

7

Habits Every Azure Admin Must Have







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Microsoft MVP Azure



 @wmatthyssen

 <https://wmatthyssen.com>

 <https://tinyurl.com/yjvcrtvx>



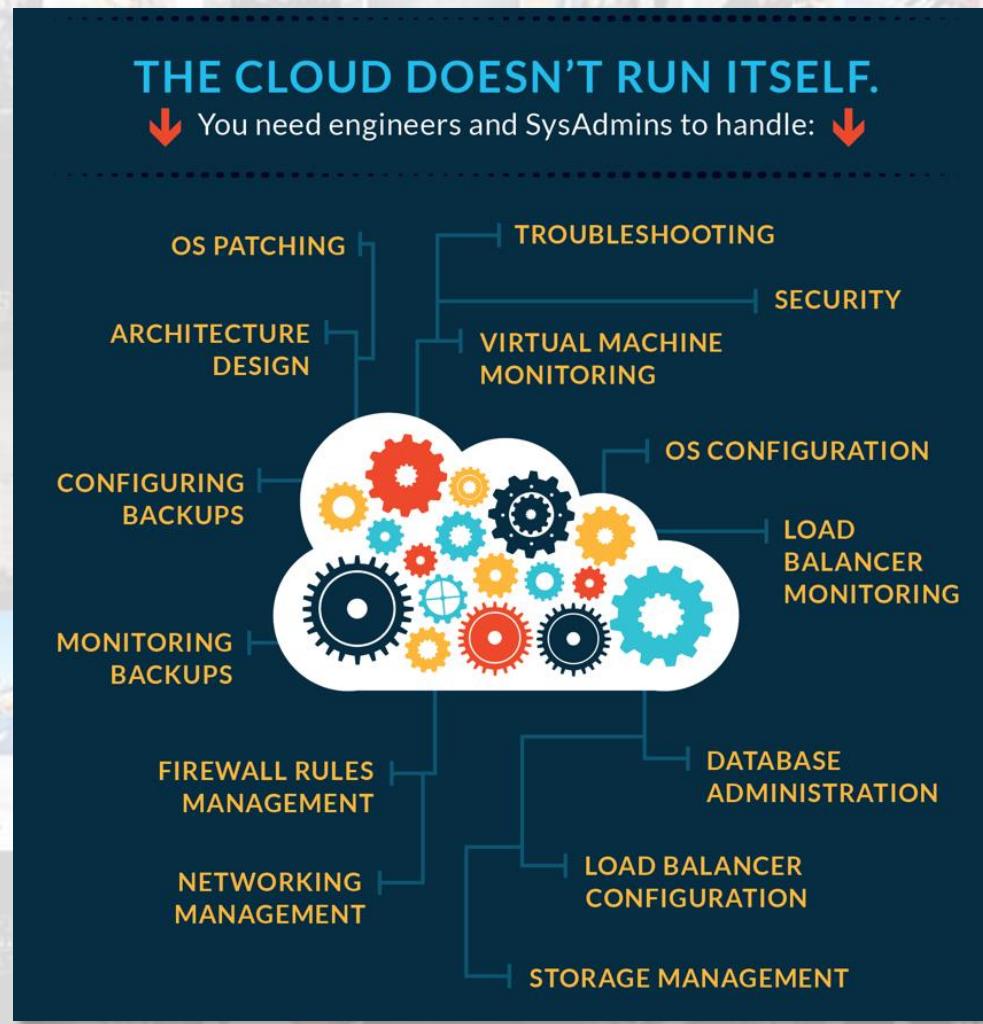
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Azure Administrator # AzureAdmin



- Build
- Manage
- Protect
- Automate
- Optimize

#SharedResponsibility

1

Azure Toolkit

Remain in control of your Azure resources from everywhere



Azure Portal(s) and App(s)

- Azure Portal

<https://portal.azure.com>

- Azure Portal App

<https://portal.azure.com/app/Download>

- Azure AD (Azure Active Directory admin center)

