use Cases to help prepare for the MIP

Thursday, February 9, 2023 12:44 PM

TomTom would like to develop a backup framework. They would therefore like to engage with an Azure Backup Service subject matter expert to share some use cases and have a discussion around that. They are somewhat familiar with Azure Backup but would like to discuss: monitoring & alerting, policy driven enforcement, pros & cons for centralize backup vault, how to use backup policies in azure backup center, using tags for include resources in the backup policy, exception handling and a centralize backup, immutable storage for backup vaults, backups for container-based applications, encryption

From <<https://esxp.microsoft.com/#/supportdelivery/requestdetails/RMOT2023020703382928>>

ESPP

Tuesday, 17 January 2023 10:58

Lqz!HF57rqTAfzm ESPP jamelachahbar (5263522424227)

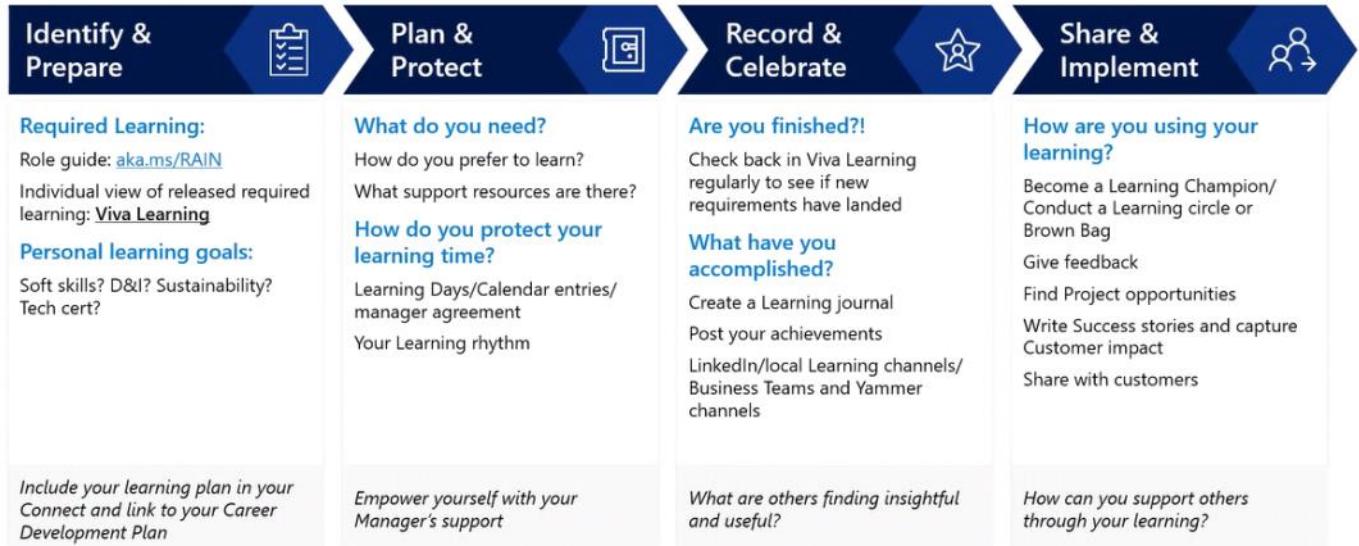
Learning Plan

Thursday, January 19, 2023 10:59 AM

Your Learning Plan



Finish onboarding.... 😊, but also...consider the following!



GOALS:

- AZ-700 Certification: 2/2023
- Cybersecurity Architect Certification: 3/2023
- Set Up Development Environment:
 - o APIOPS
 - o DevOps Templates
 - o Module Creation
 - o VWAN Hub and Spoke/Express Route,....
 - o Migration Projects
 - o Cost Optimization:
 - Cloud Custodian: OK
 - Logic Apps
 - Event Grid
 - Azure Automation
- Private project: MCLOUD LABS:
 - o Typescript
 - o Javascript
 - o Next js
 - o Logic apps
 - o Azure pipelines
 - o Labs
- Business Acumen Skills
 - o Read books:
 - Surrounded by Idiots: DISM (Red, Green, Blue, Yellow)
 - Title 2
 - Title 3
 - o Apply learnt things from the books
- Presentation Skills
 - o Give Training and Bootcamps
 - AIW
 -

- Delivering MIPS: Cost Opt -> impact several cmrs
- Continue positive impact on current cmr
- Help colleagues
- Deliver Trainings both internally and externally
- Create a fun project with AI

MCEM Pipeline Hygiene

Wednesday, February 1, 2023 5:29 PM

Milestones commitment levels:

Uncommitted to Committed Milestone Criteria (updated)

- **Customer sponsor** has agreed to the **outcome of the milestone**
- Milestone est. **due date** and **value** have been **confirmed with the customer**
- Delivery and customer **resources**, and required **budget** are available
- **Customer contact ready and briefed** on the next steps

A practical example on how this changes our mindset:

Old mindset: The customer is going to start their project in February and I think it will be 10k per month.	NEW mindset: We discussed the project and consumption plan with customer: <ul style="list-style-type: none">- Sprint 0: set-up the pilot environment (+7,5k USD/monthly)- Sprint 1: bring the environment live (+2,5k USD/monthly)- Sprint 2: enhanced data integration/ML (+2k USD/monthly)
---	--

This is NOT a committed milestone.

Opportunity and milestone commitment level will vary in lifecycle

Microsoft Confidential 6

Try to drive the conversation with STU to split up the milestone in smaller chunks.
Split oppty in multiple milestones and flag them separately.

50k incremental ACR, spread 3 ways. Case by case

MCEM guidance on milestone ownership

MCEM Guidance and Consumption Pipeline Ownership

As we clarify the accountabilities across the team, a few principles guide the process.

- **ATU** qualifies and builds pipeline
- **STU** moves Uncommitted milestones -> Committed
- **CSU** moves from Committed milestones -> Completed

The **STU will own Uncommitted milestones** and driving milestones to Committed, regardless of sales stage.

When a milestone is committed, the CSU will become the owner of the Committed milestone, regardless of sales stage, until it is completed. The exception to this is when the Opportunity and Milestone are partner-led or ISD-led and there is no technical work by CSU needed. In these cases, the STU should remain the owner of the Opportunity and Milestones in it.

REQUIREMENT : if a milestone moves to Committed , the handover STU→ CSU must happen within 7 days.

Microsoft Confidential 7

Pipeline Hygiene – 2 exceptions types

1. **Priority Exceptions:** Prioritize fixing these exceptions that have a direct impact on pipeline coverage and forecast accuracy == MUST FIX
2. **Coaching exceptions:** have more to do with deal execution and they are important but sellers and users may not be able to fix those exceptions in all circumstances. The goal is for managers to coach sellers on those exceptions. Review and fix where possible to improve your close rate and to maximize & accelerate your project.

Best practice: block 15-30 min in your agenda every week to review pipe.

Mandatory: After month close - update **each of your milestones status BEFORE the 6th of every month**, focus on completing milestone on-time OR properly discussing, documenting and scrumming slippages

8

Consumption Pipeline Hygiene flags

[Microsoft Customer Engagement Methodology - Pipeline Hygiene Exceptions.pdf](#) · All Documents ([sharepoint.com](#))

Priority Hygiene = must address

Consumption	Oppty	Consumption Milestone Missing at Stage 2+ – Opportunity is missing milestone at or above 2-Inspire & Design stage
Consumption	Milestone	Milestone with Zero Pipeline – Milestone has zero monthly usage or active users/devices
Consumption	Milestone	Milestone Date Past Due – Milestone is open and past due
Consumption	Milestone	Milestone Committed in Low Stage – Milestone is committed AND in low sales stage (1-Listen & Consult or 2-Inspire & Design)
Consumption	Milestone	Milestone Due in Next 60 days and NOT Committed – Milestone is due within next 60 days AND customer commitment is NOT committed

Coaching

Pipeline	Type	Rule
Billed + Cons.	Oppty	Stalled in Stage 1 for >60 Days – Opportunity stalled in 1-Listen & Consult stage for more than 60 days
Billed + Cons.	Oppty	Stalled in Stage 2 or 3 for >120 Days – Opportunity stalled in 2-Inspire & Design or 3-Empower & Achieve stage for more than 120 days
Billed + Cons.	Oppty	Customer Priority Missing – Opportunity is not aligned to a customer priority
Consumption	Oppty	Preferred Region and/or Capacity Type Missing at Stage 2+ (Azure Only) – Oppty is missing preferred azure region and/or capacity type at or above 2-Inspire & Design stage
Consumption	Oppty	Project Comments Missing at Stage 2+ – Project comments missing at or above 2-Inspire & Design
Consumption	Milestone	Milestone At-Risk or Blocked Due in Next 60 days – Milestone status is at-risk or blocked AND due within the next 60 days
Consumption	Milestone	Milestone At-Risk or Blocked without Escalation – Milestone status is at-risk or blocked AND missing UAT action

9

Improve PBO via Data Hygiene – Jan 30

1 Past due milestones clean up: move to future dates the ones which did not materialize as expected [MSX Insights](#) | [Report Catalog](#)

Exception Type	Hygiene Priority	Milestone Owner Manager	Milestone Date Past Due
		JABIJOUCK	\$131,059
		OVANDEVELDE	\$20,000
		LUGHON	\$16,000
		EEBUYST	\$14,138
			\$13,923
		MAWANDE	\$11,072
		HERMENIH	\$10,710
		SOFIED	\$10,710
		JANVERDICKT	\$10,000
		KGEERKENS	\$7,677
		YVWANCAU	\$5,143
		MARCOSS	\$3,000
		ARNAUDHAY	\$1,784
		TEERSTER	\$1,500
		BAASNOT	\$1,071
		STERN	\$1,071
		KEVANBEE	\$535
		INDENEFF	\$0
		KOVOSTER	\$0
		PWAUTERS	\$0
		V-MAMIN	\$0
Total			\$259,394

2 Uncommitted milestones due in next 60d [MSX Insights](#) | [Report Catalog](#) ([microsoft.com](#))

Milestone Owner Manager	Milestone Due in Next 60 days and not Committed
YVWANCAU	\$767,702
JANVERDICKT	\$132,512
KGEERKENS	\$95,976
EEBUYST	\$45,353
JABIJOUCK	\$41,523
	\$14,997
MAWANDE	\$12,711
HERMENIH	\$12,604
NABLINE	\$12,107
SRESPAUT	\$10,710
LUGHON	\$10,032
YATAGUO	\$8,000
ARNAUDHAY	\$7,588
MARYGERA	\$5,355
BAASNOT	\$5,000
STEVENST	\$5,000
JOVALK	\$2,748
PROUSELL	\$2,142
ZHAOLU	\$596
PWAUTERS	\$535
Total	\$1,192,088

3 Uncommitted milestones in high sales stages [MSX Insights](#) | [WE Azure Insights](#) ([microsoft.com](#))

TP Name	Opportunity Number	Opportunity Stage	Uncommitted Co...
Eurofins Scientific SA	7-35208142DC	4-Realize Value	\$300,000
All Inreb	7-3129469WLE	4-Realize Value	\$100,000
Elix Group SA	7-3581005WF3	4-Realize Value	\$96,190
European Union In...	7-UCC0N0H4Z	4-Realize Value	\$64,260
All Inreb	7-AJ110P0JT	4-Realize Value	\$50,000
Flexus	7-3491CUCDE	4-Realize Value	\$40,000
SD WORK GROUP ...	7-35193034AU	4-Realize Value	\$30,000
Atlas Copco	7-358488KOK	5-Manage & Optimize	\$24,633
RAVAGO SA	7-9G2UJFKJC	4-Realize Value	\$17,420
Atlas Copco	7-357BQ9JKS	4-Realize Value	\$19,000
Aqualin	7-000011162	4-Realize Value	\$16,065
Vit	7-000M12465	5-Manage & Optimize	\$16,065
Collyt	7-35D10252BA	4-Realize Value	\$16,065
Flexus	7-3491CUCDE	4-Realize Value	\$15,000
Atlas Copco	7-CEG2QNPAP	5-Manage & Optimize	\$15,000
			\$107,011

4 Unqualified oppty in SSI but Committed milestones -168K\$, incl IPCS's/some are past due [MSX Insights](#) | [WE Azure Insights](#) ([microsoft.com](#))

MSX Insights | Report Catalog

Search for reports by name

Pipeline Hygiene

Confidential\Microsoft Extended Learn more

AREA MSA US OU SEGMENT ATU SMC POD OWNER GROUP OWNER ALIAS MILESTONE INDUSTRY VIEWS SLICERS

Please note the MSX hygiene rules are generated twice per day and may show variance to live MSX updates

Hygiene Exceptions Report Overview HYGIENE TREND - COMING SOON

BILLED CONSUMPTION MILESTONE EXCEPTIONS OPPORTUNITY EXCEPTIONS

Total Exceptions | Hygiene

# of Hygiene Exceptions	# of Milestones with Exceptions	\$ Est. Monthly Usage with Exceptions
193	184	\$1,139,862

Hygiene Priority Exceptions | Hygiene

# of Hygiene Exceptions	# of Milestones with Exceptions	\$ Est. Monthly Usage with Exceptions
178	178	\$1,113,507

Hygiene Coaching Exceptions | Hygiene

# of Hygiene Exceptions	# of Milestones with Exceptions	\$ Est. Monthly Usage with Exceptions
15	14	\$83,300

Pipeline Hygiene I # of Milestone Exceptions

Hygiene Priority Hygiene Coaching

Pipeline Hygiene | Area

Dynamics 365 MSX D365

Home Recent Pinned My Work MSX Home Dashboards Activities Pipeline Leads Opportunities Milestones Proposals Relationship Plans Accounts Contacts Account Transitions Partner Partner Accounts Partner Referrals Sales

Setup ER + MacSec [PoC] - Saved Engagement Milestone

General Deal Assistance Delivery Programs Sales Programs Related

Milestone Details

Name* Setup ER + MacSec [PoC]

If you have Milestones set to occur after the Engagement ends, the Engagement will be

Milestone Est. Date* 2/1/2023

Workloads* Infra: Networking

Milestone Category* Pre-Commit: POC/Pilot/MVP

Customer Commitment Uncommitted

Est. Change in Monthly Usage* €0

Non-Recurring? ***

Preferred Azure Region

Milestone Status On Track

Risk/Blocker Details

Milestone Status Reason ***

Help Needed ***

Scrum Escalation

Related Actions

Add UAT Action

No data available.

The screenshot shows the Dynamics 365 Engagement Milestone setup page. The main title is "Setup ER + MacSec [PoC] - Saved". The navigation bar includes "General", "Deal Assistance", "Delivery Programs", "Sales Programs", and "Related". The "Milestone Details" section shows the name "Setup ER + MacSec [PoC]" and the status "On Track". The "Milestone Status" section shows "Reason" as "Uncommitted". The "Risk/Blocker Details" section shows "Help Needed" as "Uncommitted". The "Workloads" section lists "Infra: Networking". The "Milestone Category" section shows "Pre-Commit: POC/Pilot/MVP". The "Customer Commitment" section shows "Uncommitted". The "Related Actions" section has a table with columns "ID", "Title", "State", and "Created Date". The status bar at the bottom right shows "17:48", "ENG", and "01/02/2023".

Click on the linked oppy

The screenshot shows the Dynamics 365 Opportunity page for "[AGI] - Express Route + MacSec - Saved". The navigation bar includes "Summary", "Solution", "Milestones", "Customer Contacts", "Deal Team", "Content", "Partners", "Deal Assistance", "Delivery Programs", and "Proposals". The "Milestones" tab is selected, showing a timeline with milestones: "MCEM Active for 5 months" (red), "Listen & Consult", "Inspire & Design", "Empower & Achieve (3 Mo)" (green), "Realize Value", and "Manage & Optimize". The "Opportunity Information" section shows the ID "7-34MDH4TGFK", title "[AGI] - Express Route + MacSec", and customer "AG Insurance". The "Solution Plays" section shows "Express route with macsec encryption" under "Primary". The "Opportunity Score" section states "Opportunity Score has not been calculated". The status bar at the bottom right shows "17:48", "ENG", and "01/02/2023".

The screenshot shows the Dynamics 365 Engagement Milestone list page. The navigation bar includes "Summary", "Solution", "Milestones", "Customer Contacts", "Deal Team", "Content", "Partners", "Deal Assistance", "Delivery Programs", and "Proposals". The "Milestones" tab is selected, showing a table of milestones. One row is highlighted for "Setup ER + MacSec [PoC]" with "Infra: Networking" and "Uncommitted" status. The status bar at the bottom right shows "17:48", "ENG", and "01/02/2023".

You have 2 hygiene notifications. Select to view.

[AGI] - Express Route + MacSec - Saved Opportunity

MCEM Active for 5 months Listen & Consult Inspire & Design Empower & Achieve (3 Mo) Realize Value Manage & Optimize

Summary Solution Milestones Customer Contacts Deal Team Content Partners Deal Assistance Delivery Programs Proposals ...

At Risk	0	0	0	0	0	0	0	0	0	0	0
Blocked	0	0	0	0	0	0	0	0	0	0	0
All Milestones											
	R Assign	+ Add New Milestone	Clone	Shift Est. Date	Refresh	Feedback	Help	Save			
	: Milestone ID	Name	Workload	Customer Commitment	Milestone Est. Date	+ Est. Change	BACV (USD)	Notes			
7-500683075	Setup ER + MacSec [PoC]	Infra: Networking	Committed	01-Feb-2023	0			
7-500969140	Setup ER + MacSec [PROD]	Infra: Networking	Uncommitted	01-Mar-2024	15000			

Warning: Unsaved Changes Total Records: 2

You have 2 hygiene notifications. Select to view.

[AGI] - Express Route + MacSec - Saved Opportunity

MCEM Active for 5 months Listen & Consult Inspire & Design Empower & Achieve (3 Mo) Realize Value Manage & Optimize

Summary Solution Milestones Customer Contacts Deal Team Content Partners Deal Assistance Delivery Programs Proposals ...

7-500969140	Setup ER + MacSec [PROD]	Infra: Networking	Uncommitted	01-Mar-2024	15000			
-------------	--------------------------	-------------------	-------------	-------------	-------	-----	-----	-----	--	--	--

Total Records: 2

You have 2 notifications. Select to view.

Milestone "Setup ER + MacSec [PoC]" column "Azure Capacity Type" - Required if the Milestone "At Risk" or "Blocked" and when the workload type is "Azure". For further guidance view the Managing Milestone Status guide at [/aka.ms/ConsumptionGuide](#). Has validation error: Mandatory fields needs to be filled in.

Milestone "Setup ER + MacSec [PoC]" column "Preferred Azure Region" - Required if the Milestone "At Risk" or "Blocked" and when the workload type is "Azure". For further guidance view the Managing Milestone Status guide at [/aka.ms/ConsumptionGuide](#). Has validation error: Mandatory fields needs to be filled in.

You have 2 hygiene notifications. Select to view.

[AGI] - Express Route + MacSec - Saved Opportunity

MCEM Active for 5 months Listen & Consult Inspire & Design Empower & Achieve (3 Mo) Realize Value Manage & Optimize

Summary Solution Milestones Customer Contacts Deal Team Content Partners Deal Assistance Delivery Programs Proposals ...

7-500683075	Setup ER + MacSec [PoC]	01-Feb-2023	1	On Track	Pre-Commit	...			
7-500969140	Setup ER + MacSec [PROD]	01-Mar-2024	15000	On Track	Production	...			

Total Records: 2

You have 2 notifications. Select to view.

Milestone "Setup ER + MacSec [PoC]" column "Azure Capacity Type" - Required if the Milestone "At Risk" or "Blocked" and when the workload type is "Azure". For further guidance view the Managing Milestone Status guide at [/aka.ms/ConsumptionGuide](#). Has validation error: Mandatory fields needs to be filled in.

Milestone "Setup ER + MacSec [PoC]" column "Preferred Azure Region" - Required if the Milestone "At Risk" or "Blocked" and when the workload type is "Azure". For further guidance view the Managing Milestone Status guide at [/aka.ms/ConsumptionGuide](#). Has validation error: Mandatory fields needs to be filled in.

You have 2 hygiene notifications. Select to view.

[AGI] - Express Route + MacSec - Saved Opportunity

MCEM Active for 5 months Listen & Consult Inspire & Design Empower & Achieve (3 Mo) Realize Value Manage & Optimize

Summary	Solution	Milestones	Customer Contacts	Deal Team	Content	Partners	Deal Assistance	Delivery Programs	Proposals	...
At Risk	Blocked	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0

All Milestones P Assign + Add New Milestone Clone Shift Est. Date Refresh Feedback ? Help Save

Milestone ID	Name	Milestone Status Reason	Azure Capacity Type	Preferred Azure Region	Help Needed	Risk/Block
7-500683075	Setup ER + MacSec [PoC]	...	Other	West Europe - Amste	---	---
7-500969140	Setup ER + MacSec [PROD]	...	---	---	---	---

Total Records: 2

You have 2 hygiene notifications. Select to view.

[AGI] - Express Route + MacSec - Saved Opportunity

MCEM Active for 5 months Listen & Consult Inspire & Design Empower & Achieve (3 Mo) Realize Value Manage & Optimize

Summary	Solution	Milestones	Customer Contacts	Deal Team	Content	Partners	Deal Assistance	Delivery Programs	Proposals	...
At Risk	Blocked	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0

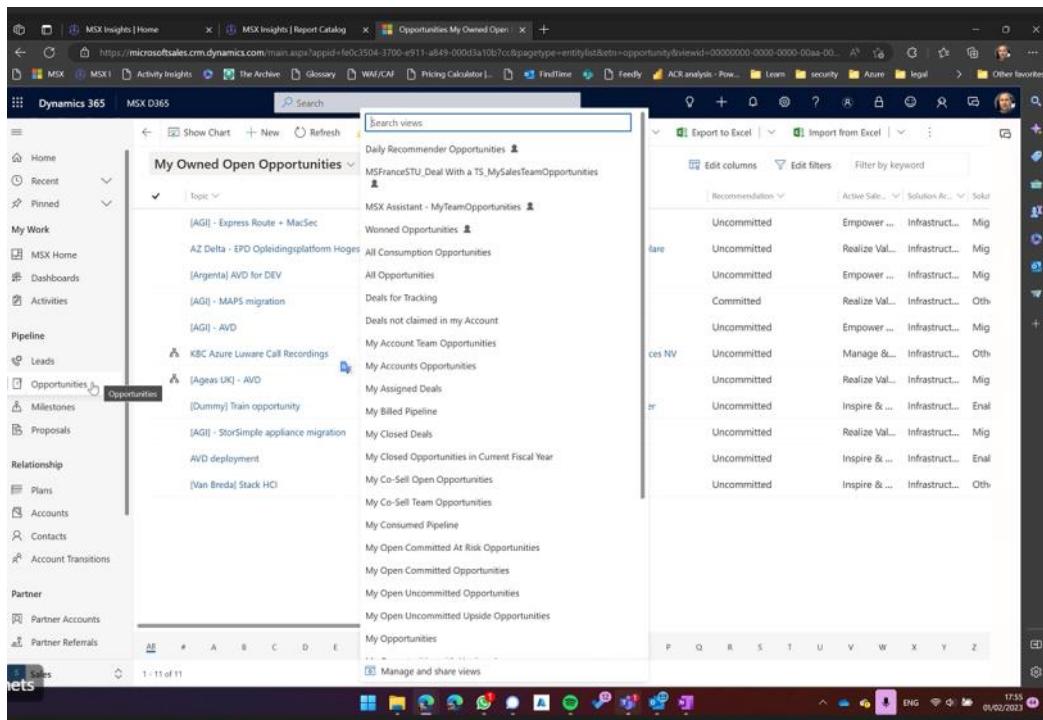
All Milestones P Assign + Add New Milestone Clone Shift Est. Date Refresh Feedback ? Help Save

Milestone ID	Name	Milestone Status Reason	Azure Capacity Type	Preferred Azure Region	Help Needed	Risk/Block
7-500683075	Setup ER + MacSec [PoC]	...	Other	West Europe - Amste	---	---
7-500969140	Setup ER + MacSec [PROD]	...	---	---	---	---

Total Records: 2

Do this on a weekly basis!!!! Heck the pipeline hygiene and fix

Filter opportunities



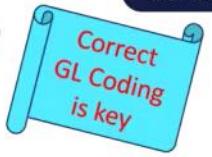
The screenshot shows the Microsoft Dynamics 365 interface for the Opportunities module. The left sidebar navigation bar is visible, showing categories like Home, Recent, Pinned, My Work, Pipeline, Relationship, and Partner. The Opportunities category is currently selected, indicated by a highlighted blue box around the 'Opportunities' link. The main content area displays a list of 'My Owned Open Opportunities'. The list includes various deals such as 'MSX Assistant - MyTeamOpportunities', 'AZ Delta - EPD Opleidingsplatform Hogen', '[AGI] - Express Route + MacSec', and '[AGI] - AVD for DEV'. The list is filtered by 'Topic' and 'Active Sales Stage'. The top right of the screen features standard browser controls (Search, Refresh, Back, Forward) and a ribbon menu with options like 'Edit columns', 'Edit filters', and 'Filter by keyword'. The bottom right corner shows system status icons (ENG, 17:55, 01/02/2023).

TIME SHEET

Tuesday, February 7, 2023 6:31 PM

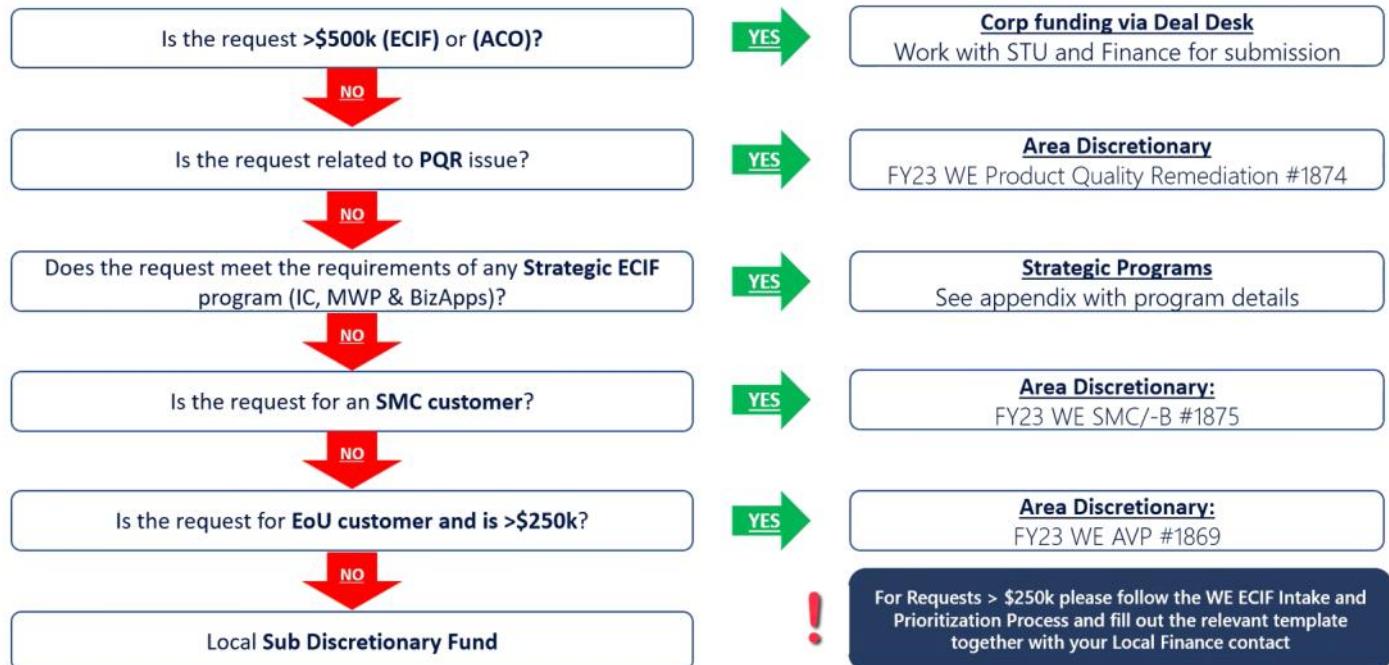
New Hire Training and Onboarding Activities

Activities that do & do not qualify as ECIF

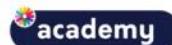


Activities that qualify as ECIF			Activities that do NOT qualify as ECIF
Pre-Sales Activities (OPEX)	Post Sales Activities (COGS)	Product Quality Remediation (PQR)	
<ul style="list-style-type: none"> ▪ Pre-Sales Architecture (e.g., Partner White-boarding) ▪ Customer Training & Assessments ▪ Proof of Concept (POC) or Pilots ▪ Independent Software Vendor (ISV) Tools Development (e.g., ISV building applications for Azure, SQL, etc.) ▪ 3rd party licenses - Fees for partner-delivered Solution Assessment (SA) engagements, including any associated fees for temporary licensing of third-party discovery or asset inventory tools ▪ Commercial and Consumer Apps Development on PC, Tablets and Phones and similar devices 	<ul style="list-style-type: none"> ▪ Migration and Deployment Services ▪ Deployment Planning Services ▪ Technical Adopter Program (TAP), Early Adopter Program (EAP), Rapid Deployment Program (RDP), early access innovation ▪ Digital Advisory Services ▪ Customer Training ▪ Program Quality Assurance (PQA) from MCS ▪ Travel expenses of Supplier project resources 	<ul style="list-style-type: none"> ▪ Product Technical Issues: When a product does not deliver intended functionality because of engineering errors ▪ Product Documentation Issues: When a product does not deliver intended functionality because of incorrect / incomplete marketing documentation 	<ul style="list-style-type: none"> ▪ Generic Marketing activities ▪ Partner Enablement – Training ▪ Licensing or Software Assurance ▪ Recruiting, Admin., Timekeeping ▪ Internal Tools Development or Maintenance ▪ Commercial R&D costs ▪ T&E spent by non-Services org for internally-delivered projects ▪ Discounting or Licensing buy-down ▪ Billing and Invoicing ▪ Changes in Price, Refund/Credits ▪ Competitive Threats ▪ Partner Fault/ Accountability ▪ Customer Incentives

How to choose the appropriate program?



FY23 ECIF process at a glance



Sales identify a need for ECIF

Any approvals or rejections will be managed through the One Ask tool.

Tracking execution of projects on an ongoing basis, gaps vs. (project) forecast are reviewed.

Sales prepare initial evaluation and funding suggestion.

3-4 Approvers which vary depending on the ECIF program.

Dead projects are identified & cancelled

All asks must be entered through ECS in [One ask](#) meeting the criteria outlined in each program.

Once the case is approved and all required documentation meets the standards ECIF Operations creates the PO.

Changes to forecast impacting overall funding availability or seasonality to be fed back via OneAsk tool or ECIF Ops/Program Owners

External suppliers can only start Post PO final safe approval.

M17/M18 amendments requirements*

Incorrect documentation or inadequate commentary will result in delays in processing

Work with your commercial executive:

* If you commit ECIF funding of \$50,000 or greater in value to a customer within 30 days before or after a VL agreement is signed with that customer, you must include a ECIF amendment in the VL. The \$50,000 threshold could be from one ECIF or multiple ECIFs that add up to the \$50,000.

* For all ECIF value at or above \$250k, amendment is required.

Key:

Field Driven Activities
 Centralized Activities

Support teams



ECIF Concierge Services

case submission > IO approved

Global team to support sellers on their **ECIF request submission**:

- Improve processing cycle-times
- Help improve deal velocity
- Improve key controls and compliance
- Laser-focused on field satisfaction for ECIF Strategic and Local Funding.

ECIF Operations

IO approved > Invoice approved

ECIF Ops support ECIF stakeholders through the **post IO processing** of **external** projects, providing controls and compliance centered on a standardized set of processes and services deliveries.

ECIF Supplier Onboarding Support

ECIF SOS support ECIF stakeholders through the **supplier onboarding process**, working directly with external suppliers & partners to educate them on the ECIF supplier onboarding process, what the requirements are, how they can check their current ECIF eligibility status and how they can retain their enrollment status.

What's in it for you?

- Simplification** – Project Requestor control points reduced to 4
- Less Admin** – ECS can submit your case, liaise directly with relevant support desks, and can engage with customer / partner if required
- Case Acceleration** – targeting reduced time to PO
- Controls and Compliance** – at case submission / during Work Scope checks

How to contact ECS?

Go to [OneAsk Help](#), select **Request Type: ECIF Concierge Desk** and need from **Request Sub Reason** (choose from Policy, Program or Process Query). Outline your requirement and ECS will revert within SLA.

What's in it for you?

- Point of Contact:** Centralized desk for operational guidance and administrative support
- Support on Approval Process:** Obtain necessary signatures and approvals on your behalf (Supplier Agreement/PO)
- Compliance and Controls Support:** Work Scope check / Proof of Execution (POE) collection & review
- Policy Violation Tracking:** Document and communicate any policy violation accordingly
- Support on Resolving ECIF Cases:** Once final payment released to MSFT Partner, ECIF Ops resolves OneAsk project and closes PO

How to contact ECS?

ecifopwe@microsoft.com

What's in it for you?

- You will no longer be caught in the middle of the onboarding process
- Your suppliers & partners will be **onboarded quicker**
- Your **PO's will be submitted faster**
- Overall satisfaction with the **onboarding process will improve**

How to contact SOS?

ECIFSPMO@Microsoft.com
[Supplier Web](#)

Didn't finish the session.

MSX Session Manoj

Friday, February 10, 2023 4:39 PM

TPID: top parent id

Account Name	Account Id	Owner	Address 1: City	TPID	Parenting Level
AB InBev	1+77PQ+135	Thierry Ferster	Leuven	2013751	Top
ACCENTURE (LUXEMBOURG) SARL	9-ZVT2S5IPE	Mike Denman	LUXEMBOURG	71206226	Top
Accenture Belgium	7-NKB22ZMAO	Mike Denman	Brussels	30328302	Top
ACERTA BV	11-5KWC0	Kim Deconynck	Leuven	4199463	Top
ADMINISTRATION PROVINCIALE DE LIEGE	1-6ANW5	Laurent Goormans	Liege	1807908	Top
ADP BELGIUM NV	1-6BPLKK	Jennifer Idavoy	Melle	1600148	Top
AG Insurance	11-2GHF1	Kathy Vermeulen	Brussel	1877627	Top
AGFA	1+77PQ+347	Thomas Dalberto	Mortsel	2526740	Top
Agilos SCRL	9-NWENILW2S	Laure Timperman	Woluwe St Lambert	17132753	Top
Agis - Allianz Group	2S-8KE8L	Christophe Besançon	Luxembourg	3291007	Top
Aliaxis Group SA/NV	1-1AXU910	Mathias Devis	Brussels	15826659	Top
Allianz Technology SE	11+DB2-4	Christophe Besançon	Bruxelles	2700086	Top
AMERICAN EXPRESS SERVICE EUROPE LIMITED.	1-6ADLB	Rosa Ziccarelli	Watermael Boitsfort	8372393	Top
AON BELGIUM SA	1-6AJZV	Grace Feldman	Oudergem	1725800	Top
AQUAFIN	11-PMMP	Koen Van Tolhuizen	Aartselaar	1099960	Top

All the reporting is stacked under the TPID

All accounts should have a TPID. From a reporting per

Account Name	Account Id	Owner	Address 1: City	TPID	Parenting Level
AB InBev	1+77PQ+135	Thierry Ferster	Leuven	2013751	Top
AGC Glass Europe	1+77PQ+118	EMEA	LOUVAIN-LA-NEUVE	973226	Top
ATLAS COPCO	1+77PQ+223	Stephanie Windels	Wilrijk	2013722	Top
BEKAERT	1+77PQ+355	Geert Camelbeke	Kortrijk	2013728	Top
East Africa Breweries Limited	1-17U7HQ	EMEA SMB Account Owner	Nairobi	5392795	Top
GRUPO MODELO S.A. de C.V.	1-AW1R7Z	Thierry Ferster	CIUDAD DE MEXICO	5176386	Top
SOUTH AFRICAN BREWERIES LTD	11+DO1-73I	Thierry Ferster	Johannesburg	1405986	Top
TomTom Group	1L+JO-XD	Mathias Devis	Ledeberg	1911499	Top
Tomtom International B.V.	1-K97X5	EMEA SMB Account Owner	Amsterdam	9114825	Top

Dynamics 365 MSX D365 Search

Home Recent Pinned My Work MSX Home Dashboards Activities Pipeline Leads Opportunities Milestones Proposals Relationship Plans Accounts Contacts Account Transitions Partner

AB InBev - Saved Account - 360

Thierry Ferster Owner Strategic Commercial Segment

Customer 360 Customer Profile Databook Details Timeline Customer Contacts Opportunities Leads Requests LinkedIn ...

Product category General

Account Information

Account Profile

Revenue Products and services

Updated February 10, 2023

Year	Revenue
FY20	\$30.8M
FY21	\$44.7M
FY22	\$71.0M
FY23	\$58.0M

3 FY Average \$48.9M Current FY \$58M

Agreements

Expirations in Current quarter Expirations in Current year Active agreements Total

Active High Severity Risk to CSAT

Support Tickets

My Team Accounts

Search views

new Microsoft Customer Agreement - Target List 71

Accounts I Follow(UCI) 2V

Account Blending Attention

AB InBev - Saved Account - 360

Thierry Ferster Owner Strategic Commercial Segment Strategic - Commercial Other Subsegment

Customer 360 Customer Profile Databook Details Timeline Customer Contacts Opportunities Leads Requests LinkedIn ...

You do not have proper MS Sales access to view this data. Use the link below to get access.

[Get MSSales Access](#)

Worldwide learning - ESI Azure

Certifications	634
Fundamentals course attendees	600
Advanced course attendees	297
Utilized discounted seats	444

> Leads & Partners

Screenshot of Dynamics 365 CRM showing the "My Active Contacts" view.

The left sidebar shows navigation links for Home, Recent, Pinned, My Work, Pipeline, Relationship, and Partner. The "Contacts" link is selected.

The main area displays a table titled "My Active Contacts" with the following columns: Company Name, Full Name, Email, Last Email Date, Last Meeting Date, Job Title, Job Role, and Business Unit.

Company Name	Full Name	Email	Last Email Date	Last Meeting Date	Job Title	Job Role	Business Unit
---	Rhomer Oliveira	rhomer.oliveira@ab-inbev.com	6/9/2021	9/28/2021	Manager-Cloud ...	Manager Operat...	---
---	Anderson Slompo	anderson.slompo@mercafácil.com	3/29/2022	11/8/2021	IT Manager	Manager IT	---
---	Alan Brito	alan.brito@ab-inbev.com	1/19/2023	12/16/2022	Applications Lead	IT Executive	+551
---	Rafael Hass	rafael.hass@ztech.net	9/14/2021	4/9/2021	Senior Manager	Manager IT	---
---	Shmuel Laufer	shmuel.laufer@ab-inbev.com	1/20/2023	1/20/2023	Director, Data & ...	Director Architec...	1234!
---	Jan Micka	jan.micka@eu.agc.com	6/1/2021	5/4/2021	Manger-Infra Clo...	Manager IT	---
---	Ricardo Acevedo	ricardo.acevedop@ab-inbev.com	1/17/2023	1/21/2023	Cloud Lead	Manager IT	+524
---	Mathieu Darroman	mathieu.darroman@ab-inbev.com	---	---	Global Category ...	Director IT	---
---	Marcin Kmiecik	marcin.kmiecik@tomtom.com	4/22/2022	4/6/2022	VP-PU MAPS	Vice President W...	---
---	Rog Hogeboom	rog.hogeboom@tomtom.com	---	---	Manager-SAP	Manager Other	---
---	Luiz Fernando Celarino	fernando.celarino@ambevtec.com	1/19/2023	1/18/2023	CTO-AMBEV Tech	Chief Technolog...	+551
---	Paulo Scopa	paulo.scopa@ab-inbev.com	10/24/2022	6/21/2022	IT Manager	Manager IT	1234!
AB InBev	EVGENIY GORBUNTSOV	evgeniy.gorbunsov@ab-inbev.com	10/25/2022	---	SAP LEAD	Manager IT	1234!
AB InBev	Sergey Galchenko	Sergey.Galchenko@AB-inbev.com	1/14/2023	1/17/2023	Manager IT	Manager IT	+905
AB InBev	João Furtado	joao.furtado@mercafácil.com	2/3/2022	11/8/2021	Head- Cloud Ops	Manager IT	1234!

At the bottom, there are navigation links for All, #, A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, and a page indicator showing 1 - 50 of 126.

It is suggested to check if a new contact at a customer you can add him if not added. You can use the addin as well.

Screenshot of Dynamics 365 CRM showing the "My Owned Open Opportunities" view.

The left sidebar shows navigation links for Home, Recent, Pinned, My Work, Pipeline, Relationship, and Partner. The "Opportunities" link is selected.

The main area displays a table titled "My Owned Open Opportunities" with the following columns: Topic, Opportunity Id, Opportunity Name, Account, Recommendation, and Active Sales.

Topic	Opportunity Id	Opportunity Name	Account	Recommendation	Active Sales
No data available.					

Opportunities -> whether you're selling stuff or making cmr's consume services. The same name is used.

Dynamics 365 | MSX D365

All Consumption Opportunities

Topic ↑	Account ↓	MSFranceSTU_Deal With a T5_MySalesTeamOpportunities	Inspire & ... 7/16/2022	0.00	0.00	\$0.00	\$0.00	0.	
---	---	MSCEM	Empower ... 7/16/2022	---	0.00	0.00	\$0.00	\$900.00	0.
---	---	MSCEM	Inspire & ... 7/16/2022	---	0.00	0.00	R90,000.00	R0.00	0.
---	---	MSCEM	Inspire & ... 7/16/2022	---	0.00	0.00	kr0.00	kr0.00	0.
---	---	All Consumption Opportunities	MSCEM Empower ... 7/16/2022	---	0.00	0.00	\$5,000.00	\$0.00	0.
---	---	All Opportunities	MSCEM Inspire & ... 7/16/2022	---	0.00	0.00	\$0.00	\$0.00	0.
---	---	Deals for Tracking	MSCEM Empower ... 7/16/2022	---	0.00	0.00	\$2,000.00	\$0.00	0.
---	---	Deals not claimed in my Account	MSCEM Inspire & ... 7/16/2022	---	0.00	0.00	\$5,000.00	\$0.00	0.
---	---	My Account Team Opportunities	MSCEM Empower ... 7/16/2022	---	0.00	0.00	\$0.00	\$0.00	0.
---	---	My Assigned Deals	MSCEM Empower ... 7/16/2022	---	0.00	0.00	\$5,000.00	\$0.00	0.
---	---	My Billed Pipeline	MSCEM Realize Val... 7/16/2022	---	0.00	0.00	\$0.00	\$36,000.00	0.
---	---	My Closed Deals	MSCEM Inspire & ... 7/16/2022	---	0.00	0.00	\$0.00	\$0.00	0.
---	---	My Closed Opportunities in Current Fiscal Year	MSCEM Inspire & ... 2/15/2020	---	0.00	0.00	\$0.00	\$0.00	0.
---	---	My Co-Sell Open Opportunities	MSCEM Inspire & ... 7/16/2022	---	0.00	0.00	\$0.00	\$0.00	0.
---	---	My Co-Sell Team Opportunities	MSCEM Inspire & ... 7/16/2022	---	0.00	0.00	\$0.00	\$22,000.00	0.
---	---	My Consumed Pipeline	MSCEM Inspire & ... 7/16/2022	---	0.00	0.00	\$0.00	\$0.00	0.

MSX D365

All Consumption Opportunities

Topic ↑	Account ↓	MSFranceSTU_Deal With a T5_MySalesTeamOpportunities	Inspire & ... 7/16/2022	0.00
---	---	MSX Assistant - MyTeamOpportunities	---	0.00
---	---	My Open Committed Opportunities-TomTom H2	---	0.00
---	---	My Owned Open Opportunities-3 Months	---	0.00
---	---	All Consumption Opportunities	---	0.00
---	---	All Opportunities	---	0.00
---	---	Deals for Tracking	---	0.00
---	---	Deals not claimed in my Account	---	0.00
---	---	My Account Team Opportunities	---	0.00
---	---	My Accounts Opportunities	---	0.00
---	---	My Assigned Deals	---	0.00
---	---	My Billed Pipeline	---	0.00
---	---	My Closed Deals	---	0.00
---	---	My Closed Opportunities in Current Fiscal Year	---	0.00
---	---	My Co-Sell Open Opportunities	---	0.00
---	---	My Co-Sell Team Opportunities	---	0.00
---	---	My Consumed Pipeline	---	0.00

Set as default view

Manage and share views

All Consumption Opportunities*

Topic ↑ Account ↓ Active Proc... Active Sale... Actual Clos... AdhocSurvey Azure Activ... Azure Activ... Azure Cons... Azure Cons... BizApps Ac...

	Topic ↑	Account ↓	Active Proc...	Active Sale...	Actual Clos...	AdhocSurvey	Azure Activ...	Azure Activ...	Azure Cons...	Azure Cons...	BizApps Ac...
✓	DC-GHQ-ACO Milestor AB InBev	MCEM	Manage &...	1/5/2022	---	0.00	0.00	\$0.00	\$0.00	0.	
	DC-GHQ-APP INNO-DI AB InBev	MCEM	Manage &...	10/6/2022	---	0.00	0.00	\$0.00	\$256,770.00	0.	
	DC-GHQ-APP INNO-DI AB InBev	MCEM	Manage &...	10/11/2022	---	0.00	0.00	\$0.00	\$1,025,00...	0.	
	DC-GHQ-APP INNO-DI AB InBev	MCEM	Manage &...	10/10/2022	---	0.00	0.00	\$0.00	\$0.00	0.	
	DC-GHQ-APP MODERN AB InBev	MCEM	Empower ...	6/29/2020	---	0.00	0.00	\$0.00	\$0.00	0.	
	DC-GHQ-AVS AB InBev	MCEM	Empower ...	4/7/2022	---	0.00	0.00	\$0.00	\$0.00	0.	
	DC-GHQ-AZURE ARC AB InBev	MCEM	Inspire & ...	---	---	0.00	0.00	\$0.00	\$100.00	0.	
⊕	DC-GHQ-AZURE COOE AB InBev	MCEM	Inspire & ...	12/8/2022	---	0.00	0.00	\$0.00	\$0.00	0.	
	DC-GHQ-AZURE FIREW AB InBev	MCEM	Empower ...	5/19/2021	---	0.00	0.00	\$0.00	\$0.00	0.	
	DC-GHQ-AZURE STACK AB InBev	MCEM	Inspire & ...	---	---	0.00	0.00	\$0.00	\$5,000.00	0.	
	DC-GHQ-BACKUPS AN AB InBev	MCEM	Inspire & ...	---	---	0.00	0.00	\$0.00	\$10,000.00	0.	
	DC-GHQ-CORE INFRA- AB InBev	MCEM	Manage &...	10/6/2022	---	0.00	0.00	\$0.00	\$454,400.00	0.	
	DC-GHQ-CORE INFRA- AB InBev	MCEM	Manage &...	9/19/2022	---	0.00	0.00	\$0.00	\$1,380,00...	0.	
	DC-GHQ-CORE INFRA- AB InBev	MCEM	Manage &...	10/10/2022	---	0.00	0.00	\$0.00	\$0.00	0.	
	DC-GHQ-DATA-DUMM AB InBev	MCEM	Manage &...	10/6/2022	---	0.00	0.00	\$0.00	\$234,800.00	0.	

All # A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Save & Close + New Close Billed Close Consumption Refresh Check Access Copy Opportunity Share

DC-GHQ-BACKUPS AND DR - Saved Opportunity

AB InBev Tobias Cosaert 4/30/2023

MCEM Active for 8 months Listen & Consult Inspire & Design (51 Hrs) Empower & Achieve Realize Value Manage & Optimize

Summary Solution Milestones Customer Contacts Deal Team Content Partners Deal Assistance Delivery Programs Proposals ...

Opportunity Information

Opportunity Id: 7-000528642

Title: DC-GHQ-BACKUPS AND DR

Customer Need: Setup Backups and DR environments for critical LOB applications on Azure

Opportunity Intent: Consumption

Account: AB InBev

Customer Decision Maker: Karthik Sethuraman

Customer Priorities: No records associated

Solution Plays: Solution Play Solution Area Primary

Opportunity Score: Opportunity Score has not been calculated.

Pit Stop: Ask experts

Billed Forecast Recommendation: Uncommitted

Comments: Tobias Cosaert 31/1/2023, 11:31:58 ABI is no longer responding until Unified support contract is signed. GHQ was planning to set up BCDR environment at the start of 2023. Moving milestones to next month until we receive an update from the customer.

Everyteam has its own naming convention. This is typical to ABINBEV, Datacenter Global Head Quarters

This is important: oppty intent

Opportunity Intent*

Consumption X

Select or search options

Select all 2 items

Billed

Consumption

Karthik Sethuraman

We always use consumption

Expected startdate:

30.00

Consumption Status

In-Progress

Est. Cons. Start Date*

5/30/2022

Est. Cons. Completion Date*

4/30/2023

Primary Competitor

Google | GCP Other

What we do, we put a date as a start (this is when we are going to start engaging with the customer)

Completion date: this is when I expect the consumption to actually start.

If the ACR starts coming in only in May then I put a date in May

CSA's need to know the preferred az region, important for the capacity planning team.

Parent Opportunity

Rollup Est. Billed Revenue

\$0.00

Last updated: 2/10/2023 12:03 PM

Preferred Azure Region

West Europe - Amsterdam

Azure Capacity Type

Expectation: 20% of oppies need to be created by CSU.

When you create an oppty, we are not suppose to own anything in stage 1-3, you can transfer it to the ATU or STU

DC-GHQ-BACKUPS AND DR - Saved

MCEM Active for 8 months

Opportunity

AB InBev Account Tobias C. Owner

Opportunity Score ⓘ

Opportunity Score has not been calculated.

Scores are created or updated daily for opportunities tracked in deal-based pipeline.

Pit Stop

Ask experts ⓘ My Questions

Recalculate Opportunity

Launch playbook

Assign

Process

Follow

Word Templates

Deal Tracking

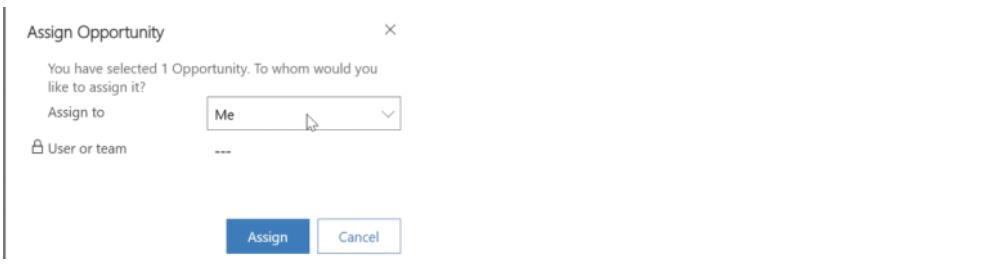
Related - Common

Audit History

Documents

Activities

Competitors



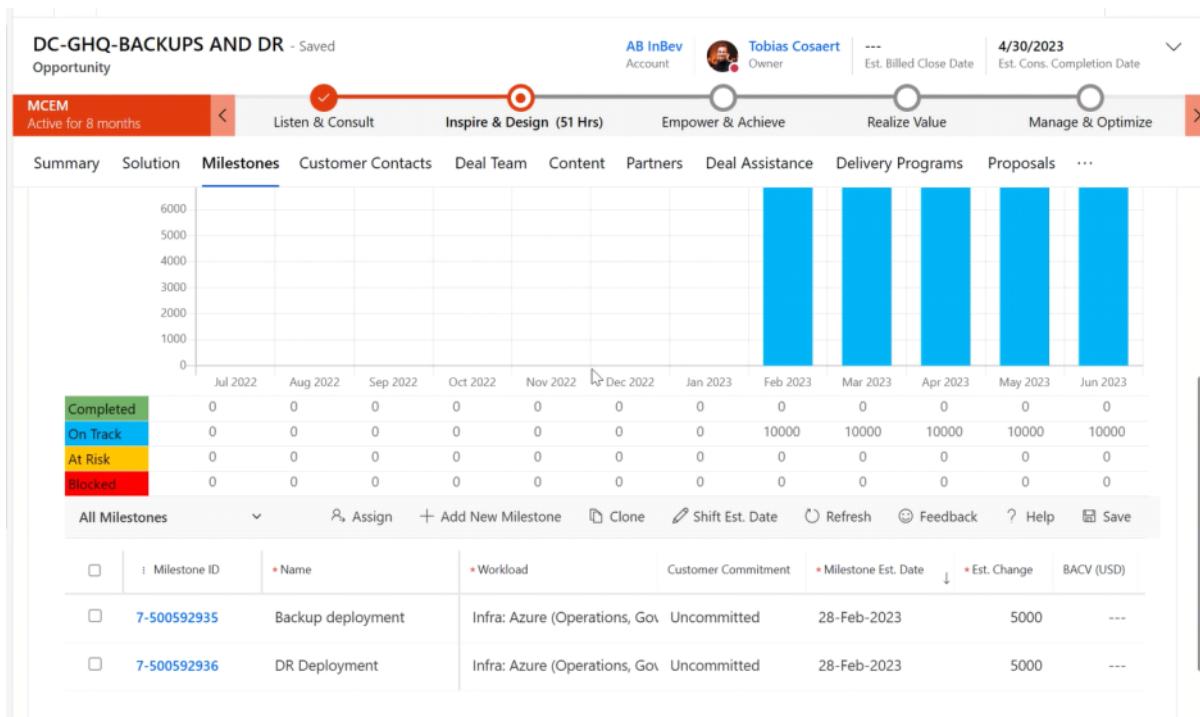
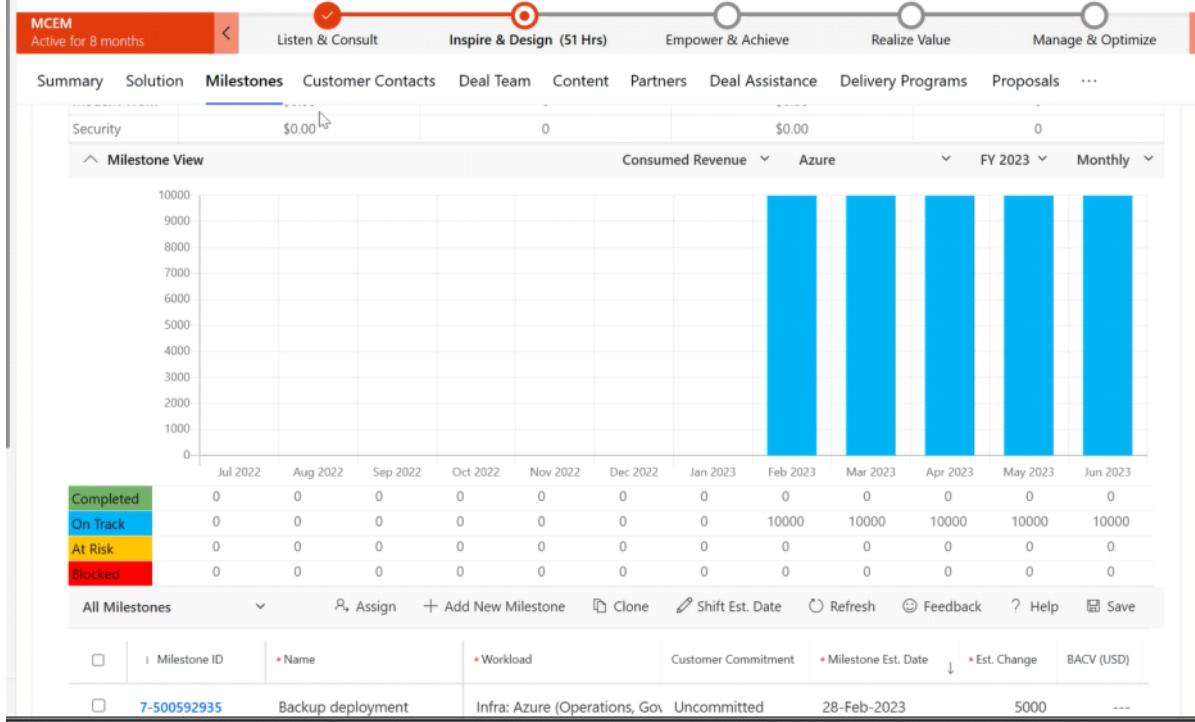
Me means it comes to you

The screenshot shows a Dynamics 365 deal record for 'AB InBev'. On the left, there's a sidebar with sections like 'Customer Priorities', 'Solution Plays', and 'Opportunity Score'. The main area shows a deal pipeline with stages: Listen & Consult, Inspire & Design (51 Hrs), Empower & Achieve. A 'Pit Stop' section has an 'Ask experts' button. On the right, a 'Lookup Records' modal is open, displaying a list of 'Solution Play Books' with various options like 'Accelerate Innovation with Low Code Business Applications' and 'Build a Real Time and Sustainable Supply Chain Retail'. The 'Build Your Games in the Cloud with Azure' option is currently selected.

If you don't have one scenario available or don't know, put other

This screenshot is similar to the previous one, showing the Dynamics 365 deal record for 'AB InBev'. The 'Lookup Records' modal is open again, but this time the search term in the input field is 'OTHER'. The results list shows five entries under the 'Other' category, each with a checkbox and a brief description: 'Digital and Application Innovation', 'Business Applications', 'Data and AI', 'Modern Work', and 'Security'. The 'Advanced lookup' button is visible at the bottom right of the modal.

The most important thing:



Most important:

Customer Commitment	* !
Uncommitted	2
Uncommitted	2

If STU ATU is owning it it has to be uncommitted. If the cmr is going to surely deploy it , then the SSP can change it, they got the budget, everyone is clear on it.

The milestone est. data would say be mid-march. What MS assumes, from march onwards we will start getting 5k as ACR.

This impacts the entire forecast and has impact on that on management level.

It is a reality, last month we had to move a lot of stuff from committed to uncomm. We had to move stuff from jan to march and apr

If it is transferred to you and you see committed, you can challenge it if you know from the cmr they're not sure about the deployment,...

You can also come to know the customer isn't transparent and start to deploy (health report), you

can change it to committed.

After both of them are committed you move it to stage 4 (has to be transferred to CSU)

It can be stuck in stage 3 due to only one milestone committed.

All Milestones		Assign	Add New Milestone	Clone	Shift Est. Date	Refresh	Feedback	Help	Save
	Milestone ID	Name	Est. Change	BACV (USD)	Non-Recurring?	Milestone Status	Milestone Category	Owner	
<input type="checkbox"/>	7-500592935	Backup deployment	5000	---	---	On Track	Production	Tobias Cosae	
<input type="checkbox"/>	7-500592936	DR Deployment	5000	---	---	On Track	Production	Tobias Cosae	

MILESTONE CATEGORIES

We only take the values of on track. The rest is not included in the calculation.

Completed means it is generating ACR already.

You can also cancel it.

* Milestone Category

Production

Production

Partner reported ACR

Partners env -> MongoDB offer as a SAAS even if in Azure.

At the month end MongoDB tells ms offset 10 15K

WACOA related

Est. Change for costopt could be negative value.

RI -> 1.2 million over a year annual payment. Is a billing cycle. From a consumption, for that month, there will be less usage in terms of ACR. You know that cmr is going for that for that VM. If PAYG it was supposed to be higher, but with RI is lower, you put the difference.

Deal Registration happens only once when the deal closes

CREDIT OFFER -> not for CSU

OWNER:

You can change it if it is now for you or you can transfer it to someone else

Milestone Status Reason

Generally if it is at risk

Azure Capacity Type Preferred Azure Region Help Needed

None West Europe - Amste ---

None

NVv5 (Cores)

Other

Av2/Dv2/Dv3/Ev3/Dsv3/Esv3 (Intel) (Cores)

Dv4/Ev4/Dsv4/Esv4/Ddsv4/Edsv4 (Intel) (Cores)

Dv5/Ev5/DSv5/Esv5 (Intel) (Cores)

Dav4/EaV4/DAsv4/EAsv4 (AMD) (Cores)

Helps the capacity team to know what is deployed.

Always click SAVE!!!!

Title	Type	Due Date	Owner	Status	Other Information
Customer Scenario: ...	Support Project	02/26/2023	davidbecquet	Initiating	Customer Project Sponsor: Karthik Sethuraman,...

MIP DSE etc.... Plans to add those here.

The main portion was the summary and milestones

It ight happen the date is passed but you haven't updated it.

2 situations: if it is closed, you change the status from on track to completed.

If activiti is still ongoing and still time for this. On March first it becomes a hygiene issue. On March1 I know if it is on track or not. If completed I'll update it to completed. Saying that it is closed. If it is cancelled I do that.

If it is delayed I change the date (no note needed)

You can also keep notes on the summary page and leave comment, no need for comments

What if consumption is higher what we thought it would be ?

If the service is already deployed, then you can close it. If we think that the value is more, we can change the value and change the status to completed and save.

The estimated change value is the per month value.

Azure Network Security Migration Workshop

Friday, February 10, 2023 5:51 PM

- when an Azure customer **should or should Not** use Azure Firewall
- when an Azure customer **should or should Not** use Azure Web Application Firewall
- when an Azure customer **should or should Not** use Azure DDoS Protection
- Understand, articulate and dispel the myths about Azure Firewall implementation, Azure Web Application Firewall implementation and Azure DDoS Protection implementation

Quick Myths & Facts

Myth: "WAF is only applicable to applications on Azure"

WAF can be applied on both a global and regional level to Azure cloud applications, on-premises, and other cross-cloud domiciled web resources.

Myth: "WAF inspects and stores customer data"

Web Application Firewall does not store customer data.

Myth: "Internal only web applications don't need a WAF"

With the new Zero Trust security model, we always want to **assume breach** and protect applications both external and internal. You can apply a WAF to an Application Gateway that handles request over its private IP to prevent any malicious insider attacks.

Fact: "Azure WAF supports Azure DDoS protection"

You can enable DDoS Protection on the virtual network where the application gateway is deployed. This setting ensures that the Azure DDoS Protection service also protects the application gateway public IP.

APIM:

Defender for API is the next one that will come.

Azure Firewall



Azure Firewall Basic

Enterprise-grade security for small and medium businesses

Comprehensive, cloud-native network firewall security

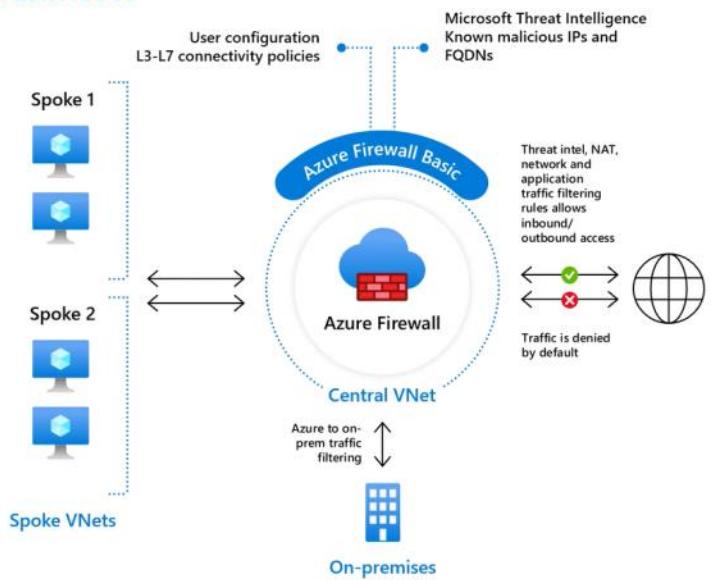
- Network and application traffic filtering
- Threat intelligence to alert on malicious traffic
- Built-in high availability
- Seamless integration with other Azure security services

Simple setup and easy-to-use

- Setup in just a few minutes
- Automate deployment (deploy as code)
- Zero maintenance with automatic updates
- Central management via Azure Firewall Manager

Cost-effective

Designed to deliver essential protection at a price point that meets your needs



Azure Firewall Premium

Cloud native Next-Gen Firewall as a service



TLS Inspection

- Built-in TLS Inspection for Outbound and East-West traffic
- Inbound TLS termination is supported with Azure Application Gateway
- Customer provided key pair via Azure Key Vault integration

Intrusion Detection Prevention System (IDPS)

- Detect alert and block inbound/outbound malicious traffic
- Supported for both encrypted and plain text protocols
- Signature-based detection that is continuously updated

URL Filtering

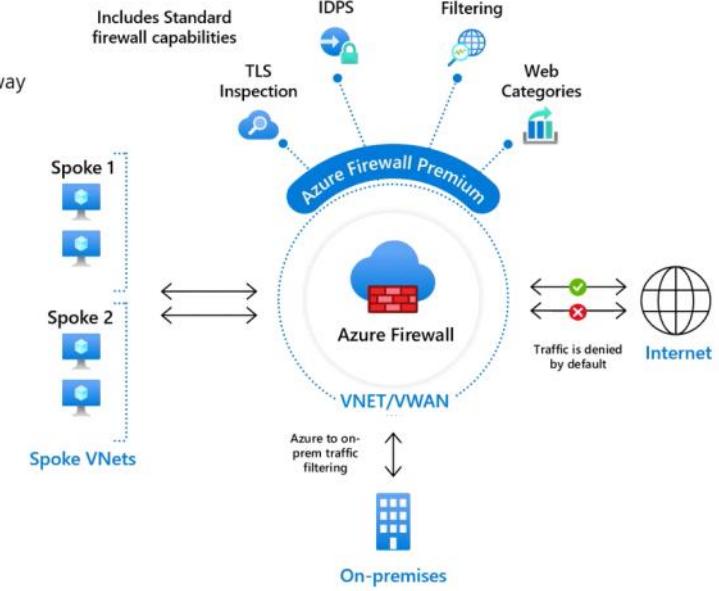
- Restrict user access to HTTP/HTTPS Web content
- Support for URL wildcards

Web Categories

- Allow or deny user access to website categories such as gambling, social media and others
- Web categories maintained and continuously updated
- URL based category matching

Azure Firewall Standard

- Including all standard firewall capabilities



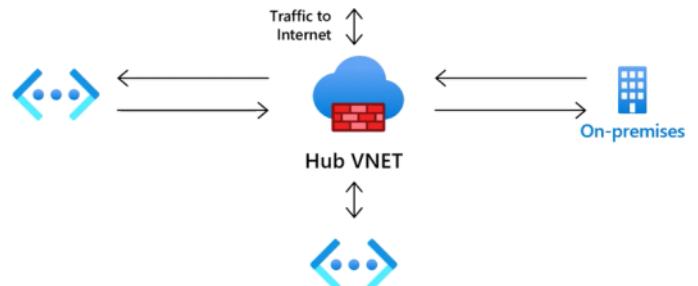
©Microsoft Corporation

Feature Category	Feature	Firewall Basic Preview	Firewall Standard	Firewall Premium
L3-L7 Filtering	Application level FQDN filtering (SNI based) for HTTPS/SQL	✓	✓	✓
	Network level FQDN filtering – all ports and protocols		✓	✓
	Stateful firewall (5 tuple rules)	✓	✓	✓
	Network Address Translation (SNAT+DNAT)	✓	✓	✓
Reliability & Performance	Availability zones	✓	✓	✓
	Built-in HA	✓	✓	✓
	Cloud scalability (auto-scale as traffic grows)	500Mbps	Up to 30 Gbps	Up to 100 Gbps
	Fat Flow support	N/A	1 Gbps	10 Gbps
Enterprise Integration	Web content filtering (web categories)		✓	✓
	DNS Proxy + Custom DNS		✓	✓
	Full logging including SIEM integration	✓	✓	✓
	Service Tags and FQDN Tags for easy policy management	✓	✓	✓
Ease of Management	Easy DevOps integration using REST/PS/CLI/Templates/ Terraform	✓	✓	✓
	Central management via Firewall Manager	✓	✓	✓
Advanced Threat Protection	Policy Analytics (Rule Management over time)	✓	✓	✓
	Threat intelligence-based filtering (known malicious IP address/ domains)	Alert	✓	✓
	Inbound TLS termination (TLS reverse proxy)			Using App GW
	Outbound TLS termination (TLS forward proxy)			✓
Fully managed IDPS	Fully managed IDPS			✓
	URL filtering (full path - incl. SSL termination)			✓

Firewall Use Cases

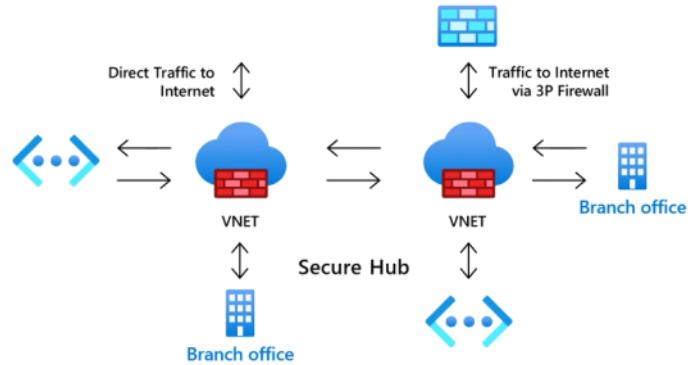
VNET deployment

- Firewall is in a Hub VNET.
- Secure traffic between spoke VNETs, subnets within VNETs and traffic to the internet from spokes.
- Optionally secure traffic to Branch offices via ER/VPN Gateway.



Virtual WAN (aka Secure Hub)

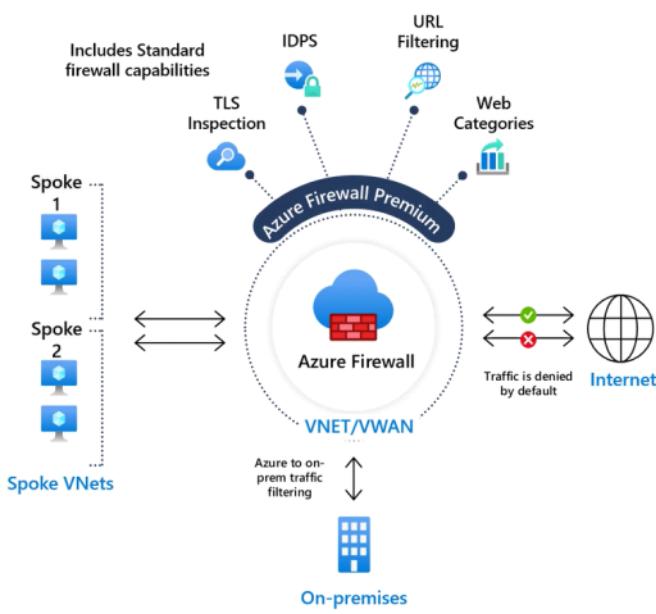
- Firewall is inside a Virtual WAN hub.
- Secure traffic between VNETs, Branch offices and cross hub.
- Automate route configuration to easily attract traffic to the firewall.



Forced Tunnel mode

- Internet breakout is via a 3rd party firewall deployed on-premise or elsewhere.
- Forced tunnel to on-premise firewalls is supported in VNET environments. Virtual WAN environments supports 3P security partner provider for breakout to the internet via CheckPoint & ZScaler.

When to Consider Azure Firewall



- Needs to control egress & ingress traffic (North/South)
- Needs to control internal traffic between Azure resources and other private networks such as on-premises and other cloud providers (East/West)
- Needs a stateful firewall with Layer 3 – Layer 7 protection
- Require advanced protection that meets the needs of highly sensitive and regulated environment, such as the payment and health industries (TLS Inspection, IDPS, Threat Intel, URL Filtering, etc.)
- High-availability and autoscaling of firewall deployment are essential

When to Consider 3rd Party

Issue	Description	Mitigation
NAT rules with ports between 64000 and 65535 are unsupported	Azure Firewall allows any port in the 1-65535 range in network and application rules, however NAT rules only support ports in the 1-63999 range.	This is a current limitation.

Issue	Description	Mitigation
Adding a DNAT rule to a secured virtual hub with a security provider isn't supported.	This results in an asynchronous route for the returning DNAT traffic, which goes to the security provider.	Not supported.

- Customer is looking for a feature that is required for their business needs but is not available with Azure Firewall.
- Customer has a technical blocker due to a **Known Issue** that has no mitigation or ETA to be changed or fixed.
- Customer has a strong preference for a particular 3rd party product or may want a multi-cloud solution.

Main Competitors:



Quick Myths & Facts

Myth: "Azure Firewall is more expensive than third-party solutions like Palo Alto, CheckPoint, Fortinet"

Customers today perceive Azure Firewall to be more expensive than the equivalent Firewall from NVAs because customers tend to ignore internal and external load balancer costs, bandwidth costs and compute costs that are included in the Firewall pricing and instead compare the low NVA licensing costs with the fixed costs associated with Firewall SKUs. Refer to our Field Advisory for more details on Azure Firewall pricing comparison.

Myth: "Azure Firewall requires the same level of management as an NVA"

Azure Firewall is a cloud-native platform managed firewall as a service. Maintenance, updates, planning for HA & reliability, will be handled by the platform without intervention from the customer. Azure Firewall is also backed by support and service teams, which is not the case for every vendor.

Myth: "Azure Firewall cannot protect against zero-day vulnerabilities and/or malware/ransomware"

Azure Firewall introduces new IDPS signatures every day. IDPS is network-based protection for malware and ransomware.

SPARK Sessions

Sunday, February 12, 2023 1:48 PM

Bicep CARML

Sunday, February 12, 2023 1:48 PM

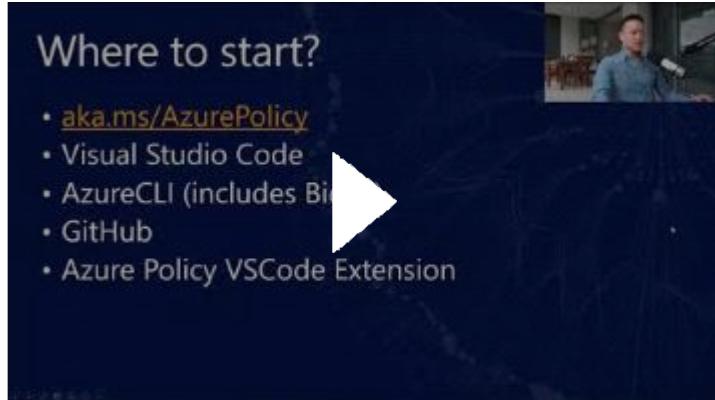
CARML_ Accelerate workload implementations in a CAF Azure Landing Zone using Bicep & GitHub #SPARKFY

[CARML_ Accelerate workload implementations in a CAF Azure Landing Zone using Bicep & GitHub-SPARKFY22H2.mp4 \(sharepoint.com\)](#)

Policy As Code

Monday, February 20, 2023 6:08 PM

[#GlobalAzure - Policy as Code with Bicep for Enterprise Scale](#)



[ResourceModules/modules/Microsoft.Authorization/policyAssignments at main · Azure/ResourceModules · GitHub](#)

[ResourceModules/modules/Microsoft.Authorization/policyDefinitions at main · Azure/ResourceModules · GitHub](#)

[GitHub - Azure/enterprise-azure-policy-as-code: Enterprise-ready Azure Policy-as-Code \(PaC\) solution \(includes Az DevOps pipeline\)](#)

Open Hacks

Monday, February 20, 2023 6:38 PM

[Microsoft OpenHack \(sharepoint.com\)](#)

[Microsoft Delivery Info - Containers - OH One Pager.pdf - All Documents \(sharepoint.com\)](#)

TUBS

Monday, February 20, 2023 6:40 PM

[Azure Technical Update Briefing - References | MIP Delivery Documentation
\(mipdocs.azurewebsites.net\)](https://mipdocs.azurewebsites.net)

TUB Shadowing

Friday, 14 April 2023 09:35

Gets right into it after waiting and making sure the necessary people are present.
Starts with retirements and then at the end asks if there are questions and then moves on

General availability:
In the middle asks if any questions

On Spot VM update, asks the group if anyone needs more explanation

VMs that come from the spare capacity we have in Azure. We get it for a very low price, if we need to take the capacity back, we take it back. So you get it at a very low price, but we can take the capacity back.

Virtual Machine Scale Sets

Spot Priority Mix

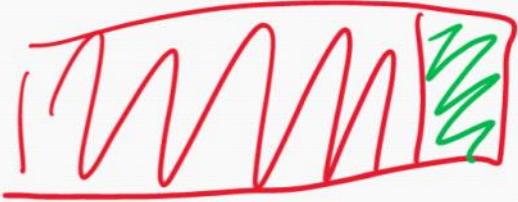
Azure is excited to announce the General Availability of Spot Priority Mix, a new feature for Virtual Machine Scale Sets (VMSS) with Flexible Orchestration Mode enabled. With Spot Priority Mix, customers can now mix spot and standard virtual machines in their Flexible scale set, providing the high availability of standard virtual machines and the cost savings of Spot virtual machines. This feature also allows customers to autoscale their scale set with a percentage split of Spot and standard virtual machines, providing even more flexibility and cost optimization.

With Spot Priority Mix, customers can specify a base number of standard virtual machines and a percentage split of spot and standard virtual machines to be used when the scale set capacity is above the base number of standard virtual machines. This allows customers to ensure that their critical workloads are always running on standard virtual machines, while taking advantage of the cost savings offered by spot virtual machines for non-critical, interruptible workloads.

To get started with Spot Priority Mix, customers can use the Azure Portal, Azure CLI, Azure PowerShell, or ARM templates. For more information on how to set up Spot Priority Mix, please refer to the Azure documentation.

[Learn more](#)

Now Available
March 2023

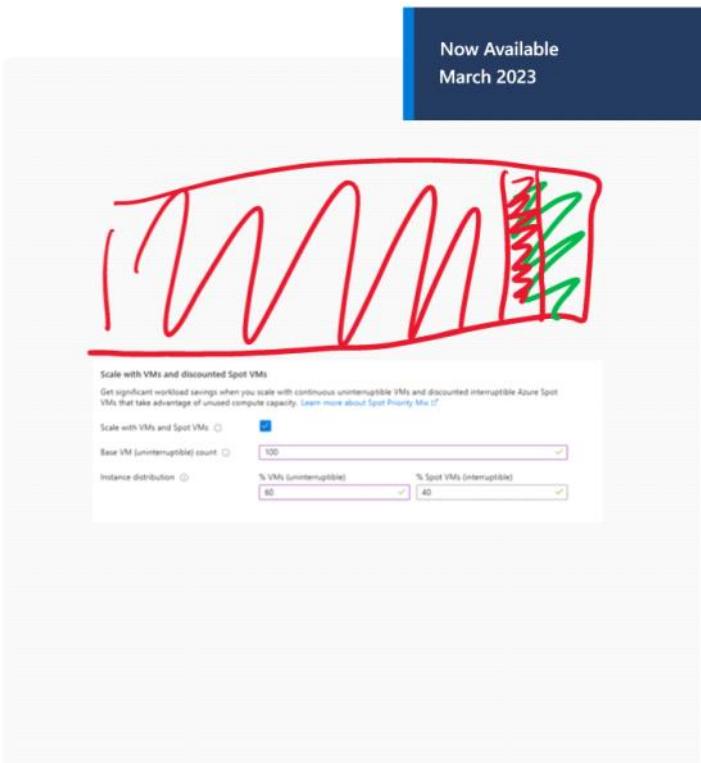


Scale with VMs and discounted Spot VMs
Get significant workload savings when you scale with continuous uninterruptible VMs and discounted interruptible Azure Spot VMs that take advantage of unused compute capacity. [Learn more about Spot Priority Mix](#).

Scale with VMs and Spot VMs

Base VM (Uninterruptible) count:

Instance distribution: % VMs (Uninterruptible) % Spot VMs (Interruptible)



That's in fact a very cost effective solution to have VM. So you can get up to 90% discount, but there is of course something there, it's those are actually VMS that come from the spare capacity that we have in Azure and there it means that OK, you get those VMS from the spare capacity for a very low price. But in case if another customer needs that capacity. So if we need to take that capacity back.

- We'll take it without any warning, so there are no SLAs or whatsoever. It's just OK. You pay a very nice price, but at any time we can take that capacity back. So if we look for example at this as the Microsoft capacity, let's say in one region, let's say at the moment all this is being consumed well, then you can get some spots, VMS from that capacity. But if at a certain moment in time another customer says, OK.
- I know want to pay the full price to get virtual machines. Well, let's see now it increased to here all this all those VMS, all that capacity will need to be taken away from the users of the spot VMS who paid the spot price. So there you don't have any guarantee that you will be able to keep that capacity for a long time, but that's why such a feature like the spot priority mix is very nice because there it allows you to combine so your spot.

with standard VM S in the same skill set and what it means is that you can say in my skill set. So this is your skill set. I want at least 60% of my virtual machines to be standard VMS. OK so non spot VMS. So those you are sure that you keep them. OK, we will not at any time take them away from you because they're you have an SLA so they're.

You can see those VM's they define a baseline, OK foundation and then you you can say well for the rest for up to 40% I allow it to be spot virtual machines. Meaning that if I lose them it's not that big of a deal because I still have some regular VMS. And so I will not go down to 0 replicas 0 sorry.

Virtual machines in my scaleset because, well, you did not only put spot VMS in there, so there it guarantees a baseline and that you can also still scale let's say if you want in total 10 VMS you have six of them which are regular ones and four of them which are spot if you lose let's say two of your spot VMS you can increase the regular VMS to 8 and that way you still have those ten VMS but. It is more cost effective.

Azure Kubernetes Service (AKS)

Now Available
March 2023

Azure Active Directory workload identity

In Azure Kubernetes Service (AKS) today, a preview feature allows you to assign [managed identities at the pod-level](#). This pod-managed identity allows the hosted workload or application access to resources through Azure Active Directory (Azure AD). For example, a workload stores files in Azure Storage, and when it needs to access those files, the pod authenticates itself against the resource as an Azure managed identity.

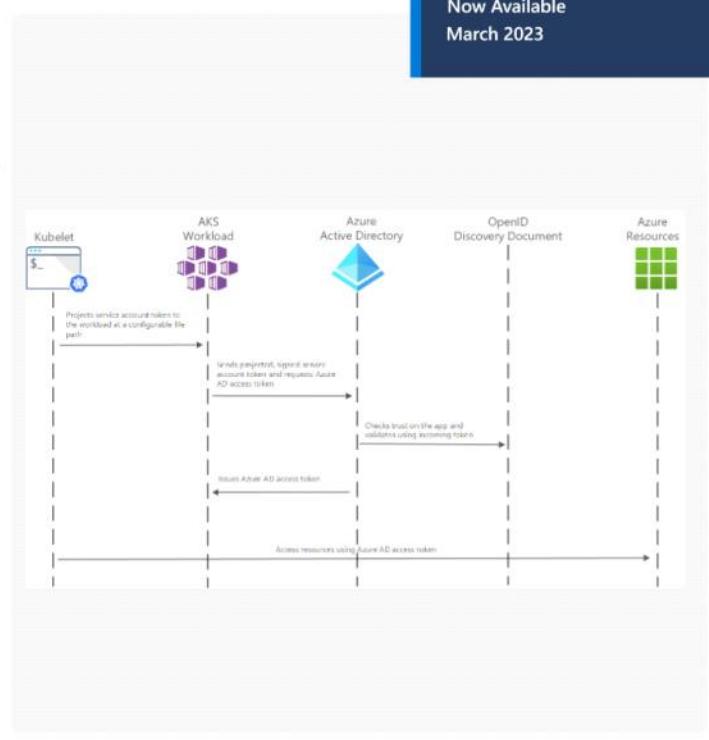
This authentication method is now replaced with [Azure Active Directory \(Azure AD\) workload identities](#), which integrate with the Kubernetes native capabilities to federate with any external identity providers. This approach is simpler to use and deploy, and overcomes several limitations in Azure AD pod-managed identity:

- Removes the scale and performance issues that existed for identity assignment
- Supports Kubernetes clusters hosted in any cloud or on-premises
- Supports both Linux and Windows workloads
- Removes the need for Custom Resource Definitions and pods that intercept [Azure Instance Metadata Service](#) (IMDS) traffic
- Avoids the complicated and error-prone installation steps such as cluster role assignment from the previous iteration

Azure AD workload identity works especially well with the Azure Identity client library using the [Azure SDK](#) and the [Microsoft Authentication Library](#) (MSAL) if you're using [application registration](#). Your workload can use any of these libraries to seamlessly authenticate and access Azure cloud resources.

Learn more: <https://aka.ms/aks/workloadidentity>

Some interaction with audience that tested old pod identity here.



API Management

Public Preview
March 2023

Workspaces

Workspaces for Azure API Management is now in public preview. This new capability enables granular access control in multi-team Azure API Management deployments. API Management platform owners can separate team permissions for managing APIs by scoping them to a workspace.

With this new functionality, organizations can now:

- Enable central platform team to maintain the platform infrastructure
- Have the decentralized API teams independently manage and publish APIs in their own workspace, without access to other teams' workspaces.

Read documentation [here](#).

The screenshot shows the Azure API Management workspace interface for the 'Marketing' workspace. The left sidebar menu is highlighted with a red box, showing options like Overviews, Access control (IAM), Tags, Workspace, Settings, APIs, Products, Subscriptions, Named values, Policy fragments, Schemas, API Tags, Developer portal, Groups, Deployment + Infrastructure, and Notifications. The main content area displays the workspace details: Display name (Marketing), Access (None), Tag ID (None), Click here to add tags, and Properties (APIs, Subscriptions). The APIs section shows 0 Total APIs, 0 Current APIs, and 0 Revocations. The Subscriptions section shows 0 Subscriptions.

Questions:

Will vwan be supported for azure vnet manager

Monitoring Demos

woensdag 8 maart 2023 17:56

<https://review.learn.microsoft.com/en-us/asm-demo-script/script/cloud-management-monitor-overview?branch=main>

Minus the Bias

What's in it for me?

By the end of this module
you will have answers to the
following questions:

1. How does the unconscious mind inform our decisions? What are my own unconscious biases?
2. How can I manage these unconscious biases and engage in more transparent thinking?
3. How do I speak up sensitively when I witness potential bias?

Recognizing unconscious biases

Section 1

Unconscious biases

- Mental shortcuts that help us make sense of the world
- Help us think fast and filter information
- Place people into broad categories
- Operate without our knowledge
- Can be difficult to identify

Unconscious biases

- Mental shortcuts that help us make sense of the world
- Help us think fast and filter information
- Place people into broad categories
- Operate without our knowledge
- Can be difficult to identify



Thinking fast and slow

Biases allow us to navigate our days effectively and efficiently.

We must be aware of situations in which our biases may go unchecked.

Practicing awareness is the first step in keeping judgments balanced and mitigating the effects of unconscious biases.

Overcoming biases

Section 2

Three steps to transparent thinking

Select the cards to flip them around and learn more about the steps to transparent thinking.

1

Set the criteria

Avoid bias
with pre-planning

2

Gather evidence and data

Avoid bias
with objective testing

3

Evaluate

Avoid bias
with peer review

Avoid bias with pre-planning

Our criteria can be highly subjective and we can often base it on our instinct, rather than on fact.

Identify your criteria, then check to see whether you could still achieve a favorable outcome when your criteria hasn't been matched.

Avoid bias with objective testing

We frequently seek out evidence that suits our initial impression.

Shield your judgment from anything that could trigger an unconscious bias—like removing names from résumés for job candidates.

Avoid bias with peer review

We often try to retrofit the evidence we have to the criteria we set originally.

Share the criteria, the evidence, and the end evaluation or decision with others, and see how they would respond.

Imagine this...

Your manager has asked for your help in picking someone from the team to partner with you on a new project.

This project has tight timelines, will require a great amount of creative thinking, as well as experience with social media platforms. Additionally, those on the project will need to use a software new to your team. Your manager has suggested Phil, the newest member of the team.

Let's use the three steps to transparent thinking to fairly select who should partner with you on this project.

Select Next to practice.

Practice the three steps

Select the boxes below to see how we can put the three steps to transparent thinking into action.

Set the criteria

Avoid bias
with pre-planning

Gather evidence and data

Avoid bias
with objective testing

Evaluate

Avoid bias
with peer review

Practice the three steps

Select the boxes below to see how we can put the three steps to transparent thinking into action.

Set the criteria

Avoid bias
with pre-planning

Gather evidence and data

Avoid bias
with objective testing

Evaluate

Avoid bias
with peer review

Set the criteria for success in this project.

The person selected should:

- have experience with navigating social media platforms
- be able to quickly learn and use new software
- have innovative and creative thinking skills

Practice the three steps

Select the boxes below to see how we can put the three steps to transparent thinking into action.

Set the criteria

Avoid bias
with pre-planning

Gather evidence and data

Avoid bias
with objective testing

Evaluate

Avoid bias
with peer review

Gather information for each person you are considering. Your manager has suggested Phil, but you don't want to eliminate Maria, a more tenured colleague.

Gather information like:

- experience with new software
- examples of creative thinking
- formal training on advertising on social media platforms

Practice the three steps 

Select the boxes below to see how we can put the three steps to transparent thinking into action.

Practice the three steps ↗

Select the boxes below to see how we can put the three steps to transparent thinking into action.

Set the criteria

Avoid bias
with pre-planning

Gather evidence and data

Avoid bias
with objective testing

Evaluate

Avoid bias
with peer review

Now review evidence against the criteria and make the decision.

You and your manager assumed because Phil is young, he would be the best pick for a technology-oriented project.

After evaluating the data you collected for both Maria and Phil in step 2 and comparing it to the criteria set in step 1, you realize Maria is the most qualified person to join the project.

How would you respond? ↗

Now, imagine you just told your manager that you feel Maria is the best person for the project.



Your manager replies: "I'm really thinking Phil is the best choice. He's straight out of college. You can hand one of those kids any new software and they'll learn it much faster than someone like Maria."

Given what you've discovered in the three steps to transparent thinking, how would you respond to your manager in this situation?

Select one of the choices on the right.

Option 1

Speak up sensitively —
Maria is the best person for the project.

Option 2

Ignore it —
it's not worth saying something.

Well done. It's best to speak up sensitively, in order to make sure fair decisions are made, and prevent biased decisions from recurring in the future.

Continue to learn how to speak up about bias in a sensitive way.

CONTINUE

So you decide to speak up, but how?

Taking meaningful action can be tough, but this will contribute to a collective culture of inclusion.

Speak up sensitively 🗣

Explore these tips by clicking on each of the boxes below.

Validate

Discuss

Unite

Speak up sensitively 🗣

Explore these tips by clicking on each of the boxes below.

Validate

Discuss

Unite

Create a safe space to have the conversation – this includes both physical space and setting the right tone. You want others to feel valued and respected.

"I appreciate you raising this concern."

"Your background helps broaden my awareness on this."

"What else could we do in this situation?"

"Let's talk about this."

Speak up sensitively

Explore these tips by clicking on each of the boxes below.

Validate

Discuss

Unite

Open the discussion by sharing your concerns objectively. This will help others understand your challenge and decision.

"Help me understand this."

"I see it somewhat differently.
In my opinion..."

"Tell me more about what this means to you."

"Let's hear from everyone."

Speak up sensitively

Explore these tips by clicking on each of the boxes below.

Validate

Discuss

Unite

Get everyone back on track and maintain momentum. It's important to create an environment where people feel their contribution is valued.

"Sounds like we have agreed to do the following..."

"Does this capture our discussion?"

"Are we ready to move on?"

"How will we integrate this into our next steps?"

Applying it

Section 3

Let's practice

In this section, you will try a bite-sized simulation and see how well you can manage unconscious biases by thinking transparently and speaking up sensitively.

On the next slide, you will engage in a conversation between you and some other team members.

Choose the response you think is best. You will then receive either feedback on why your choice was the better response or tips to help you improve.

Try it out (Scene 1)

You're in a meeting with your v-team discussing possible choices for a new project lead.

When prompted, choose the response you'd have that you think would be best for handling the conversation, using the three steps for transparent thinking and your tips to speak up sensitively.

Marc: Right. So, I wanted to get everyone's input on the right person to lead the project, since Jin is moving across to the Zero-base project. I think Cynthia is our best bet. She's a fast learner, and she's led on a similar project before.

David: I've had limited interaction with her, but it's hard for me to picture her leading the team.

Laila:
Well, I think...

Jin: I agree, I don't think she has a strong enough technical background.

David: I'm not sure that she can give the time needed for this kind of project given her family situation. Aggressive timelines like this require someone's full attention.

Jin: Two young children take a lot of looking after ... we don't want anyone having to leave early.

Try it out (Scene 1) ↗

How would you speak up?

Option 1

I know everyone has experience picking project leads. Can you explain why someone else would be a better fit than Cynthia? Have her responsibilities at home been in the way of work?

Option 2

You can't make a decision like this just because she has children.

Option 3

OK, let's consider someone else then.

[Return to conversation](#)

Option 1

Well done. You used the validate tactic, by acknowledging others' expertise. You also used the discuss tactic, sharing your concerns objectively and making it clear why you're challenging their thinking.

[CONTINUE](#)

Try it out (Scene 2) ↗

Marc: You do have a point. Having children doesn't necessarily mean you can't still work efficiently. Mine are a little older.

Laila:
You know, it's...

Jin:
Being a project lead requires full focus.

Marc:
Laila, you were saying...

Laila: Jin, you were questioning Cynthia's technical background, but she has a PhD in Computer Engineering.

Jin:
Yes, but that's just an academic qualification.

Laila: Oh, well I see a long list of qualifications here actually. What exactly are you looking for?

[How would you speak up?](#)

Try it out (Scene 2)

How would you speak up?

Option 1

Cynthia has performed well on other projects, I don't see why she shouldn't be able to play a lead role on this one.

Option 2

Jin, is there a reason you're making these assumptions about Cynthia?

Option 3

Let's talk about the measures for selecting the project lead. I think we need to check we're judging based on the agreed-upon criteria for project management roles.

[Return to conversation](#)

Well done. You used the discuss tactic, by sharing your thoughts in an objective, evidence-based way, which opens discussion and prevents judgment from sneaking in.

[CONTINUE](#)

PRO TIP

Best practice: Ensure all voices are heard.

Did you notice this moment?

After Laila was interrupted twice, Marc noted that Laila was trying to say something and provided her with an opportunity to speak.

Mark served as an ally for Laila by ensuring her voice was heard. That's great for him to do as a manager—and it's something that anyone on a team can do to support a more inclusive working environment.

[CONTINUE](#)

Try it out (Scene 3)

Jin: What about Ravi? He's been with me since we created the application. And if you're taking me off the project ... he's got the experience and the expertise.

David: Ravi's in India ... we need someone who's available. A lot gets accomplished in random discussions in the hallway.

Laila: And Ravi is so introverted. He has a different communication style ... you know how hard it is to get a word in edgewise at this company.

Marc: That's true. It is difficult to communicate with him sometimes. His personality is suited to his role as head engineer. It just makes better use of his talent.

Try it out (Scene 3)

How would you speak up?

Option 1

Let's stay on track and consider what's critical for success in this lead role. Should we change the criteria or focus on current qualifications?

Option 2

Jeez, why be so quick to judge?

Option 3

These aren't factors that should disqualify someone from leading this project. Let's move on.

[Return to conversation](#)

Nice! You're putting a few tactics to use – you're keeping the conversation objective by focusing on the criteria, and you're using the discuss tactic by inviting what others have to say. You're also using the unite tactic, encouraging the group to maintain momentum.

[CONTINUE](#)

Try it out (Scene 4) 📱

Laila:
How about Gerry?
I like him.

David:
He reminds me of that
start-up founder...
what's his name?

Laila:
Why, because
he's a Millennial?

David: You know that's
not what I mean. Because
he's chill ... you know, uh
... laid back. Cool.

Marc: Yeah, he has a different style. I mean I
like him, he's fun ... but I can't help feeling
that he's too laid back. What's he going to
do when the project intensity increases?

Jin: He hasn't been
here long enough. His
previous job was at a
financial corporation.

Marc: But he's got
a strong application
development
background.

Laila: And he would bring a fresh
perspective ... plus it would be nice to
have somebody leading who's likeable.

Jin:
But would he keep up
with the fast pace?

Marc: Well, all things considered,
I'd say Cynthia is our best option.
I'll check the criteria and decide
whether she's right for the role
myself. Thanks everyone!

Try it out (Scene 4) 📱

How could Marc have ended the conversation differently? Choose from the options below.

1

Marc could have asked
the group if everyone
was happy to move on.

2

Marc could have
reiterated the
shared outcome of the
decision, so everyone's
on the same page.

3

Marc could have
included the group in
reviewing evidence
against the criteria to
ensure the final decision
was fair.

4

All of these

[Return to conversation](#)

The correct answer is **4. All of these**. These are all ways Marc could have ended the conversation differently. They demonstrate the unite tactic in action. What's key in these conversations is that we maintain a safe environment by ensuring that everyone feels their input is valued, even after assumptions are challenged.

[CONTINUE](#)

Take action

Section 4

Summary

In this session, we discussed:



Our own unconscious biases, and how they play a role in our decision-making.



How to manage our unconscious biases by engaging in three steps to transparent thinking—set the criteria, gather evidence and data, evaluate.



The three tips to help us speak up sensitively when we witness potential bias—validate, discuss, unite.

Take action

Review the missions in each box and select which one you will take right away:

"I want to make sure the decisions I make are fair."

"I want to create a culture of objectivity."

"I want to use my new-found awareness to reduce bias in myself and others."

Evaluate your next decision that includes others at work. They can be big (team resourcing) or small (who you go to lunch with), but each time reflect afterwards on the decision-making process you used—even if there didn't seem to be one.

Reflect on what was conscious and unconscious. What biases can you identify? Which were positive? Which were negative? Did you make any assumptions?

Take action

Review the missions in each box and select which one you will take right away:

"I want to make sure the decisions I make are fair."

"I want to create a culture of objectivity."

"I want to use my new-found awareness to reduce bias in myself and others."

Practice the role of a bias interrupter. Role-model speaking up whenever the discussion strays from the objective or if an assumption is made.

By speaking up sensitively, you will speak up whenever a decision's integrity is in doubt, in a way that avoids accusing or belittling others.

By role-modeling the process, you are building a team norm and make it safe for others to follow suit.

Take action

Review the missions in each box and select which one you will take right away:

"I want to make sure the decisions I make are fair."

"I want to create a culture of objectivity."

"I want to use my new-found awareness to reduce bias in myself and others."

Identify an aspect of your organization that is susceptible to bias and challenge it. It might be the language people use, the standard assumption of who to go to for informal tasks, or something bigger in the culture—such as lack of acceptance of specific attributes. Awareness is the catalyst for action, curiosity informs what action to take, and to demonstrate courage is to take action. You might do this by role-modeling best practice yourself or taking it further by flagging it to senior colleagues.