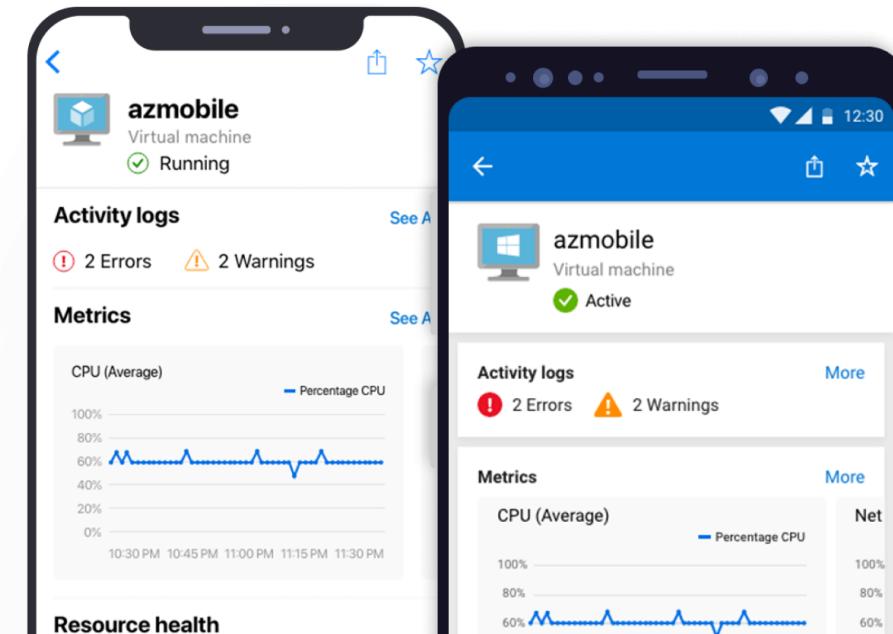
<https://aad.portal.azure.com>

- Azure Preview Portal

<https://preview.portal.azure.com>

- Azure Mobile App (<https://aka.ms/azureapp>)

App Store and **Google Play**



Management tools

- Azure Cloud Shell 
- Microsoft Azure Storage Explorer / AzCopy v10

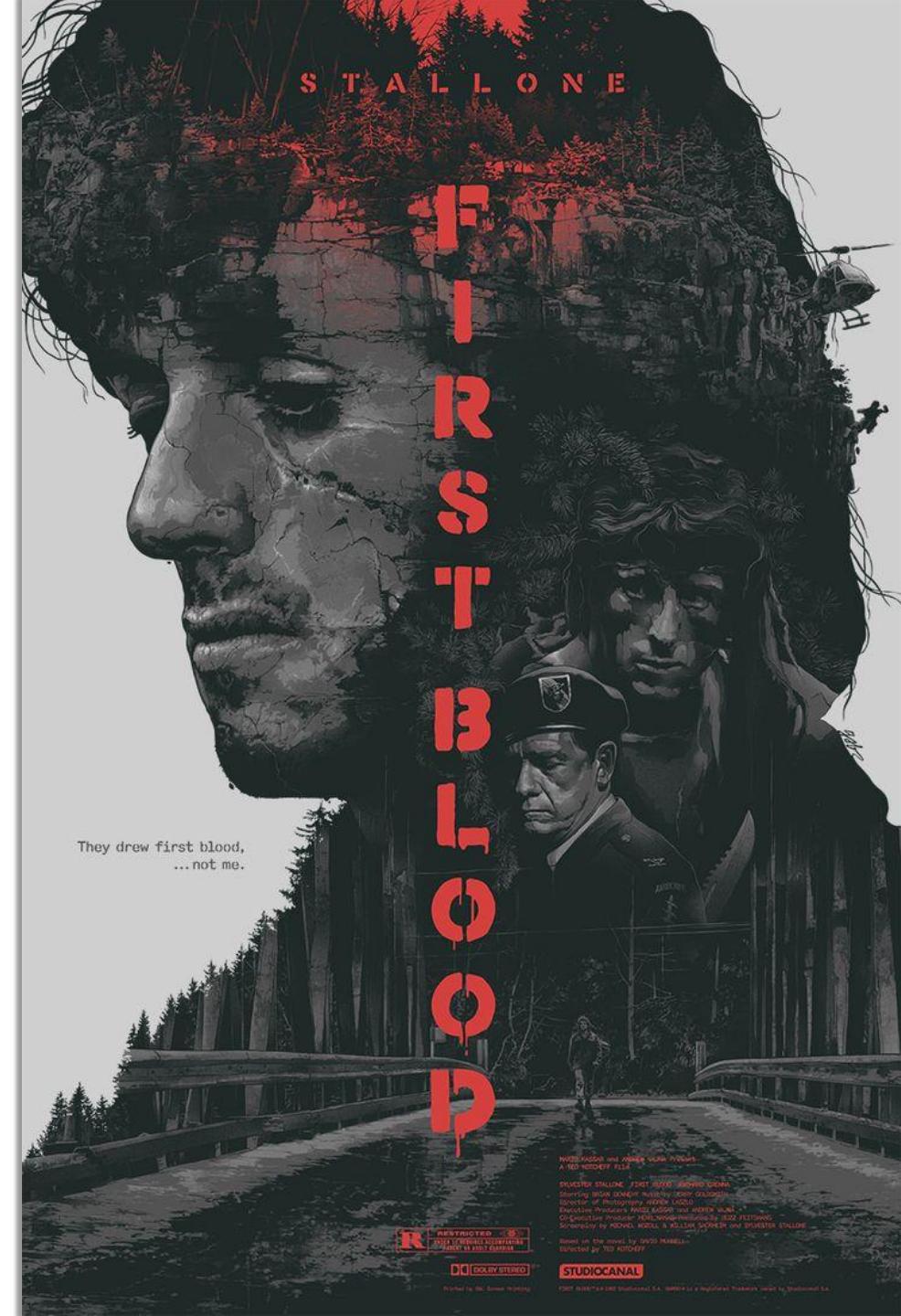
<https://azure.microsoft.com/en-us/features/storage-explorer/>
<https://github.com/Azure/azure-storage-azcopy>