Powerful Question

Powerful question time ... how can you apply the three steps of transparent thinking the next time you experience situations similar to the ones you described above?

Your answer to this question could be included in an anonymized data report.

1. Set the criteria (mitigate bias with pre-planning):
2. Gather evidence and data (mitigate bias with objective testing):
3. Evaluate (mitigate bias with peer review):

Introduction to Customer Impacting Crisis Response

Friday, 14 April 2023 13:04

[Customer Success Unit Tear Sheet and Guidance \(sharepoint.com\)](#)

[Crisis Response Field Guide \(sharepoint.com\)](#)

[Service Incident Playbook \(sharepoint.com\)](#)



Introduction to Customer Impacting Crisis Response



CLOUD SERVICE INCIDENT



Cloud Service Incident

"Service Incident" is the term that Microsoft uses to refer to **an event** (or series of events) that typically causes **multiple customers** to have a **degraded experience** with one or more of our **cloud services**.

Example:

- These incidents are effectively unplanned downtime – including outages impacting availability, performance degradation impacting users, and problems interfering with service administration/management.

Sample Impact:

- Customers may have experienced connectivity issues such as network drops, latency, and/or degradation when attempting to access or manage Azure resources in multiple regions.

• Reference (access limited to Iridias approved users) [Tracking ID 7SHM-P88](#)

CUSTOMER IMPACTING CRISIS

An event (or series of events) that disrupts or degrades the experience with Microsoft's products, services, and/or support.

CRITICAL SITUATION (CritSit)

Critical Situation is a global process with tools designed to allow Microsoft to effectively manage critical (Severity 1/A) Premier Support customer situations. It provides a consistent and repeatable support experience around the world.

CUSTOMER IMPACTING CRISIS vs. CRITICAL SITUATION

Customer Impacting Crisis is about a broader volume of high impact outage, incident, or event that impacts multiple customers across multiple geographical areas.

Critical Situation (CriSit) is about a customer situation, as a single incident, that may have that specific customer in crisis.

ACTIVITY: Crisis or CritSit?

Instructions: Read the scenarios below and determine if it qualifies as a customer impacting crisis or critical situation (CritSit)?

Scenario: There is high-impact Azure Active Directory service incident impacting thousands of customers across the globe.



Correct! This qualifies as a customer impacting crisis as it is high-impacting for multiple customers globally.

Scenario: A customer rolled out an update and inadvertently took down a critical application/platform impacting their business operations.



Correct! As this scenario impacts only one customer, it qualifies as a critical situation.

CRISIS MESSAGE ORIGINATORS



Cloud Service Incident
(Engineering Groups (Azure, M365, D365))

A crisis resulting from a service disruption in one or more of Microsoft's cloud services - e.g., an Azure Active Directory outage or a data center failure.



Security or Privacy Event
(Microsoft Security Response Center (MSRC))

including On-Premises Scenarios

A crisis resulting from a security or privacy vulnerability in Microsoft's products (including on-premises products), or a security or privacy breach.



Support Delivery Disruption
(Customer Service & Support (CSS) and/or TriP)

including Environmental Disasters

A crisis resulting from significantly diminished capacity to provide support to customers - e.g., a delivery partner outage caused by hurricane, earthquake, or other Acts of God.

CRISIS MESSAGE ORIGINATORS

Who Declares and Leads Crisis Communication

Engineering Groups (Azure, M365, D365) declare/lead in all Crises of the Cloud Service Incident type when customers have a degraded experience including when:

- One core service impacted in multiple regions.
- Multiple core services are impacted in any one region.
- Persistent negative social media.
- CSS Command Center refers a significant volume of CritSits / cases, and Engineering PGs identify an underlying issue.

See the aka.ms/incident for more information.



Where They Publish (Sources of Truth)

[Iridias](#) - Hosts cloud service incident alerts and updates.

[Lynx](#) - M365 & D365 notifications and updates.

[Azure / Dynamic 365 Distribution Groups](#) for the field.

[High Impact Communications](#) - Used for engineering engagement with the field.

[High Impact Teams Channel](#) for cloud outages.

[Twitter](#) - Information published to social media

[Azure Status Page](#) - Public-facing page providing updates on service incidents; refer when portal experience is unavailable.

CRISIS MESSAGE ORIGINATORS

Who Declares and Leads Crisis Communication

Microsoft Security Response Center (MSRC) when:

- MSRC or other groups within the Microsoft security and privacy community identify a critical security vulnerability or risk.
- CSS Command Center identifies a significant volume of security-related incidents.
- Cloud: MSRC, Cloud CXP Team (M365 ICC, Azure CXP, D365 CXP) lead communications for a cloud impacting security/privacy incident.



Where They Publish (Sources of Truth)

[Iridias](#) – Azure CXP

[Lynx](#) - M365/D365

Email - CXP/TrIP

Talking Points – CSS Security

Security Crisis Field Advisory - CXP/ESA/CSS Security

Yammer – CSS Security

Review the [Crisis Response Field Guide](#) for additional external channels.

CRISIS MESSAGE ORIGINATORS

Who Declares and Leads Crisis Communication

Customer Service & Support (CSS) when:

- Event impacting CSS capacity (e.g., natural disaster disrupts operations of regional support center).
- Trust and Integrity Protection (TrIP) when:
- Data privacy, security, or compliance issues with one or more CSS delivery partners causes support disruption.



Where They Publish (Sources of Truth)

[CSS Command Center](#) - Internal notices for disruptions to support delivery capabilities

[Iridias](#) – Azure CXP

[Lynx](#) - M365/D365

Email - CXP/TrIP

Talking Points – CSS Security

Security Crisis Field Advisory - CXP/ESA/CSS Security

Yammer – CSS Security

Key Takeaways

- An event (or series of events) that **disrupts** or **degrades** the experience with Microsoft's products, services, and/or support.
- A crisis and a critical scenario are different. Crisis impacts **multiple high-volume** and **high-impact global** customers.
- There are three customer impacting crisis types; **Cloud Service Incident, Security or Privacy Events, Support Delivery Disruption.**
- **Official messaging** regarding a crisis is crafted by designated **Crisis Message Originators** for the three customer impacting crisis types.
- **Crisis Messenger Teams** utilize the official messaging created by the Crisis Message Originators to **communicate with customers.**
- Use **empathy** when working with a customer through a crisis.
- The **Crisis Response Field Guide** is your go-to resources for all things **Before, During, and After** a crisis.

Service Incident Field Training

Friday, 14 April 2023 13:38

Aka.ms/incident

SLA's Azure

Tuesday, 2 May 2023 12:42

[OnlineSvcsConsolidatedSLA\(WW\)\(English\)\(May2023\)\(CR\).docx \(live.com\)](#)

Situational Fluency

Tuesday, 30 May 2023 12:47



Leading Expert: Sara Canaday

Why Situational Fluency?

Every situation is different, every cmr, colleague, opportunity.

Solution: Expanding our situational fluency



Self-awareness:

Natural tendencies for thought processes and communication, how you are perceived by others

Social awareness:

The ability to detect cues from the people around you, what are they saying and not saying. What's the dynamic between different members of a group.

Situational awareness:

Ability to analyze the current environment or circumstances that maybe influence your interaction. What may be happening around you that may or should change the foundation of your conversations.

What is self-awareness?

Engage in self-reflection

Reflect back on situations and come to an honest conclusion where our intent did not match our impact.

Ask for feedback

Be strategic with your questions:

Example: I want to be perceived as someone who is highly responsive and reliable. Is there anything I'm doing that either contributes to or detract from that perception?

If you find a gap between your intent and actual impact, you know exactly what needs to change so you can better engage and influence the people around you.

How to improve self-awareness



Make changes:

Seeing by other people as smart but not necessarily creative -> action add things in your presentation that are creative.

Monitor your ego:

Overconfidence can become a huge drag on our self-awareness. Stop focusing on your ego and adopt a growth mindset.

Comes from humility and willingness to accept that we can learn from others.

Be proactive: about managing your emotional triggers

Keep log of the times when you were not at your best self. Look for patterns and attempt to avoid certain triggers.

Take a few breaths be4 you respond in the moment.

Take a pause and ask yourself, do I need to say this now to these people. How will my words affect my relationships.



Linkedin Course:

[https://www.linkedin.com/learning/developing-self-awareness?
trk=course_title&upsellOrderOrigin=default_guest_learning](https://www.linkedin.com/learning/developing-self-awareness?trk=course_title&upsellOrderOrigin=default_guest_learning)

Increase Emotional Intelligence:[MSLibrary - Details \(sharepoint.com\)](#)

Self-awareness checklist



Self-reflect on my motivators and limiters.



Gather feedback from my peers and manager.



Explore Microsoft learning resources available for personal development.



Create SMART (specific, measurable, achievable, relevant, and time-based) goals for improving self-awareness.



Situational fluency ac...

Social awareness:

Paying closer attention to the people around us.

How to become more socially aware?



Listening:

Be deliberate about listening.

Scheduling buffer time between your meetings, so you have chance to complete your thoughts on one topic before beginning on another one. Or if you have lingering concerns racing through your mind, jot them down so you can address them later. That will help you compartmentalize and give the person in front of you your full attention.

Then listen for more than just content. Listen for what people are telling you about how they value or feel about a particular situation.

Observe:

Become a keen observer. Note subtle messages in people's body languages and facial expressions.

Are the meeting attendees starting to fidget or seem disengaged. In virtual meetings, are they active in the chat or responsive with emojis. Carefully observe how they're responding to your words, approach, your pace, as well as how they are reacting to the other people in the meeting.

Adapt:

Adapt to the communication style of other people. When someone is socially aware, they know how to customize their messages for greater impact, based on their audiences.

Example: If you're meeting with a busy, bottom line focused executive, your approach might be to get to the point and provide key metrics that might be meaningful for them.

Know your audience and personalize your communication to suit their needs.

Check in with your audience:

Implement a check-in process by regularly checking in with the people you interact with you could enhance your social awareness.

Tips:

Get your cmrs or colleagues involved in co-creating the agenda. Send a draft in advance to ensure you are covering what's important to everyone who will be participating.

Establish specific points throughout the meeting so you can pause and ask for immediate feedback by asking pointed questions.

At the end of the presentation be direct about asking for input. For example: Did I leave anything unsaid, was there something you hoped to learn today that I didn't cover.

DO's and DON'TS



Do schedule a break to wrap-up any thoughts from previous meetings and reset mentally, especially before late afternoon meetings.

Do block out distractions when you need to focus on others. Silence email and phone notifications.



Don't make a habit of overbooking yourself. Your ability to detect and respond effectively to social cues may be reduced when you're fatigued.



Do co-create the agenda with your audience prior to the meeting if you can. If energy is low, co-creating the agenda with your attendees at the beginning of the meeting can be a quick boost to raise engagement and inclusion.



Don't stick to your agenda if the room is not responding. Remember to observe and use social cues or feedback mechanisms to detect when to pivot and when to stay the course.



Engagement



Check in



Do turn your camera on to encourage participation. This method can be persuasive without being intrusive.

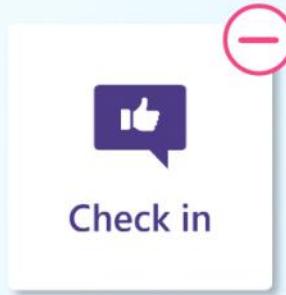
Do encourage audience participation by asking the group to use the chat or Teams features to engage.



Don't make assumptions.
If someone isn't on camera or active in the chat, it doesn't always mean they're not paying attention. Be respectful of people's preferences, while finding ways to make everyone feel included.



Engagement



Check in



Do schedule pause points to check in with your audience, address questions, or check the chat in virtual meetings.

Do review the agenda with your group to ensure everyone has the same expectations about what will be covered in the meeting.



Don't overpack your agenda. Allow time to create the right balance between presentation and audience discussion.

Don't do the same things and expect a different result. Be creative. Do something thoughtful that encourages audience participation.



Research



Communication



Do use online tools to learn more about your customer's role, background, and company so you're prepared to tailor your meeting to fit their needs.

Do ask the right questions appropriate for the role of the attendees and the stage you're at on the project.



Don't assume you know. Do your due diligence to review customer and Microsoft resources to prepare for the meeting. If you are unsure, ask your audience where they would like to go next versus making assumptions.



Research



Communication



Do assess the vibe in the room. You can very quickly understand people's communication styles by how they respond to small talk or levity in conversations. Use this insight to adapt your tone and style in the moment.



Don't use a one-size-fits-all approach. Communicate with others in ways that match their preferences.

Don't ignore your instincts. Don't be afraid to stray from your well-researched plan if something feels off. Pivot as needed.

TIPS:

Turn camera on

Encourage people to ask questions and be interactive

Sometimes people get uncomfortable come off mute and interrupt the host.

We allow chat or have one person to monitor the chat and interrupt the presenter,...

-> Lead with curiosity about what's in it for your audience vs yourself. Tag team virtual calls to facilitate engagement.

Don't allow your own thoughts about your position interfere with your ability to see things through someone else's perspective.



Here are some ideas for increasing engagement in a status meeting.

STATUS

STRATEGIC

TACTICAL

IDEATION



Create culture

- Use a [check-in exercise](#).
- [Raise hands to contribute](#).
- Set [Together mode](#).



Get interactive

- Enhance meetings with [apps](#).
- Create a [poll or survey](#).
- Send [praise](#).



Access anytime

- Set access to [recordings](#).
- Share the [recording](#).
- Capture actions with a [checklist](#).

[Microsoft Teams Meeting Guide - During the meeting \(sharepoint.com\)](#)

[Apps for meetings in Microsoft Teams \(sharepoint.com\)](#)



Here are some ideas for increasing engagement in a strategic meeting.

STATUS

STRATEGIC

TACTICAL

IDEATION



Create culture

- Use the [meeting lobby](#).
- [Set the mood](#) with video.
- Spotlight [speaker videos](#).



Get interactive

- Enhance meetings with [apps](#).
- Create a [whiteboard](#).
- Share [PowerPoint slides](#).



Access anytime

- Set access to [recordings](#).
- Share the [recording](#).



Here are some ideas for increasing engagement in a tactical meeting.

STATUS

STRATEGIC

TACTICAL

IDEATION



Create culture

- Share [data in advance](#).
- Create a [channel with tabs](#).
- [Forward emails](#) to a channel.



Get interactive

- Enhance meetings with [apps](#).
- Collaborate with [Azure DevOps](#).
- Create a [checklist](#).



Access anytime

- Share the [recording](#).
- Capture [action items](#).
- Provide [status updates](#).



Here are some ideas for increasing engagement in an ideation meeting.

STATUS

STRATEGIC

TACTICAL

IDEATION



Create culture

- Start with an [inspiring story](#).
- Use [breakout rooms](#).
- Research [design thinking](#).



Get interactive

- Enhance meetings with [apps](#).
- Use a [whiteboard](#).



Access anytime

- Share the [recording](#).
- Capture and share [prototypes](#).

Social awareness checklist



Schedule breaks and try to block out distractions to maximize focus.



Co-create my agenda by sending it out early, or be flexible to change it in the moment to address my audience's needs.



Adapt my approach to match my customers' communication preferences for how they want information delivered.



Take advantage of Microsoft Teams resources to create inclusive and engaging meetings.



Situational fluency ac...

[Additional Resources:](#)



Tips for reading t...



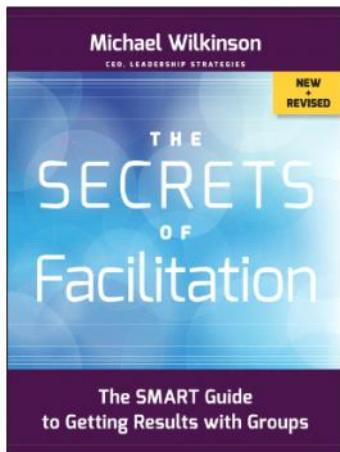
Tips for
reading t...

Know your communication Style:
[Micro Lesson Video Communications \(microsoft.com\)](#)

CFSI Stakeholder Management landing page

From <<https://microsoft.intrepidagile.com/class/cfsi-stakeholder-management-land/>>

<https://aka.ms/cfsi-sm-teaser-cs>



The Secrets of Facilitation

The SMART Guide to Getting Results with Groups

by **Michael Wilkinson**

EBOOK



66 of 72 copies available

BORROW

READ A SAMPLE

ADD TO WISH LIST ADD TO HISTORY

Description Details

The revised edition of this facilitation classic offers a wealth of techniques for facilitators who seek effective, consistent, and repeatable results. Based on Michael Wilkinson's proven SMART (Structured, Measurable, Achievable, Relevant, and Timed) approach, this guide provides practical tools and techniques for effective group facilitation.

Situational Awareness:



Do your research in advance: the more you know about the people you will be meeting with, the more you'll be prepared for any unforeseen circumstances that might arise.

get a baseline understanding of their goals where are they on their buying journey and what do they hope to accomplish by working with you and your team.

Internal team: be familiar with their initiatives goals, and challenges before you engage with them.

That way you can create a more targeted agenda designed to help everyone meet their objectives.

Ask questions: ask targeted questions during the meeting, your goal is to get the customer and colleague communication and getting you the details you need. Use open ended questions. Ask follow-up questions. By capturing the oppys to dig deeper in real time you'll have what you need to adapt to the new situation.

Timing is everything:

Know when it's the perfect time to push an idea vs waiting for a better time.

They can discern when to jump in and help customers prioritize their deliverables and when to let them lead. They know when to continue pursuing a goal and when to shift and go in a different directions.



Research



Questions



Timing

SELECT EACH DOOR FOR MORE INFORMATION.

INDUSTRY

INDUSTRY RESEARCH TIPS



Spend just 15 minutes online researching the industries currently served by your customer.



Identify industry trends that may affect your customer's business.



Visit the [**Microsoft Industry Hub**](#) for resources like solution plays, demos, and more – all customized by industry.

COMPANY

PEOPLE

[Industry Hub \(microsoft.com\)](#)



Research



Questions



Timing

SELECT EACH DOOR FOR MORE INFORMATION.

INDUSTRY

COMPANY

PEOPLE

COMPANY RESEARCH TIPS



Review the company's website for business priorities and financial health.



Use Microsoft resources, including your extended team, to learn more about the company history.



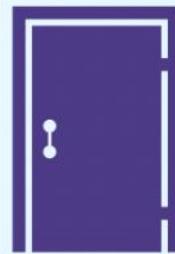
Identify appropriate Microsoft Cloud offerings, industry priority scenarios, and solution plays.



Research



Questions



Timing

SELECT EACH DOOR FOR MORE INFORMATION.

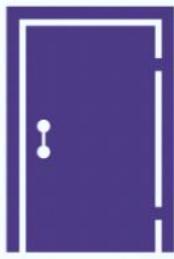
INDUSTRY

COMPANY

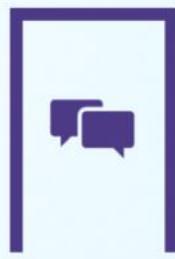
PEOPLE

PEOPLE RESEARCH TIPS

-  Identify key stakeholders in each room of the house and determine what is important to them.
-  Use LinkedIn to research each person's work experience, posts they share or like, and mutual connections.
-  Work with your Microsoft team to gain insights about the stakeholders you're meeting.



Research



Questions



Timing

SELECT EACH DOOR FOR MORE INFORMATION.

ASKING QUESTIONS TIPS

-  Tailor your questions to the people you're meeting. Ask questions aligned with their lines of business.
-  Ask questions to confirm your understanding of your customer's priorities, pain points, goals, and strategies for moving forward.
-  Ask questions that uncover opportunities to provide comprehensive solutions to address multiple challenges.



Research



Questions



Timing

SELECT EACH DOOR FOR MORE INFORMATION.

WHEN TO PUSH AN IDEA FORWARD

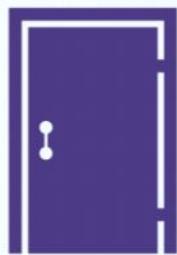
PUSH



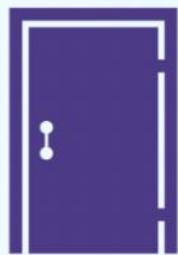
Consider these questions before pushing an idea:

- Are people asking questions and giving you space to respond?
- Do you know enough about their business?
- Is the customer in the right stage of their buying process to make these decisions?
- Do you have the right people on board?

PIVOT



Research



Questions



Timing

SELECT EACH DOOR FOR MORE INFORMATION.

WHEN TO PIVOT

PUSH



PIVOT

Consider pivoting if any of these questions are true:

- Is the customer struggling with budget, staff, or executive sponsorship for your solution?
- Are they clear about outcomes or resources needed?
- Are the key decision makers missing from the room?

Situation:

Enter a meeting with a plan, pivoted and then pivoted again based on the situation in the room.

Tip: Listen to the customer , understand their perspective and build a bridge to get them back to your agenda.

Example : strategic meeting regarding renewal of EA but CFO was in the room and brought xamount of excel sheets and wanted to go through each line-item and discuss the detail. She validated his points and acknowledges how important it is to him and that she could organize a separate workshop to go through the details. The purpose of this meeting was on a more strategic level and he is in fact really needed in this meeting and we reassure him that both teams worked diligently to ensure the numbers are correct.

**SO YOU VALIDATED HIS NEED
AND THEN PIVOTED
TO BRING THE CONVERSATION
BACK TO THE ORIGINAL AGENDA.**

Situational awareness checklist

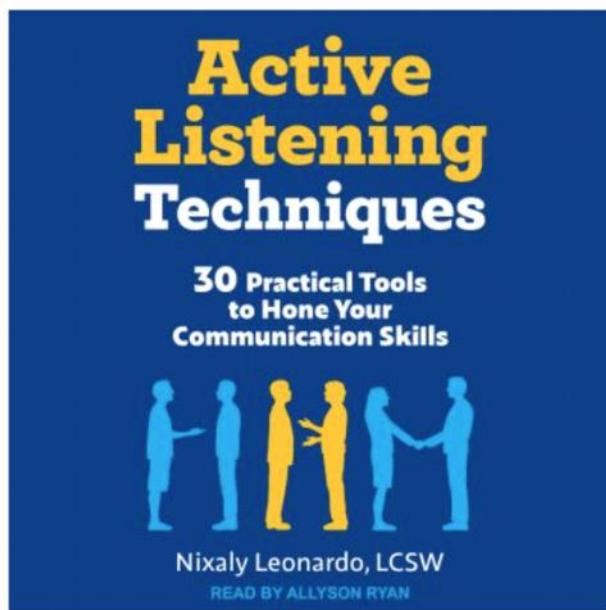
Research the company: what is happening in the industry, market, and my customer's business.

Research the people: check their activity on LinkedIn, ask colleagues, and research their history with Microsoft.

Listen aggressively to what my customer says, and reflect on their experience to empathize.

Be ready to adapt my plan based on cues from my customers.

[MSLibrary - Details \(sharepoint.com\)](#)



Active Listening Techniques : 30 Practical Tools to Hone Your Communication Skills
EAudio;

2022. Old Saybrook, CT : Tantor Media
by [Leonardo, Nixaly](#);

"To listen actively is to listen with complete attention and an engaged mind and body. And, while it may come naturally to some, it's also a skill that can be honed through practice. Active Listening Techniques will help you do just that, so you can ensure the people around you feel respected, understood, and heard." -- Publisher.

Additional item details: 1 online resource (12766 seconds)

[Summary](#)

[Industry Hub \(microsoft.com\)](#)
[Microsoft Events \(b2clogin.com\)](#)

Difficult Situations:

Learn to pivot:



Be Flexible:

Agenda should be seen as a fluid tool.

Be present, curious and flexible with our agendas.

Make a playbook:

You can create a playbook for your own experiences.

Examples:

If your presentation doesn't seem to be resonating with your audience, temporarily stop using your slide deck and start asking questions to engage people in the room.

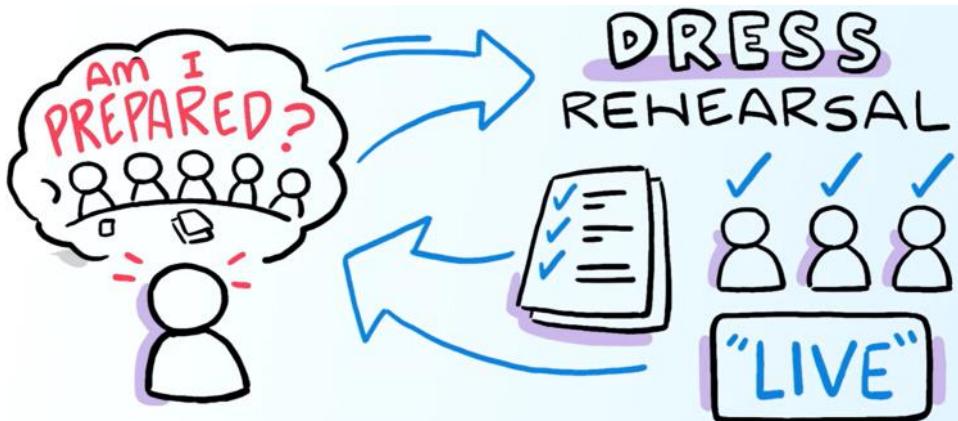
If your project team is working long hours and displaying signs of stress. Take actions to minimize any constraints that might be hampering progress, and make it a priority to demonstrate your appreciation.

If your customer is getting overwhelmed by your solution overview, shift and highlight you know would solve one of their most pressing problems.

Example: Time Management (get help from job coach)

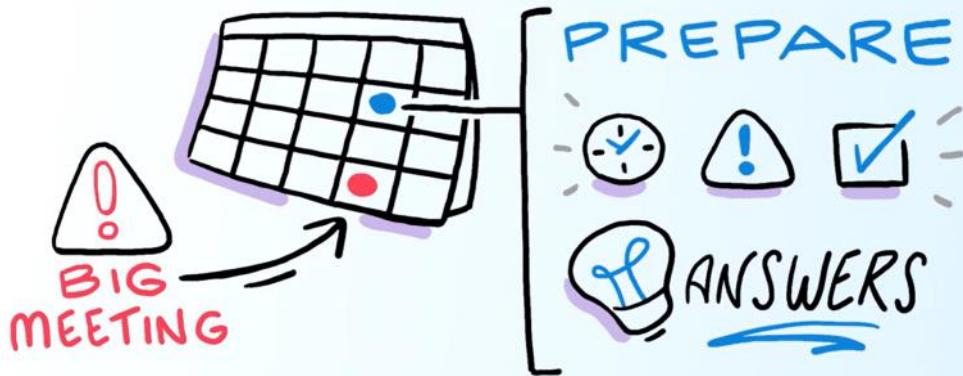
Onenote, action item written inside it, use flags, follow up, actions and what I did with them.

STRATEGIES FOR HIGH STAKES MEETINGS

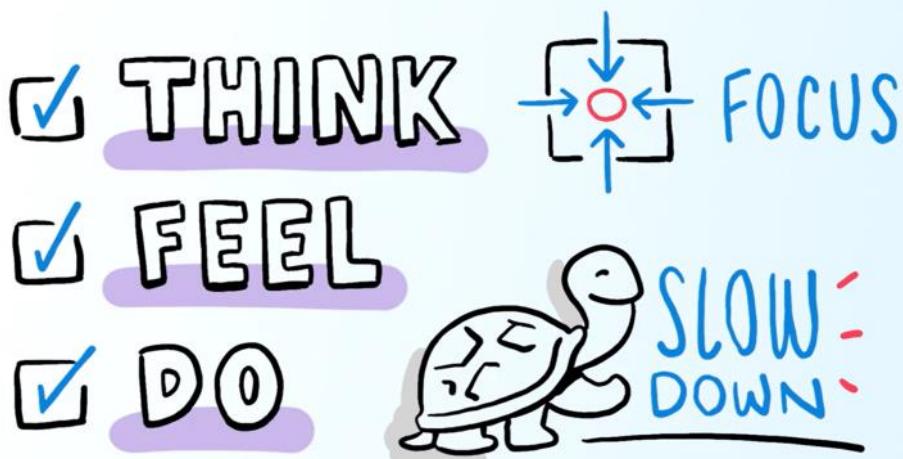


Conducting practice runs ahead of time to ensure we're prepared

ALLOWING TIME



Blocking out time to really focus and prepare



Do this on every slide, think is for you, the two others is for them.





Be flexible

Think of your meeting agenda as a fluid tool. Flexibility is the key.



Make a playbook

Follow a "playbook" of common pivots you may need to make.

[Download Strategic Pivot Playbook](#)
for a template to get started.

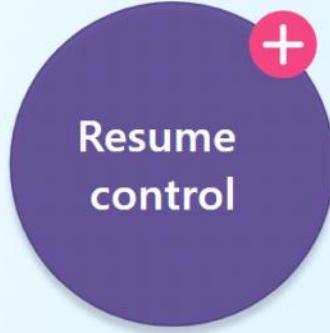
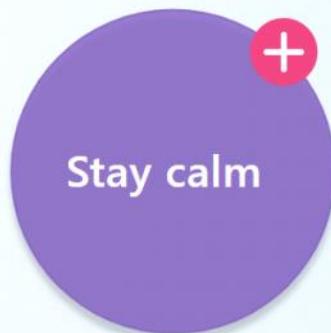


PivotPlaybo
ok_Revised

Disrupted Agenda:

Sticky situations do come up and disrupt our plans. While we can't control when and how these awkward situations come up but we can control how we respond.

Control your response:



Stay Calm:

Before you say or do anything take a deep breath. Breathing deeply allow your rational mind to catch up with your emotional mind.

Calmly address the person, be sincere.

Your first words need to acknowledge the disruptor. Calmly address the person, be sincere.

Create a safe space:

For people to share their opinions, you want project empathy and authenticity, a genuine curiosity about the concern they brought up.

Put it in context:

Determine the weight of the concern. Is the issue important enough to abandon the current agenda and give it the team's full focus. Is it something that you could address while continuing the move forward with your existing strategies.

While maintaining a sincere and patient demeanor, use powerful phrases that allow you to objectively evaluate the significance of the concerns. (This is clearly a significant concern for you, I wanna get an idea about how it relates to what we've done so far,..

Resume Control:

Goal is to calmly find the right balance in your demeanor in order to move forward.

Be composed and confident

How to deal with customers wanting to change the agenda?

Decision made to pivot.

Feel heard, building relationship was more important than getting our agenda done. Alternative, asked what he wants to cover and what is his point of view of where we are in the process and what is his idea of getting into the commercial conversation.

SELECT EACH IMAGE TO LEARN MORE.

**When you don't know?**

Actions to take

Not knowing an answer is common, but there are strategies to deal with that.



Reframe the situation:

Drop the notion that your inability to know the answer is embarrassing.
Show you are re-assured. Remember being the smartest person in the room is not the goal.

Get Clarity:

Before you commit on a specific response, ask for clarification on the question.
With energy and self-assurance (So if I understand correctly,.....,is that accurate?)
I'm happy to do some discovery on that but for now are we okay to move on.

Admit the truth:

Paired with the promise to find the answer

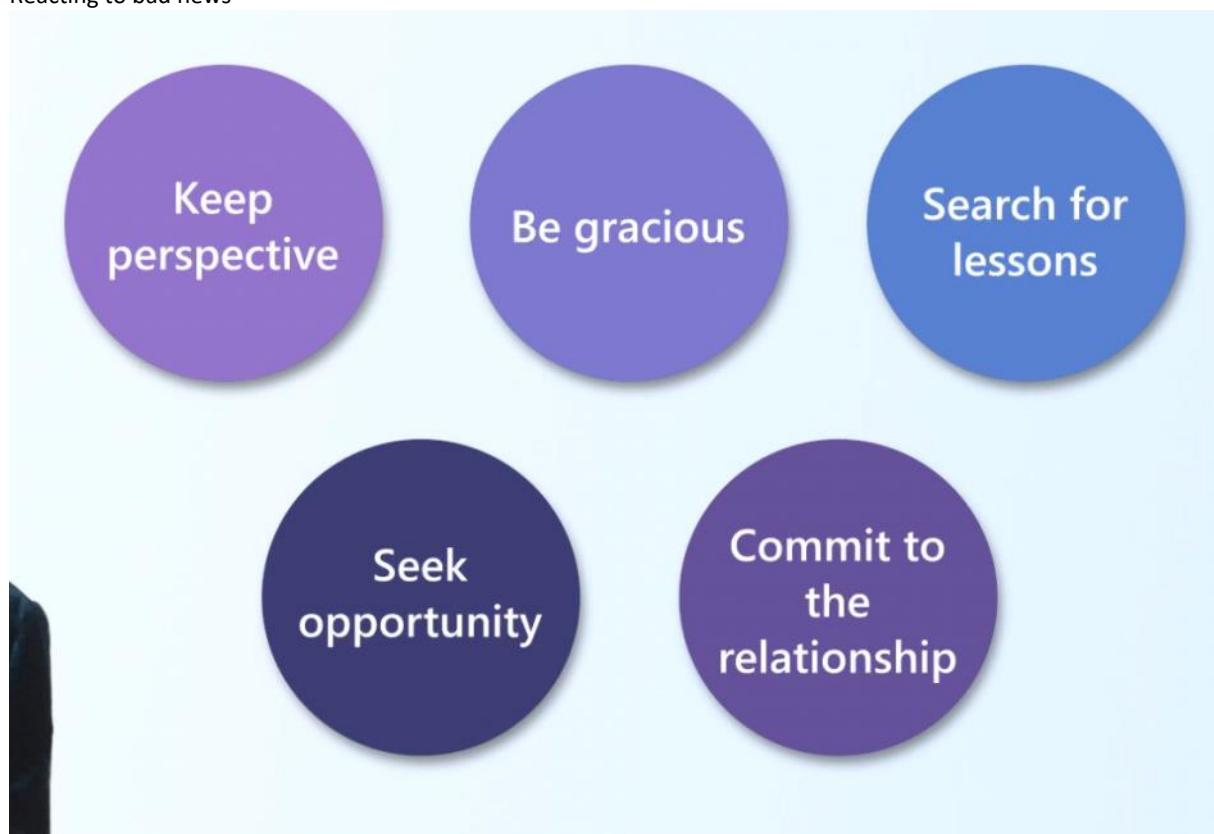
Follow up: promptly

If you promise to get an answer for someone within a specific timeframe do so.
This shows you care about their needs and your relationship with them.



Moving Forward:

Reacting to bad news



Be gracious -> be sincere, you can say something like I must admit I'm disappointed to learn that and I appreciate the time you and your time dedicated to consider our proposal

Search for the lessons: It would be very helpful for me to learn what influenced your decision or is there anything I could have done to change the outcome (requires the right moment, tone, setting,...)keep it casual, it's not about changing their mind but to improve for the future and learning what's important for the customer.

Seek oppty -> determine if it is the ultimate time to look for other oppties. Be confident in having open conversation to explore other areas where you could provide value

Commit to the relationsh ->



BragBook 1st Connect

Wednesday, January 11, 2023 6:11 PM

01/2023

- Helping out Ewoud Smets with his question for time limited sandboxes at his customer:

Ewoud Smets Yesterday 8:57 AM
Time limited sandbox archetype.
Hi General.

We've an IoTenterprise scale customer looking into best practices how to properly time-limit the usage of a sandbox landingzone.
Do we have some best-practices / scripts that can be used to implement this archetype?

Had a chat and call about this and informed him about my work at BuZa with the partner Deloitte and that this team has a solution already used.
With this information Ewoud was helped as now he knows who to contact at Deloitte and just put both colleagues of Deloitte in touch with each other and re-use the same tooling and IP for Ewoud's cmr.

github.com/microsoft/WHATTheHack

D&I:
Connect with Katarina Marcelo, Lauren,...
All from different background. Connect via Teams, in the office,...

(Ask feedback from them)

12/01/2023

Tom Clees 1:00 PM
geniaal! die IoT Edge is exact wat ik voor de klant nodig heb
thanks man

1:08 PM Glad to help!! 😊

13/01/2023

Participating actively in training sessions

RE: CSU people announcements: CSA Azure Core

You replied on Fri 1/13/2023 11:30 AM

Annelies Bulens To: Jamel Achahbar

Re: [REDACTED] Re: [REDACTED]

Hi Inge,

Thank you! You too!

It's a busy first week, but I guess everyone went through this. 😊

Kz,

Jamel Achahbar
Cloud Solution Architect
Core Infrastructure
Mobile: +3247159518
jachahbar@microsoft.com

Microsoft

19/1/2023

WAF Champs Posts Files Wiki 2 more + Confidential \ Int... Meet Yesterday

Shadowing, if there are any opportunities, please let me know. 😊

3 replies from Pinaki, George, and Tarlan

Bruno Canessa Tuesday 10:20 AM Hi George, please take a look here [Global Shadow Program - Power Apps](#) (filter on Time Zone - EMEA), I think it's the best way 😊

Heart 2

Reply

Jim Szubryt Yesterday 4:56 PM **WAF assessment results formula**

When a person fills out the WAF assessment questions, do you know where the doc is that shows how the determination of the amounts were made? In our example below for the customer it shows 19/100 for reliability. Another CSA and I were trying to determine how it came up with that value and I have been searching for the calculation. We were looking at the weighting of the answers and still couldn't determine where the 19 came from. Maybe I am just bad at math 😊 I've included the original file.

See more

 SN - Azure_Well_Architected_Review_Oct_27_2022_1.xlsx ...

Reply

Jamel Achahbar 10:40 AM Hi colleagues, I'm looking for someone running a WAF Cost Optimization Assessment MIP the coming weeks. I promise I'll be like a fly on the wall, you won't even notice me 😊. I would like to follow along on all the process steps: from pre-scoping call, to delivering, the engineering working independently on the reports, the internal alignment calls, and closing the delivery. My experience with the shadowing power app is that it doesn't seem to work. It's been almost 2 weeks that I'm using it and trying different filters out, with no result. Hence, the reach out using this channel. I'm looking for 2 engagements so I can get a feel of the delivery on the field. Just an FYI, I found a few virtual sessions explaining how to use the deliverables, where to find the materials, but nothing beats real world experience. Thank you all!

See less

Reply

DONATIONS

https://microsoft.benevity.org/dashboard

Laptops for Ukraine's Children

Donate Now >

Find causes Search

Explore

Featured Content

Jamel Achahbar View profile

My Impact Jan 2023 - Dec 2023

- €47.00 donated
- 0 hours volunteered

JAN-FEB FOD BUZA

Helped accelerate move from dev to prod of very important project.
 Influenced discussions and decision on network architecture and aligned and worked well with partner.
 This results in higher ACR

WAF Community



MIPS Feedbacks

Wednesday, March 1, 2023 1:28 PM

Power Apps | VBD and MIP (Level 3) Field Feedback

VBD and MIP (Level 3) Field Feedback

Use this form to log feedback, comments and/or ideas for the VBD Program and/or Managed IP (Level 3). We want to hear from you! Your comments will help us improve as we go.

7. Which MIP catalog item, on-demand assessment or learning course are you providing feedback about? *

Well-Architected Reliability Assessment

8. What feedback do you have? *

this comes out as one of the top priorities, it would be nice to be able to lean on a contoso like example, including an excel worksheet perhaps. In the lean world we call it a Failure Modes and Effects Analysis and they usually provide nice templates for that with automatically calculated fields for Severity, Occurrence and Detection.

9. Suggested Workaround (if applicable)

-

Attachments (Optional)

FMEA_v3.7_GoLeanSixSigma.com_.xlsx Unsaved

Attach file

Single file size limit: 9 MB | File number limit: 6

* Required

Submit

Willing to help fix? Yes

View my feedback submissions:
<https://aka.ms/vbdfeedbackstatus>

FOD BUZA

Tuesday, January 24, 2023 10:34 AM

Biometrics Api

Helped move the project forward by supporting the Infra team in troubleshooting, unblocking issues and moving the project forward. Being key element during sessions with the project teams

MDM

Helped move the project forward by supporting the Infra team in troubleshooting, unblocking issues and moving the project forward. Being key element during sessions with the project teams

Training the Azure Infra team on a continued basis.

Devops workflow and training customer to reduce operational overhead and increase velocity:
They are using devops templates I initially created and a devops modules template and a workflow I created based on CARML Repo for Bicep.

Unblocked on technical issues for MDM project. API for their powerapps in production didn't work. I found the cause and helped them solve it.

14/2 positive news from Jan about extension with BuZa

15/2 unblocked technical issue with deployment of biomod to other environments(IaC,devops pipelines), help achieve deadline.

Helped deploy cognitive services for important accessibility component for contactcenter project

13/04

Today

 de Vinck Frédéric - ICT4.3 (External) 11:51
Hello Jamel. Le déploiement de prd est maintenant en ordre. Un tout tout grand merci pour ton aide hier!

22/05

de Vinck Frédéric - ICT4.3 (External) 10:00

"Je voudrais vous présenter une personne remarquable, Jamel, qui en plus de belles qualités humaines, possède une expertise technique pointue. Par exemple, il nous a montré sa disponibilité, son désir de partager ses connaissances, pour aider les autres à progresser et à atteindre leurs objectifs. Souvent, il nous a encourager et fait en sorte de reconnaître les efforts de chacun, créant un climat de confiance et de coopération au sein de son équipe. En outre, Jamel est à l'écoute des autres, attentif à leurs besoins et à leurs préoccupations. En plus de ses qualité humaines, Jamel est également un expert technique. Il a une connaissance approfondie de l'ensemble des aspects Sécurité, Automatisation et LiveCycle dans les projets, ce qui lui a permis de développer des solutions fiables et performantes pour le FPSFA. Il est proactif dans la découverte des nouvelles fonctionnalités Azure, et sait les mettre en oeuvre pour améliorer ses projets.

Malgré son haut niveau de compétence technique, Jamel reste humble et accessible. Il n'hésite pas à répondre aux questions les plus basiques, sachant que cela peut aider les autres à comprendre et à progresser. Enfin, Jamel est un véritable modèle pour tous ceux qui le connaissent, tant par ses qualités humaines que par son expertise technique. Jamel est une personne rare et précieuse, qui contribue de manière significative à la réussite de son entreprise et de ses collègues.

Bekaert

Tuesday, February 14, 2023 10:11 AM

Scoping call on IaC

Europese Banking Authority

Tuesday, February 14, 2023 10:12 AM

Training geven

Open Hacks

Wednesday, 12 April 2023 13:41

OpenHack Hub

ID	Topic	Region	Start Date ↑	Time Zone	External Req	Employee Reg	MCAPS Seats
196	Secure Networking	Americas	4/18/2023 Eric	(GMT-08:00) Pacific Time (US and Canada)	Customer request link closed	MS employees only	30
197	AI-Powered Knowledge Mining	Americas	4/25/2023	(GMT-07:00) Mountain Time (US and Canada)	Customer request link closed	MS employees only	0
241	App Modernization with NoSQL	EMEA	4/25/2023	(GMT+01:00) Sarajevo, Skopje, Warsaw, Zagreb	Customer request link closed	MS employees only	25
198	Security, Compliance & Identity	Americas	5/2/2023 Cognalux	(GMT-08:00) Pacific Time (US and Canada)	Customer request link closed	MS employees only	0
227	Secure Networking	EMEA	5/15/2023 Eric	(GMT) Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London	Request Customer Participation	MS employees only	30
221	Secure Networking	Asia	5/16/2023 Eric	(GMT+08:00) Kuala Lumpur, Singapore	Request Customer Participation	MS employees only	30
201	DevOps	Americas	6/6/2023	(GMT-07:00) Mountain Time (US and Canada)	Request Customer Participation	MS employees only	0

Trainings

Thursday, February 2, 2023 9:26 AM

- Won prize for active participation and answering quiz questions right on Deal Making Compliance Training Session

You can pick up your prize when you come to the office ! let me know :)

✉️ General 🔎

① You replied on Fri 2/3/2023 10:58 AM



Annelies Bulkens

To: ● Jan Cordeels; ● Jamel Achahbar; ● Ewoud Smets; ● Marta Naldinho; ● Kelly Vehent

Reply Reply all Forward ⋮

Fri 2/3/2023 10:56 AM

Annelies Bulkens

BSO lead

The screenshot shows a Microsoft Teams meeting interface. At the top, there's a navigation bar with icons for 'B...', 'Chat', 'Files', 'Recordings & Transcri...', 'Meeting Whiteboard', 'Q&A', and a '+' sign. To the right of the bar are participant icons and a 'Join' button. A notification badge '314' is visible in the top right corner.

The main area is a chat window with the following messages:

- Barbara Van Den Haute at 10:25 AM: 3
- Elsa Lemoine at 10:25 AM: 3
- Tom De Paepe at 10:25 AM: 3
- Elsa Lemoine at 10:32 AM: 4 and maybe 3 as well not sure about 5 as I don't have enough knowledge about these processes. (1 like)
- Elsa Lemoine at 10:33 AM: 3, 5 not sure though
- Annelies Bulkens at 10:33 AM: Thanks Jamal ! You can pick up your prize when you are in the office! (1 like)

LevelUPS

Thursday, February 2, 2023 9:26 AM

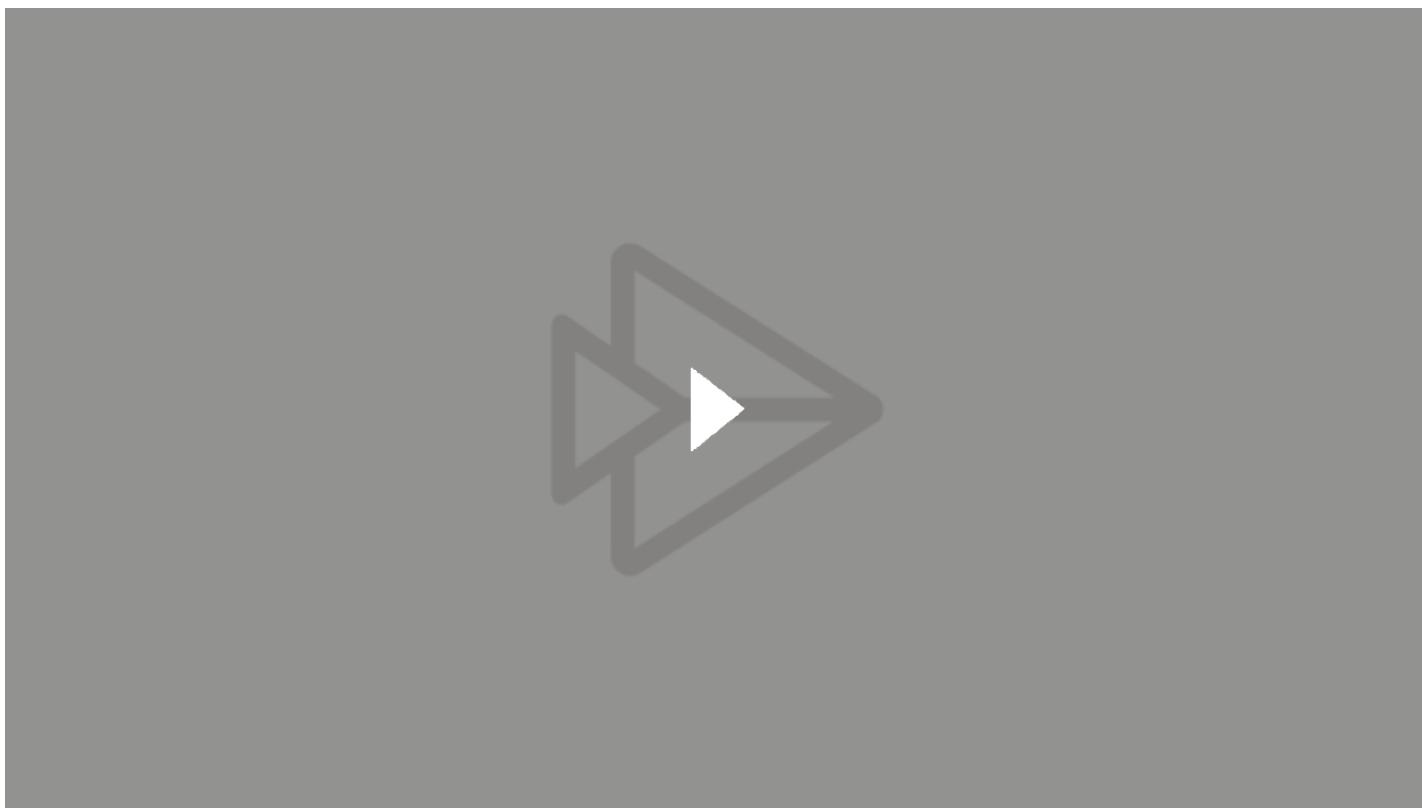
- 18/1/2023 FY23 Azure Files Storage and Azure NetApp Files (ANF) Deep Dive Workshop (to do, interesting for Reliability MIP)

- 31/1/2023 FY23 LevelUp on Networking Services Workshop
<https://msit.microsoftstream.com/video/05e90840-98dc-ba75-3a9d-f1eda1d22afb?channelId=2bdb0840-98dc-94b1-241d-f1eba180dd5c>

Fantastic LevelUp Workshop on Networking led by Christian Kuhtz, Federico Guernini, Simona Tarantola and Ethan Haslett from CSU Azure Core Team. Resources related to this LevelUp on Azure Networking Services can be found here Core- Azure Networking LevelUp Hands-on <https://microsoft.sharepoint.com/:f/t/LevelUpSkilling/EuLJN7QnXi1DsKV7kPWxPK0BgSEkVA8zck9RJVuyuUdt4Q?e=eytNsO>

- [Security LevelUp Field Guidance-20230210_080208-Meeting Recording.mp4 \(sharepoint.com\)](#)

- Azure Monitor Level Ups
[Microsoft Stream](#)



Cert Related

Thursday, February 2, 2023 9:26 AM

- 12-13/1/2023 SC-900 Exam Prep Digital Series
- AZ-700 Courses on Pluralsight, Oreilly,....
- AZ-700 Exam

Communities

Thursday, February 2, 2023 9:27 AM

- Monthly ALZ Community Calls
- 2/2/2023
- 3/3/2023

What CAE have been doing

Helping get deal signed by assisting with "big rocks" (blockers) from LSEG

Secure roles using the Enterprise Access Model

Secure administration using Administrative Units

Secure operating environments

Bringing it all together - Flows

Multiple Azure AD Tenants in ALZ - Scenarios

Article • 01/18/2023 • 8 minutes to read • 1 contributor

Multiple Azure AD Tenants in ALZ - Overview

Article • 01/18/2023 • 8 minutes to read • 1 contributor

New CAF docs on the way 😊

Azure Landing Zones Specific Scenarios

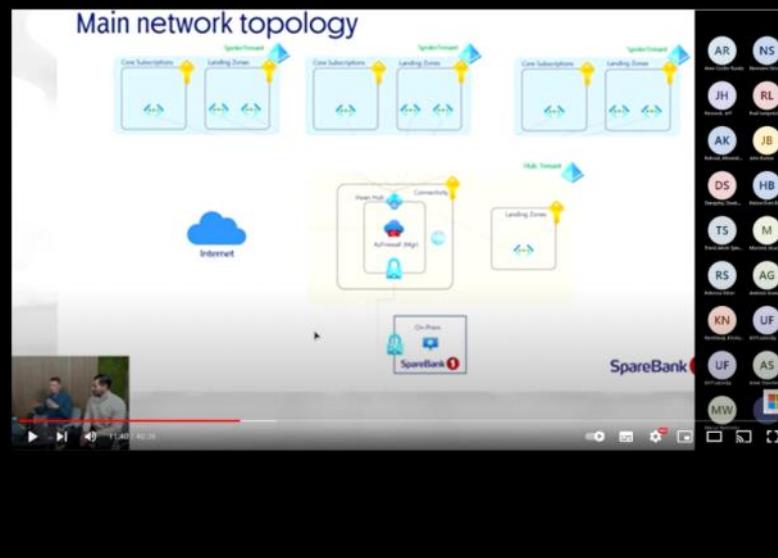
1 - Azure Lighthouse + Private DNS at Scale



Ignite 2022 Session

Spotlight on Norway | CLC08

Worth a watch



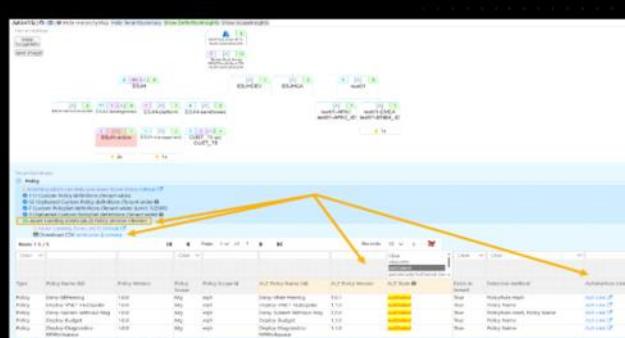
Updating ALZ 'Evergreen' Problem Statement



- Maintaining ALZ has various levels of complexity
- Customers have to manually subscribe to the ESLZ repo to follow changes (can be bombarded with notifications)
- We have a 'What's New' section (<https://aka.ms/alz/whatsnew>) we keep up to date – this is manual customer effort to review
- Cost of change is greater than cost of staying the same
 - Customers aren't aware of why they need to update e.g. bug fixes, security enhancements etc

Our investment

- Policy tooling
- Policy guidance
 - Moving from custom to built-in
 - Updating ALZ custom policies
- IaC guidance
- Backward compatibility
- Policy consolidation



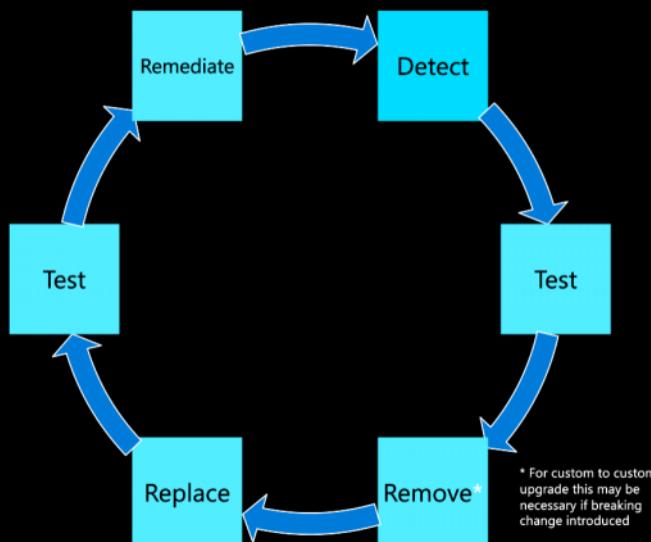
aka.ms/AzGovViz



New Guidance Released

aka.ms/alz/update

ALZ Custom Policy and Initiatives Lifecycle



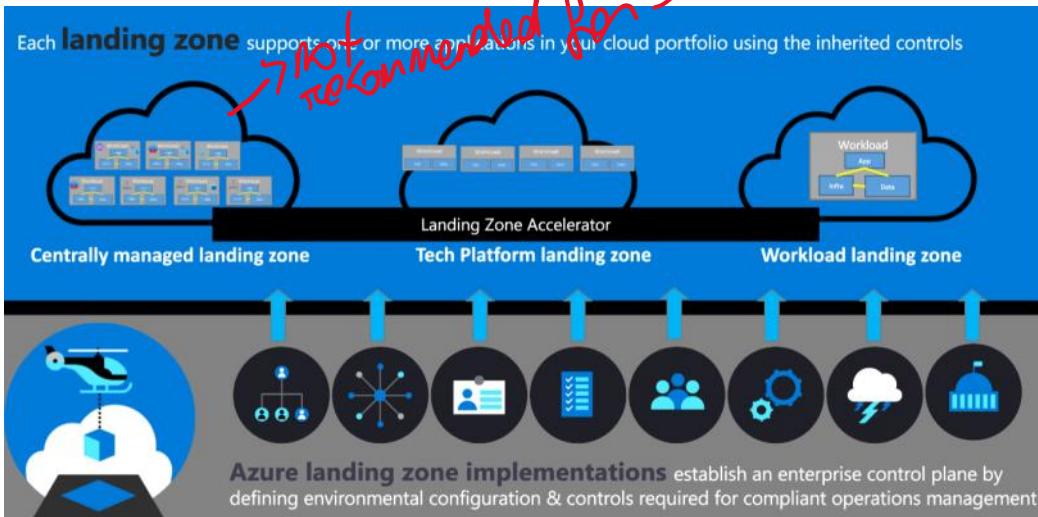
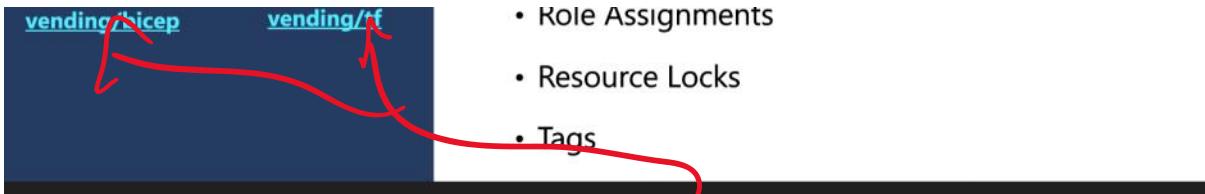
NOTE: Make sure all policies have been tested before applying – [see ALZ testing guidance](#)

Subscription Vending Modules

Available Now! aka.ms/iz-vending/bicep

Available Now! aka.ms/iz-vending/f

- Infrastructure as code modules to automate:
 - Subscription creation
 - Management Group placement
 - Virtual Networking
 - Virtual WAN Hub Connection
 - Virtual Network Peering
 - DDoS Plan Link
 - Custom DNS Servers
 - Role Assignments
 - Resource Locks

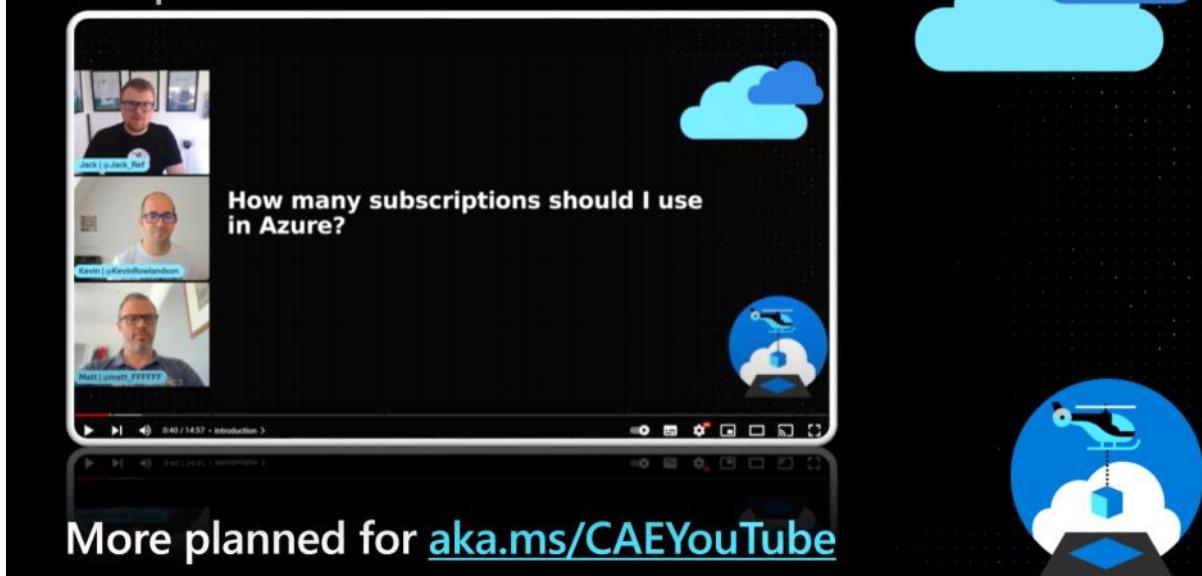


Why?

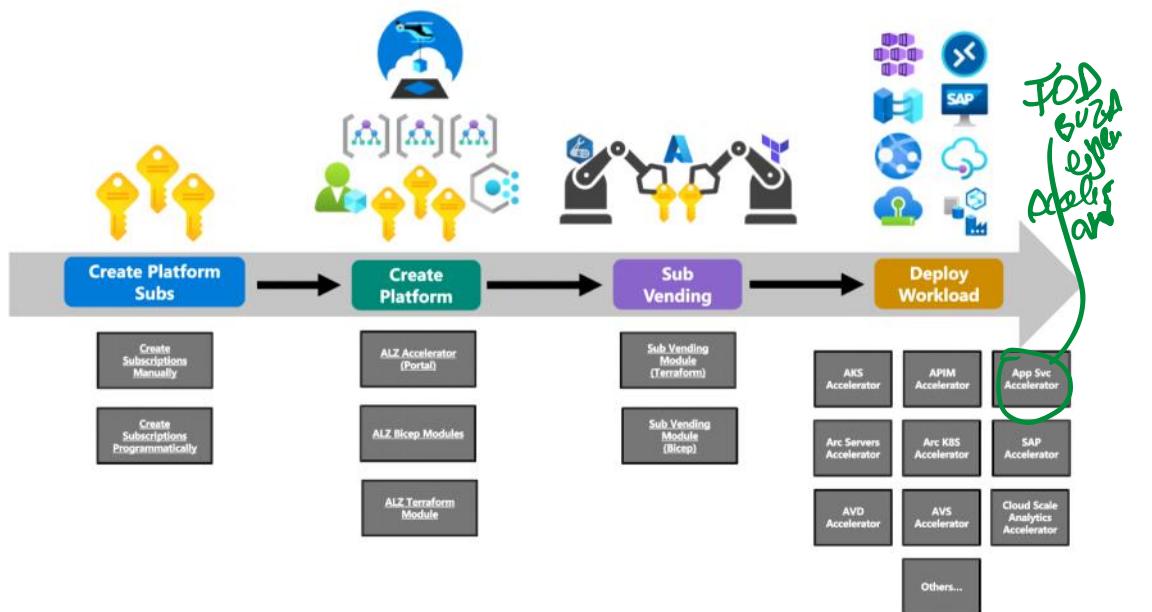
- We have heard loud and clear from everyone that we do a great job at helping accelerate:
 - Platform Landing Zones (aka Azure Landing Zones)
 - [What is an Azure landing zone?](#)
 - [ALZ Bicep Repo](#)
 - Workload/Application Accelerators (aka Cloud Adoption Scenarios)
 - [Azure VMware Solution landing zone accelerator](#)
 - [Azure Virtual Desktop landing zone accelerator](#)
 - [More here...](#)
- **But, there is a gap** in the middle in creating Landing Zones (aka Subscriptions)
 - [Types of Landing Zones – Platform vs Application](#)

How many Subscriptions should I use in Azure?

Subscription Democratization



Example ALZ Customer Journey



 aka.ms/lz-vending/bicep

 aka.ms/lz-vending/tf



 Microsoft

Common Azure Resource Modules Library (CARML) Release v0.9.0



C@RML

Release v0.9.0 highlights



- Modules**
 - New Modules such as DevTest Labs & Policy Remediations
 - 117 top level modules & 291 resource types
 - Additional features such as new child modules, properties and test cases
 - Enabled the Diagnostic Settings category '[allLogs](#)' for all supporting modules
- CI Environment**
 - Enabled [concurrency](#) feature in GitHub workflows that ensures there are no 2 concurrent runs of the same workflow
 - Improved publishing with '[Publish if not exists](#)' feature and shortening for Template Specs artifacts
 - Improved static validation through the [AzureAPICrawler](#) PowerShell module for API versions tests
 - Added scheduled workflow to validate [PSRule](#) pre-flight checks on the whole library



<ul style="list-style-type: none">458 ★ (+ 10%)325 forks (+ 14%)100+ unique visitors daily93 merged PRs4+ contributors (76 total)

Checkout the ALZ External Community Call



RBAC Constrained Delegation

Click here to go directly to this part of the call

A screenshot of a video conference interface. In the top right corner, there is a video feed of a person wearing headphones. Below the video feed is a grid of smaller circular icons, each containing a user's name and profile picture. The first row contains 'JM' (John M.) and 'RE' (Randy E.). The second row contains 'MM' (Mike M.) and 'JT' (Toby J.). The third row contains 'NB' (Nathan B.) and 'DM' (David M.). The fourth row contains 'AS' (Adam S.). At the bottom of the screen, there is a red progress bar indicating the video is at 56:08 / 1:09:11. The overall background is dark.



Call To Actions – Speak to

1. Enterprise customers with multi-cloud strategy for research
2. Lower Majors with ALZ experience



Stay up-to-date:
<https://aka.ms/ALZ/WhatsNew>

Active Participations and helping out

Monday, March 6, 2023 4:47 PM

General Posts Files Wiki Session Archive 2 more + Confidential \ Int... Meet Today

Igor Schultz 9:24 PM Edited
Sandbox/MSDN subscriptions within customer landing zone
Dear General,
I hope I'm right with my question within this channel 😊

One of my customers has 3 questions:

- Push all new Sandbox/MSDN subscriptions under Sandbox Management group automatically
- Display/banner important information, such no managed Backup & Co., for Sandbox/MSDN users/owners within Azure Portal
- Deallocate all resources under Sandbox/MSDN subscriptions if budget threshold is reached

I'm pretty sure it's nothing very unique, I hope some of this great community can provide some inputs/solutions 🌟

Thank you all & have a great week
Igor

[See less](#)

Jamel Achahbar 4:45 PM Edited
Igor Schultz For your first inquiry, guidance can be found here: Organize your resources with management groups - Azure Governance - Azure governance | Microsoft Learn you can change it here:
[Home](#) Management groups Settings

Management groups | Settings

Default management group for new subscriptions
This management group is the default management group where all new subscriptions are placed when they're created by default. It's the root management group. Learn more [#this-is-a-link-to-another-page](#)

Permissions for creating new management groups
By default, all Azure Active Directory security principals can create new management groups. When this setting is turned on, security principals must have management group contributor permissions.

Require write permissions for creating new management groups

[Management groups | Settings](#) [Select scope](#)

[Go to New conversations](#)

Post by Andres
WAF - Cost Optimization

AN Andres Naranjo (HE/HIM/HIS) 12/04 19:43
Has anyone run into a problem with the Azure Monitoring Workbook for the WAF Cost Optimization Assessment where when it is run, and you navigate to the Cost Information tab, and select a subscription, all the queries fail with the error:

Unattached Load balancers\Cost
Query 'GetWAFCost' query failed. BadRequest: Invalid query definition, timeframe 'TheLastMonth' is currently not supported. (Request ID: aef94dbf-c1d8-41e4-87f5-1a0000000000)

The issue seems to be with the TimeFrame value of 'TheLastMonth'. When I edit the workbook and change it to 'TheLastBillingMonth' for all 10 occurrences of the problem value, then the workbook works again as expected.

Andres Naranjo (HE/HIM/HIS) 12/04 19:43
Anyone run into this? Do you have a better fix than mine?

Thursday, 13 April

Jamel Achahbar 13/04 15:22
Andres Naranjo (HE/HIM/HIS) Did you download the latest version of the workbook from the IP Kit? There was a bug on the cost information tab part of the workbook and it was fixed on the March release as per the release notes.
👉 1

Andres Naranjo (HE/HIM/HIS) 13/04 15:30
I did not. I'll try it today

Friday, 14 April

Andres Naranjo (HE/HIM/HIS) 14/04 20:48
Jamel Achahbar THANK YOU! That resolved my issue!

👉 1

Inclusion

Monday, March 6, 2023 10:42 AM

- Regularly touch base with Charbel: talk about personality types, talk about books like Surrounded By Idiots.
- Engage in discussions with colleagues and proactively reach out: Tom, other colleague from other verticals, on Teams,....
- Discussions with Jatin on other topics than work
- Met Yende from MSM team that does Cost Assessments Governance, interesting resource fair everything FinOps (worked 2+ years for MS S-Africa, moved to Belgium and is part of WE Sub: cmrs in Nordics, Netherlands,..)

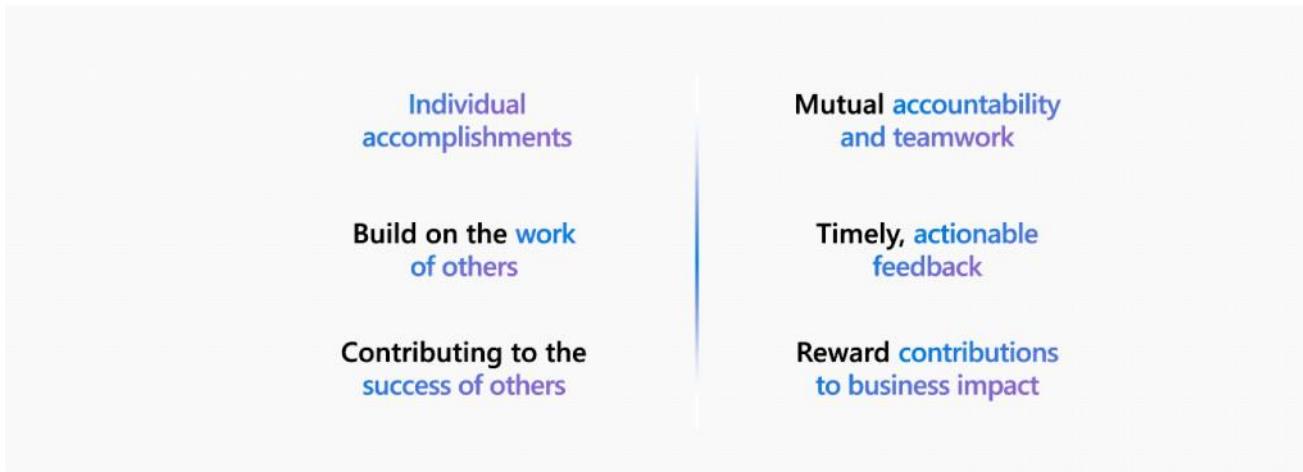
Bragbook 2nd Connect

Tuesday, 9 May 2023 12:50

Feedback

Thursday, January 12, 2023 10:15 AM

Feedback is essential for top rewards



Celebrate impact every day

The screenshot shows a Microsoft OneNote page with a blue header bar containing tabs: Quick Notes, BragBook, Hinesg, Coaching MS, HEC, and Had. Below the header, there's a toolbar with icons for Insert, Draw, and More. The main content area has a title 'Celebrate Impact Every Day' in large blue text. Underneath the title, there are three sections with bullet points:

- Drive Results**
 - Example of Drive for Results
 - Example of Customer Focus
- Build on the Work of Others**
 - Example of Collaboration
 - Example of Adaptability
- Contribute to Others' Success**
 - Example of Influence for Impact

At the bottom of the page, there's a screenshot of the Microsoft OneNote ribbon interface, showing the Home tab selected.

What

Set down a cadence to take note and celebrate each week's success.

Why

To practice self-care, be aware of your superpowers, and prepare for your performance and development conversations

How

- Individually, create a new section or page on OneNote to that includes the sections pasted in chat
- Set down a recurring 15m slot every Friday morning.
- During that slot, populate your OneNote, celebrate success, and think about what you can do differently to maximise your impact

SCHEDULE

Monday, March 6, 2023 10:10 AM

April	May	June	July	August	September
24/04/2023	8/05/2023	05/06/2023	03/07/2023	07/08/2023	04/09/2023
	22/05/2023	19/06/2023	17/07/2023	21/08/2023	18/09/2023

I would like to kindly request that our meetings or calls be scheduled in a way that allows for efficient use of time and optimal productivity.

My preferred day schedule includes two meetings or calls with a set agenda: one in the morning at around 10am and another in the afternoon, between 2pm and 3pm.

Given that our collaboration is remote, I propose that we leverage Teams chat throughout the day for asynchronous communication and sharing of documentation, links, and other relevant materials.

This approach would allow me to engage in backchannel conversations with peers and subject matter experts, conduct necessary research, and handle specific inquiries efficiently.

I hope this proposal aligns with your preferences and the customer preferences and am open to discuss any potential adjustments to this arrangement.

CARGOLUX SA | AZURE - IAAS | 2023 | 160

Azure Monitor

CS-Infrastructure

DSEStaffing

SCOPE

Monday, March 6, 2023 10:14 AM



Opportunity: CARGOLUX SA | Azure - IAAS | 2023 | 160

Information

		Proposed Terms
Opportunity Type:	New Business	Technology:
Sales Stage:	5 - [60%] Proof	Est. Hours:
Customer:	CARGOLUX SA	Est. Hours(annual):
District/Region:	Luxembourg	Est. Start Date:
Org. Engagement:		Est. End Date:
PMC:	No	Est. # Days:

Customer Scope Meeting

	Delivery Model Expectations
Meeting Date:	Delivery Model: Onsite
Customer Stakeholders:	City: Sandweiler

Premier Team:

Customer IT Priority/Expectation: Availability and operational excellence. Scoping plan is big, customer is aware and doesn't expect all will be finished in CY2023

Customer Background/Business Priority: Customer is in stabilization phase and have just implemented their DRP.

Customer Goals & Outcomes: Customer is willing to continue his stabilization and ensure proper DRP is implemented
Scoping plan is big, customer is aware and doesn't expect all will be finished in CY2023

BREAKDOWN OF RECOMMENDED SERVICES & COSTS

Priority	Short Title	Offering Type	Hours Planned	% of Plan	Description	STATUS
	Integration Cisco SDWAN to Azure vWAN	DSE	40	25	Customer is moving to Cisco SDWAN which need to be integrated with Azure vWAN handling all the Branch Site-to-site connections	
	Restricting Branch-to-Branch traffic with Azure vWAN	DSE	10	6	Customer has requirement to allow or deny traffic flows between Branches.	
	Support on Infra-as-code	DSE	10	6	Infra-as-code in Powershell and Bicep. Customer is using Azure DevOps. Main goal is to have all Infra set in Infra-as-code and DevOps Pipelines.	
	Research if Azure Private DNS resolver is suitable for Customer.	DSE	10	6	Customer is especially looking for Integrations with Azure Private DNS zones and DR scenario's. Solution would replace current DNS resolving solution.	
	Support and Advice on Internal Roadmap	DSE	10	6	Customer has defined a roadmap with topics for CY2023	
	Support on Private Endpoint (Private access) to Azure PaaS Services.	DSE	10	6	Customer is looking for ways to implement private connectivity to Azure PaaS services at scale like: Private Endpoints, Service Endpoints and/or VNET injection/integrations.	
	Extending Azure Backup services to other Azure PaaS services	DSE	10	6	Customer is currently using Azure Backup for VM's but want to explore (extend) to also ave Azure Backup for PaaS services. his also include Best Practices for setting up Azure Policy and Azure Backup Policies.	
	Support customer with guidelines on Azure Policy implementation	DSE	10	6	Customer is looking for best practices and guidelines on how to implement Azure Policy (Govern) their Azure Platform.	
	Support in generic Azure Infrastructure / Networking	DSE	60	38	Support in generic Azure Infrastructure / Networking	

From <https://microsofteur-my.sharepoint.com/personal/jachahbar_microsoft_com/Documents/Cargolux/Scope%20to%20Staff%20Engagement%2012-26-2022%209-50-28%20AM.docx>

Internal Meetings

Thursday, February 16, 2023 12:50 PM

Meeting with Pieterbas 16/2

Get as much insight about the customer as possible, maybe access to interesting resources,...

Zit bij Azure Core Team, doet heel veel enterprise scale landingzones, zeker klanten die aan het begin staan.

1,5 jaar Cargolux: Rushi Markus (Architect daar) -> wilt alles in detail weten,...ni te ver gaan dan gaat hij heel veel details willen. Dan gaat hij iets laten zien,.....

Mark Varkas (meer cloud engineer) -> heel slim, weet hoe het werkt

Rode lijn bij Cargolux: heel veel ouderwetse onprem netwerkmethodes toepassen op Azure

Virtual WAN gekozen 2 jaar gekozen.

Enkel interne team die dit beheert Fons (CIO).

Topics om het over te hebben:

Private link, DNS,....

- Powerpoint geven om te zien hoeveel ze erover weten.
 - Dan in de diepte als ze er meer over willen weten.
 - Tijdens een call even kijken wat ze kennen enz....
-
- Delivery: Remote

Pieterbas:

Mark: 250 storage accounts, static web apps JAVA apps

App Gateway schaling:

Andere topics,....

CSA -> er was een CSA bij de klant, iemand uit België die daar niet meer werkt

Youssef Achoukhi (zat in een aantal calls met Pieterbas en de klant om netwerkshoot

TIP: leg jouw manier van werken op, niet de hele dag call. Enkel een call in de morgend en een call in de namiddag

Er is een agenda: dag van Pieterbas begint om 10u.

Rond half 4 4uur stopt hij.

Static Web Apps Resources

Thursday, February 16, 2023 2:29 PM

[Web Wednesday: Static Web Apps is 1 years old!](#)



Cargolux Azure Networking Youssef

Monday, February 20, 2023 2:41 PM

No segmentation, no application

Final goal --> reduce cost with 1/3 and then they can start DR project

A lot of needs:

No tagging

No reservation

300 vms, 1000 logic apps(1/3 is actually dev/test),

Current state: 1 flat subscription with prod & dev/test interspersed

Check word document paragraph 3 for requirements:

- PaaS Services not tackled yet
- No secure hub in VWAN yet
- RBAC not implemented yet

No automation for networking

```
From <https://europa-onenote.officeapps.live.com/o/onenoteframe.aspx?ui=en%2DUS&rseen%2DUS&wopisrc=https%3A%2F%2Fmicrositeur-my.sharepoint.com%2Personal%2Fyvachouk.microsoft.com%2Fvti_bin%2Fwopapi.ashx%2Ffolders%2F10e0ce4a9934df2a5b8ea10decfa97&wdmable roaming=1&msrc=1&wddobj=1&hid=A252A901-975C-411E-928A-8ABCCESF6FDE&wdredigit=Teams-HL&wdhostclicktime=1676900458580&isapi=1&isapiver=1&newsession=1&corrid=e504c91c-2dc3-469d-a805-fdadbc47ac8a&usid=e504c91c-2dc3-469d-a805-fdadbc47ac8a&scfc=1&cac=1&mtr=1&sf=1&wdredirectionreason=Force_SingleStepBoot&rct=Normal&cpt=LeastProtected>
```

The screenshot shows the Microsoft Azure Networking Inventory dashboard. It lists 20 VMs under the 'AZURE NETWORKING INVENTORY' shared dashboard. The columns include: vmName, privateip, publicip, hostName, resourceGroup, location, and subscriptionid. Most VMs are located in 'westeurope' and belong to the 'CVZPWEUFORTIA' resource group, with subscription IDs starting with 'b2d8baaf-07a2-4653-993...'. One VM, 'CVZPWEUFORTIA 10.20.2.178', has a different subscription ID, 'b2d8baaf-07a2-4653-993...'. The dashboard also includes filters for 'Auto refresh: Every 4 hours' and 'UTC Time: Past 24 hours', and a 'Download as CSV' button.

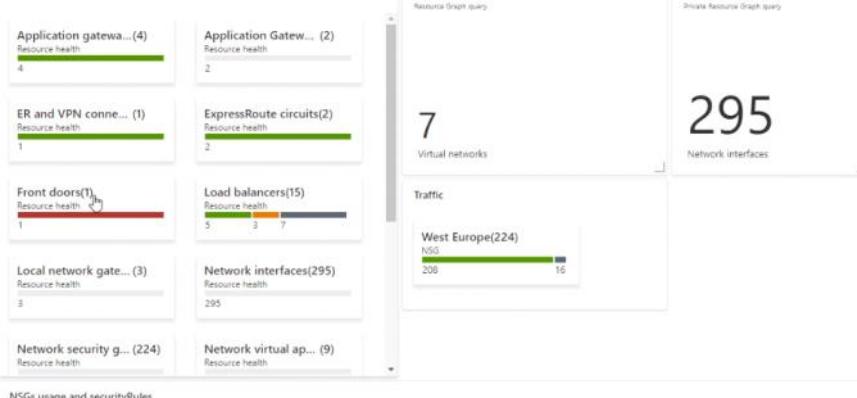
vmName	privateip	publicip	hostName	resourceGroup	location	subscriptionid
CVZPWEUFORTIA	10.20.2.178	cv-p-fortivpn2s-pip-01	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.176	cv-p-fortivpn2s-pip-01	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.174	cv-p-fortivpn2s-pip-01	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.160	cv-p-fortivpn2s-pip-01	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.158	cv-p-fortivpn2s-pip-01	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.154	cv-p-fortivpn2s-pip-01	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.150	cv-p-fortivpn2s-pip-01	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.182	cv-p-fortivpn2s-pip-01	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.190	cv-p-fortivpn2s-pip-01	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.188	cv-p-fortivpn2s-pip-01	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.186	cv-p-fortivpn2s-pip-01	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.184	cv-p-fortivpn2s-pip-01	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.182	cv-p-fortivpn2s-pip-01	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.180	cv-p-fortivpn2s-pip-01	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.178	cv-p-fortivpn2s-pip-01	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.176	cv-p-fortivpn2s-pip-01	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.174	cv-p-fortivpn2s-pip-01	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.172	cv-p-fortivpn2s-pip-02	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.164	cv-p-fortivpn2s-pip-02	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.162	cv-p-fortivpn2s-pip-02	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.152	cv-p-fortivpn2s-pip-02	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.140	cv-p-fortivpn2s-pip-02	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...
CVZPWEUFORTIA	10.20.2.138	cv-p-fortivpn2s-pip-02	CVZPWEUFORTIA	cvzweu-rgp-p-nva-001	westerurope	b2d8baaf-07a2-4653-993...

```
From <https://europa-onenote.officeapps.live.com/o/onenoteframe.aspx?ui=en%2DUS&rseen%2DUS&wopisrc=https%3A%2F%2Fmicrositeur-my.sharepoint.com%2Personal%2Fyvachouk.microsoft.com%2Fvti_bin%2Fwopapi.ashx%2Ffolders%2F10e0ce4a9934df2a5b8ea10decfa97&wdmable roaming=1&msrc=1&wddobj=1&hid=A252A901-975C-411E-928A-8ABCCESF6FDE&wdredigit=Teams-HL&wdhostclicktime=1676900458580&isapi=1&isapiver=1&newsession=1&corrid=e504c91c-2dc3-469d-a805-fdadbc47ac8a&usid=e504c91c-2dc3-469d-a805-fdadbc47ac8a&scfc=1&cac=1&mtr=1&sf=1&wdredirectionreason=Force_SingleStepBoot&rct=Normal&cpt=LeastProtected>
```

AZURE NETWORKING INVENTORY

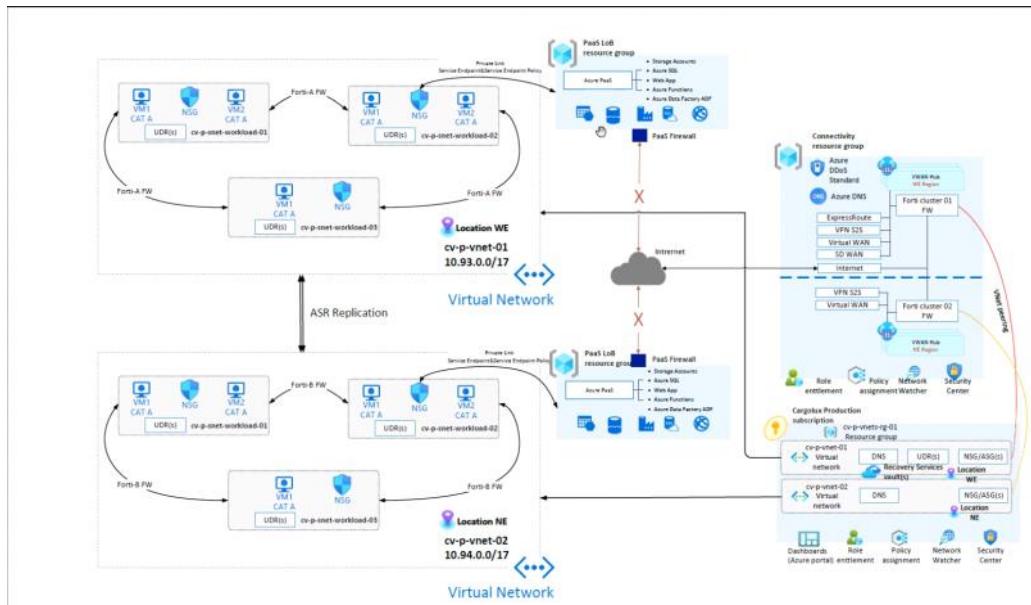
Auto refresh : Every 4 hours		UTC Time : Past 24 hours			
CV2PWEUFORTIA	10.20.2.156	cv-p-fortivpn2s-pip-02	CV2PWEUFORTIA	cv2weu-rgp-p-nva-001	westeurope b2d8baaf-07a2-4653-993... See details
CV2PWEUFORTIA	10.20.2.180	cv-p-fortivpn2s-pip-02	CV2PWEUFORTIA	cv2weu-rgp-p-nva-001	westeurope b2d8baaf-07a2-4653-993... See details
CV2PWEUFORTIA	10.20.2.178	cv-p-fortivpn2s-pip-02	CV2PWEUFORTIA	cv2weu-rgp-p-nva-001	westeurope b2d8baaf-07a2-4653-993... See details
CV7PWIFIORTIA	10.20.2.176	cv-n-fenitenvn0v-nva-02	CV7PWIFIORTIA	cv7pewu-rmn-n-nva-001	westeurope b2d8baaf-07a2-4653-993... See details

Network health



NSGs usage and securityRules

```
From <https://europc-onenote.officeapps.live.com/o/onenoteframe.aspx?ui=en%2DUS&r=en%2DUS&wopisrc=https%3A%2F%2Fmicrosofteur-my.sharepoint.com%2Fpersonal%2Fvoachouk_microsoft_com%2Fvti_bin%2Fwopiashx%2Ffolders%2F10e0ce04a3934df7a5a9b8ea10edca8f97&wdenableRoaming=1&mssc=1&wdodbs=1&hid=A252A901-975C-411E-928A-848CC5F6FDE&wdoniginTeams-HL&whostclicktime=1676900458580&isapi=1&spavverv1&newversion=1&cmdid=504c91c-2dc3-469d-a805-fdadbc47a8a&usid=e504c91c-2dc3-469d-a805-fdadbc47a8a&sfsc=1&cac=1&mtf=1&sf=1&w redirectionreason=Force_SingleStepBoot&rct=Normal&ctp=LeastProtected>
```



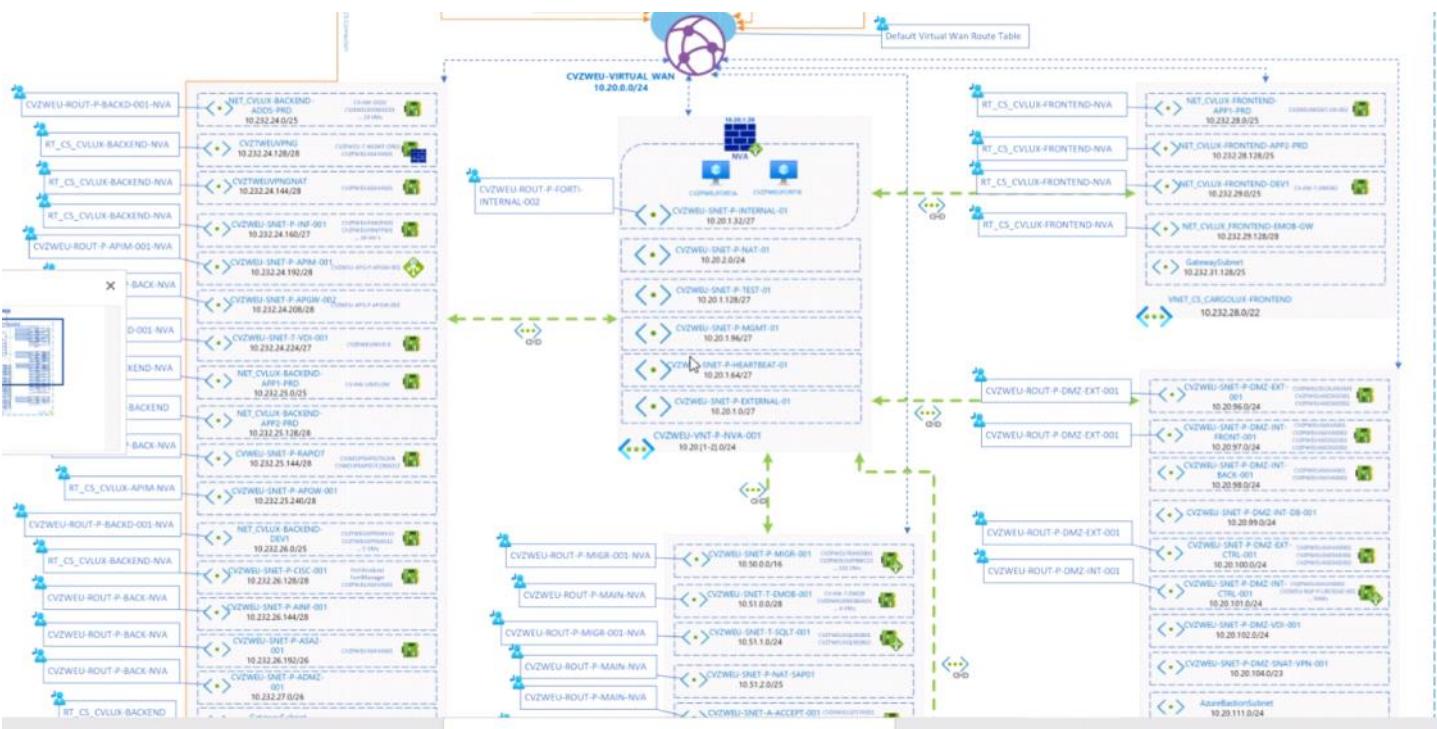
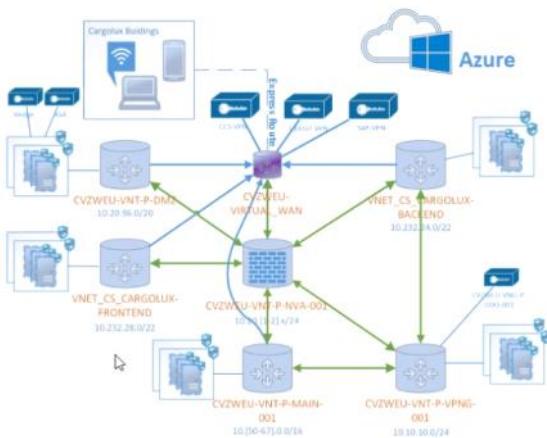
```
From <https://europc-onenote.officeapps.live.com/o/onenoteframe.aspx?ui=en%2DUS&r=en%2DUS&wopisrc=https%3A%2F%2Fmicrosofteur-my.sharepoint.com%2Fpersonal%2Fvoachouk_microsoft_com%2Fvti_bin%2Fwopiashx%2Ffolders%2F10e0ce04a3934df7a5a9b8ea10edca8f97&wdenableRoaming=1&mssc=1&wdodbs=1&hid=A252A901-975C-411E-928A-848CC5F6FDE&wdoniginTeams-HL&whostclicktime=1676900458580&isapi=1&spavverv1&newversion=1&cmdid=504c91c-2dc3-469d-a805-fdadbc47a8a&usid=e504c91c-2dc3-469d-a805-fdadbc47a8a&sfsc=1&cac=1&mtf=1&sf=1&w redirectionreason=Force_SingleStepBoot&rct=Normal&ctp=LeastProtected>
```

Secure and zero trust

Any automation --> bicep/JSON templates

Current state:

```
From <https://europc-onenote.officeapps.live.com/o/onenoteframe.aspx?ui=en%2DUS&r=en%2DUS&wopisrc=https%3A%2F%2Fmicrosofteur-my.sharepoint.com%2Fpersonal%2Fvoachouk_microsoft_com%2Fvti_bin%2Fwopiashx%2Ffolders%2F10e0ce04a3934df7a5a9b8ea10edca8f97&wdenableRoaming=1&mssc=1&wdodbs=1&hid=A252A901-975C-411E-928A-848CC5F6FDE&wdoniginTeams-HL&whostclicktime=1676900458580&isapi=1&spavverv1&newversion=1&cmdid=504c91c-2dc3-469d-a805-fdadbc47a8a&usid=e504c91c-2dc3-469d-a805-fdadbc47a8a&sfsc=1&cac=1&mtf=1&sf=1&w redirectionreason=Force_SingleStepBoot&rct=Normal&ctp=LeastProtected>
```



CSAM Meeting

Monday, March 6, 2023 10:12 AM

CTO Prios:

Recommendations on Availability (Reliability??)

Make them aware of important changes (Make sure they are on top of the coming Infra changes)

Previous engagement:

2year engagement to help Cargolux with Networking. This is now in a better place

Focus was on stability:

Meetings with Cargolux

Monday, March 6, 2023 10:10 AM

ENTERPRISE SERVICES EXPERIENCE | Submission

Deliveries > Submit

Type Of Request

- Resourcing
- Delivery
- Travel
- Billing
- Technical Information

Type of Request / Agreement

Type of Request

CSAM Alias

Agreements

Package Name

Delivery Country

Service Name
You have selected a Classic Service

Authorized Contact

Delivery Title
Delivery Title is required

Delivery Method

Product Component

Start Date Arrival Time Estimated Time Needed
End Date: End Time:
Start Date is required

Delivery Title: Supporting customer on several topics related to the Azure environment

Deliveries > Submit

Create and Dispatch a Delivery

Type Of Request

- Resourcing
- Delivery
- Travel
- Billing
- Technical Information

Technical Information

All fields required unless otherwise specified.

Enter brief customer ready case description. This will be the customer facing case title of the event.

Technical Description

Assist the Azure team with several topics scoped for the engagement.

Instructions (optional)

68 characters out of 1100 characters

Political Consideration (optional)

0 characters out of 1100 characters

Back Submit

Presentation material and resources

Monday, March 6, 2023 5:05 PM

PPT Privatlink

[GearUp: Communications \(microsoft.com\)](#)

VWAN:

Microsoft Confidential for internal:

[ANP Readiness - NVA for Virtual WAN Hub.mp4 - All Documents \(sharepoint.com\)](#)

[\[Hybrid\] Workshop Wednesday_ Virtual WAN Updates - Multiple Pools & Routing Intent \(APAC\)-20220927_203316-Meeting Recording.mp4 \(sharepoint.com\)](#)

[Training - Virtual WAN \(VWAN\) - Overview \(visualstudio.com\)](#)

[Training - Virtual WAN \(VWAN\) - Overview \(visualstudio.com\)](#)

24/04/2023

Monday, March 6, 2023 10:10 AM

Scope agreement

Questions:

- Filter traffic through azure vwan branch to branch: Routing intent feature updates question asked if NVA is included for filtering branch to branch traffic through Azure vwan while nva is in spoke vnet
- Question about express config for VA on SQL server (defender for cloud)
- Is there a way to enforce this using Azure policies.

ITCloudTeam@cargolux.com

Azure policy across

Second Meeting:

DevOps Overview Farkas Mark

Platform Team on all topics.

Static website FE(react angular) backend (.net rest api)

Structure: workload and env specific

Note to self: Ramping up on Azure VWAN:

[Training - Virtual WAN \(VWAN\) - Overview \(visualstudio.com\)](#)

[ANP Readiness - Publishing Files - All Documents \(sharepoint.com\)](#)

The screenshot shows the Azure DevOps organization dashboard for 'cargolux'. At the top, there's a navigation bar with links like 'Projects - Home', 'My Day - To Do', 'Pipeline statuses ...', 'Azure naming conv...', 'Recommended abb...', 'iCargo', 'Citrix Cloud Admin', 'Infoblox Grid Mana...', 'Changed files - Vis...', and 'https://mcg-handov...'. Below the navigation is a search bar and a 'New project' button. The main area displays several projects under the 'New organization' tab:

- I Infrastructure**: This is for all items related to automation of the infrastructure (currently in Azure).
- Dev.Cargolux.Applications**: This project consists of Cargolux internal applications developments within in C#/NET, React, Java, Angular, Typescript.
- G Global.Logistics-Truck.Cost.Ca...**: This development is to collect all active trucks from eChamp - via the TAA messages originating from eChamp @ _STD = 5 days - and calculate the truck...
- S Sales-Digital.Sales**: Digital Sales - Customer portal Dev Environment: <https://my.dev.cargolux.com> Test Environment: <https://my.test.cargolux.com> Uat...

Below these, there are more projects listed:

- (Dev) COMPASS**: Compass development by C-Services. Application to allow users to monitor, track and manage the build-up and loading of flights. Provide users with the necessary information and tools to control the schedule...
- E (Dev) eTravel**: Travel and Expense Application development
- A (Support) AIMS**
- BI Solution**: Business Intelligence Solution Development
- C Corporate-Apis.Monitoring**: Apis Monitoring Tool
- C Corporate-Compliance**: D365 Compliance project (UAT environment: <https://uatcompliance.crm4.dynamics.com/main.aspx?appid=1cb95fe8-41f3-ea11-a815-000d3a21ad5&forceUCL=1>) - Consultation Desk - Defense Desk - Due Dili...

On the left side, there are 'What's new' and 'Organization settings' sections.

Azure DevOps cargolux / Infrastructure / Repos / Files / cicd-digitalsales-d365-api

Infrastructure

- Overview
- Boards
- Repos**
- Files
- Commits
- Pushes
- Branches
- Tags
- Pull requests
- Pipelines
- Test Plans
- Artifacts

cicd-digitalsales-d365-api

- > build
- > deploy
- > test
- > variables
- MI README.md

dev/dotnet7

Type to find a file or folder...

Files

Contents History

You updated **dev/dotnet7** 11m ago

Create a pull request

Name	Last change	Commits
build	4h ago	b84e64d1 Updated postbuild.steps.yml Mark Farkas
deploy	11m ago	d518da8f Updated apim.steps.yml Mark Farkas
test	May 10, 2022	8893109b Merged PR 2875: refactor pipeline Mark Farkas
variables	Dec 22, 2022	d09f0eac Merged PR 4020: Updated variables.uat.yml Rusi Martin
MI README.md	May 5, 2021	b69f6db2 Added README.md Mark Farkas

Introduction

TODO: Give a short introduction of your project. Let this section explain the objectives or the motivation behind this project.

Getting Started

TODO: Guide users through getting your code up and running on their own system. In this section you can talk about:

1. Installation process
2. Software dependencies
3. Latest releases
4. API references

Build and Test

TODO: Describe and show how to build your code and run the tests.