- Windows Admin Center 
- Visual Studio Code 

<https://code.visualstudio.com/>

- Windows Terminal 

Available in the Microsoft Store





DEMO

"Yo!"



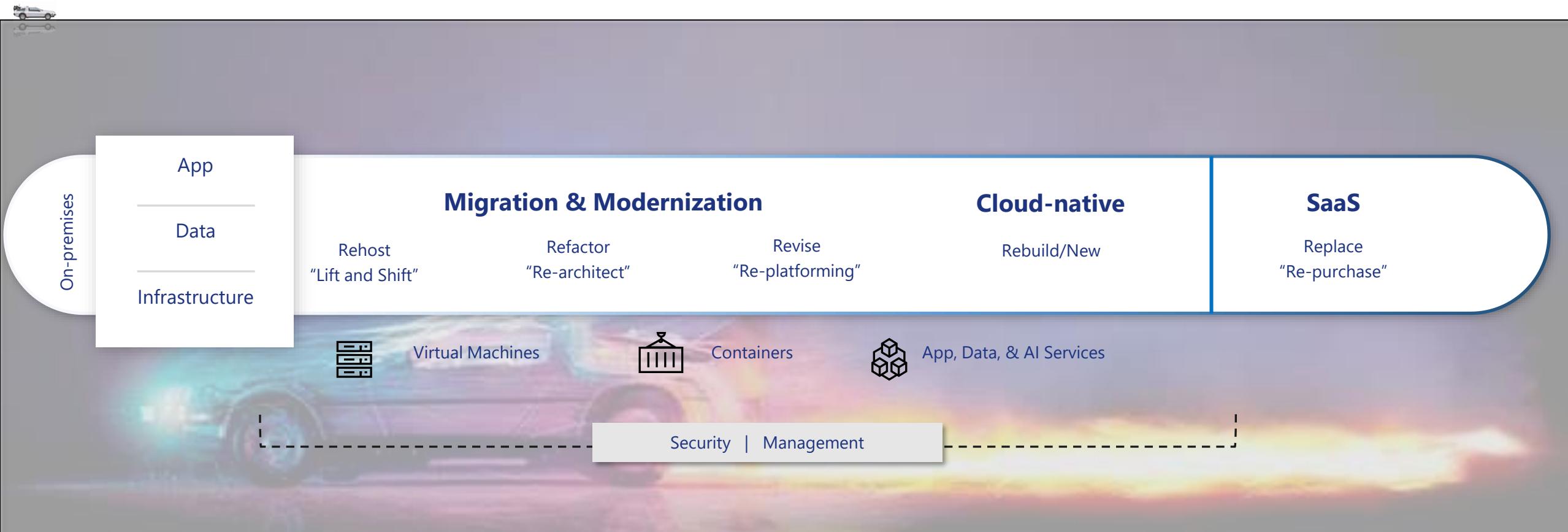


VMs?!? Where we're going, we (don't) need VMs

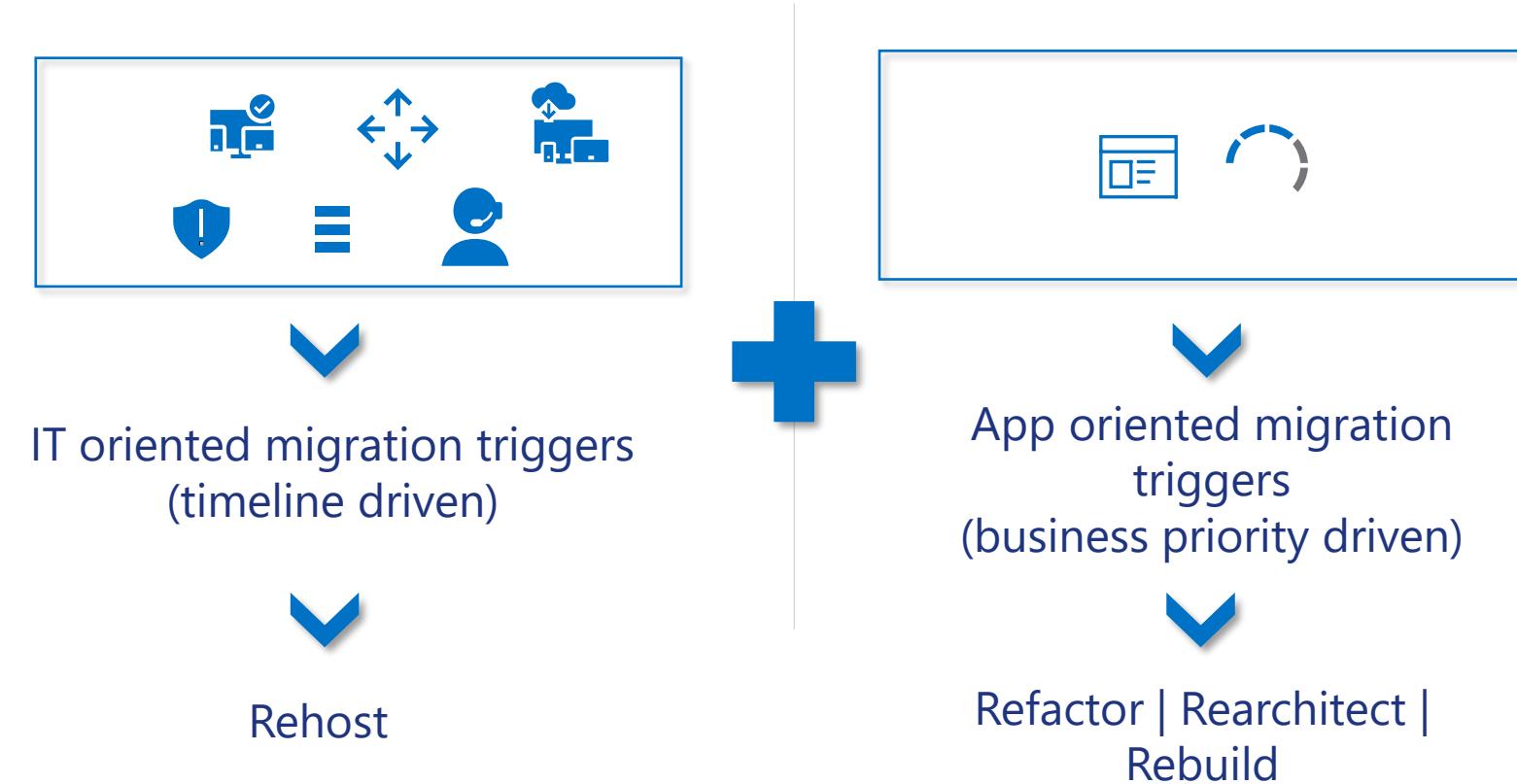
Remain future proof and (try to) think beyond IaaS



Cloud Migration Approach – The 5 Rs



Migration strategies



Resources to help you with your Cloud (migration) journey

Microsoft Cloud Adoption Framework for Azure

A collection of documentation, implementation guidance, best practices , and tools

<https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/>

Azure Architecture Center

Guidance for architecting solutions on Azure

<https://docs.microsoft.com/en-us/azure/architecture/>

Azure Migrate

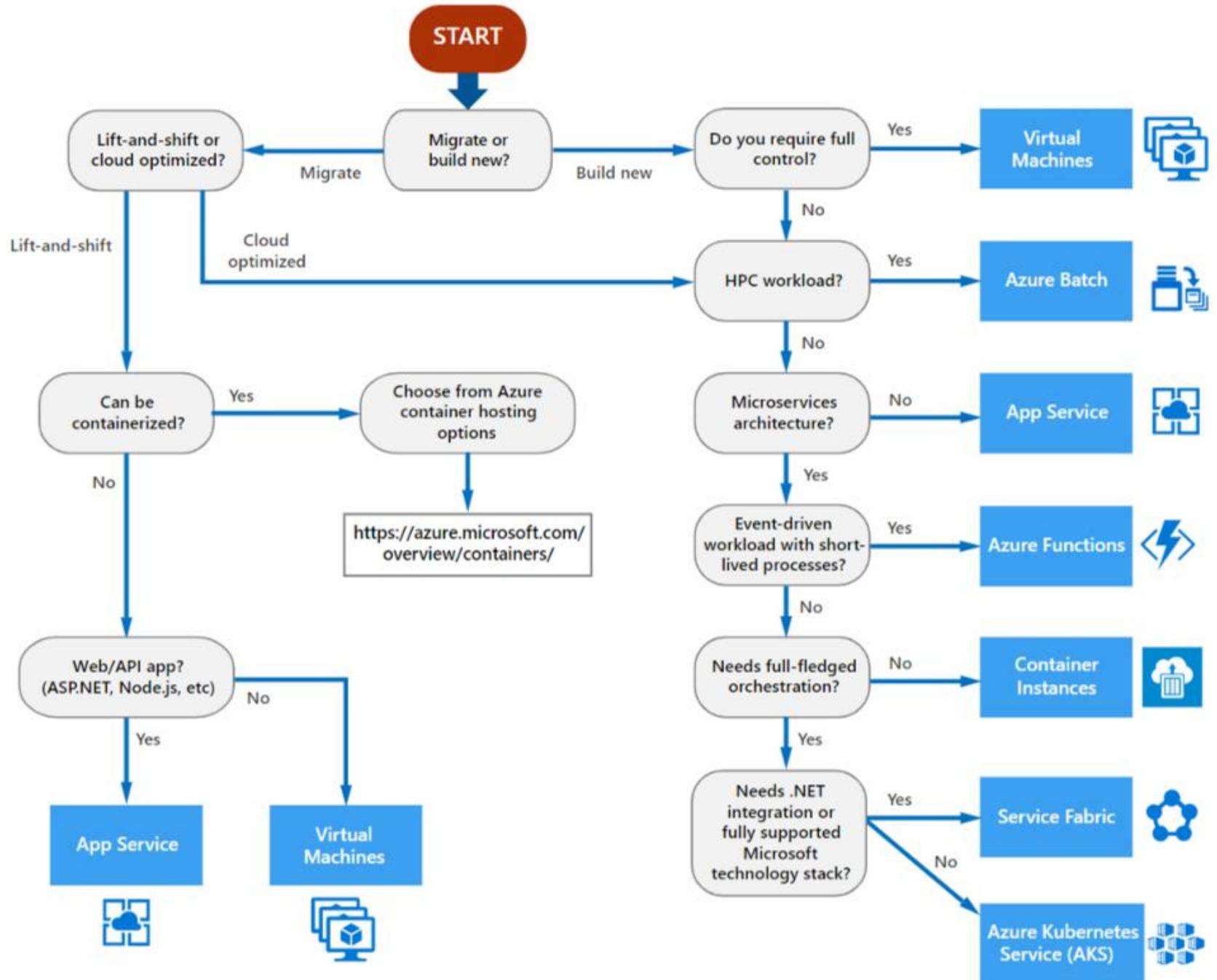
An Azure service which helps discovering, assessing, and migrating your on-premises workloads to the cloud

Azure Migration Program

Get the right help at every stage of your cloud migration

<https://azure.microsoft.com/en-us/migration/migration-program/>

Think beyond VMs



Switch from IaaS to PaaS or SaaS

IaaS File Server	→	Azure Files
IaaS Domain Controller	→	Azure Domain Services
IaaS DNS Server	→	Azure DNS, Azure DNS Private Zones
IaaS Print Server	→	Universal Print (Public Preview)