Project settings

Azure DevOps cargolux / Infrastructure / Repos / Files / iac-resourcegroups

Infrastructure

- Overview
- Boards
- Repos**
- Files
- Commits
- Pushes
- Branches
- Tags
- Pull requests
- Pipelines
- Test Plans
- Artifacts

iac-resourcegroups

- > bicep
- > cicd
- > definitions
- aerobypes.json
- aimsng-rg-01.json
- apis-management.json
- apis-monitoring.json
- appgw-02.json
- azsqlmanagement.json
- azurefiles.json
- captool.json
- carma-mq.json
- checkmk.json
- citrix-image-management.json
- citrix-infra.json
- citrix-workers.json
- compliance-azure-synapse.json
- corporate-maps.json
- csitools.json
- currency-converter.json
- cv-p-aahybwk-1.json

main

/ definitions

definitions

Contents History

+ New

Name	Last change	Commits
aerobypes.json	Mar 29, 2022	a2c6b09c Merged PR 2712: Creation of Aerobypes RG Pierre Blanc
aimsng-rg-01.json	Mar 21, 2022	4d96b51d Merged PR 2676: Improve pipeline Mark Farkas
apis-management.json	Jul 7, 2022	5f225b01 Merged PR 3187: Added apis-management.json Mark Farkas
apis-monitoring.json	Jul 25, 2022	baeb1c31 Merged PR 3290: add prod resource group to apis-monitoring.json Mark Farkas
appgw-02.json	Mar 21, 2022	4d96b51d Merged PR 2676: Improve pipeline Mark Farkas
azsqlmanagement.json	Apr 15, 2022	85aa02a2 Merged PR 2801: add UAT Environment for AZSQL Management Pierre Blanc
azurefiles.json	Mar 21, 2022	4d96b51d Merged PR 2676: Improve pipeline Mark Farkas
captool.json	Mar 21, 2022	4d96b51d Merged PR 2676: Improve pipeline Mark Farkas
carma-mq.json	Jun 17, 2022	3c65312a Merged PR 3029: Added carma-mq.json Rusi Martin
checkmk.json	May 23, 2022	b6d26446 Merged PR 2956: Create CheckMK Prod RG Pierre Blanc
citrix-image-management.json	May 2, 2022	4f9ae0c1 Merged PR 2833: Create CTX image management test RG Pierre Blanc
citrix-infra.json	Apr 21, 2022	b582d0a8 Merged PR 2807: Create RG for citrix test Pierre Blanc
citrix-workers.json	Apr 21, 2022	b582d0a8 Merged PR 2807: Create RG for citrix test Pierre Blanc
compliance-azure-synapse.json	Apr 5, 2022	e1768b21 Merged PR 2755: Added compliance-azure-synapse.json Rusi Martin
corporate-maps.json	Mar 21, 2022	4d96b51d Merged PR 2676: Improve pipeline Mark Farkas
csitools.json	Jul 19, 2022	fca99856 Merged PR 3247: Create Rg for csi tools Pierre Blanc
currency-converter.json	Nov 4, 2022	5abcb293 Merged PR 3703: add production resource group to currency-converter.json ...

Project settings

iac-resourcegroups

- bicep
- cicd
- definitions
 - aerobites.json
 - aimsng-rg-01.json
 - apis-management.json
 - apis-monitoring.json**
 - appgw-02.json
 - azsqlmanagement.json
 - azurefiles.json
 - captool.json
 - carma-mq.json
 - checkmk.json
 - citrix-image-management.json
 - citrix-infra.json
 - citrix-workers.json
 - compliance-azure-synapse.json
 - corporate-maps.json
 - cstools.json
 - currency-converter.json
 - cv-p-aahybwk-1.json
- ac-resourcegroups/pullrequests.json

main / definitions / apis-monitoring.json

Contents History Compare Blame

```

1 I
2 {
3   "companyName": "cv",
4   "projectName": "apis-monitoring",
5   "environments": [
6     "st",
7     "t",
8     "a"
9   ],
10  "createServicePrincipal": true,
11  "resourceTags": [
12    "applicationName": "apis-monitoring",
13    "owner": "bill.brinch@cargolux.com",
14    "sla": "cat b",
15    "businessUnit": "corporate security",
16    "grp": "yves.mabbe@cargolux.com",
17    "costcenter": "400",
18    "expirydate": "never",
19    "chgnumber": "CHG0031889",
20    "description": "apis message monitoring application",
21    "project": "apis-monitoring"
22  ],
23  "location": "westeurope"
24 },
25 {
26   "companyName": "cv",
27   "projectName": "apis-monitoring",
28   "environments": [
29     "pr"
30   ],
31   "createServicePrincipal": true,
32   "resourceTags": [
33     "applicationName": "apis-monitoring",
34     "owner": "bill.brinch@cargolux.com",
35     "sla": "cat b",
36     "businessUnit": "corporate security",
37     "grp": "yves.mabbe@cargolux.com",
38     "costcenter": "400",
39     "expirydate": "never",
40     "chgnumber": "CHG0033099",
41     "description": "apis message monitoring application",
42     "project": "apis-monitoring"
43   ],
44   "location": "westeurope"

```

They create rgs for devtestuat and one for production

Settings - Service connections (1) + https://dev.azure.com/cargolux/Infrastructure/_settings/adminservices

IT Architecture Team Azure DevOps Self Service | Cargo... My Day - To Do Pipeline statuses ... Azure naming conv... Recommended abbreviations iCargo Citrix Cloud Admin Infoblox Grid Manager Changed

cargolux / Infrastructure / Settings / Service connections

Project Settings Infrastructure

General

- Overview
- Teams
- Permissions
- Notification hooks
- Service hooks
- Dashboards

Boards

- Project configuration
- Team configuration
- Github connections

Pipelines

- Agent pools
- Parallel jobs
- Settings
- Test management
- Release retention
- Service connections
- XAML build services

Repos

- Repositories

Artifacts

Service connections

Filter by keywords

- pipeline-service-principal-apis-monitoring-cargolux_dev_test Shared
- pipeline-service-principal-apis-monitoring-cargolux_production Shared
- pipeline-service-principal-automatedtaggingtest-cargolux_lab
- pipeline-service-principal-b2b-approval-api-cargolux_dev_test Shared
- pipeline-service-principal-b2b-approval-api-cargolux_production Shared
- pipeline-service-principal-captool-cargolux_dev_test Shared
- pipeline-service-principal-captool-cargolux_production Shared
- pipeline-service-principal-cargo-dev_test Shared
- pipeline-service-principal-cargo-production Shared
- pipeline-service-principal-carma-mq-cargolux_dev_test Shared
- pipeline-service-principal-carma-mq-cargolux_production Shared
- pipeline-service-principal-carma-scim-cargolux_dev_test Shared
- pipeline-service-principal-carma-scim-cargolux_production Shared
- pipeline-service-principal-cmpl-dev_test Shared
- pipeline-service-principal-cmpl-production Shared
- pipeline-service-principal-compass-01-cargolux_dev_test Shared
- pipeline-service-principal-corporate-maps-cargolux_dev_test Shared
- pipeline-service-principal-corporate-maps-cargolux_production Shared

SP only access on scope of rg's.

Created in devops project. Shared into the project where it is being used.

Dev.Cargolux.Applications / cv-smtp-gateway-api

Files

- cicd
- Cv.Smtp.Gateway.Api
- Cv.Smtp.Gateway.Test
- PostmanTests
- .gitignore
- Cv.Smtp.Gateway.sln
- MI README.md

Commit History

Date	Commit ID	Message
Apr 17	dcefd488	Updated pipeline.yml
Mar 17	25487f41	Setup logging
Feb 17	732fa0b2	Make Timeout configurable via request too
Feb 1	63f2058c	.gitignore
Feb 17	732fa0b2	Make Timeout configurable via request too
Feb 1	9c62ca2f	apply .gitignore

Dev.Cargolux.Applications / cv-smtp-gateway-api

Files

- cicd
- Cv.Smtp.Gateway.Api
- Cv.Smtp.Gateway.Test
- PostmanTests
- .gitignore
- Cv.Smtp.Gateway.sln
- MI README.md

Commit History

Name	Last change	Commits
cicd	Apr 17	dcefd488 Updated pipeline.yml
Cv.Smtp.Gateway.Api	Mar 17	25487f41 Setup logging
Cv.Smtp.Gateway.Test	Feb 17	732fa0b2 Make Timeout configurable via request too
PostmanTests	Tuesday	1d7a8506 correct typo in smtp-api-postman-collection.json
.gitignore	Feb 1	63f2058c .gitignore
Cv.Smtp.Gateway.sln	Feb 17	732fa0b2 Make Timeout configurable via request too
MI README.md	Feb 1	9c62ca2f apply .gitignore

Introduction
TODO: Give a short introduction of your project. Let this section explain the objectives or the motivation behind this project.

Getting Started
TODO: Guide users through getting your code up and running on their own system. In this section you can talk about:

1. Installation process
2. Software dependencies
3. Latest releases
4. API references

Build and Test
TODO: Describe and show how to build your code and run the tests.

repo for be and frontend

The screenshot shows the Azure DevOps interface for the project 'Dev.Cargolux.Applications'. The left sidebar shows 'Files' selected. In the main area, under 'cv-smtp-gateway-api', there is a 'ci_cd' folder containing a 'pipeline.yml' file. The pipeline configuration is as follows:

```

1 trigger:
2   branches:
3     - main
4   resources:
5     repositories:
6       - repository: cico-repo
7         type: git
8         ref: refs/heads/dev/postman-tests
9         name: Infrastructure/ci_cd-smtp-gateway-api
10      - repository: cico-templates
11        type: git
12        ref: refs/heads/dev/postman-tests
13        name: Infrastructure/ci_cd-templates
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44

```

The pipeline triggers on changes to the 'main' branch. It uses two repositories: 'cico-repo' and 'cico-templates'. The 'cico-repo' repository contains the 'postman-tests' branch. The 'cico-templates' repository also contains the 'postman-tests' branch. The pipeline extends the 'dotnetcore-app-stages.template.yml' template and runs Postman test collections. It has environments named 'dev', 'test', and 'uat'.

They are using shared repo
Containing vars per env.

The screenshot shows the Azure DevOps interface for the project 'Infrastructure'. The left sidebar shows 'Variables' selected. In the main area, under 'cv-smtp-gateway-api', there is a 'variables' folder containing a 'variables.dev.yml' file. The variable configuration is as follows:

```

1 variables:
2   armConnection_pipeline-service-principal-smtp-gateway-api-cargolux_dev_test
3   appSetting_smtpServiceUrl: https://login.microsoftonline.com/
4   appSetting_azuredTenantId: 25b5bfef-4411-46d1-956d-2ffff951bd08
5   appSetting_azureADClientID: ad8b30a3-40e4-4a9f-9968-1987cc66f6fa
6   appSetting_allowRecipients: ["@cargolux.com"]
7   appSetting_smtpConfigHost: smptest.cargolux.local
8   appSetting_smtpConfigPort: 25
9   appSetting_smtpConfigUseSsl: false
10  appServiceIpSecurityRestrictions: >
11    [
12      {
13        "ipAddress": "20.126.180.91/32",
14        "action": "Allow",
15        "tag": "Default",
16        "priority": 100,
17        "name": "AllowAllIn",
18        "description": "Allow traffic only from the APIR cargolux-dev"
19      }
20    ]
21  existingAppServicePlanName: cv-a-smtp-gateway-api-plan-hpvy
22  existingAppServicePlanName: cv-a-smtp-gateway-api
23  resourceGroupPlanName: cv-d-smtp-gateway-api
24  resourceTags: >
25    [
26      {
27        "chNumber": "CH00033933"
28      }
29    ]
30  subscriptionId: e87eb657-8537-402f-bc03-85e158940991
31  appServiceConnections: pipeline-service-principal-smtp-gateway-api-cargolux_dev_test
32  appSubscriptionId: e87eb657-8537-402f-bc03-88e158940991
33  appResourceLocation: West Europe
34  appServiceGroupPlanName: CV2EU-RGP-D-APM-001
35  appServiceName: cargolux-dev
36  postmanBaseUrl: https://cargolux-dev.azure-api.net/smtp-gateway-api/v1
37  postmanScope: ap1://cv-d-smtp-gateway-api/.default

```

The variables include connection strings for an ARM pipeline, app settings for SMTP service URLs and Azure AD client IDs, security restrictions for IP addresses, and resource group and service plan names. It also defines a subscription ID and specifies the location as West Europe.

```

1 variables:
2   appServiceSku: ('name': 'S1', 'tier': 'Standard', 'size': 'S1', 'family': 'S', 'capacity': 1)
3   vstsFeedId: 29cad57-c2e8-4ad6-a276-37fcff21f39
4   dotnetRuntime: win-x64
5   buildConfiguration: Release
6   buildPool: ubuntu-latest
7   deployPool: windows-latest
8   apimConfigFile: apim-config.xml
9   apimStepsFile: apim.steps.xml
10  appSettingsStepsFile: appsettings.steps.xml
11  projectDisplayname: SMTP Gateway API
12  tenantId: 25d989f-4441-4643-866d-2fff6951bd08
13  apimDevOpsReskitDownloadLink: https://github.com/Azure/azure-api-management-devops-resource-kit/releases/download/v0.7/reskit0.7.zip

```

repository: cidd-templates
type: git
ref: refs/heads/dev/postman-tests
name: Infrastructure/cidd-templates

Contains yaml pipeline templates

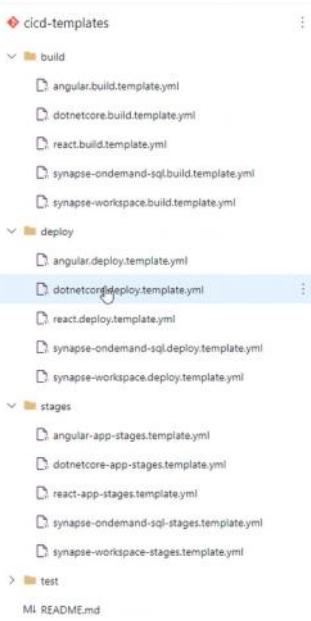
```

1 parameters:
2   - name: dotnetVersion
3     type: string
4   - name: solutionfileName
5     type: string
6   - name: environments
7     type: object
8   - name: preBuildSteps
9     type: stepList
10    default: []
11   - name: postBuildSteps
12     type: stepList
13     default: []
14   - name: customBuildArguments
15     type: string
16     default: ''
17   - name: customPublishArguments
18     type: string
19     default: ''
20   - name: projectsToPublish
21     type: string
22     default: ''
23   - name: preDeploySteps
24     type: stepList
25     default: []
26   - name: postDeploySteps
27     type: stepList
28     default: []

stages:
  - stage: "Build"
    jobs:
      - template: $(variables\variables.yml@cidd-repo)
        pool:
          vmImage: $(buildPool)
        displayName: "Build"
      - template: $(build\dotnetcore.build.template.yml@cidd-templates)
        parameters:
          dotnetVersion: $(parameters.dotnetVersion)
          solution: $(parameters.solutionfileName)
          preBuildSteps: $(parameters.preBuildSteps)
          postBuildSteps: $(parameters.postBuildSteps)
          customBuildArguments: $(parameters.customBuildArguments)
          customPublishArguments: $(parameters.customPublishArguments)
          projectsToPublish: $(parameters.projectsToPublish)

  - stage: "Test"
    jobs:
      - template: $(build\dotnetcore.test.template.yml@cidd-templates)
        parameters:
          environments: $(environments)
          useStagingSlot: $(parameters.useStagingSlot)
          deployStorage: $(parameters.deployStorage)
          deployObj: $(parameters.deployObj)
          deployApim: $(parameters.deployApim)
          deployRedisCache: $(parameters.deployRedisCache)
          deployEventGridTopic: $(parameters.deployEventGridTopic)

```



cidc-templates

- build
 - angular.build.template.yml
 - dotnetcore.build.template.yml
 - react.build.template.yml
 - synapse-onDemand-sql.build.template.yml
 - synapse-workspace.build.template.yml
- deploy
 - angular.deploy.template.yml
 - dotnetcore.deploy.template.yml
 - react.deploy.template.yml
 - synapse-onDemand-sql.deploy.template.yml
 - synapse-workspace.deploy.template.yml
- stages
 - angular-app-stages.template.yml
 - dotnetcore-app-stages.template.yml
 - react-app-stages.template.yml
 - synapse-onDemand-sql-stages.template.yml
 - synapse-workspace-stages.template.yml
- test

README.md

You updated dev/dotnet7 Friday

```
template: variables:variables.$((parameters.environment.name)).yml@cidc-repo
name: sqlAdminPasswordSecretName
value: ${variables.projectName}-sql-admin-password
name: sqlConnectionStringSecretName
value: ${variables.projectName}-sql-connectionstring
name: storageAccountConnectionStringSecretName
value: ${variables.projectName}-storage-connectionstring
name: adalClientSecretName
value: ${variables.projectName}-adal-client-secret
name: appInsightsConnectionStringSecretName
value: ${variables.projectName}-app-insstrumentationkey
name: redisCacheConnectionStringSecretName
value: ${variables.projectName}-rediscache-connectionstring
name: artifactName
value: ${parameters.artifactName}
name: netFrameworkVersion
value: $(if ${{parameters.dotnetVersion}} -gt 7.0, "v7.0", "v6.0"))
displayNamed: Deploy application to environment "$((variables.projectName))-$((parameters.environment.name))"
continueOnFailure: false
pool:
  vmImage: ${variables.deployPool}
environment: ${variables.projectName}-$((parameters.environment.name))
strategy:
runOnce:
  deploy:
    steps:
      - download: none
        checkout: lac-templates
        path: sln-templates
      - checkout: cidc-repo
        path: xcldc-repo
      - task: PowerShell@2
```

cidc-templates?path=/deploy/dotnetcore.deploy.template.yml&version=0&dev/dotnet7

Template creates keyvault and saves secret to keyvault

dotnetcore.deploy.template.yml

Contents History Compare Blame

You updated dev/dotnet7 Friday Create a pull request

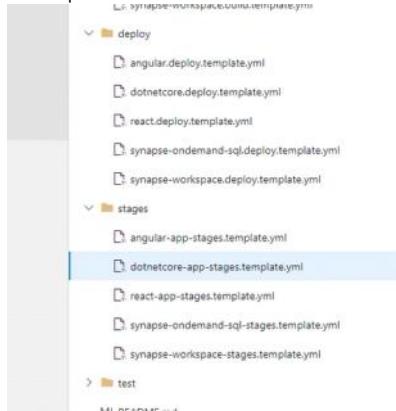
```

107
108 - task: PowerShell@2
109   displayName: Emit environment parameter object properties as variables
110   inputs:
111     targetType: inline
112     script: |
113       $env:parameters = $(ConvertFrom-Json($parameters.environment))
114       Write-Host "#$env:[task.setvariable variable=$env:environment.shortName;issecret=$env:environment.shortName]"
115       Write-Host "#$env:[task.setvariable variable=$env:environment.name;issecret=$env:environment.name]"
116       Write-Host "#$env:[task.setvariable variable=$env:environment.displayName;issecret=$env:environment.displayName]"
117       Write-Host "#$env:[task.setvariable variable=$env:environment.resourceLocation;issecret=$env:environment.resourceLocation]"
118
119 - ${{parameters.preDeploySteps}}
120
121 - task: AzureResourceManagerTemplateDeployment@3
122   displayName: ARM template generate unique string
123   inputs:
124     deploymentScope: 'Resource Group'
125     action: 'Create Or Update Resource Group'
126     location: ${{parameters.environment.resourceLocation}}
127     templateLocation: 'Linked artifact'
128     azureSubscription: $(variables.armConnection)
129     subscriptionId: ${{variables.subscriptionId}}
130     resourceGroupName: ${{variables.resourceGroupName}}
131     templateUrl: '$(Build.SourcesDirectory)/**/uniquestring.template.json'
132     deploymentMode: 'Incremental'
133     deploymentOutputs: ArmOutputString
134
135 - tasks: AzurePowerShell@4
136   displayName: Parse ARM template deployment outputs
137   inputs:
138     azureSubscription: ${{variables.armConnection}}
139     azurePowerShellVersion: LatestVersion
140     scriptType: FilePath
141     scriptPath: '$(Build.SourcesDirectory)\iac-templates\scripts\ParseArmDeploymentOutput.ps1'
142     scriptArguments: '-ArmOutputString $(ArmOutputString)'
143
144 - task: PowerShell@2
145   displayName: Set key vault name variable

```

Customizability is implemented with param switches

iac-templates



```

66   - name: runPostmanTestCollection
67     type: boolean
68     default: false
69
70   - name: postmanBaseUrl
71     type: string
72     default: 'N/A'
73
74   - name: postmanScope
75     type: string
76     default: 'N/A'
77
78   - name: postmanCollectionPath
79     type: string
80     default: 'N/A'
81
82
83 resources:
84   repositories:
85     - repository: iac-templates
86       type: git
87       ref: refs/heads/main
88       name: Infrastructure/iac-templates
89
90 variables:
91   - template: \variables\variables.yml@cicd-repo
92
93 stages:
94   - stage: "build"
95     variables:
96       - template: \variables\variables.yml@cicd-repo
97       pool:
98         vmImage: $(BuildPool)

```

vOps cargolux / Infrastructure / Repos / Files / iac-templates

Search / Type to find a file or folder...

Files

Contents History

Name	Last change	Commits
appservices	Friday	bdd9795c Updated appservice-dotnet.template.json Mark Farkas
databases	Sep 16, 2021	d9bdca56 Merged PR 1827: output sql server and database names Mark Farkas
enableVMbackup	Jun 29, 2022	ab115f3d Merged PR 3094: adding linux vm zonal & private endpoint bicep templates R...
eventgrid	Jul 22, 2022	1159d124 Merged PR 3285: add templates for event grid resources Mark Farkas
functionapps	Oct 13, 2022	2c229315 Merged PR 3013: Enforce FTPSState to FTPSOnly on appsvc & function Pierre ...
keyvaults	Apr 21, 2021	4b58700a add keyvault arm template Mark Farkas
loadbalancers	Dec 5, 2022	839514f7 Merged PR 3912: Added sql-lbi.bicep Rusi Martin
logicapps	Sep 23, 2021	91ba71a8 Merged PR 1869: add logic app sql connection template Mark Farkas
nsgs	Mar 1, 2022	14b4165a Merged PR 2618: updated nsg bicep template Mark Farkas
privatelink	Jun 30, 2022	21b2d1f1 Merged PR 3113: removing hardcoded parameters and adding name variable ..
rediscache	May 11, 2021	baa4db23 add redis cache key secret to template Mark Farkas
resourcegroups	Aug 31, 2021	a1de7223 Merged PR 1756: add resourcegroup and roleassignment bicep templates Mar...
roleassignments	Aug 31, 2021	a1de7223 Merged PR 1756: add resourcegroup and roleassignment bicep templates Mar...
scripts	Mar 2, 2022	51b08f35 Merged PR 2623: add validate.jsonfiles.ps1 Mark Farkas
servicebus	Apr 30, 2021	ec18743d fix copy function Mark Farkas
signalrservices	Apr 22, 2021	9aa1b789 add signalr template Mark Farkas
storageaccounts	Sep 19, 2022	4a66b579 Merged PR 3516: enforce HTTPS only on Storage account template Pierre Blan...

Set up build Clone

sts settings

For each workload 2 repos specific to the workload, one for source code, and one containing config and special steps for the workload.

Each workload is using these.

Reasoning for this amount of layers, coming from the fact we have different people being responsible for the different process.
It allows to have different lifecycles for the components.

Main pain points in this setup:

Complex, passing down params for every single new template when adding params.

App config is separate from the code:

s cargolux / Infrastructure / Repos / Files / cicd-smtp-gateway-api

Search / variables / variables.dev.yml

variables.dev.yml

Contents History Compare Blame

```

1 variables:
2   armConnection: pipeline-service-principal-smtp-gateway-api-cargolux_dev_test
3   azureAdInstance: https://login.microsoftonline.com/
4   appSettings.azureWebJobsDashboard: 25e399ef-4441-46a3-866d-2fff6951bd88
5   appSettings.azureWebJobsStorage: 833a03-406e-4a9f-8968-1967cc068f6a
6   appSettings:allowNodeClients: ["@cargolux.com"]
7   appSettings:tempConfigHost: amptest.cargolux.local
8   appSettings:tempConfigPort: 25
9   appSettings:tempConfigUseSsl: false
10  appSettings:tempIpSecurityRestrictions: >
11    [
12      {
13        "ipAddress": "30.120.100.0/32",
14        "action": "Allow",
15        "tag": "Default",
16        "priority": 100,
17        "name": "AllowAllIn",
18        "description": "Allow traffic only from the APIW cargolux-dev"
19      }
20    ]
21  existingLogicServicePlanName: cv-d-smtp-gateway-api-plan-hpvy
22  existingLogicServicePlanName1: cv-a-smtp-gateway-api
23  resourceGroupName: cv-d-smtp-gateway-api
24  resourceTags: >
25    [
26      {
27        "chNumber": "CH00039933"
28    }
29  ]
30  subscriptionId: e87e0b7-8537-4924-8c03-88e138948991
31  apimSubscriptionId: e87e0b7-8537-4924-8c03-88e138948991
32  apimResourceLocation: West Europe
33  apimResourceGroupName: CV2EU-RGP-O-APIN-001
34  apimServiceName: cargolux-dev
35  postmanBaseUrl: https://cargolux-dev.azure-api.net/smtp-gateway-api/v1
36  postmanScope: api://cv-d-smtp-gateway-api/default

```

Example decoupling changes to template,

```

1 triggers:
2   branches:
3     include:
4       - master
5   resources:
6     repositories:
7       - id: cicd-repo
8       type: git
9       ref: refs/heads/dev/dotnet7
10      name: Infrastructure/cicd-digitalsales-d365-api
11    - id: cicd-templates
12      type: git
13      ref: refs/heads/dev/dotnet7
14      name: Infrastructure/cicd-templates
15
16 extends:
17   after: stages\dotnetcore-app-stages.template.yml@cicd-templates
18   steps:
19     - dotnetVersion: 7.0.0
20     solutionFileNames: Cv.Api.LEAP.sln
21     postBuildSteps:
22       - id: post-build
23         template: \steps\post-build.steps.yml@cicd-repo
24         useStagingSlot: false
25         deployApm: true
26         deployDb: false
27         deployRedisCache: true
28         environments:
29           - shortName: d
30             displayOrder: 1
31             displayHeader: Development
32             resourceLocation: westeurope
33           - shortName: t
34             name: test

```

Files

Name	Last change	Commits
.sonarlint	Feb 11, 2021	341ae200 Working create quote (missing unit and flight/trucks route string in quote op... ...
cicd	May 10, 2022	aac629c2 Merged PR 2874: refactored cicd pipeline Mark Farkas
src	Mar 9	d9a51c52 Output System enum Olivier Fuméon
test	Feb 14	e510bce2 Unit test degradation for compilation of project Olivier Fuméon
.gitignore	Nov 10, 2022	a62298d4 local appsettings ignore Olivier Fuméon
CodeCoverage.unsettings	Apr 8, 2021	b1add3c22 Code coverage settings update Olivier Fuméon
Cv.Api.LEAP.sln	Nov 9, 2020	c7cd8c66 WebApi Unit Tests / Pipeline YAML update Olivier Fuméon
README.md	Dec 21, 2022	4b7c3b01 Merged PR 4017: Updated README.md Ruzi Markin

Introduction
This solution is developed to bridge the Digital Sales API with Dynamics 365 for LEAP.

Quality Gate
[Quality Gate Status](#)

Software Requirements
• Visual Studio 2019

Artifacts: not used yet

There is approval process
Needs to go through dev/test/uat
You have to work

- 40/50 pipelines. Not over 100 pipelines
- 2 pipeline per project: 20/25 project
- 4 devs using these templates.
- Infratemplates
- Entrypoint for pipeline is app service.

Bicep -> not prio at this time

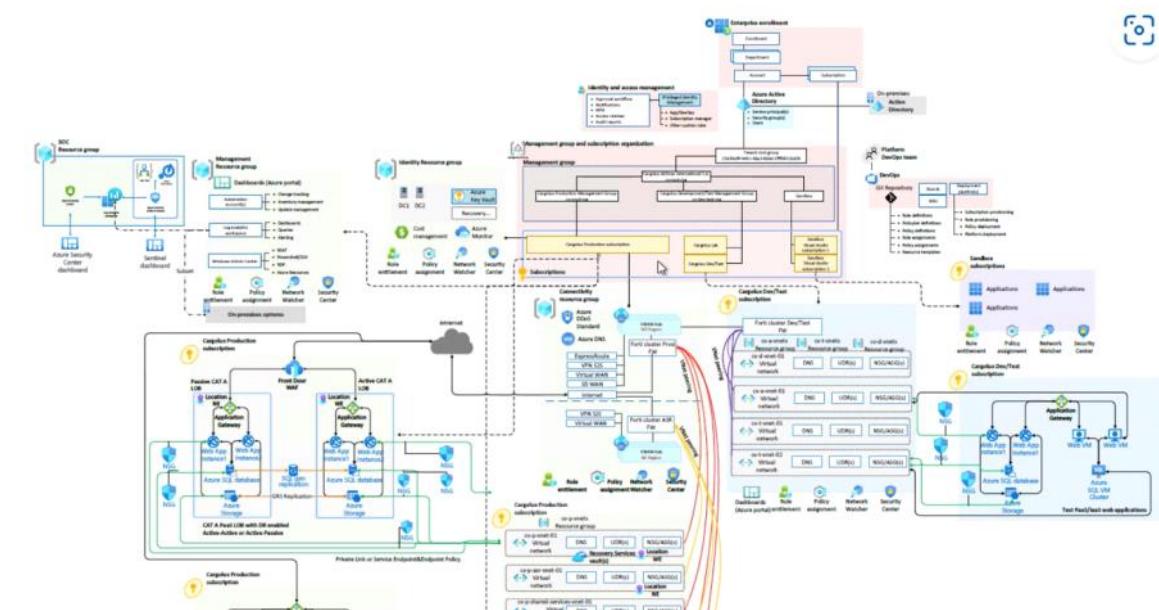
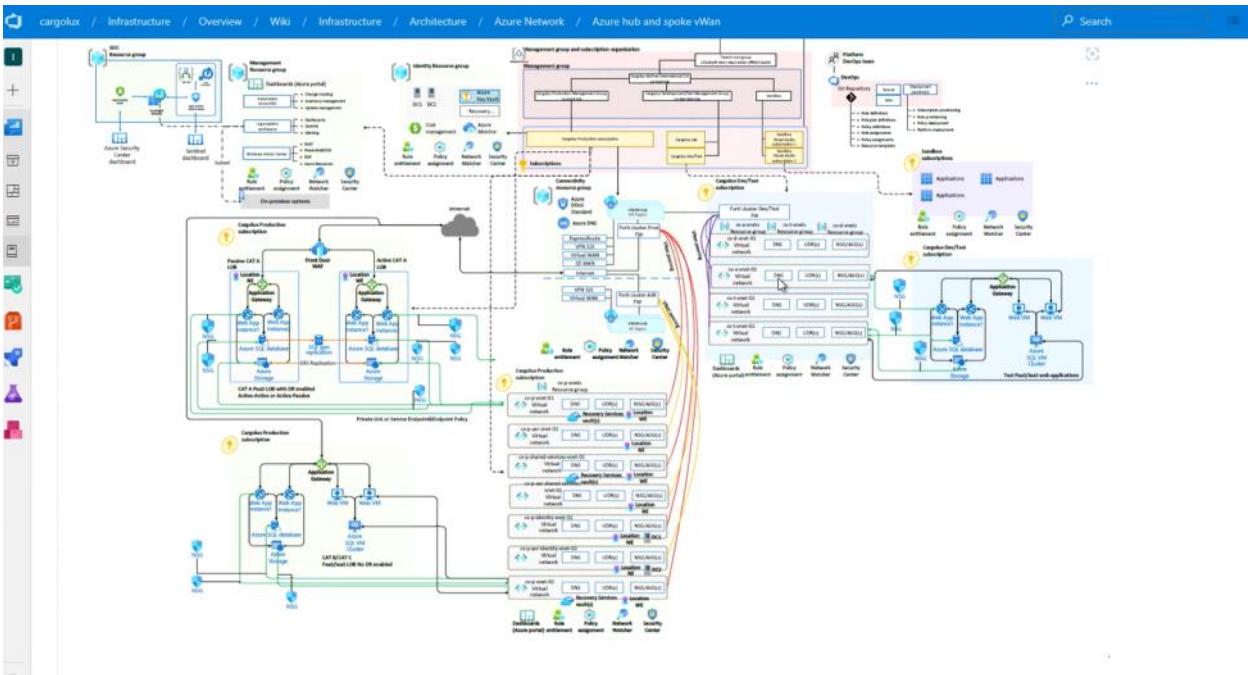
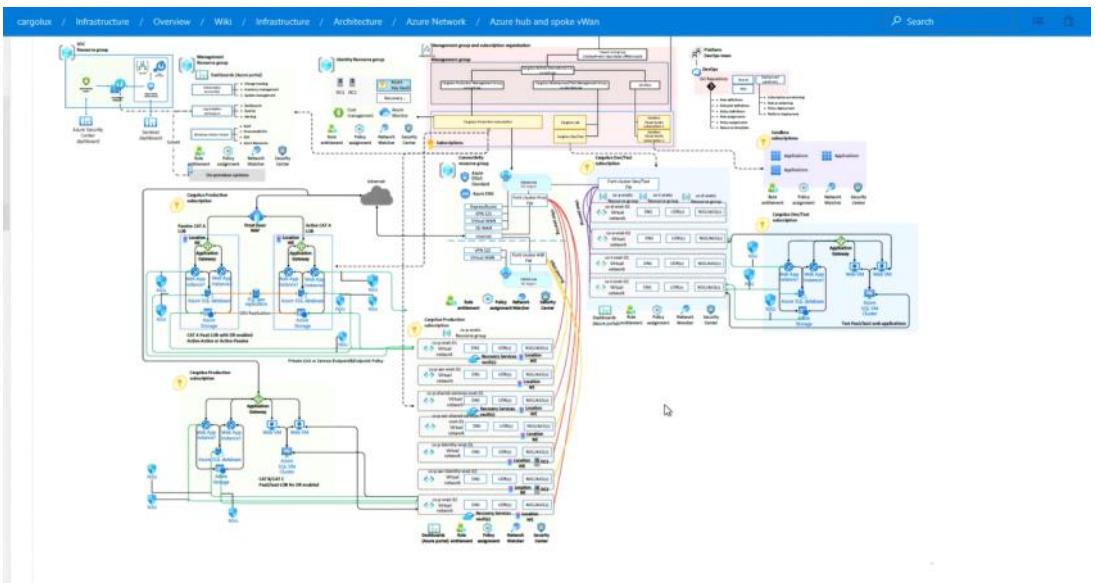
Big pain points: Api management gateway and application gateway

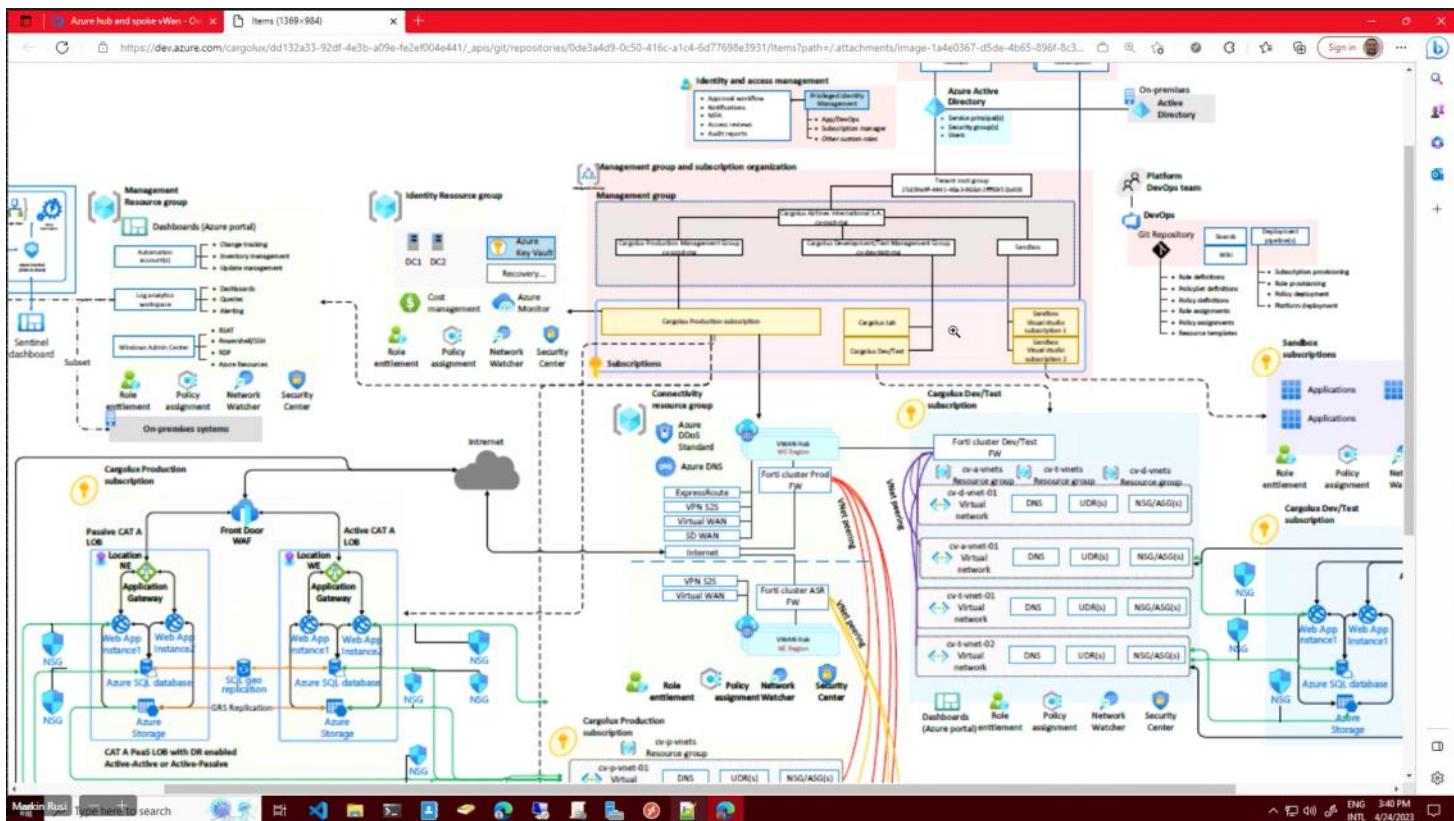
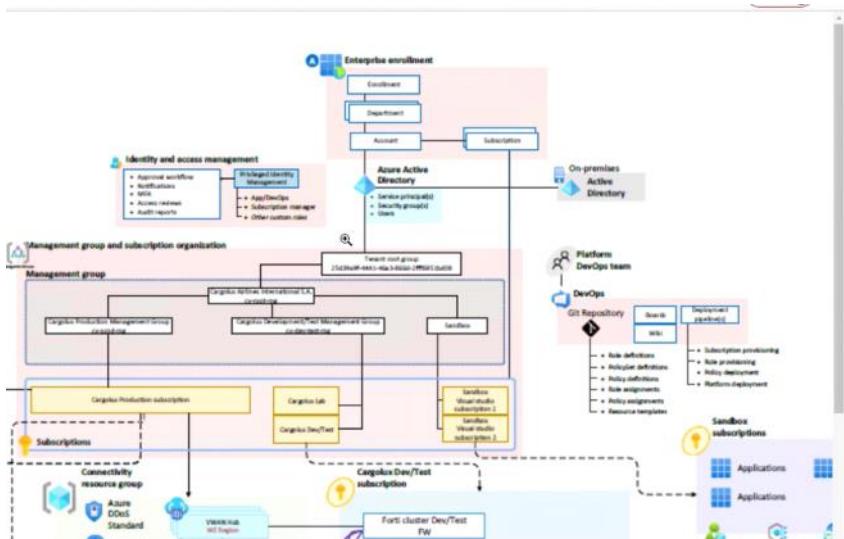
API Management -> create new, slowly onboard APIs on the new. (4 envs). Start with new approach. (devsku only devtest, uat prod Premium).

Internal VNET mode/ External VNET mode.

Next session:

- Look into Landing Zone -> assessment type of discussion
 - Look at what more can be done
 - Start with planning with next DSE days
- deployment workflow (Mark) inside of Azure DevOps





Inheritance from past -> even dev/test resources were used in prod, still from old migration exercise.

Azure vwan ->

vnets within their own resourcegroup
For each workload dedicated rg

Microsoft Azure

Search resources, services, and docs (q+)

Home > Resource groups

Cargolux Airlines International S.A. (cargolux.com)

+ Create Manage view Refresh Export to CSV Open query Assign tags

Filter for any field... Subscription equals all Location equals all Add filter

test eCrew NG

Manage personal info

AZ-CL-DOMAIN

AZ-CL-P-EMOB

AZ-CL-T-EMOB

AzureBackupRG_westeuropa_1

AzureBackupRG_westeuropa_1

cargoluxpublic

Citrix-ImageBuilder

citrix-xf-29694c77-b3d-498a-bb88-464ac77a7370-z3icv

citrix-xf-2e5ff4c-b970-4-5d-83a-77db8d0b5a5-70aq

citrix-xf-914f90ed-0dae-428e-bd9e-e2e5c95ba980-hc9fh

citrix-xf-988cd0d-0fca-4c06-9a77-2ee52187040a-u95aw

citrix-xf-acb72d04-abbb-4319-bf90-3b0eadff1b632-ues9n

citrix-xf-bf3cf328-c191-48f1-91a-68de9029b7c7-behrfr

citrix-xf-ce19c5b-2b74-48fb-875e-0e874800fe9a-bmifvm

cloud-shell-storage-eastus

CostCenter: 800 Owner: IT ApplicationName: Infrastructure ...

CostCenter: 800 Owner: IT ApplicationName: Infrastructure ...

CostCenter: Owner: ApplicationName: eMobility Department: ...

CostCenter: Owner: ApplicationName: eMobility Department: ...

CostCenter: 800 Owner: IT ApplicationName: Infrastructure ...

createdby: backup management servicea640d0b2-b289-4799-ad8 ...

CostCenter: 800 Owner: IT ApplicationName: Infrastructure ...

CostCenter: 29694c77-b3d-498a-bb88-464ac77a7370-z3icv

CitrixProvisioningSchemeId: 2e5ff4c-b970-4-5d-83a-77db8d0b5 ...

CitrixProvisioningSchemeId: 914f90ed-0dae-428e-bd9e-e2e5c95b ...

CitrixProvisioningSchemeId: 988cd0d-0fca-4c06-9a77-2ee521870 ...

CitrixProvisioningSchemeId: acb72d04-abbb-4319-bf90-3b0eadff1 ...

CitrixProvisioningSchemeId: bf3cf328-c191-48f1-93a-68de9029b ...

CitrixProvisioningSchemeId: ce19c5b-2b74-48fb-875e-0e874800f ...

CostCenter: 800 Owner: IT ApplicationName: Infrastructure ...

No grouping chgnumber (tag) ↑↓

< Previous Page 1 of 7 Next >

Mark in this Type here to search

Resource groups

Cargolux Airlines International S.A. (cargolux.com)

+ Create Manage view Refresh Export to CSV Open query Assign tags

Showing 1 to 15 of 15 records.

digitalis

Name ↑

cv-a-d365-email-templates

cv-a-digitalsales-api

cv-a-digitalsales-customerportal-rg

cv-a-digitalsales-rg

cv-d-digitalsales-rg

cv-d-digitalsales-customerportal-rg

cv-d-digitalsales-d365-api-rg

cv-p-d365-email-templates

cv-p-digitalsales-api

cv-p-digitalsales-customerportal-rg

cv-p-digitalsales-d365-api-rg

cv-p-digitalsales-reporting

cv-t-digitalsales-api

cv-t-digitalsales-customerportal-rg

cv-t-digitalsales-d365-api-rg

Tags chgnumber (tag) ↑↓

environment: uat applicationname: leap costcenter: 99992 project: digital sales api

environment: uat applicationname: digital sales api costcenter: 99992

environment: uat applicationname: digital sales customer portal costcenter: 99992

createdby: adminfk@cargolux.com createdon: 2021-05-07

environment: dev applicationname: digital sales api costcenter: 99992

environment: dev applicationname: digital sales customer portal costcenter: 99992

createdby: adminfk@cargolux.com createdon: 2021-05-07

environment: prod costcenter: 99992 project: digitalsales ap...

environment: prod costcenter: 99992 applicationname: digital ...

environment: prod costcenter: 800 project: digital sales appli...

environment: prod costcenter: 99992 applicationname: digital ...

environment: test applicationname: digital sales api costcenter: 99992

environment: test applicationname: digital sales customer portal costcenter: 99992

environment: test costcenter: 99992 applicationname: digital s...

No grouping List view

Home > Resource groups

Cargolux Airlines International S.A. (cargolux.com)

+ Create Manage view Refresh Export to CSV Open query Assign tags

Showing 1 to 4 of 4 records.

digitalsales-api

Name ↑

cv-a-digitalsales-api

cv-d-digitalsales-api

cv-p-digitalsales-api

cv-t-digitalsales-api

Tags chgnumber (tag) ↑↓

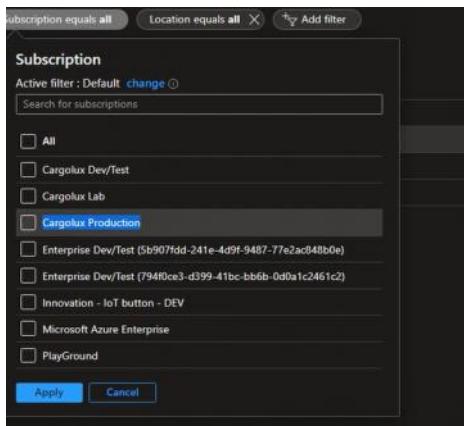
environment: uat costcenter: 99992 applicationname: digital sa...

environment: dev costcenter: 99992 applicationname: digital s...

environment: prod costcenter: 99992 applicationname: digital ...

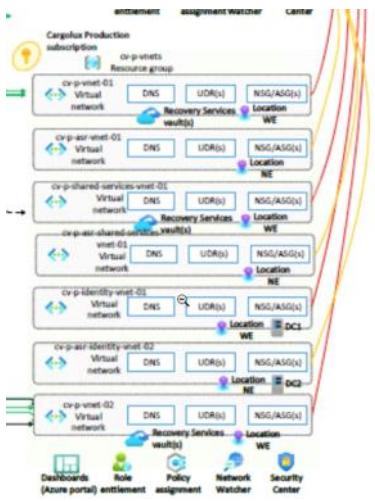
environment: test costcenter: 99992 applicationname: digital s...

No grouping

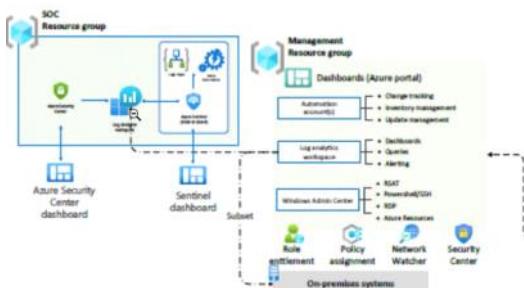
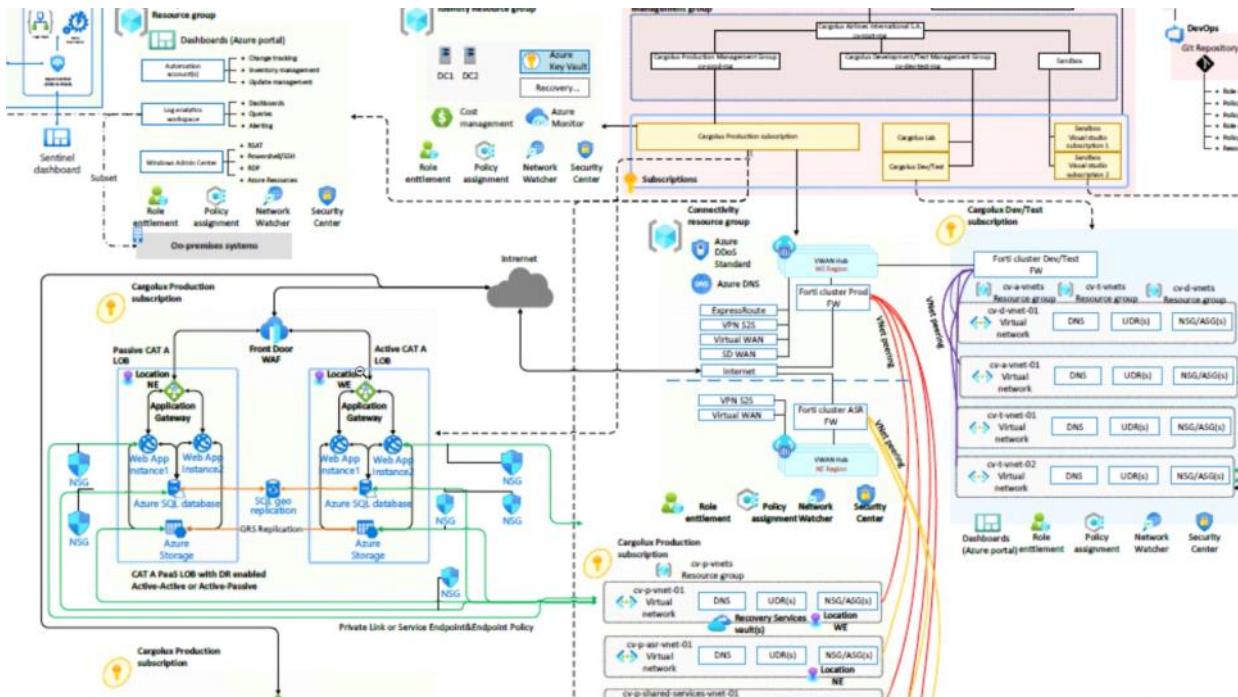


- Hub: WE and NE it might extend in DR scenario
- Utilize NVA in spoke vnet, linked to the hub the vnets are acting as a spoke to nva vnet

1 routing table per env



Microsegmentation using nva and nsg



Per SOC team.

DR:

Potentially in the future, if hard limits on subs, hook up new subs to current model

Teams follow least priv access on rg level.

Contributer per rg per env

Goal is to provide contributor access to Teams on rg level.

Once everything is ported to IaC we can do things differently.

Azure Inventory Dashboard

Private dashboard

+ Create Upload Refresh Full screen | Edit Share Export Clone Assign tags Delete Feedback

Last updated: a few seconds ago

AZURE RESOURCE INVENTORY - This section gives you an overview of all your Azure resources across all subscriptions that you can access.

Count of all my Azure resources (Resource Graph query)

10,576 Resources

Top 10 resource counts by type (Private Resource Graph query)

Resource Type	Count
microsoft.insights/metricclients	~2,000
microsoft.logic/workflows	~1,200
microsoft.web/connections	~800
microsoft.storage/storageaccounts	~500
microsoft.compute/virtualmachines	~400
microsoft.compute/virtualmachines	~300
microsoft.storage/storageaccounts	~200
microsoft.web/sites	~150
microsoft.compute/virtualmachines	~100
microsoft.compute/virtualmachines	~80

Legend:

- microsoft.insights/metricclients
- microsoft.compute/virtualmachines
- microsoft.logic/workflows
- microsoft.compute/disks
- microsoft.web/connections
- microsoft.network/networks
- microsoft.storage/storageaccounts
- microsoft.web/sites
- microsoft.compute/virtualmachines

Create Upload Refresh Full screen | Edit Share Export Clone Assign tags Delete Feedback

Last updated: a few seconds ago

AZURE STORAGE INVENTORY - This section gives you an overview of your Azure Storage usage.

Count of storage accounts by status (Private Resource Graph query)

PrimaryStatus	SecondaryStatus	Count (Storage accounts)
available	available	20
available	No secondary	472

Sum of all disk sizes (GB) (Resource Graph query)

257,025 Total Disk Size (GB)

Disks (count) by disk state (Private Resource Graph query)

Disk State	Count
Attached	~700
Reserved	~100
Unattached	~10
ActiveSAS	~10

Count of storage accounts by type (Private Resource Graph query)

Type	Count
Resource Manager	~450

Count of virtual networks (includes classic) (Resource Graph query)

77 Virtual networks

Count of network interfaces (Resource Graph query)

526 Network interfaces

Total public IPs (Resource Graph query)

45 Number of public IP addresses

Virtual networks by type (Private Resource Graph query)

Type	Count
Resource Manager	~75

AZURE SQL DATABASES INVENTORY - This section gives you an overview of your Azure SQL database usage.

Count of SQL databases (Resource Graph query)

246 DBCount

SQL databases (count) by tier (Private Resource Graph query)

Tier	Count
Basic	~100
Standard	~30
System	~20
GeneralPurpose	~10
Premium	~5

SQL databases (count) by max size (GB) (Private Resource Graph query)

Size (GB)	Count
250.0 GB	~20
50.0 GB	~50
42.0 GB	~10
40.0 GB	~10
32.0 GB	~5
20.0 GB	~5
8.0 GB	~5
2.0 GB	~10

APP SERVICE INVENTORY - This section gives you an overview of your Azure App Service usage.

Count of AppService apps (Resource Graph query)

441 Count (AppService Apps)

Count of AppService plans (Resource Graph query)

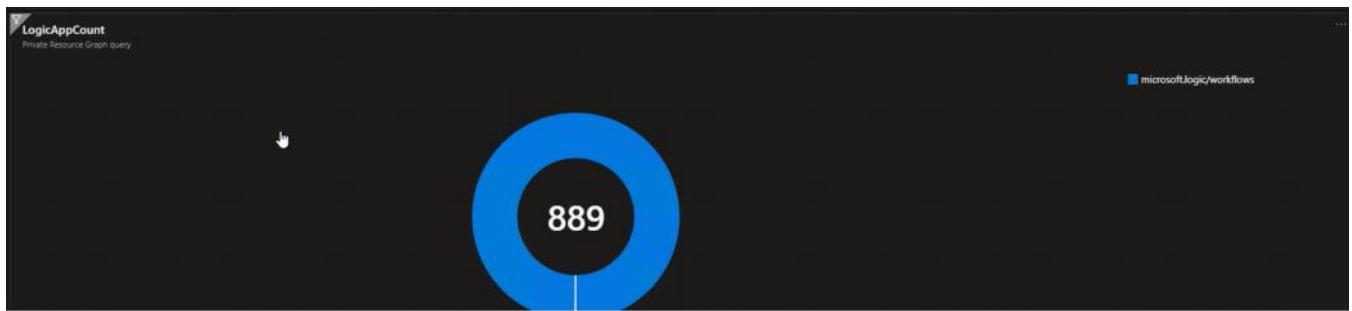
243 Count (AppService plans)

AppService Apps by status (Private Resource Graph query)

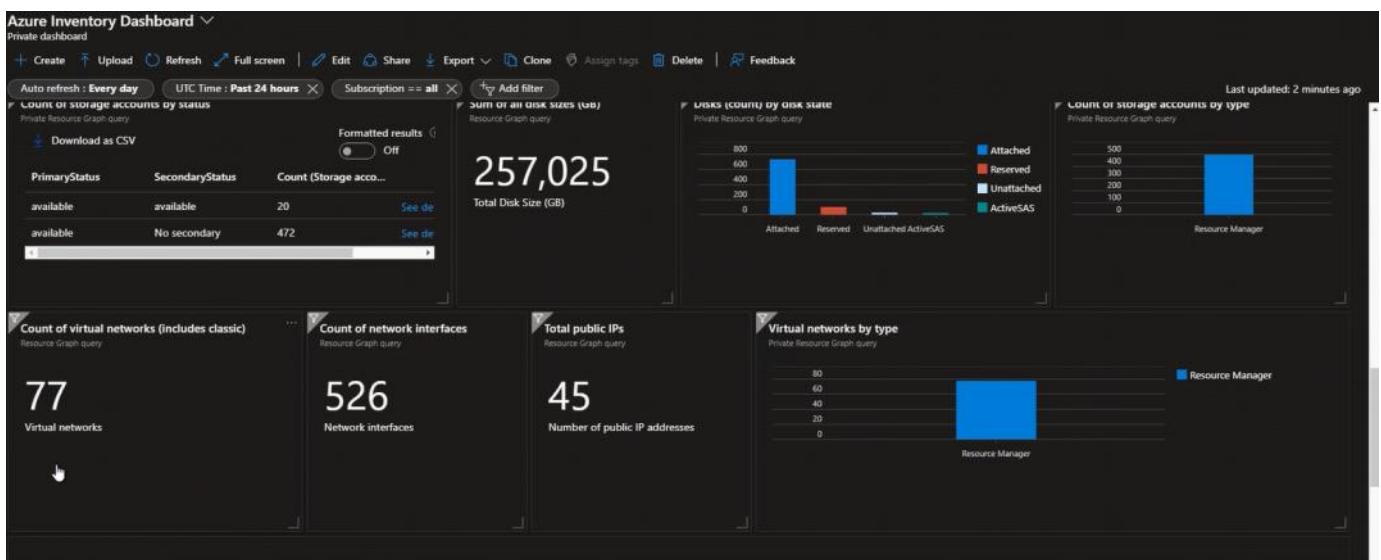
Status	Count
Running	~400
Stopped	~10

AppService apps by kind (Private Resource Graph query)

Kind	Count
functionapp	~250
app	~50
api	~10
app/linux	~5
functionapp/linux	~5



Dev Team is an integration team, they use a lot of integration and automation jobs



Microsoft Azure

Dashboard > Policy

Policy | Definitions

Search resources, services, and docs (G+)

Scope: 8 selected Definition type: All definition types Category: All categories Search: Filter by name or ID...

The export to GitHub experience has been deprecated due to scalability issues. We are looking to introduce a similar experience using SDK in our documentation.

Name	Definition location	Policies	Type	Definition type	Category
Secure transfer to storage accounts should be enabled	Cargolux Airlines International S.A.	Custom	Policy	Storage	...
Azure Defender for open-source relational databases	Cargolux Airlines International S.A.	Custom	Policy	Security Center	...
Enforce FTPS for all apps (Function, web app, container)	Cargolux Airlines International S.A.	Custom	Policy	App Service	...
Require 'Business Unit' tag on resource groups	Cargolux Airlines International S.A.	Custom	Policy	Tags	...
Enforce Lowercase on Tags and their Values on Resources	Cargolux Airlines International S.A.	Custom	Policy	Tags	...
Enforce resource groups naming convention in production	Cargolux Airlines International S.A.	Custom	Policy	Naming Convention	...
Enforce resource groups naming convention in dev/test	Cargolux Airlines International S.A.	Custom	Policy	Naming Convention	...
Require 'mw' tag on VMs	Cargolux Airlines International S.A.	Custom	Policy	Tags	...
Enforce Lowercase on Tags and their Values	Cargolux Airlines International S.A.	Custom	Policy	Tags	...
Require 'application name' tag on resource groups	Cargolux Airlines International S.A.	Custom	Policy	Tags	...
Require 'brg' tag on resource groups	Cargolux Airlines International S.A.	Custom	Policy	Tags	...
Require 'description' tag on VMs and SQLS resources	Cargolux Airlines International S.A.	Custom	Policy	Tags	...
Require 'environment' tag on resource groups	Cargolux Airlines International S.A.	Custom	Policy	Tags	...
Require SNOW change or request item number tag	Cargolux Airlines International S.A.	Custom	Policy	Tags	...
Deploy a flow log resource with target network security group	Cargolux Airlines International S.A.	Custom	Policy	Network	...

Dashboard > Policy

Policy | Assignments

Search: Assign policy Assign initiative Refresh

Overview Getting started Compliance Remediation Events

Authoring Definitions Assignments Exemptions

Scope: 8 selected Definition type: All definition types Search: Filter by name or ID...

Total Assignments: 39 Initiative Assignments: 23 Policy Assignments: 16

Assignment name ↑↓	Scope ↑↓	Type ↑↓
Microsoft Defender for Cloud Dev/Test	Cargolux Dev/Test	Initiative
Deploy a flow log resource with target network security group - Custom	Cargolux Dev/Test	Policy
ASC OpenSourceRelationalDatabasesProtection (subscription: e87ebe57-8537-492f-8cb3-88e158940991)	Cargolux Dev/Test	Initiative
ASC Default (subscription: e87ebe57-8537-492f-8cb3-88e158940991)	Cargolux Dev/Test	Initiative
Enforce resource groups naming convention in dev/test/uat environments.	Cargolux Development/Test Management Group	Policy
ISO 27001:2013	Cargolux Development/Test Management Group	Initiative
Microsoft Defender for Cloud	Cargolux Airlines International S.A.	Initiative
Allowed locations	Cargolux Airlines International S.A.	Policy
Allowed locations for resource groups	Cargolux Lab	Policy
Vulnerability assessment should be enabled on your SQL servers	Cargolux Lab	Initiative
ASC OpenSourceRelationalDatabasesProtection (subscription: 44de461f-188c-4a56-b3b4-4066756244de)	Cargolux Lab	Initiative

Dashboard > Policy

Policy | Assignments

Search: Assign policy Assign initiative Refresh

Overview Getting started Compliance Remediation Events

Authoring Definitions Assignments Exemptions

Scope: 8 selected Definition type: All definition types Search: Filter by name or ID...

Total Assignments: 39 Initiative Assignments: 23 Policy Assignments: 16

Assignment name ↑↓	Scope ↑↓	Type ↑↓
Defender for Containers provisioning ARC k8s Enabled	Cargolux Production	Policy
Defender for Containers provisioning Azure Policy Addon for Kubernetes	Cargolux Production	Policy
Defender for Containers provisioning Policy extension for Arc-enabled Kubernetes	Cargolux Production	Policy
ASC OpenSourceRelationalDatabasesProtection (subscription: b2d8baaf-07a2-4653-993d-44bb07e0638f)	Cargolux Production	Initiative
ASC Default (subscription: b2d8baaf-07a2-4653-993d-44bb07e0638f)	Cargolux Production	Initiative
Deploy a flow log resource with target network security group - Custom	Cargolux Production/cv-p-mft-01	Policy
Deploy Dependency agent for Windows VMs -Custom	Cargolux Production/CVZWEU-RGP-P-SUPP-001	Policy
Deploy Log Analytics agent for Windows VMs -Custom	Cargolux Production/CVZWEU-RGP-P-SUPP-001	Policy
ISO 27001:2013	Cargolux Production Management Group	Initiative
Enable Azure Monitor for VMs	Cargolux Production Management Group	Initiative
Enforce resource groups naming convention in production environment	Cargolux Production Management Group	Policy
ASC Default (subscription: 5b907ffd-241e-4d9f-9487-77e2ac84fb0e)	Enterprise Dev/Test	Initiative
ASC Default (subscription: 79480e3-d399-41bc-bb6b-0d0a1c2461c2)	Enterprise Dev/Test	Initiative

Dashboard > Policy

Policy | Assignments

Search: Assign policy Assign initiative Refresh

Overview Getting started Compliance Remediation Events

Authoring Definitions Assignments Exemptions

Scope: 8 selected Definition type: All definition types Search: Filter by name or ID...

Total Assignments: 39 Initiative Assignments: 23 Policy Assignments: 16

Assignment name ↑↓	Scope ↑↓	Type ↑↓
Microsoft Defender for Cloud Dev/Test	Cargolux Dev/Test	Initiative
Deploy a flow log resource with target network security group - Custom	Cargolux Dev/Test	Policy
ASC DataProtection (subscription: e87ebe57-8537-492f-8cb3-88e158940991)	Cargolux Dev/Test	Initiative
Tagging	Cargolux Dev/Test	Initiative
ASC OpenSourceRelationalDatabasesProtection (subscription: e87ebe57-8537-492f-8cb3-88e158940991)	Cargolux Dev/Test	Initiative
ASC Default (subscription: e87ebe57-8537-492f-8cb3-88e158940991)	Cargolux Dev/Test	Initiative
Enforce resource groups naming convention in dev/test/uat environments.	Cargolux Development/Test Management Group	Policy
ISO 27001:2013	Cargolux Development/Test Management Group	Initiative
Microsoft Defender for Cloud	Cargolux Airlines International S.A.	Initiative
Allowed locations	Cargolux Airlines International S.A.	Policy
Allowed locations for resource groups	Cargolux Lab	Policy
Vulnerability assessment should be enabled on your SQL servers	Cargolux Lab	Initiative
ASC OpenSourceRelationalDatabasesProtection (subscription: 44de461f-188c-4a56-b3b4-4066756244de)	Cargolux Lab	Initiative

Issues with app gateway with keys certificates.

Links

Monday, 24 April 2023 17:04

[Enable vulnerability assessment on your Azure SQL databases using Microsoft Defender for Cloud | Microsoft Learn](#)

[Scan your Azure SQL databases for vulnerabilities using Microsoft Defender for Cloud | Microsoft Learn](#)

[Scan your Azure SQL databases for vulnerabilities using Microsoft Defender for Cloud | Microsoft Learn](#)

08/05/2023

Monday, March 6, 2023 10:10 AM

Propose view subscription limits, quota
Rg is ok but keep an eye on sub limits, set up alerting

Some points to discuss:

Fortinet NVA -> accelerated connections (private preview)
Normally they always run on specific VM, these VM have to be supported, limits on throughput and vcores.
If you only have 6 licenses and license per core model, not happy with throughput you need a bigger Azure VM and buy more licenses.

Now you don't need to buy or change VM to get bigger throughput, you can take a NIC and boost it. (accelerated connection, during testing it can go to 10x faster)

It works the same on all NVA's.

Policy -> for cost efficiency.

2 different approaches:

The screenshot shows the Azure DevOps interface with the 'Repos' tab selected. A search bar at the top right contains the text 'iac-resourcegroups'. Below the search bar is a list of repositories. One repository, 'iac-resourcegroups', is expanded, showing its contents: 'bicep', 'cicd', 'definitions', 'scripts', and 'tests'. A file named 'MI README.md' is also listed. To the right of the repository list, there is a section titled 'Introduction' with placeholder text: 'TODO: Give a short introduction of your project. Let this section explain...'. Below that is a 'Getting Started' section with placeholder text: 'TODO: Guide users through getting your code up and running on their...'. Under the 'Getting Started' section, there is a numbered list: 1. Installation process, 2. Software dependencies, 3. Latest releases.

The screenshot shows the Azure DevOps interface with the 'Repos' tab selected. A search bar at the top right contains the text 'iac-resources'. Below the search bar is a list of repositories. One repository, 'iac-resources', is expanded, showing its contents: 'applicationgateways', 'microsoft.storage', 'nsgs', 'bicep', 'cicd', 'definitions', 'scripts', and 'tests'. A file named 'MI README.md' is also listed. To the right of the repository list, there is a section titled 'Introduction' with placeholder text: 'Only 3 types. The idea is to manage with this approach if they are standalone. If it is a workload, we will treat it as a solution.' Below that is a 'Getting Started' section with placeholder text: 'If it is just a standalone resource,'. At the bottom, there is a note: 'Entry point: SNOW ticket, other IT teams or us make a request.'

Only 3 types. The idea is to manage with this approach if they are standalone.
If it is a workload, we will treat it as a solution.

If it is just a standalone resource,

Entry point: SNOW ticket, other IT teams or us make a request.

Azure DevOps cargonlux / Infrastructure / Repos / Files / iac-resourcegroups

Search

Infrastructure + iac-resourcegroups :

- Overview
- Boards
- Repos
- Files**
- Commits
- Pushes
- Branches
- Tags
- Pull requests
- Pipelines
- Test Plans
- Artifacts

Project settings <<

bicep

ci/cd

definitions

- aad-extensions-api.json
- aerobties.json
- aimsng-rg-01.json
- apis-management.json
- apis-monitoring.json
- appgw-02.json
- azsqlmanagement.json
- azurefiles.json
- captool.json
- carma-mq.json
- checkmk.json
- citrix-image-management.json
- citrix-infra.json
- citrix-workers.json
- compliance-azure-synapse.json
- corporate-maps.json
- cspolicy.json

Contents History Compare Blame

main / definitions / aerobties.json

aerobties.json

Creation is done in this:
This is a json file

tructure / Repos / Files / iac-resourcegroups

bicep

ci/cd

definitions

- aad-extensions-api.json
- aerobties.json
- aimsng-rg-01.json
- apis-management.json
- apis-monitoring.json
- appgw-02.json
- azsqlmanagement.json
- azurefiles.json
- captool.json
- carma-mq.json
- checkmk.json
- citrix-image-management.json

aerobties.json

Contents History Compare Blame

```

1 {
2   "companyName": "eu",
3   "projectName": "aerobties",
4   "environments": [
5     "prod"
6   ],
7   "createServicePrincipal": false,
8   "resourceTags": [
9     {
10       "applicationName": "aerobties",
11       "appowner": "philippe.blrkel@cargonlux.com",
12       "slm": "can",
13       "submitt": "Flight safety",
14       "sys": "slain.supper@cargonlux.com",
15       "contextent": "900",
16       "expirdate": "never",
17       "chgnumber": "CH00032769"
18     },
19     "location": "westeurope"
20   }

```

SP created for all newly created rg

There is a json schema that enforces that only certain attributes can be added

/ Infrastructure / Repos / Files / lac-resourcegroups

Search

+ lac-resourcegroups

bicep

cicd

definitions

- aad-extensions-api.json
- aerobates.json
- aimsng-rg-01.json
- apis-management.json
- apis-monitoring.json
- appgw-02.json
- azsqlmanagement.json
- azurefiles.json
- captool.json
- carma-mq.json
- checkmk.json
- citrix-image-management.json
- citrix-infra.json
- citrix-workers.json
- compliance-azure-synapse.json
- corporate-maps.json

main / tests / definition.schema.json

definition.schema.json

Contents History Compare Blame

```
135           "a",
136           "p"
137       },
138   },
139   }
140   }
141 },
142 },
143 "createServicePrincipal": {
144     "type": "boolean",
145     "title": "Create service principal",
146     "description": "A boolean determining if a service principal should be created.",
147     "def": false,
148     "examples": [
149         {
150             "value": false
151         },
152         {
153             "value": true
154         }
155     ],
156     "resourceTags": {
157         "type": "object",
158         "title": "Resource tags",
159         "description": "An object containing the Azure resource tags to apply to the created resources.",
160         "examples": [
161             {
162                 "chgnumber": "chg0012345"
163             }
164         ],
165         "anyOf": [
166             {
167                 "required": [
168                     "chgnumber"
169                 ]
170             },
171             {
172                 "required": [
173                     "ritnumber"
174                 ]
175             }
176         ],
177     }
178 }
```

```
version: "1.0.0"
description: "A boolean determining if a service principal should be created."
default: false
examples: [
    false,
    true
]
resourceTags: {
    type: "object",
    title: "Resource tags",
    description: "An object containing the Azure resource tags to apply to the created resources.",
    examples: [
        {
            chgnumber: "EHP0012345"
        }
    ],
    "anyOf": [
        {
            required: [
                "chgnumber"
            ]
        },
        {
            required: [
                "ritmnumber"
            ]
        }
    ],
    "required": [
        "applicationname",
        "appowner",
        "sla",
        "businessunit",
        "hrn",
        "costcenter",
        "expirydate"
    ],
    "properties": {
        "applicationname": {
            type: "string"
        },
        "appowner": {
            type: "string"
        },
        "sla": {
            type: "string"
        },
        "businessunit": {
            type: "string"
        },
        "hrn": {
            type: "string"
        },
        "costcenter": {
            type: "string"
        },
        "expirydate": {
            type: "string"
        }
    }
}
```

The screenshot shows a GitHub repository interface with the following details:

- Repository Name:** iac-resourcegroups
- Branch:** main
- File Path:** / .cicd / pipeline.yml
- File Content (pipeline.yml):**

```
18 name: $(Date:yyyy-MM-dd)$(Rev:r)
19 stages:
20   - stage: build
21     displayName: Build bicep parameter file
22     jobs:
23       - job: build
24         pool:
25           vmImage: $(deployPool)
26         steps:
27           - checkout: self
28           - checkout: iac-templates
29
30         - task: CopyFiles@2
31           displayName: Copy bicep modules to the 'bicep' folder
32           inputs:
33             SourceFolder: $(Build.SourcesDirectory)\iac-templates
34             TargetFolder: $(Build.SourcesDirectory)\iac-resourcegroups\bicep
35             flattenFolders: true
36             ContentTypes:
37               - resourcegroups\resourcegroup.template.bicep
38               - rolesAssignments\rolesassignment.template.bicep
39
40         - task: PowerShell@2
41           displayName: Generate bicep parameter file
42           inputs:
43             targetType: filePath
44             filePath: $(Build.SourcesDirectory)\iac-resourcegroup\scripts\compile.ps1
45             arguments: '>
46               -definitionsFolder $(Build.SourcesDirectory)\iac-resourcegroups\definitions
47               -devTestSubscriptionId $(devTestsSubscriptionId)
48               -prodSubscriptionId $(prodSubscriptionId)
49               -outputPath $(Build.SourcesDirectory)\iac-resourcegroups\bicep\bicep.parameters.json
50
51         - template: /tests/test.steps.yaml
52           parameters:
53             armConnection: $(variables.armConnection)
54
55         - task: PublishPipelineArtifact@1
56           displayName: 'Publish bicep deployment artifact'
57           inputs:
58             artifactName: 'bicep'
```

vOps cargolux / Infrastructure / Repos / Files / ac-resourcegroups

```

structure + pleasant-password.json
          □ rapit7:sentinelConnector.json
          □ release-certificates.json
          □ rhoyce.json
          □ routable.json
          □ sap-bcc-ocr.json
          □ shir.json
          □ shop-control-center.json
          □ smtp-gateway-api.json
          □ smtp.json
          □ stoserviceendpoints.json
          □ tms-sppd.json
          □ traxemobjson
          □ truck-cost-calculation.json
          □ vnet.json
          □ wlc.json
      scripts + compile.ps1
              □ create-service-principals.ps1
      tests
m/cargolux/infrastructure/ql/ac-resourcegroups?path=definitions/shop-control-center.json&version=08...

```

main / scripts / compile.ps1

compile.ps1

Contents History Compare Blame

```

23 $b = [CmdletBinding()]
24 param (
25     [Parameter()]
26     [string]
27     $definitionsFolder,
28     [Parameter()]
29     [string]
30     $prodSubscriptionId,
31     [Parameter()]
32     [string]
33     $prodSubscriptionId,
34     [Parameter()]
35     [string]
36     $outputPath
37 )
38 function GenerateResourceGroupParameterObject {
39     [CmdletBinding()]
40     param (
41         [Parameter()]
42         [object]
43         $definition,
44         [Parameter()]
45         [string]
46         $devTestSubscriptionId,
47         [Parameter()]
48         [string]
49         $prodSubscriptionId
50     )
51     Begin {
52         $principalId = "."
53     }
54     Process {
55         If ($definition.createServicePrincipal) {
56             Add-Member -InputObject $definition -MemberType NoteProperty -Name createServicePrincipal -Value $false -Force
57         }
58     }
59     Foreach ($env in $definition.environments) {
60         $output = [PSCustomObject]@{
61             ...
62         }
63     }
64 }
65
66 $files = Get-ChildItem -Path $definitionsFolder
67 $resourceGroupDefinitions = @()
68 foreach ($file in $files) {
69     $definition = Get-Content -Path $file.FullName | ConvertFrom-Json
70
71     If ($definition.projectName | Select-Object -Unique).Count -ne 1 {
72         Write-Host ("`n[task.log][issue type:error][sourcepath:$($file.FullName)]Found more than 1 unique " +
73                     "projectName. ProjectNames $($definition.projectName -Join ',')`n")
74         exit 1
75     }
76
77     If ($definition.projectName -in (
78         $resourceGroupDefinitions |
79         Where-Object companyName -eq $definition.companyName).projectName
80     ) {
81         Write-Host ("`n[task.log][issue type:error][sourcepath:$($file.FullName)]Duplicate projectName $($definition.projectName) found in " +
82                     "definition $($file.FullName)`n")
83         exit 1
84     }
85     $resourceGroupDefinitions += Get-Content -Path $file.FullName | ConvertFrom-Json
86 }
87
88 $bicepParam = [PSCustomObject]@{
89     "schema" = "https://schema.management.azure.com/schemas/2019-04-01/deploymentParameters.json#"
90     "contentVersion" = "1.0.0.0"
91     "parameters" = [PSCustomObject]@{
92         "resourceGroupDefinitions" = [PSCustomObject]@{
93             "value" = @()
94         }
95     }
96 }

```

DevOps cargolux / Infrastructure / Repos / Files / ac-resourcegroups

```

structure + pleasant-password.json
          □ rapit7:sentinelConnector.json
          □ release-certificates.json
          □ rhoyce.json
          □ routable.json
          □ sap-bcc-ocr.json
          □ shir.json
          □ shop-control-center.json
          □ smtp-gateway-api.json
          □ smtp.json
          □ stoserviceendpoints.json
          □ tms-sppd.json
          □ traxemobjson
          □ truck-cost-calculation.json
          □ vnet.json
          □ wlc.json
      scripts + compile.ps1
              □ create-service-principals.ps1
      tests
      definition.schema.json

```

main / scripts / compile.ps1

compile.ps1

Contents History Compare Blame

```

77     If ($definition.projectName -in (
78         $resourceGroupDefinitions |
79         Where-Object companyName -eq $definition.companyName).projectName
80     ) {
81         Write-Host ("`n[task.log][issue type:error][sourcepath:$($file.FullName)]Duplicate projectName $($definition.projectName) found in " +
82                     "definition $($file.FullName)`n")
83         exit 1
84     }
85     $resourceGroupDefinitions += Get-Content -Path $file.FullName | ConvertFrom-Json
86 }
87
88 $bicepParam = [PSCustomObject]@{
89     "schema" = "https://schema.management.azure.com/schemas/2019-04-01/deploymentParameters.json#"
90     "contentVersion" = "1.0.0.0"
91     "parameters" = [PSCustomObject]@{
92         "resourceGroupDefinitions" = [PSCustomObject]@{
93             "value" = @()
94         }
95     }
96 }

```

Infrastructure / Repos / Files / iac-resourcegroups

```

+ pleasant-password.json
  rapit7sentinelConnector.json
  release-certificates.json
  rroyce.json
  routable.json
  sap-bcc-ocr.json
  shir.json
  shop-control-center.json
  smtp-gateway-api.json
  smtp.json
  stoserviceendpoints.json
  tms-sppd.json
  traxemob.json
  truck-cost-calculation.json
  vme.json
  wfc.json
  scripts
    compile.ps1
  tests

```

compile.ps1

```

# main
# / scripts / compile.ps1

Contents History Compare Blame
Search Edit

$definition = Get-Content -Path $file.FullName | ConvertFrom-Json
If ($definition.projectName | Select-Object -Unique).Count -ne 1 {
  Write-Host ("#{0} task.log issue type=error sourcepath=${file.FullName}]Found more than 1 unique " +
  "projectName. Projectnames ${definition.projectName}`join ','`n")
  exit 1
}

If ($definition.projectName -in (
  $resourceGroupDefinitions |
  Where-Object companyName -eq $definition.companyName).projectName
) {
  Write-Host ("#{0} task.log issue type=error sourcepath=${file.FullName}]Duplicate projectName ${definition.projectName} found in" +
  " definition ${file.FullName}`n")
  exit 1
}
$resourceGroupDefinitions += Get-Content -Path $file.FullName | ConvertFrom-Json

$bicepParam = [PSCustomObject]@{
  '$schema'          = "https://schema.management.azure.com/schemas/2019-04-01/deploymentParameters.json"
  'contentVersion'   = "1.0.0.0"
  'parameters'       = [PSCustomObject]@{
    'resourceGroupDefinitions' = [PSCustomObject]@{
      'value' = @()
    }
  }
}

ForEach ($definition in $resourceGroupDefinitions) {
  $parameters = @{
    'definition'      = $definition
    'devTestSubscriptionId' = $devTestSubscriptionId
    'prodSubscriptionId' = $prodSubscriptionId
  }
  $bicepParam.parameters.resourceGroupDefinitions.value += GenerateResourceGroupParameterObject @parameters
}

ConvertTo-Json -InputObject $bicepParam -Depth 100 -Compress | Out-File -FilePath $outputPath

```

autourl/git/iac-resourcegroups?path=/scripts&version=Gmain

14:07 08/05/2023

Azure DevOps cargolux / Infrastructure / Pipelines / iac-resourcegroups / 2023-05-03.4 / Published artifacts

← Artifacts

Published Consumed

Name	Size
bicep-artifact	185 KB
bicep.parameters.json	183 KB
main.bicep	2 KB
resourcegroup.template.bicep	673 B
roleassignment.template.bicep	620 B

File Edit Selection View Go Run Terminal Help

▪ bicep.parameters.json - scripts - Visual Studio Code

EXPLORER

- SCRIPTS
 - AdditionalRoleGroupCleanup.ps1
 - AddUsersToGroups.ps1
 - AppGwConfig.ps1
 - AssignAdditionalStationRoles.ps1
 - AssignRequiredAdditionalStations.ps1
 - CreateAdditionalStationGroups.ps1
 - GenerateAdditionalStationRoleDefinitions.ps1
 - Get-ChildStations.ps1
 - GroupReport.ps1
 - RetrieveGroupMemberships.ps1
 - RoleData.xlsx
 - ScimStressTest.ps1
 - SeparationOfDuties.ps1
 - Set-CvDigitalSalesCustomerCodes.ps1
 - ValidateGroups.ps1
 - ValidateRoleDefinitions.ps1
- AZURE: RESOURCES Remote

Untitled-1 \$environment = 'uat' Untitled-2 bicep.parameters.json

```

1  {
2    "$schema": "https://schema.management.azure.com/schemas/2019-04-01/deploymentParameters.json",
3    "contentVersion": "1.0.0.0",
4    "parameters": {
5      "resourceGroupDefinitions": {
6        "value": [
7          {
8            "companyName": "cv",
9            "projectName": "ad-extensions-api",
10           "environment": "uat",
11           "resourceTags": {
12             "applicationname": "ad-extensions-api",
13             "appowner": "mark.farkas@cargolux.com",
14             "sla": "cat B",
15             "businessunit": "it",
16             "brp": "mark.farkas@cargolux.com",
17             "costcenter": "99992",
18             "expirydate": "never",
19             "project": "azure ad extension attribute editor api",
20             "chgnumber": "CH6003931",
21             "environment": "dev"
22           },
23           "location": "westeurope",
24           "principalId": null,
25           "createServicePrincipal": true,
26           "subscriptionId": "e87ebe57-8537-492f-8cb3-88e158948991"
27         },
28         {
29           "companyName": "cv",
30           "projectName": "ad-extensions-api",
31           "environment": "test",
32           "resourceTags": {
33             "applicationname": "ad-extensions-api",
34             "appowner": "mark.farkas@cargolux.com",
35             "sla": "cat B",
36             "businessunit": "it",
37             "brp": "mark.farkas@cargolux.com",

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL AZURE

To avoid users having to provide certain details they don't know, the script compiling the param file is adding it.

```

main.bicep - scripts - Visual Studio Code
main.bicep - Untitled-1 - Environment = "uat" - mainbicep - rg - bicep.parameters.json - main.bicep - X

C:\> Users>farmr> Downloads > mainbicep > {} rg
1 targetScope = 'subscription'
2 param resourceGroupDefinitions array
3
4 var contributorDefinitionId = 'b24988ac-5180-42a0-ab88-20f7382dd24c'
5
6 // module deployed at subscription level can be in a different subscription
7 module rg './resourceGroup_template.bicep' = [for def in resourceGroupDefinitions: {
8   name: deployNameWithNamespace ${toLowerCase(def.companyName)}-${toLowerCase(def.environment)}-${toLowerCase(def.projectName)}
9   scope: subscription(def.subscriptionID)
10  params: [
11    companyName: def.companyName
12    environment: def.environment
13    projectName: def.projectName
14    resourceTags: def.resourceTags
15    location: def.location
16  ]
17 }
18
19 // module deployed at resource group level
20 module assignRole './roleAssignment_template.bicep' = [for def in resourceGroupDefinitions: if(def.createServicePrincipal) {
21   name: 'roleAssignment'
22   scope: resourceGroup(def.SubscriptionID, ${toLowerCase(def.companyName)}-${toLowerCase(def.environment)}-${toLowerCase(def.projectName)})
23   params: [
24     principalId: def.principalId
25     roleDefinitionId: contributorDefinitionId
26   ]
27   dependsOn: [
28     rg
29   ]
30 }
31

```

Bold state; json validation, generation of the bicep file, generated bicep file, run a test with az deployment sub validate, if all of this succeeds, only then we go to the deploy stage, we take this artifact and deploying to sub.

GATE for PR -> if build doesn't complete,

Enable service principal creation for aad-extensions-api.json

Required check succeeded

Build validation succeeded

Description

```

{
  "name": "aad-extensions-api",
  "id": "a2121",
  "type": "Service Principal"
}

```

Commit History

- Mark Forkas completed this pull-request. Wednesday
- Merged PR #4251: Enable service principal creation for aad-extensions-api.json
- Mark Forkas set the pull-request to automatically complete when all policies succeed
- Mark Forkas approved the pull-request
- Mark Forkas joined as a reviewer
- (Infrastructure) Architecture PR approvers was added as a required-reviewer for aad-extensions-api.json

Right now, for this approach only 2 resources are compatible.

The screenshot shows the AWS Lambda console interface. The left sidebar displays a tree view of resources under 'luc-resources'. Under 'Definitions', 'cv-p-aerobates-nsg.json' is selected. The main panel shows the JSON content of this definition:

```
1: {
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Principal": "*",
      "Action": "awslogs:CreateLogGroup",
      "Resource": "arn:aws:logs:us-east-1:123456789012:log-group:/aws/lambda/*"
    },
    {
      "Effect": "Allow",
      "Principal": "*",
      "Action": "logs:PutLogEvents",
      "Resource": "arn:aws:logs:us-east-1:123456789012:log-group:/aws/lambda/*"
    }
  ],
  "Statement": [
    {
      "Effect": "Allow",
      "Principal": "*",
      "Action": "lambda:InvokeFunction",
      "Resource": "arn:aws:lambda:us-east-1:123456789012:function:cv-p-aerobates"
    }
  ],
  "Statement": [
    {
      "Effect": "Allow",
      "Principal": "*",
      "Action": "lambda:InvokeFunction",
      "Resource": "arn:aws:lambda:us-east-1:123456789012:function:cv-p-aerobates"
    }
  ]
}
```

All the logic has been put in the compile script -> because limitation in bison and arm

Each pipeline run deploys every resource -> to avoid configuration drift

Removal of resources -> not managed, because unmanaged resources by this pipeline will

Goal -> have strict validation.
(Because they want to become service provider)

Azure Policy -> might be considered.
Main reason for not managing Azure Policy,...

For the next agenda item: approaches to azure policy automation.

Decision: PAAS architecture.

DEMO: Other approach-> LEGACY

The screenshot shows the 'About this project' section of the Azure DevOps interface. It displays the repository name 'Dev.Cargolux.Applications' and its description: 'This project consists of Cargolux internal applications developed in C#/.NET, React, Java, Angular, TypeScript'. A link to 'Wiki/Development Guidelines' is provided, which states: 'This wiki describes the guidelines that we use for internal and as far as we can external development.'

1: single yaml file
Then slowly compartmentalizing, templating

Almost all of our apps: .net api + react FE

The screenshot shows the 'Files' view in Azure DevOps for the 'cv-api-monitoring-api' repository. It lists various files and their commit history. Key commits include:

- Jul 25, 2022: [Sessicasli](#) Merged PR 3291: add prod environment to cicd pipeline
- Jul 21, 2022: [S630ad0f5](#) Merged PR 3274: Add Authorization by adding policies
- Jul 15, 2022: [eB666aaB](#) Merged PR 3234: Code Cleanup
- Jul 26, 2022: [S627bd83](#) Merged PR 3306: Prevent inserting empty strings to the database
- Jul 26, 2022: [3ff37c12](#) Cleanup
- Jul 26, 2022: [dE508d1E](#) Merged PR 3301: Check for null for Flight Leg
- Jul 15, 2022: [eB666aaB](#) Merged PR 3234: Code Cleanup
- Jul 20, 2022: [3BaaffadB](#) Merged PR 3259: Change audit log structure & Add TimeZones
- Jun 30, 2022: [0Ba86278B](#) Merged PR 3101: Update flight when numberOfPassenger set
- Jul 15, 2022: [eB666aaB](#) Merged PR 3234: Code Cleanup
- Jul 26, 2022: [d22a6d6A](#) Merged PR 3308: Prevent inserting empty strings to the database
- Jul 20, 2022: [3BaaffadB](#) Merged PR 3259: Change audit log structure & Add TimeZones
- Jul 20, 2022: [3BaaffadB](#) Merged PR 3259: Change audit log structure & Add TimeZones
- Jul 15, 2022: [eB666aaB](#) Merged PR 3234: Code Cleanup
- Jul 4, 2022: [3b5328832](#) Merged PR 3152: Apply Clean Architecture
- Jul 4, 2022: [3b5328832](#) Merged PR 3152: Apply Clean Architecture
- Jul 15, 2022: [eB666aaB](#) Merged PR 3234: Code Cleanup
- May 3, 2022: [118afaxL](#) .gitignore
- May 3, 2022: [22352864](#) Store Flight schedule in database
- Jul 5, 2022: [6220ad0B](#) Merged PR 3170: Remove Hangfire and use BackgroundService

Contains template to deploy .net app and contains variables to deploy this workload

```

trigger:
  - main
  repository:
    type: git
    name: Infrastructures/ci-cd-apis-monitoring
    ref: refs/heads/main
    branch: main
resources:
  repositories:
    - repository: ci-cd-repo
      type: git
      name: Cv.Apis.Monitoring
      ref: refs/heads/main
      branch: main
      environment:
        name: Infrastructure/ci-cd-templates
        date: $(Date:yyyyMMdd$(Rev).r)
extends:
  template: stages/dotnetcore-app-stages.template.yml@ci-cd-templates
prerequisites:
  - dotnetVersion: 6.0.x
  - customBuildArguments: "-configuration $(buildConfiguration) --output $(Build.ArtifactTagingDirectory)"
solutionFilename: Cv.Apis.Monitoring.sln
allowParallel: true
environments:
  - shortname: d
    name: Dev
    displayName: Development
    resourceLocation: westeurope
  - shortname: t
    name: Test
    displayName: Test
    resourceLocation: westeurope
  - shortname: a
    name: Aet
    displayName: Acceptance
    resourceLocation: westeurope
  - shortname: p
    name: Prod
    displayName: Production
    resourceLocation: westeurope

```

gitignore
Cv.Apis.Monitoring.csproj
README.md

AZURE DEVOPS: 1 project -> latest decision.

Legacy: different projects

```

parameters:
  - name: dotnetVersion
    type: string
  - name: solutionFilename
    type: string
  - name: environments
    type: object
  - name: prebuildSteps
    type: steps
    default: []
  - name: postbuildSteps
    type: steps
    default: []
  - name: customBuildArguments
    type: string
    default: ''
  - name: customPublishArguments
    type: string
    default: ''
  - name: projectsToPublish
    type: string
    default: ''
  - name: publishArtifacts
    type: steps
    default: []
  - name: postDeploySteps
    type: steps
    default: []
  - name: unstagingList
    type: boolean
    default: true
  - name: deployAzure
    type: boolean
    default: true
  - name: deployAet
    type: boolean
    default: false
  - name: deployProd
    type: boolean
    default: false
  - name: deployCache
    type: boolean
    default: false

```

dotnetcore-app-stages.template.yml

angular-app-stages.template.yml
dotnetcore-app-stages.template.yml
react-app-stages.template.yml
synapse-on-demand-sql-stages.template.yml
synapse-workspace-stages.template.yml
run-postman-collection.steps.yml

README.md

App service staging slot used to achieve zero downtime during deployment

The screenshot shows the Azure DevOps interface for the pipeline 'cv-apis-monitoring-api'. The pipeline has a single stage named 'Build' which contains several steps: 'Checkout cv-apis-monitoring-api...', 'Use .NET Core sdk', 'dotnet restore', 'dotnet build', 'dotnet publish', 'Publish Artifact: apis-monitoring...', 'Post-job: Checkout cv-apis-mon...', and 'Finalize Job'. The total duration of the build was 1m 22s. The pipeline also includes deployment stages for 'deploy_dev', 'deploy_test', 'deploy_uat', and 'deploy_prod'.

If an api, we have extra steps

The screenshot shows the Azure DevOps interface for the pipeline 'digitalsales-d365-api'. The pipeline has a single stage named 'Build' which contains several steps: 'Initialize job', 'Checkout apis@master to s...', 'Use .NET Core sdk', 'dotnet restore', 'dotnet build', 'generate new tool manifest', 'install swashbuckle', 'Create output folder', 'generate swagger for v1 API', 'generate swagger for v2 API', 'Tests - Execute', 'Tools - Install ReportGenerator', 'Tests - Create Reports', 'Tests - Publish Coverage', 'dotnet publish', 'Publish Artifact: digitalsales-d36...', 'Post-job: Checkout apis@master...', and 'Finalize Job'. The total duration of the build was 4m 0s. The pipeline also includes deployment stages for 'deploy_dev' and 'deploy_test'.

BUILD ONCE APPROACH

The screenshot shows the Azure DevOps interface for the 'Artifacts' section of the pipeline 'digitalsales-d365-api'. It lists three published artifacts: 'ApimArmTemplates', 'Code Coverage Report_26161', and 'digitalsales-d365-api-dotnet-core-artifact'. The 'Published' tab is selected.

Azure DevOps dashboard showing the status of a pipeline run.

Pipeline Run Details:

- Run ID: #20230505.2
- Project: digitalsales-d365-api
- Duration: 4m 0s
- Status: Succeeded

Job Details:

- Job: Build (4m 0s)
- Sub-tasks:
 - Initialize job (23s)
 - Checkout iac-templates@main (3s)
 - Checkout cici-digitalsales-d365-api (2s)
 - Emit environment parameter object properties as variables (2s)
 - ARM template: generate unique string (19s)
 - Parse ARM template deployment (7s)
 - Set key vault name variable (1s)
 - Store CI/CD service principal ID (9s)
 - Store existing key vault ACLs in (9s)
 - ARM Template deployment: K... (18s)
 - ARM Template deployment: st... (24s)
 - Parse ARM template deployment (5s)
 - ARM Template deployment: R... (18s)
 - Set SQL admin password pipe... (1s)
 - ARM Template deployment: D... (1s)
 - ARM Template deployment: a... (33s)
 - Parse ARM template deployment (5s)

Azure DevOps pipeline configuration for the cv-apis-monitoring-api repository.

Repository Structure:

- cv-apis-monitoring-api
 - cicd
 - pipeline.yml

pipeline.yml Content:

```

trigger:
- branch/main
pr:
  - include
  - main

resources:
  repositories:
    - repository: cicd-repo
      type: git
      ref: refs/heads/main
    - repository: cicd-templates
      type: git
      ref: refs/heads/main
      name: Infrastructure/cicd-templates
    - name: $(Date:yyyyMMdd)Revi.r
      extend:
        template: $(Agent)dotnetcore-app-stages-template.yaml@cicd-templates
        parameters:
          solutionFile: .\solution.sln
          customBuildArguments: "-configuration $(BuildConfiguration) --output $(Build.ArtifactStagingDirectory) -p:DeployOnBuild=true"
          solutionFileNames: Cv.Api.Monitoring.sln
          deploymentBuildType: true
          shortnames:
            - dev
            - development
            - resourceLocation: development
            - shortname: test
            - test
            - acceptance
            - resourceLocation: acceptance
            - shortname: prod
            - production
            - resourceLocation: production
  
```

Azure DevOps pipeline configuration for the iac-templates repository.

Repository Structure:

- iac-templates
 - appservices
 - databases
 - enableM365
 - eventgrid
 - functionapps
 - keyvaults
 - loadbalancers
 - logicapps
 - nsgs
 - privatelink
 - rediscache
 - resourcegroups
 - roleassignments
 - scripts
 - servicebus
 - signalservices
 - storageaccounts
 - vms
 - vnetPeerings
 - vnets
 - vwan-hub

uniquestring.template.json Content:

```

{
  "$schema": "https://schema.management.azure.com/schemas/2019-04-01/deploymentTemplate.json#",
  "version": "1.0.0.0",
  "resources": [],
  "outputs": {
    "uniqueString": {
      "type": "string",
      "value": "[string(uniqueString(resourceGroup().id), R, 4)]"
    }
  }
}
  
```

```
← Jobs in run #20230505.2
digitalsales-d365-ssp

Build
  Build 4m 0s
deploy_dev
  Deploy application to enviro... 8m 31s
    Initialize job 23s
    Checkout lac-templates@main... 21s
    Checkout cicd-digitalsales-d36... 20s
    Emit environment parameter o... 29s
    ARM template: generate uniq... 19s
    Parse ARM template deployme... 7s
    Set key vault name variable 7s
    Store CI/CD service principal ID... 9s
    Store existing key vault ACLs in ... 9s
    ARM Template deployment: K... 10s
    ARM Template deployment: st... 24s
    Parse ARM template deployme... 5s
    ARM Template deployment: R... 10s
    Set SQL admin password pipe... <1s
    ARM Template deployment: D... <1s
    ARM Template deployment: a... 33s
    Parse ARM template deployme... 3s
    AzureAppServiceSettings <1s
    AzureAppServiceSettings2 49s

    ✓ ARM template: generate unique string
    1 Starting: ARM template: generate unique string
    2 -----
    3 Task          : ARM template deployment
    4 Description   : Deploy an Azure Resource Manager (ARM) template to all the deployment scopes
    5 Version       : 3.228.0
    6 Author        : Microsoft Corporation
    7 Help          : https://docs.microsoft.com/azure/devops/pipelines/tasks/deploy/azure-resource-group-deployment
    8 -----
    9 ARM Service Connection deployment scope - Subscription
   10 Checking if the following resource group exists: cv-d-digitalsales-d365-ssp-rg.
   11 Resource group exists: true.
   12 Resource group creation completed.
   13 The detected encoding for file 'D:\vsts\laci\tmp\lac-templates\uniquestring.template.json' is 'utf-8'.
   14 (node:5544) [DEP0006] DeprecationWarning: Buffer() is deprecated due to security and usability issues. Please use the Buffer.alloc(), Buffer.allocUnsafe(), or Buffer.from() methods instead.
   15 Starting template validation.
   16 Deployment name is uniquestring-20230505-123006-8a77
   17 Template deployment validation was completed successfully.
   18 Starting Deployment.
   19 Deployment name is uniquestring-20230505-123006-8a77
   20 Updated output variable 'ArmOutputString.uniqueString.type', which contains the outputs section of the current deployment object in string format.
   21 Updated output variable 'ArmOutputString.uniqueString.value', which contains the outputs section of the current deployment object in string format.
   22 Updated output variable 'ArmOutputString', which contains the outputs section of the current deployment object in string format.
   23 Successfully deployed the template.
   24 Finishing: ARM template: generate unique string
```

The screenshot shows the Azure DevOps interface with the following details:

- Pipeline Status:** The pipeline "Jobs in run #20230505.2" is shown as successful.
- Task Details:** The task "Parse ARM template deployment outputs" has completed successfully.
- Log Output:** The log output displays the PowerShell script execution, which includes validating inputs, connecting to the Azure account, and listing the subscription details used for the deployment.