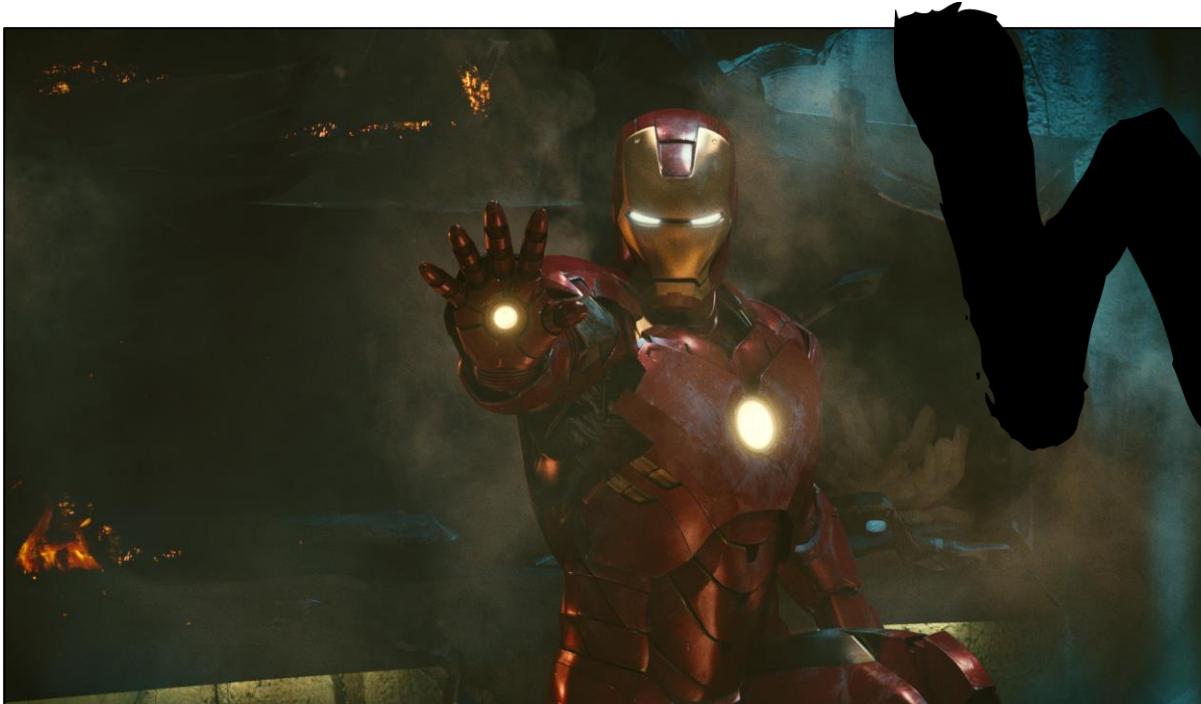
3

Azure Governance

Remain in control of your Azure environment



Azure Governance you say?



Why?



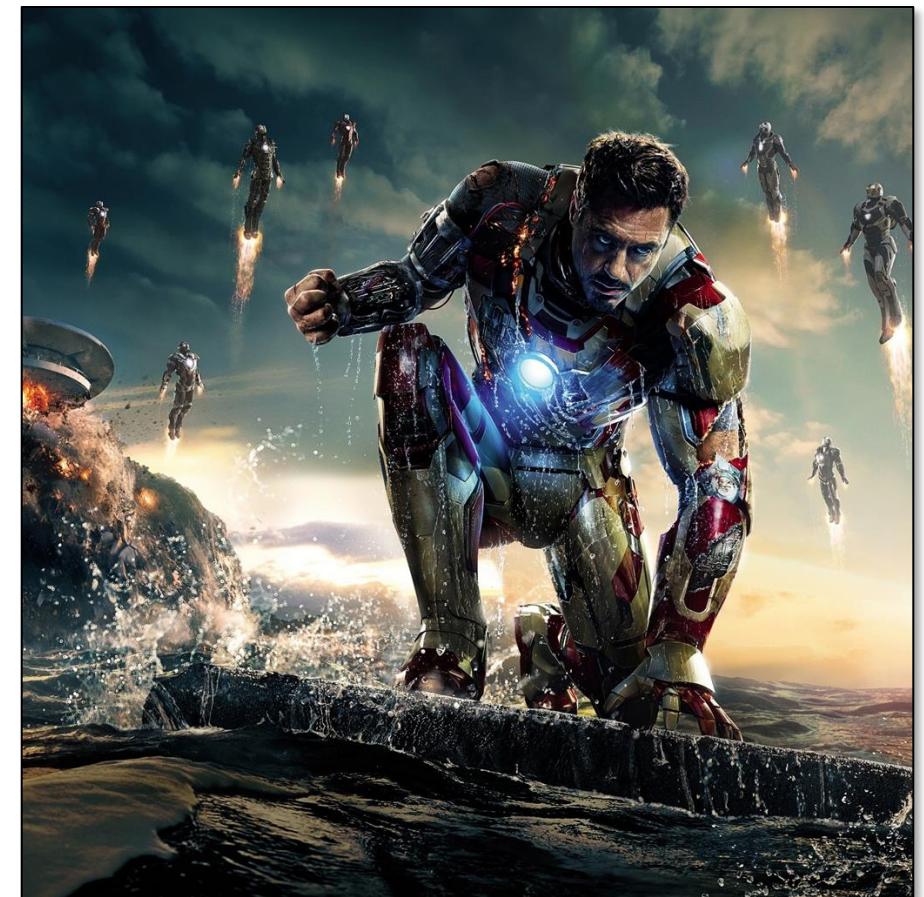
Why Azure Governance?

- When a proper Azure governance model is followed, you can ensure that your teams are operating in a **secure** and **compliant Azure environment** during design, development and operations
- To prevent **Cloud Sprawl**
- Azure governance complements your **cloud strategy**
- A proper **Azure governance strategy** provides a **decision framework** to determine how you will **use cloud technologies**

What can we do with it?