```
Starting: Parse ARM template deployment outputs
-----
Task : Azure PowerShell
Description : Run a PowerShell script within an Azure environment
Version : 4.220.0
Author : Microsoft Corporation
Help : https://aka.ms/PowerShellCloudShouting

## Validating Inputs
## Validating Inputs Complete
## Initializing Az module
Added TLS 1.2 in session.
Import-Module -Name C:\Windows\system32\WindowsPowerShell\v1.0\Microsoft.PowerShell.Core.dll -Global
[PS] C:\Windows\system32\WindowsPowerShell\v1.0\Microsoft.PowerShell.Core.dll : The module 'Microsoft.PowerShell.Core' was imported for the same session or used in the same script. You cannot import the same module twice.
Clear-AzureRmScope -Scope CurrentThread -Force -ErrorAction SilentlyContinue
Clear-AzureRmScope Process
Connect-AzureAccount -CollectionName Microsoft
[!Warning!] Connect-AzureAccount: The current session contains more than one active subscription. First one will be selected for further use. To select another subscription, use Set-AzureSubscription.
To override which subscription Connect-Account selects by default, use Update-AzureConfig -DefaultSubscriptionId <subscription_id>. Go to https://go.microsoft.com/fwlink/?linkid=2114752
Set-ContentSystem.CollectionsHashtable
Account SubscriptionName TenantId Environment
-----
*** Cargox Dev/Test 25d39a0f-44a1-46a3-866d-2ff7f0513d88 AzureCloud
29
29 Name : Cargox Dev/Test (e87de57-8577-491f-8c03-88e158944991) - 25d39a0f-44a1-46a3-866d-2ff7f0513d88
29
29 ****
29 Account : ****
29 Environment : AzureCloud
29 Subscription : e87de57-8577-491f-8c03-88e158944991
29 TenantId : 25d39a0f-44a1-46a3-866d-2ff7f0513d88
29 UseCache
29 VersionProfile :
29 ExtendedProperties : {}
29
29 ## Az module initialization complete
29 ## Beginning Script Execution
29 & "D:\Vsts\Vss\V1\bin\template\scripts\ParseDeploymentOutput.ps1" -AzOutputString ("uniqueString":{"type":"String","value":"open"})
29 Retrieved Input: {"uniqueString":{"type":"String","value":"open"}}
40 Disconnect-AzureRmScope Process -ErrorAction Stop
41 Clear-AzureRmScope -Scope Process -ErrorAction Stop
42 ## Script Execution Complete
43
44 *Finishing: Parse ARM template deployment outputs
```

How to automatically save output of arm to variables?

```

    runOn: 'agent'
    deploy:
      stages:
        - download: none
        - checkout: lac-templates
          path: $/dotnetcore.deploy/template
        - checkout: click-repo
          path: $/dotnetcore.click-repo
        - task: PowerShell@2
          displayName: Edit environment parameter object properties as variables
          inputs:
            targetType: inline
            script: |
              $env:parameters['$([System.String]::Format(''{parameters:environment}''))'] | ConvertFrom-Json
              $env:parameters['task:taskVariableVariables:environment:resourceName:isSecret:$([System.String]::Format(''{environment.shortName}''))']
              write-host "##vso[task.setvariable variable=$env:taskVariableVariables:environment:displayname;issecret=false]$([System.String]::Format(''{environment.displayName}''))"
              write-host "##vso[task.setvariable variable=$env:taskVariableVariables:environment:resourceLocation;issecret=false]$([System.String]::Format(''{environment.resourceLocation}''))"
              write-host "##vso[task.setvariable variable=$env:taskVariableVariables:environment:resourceName;issecret=false]$([System.String]::Format(''{environment.resourceName}''))"

        - task: AzureResourceManagerTemplateDeployment@0
          displayName: ARM template generates unique string
          inputs:
            deploymentScope: 'Resource Group'
            action: 'Create Or Update Resource Group'
            location: '$([System.String]::Format(''{parameters:environment:location}''))'
            templateLocation: 'Linked artifact'
            azureResourceManagerConnection: '$([variables:armConnection])'
            subscriptionId: '$([variables:subscriptionId])'
            resourceGroupName: '$([System.String]::Format(''{parameters:environment:resourceGroup}''))'
            templateUrl: '$([System.String]::Format(''{Build.SourceDirectory}''))\${uniqueString}.template.json'
            deploymentMode: 'Incremental'
            deploymentOutput: '$([System.String]::Format(''{outputString}''))'

        - task: PowerShell@2
          displayName: Parse and template deployment outputs
          inputs:
            targetType: inline
            script: |
              $env:parameters['$([System.String]::Format(''{parameters:environment:shortName}'')):$([variables:projectNameShort])-$([uniqueString])']
              $keyVaultName = "cr-$([parameters:environment:shortName])-$([variables:projectNameShort])-kv-$([uniqueString])"
              write-host "##vso[task.setvariable variable=$env:keyVaultName;issecret=false]$([System.String]::Format(''{keyVaultName}''))"

    - task: PowerShell@2
      displayName: Set key vault name variable
      inputs:
        targetType: inline
        script: |
          $keyVaultName = "cr-$([parameters:environment:shortName])-$([variables:projectNameShort])-kv-$([uniqueString])"
          write-host "##vso[task.setvariable variable=$env:keyVaultName;issecret=false]$([System.String]::Format(''{keyVaultName}''))"

```

No linked templates used, but pipeline tasks are used to link them

```

    {
      "$schema": "https://schema.management.azure.com/schemas/2019-01-01/deploymentTemplate.json#",
      "contentVersion": "1.0.0.0",
      "parameters": {
        "location": {
          "type": "string",
          "defaultValue": "(resourceGroup().location)"
        },
        "projectName": {
          "type": "string"
        },
        "environment": {
          "allowedValues": [
            "dev",
            "test",
            "qa",
            "prod"
          ],
          "type": "string"
        },
        "sqlAdminLogin": {
          "type": "string"
        },
        "sqlAdminPassword": {
          "type": "securestring"
        },
        "keyVaultName": {
          "type": "string"
        },
        "sqlConnectionString": {
          "type": "string"
        },
        "sqlAdminUserName": {
          "type": "string"
        },
        "sqlAdminUserPassword": {
          "type": "string"
        },
        "shard": {
          "type": "object",
          "defaultValue": {
            "name": "Standard",
            "tier": "Standard",
            "capacity": 10
          }
        },
        "resourceTags": {
          "type": "object"
        }
      },
      "variables": {
        "sqlServerName": "[concat('sv-', parameters('environment'), '-', parameters('projectName'), '-sql-', substring(uniqueString(resourceGroup().id), 0, 4))]",
        "sqlDatabaseName": "[concat('sv-', parameters('environment'), '-', parameters('projectName'), '-sql01', substring(uniqueString(resourceGroup().id), 0, 4))]"
      },
      "resources": [
        {
          "type": "Microsoft.Sql/servers"
        }
      ]
    }

```

This approach hurts performance:

```

10 To override which subscription Connect-AzAccount selects by default, use 'Update-AzConfig -DefaultSubscriptionName <subscription_name>'.
11
12 Set-AuthContext System.Collections.Hashtable
13 Account : SubscriptionName TenantId Environment
14 -----
15 *** Cargolux Dev/Test 25d39a9f-44e1-46a3-86d2-2fffb051b080
16
17 Name : Cargolux Dev/Test (e87ebef7-0537-492f-8cb3-08e15b040091) - 25d39a9f-44e1-46a3-86d2-2fffb051b080
18
19 Account : ***
20 Environment : AzureCloud
21 Subscription : e87ebef7-0537-492f-8cb3-08e15b040091
22 Token : 25d39a9f-44e1-46a3-86d2-2fffb051b080
23 TokenCache :
24 VersionProfile :
25 ExtendedProperties : {}
26
27 ## As module initialization Complete
28 & 'D:\a\1\l\scripts\ParseDeploymentOutput.ps1' -ArmOutputString '{"storageAccountName":{"type":"String","value":"cvgdigitalsales01stagen"}}
29 Retrieved Input: {"storageAccountName":{"type":"String","value":"cvgdigitalsales01stagen"}}
30 Disconnect-AuthContext -Scope Process -ErrorAction Stop
31 Clear-AuthContext -Scope Process -ErrorAction Stop
32 ## Script Execution Complete
33
34
35 Finishing: Parse ARM template deployment outputs

```

API DEVOPS Resource kit -> is retiring, needs something else!!!

Deploy to staging slot i.s.o live one, slot swap to live slot. Deploying to staging slot is faster than the live one. If you do all the steps but target the staging slot, if you swap the slot downtime is few seconds.

When you push settings, the app restarts, deploy code it's another restart (few seconds or more minutes)

```

1 Starting: Manage Azure App Service - Slot Swap
2 -----
3 Task : Azure App Service Manage
4 Description : Swap, swap, restart, slot swap, slot delete, install site extensions or enable continuous monitoring for an Azure App Service
5 Version : 4.202.4
6 Author : Microsoft Corporation
7 Help : https://docs.microsoft.com/azure/devops/tasks/deploy/azure-app-service-manage
8
9 Warming-up slots
10 Swapping App Service 'cv-d-apis-monitoring-app-m0n0' slots - 'staging' and 'production'
11 Swapped App Service 'cv-d-apis-monitoring-app-m0n0' slots - 'staging' and 'production'
12 Successfully updated deployment History at https://cv-d-apis-monitoring-app-m0n0.scm.azurewebsites.net/api/deployments/232151673367220066
13 Successfully updated deployment History at https://cv-d-apis-monitoring-app-m0n0.scm.azurewebsites.net/api/deployments/13215162047270066
14 Finishing: Manage Azure App Service - Slot Swap

```

When to change this?

Now not really laborous

NO CHANGE just Copy pipeline

Don't need to change iac templates

Do need to change variables

Via dev insertion, use this file. This takes precedence over the above

Azure DevOps - cergolux / Infrastructure / Repos / Files / cicd-apis-monitoring

```

variables.dev.yml

variables:
  armConnection: pipeline-service-principal-apis-monitoring-cergolux_dev_test
  azureDiagnostics: https://login.microsoftonline.com/00000000-0000-0000-0000-000000000000/oauth2/token?api-version=1.0&grant_type=password&username=00000000-0000-0000-0000-000000000000&password=00000000-0000-0000-0000-000000000000&client_id=00000000-0000-0000-0000-000000000000
  appSettings: azureAdClientID: 00000000-0000-0000-0000-000000000000
  appSettings: azureAdClientSecret: https://apis-monitoring-dev.cergolux.com
  appSettings: corsAllowedOrigins: https://apis-monitoring-dev.cergolux.com
  appSettings: corsAllowedOrigins: http://localhost:10000
  appSettings: corsAllowedOrigins: https://cicd-travel-dev.cergolux.com/api/panFlights/numberOfPassenger
  appSettings: corsAllowedOrigins: https://cicd-travel-dev.cergolux.com/api/cicd-travel/default
  appSettings: corsAllowedOrigins: https://apis-monit.cergolux.com/reference-data/1/airports
  appSettings: notificationRecipients: bill.lindner@ergolux.com
  appServiceIdentitySecurityRestrictions: >
    [
      {
        "ipAddress": "20.76.19.224/32",
        "action": "Allow",
        "tag": "Azure AD"
      }
    ]
  existingAppServicePlanName: cv-d-shared-windows-plan-01
  existingAppServicePlanName: cv-d-shared-app-plans
  keyVaultAdditionalAccessPolicies: >
    [
      {
        "tenantId": "25d39e0f-4441-4fa3-066d-2ffff0951b0d8",
        "objectId": "00000000-0000-0000-0000-000000000000",
        "permissions": [
          "Get"
        ],
        "secrets": [
          "List"
        ],
        "tags": [
          "Get"
        ],
        "type": "Secret"
      }
    ]
  uiSettings: azureAdElementId: 25d39e0f-4441-4fa3-066d-2ffff0951b0d8
  uiSettings: azureAdClientId: 47ad4a-h0b1-4ff6-8513-02510109474
  uiSettings: scopes: ["api://cv-d-apis-monitoring-api/v1/.access"]
  uiSettings: apiBaseUrl: https://apis-monitoring-api.dev.cergolux.com/
  resourceTags: >
    [
      {
        "chgroup": "CH00032083"
      }
    ]

```

e DevOps - cergolux / Infrastructure / Repos / Files / cicd-templates

```

dotnetcore.deploy.template.yml

variables:
  default: true
  name: deployStorage
  type: boolean
  default: true
  name: deployWeb
  type: boolean
  default: true
  name: deploySql
  type: boolean
  default: false
  name: deployRedisCache
  type: boolean
  default: false
  name: deployEventGridTopic
  type: boolean
  default: false
  name: deployEventHubSubscription
  type: boolean
  default: false
  name: runPostmanTestCollection
  type: boolean
  default: false
  name: postmanBaseUrl
  type: string
  name: postmanScope
  type: string
  name: postmanCollectionPath
  type: string
  name: dotnetVersion
  type: string
  name: deploymentDeployTo: $(parameters.environment.name)
  variables:
    keyVaultAdditionalAccessPolicies:
      values: []
      template: variables/variables.yaml@ciid-repo
      value: $(variables.projectName)@$(parameters.environment.name).yaml@ciid-repo
      value: replacePlaceholderWithVariable
      value: $(variables.projectName)@sql-admin-password
      name: sqlConnectionString@ciid-repo
      value: $(variables.projectName)@sql-connectionString
      name: storageConnectionString@ciid-repo
      value: $(variables.projectName)@storage-connectionString
      name: appInsightsInstrumentationSecret@ciid-repo
      value: $(variables.projectName)@appInstrumentationKey

```

Instead of using variable groups but he is using a separate yaml because of code first approach with PR and traceability

TOPIC: AAD as code -> create app registration
Trying to use roles...

This is a shared repo between FE and Backend
Cicd repo is separate -> reason: different teams being in charge, cicd is managed by Mark Farkas

```

parameters:
  - name: environment
    type: object
  # ...
  - name: armConnection
    type: string
  - name: appServiceId
    type: string
  - name: appServiceSecurityRestrictions
    type: string
  - default: ''

steps:
  - task: AzureRmDeployment@2
    inputs:
      azureSubscription: $(parameters.armConnection)
      appname: $(appSettings.appName)
      resourceGroupName: $(resourceGroupName)
      slotName: $(slotName)
      stageName: $(stageName)
      generalSettings: |
        {
          "useSourceControl": true,
          "autoSync": true
        }
      appSettings: |
        [
          {
            "name": "ASPNETCORE_ENVIRONMENT",
            "slotSetting": false,
            "value": "$(parameters.environment.displayName)"
          },
          {
            "name": "AppInsightsInstrumentationKey",
            "slotSetting": false,
            "value": "$(keyVaultName).vault.azure.net/secrets/$(appInsightsInstrumentationKeySecretName)/"
          },
          {
            "name": "AzureWebJobsInstances",
            "slotSetting": false,
            "value": "$(azureWebJobsInstances)"
          },
          {
            "name": "AzureWebJobsDashboard",
            "slotSetting": false,
            "value": "$(appSettings.azureWebJobsDashboard)"
          }
        ]
  - task: AzureRmAppServiceSetting@1
    inputs:
      azureSubscription: $(parameters.armConnection)
      appname: $(appSettings.appName)
      slotName: $(slotName)
      stageName: $(stageName)
      generalSettings: |
        {
          "websocketsEnabled": "true",
          "httpsOnly": "true"
        }

```

Devs still can contribute, they can add a settings and do a PR

User	Role	Action
Infrastructure Build Service (cargolux)	CICD repository contributors	Force push (rewrite history, delete branches and tags)
Contributors	Contributors	Manage notes
IT Infrastructure Contributor	IT Infrastructure Readers	Read
Project Administrators	Project Administrators	Rename repository
Mark Farkas		
Project Collection Build Service (cargolux)		
Sales-Digital Sales Build Service (cargolux)		

Why?

What would I do differently?

Issue with deployment if infra, build process and code deployment is quite sound, based on docs.

For infra, linking templates via pipeline tasks, is not efficient.

The reason why it was done this way, people were changing stuff, configuration drift. This would cause quite a lot of problems. Still not possible to take away those permissions. We redeploy everything using ARM template (not really idempotent as it claims to be) -> if arm template redeploys app servc, even if not changed, it restarts the application.

If need be, Markas could redeploy the whole thing. There are things like generating password..

If I would do it again: go with build of infra templates, build an artifact, either commit it to source control or somehow --> Like terraform state.

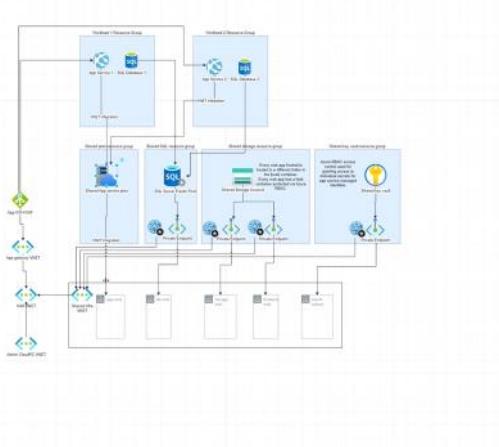
To have a build stage for my infra.

We have to take what we have here and start using a vnet for every workload and PE for every resource that can use it.

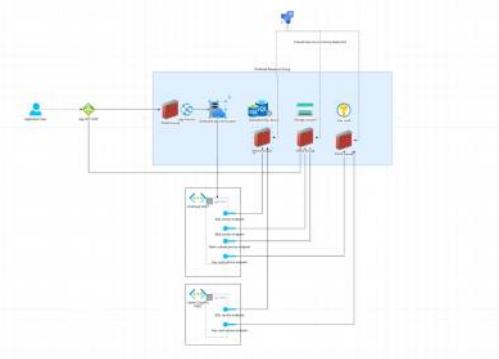
Setting up new workload: 2 hours (we need to keep it efficient)

Challenge -> how to adapt the 2 approaches on how to add vnet integration and PE

3 proposals on how to get rid of external exposure of these platform as a service resources



PE cost: SEUR per



This is in the end what we would have:

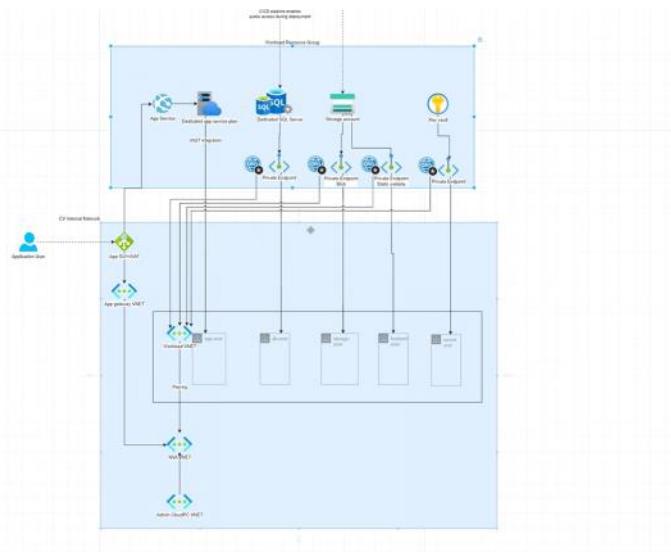
Critical applications for running cargolux

This is for modern apps that are not the core business:

North traffic nva

Workloads are treated as isolated

Only traffic allowed is management traffic



Notes

Monday, 8 May 2023 15:27

2 approaches to building and deploying solutions in Azure.

1 Modern approach

1 Legacy approach

POTENTIAL TOPICS to investigate:

Easy way to do AAD as code -> create app registrations with all of their settings with minimal effort

Challenges:

Modern approach: for every new resourcetype added, there is development work involved.

Legacy: linear approach, pipeline performance hit

Hi Cargolux team,

[@Farkas Mark](#) thank you for taking the time to go through the development workflow and for the nice discussion.

[@ITCloudTeam@cargolux.com](#)

Find below a summary of the activities of today:

Morning Session

- I tested my access to the environment and looked at the environment, as Mark was busy in the morning.
 - Waste Management:
 - I took a quick look at potential waste:
 - One that stood out to me: **Snapshots of disks that do not exist anymore** -> You want to look at these and clean it up if not used or needed, to optimize cost. (cfr. attachment).
 - This is in no way a comprehensive review. We can do the waste management exercise together if you need support in this and an extra pair of hands to implement waste reduction techniques.
 - I prepared an Azure landing Zone review presentation and exercise, but as Mark was alone and focused on his work in the morning, we focused our discussion mainly on DevOps and automation in the afternoon. I parked this Azure Landing Zone review for another time.
 - The intent here is to be familiar with the CAF framework and the principles of Azure Landing Zones and the principles of the Conceptual Architecture and how your implementation is aligning with our best practice guidance. The purpose of such review is to go through design areas that are relevant to you and looking at patterns, anti-patterns and try to fill gaps where there are and giving you recommendations.

Afternoon Session

- Mark gave a demo on the deployment approach:
 - 2 approaches explained. 1 legacy and 1 modern approach
- Challenges ahead:
 - New approach: including new resource types and the work that comes with it.
 - We discussed the possible addition of Azure Policy to help offload validation of rules like compliance (example: all storage accounts need to have SSE or minimum TLS version of 1.2)
 - Mark explained the main reason for not managing using Azure Policy is because it has not been onboarded yet into the automation workflow.
 - Legacy approach: still used and needs to be maintained.
- Goal and North Star is to have strict validation as the Team moves to become more of a Service Provider to the other teams that will consume these solutions.
- GitOps approach: Each pipeline run deploys every resource to avoid configuration drift (historical context). To be successful in the long road, the other teams will need to move away from the ClickOps approach ☺.

Find below agenda points for the next DSE days:

1. Going through Automation approach for PAAS Services architecture that was selected. (Challenge: how to adapt the 2 approaches on how to add Private Endpoints and integration into vnets for PAAS services included in the architecture)
2. Policy As Code approaches (I will prepare some slides and demo)
3. Azure Landing Zones review: Look at brownfield environment and perform gap analyses

What was done?

- ✓ DevOps Demo Cargolux: Deployment workflow (Mark) inside of Azure DevOps (Deployments using Azure Pipelines)
- ✓ Access to the Cargolux Azure for environment sorted out. I have read access to the Prod and Dev Subscriptions now.

Next engagement day: 05/06/2023.

Let me know which topic(s) you want to discuss/work on this day.

Thanks!

Looking forward to continuing to work together and helping you accelerate.

Kind Regards,

Jamel Achahbar
Cloud Solution Architect
Core Infrastructure
Mobile: +32471559518
jachahbar@microsoft.com



05/06/2023

Monday, 20 March 2023 10:09

Rusi -> AZ-400 nothing new compared to what was new.

Mark -> decide that it would make more sense that they would start from the ground up.

Final state defined ->

They would need to create or reuse what we can.

Requirement: should not have to redeploy everything that we have.

Workload specific deployments.

PARKED: API Management -> custom rbac ()

TOPIC:

Generic topic about Identity Landing Zone they would like to establish.

How to handle identities of Azure Automation Accounts.

Look at the plan.

Filestorage warning is premium no equivalent on v2 feedback on dashboard.

Uncovered pv3 for 1 application

Service Reliability workbook -> would be nice to see the current SLA

Put filter to sla in tag ->

Identity landing zone

Platform as a service

Identity Landing Zone:

Run as accounts going away (azure automation)

Looked at set of permissions

Anyone access to the account will have access to all the permissions

Runbook created and executed, they might have all the permissions

To keep it manageable, cargolux decided to create automation accounts per tezam,,

Ops team -> automation account

Sec team -> automation account with different set of permissions

This is going to be the boundary

Managed identities.

Proposal to use user assigned identities.

More control

Establish an identity subscription -> identity landing zone

Too many contributors on subscriptions.

By creating identity landing zone, able to keep very tight control.

Re-useability of user assigned identity.

For mail summary:

Morning:

Went through latest updates:

Service Retirement Workbook

Reliability Workbook

Azure Cost Advisor rightsizing recommendation updates

2 topics in the afternoon:

Identity landing zone -> migrating to automation account leveraging managed IDs. Approach discussion.

Proposed approach with leveraging user assigned identities is a viable approach and makes sense for your current context.

CARML Presentation.

Notes

Tuesday, 6 June 2023 10:18

Hi Cargolux team,

[@Farkas Mark](#) thank you for taking the time go through some relevant updates and to discuss your identity landing zone and managed id's approach + sitting through my presentation and demo of the CARML solution.

[@ITCloudTeam@cargolux.com](#)

Find below a summary of the activities of today:

Morning Session

- Cost related updates:
 - VM/VMSS right-sizing recommendations with custom lookback period
 - These updates allow you to adapt the lookback period to 90days max. This was a sought-after option from customers. So, I am happy this is something you can adapt now to give you more meaningful recommendations for your VM's.
 - I walked through how to adapt this with Mark.
 - AI copilot for Cost Management and Billing: This is a gamechanger!
 - Link: [Understand and optimize your cloud costs with AI-powered functionality in Cost Management - Microsoft Cost Management | Microsoft Learn](#)
 - I showed the demo video to Mark and shared the link to apply for the private preview. Link to signup: <https://aka.ms/cmaiwaitlist>
- I walked Mark through relevant updates related to Azure Advisor, Reliability and went through 2 new workbooks that can be found under "Workbooks" on the left pane of the Advisor overview page:

The screenshot shows the Azure Advisor Workbooks page. The top navigation bar includes 'Home > Advisor', a search bar, and various navigation links like 'New', 'Refresh', 'Feedback', 'Help', 'Community Git repo', 'Browse across galleries', and filter options for 'Subscription' (ME-MngEnvMCAP429712-jachahbar-1) and 'Resource Group' (All). The main content area displays the 'Workbooks' section, which is currently empty. It includes sections for 'Quick start' (with an 'Empty' card), 'Recently modified workbooks (0)', and 'Azure Advisor (2)' (with cards for 'Reliability (Preview)' and 'Service Retirement (Preview)'). On the left sidebar, there are sections for 'Recommendations' (Cost, Security, Reliability, Operational excellence, Performance) and 'Workbooks' (which is currently selected).

- **Service Retirement workbook**

- The Service Retirement workbook provides a single centralized resource level view of service retirements. It helps you assess impact, evaluate options, and plan for migration from retiring services and features.

[Link: Prepare migration of your workloads impacted by service retirements. – Azure Advisor | Microsoft Learn:](#)

Services Retirement Workbook

This workbook shows Azure services that are being phased out so that you can mitigate affected resources. Currently, this workbook contains information for subset of services and features that are in the retirement lifecycle. If this page is helpful to you or if you have feedback on how we can improve then please [submit feedback here](#).

While we continue to add more services to this workbook, you can view the lifecycle status of all Azure products and services by visiting [Azure updates](#).

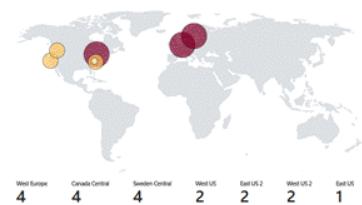
Required Action: To avoid service disruptions, please review and migrate the affected resources before the retirement date by following recommendations as outlined in the respective documents.

Subscription: Resource group: Location: Choose view: All services

Retiring Azure services (Select services to see affected resources and more details)

Service Name	Retiring Feature	Retirement Date	#Resource	Actions
<input type="checkbox"/> Azure Cache for Redis	Version 4.x	2023-06-30	1	click here
<input type="checkbox"/> Application Insights	Classic	2024-02-29	4	click here
<input type="checkbox"/> Azure Data Lake Storage	Gen 1	2024-02-29	1	click here
<input type="checkbox"/> Virtual Machines	Av1-series	2024-08-31	3	click here
<input type="checkbox"/> Virtual Network	Classic	2024-08-31	1	click here
<input type="checkbox"/> Azure Disks	Unmanaged Disks	2025-09-30	3	click here
<input type="checkbox"/> Azure Load Balancer	Basic Load Balancer	2025-09-30	4	click here
<input type="checkbox"/> Azure Service Map	Entire Service	2025-09-30	1	click here
<input checked="" type="checkbox"/> Public IP address	Basic SKU	2025-09-30	19	click here

Resource count by region



- **Reliability Workbook:**

- The objective of this workbook is to provide an overview of the configured state of deployment options that affect the resilience and/or availability SLA for common Azure resource types. The workbook is to be used as guidance only and does not represent a guarantee for a service level.

- We went through the whole workbook and discussed the different tabs and how to leverage and use the information on the workbook. The workbook proved useful as both a way to create awareness on the reliability posture of your solutions as well as being handy as an inventory.

Services supported.

This workbook currently evaluates and recommends reliability best practices for select list of below services.

- **Compute** : Virtual Machines, Virtual Machine Scale Sets
- **Containers** : Azure Kubernetes service
- **Databases** : SQL Database, Synapse SQL Pool, Cosmos DB, Azure Database for MySQL, Azure Cache for Redis
- **Integration** : Azure API Management
- **Networking** : Azure Firewall, Azure Front Door & CDN, Application Gateway, Load Balancer, Public IP, VPN & Express Route Gateway
- **Storage** : Storage Account
- **Web** : App Service Plan, App Service, Function App
- **Azure Site Recovery**
- **Service Alerts**

The screenshot shows the Azure Advisor Reliability (Preview) workbook. At the top, there are filters for Subscriptions (All), Resource Group (All), Environment (All), Tag Name (All), Tag Value (All), Show SLA (Yes), and Show Help (Yes). Below this is a navigation bar with tabs: Overview, Compute, Containers, Databases, Integration, Networking, Storage, Web, Azure Site Recovery, and Service Alerts. The 'Virtual Machines' tab is selected. A sidebar on the left lists categories like Recommendations, Monitoring, and Workbooks. The main content area displays a table for 'Virtual Machines - Recommendation Summary' and a detailed list of individual VMs.

[Link: Improve reliability of your business-critical applications using Azure Advisor recommendations and the reliability workbook. - Azure Advisor | Microsoft Learn](#)

Afternoon Session

- Mark and I discussed your general approach to handle identities of Azure Automation accounts. Mark provided me with the context (moving away from run as accounts due to feature being retired soon.)
 - Identity Landing Zone will be established on a new subscription. This will take some planning to establish new servers for your DC's.
 - To allow teams to handle their own use case, an automation account per team will be created (1 for ops team, 1 for sec team,...). This will be used as an isolation boundary. The proposal to use user-assigned identity is a recommended approach in your context. The lifecycle management of these identities need to be tightly controlled. As Mark noted, this will stay with the infrastructure team to minimize risk. This makes sense considering future governance and way of working when becoming a Cloud Center of Excellence.
- Common Azure Resource Modules Library: I gave a comprehensive overview of this solution with a demo.
 - The immediate value of using this comprehensive library of modules was acknowledged and an internal presentation will be given by Mark to the rest of the team. (find presentation in attachment).



Find below possible agenda points for the next DSE days:

1. Update on starting to leverage CARML solution as part of Automation approach for PAAS Services architecture that was selected. Start from scratch leveraging the CARML solution and combining it with existing CD workflow.
2. Azure Landing Zones review: Look at brownfield environment and perform gap analysis.
3. API Management: approach to RBAC and Devops approach with different teams.
4. Other topics: Relevant updates,...

What was done?

- ✓ Reviewed strategy regarding managed identities for azure automation accounts.
- ✓ Solution to challenge for automation approach for proposed new PAAS architecture -> CARML (presentation and demo given).
- ✓ Advisor related updates and walkthrough using workbooks.

- ✓ AI assistant for cost management overview + link shared to apply for private preview.

Next engagement day: 19/06/2023.

Let me know which topic(s) you want to discuss/work on this day based on your priorities and business context.

Thanks!

Looking forward to continuing to work together and helping you accelerate.

Kind Regards,

Jamel Achahbar
Cloud Solution Architect
Core Infrastructure
Mobile: +32471559518
jachahbar@microsoft.com



19/06/2023

Monday, March 6, 2023 10:11 AM

17/07/2023

Monday, 24 April 2023 13:50

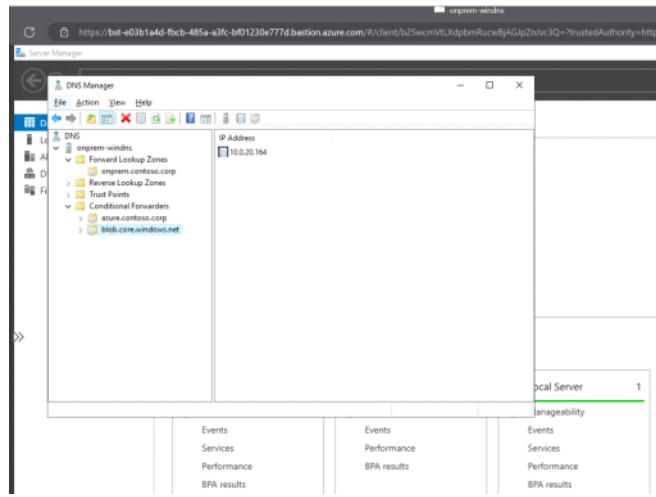
DEMOS/POCs

Friday, March 3, 2023 2:07 PM

Private DNS Resolver

Friday, March 3, 2023 12:48 PM

[azure-dns-private-resolver/adr-lab at main · dmauser/azure-dns-private-resolver · GitHub](https://github.com/dmauser/adr-lab/tree/main/dmauser/azure-dns-private-resolver)



Scenario 1: Private Endpoint DNS Name Resolution

- ✓ 1) List Blob Storage Account names to test Private Endpoint name resolution.
az storage account list -g \$rg --query [].primaryEndpoints.blob -o tsv
Example of the output for the hub storage account: <https://hubstg32476.blob.core.windows.net/>
- ✓ 2) Access VM Onprem-vmlx via serial console/SSH or Bastion
2.1) Review DNS client config. It will show the DNS server configured.
systemd-resolve --status | grep "DNS Servers:"
2.2) Test storage account name resolution (change the name below based on the output on step 1):
nslookup hubstg32476.blob.core.windows.net
Repeat the same steps above on spk1stgxxx and spoke2stgxxx storage accounts.
Test from all VMs (on-premises and Azure Hub and spokes)
Expectation is to get the private endpoint IP for each
- ✓ 3) Access onprem-win-dns VM via Bastion and review the Windows DNS Configuration and the Conditional Forwarder zone

- ✓ 4) Review the Private DNS Resolver configuration and inbound endpoints.

- 5) Review the private endpoints hubpe, spk1pe, and spk2pe configuration.

- 6) Review the Private DNS Zones configuration related to Private Link zone: privatelink.blob.core.windows.net
Review VNET links from Hub, Spoke1 and Spoke2.

Scenario 2: On-premises and Azure DNS Integration

- ## Scenario 2: On-premises and Azure DNS integration
- ## 1) Access onprem-win-dns VM via Bastion and review the Windows DNS Configuration. Check onprem.contoso.corp zone and its local DNS records.
- ## 2) Review the Azure DNS Resolver outbound endpoint as well as RuleSet with the specific rule to onprem.contoso.corp
- ## 3) Test domain name resolution from both sides by accessing onpremvm via Bastion or Serial Console and issue a few nslookups against Azure VM names (azhub-lvnm, az-spk1-lvnm, az-spk2-lvnm) using domain name azure.contoso.corp.
For example:
From onprem-lvnm run:
nslookup az-hub-lvnm.azure.contoso.corp # repeat the same command for the other Azure VMs.
From az-spk1-lvnm run:
nslookup onprem-lvnm.onprem.contoso.corp
nslookup onprem-windns.onprem.contoso.corp
Name resolution should work from On-premises to Azure and vice-versa.

Endpoint name	IP address	Subnet	Tags	Provisioning state
InboundEndpoint	10.0.20.164	dmns	-	Succeeded

Identity Level Up Workshop + Labdemo

Monday, 8 May 2023 19:23

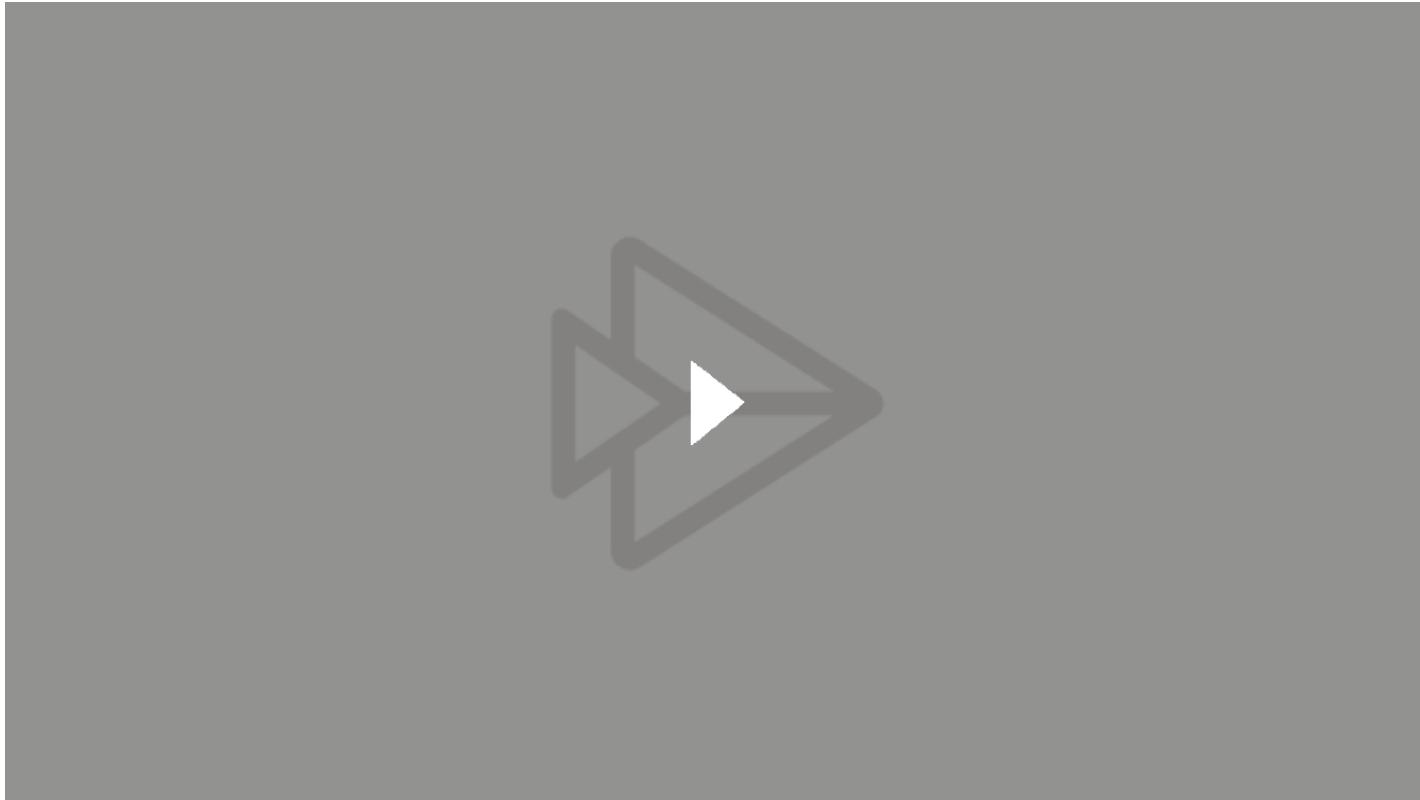


Identity Lab

Guide v3.0

<https://microsoft.sharepoint.com/:b/r/teams/IDCxP-SalesandCompete/Shared%20Documents/Readiness/Identity%20Labs/Identity%20Lab%20Guide%20v3.0.pdf?csf=1&web=1&e=hbTODi>

[Microsoft Stream](#)



[Microsoft Stream](#)



Additional Resources

Monday, 24 April 2023 16:55

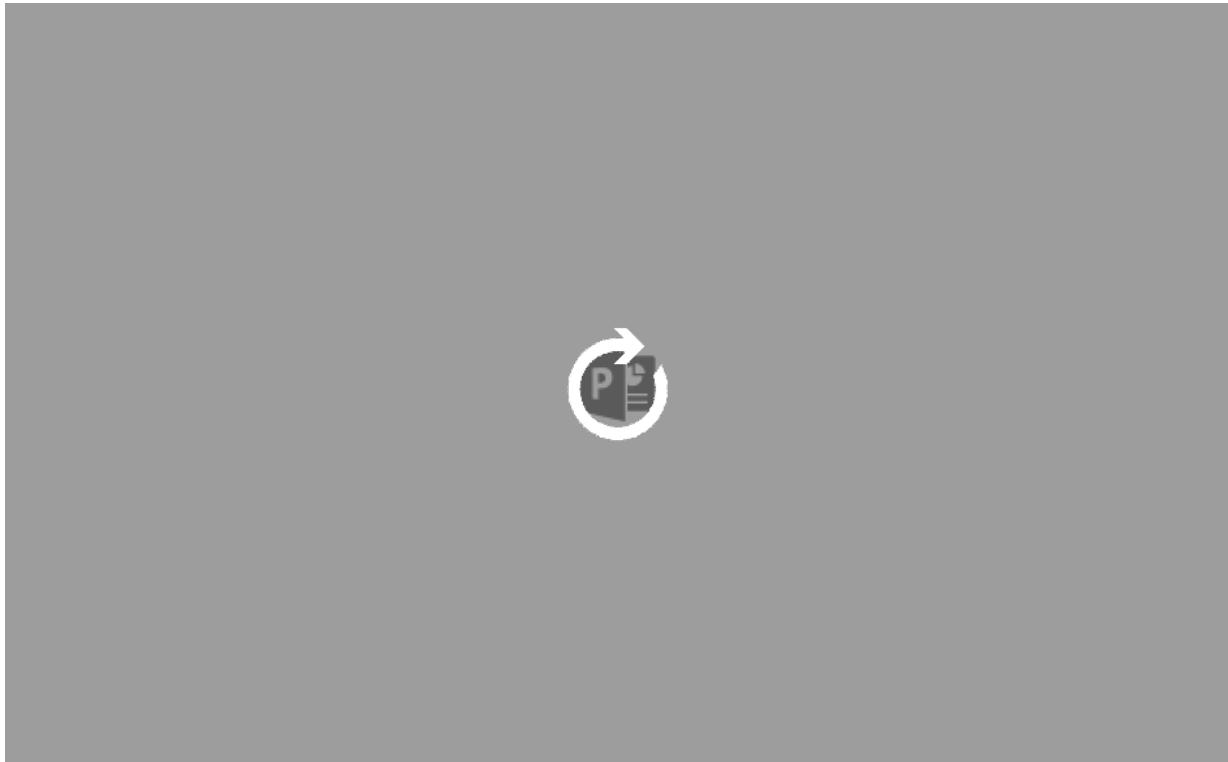
[apply-zero-trust-to-Azure-IaaS-infra-diagrams.pdf](#)

[GitHub - mddazure/azure-vwan-microhack](#)

[GitHub - adstuart/azure-privatelink-dns-microhack: This repository consists of two things. A script to setup a simple Hub/Spoke Azure network and simulated On-Premises environment. It also contains a guided "hack" to work with Private Link and encourage consideration of the associated changes required to DNS.](#)

[PrivateLink/DNS-Scenario-Using-AD at master · dmauser/PrivateLink · GitHub](#)

[Godfrey-Expand your Azure Network deployment with Azure Virtual WAN and Azure Firewall](#)



[Azure Networking Technical Champs \(FTE only\) - EMEA-Tech-Readiness - All Documents \(sharepoint.com\)](#)

[\[Session 22 - February 2022\] S2S VPN – Kopie](#)



[\[Session 27 - June 2022\] Private Link update](#)



Waf Training

Friday, March 17, 2023 8:48 AM

[Azure Network Security Ninja Training - Microsoft Community Hub](#)

[Integrating Azure Web Application Firewall with Azure Sentinel - Microsoft Community Hub](#)

[Azure-Network-Security/Azure WAF/Playbook - WAF Sentinel](#)

[Playbook Block IP at master - Azure/Azure-Network-Security - GitHub](#)

[All the Microsoft Ninja Training I Know About - Azure Cloud & AI Domain Blog \(azurecloudai.blog\)](#)

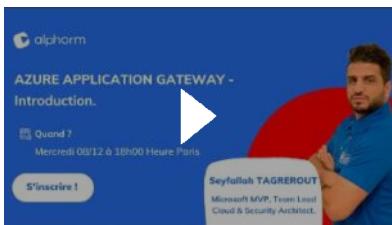
[Azure WAF Custom Rule Samples and Use Cases - Microsoft Community Hub](#)

[Migrate WAF policies for Azure Application Gateway | Microsoft Learn](#)

Latest Improvements:

[Enhancements to Azure WAF for Application Gateway now in General Availability - Microsoft Community Hub](#)

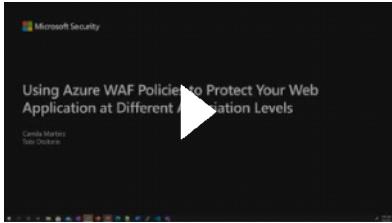
- Jamel
 - Overview of Application Gateway
[\[Webinaire\] - Azure Application Gateway - Introduction.](#)



- WAF: Why? What? How?
[14:27 – Azure WAF Management](#)



- [Azure Network Security webinar: Using Azure WAF Policies to Protect Your Web Application](#)

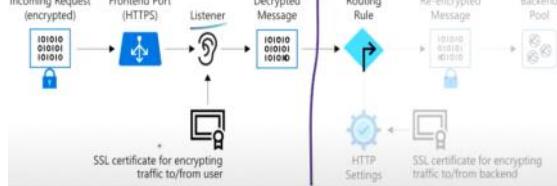


- Fictitious customer case: DEMO

- Sven

SSL Offloading

Frontend https backend http example



[Azure Application gateway SSL offloading](#)



Sentinel Integration

Needs Azure Frontdoor

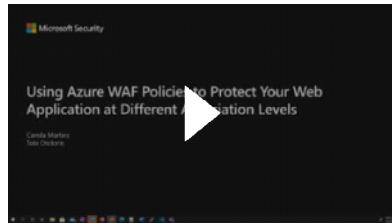
[Tutorial: Get started with Azure WAF investigation Notebook - Microsoft Community Hub](#)

[Tutorial Overview: Azure Web Application Firewall Security Protection and Detection Lab - Microsoft Community Hub](#)

[Azure Network Security Proof of Concept Part 2: Deploying the environment - Microsoft Community Hub](#)

[Part 1 - Lab Setup: Azure WAF Security Protection and Detection Lab - Microsoft Community Hub](#)

[Azure Network Security webinar: Using Azure WAF Policies to Protect Your Web Application OneDrive \(live.com\)](#)



MAR 23 Azure Network Security | [How To Tune Your Azure WAF](#)

In this webinar, we shall take a look at the Azure Web Application Firewall, and how you can efficiently and effectively tune its policy and rulesets. WAF tuning is important as it allows for tailoring WAF rules to the specific needs of the application or the organization using the WAF. This tuning leads to reduction in false positives, granular security for the application and faster time to identify and resolve issues.

From <<https://techcommunity.microsoft.com/t5/security-compliance-and-identity/join-our-security-community/ba-p/927888>>

Anticipate questions:

One app gateway per application? Or more
When to use one when more

WAF Tuning? Backup slides

Presentation slides for Umicore (shared by Sven) Official

Friday, 14 April 2023 12:10

[AZURE Application Gateway and WAF.pptx](#)

Monitor Workbooks

Friday, 14 April 2023 10:37

[Azure-Network-Security/Azure WAF/Workbook - WAF Monitor Workbook at master · Azure/Azure-Network-Security · GitHub](https://github.com/Azure-Network-Security/Azure-WAF-Workbook/blob/main/WAF%20Monitor%20Workbook.ipynb)

Zero Trust Web Application Security with Azure WAF and Azure Firewall

Monday, 20 March 2023 14:34

[Zero Trust Web Application Security with Azure WAF and Azure Firewall](#)

[Secure your web applications with Azure Web Application Firewall \(cloudguides.com\)](#)



[OneDrive \(live.com\)](#)

Interactive Guide

Monday, 20 March 2023 15:00

[Azure network security \(cloudguides.com\)](#)



Azure network security

1. Secure your network infrastructure with Azure Firewall and Azure DDoS Protection

2. Secure your web applications with Azure Web Application Firewall

3. Enhance network visibility and threat detection through Azure network security integrations with Microsoft Sentinel



Application Gateway notes

Monday, 20 March 2023 15:42

Azure Application Gateway

• Infra

- Azure virtual Network
 - + sous réseau pour la gateway
- Une IP privée par instance
- + une autre si la partie front privée est choisie
- Recommandation /24 pour le sous-réseau de la Gateway
- Possibilité de mettre des NSG sur le sous-réseau de la Gateway
- Possibilité de jouer avec les UDR en fonction des besoins
 - Propagation de route BGP
 - Flux directement sur le net avec 0,0,0,0
 - Azure Kubernetes pour Kubelet

Groupes de sécurité réseau

Les Groupes de sécurité réseau (NSG) sont pris en charge sur Application Gateway. Mais quelques restrictions s'appliquent :

- Vous devez autoriser le trafic Internet entrant sur les ports TCP 65503-65534 pour la référence (SKU) Application Gateway v1, et sur les ports TCP 65200-65535 pour la référence (SKU) v2 avec le sous-réseau de destination en tant que **Any** et la source en tant que balise de service **GatewayManager**. Cette plage de ports est nécessaire pour la communication avec l'infrastructure Azure. Ces ports sont protégés (verrouillés) par des certificats Azure. Les entités externes, y compris les clients de [TLS](#) passerelles, ne peuvent pas communiquer avec ces points de terminaison.
- La connectivité Internet sortante ne peut pas être bloquée. Les règles de trafic sortant par défaut dans le groupe de sécurité réseau permettent une connectivité Internet. Nous vous recommandons :
 - De ne pas supprimer les règles de trafic sortant par défaut.
 - De ne pas créer d'autres règles de trafic sortant qui refusent toute connectivité sortante.
- Le trafic à partir de la balise **AzureLoadBalancer** avec le sous-réseau de destination comme **Tout** doit être autorisé.

Azure Application Gateway Summary.

-Azure Application Gateway is a load balancer that provides application-level routing and load balancing services for web applications. It acts as a reverse proxy, allowing you to distribute incoming traffic across multiple backend servers and route requests to specific servers based on various criteria, such as URL path or host headers.

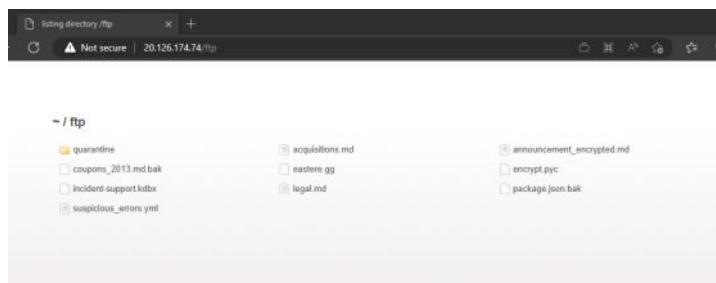
In addition to load balancing, the Azure Application Gateway provides other features, such as SSL offloading, HTTP to HTTPS redirection, URL-based routing, and session affinity. It also supports Web Application Firewall (WAF) to protect web applications from common exploits and vulnerabilities. Overall, the Azure Application Gateway can help you improve the performance, availability, and security of your web applications.

Demo OWASP Site

Tuesday, 2 May 2023 09:30

[Challenge solutions - Pwning OWASP Juice Shop \(owasp-juice.shop\)](#)

[listing directory /ftp](#)

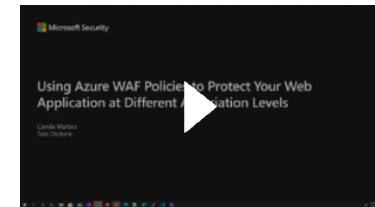


[Tutorial Overview: Azure Web Application Firewall Security Protection and Detection Lab - Microsoft Community Hub](#)

[Azure Network Security Proof of Concept Part 2: Deploying the environment - Microsoft Community Hub](#)

[Part 1 - Lab Setup: Azure WAF Security Protection and Detection Lab - Microsoft Community Hub](#)

[Azure Network Security webinar: Using Azure WAF Policies to Protect Your Web Application OneDrive \(live.com\)](#)



[Challenge solutions - Pwning OWASP Juice Shop \(owasp-juice.shop\)](#)

owaspdirect-onoymiuppsyhy.azurewebsites.netlocalhost

SQL Injection attack
'OR 1=1--
'OR 1=1--

Microsoft Azure Search resources, services, and docs (G+) a974674@umicore.com UMICORE (UMICORE365.ONMIC...)

Home > AZU-DMZAGW-RG-PRD > azu-dmzagw-prd-agw-01 Application gateway

+ Delete Refresh

Essentials

Resource group ([move](#)) : [AZU-DMZAGW-RG-PRD](#) Virtual network/subnet : [azu-vnet-dmzagw-prd-01/azu-vnet-dmzagw-prd-01-dmzagw-prd](#)
Location : West Europe Frontend public IP address : [20.4.5.130 \(azu-dmzagw-prd-pip-01\)](#)
Subscription ([move](#)) : [DMZWAF-PRD](#) Frontend private IP addr... : -
Subscription ID : 8f3128fb-dbdb1-4ff3-8336-f9cf614d5f1a Tier : WAF V2

Tags ([edit](#)) : BU_Responsable : judy.boeynaems@eu.umicore.com BusinessUnit : IS Description : DMZ Application Gateway deployment project DevopsProjectId : 38f3a43f-f27d-4cd6-a14b-966b367e2905
DevopsProjectName : IS.DMZAGW IT_Responsable : kevin.vantilborgh@eu.umicore.com Landscape : WAF Recharge : IS State : Production Stream : Shared Infra Support : ACN

Show data for last 1 hour 6 hours 12 hours 1 day 7 days 30 days

Sum Total Requests Sum Failed Requests Sum Response Status by HttpStatus



Azure Frontdoor vs Azure Application Gateway

Friday, 2 June 2023 15:54

Praten over wat punten.

Kevin -> Azure architect.

Vorige week brainstorm om WAF upgraden aan 3.2 en zone redundancy.

Naar de toekomst multiregion.

App gateways in ne en weu

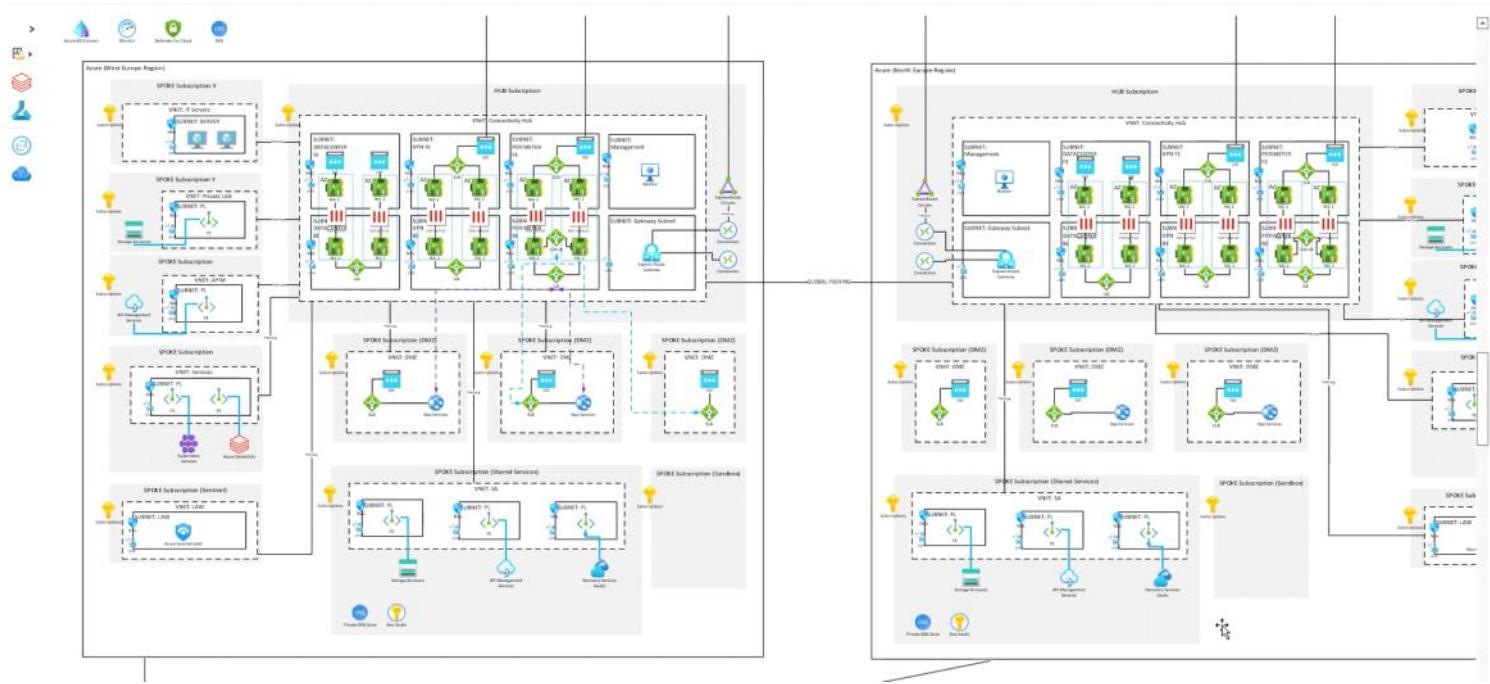
Deployment issue= failover nieuwe pips nodig gaan hebben.

SAP BI -> naar externe partijen toe

Constraint externe publieke ip op de huidige app gateway.

Azure Frontdoor -> globale loadbalancer.

Aparte deplo



Frontdoor anycast oplossing en verbind door naar regionale ip adressen

SAP BI-> critical asset dus multiregion

DEMOS

Thursday, March 2, 2023 1:50 PM

APIMOPS

[Pipelines - Runs for apimopstest \(azure.com\)](#)

ONPREMDATAGW

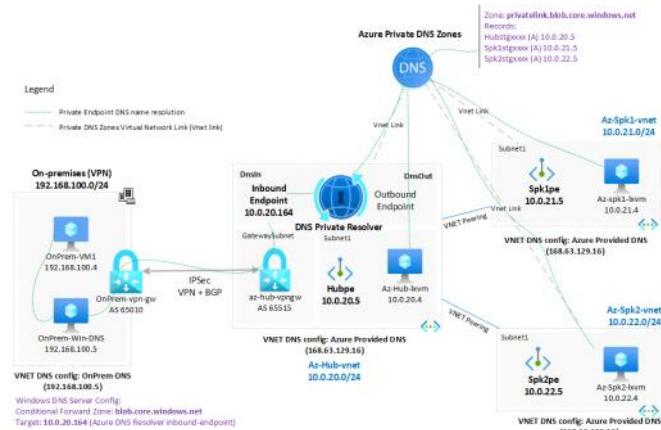
[Power BI](#)

onpremdgwm.westeurope.cloudapp.azure.com

Private DNS Resolver

Friday, March 3, 2023 12:48 PM

[azure-dns-private-resolver](https://github.com/dmauser/azure-dns-private-resolver) · [adr-lab at main · dmauser/azure-dns-private-resolver · GitHub](https://github.com/dmauser/azure-dns-private-resolver)



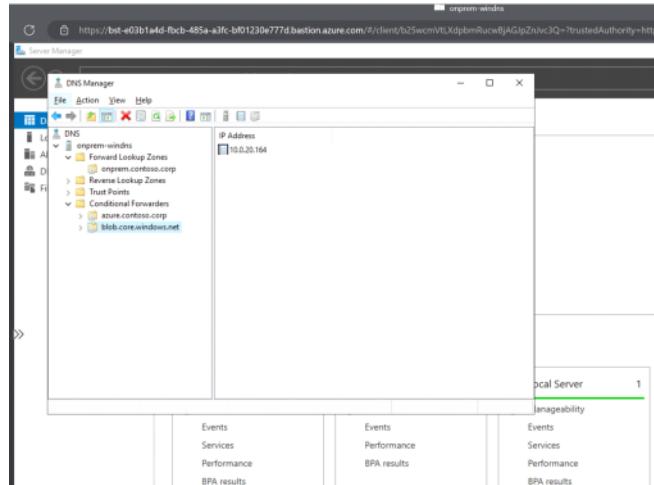
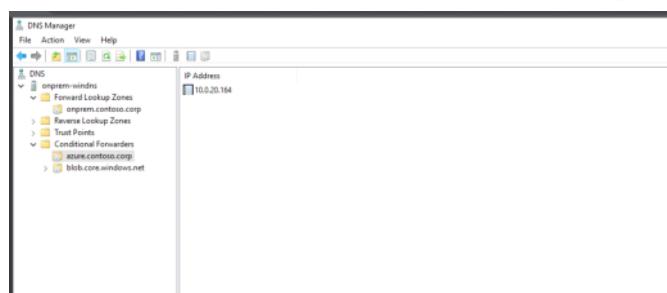
Scenario 1: Private Endpoint DNS Name Resolution

- ✓ 1) List Blob Storage Account names to test Private Endpoint name resolution.
az storage account list -g \$rg --query [].primaryEndpoints.blob -o tsv
Example of the output for the hub storage account: <https://hubstg32476.blob.core.windows.net/>
- ✓ 2) Access VM Onprem-vm1 via serial console/SSH or Bastion
2.1) Review DNS client config. It will show the DNS server configured.
systemd-resolve --status | grep "DNS Servers:"
2.2) Test storage account name resolution (change the name below based on the output on step 1):
nslookup hubstg32476.blob.core.windows.net
Repeat the same steps above on spk1stgxxx and spoke2stgxxx storage accounts.
Test from all VMs (on-premises and Azure Hub and spokes)
Expectation is to get the private endpoint IP for each
- ✓ 3) Access onprem-win-dns VM via Bastion and review the Windows DNS Configuration and the Conditional Forwarder zone (use Bastion to access the Windows VM).
- ✓ 4) Review the Private DNS Resolver configuration and inbound endpoints.
- 5) Review the private endpoints hubpe, spk1pe, and spk2pe configuration.
- 6) Review the Private DNS Zones configuration related to Private Link zone: privatelink.blob.core.windows.net
Review VNET links from Hub, Spoke1 and Spoke2.

Scenario 2: On-premises and Azure DNS integration

Scenario 2: On-premises and Azure DNS integration

- # 1) Access onprem-win-dns VM via Bastion and review the Windows DNS Configuration. Check onprem.contoso.corp zone and its local DNS records.
- # 2) Review the Azure DNS Resolver outbound endpoint as well as RuleSet with the specific rule to onprem.contoso.corp.
- # 3) Test the same resolution from both sides by accessing onprem-lvnm via Bastion or Serial Console and issue a few nslookups against Azure VM names (az-hub-lvnm, az-spk1-lvnm, az-spk2-lvnm) using domain name azure.contoso.corp.
For example:
From onprem-lvnm run:
nslookup az-hub-lvnm.azure.contoso.corp # repeat the same command for the other Azure VMs.
From az-hub-lvnm or other Azure spoke VM run:
nslookup onprem-lvnm.onprem.contoso.corp
nslookup onprem-windns.onprem.contoso.corp
Name resolution should work from On-premises to Azure and vice-versa.



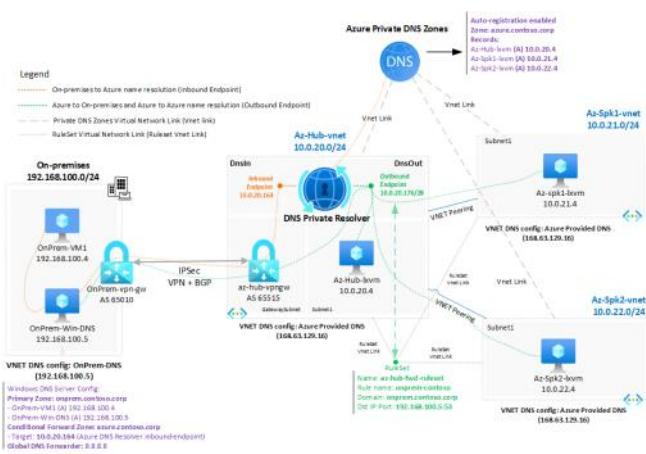
Home > [ME-MigEnvMC4829712-jacharlie-1](#) Resource groups > [lib-dns-resolver](#) > [az-hub-dnsresolver](#)

az-hub-dnsresolver | Inbound endpoints ...

DNS private resolver

Search	+ Add an endpoint	Refresh
<input type="radio"/> Overview		
<input checked="" type="checkbox"/> Activity log	Inbound endpoints can receive domain name resolution requests. Learn more	
<input checked="" type="checkbox"/> Access control (IAM)	Endpoint name	IP address
<input checked="" type="checkbox"/> Tags		Subnet
<input checked="" type="checkbox"/> Diagnose and solve problems	InboundEndpoint	10.0.20.164
Settings		Tags
<input checked="" type="checkbox"/> Properties		
<input checked="" type="checkbox"/> Locks		
<input checked="" type="checkbox"/> Inbound endpoints		
<input checked="" type="checkbox"/> Outbound endpoints		
Monitoring		
<input checked="" type="checkbox"/> Alerts		

Provisioning state: Succeeded



Devops Agents

Thursday, March 9, 2023 5:23 PM

https://microsoft.sharepoint.com/teams/SPARK-DigitalLearningEvent/_layouts/15/stream.aspx?id=%2Fteams%2FSPARK%2DDigitalLearningEvent%2FRecordings%2FUnderstanding%20Azure%20DevOpsAgents%20%26%20GitHubRunners%2Emp4

<https://github.com/pathways2learn/DevOpsGitHub/tree/main/AzureDevOps/01-VM>

ABIB Reporting Online

Monday, March 6, 2023 1:59 PM

Sales Accelerator

MSX Home

Dashboards

Activities

Pipeline

Leads

Opportunities

Milestones

Proposals

Relationship

Plans

Accounts

Contacts

Account Transitions

Partner

Manoj Nair Sales

AB InBev - Saved

Account - 360

Thierry Ferster Owner

Strategic Commercial Segment

Strategic - Commercial Other Subsegment

Customer 360 Customer Profile Databook Details Timeline Customer Contacts Opportunities Leads Requests LinkedIn ...

Product category General

Account Information

TPID: 2013751 Account ID: 1+77PQ+135

Account Manager: Thierry Ferster Employees: 106,291

Industry: Consumer Goods Tag: Strategic 500

+3227001888 http://www.inbev.com

1, Brouwerijplein, Philips, Vlaams Brabant, Belgium

Account Transition Score (ATS) - Customer and Partner Experience (CPE) -

Revenue Products and services

Updated March 5, 2023

100M 3 FY Average \$47.6M

50M Current FY \$65.7M

0 FY20 FY21 FY22 FY23

Agreements

Expirations in Current quarter 3 Jan 23 - Mar 23

Expirations in Current year 7 Jul 22 - Jun 23

Active agreements Total 87

Support Tickets

Active 78

High Severity 0

Risk to CSAT 13

Azure Savings Plans

Recommendations Consumption

Savings plan type	Scope	Usage lookback period	Term
Compute	Single (subscription)	30 days	3 years (P3Y)

Updated February 12, 2023 12:00 AM



Wondering how to think about the relationship between savings plans and Azure reservations? Click [here](#) to learn more.

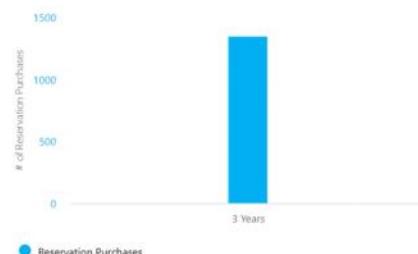
60 recommendations

Download savings plan recommendation details (CSV) ↓

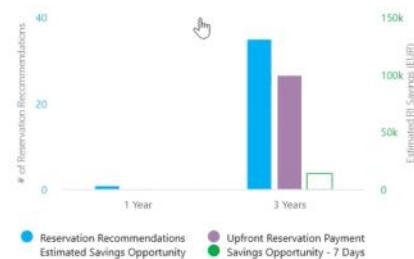
Scope ↑	Scope ID	Savings plan type	Term	Currency	Commitment/hour	Net savings	Expected coverage
Subscriptions	07f3a676-8ff4-42fa-9823-2f	Committee Savings Plan	P3Y	EUR	€1.0K	€17.2K	97%

⚠ Estimated RI Savings subject to continued compute usage pattern of past 7 days.

Reservation Purchases



Reservation Recommendations

RI Type : ?

all

RI Scope : ?

Single Shared

Usage Lookback Period : ?

7 days 30 days 60 days

RI Recommendations :

Top 5 Top 10 Top 15 ALL

 Show 1 Year Forecast

RI Recommendation Details

T	Enrc	Subscription	RI Ca	Service	Regi	Recon	Upfront Res	Current	Projected C	Estimate	Curre
Search <input type="text"/>											
1	P3Y	545458 fe70970a-8778-4bc4-83c4- virtualm	Standard_I	southcicer	2		18.4K	8.6K	6.1K	2.5K (28.62%	EUR
2	P3Y	545458 fe70970a-8778-4bc4-83c4- virtualm	Standard_I	southcicer	2		18.4K	11.2K	8.8K	2.5K (21.85%	EUR
3	P3Y	545458 a6362b38-0f74-4c75-bcbb- virtualm	Standard_I	southcicer	2		18.4K	11.4K	9.9K	1.5K (13.32%	EUR
4	P3Y	545458 fe70970a-8778-4bc4-83c4- virtualm	Standard_I	southcicer	4		7.3K	3.8K	2.4K	1.3K (35.46%	EUR
5	P3Y	545458 a6362b38-0f74-4c75-bcbb- virtualm	Standard_I	southcicer	4		7.3K	3.4K	2.6K	848.0 (24.91	EUR
6	P3Y	545458 f8069a87-2c4b-4c6c-ae8d- virtualm	Standard_I	southcicer	10		18.3K	18.0K	14.7K	3.3K (18.53%	EUR
7	P1Y	545458 5c92b4a1-d813-42e0-804d- virtualm	Standard_I	eastus	1		513.2	674.4	513.2	161.2 (23.91	EUR

Recommendation Summary

RI Term	# RIs	Upfront Reservatio	Savings Opportunity(EUR)
P3Y	35	100.206K	14.114K
P1Y	1	513.210	161.233

What are RIs

How to Buy RIs

How RI benefit is Applied

How to Verify RI Benefit is Applied

What are Cosmos DB Reservations

Azure Policy review

Monday, 24 April 2023 16:13

Azure policies implemented, need advice and assessment on what they are doing and if doing it right.

The goal is they see relevance to this and come back for more

Scope is limited to Policies

They will ask us to assess one of their landing zones.

Next steps: CSAM will set up scoping call as a next step

Pradeep: part of Manaswinee team, senior architect taking care of Cloud.
 Application assessment, reference architecture design, security posture,....
 Platform architecture
 Part of the global architecture board

Deepak: application architecture. IaC models, app dev work on standards. Standard for BE business layer, have secure layer how data needs to be. Build architecture, on data flow data migration activities.
 Migration of app, what are the standards, how are apps built in -> related to application, migration, cloud native apps,...
 Part of the global architecture board.

This team adds optimization, looking at the cost structure for that, build perf metrics for it.

Assessment of application, making the decision for app.

Before prod, this team applies cost optimization exercise (autoscaling features,...)

Once application is running in the cloud, handshake with ops. Any changes in the cloud have to be validated by this team.

Not following 7R's yet, they are starting this exercise from last year.

CRAMS model.

Lift and shift comes from another team.

This teams realizes modernization.

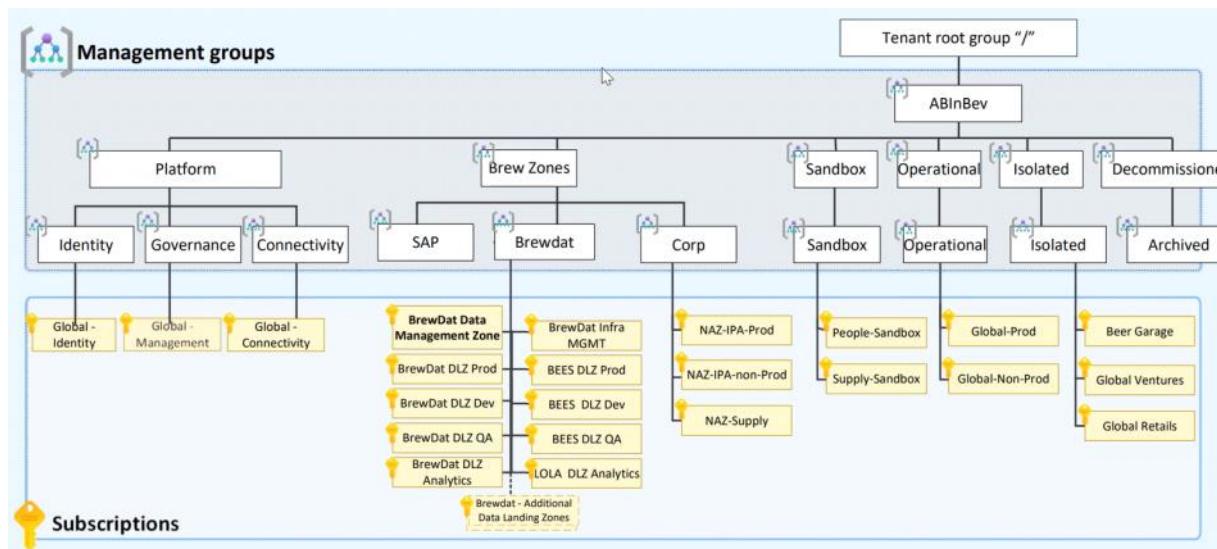
Varghese -> Senior DevOps Engineer, responsible for Azure Policies (getting more and more involved), IaC managed.

2021 -> had a flat architecture.
 Moved to ESLZ/ALZ, got all inputs from MS. Planned to move to it.

All apps fall under Corp.

Isolated: not connected to ABI network
 Archived -> projects decommissioned.
 Operational -> all legacy applications are running there.

Working towards this modern design
 (They are still migrating to this architecture)



IZA = ABI management group -> This is the scope for the Team. All the zones come under this Team.

Brew Zones = Landing Zones
 Operational = Legacy

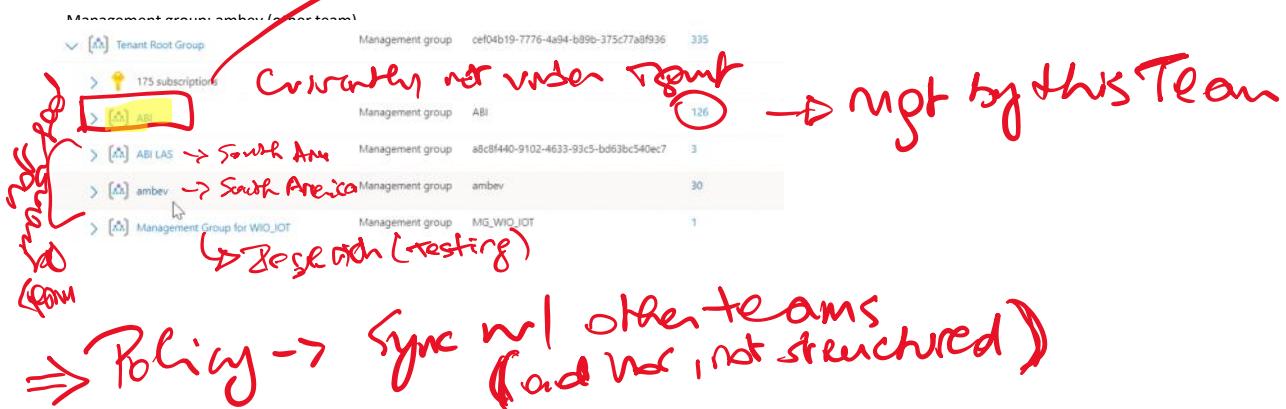
Platform - mg-connectivity -> all the hubs here (Traditional hub and spoke)

Subscription under Tenant Root Group -> not managed by this team.

after standardizing Policy, they will be moved

Subscription under Tenant Root Group -> not managed by this team.

after standardizing policy, it will be moved



What is the workflow who decides policies? Architects decide, then Varghese automates it and applies it.
How does he apply,....

Code

main

modules/templates/initiatives

- ACR.initiative
- AKS.initiative
- AppServices.initiative
- Backup.initiative
- DR.initiative
- Data.initiative
- Monitoring.initiative
- Network.initiative
- Security.initiative
- Storage.initiative
- VM.initiative
- main.tf
- variables.tf
- pythons
- .gitignore

azure_policies_framework / modules / templates / initiatives /

Name	Last commit message	Last commit date
..		
ACR.initiative		
AKS.initiative		
AppServices.initiative		
Backup.initiative		
DR.initiative		
Data.initiative		
Monitoring.initiative		
Network.initiative		
Security.initiative		
Storage.initiative		
VM.initiative		

azure_policies_framework / modules / templates / initiatives / Monitoring.initiative

kirana@github initial commit

Code Blame 11 lines (11 loc) · 408 Bytes

```
1 #f8f98a4-f108-47cb-8e98-91a0d85cd474
2 #21fb0c-d118-4c43-ab3d-ece30ac1b1b3
3 951af2fa-529b-416e-ab6e-066fd054c459
4 #ed7cfc13-51e7-49d1-8a43-8490431a0da2
5 #987c7a7d-49e9-4213-bea0-6a502b63272e0
6 eb6f7709-bd53-4e35-a23d-7f5d549e8f3
7 7f426e2-515f-405a-91c8-4f2333442eb5
8 cf820ca0-f99e-4f3a-84fb-66a913812d21
9 6666c325-74c8-42fd-a286-a74b02939d8
10 f4c68484-132f-41f9-9b6d-3e4b1cb55036
11 0015ead-51ff-4ce3-88b6-c3f8f0179a56
```

These are the ids.

Policies, initiatives applied on sub level

Policy | Compliance

Search Assign policy Assign initiative Refresh

Overview Getting started Compliance Remediation Events Authoring

Scope: ABI GHQ DigitalSolution... Type: Initiative Compliance state: All compliance states Search: Filter by name or ID...

Overall resource compliance: 47% (70 out of 149)

Resources by compliance state:

Non-compliant initiatives: 8 out of 12

Non-compliant policies: 61 out of 462

Name	Scope	Compliance state	Resource compli...	Non-Compliant Resources	Non-compliant policies
ABI Subscription Policy Initiatives v2.0	ABI GHQ DigitalSolution...	Non-compliant	42% (39 out of 93)	54	9
Microsoft-defender-for-cloud-ABI management ...	ABI	Non-compliant	38% (19 out of 50)	31	31
Monitoring	ABI GHQ DigitalSolution...	Non-compliant	4% (1 out of 25)	5	***
Backup	ABI GHQ DigitalSolution...	Non-compliant	20% (3 out of 15)	12	4
Security	ABI GHQ DigitalSolution...	Non-compliant	72% (28 out of 39)	11	3
AppServices	ABI GHQ DigitalSolution...	Non-compliant	23% (3 out of 13)	10	2
Network	ABI GHQ DigitalSolution...	Non-compliant	60% (12 out of 20)	8	3
Data	ABI GHQ DigitalSolution...	Non-compliant	0% (0 out of 2)	2	3

Policy | Compliance

Search Assign policy Assign initiative Refresh

Overview Getting started Compliance Remediation Events Authoring

Scope: ABI GHQ DigitalSolution... Type: Initiative Compliance state: All compliance states Search: Filter by name or ID...

Overall resource compliance: 47% (70 out of 149)

Resources by compliance state:

Non-compliant initiatives: 8 out of 12

Non-compliant policies: 61 out of 462

Name	Scope	Compliance state	Resource compli...	Non-Compliant Resources	Non-compliant policies
Microsoft-defender-for-cloud-ABI management ...	ABI	Non-compliant	38% (19 out of 50)	31	31
Monitoring	ABI GHQ DigitalSolution...	Non-compliant	4% (1 out of 25)	5	***
Backup	ABI GHQ DigitalSolution...	Non-compliant	20% (3 out of 15)	12	4
Security	ABI GHQ DigitalSolution...	Non-compliant	72% (28 out of 39)	11	3
AppServices	ABI GHQ DigitalSolution...	Non-compliant	23% (3 out of 13)	10	2
Network	ABI GHQ DigitalSolution...	Non-compliant	60% (12 out of 20)	8	3
Data	ABI GHQ DigitalSolution...	Non-compliant	0% (0 out of 2)	2	3

Now, you want to move it to management group level:

Managed by IaC.
Whenever new sub created, default initiatives applied on this level.
Every subscription will have the same initiatives.

▼ [A] Brew Zones	Management group	Brew_Zones	81
> [A] Beertech	Management group	Beertech	1
> [A] mg-brewdat	Management group	mg-brewdat	56
> [A] mg-corp	Management group	mg-corp	18
> [A] mg-martech	Management group	mg-martech	1
> [A] mg-sap	Management group	mg-sap	5
[A] mg-tech-supply	Management group	mg-tech-supply	0

Open Questions:

[A] ABI Subscription Policy Initiatives v2.0

This has custom policies

How many custom vs built-in -> in terms of shared responsibility.

IaC -> using own framework

This only creates policy initiatives, using built-in policies

github.com/ab-inbev-labs/azure_policies_framework/tree/main

Code Go to file About

kiranabigithub Update README.md 510c753 on Sep 16, 2022 3 commits

modules initial commit 8 months ago

pythons initial commit 8 months ago

.gitignore initial commit 8 months ago

README.md Update README.md 8 months ago

actual_main.tf initial commit 8 months ago

provider.tf initial commit 8 months ago

README.md

azure_policies_framework

This repo hosts the automation code that creates azure policy initiatives with custom effect based on built-in policies.

How to use this module

Add a new initiative

- Add a new <initiative_name>.initiative file in the modules/templates/initiatives directory.
- Append the policy IDs of the Azure built-in policies that should be part of this new initiative
- Edit main.tf in module/main.tf line 83 to add any new policy definition group

im/ab-inbev-labs/azure_policies_framework/blob/main/actual_main.tf #w initiative.on Azure Policy.

Code Blame 136 lines (109 loc) · 5.38 KB

```

azurerm_policy_definition "azurerm_policy_definition" {
  name        = "MyPolicy"
  description = "A sample policy definition"
  parameters = [
    {
      "name": "allow_ip",
      "type": "String",
      "value": "192.168.1.1"
    }
  ]
}

resource "azurerm_policy_set_definition" "my_policy_set" {
  name     = "MyPolicySet"
  policies = [azurerm_policy_definition.my_policy]
}

```

Code Blame 136 lines (109 loc) · 5.38 KB

```

locals{
  combined_parameters = {for each_id in data.azure_rm_policy_definition.list_of_policy_definitions: each_id.name => jsondecode(data.local_file.read_from_file[each_id.name].contents)}
  #combined_parameters = {for each_id in data.local_file.read_from_file:}
}

locals{
  #locals{
    # file_contents =
  }
}

```

Applying policy assignment:

The screenshot shows the Azure DevOps interface for the repository 'GHQ_Azure_IaC'. The left sidebar is the navigation menu. The main area shows the 'master' branch with the following files:

- pipelines
- python_render_terraform
- sub_policy_modules
- az_login_test.yaml

The 'main.tf' file is selected and shown in the editor pane. The code content is as follows:

```

1 locals {
2     azure_regions = {
3         "Australia Central"      = "ac",
4         "Australia Central 2"   = "ac2",
5         "Australia East"        = "ae",
6         "Australia Southeast"   = "ase",
7         "Brazil South"          = "bs",
8         "Brazil Southeast"      = "bse",
9         "Canada Central"        = "cac",
10        "Canada East"          = "cae",
11        "Central India"         = "cin",
12        "Central US"           = "cus",
13        "East Asia"             = "eas",
14        "East US"               = "eu",
15        "East US 2"              = "eu2",
16        "France Central"        = "frc",
17        "France South"          = "frs",
18        "Germany North"         = "gno",
19        "Germany West Central"  = "gwc",
20        "Japan East"            = "jes",
21        "Japan West"             = "jws",
22        "Korea Central"          = "kcn",
23        "Korea South"            = "ks",
24        "North Central US"       = "ncu",
25        "North Europe"           = "neu",
26        "Norway East"            = "noe",
27        "Norway West"            = "now",
28        "South Africa North"    = "san",
29        "South Africa West"      = "saw",
30        "South Central US"       = "scu",
31        "South India"             = "sin",
32        "Southeast Asia"          = "sea",
33        "Sweden Central"         = "sec",

```

The screenshot shows the 'main.tf' file content in the editor pane. The code content is as follows:

```

1 resource_name = "privatelink_resource"
2 resource_group_name = azurerm_resource_group.policy.name
3
4 tags = local.tags
5
6 depends_on = [
7     azurerm_resource_group.policy
8 ]
9
10
11 resource "azurerm_private_dns_zone" "azurewebsites" {
12     name                = "privatelink.azurewebsites.net"
13     resource_group_name = azurerm_resource_group.policy.name
14 }
15
16 tags = local.tags
17
18 depends_on = [
19     azurerm_resource_group.policy
20 ]
21
22 resource "azurerm_private_dns_zone" "database" {
23     name                = "privatelink.database.windows.net"
24     resource_group_name = azurerm_resource_group.policy.name
25 }
26
27 tags = local.tags
28
29 depends_on = [
30     azurerm_resource_group.policy
31 ]
32
33 resource "azurerm_private_dns_zone" "file" {
34     name                = "privatelink.file.core.windows.net"
35 }

```

The screenshot shows the 'main.tf' file content in the editor pane. The code content is as follows:

```

1 resource_name = "privatelink_resource"
2 resource_group_name = azurerm_resource_group.policy.name
3
4 tags = local.tags
5
6 depends_on = [
7     azurerm_resource_group.policy
8 ]
9
10
11 resource "azurerm_private_dns_zone" "azurewebsites" {
12     name                = "privatelink.azurewebsites.net"
13     resource_group_name = azurerm_resource_group.policy.name
14 }
15
16 tags = local.tags
17
18 depends_on = [
19     azurerm_resource_group.policy
20 ]
21
22 resource "azurerm_private_dns_zone" "database" {
23     name                = "privatelink.database.windows.net"
24     resource_group_name = azurerm_resource_group.policy.name
25 }
26
27 tags = local.tags
28
29 depends_on = [
30     azurerm_resource_group.policy
31 ]
32
33 resource "azurerm_private_dns_zone" "file" {
34     name                = "privatelink.file.core.windows.net"
35 }

```

GHQ_Azure_IaC

- pipelines
- python_render_terraform
 - create_subscription
 - enforce_policies
 - main.tf
 - provider.tf
 - terraform.tfvars.txt
 - variables.tf
- create_subscription.yml
- enforce_policies.yml
- sub_policy_modules
- az_login_test.yaml

master / python_render_terraform / enforce_policies / main.tf

```

main.tf

Contents History Compare Blame
372 data "azurerm_policy_set_definition" "abi_security_initiative" {
373   name           = "Security"
374   management_group_name = "ABI"
375 }
376
377 data "azurerm_policy_set_definition" "abi_storage_initiative" {
378   name           = "Storage"
379   management_group_name = "ABI"
380 }
381
382 data "azurerm_policy_set_definition" "abi_vm_initiative" {
383   name           = "VM"
384   management_group_name = "ABI"
385 }
386
387 data "azurerm_subscription" "subscription" {
388   subscription_id = var.subscription_id
389 }
390
391 # ABI Subscription Policy Initiatives
392 resource "azurerm_subscription_policy_assignment" "abi_sub_initiative" {
393   name           = "Abi-Sub-Policy-v2"
394   display_name  = "ABI Subscription Policy Initiatives v2.0"
395   policy_definition_id = data.azurerm_policy_set_definition.abi_sub_initiative.id
396   subscription_id = data.azurerm_subscription.subscription.id
397   enforce        = true
398
399   parameters = jsonencode({
400     "effect" : [
401       {
402         "value" : "Audit"
403       },
404       {
405         "value" : "Deny"
406       }
407     ],
408     "effectAuditIfNotExists" : [
409       {
410         "value" : "AuditIfNotExists"
411       }
412     ],
413     "listOfAllowedSKU" : [
414       {
415         "value" : [
416           "premium_lrs",
417           "standard_grs",
418           "standard_gzrs",
419           "standard_lrs",
420           "standard_rgrs",
421           "standard_zrgs"
422         ]
423       }
424     ],
425     "excludedNamespaces" : [
426       {
427         "value" : [
428           "kube-system",
429           "gatekeeper-system",
430           "azure-arc",
431           "lens-metrics",
432           "aks2k8s",
433           "datadog",
434           "dynatrace",
435           "sentinelone",
436           "chaos-testing",
437           "kubecost",
438           "neurilis",
439           "flux-system",
440           "prometheus-metrics",
441           "azurededfender",
442           "nfc"
443         ]
444       }
445     ]
446   })
447 }
448
449 
```

GHQ_Azure_IaC

- pipelines
- python_render_terraform
 - create_subscription
 - enforce_policies
 - main.tf
 - provider.tf
 - terraform.tfvars.txt
 - variables.tf
- create_subscription.yml
- enforce_policies.yml
- sub_policy_modules
- az_login_test.yaml

master / python_render_terraform / enforce_policies / main.tf

```

main.tf

Contents History Compare Blame
401   "effect" : [
402     {
403       "value" : "Audit"
404     },
405     {
406       "value" : "Deny"
407     },
408     {
409       "value" : "AuditIfNotExists"
410     },
411     {
412       "value" : [
413         "AuditIfNotExists"
414       ]
415     },
416     {
417       "value" : [
418         "Deny"
419       ]
420     }
421   ],
422   "listOfAllowedSKU" : [
423     {
424       "value" : [
425         "standard_lrs",
426         "standard_rgrs",
427         "standard_zrgs",
428         "standard_grs",
429         "standard_gzrs",
430         "standard_rgrs"
431       ]
432     }
433   ],
434   "excludedNamespaces" : [
435     {
436       "value" : [
437         "kube-system",
438         "gatekeeper-system",
439         "azure-arc",
440         "lens-metrics",
441         "aks2k8s",
442         "datadog",
443         "dynatrace",
444         "sentinelone",
445         "chaos-testing",
446         "kubecost",
447         "neurilis",
448         "flux-system",
449         "prometheus-metrics",
450         "azurededfender",
451         "nfc"
452       ]
453     }
454   ]
455 }
```

Plan is to try to move everything to github

Azure DevOps ab-inbev / GHQ_Azure_IaC / Repos / Files / GHQ_Azure_IaC

GHQ_Azure_IaC

- Overview
- Boards
- Repos
- Files
- Commits
- Pushes
- Branches
- Tags
- Pull requests
- Pull Request Manager Hub
- Pull Request Dashboard
- All Active Pull Requests
- PR Completion Stats
- Pipelines
- Project settings

master / python_render_terraform / enforce_policies / main.tf

```

main.tf

Contents History Compare Blame
322   action_group_id = azurerm_monitor_actiongroup.abi_acr_initiative
323 }
324
325 tags = local.tags
326 }
327
328 ###### Policy Initiative Assignment #####
329 ## Policy Initiative Assignment ##
330 ###### #####
331 ###### #####
332
333 data "azurerm_policy_set_definition" "abi_sub_initiative" {
334   name           = "file97bd77fa448b968b9348"
335   management_group_name = "ABI"
336 }
337
338 data "azurerm_policy_set_definition" "abi_scr_initiative" {
339   name           = "ACK"
340   management_group_name = "ABI"
341 }
342
343 data "azurerm_policy_set_definition" "abi_aks_initiative" {
344   name           = "AKS"
345   management_group_name = "ABI"
346 }
347
348 data "azurerm_policy_set_definition" "abi_appservices_initiative" {
349   name           = "AppServices"
350   management_group_name = "ABI"
351 }
352
353 data "azurerm_policy_set_definition" "abi_backup_initiative" {
354   name           = "Backup"
355   management_group_name = "ABI"
356 }
```

GHQ_Azure_IaC

```

master ✓ / python_render_terraform / enforce_policies / main.tf

main.tf

Contents History Compare Blame

387
388 data "azurerm_subscription" "subscription" {
389   subscription_id = var.subscription_id
390 }
391
392 # ABI Subscription Policy Initiatives
393 resource "azurerm_subscription_policy_assignment" "abi_sub_initiative" {
394   name          = "ABI-Sub-Policy-v2"
395   display_name = "ABI Subscription Policy Initiatives v2.0"
396   policy_definition_id = data.azurerm_policy_set_definition.abi_sub_initiative.id
397   subscription_id = data.azurerm_subscription.subscription.id
398   enforce        = true
399
400   parameters = jsonencode({
401     "effect" : [
402       {"value": "Audit"},
403     ],
404     "effectDeny" : [
405       {"value": "Deny"},
406     ],
407     "effectAuditIfNotExists" : [
408       {"value": "AuditIfNotExists"},
409     ],
410     "listOfAllowedSKUs" : [
411       {"value": ["premium_lrs", "premium_zrs", "standard_grs", "standard_gzrs", "standard_lrs", "standard_rgzs", "standard_ragzs"]},
412     ],
413     "excludedNamespaces" : [
414       {"value": [
415         "kube-system",
416         "gatkkeeper-system",
417         "azure-arc",
418         "lens-metrics",
419         "akv2k8s",
420       ]},
421     ]
422   })
423 }

```

How are exclusions/exemption handles?

```

sub_policy_modules
  create_subscription
  enforce_policies
  rg_level_exemption
  subscription_level_exempti...

```

Subscription Democratization:

Shared or separate based on t-shirt size of application. If it is a small app it will go to a shared subs.

Exceptions are applied on rg level -> exemptions are applied.

Home > Management groups > ABI AFR Shared NON-PROD | Policies > Policy

Policy | Exemptions

Policy exemption	Assignment	Scope	Exemption category	Expiration date	Resource selectors
afo1447ad0d01 - ABI Subscription...	ABI Subscription Policy Initiatives v2.0	ABI AFR Shared NON-PROD/abi-afr-01...	Waiver	--	--
afshdnssannpl01 - ABI Subscription...	ABI Subscription Policy Initiatives v2.0	ABI AFR Shared NON-PROD/abi-afr-sh...	Waiver	--	--
afshdnssannpl02 - ABI Subscription...	ABI Subscription Policy Initiatives v2.0	ABI AFR Shared NON-PROD/abi-afr-sh...	Waiver	--	--
av-gw-afr-shared-san-dev-vnet - A...	ABI Subscription Policy Initiatives v2.0	ABI AFR Shared NON-PROD/abi-afr-sh...	Waiver	--	--
afr01491sandseptf - ABI Subscri...	ABI Subscription Policy Initiatives v2.0	ABI AFR Shared NON-PROD/abi-afr-01...	Waiver	--	--

There could be scenario's where the resource creation is failed because of the policy being enforced, so the team is creating the resource group for this team as that team is using their own terraform.

What is the decision criteria to decide which policy to add?

Changing the effects from deny to audit when needed. -> parameter can be changed.

Policies we see are they coming from ALZ policies? Using built-in policies (not clear they are using the recommended policies for ALZ)

DINE policies:

They are creating using some policies where resources are created.

- LAW
- Backup policy -> non prod weekly backup, prod daily backup (what if an app needs more? This is more for policy purpose. Those things are taking care of using the modules, just a placeholder so the policy can be applied.)-> new initiative will not have this.

Why do you need this inside of the policy when creating subscription?

- RSV recovery services vault
- Policy for disabling public IP for nic.
- Default vnet -> with default CIDR.
- DNS, private DNS/private link
- Open question? How do you know whether they need it and whether the subnet range is the correct one and there is no issue with ip address overlap.

```

resource "azurerm_backup_policy_vm" "weekly_policy" {
  name                = "WeeklyBackupPolicy"
  recovery_vault_name = azurerm_recovery_services_vault.recovery_vault.name
  resource_group_name = azurerm_resource_group.policy.name
  instant_restore_retention_days = 5

  backup {
    frequency = "Weekly"
    weekdays  = ["Friday"]
    time      = "22:00"
  }

  retention_weekly {
    count   = 5
    weekdays = ["Friday"]
  }
}

depends_on = [
  azurerm_resource_group.policy
]

```

```

resource "azurerm_monitor_diagnostic_setting" "rsv" {
  name                = "recovery_vault_diagnostic"
  target_resource_id  = azurerm_recovery_services_vault.recovery_vault.id
  log_analytics_workspace_id = azurerm_log_analytics_workspace.logus.id
  log_analytics_destination_type = "Dedicated"

  dynamic "log" {
    for_each = ["CoreAzureBackup", "AddonAzureBackupJobs", "AddonAzureBackupAlerts", "AddonAzureBackupPolicy", "AddonAzureBackupStorage"]
    content {
      category = log.value
      retention_policy {
        enabled = true
        days    = 91
      }
    }
  }

  resource "azurerm_user_assigned_identity" "identity" {
    location      = var.location
    name          = var.uid != null ? lower("${var.zone}-${var.uid}-${local.azure_regions[var.location]}-${var.environment}-d")
    resource_group_name = azurerm_resource_group.policy.name
    tags          = local.tags
  }

  depends_on = [
    azurerm_resource_group.policy
  ]
}

```

Landing zone for app teams:

Make sure subs are created, assign all initiatives

Creation of vnet, subnet,....

Some required prereqs setup.

(business requirement, using private link and private endpoints.... So it is by default applied for every application).

These policies are applied, irrespective of the environment. Based on certain paramvalues, a distinction is made between prod non prod They are customizing params.

On a high level they have default values.

Anything other than this will be a violation. So here there are hardcoded paramvalues.

```

909 "effect_0@/06cfe-9c4#-4aid-bc60-14420ea11ia9" : { "value" : "AuditIfNotExists" },
910 "effect_1b@aa243-30e4-4c9e-bca8-dbd822b63d4" : { "value" : "AuditIfNotExists" },
911 "effect_ef2a8f2a-b3d9-49cd-a8a8-9a1aaaf647d9" : { "value" : "AuditIfNotExists" },
912 "effect_a4a74a39-4135-47fb-b175-47ffdf85311d" : { "value" : "Audit" },
913 "effect_ff25f3cb-b739-4538-90b7-506d25cf0255" : { "value" : "Deny" },
914 "allowedDNAMES ff25f3cb-b739-4538-90b7-506d25cf0255" : { "value" : ["P-256", "P-256K", "P-384", "P-512"] },
915 "allowedAs 8e026246-c976-48f6-b03e-619b692b3d82" : { "value" : ["DigitalCert", "GlobalSign"] },
916 "effect_8e026246-c976-48f6-b03e-619b692b3d82" : { "value" : "Deny" },
917 "effect_f772f64-B-e0-40ad-87bc-7706e1949427" : { "value" : "Deny" },
918 "effect_f772f64-B-e0-40ad-87bc-7706e1949427" : { "value" : "Deny" },
919 "effect_0a075868-4c26-42ef-914c-5bc007359560" : { "value" : "Deny" },
920 "maximumValidityInMonths 0a075868-4c26-42ef-914c-5bc007359560" : { "value" : 12 },
921 "allowedKeyTypes _1151code_290b_4ba0_8b38_0ad145ac888f" : { "value" : ["RSA", "RSA-HSM"] },
922 "effect_1151code_290b_4ba0_8b38_0ad145ac888f" : { "value" : "Deny" },
923 "effect_12ef42cb-9903-4e39-9c26-422d29570417" : { "value" : "Deny" },
924 "maximumPercentageLife_12ef42cb-9903-4e39-9c26-422d29570417" : { "value" : 00 },
925 "minimumDaysBeforeExpiry_12ef42cb-9903-4e39-9c26-422d29570417" : { "value" : 99 },
926 "allowedKeyTypes _5c4f823-d65c-4f29-a733-01d8077fdbcb" : { "value" : ["RSA", "RSA-HSM", "EC", "EC-HSM"] },
927 "effect_5c4f823-d65c-4f29-a733-01d8077fdbcb" : { "value" : "Deny" },
928 "minimumRSAkeySize_cee51871-e572-4576-855c-047c820360f0" : { "value" : "Deny" },
929 "effect_e8d99835-8a06-45ae-a8e0-87a91941ccfe" : { "value" : "Deny" },
930 "maximumValidityInDays_e8d99835-8a06-45ae-a8e0-87a91941ccfe" : { "value" : 370 },
931

```

4000+ exemptions only for one particular subs -> they want to avoid this now. (exemptions not done by this team apparently)

Is there any common pattern you found on this?

The resources are already existing, they are non compliant, so they want exceptions, not to comply. They don't want to change or redeploy their resource.

When the initiatives were created and applied they were

Policy exemption	Assignment	Scope	Exemption category	Expiration date	Resource selectors
ASC-Disk encryption should be applied	--	ABI NAZ PROD	waiver	12/31/2021, 12:00 AM	--
ASC-Disk encryption should be applied	--	ABI NAZ PROD	waiver	12/31/2021, 12:00 AM	--
ASC-Azure Policy Add-on for Kubernetes	--	ABI NAZ PROD	waiver	6/30/2021, 12:00 AM	--
ASC-Vulnerabilities in Azure Container Instances	--	ABI NAZ PROD	waiver	6/30/2021, 12:00 AM	--
ASC-Vulnerabilities in your virtual machines	--	ABI NAZ PROD	waiver	6/30/2021, 12:00 AM	--
ASC-Vulnerabilities in your virtual machines	--	ABI NAZ PROD	waiver	6/30/2021, 12:00 AM	--
ASC-Deprecated accounts with owner	--	ABI NAZ PROD	waiver	6/30/2021, 12:00 AM	--
ASC-Deprecated accounts should be removed	--	ABI NAZ PROD	waiver	6/30/2021, 12:00 AM	--

Policy exemption	Assignment	Scope	Exemption category	Expiration date	Resource selectors
ABI NAZ PROD - ACR	AUK	ABI NAZ PROD	Waiver	--	--
aks-airflow-17188762-vmss - ABI Subscription Policy Initiatives	ABI Subscription Policy Initiative	ABI NAZ PROD/mc_beert...	Waiver	--	--
aks-system-31003577-vmss - ABI Subscription Policy Initiatives	ABI Subscription Policy Initiative	ABI NAZ PROD/mc_beert...	Waiver	--	--
onesth002 - ABI Subscription Policy Initiatives	ABI Subscription Policy Initiative	ABI NAZ PROD/infds-rg-g...	Waiver	--	--
natation021 - ABI Subscription Policy Initiatives	ABI Subscription Policy Initiative	ABI NAZ PROD/mgmtresva...	Waiver	--	--
oneaznwksp3547 - ABI Subscription Policy Initiatives	ABI Subscription Policy Initiative	ABI NAZ PROD/blueprism...	Waiver	--	--
abcsctp2215 - ABI Subscription Policy Initiatives	ABI Subscription Policy Initiative	ABI NAZ PROD/loadsack...	Waiver	--	--
sttp513 - ABI Subscription Policy Initiatives	ABI Subscription Policy Initiative	ABI NAZ PROD/willy-rg-na...	Waiver	--	--

There is a pipeline where it creates the exemptions

The screenshot shows the Azure DevOps interface. On the left, there's a sidebar with various icons. The main area shows a list of pipeline runs under 'rg-policy-exemption'. Each run has a green checkmark and some descriptive text. On the right, a modal window titled 'Run pipeline' is open, prompting for 'Policy Assignment ID' (Required), 'Policy Definition Reference IDs of an initiative that needs to be exempted (Ex: ["xyz", "abc"])' (Value: null), 'Expiry for the exemption in format yyyy-MM-ddTHH:MM:SSZ (Example: "2022-01-02T05:00:00Z")' (Value: null), and 'Description for Exemption' (Required). At the bottom of the modal are 'Cancel' and 'Run' buttons.

Example: public AKS cluster and not private, so exemption.

Exemptions are handled per zone? Regions/app owners.

This screenshot shows the 'Policy | Definitions' blade in the Azure portal. The left sidebar includes links for Overview, Getting started, Compliance, Remediation, Events, Authoring, Definitions (which is selected), Assignments, and Exemptions. The main area displays a table of policy definitions:

Name	Definition location	Policies	Type	Definition type	Category
ABI Subscription Policy Initiatives	ABI	131	Custom	Initiative	...
ABI Subscription Policy Initiatives v2.0	ABI	97	Custom	Initiative	...
ABI Management Group Policy Initiatives	ABI	57	Custom	Initiative	...
ACR	ABI	1	Custom	Initiative	...
AKS	ABI	22	Custom	Initiative	...
AppServices	ABI	20	Custom	Initiative	...
Backup	ABI	8	Custom	Initiative	...
Data	ABI	15	Custom	Initiative	...
DR	ABI	1	Custom	Initiative	...
Monitoring	ABI	8	Custom	Initiative	...
Network	ABI	35	Custom	Initiative	...

They have made revisions to their initiatives, v1 is still used, v2

Challenges with custom policies.

V3.0 everything will have builtin policies.

SCOPE:

Need help for each service, how policies should be.

To filter out a subset of policies they publish. That's what they need.

Looking for suggestions which should fit better into what they have (ABI Subscription Policy Initiatives v2.0)

Deprecated policies -> other than creating new initiatives how to get it removed automatically.

SCOPE Decided

1. Review policies v3.0 of ABIB
2. Service types: provide policies they can use
3. Then they can say this is MS recommended list
4. Going forward we can review make it an action type and monthly follow up on that.

There is no test environment for policies.

ABIB -> previously in Legacy, they had non prod and prod, there are some apps running prod non prod.
(not sure which app is prod, non prod)

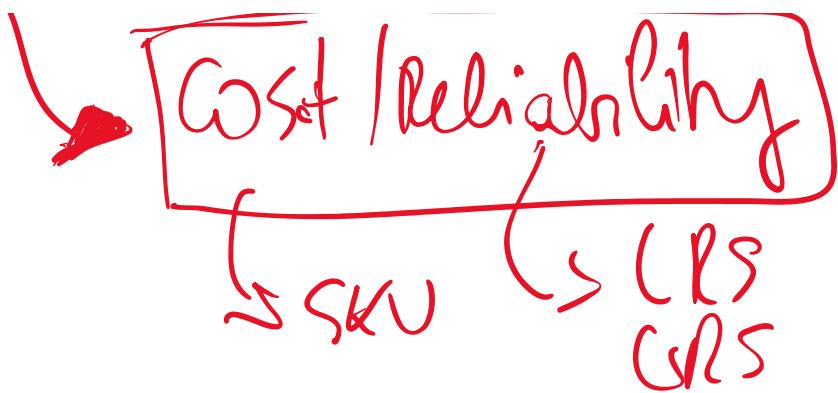
Basic hard limit of 100 parameters in an initiative in count.

The built-in MS initiatives where there are 300+ params. How is this

Bypass limitation of number of parameter

shouldn't matter

- Front End in API



Extra notes

Thursday, 11 May 2023 14:18

They use azadvertiser

After provisioning to always evaluate resources not only on deployment and with this trigger remediation task (example Storage Account policy in my sub)

The screenshot shows a browser window with the URL <https://learn.microsoft.com/en-us/azure/governance/policy/concepts/effects>. The page content is as follows:

would limit to the if condition resource's resource group, which is the default behavior.

- For *Subscription*, queries the entire subscription for the related resource. Assignment scope should be set at subscription or higher for proper evaluation.
- Default is *ResourceGroup*.
- **EvaluationDelay** (optional)
 - Specifies when the existence of the related resources should be evaluated. The delay is only used for evaluations that are a result of a create or update resource request.
 - Allowed values are *AfterProvisioning*, *AfterProvisioningSuccess*, *AfterProvisioningFailure*, or an ISO 8601 duration between 0 and 360 minutes.
 - The *AfterProvisioning* values inspect the provisioning result of the resource that was evaluated in the policy rule's IF condition. *AfterProvisioning* runs after provisioning is complete, regardless of outcome. If provisioning takes longer than 6 hours, it's treated as a failure when determining *AfterProvisioning* evaluation delays.
 - Default is *PT10M* (10 minutes).
 - Specifying a long evaluation delay may cause the recorded compliance state of the resource to not update until the next *evaluation trigger*.

25/05/2023 Azure Policy Review

Tuesday, 16 May 2023 12:13

Azure policy

Questions from ABI -

Task	MS	Remarks
Review policy 3.0	Check the differential set of policy NOT implemented yet from the policy sheet prepared	
Policies on service level	Refer to consolidated data/excel	
How can they know and then remove deprecated policies by automation ?	<ul style="list-style-type: none"> Get subscribed on github page Configuring notifications - GitHub Docs (todo- try filtering) You can also subscribe to the RSS feed that will advertise the policy changes: https://www.azadvertiser.net/azpolicyadvertiser.xml No magic brick or built in way 	

Few things to discuss/mention during discussion

Few things to discuss/mention	Remarks	Supported links
Show the differences between built in policies and ABI implemented policies	Refer to excel prepared	
Explain example of policies from reference architecture ALZ and the scope level	Included in Excel	
Policy definition	Policy should be defined on root or intermediate root level. Assignment can be on lower level.	
Compliance related policies	HIPAA, PCI ,CIS (1.1.0 and 1.3.0), NIST , CS-System Compliance related policies should be applied on different MG level hence to discuss if there is any plan to move policies to MG level	
Scope of generic ALZ related policies and security policies	Should be assigned on MG level	
To showcase an example how to minimize exceptions.	<p>1. Talk to owner and decide if azure policy are at right level and find right approach which work for most of workloads. Take Example of AKS /workload specific Service Let's say Private cluster decided , key vault --> enforcement by azure policies If they start using other type of services within AKS, then they have to allow exceptions or change it. If azure policy can be applied or not. If workload is not standards then keeping azure policy is difficult , you can have more exceptions then benefits.</p> <p>2. It depends on use case. Can also give example of ALZ from reference arch as an example and it is modular in nature. For azure services specific policies, it depends on org and security point of view which can be different in each org. You can start applying on higher level some of general policies (avoid public ip, enforce private link) but if you see exceptions keep coming then you need to rethink about approach and go lower level like subscription or RG.</p> <p>3. By moving compliance related policies to Separate MG level.</p> <p>4. Turning off nonrelevant compliance</p> <p>5. Removing duplicate (due-diligence before applying)</p>	
For Environment specific policies approach	<p>A common challenge to arch-type aligned approach is that you might need some policies to apply differently, depending on the environment. You have a few options:</p> <p>1. Use tags in your policy definitions to help filter and apply them to the correct environment. Important Tags can be changed by users with appropriate Azure RBAC permissions, so for security focused policies, we don't advise using tags in policies. Users might change the tags on a resource and potentially bypass or apply another policy definition to the resources. You can have enforcement policy on top to avoid change</p> <p>2. Apply policies at a subscription level as required, ideally during the subscription creation process</p> <p>3. For policies that are implemented to help control costs (for example, to restrict certain VM SKUs from being used), apply the policy definition at a subscription level where required or make costs the responsibility of the landing zone owners, enabling true autonomy. (See Platform automation and DevOps.)</p> <p>4. Use sandbox subscriptions for development activities. Sandboxes have a less restrictive policy set. Have policy in audit mode.</p>	<p>From <https://learn.microsoft.com/en-us/azure/cloud-adoption-framework/ready/enterprise-scale/faq#how-do-we-handle-devtestproduction-workload-landing-zones-in-azure-landing-zone-architecture></p>

Policy governance model	What is ABI doing in terms of automation and governance model. Currently it seems there is NO governance model and there is no testing approach.
-------------------------	--

Findings from existing policy deployment 1.0 in subscriptions	Remarks
• Only 1 policy on ABI MG level inherited to MG level (MS defender for cloud)	
All policies are applied on subscription level - 133 assignments (19 initiative + 114 policy assignments)	less initiatives and more individual policies
Repetitive policy example - DefaultPolicy-allowedlocation on multiple resource group level within same subscription	why it cannot be on higher level
• Mandatory tag policy applied on resource group level; • MandatoryCostCenterTagOnRG-GB-NP (multiple tag enforcement policy)	Tagging policy not applied on all levels. Its pick and choose -- harder to manage
PCI , NIST and HIPAA and CIS (1.0 and 1.3) applied on subscription level of ABI NONPROD	why is mixing of different compliance standards ... -> should be on higher level/different MG level as per best practice
What is usage /scope of CS-SYSTEM ?	Different policy with different usage inside same initiative
Exposed to internet policy - multiple policies for different purpose	applied on subscription level
FTP-Exposed-To-Internet	To discuss usage of this policy
Internet-Exposed-NSG-GB-NonProd	To discuss usage of this policy
Internet-Exposed-Storage-GB-NonProd - Sub level - audit mode	To discuss usage of this policy
PAAS SQL exposed to the internet - audit mode	To discuss usage of this policy
SSH-Exposed-To-Internet --> applied on subscription level in audit mode	
Configure backup on VMs of a location to an existing central Vault in the same location - subscription level	could it be on MG level ?
ABI Subscription Policy Initiative	1.0 ?
Policy ABI GLOBAL NON-PROD/BONUSPORTAL-RG-GB-DEV	To discuss usage of this policy
Policy ABI GLOBAL NON-PROD/Appsec-Initiatives-RG-GB-DEV	To discuss usage of this policy
Distinction between sandbox and dev apparently not clear	To understand from ABI during meeting
ABI Subscription Policy Initiatives --> 1.0	Donot put lot of policies without testing and relevant. There are lot of exemptions based on workload.
AllowedLocation ABI GLOBAL NON-PROD/GLOBAL-BREWDAT-SANDBOX-MAZ102-RG-GB-DEV	To discuss usage of this policy as it is allowing location and applied on RG level

Things Jamel is working on:

- Automating azure worksheet to automatically retrieve csv and copy it to worksheet
- Adding other stuff into the file
- Making it more presentable

Action

Thursday, 25 May 2023 14:38

Review this worksheet.

Next meeting go through the portal to discuss
how they apply what they have in there.

25/05/2023 Meeting

Thursday, 25 May 2023 13:07

ABI force everyone to use private link.

Standard to be followed by all teams at ABI

Challenges: dev innerloop issues accessing these

Solution: netscope private access, where devs can access these resources privately

In the ACR we are enforcing them

AKS cluster -> VMSS policy issue

Certificate policy where they had issue -> only use certain cert providers (Sectigo)

Use Case

Impact

Solution ? -> comment is to add solutions.

Scenario: kubernetes cluster, there should be limits on namespace level. In that scenario -> app teams will always come to us

ABI Team wants to know how to solve this.

Private apps access

Intention -> avoid discussion that's why they

Double encryption policy -> ABI is not using double encryption anywhere

Kubernetes cluster: procmounttype -> (using tools like datadog, istio,... had to be excluded.

Namespaces to be excluded)

ABI has now Audit mode because they observed issues with this.

Apps are scared to change the environment.

This team is in the middle.

They want to use our recommendations to make sure it is applied.

Meeting notes

Tuesday, 6 June 2023 11:30

Mail sent 25/6 and 26/05

Hi all:

Find in attachment the worksheet we used during our call. Some explanation regarding the worksheet below:

- I formatted it so we can use this between us to track our work and capture key information.
 - I added a status column so we can track how far we are with the review of these policies.
 - I added a comments column for you to add any relevant comments regarding a particular policy.
 - There are hidden sheets containing the data source with calculated columns (which is not supposed to be touched) and your other initiatives kept as a reference. This was done to keep the focus on this task: Reviewing Subscription Initiative v3.0, so only the relevant sheets are visible.

Feel free to propose any enhancements/changes to this. We are working on a version where we can automatically pull the latest policies and keep the data source up to date in this workbook.

1						
2						
3						
4		 Microsoft Azure				
5						
6		Azure Policy Review				
7						
8						
9	Initiative Name	Policy Name	Comments MS	Status	Comments Ab Inbev	Link
10	Subscription Initiative v3.0	Flow logs should be configured for every network security group		N/A		
11	Subscription Initiative v3.0	Key Vault should use a virtual network service endpoint		N/A		
12	Subscription Initiative v3.0	The Log Analytics agent should be installed on virtual machines		N/A		
13	Subscription Initiative v3.0	The Log Analytics agent should be installed on Virtual Machine Scale Sets		N/A		
14	Subscription Initiative v3.0	Private endpoints for Guest Configuration assignments should be enabled		N/A		
15	Subscription Initiative v3.0	Storage Accounts should use a virtual network service endpoint		N/A		
16	Subscription Initiative v3.0	Key Vault keys should have an expiration date		N/A		
17	Subscription Initiative v3.0	Key Vault secrets should have an expiration date		N/A		
18	Subscription Initiative v3.0	Authentication should be enabled on your API app		N/A		
19	Subscription Initiative v3.0	Ensure that 'HTTP Version' is the latest, if used to run the API app		N/A		
20	Subscription Initiative v3.0	Kubernetes cluster services should only use allowed external IPs		N/A		
21	Subscription Initiative v3.0	Public network access on Azure IoT Hub should be disabled		N/A		

Looking forward to continuing working on helping you improve your governance and compliance posture.

Kind Regards,

Jamel Achahbar
Cloud Solution Architect
Core Infrastructure
Mobile: +32471559518
jachahbar@microsoft.com

From: Jatin Rai <jatinrai@microsoft.com>
Sent: Thursday, 25 May 2023 19:38
To: Jamel Achahbar <jachahbar@microsoft.com>; Das Pradeep Kumar <PradeepKumar.Das@AB-Inbev.com>; N Deepak <Deepak.n@ab-inbev.com>; Mohanty Manaswinee <manaswinee.mohanty@ab-inbev.com>; Xavier, Varghese <varghese.xavier@ab-inbev.com>; Kiran <kiran.p@ab-inbev.com>; S, Nandhagopal <Nandhagopal.S@AB-Inbev.com>; CC: Manoj Nair <Manoj.Nair@microsoft.com>; David Bequet <davidbequet@microsoft.com>; Steven LINKEUR <stevenlinkeur@microsoft.com>
Subject: RE: Azure Policy review and discussion

Hello All
Thank you for your time today. Please see below consolidated points from our meeting today.

Policy Set Review:

- Icy Set Review:**

 - We did review of azure policy in ABI 'subscription initiatives 3.0 ' and provided impact and use-case of each policy in comments. We see some policies are duplicate and some needed a review for the right usecase. Please validate those policies based on usecase taking your business need in mind.

- We reviewed provided Policy and initiatives in comparison with recommendations outlines in ALZ reference architecture. We found that there is good scope for implementation of more recommended policies from reference architecture. Comparison was done for policies for each service level (API, Compute, Storage, Network,...) which gives you view on service level and the difference with existing policies so that you can focus on delta set.
 - We also reviewed your Policy and initiatives comparing with recommended **Microsoft Cloud Security Benchmark**. We found approx. 76 policies are duplicate and available in defender for cloud which you already are using on top. This gives you opportunity to reduce number of policies and save efforts maintaining those.
 - We also listed all policy assignment recommendation from ALZ reference architecture and the scope where this policy should be applied. This will give you inputs on which scope (intermediate root, subscription or other) is recommended from reference architecture point of view.
 - We recommend keeping initiatives categorical name as per builtin or ALZ reference model. It gives you ease to compare and scale it further in future.
 - We recommend you to start looking at policies listed in reference architecture to setup guard rails and further enhance using Cloud security benchmark built in policies. It already lowers your operational efforts as well.
- Note that, policies from reference architecture are custom defined but our internal teams are working on these policies to move to built ins. These custom policies are built with feedback from our many customers.

Next steps :

1. ABI team will look into these recommendations and gaps from above policy set review. Based on internal discussions and further evaluation, ABI team will plan for further action and inform us for our support as needed.
2. **Policy Assignment review** : We would review assignment on azure portal in next meeting.

[@Jamel Achahbar](#) will share worksheet created for policy set review once formatted. Please add or correct above point as you see fit.

Thanks again for your support and collaboration.

Kind Regards

Jatin Rai
Cloud Solution Architect - Engineering
Email:jatinrai@microsoft.com
Tel +32(2)7043942
Microsoft Belgium & Luxembourg
Brussels National Airport, Building 1K,
1930 Zaventem, BE



-----Original Appointment-----

From: Jatin Rai
Sent: Tuesday, 23 May 2023 13:40
To: Jatin Rai; Jamel Achahbar; Das Pradeep Kumar; Deepak.N@ab-inbev.com; Manaswinee.Mohanty@AB-Inbev.com; Xavier, Varghese; P Kiran
Cc: Mano Nair; David Bequet; Steven LINKE; S, Nandhagopal
Subject: Azure Policy review and discussion
When: Thursday, 25 May 2023 13:00-15:00 (UTC+01:00) Brussels, Copenhagen, Madrid, Paris.
Where: Microsoft Teams Meeting

Microsoft Teams meeting

Join on your computer, mobile app or room device

[Click here to join the meeting](#)

Meeting ID: 281 011 748 846

Passcode: MCeDye

[Download Teams](#) [Join on the web](#)

Or call in (audio only)

[+1 206-800-4384](tel:+12068004384), [146547150#](tel:+146547150#) United States, Seattle

Phone Conference ID: 146 547 150#

[Find a local number](#) [Reset PIN](#)

[Learn More](#) [Meeting options](#)

Azure Policy - Recommendations

maandag 15 mei 2023 19:52

Security Center, Azure Policy, and management groups—better together

When a new subscription is created and the subscription is registered with the Microsoft Security resource provider (RP), the default behavior is that the Security Center policy initiative is provisioned and assigned at the subscription level.

The exception is that if the subscription resides in a management group that already has the Security Center initiative assigned, the Security Center initiative will not be assigned to any of the subscriptions within that management group. This approach has a couple of advantages: You define your governance conditions in a single place, either at the root management group or at the lower management groups. You can assign deny policies at a high level that cannot be overridden at a lower level. There is a clear view of your compliance state across your management groups and subscriptions.

If you have the Security Center policy initiative assigned to a management group other than the tenant root management group, and if someone creates a new subscription without moving it to the correct sub-management group, ASC might not be enabled on this subscription. For identifying subscriptions that are not managed by ASC within this context, you can find an automation artifact at <https://aka.ms/ASCBook-SubMgmt>.

Best practices for managing Security Center at scale The best approach for managing Security Center at scale is to define compliance conditions that apply to your organization, group them in an Azure Policy initiative, and assign them at the highest level in your management group hierarchy. For most organizations, it is the best approach to use the built-in Azure Security Center initiative definition and assign it to the organizations root management group.

Project: Cost Optimization

Tuesday, March 7, 2023 10:34 PM

Project Status: Cost Optimization

Description	<p>We have three objectives:</p> <ol style="list-style-type: none">1. Find and confirm potential savings2. Identify investment areas3. Work with ABI on execution plans	Overall Health	Green			
		Status Date / Go-Live Date	March 3 /June 1			
		Forecast/ Actuals	\$xxx,xxx/ \$xxx,xxx			
Key updates since last status meeting		Tracking				
<ul style="list-style-type: none">Four tracks of savings were identified for SLTPreliminary work done by Manoj and his team on scope and reconfirming numbersFirst meeting was this week and we decided to commence weekly and invite TobiasDora and Brazil team have identified potential savings from SAP Aurora conversionWe identified reinvestment options for SLT, such as Backup and Recovery, for critical systems		Milestone	Start	End	Assignee	
		Check Savings Plan Benefit - Identify Subscriptions where Savings Plan is most beneficial	03/01	03/31	CSAE	
		Check 3 Year RI Benefits - Identify Subscriptions where RI is most beneficial	03/01	03/31	CSAE	
		Hybrid License Benefit - Check the benefit of migrating SQL Server to SQL Azure	03/01	04/30	Sergio	
		Use AHR Reports - Identify Old VM SKUs and suggest newer SKUs	03/01	04/30	CSA+CSAE	
		Run Advisor - Identify Orphaned Disks for Cleanup	03/01	04/30	CSA+CSAE	
		Confirm Aurora savings and subscriptions	03/01	04/30	Dora	
Issues and Risks			Action Items and Next Steps			
<ul style="list-style-type: none">Client is already asking about progress and potential savingsThey might say they want to keep as much of the money as possible and not investxxx			<ul style="list-style-type: none">Gather data and fact basePlanning session next weekAssignments and datesxxX			

ABIB Meeting 2704

Thursday, 27 April 2023 16:32

The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes links for 'dev', 'azu', 'azu', 'azu', 'Ash', 'Zc0', 'MG', 'Mo', 'mg', 'Mo', 'Pric', 'Ne...', and 'Update'. The main title is 'Azure Workbooks > 2c011c8d-bad4-4a56-88fa-dedb4748105d (Cost Optimization Workload) | Workbook | Cost Optimization W...'. The left sidebar has sections for 'cost' (with a list of resources), 'Overview', 'Activity log', 'Access control (IAM)', 'Tags', 'Workbook', 'Settings' (Locks), 'Automation' (Tasks preview), 'Support + troubleshooting' (New Support Request), and a search bar. The right pane displays the 'Monitoring Group' section under 'Log analytics workspaces'. A table lists various workspaces with columns for Resource Group, Location, Retention (days), Daily Cap (GB), Licence, and Subscription. The table shows multiple entries for 'abi-dd-us-rg-naz-dev' and other workspace names like '3pl-rg-naz-non-prod', 'abi-can-ontimemrp-rg-naz-non-pr', etc. The 'Subscription' column uses color-coding to represent different service levels.

Resource Group	Location	Retention (days)	Daily Cap (GB)	Licence	Subscription
3pl-rg-naz-non-prod	centralus	30	--	pergb2018	ABI NAZ NON-PROD
3pl-rg-qa-naz-non-prod	centralus	30	--	pergb2018	ABI NAZ NON-PROD
abi-can-ontimemrp-rg-naz-non-pr	centralus	30	--	pergb2018	ABI NAZ NON-PROD
abi-dd-rg-naz-dev	centralus	7	0.5	free	ABI NAZ NON-PROD
abi-dd-rg-naz-sndrcv-b2b-nonpro	centralus	30	--	standard	ABI NAZ NON-PROD
abi-dd-us-rg-naz-dev	centralus	365	--	premium	ABI NAZ NON-PROD
abi-dd-us-rg-naz-dev	centralus	7	0.5	free	ABI NAZ NON-PROD
abi-dd-us-rg-naz-dev	centralus	30	--	standard	ABI NAZ NON-PROD
abi-dd-us-rg-naz-dev	centralus	30	--	pergb2018	ABI NAZ NON-PROD
abi-dd-us-rg-naz-qa-rg-naz-non-pr	centralus	30	--	pergb2018	ABI NAZ NON-PROD
abi-0-innhu-anmnmrl-lah-naz-nn	centralus	30	--	standard	ABI NAZ NON-PROD

This screenshot is nearly identical to the one above, showing the same Azure portal interface and 'Cost Optimization Workload' workbook. The left sidebar and right pane are identical, displaying the 'Monitoring Group' section with the same table of log analytics workspaces. The data in the table is identical to the first screenshot, showing various resource groups, locations, retention periods, daily caps, and service levels.

Resource Group	Location	Retention (days)	Daily Cap (GB)	Licence	Subscription
3pl-rg-naz-non-prod	centralus	30	--	pergb2018	ABI NAZ NON-PROD
3pl-rg-qa-naz-non-prod	centralus	30	--	pergb2018	ABI NAZ NON-PROD
abi-can-ontimemrp-rg-naz-non-pr	centralus	30	--	pergb2018	ABI NAZ NON-PROD
abi-dd-rg-naz-dev	centralus	7	0.5	free	ABI NAZ NON-PROD
abi-dd-rg-naz-sndrcv-b2b-nonpro	centralus	30	--	standard	ABI NAZ NON-PROD
abi-dd-us-rg-naz-dev	centralus	365	--	premium	ABI NAZ NON-PROD
abi-dd-us-rg-naz-dev	centralus	7	0.5	free	ABI NAZ NON-PROD
abi-dd-us-rg-naz-dev	centralus	30	--	standard	ABI NAZ NON-PROD
abi-dd-us-rg-naz-dev	centralus	30	--	pergb2018	ABI NAZ NON-PROD
abi-dd-us-rg-naz-qa-rg-naz-non-pr	centralus	30	--	pergb2018	ABI NAZ NON-PROD
abi-0-innhu-anmnmrl-lah-naz-nn	centralus	30	--	standard	ABI NAZ NON-PROD

Microsoft Azure Upgrade Search resources, services, and docs (G+)

Home > Azure Workbooks > 2c011c8d-bad4-4a56-88fa-dedb4748105d (Cost Optimization Workload)

Azure Workbooks

Anheuser-Busch InBev (AnheuserBuschInBev.onmicrosoft.com)

+ Create Manage view ...

cost

Name: 17ab1a5f-6d99-4bd2-9015-c9fb00cb60...
216d4e03-e58d-4960-87c8-ab75b42b...
2c011c8d-bad4-4a56-88fa-dedb4748105d (Cost Optimization Workload)
612c7fee-653c-4173-935b-e2e14a64e3...
88aec5c4-19d6-4fea-be95-e24a23290...
e49d7128-b448-4101-9b23-0c5fe2ff60...
ec7f4c05-1094-4a48-ad36-78d92aa9ad...

Overview Activity log Access control (IAM) Tags Workbook

Resource Group: All

Monitoring Group

Log analytics workspaces

Workspace	Resource Group	Location	Retention (days)	Daily Cap (GB)	Licence	Sul
law-weu-dev-asx-129	global-bredwat-sandbox-maz1204	westeurope	365	--	pergb2018	
law-weu-dev-asx-131	global-bredwat-sandbox-maz1034	westeurope	365	--	pergb2018	
law-weu-dev-asx-140	global-bredwat-sandbox-maz1054	westeurope	365	--	pergb2018	
diag-law-weu-dev-shared	global-bredwat-sandbox-rg-gb-de	westeurope	365	--	pergb2018	
law-eu2-dev-asx-116	global-bredwat-sandbox-rg-gb-de	westeurope	365	--	pergb2018	
law-eu2-dev-shsvcs-119	global-bredwat-sandbox-rg-gb-de	westeurope	365	--	pergb2018	
law-weu-dev-shsvcs-100	global-bredwat-sandbox-rg-gb-de	westeurope	365	--	pergb2018	
DefaultWorkspace-aa1fc1c4a-9ee0-	drinkworks-rg-naz-non-prod	eastus	31	--	permode	
Neeway-LOLA-LGA-NAZ-DEV	lola-rg-naz-dev	centralus	31	--	tenantalone	
mgtmomsnaznonprod	mgtmoms-rg-naz-non-prod	westcentralus	31	--	permode	

Page 1 of 1

Home > Azure Workbooks > 2c011c8d-bad4-4a56-88fa-dedb4748105d (Cost Optimization Workload)

Azure Workbooks

Anheuser-Busch InBev (AnheuserBuschInBev.onmicrosoft.com)

+ Create Manage view ...

cost

Name ↑

- 17ab1a5f-6d98-4bd2-9015-c9f808cb60... ***
- 216d4e03-e58d-4960-87c8-abb75b42b... ***
- 2c011c8d-bad4-4a56-88fa-dedb47481... ***
- 612c7fee-653c-4173-935b-e2e14a64e3... ***
- B8aec5c4-19d6-4fea-be95-e24ac23c90... ***
- e49d7128-b448-4101-9b23-0c5fe2ff60... ***
- ec7f4c05-1094-4a48-ad36-78d92aa9ad... ***

Tags

Workbook

Overview

Activity log

Access control (IAM)

Resource Group: All

Monitoring Group

Log analytics workspaces

Workspace	Resource Group	Location	Retention (days)	Daily Cap (GB)
DefaultWorkspace-a05b3142-5e06-4ee5-8088-2c... [?]	defaultresourcegroup-eus2	eastus2	30	--
DefaultWorkspace-a05b3142-5e06-4ee5-8088-2c... [?]	defaultresourcegroup-wus2	westus2	30	--
DefaultWorkspace-c8642ed5-9766-43fa-b6cc-47... [?]	defaultresourcegroup-cus	centralus	30	--
DefaultWorkspace-c8642ed5-9766-43fa-b6cc-47... [?]	defaultresourcegroup-eus2	eastus2	30	--
mgtmtnmsazap	mgtmtnms-rg-naz-sap-r3	centralus	30	--
mgtmtnmsazatraining	abi-naz-training-rg-analytics	centralus	30	--
ghq-se03553-weu-prod-logws	crs-rg-global-prod	westeurope	180	--
abi-mt-mroi-gb-dev-log-analytics-workspace	abi-mt-mroi-dev-rg-global-non-prod	westeurope	180	--
loganalyticsworkspace	gac-tsl-rg-gb-dev	westeurope	120	--
aiomsgtnonprod	mgtmtnms-rg-gb-non-prod	westeurope	101	--

Page 1 of 1

Home > Recovery Services vaults > MGMTRSVault-GB-NON-PROD > MGMTRSVault-RG-GB-NON-PROD

MGMTRSVault-RG-GB-NON-PROD | Cost analysis

Resource group

Search

Save Save as Delete view Share Subscribe Refresh Download Cost by resource Configure resource group Try preview Help

Scope : MGMTRSVault-RG-GB-NON-PROD VIEW * CostByResource Mar 2023 Add filter

ACTUAL COST (USD) FORECAST UNAVAILABLE BUDGET: NONE

\$7,392.95

Group by: Resource Granularity: None Table

Filter items 3 rows

Resource	Resource type	Location	Resource group name	Tags	Cost
mgmtrsvault-gb-non-prod	Recovery Services vault	EU West	mgmtrsvault-rg-gb-non-prod	businessowneremail:chetan.kundavara...	\$7,384.25
Service name	Service tier	Meter	Cost		
Backup	Backup	GRS Data Stored	\$4,772.93		
Backup	Backup	Azure VM Protected Instances	\$2,591.47		
Backup	Backup	SQL Server in Azure VM Protected Instances	\$18.17		
Backup	Backup	Azure Files Protected Instances	\$1.67		
> mgmtrsvault-ghqnonprod	Storage account	Unassigned	mgmtrsvault-rg-gb-non-prod	--	\$5.32
> mgmtrsvault-ghqnonprod	Storage account	EU West	mgmtrsvault-rg-gb-non-prod	--	\$3.38

ABIB Meeting 04/05/2023

Thursday, 4 May 2023 15:51

Question Flavio, what other things can be brought outside of KPI's ABI is not working on?
Flavio doesn't want to overlap the effort.

KPI	Comments/Priority
Unattached Disks	Completed
VM Resize	In development
Auto Shutdown (Start-Stop)	In development
Idle Instances / VM stopped for more than 90 days	Completed
Reserved Instance Coverage	In development
TAG Management	Completed
Defender Turn Off - VM	1
Orphan/Unused Express Route	1
Snapshot older than 45 days	2
Azure Monitoring Turn Off	2
App service plan with NO Apps	3
Legacy Upgrade	3
Idle Load Balancer	4
APPLICATION GATEWAY	4
Unattached NICs	5
Unattached PIP	5
SQL Server with no Databases	New KPIs, no criterias defined yet.
AKS with Manual scaling Type	New KPIs, no criterias defined yet.
ASP with no apps	New KPIs, no criterias defined yet.

Is there better way to automate these things?

Help understand where the standard tooling is falling short and how else can these KPI's be implemented. (Feedback on how to implement this).
Finops: basic level of maturity.

Wants from Microsoft how to take customers on a journey from basic to advanced.

Brian wants an integrated tool that does all of these things that takes it from basic to advanced.

Storage Account -> extra opportunity

Add other KPI's not already worked on by ABI

Brian -> next week, make sure we have all the right info to move forward

ABIB Meeting 11052023

Thursday, 11 May 2023 15:34

Steven -> this initiative has become front and center, needs more details to send status update.

Wants to be able to show the successes of the Teams.

He'll create a file and send it to be filled in. Tracking to savings to show the success of this programme.

Another point:

Overall governance meeting: management want to know, where we are to the goal? Where are we with the tracking of the other things that are going on, where are we with helping the ABI team, see what is possible?

Doing some sort of reconciliation.

David: There is disconnect on technical side: storage account cost opt -> if there is a blocker, we need to mitigate this.

Management wants a more detailed progress.

Ashish: Reservations. Aurora -> one application, SAP running.

RI: in his case, 10s of subs holding a lot of applications. For non prod: autostop start function implemented.

When Azure Advisor does recommendations it doesn't consider all of these things. If app is staying for 3yrs has to be validated with app teams. -> This is the challenge Ashish says they are dealing with.

(Steven asks if we can list these exceptions, to have the right baseline: For example from 5million savings only a quarter can be done via RI).

RI last year -> downloaded VM inventory with count of current vm sizes, current RI view, recommended RI's been given by Advisor to make it easy for Zone to take a look at all the three things.

Across all subs,...not many approvals. Last year: for ADDC VM's and a couple of others,... reservations done.

Last 6 months every month it was done. Ashish wants to know if they can represent it in a better way.

--> Ashish wants to know if there is a different way to represent this. (They are using Excel for this).

Jatin shared a list:

Subscription	RI Category	Service Instance	Region	Reservation Recommend	Estimated RI Savings	Term	Subscription Name
9e126fb1-bf4d-4b0b-a60b-3819f289019	virtualmachines	Standard_B2s	southafricanorth	2	217	P3Y	ABI-AFR-MVD-PROD
cd489c6b-f345-4d2c-9fb6-047961d75dac	virtualmachines	Standard_B2s	southafricanorth	1	108	P3Y	ABI AFR MODERNIZED APPLICATIONS PLATFORM PROD
d62740bc-5f71-45bc-9527-36909181b0d7	virtualmachines	Standard_B2s	southafricanorth	1	108	P3Y	ABI AFR BEERTECHNGA SANDBOX
0b81a271-399c-4729-b19c-290e77c3221	virtualmachines	Standard_B2s	southafricanorth	1	108	P3Y	ABI BREWDAT GLOBAL SUPPLYCHAIN PROD
f5c9b706-c14d-4c3f-899a-d01ede8e8599	virtualmachines	Standard_B2s	southafricanorth	1	108	P3Y	ABI AFRICA PLATFORM CONNECTIVITY
77a7f337-8588-4076-b526-5f1ce055671	virtualmachines	Standard_D14_v2	southafricanorth	2	217	P3Y	ABI AFRICA PROD
93e4ab81-8544-42c6-9c7e-c905ac2b6e3	virtualmachines	Standard_B2s	southafricanorth	5	541	P3Y	ABI AFR SHARED NON-PROD
db887bdc-7ac0-4ea8-bc94-1d69abaa065	virtualmachines	Standard_B2s	southafricanorth	2	216	P3Y	ABI AFR MODERNIZED APPLICATIONS PLATFORM NON-PROD
0 6c74eacc-7008-49cf-8c03-76edcea8768	virtualmachines	Standard_B2s	southafricanorth	2	217	P3Y	ABI AFR SHARED PROD
1 1920c3f-e3e5-47b3-98cd-c904c7b29071	virtualmachines	Standard_B2s	southafricanorth	1	115	P3Y	ABI GHQ DIGITALSOLUTIONS NON-PROD
2 b5328478-c235-453d-821d-0b2c52a292z3	virtualmachines	Standard_E16ds_v4	southafricanorth	1	3.061	P3Y	ABI BREWDAT AFR PROD
3 2db7c27b-7f9f-4088-981b-2b088c5c1905	virtualmachines	Standard_D16as_v4	westeurope	2	2.503	P3Y	ABI GLOBAL PROD
15bcebd1-794c-496c-9548-8a4a4357ee18	virtualmachines	Standard_D14_v2	southafricanorth	1	3.042	P3Y	ABI AFRICA NON-PROD
5 77a7f337-8588-4076-b526-5f1ce055671	virtualmachines	Standard_DS14_v2	southafricanorth	2	6.084	P3Y	ABI AFRICA PROD
6 3617454e-beab-410a-9476-d6e000e1b077	virtualmachines	Standard_E8as_v4	westeurope	1	1.127	P3Y	ABI EU NON-PROD
7 73f88e6b-3a35-4612-b550-555157e7059f	virtualmachines	Standard_E8as_v4	westeurope	1	1.127	P3Y	ABI GLOBAL NON-PROD
8 73f88e6b-3a35-4612-b550-555157e7059f	virtualmachines	SLES_Standard_Splus_vCPu_All	suselinux	2	694	P3Y	ABI GLOBAL NON-PROD
9 fe70970a-8778-4c04-83c4-a85c57c1ef03	virtualmachines	SLES_Standard_Splus_vCPu_All	suselinux	1	347	P3Y	ABI MAZ NON-PROD
0 a6362b3b-07fa-4c75-bccb-719b38047af	virtualmachines	SLES_Standard_Splus_vCPu_All	suselinux	2	694	P3Y	ABI MAZ PROD
1 2db7c27b-7f9f-4088-981b-2b088c5c1905	virtualmachines	SLES_Standard_Splus_vCPu_All	suselinux	2	694	P3Y	ABI GLOBAL PROD
2 77a7f337-8588-4076-b526-5f1ce055671	virtualmachines	SLES_Standard_Splus_vCPu_All	suselinux	4	1.387	P3Y	ABI AFRICA PROD
3 d18713fe-7904-49ec-a5da-5a98110e0f82	virtualmachines	SLES_Standard_Splus_vCPu_All	suselinux	2	694	P3Y	ABI GLOBAL SAP
4 73f88e6b-3a35-4612-b550-555157e7059f	virtualmachines	Standard_D1	westeurope	2	261	P3Y	ABI GLOBAL NON-PROD
5 fe70970a-8778-4c04-83c4-a85c57c1ef03	virtualmachines	Standard_D2	southcentralus	1	172	P3Y	ABI MAZ NON-PROD
6 d18713fe-7904-49ec-a5da-5a98110e0f82	virtualmachines	Standard_D16as_v5	westeurope	6	9.874	P3Y	ABI GLOBAL SAP
7 73f88e6b-3a35-4612-b550-555157e7059f	virtualmachines	Standard_D64s_v3	westeurope	1	3.607	P3Y	ABI GLOBAL NON-PROD
8 fe70970a-8778-4c04-83c4-a85c57c1ef03	virtualmachines	SLES_Standard_3-4_vCPu_All	suselinux	2	576	P3Y	ABI MAZ NON-PROD
9 a6362b3b-07fa-4c75-bccb-719b38047af	virtualmachines	SLES_Standard_3-4_vCPu_All	suselinux	6	1.731	P3Y	ABI MAZ PROD
0 d18713fe-7904-49ec-a5da-5a98110e0f82	virtualmachines	SLES_Standard_3-4_vCPu_All	suselinux	3	864	P3Y	ABI GLOBAL SAP
1 15bcebd1-794c-496c-9548-8a4a4357ee18	virtualmachines	Standard_D8ds_v5	southafricanorth	1	1.188	P3Y	ABI AFRICA NON-PROD
2 451a2b7d-52ab-486c-9517-91aa84d347f7	virtualmachines	Standard_D16_v2	brazilsouth	5	12.267	P3Y	ABI AURORA STOUT
3 cc90908b-2305-4c17-91aa-ffaae5479fa	virtualmachines	Standard_DS12_v2	southafricanorth	1	742	P3Y	ABI AFRICA SAP
4 15bcebd1-794c-496c-9548-8a4a4357ee18	virtualmachines	Standard_DS12_v2	southafricanorth	1	758	P3Y	ABI AFRICA NON-PROD
5 73f88e6b-3a35-4612-b550-555157e7059f	virtualmachines	Standard_E2d_v4	westeurope	1	342	P3Y	ABI GLOBAL NON-PROD
6 75a0ffff-d4c7-4631-8bd6-ebb075b047e8	virtualmachines	Standard_D54_v2	eastus2	4	3.025	P3Y	ABI BEES NON-PROD
7 81d9df2d9-3309-443f-977d-ce8be9ba6bb2	virtualmachines	Standard_D54_v2	eastus2	2	1.513	P3Y	ABI BEES PROD
8 db887bdc-7ac0-4ea8-bc94-1d69abaa065	virtualmachines	Standard_B2ms	southafricanorth	3	647	P3Y	ABI AFR MODERNIZED APPLICATIONS PLATFORM NON-PROD
9 62d740bc-5f71-45bc-9527-36909181b0d7	virtualmachines	Standard_B2ms	southafricanorth	1	218	P3Y	ABI AFR BEERTECHNGA SANDBOX

ABIB Meeting 25/05/2023

Thursday, 25 May 2023 15:34

Tracker discussed (Excel)

Brian: Microsoft tooling deficiencies and errors on calculations and visibility.

Incidents are logged with that.

Brian: Accuracy question: in several example where incidents were logged. Significant issues in accuracy

Getting the data in an automated way, it was acted on,...

David -> ISSUES: on Advisor cost (fix is being rolled out tomorrow), saving plans (to be rerolled out next week).

Flavio -> does another calculation and then propose change. They talk with the API.

Azure Savings Plan -> once the fix is done the focus can be done again on savings plan.

VM Shutdown -> talked about not full visibility and tag management not okay.

Brian: kicked off tag management critical for FinOps

Automation logic is in CloudBolt and integrated in Service Now to automate RFC etc....

The piece, which is intelligence: these business logic criteria that needs to be built in a tool,

He wants next level of automation to be able to sustain it:

Flavio -> wants a split there. Service Bus, AKS,....

Moving logs to storage instead of law ->

Brian -> we need to get to a point of conclusion

1. Fixes for advisor (trust issue, check if ABI can trust it)
2. Look and see Advisor (done yes or no)
3. Which ones we believe its done, iif fully because the Advisor is also telling us it is done.
4. Additional KPI's: how to demonstrate to leadership team,...

End result: 1million savings, done.

How to sustain this? Only through automation?

Working session: specialist on Advisor walk both teams through,.... (to regain trust, they doubt the tool)

ABIB Meeting 01/06/2023

Wednesday, 31 May 2023 13:05

- Follow up on remaining items:
 - Requirement on other PAAS Services
 - SQL
 - Log Analytics Workspaces
- Storage Account:
 - From GRS -> LRS
 - From v1 to v2
 - Storage Tiers for v2
- Recovery Services Vault

ABI team mentioned that current recommendations from azure advisor cannot be applied as such (not useful) because it doesnot include discounted pricing.	We checked on this . " The recommendation calculations include any special discounts that you might have on your on-demand usage rates." Refer this link : Azure reservation recommendations - Microsoft Cost Management Microsoft Learn
Noticed that currently there are many log analytics workspace and detailed logging enabled [eg, audit logging in nonprod sql db] which is resulting to high ingestion and cost.	Jatin/Jamel will discuss further with ABI for logging strategy followed in ABI.
ABI looking for better strategy for right sizing VM (not based on azure advisor only)	To do a discussion with ABI in detail about challenges being faced currently with Advisor recommendations. To understand why Azure advisor recommendations doesnot work for them.
ABI is looking for some best practices for usecase of storage(when to use GRS or LRS).	Jamel/Jatin will check on this and send some best practices and guidelines.
ABI looking for recommendation on optimizing of PAAS services (eg, right sizing SQL)	To do a discussion for challenges faced in PaaS services and plan for a session if needed.
We reviewed workbook recommendations and seems there are still some optimizations which can be done. <ul style="list-style-type: none">• Many Log analytics workspace with retention period of 365 days.• Audit logging in SQL enabled and routed to both destinations – storage and log analytics workspace.• Many Storage accounts which are not V2 to take benefit from lifecycle mgmt.• There are Virtual VPN gateways without any traffic.• Unused attached disk (already being tracked though)	Ashish will check on this internally. Recovery vaults are created with GRS storage. Re-think on strategy of recovery vault usage and to use GRS only when needed.
To discuss further with Santhosh next week on action items taken yet to track cost optimization and how can we help further.	
Azure policy - review	Done
Azure policy assignment discussion	TODO <input type="checkbox"/>

ABIB Meeting Ashish/Jatin 05/06/2023

Tuesday, 6 June 2023 11:28

Nr	Item	Remarks	Status
1	Right sizing VM recommendations	MS team informed Ashish and team for new update that there is 90 days look back period possible in advisor.	Information shared. NO action pending
2	Some best practices for use-case of storage(when to use GRS or LRS).	Best practices and usecase shared by MS Action item on ABI for internal followup but no action taken yet. It is upto dev owners in ABI to decide on that.	Long term
3	Recommendation on optimizing of PAAS services (e.g., right sizing SQL)	ABI team looking to get recommendations of PaaS services if possible.	Long term
4	We reviewed workbook recommendations and seemed there are still some optimizations which can be done. <ul style="list-style-type: none"> a) Many Log analytics workspace with retention period of 365 days. b) Audit logging in SQL enabled and routed to both destinations – storage and log analytics workspace. c) Many Storage accounts which are not V2 to take benefit from lifecycle mgmt. d) There are Virtual VPN gateways without any traffic. e) Unused attached disk (already being tracked though) 	a) Email sent to dev owners. Waiting for approval. b) No action yet. To check by ABI team internally c) ABI is aware of it. It needs to check case by case. Currently no action planned. d) Dev owners are informed by Ashish and team. Waiting for approval and further action e) Dev owners are informed by Ashish and team. Internal followup in progress.	ABI is aware of these items. Action to be internally evaluated and planned by ABI.
5	Recovery service vault backup option from GRS to LRS	Dev owners are informed by ABI internally and waiting for approval subject to further discussion. It is operationally difficult for ABI to make changes in existing vaults due to large set of VM machines.	Long term
6	Cost optimization Databricks	Auto termination Databricks : Some of databricks clusters are using auto-termination features already. No action further planned by ABI for databricks.	Long term
7	Synapse analytics	Reserved capacity : Ashish and team	No action planned

	informed that ABI dev data teams are aware of reservation capacity. No action foreseen yet.	yet
--	---	-----

Storage Account Cost Optimization

Thursday, 27 April 2023 21:48

[Optimize your costs with Azure Blob Storage | Azure Storage](#)

[Application and User Data | Azure Storage](#)

[Disaster recovery and storage account failover - Azure Storage | Microsoft Learn](#)

[Plan and manage costs for Azure Blob Storage | Microsoft Learn](#)

[Protect and recover in cloud management - Cloud Adoption Framework | Microsoft Learn](#)

[11_Azure_Storage.PPTX \(sharepoint.com\)](#)

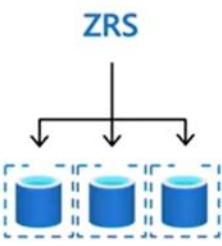
[Estimating Pricing for Azure Block Blob Deployments | Azure Storage](#)

Redundancy

Single region

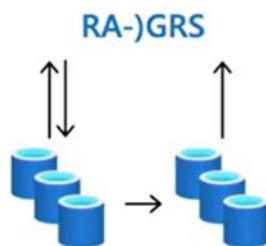


3 replicas
1 region

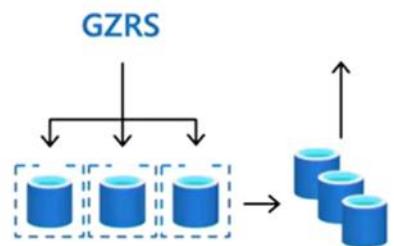


Multiple availability zones
3 replicas
1 region

Dual region



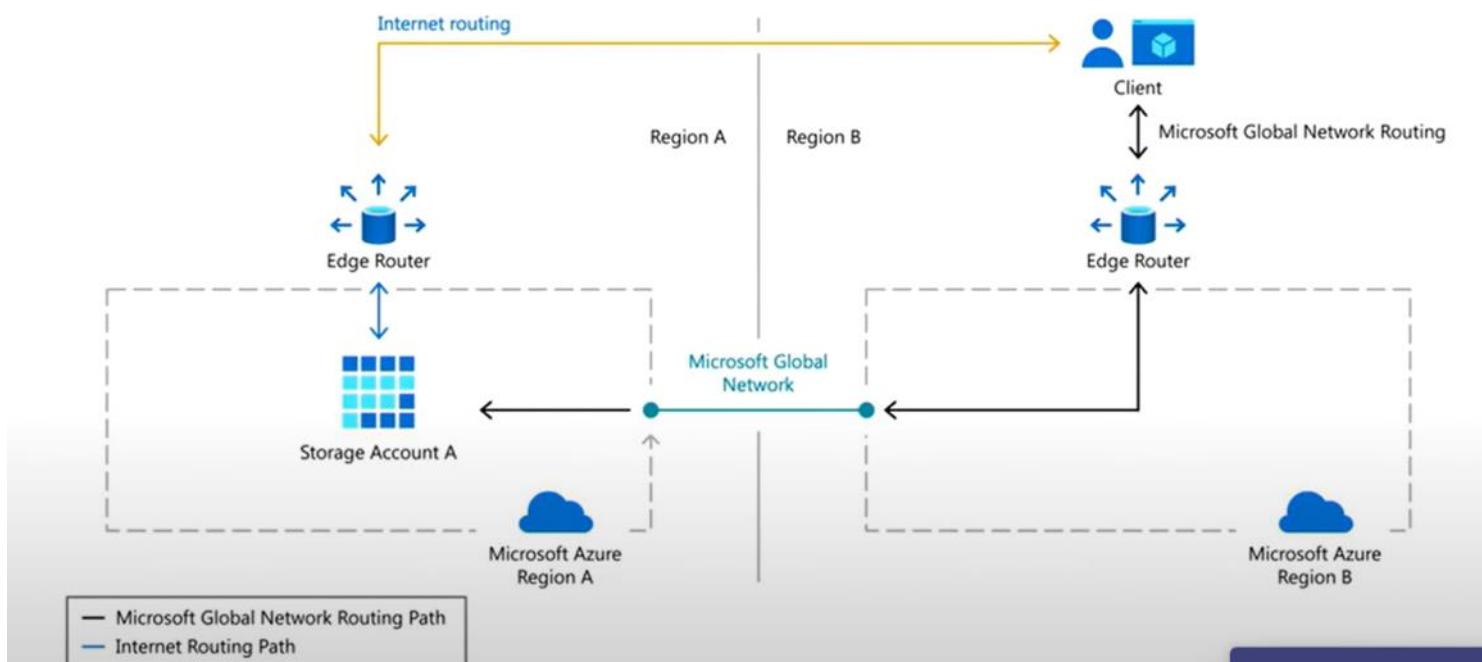
6 replicas
2 regions



Multiple availability zones in primary, single DC in secondary
6 replicas
2 regions

Lower ← Cost → Higher

Optimize networking cost with routing preference



Learn more

Redundancy

<https://docs.microsoft.com/en-us/azure/storage/common/storage-redundancy>

Tiers and lifecycle

<https://docs.microsoft.com/en-us/azure/storage/blobs/storage-blob-storage-tiers>

Reservations

<https://docs.microsoft.com/en-us/azure/storage/blobs/storage-blob-reserved-capacity>

Network routing preference

<https://docs.microsoft.com/en-us/azure/virtual-network/routing-preference-overview>

[How to Choose the Right Kind of Azure Storage Account - Applied Information Sciences \(ais.com\)](#)

4. Select Save

The screenshot shows the Azure Storage accounts blade for the 'custodian62e3f9d3' account. In the 'Redundancy' section, 'Locally-redundant storage (LRS)' is selected. The account is located in West Europe and is in a primary state with an available status. A world map on the right shows the geographical location.

[Disaster recovery and storage account failover - Azure Storage | Microsoft Learn](#)

```
# Set variables
$ResourceGroupName = "mgmt"
$ReplicationType = "Standard_LRS"

# Get all storage accounts in the resource group
$StorageAccounts = Get-AzStorageAccount -ResourceGroupName $ResourceGroupName

# Create an empty array to store the storage accounts that will be updated
$StorageAccountsToUpdate = @()

# Loop through each storage account
foreach ($StorageAccount in $StorageAccounts) {
    # Check if the storage account has a dual-region replication type
    if ($StorageAccount.Sku.Name -in @("Standard_GRS", "Standard_RAGRS", "Standard_GZRS", "Standard_RAGZRS")) {
        # Add the storage account to the array of storage accounts to update
        $StorageAccountsToUpdate += $StorageAccount
    }
}

# Output the list of storage accounts that will be updated
Write-Output "The following storage accounts will be updated:"
foreach ($StorageAccount in $StorageAccountsToUpdate) {
    Write-Output $StorageAccount.StorageAccountName
}

# Prompt the user to confirm the change
$Confirm = Read-Host -Prompt "Do you want to proceed with updating these storage accounts? (y/n)"

# Check if the user confirmed the change
if ($Confirm -eq "Y") {
    # Loop through each storage account to update
    foreach ($StorageAccount in $StorageAccountsToUpdate) {
        # Update the replication type
        Set-AzStorageAccount -ResourceGroupName $ResourceGroupName -Name $StorageAccount.StorageAccountName -SkuName $ReplicationType
    }
}