Enforce compliance at scale and increase agility

- Organize and structure your Azure environment(s)
- Standardize and define Azure resources
- Ensure transparency of Azure resources
- Control access
- Control and manage costs
- Enforce policies
- Query, explore and analyze Azure resources



Azure Governance Architecture

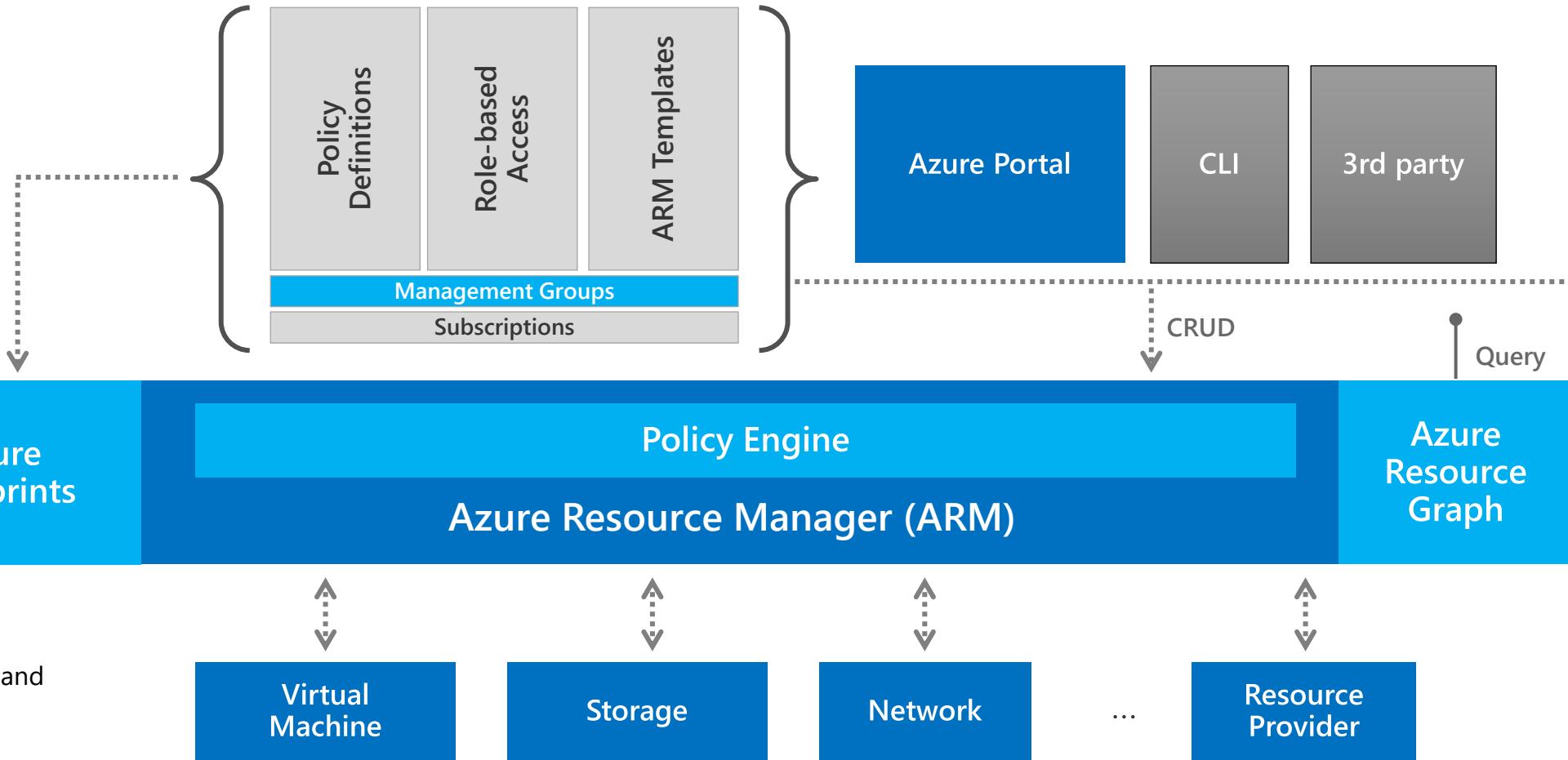
1. Environment Factory:
Deploy and update cloud environments in a repeatable manner using composable artifacts



Azure
Blueprints

2. Policy-based Control: Real-time enforcement, compliance assessment and remediation at scale

3. Resource Visibility: Query, explore & analyze cloud resources at scale



Azure Resource Graph



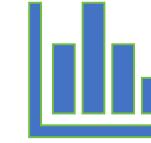
Query, explore & analyze Cloud resources at scale