This script gets all storage accounts in a specified resource group and checks if they have a dual-region replication type. If they do, it adds them to an array of storage accounts that will be updated. It then outputs the list of storage accounts that will be updated and prompts you to confirm the change. If you confirm the change, it updates their replication type to LRS. You can change the value of the $ReplicationType variable to any valid replication type.
```

TOOLS Used by ABIB

Thursday, 4 May 2023 15:45

Cloud Bolt
Service Now

Reservations

Tuesday, March 7, 2023 1:26 PM

[C+AI Customer Portal \(microsoftonline.com\)](https://C+AI Customer Portal (microsoftonline.com))

Advisor Score Details

Tuesday, March 7, 2023 1:25 PM



Workbook WACOAv3

Monday, 22 May 2023 09:27

Workbook walkthrough:

Improved AHUB Tab

- AHUB Recommendations for:
 - VMs
 - SQL (SQL DB, SQL MI and SQL on VMs)
 - VMSS
 - Linux (RedHat and SUSE)
- Number of Cores Consumed per Resource Type
 - VMs and SQL
- AHUB enabled in the past 7 days (VMs)
- AHUB Prioritization (High Priority / Low Priority)

The idea now is that this AHUB tab will bring you recommendations for VMS, SQL virtual machine scale sets, and Linux.

You can also bring you some information about the number of cores consumed per resource type or VMS and SQL, so that will help customers to prioritize and to understand their their posture when they are looking at the the AHUB.

We will also be able to see a hope that has been enabled over the last seven days for VM's.

So again, you know what is happening on your environment and the workbook will also provide some guidance on the prioritization.

So what?

What VMS should have high priority when it needs to have to enable a hub and which ones should have low lower priority?

Compute Tab

Tuesday, 23 May 2023 16:16

The difference between a stopped state and deallocated in Azure is that a "Stopped" VM means that the operating system has shutdown, most likely when an administrator initiated a shutdown. While "Stopped (Deallocated)" means the operating system is off and you are no longer being charged for most Azure resources (like CPUs). When a VM is in the "Stopped" state, you are still being billed. In the "Stopped (Deallocated)" state, the VM has released the lease on the underlying hardware and is completely powered off, so the virtual machine resource is not billed.

From: <https://edgeservices.bing.com/edgesvc/chat?udsframed=1&form=SHORUN&clientscopes=chat,noheader,channelstable,&shellid=451f025_c0da89c0d0d819b27ee653dec90cad681&ortlang=en-US&lightschemeoverride=1>

In this tab you can view Azure Advisor recommendations only for compute resources and filter based on sub/rg or tags

One typical waste we see is VM's in stopped state when being shut down.

There is a difference between a stopped state and deallocated in Azure is that a "Stopped" VM means that the operating system has shutdown, most likely when an administrator initiated a shutdown. While "Stopped (Deallocated)" means the operating system is off and you are no longer being charged for most Azure resources (like CPUs). When a VM is in the "Stopped" state, you are still being billed. In the "Stopped (Deallocated)" state, the VM has released the lease on the underlying hardware and is completely powered off, so the virtual machine resource is not billed.

If your VM is not running, it will have one of two states — [Stopped](#), or [Stopped \(deallocated\)](#).

Azure's Stopped State

When you are logged in to the operating system of an Azure VM, you can issue a command to shut down the server. This will kick you out of the OS and stop all processes, but will maintain the allocated hardware (including the IP addresses currently assigned). If you find the VM in the Azure console, you'll see the state listed as "Stopped". The biggest thing you need to know about this state is that you are still being charged by the hour for this instance.

Azure's Deallocated State

The other way to stop your virtual machine is through Azure itself, whether that's through the console, Powershell, or the Azure CLI. When you stop a VM through Azure, rather than through the OS, it goes into a "Stopped (deallocated)" state. This means that any non-static public IPs will be released, but you'll also stop paying for the VM's compute costs. This is a great way to save money on your Azure costs when you don't need those VMs running.

The screenshot shows the Azure Compute Tab interface. At the top, there are tabs for General, Compute (which is selected), Azure Hybrid Benefit, Storage, Networking, Log Analytics, Reservations Dashboard, and Cost Information. Below the tabs are filters for Subscription (All) and Resource Group (All).

Compute Group: Shows "Azure Advisor Cost recommendations" with a note: "You are following all of our cost recommendations for Compute".

Virtual Machines in a Stopped State: Shows a note: "You have no VMs in a stopped state".

Azure Workbook: Shows a sidebar with options like Overview, Activity log, Access control (IAM), Tags, and Workbook (which is selected). The main area displays a table titled "All virtual machines" with columns: Group, VMID, VM SKU, TotalDataDisks, TotalNICs, VM Location, resourceGroup, subscriptionId, and VMName. The table lists several VM instances across different groups and sizes.

Comparison in prices:

Name	ACU/vCPU	vCPU	Memory (GB)	Remote Storage (GB)	Scale (instance)	SLA	Cost per hour	Cost per month
▼ Dev/Test (For less demanding workloads)								
<input type="checkbox"/> Free F1	60 minutes/day...	N/A	1	1	N/A	N/A	Free	Free
<input type="checkbox"/> Shared D1	240 minutes/da...	N/A	1	1	N/A	N/A	0,013 USD	9,49 USD
<input type="checkbox"/> Basic B1	100	1	1.75	10	3	99.95%	0,075 USD	54,75 USD
<input type="checkbox"/> Basic B2	100	2	3.5	10	3	99.95%	0,15 USD	109,50 USD
<input type="checkbox"/> Basic B3	100	4	7	10	3	99.95%	0,30 USD	219,00 USD
▼ Production (For most production workloads)								
<input type="checkbox"/> Standard S1	100	1	1.5	50	10	99.95%	0,10 USD	73,00 USD
<input type="checkbox"/> Premium v3 P1V3	195	2	8	250	30	99.95%	0,335 USD	244,55 USD
<input type="checkbox"/> Premium v3 P2V3	195	4	16	250	30	99.95%	0,67 USD	489,10 USD
<input type="checkbox"/> Premium v3 P3V3	195	8	32	250	30	99.95%	1,34 USD	978,20 USD
<input type="checkbox"/> Standard S2	100	2	3.5	50	10	99.95%	0,20 USD	146,00 USD
<input type="checkbox"/> Standard S3	100	4	7	50	10	99.95%	0,40 USD	292,00 USD
<input type="checkbox"/> Premium P1	100	1	1.75	250	20	99.95%	0,30 USD	219,00 USD
<input type="checkbox"/> Premium P2	100	2	3.5	250	20	99.95%	0,60 USD	438,00 USD
<input type="checkbox"/> Premium P3	100	4	7	250	20	99.95%	1,20 USD	876,00 USD
<input type="checkbox"/> Premium v2 P1V2	210	1	3.5	250	30	99.95%	0,20 USD	146,00 USD
<input type="checkbox"/> Premium v2 P2V2	210	2	7	250	30	99.95%	0,40 USD	292,00 USD
<input type="checkbox"/> Premium v2 P3V2	210	4	14	250	30	99.95%	0,80 USD	584,00 USD

PAYGO

Microsoft Azure Estimate						
Your Estimate						
Service category	Service type	Custom name	Region	Description	Estimated monthly cost	Estimated yearly cost
Compute	App Service		West US	Premium V2 Tier; 1 P2V2 (2 Core(s), 7 GB RAM, 250 GB Storage) x 730 Hours; Windows OS; 0 SNI SSL Connections; 0 IP SSL Connections	\$292,00	
Compute	App Service		West US	Premium V3 Tier; 1 P1V3 (2 Core(s), 8 GB RAM, 250 GB Storage) x 730 Hours; Windows OS; 0 SNI SSL Connections; 0 IP SSL Connections	\$244,55	
Compute	App Service		West US	Premium V2 Tier; 1 P3V2 (4 Core(s), 14 GB RAM, 250 GB Storage) x 730 Hours; Windows OS; 0 SNI SSL Connections; 0 IP SSL Connections	\$584,00	
Compute	App Service		West US	Premium V3 Tier; 1 P2V3 (4 Core(s), 16 GB RAM, 250 GB Storage) x 730 Hours; Windows OS; 0 SNI SSL Connections; 0 IP SSL Connections	\$489,10	
Support			Support		0	\$0,00
		Licensing Program	Microsoft Customer Agreement (MCA)			
		Billing Account				
		Billing Profile				
		Total	P2V2		\$292,00	\$3.504,00
			P1V3		\$244,55	\$2.934,60
			Diff		\$47,45	
			P3V2			\$584,00
			P2V3			\$489,10
			Diff			\$ 94,90
						\$ 1.138,80

RI 3Y

Microsoft Azure Estimate						
Your Estimate						
Service category	Service type	Custom name	Region	Description	Estimated monthly cost	Estimated yearly cost
Compute	App Service		West US	Premium V2 Tier; 1 P2V2 (2 Core(s), 7 GB RAM, 250 GB Storage) x 730 Hours; Windows OS; 0 SNI SSL Connections; 0 IP SSL Connections	\$292,00	
Compute	App Service		West US	Premium V3 Tier; 1 P1V3 (2 Core(s), 8 GB RAM, 250 GB Storage); 3 year savings plan; Windows OS; 0 SNI SSL Connections; 0 IP SSL Connections	\$187,06	
Compute	App Service		West US	Premium V2 Tier; 1 P3V2 (4 Core(s), 14 GB RAM, 250 GB Storage) x 730 Hours; Windows OS; 0 SNI SSL Connections; 0 IP SSL Connections	\$584,00	
Compute	App Service		West US	Premium V3 Tier; 1 P2V3 (4 Core(s), 16 GB RAM, 250 GB Storage); 3 year savings plan; Windows OS; 0 SNI SSL Connections; 0 IP SSL Connections	\$374,11	
Support			Support		0	\$0,00
		Licensing Program	Microsoft Customer Agreement (MCA)			
		Billing Account				
		Billing Profile				
		Total	P2V2		\$1.534,31	\$0,00
			P1V3		\$292,00	\$3.504,00
			Diff		\$187,06	\$2.244,66
			P3V2			\$ 104,94
			P2V3			\$ 209,89
			Diff			\$ 2.518,68

Azure App Service

Save with Premium v3 reserved instances

When you commit to an Azure App Service Premium v3 reserved instance you can save money. The reservation discount is applied automatically to the number of running instances that match the reservation scope and attributes - you don't need to assign a reservation to a specific instance to get the discounts.

Determine the right reserved instance size before you buy

Before you buy a reservation, you should determine the size of the Premium v3 reserved instance that you need. The following sections will help you determine the right Premium v3 reserved instance size.

Use Autoscale appropriately

Autoscale can be used to provision resources for when they're needed or on demand, which allows you to minimize costs when your environment is idle.

Web Apps

name	↑↓	WebAppId	↑↓	Type	↑↓	WebAppLocation	↑↓	Status	↑↓	SubscriptionName	↑↓	ResourceGroup	↑↓	skutier	↑↓	workers	↑↓	maxworkers	↑↓	planId	↑↓	Predict
✓ ASP-mgmt-890f (1)																						
costoptimvs				functionapp		westeurope		Running		ME-MngEnv/MCAP429712-jachahb		mgmt		Free		0		1		asp-mgmt-890f		
✓ ccustodian (1)				stopallvmsonaschedule-62e3f9d3		functionapp,linux		westeurope		ME-MngEnv/MCAP429712-jachahb		ccustodian-rq		Dynamic		0		0		ccustodian		

Identify the App Service Plan for the stopped App Service and check to see how many workers (App Services) are running on the plan. If there are no other workers on the App Service Plan, consider deleting it if it is no longer required.

AKS Cluster

- Your AKS workloads may not need to run continuously, for example a development cluster that is used only during business hours.
- This leads to times where your Azure Kubernetes Service (AKS) cluster might be idle, running no more than the system components.
- You can reduce the cluster footprint by scaling all the User node pools to 0, but your System pool is still required to run the system components while the cluster is running.
- To optimize your costs further during these periods, you can completely turn off (stop) your cluster.
- This action will stop your control plane and agent nodes altogether, allowing you to save on all the compute costs, while maintaining all your objects (except standalone pods) and cluster state stored for when you start it again.
- You can then pick up right where you left off after a weekend or to have your cluster running only while you run your batch jobs.

[Start and Stop an Azure Kubernetes Service \(AKS\) - Azure Kubernetes Service | Microsoft Docs](#)

Azure Hybrid Benefit

Tuesday, 23 May 2023 16:22

General Compute **Azure Hybrid Benefit** Storage Networking Log Analytics Reservations Dashboard Cost Information

Subscription: All ▾

Filter By: Resource Group ▾

Resource Group: All ▾

Azure Hybrid Benefit Overview

Azure Hybrid Benefit

For customers with Software Assurance, Azure Hybrid Benefit for Windows Server allows you to use your on-premises Windows Server licenses to run Windows virtual machines on Azure at a reduced cost. This article discusses how to deploy new VMs with Azure Hybrid Benefit for Windows Server enabled, and how you can update any existing running VMs. For more information about Azure Hybrid Benefit for Windows Server licensing and cost savings, see the [Azure Hybrid Benefit for Windows Server licensing page](#).

Location: westeurope ▾ ⓘ

VM/VMSS SQL

Windows Virtual Machines Linux Virtual Machines VM Scale Set

Storage

Wednesday, 24 May 2023 16:58

Tab: STORAGE
Make clear differences between v2 and v1

Alright, so when we get to this section where we're highlighting storage accounts that are not of the V2 type, but that's not because we're recommending our customers to move to the V2 type period. No, we're providing awareness here of the opportunity for storage accounts to move to the V2 type. If they want to leverage lifecycle storage management to write those rules based off of last access, their last date modified time to move it to the different tier to eventually purge the data we're providing awareness that these storage accounts aren't of the V2 type.

So if they wanted to use that capability, the storage accounts would need to be to move to V2 type.

With that being said, this is a discussion we need to have with our customers as well. The V2 type storage account.

Cost less for capacity.

The transaction costs or 500 times higher than the V1 costs. So if our customers have extremely chatty systems talking to a V1 Storage account, it's probably not in their best interest and then unless they are going to seriously leverage lifecycle storage management for them to move to the V2.

So just keep that in mind 500 times.

Transaction costs more with the V2, but V2 type is cheaper.

So the actual capacity was very low but the transaction count was extremely high. So I know I don't like how we need to take this maybe use like what you're doing here, the pricing calculator determine if that would actually be a worthwhile move for you and I could just tell by the amount of stuff you know the quality of the capacity they were using that it wasn't going to be.

Jump to cost calculator:

This is where you see the transaction costs of v1 being 500 times lower.

Storage Accounts

REGION:	TYPE:	PERFORMANCE TIER:	STORAGE ACCOUNT TYPE:
East US	Block Blob Storage	Standard	General Purpose V1
REDUNDANCY:			
LRS			

Capacity

1000 TB = \$23,572.89

Storage transactions

Write Operations

10 x \$0.001 = \$0.01
x 10,000 operations Per 10,000 operations

List and Create Container Operations

10 x \$0.001 = \$0.01
x 10,000 operations Per 10,000 operations

Read operations

10 x \$0.001 = \$0.01
x 10,000 operations Per 10,000 operations

All other operations

1 x \$0.001 = \$0.01
x 10,000 operations Per 10,000 operations

Data Retrieval

On storage account filter on SKU NAME:
Look for Premium LRS, Standard RA GRS or standard GRS:
Ask if anything GRS that has dev test.

Have conversation with customer asking if there is a reason why they have expensive storage configured for dev and test:

Tell t

Storage accounts which are not v2								
storageaccount	StorageAccountName	SKUName	SKUTier	SACKind	SARG	Location		
ascdemorgdisks938	ascdemorgdisks938	Premium_LRS	Premium	Storage	ascdemorg	centralus		
wldisks219	wldisks219	Premium_LRS	Premium	Storage	wl2	southcentralus		
wldisks978	wldisks978	Premium_LRS	Premium	Storage	wl1	southcentralus		
azeuerg01disks	azeuerg01disks	Premium_LRS	Premium	Storage	azeus-rg-01	eastus		
euspremiumblockbloba	euspremiumblockbloba	Premium_LRS	Premium	BlockBlobStorage	azeus-rg-01	eastus		
euscostreportsbfr	euscostreportsbfr	Premium_LRS	Premium	FileStorage	azeus-rg-01	eastus		
testconnections	testconnections	Premium_LRS	Premium	BlockBlobStorage	soc-purview	eastus		
dbstorageuvinnmigppha	dbstorageuvinnmigppha	Standard_GRS	Standard	BlobStorage	databricks-rg-databazdbs-3gl2cweadrc	eastus2		
ascdemorgmm1041014240	ascdemorgmm1041014240	Standard_GRS	Standard	Storage	ascdemorg	centralus		
mcfwformrecgnizedata	mcfwformrecgnizedata	Standard_LRS	Standard	Storage	mcfwformrecgnizedata	eastus2		
sqlauditcennej403obptrg	sqlauditcennej403obptrg	Standard_LRS	Standard	BlobStorage	ascdemorg	centralus		

General rule of thumb: Geo-redundancy option, data costs 2 as much as locally redundant option. We ask if there is a reason why for dev/test they have this option.

We identify these optimization areas where you might have just deployed a storage account where you had no idea it was RA-GRS,... in dev/test. It is a complete waste of money. You don't need to pay for that.

Microsoft Azure (Preview) Report a bug Search resources, services, and docs (G+) provaservermicrosoft.com

Home > Monitor

Monitor | Workbooks | WAF Cost Opt - Sub & Workload

Workbooks Edit Help Auto refreshes Off

Overview Activity log Alerts Metrics Logs Service Health Workbooks Insights Applications Virtual Machines Storage accounts Containers Networks SQL (preview) Azure Cosmos DB Key Vaults Azure Cache for Redis Azure Data Explorer Clusters Log Analytics workspaces Azure Stack HC (preview) Service Bus (preview) Activity log Storage accounts

Recovery Vaults Replication

recoveryvault	RecoveryVaultName	RecoveryVaultLocation	RVRG	StorageReplication type
AZC1-RSV-ASR-01	AZC1-RSV-ASR-01	centralus	azc1-rsv-asr-rg-01	GeoRedundant
AZC1-RSV-DR-04	AZC1-RSV-DR-04	centralus	azc1-rsv-asr-rg-01	
AZC1BRLS1ASRRecoveryVault	AZC1BRLS1ASRRecoveryVault	centralus	azc1-brl-rg-s1	
AZW1-RSV-DR-03	AZW1-RSV-DR-03	centralus	azeus2-rg-01	
AZW1-RSV-DR-03	AZW1-RSV-DR-03	centralus	azeus-rsv-asr-rg-01	
AZC1-RSV-BRAD-TEST	AZC1-RSV-BRAD-TEST	centralus	azc1-rsv-asr-rg-01	
cus-rsv-bkup-01	cus-rsv-bkup-01	centralus	backuplab-lod16231653	
azMigrate-MigrateVault-k1ky3sq	azMigrate-MigrateVault-k1ky3sq	centralus	azous-rg-01	
mynewvault	mynewvault	eastus	appserviceerg	
vault135	vault135	eastus	appserviceerg	

Just as a general rule of thumb, Geo redundancy recovery services vault data is pretty much twice as much as locally redundant. Does this make sense?

Added value filter on type Compute and only get recommendations on those based off of rg or tagvalue In Advisor you need to select the recommendation types for compute but cannot filter specifically on type. You'll need to do some additional tweaking.

Filter applies to all other tabs except for general!

Home > Monitor

Monitor | Workbooks | WAF Cost Opt - Sub & Workload

Workbooks Edit Help Auto refreshes Off

General Compute Data Storage Networking Monitoring Performance

Subscriptions All Filter by: Tags Tag Name: Owner Tag Value: Microsoft

Compute Group

Azure advisor Cost recommendations

Group	AffectedResource	Impact	resourceGroup	AdditonalInfo	tagName	tagValue	Recommendation
light-size or shutdown underutilized virtual machines	CH1-OCW05	High	ch1-infra-pr1	{'MaxTotalResourcesPct': 'Owner', 'Microsoft': 'Right-size or shutdown'}			
	CH1-OCW01	High	ch1-infra-pr1	{'MaxTotalResourcesPct': 'Owner', 'Microsoft': 'Right-size or shutdown'}			

Storage Group

StorageGroup

Azure Advisor Cost recommendations - Storage

You are following all of our cost recommendations for Storage

Storage accounts

General-purpose v2 storage accounts support the latest Azure Storage features and incorporate all of the functionality of general-purpose v1 and Blob storage accounts. General-purpose v2 accounts are recommended for most storage scenarios.

1. General-purpose v2 accounts deliver the lowest per-gigabyte capacity prices for Azure Storage, as well as industry-competitive transaction prices.
2. General-purpose v2 accounts support default account access tiers of hot or cool and blob level tiering between hot, cool, or archive.
3. General-purpose v2 accounts allows you to also use lifecycle management to optimize your storage cost

Storage accounts which are not v2

storageaccount	↑↓	StorageAccountName ↑↓	SKUName	↑↓	SKUTier	↑↓	SAKind	↑↓	AccessTier	↑↓	resourceGroup	↑↓	Location	↑↓	subscriptionId	↑↓
custodian62e3f9d3		custodian62e3f9d3	Standard_GRS		Standard		Storage				ccustodian-rg		westeurope		ME-MngEnvMCAP429712-jachahb	
mgmtbdaa		mgmtbdaa	Standard_LRS		Standard		Storage				mgmt		westeurope		ME-MngEnvMCAP429712-jachahb	
vmsta		vmsta	Standard_GRS		Standard		Storage				mgmt		westus		ME-MngEnvMCAP429712-jachahb	

Recovery Vaults Replication

recoveryvault	↑↓	RecoveryVaultName	↑↓	RecoveryVaultLocation	↑↓	RVRG	↑↓	SubscriptionName	↑↓	sku	... Vault Storage replication type	↑↓
testgrstolrs		testgrstolrs		westeurope		mgmt		ME-MngEnvMCAP429712-jachahbar-1		Sta		
RSVault-westeurope-7a79d7e7-5256-5d68-aba2-dd72a0c		RSVault-westeurope-7a79d7e7-5256-5d68-aba2-dd72a0c		westeurope		myresourcegroup		ME-MngEnvMCAP429712-jachahbar-1		LocallyRedundant		

Unattached disks

The query returned no results.

Disk Snapshots with + 30 Days

No Snapshots with more than 30 days.

Snapshots of disks that doesn't exist anymore

There aren't any idle disk snapshot

Networking

Wednesday, 24 May 2023 17:00

Networking Group

Azure advisor recommendations - Networking

You are following all of our cost recommendations for Networking

➊ Recommendations for Application Gateways

Review Application Gateways which include backend pools with no targets. Resources listed with 2 red signs are considered idle.

Application gateways with empty backend pools

You don't have any Application Gateways with empty backend pools

➋ Recommendations for Load Balancers

Review Load balancers with no backend pools, and remove them if not needed.

Load Balancers with empty backend pools

The query returned no results.

➌ Recommendations for Public IP Addresses

Review unattached Public IP addresses, as they may represent additional cost.
This query will also show Public IPs attached to idle network cards.

Unattached Public IPs

You have no unattached Public IPs

➊ Recommendations for Azure Firewall

Review Azure Firewall without network traffic. These resources are billed hourly, consider reconfiguring or deleting them if they are not in use.

Azure Firewall: All ▾ Time range: Last 28 days ▾

Azure Firewalls

ⓘ No Firewall resources are selected. Please select Azure Firewall.

➋ Recommendations for VPN Gateways

Review VPN Gateways without network traffic. These gateways are billed hourly, consider reconfiguring or deleting them if they are not in use.

Virtual network gateways: All ▾ Time Range: Last 14 days ▾

Virtual network gateways

ⓘ No Virtual network gateway resources are selected. Please select Virtual network gateways.



➌ Recommendations for Azure Front Door

Review Azure Front Doors without network traffic. These resources are billed hourly, consider reconfiguring or deleting them if they are not in use.

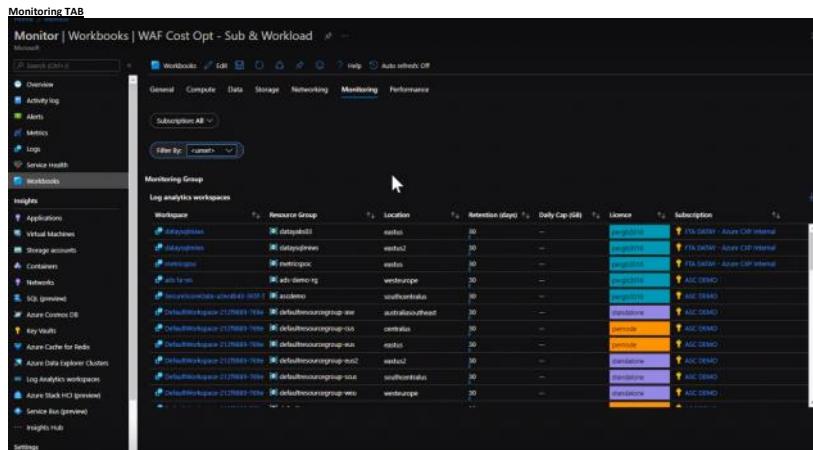
Azure Front Door: All ▾ Time Range: Last 30 days ▾

Azure Frontdoors

ⓘ No Front Door and CDN profiles resources are selected. Please select Azure Front Door.

Log Analytics

Wednesday, 24 May 2023 17:03



But the first thing I'm looking for is, you know, what's the retention days configured or look through log analytics.

Have a daily cap on him. Typically just good stewardship right to have some type of daily cap. It doesn't fit for every scenario.

Some customers might not even know that there is a capability to put a daily cap for ingestion or no log in the links workspace, so then we're providing them with that type of knowledge or retention.

Seqway from this report:

Review from this report:						
Deployment	Test	Environment	Issues	Logs	Dependencies	Alerts
dev-env-for-wemo-v003	dependencies-rg	westeurope	385	--	jenkins2018	ES-MIT-SIGS DEV (vacation)
dev-env-for-wemo-v005	management-rg	westeurope	385	--	jenkins2018	ES-MIT-SIGS DEV (vacation)
env-prod-polaris-002	es-env-polaris-shd	westeurope	385	--	jenkins2018	ES-MIT-SIGS DEV (vacation)

I'll try to find something like for example I can see this log analytics workspace has a 90 day retention, so right away from me looking at this data set, if I look at everything here, actually these are really good candidates. So if I'm looking at these log analytics workspaces

Go into the usage and cost for the log analytics.

Your Log Analytics cost depends on your choice of pricing tier, data retention and which solutions are used. Here you can see the estimated monthly cost for each of the available pricing tiers based on your last 31-days of Log Analytics data ingested. These cost estimates can be used to help you select the best pricing tier based on your data ingestion patterns. These cost estimates include the 500MB/VM/day data allowance if you are using Microsoft Defender. This page does not reflect your actual billable usage. To view that, use Cost Management ([Learn more](#)). If you have questions about using this page, contact us. Learn more about Log Analytics pricing and the many techniques to optimize your cost.

Pricing Tiers

Pay-as-you-go **Recommended Tier**

Per GB

The Pay-as-you-go pricing tier offers flexible consumption pricing in which you are charged per GB of data ingested. There are additional charges if you increase the data retention above the 31 day included retention (or 90 day included retention if using Sentinel on this workspace). The estimated cost does not include the 5 GB/month allowance per billing account. Learn more about Log Analytics pricing.

Estimated costs

Item type	Price	Monthly usage (last 31 days)	Estimated monthly cost
Log data ingestion	\$2.99	0.21 GB	\$0.62
Microsoft Defender allowance	\$0.00	0.00 GB	\$0.00
Log data retention (beyond 90 days)	\$0.13	0.00 GB	\$0.00
Total			\$0.62

(These estimated costs do not include Microsoft Defender costs. The Microsoft Defender 500 MB/node/day data allowance is factored into the estimate of Log Analytics billing. [Learn more](#).)

Usage Charts

Billable data ingestion per solution (last 31 days)

Data ingested per solution (last 90 days)

Category	Usage
LogManagement	2.67 GB
ContainerInsights/ServiceMap...	90 MB
InfrastructureInsights/ServiceMa...	50 MB

This is the current pricing tier.

Daily ingestion. Is there an opportunity? Maybe they don't know about commitment tiers with the log analytics workspaces and then so you're able to kind of pivot off of this where you monitoring report in the workbook and now you're just off to the races they helping the customer learn again.
How to kind of review and keep up as a rhythm of their business to monitor all these log

Another point for example, the retention period for log in and log analytics workspace with one year for example, I would I used to ask customers if they really need. All the data in this workspace being retained by one year, for example. Usually the ensure for performance counters they don't need to be stored for one year. Then I used to show for customers that there is a way to configure custom retention period by table using rest API or Azure CLI. So this is something also important to optimize costs for log analytics.

TABLE LOG DATA

[Set a table's log data plan to Basic Logs or Analytics Logs - Azure Monitor | Microsoft Learn](#)
[Pricing - Azure Monitor | Microsoft Azure](#)

Usage

Description: Hourly usage data for each table in the workspace.

Table plan: Analytics

Data retention settings

Workspace settings: Use default workspace settings (unchecked)

Interactive retention: 90 days (selected)

Total retention period: 90 days

Data collection rules: 1 year, 1.5 years, 2 years

Basic vs abalytics log queries -> difference in price but also in capabilities to query data etc...

Check usage and log ingestion using Azure monitor
With log analytics insights

Home > Monitor | Log Analytics workspaces > DefaultWorkspace-38c26c07-ccce-4839-b504-cddac8e5b09d-WEU | Insights

DefaultWorkspace-38c26c07-ccce-4839-b504-cddac8e5b09d-WEU | Insights

Log Analytics workspace

Search: Workbooks Customize Auto refresh: Off

Diagnose and solve problems: Logs

Settings: Tables, Agents, Usage and estimated costs, Data export, Network isolation, Linked storage accounts, Properties, Locks

Classic: Legacy agents management, Legacy activity log connector, Legacy storage account logs, Legacy computer groups, Legacy solutions, System center, Workspace summary (deprecated), Service map (deprecated), Virtual machines (deprecated), Scope configurations (deprecated)

Monitoring: Insights (selected), Alerts, Metrics, Diagnostic settings, Workbooks

Time Range: Last 30 days

Overview: Ingestion Volume (0.06 GB), Hosts Sending Heartbeats (14), Inactive Agents (missing heartbeats) (14), Retention (days) (30), Daily Usage / Cap (Cap not set)

Top 5 Tables:

Table	Total Volume (MB)
LogAnalyticsLogs	27.6
PerformanceCounters	24.9
Heartbeats	5.0
SecurityBaselines	2.0
AppMetrics	1.0

Ingestion Over Time (MB):

Date	Ingestion Volume (MB)
Apr 23	27.584 MB
Apr 25	24.922 MB
May 19	4.619 MB

Ingestion Anomalies:

Table: AppPerformanceCounters (11)

Workbook Customize Auto refresh: Off

Time Range Last 30 days

Overview Usage Health Agents Query Audit Change Log

Dashboard Additional Queries

! The following queries are extensive and could take a while to complete. They are therefore limited to the last 24 hours.

What Azure resources send most logs? (Show top 50 resources)

Resource	Ingestion Volume
backstagetest	269kB
	11kB

What subscriptions send most logs? (Show top 50 subscriptions)

Subscription ID	Ingestion Volume
38c26c07-ccce-4839-b504-cddac8e5b09d	16kB

What Resource Groups send most logs? (Show top 50 Resource Groups)

Resource Group	Ingestion Volume
mgmt	16kB

[Audit queries in Azure Monitor log queries - Azure Monitor | Microsoft Learn](#)

Home > Monitor | Log Analytics workspaces > law-default

law-default | Insights

Log Analytics workspace

Search

Workbooks Customize Auto refresh: Off

Time Range Last 24 hours

Overview Usage Health Agents **Query Audit** Change Log

Performance Slow & Inefficient Queries **Users**

Queries by user

Email	Queries count
jachahbar@microsoft.com	105

Throttled users

! Query audit data not found or no users were throttled

Legacy agents management

Legacy activity log connector

Legacy storage account logs

Legacy computer groups

Legacy solutions

System center

Workspace summary (deprecated)

Service map (deprecated)

Virtual machines (deprecated)

Scope configurations (deprecated)

Monitoring

Insights

law-default | Tables

Log Analytics workspace

Search

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Logs
- Tables
- Agents
- Usage and estimated costs
- Data export
- Network isolation
- Linked storage accounts
- Properties
- Locks
- Classic
- Legacy agents management
- Legacy activity log connector
- Legacy storage account logs
- Legacy computer groups
- Legacy solutions
- System center
- Workspace summary (deprecated)
- Service map (deprecated)
- Virtual machines (deprecated)
- Scope configurations (deprecated)
- Monitoring
- Insights

Showing 97 results

Table name	Type	Plan	Interactive retention	Archive period
Alert	Azure table	Analytics	Workspace default (30 days)	
AlertEvidence	Azure table	Analytics	Workspace default (30 days)	
AlertInfo	Azure table	Analytics	Workspace default (30 days)	
Anomalies	Azure table	Analytics	Workspace default (30 days)	
AppCenterError	Azure table	Analytics	Workspace default (30 days)	
ASimDnsActivityLogs	Azure table	Analytics	Workspace default (30 days)	
ASimNetworkSessionLogs	Azure table	Analytics	Workspace default (30 days)	
ASimWebSessionLogs	Azure table	Analytics	Workspace default (30 days)	
AWSCloudTrail	Azure table	Analytics	Workspace default (30 days)	
AWSCloudWatch	Azure table	Analytics	Workspace default (30 days)	
AWSGuardDuty	Azure table	Analytics	Workspace default (30 days)	
AWSVPCFlow	Azure table	Analytics	Workspace default (30 days)	
AzureActivity	Azure table	Analytics	90 days	
AzureDiagnostics	Azure table	Analytics	Workspace default (30 days)	
AzureMetrics	Azure table	Analytics	Workspace default (30 days)	
AzureNetworkAnalytics_CL	Custom table	Analytics	Workspace default (30 days)	
AzureNetworkAnalyticsIPDetails_CL	Custom table	Analytics	Workspace default (30 days)	
CloudAppEvents	Azure table	Analytics	Workspace default (30 days)	
CommonSecurityLog	Azure table	Analytics	Workspace default (30 days)	
ComputerGroup	Azure table	Analytics	Workspace default (30 days)	
ConfidentialWatchlist	Azure table	Analytics	Workspace default (30 days)	

soft.com/resource/subscriptions/38c26c07-ccce-4839-b504-cd0de8e5b09d/resources/groups/ingmt/providers/Microsoft.OperationalInsights工作空间/law-default/tables

one thing I look at when I see a lot of log analytics, especially the ones that's a default workspace which usually equate to they enabled some type of insights and it just automatically created one for one for them. They probably didn't need to create that log analytics workspace. But if I see a lot of them and a lot of them are the same retention, the same subscription, I start having that architect discussion with them, you know, do they need all these log analytics or can we aggregate all that data into one log analytics the same retention you know they had you know, the same subscriptions and stuff, so you'd like you said can move up the commitment here. So if you know if I get you know, 50 gigs in one log analytics and another 50 gigs a day and another one will now I can start moving up those commitment tier instead of paying the pay as you go price on all my log analytics.

Home > Microsoft Defender for Cloud | Environment settings > Settings | Defender plans >

Settings & monitoring

ME-MngEnvMCAP429712-jachahib

Continue

When you enable an extension, it will be installed on any new or existing resource, by assigning a security policy.

Defenders plans : All

Component	Description	Defender plans	Configuration	Status
Log Analytics agent/Azure Monitor agent	Collects security-related configurations and event logs from the machine and stores the data in your Log Analytics workspace for analysis. Learn more	View Edit	Agent Type: Log Analytics Selected workspace: default workspace Security events: None Edit configuration	On Off

General Compute Azure Hybrid Benefit Storage Networking **Log Analytics** Reservations Dashboard Cost Information

Subscription: All

Filter By: Resource Group

Resource Group: All

Monitoring Group

Log analytics workspaces

Workspace	Resource Group	Location	Retention (days)	Daily Cap (GB)	Licence	Subscription
DefaultWorkspace-38c26c07-ccce-4839-b504-cd0de8e5b09d	(#) defaultresourcegroup-weu	westeurope	30	--	PerGB2018	ME-MngEnvMCAP429712-jachahib
law-default	(#) mgmt	westeurope	30	--	pergb2018	ME-MngEnvMCAP429712-jachahib

Reservations

Wednesday, 24 May 2023 17:01

General Compute Azure Hybrid Benefit Storage Networking Log Analytics **Reservations Dashboard** Cost Information

Subscription: All ▾

Filter By: Resource Group ▾

Resource Group: All ▾

Reservations Overview

Agreement Type: Microsoft Customer Agreement (MCA) Microsoft Enterprise Agreement (EA)

RBAC Needed

This tab will present various reservations-related details.

- Consider the following least-privilege (minimum) RBAC permissions to see informations on this tab:
 - For Enterprise Admin (EA) Customers: Enterprise Administrator (read only) or EA Purchaser. To learn more about how to setup these permissions, check [this link](#).
 - For Microsoft Customer Agreement (MCA) Customers: Billing profile reader. To learn more about how to setup these permissions, check [this link](#).

Billing Account: No items found ▾

Look back period: Last 7 Days ▾

Scope: Single ▾

Resource type: VirtualMachines ▾

Cost Information

Wednesday, 24 May 2023 17:02

General Compute Azure Hybrid Benefit Storage Networking Log Analytics Reservations Dashboard Cost Information

Cost Information

Subscription: ME-MngEnvMCAP429712-jachahbar-1 ▾

Filter By: Resource Group ▾

Resource Group: All ▾

This Tab will show Information about idle resource that have impact on cost

Note: The cost information available in this tab relates to the previous month. If the resources was created less than 30 days ago, check the cost management and billing blade.

*Billing reader permission as a minimum is needed to populate cost information

Unattached Managed Disks cost

 The query returned no results.

RBAC reservation reader reservation

Manoj -> gives good update on this.

AKS -> feedback demo without AKS (bad feedback)

Kubecost is being used ->

Postgresql -> default

cosmosdb

Redis cache -> Redis lab enterprise version vs Azure Redis

Control cost:

Moving most things from Kafka to Event Hub (new pattern, any reporting around that would be helpful)

Service Bus

Next steps:

Savings plan -> move from RI to Savings plan

[Delivery Guide: upskilling and execution Plan for Migrate and Modernize Virtual Machines to Azure | MIP Delivery Documentation \(mipdocs.azurewebsites.net\)](#)

[Manage and optimize costs with Azure Cost Management | Microsoft Learn](#)

Work with the CSAM to schedule **two customer calls**:

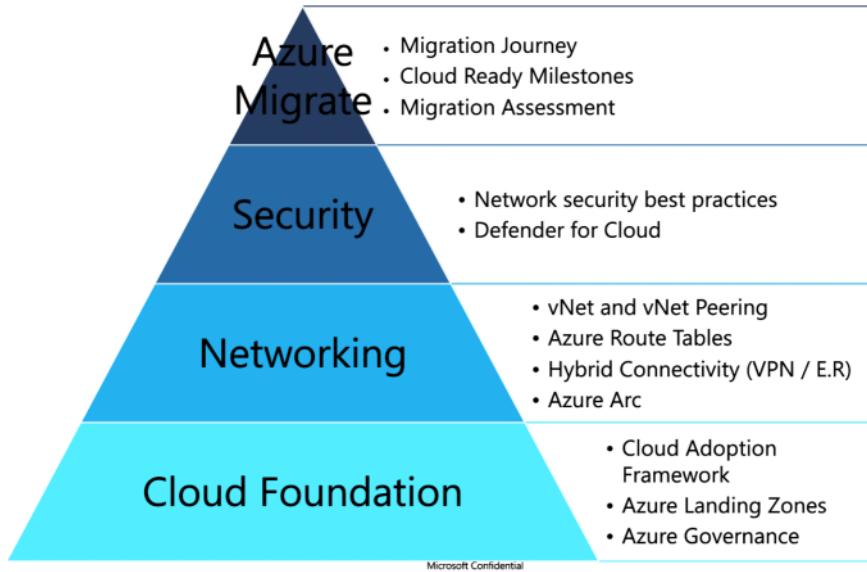
- Customer Skilling Assessment Call with the following Agenda items: (30 m)
 - Conduct the skilling assessment and Q&A using the questionnaire template(PPT)
 - Review the questionnaire output and preparing content for the skilling plan review
- Customer Skilling Plan review with the following Agenda items: (60 m)
 - Introduce the skilling plan document (Layout, Formatting, Content)
 - Review the various skilling content types and the Level syntax (L100, L200, L300, etc.)
 - Describe each of the core content areas and why it was included
 - Review MIP options and identify any customer interest
 - Q&A period for customer questions

From <https://mipdocs.azurewebsites.net/articles/articles_vbd/inrastructure/migrate-and-modernize-your-infrastructure-workloads/migrate-virtual-machines-to-azure/Customer_Upskilling_Plan/DeliveryGuide.html>

SSG IP Release - Microsoft Azure - Infrastructure as a Service - All Documents (sharepoint.com)

M1 - Azure IaaS Overview
M10 - Azure US Government Amendment
M2 - Azure Resource Manager
M3 - Azure Storage
M4 - Azure Virtual Machines
M5 - Azure Networking
M6 - Azure Identity
M7 - Azure Management
M8 - Azure Automation
M9 - Azure Backup

Recommended knowledge for Azure Migrate



Based out of the Customer call, build a Skilling plan document that can include the following Resources / Services:

General

- Microsoft Cloud Adoption Framework for Azure - Learn <https://docs.microsoft.com/en-us/learn/modules/microsoft-cloud-adoption-framework-for-azure/>
- Introduction to the Microsoft Azure Well-Architected Framework - Learn <https://docs.microsoft.com/en-us/learn/modules/azure-well-architected-introduction/>
- WorkshopPLUS - Microsoft Azure: Infrastructure as a Service - <https://esxp.microsoft.com/#/omexplanding/services/768/geo/PRT/details/3>

Storage

- Explore Azure Storage services - Learn <https://docs.microsoft.com/en-us/learn/modules/azure-storage-fundamentals/>
- Store data in Azure - Learn <https://docs.microsoft.com/en-us/learn/paths/store-data-in-azure/>

Networking

- WorkshopPLUS - Microsoft Azure: Networking 1 Day with Lab - <https://esxp.microsoft.com/#/omexplanding/services/8190/geo/PRT/details/3>
- WorkshopPLUS - Microsoft Azure: Networking Essentials <https://esxp.microsoft.com/#/omexplanding/services/9281/geo/PRT/details/3>

Security

- Prepare for cloud security by using the Microsoft Cloud Adoption Framework for Azure - Learn <https://docs.microsoft.com/en-us/learn/modules/cloud-adoption-framework-security/>
- Manage security operations in Azure - Learn <https://docs.microsoft.com/en-us/learn/paths/manage-security-operations/>
- Improve your cloud security posture with Microsoft Defender for Cloud - Learn <https://docs.microsoft.com/en-us/learn/modules/m365-security-azure-security-center/>
- WorkshopPLUS - Microsoft Azure: Security Best Practices - <https://esxp.microsoft.com/#/omexplanding/services/6662/geo/PRT/details/3>
- WorkshopPLUS - Microsoft Azure: Hybrid Identity - <https://esxp.microsoft.com/>

Tiberiu -> Training Coordinator

Azure Training Scoping Call.

Which questions can I ask a customer when doing a scoping call after they requested to have their IT staff trained on Azure and the info I got is they just migrated some workloads and they are new to Azure
As a trainer, you could ask the following questions during the scoping call to help you understand the customer's needs and tailor your training accordingly:

1. What motivated your company to migrate workloads to Azure, and what challenges did you encounter during the migration process?

At the beginning of migration phase, working in Dev trying to move things. Partners not really where they should be in terms of Azure knowledge.
Knowledge in house would help to challenge them.

Internally, align everybody in the same level.
Last year, first acquiring the contract, then doing.

2. What specific Azure services or features does your company currently use, and what are the primary use cases for these services?

ARO Azure Redhat Openshift

-Biggest challenge comes from the networking side.

-DNS (biggest challenge, public, private)

-How to connect ARO with ACR?

Try to make apps containerized

Other challenge is Azure Files: what is the best thing to do in terms of moving files (Netapp, blob storage)

Azure Data Services (core of what EBA does)

EBA does data it's all about data

3. What are the most critical workloads or applications that your IT staff manages in Azure, and what are the business consequences of any downtime or performance issues?

Migration (Contractor is doing it)

Transformation path -> Try to use Azure Native Services

Modernization -> ARO

Basic knowledge and governance, is that needed?

People have the equal AZ-900

4. What are the main skill gaps or areas of knowledge that your IT staff needs to address to improve their Azure competency?

No cert type of courses. Not the main goal

Good level of understanding (lab is good) at the same time.

Not become expert on DNS (have good understanding of ADDS, how it works)

5. What are your goals for the Azure training, and how will you measure the success of the training program?

6. Do you have any specific training requirements or preferences, such as instructor-led training, self-paced online courses, or hands-on labs?

7. What is the level of Azure knowledge among your IT staff, and what is their experience with other cloud platforms or technologies?

8. Are there any compliance or security requirements that your IT staff needs to be aware of when managing workloads in Azure?

9. Are there any future Azure projects or initiatives that your company is planning, and how will the training program help prepare your IT staff for these projects?

10. Is there anything else that you think would be important for us to know as we develop the training program?

Relied more on partners in the past, always delayed it. Learning by doingaaaaaaaaaaaaaa

8 IT people + day to day operations. More than willing but no time.

11. What is the size of your IT team, and how many team members will be participating in the Azure training?

12. What is your preferred timeline for the Azure training program, and are there any specific scheduling requirements or constraints?

13. Do you have any specific Azure certifications or exams that you would like your IT staff to prepare for as part of the training program?

14. How familiar are your IT staff with the Azure portal and command-line interface (CLI), and do they have any experience with Azure automation or scripting?

15. What is your company's overall cloud strategy, and how does Azure fit into that strategy?

16. What are the main business objectives that your IT staff needs to support through their work in Azure, and how will the training program help them achieve these objectives?

17. Are there any specific challenges or pain points that your IT staff has experienced when working in Azure, such as security issues, performance problems, or cost management challenges?

18. What is the current state of your IT infrastructure, and how will the Azure training program help your IT staff integrate Azure with your existing infrastructure?

19. Are there any other stakeholders or departments within your company that need to be involved in the Azure training program, such as security teams, compliance officers, or project managers?

20. What are your expectations for the trainer, and what qualifications or experience do you consider to be important for the trainer to have?

Can we use instructional design framework addie here. Could you in Light of that show me how to do the assessment

Yes, you can use the ADDIE instructional design framework for your Azure training program. The ADDIE framework is a commonly used instructional design model that consists of five phases: Analysis, Design, Development, Implementation, and Evaluation. Here's how you could use the ADDIE framework to conduct a needs analysis for your Azure training program:

21. Analysis Phase: In this phase, you will conduct a needs analysis to determine the skills and knowledge gaps that exist among the IT staff at the company. During the scoping call, you could use the questions I provided earlier to gather information about the company's current use of Azure, the challenges they face, and their training needs.

22. Design Phase: Once you have completed the analysis phase, you will move on to the design phase. Here, you will use the information you gathered during the scoping call to develop learning objectives and an overall training plan for the Azure training program. You could use the following steps to help you design the training program:

- Develop learning objectives that are specific, measurable, achievable, relevant, and time-bound (SMART).
- Determine the scope of the training program, including the topics to be covered, the delivery method (e.g., instructor-led, self-paced), and the materials to be used.
- Create a training plan that includes a timeline, a list of required resources, and a budget.

23. Development Phase: In this phase, you will create the actual training materials and resources that will be used in the Azure training program. This could include:

- Creating instructional materials such as presentations, handouts, and training manuals.
 - Developing training activities such as case studies, simulations, and hands-on labs.
 - Recording video tutorials or demonstrations to supplement the training materials.
24. Implementation Phase: Once you have developed the training materials, you will implement the Azure training program. This could involve delivering the training program to the IT staff at the company using the delivery method you selected during the design phase. You could also provide support and guidance to the IT staff as they work through the training materials.
25. Evaluation Phase: Finally, you will evaluate the effectiveness of the Azure training program. This could include gathering feedback from the IT staff, measuring their performance before and after the training program, and assessing the impact of the training program on the company's overall use of Azure. Based on the evaluation results, you could make adjustments to the training program to improve its effectiveness.
- Can you show me examples and practical thing to do for 1
 Certainly! Here's an example of how you could conduct the Analysis Phase of the ADDIE framework to assess the training needs of the IT staff at the company:
26. Gather Information: Start by gathering information about the company's current use of Azure, their challenges, and their training needs. You could do this by:
- Conducting a scoping call with the company to discuss their Azure migration and training needs, and asking the questions I provided earlier in this conversation.
 - Reviewing any existing documentation or training materials that the company has developed for their Azure migration.
 - Conducting interviews or surveys with IT staff members to get their perspective on their current Azure knowledge and skill gaps.
27. Analyze the Data: Once you have gathered the information, you need to analyze the data to identify the IT staff's training needs. Some examples of data that you could analyze include:
- The company's current use of Azure services and features.
 - The challenges that the company has faced during their Azure migration.
 - The IT staff's current level of Azure knowledge and experience.
 - The IT staff's skill gaps and areas where they need to improve their Azure knowledge.
 - The company's business objectives and how the IT staff's work in Azure supports these objectives.
 - Any compliance or security requirements that the IT staff needs to be aware of when working in Azure.
28. Identify the Training Needs: Based on the data analysis, you can identify the IT staff's training needs. Some examples of training needs that you could identify include:
- Familiarity with the Azure portal and command-line interface (CLI).
 - Understanding of Azure automation and scripting.
 - Knowledge of Azure security and compliance requirements.
 - Understanding of Azure cost management and optimization.
 - Ability to troubleshoot and resolve performance issues in Azure.
 - Familiarity with specific Azure services or features that the company uses.
 - Preparation for specific Azure certifications or exams.
 - Understanding of how Azure fits into the company's overall cloud strategy.
29. Develop Learning Objectives: Once you have identified the IT staff's training needs, you can develop learning objectives that are specific, measurable, achievable, relevant, and time-bound (SMART). Some examples of SMART learning objectives for an Azure training program could include:
- By the end of the training program, IT staff will be able to navigate and manage Azure resources using the Azure portal and CLI.
 - By the end of the training program, IT staff will be able to create and manage Azure automation scripts to streamline common tasks.
 - By the end of the training program, IT staff will be able to implement and manage Azure security controls to meet compliance requirements.
 - By the end of the training program, IT staff will be able to optimize Azure costs and identify cost-saving opportunities.
 - By the end of the training program, IT staff will be able to troubleshoot and resolve common performance issues in Azure.
- Once you have completed the Analysis Phase, you can move on to the Design Phase, where you will use the information you gathered during the Analysis Phase to develop a training plan and materials.

Having a guided training that we all sit in the same room have interaction, would be helpful
 Guided approach small bite-sized training.
 Hands-on more than practical use cases.

Analysis 3 main areas

Foundations
 Security
 Data

- FinOps: Attila --> basic knowledge prepare agenda for the FinOps (Prepare something)
- Work on a high level before my holidays

General Idea= ATOS will do Managed Services

Focus will be more EBA (Finops ICOCCO trying to do something)

ATOS -> Partner works in Agile way
 Under discussion

Training Approach

Friday, 24 March 2023 10:54

Hi Tiberiu:

Thank you for taking the time to go over the training topics and approach with me.

Find below the proposed approach :

This course will include the following modules:

- FinOps Foundation
- Azure Cloud Cost Management and Governance
- Cost Optimization Strategies
- Electives (optional modules):
 - Deep Dive into RI's
 - Deep Dive into Cost Savings plan
 - Deep Dive into Waste Reduction

Duration per module: max. 2 hours

Delivery Type: Remote via Microsoft Teams

Audience: The ideal audience to learn about Azure cost and governance management and foundations of FinOps include:

- Cloud Architects and Cloud Engineers who are responsible for managing and optimizing Azure resources and costs.
- IT Managers and Operations Managers who need to ensure that their organization's cloud spending is optimized and in line with the budget.
- Financial Analysts and Business Managers who want to gain a better understanding of cloud cost management to drive better financial decisions.
- Azure Administrators who are responsible for managing and monitoring Azure resources and costs.
- IT Professionals who are interested in learning about best practices for cloud cost management and governance.

Overall, anyone who is responsible for managing or overseeing Azure cloud resources and costs can benefit from learning about Azure cost and governance management, as well as FinOps principles.

Prerequisites: Having at least gone through the Azure Fundamentals learning path (AZ-900)

- Basic understanding of cloud computing and Azure fundamentals.
- Familiarity with the Azure portal, Azure Resource Manager (ARM) templates, and Azure CLI.
- Basic knowledge of Azure services such as Virtual Machines, Storage, and Networking.
- Experience in managing Azure resources and implementing security and governance controls.
- Completion of the "Microsoft Azure Fundamentals" course or equivalent knowledge.

Having these prerequisites will help learners to better understand the concepts covered in the **Azure Cloud Cost Management & FinOps** course and be successful in implementing the best practices and techniques discussed in the course.

Prerequisite learning paths: [Azure Fundamentals](#)

When: After my vacation, we could look align our agendas and schedule these sessions.

Additional Training

Friday, March 24, 2023 10:56 AM

[CCX FinOps Introduction MIP | MIP Delivery Documentation \(mipdocs.azurewebsites.net\)](https://mipdocs.azurewebsites.net)

RI Deep Dive Resources

Friday, March 24, 2023 10:57 AM

[Changes to the Azure reservation exchange policy - Microsoft Cost Management | Microsoft Learn](#)

Waste Reduction Deep Dive

Friday, March 24, 2023 10:57 AM

[Azure Orphan Resources \(microsoft.com\)](#)

Example Trainings

Monday, March 13, 2023 3:41 PM

Azure Cost Management – Training



At 1hour 5min starts explanation on Ris and Saving Plan

SAMexpert		Azure Hybrid Benefit	Windows Server Standard	Windows Server Datacenter
Perpetual Volume Licences with Software Assurance				
Subscription Volume Licences		Either on-premises or in Azure		Simultaneously on-premise and in Azure
Subscription licenses via CSP				

Windows Server Standard

! Dual use is allowed for 180 days only during a one-way migration (to Azure, obviously)

Can reassign back after 90 days

Windows Server Datacenter

! Dual use is allowed between on-premises and Azure VMs

! Azure Dedicated Host, unlimited virtualisation:

- Same terms as on-premises
- 180-days dual use rule applies

SAMexpert How to calculate licences Windows Server

- ! 1. Minimum 16 cores assigned to Azure
2. Minimum of 8 cores assigned to a VM
3. Bigger VM? Increment by 8 cores
4. A 16-core pack can cover up to 2 VMs

(Yes, there are VMs with 6, 12 or 20 cores.)

VM cost reduction

	Reserved Instance Savings Plan	Azure Hybrid Benefit
How to turn on	Order an RI / SP	Checkbox/switch when you create a VM or at any time later
Attached to a VM?	No, automatically reallocated	Attached, must reassign manually

Azure Certifications

Thursday, March 9, 2023 11:54 AM

[Upskill with Azure certifications \(microsoft.com\)](#)

[The journey to Microsoft Certified - Azure Administrator Associate](#)

[Become Microsoft Certified Poster and One Pager](#)
aka.ms/TrainCertPoster

Introduction to Certifications (Introductory Session) - 15min.

Thursday, March 9, 2023 11:59 AM

Azure Training + Certification Guide (microsoft.com)

This link provides an overview of Microsoft's Azure certification program, which offers a range of certifications for different job roles and levels of expertise. These certifications are designed to validate a person's proficiency in various aspects of Azure, including cloud computing concepts, managing resources and services, security, development, and solutions architecture.

The link provides information on the different certification paths available, including:

- Azure Fundamentals
- Azure Administrator Associate
- Azure Security Engineer Associate
- Azure Developer Associate
- Azure Solutions Architect Expert

For each certification path, the link provides details on the skills and knowledge needed to earn the certification, as well as recommended training courses and resources.

The link also provides information on the benefits of earning Azure certifications, including:

- Demonstrating proficiency in Azure and validating skills to potential employers
- Improving career opportunities and earning potential
- Accessing exclusive Azure resources and community events
- Keeping up with the latest Azure technologies and trends

In summary, the link provides an overview of Microsoft's Azure certification program, which offers a range of certifications for different job roles and levels of expertise. These certifications validate a person's proficiency in various aspects of Azure and provide a number of benefits for career advancement and keeping up with the latest technologies and trends.

From <<https://chat.openai.com/chat>>

Talking Points:

- Azure certifications demonstrate proficiency in different aspects of Azure, from basic cloud computing concepts to advanced skills in designing and implementing solutions.
- Azure Fundamentals is a foundational certification that demonstrates a basic understanding of cloud computing concepts and services, as well as Azure pricing and support.
- Azure Administrator Associate is designed for individuals who are responsible for managing Azure resources and services, including storage, networking, and compute.
- Azure Security Engineer Associate is intended for individuals who are responsible for implementing security controls and maintaining the security posture of Azure resources and services.
- Azure Developer Associate is designed for individuals who are responsible for developing and deploying Azure solutions, including web applications, mobile apps, and cloud-native applications.
- Azure Solutions Architect Expert is intended for individuals who are responsible for designing and implementing solutions that run on Azure.
- By earning these certifications, individuals can gain the skills and knowledge needed to effectively manage, secure, develop, and design solutions on the Azure platform.
- Organizations can also demonstrate their commitment to Azure and their ability to leverage its capabilities to drive business value by earning these certifications.
- These certification paths are just a starting point and can be customized to an organization's specific needs and goals.
- In summary, Azure certifications are a valuable way to gain expertise in different aspects of Azure and demonstrate a commitment to leveraging the platform to drive business value.

From <<https://chat.openai.com/chat>>

Course Outline Inspiration

Thursday, March 9, 2023 12:02 PM

Module 1: Azure Core (Level 100)

- Introduction to Azure and its services
- Understanding Azure subscriptions and billing
- Azure Resource Manager (ARM) and Resource Groups
- Azure virtual machines (VMs) and availability sets
- Azure App Service and serverless computing

Module 2: Azure Networking (Level 100-200)

- Understanding Azure networking concepts
- Azure Virtual Networks (VNet) and subnets
- Azure Load Balancer and Application Gateway
- Azure Traffic Manager and DNS
- Azure VPN and ExpressRoute
- Azure Firewall and Network Security Groups (NSG)
- Azure DDoS Protection and Network Watcher

Module 3: Azure Storage (Level 100-200)

- Understanding Azure Storage options
- Azure Blob Storage and its use cases
- Azure Files and its use cases
- Azure Disk Storage and its use cases
- Azure Storage Account Management
- Azure Storage Replication options
- Azure Storage Security and Encryption

Module 4: Azure Arc (Level 200)

- Introduction to Azure Arc
 - Extending Azure services to on-premises and multi-cloud environments
 - Deploying and managing Azure Arc-enabled servers and Kubernetes clusters
 - Azure Arc-enabled data services
- Module 5: Azure BCDR (Level 200)
- Understanding Business Continuity and Disaster Recovery (BCDR) concepts
 - Azure Site Recovery (ASR) and its use cases
 - Azure Backup and its use cases
 - Azure VM disaster recovery and failover options

Module 6: Azure Landing Zones (Level 200-300)

- Introduction to Azure Landing Zones
- Azure Landing Zones architecture and design principles
- Azure governance and management at scale
- Azure Landing Zones deployment and management best practices

Module 7: Azure Migrate and ASR (Level 100-200)

- Azure Migrate and its use cases
- Understanding Azure Migrate assessment and migration types
- Introduction to Azure Site Recovery (ASR) and its use cases
- ASR deployment and management best practices

MIPs to propose for the future

Monday, March 13, 2023 2:57 PM

[Delivery Guidance | MIP Delivery Documentation \(mipdocs.azurewebsites.net\)](#)

Meeting notes day1

Friday, 21 April 2023 14:21

NTT -> un pas vers le cloud.

started already with NTT

commence a nous initié et faire rentrer dans le bain.

forte probabilité que cela soit dans Azure

deja MS365

le projet n'avance pas beaucoup, on est à l'orteil.

Du coté de Etnic,
souscription Enterprise Agreement dans Azure

1er temps du test de la formation dans toute les branche

DB-> postgres beacoup mssql

plateforme d'hébergement Web: Web App et kubernetes en interne

un projet qui a débuté dans Azure.

Le but serait de reconsolider tout cela et d'avoir une gestion centralise.

1ere objectif: une structure organisationnelle permettant au dept une liberter dans la creation tout en restant constraint a des regles de l'entreprise.

Il y aura uns refacturation a faire -> chargeback

Tout ce qui est fait sera fait dans l'équipe de Stephane

une série de best practice orientée grande enterprise

stephane: 1,5 chez etnic, etait chez NSI dans l'équipe cloud, solution architect AWS. Jamais vraiment travailler dedant. Concepce cloud, pas de problème.

ici on as une organisation très large, règle

avoir un depart propre, faire une landing zone correcte.

Azure: à l'heure actuel que du test, c'est une facilité.

On est vraiment au point zero de la mise en production.

Il y a une grande demande derrière.

On ne veut pas perdre trop de temps pour la mise en place de la structure de départ.

Dans l'équipe actuellement Stephane est le seul.

plusieurs personnes vont se greffer à ce projet.

Stephane ne vient pas avec le passé, sans rancune.

SAP workload known but no immediate plan to migrate, could be interesting.

landing zone:

Hybrid connectivité: intégration of the network team.
in the beginning cloud native.

Security: not part of the discussion.

NET IQ for identity.

Self service portal.

IAM is cloud agnostic, for all human accounts.

Stéphane has adm account and another account.

Stéphane only cloud contact

Ansible: configuration management

MACC: 3 ans

Greenfield landing zone

Etnic, departement technique federation wallonie
client c'est les bénéficiaires: ONE (gros morceau) ils en avait marre d'attendre etnic, ils ont leur propre tenant qu'ils gèrent via une société externe, Federation Wallonie, Enseignement

13000 utilisateurs hors enseignement

Volonté de L'ONE est de se rattacher à l'ETNIC -> on préfère les laisser et attendre après avoir gagné une maturité.

ETNIC: représente 600 personnes: on est les pilotes.

autres bénéficiaires: cabinet ministérielles: vivent 4 ans et après tout est effacé. (déjà une infra en place, on n'en tient pas compte) actuellement: environnement on prend avec AD et échange dédié. -> pour le futur. on en parlera pas avant l'année prochaine.

notions SILO chez Etnic.

Stephane et son collègue essaient de nouer les liens et les équipes. Ils essayent de créer un groupe de travail.

sécurité: région européenne.
énormément d'applications s'authentifient via l'IAM

No aad sync -> everything redirected to NETIQ (risk if no connection to NETIQ, no authentication).

équipe de sécurité:
mantra sécurité: agnostique, ADN est d'être agnostique.

équipe de réseau:
Network: 300 sites distants, pas vraiment de topologie, problème de compétence.
IPAM -> on met cela en place que maintenant.
Scope IP des serveurs: /22 (800 serveurs)

landing zone
finops

Priorité: sources d'info best practice, pour apprendre.
AZ-104

Jeudi -> Au prochaine

Introduction CAF
landing zone workshop
DEMO

For an engagement 2 day
10h

9h-11h

Meeting Notes 16/05

Tuesday, 16 May 2023 09:14

Semaine prochaine réunion prevue avec l'équipe sécurité.

Actuellement Azure n'est pas tellement dans leur religion.

La semaine prochaine: réunion pour un premier use case. Un projet, un AKS déployé, dans un environnement, la souscription attaché à NTT. Le but sera de rapatrié. (NTT managed services, difficult, not pas, tributaire NTT. La on aura la main sur l'intégrité de la chose. Deployé via Terraform, le schéma était succinct,...ipsec entre ETNIC et leur tenant,...on arrive sur leurHub et après on ne sait pas ce qu'il y a dans l'AKS. -> was non prod)

l'équipe veut apprendre.

Autonomisation et apprentissage de solutions dans le Cloud.

First Workload: AKS

Hier petite réunion -> toujours mode d'apprentissage.

Ligne directrice: Un pas vers le cloud, apprentissage, autonomisation, rendre compte de la capacité de service.

NTT: on reste dépendant d'eux d'un point de vue technique.

Nuancé: Lilian Duchene -> il y a plus d'un an. En quoi l'ETNIC a un rôle à jouer quand on passe dans le cloud. Des ateliers intern. On va faire un cahier des charges. On fait un pas, pas deux et on mouille sa chemise. Est-ce que l'ETNIC a un rôle à jouer sur les outils et fondations de l'infra. On arrive avec des technologies tellement complexes, est-ce que ça vaut le coût d'avoir de l'expertise la dedans. Est-ce que l'ETNIC peut se fier aux services de NTT.

NTT reconnaît son échec la dedans. NTT a des tort. NTT peut penser la même chose de l'ETNIC. La conclusion aujourd'hui par rapport au modèle NTT avec Managed Service ne fonctionne pas aussi par rapport la maturité.

La proposition NTT: passer vers un modèle de coaching.
En interne: la conviction au niveau stratégie. On va faire un petit virage. On va faire un. On se dit on est pas mature. On a un modèle où on maîtrise tout, on garde la main vers Azure. On ne ferme pas la porte au managed service (André poncelet ferme la porte).

On garde la main sur les éléments Azure.

NTT va adapter si Fabrice approuve la proposition. Ils vont venir avec des coachs, conseiller et former.

On va gérer Azure avec du Landing Zone.

Stephane: être épaulé par NTT, c'est très bien.

Lilian: on a pris du retard.

Le but s'est de bougé et d'avancé.

Xavier: Architecte Lead de l'architecture IT, Lilian Enterprise Architect, Alain Register: Solution Architect (defines ref arch, orienté Power Automate

Lilian: explique les principes d'architecture et montre une présentation sur la stratégie des données

Concepte fort qu'on met en place. On a des données quand on comprend on a des infos, dans un contexte métier on a de la connaissance et après on passe à l'action et après on execute des actions

Azure contrôle les flux.

Monitoring: difficult to do because in Azure we have a lot of built in tools.

Incident management

Cloud Management -> Azure.

Log aggregation collect -> SNOW
(balancement à ce niveau là, on est au début)

Modern Workplace -> if security breach

Zero Trust -> collab with other colleagues. Anica.

Zero Trust -> CSSI there is Jean Francois Var, there is a document.

Stratégie, there is a consultant.

Concretely they will start in 1 or 2 months.

There is a document by SPOT Team (what can and cannot be done)

SPOT Team has reviewed a lot of

3 clouds: M365 Power Platform Azure
Il y a des sujets transversaux, il y a des aspects data, flux. Classification des données.
Cloud Management -> couche d'intégration doit passer par là.

Comment commence la méthode, la pratique?

Applications: programme 'obsolescence. Un peu moins de 40% du parc applicatif qui est obsolète.
371 apps identifier, classé (business fit technical fit) -> fin mai différent bilan.

SAP -> not done yet, not SAP HANA new version yet.

Migration strategy???

Engagement par rapport au gouvernement: vous avez jusqu'à la fin de l'année.

Bloquage: client, c'est leur appli?

l'aspect: sourcing, il faut laisser de la bande passante. On doit l'avoir aussi en sortant en managed service.

Équivalent on prem, on fera tourner ailleurs pour des choses pas importante.

"Analyze Time" -> pour la fin de l'année.

Alain Register:

Cycle de vie applicatif:
Définition de souscriptions.

Lilian Duchene:
Xavier Martin: need to recruit for the Cloud (no budget this year). Pour monter tout le monde en maturité.

Bonne nouvelle: nouvelle gouvernance basée sur architecture board. Le sujet cloud va tomber sur le cloud. Il y aura une méthode.

For this year: no competency at this level.

Next Steps:

Stéphane will set up the next steps.

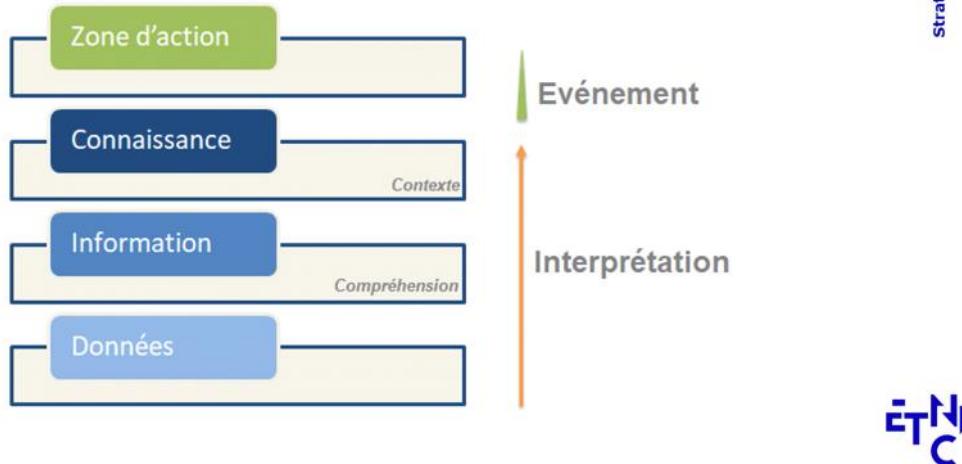
New infra architecte: global architecture also cloud.
La présidence architecture board: Fabrice Antoine (IT Director)
ETNIC: monopole sur le parc app.
Ils sont obligé de passer par nous.
Pense monopole.
Entreprise public pas privé.

m'accrocher comme une moule sur son roché, comme un steak dans la fausse au lion.

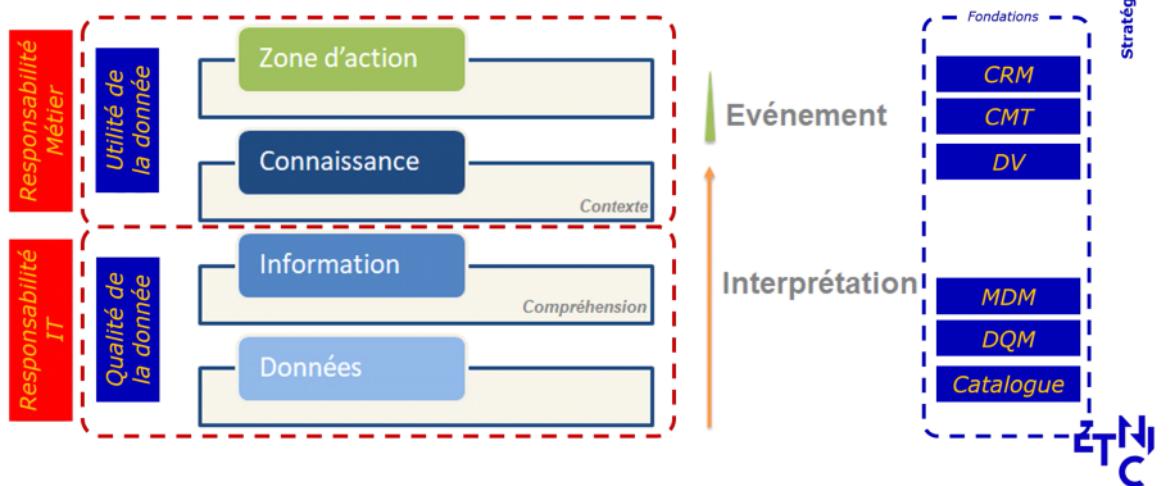
Le but s'est d'informer les architecte enterprise.

Patrick Falque

LA GESTION DE LA DONNÉE



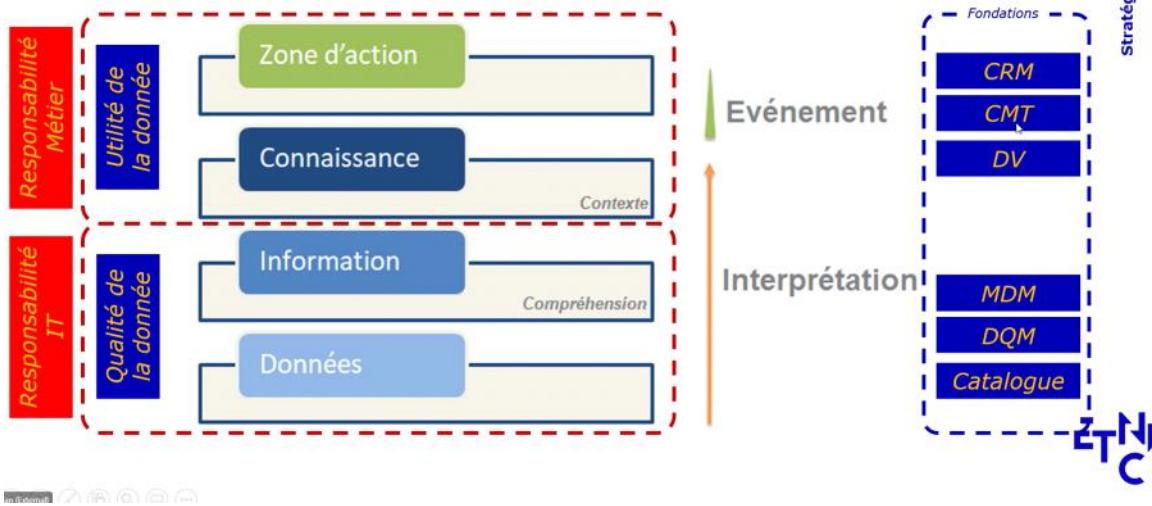
LA GESTION DE LA DONNÉE



Assurer le passage de l'utilité à l'action.

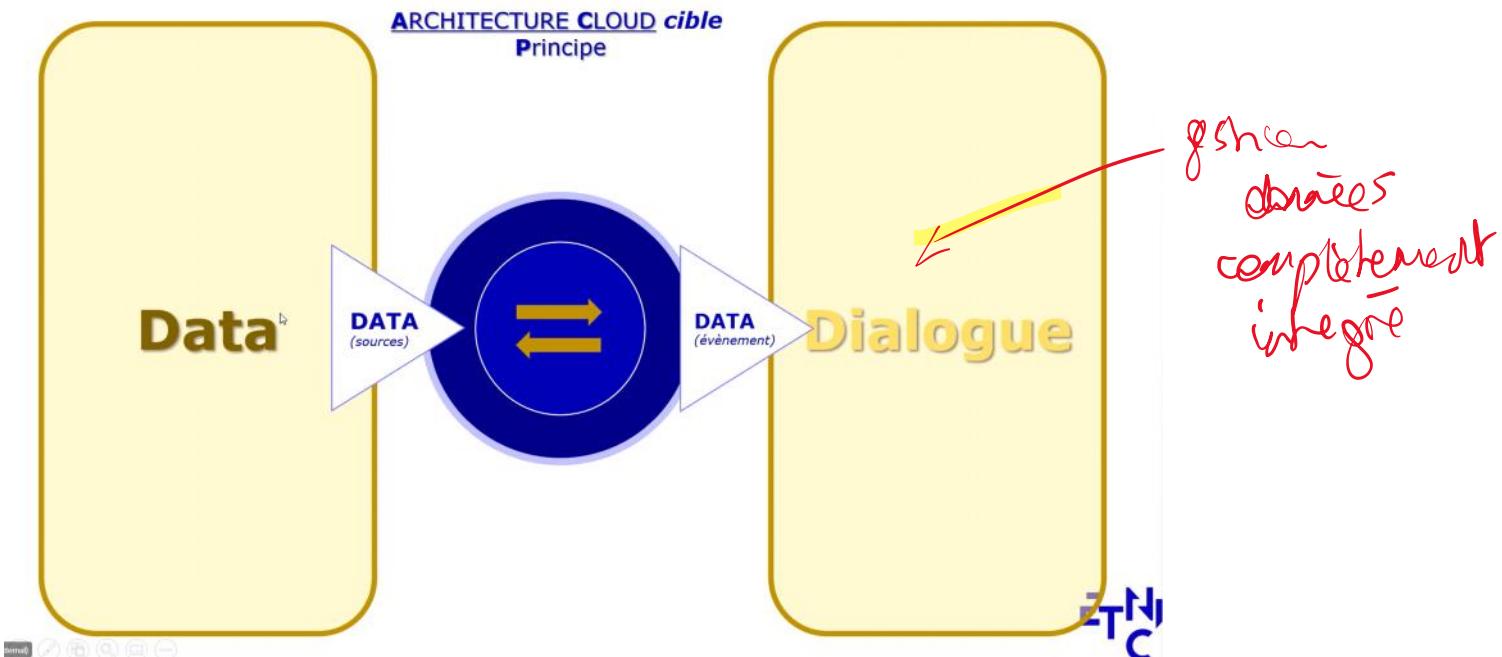
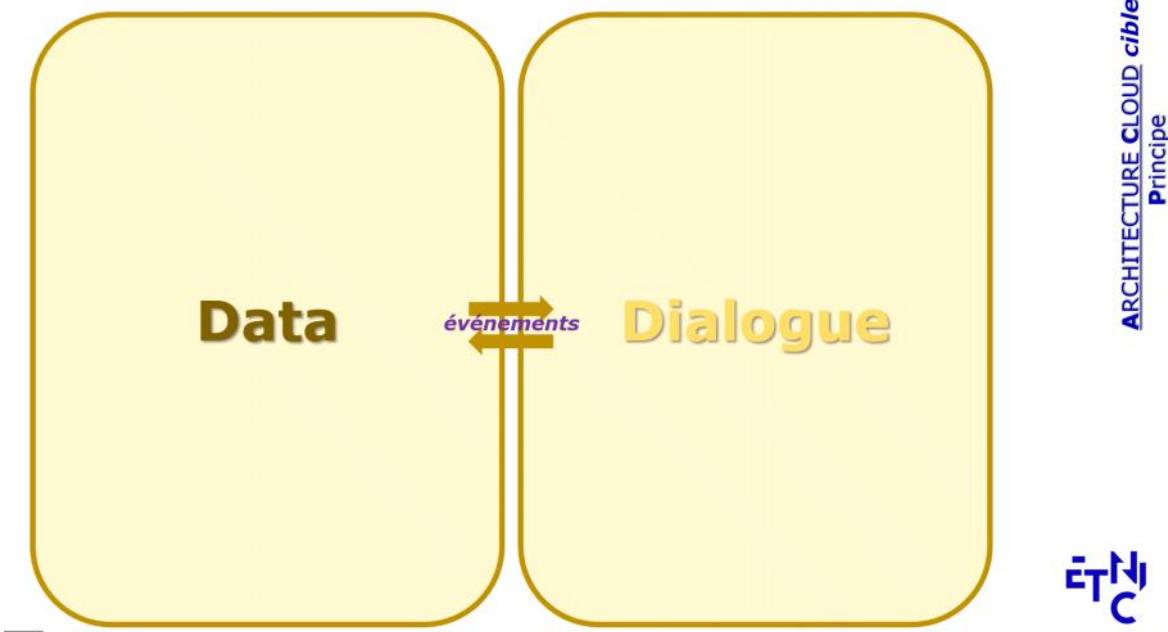
IT: grosse fondations PRN, données catalog, MDM, produit IBM, Data virtualization

LA GESTION DE LA DONNÉE

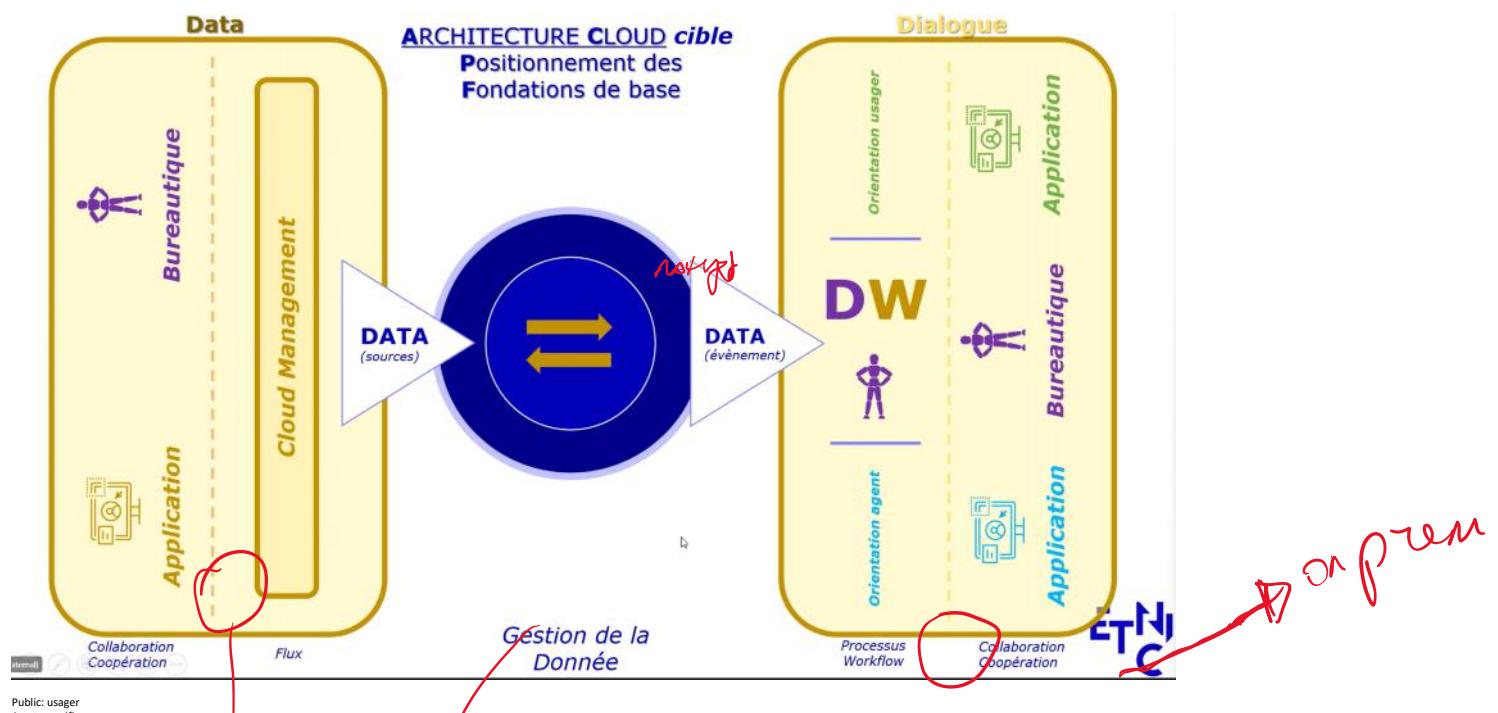


Case management: Dynamics

Data sends evenement



We have data we will create events.



Public: usager
Age:t: spécifique
Recuperer de l'info fortement contextualiser
Digital workplace.
Créé de la collaboration du travail en commun

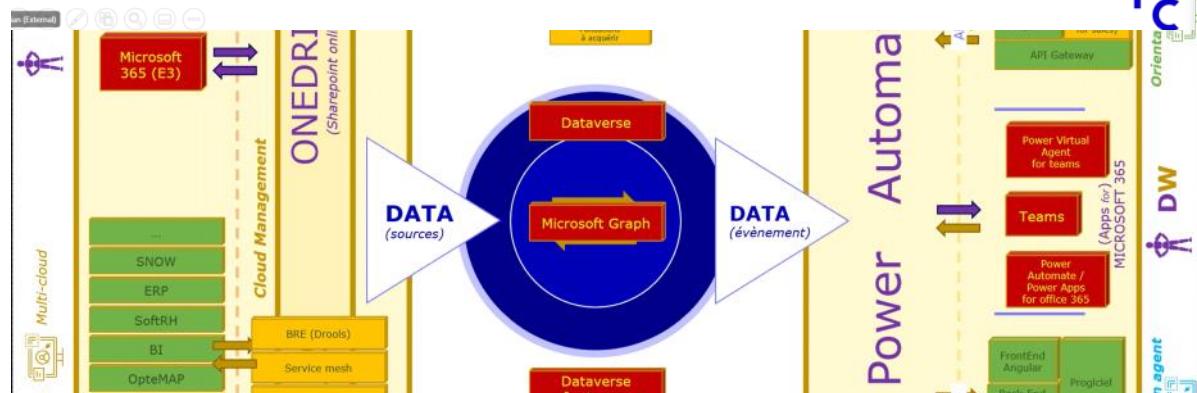


ARCHITECTURE CLOUD cible SysInfo - Infrastructure

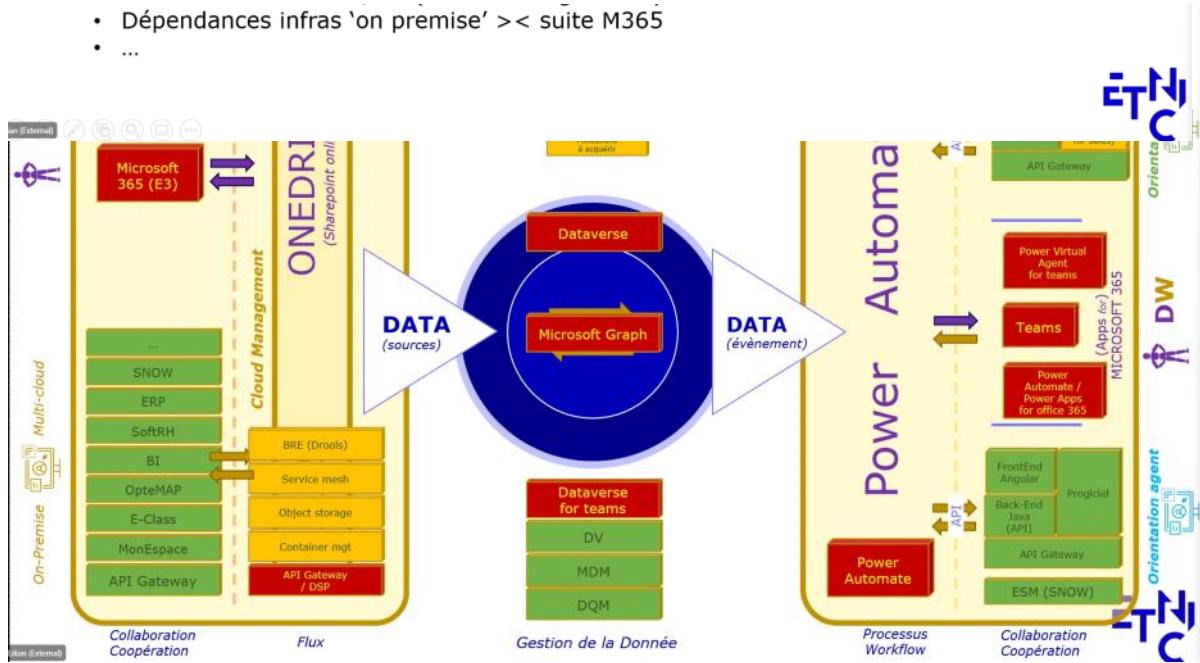


Points à positionner / à étudier :

- IAM / Active Directory
- Tunnel IPSEC
- API exposé par le cloud mgt > call sur internet FE vers BE (BE 'on-premise' inclus) ?
- Positionnement de la landing zone 'Azure'
- Traitement de masse (temps différé)
- Traitement transactionnels (temps réel / temps différé)
- Intégration des clouds 'tiers'
- Positionnement du CI/CD (container mgt inclus)
- Dépendances infras 'on premise' >< suite M365
- ...



- Dépendances infras 'on premise' >< suite M365
- ...



Summary

Tuesday, 16 May 2023 14:09

Here is a summary of your notes in French:

La semaine prochaine, une réunion est prévue avec l'équipe de sécurité pour discuter d'un premier cas d'utilisation avec Azure. Le but est de rapatrier un projet AKS déployé dans un environnement attaché à NTT. L'équipe veut apprendre et s'autonomiser dans les solutions Cloud. Le premier workload sera AKS.

Il y a eu une petite réunion hier pour continuer l'apprentissage. L'Enterprise Agreement est avec Software One. La ligne directrice est de faire un pas vers le cloud, en apprenant et en s'autonomisant. NTT reste dépendant d'un point de vue technique.

Il y a eu des discussions sur le rôle de l'ETNIC dans le cloud et sur la possibilité de se fier aux services de NTT. NTT reconnaît son échec et propose de passer à un modèle de coaching. En interne, la stratégie est de faire un petit virage et de garder la main sur les éléments Azure.

NTT va adapter sa proposition si Fabrice l'apprécie et viendra avec des coachs pour conseiller et former. On va gérer Azure avec Landing Zone. Stéphane pense que c'est très bien d'être épaulé par NTT.

Lilian mentionne qu'on a pris du retard mais que le but est d'avancer. Xavier est l'architecte Lead de l'architecture IT, Lilian est l'Enterprise Architect et Alain Rogister est le Solution Architect.

Lilian parle également du principe d'architecture et du passage de l'utilité à l'action. IT a de grosses fondations PRN, des données cataloguées, MDM, un produit IBM et Data virtualization. Le case management se fera avec Dynamics.

On est dans un modèle hybride et on a besoin de cette fondation cloud sur laquelle on va s'appuyer.

Voici un résumé plus détaillé de vos notes en français:

La semaine prochaine, une réunion est prévue avec l'équipe sécurité pour discuter d'un premier cas d'utilisation d'Azure. Le but est de rapatrier un projet AKS déployé dans un environnement géré par NTT. L'équipe veut apprendre et s'autonomiser dans l'utilisation des solutions Cloud.

La ligne directrice est de faire un pas vers le cloud, en gardant la main sur les éléments Azure. NTT propose de passer à un modèle de coaching pour conseiller et former l'équipe. Des discussions ont lieu sur le rôle de l'ETNIC dans la gestion du cloud et des données. Des concepts forts sont mis en place pour gérer les flux et les incidents.

Des sujets transversaux sont abordés, tels que la classification des données et la gestion du cloud. Des applications obsolètes sont identifiées et classées. Des étapes suivantes sont prévues, notamment la mise en place d'une nouvelle gouvernance basée sur un conseil d'architecture.

Le but est d'informer les architectes d'entreprise et d'assurer le passage de l'utilité à l'action. Des discussions ont lieu sur la nécessité de recruter pour le cloud et sur la mise en place d'une méthode pour monter en maturité. Un programme d'obsolescence est en cours pour identifier et classer les applications obsolètes.

Des engagements ont été pris par rapport au gouvernement pour la fin de l'année. Des blocages sont identifiés, notamment au niveau du sourcing et de la bande passante. Un "Analyze Time" est prévu pour la fin de l'année.

Des discussions ont lieu sur le cycle de vie applicatif et la définition des souscriptions. Des fondations importantes sont mises en place pour gérer les données, avec des produits tels que IBM MDM et Data Virtualization.

Un case management est mis en place avec Dynamics. Des événements sont créés à partir des données pour faciliter la collaboration et le travail en commun. Le but est de s'appuyer sur cette fondation cloud pour avancer.

Hi all,

I had a meeting today with the Stephane, Patrick and the other architects,

- A meeting is planned with the security team to discuss a first use case with Azure.
 - The goal is to repatriate an AKS project deployed in an environment attached to NTT.
- The guideline is to take a step towards the cloud, by learning and becoming autonomous.
- The team wants to learn and become autonomous in Cloud solutions.
- NTT proposes to move to a coaching model to advise and train the team.
- Internally, the strategy is to make a small turn and keep control of Azure elements.
- Azure will be managed with Landing Zone.
- There were discussions about the role of ETNIC in the cloud and the possibility of relying on NTT services.
- Lilian mentions that we have fallen behind but that the goal is to move forward.
- IT has large PRN foundations, catalogued data, MDM, an IBM product and Data virtualization. Case management will be done with Dynamics.
- We are in a hybrid model and need this cloud foundation to rely on.

From <<https://www.bing.com/search?q=bing+chat&cvid=8a3104a815444faa122bbcaadb01666&aqs=edge.0.0l9j69|11004.4983|0j4&FORM=ANAB01&PC=U531>>

Some of the next steps mentioned during the meeting:

- NTT will adapt its proposal if Fabrice approves it and will come with coaches to advise and train the team.
- A new governance based on an architecture board will be set up to inform enterprise architects.
- A program is underway to identify and classify obsolete applications.

Here is a summary of your notes in English:

Next week, a meeting is planned with the security team to discuss a first use case with Azure. The goal is to repatriate an AKS project deployed in an environment managed by NTT. The team wants to learn and become autonomous in Cloud solutions. The first workload will be AKS.

There was a small meeting yesterday to continue learning. The Enterprise Agreement is with Software One. The guideline is to take a step towards the cloud, by learning and becoming autonomous. NTT remains technically dependent.

There were discussions about the role of ETNIC in the cloud and the possibility of relying on NTT services. NTT acknowledges its failure and proposes to move to a coaching model. Internally, the strategy is to make a small turn and keep control of Azure elements.

NTT will adapt its proposal if Fabrice approves it and will come with coaches to advise and train. Azure will be managed with Landing Zone. Stéphane thinks it's great to be supported by NTT.

Lilian mentions that we have fallen behind but that the goal is to move forward. Xavier is the Lead Architect of IT architecture, Lilian is the Enterprise Architect and Alain Rogister is the Solution Architect.

Lilian also talks about the principle of architecture and the transition from utility to action. IT has large PRN foundations, catalogued data, MDM, an IBM product and Data virtualization. Case management will be done with Dynamics.

We are in a hybrid model and need this cloud foundation to rely on.

From <<https://www.bing.com/search?q=bing+chat&cvid=8a3104a815444faa122bbcaadb01666&aqs=edge.0.0l9j69|11004.4983|0j4&FORM=ANAB01&PC=U531>>

Meeting Antoine

Tuesday, 16 May 2023 13:09

Contactpersions: Architecture team. Lilian Duchene.

Meeting 12/6

Tuesday, 16 May 2023 11:14

Agenda 5/6

Departement Innovation: ils ont un hackaton un evenement ou ils font du live. Ils ont mis en place une solution sur Azure. Ils ont mis cela dans une souscription de test.
It is a cloud native application.

Stephane va commencer un design papier.

()

Premeeting notes for prep

Tuesday, 16 May 2023 11:19

Agenda 5/6

- Projet Departement Innovation: ils ont un hackaton un evenement ou ils font du live. Ils ont mis en place une solution sur Azure. Ils ont mis cela dans une souscription de test.
It is a cloud native application.

The same as this project? **la génération de PV de réunion sur base de l'IA.**
Whisper de Open AI on prem, chercher les API Teams et Webex, reprenne tout les flux, avec la transcriptions, ils ajoutent cela dans....

Background info:

Nous sommes en train de remplacer le modèle que l'on utilisait sur Google par la version de GPT 3 et 3.5 Turbo sur Azure pour notre système de PV de réunion.

L'idée est de réaliser de façon automatisée une retranscription des réunions au format PV avec un entraînement sur base des données de la FW-B pour atteindre un niveau acceptable de reconnaissance venant de tous types de captations sonores (tascam, teams, webex, ...).

On utilise Whisper sur nos serveurs en combinaison avec ChatGPT sur Azure en localisation EU. C'est en cours de mise en œuvre. (deadline pour fin juin)
Nous avons déjà intégré ChatGPT 3 (Azure) dans Teams et Webex en passant encore par Google pour le coding API/PHP/Synphony.

La prochaine version sera full Azure pour rendre l'architecture plus cohérente.

- Landing Zone Plateforme:

Stephane va commencer un design papier.

()

- Discussion Multiple AAD Tenants:

AAD Tenant:

AAD B2B/ AAD B2B

Tuesday, 16 May 2023 14:04

From: MALFRID Christophe <Christophe.MALFRID@etnic.be>
Sent: Monday, 8 May 2023 17:23
To: Antoine Engelen <engelen@microsoft.com>
Subject: [EXTERNE] RE: ChatGPT dans le cadre de la rédaction de PV de réunion

Bonjour Antoine,
Je te remercie pour l'info.

Nous sommes en train de remplacer le modèle que l'on utilise sur Google par la version de GPT 3 et 3.5 Turbo sur Azure pour notre système de PV de réunion. L'idée est de réaliser de façon automatisée une retranscription des réunions au format PV avec un entraînement sur base des données de la FW-B pour atteindre un niveau acceptable de reconnaissance venant de tous types de captations sonores (tascam, teams, webex, ...).
On utilise Wenet sur Google et nous allons faire la même chose avec ChatGPT sur Azure en localisation EU. C'est en cours de mise en œuvre. (deadline pour fin juin)
Nous avons déjà intégré ChatGPT 3 (Azure) dans Teams et Webex en passant encore pour le coding API/PHP/Symphony.
La prochaine version sera full Azure pour rendre l'architecture plus cohérente.

Bien à toi,

Christophe Malfrid

T +32 2 800 19 34

De : Antoine Engelen <engelen@microsoft.com>
Envoyé : jeudi 4 mai 2023 17:17
À : MALFRID Christophe <Christophe.MALFRID@etnic.be>
Objet : Re: Re: ChatGPT dans le cadre de la rédaction de PV de réunion

Bonjour Christophe,

Comment vas-tu ? Tiens je me demandais où en étaient vos expérimentations avec Azure OpenAI ? Des cas d'usage en tête ?

Je t'ajoute ci-dessous quelques cas d'usage intéressants pour une administration publique :

Autres cas d'usage pour une administration



Efficacité interne

Aider les agents à naviguer dans les démarches administratives via un outil conversationnel sémantique

Recherches unifiées à travers différentes sources

Résumés de rapports, notes...

Résumés de presse, réseaux sociaux...

Compte rendu de réunions, d'échanges sur une thématique...

Remonter les préoccupations des citoyens partagés sur les réseaux sociaux



Aide créative

Aide à la production de textes (réponses aux requêtes de citoyens, presse...)

Aide à la préparation de rapports, notes, questions parlementaires...

Aide à l'équipe communication (intranet, réseaux sociaux, discours...)

Génération de contenu dans d'autres langues



Aide au développement applicatif

Accélération du développement d'outils applicatifs

Aide à la documentation

Traduction d'applications développées en langages désuets vers des langages plus courants et attrayants



Service au citoyen

Aider le citoyen à naviguer à travers les différentes procédures/démarches

Répondre aux questions fréquemment posées, recommander des services

Vulgarisation/traduction de documents officiels

Création de documents personnalisés en fonction de la situation du citoyen

Offrir des nouveaux services pour réduire la fracture numérique

Je te souhaite un excellent après-midi,

Antoine Engelen
Technology Strategist
engelen@microsoft.com
+32 2 704 35 66

Microsoft

From: MALFRID Christophe <Christophe.MALFRID@etnic.be>
Sent: Sunday, 23 April 2023 12:00
To: SCHNEIDER Oliver <Oliver.SCHNEIDER@fwib.be>
Cc: Antoine Engelen <engelen@microsoft.com>; PATART Alexandre <alexandre.patart@etnic.be>
Subject: [EXTERNE] RE: ChatGPT dans le cadre de la rédaction de PV de réunion

Bonjour Olivier,

Comme le dit Antoine, Denis est déjà occupé à mettre en œuvre chatgpt 3.5

Turbo sur Azure.
Par contre pour le moment, ce dernier modèle, le plus intéressant, est disponible uniquement dans les datacenters aux USA. En Europe, c'est le modèle 3.
Pour juin et notre engagement envers Frédéric, nous testons le vieux modèle sur un serveur en Europe pour une utilisation avec nos données et une version 3.5 Turbo sur un serveur aux USA pour tester le modèle plus étendu mais clairement en part-à-part avec le RGPD sur des données non sensibles donc pas de pv pour le moment.

En résumé, il faut attendre le déploiement sur l'Europe en Français pour M365 et pour l'autre modèle d'OpenAI sur Azure dans les datacenters en Europe. Dès que c'est disponible, nous aurons le knowhow pour être directement sur le ballon mais en étudiant également la façon dont se passe le passage d'un modèle à l'autre en ne perdant pas l'entraînement ou en réentraînant le nouveau modèle avec nos propres données.

Rendez-vous en juin pour le résultat de ce premier sprint.

Bon weekend.

Christophe Malfrid

T +32 2 800 19 34

De : SCHNEIDER Oliver <Oliver.SCHNEIDER@fwib.be>
Envoyé : vendredi 21 avril 2023 18:30
À : PATART Alexandre <alexandre.patart@etnic.be>; MALFRID Christophe <Christophe.MALFRID@etnic.be>
Cc: engelen@microsoft.com
Objet : RE: ChatGPT dans le cadre de la rédaction de PV de réunion

Christophe,

Qu'en penses-tu ?

Oliver

De : PATART Alexandre <alexandre.patart@etnic.be>

Envoyé : vendredi 21 avril 2023 17:50

À : Antoine Engelen <aengelen@microsoft.com>
Cc : SCHNEIDER Oliver <Oliver.SCHNEIDER@etnic.be>; Laurent Goormans <Laurent.Goormans@microsoft.com>; Jonathan Jacqmin <Jonathan.Jacqmin@microsoft.com>
Objet : Re: ChatGPT dans le cadre de la rédaction de PV de réunion

Bonjour Antoine,

Merci pour ta réactivité, je laisse réagir Olivier quant aux suites à réservé à la proposition. ☺

Bon week-end,
Alexandre

Envoyé à partir de [Outlook pour Android](#)

From: Antoine Engelen <aengelen@microsoft.com>
Sent: Friday, April 21, 2023 5:28:42 PM
To: PATART Alexandre <alexandre.patart@etnic.be>
Cc: SCHNEIDER Oliver <Oliver.SCHNEIDER@etnic.be>; Laurent Goormans <Laurent.Goormans@microsoft.com>; Jonathan Jacqmin <Jonathan.Jacqmin@microsoft.com>
Subject: Re: ChatGPT dans le cadre de la rédaction de PV de réunion

Bonjour Alexandre,

La fonctionnalité arrive très prochainement en Anglais sur les tenants non-Européens (via Teams Premium). Par contre, je n'ai pas encore de dates pour le Français et les tenants Européens, ni encore d'information sur un accès beta. Les tenants Européens ne sont pas dans la première vague au vu notre engagement que les données des clients Européens ne sortent pas de l'UE (EU Data Boundary).

Par contre, on peut lancer un PoC pour une solution plus custom. A savoir, aller injecter la transcription des réunions Teams (fonctionnalité native) dans Azure OpenAI service pour en sortir des PVs. Denis Crepin a d'ailleurs accès au service Azure OpenAI chez nous.

Qu'en penses-tu ?

Bien à toi,

Antoine Engelen
Technology Strategist
aengelen@microsoft.com
+32 2 704 35 66

From: PATART Alexandre <alexandre.patart@etnic.be>
Sent: Friday, April 20, 2023 3:30:13 PM
To: Antoine Engelen <aengelen@microsoft.com>
Cc: SCHNEIDER Oliver <Oliver.SCHNEIDER@etnic.be>
Subject: [EXTERNE] ChatGPT dans le cadre de la rédaction de PV de réunion

Bonjour Antoine,

Le Fédération Wallonne-Bruxelles souhaiterait expérimenter la génération de PV de réunion sur base de l'IA. Tu m'avais parlé de ChatGPT dans Bing, de son implémentation prochaine dans Teams. Est-ce qu'il y a selon toi des possibilités pour bénéficier de telles fonctionnalité en version beta, par exemple dans le cadre de réunion en visio ?

Internal mail- feedback on engagement

Friday, 21 April 2023 14:22

Hi all:

This e-mail is to update you on the engagement we had with the customer this week and top of minds, based on my own observations.

[@Karl De Backer](#) feel free to add your comments and feedback.

First Engagement Day:

- Partners: worked with NTT Data, but progress is slow. Not sure about the current status.
- Azure footprint: MS365 leveraging Azure AD for accounts/licenses. No workloads yet. Did sign a 3-year agreement with Microsoft and has an EA.
- Cloud Staff: 1 Azure Resource with AWS cloud expertise, 1 MS365 resource (not really doing Azure at this point).

Objectives:

- Organizational structure supporting the teams and allowing development velocity and innovation in the Cloud, while respecting enterprise governance rules.
- Starting with the proper foundations based on best practices from Microsoft, geared towards a large enterprise model. Demand is high and they don't want to wait too long.
- Having a test environment to start leveraging the Cloud and learn.

Challenges:

- Resource capacity constraint: For now, only 1 Cloud resource (Stéphane).
- Knowledge gaps in other Teams + change management efforts needed (Stéphane and his colleague already started organizing workgroups internally to increase collaboration and trust)
- Clients/beneficiaries leveraging Cloud: “ONE” has its own tenant and subscriptions (600users). The goal is to merge their environment at a certain point in time. But this is not an immediate challenge to tackle.

RISKS:

- Security Team having a cloud agnostic mantra, need convincing regarding our Cloud Security products. The risk of being left out and blocking or slowing down adoption if not included early-on.
- Network Team having a major skills gap in networking as well as in Cloud might slow down Cloud Adoption.
- Having not enough resources at the customer to start well and lay the foundational pieces.

Stéphane's Top of mind:

Learning about Azure Cloud leveraging the right resources and starting well on their Cloud Journey with all the help he can get.

Second engagement day:

- Introduction to CAF
- Landing Zone Workshop
- Demo of an actual Azure Landing Zone implementation
- Interactive discussion at their office

Next engagement day: 16/5.

- Agenda topic: TBD

My overall feedback is that Stéphane and his colleague are eager to get started and have a good foundational understanding of Azure. Stéphane will need time to learn, convincing other Teams to get onboarded and do lobbying internally.

Let me know if you have any feedback, questions.

Kind Regards,

Jamel Achaibar

Cloud Solution Architect

Core Infrastructure

Mobile: +32471559518

jachahbar@microsoft.com



Networking/Security

Friday, 17 March 2023 09:02

[Access Network Security Demo Environment \(sharepoint-df.com\)](http://sharepoint-df.com)

Inspect Private Endpoint Traffic to MySQL with Azure Firewall (network rule + SNAT exclude private ranges

Friday, 17 March 2023 09:03

[Deploy Azure Firewall to inspect traffic to a private endpoint - Microsoft Community Hub](#)

Deploy Azure Firewall to inspect traffic to a private endpoint

By



[Gustavo Modena](#)

Published Jan 12 2023 11:07 AM 7,695 Views

[Skip to footer content](#)

Introduction

Preventing sensitive data, such as customer personal records like Date of Birth or SSN, from traversing the internet helps you maintain compliance with regulations such as GDPR, CCPA and payment card industry (PCI). It is critical for customers in the financial services, healthcare, and government sectors. Azure Private Link, when combined with Azure Firewall, ensures sensitive traffic not only stays on the Azure network but is also monitored, audited, and secured.

Securing traffic using Azure Firewall

To help meet data security, customers use Azure Firewall to inspect traffic flowing between their on-premises networks & cloud infra. Traffic to the private endpoints is inspected/filtered, allowing only specific sources to connect as recommended when you are adopting [Zero Trust principles to Azure Infrastructure](#).

In this blog we will discuss the scenario adopted by Contoso, and provide guidance:

1. To deploy a Private Endpoint in a Hub and Spoke topology using Terraform template.
2. To test traffic to Private Endpoint, inspecting and filtering it with Azure Firewall.

Deployment Scenarios

Contoso has started using Azure Database for MySQL server deployed in Azure and the security team requested to block the traffic coming from the Internet, allowing only traffic from a specific internal network to connect to the MySQL database, and having central logs available for security management and auditing. In order to achieve both requests, Contoso made the decision of using Private Endpoint to enable private access using an internal IP address from their virtual network, and to deploy Azure Firewall to inspect/filter the traffic to MySQL.

Contoso also had concerns about performance when adding Azure Firewall in the data path. However, Azure Firewall is a firewall as a service with built-in high availability and cloud scalability which gradually scales when average throughput and CPU consumption is at 60%. For more details about performance, check out [Azure Firewall performance | Microsoft Learn](#).

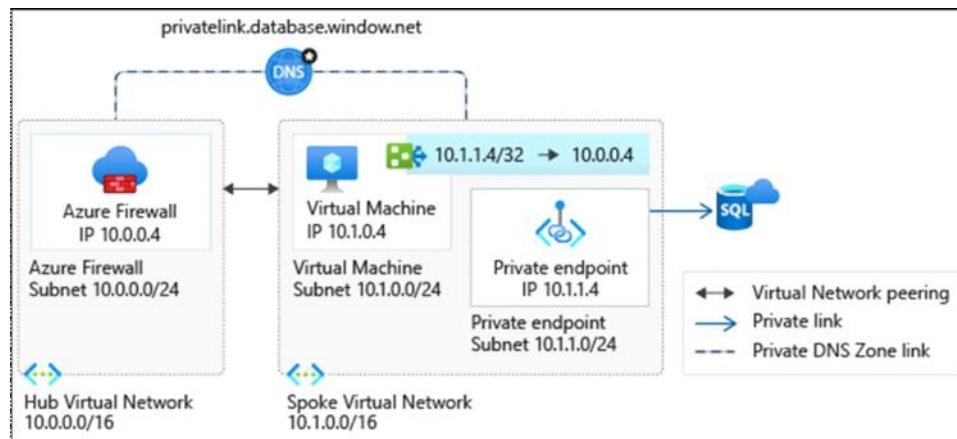
[There are 4 different scenarios](#) to inspect/filter traffic destined to a private endpoint:

1. Hub and spoke architecture – Dedicated virtual network for private endpoints.
2. Hub and spoke architecture – Shared virtual network for private endpoints and virtual machines.
3. Single virtual network
4. On-premises traffic to private endpoints

Contoso deployed the second scenario as demonstrated below, to optimize costs and to simplify the management of the virtual network deployments. This scenario is implemented when:

1. It is not possible to have a dedicated virtual network for the private endpoints.
2. When only a few services are exposed in the virtual network using private endpoints.

Note: Depending on the overall architecture, it is possible to run into the [400 routes limit per Route Table](#).



Below you will find the resources deployed by Contoso's team:

Name	Type	Location
4mk3nw-endpoint	Private endpoint	East US 2
4mk3nw-endpoint.nic9c916b87-2ab6-40f0-811e-08692a93aa0e	Network Interface	East US 2
4mk3nw-mysql	Azure Database for MySQL single server	East US 2
AppVm1	Virtual machine	East US 2
AppVm1Nic1	Network Interface	East US 2
azfw	Firewall	East US 2
DiagSettingsLaw	Log Analytics workspace	East US 2
FwPolicy	Firewall Policy	East US 2
FWTransitIP	Public IP address	East US 2
HubVnet	Virtual network	East US 2
myosdisk1	Disk	East US 2
privatelink.mysql.database.azure.com	Private DNS zone	Global
Spoke1RT	Route table	East US 2
SpokeVnet1	Virtual network	East US 2

If you want to deploy the same environment for testing, you can use [this Terraform template](#) which will deploy and configure all the resources needed as listed in the screenshot above.

To deploy the environment via Terraform template, you will need to download the file HubAndSpoke.tf. After downloading the file, you will need to:

- Configure your Terraform environment. Example using Terraform on Windows with PowerShell: [Install Terraform on Windows with Azure PowerShell | Microsoft Learn](#)
- Log in into your Azure Subscription via PowerShell or CLI:
 - Powershell: Login-AzAccount
 - CLI: az login
- Run the following commands:
 - terraform init
 - terraform plan -out HubAndSpoke.tfplan
 - terraform apply HubAndSpoke.tfplan

Validating the environment and the configurations

Once the deployment is completed, follow the following steps to ensure you have the lab environment configured correctly.

1. Check if you have the DNS zone for the respective private endpoint service created. In this example Contoso is using MySql and the zone created is **privatelink.mysql.database.azure.com**. You also need to confirm if you have the A record for the private endpoint.

The screenshot shows the Azure Private DNS zone configuration for 'privatelink.mysql.database.azure.com'. The A record '4mk3nw-mysql' is highlighted with a red box. The record details are as follows:

Name	Type	TTL	Value
4mk3nw-mysql	A	300	10.10.11.68

Below the table, the record's properties are listed:

- Email: azureprivatedns-host.microsoft.com
- Host: azureprivatedns.net
- Refresh: 3600
- Retry: 300
- Expire: 2419200
- Minimum TTL: 10
- Serial number: 1

2. In the Private DNS zone resource, check if the virtual network link to the Spoke virtual network is created, allowing it to resolve the private endpoint A record.

The screenshot shows the 'Virtual network links' section in the Azure Private DNS zone settings. A link named 'spokevnetlink' is listed, showing its status as 'Completed' and its association with the 'SpokeVnet1' virtual network. The 'Virtual network links' section is highlighted with a red box.

3. Then check the route table to confirm that you have the route to the Private Endpoint added correctly.

The screenshot shows the Azure Route table. A route named 'MySQLPE' is highlighted with a red box. The route details are as follows:

Name	Address prefix	Next hop type	Next hop IP address
DefaultRoute	0.0.0.0/0	Virtual appliance	10.10.10.4
MySQLPE	10.10.11.68/32	Virtual appliance	10.10.10.4

Below the routes, the 'Subnets' section is shown:

Name	Address range	Virtual network	Security group
AppSubnet	10.10.11.0/27	SpokeVnet1	-

Note: When you deploy a private endpoint, the virtual machines will have /32 system routes pointing to each private endpoint. One route per private endpoint is required to route traffic through Azure Firewall.

4. Check the Diagnostic setting of your Firewall. This configuration is needed to send the Firewall logs of Network and Application rule hits.

5. Then you need to check the Firewall rules. In this example we are using Network rules to allow traffic to the MySQL via port 3306.

<input type="checkbox"/> Rule Collection P...?	Rule collection n...	Rule name	Source	Port	Protocol	Destination	Action
Rule Collection Group: FwLabRcg with priority 600.							
<input checked="" type="checkbox"/>	395	network_rule_collecti...	network_rule_collecti...	<input type="radio"/> 10.10.11.0/24	443,3306	TCP	<input type="radio"/> 10.10.11.68/32 Allow

Important

Using application rules over network rules is recommended when inspecting traffic destined to private endpoints to maintain flow symmetry. If Azure Firewall with network rules are used, SNAT must be configured for traffic destined to private endpoints.

In this case, Contoso is using a MySQL service which uses TCP port 3306. Since it is not HTTP, HTTPS or MSSQL protocol, Application rule cannot be used, and SNAT needs to be configured for traffic destined to private endpoints using the Private IP Ranges (SNAT) feature in Azure Firewall as follows:

Testing the environment

To start testing the lab you just deployed, you will need to connect into the client VM. In this POC we are using a Windows VM, and to log in into the VM we have created a DNAT rule via Azure Firewall.

<input type="checkbox"/> Rule Collection P...?	Rule collection n...	Rule name	Source	Port	Protocol	Destination	Translated Address...	Translated Port	Action
Rule Collection Group: FwLabRcg with priority 600.									
<input checked="" type="checkbox"/>	300	nat_rule_collection1	nat_rule_collection1...	<input type="radio"/> *	3389	TCP,UDP	20.98.233.168	10.10.11.4	DNat

To log in to the VM you will use the credential defined in the Terraform template at lines 292 and 293. Once you are logged into the client VM, you will run a Test-NetConnection command via PowerShell to test connectivity to the private endpoint.

The private endpoint deployed by Contoso is “**4mk3nw-mysql.mysql.database.azure.com**”. So, for your test, verify what random name has been assigned to the MySQL server and replace it in the Test-NetConnection command:

Test-NetConnection -ComputerName <MYSQLRESOURCENAME>.mysql.database.azure.com -Port 3306

```

Administrator: Command Prompt - powershell
PS C:\> Test-NetConnection -ComputerName 4mk3nw-mysql.mysql.database.azure.com -Port 3306

ComputerName      : 4mk3nw-mysql.mysql.database.azure.com
RemoteAddress     : 10.10.11.68
RemotePort        : 3306
InterfaceAlias    : Ethernet
SourceAddress     : 10.10.11.4
TcpTestSucceeded  : True

```

Here you can see that the client VM has resolved the internal IP address “10.10.11.68” (Private Endpoint’s IP) and the TcpTestSucceeded is True.

Now to confirm that the traffic went through the Azure Firewall, you will need to run the following KQL query:

```
AZFWNetworkRule
|where DestinationPort == 3306
```

TimeGenerated [UTC]	Protocol	SourceIp	SourcePort	DestinationIp	DestinationPort	Action	Policy
12/15/2022, 5:02:39.108 PM	TCP	10.10.11.4	49952	10.10.11.68	3306	Allow	fwPolicy
12/15/2022, 5:02:41.455 PM	TCP	10.10.11.4	49954	10.10.11.68	3306	Allow	fwPolicy
12/15/2022, 5:02:43.507 PM	TCP	10.10.11.4	49956	10.10.11.68	3306	Allow	fwPolicy
12/15/2022, 5:02:45.404 PM	TCP	10.10.11.4	49958	10.10.11.68	3306	Allow	fwPolicy
12/15/2022, 5:02:47.463 PM	TCP	10.10.11.4	49960	10.10.11.68	3306	Allow	fwPolicy
12/15/2022, 5:02:49.560 PM	TCP	10.10.11.4	49962	10.10.11.68	3306	Allow	fwPolicy
12/15/2022, 5:02:51.297 PM	TCP	10.10.11.4	49964	10.10.11.68	3306	Allow	fwPolicy
12/15/2022, 5:02:53.026 PM	TCP	10.10.11.4	49966	10.10.11.68	3306	Allow	fwPolicy
12/15/2022, 5:02:40.395 PM	TCP	10.10.11.4	49953	10.10.11.68	3306	Allow	fwPolicy
12/15/2022, 5:02:42.431 PM	TCP	10.10.11.4	49955	10.10.11.68	3306	Allow	fwPolicy
12/15/2022, 5:02:44.407 PM	TCP	10.10.11.4	49957	10.10.11.68	3306	Allow	fwPolicy
12/15/2022, 5:02:46.496 PM	TCP	10.10.11.4	49959	10.10.11.68	3306	Allow	fwPolicy
12/15/2022, 5:02:48.693 PM	TCP	10.10.11.4	49961	10.10.11.68	3306	Allow	fwPolicy
12/15/2022, 5:02:50.417 PM	TCP	10.10.11.4	49963	10.10.11.68	3306	Allow	fwPolicy
12/15/2022, 5:02:52.201 PM	TCP	10.10.11.4	49965	10.10.11.68	3306	Allow	fwPolicy
12/15/2022, 4:55:45.658 PM	TCP	10.10.11.4	49962	10.10.11.68	3306	Allow	fwPolicy

Then here, you will find the logs for all the connection attempts to port 3306.

Conclusion

A private endpoint is important for building a secure environment allowing you to connect privately to the Azure PaaS resources. However, not all the internal traffic should be trusted and that is why it is recommended to inspect and block traffic, allowing only connections coming from known source networks.

Azure Firewall is here to help you protect the traffic to the private endpoints, allowing you to have control of the traffic and detailed visibility by using the Firewall logs.

From <<https://techcommunity.microsoft.com/t5/azure-network-security-blog/deploy-azure-firewall-to-inspect-traffic-to-a-private-endpoint/ba-p/3714575>>

Automated Detection and Response for Azure WAF with Sentinel

Friday, 17 March 2023 09:04

Automated Detection and Response for Azure WAF with Sentinel

By



[Shabaz Shaik](#)

Published Dec 08 2022 04:59 AM 6,676 Views

[Skip to footer content](#)

Introduction:

Web applications are increasingly targeted by malicious attacks that exploit commonly known vulnerabilities. SQL injection and Cross-site scripting are among the most common attacks. Preventing such attacks in application code is challenging. It can require rigorous maintenance, patching, and monitoring at multiple layers of the application topology. A WAF solution can react to a security threat faster by centrally patching a known vulnerability, instead of securing each individual web application. Azure Web Application Firewall (WAF) is a cloud-native service that protects web apps from common web-hacking techniques. This service can be deployed in a matter of minutes to get complete visibility into the web application traffic and block malicious web attacks.

Integrating Azure WAF with Microsoft Sentinel (Cloud Native SIEM/SOAR solution) for automated detection and response to threats/incidents/alerts would be an added advantage and reduces the manual intervention needed to update the WAF policy. In this blog, we will discuss about WAF detection templates in Sentinel, deploying a Playbook, and configuring the detection and response in Sentinel using these templates and the Playbook.

SQLi and XSS WAF Detection templates:

We now have built in detection query templates for SQLi and XSS attacks in Sentinel for Azure WAF. If we navigate to the respective Log Analytics workspace in Sentinel, we can find these templates under the Analytics tab in the Configuration section as shown below. By using these templates, we can create analytic rules that detect specific type of attack patterns in the WAF logs and further notify the security analyst by creating an incident. The automation section of these rules can help us respond to this incident by blocking the source IP of the attacker on the WAF Policy which in turn stops subsequent attacks upfront from these source Ips. We are continuously working to include additional Detection Templates for more detection and response scenarios.

Severity	Name	Rule type	Data sources	Tactics	Techniques	Source name
High	Azure WAF matching for Log4j vuln(CVE-2021-44228)	Scheduled	Azure Web Application Firewall (WAF)	Initial Access	T1190	Gallery Content
High	Front Door Premium WAF - XSS Detection	Scheduled	Azure Web Application Firewall (WAF)	Initial Access	T1189 +2	Gallery Content
High	Private Application Gateway WAF - XSS Detection	Scheduled	Azure Web Application Firewall (WAF)	Initial Access	T1189 +2	Gallery Content
High	Front Door Premium WAF - SQL Detection	Scheduled	Azure Web Application Firewall (WAF)	Initial Access	T1211	Gallery Content
High	Private Application Gateway WAF - SQL Detection	Scheduled	Azure Web Application Firewall (WAF)	Initial Access	T1211 +3	Gallery Content

Playbook Deployment:

A Sentinel Playbook 'Block-IPAzureWAF' gets executed in response to WAF Incidents. The goal of this Playbook is to create or modify a custom rule in a WAF Policy to block requests from a certain IP address. This is accomplished using the Azure REST API. This Playbook can be deployed from our GitHub repository. [Playbook Link](#)

The GitHub repository 'Azure / Azure-Network-Security' contains the following files:

- README.md
- template.json
- Sentinel Playbook - Block IP - New

The 'Sentinel Playbook - Block IP - New' file includes a 'Deploy to Azure' button.

i. Logic Implemented:

The Playbook template needs the following inputs during the deployment:

1. User Id to authorize the Api connection
2. App Gateway Resource ID
3. Front Door Resource ID

This Playbook can work with both App Gateway and Front door WAF Policies in the following scenarios.

1. If only App Gateway Resource is provided, the WAF policy related to the specified App Gateway will be updated.
2. If only Front Door Resource is provided, the WAF policy related to the specified Front Door

- will be updated.
- If both App Gateway and Front Door Resources are provided, only the WAF policy related to the Front Door is updated as it will block the IP at a global level.

ii. Prerequisites:

For this playbook to work as expected, follow the below steps:

- Authorize the API connection 'azuresentinel-Block-IPAzureWAF' which is created as part of this deployment as shown below. Make sure to authenticate against Azure AD.

The screenshot shows the 'Edit API connection' page for the 'azuresentinel-Block-IPAzureWAF' resource. The 'API' tab is active, displaying the display name 'shabashah@bulldogcpnrg.onmicrosoft.com'. Below the display name, there is a 'Authority' section. At the bottom of the page, there are 'Save' and 'Discard' buttons.

- The Playbook must have the necessary permissions to query and modify the existing WAF policy via the REST API. This can be obtained via assigning the Playbook a system-assigned Managed Identity with Contributor permissions on the App GW/Front Door resources along with their associated WAF policies. Note that you can assign permissions only if your account has been assigned Owner or User Access Administrator roles to the underlying resource. This can be done using the IAM section in the respective resource by adding a new role assignment to this Playbook as shown below:

The screenshot shows the 'Add role assignment' page for the 'AFDPharmTest11' resource under 'Access control (IAM)'. The 'Members' tab is selected, showing a 'Selected role' of 'Contributor' and an 'Assign access to' option set to 'User, group, or service principal'. Below this, there is a 'Members' section with a 'Select members' button. A modal window titled 'Select members' is open, listing various roles such as 'Block', 'Block - IP', and 'Block - IPAzureWAF'. The 'Block - IP' role is highlighted in yellow. At the bottom of the modal, there are 'Select' and 'Close' buttons.

Configuring Detection and Response:

The following steps need to be implemented to complete the setup.

- Create a new Analytic rule by selecting the respective rule template for SQLi or XSS detection and clicking on 'Create rule' as shown in the below image.

The screenshot shows the Microsoft Sentinel Analytics workspace. On the left, there's a navigation sidebar with sections like General, Threat Management, Content management, and Configuration. The main area displays a list of rules under 'Active rules'. One rule is selected: 'Application Gateway WAF - XSS Detection' (Severity: High, Rule type: Scheduled). To the right, a detailed view of this rule is shown, including its description, data sources (Azure Web Application Firewall logs), tactics (Initial Access), techniques (Execution), and the raw query. A 'Create rule' button is at the bottom.

- Configure the rule by setting the Query Schedule, Alert Threshold, Event Grouping, Incident settings and other parameters as required. Refer to the below image for an example.

This screenshot shows the configuration steps for a new rule. It includes:

- Query scheduling:** Set to run every 6 hours.
- Alert threshold:** Generate alert when number of query results is greater than 0.
- Event grouping:** Configure how rule query results are grouped into alerts (Group all events into a single alert).
- Suppression:** Stop running query after alert is generated (On).

At the bottom, there are 'Previous' and 'Next : Incident settings >' buttons.

Analytics rule wizard - Edit existing scheduled rule ...

Application Gateway WAF - SQLI Detection

Compare to latest version General Set rule logic Incident settings Automated response Review and update

Incident settings

Microsoft Sentinel alerts can be grouped together into an Incident that should be looked into. You can set whether the alerts that are triggered by this analytics rule should generate incidents.

Create incidents from alerts triggered by this analytics rule

Enabled Disabled

Alert grouping

Set how the alerts that are triggered by this analytics rule, are grouped into incidents. Grouping alerts into incidents provides the context you need to respond and reduces the noise from single alerts.

Group related alerts, triggered by this analytics rule, into incidents

Enabled Disabled

i Up to 150 alerts can be grouped into a single incident. If more than 150 alerts are generated, a new incident will be created with the same incident details as the original, and the excess alerts will be grouped into the new incident.

Limit the group to alerts created within the selected time frame *

30

Minutes

Group alerts triggered by this analytics rule into a single incident by

- Grouping alerts into a single incident if all the entities match (recommended)
- Grouping all alerts triggered by this rule into a single incident
- Grouping alerts into a single incident if the selected entity types and details match:

Select entities

Select details

! Entity-based alert grouping can make use only of entities mapped using the new version, if any exist. Entities mapped with the old version (that appear in the query code) will be available for grouping only if there are no mappings defined using the new version.

Re-open closed matching incidents

Enabled Disabled

[Previous](#)

[Next : Automated response >](#)

- Under the Automated response section, create a new Automation rule to run the playbook to block attacker source IP on the WAF Policy. The automation rule can be modelled as shown in the below image.

The screenshot shows the 'Edit automation rule' dialog in the Microsoft Azure portal. The automation rule is named 'BlockIP-WAF-SI-AR'. The trigger is set to 'When alert is created'. The condition is 'Analytic rule name' containing 'Application Gateway WAF / XSS Det...'. The action is 'Run playbook' with the selected item being 'BlockIP-AzureWAF'. The rule has an indefinite expiration and is currently enabled. The 'Order' is set to 1. At the bottom, there are 'Apply' and 'Cancel' buttons.

- Provide required access to Sentinel for the resource group which contains the Playbook. This is needed for Sentinel to run this Playbook via Automation rule. This can be done using 'Manage playbook permissions' when you configure the Automation rule or in the Settings tab in Sentinel by configuring the Playbook permissions as shown below.

Microsoft Azure

Home > Microsoft Sentinel > Microsoft Sentinel

Microsoft Sentinel | Settings

Selected workspace: 'waf-si-workspace'

How to enable it

To turn on Microsoft Sentinel's UEBA in just a few easy steps, select **Set UEBA** below and follow the on-screen instructions to select identity providers and data sources. See [Enable User and Entity Behavior Analytics \(UEBA\) in Microsoft Sentinel](#) for more information.

Set UEBA

Anomalies

Microsoft Sentinel provides a rich set of behavior analytics to detect anomalous activities in your environment. These activities are stored in the Anomalies table in your workspace. You can use them in scheduled analytics (detection) rule queries, hunting queries and investigations. You can also customize the parameters of the machine learning (ML) models to improve the precision of the anomalies. Microsoft uses 30 days' worth of active data to train the ML models. This data is cached and encrypted with Microsoft keys regardless of the customer-managed key configuration.

Only a Global Administrator or a Security Administrator in your Azure Active Directory can turn this feature on or off.

On UEBA anomalies will be enabled after selecting data sources for UEBA

[Go to analytics in order to configure the anomalies](#)

Playbook permissions

What is it?

Automation rules allow you to centrally manage all the automation of incident handling. Automation rules streamline automation use in Microsoft Sentinel and enable you to simplify complex workflows for your incident orchestration processes.

Playbook permissions

Microsoft Sentinel automation rules can run Logic App playbooks to integrate with other services or create complex logic chains for incident handling. Explicit permissions are required to use this functionality.

[Configure permissions](#)

How do we use your data?

Health monitoring

Remove Microsoft Sentinel

Once the Analytic rule is created with respective Automation rule settings, we are now ready for Detection and Response. The following flow of events happen during an attack:

1. When an attacker tries to target one of the web apps behind Azure WAF, the traffic is logged by the Azure WAF and the logs are ingested by Sentinel.
2. The Analytic/Detection rule that we configured will detect the pattern for this attack and generate an Incident to notify an analyst.
3. The automation rule that is part of the analytic rule will trigger the respective playbook that we configured above.
4. The playbook will create a custom rule called 'SentinelBlockIP' on the respective WAF policy which will include the source IP of the attacker as shown in the below image.
5. The consequent attack attempts will be blocked by WAF and if the attacker tries to use another source IP, the same flow will happen again, and the respective source IP will also be appended to this Block rule.

Priority	Name	Action
10	SentinelBlockIP	Block
20	BlockGeoLocationChina	Block
30	BlockKinder.net/egoserver11	Block

Conditions

- Match type: IP address
- Match variable: RemoteAddress
- Operation: Does contain (selected)
- Value: 1.1.1.1

Then

- Deny traffic

Buttons: Update, Delete, Cancel

An important point to note here is that by default Azure WAF will block any malicious web attacks with the help of core ruleset of the Azure WAF engine. However, this automated detection and response configuration will further enhance the security by modifying or adding new Custom block rules on the Azure WAF policy for the respective source IPs. This will make sure that the traffic from these source IPs get blocked before it even hits the Azure WAF engine ruleset.

Conclusion:

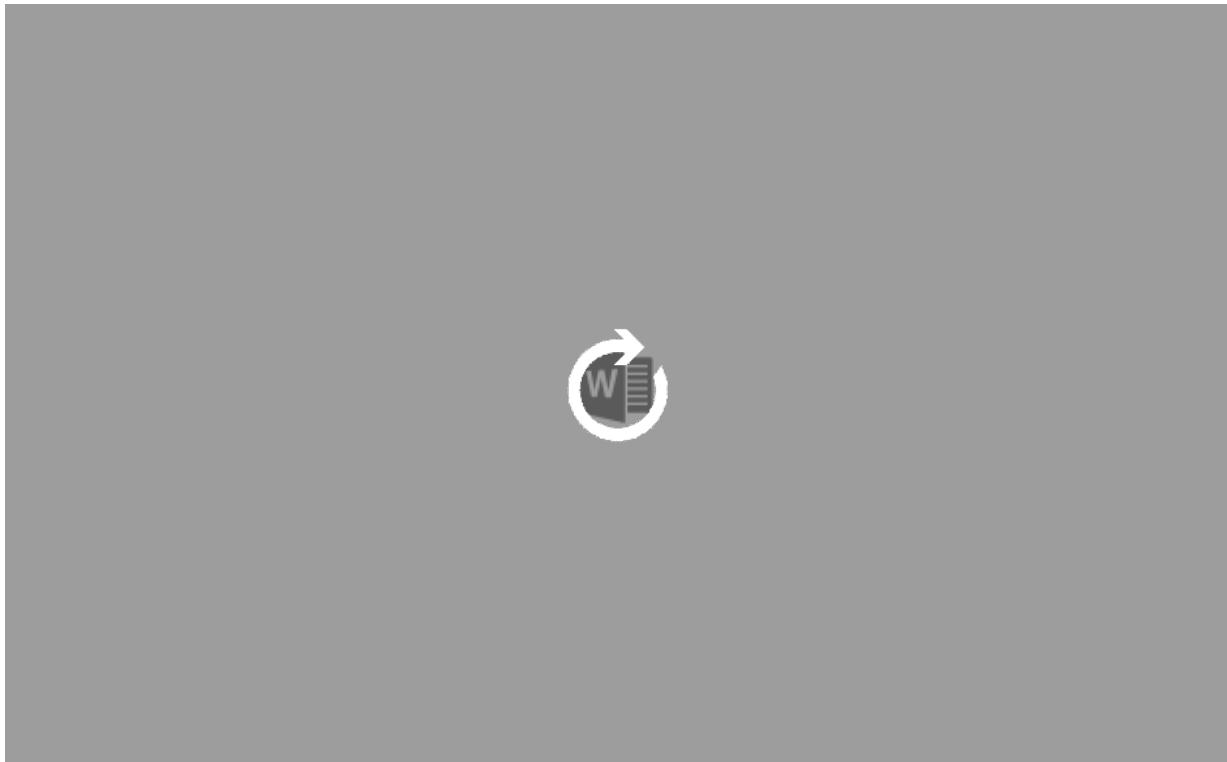
As we have seen above, the newly added detection rule templates simplify the process of setting up automated Detection and Response for Attacks like SQL Injection and Cross Site Scripting on Azure WAF, which will indeed help us strengthening our Security Posture.

From <<https://techcommunity.microsoft.com/t5/azure-network-security-blog/automated-detection-and-response-for-azure-waf-with-sentinel/ba-p/3692525>>

Azure security and management handonlab

Friday, 17 March 2023 11:26

[Hands on lab step-by-step - Azure security and management](#)



ACM Demo

Tuesday, 25 April 2023 13:59

Microsoft Azure Search resources, services, and docs (G+) InPrivate

Home > Contoso (Demo) (8608480)

Contoso (Demo) (8608480) | Cost allocation (preview) ...

Billing account

Scope: BVT ASMS Enterprise VSOID#6725 Cust1 (DO NOT USE) (change)

Cost alerts Add Refresh Enable Disable Delete ...

Budgets

Advisor recommendations

Name ↑ Status Sources Targets Created Time Updated Time

Billing

- Usage + charges
- Credits + Commitments
- Invoices
- Reservation transactions
- Departments
- Accounts

Products + Services

- Azure subscriptions
- Reservations + Hybrid Benefit
- Savings plans

Settings

Properties



Add a cost allocation rule

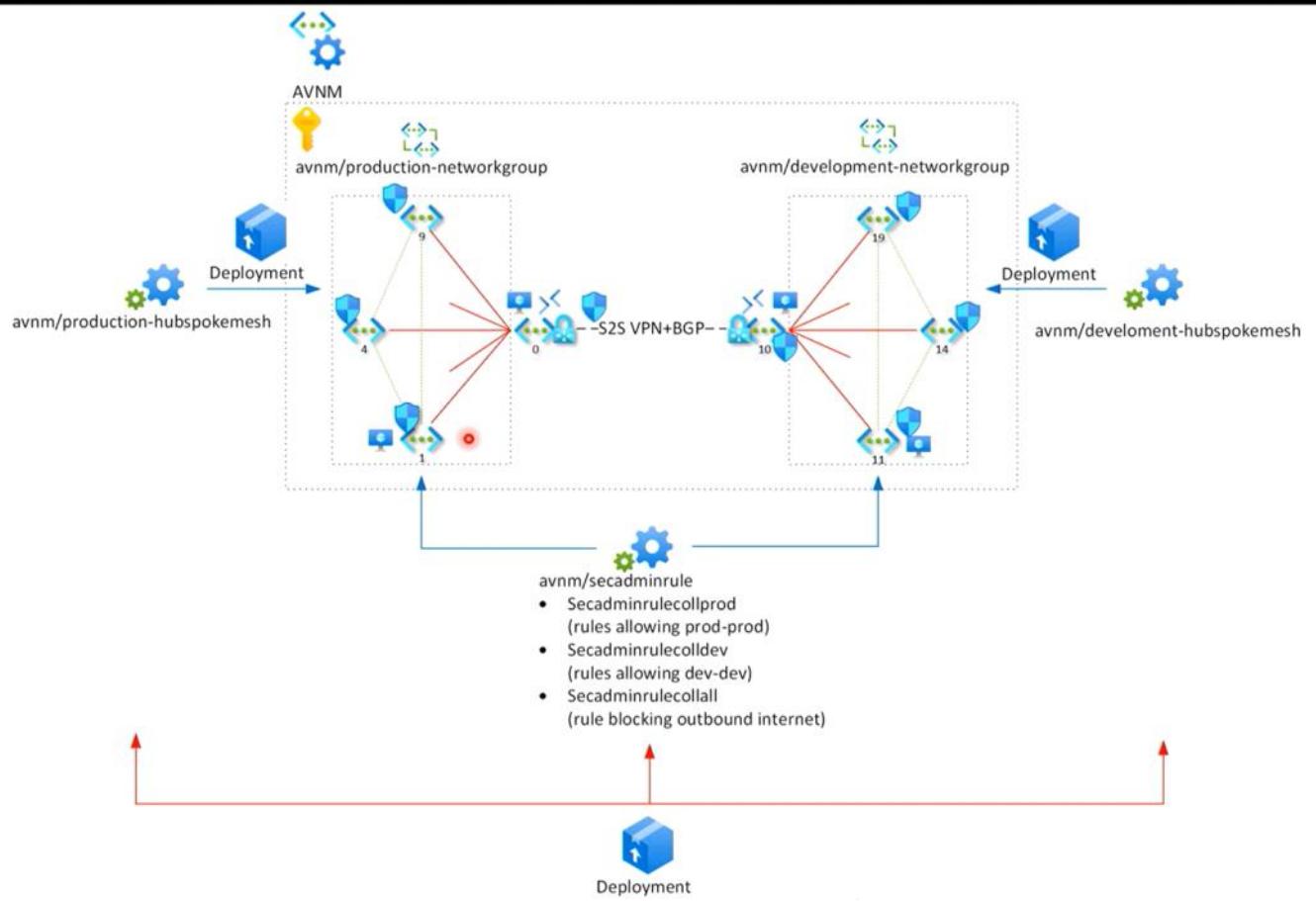
Create a rule to assign shared resource costs to targets (subscriptions, resource groups, or tags) to assist in chargeback scenarios

Learn more Add a rule

AVNM DEMO

Tuesday, 25 April 2023 16:45

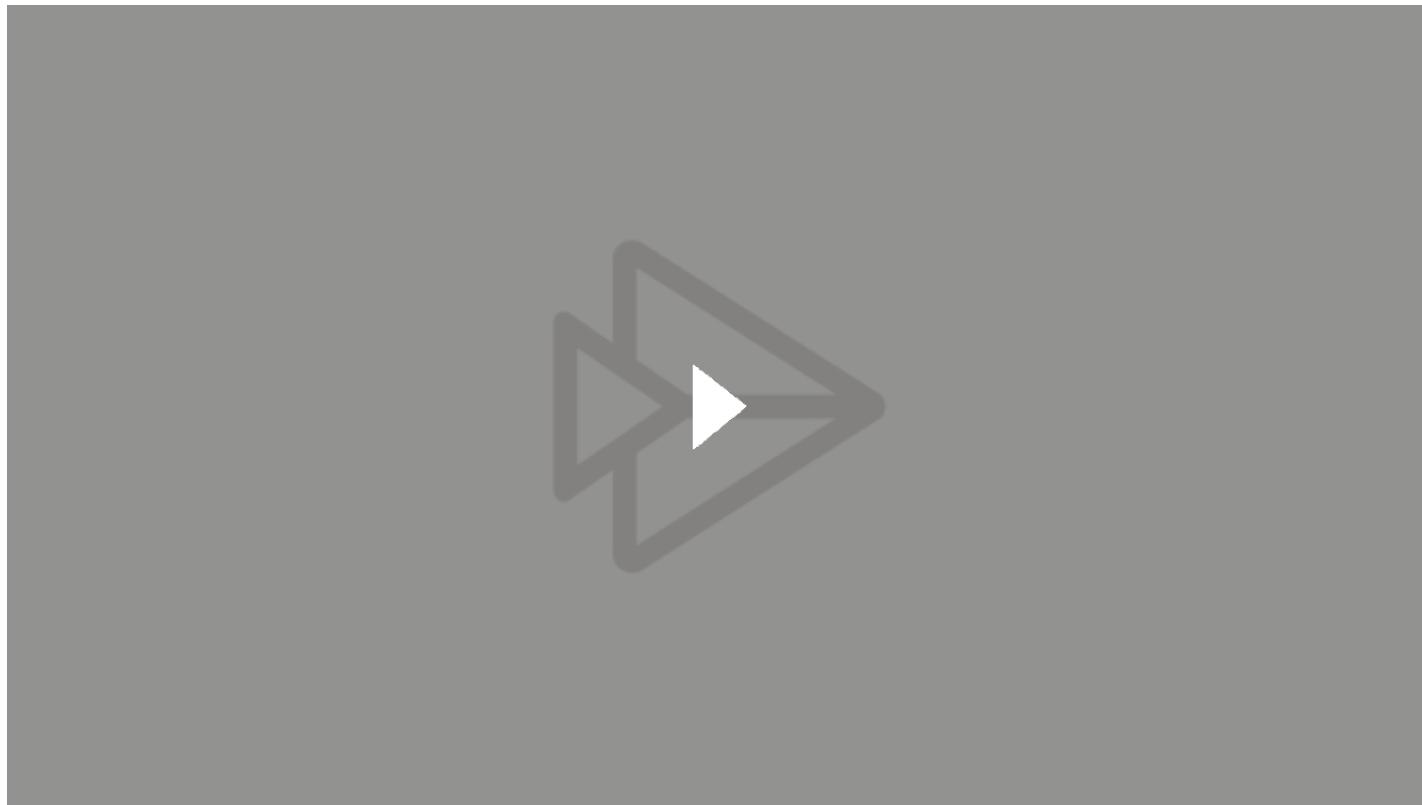
[GitHub - mddazure/avnm-demo](#)



Service Endpoints vs Private Endpoints customer conversations

Thursday, 4 May 2023 13:50

[Microsoft Stream](#)

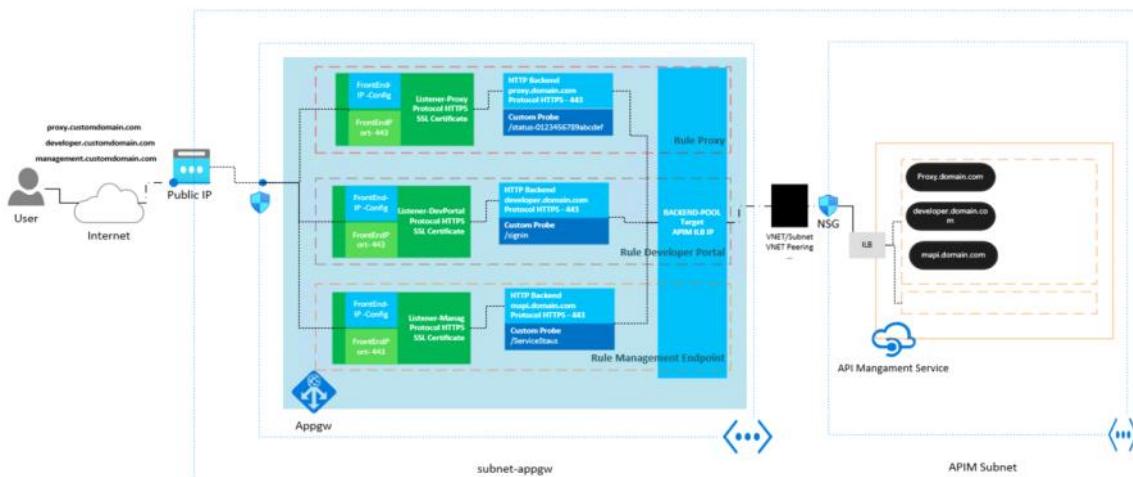


Private
Endpoints...

Use a few slides to kick off conversation at customers if they want to start thinking about PE or getting compliance violation messages because they are not using PE and the CISO wants them to start thinking about it.

APIM + App Gateway

Tuesday, 9 May 2023 13:44



This is a closer look of a request flow diagram of basic APIM Internal VNET + APPGW Public endpoint - Architecture:

Multi-Site Listener: Application Gateway can be configured to listen more than one endpoint on the same port . Using APIM Integration, the APPGW exposes the Proxy endpoint, the Developer Portal and the Management endpoint resolving to the same APP GW IP address. Based on hostname and port, the rules and http setting will redirect to the internal APIM ILB and from there redirected to a specific APIM instance and specific process .

APIM + APPGW Integration

What is required to create an integration between API Management and Application Gateway?

Listener

The listener has a front-end port, a protocol (Http or Https, these values are case-sensitive), and the TLS/SSL certificate name (if configuring TLS offload).

Back-end server pool

This is the internal virtual IP address of the API Management service.

Custom domain certificates

To access API Management from the internet, you need to create a CNAME mapping of its hostname to the Application Gateway front-end DNS name. This ensures that the hostname header and certificate sent to Application Gateway that is forwarded to API Management is one APIM can recognize as valid.



Back-end server pool HTTP settings

Every pool has settings like port, protocol, and cookie-based affinity. These settings are applied to all servers within the pool.

Front-end port

This is the public port that is opened on the application gateway. Traffic hitting it gets redirected to one of the back-end servers.

Rule

The rule binds a listener to a back-end server pool.

Custom Health Probe

Application Gateway, by default, uses IP address-based probes to figure out which servers in the BackendAddressPool are active. The API Management service only responds to requests with the correct host header, hence the default probes fail. A custom health probe needs to be defined to help application gateway determine that the service is alive, and it should forward requests.

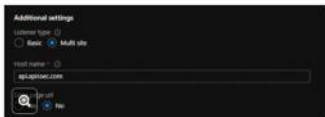
APIM + APPGW Integration



The application gateway accepts incoming traffic on one or more listeners. A listener is a logical entity that checks for connection requests.

Listener

- The listener has a front-end port, a protocol (Http or Https), and the TLS/SSL certificate name (if configuring TLS offload).
- The front-end port of APIM listeners in this integration are generally only 80 or 443 , as the expected client traffic is REST API calls over HTTP(S)
- For each listener , you can choose the frontend IP address that you plan to associate (public or private). The listener will listen to incoming requests on this IP.



APIM + APPGW Integration

Listener

- Using Multi site listener , The APPGW will relay on HTTP host header to expose more than one endpoint on the same public IP address and port. For each listener , you can specify the expected hostname value in the client HTTP request.
- Each listener hostname domain needs to be registered with the DNS servers used by the clients, to make sure it resolves to the APPGW expected frontend IP configuration.
- Azure Application Gateway can be used as an internal application load balancer or as an internet-facing application gateway. An internet-facing application gateway uses public IP addresses. The DNS name of an internet-facing application gateway is publicly resolvable to its public IP address. As a result, internet-facing application gateways can route client requests to the internet.
- Internal application gateways use only private IP addresses. If you are using a Custom or Private DNS zone, the domain name should be internally resolvable to the private IP address of the Application Gateway. Therefore, internal load-balancers can only route requests from clients with access to a virtual network for the application gateway.

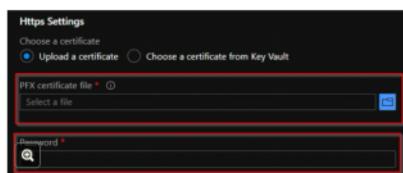
Name	Protocol	Port	Associated rule	Host name
ListenerProxy	HTTPS	443	ruleProxy	apisec.com
ListenerPortal	HTTPS	443	rule2Portal	portalapisec.com
ListenerManagement	HTTPS	443	ruleManagement	management.apisec.com

APIM + APPGW Integration

Creating a listener , you can Choose between HTTP or HTTPS . If you choose HTTP, the traffic between the client and the application gateway is unencrypted.

Choose HTTPS if you want TLS termination or end-to-end TLS encryption.

Transport Layer Security (TLS), previously known as Secure Sockets Layer (SSL), is the standard security technology for establishing an encrypted link between a web server and a browser. This link ensures that all data passed between the web server and browsers remain private and encrypted.



Each APIM APPGW listener will be associated to a .PFX certificate. The clients will receive the appropriate public certificate based on the request details

That the certificate's "Common Name" (CN) matches the host header in the request. For example, if the client is making a request to <https://www.contoso.com/>, then the CN must be www.contoso.com.

To configure TLS termination, a TLS/SSL certificate is required to be added to the listener to enable the Application Gateway to derive a symmetric key as per TLS/SSL protocol specification. The symmetric key is then used to encrypt and decrypt the traffic sent to the gateway. [The TLS/SSL certificate needs to be in Personal Information Exchange \(PEX\) format. This file format allows to export the private key that is required by the application gateway to perform the encryption and decryption of traffic.](#)



API + APPGW Integration

Listener

The screenshot shows the 'Listeners' section of the API Management interface. It lists four listeners:

- Listener 1: Host name apim.apisec.com, Port 433, Associated site apimApisecon, IP address 192.168.1.10 (apimApisecon)
- Listener 2: Host name portal.apisec.com, Port 433, Associated site portalApisecon, IP address 192.168.1.10 (portalApisecon)
- Listener 3: Host name management.apisec.com, Port 433, Associated site managementApisecon, IP address 192.168.1.10 (managementApisecon)
- Listener 4: Host name apisec.com, Port 433, Associated site apisec, IP address 192.168.1.10 (apisec)

Below the listeners, there is a 'Frontend IP configurations' section with one entry:

Name	IP address	Associated listeners
frontend	192.168.1.10 (apimApisecon)	apimApisecon, managementApisecon

For API + APPGW integrations, generally 3 Listeners are created to expose the API basic endpoints: Proxy Developer Portal and Management Portal. The next example shows 3 listeners with different host names resolving to the same A record , mapped to the Public Frontend IP configuration of the APPGW on Internet.

API + APPGW Integration

HTTP Backend Settings

These are the settings which include the protocols and probes configuration that the Application Gateway would be using to connect to the backend host names of API service.

The slide shows the 'Host name override' configuration for an application gateway. It includes two options:

- Pick host name from backend target
- Override with specific domain name

The 'Override with specific domain name' option is selected, with 'apisec.com' entered in the input field. Below the configuration, a video player shows a duration of 0:25 / 0:25.

HTTP settings Port This setting specifies the port where the back-end servers listen to traffic from the application gateway. You can configure ports ranging from 1 to 65535. However, for API ILB_only is open 80 or 433, so any other port will not provide any answer.

Host name: By default, Application Gateway does not change the incoming HTTP host header from the client and sends the header unaltered to the backend. Multi-tenant services like API management rely on a specific host header or SNI extension to resolve to the correct endpoint. Change these settings to overwrite the incoming HTTP host header. For example, if the Application Gateway listener uses the same hostname of the APIIM custom domain, there is no need of override. If the host name is picked from the backend target, the host header will be replaced by the backend pool target FQDN.

API Management service does not listen to requests coming from IP addresses. It only responds to requests to the host name configured on its service endpoints. In this integration, you need to make sure the request that goes from the APPGW to the APIIM is using a hostname (default or custom).

API + APPGW Integration

HTTP Backend Settings

Similar as the listeners, the Application Gateway supports both HTTP and HTTPS for routing requests to the back-end servers. The port and protocol used in HTTP settings determine whether the traffic between the application gateway and backend servers is encrypted (thus accomplishing end-to-end TLS) or is unencrypted.

End-to-end TLS allows you to encrypt and securely transmit sensitive data to the backend while you use Application Gateway's Layer-7 load-balancing features.

When configured with end-to-end TLS communication mode, Application Gateway terminates the TLS sessions at the gateway and decrypts user traffic. It then applies the configured rules to select an appropriate backend pool instance to route traffic to. Application Gateway then initiates a new TLS connection to the backend server and re-encrypts data using the backend server's public key certificate before transmitting the request to the backend. Any response from the web server goes through the same process back to the end user. End-to-end TLS is enabled by setting protocol setting in Backend HTTP Setting to HTTPS, which is then applied to a backend pool.

For end-to-end TLS encryption, the right back-end servers must be allowed in the application gateway. To allow this access, upload the public certificate of the back-end servers, also known as Authentication Certificates (v1) or Trusted Root Certificates (v2), to the application gateway. Adding the certificate ensures that the application gateway communicates only with known back-end instances.

API + APPGW Integration

HTTP Backend Settings

- For Standard and WAF (v1) application gateways, you should upload the public key of your back-end server certificate in .cer format. From APIIM perspective, you are uploading a .cer public key exported from the public certificate. The thumbprint will match, features.

The dialog shows the 'Create new' option selected. It has fields for 'Name' and 'Upload CER certificate'.

The dialog shows the 'Public Certificate' selected in the 'Certification Path' tab. The path is listed as 'apsisecon.com > apisec.com'. A red arrow points to the 'Public Certificate' button.

APIM + APPGW Integration

HTTP Settings

- For Standard_v2 and WAF_v2 application gateways, you should upload the root certificate of the back-end server certificate in .cer format. If the back-end certificate is issued by a well-known certificate authority (CA), you can select the [Use Well Known CA Certificate](#) check box, and **then you don't have to upload a certificate**. From APIM perspective, you are uploading into the APPGW HTTP settings, the .cer exported from the root certificate that signed the APIM Certificate uploaded for the specific APIM custom domain endpoint.

The screenshot shows two windows. The top window is titled 'Trusted Root certificates' with a red border around it. It has two radio buttons: 'Create new' (selected) and 'Select existing'. Below are fields for 'Name' (contoso.com) and 'Upload CER certificate' (with a 'Select a file' button). A 'Add certificate' button is at the bottom right. The bottom window is titled 'Gateway' (API Management service). It shows a 'Hostname' dropdown set to 'Custom' with 'contoso.com' selected. Under 'Certificate', there is a 'Root Certificate' section with a 'Select' button. The 'Gateway' blade also includes options for 'Type', 'Protocol', 'Backend pool', 'Certificate', and checkboxes for 'Inherit client certificate' and 'Default SSL binding'.

APIM + APPGW Integration

Backend Pool

Backend Pool: A backend pool routes request to backend servers, which serve the request. **In this configuration , for APIM integration there are 2 possible targets: using IP addresses or FQDN**

- Use the **custom domain hostname** of the API Management instance to be configured in the backend pool section. Using a FQDN means the Application Gateway will connect to the associated DNS servers for resolution of a fully qualified domain name (FQDN). In the next example , the DNS record for management.azure-api.net needs to resolve to the internal IP of APIM service.
- Configure a back-end IP address pool with the internal virtual IP address of the API Management service. In this scenario, there is no need of DNS resolution as you are indicating explicitly the IP address where the request will be sent.

The screenshot shows two tables under 'Backend targets'.
The first table is titled 'Backend targets' and has one item: 'Target type' is 'IP address or FQDN' and 'Target' is 'management.azure-apim.net'.
The second table is titled 'Backend targets' and has two items:

- Item 1: 'Target type' is 'IP address or FQDN' and 'Target' is '10.0.1.5'.
- Item 2: 'Target type' is 'IP address or FQDN' (empty).

APIM + APPGW Integration

Rules

The screenshot shows a 'Slide 35 gif recording' of an Application Gateway rule configuration. It includes sections for 'Listener', 'Backend targets', and 'Route settings'. The 'Route settings' section shows a 'Basic' rule type with a condition 'Listener "Listener1"' and a target 'BackendPool1'. The 'Backend targets' section lists 'management.azure-apim.net'.

After the application gateway determines the backend target, it opens a new TCP session with the APIM (backend target) based on HTTP settings. HTTP settings specify the protocol, port, and other routing-related settings that are required to establish a new session with the backend server.

Rule type

When you create a rule, you choose between [basic](#) and [path-based](#). Select the following link to learn more [here](#).

Basic

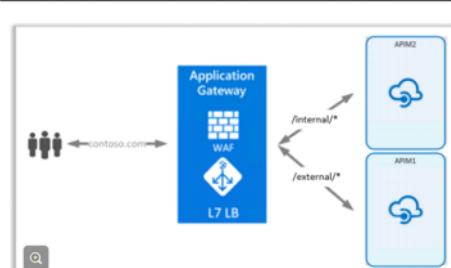
Basic if you want to forward all requests on the associated listener (for example, `api.apisec.com/*`) to a single back-end pool (APIM target).

[Application gateway components | Microsoft Learn](#)

APIM + APPGW Integration

Rules

Path based rules	Path	Target name	HTTP setting name	Backend pool	...
	/internal/*	APIM 1	apimPoolSetting	apimbackend	...
	@internal/*	APIM 2	apimPoolSetting	apimbackend2	...



Rule type

Choose path-based if you want to route requests from specific URL paths to specific back-end pools. The path pattern is applied only to the path of the URL, not to its query parameters.

APIM + APPGW Integration

Health Probes

Name	Protocol	Host	Path	Timeout (seconds)
apimproxyprobe	Https	api.apisec.com	/status-0123456789abcdef	180
apimportalprobe	Https	portal.apisec.com	/signin	180
apimmanagementprobe	Https	management.apisec.com	/ServiceStatus	180

Search backend health			
Server (backend pool)	Port (HTTP setting)	Status	Details
10.0.1.5 (apimbackend)	443 (apimPoolPortalSetting)	Healthy	Success. Received 200 status code
10.0.1.5 (apimbackend)	443 (apimPoolManagementSetting)	Healthy	Success. Received 200 status code
10.0.1.5 (apimbackend)	443 (apimPoolSetting)	Healthy	Success. Received 200 status code

Azure Application Gateway by default monitors the health of all resources in its back-end pool and automatically removes any resource considered unhealthy from the pool.

Application Gateway continues to monitor the unhealthy instances and adds them back to the healthy back-end pool once they become available and respond to health probes. By default, Application gateway sends the health probes with the same port that is defined in the back-end HTTP settings.

The API Management service only responds to requests with the correct host header, hence the default probes fail. A custom health probe needs to be defined to help application gateway determine that the service is alive and it should forward requests.

APIM + APPGW Integration

Health Probes

Custom health probes

Custom probes allow you to have more granular control over the health monitoring. When using custom probes, you can configure a custom hostname, URL path, probe interval, and how many failed responses to accept before marking the back-end pool instance as unhealthy, etc.

Custom health probe for APIM endpoints: For each APIM endpoint , there are specific paths enabled for health checks. These are the recommended health probes to create, each one will answer with a 200 Ok if correctly set and communication .

Health Probes Table

APIM + APPGW Integration

Health Probes

Probe matching : After you create a custom health probe, you need to associate it to a back-end HTTP setting. A custom probe won't monitor the health of the back-end pool unless the corresponding HTTP setting is explicitly associated with a listener using a rule.

By default, an HTTP(S) response with status code between 200 and 399 is considered healthy. Custom health probes additionally support two matching criteria. Matching criteria can be used to optionally modify the default interpretation of what makes a healthy response. The status retrieved by any of these methods can be any one of the following: Healthy , Unhealthy or Unknown.

If the backend health status for a server is Healthy, it means that Application Gateway will forward the requests to that server. But if the backend health for all the servers in a backend pool is Unhealthy or unknown, you might encounter problems when you try to access applications. After you receive an Unhealthy backend server status for all the servers in a backend pool, requests aren't forwarded to the servers, and Application Gateway returns a "502 Bad Gateway" error to the requesting client. You can check this documentation for more details of possible Unhealthy or Unknown status.

The following are matching criteria:



Select HTTP response types, then select the **Next button** to continue.



APIM + APPGW Integration

Developer Portal

Exposing the developer portal externally through Application Gateway requires additional steps to create developer portal's listener, probe, settings and rules. All details are provided in respective steps.

1 Sitewide (SW) Database

- Create a Management endpoint Listener in Application Gateway for Developer Portal external Users.
- When an administrator accesses the new developer portal, the user's browser makes a GET call to <https://Management Endpoint Hostname/subscriptions/xxx/resourceGroups/xxx/providers/Microsoft.ApiManagement/service/xxx/contentTypes/document/contentItems/configuration?api-version=2018-06-01-preview>
- If your API Management service is in an internal VNet and you're accessing it through Application Gateway from the Internet, you need to make sure to enable connectivity to the developer portal and the management endpoints of API Management.

2 GEO Database

If you use Azure AD or third party authentication, please enable **cookie-based session affinity** feature in Application Gateway.

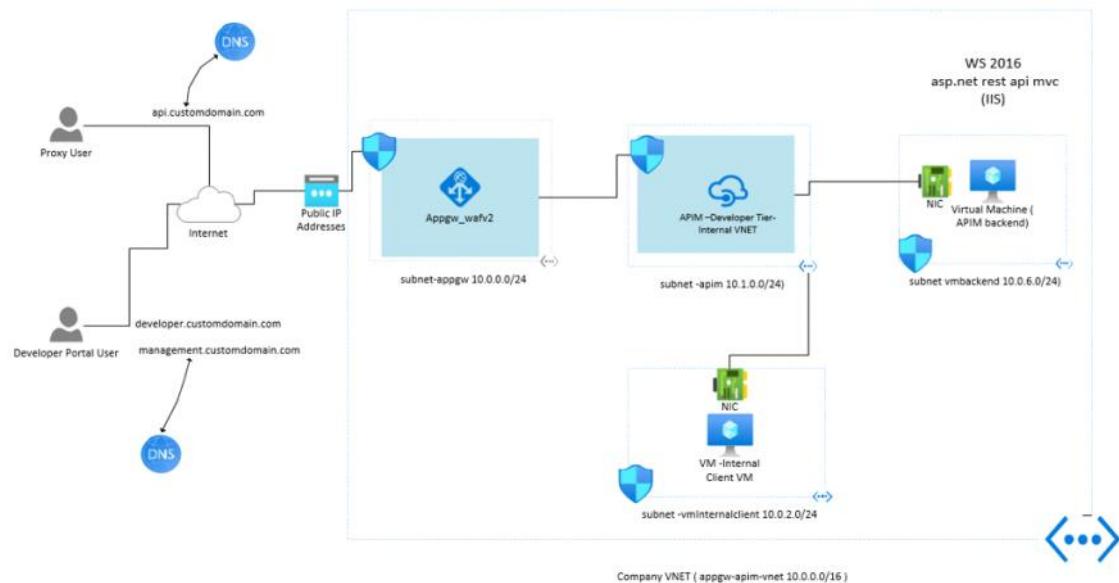
3 Organization Database

- To prevent Application Gateway WAF from breaking the download of OpenAPI specification in the developer portal, you need to disable the firewall rule 942200 - "Detects MySQL comment-/space-obfuscated injections and backtick termination".
- Application Gateway WAF rules, which may break portal's functionality include:
- For the administrative mode :** 920300, 920330, 931130, 942100, 942110, 942180, 942200, 942260, 942340, 942370
- For the published portal :** 920300, 920330, 931130, 942100, 942110, 942180, 942200, 942260, 942340, 942370, 942430, 942440

DEMO

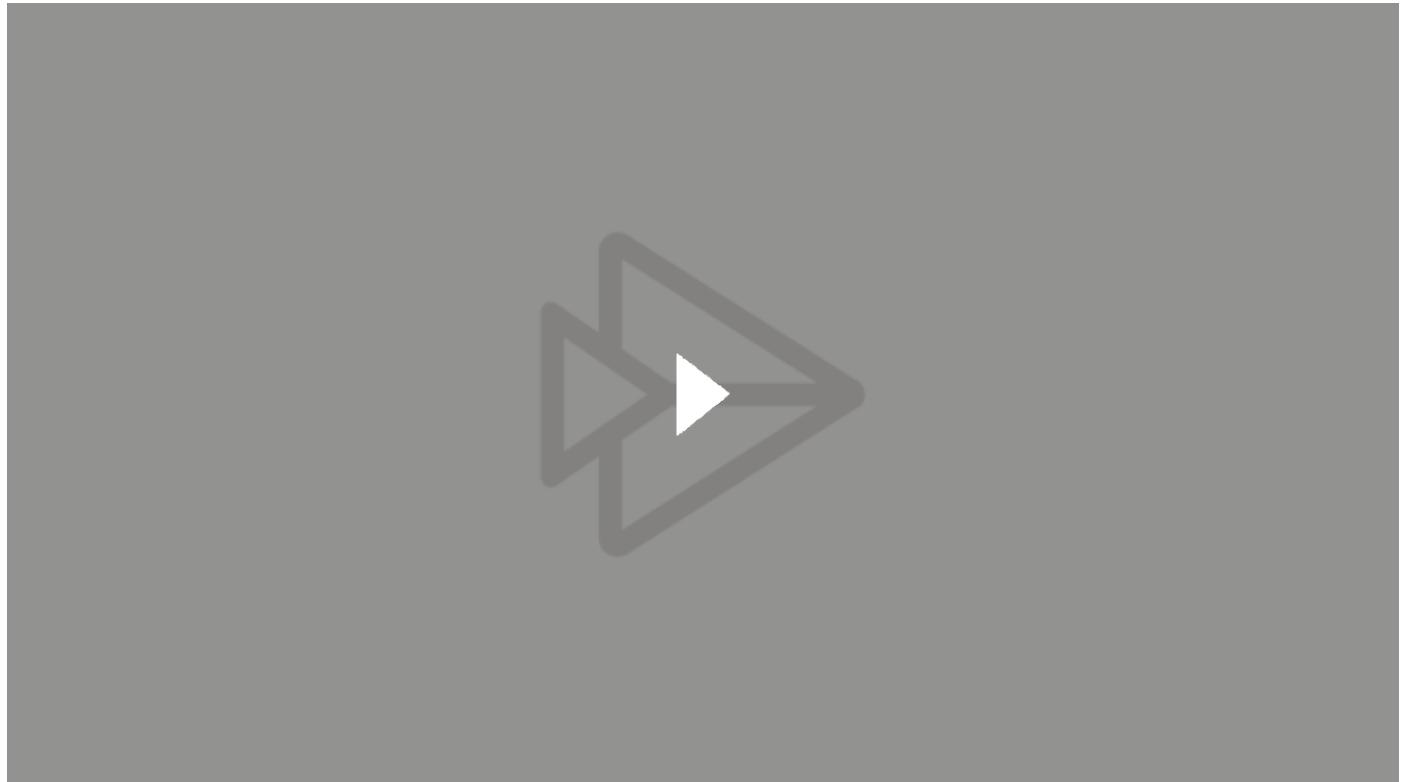
Tuesday, 9 May 2023 13:59

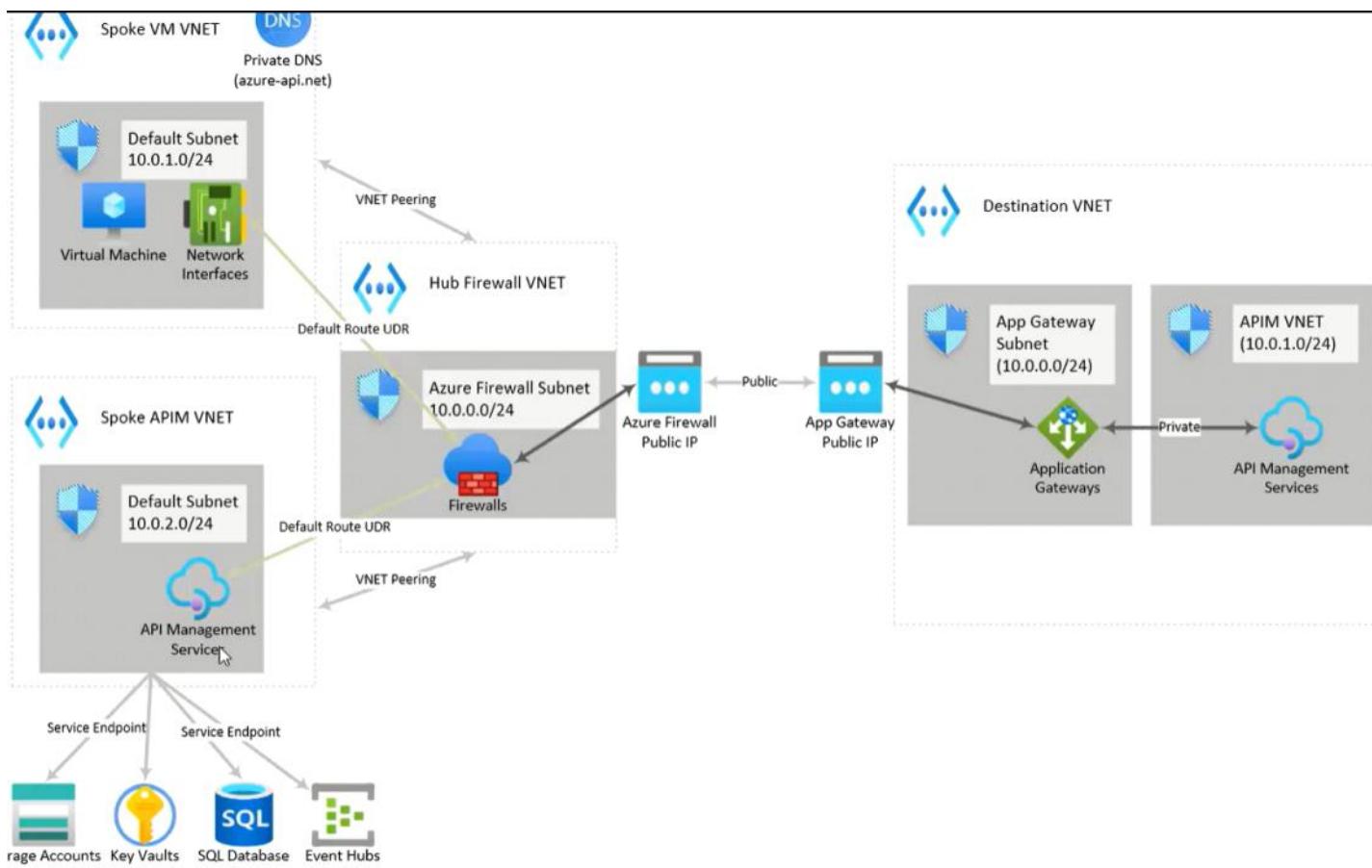
<https://github.com/Joleiton/appgw-apim>



<https://github.com/Joleiton/azuretools/blob/master/src/apim/appgw%2Bapim/appgw-apim-arch.ps1>

[Microsoft Stream](#)

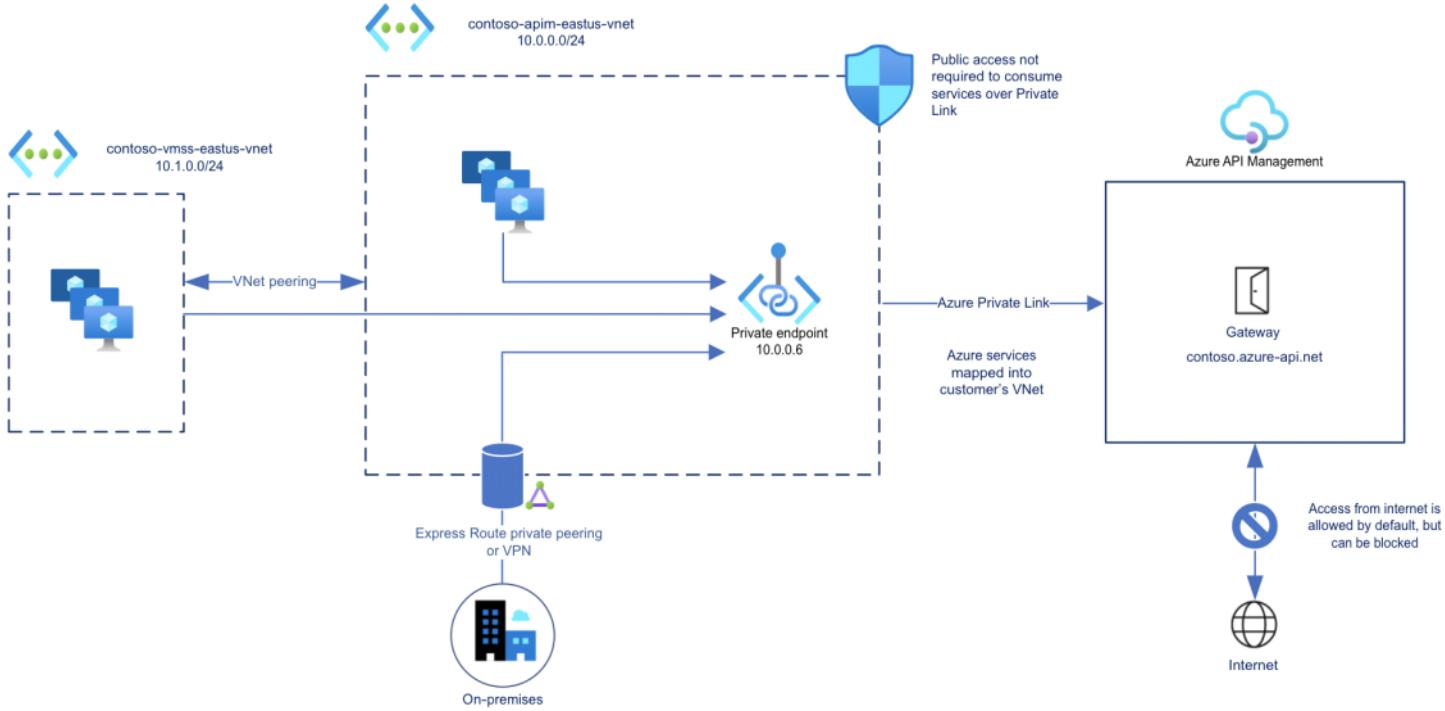




Connect privately to API Management using an inbound private endpoint

Tuesday, 9 May 2023 14:14

[Set up inbound private endpoint for Azure API Management | Microsoft Learn](#)
[Create an API Management service with a private endpoint - Code Samples | Microsoft Learn](#)
[azure-quickstart-templates/quickstarts/microsoft.apimanagement/api-management-private-endpoint-at-master · Azure/azure-quickstart-templates · GitHub](#)



- You can only configure a private endpoint connection for inbound traffic to the API Management instance. Currently, outbound traffic isn't supported.
You can use the external or internal [virtual network](#) model to establish outbound connectivity to private endpoints from your API Management instance.

This feature is available in the Premium, Standard, Basic, and Developer tiers of API Management.

Limitations

- Only the API Management instance's Gateway endpoint supports inbound Private Link connections.
- Each API Management instance supports at most 100 Private Link connections.
- Connections aren't supported on the [self-hosted gateway](#).

ExpressRoute migration guide

Thursday, 25 May 2023 12:33

[adstuart/azure-expressroute-migration: How to approach migrating from one ExpressRoute circuit to another ExpressRoute circuit, with a focus on methodical transition of the ExpressRoute Private Peering. \(github.com\)](https://adstuart.azure-repository.com/repositories/azure-expressroute-migration)

ExpressRoute migration guide

Contents

- [1. Introduction](#)
- [2. Context](#)
 - [2.1. Good to know](#)
 - [2.2. Good to consider](#)
 - [2.3. Capture existing configuration](#)
- [3. Private Peering Migration](#)
 - [3.1. Create new ExpressRoute circuit](#)
 - [3.2. Create test Virtual Network and link to circuit](#)
 - [3.3. Pre-provision circuit authorizations](#)
 - [3.4. Configure BGP routing to favour existing circuit](#)
 - [3.5. Connect new circuit to existing ExpressRoute Gateway](#)
 - [3.6. Move traffic to new ExpressRoute circuit](#)
 - [3.7. Validate](#)
 - [3.8. Rollback](#)
 - [3.9. Cleanup](#)
- [4. Public/Microsoft Peering Migration](#)
- [5. Further reading](#)

1. Introduction

Many customers on Azure leverage ExpressRoute for reliable hybrid connectivity. Sometimes these same customers may need to implement a new ExpressRoute circuit, and have a desire to decommission their old circuit. Common drivers for this scenario include:

- Mergers and acquisitions resulting in consolidation of network providers
- Moving an ExpressRoute circuit from one Azure subscription to [another Azure subscription](#)
- A change of ExpressRoute provider or incumbent WAN provider
- [Downgrading an ER circuit bandwidth requires a new circuit](#)
- Upgrading an ER circuit can [sometimes](#) require a new circuit, depending if the existing underlying port has capacity to support the bandwidth increase

This guides suggest an approach to this migration process that focuses on seamless failover, de-risking rollback, and understanding the correct ordering of steps. Each step will require you to leverage your existing knowledge of ExpressRoute, links will be provided to Azure documentation as required for further technical depth.

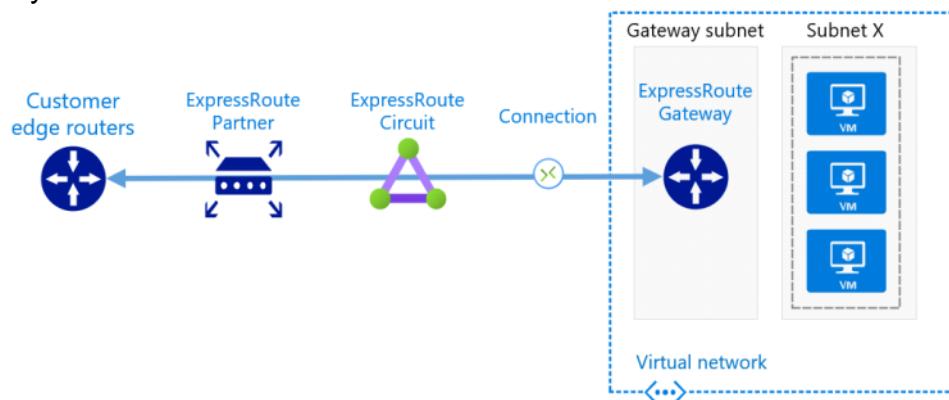
This document assumes pre-existing knowledge of Azure, ExpressRoute and BGP. It is not designed to be read in isolation, but rather act as a high level guide, pointing you in the right direction, at the right places and get the project team asking the right questions to plan for success.

2. Context

When having any ExpressRoute discussion its beneficial to agree on terms. This is best visualized in layers, highlighting the different components in any ExpressRoute design;

- **Gateway**; lives in the GatewaySubnet in your Virtual Network (VNet)
- **Connection**; connects your **Gateway** to a Circuit.
- **Circuit**; the logical configuration at the Microsoft edge network, used to connect your network to ours. **Not located in the Azure Region**, lives in the Peering Exchange, aka Edge site, aka PoP. Owned by companies like NGN, Equinix and Telehouse.
- **Partner**; The company helping you bridge the gap between your network and Microsoft's by facilitating, most commonly, a collection of virtual layer-2 circuits, which you connect to your Customer network equipment.
- **Customer**; Your devices, most often used for Layer-3 BGP termination.

Customer/partner lines may blur, also [ExpressRoute Direct](#) removes the Partner layer.

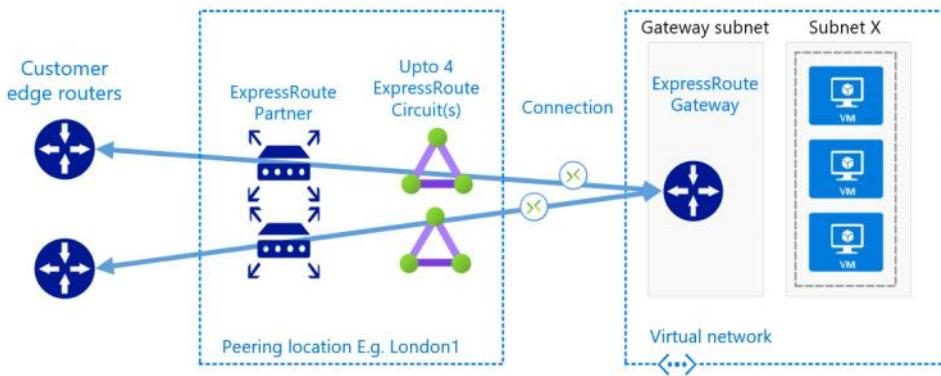


This document presents migration steps with a simple scenario in mind; "*I have one existing ExpressRoute circuit, I am implementing a new ExpressRoute circuit, how do I get from A to B?*". The logic and approach herein can be used for more complex scenarios involving multiple circuits (before or after migration), multiple Azure regions and/or multiple ExpressRoute Gateways.

2.1. Good to know

Up until ~2019 it was only possible to connect a unique peering location to an ExpressRoute Gateway with a single ExpressRoute circuit. I.e. you could link multiple circuits to an ER Gateway, but they had to be from different peering locations. Today, this limit is raised, we are able to simultaneously link up to 4 circuits from the same peering location to an ExpressRoute gateway. This gives us more flexibility when planning the approach to migration.

I.e. the following is now [possible](#).

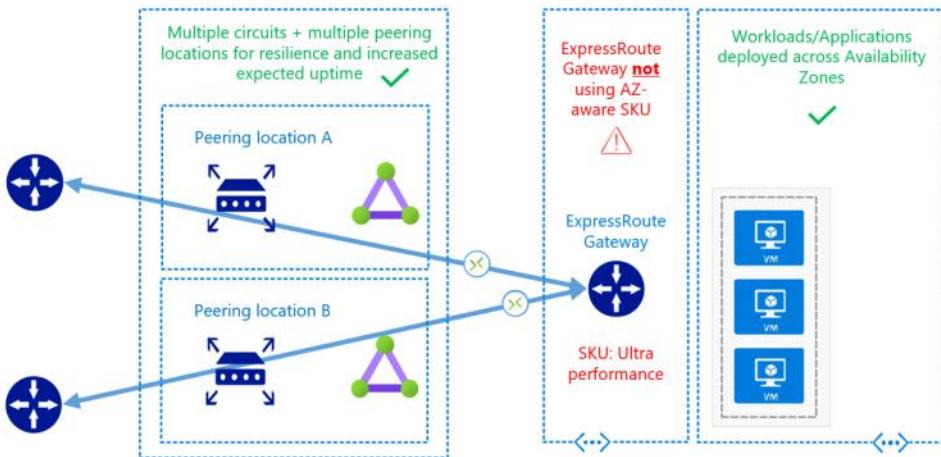


2.2. Good to consider

If, as part of your ExpressRoute migration project, you are implementing more circuits for resilience, make sure to also consider the [ExpressRoute SKU](#) you are using. This should be fit for purpose and aligned with your resilience and performance goals. If you are scheduling maintenance windows to upgrade your circuit, now could be a good time to plan for Gateways changes, if they are required.

Do also pay close attention to platform limits associated with number of connections/authorisations [per circuit](#), and number of [circuits per gateway](#).

A common ExpressRoute anti-pattern (don't do this ☐); in the diagram below, an outage affecting a single Availability Zone in the Azure region has the possibility of taking your entire Hybrid Connection offline (due to all instances of the Gateway becoming unavailable, if they happen to reside in the AZ having issues). This would clearly work against your overall strategy of leveraging Availability Zones for your applications and data.



In the diagram above we would recommend moving to the *Ergw3Az* SKU; offering the same throughput capabilities as the *Ultra Performance* SKU, but with the added benefit of AZ resilience.

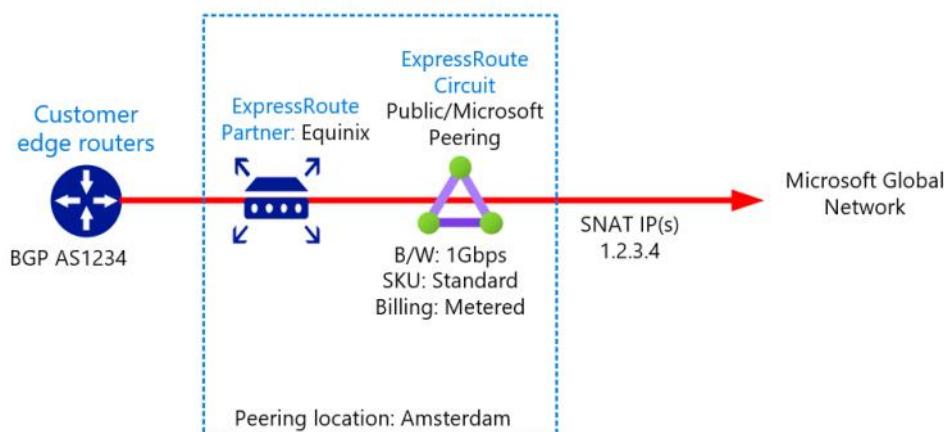
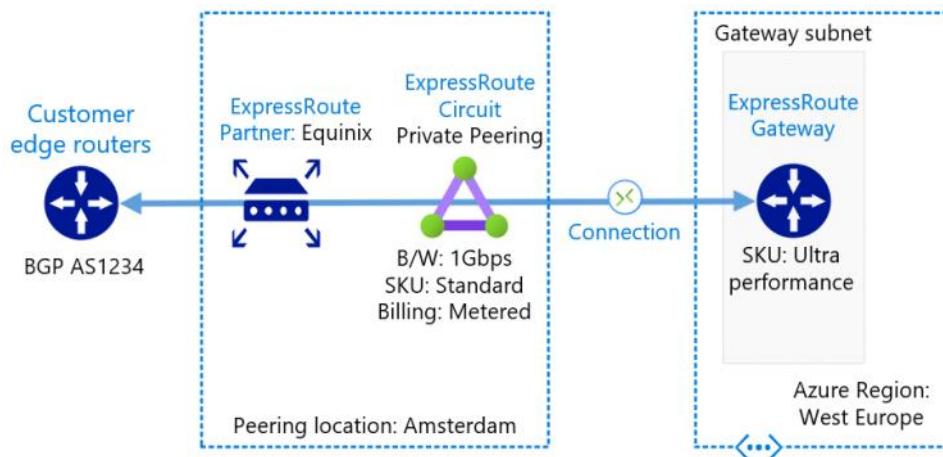
2.3. Capture existing configuration

Before removing the old connectivity, we should capture its logical configuration and form a baseline diagram to iterate from. Important information includes;

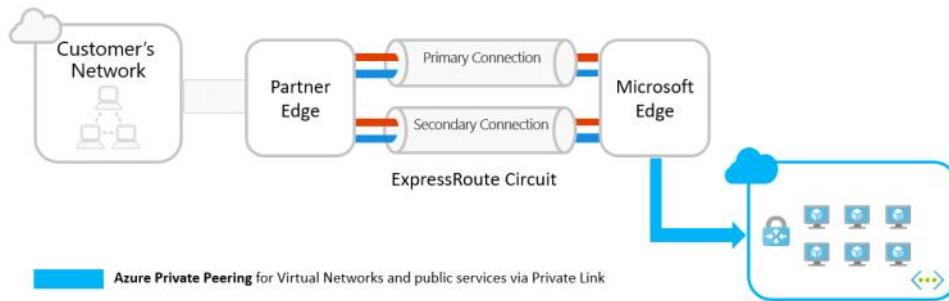
- Which Azure regions are being used, E.g. West Europe
- ExpressRoute Gateway [SKU](#), e.g. *High*, or *ERGw1Az*
- ExpressRoute connection objects (the things that link a *gateway* to a *circuit* within the same subscriptions)
- ExpressRoute authorisations (the things that link a *gateway* to a *circuit* within a

- different subscription)
- ExpressRoute circuit attributes
 - Peering location, e.g. London1
 - Bandwidth, e.g. 1Gbps
 - Provider, e.g. Equinix
 - SKU, e.g. Standard/Premium/Local
 - Billing Model, e.g. Unlimited/Metered
 - ExpressRoute circuit peering types
 - Private peering (*the majority of customers will only be using this peering type*)
 - Public Peering (now deprecated, but may still be in use in your network)
 - Public Peering utilises Microsoft managed SNAT ranges. If you do not know this [SNAT information](#), you will need to raise an Azure support ticket to find out your SNAT addresses
 - Microsoft Peering
 - Microsoft peering utilises [customer managed SNAT](#), you or your provider will have this information.
 - [Route filters](#) associated with Microsoft peering
 - [BGP information](#) - AS numbers and /30 peer IP addresses for all peerings

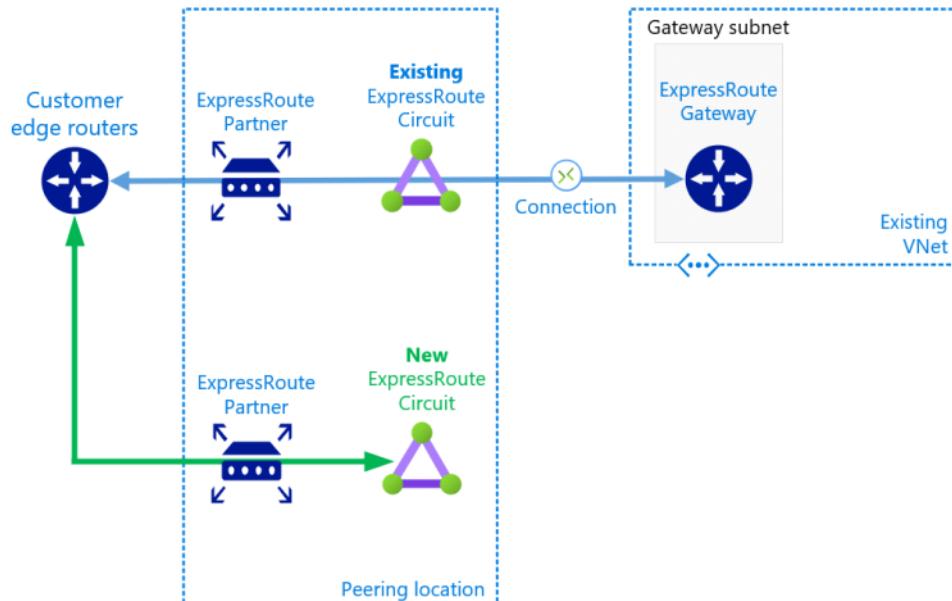
Once this is complete, you should be able to produce two diagrams similar to the below, splitting out the Private Peering and the Public/Microsoft Peering for clarity.



3. Private Peering Migration

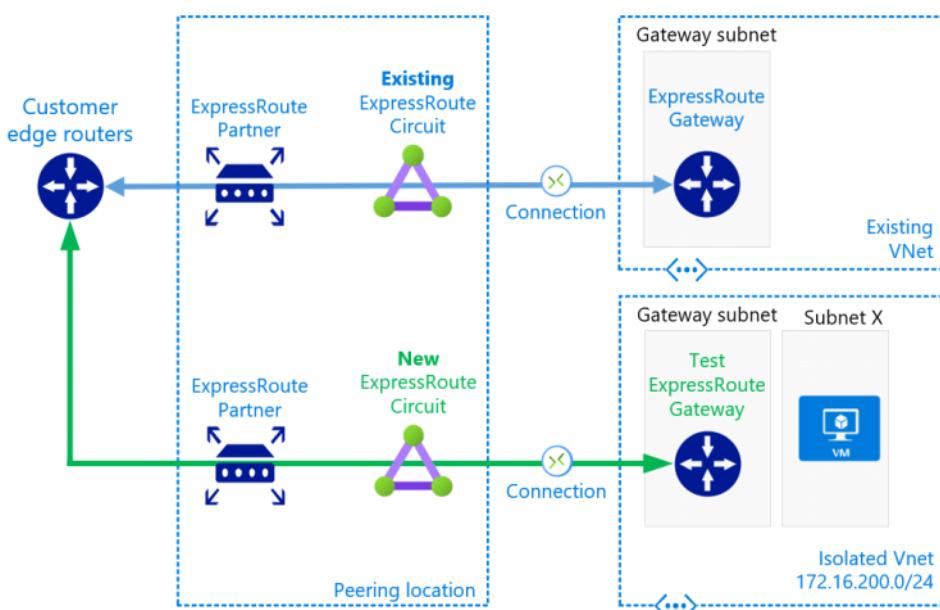


3.1. Create new ExpressRoute circuit



Follow [this](#) guide to create the new circuit with your requirement parameters. This includes working with your provider to turn-up the new circuit and configure the BGP peerings to your network. The /30 BGP links will utilise new, unique IP addressing. You may also decide to deploy the ExpressRoute circuit and remaining configurations via alternative methods such as PowerShell, [Azure CLI](#) or Bicep, Terraform, REST etc.

3.2. Create test Virtual Network and link to circuit



- [Create a new VNet](#) with some test IP address space that does not overlap with either your current on-premises address space, or your existing Azure VNet(s)

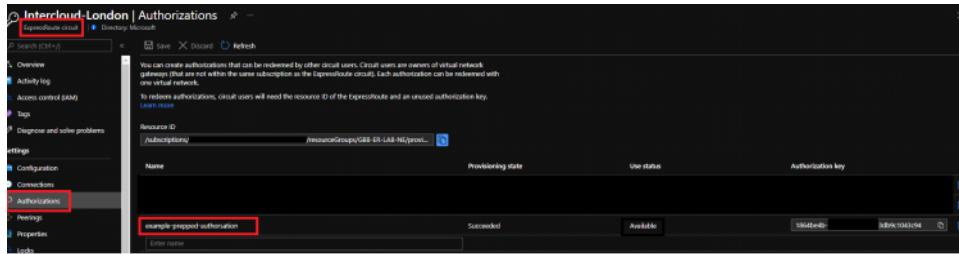
address space

- Deploy, for testing purposes, both a Virtual Machine and an ExpressRoute Virtual Network Gateway
- Connect the test Gateway to your new circuit via a Connection object
- The purposes of this step is to prove out end-to-end connectivity across the new circuit, prior to using it within your production environment.
- If done correctly, your On-Premises network can now route traffic to this new test VNet, and vice versa
- Carry out part of your required commissioning tests, latency, throughput etc

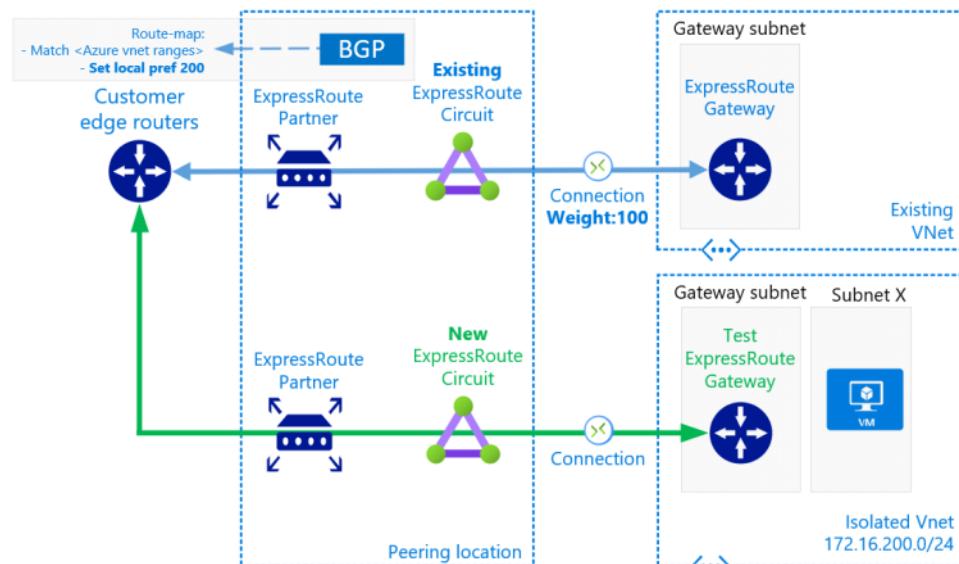
Take this opportunity to become familiar with all the rich ExpressRoute information that is available from the CLI. For example, a good idea at this step is to verify you are advertising all the required routes from On-Premises with the expected AS-PATH manipulation, if any. A great guide to get started <https://blog.cloudtrooper.net/2021/07/12/cli-based-analysis-of-an-expressroute-private-peering/>

3.3. Pre-provision circuit authorizations

If you are using circuit authorizations for cross-subscription gateway attachment (you checked that already right? ☐) Then you are able to deploy these ahead of time on the new circuit. Generate the new authorizations and they will remain in the "available" state until redeemed at the gateway level. One less job to do during the migration window itself.



3.4. Configure BGP routing to favour existing circuit



Before we attach our new circuit to the production ExpressRoute Gateway, we want to ensure that traffic only fails over to this circuit when we decide, and not unexpectedly due to routing logic we may not have full visibility of. We want to do this to ensure that traffic to and from Azure remains symmetrical, this is especially important if On-Premises stateful firewalls are in use.

- To control traffic from **Azure to On-Premises** the most straight forward method

is to change the Weight parameter, configured at the Connection object level. The default is 0, a higher weight wins, therefore lets set our existing connection to 100.

The screenshot shows the 'Conn-WE-LON | Configuration' page in the Azure portal. On the left, there's a sidebar with links like Overview, Activity log, Access control (IAM), Tags, Settings, Configuration (which is selected), and Connections. The main area has a 'Search (Ctrl+ /)' bar, a 'Save' button, and a 'Discard' button. A 'Routing weight *' field is highlighted with the value '100'. Below it is a 'FastPath' checkbox with an info icon.

- An alternative method to control traffic from **Azure to On-Premises** is to use AS-PATH from On-Premises in the direction of Azure - [full details](#). Here is an example of a circuit that is receiving AS-PATH prepended routes from an On-Premises router.

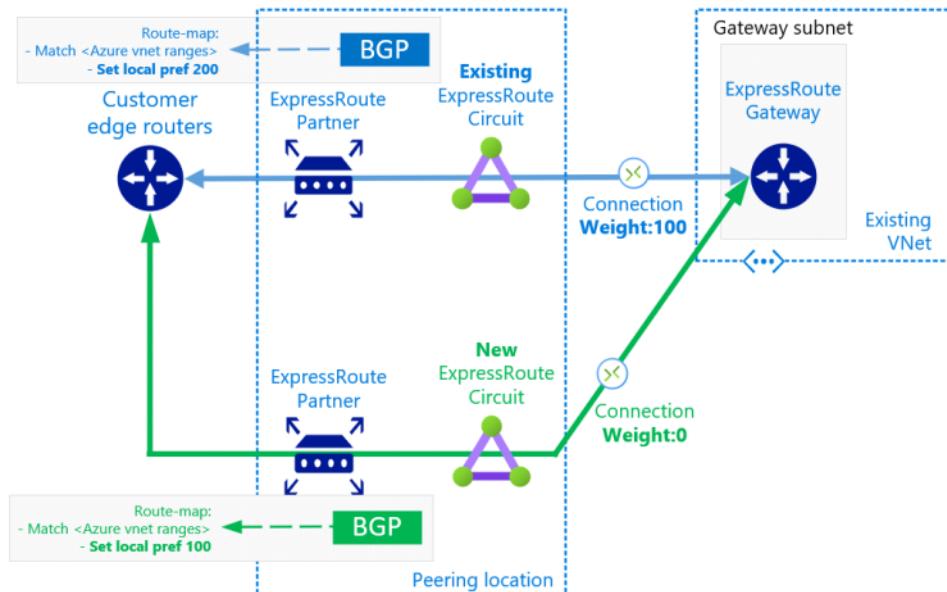
The screenshot shows the 'IntercloudAmsterdam | Peerings' page in the Azure portal. The sidebar includes Home, IntercloudAmsterdam, ExpressRoute circuit, Directory: Microsoft, and a search bar. The main area shows a table with columns Type, Status, and Primary subnet. One row for 'Azure private' is selected. At the top of the table, there are buttons for Refresh, Delete, View ARP records, and View route table (which is circled in red).

The screenshot shows the 'Route table (Primary)' page for the selected 'Azure private' peer. It displays a table with columns Network, Next hop, LocPrf, Weight, and Path. There is one entry for '192.168.2.0' with '169.254.0.1' as the next hop and a weight of 0.

- To control traffic from **On-Premises to Azure** you will need to use BGP metric tuning - typically AS-PATH inbound, or local preference, depending on exact topology of your Customer edge routers. Configure a route-map on your on-premises router. Leverage this route-map to manipulate BGP metrics on routes received from Azure via the existing blue circuit. E.g. Configure your route-map to set Local Preference to 200. (Higher local pref wins, default is typically 100).

Note! At this stage the circuit is still not connected to your existing/production ExpressRoute Gateway, but you have verified the route advertisements and attributes.

3.5. Connect new circuit to existing ExpressRoute Gateway



At this point we have a high degree of confidence in the new circuit; we have proved end-to-end connectivity and we understand, and are in control of, the routing behaviour on the existing circuit, we can attach the new circuit to operate in a **standby/passive state**.

- Create a new connection object that links your new circuit to your ExpressRoute Gateway, **ensure the Weight is set to 0**.
- Now is the time to also redeem the authorisations you created in an earlier step, effectively building connections from your circuit to gateways that reside in different subscriptions. Again, don't forget to set Weight to 0.
- Verify, using AZ CLI, that the ExpressRoute gateway sees your on-premises prefixes via both circuits, and if using AS-PATH manipulation inbound, that the AS-PATH attributes are as you expect.

The example below shows my On-Premises prefix of 192.168.2.0/24 being learnt via 4 BGP neighbours (each ER circuit is represented by peerings to the Gateway), representing my lab configuration that uses two ER circuits.

Note visibility of BGP route metrics including AS-PATH and weight (additive beyond baseline of 32xxx), allowing you to verify configuration changes made in step 3.4.

az network vnet-gateway list-learned-routes -n ER-GW-WE -g GBB-ER-LAB-WE -o table

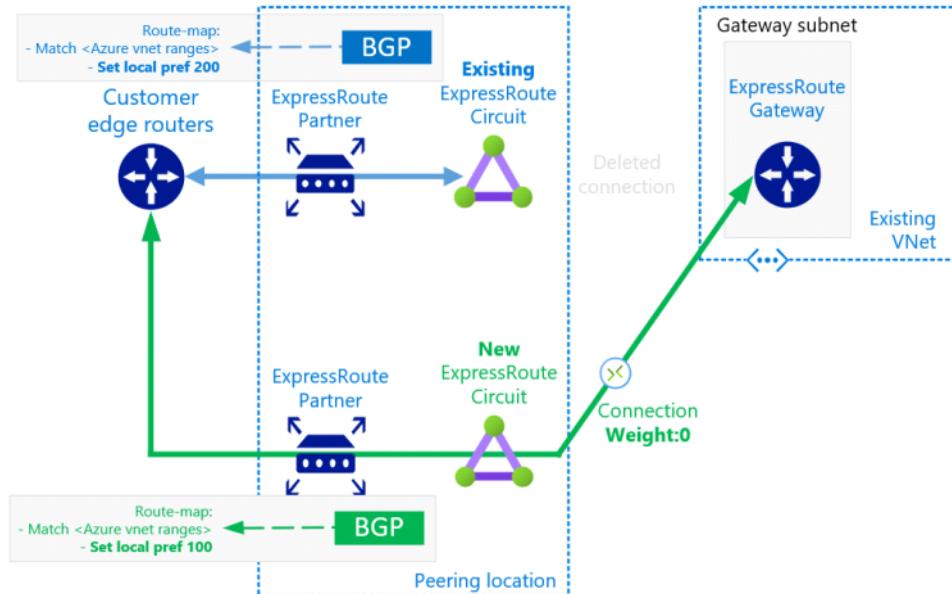
Network	Origin	SourcePeer	AsPath	Weight	NextHop
---------	--------	------------	--------	--------	---------

192.168.2.0/24	EBgp	10.10.1.6	12076-65000-65001-65001-65002	32869	10.10.1.6
192.168.2.0/24	EBgp	10.10.1.7	12076-65000-65001-65001-65002	32869	10.10.1.7
192.168.2.0/24	EBgp	10.10.1.5	12076-65000-65001-65001-65002	32769	10.10.1.5
192.168.2.0/24	EBgp	10.10.1.4	12076-65000-65001-65001-65002	32769	10.10.1.4

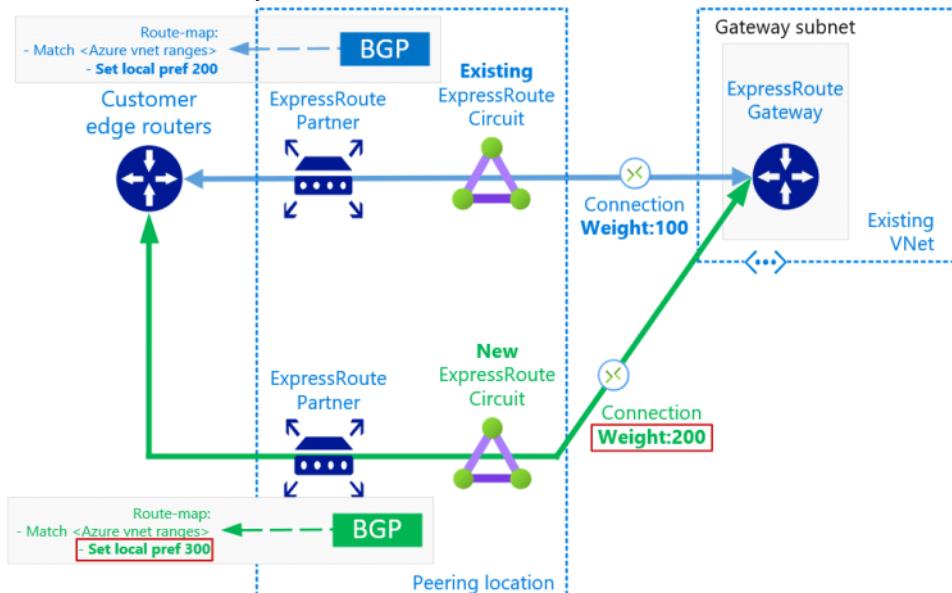
3.6. Move traffic to new ExpressRoute circuit

Until now we have been in the verification and test phase, now its time to move production traffic on to our new circuit. At this point we have two options;

- a) Delete the connection object that links your old circuit to your ExpressRoute Gateway. In effect, forcing traffic to/from Azure over your new circuit. This will incur downtime whilst the logical network routing catches up; between 10s to ~240s depending on the configuration of your On-Premises network, existing ER circuit and if you are using [BFD](#) or not.



- b) Modify BGP metrics to preference the new circuit, using the logic from step 3.4 to de-preference the old circuit. E.g. we set Weight to 200 on the connection object and, in parallel, change our On-Premises route-maps to prefer the new circuit. *In my testing this approach can result in a more seamless failover and less downtime, but your mileage may vary, depending on your On-Premises network setup.*



Which approach you choose will depend on factors such as;

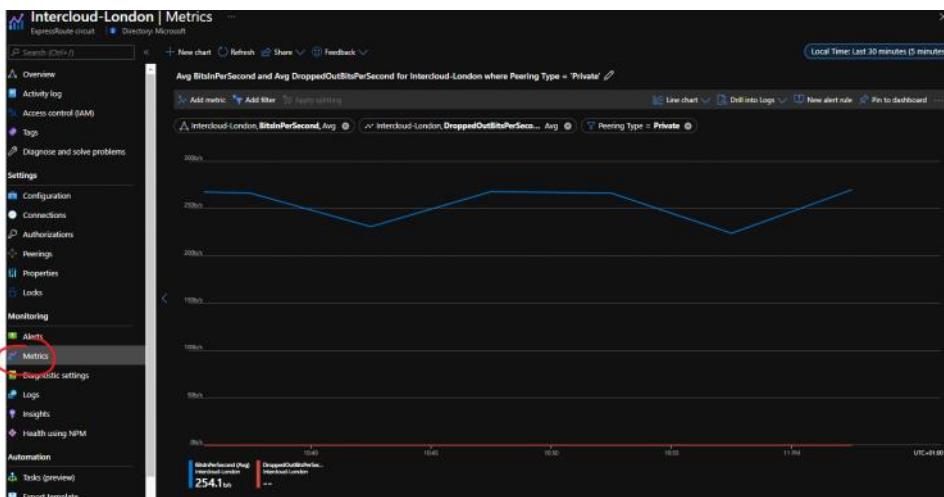
- Who is driving the migration? I would suggest that you always need your On-Premises network team involved in the migration process, but option (a) allows the cut-over to be initiated entirely from Azure.
- Are any On-Premises firewalls being used? Option (a) guarantees symmetrical traffic, whilst option (b) may result in temporary asymmetry due to BGP propagation timing
- Appetite for downtime. Option (a), whilst simpler, does come with the guaranteed downtime whilst BGP re-converges. Option (b) is more complex, but may offer a more seamless cut-over experience

3.7. Validate

You have now completed either option (a) or (b) above, you believe everything is working, how can we rubber stamp this and consider the migration a success?

- To verify traffic from **Azure to On-Premises** is using the correct path
 - From the ExpressRoute Gateway, you can re-run the command from earlier (`az network vnet-gateway list-known-routes -n <gatewayname> -g <rg> -o table`) and verify that the preferred route (via weight, or AS-PATH) has now flipped over to your other circuit.
- To verify traffic from **On-Premises to Azure** is using the correct path
 - Check your customer edge device, run (for Cisco folks, or equivalent of) `show ip bgp <azure vnet prefix>`, the best path should represent the next-hop of your new circuit peerings IP addressing.

Corroborate the above by checking the ExpressRoute circuit metrics in Azure Monitor, this can be accessed right from the *metrics* blade in the portal. You should see traffic drop off your old circuit, and ramp up on your new circuit. In the below screenshot I have applied two metrics (bits-in and bits-out) along with splitting to force peering-type=private, finally I set time-range to *last 30 minutes*.



Now might also be a good time to solidify your investment of time in Monitoring for your shiny new ExpressRoute circuit, take a look at the new [Connection Monitor](#) experience, superseding [Network Performance Monitor](#) going forward.

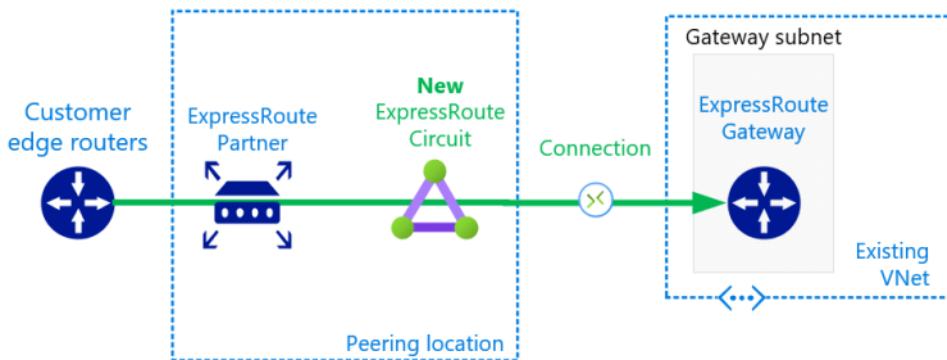
3.8. Rollback

What if things are not working? Your app owners are still reporting problems after a period of UAT, and you need to press the *go back* button?

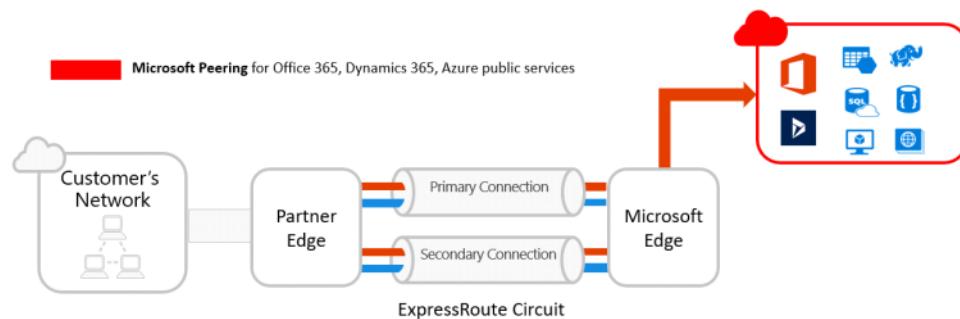
- If you went with option (a), reconnect the old circuit by re-creating a connection object that links the old circuit to the ExpressRoute gateway. Also remember to rebuild any circuit-to-gateway connections that utilised authorisations.
- If you went with option (b), reverse your weight and AS-PATH metric changes

3.9. Cleanup

Once you are happy the migration was a success, don't forget to ask your provider to decommission your old ExpressRoute circuit, once this is complete you can delete the ExpressRoute object itself in the Azure portal. You can also remove the test VNet and associated resources.



4. Public/Microsoft Peering Migration



Public Peering is now deprecated but you may still be using this service on your old circuit. If you wish to retain access to Public IPs from Microsoft over your ExpressRoute connection, you will need to implement the Microsoft peering on your new circuit.

Note! Now is a good time to assess what you are using the existing Public or Microsoft peering for. Many customers find that with platform enhancements in recent years such as **Azure Private Link**, the requirement to utilise the Microsoft peering is greatly reduced.

The process for migrating from Public Peering to Microsoft Peering is already well documented - <https://docs.microsoft.com/en-us/azure/expressroute/how-to-move-peering> - this methodology can be followed when implementing a new circuit, therefore there is no need to repeat the guidance here.

□ Key call outs

- If you are moving from Public to Microsoft peering your SNAT IP addresses **will** change, therefore any IP allowed-lists (for example on Azure Storage firewall) will require updating prior to cut-over.
 - To obtain your existing Microsoft SNAT IP addresses used on the Public Peering, raise an Azure support ticket
- When initially configured, you will receive no routes on the Microsoft Peering. Only when attaching a *route filter* will you start to receive prefixes from Microsoft. <https://docs.microsoft.com/en-us/azure/expressroute/how-to-routefilter-portal>.
 - You can use this to your advantage, initially selecting only one obscure BGP community, to validate route advertisements are functioning.
 - Once this is complete, you can then select the wider range of services (BGP communities) that you require.
 - This approach allows a controlled migration, on a per service basis if you desire, when combined with BGP attribute manipulation (AS-PATH prepend inbound, or local-preference).
- If your current Public/Microsoft peering is authorised for use of M365, ensure to consider this moving forward. Take this opportunity to [question if you still need to send M365 traffic over ExpressRoute](#)? Authorisation to utilise this pattern is

done on a per Azure subscription basis, therefore if your new circuits will reside in a new subscription, you will have to repeat the approval request.

5. Further reading

- <https://docs.microsoft.com/en-us/azure/expressroute/designing-for-high-availability-with-expressroute>
- <https://docs.microsoft.com/en-us/azure/expressroute/designing-for-disaster-recovery-with-expressroute-privatepeering#large-distributed-enterprise-network>
- <https://docs.microsoft.com/en-us/azure/expressroute/expressroute-faqs>
- Go (much) deeper on how to control BGP in respect to ExpressRoute traffic engineer, thanks to Jeremy Wright, <https://github.com/jwrightazure/lab/tree/master/Expressroute-Multicircuit-ASprepend-Localpref>

From <<https://github.com/adstuart/azure-expressroute-migration>>

ALZ

Wednesday, 17 May 2023 12:05

Azure Monitor Base Alerts

Wednesday, 17 May 2023 12:05

<https://techcommunity.microsoft.com/t5/azure-governance-and-management/azure-monitor-baseline-alerts-preview/ba-p/3810463>

AKS Accelerator

Wednesday, 17 May 2023 12:06

[Azure/AKS-Landing-Zone-Accelerator: Official repository for the AKS Landing Zone Accelerator program \(github.com\)](https://github.com/Azure/AKS-Landing-Zone-Accelerator)

ALZ-Policies

Wednesday, 17 May 2023 12:06

Enterprise-Scale/ALZ-Policies.md at main · Azure/Enterprise-Scale · GitHub

[AKS Construction helper \(azure.github.io\)](https://AKS Construction helper (azure.github.io))

CARML Implementation

Friday, 9 June 2023 11:52

CARML_ Accelerate workload implementations in a CAF Azure Landing Zone using Bicep & GitHub #SPARKFY

[CARML_ Accelerate workload implementations in a CAF Azure Landing Zone using Bicep & GitHub-SPARKFY22H2.mp4 \(sharepoint.com\)](#)

Stop and start the Azure Firewall

Friday, 28 April 2023 09:54

[Stop and start the Azure Firewall \(cludoing.com\)](#)

[adstuart/azure-firewall-deallocate: Pause and restart Azure Firewall resources for optimised consumption costs in lab/testing scenarios \(github.com\)](#)

```
# Stop an existing firewall
$azfw = Get-AzFirewall -Name "" -ResourceGroupName ""
$azfw.Deallocate()
Set-AzFirewall -AzureFirewall $azfw
```

```
$azfw = Get-AzFirewall -Name "" -ResourceGroupName ""
$vnet = Get-AzVirtualNetwork -ResourceGroupName "" -Name ""
$publicip = Get-AzPublicIpAddress -Name "" -ResourceGroupName ""
$azfw.Allocate($vnet,$publicip)
Set-AzFirewall -AzureFirewall $azfw
```

From <<https://github.com/adstuart/azure-firewall-deallocate>>

Stop/Start Azure Application Gateway

Friday, 28 April 2023 09:56

Get Azure Application Gateway

```
$appgw=Get-AzApplicationGateway -Name SOC-NS-AG-WAFv2 -ResourceGroupName rg-wafdemoumicore  
# Stop the Azure Application Gateway  
Stop-AzApplicationGateway -ApplicationGateway $appgw
```

Start the Azure Application Gateway (optional)

```
Start-AzApplicationGateway -ApplicationGateway $appgw
```

From <<https://rlevchenko.com/2020/07/28/how-to-stop-azure-application-gateway/>>

Install-Module -Name Az -Scope CurrentUser -Repository PSGallery -Force

From <<https://laurakokkarinen.com/stopping-and-starting-azure-application-gateway-on-demand-and-on-a-schedule/>>

```
. "<local script file directory path>.ps1" -subscriptionId "<your subscription ID>" -resourceGroupName "<your resource group name>" -appGatewayName "<your application gateway name>" -enabled $false
```

From <<https://laurakokkarinen.com/stopping-and-starting-azure-application-gateway-on-demand-and-on-a-schedule/>>

STOPPING AND STARTING AZURE APPLICATION GATEWAY ON-DEMAND AND ON A SCHEDULE

Azure Application Gateway is a load balancer that allows you to manage traffic to your web applications. It offers a Web Application Firewall (WAF) feature, which is advertised to protect web applications against the [OWASP Top Ten](#) attacks.

Some have described Azure WAF as a sort of a “silver bullet” against web application attacks. Lately, I’ve been doing penetration testing against Azure WAF to see how well its OWASP rules truly fare in practice. For that purpose, I set up a vulnerable web application in Azure and put it behind an Azure Application Gateway and its WAF with OWASP rules.

Running the Azure Application Gateway with WAF costs about 9,50€ euros per day, making it a bit under 300€ euros per month (slightly less in US dollars). Normally, you want to have it running at all times — after all, you never know at what time of day hackers are on the move. However, because I was not testing my vulnerable dummy web app 24/7, I only needed to have the application gateway running while performing the tests.

To save some money, I looked for a way to stop the application gateway after completing my testing session. Unfortunately, there’s no button in Azure Portal that allows us to stop and start the application gateway on-demand. [Microsoft has also said](#) that they are not planning on introducing this functionality. Luckily, we can stop and start the application gateway with PowerShell!

STOPPING AND STARTING THE APPLICATION GATEWAY ON-DEMAND

To manage the Azure application gateway on-demand with PowerShell, you first need to install the Az PowerShell module on your computer. This happens by starting Windows PowerShell as an administrator and running the below command.

```
Install-Module -Name Az -Scope CurrentUser -Repository PSGallery -Force
```

After you've installed the Az module, you are ready to run the script below. It will first connect to your Azure subscription, prompting you for credentials. It will then get the application gateway object and check its status. If the application gateway is running and you've specified that you want it stopped, the script will stop the gateway. And vice versa, if the application gateway is stopped and you've specified that you want it up and running again, the script will start the gateway.

```
param(
[Parameter(Mandatory)]
[String]$subscriptionId,
[Parameter(Mandatory)]
[String]$resourceGroupName,
[Parameter(Mandatory)]
[String]$appGatewayName,
[Parameter(Mandatory)]
[Boolean]$enabled
)
Connect-AzAccount-Subscription $subscriptionId
$appGateway=Get-AzApplicationGateway-Name $appGatewayName-ResourceGroupName $resourceGroupName
if($enabled-eq$true-and$appGateway.OperationalState-eq"Stopped") {
    Write-Host"Starting the application gateway."
    Start-AzApplicationGateway-ApplicationGateway $appGateway
}
if($enabled-eq$false-and$appGateway.OperationalState-eq"Running") {
    Write-Host"Stopping the application gateway."
    Stop-AzApplicationGateway-ApplicationGateway $appGateway
}
```

[view rawset-application-gateway-state.ps1](#) hosted with ❤ by [GitHub](#)

To execute the script, you need to provide the Azure subscription ID, the resource group name, the app application gateway name, and either \$true (to start) or \$false (to stop) to change the application gateway state. So, for example, to stop the application gateway, you'd run the following command in Windows PowerShell.

```
. "<local script file directory path>.ps1" -subscriptionId "<your subscription ID>" -
resourceGroupName "<your resource group name>" -appGatewayName "<your application
gateway name>" -enabled $false
```

STOPPING THE APPLICATION GATEWAY ON A SCHEDULE WITH AZURE FUNCTIONS

If you are anything like me, the problem with the above on-demand approach is that you sometimes forget to manually shut down the application gateway after you are done with it. For this same reason, I love the feature virtual machines have that makes them automatically shut down at a certain time of day. I wanted the same functionality for my application gateway, so it would always stop in the evening if it were still running. For this purpose, I quickly whipped up an Azure function for the job. Here are step-by-step instructions that allow you to do the same.

CREATE THE FUNCTION APP RESOURCE

To create the Azure Function App resource, do the following:

1. Create a new resource group:
 - Select a billing subscription
 - Give the resource group a descriptive name (following agreed upon naming conventions if such exist).
 - Select a region near you.
2. Go to the resource group after it has been deployed.
3. Click on *Create resources*.
4. Choose to create a *Function App*.
5. On the *Basics* tab:
 - The subscription and resource group should already be selected. Leave them as they are.
 - Give your function app a descriptive name.
 - Publish: Code
 - Runtime stack: PowerShell Core
 - Version: 7.0 (at the time of this writing)

- Finally, select the same region as what you chose for the resource group.
- 6. On the *Hosting* tab:
 - Create a new storage account with a descriptive name.
 - Operating System: Windows
 - Plan type: Consumption (Serverless)
- 7. On the *Monitoring* tab:
 - Choose to enable Application Insights.
 - Give the resource a descriptive name, and select the same region as what you chose for the resource group and the function app.
 - Plan type: Consumption (Serverless)
- 8. On the *Tabs* tab you can optionally add descriptive tags for the resource to provide more information about it. Your subscription administrator might have even set up some Azure Policies that require you to tag the resources you create.
- 9. Finally, on the *Review + create* tab, hit on the *Create* button.

CONFIGURE THE FUNCTION APP SETTINGS

After the deployment completes, click on *Go to resource*.

1. Go to the *App files* blade.
2. While *host.json* is selected from the dropdown, add "**functionTimeout": "00:10:00**" to the root of the JSON object, and click *Save*. This increases the maximum allowed runtime of the function to 10 minutes instead of the default 5 minutes. This is required, because stopping and starting the application gateway typically takes around 6 minutes. After the change, the *host.json* file should look something like below.

```
{
  "version": "2.0",
  "managedDependency": {
    "enabled": true
  },
  "extensionBundle": {
    "id": "Microsoft.Azure.Functions.ExtensionBundle",
    "version": "[2.*, 3.0.0)"
  },
  "functionTimeout": "00:10:00"
}
```

[view rawAppGatewayFunction_host.json](#) hosted with ❤ by [GitHub](#)

3. Remaining on the *App files* blade, select *requirements.psd1* from the dropdown, and uncomment the '*Az' = '6.*'* line (remove the #). This will take the required Az PowerShell module into use in our function. The version number might have increased by the time of this writing. Remember to *Save* before proceeding to the next step. The file contents should now look similar to the example below.

```
#This file enables modules to be automatically managed by the Functions service.
#See https://aka.ms/functionsmanageddependency for additional information.
#
#{@
#For latest supported version, go to 'https://www.powershellgallery.com/packages/Az'.
#To use the Az module in your function app, please uncomment the line below.
'Az'=6.*'
}
```

[view rawAppGatewayFunction_requirements.psd1](#) hosted with ❤ by [GitHub](#)

Note that for the file changes to come into effect, an application restart is required. This will happen automatically in the next step when we save the application settings. However, if you are doing the steps in a different order for some reason, make sure to restart the app manually via the *Overview* blade.

4. Go to the *Configuration blade*, and add three *new application settings*.

NAME	VALUE
subscriptionId	The ID of the subscription where your application gateway is located.
resourceGroupName	The name of the resource group where your application gateway is located.
appGatewayName	The name of the application gateway resource you want to shut down on a

| schedule.

5. Remember to click on Save at the top to take the new application settings into effect.
6. Then, go to the *Identity* blade.
7. Change the System assigned management identity status to *On*, and click on save. We need to enable this feature to give our Azure function permissions to manage the application gateway.
8. Go to the application gateway resource and there to the *Access control (IAM)* blade.
9. Choose to *Add role assignment*.
 - o Role: Network Contributor
 - o Assign access to: Function app (under System assigned managed identity).
 - o Select the function app from the list, and click on Save.

CREATE THE FUNCTION FOR STOPPING THE APPLICATION GATEWAY

Finally, let's create the function that will actually stop our application gateway on a schedule.

1. Go to back to the Functions App resource, and there onto the *Functions* blade.
2. Click *Add* to create a new function.
 - o Select *Timer trigger* as the template.
 - o Give the function a name (e.g., *StopAppGateway*)
 - o Schedule it to run at a time when you want to stop the application gateway. I personally wanted the application gateway to shut down at 6 o'clock in the evening (UTC), so I used the following CRON expression: **0 0 18 * * ***.
Note that by default you always need to specify the CRON expression according to the UTC time zone. If you prefer to schedule your function to run using some other time zone, [you can specify it using the WEBSITE_TIME_ZONE setting](#).
3. When the function has been created, go to the *Code + Test* blade, copy-paste the code below to the function.

```
param($Timer)
Connect-AzAccount-Subscription $env:subscriptionId-Identity
$appGateway=Get-AzApplicationGateway-Name $env:appGatewayName-ResourceGroupName
$env:resourceGroupName
if($appGateway.OperationalState-eq"Running") {
    Write-Host"Stopping the application gateway."
    Stop-AzApplicationGateway-ApplicationGateway $appGateway
}
else{
    Write-Host"The application gateway is already stopped."
}
Disconnect-AzAccount
```

[view rawStopAppGateway.ps1 hosted with ❤️ by GitHub](#)

The function code will first authenticate to the subscription and get a reference to the application gateway resource with the system assigned managed identity of the Azure function app. Then, it will check if the application gateway is running and if yes, it will stop it. If the application gateway is in some other state (Stopped, Stopping or Starting), the function will instead write a message to the logs indicating that the application gateway was already stopped and no action has been performed on it.

4. Finally, click on *Save*

The application restart we caused earlier when saving configurations triggered the installation of the Az PowerShell module. It takes a little while for that process to complete. **If you were to execute the function manually immediately after creation, it would most likely fail** because of the missing module.

You can check when modules have been successfully installed via Kudu. You can open Kudu by going to the *Advanced Tools* blade of your function app and clicking on the *Go* link. Under the *Debug console* dropdown, select either one of the shells. Browse to *data* and then *Managed dependencies* to see if all the modules have been installed. Personally, I've experienced that it sometimes takes multiple tries for the module installation to succeed. **I'd give it about half an hour**, and then check back to ensure that at least 10 minutes have passed since the most recently created folder time stamp before attempting to execute the function.

GETTING THE APPLICATION GATEWAY UP AND RUNNING AGAIN

You can always create a similar function that starts up the application gateway in the morning if you like (replace "Stop-AzApplicationGateway" with "Start-AzApplicationGateway" and adjust the CRON expression to match your desired schedule). However, a manual startup was a better option for my purposes because I didn't do testing against the WAF every day. Still, I wanted to make starting the application gateway as effortless as possible, so I quickly created another handy Azure function for the purpose, this time utilizing the HTTP trigger.

You can also just run the script presented at the top of this article locally on your computer if you feel like this setup is way too fancy for you. I just thought it would be fun to start my application gateway this way, and it only takes a moment to set up, so why not?

1. In the same Function App resource, let's first go on to the *Authentication* blade. We'll want to protect the HTTP triggered function with Azure AD, so no one outside of our tenant will be able to trigger it, and hence start the application gateway.
2. Click on *Add identity provider*, and select the following settings.
 - o Identity provider: Microsoft
 - o Otherwise you can use the default settings. Just click on *Add* when ready.
3. Go back to the *Functions* blade and click *Add* to create a second function.
 - o Select *HTTP trigger* as the template.
 - o Give the function a name (e.g., *StartAppGateway*)
 - o Select *Anonymous* in the Authorization level dropdown to avoid having the function key in the URL. We've already protected the function with Azure AD.
4. When the function has been created, go to the *Code + Test* blade and add the code below to the function.

```
using namespace System.Net
param($Request,$TriggerMetadata)
Connect-AzAccount-Subscription $env:subscriptionId-Identity
$appGateway=Get-AzApplicationGateway-Name $env:appGatewayName-ResourceGroupName
$env:resourceGroupName
$state=$appGateway.OperationalState
if($state-eq"Stopped") {
    Write-Host"Starting the application gateway."
    Start-AzApplicationGateway-ApplicationGateway $appGateway
}
else{
    $body="The application gateway is "+$state.ToLower()+"."
    Push-OutputBinding-Name Response -Value ([HttpResponseContext]@{
        StatusCode=[HttpStatusCode]::OK
        Body=$body
    })
}
Disconnect-AzAccount
```

[view rawStartAppGateway.ps1](#) hosted with ❤ by [GitHub](#)

Again, the function code will first authenticate to the subscription and get a reference to the application gateway resource with the system assigned managed identity of the Azure function app. Then, it will check if the application gateway is stopped and if yes, it will start it. If the application gateway is in some other state (Started, Starting or Stopping), the function will instead send a response back to the browser, telling the current state of the application gateway, and indicating that no action was performed.

5. Click on *Save*.
 6. You can now test the function by clicking on the *Get Function Url* button, and copy-pasting the URL into the browser address bar. On the first time, you'll be asked to consent for some permissions. That's it! We can now save the function URL to our browser bookmarks bar and simply click on that button to start the application gateway on-demand.
- Note that the request time out for app services is 230 seconds. This means that you'll get a timeout error in the browser when the application gateway is being started. This happens because it typically takes somewhere around 6 minutes to start up the application gateway. The function app will wait for it to happen, and won't respond back to the browser within those allowed 230 seconds. Still, the application gateway will get started successfully in the background. The implementation could be improved to avoid this by making the function asynchronous, but for my penetration testing purposes taking such measures was not worth the time and effort.

From <<https://laurakokkarinen.com/stopping-and-starting-azure-application-gateway-on-demand-and-on-a-schedule/>>

Azure Backup Report-Optimize Tab for Cost

Friday, 28 April 2023 16:05

Home > Backup center | Vaults > RSVault-westeurop... | Backup Reports | Backup Reports

RSVault-westeurop...-7a79d7e7-5256-5d68-aba2-dd72a0c | Backup Reports | Backup Reports

Recovery Services vault

Search Workbooks Edit Undo Redo Help Auto refresh: Off

Site Recovery Get Started Summary Backup Instances Usage Jobs Policies Optimize Policy Adherence Email Report

Protected items

Backup items Replicated items

Manage

Backup policies Backup Infrastructure Site Recovery infrastructure Recovery Plans (Site Recovery) Backup Reports

Monitoring

Alerts Metrics Diagnostic settings Logs Advisor recommendations Backup Jobs Site Recovery jobs Backup Alerts Site Recovery events

Automation

Tasks (preview) Export template

Help

Resource health New Support Request

Report Filters

Filters are applied left to right and top to bottom on each page. [Learn More](#)

Time Range Exclude Legacy Table

Last 90 days False

Backup Solution Subscription Name Vault Location Vault Name

All All All All

All datetimes are in UTC. Data for the current partial day is not shown in the reports. [Learn More](#)

Inactive Resources Policy Optimizations

Backup Instances without a recovery point in selected time range

Below are the backup instances which do not have a successful recovery point in the selected time range. You can save on costs by unprotecting decommissioned machines. [Learn More](#)

Showing results for Time Range: Last 90 days

Note - The Inactive Resources view is currently not supported for the following datasource types: Azure Database for PostgreSQL Server, Azure Blobs, Azure Disks

Search Instance or Con... Rows Per Page Page

Enter value 10 1 of 1

No records found for the selected time range and scope

VM Rightsizing CostOptTools

Tuesday, 2 May 2023 08:46

<https://raw.githubusercontent.com/Volkanco/AzureDeploy/master/OMSSolutions/vm-size-optimization/Azure VM Size Optimization v9.workbook>

Wednesday, 3 May 2023 18:17

[azure-costmanagement-dashboard/Cost Management Dashboard Filebased.pbit at main · sairashaik6677/azure-costmanagement-dashboard · GitHub](https://github.com/sairashaik6677/azure-costmanagement-dashboard)

Azure Policy stg repl

zaterdag 6 mei 2023 15:44

Sure! Here is an enhanced version of the Azure Policy that checks for storage accounts with GRS and tagged as "dev" and modifies the SKU to Standard_LRS:

```
```json
{
 "mode": "All",
 "policyRule": {
 "if": {
 "allOf": [
 {
 "field": "type",
 "equals": "Microsoft.Storage/storageAccounts"
 },
 {
 "field": "Microsoft.Storage/storageAccounts/sku.name",
 "equals": "Standard_GRS"
 },
 {
 "field": "tags.dev",
 "exists": true
 }
]
 },
 "then": {
 "effect": "modify",
 "details": {
 "roleDefinitionIds": [
 "/providers/Microsoft.Authorization/roleDefinitions/b24988ac-6180-42a0-ab88-20f7382dd24c"
],
 "operations": [
 {
 "operation": "addOrReplace",
 "field": "Microsoft.Storage/storageAccounts/sku.name",
 "value": "[parameters('skuName')]"
 }
]
 }
 }
 },
 "parameters": {
 "skuName": {
 "type": "String",
 "metadata": {
 "displayName": "SKU Name",
 "description": "The name of the SKU to set for the storage account."
 },
 "defaultValue": "Standard_LRS"
 }
 }
}
````
```

This version includes a parameter `skuName` that allows you to specify the name of the SKU to set for the storage account. The default value is `Standard_LRS`, but you can change it to any valid SKU name.

Is there anything else you would like to know?

Wastereduction logicapp -custom

Sunday, 7 May 2023 13:00

Updates on Azure Advisor and Workbooks

Monday, 22 May 2023 21:12

```
{  
  "version": "Notebook/1.0",  
  "items": [  
    {  
      "type": 1,  
      "content": {  
        "json": "# Services Retirement Workbook\r\n\r\nThis workbook shows Azure services that are being phased out so that you can mitigate affected resources. Currently, this workbook contains information for subset of services and features that are in the retirement lifecycle. If this page is helpful to you or if you have feedback on how we can improve then please [**submit feedback here**](https://aka.ms/advisor_rel_wb). \r\nWhile we continue to add more services to this workbook, you can view the lifecycle status of all Azure products and services by visiting [Azure updates](https://azure.microsoft.com/en-us/updates/?updateType=retirements). \r\n<span style=\"color:maroon\"> **Required Action:** </span> To avoid service disruptions, please review and migrate the affected resources before the retirement date by following recommendations as outlined in the respective documents."  
      },  
      "name": "Summary Header",  
      "styleSettings": {  
        "margin": "0",  
        "padding": "0"  
      }  
    },  
    {  
      "type": 9,  
      "content": {  
        "version": "KqlParameterItem/1.0",  
        "parameters": [  
          {  
            "id": "16030a75-1de4-4dad-bfad-0cb49f81690c",  
            "version": "KqlParameterItem/1.0",  
            "name": "SubscriptionId",  
            "label": "Subscription",  
            "type": 6,  
            "isRequired": true,  
            "isGlobal": true,  
            "multiSelect": true,  
            "quote": "",  
            "delimiter": ",",  
            "typeSettings": {  
              "additionalResourceOptions": [  
                "value::all"  
              ],  
              "includeAll": false,  
              "showDefault": false  
            },  
            "timeContext": {  
              "durationMs": 86400000  
            },  
            "defaultValue": "value::all"  
          },  
        ]  
      }  
    }  
  ]  
}
```

```
{
  "id": "d3cb53ad-aabe-43cc-9019-f317ece41ea5",
  "version": "KqlParameterItem/1.0",
  "name": "ResourceGroup",
  "label": "Resource group",
  "type": 2,
  "description": "A resource group is a collection of resources that share the same lifecycle, permissions, and policies",
  "isRequired": true,
  "isGlobal": true,
  "multiSelect": true,
  "quote": """",
  "delimiter": ",",
  "query": "resources\r\n| distinct resourceGroup",
  "crossComponentResources": [
    "{SubscriptionId}"
  ],
  "typeSettings": {
    "additionalResourceOptions": [
      "value::all"
    ],
    "showDefault": false
  },
  "timeContext": {
    "durationMs": 86400000
  },
  "defaultValue": "value::all",
  "queryType": 1,
  "resourceType": "microsoft.resourcegraph/resources",
  "value": [
    "value::all"
  ]
},
{
  "id": "fd8fc823-879f-4647-b9ea-23e37fe830c7",
  "version": "KqlParameterItem/1.0",
  "name": "Region",
  "label": "Location",
  "type": 8,
  "description": "A geographic location where resources are located",
  "isRequired": true,
  "isGlobal": true,
  "multiSelect": true,
  "quote": """",
  "delimiter": ",",
  "typeSettings": {
    "additionalResourceOptions": [
      "value::all"
    ],
    "includeAll": true,
    "showDefault": false
  },
  "timeContext": {
    "durationMs": 86400000
  },
  "defaultValue": "value::all",
  "value": [
    "value::all"
  ]
}
```

```

    "value::all"
  ],
},
{
  "id": "71b581de-889a-4276-9001-f30d4c904e04",
  "version": "KqlParameterItem/1.0",
  "name": "FullList",
  "label": "Choose view",
  "type": 10,
  "description": "\"All services\" selection will show the list of all Azure Services which are in retirement lifecycle even if none of your resources are affected",
  "isRequired": true,
  "typeSettings": {
    "additionalResourceOptions": [],
    "showDefault": false
  },
  "jsonData": "[{ \"value\": \"Yes\", \"label\": \"Services with affected resources\", \"selected\":true},\r\n{ \"value\": \"No\", \"label\": \"All services\"}]"
},
],
"style": "above",
"queryType": 0,
"resourceType": "microsoft.operationalinsights/workspaces"
},
"name": "parameters - 6"
},
{
  "type": 3,
  "content": {
    "version": "KqlItem/1.0",
    "query": "{\"version\":\"1.0.0\",\"content\":\"\\r\\n \\\\\"Id\\\":1\\r\\n ,\n\\\\\"ServiceName\\\":\\\\\"Virtual Machines\\\\\"\\r\\n ,\\\\\"RetiringFeature\\\":\\\\\"Av1-series\\\r\\n ,\\\\\"RetirementDate\\\":\\\\\"2024-08-31\\\\\"\\r\\n ,\\\\\"Link\\\":\\\\\"https://learn.microsoft.com/en-us/azure/virtual-machines/av1-series-retirement\\\\\"\\r\\n \\\r\\n ,\\\\\"Id\\\":2\\r\\n ,\\\\\"ServiceName\\\":\\\\\"Virtual Machines\\\\\"\\r\\n ,\\\\\"RetiringFeature\\\":\\\\\"Classic IaaS\\\\\"\\r\\n ,\\\\\"RetirementDate\\\":\\\\\"2023-09-01\\\\\"\\r\\n ,\\\\\"Link\\\":\\\\\"https://learn.microsoft.com/en-us/azure/virtual-machines/classic-vm-deprecation\\\\\"\\r\\n }\\r\\n ,\\\\\"Id\\\":3\\r\\n ,\\\\\"ServiceName\\\":\\\\\"App Service\\\\\"\\r\\n ,\\\\\"RetiringFeature\\\":\\\\\"App Service Environment v1/v2\\\\\"\\r\\n ,\\\\\"RetirementDate\\\":\\\\\"2024-08-31\\\\\"\\r\\n ,\\\\\"Link\\\":\\\\\"https://azure.microsoft.com/en-us/updates/app-service-environment-v1-v2-retirement\\\\\"\\r\\n }\\r\\n ,\\\\\"Id\\\":4\\r\\n ,\\\\\"ServiceName\\\":\\\\\"Azure Disks\\\\\"\\r\\n ,\\\\\"RetiringFeature\\\":\\\\\"Unmanaged Disks\\\\\"\\r\\n ,\\\\\"RetirementDate\\\":\\\\\"2025-09-30\\\\\"\\r\\n ,\\\\\"Link\\\":\\\\\"https://learn.microsoft.com/en-us/azure/virtual-machines/unmanaged-disks-deprecation\\\\\"\\r\\n }\\r\\n ,\\\\\"Id\\\":5\\r\\n ,\\\\\"ServiceName\\\":\\\\\"Azure Database for PostgreSQL\\\\\"\\r\\n ,\\\\\"RetiringFeature\\\":\\\\\"Single server\\\\\"\\r\\n ,\\\\\"RetirementDate\\\":\\\\\"2025-03-28\\\\\"\\r\\n ,\\\\\"Link\\\":\\\\\"https://azure.microsoft.com/en-us/updates/azure-database-for-postgresql-single-server-will-be-retired-migrate-to-flexible-server-by-28-march-2025\\\\\"\\r\\n }\\r\\n ,\\\\\"Id\\\":6\\r\\n ,\\\\\"ServiceName\\\":\\\\\"Azure Cache for Redis\\\\\"\\r\\n ,\\\\\"RetiringFeature\\\":\\\\\"Version 4.x\\\\\"\\r\\n ,\\\\\"RetirementDate\\\":\\\\\"2023-06-30\\\\\"\\r\\n ,\\\\\"Link\\\":\\\\\"https://learn.microsoft.com/en-us/azure/azure-cache-for-redis/cache-retired-features\\\\\"\\r\\n }\\r\\n ,\\\\\"Id\\\":7\\r\\n ,\\\\\"ServiceName\\\":\\\\\"Azure Database for MySQL\\\\\"\\r\\n ,\\\\\"RetiringFeature\\\":\\\\\"Single server\\\\\"\\r\\n ,\\\\\"RetirementDate\\\":\\\\\"2024-09-16\\\\\"\\r\\n ,\\\\\"Link\\\":\\\\\"https://learn.microsoft.com/en-us/azure/mysql/single-server/whats-happening-to-mysql-single-server\\\\\"\\r\\n }\\r\\n ,\\\\\"Id\\\":8\\r\\n ,\\\\\"ServiceName\\\":\\\\\"Azure Load Balancer\\\\\"\\r\\n .\n"
}

```

\\\"RetiringFeature\\\"::\\\"Basic Load Balancer\\\"\\r\\n ,\\\"RetirementDate\\\"::
 \\\"2025-09-30\\\"\\r\\n ,\\\"Link\\\": \\\"https://azure.microsoft.com/en-us/updates/azure-basic-load-balancer-will-be-retired-on-30-september-2025-upgrade-to-standard-load-balancer/\\\"\\r\\n }\\r\\n ,\\\"Id\\\":9\\r\\n ,\\\"ServiceName\\\"::\\\"Azure Service Map\\\"\\r\\n ,\\\"RetiringFeature\\\"::\\\"Entire Service\\\"\\r\\n ,\\\"RetirementDate\\\"::
 \\\"2025-09-30\\\"\\r\\n ,\\\"Link\\\": \\\"https://azure.microsoft.com/en-us/updates/migrate-to-azure-monitor-vm-insights-by-30-september-2025-when-service-map-will-be-retired\\\"\\r\\n }\\r\\n ,\\\"Id\\\":10\\r\\n ,\\\"ServiceName\\\"::\\\"Application Insights\\\"\\r\\n ,\\\"RetiringFeature\\\"::\\\"Classic\\\"\\r\\n ,\\\"RetirementDate\\\"::\\\"2024-02-29\\\"\\r\\n ,\\\"Link\\\": \\\"https://azure.microsoft.com/en-us/updates/we-re-retiring-classic-application-insights-on-29-february-2024\\\"\\r\\n }\\r\\n ,\\\"Id\\\":11\\r\\n ,\\\"ServiceName\\\"::\\\"Azure Data Lake Analytics\\\"\\r\\n ,\\\"RetiringFeature\\\"::\\\"Entire Service\\\"\\r\\n ,\\\"RetirementDate\\\"::\\\"2024-02-29\\\"\\r\\n ,\\\"Link\\\":
 \\\"https://azure.microsoft.com/en-us/updates/migrate-to-azure-synapse-analytics\\\"\\r\\n }\\r\\n ,\\\"Id\\\":12\\r\\n ,\\\"ServiceName\\\"::\\\"Storage Account\\\"\\r\\n ,\\\"RetiringFeature\\\"::\\\"Classic\\\"\\r\\n ,\\\"RetirementDate\\\"::\\\"2024-08-31\\\"\\r\\n ,\\\"Link\\\": \\\"https://learn.microsoft.com/en-us/azure/storage/common/classic-account-migration-overview\\\"\\r\\n }\\r\\n ,\\\"Id\\\":13\\r\\n ,\\\"ServiceName\\\"::\\\"Cloud service (classic)\\\"\\r\\n ,\\\"RetiringFeature\\\"::\\\"Classic\\\"\\r\\n ,\\\"RetirementDate\\\"::\\\"2024-08-31\\\"\\r\\n ,\\\"Link\\\":
 \\\"https://azure.microsoft.com/en-us/updates/cloud-services-retirement-announcement\\\"\\r\\n }\\r\\n ,\\\"Id\\\":14\\r\\n ,\\\"ServiceName\\\"::\\\"Azure Database for PostgreSQL\\\"\\r\\n ,\\\"RetiringFeature\\\"::\\\"Single Server- Version 11\\\"\\r\\n ,\\\"RetirementDate\\\"::\\\"2024-11-09\\\"\\r\\n ,\\\"Link\\\":
 \\\"https://azure.microsoft.com/en-us/updates/singlepg11-retirement\\\"\\r\\n }\\r\\n ,\\\"Id\\\":15\\r\\n ,\\\"ServiceName\\\"::\\\"Azure Logic Apps\\\"\\r\\n ,\\\"RetiringFeature\\\"::\\\"Integration Services Environment (IES)\\\"\\r\\n ,\\\"RetirementDate\\\"::\\\"2024-08-31\\\"\\r\\n ,\\\"Link\\\": \\\"https://azure.microsoft.com/en-us/updates/integration-services-environment-will-be-retired-on-31-august-2024-transition-to-logic-apps-standard\\\"\\r\\n }\\r\\n ,\\\"Id\\\":16\\r\\n ,\\\"ServiceName\\\"::\\\"Virtual Network\\\"\\r\\n ,\\\"RetiringFeature\\\"::\\\"Classic\\\"\\r\\n ,\\\"RetirementDate\\\"::\\\"2024-08-31\\\"\\r\\n ,\\\"Link\\\":
 \\\"https://learn.microsoft.com/en-us/azure/virtual-network/migrate-classic-vnet-powershell\\\"\\r\\n }\\r\\n ,\\\"Id\\\":17\\r\\n ,\\\"ServiceName\\\"::\\\"Azure Application Gateway\\\"\\r\\n ,\\\"RetiringFeature\\\"::\\\"V1\\\"\\r\\n ,\\\"RetirementDate\\\"::\\\"2026-04-28\\\"\\r\\n ,\\\"Link\\\": \\\"https://learn.microsoft.com/en-us/azure/application-gateway/migrate-v1-v2\\\"\\r\\n }\\r\\n ,\\\"Id\\\":18\\r\\n ,\\\"ServiceName\\\"::\\\"Virtual Machines\\\"\\r\\n ,\\\"RetiringFeature\\\"::\\\"NV and NV_Promo series\\\"\\r\\n ,\\\"RetirementDate\\\"::\\\"2023-08-31\\\"\\r\\n ,\\\"Link\\\":
 \\\"https://learn.microsoft.com/en-us/azure/virtual-machines/nv-series-retirement\\\"\\r\\n }\\r\\n ,\\\"Id\\\":19\\r\\n ,\\\"ServiceName\\\"::\\\"Azure Data Lake Storage\\\"\\r\\n ,\\\"RetiringFeature\\\"::\\\"Gen 1\\\"\\r\\n ,\\\"RetirementDate\\\"::\\\"2024-02-29\\\"\\r\\n ,\\\"Link\\\": \\\"https://azure.microsoft.com/en-us/updates/action-required-switch-to-azure-data-lake-storage-gen2-by-29-february-2024\\\"\\r\\n }\\r\\n ,\\\"Id\\\":20\\r\\n ,\\\"ServiceName\\\"::\\\"Reserved IPs\\\"\\r\\n ,\\\"RetiringFeature\\\"::\\\"Classic\\\"\\r\\n ,\\\"RetirementDate\\\"::\\\"2024-08-31\\\"\\r\\n ,\\\"Link\\\":
 \\\"https://learn.microsoft.com/en-us/azure/virtual-network/ip-services/public-ip-upgrade-classic\\\"\\r\\n }\\r\\n ,\\\"Id\\\":21\\r\\n ,\\\"ServiceName\\\"::\\\"Network Security Group\\\"\\r\\n ,\\\"RetiringFeature\\\"::\\\"Classic\\\"\\r\\n ,\\\"RetirementDate\\\"::\\\"2024-08-31\\\"\\r\\n ,\\\"Link\\\": \\\"https://azure.microsoft.com/en-us/updates/five-azure-classic-networking-services-will-be-retired-on-31-august-2024\\\"\\r\\n }\\r\\n ,\\\"Id\\\":22\\r\\n ,\\\"ServiceName\\\"::\\\"Azure Cache for Redis\\\"\\r\\n ,\\\"RetiringFeature\\\"::\\\"Classic\\\"\\r\\n ,\\\"RetirementDate\\\"::\\\"2024-08-31\\\"\\r\\n ,\\\"Link\\\": \\\"https://learn.microsoft.com/en-us/azure/azure-cache-for-redis/cache-faq\\\"\\r\\n }\\r\\n \\t ,\\\"Id\\\":31\\r\\n ,\\\"ServiceName\\\"::\\\"Azure Synapse Analytics\\\"\\r\\n ,\\\"RetiringFeature\\\"::\\\"Synapse Runtime for Apache Spark 2.4\\\"\\r\\n ,\\\"RetirementDate\\\"::\\\"2023-09-29\\\"\\r\\n ,\\\"Link\\\":

\\\"https://learn.microsoft.com/en-us/azure/synapse-analytics/spark/apache-spark-24-runtime\\\"\\r\\n }\\r\\n\\t\\t , \\r\\n {\\r\\n \\\"Id\\\":32\\r\\n ,\\\"ServiceName\\\":\\\"Azure Synapse Analytics\\\"\\r\\n ,\\\"RetiringFeature\\\":\\\"Synapse Runtime for Apache Spark 3.1\\\"\\r\\n ,\\\"RetirementDate\\\":\\\"2024-01-26\\\"\\r\\n ,\\\"Link\\\":\\\"https://learn.microsoft.com/en-us/azure/synapse-analytics/spark/apache-spark-3-runtime\\\"\\r\\n }\\r\\n\\t\\t , \\r\\n {\\r\\n \\\"Id\\\":36\\r\\n ,\\\"ServiceName\\\":\\\"Cognitive Services\\\"\\r\\n ,\\\"RetiringFeature\\\":\\\"QnAMaker\\\"\\r\\n ,\\\"RetirementDate\\\":\\\"2025-03-31\\\"\\r\\n ,\\\"Link\\\":\\\"https://azure.microsoft.com/en-us/updates/azure-qna-maker-will-be-retired-on-31-march-2025\\\"\\r\\n\\t\\t , \\r\\n {\\r\\n \\\"Id\\\":37\\r\\n ,\\\"ServiceName\\\":\\\"Virtual Machines\\\"\\r\\n ,\\\"RetiringFeature\\\":\\\"NC-series\\\"\\r\\n ,\\\"RetirementDate\\\":\\\"2023-08-31\\\"\\r\\n ,\\\"Link\\\":\\\"https://azure.microsoft.com/en-us/updates/ncseries-azure-virtual-machines-retirement-extended-to-31-august-2023\\\"\\r\\n\\t\\t , \\r\\n {\\r\\n \\\"Id\\\":38\\r\\n ,\\\"ServiceName\\\":\\\"Virtual Machines\\\"\\r\\n ,\\\"RetiringFeature\\\":\\\"NC V2 series\\\"\\r\\n ,\\\"RetirementDate\\\":\\\"2023-08-31\\\"\\r\\n ,\\\"Link\\\":\\\"https://azure.microsoft.com/en-us/updates/nc-v2series-azure-virtual-machines-will-be-retired-by-31-august-2022\\\"\\r\\n\\t\\t , \\r\\n {\\r\\n \\\"Id\\\":39\\r\\n ,\\\"ServiceName\\\":\\\"Virtual Machines\\\"\\r\\n ,\\\"RetiringFeature\\\":\\\"ND-Series\\\"\\r\\n ,\\\"RetirementDate\\\":\\\"2023-08-31\\\"\\r\\n ,\\\"Link\\\":\\\"https://azure.microsoft.com/en-us/updates/ndseries-azure-virtual-machines-will-be-retired-by-31-august-2022\\\"\\r\\n\\t\\t , \\r\\n {\\r\\n \\\"Id\\\":40\\r\\n ,\\\"ServiceName\\\":\\\"Virtual Machines\\\"\\r\\n ,\\\"RetiringFeature\\\":\\\"HB-series\\\"\\r\\n ,\\\"RetirementDate\\\":\\\"2024-08-31\\\"\\r\\n ,\\\"Link\\\":\\\"https://learn.microsoft.com/en-us/azure/virtual-machines/hb-series-retirement\\\"\\r\\n\\t\\t , \\r\\n {\\r\\n \\\"Id\\\":41\\r\\n ,\\\"ServiceName\\\":\\\"Machine Learning Studio (classic)\\\"\\r\\n ,\\\"RetiringFeature\\\":\\\"Entire service\\\"\\r\\n ,\\\"RetirementDate\\\":\\\"2024-08-31\\\"\\r\\n ,\\\"Link\\\":\\\"https://azure.microsoft.com/en-in/updates/machine-learning-studio-classic-will-retire-on-31-august-2024\\\"\\r\\n\\t\\t , \\r\\n {\\r\\n \\\"Id\\\":42\\r\\n ,\\\"ServiceName\\\":\\\"Public IP address\\\"\\r\\n ,\\\"RetiringFeature\\\":\\\"Basic Sku\\\"\\r\\n ,\\\"RetirementDate\\\":\\\"2025-09-30\\\"\\r\\n ,\\\"Link\\\":\\\"https://aka.ms/ipbasictostandard\\\"\\r\\n\\t\\t , \\r\\n {\\r\\n \\\"Id\\\":45\\r\\n ,\\\"ServiceName\\\":\\\"Azure Database for PostgreSQL\\\"\\r\\n ,\\\"RetiringFeature\\\":\\\"FlexibleServers- Version 11\\\"\\r\\n ,\\\"RetirementDate\\\":\\\"2024-11-09\\\"\\r\\n ,\\\"Link\\\":\\\"https://azure.microsoft.com/en-us/updates/flexpg11-retirement\\\"\\r\\n\\t\\t , \\r\\n {\\r\\n \\\"Id\\\":46\\r\\n ,\\\"ServiceName\\\":\\\"Azure Cosmos DB for PostgreSQL\\\"\\r\\n ,\\\"RetiringFeature\\\":\\\"Version 11\\\"\\r\\n ,\\\"RetirementDate\\\":\\\"2023-11-09\\\"\\r\\n ,\\\"Link\\\":\\\"https://azure.microsoft.com/en-us/updates/hyperscalecitus-pg11\\\"\\r\\n\\t\\t , \\r\\n {\\r\\n \\\"Id\\\":43\\r\\n ,\\\"ServiceName\\\":\\\"Cognitive Services\\\"\\r\\n ,\\\"RetiringFeature\\\":\\\"Language Understanding (LUIS)\\\"\\r\\n ,\\\"RetirementDate\\\":\\\"2025-09-30\\\"\\r\\n ,\\\"Link\\\":\\\"https://azure.microsoft.com/en-us/updates/language-understanding-retirement\\\"\\r\\n\\t\\t , \\r\\n {\\r\\n \\\"Id\\\":44\\r\\n ,\\\"ServiceName\\\":\\\"Azure Time Series Insights\\\"\\r\\n ,\\\"RetiringFeature\\\":\\\"Entire service\\\"\\r\\n ,\\\"RetirementDate\\\":\\\"2025-03-31\\\"\\r\\n ,\\\"Link\\\":\\\"https://azure.microsoft.com/en-us/updates/we-ll-retire-azure-time-series-insights-on-31-of-march-2025\\\"\\r\\n ,\\\"transformers\\\":null\\\",
"size": 1,
"queryType": 8,
"gridSettings": {
"formatters": [
{
"columnMatch": "RetirementDate",
"formatter": 6,
"formatOptions": {
"customColumnWidthSetting": "20ch"
}}]

```

        },
        "dateFormat": {
            "showUtcTime": true,
            "formatName": "shortDatePattern"
        }
    ],
    "sortBy": [
        {
            "itemKey": "Id",
            "sortOrder": 1
        }
    ]
},
"sortBy": [
    {
        "itemKey": "Id",
        "sortOrder": 1
    }
]
},
"conditionalVisibility": {
    "parameterName": "showtable",
    "comparison": "isEqualTo",
    "value": "show"
},
"name": "MasterData"
},
{
    "type": 3,
    "content": {
        "version": "KqlItem/1.0",
        "query": "resources\r\n| where resourceGroup in ({ResourceGroup}) and location in ({Region})\r\n| extend ServiceID= case(\r\n    type contains \"microsoft.compute/virtualmachine\" and
    (tostring(properties.hardwareProfile.vmSize) in~
    ('basic_a0','basic_a1','basic_a2','basic_a3','basic_a4','standard_a0','standard_a1','standard_a2','stan
    dard_a3','standard_a4','standard_a5','standard_a6','standard_a7','standard_a9') or
    tostring(sku.name) in~
    ('basic_a0','basic_a1','basic_a2','basic_a3','basic_a4','standard_a0','standard_a1','standard_a2','stan
    dard_a3','standard_a4','standard_a5','standard_a6','standard_a7','standard_a9')),1\r\n, type
contains \"virtualmachine\" and type contains \"classic\",2\r\n, type ==
\"microsoft.web/hostingenvironments\" and kind in ('ASEV1','ASEV2'),3\r\n, type ==
\"microsoft.compute/virtualmachines\" and
isempty(properties.storageProfile.osDisk.managedDisk),4\r\n, type ==
\"microsoft.dbforpostgresql/servers\",5\r\n, type == \"microsoft.cache/redis\" and
properties.redisVersion=='4.0',6\r\n, type == \"microsoft.dbformysql/servers\",7\r\n, type ==
\"microsoft.network/loadbalancers\" and sku.name=='Basic',8\r\n, type ==
\"microsoft.operationsmanagement/solutions\" and plan.product=='OMSGallery/ServiceMap',9\r
\r\n, type == \"microsoft.insights/components\" and isempty(properties.WorkspaceResourceId),10\r
\r\n, type == 'microsoft.datalakeanalytics/accounts' and not(location in
('westcentralus','westus2','westus3')) and properties contains 'defaultDataLakeStoreAccount', 11\r
\r\n, type == 'microsoft.classicstorage/storageaccounts',12\r\n, type ==
'microsoft.classiccompute/domainnames', 13\r\n, type == \"microsoft.dbforpostgresql/servers\" and
properties.version == \"11\",14\r\n, type == \"microsoft.logic/integrationserviceenvironments\",15\r
\r\n, type == 'microsoft.classicnetwork/virtualnetworks',16\r\n, type ==
\"microsoft.network/applicationGateways\" and properties.sku.tier in ('Standard','WAF'),17\r
\r\n, type contains \"microsoft.compute/virtualmachine\" and

```

```

(tostring(properties.hardwareProfile.vmSize) in~ ('Standard_NV12','Standard_NV12
_Promo','Standard_NV24','Standard_NV24_Promo','Standard_NV6','Standard_NV6_Promo') or
tostring(sku.name) in~ ('Standard_NV12','Standard_NV12_Promo','Standard_NV24','Standard_NV24
_Promo','Standard_NV6','Standard_NV6_Promo')),18\r\n,type ==
\"microsoft.datalakestore/accounts\" and not(location in ('westcentralus','westus2')),19\r\n,type ==
'microsoft.classicnetwork/reservedips',20\r\n,type ==
'microsoft.classicnetwork/networksecuritygroups',21\r\n,type ==
'Microsoft.CognitiveServices/accounts' and kind=='QnAMaker',36\r\n,type contains
\"microsoft.compute/virtualmachine\" and (tostring(properties.hardwareProfile.vmSize) in~
('Standard_NC6','Standard_NC6_Promo','Standard_NC12','Standard_NC12
_Promo','Standard_NC24','Standard_NC24_Promo','Standard_NC24r','Standard_NC24r_Promo') or
tostring(sku.name) in~ ('Standard_NC6','Standard_NC6_Promo','Standard_NC12','Standard_NC12
_Promo','Standard_NC24','Standard_NC24_Promo','Standard_NC24r','Standard_NC24r_Promo')),37
\r\n,type contains \"microsoft.compute/virtualmachine\" and
(tostring(properties.hardwareProfile.vmSize) in~
('Standard_NC6s_v2','Standard_NC12s_v2','Standard_NC24s_v2','Standard_NC24rs_v2') or
tostring(sku.name) in~
('Standard_NC6s_v2','Standard_NC12s_v2','Standard_NC24s_v2','Standard_NC24rs_v2')),38\r
\n,type contains \"microsoft.compute/virtualmachine\" and
(tostring(properties.hardwareProfile.vmSize) in~
('Standard_ND6','Standard_ND12','Standard_ND24','Standard_ND24r') or tostring(sku.name) in~
('Standard_ND6','Standard_ND12','Standard_ND24','Standard_ND24r')),39\r\n,type contains
\"microsoft.compute/virtualmachine\" and (tostring(properties.hardwareProfile.vmSize) in~
('Standard_HB60rs','Standard_HB60-45rs','Standard_HB60-30rs','Standard_HB60-15rs') or
tostring(sku.name) in~
('Standard_HB60rs','Standard_HB60-45rs','Standard_HB60-30rs','Standard_HB60-15rs')),40\r\n,type
contains \"Microsoft.MachineLearning\",41\r\n,type =~ \"Microsoft.Network/publicIPAddresses\" and
sku.name=='Basic',42\r\n,type =~ 'Microsoft.CognitiveServices/accounts' and kind contains
'LUIS',43\r\n,type contains 'Microsoft.TimeSeriesInsights',44\r\n,type =~
\"microsoft.dbforpostgresql/servers\" and properties.version == \"11\",45\r\n,type ==
\"Microsoft.DBforPostgreSQL/serverGroupsV2\" and properties.postgresqlVersion==11,46\r
\n,-9999)\r\n| where ServiceID >0\r\n| project ServiceID , id\r\n| union \r\n// Query for Classic
Redis caches retired\r\n| (AdvisorResources\r\n| where type
=='microsoft.advisor/recommendations'\r\n| where properties.shortDescription contains 'Cloud
service caches are being retired'\r\n| project
id=tolower(tostring(properties.resourceMetadata.resourceId))\r\n| join \r\n(resources\r\n| where
resourceGroup in ({ResourceGroup}) and location in ({Region}))\r\n| where type contains
'microsoft.cache/redis'\r\n| project id=tolower(id)\r\non id\r\n| project ServiceID=22 , id )\r
\n| union \r\n// Query for synapse Runtime for Apache Spark 2.4 and 3.1\r\n(Resources\r\n| where
resourceGroup in ({ResourceGroup}) and location in ({Region}))\r\n| where type ==
\"microsoft.synapse/workspaces/bigdatapools\" and todouble(properties.sparkVersion) in
(2.4,3.1)\r\n| extend workspaceId = tostring(split(id,'/')[8]) \r\n| join kind=leftouter\r\n(\r\n
Resources\r\n| where type == \"microsoft.synapse/workspaces\" and
properties.adlaResourceId == \"\"\r\n| project workspaceId = name, adla=1\r\n) on
workspaceId\r\n| where adla=1\r\n| project ServiceID = iff (todouble(properties.sparkVersion)==
2.4,31,32),id\r\n| summarize ResourceCount=count() by ServiceID",
    "size": 4,
    "exportFieldName": "Name",
    "exportParameterName": "ResourceInSelectedService",
    "queryType": 1,
    "resourceType": "microsoft.resourcegraph/resources",
    "crossComponentResources": [
        "{SubscriptionId}"
    ],
    "gridSettings": {
        "formatters": [
            {

```

```

    "columnMatch": "RetirementAnnouncementDetails",
    "formatter": 7,
    "formatOptions": {
        "linkTarget": "Url",
        "linkLabel": "Click here"
    }
},
{
    "columnMatch": "Link",
    "formatter": 7,
    "formatOptions": {
        "linkTarget": "Url",
        "linkLabel": "Click here"
    }
}
],
"sortBy": [
{
    "itemKey": "ServiceID",
    "sortOrder": 1
}
],
"sortBy": [
{
    "itemKey": "ServiceID",
    "sortOrder": 1
}
],
"conditionalVisibility": {
    "parameterName": "ShowData",
    "comparison": "isEqualTo",
    "value": "Show"
},
"customWidth": "100",
"name": "ResourceCount"
},
{
    "type": 3,
    "content": {
        "version": "KqlItem/1.0",
        "query": "{\"version\":\"Merge/1.0\",\"merges\":[{\"id\":\"6d0dff21-0ef8-414e-bf72-7e5e95d7f024\"},\"mergeType\":\"innerunique\",\"leftTable\":\"MasterData\",\"rightTable\":\\\"ResourceCount\\\",\\\"leftColumn\\\":\\\"Id\\\",\\\"rightColumn\\\":\\\"ServiceID\\\"}],\\\"projectRename\\\":{\\\"originalName\\\":\\\"[MasterData].Category\\\",\\\"mergedName\\\":\\\"Category\\\",\\\"fromId\\\":\\\"unknown\\\"},\\{\\\"originalName\\\":\\\"[MasterData].ServiceName\\\",\\\"mergedName\\\":\\\"ServiceName\\\",\\\"fromId\\\":\\\"6d0dff21-0ef8-414e-bf72-7e5e95d7f024\\\"},\\{\\\"originalName\\\":\\\"[MasterData].RetiringFeature\\\",\\\"mergedName\\\":\\\"RetiringFeature\\\",\\\"fromId\\\":\\\"unknown\\\"},\\{\\\"originalName\\\":\\\"[MasterData].RetirementDate\\\",\\\"mergedName\\\":\\\"RetirementDate\\\",\\\"fromId\\\":\\\"6d0dff21-0ef8-414e-bf72-7e5e95d7f024\\\"},\\{\\\"originalName\\\":\\\"[ResourceCount].ResourceCount\\\",\\\"mergedName\\\":\\\"ResourceCount\\\",\\\"fromId\\\":\\\"6d0dff21-0ef8-414e-bf72-7e5e95d7f024\\\"},\\{\\\"originalName\\\":\\\"[MasterData].Link\\\",\\\"mergedName\\\":\\\"Link\\\",\\\"fromId\\\":\\\"6d0dff21-0ef8-414e-bf72-7e5e95d7f024\\\"},\\{\\\"originalName\\\":\\\"[MasterData].Id\\\",\\\"mergedName\\\":\\\"Id\\\",\\\"fromId\\\":\\\"6d0dff21-0ef8-414e-bf72-7e5e95d7f024\\\"},\\{\\\"originalName\\\":\\\"[ResourceCount].ServiceID\\\",\\\"mergedName\\\":\\\"ServiceID\\\",\\\"fromId\\\":\\\"6d0dff21-0ef8-414e-bf72-7e5e95d7f024\\\"}]}"
    }
]
}

```

```
"size": 2,
"title": "Retiring Azure services ( ⓘ Select services to see affected resources and more details.)",
"noDataMessage": "This workbook has not identified any resources affected by an upcoming service retirement",
"showRefreshButton": true,
"exportMultipleValues": true,
"exportedParameters": [
{
  "fieldName": "ServiceID",
  "parameterName": "SelectedServiceId",
  "parameterType": 1,
  "quote": ""
},
],
"showExportToExcel": true,
"queryType": 7,
"gridSettings": {
  "formatters": [
    {
      "columnMatch": "ServiceName",
      "formatter": 0,
      "formatOptions": {
        "customColumnWidthSetting": "30ch"
      }
    },
    {
      "columnMatch": "RetiringFeature",
      "formatter": 1,
      "formatOptions": {
        "linkColumn": "Link",
        "linkTarget": "Url",
        "customColumnWidthSetting": "37ch"
      }
    },
    {
      "columnMatch": "RetirementDate",
      "formatter": 18,
      "formatOptions": {
        "thresholdsOptions": "icons",
        "thresholdsGrid": [
          {
            "operator": "contains",
            "thresholdValue": "2023",
            "representation": "Sev0",
            "text": "{0}{1}"
          },
          {
            "operator": "Default",
            "thresholdValue": null,
            "representation": "Blank",
            "text": "{0}{1}"
          }
        ],
        "customColumnWidthSetting": "20ch"
      }
    },
    "numberFormat": {
      "unit": 0,
```

```

    "options": {
        "style": "decimal"
    },
    "dateFormat": {
        "showUtcTime": true,
        "formatName": "shortDatePattern"
    },
    {
        "columnMatch": "ResourceCount",
        "formatter": 18,
        "formatOptions": {
            "thresholdsOptions": "icons",
            "thresholdsGrid": [
                {
                    "operator": "<",
                    "thresholdValue": "100",
                    "representation": "Sev2",
                    "text": "{0}{1}"
                },
                {
                    "operator": ">=",
                    "thresholdValue": "100",
                    "representation": "Sev1",
                    "text": "{0}{1}"
                },
                {
                    "operator": "Default",
                    "thresholdValue": null,
                    "representation": "Blank",
                    "text": "{0}{1}"
                }
            ],
            "compositeBarSettings": {
                "labelText": "",
                "columnSettings": [
                    {
                        "columnName": "RetirementDate",
                        "color": "blue"
                    }
                ]
            },
            "customColumnWidthSetting": "17ch"
        }
    },
    {
        "columnMatch": "Link",
        "formatter": 7,
        "formatOptions": {
            "linkTarget": "Url",
            "linkLabel": "Learn more",
            "customColumnWidthSetting": "12ch"
        }
    },
    {
        "columnMatch": "Id",

```

```

    "formatter": 5
},
{
  "columnMatch": "ServiceID",
  "formatter": 5
},
{
  "columnMatch": "Category",
  "formatter": 5
}
],
"sortBy": [
{
  "itemKey": "$gen_thresholds_RetirementDate_2",
  "sortOrder": 1
}
],
"labelSettings": [
{
  "columnId": "ServiceName",
  "label": "Service Name"
},
{
  "columnId": "RetiringFeature",
  "label": "Retiring Feature"
},
{
  "columnId": "RetirementDate",
  "label": "Retirement Date"
},
{
  "columnId": "ResourceCount",
  "label": "# Resources"
},
{
  "columnId": "Link",
  "label": "Actions"
}
]
},
"sortBy": [
{
  "itemKey": "$gen_thresholds_RetirementDate_2",
  "sortOrder": 1
}
],
"conditionalVisibility": {
  "parameterName": "FullList",
  "comparison": "isEqualTo",
  "value": "Yes"
},
"customWidth": "57",
"name": "Summary view with inner join"
},
{
  "type": 3,

```

"content": {
 "version": "KqlItem/1.0",
 "query": "{\"version\":\"Merge/1.0\"},\"merges\":[{\"id\":\"6d0dff21-0ef8-414e-bf72-7e5e95d7f024\"},\"mergeType\":\"leftouter\",\"leftTable\":\"MasterData\",\"rightTable\": \"ResourceCount\",\"leftColumn\":\"Id\",\"rightColumn\":\"ServiceID\"}],\"projectRename \":[{\"originalName\":\"[MasterData].Category\", \"mergedName\":\"Category\", \"fromId\": \"unknown\"},{\"originalName\":\"[MasterData].ServiceName\", \"mergedName\":\"ServiceName\", \"fromId\": \"6d0dff21-0ef8-414e-bf72-7e5e95d7f024\"},{\"originalName\": \"[MasterData].RetiringFeature\", \"mergedName\":\"RetiringFeature\", \"fromId\": \"unknown\"},{\"originalName\": \"[MasterData].RetirementDate\", \"mergedName\":\"RetirementDate\", \"fromId\": \"6d0dff21-0ef8-414e-bf72-7e5e95d7f024\"},{\"originalName\": \"[ResourceCount].ResourceCount\", \"mergedName\":\"ResourceCount\", \"fromId\": \"6d0dff21-0ef8-414e-bf72-7e5e95d7f024\"},{\"originalName\": \"[MasterData].Link\", \"mergedName\":\"Link\", \"fromId\": \"6d0dff21-0ef8-414e-bf72-7e5e95d7f024\"},{\"originalName\": \"[ResourceCount].ServiceID\", \"mergedName\":\"ServiceID\", \"fromId\": \"6d0dff21-0ef8-414e-bf72-7e5e95d7f024\"},{\"originalName\": \"[MasterData].Id\", \"mergedName\":\"Id\", \"fromId\": \"6d0dff21-0ef8-414e-bf72-7e5e95d7f024\"},{\"originalName\": \"[MasterData].Recommendation\"]}]",
 "size": 2,
 "title": "Retiring Azure services (💡 Select services to see affected resources and more details.)",
 "noDataMessage": "This workbook has not identified any resources affected by an upcoming service retirement",
 "showRefreshButton": true,
 "exportMultipleValues": true,
 "exportedParameters": [
 {
 "fieldName": "Id",
 "parameterName": "SelectedServiceId",
 "parameterType": 1,
 "quote": ""
 }
],
 "showExportToExcel": true,
 "queryType": 7,
 "gridSettings": {
 "formatters": [
 {
 "columnMatch": "ServiceName",
 "formatter": 0,
 "formatOptions": {
 "customColumnWidthSetting": "30ch"
 }
 },
 {
 "columnMatch": "RetiringFeature",
 "formatter": 1,
 "formatOptions": {
 "linkColumn": "Link",
 "linkTarget": "Url",
 "customColumnWidthSetting": "37ch"
 }
 },
 {
 "columnMatch": "RetirementDate",
 "formatter": 18,
 "formatOptions": {
 "thresholdsOptions": "icons",
 "format": "date",
 "formatOptions": {
 "year": "2-digit",
 "month": "2-digit",
 "day": "2-digit",
 "hour": "2-digit",
 "minute": "2-digit",
 "second": "2-digit",
 "timeZone": "UTC",
 "format": "medium",
 "formatType": "date"
 }
 }
 }
]
 }
}

```



```

```

        "style": "decimal"
    },
    "emptyValCustomText": "None"
}
},
{
    "columnMatch": "Link",
    "formatter": 7,
    "formatOptions": {
        "linkTarget": "Url",
        "linkLabel": "Learn more",
        "customColumnWidthSetting": "12ch"
    }
},
{
    "columnMatch": "ServiceID",
    "formatter": 5
},
{
    "columnMatch": "Id",
    "formatter": 5
},
{
    "columnMatch": "Category",
    "formatter": 5
}
],
"sortBy": [
{
    "itemKey": "$gen_thresholds_RetirementDate_2",
    "sortOrder": 1
}
],
"labelSettings": [
{
    "columnId": "ServiceName",
    "label": "Service Name"
},
{
    "columnId": "RetiringFeature",
    "label": "Retiring Feature"
},
{
    "columnId": "RetirementDate",
    "label": "Retirement Date"
},
{
    "columnId": "ResourceCount",
    "label": "# Resources"
},
{
    "columnId": "Link",
    "label": "Actions"
}
]
},
"sortBy": [

```

```

{
  "itemKey": "$gen_thresholds_RetirementDate_2",
  "sortOrder": 1
}
],
},
"conditionalVisibility": {
  "parameterName": "FullList",
  "comparison": "isEqualTo",
  "value": "No"
},
"customWidth": "57",
"name": "Summary view with left join"
},
{
  "type": 3,
  "content": {
    "version": "KqlItem/1.0",
    "query": "resources\r\n| where resourceGroup in ({ResourceGroup}) and location in ({Region})\r\n| extend ServiceID= case(\r\n\ttype contains \"microsoft.compute/virtualmachine\" and
(tostring(properties.hardwareProfile.vmSize) in~
('basic_a0','basic_a1','basic_a2','basic_a3','basic_a4','standard_a0','standard_a1','standard_a2','standard_a3','standard_a4','standard_a5','standard_a6','standard_a7','standard_a9') or
tostring(sku.name) in~
('basic_a0','basic_a1','basic_a2','basic_a3','basic_a4','standard_a0','standard_a1','standard_a2','standard_a3','standard_a4','standard_a5','standard_a6','standard_a7','standard_a9')),1\r\n,type
contains \"virtualmachine\" and type contains \"classic\",2\r\n,type ==
\"microsoft.web/hostingenvironments\" and kind in ('ASEV1','ASEV2'),3\r\n,type ==
\"microsoft.compute/virtualmachines\" and
isempty(properties.storageProfile.osDisk.managedDisk),4\r\n,type ==
\"microsoft.dbforpostgresql/servers\",5\r\n,type == \"microsoft.cache/redis\" and
properties.redisVersion=='4.0',6\r\n,type == \"microsoft.dbformysql/servers\",7\r\n,type ==
\"microsoft.network/loadbalancers\" and sku.name=='Basic',8\r\n,type ==
\"microsoft.operationsmanagement/solutions\" and plan.product=='OMSGallery/ServiceMap',9\r
\r\n,type == \"microsoft.insights/components\" and isempty(properties.WorkspaceResourceId),10\r
\r\n,type == 'microsoft.datalakeanalytics/accounts' and not(location in
('westcentralus','westus2','westus3')) and properties contains 'defaultDataLakeStoreAccount', 11\r
\r\n,type == 'microsoft.classicstorage/storageaccounts',12\r\n,type ==
'microsoft.classiccompute/domainnames', 13\r\n,type == \"microsoft.dbforpostgresql/servers\" and
properties.version == \"11\",14\r\n,type == \"microsoft.logic/integrationserviceenvironments\",15\r
\r\n,type == 'microsoft.classicnetwork/virtualnetworks',16\r\n,type ==
\"microsoft.network/applicationGateways\" and properties.sku.tier in ('Standard','WAF'),17\r
\r\n,type contains \"microsoft.compute/virtualmachine\" and
(tostring(properties.hardwareProfile.vmSize) in~ ('Standard_NV12','Standard_NV12
_Promo','Standard_NV24','Standard_NV24_Promo','Standard_NV6','Standard_NV6_Promo') or
tostring(sku.name) in~ ('Standard_NV12','Standard_NV12_Promo','Standard_NV24','Standard_NV24
_Promo','Standard_NV6','Standard_NV6_Promo')),18\r\n,type ==
\"microsoft.datalakestore/accounts\" and not(location in ('westcentralus','westus2')),19\r\n,type ==
'microsoft.classicnetwork/reservedips',20\r\n,type ==
'microsoft.classicnetwork/networksecuritygroups',21\r\n,type =~
'Microsoft.CognitiveServices/accounts' and kind=='QnAMaker',36\r\n,type contains
\"microsoft.compute/virtualmachine\" and (tostring(properties.hardwareProfile.vmSize) in~
('Standard_NC6','Standard_NC6_Promo','Standard_NC12','Standard_NC12
_Promo','Standard_NC24','Standard_NC24_Promo','Standard_NC24r','Standard_NC24r_Promo') or
tostring(sku.name) in~ ('Standard_NC6','Standard_NC6_Promo','Standard_NC12','Standard_NC12
_Promo','Standard_NC24','Standard_NC24_Promo','Standard_NC24r','Standard_NC24r_Promo')),37
\r\n,type contains \"microsoft.compute/virtualmachine\" and

```

```

(tostring(properties.hardwareProfile.vmSize) in~
('Standard_NC6s_v2','Standard_NC12s_v2','Standard_NC24s_v2','Standard_NC24rs_v2') or
tostring(sku.name) in~
('Standard_NC6s_v2','Standard_NC12s_v2','Standard_NC24s_v2','Standard_NC24rs_v2')) ,38\r
\n,type contains \"microsoft.compute/virtualmachine\" and
(tostring(properties.hardwareProfile.vmSize) in~
('Standard_ND6','Standard_ND12','Standard_ND24','Standard_ND24r') or tostring(sku.name) in~
('Standard_ND6','Standard_ND12','Standard_ND24','Standard_ND24r')) ,39\r\n,type contains
\"microsoft.compute/virtualmachine\" and (tostring(properties.hardwareProfile.vmSize) in~
('Standard_HB60rs','Standard_HB60-45rs','Standard_HB60-30rs','Standard_HB60-15rs') or
tostring(sku.name) in~
('Standard_HB60rs','Standard_HB60-45rs','Standard_HB60-30rs','Standard_HB60-15rs')) ,40\r\n,type
contains \"Microsoft.MachineLearning\\\",41\r\n,type =~ \"Microsoft.Network/publicIPAddresses\\"
and sku.name=='Basic',42\r\n,type =~ 'Microsoft.CognitiveServices/accounts' and kind contains
'LUIS',43\r\n,type contains 'Microsoft.TimeSeriesInsights',44\r\n,type =~
\"microsoft.dbforpostgresql/servers\\" and properties.version == \"11\\",45\r\n,type =~
\"Microsoft.DBforPostgreSQL/serverGroupsV2\\" and properties.postgresqlVersion==11,46\r
\n,-9999)\r\n| where ServiceID >0\r\n| project ServiceID , location, id \r\n| union \r\n// Query for
Classic Redis caches retired\r\n(AdvisorResources\r\n| where type
=='microsoft.advisor/recommendations'\r\n| where properties.shortDescription contains 'Cloud
service caches are being retired'\r\n| project
id=tolower(tostring(properties.resourceMetadata.resourceId))\r\n| join \r\n(resources\r\n| where
resourceGroup in ({ResourceGroup}) and location in ({Region}))\r\n| where type contains
'microsoft.cache/redis'\r\n| project id=tolower(id), location\r\non id\r\n| project ServiceID=
22 ,location, id )\r\n| union \r\n// Query for synapse Runtime for Apache Spark 2.4 and 3.1\r
\r\n(Resources\r\n| where resourceGroup in ({ResourceGroup}) and location in ({Region}))\r\n| |
where type == \"microsoft.synapse/workspaces/bigdatapools\\" and
todouble(properties.sparkVersion) in (2.4,3.1)\r\n| extend workspaceId = tostring(split(id,'/')[8])
\r\n| join kind=leftouter\r\n( \r\nResources\r\n| where type ==
\"microsoft.synapse/workspaces\\" and properties.adlaResourceId == \"\"\r\n| project
workspaceId = name, adla=1\r\n) on workspaceId\r\n| where adla==1\r\n| project ServiceID =
iff (todouble(properties.sparkVersion)==2.4,31,32), location,id\r\n|\r\n| where
array_length(dynamic([{SelectedServiceId}])) == 0 or ServiceID in (dynamic([{SelectedServiceId}])) \r
\n| summarize ResourceCount = count() by Region=location",
    "size": 0,
    "title": "Resource count by region",
    "noDataMessage": "This workbook has not identified any resources affected by an upcoming
service retirement",
    "queryType": 1,
    "resourceType": "microsoft.resourcegraph/resources",
    "crossComponentResources": [
        "{SubscriptionId}"
    ],
    "visualization": "map",
    "gridSettings": {
        "formatters": [
            {
                "columnMatch": "ResourceCount",
                "formatter": 3,
                "formatOptions": {
                    "palette": "blue"
                }
            }
        ],
        "sortBy": [
            {
                "itemKey": "$gen_bar_ResourceCount_1",

```

```
        "sortOrder": 2
    }
]
},
"sortBy": [
{
    "itemKey": "$gen_bar_ResourceCount_1",
    "sortOrder": 2
}
],
"tileSettings": {
    "showBorder": false,
    "titleContent": {
        "columnMatch": "Region",
        "formatter": 1
    },
    "leftContent": {
        "columnMatch": "ResourceCount",
        "formatter": 12,
        "formatOptions": {
            "palette": "auto"
        },
        "numberFormat": {
            "unit": 17,
            "options": {
                "maximumSignificantDigits": 3,
                "maximumFractionDigits": 2
            }
        }
    }
},
"graphSettings": {
    "type": 0,
    "topContent": {
        "columnMatch": "Region",
        "formatter": 1
    },
    "centerContent": {
        "columnMatch": "ResourceCount",
        "formatter": 1,
        "numberFormat": {
            "unit": 17,
            "options": {
                "maximumSignificantDigits": 3,
                "maximumFractionDigits": 2
            }
        }
    }
},
"chartSettings": {
    "group": "Region",
    "createOtherGroup": 7
},
"mapSettings": {
    "locInfo": "AzureLoc",
    "locInfoColumn": "Region",
    "latitude": "Region",
```

```

    "longitude": "Region",
    "sizeSettings": "ResourceCount",
    "sizeAggregation": "Sum",
    "legendMetric": "ResourceCount",
    "numberOfMetrics": 10,
    "legendAggregation": "Sum",
    "itemColorSettings": {
        "nodeColorField": "ResourceCount",
        "colorAggregation": "Sum",
        "type": "heatmap",
        "heatmapPalette": "yellowOrangeRed"
    },
    "numberFormatSettings": {
        "unit": 0,
        "options": {
            "style": "decimal"
        }
    }
},
"customWidth": "43",
"name": "ResourceCountByLocation"
},
{
    "type": 3,
    "content": {
        "version": "KqlItem/1.0",
        "query": "resources\r\n| where resourceGroup in ({ResourceGroup}) and location in
({Region})\r\n| extend ServiceID= case(\r\n\ttype contains \"microsoft.compute/virtualmachine\" and
(tostring(properties.hardwareProfile.vmSize) in~
('basic_a0','basic_a1','basic_a2','basic_a3','basic_a4','standard_a0','standard_a1','standard_a2','stan-
dard_a3','standard_a4','standard_a5','standard_a6','standard_a7','standard_a9') or
tostring(sku.name) in~
('basic_a0','basic_a1','basic_a2','basic_a3','basic_a4','standard_a0','standard_a1','standard_a2','stan-
dard_a3','standard_a4','standard_a5','standard_a6','standard_a7','standard_a9')),1\r\n,type
contains \"virtualmachine\" and type contains \"classic\",2\r\n,type ==
\"microsoft.web/hostingenvironments\" and kind in ('ASEV1','ASEV2'),3\r\n,type ==
\"microsoft.compute/virtualmachines\" and
isempty(properties.storageProfile.osDisk.managedDisk),4\r\n,type ==
\"microsoft.dbforpostgresql/servers\",5\r\n,type == \"microsoft.cache/redis\" and
properties.redisVersion=='4.0',6\r\n,type == \"microsoft.dbformysql/servers\",7\r\n,type ==
\"microsoft.network/loadbalancers\" and sku.name=='Basic',8\r\n,type ==
\"microsoft.operationsmanagement/solutions\" and plan.product=='OMSGallery/ServiceMap',9\r
\r\n,type == \"microsoft.insights/components\" and isempty(properties.WorkspaceResourceId),10\r
\r\n,type == 'microsoft.datalakeanalytics/accounts' and not(location in
('westcentralus','westus2','westus3')) and properties contains 'defaultDataLakeStoreAccount', 11\r
\r\n,type == 'microsoft.classicstorage/storageaccounts',12\r\n,type ==
'microsoft.classiccompute/domainnames', 13\r\n,type == \"microsoft.dbforpostgresql/servers\" and
properties.version == \"11\",14\r\n,type == \"microsoft.logic/integrationserviceenvironments\",15\r
\r\n,type == 'microsoft.classicnetwork/virtualnetworks',16\r\n,type ==
\"microsoft.network/applicationGateways\" and properties.sku.tier in ('Standard','WAF'),17\r
\r\n,type contains \"microsoft.compute/virtualmachine\" and
(tostring(properties.hardwareProfile.vmSize) in~ ('Standard_NV12','Standard_NV12_
_Promo','Standard_NV24','Standard_NV24_Promo','Standard_NV6','Standard_NV6_Promo') or
tostring(sku.name) in~ ('Standard_NV12','Standard_NV12_Promo','Standard_NV24','Standard_NV24_
_Promo','Standard_NV6','Standard_NV6_Promo')),18\r\n,type ==
\"microsoft.datalakestore/accounts\" and not(location in ('westcentralus','westus2')),19\r\n,type ==

```

```

'microsoft.classicnetwork/reservedips',20\r\n,type ==
'microsoft.classicnetwork/networksecuritygroups',21\r\n,type =~
'Microsoft.CognitiveServices/accounts' and kind=='QnAMaker',36\r\n,type contains
\"microsoft.compute/virtualmachine\" and (tostring(properties.hardwareProfile.vmSize) in~
('Standard_NC6','Standard_NC6_Promo','Standard_NC12','Standard_NC12
_Promo','Standard_NC24','Standard_NC24_Promo','Standard_NC24r','Standard_NC24r_Promo') or
tostring(sku.name) in~ ('Standard_NC6','Standard_NC6_Promo','Standard_NC12','Standard_NC12
_Promo','Standard_NC24','Standard_NC24_Promo','Standard_NC24r','Standard_NC24r_Promo')),37
\r\n,type contains \"microsoft.compute/virtualmachine\" and
(tostring(properties.hardwareProfile.vmSize) in~
('Standard_NC6s_v2','Standard_NC12s_v2','Standard_NC24s_v2','Standard_NC24rs_v2') or
tostring(sku.name) in~
('Standard_NC6s_v2','Standard_NC12s_v2','Standard_NC24s_v2','Standard_NC24rs_v2')),38\r
\n,type contains \"microsoft.compute/virtualmachine\" and
(tostring(properties.hardwareProfile.vmSize) in~
('Standard_ND6','Standard_ND12','Standard_ND24','Standard_ND24r') or tostring(sku.name) in~
('Standard_ND6','Standard_ND12','Standard_ND24','Standard_ND24r')),39\r\n,type contains
\"microsoft.compute/virtualmachine\" and (tostring(properties.hardwareProfile.vmSize) in~
('Standard_HB60rs','Standard_HB60-45rs','Standard_HB60-30rs','Standard_HB60-15rs') or
tostring(sku.name) in~
('Standard_HB60rs','Standard_HB60-45rs','Standard_HB60-30rs','Standard_HB60-15rs')),40\r\n,type
contains \"Microsoft.MachineLearning\" ,41\r\n,type =~ \"Microsoft.Network/publicIPAddresses\" and
sku.name=='Basic',42\r\n,type =~ 'Microsoft.CognitiveServices/accounts' and kind contains
'LUIS',43\r\n,type contains 'Microsoft.TimeSeriesInsights',44\r\n,type =~
\"microsoft.dbforpostgresql/servers\" and properties.version == \"11\",45\r\n,type =~
\"Microsoft.DBforPostgreSQL/serverGroupsV2\" and properties.postgresqlVersion==11,46\r
\n,-9999)\r\n| where ServiceID >0\r\n| project ServiceID , subscriptionId,type, resourceGroup,
location, id \r\n|union \r\n// Query for Classic Redis caches retired\r\n(AdvisorResources\r\n|
where type =='microsoft.advisor/recommendations'\r\n| where properties.shortDescription
contains 'Cloud service caches are being retired in August 2024'\r\n| project
id=tolower(tostring(properties.resourceMetadata.resourceId))\r\n| join \r\n(resources\r\n| where
resourceGroup in ({ResourceGroup}) and location in ({Region})\r\n| where type contains
'microsoft.cache/redis'\r\n| project id=tolower(id), subscriptionId, resourceGroup, location,type\r
\n) on id\r\n| project ServiceID=22 , subscriptionId,type, resourceGroup, location, id )\r\n|union \r
\n// Query for synapse Runtime for Apache Spark 2.4 and 3.1\r\n(Resources\r\n| where
resourceGroup in ({ResourceGroup}) and location in ({Region})\r\n| where type ==
\"microsoft.synapse/workspaces/bigdatapools\" and todouble(properties.sparkVersion) in
(2.4,3.1)\r\n| extend workspaceId = tostring(split(id,'')[8]) \r\n| join kind=leftouter\r\n( \r\n
Resources\r\n| where type == \"microsoft.synapse/workspaces\" and
properties.adlaResourceId == \"\"\r\n| project workspaceId = name, adla=1\r\n) on
workspaceId\r\n| where adla==1\r\n| project ServiceID = iff (todouble(properties.sparkVersion)==
2.4,31,32) , subscriptionId,type, resourceGroup, location, id \r\n\r\n| where ServiceID in
({SelectedServiceId})",
    "size": 4,
    "title": "This is just a data Set used for detailed section below. ",
    "noDataMessage": "This workbook has not identified any resources affected by an upcoming
service retirement",
    "showExportToExcel": true,
    "queryType": 1,
    "resourceType": "microsoft.resourcegraph/resources",
    "crossComponentResources": [
        "{SubscriptionId}"
    ],
    "sortBy": []
},
    "conditionalVisibilities": [
    {

```

```

    "parameterName": "SelectedServiceId",
    "comparison": "isNotEqualTo"
},
{
    "parameterName": "showTable",
    "comparison": "isEqualTo",
    "value": "show"
}
],
{
    "name": "DetailedData"
},
{
    "type": 3,
    "content": {
        "version": "KqlItem/1.0",
        "query": "{\"version\":\"Merge/1.0\",\"merges\":[{\"id\":\\\"a076ea4a-3efd-4239-8156-72ba5426606c\\\",\\\"mergeType\\\":\\\"innerunique\\\",\\\"leftTable\\\":\\\"MasterData\\\",\\\"rightTable\\\":\\\"DetailedData\\\",\\\"leftColumn\\\":\\\"Id\\\",\\\"rightColumn\\\":\\\"ServiceID\\\"}],\\\"projectRename\\\":{\\\"originalName\\\":\\\"[MasterData].ServiceName\\\",\\\"mergedName\\\":\\\"ServiceName\\\",\\\"fromId\\\":\\\"a076ea4a-3efd-4239-8156-72ba5426606c\\\"},\\\"originalName\\\":\\\"[MasterData].RetiringFeature\\\",\\\"mergedName\\\":\\\"RetiringFeature\\\",\\\"fromId\\\":\\\"unknown\\\"},\\\"originalName\\\":\\\"[MasterData].RetirementDate\\\",\\\"mergedName\\\":\\\"RetirementDate\\\",\\\"fromId\\\":\\\"a076ea4a-3efd-4239-8156-72ba5426606c\\\"},\\\"originalName\\\":\\\"[MasterData].Link\\\",\\\"mergedName\\\":\\\"Link\\\",\\\"fromId\\\":\\\"a076ea4a-3efd-4239-8156-72ba5426606c\\\"},\\\"originalName\\\":\\\"[DetailedData].subscriptionId\\\",\\\"mergedName\\\":\\\"subscriptionId\\\",\\\"fromId\\\":\\\"a076ea4a-3efd-4239-8156-72ba5426606c\\\"},\\\"originalName\\\":\\\"[DetailedData].resourceGroup\\\",\\\"mergedName\\\":\\\"resourceGroup\\\",\\\"fromId\\\":\\\"a076ea4a-3efd-4239-8156-72ba5426606c\\\"},\\\"originalName\\\":\\\"[DetailedData].location\\\",\\\"mergedName\\\":\\\"location\\\",\\\"fromId\\\":\\\"a076ea4a-3efd-4239-8156-72ba5426606c\\\"},\\\"originalName\\\":\\\"[DetailedData].type\\\",\\\"mergedName\\\":\\\"type\\\",\\\"fromId\\\":\\\"a076ea4a-3efd-4239-8156-72ba5426606c\\\"},\\\"originalName\\\":\\\"[DetailedData].id\\\",\\\"originalName\\\":\\\"[MasterData].Id\\\"},\\\"originalName\\\":\\\"[MasterData].RetirementDate\\\"},\\\"originalName\\\":\\\"[MasterData].Link\\\"},\\\"originalName\\\":\\\"[DetailedData].ServiceId\\\"},\\\"originalName\\\":\\\"[DetailedData].ServiceID\\\"},\\\"originalName\\\":\\\"[MasterData].Category\\\"]}",
        "size": 0,
        "title": "Based on the above table, this list shows your resources affected by the selected service retirement(s).",
        "noDataMessage": "This workbook has not identified any resources affected by an upcoming service retirement",
        "showRefreshButton": true,
        "showExportToExcel": true,
        "queryType": 7,
        "gridSettings": {
            "formatters": [
                {
                    "columnMatch": "ServiceName",
                    "formatter": 0,
                    "formatOptions": {
                        "customColumnWidthSetting": "25ch"
                    }
                },
                {
                    "columnMatch": "RetiringFeature",
                    "formatter": 1,
                    "formatOptions": {
                        "linkColumn": "Link",
                    }
                }
            ]
        }
    }
}

```

```

    "linkTarget": "Url",
    "customColumnWidthSetting": "25ch"
  },
},
{
  "columnMatch": "RetirementDate",
  "formatter": 6,
  "formatOptions": {
    "linkColumn": "Link",
    "linkTarget": "Url",
    "customColumnWidthSetting": "20ch"
  },
  "dateFormat": {
    "showUtcTime": true,
    "formatName": "shortDatePattern"
  }
},
{
  "columnMatch": "Link",
  "formatter": 5
},
{
  "columnMatch": "subscriptionId",
  "formatter": 15,
  "formatOptions": {
    "linkTarget": null,
    "showIcon": true,
    "customColumnWidthSetting": "37ch"
  }
},
{
  "columnMatch": "resourceGroup",
  "formatter": 14,
  "formatOptions": {
    "linkTarget": null,
    "showIcon": true,
    "customColumnWidthSetting": "30ch"
  }
},
{
  "columnMatch": "location",
  "formatter": 17,
  "formatOptions": {
    "customColumnWidthSetting": "15ch"
  }
},
{
  "columnMatch": "type",
  "formatter": 16,
  "formatOptions": {
    "showIcon": true,
    "customColumnWidthSetting": "30ch"
  }
},
{
  "columnMatch": "id",
  "formatter": 0,

```

```

    "formatOptions": {
        "customColumnWidthSetting": "30ch"
    }
},
"filter": true,
"sortBy": [
{
    "itemKey": "$gen_date_RetirementDate_2",
    "sortOrder": 2
}
],
"labelSettings": [
{
    "columnId": "ServiceName",
    "label": "Service Name"
},
{
    "columnId": "RetiringFeature",
    "label": "Retiring Feature"
},
{
    "columnId": "RetirementDate",
    "label": "Retirement Date"
},
{
    "columnId": "subscriptionId",
    "label": "Subscription Id"
},
{
    "columnId": "resourceGroup",
    "label": "Resource Group"
},
{
    "columnId": "location",
    "label": "Region"
},
{
    "columnId": "type",
    "label": "Type"
},
{
    "columnId": "id",
    "label": "Id"
}
]
},
"sortBy": [
{
    "itemKey": "$gen_date_RetirementDate_2",
    "sortOrder": 2
}
],
"conditionalVisibility": {
    "parameterName": "SelectedServiceId",
    "comparison": "isNotEqualTo"
}

```

```
 },
  "customWidth": "98",
  "name": "FinalDetailedData",
  "styleSettings": {
    "maxWidth": "98"
  }
},
],
"fallbackResourceIds": [
  "azure monitor"
],
"$schema": "https://github.com/Microsoft/Application-Insights-Workbooks/blob/master/schema/workbook.json"
}
```

From <<https://raw.githubusercontent.com/microsoft/Application-Insights-Workbooks/master/Workbooks/Azure%20Advisor/AzureServiceRetirement/Azure%20Services%20Retirement.workbook>>

Selfservice deployment Selfservice deployment of Templates for users with read-only access

Friday, 28 April 2023 10:38

[Create and deploy template spec - Azure Resource Manager | Microsoft Learn](#)

Reader only access to see the templates but still need access to deploy

templatespecreader@MngEnvMCAP429712.onmicrosoft.com

Foyo906023

Achahbar2019

<https://www.cloudninja.nu/post/2022/01/azure-template-specs/>

[Form view Sandbox - Microsoft Azure](#)

[Using Azure templateSpecs with a Custom UI - Microsoft Community Hub](#)

[AzureRM-Samples/templateSpecs at master · bmoore-msft/AzureRM-Samples \(github.com\)](#)

Highlights

Friday, 28 April 2023 12:46

Highlights: Use partner angle as well

Customer:

FOD BUZA -> extension of engagement with them. Lead acceleration of deployment of resources for key projects, resulting in increased ACR by x%
Etnic -> Had a great introduction...
Cargolux -> took over DES from colleague. Complex environment
EBA -> training plan potentially could be rolled out to different teams
ABIB -> educate customer on different cost optimization opportunities, leveraging internal IP with workbooks, Power BI App and Frame works like WAF to assess and uncover previously unknown cost opt. opportunities.

Partner:

Deloitte at FOD BUZA

Internal communities: general e.g. alz teams actively sharing information with colleagues to help customers

Lead

Lead several discussions supporting FOD BuZA during their engagement with partner, concerning networking architecture, DNS strategy, API's, DevOps approach.
Devops workflow and training customer to reduce operational overhead and increase velocity: They learnt a lot using a workflow I created and leveraging templates I initially created and a devops modules template and a workflow I created based on CARML Repo for Bicep.

Helped

FOD BUZA:

Helped move several projects forward by supporting the Infra team in troubleshooting, unblocking issues. Being key element during sessions with the project teams. Applications having impact on citizens traveling abroad, master data management project with APIS and power platform, worked closely together with engineers to mitigate technical blockers.

ETNIC:

Educated on ALZ, gave Demo.

Created

EBA:

Training plan for EBA to train their staff in cost management in Azure

Umicore:

Helped Sven with Umicore Training around Network Security in Azure

Internal:

Mentored Charbel during his internship project
Supported Jatin with his cost assessment at Colruyt
Supported Tanya with the reliability assessment exercise at Schréder
Supported Marie Torelle with the discussions with her customer at ... regarding Devops
Helped Ewoud with a challenge from his customer

D&I:

Regularly touch base with Charbel: talk about personality types, talk about books like Surrounded By Idiots.
Engage in discussions with colleagues and proactively reach out: Tom, other colleague from other verticals, on Teams,....
Discussions with Jatin on other topics than work
Met Yende from MSM team that does Cost Assessments Governance, interesting resource for everything FinOps (worked 2+ years for MS S-Africa, moved to Belgium and is part of WE Sub: cmrs in Nordics, Netherlands,...)
Connect with Marcelo on a regular basis

Follow D&I Trainings

Constructive feedbacks from Jan, Jatin and Manoj
Feedbacks from customer and partner
D&I basics training
Connecting with people outside my sub and unit

Accreditations-> Achieved online training, VBD backup, WAF Assessments: Rel and Cost, TUB
Certifications -> Renewed certs and achieved networking cert

Next 6 months:

Would like shadowing opportunity with more experienced colleagues on: Architecture Design Sessions: landing Zone, Backup, Monitor
More specialization -> cost (powerbi dashboards related to cost, reliability (bcdr plans)
Do more with automation and engineering: bicep, terraform,...

Training: internal training

Additional skill not part of my core tasks: work with AI and Power Apps to help with what we do as CSA's in the field, learn about azure openai services and how to leverage it -> example recommendation service based on internal reports of a customer to help in making right decisions during for example assessments

Highlights:

- FOD BUZA: Helped accelerate deployment of resources for key projects, resulting in increased ACR by 40% comparing consumption with December last year and calculating consumption trend since I started at MS from January till April.

| Sum of December | Sum of Jan | Sum of Feb | Sum of Ma | Sum of Apr | ACR Increase April vs December |
|-----------------|------------|------------|-----------|------------|--------------------------------|
| 23839,67 | 26226,47 | 23309,92 | 29423,67 | 33731,03 | |
| | 2386,8 | -2916,55 | 6113,75 | 4307,36 | 9891,36 |
| | 10% | -11% | 26% | 15% | 41% |

Led discussions supporting their engagement with partners, and created a DevOps workflow to reduce operational overhead and increase velocity.

- Etnic: Had a great introduction, educated on ALZ, and gave a demo.
- Cargolux: Took over DES from colleague in a complex environment.
- EBA: Created a training plan potentially could be rolled out to different teams.
- Accreditations: Achieved online training, VBD backup, WAF Assessments: Rel and Cost, TUB.
- Certifications: Renewed certs and achieved networking cert and several accreditations.
- Growth: Took on challenges in large and challenging environments and customers, including ABIB.
- Lead: Led several discussions supporting FOD BuZA during their engagement with partners, and created a DevOps workflow to reduce operational overhead and increase velocity.

Helped:

- FOD BUZA: Helped move several projects forward by supporting the Infra team in troubleshooting, unblocking issues, and being a key element during sessions with the project teams. This included applications having an impact on citizens traveling abroad, a master data management project with APIs and power platform. I worked closely with engineers to mitigate technical blockers.
- Etnic: Educated on ALZ and gave a demo.
- Created a training plan for EBA to train their staff in cost management in Azure.
- Helped Sven with Umicore Training around Network Security in Azure.
- Internally supported Charbel in his internship project, Jatin with his cost assessment at Colruyt, Tanya with the reliability assessment exercise at Schreder, Marie Torelle with the discussions with her customer regarding DevOps, and Ewoud with a challenge from his customer.
- Engaged with ABIB in a large and challenging environment.

Accreditations and Certifications:

- Achieved online training, VBD backup, WAF Assessments: Rel and Cost, TUB.
- Renewed certs and achieved networking cert and several accreditations.

D&I:

- Regularly touched base with Charbel to talk about personality types and books like Surrounded By Idiots.
- Engaged in discussions with colleagues and proactively reached out to Tom, other colleagues from other verticals, on Teams.
- Had discussions with Jatin on other topics than work.
- Met Yende from the MSM team.

Introduction to D&I Basics training completed

Overall, my contributions have helped accelerate the deployment of resources for key projects resulting in increased ACR, led discussions to support FOD BuZA during their engagements with partners, trained customers to reduce operational overhead and increase velocity, helped move several projects forward by supporting the Infra team and mitigating technical blockers, achieved several accreditations and certifications, and supported various colleagues on internal, D&I, and customer engagements.

Growth mindset

How did I react to challenges, difficult to face.
Reached blocker. Why? How to leverage this?

Growth -> large and challenging environments, customers. Took on the challenge to get out of my comfortzone: Cargolux, ABIB.
Overwhelming start with a lot of training and invitations to events, took a pause and asked help from manager and buddy to help prioritize, then started leveraging calendar functionality to help manage this constant stream of events, meetings and found a way to manage this.

3

Title Auto Assigned

Connected Customer Experience

What will you focus on in the upcoming period to drive impact for the business?

A A B I U ɔ ɔ Ⅲ Ⅲ + + ፩ ፩ ፩ ፩ A - ፩ - ፩ ፩ ፩ ፩ ፩ ፩ ፩

Deliver an easy & connected experience

How will you measure success?

ଅ ଆ ବ ଇ ଉ ର ମ ଏ ଶ କୁ କ କୁ କ

Accelerate Time to Value: Prioritize the use of repeatable IP through VBD to accelerate customer outcomes. Ensure a connected "One Microsoft" customer experience, teaming for success across your EOU/territory by executing per the stakeholder map & stakeholder engagement plan in the account plan.

Positive Customer Experience: Ensure customer satisfaction, as measured by Customer Health Index (CHI) & CSAT, Cloud Ready Score (CRS) by unblocking & accelerating opportunities via weekly technical scrums with account team. Leverage Azure Core - UAT/OneAsk/Technical Insider Program to devise solutions for blockers.

Customer Objectives Met: Lead Azure Core technical delivery as outlined in Customer Success Plan (CSP), to enable realization of customer priorities & objectives.

Collab with colleague in other solution areas (idea: cargolux have a security DES, maybe try get in touch with this person)

Start using MSX to track oppty

Tuesday, 2 May 2023 15:21

Book time with Manoj to do a 1st msx milestone ownership exercise or oppty creation.

FOD BUZA -> contributing increasing ACR

Deloitte?

(partner sharing just for tracking)

ADO Phase 1

- Epics to Scenario to Features
 - Area Paths: Set the area path to associate the work item to the team doing the work.
 - Descriptions
 - Acceptance Criteria
 - Owners
 - Priority
 - Priority Ranking
 - Tags
- Child Feature
- External Dependency



| Team Leads | Area Path |
|------------|--|
| Robert | One\Azure Global\Global Expansion\mcfs\platform |
| Stephanie | One\Azure Global\Global Expansion\mcfs\EngSystems |
| Stephanie | One\Azure Global\Global Expansion\mcfs\OpsTransparency |
| Stephanie | One\Azure Global\Global Expansion\mcfs\slz |
| Jared | One\Azure Global\Global Expansion\mcfs\experience |
| Joe | One One\Azure Global\Global Expansion\mcfs\SnP |
| Ewan | One\Azure Global\Global Expansion\mcfs\enablement |

TUBS

Monday, February 20, 2023 6:40 PM

[Azure Technical Update Briefing - References | MIP Delivery Documentation
\(mipdocs.azurewebsites.net\)](https://mipdocs.azurewebsites.net)

TUB Form

Tuesday, 9 May 2023 15:20

Voor updates van Mei -> updates van mei voor begin juni

Azure products

| AI + Machine Learning | Internet of Things |
|-----------------------|---------------------------|
| Analytics | Management and Governance |
| Azure Virtual Desktop | Media |
| Compute | Migration |
| Containers | Mixed Reality |
| Databases | Mobile |
| Developer Tools | Networking |
| DevOps | Security |
| Hybrid + Multicloud | Storage |
| Identity | Web |
| Integration | |

Microsoft Forms





TUB Shadowing

Friday, 14 April 2023 09:35

Gets right into it after waiting and making sure the necessary people are present.
Starts with retirements and then at the end asks if there are questions and then moves on

General availability:
In the middle asks if any questions

On Spot VM update, asks the group if anyone needs more explanation

VMs that come from the spare capacity we have in Azure. We get it for a very low price, if we need to take the capacity back, we take it back. So you get it at a very low price, but we can take the capacity back.

Virtual Machine Scale Sets

Spot Priority Mix

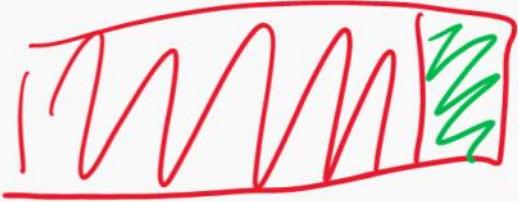
Azure is excited to announce the General Availability of Spot Priority Mix, a new feature for Virtual Machine Scale Sets (VMSS) with Flexible Orchestration Mode enabled. With Spot Priority Mix, customers can now mix spot and standard virtual machines in their Flexible scale set, providing the high availability of standard virtual machines and the cost savings of Spot virtual machines. This feature also allows customers to autoscale their scale set with a percentage split of Spot and standard virtual machines, providing even more flexibility and cost optimization.

With Spot Priority Mix, customers can specify a base number of standard virtual machines and a percentage split of spot and standard virtual machines to be used when the scale set capacity is above the base number of standard virtual machines. This allows customers to ensure that their critical workloads are always running on standard virtual machines, while taking advantage of the cost savings offered by spot virtual machines for non-critical, interruptible workloads.

To get started with Spot Priority Mix, customers can use the Azure Portal, Azure CLI, Azure PowerShell, or ARM templates. For more information on how to set up Spot Priority Mix, please refer to the Azure documentation.

[Learn more](#)

Now Available
March 2023



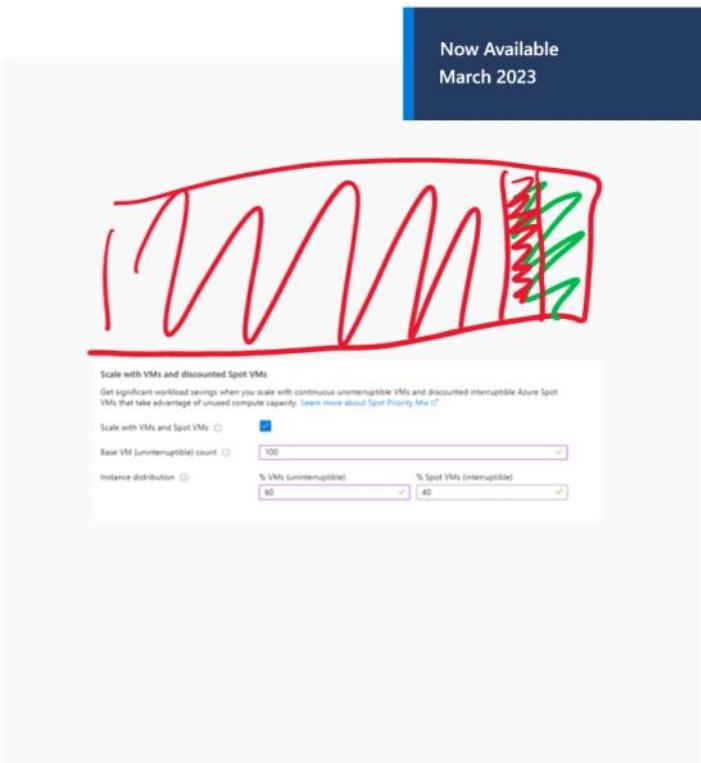
Scale with VMs and discounted Spot VMs
Get significant workload savings when you scale with continuous uninterruptible VMs and discounted interruptible Azure Spot VMs that take advantage of unused compute capacity. [Learn more about Spot Priority Mix](#).

Scale with VMs and Spot VMs

Base VM (Uninterruptible) count:

Instance distribution:

| | |
|----------------------------|----|
| % VMs (Uninterruptible) | 60 |
| % Spot VMs (Interruptible) | 40 |



That's in fact a very cost effective solution to have VM. So you can get up to 90% discount, but there is of course something there, it's those are actually VMS that come from the spare capacity that we have in Azure and there it means that OK, you get those VMS from the spare capacity for a very low price. But in case if another customer needs that capacity. So if we need to take that capacity back.

- We'll take it without any warning, so there are no SLAs or whatsoever. It's just OK. You pay a very nice price, but at any time we can take that capacity back. So if we look for example at this as the Microsoft capacity, let's say in one region, let's say at the moment all this is being consumed well, then you can get some spots, VMS from that capacity. But if at a certain moment in time another customer says, OK.
- I know want to pay the full price to get virtual machines. Well, let's see now it increased to here all this all those VMS, all that capacity will need to be taken away from the users of the spot VMS who paid the spot price. So there you don't have any guarantee that you will be able to keep that capacity for a long time, but that's why such a feature like the spot priority mix is very nice because there it allows you to combine so your spot.

with standard VM S in the same skill set and what it means is that you can say in my skill set. So this is your skill set. I want at least 60% of my virtual machines to be standard VMS. OK so non spot VMS. So those you are sure that you keep them. OK, we will not at any time take them away from you because they're you have an SLA so they're.

You can see those VM's they they define a baseline, OK foundation and then you you can say well for the rest for up to 40% I allow it to be spot virtual machines. Meaning that if I lose them it's not that big of a deal because I still have some regular VMS. And so I will not go down to 0 replicas 0 sorry.

Virtual machines in my scaleset because, well, you did not only put spot VMS in there, so there it guarantees a baseline and that you can also still scale let's say if you want in total 10 VMS you have six of them which are regular ones and four of them which are spot if you lose let's say two of your spot VMS you can increase the regular VMS to 8 and that way you still have those ten VMS but. It is more cost effective.

Azure Kubernetes Service (AKS)

Now Available
March 2023

Azure Active Directory workload identity

In Azure Kubernetes Service (AKS) today, a preview feature allows you to assign [managed identities at the pod-level](#). This pod-managed identity allows the hosted workload or application access to resources through Azure Active Directory (Azure AD). For example, a workload stores files in Azure Storage, and when it needs to access those files, the pod authenticates itself against the resource as an Azure managed identity.

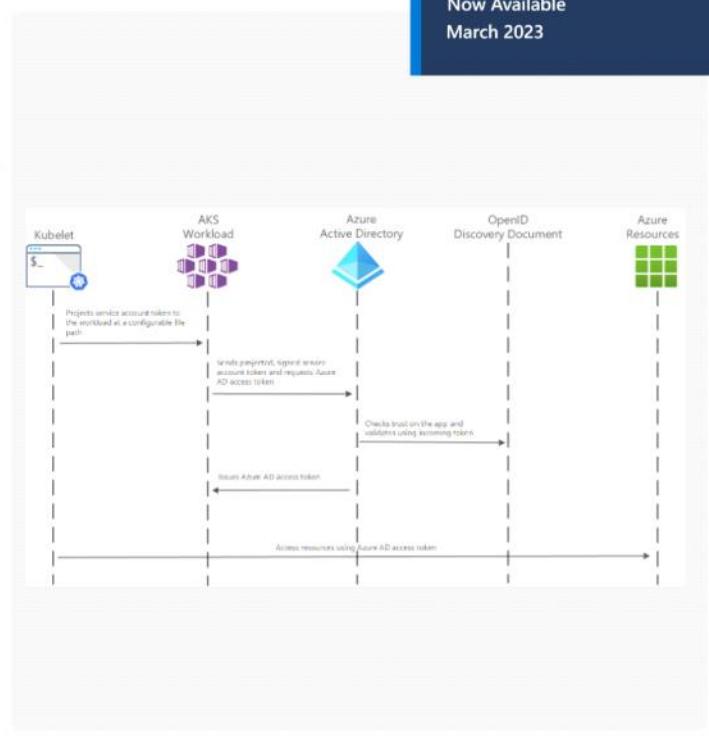
This authentication method is now replaced with [Azure Active Directory \(Azure AD\) workload identities](#), which integrate with the Kubernetes native capabilities to federate with any external identity providers. This approach is simpler to use and deploy, and overcomes several limitations in Azure AD pod-managed identity:

- Removes the scale and performance issues that existed for identity assignment
- Supports Kubernetes clusters hosted in any cloud or on-premises
- Supports both Linux and Windows workloads
- Removes the need for Custom Resource Definitions and pods that intercept [Azure Instance Metadata Service](#) (IMDS) traffic
- Avoids the complicated and error-prone installation steps such as cluster role assignment from the previous iteration

Azure AD workload identity works especially well with the Azure Identity client library using the [Azure SDK](#) and the [Microsoft Authentication Library](#) (MSAL) if you're using [application registration](#). Your workload can use any of these libraries to seamlessly authenticate and access Azure cloud resources.

Learn more: <https://aka.ms/aks/workloadidentity>

Some interaction with audience that tested old pod identity here.



API Management

Workspaces

Workspaces for Azure API Management is now in public preview. This new capability enables granular access control in multi-team Azure API Management deployments. API Management platform owners can separate team permissions for managing APIs by scoping them to a workspace.

With this new functionality, organizations can now:

- Enable central platform team to maintain the platform infrastructure
- Have the decentralized API teams independently manage and publish APIs in their own workspace, without access to other teams' workspaces.

Read documentation [here](#).

Public Preview
March 2023

The screenshot shows the Azure API Management workspace interface for the 'Marketing' workspace. The left sidebar menu is highlighted with a red box, showing options like Overview, Access control (IAM), Tags, Workspace, Settings, APIs, Products, Subscriptions, Named values, Policy fragments, Schemas, API Tags, Developer portal, Groups, Deployment + Infrastructure, and Notifications. The main content area displays the workspace details: Display name (Marketing), Access (None), Tags (0), and Properties (Total APIs: 0, Current APIs: 0, Rest APIs: 0). On the right, there are sections for Subscriptions (0) and View Cost (USD).

Questions:

Will vwan be supported for azure vnet manager

May

Friday, 26 May 2023 09:05

TUB @ European Parliament

Friday, 26 May 2023 09:05

Bicep -> Cronos versie van Bicep

AI-Copilots

Monday, 15 May 2023 09:37

Github

Friday, 9 June 2023 11:49

Excel

Friday, 26 May 2023 09:04

[How to enable new Copilot on Microsoft Excel \(preview\) - Pureinfotech](#)

Power BI

Friday, 26 May 2023 09:05

Monthly Teammeetings

Tuesday, 30 May 2023 15:02

30/05/2023

Tuesday, 30 May 2023 15:03

- SKU Refactoring update
Newer VM's have a higher perct savings plan than older VM's.
Formula for carbon credits calculation
- Close rate
- Milestone ownership:
 - Concerns being shared. More owned by ATU and STU
 - Issue: close rate impact CSU still answerable for it.
- Working with CSAM team to increase VBD Attach:
 - ACR growth is good vs VBD Attach and MIPS Attach (not showing, some regular activities could be flagged as VBD and MIP, because of convoluted process, it is not really taken up.)
- Ideas for FY24 Big Bets:

Any concerns:

Zouhair -> pre-sales activities separate role being created or going back to TSP model. First thing is unified with VBD being the model with CSA using that role.
Put a TSP role and they will be attached to SSP and working on pre-sales oppty.
What happens with all accounts with pinned CSA's? how is the split going to happen
Matthew still in discuss of WEU considering market,...
Top 30 accounts going down to max. 20 ones and changes perspective about how to distribute teams resources,...

VBD: Focus is on build. There is option of making it MS funded,...
Example: ABI refuses cmr funded VBD's Atlas Copco same,....

Close Rate

Weekly EOD Tuesday Redmond Time
Monthly Snapshot 6th of Month
Quarterly Snapshot 6th every Quarter

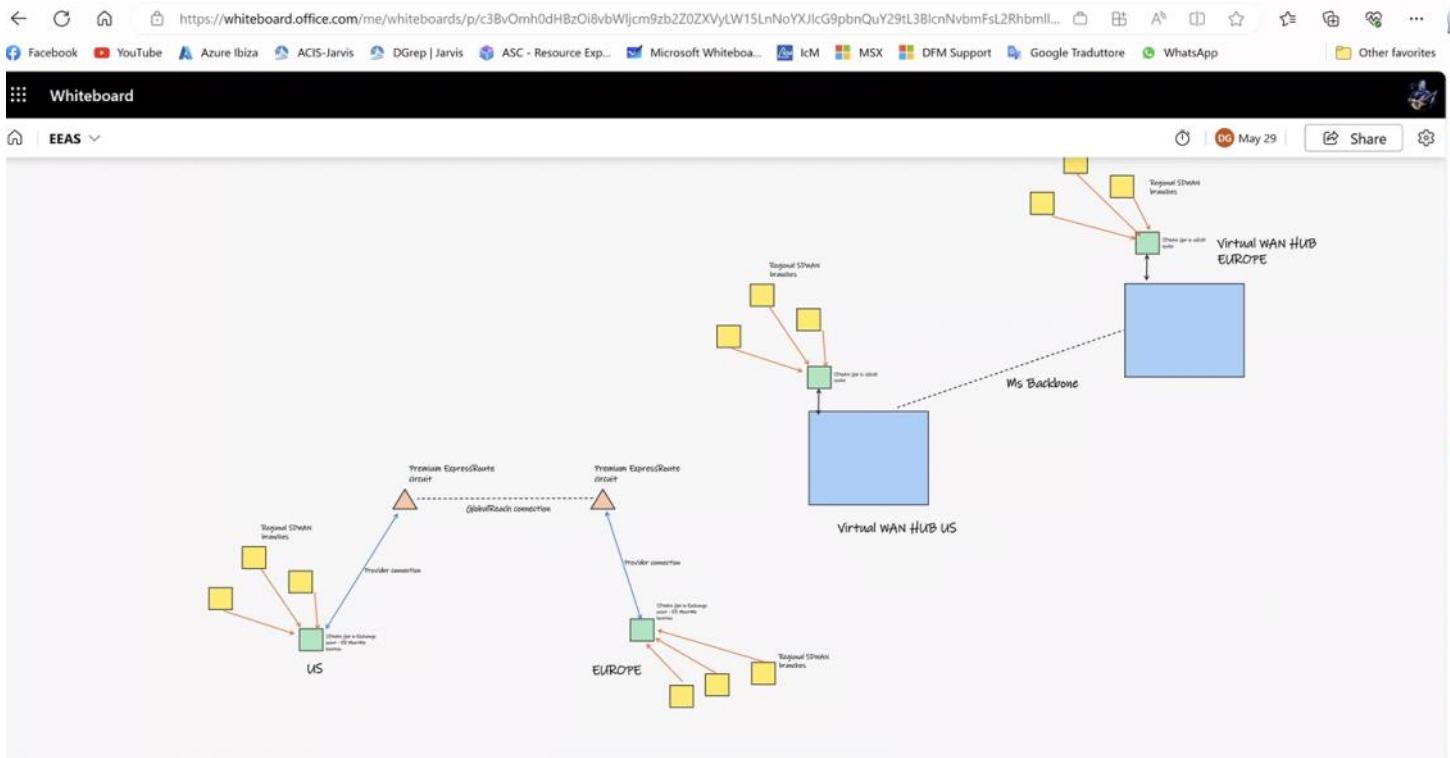
Core priority plays FY24

Security more on our resp -> Defender
Innovate with HPC, AI Infrastructure -> could be partner solutions as well
Oracle -> potential conflict with Data & AI (Manoj and Lieven have a lot of experience with this)

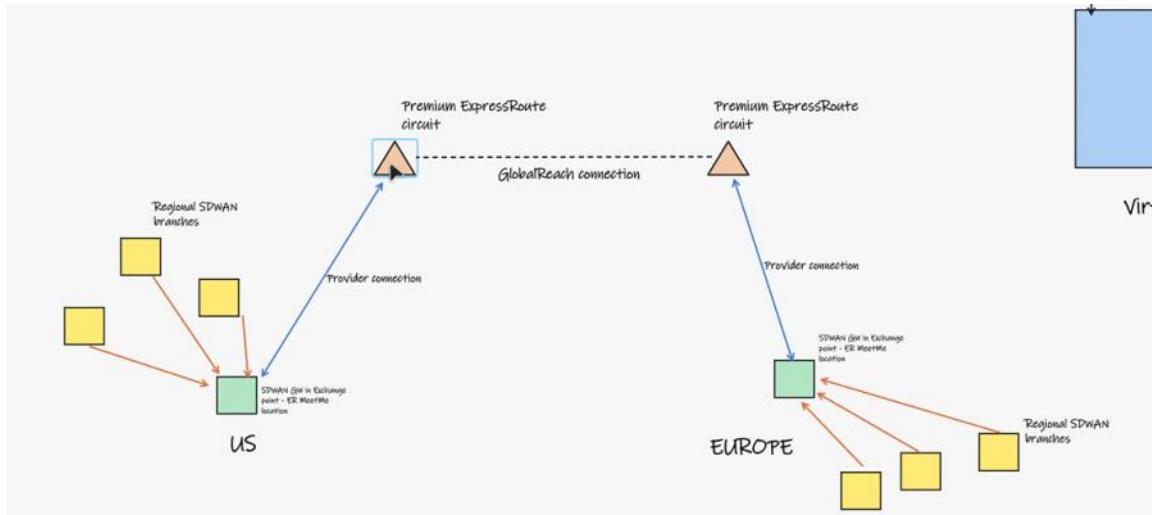
CSU All Hands

EAAS

Tuesday, 6 June 2023 15:08



Express Route solution
Entirely based on Express Route connectivity



With this solution, nothing in Azure except the Express Route circuit.

Green rectangle: palo alto device

2 flavors: Provider based, ER direct. For your use case provider based makes more sense (Equinix) they could provide extension of their connectivity to the ER meetmepoint. This technico is based on Azure routers sitting in meetmepoints around the globe.

Talking about global connectivity (provider connection)

143 aggregations distributed in the world connects to brussels via open internet.

The use case they want to cover is China.

If you leverage the internet to connect centrally to Brussels, you are not using MS backbone.

These designs, hub based and ER based, are slightly different. You will collect locally in any region to a concentrator and it will connect you to MS backbone.

Either leveraging only ER based conn., nothing deployed in Azure. Just a logical object called er circuit , these circuits will be connected. You'll have to terminate them locally, with the help of a provider you'll need to commute them into a circuit.

PROS:

ER circuit is like an MPLS, better latency, lower jitter, higher bandwidth, more stable

CONS:

Need to collab with providers, host central sd wan gateway for local aggregation, commute these into one ER circuit with help of provider

ER global reach, depending on what you want could be expensive

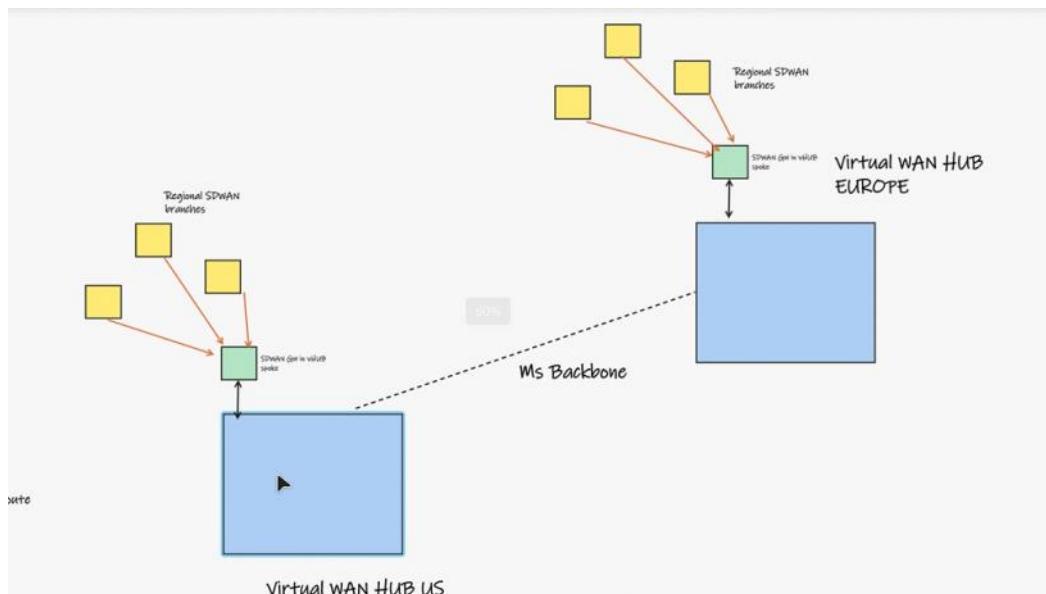
Other design: not leveraging ER at all

Deploy vwan hubs in Azure in diff regions, u can attach spoke vnets, and they can contain your sd wan gateways. Through internet (no need for provider), they can connect to regional sd wan gateway deployed in Azure.

These branches will have automatic routing to others through these vwn objects leveraging ms backbone

PROS: not rely on provider (sdwan appliance sitting in azure, full control, leverage internet conn to connect to sd wan concentrator) Global one, china is another story

CONS: you have to deploy and manage resources in Azure, need to configure sdwan appliances. (palo alto sdwan vm gateways running in Azure cloud) Implementational complexity: bit more challenging.



CHINA:

Setup of customer?

Connected via MPLS compliant, ditching it to an open internet connectivity.

SD-WAN goes to ipsec, keeping the firewall and looking for ways to simplify it.

We want to move traffic from China to Hong Kong. Capacity in hongkong for sd-wan.

Or could send the traffic to Azure and send it to Brussels and finish sd wan to the ip sec tunnel here.

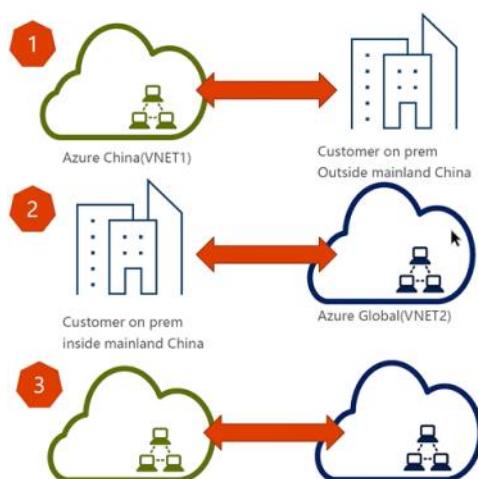
Providers eligible to bypass the Firewall:

Unapproved:

If you try to use your own line without the approval of the government, then no issue

These providers are whitelisted and able to bypass within their backbone the China firewall.

Connectivity Scenario



ExpressRoute

- China Telecom : ExpressRoute PoP Beijing/Beijing2 and Shanghai/Shanghai2
- China Mobile International (CMI) : ExpressRoute PoP Shanghai2 via GDS
- China Unicom : ExpressRoute PoP Shanghai2/Beijing2

IPSec VPN & SDWAN

- VPN Gateway with BGP(need ICP filling)
- SDWAN from CT, CU and CMCC

ExpressRoute

- CMI: Connect to ExpressRoute Hong Kong PoP via Equinix, Singapore
- China Telecom Global (CTG): Connect to ExpressRoute Hong Kong PoP
- China Unicom Global (CUG): Connect to ExpressRoute HK/Singapore2/Japan

IPSec VPN & SDWAN

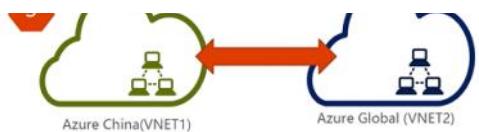
- VPN Gateway with BGP(need ICP filling)
- SDWAN from CT, CU and CMCC

ExpressRoute: China Express, Cloudbond & ECP

- CT, CMI and CUG provide cross border dedicated link and integrate ExpressRoute.
- Azure China peering location is at Beijing2/Shanghai2. Azure Global peering location is at Hong Kong/Singapore/Japan

IPSec VPN & SDWAN

- VPN Gateway with BGP(need ICP filling)



- ExpressRoute.
- Azure China peering location is at Beijing2/Shanghai2. Azure Global peering location is at Hong Kong/Singapore/Japan
- IPSec VPN & SDWAN**
- VPN Gateway with BGP(need ICP filling)
- SDWAN from CT, CU and CMCC

Cross border Network Connectivity

Compliance Cross-border Connectivity

China Mobile, China Telecom and China Unicom are three licensed cross-China-border network service providers to offer services like IEPL, IPLC, MPLS VPN and SD-WAN.



A notice released by the Ministry of Industry and Information Technology (MIIT) on January 22, 2017 emphasized that **all cross-China-border connectivity**, including VPN services, **are required to obtain through compliance telecoms**— a move making most VPN service providers illegal.

21VNET response:

如客户满足工信部发布的《工业和信息化部关于清理规范互联网网络接入服务市场的通知》[工信部信管函[2017]32号]中使用用途要求为：“内部办公专用，不得用于连接境内外的数据中心或业务平台开展电信业务经营活动”的，21V将集中进行记录。对于不满足相关法律法规要求的，21V会发送提醒，要求停止违规行为，并采取应对措施。

English on Azure: <https://docs.microsoft.com/en-us/azure/china/china-how-to-manage-performance>

Illegal Telecom Services in Mainland China

Network Resource Sublease

IDC, ISP and CDN service providers are not allowed to sublease their subscribed IP address, bandwidth and internet connectivity related resources to enterprises.

Unapproved Cross-border Connectivity

No cross-border business activities through self-build or leased circuit (include VPN) shall be established or leased from non-compliance parties, which is un-authorized by MIIT

Basic telecom enterprise shall centrally record end user profiles of international leased line, and clearly inform user that such leased line is for internal use only, and shall not be used to carry out telecommunication business.

Solution for China

Grey cloud represents separate sd wan overlay from the china providers.

This one has to be managed by a solution supported by one of the 3 providers: mpls, sd wan, ipsec, whichever option works the best. It will be managed entirely by the Chinese providers and is separate from your own sd wan

Cross Border SDWAN Solution



Cross border SDWAN

- Local internet connection for last mile
- Cost effective and Fast deployment
- High Performance SDWAN backbone without GFW impact
- Comply with regulatory requirements

BUZA

Thursday, 8 June 2023 15:43

Cost Optimization

Thursday, 8 June 2023 15:43

Logs

Thursday, 8 June 2023 15:43

Unlimited Advanced Hunting for Microsoft 365 Defender with Azure Data Explorer

Thursday, 8 June 2023 15:43

[TheCloudScout/m365defender-adx \(github.com\)](https://TheCloudScout/m365defender-adx.github.com)