Explore



Perform fast ad hoc exploration
in large Cloud environment

Query & Analyze



Query & analyze across all of
your Cloud resources at scale in
seconds

Impact Assessment



Ability to assess the impact of
applying policies in vast Cloud
environment

Query examples

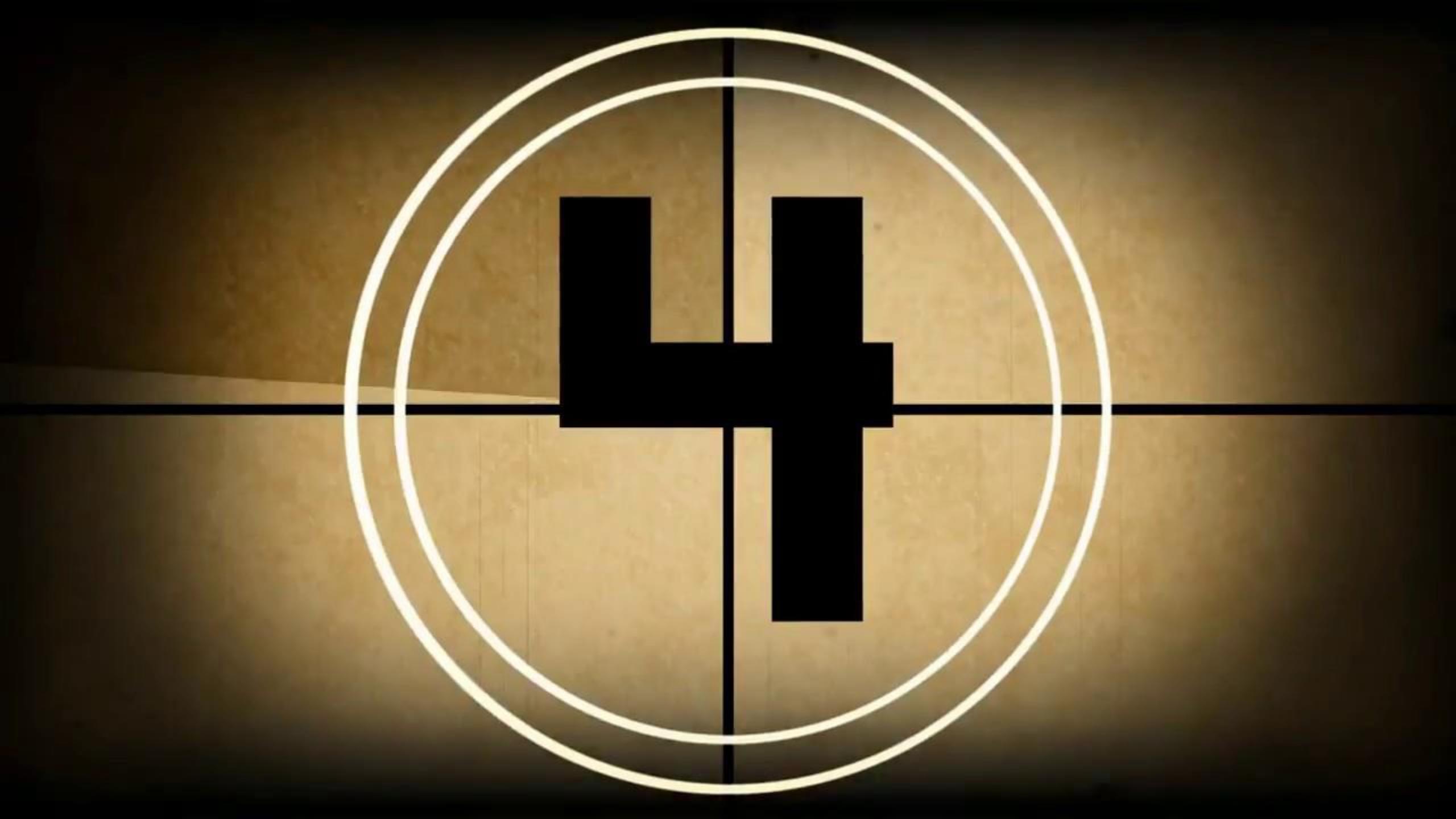
- **Count resources**
 - `summarize count()`
- **VM's by OS**
 - `where type =~ 'Microsoft.Compute/virtualMachines' | summarize count() by tostring(properties.storageProfile.osDisk.osType)`
- **VM's by location**
 - `where type =~ 'Microsoft.Compute/virtualMachines' | summarize count() by location`
- **VM's that start with sazu**
 - `where type =~ 'microsoft.compute/virtualmachines' and name matches regex @'^sazu(.*)[0-9]+$' | project name | order by name asc`
- **VM's with specific SKU**
 - `where type =~ 'Microsoft.Compute/virtualMachines' and properties.hardwareProfile.vmSize == 'Standard_B2s' | project name, resourceGroup`



DEMO

"We have a Hulk"





Azure Cloud Sp€nd

Remain informed and in control of your cloud costs



Know your Subscription types!

- Different Subscription types: **Pay-As-You-Go** (PAYG), **Enterprise Agreement** (EA), **Microsoft Customer Agreement** (MCA), **Cloud Solution Provider** (CSP), **Visual Studio**, **Azure free account** (\$200 credit for 30 days), ...
- Also know you other software licenses (e.g. SQL Server licenses, ...)
- EA and MCA -> **Enterprise Dev/Test Subscription** giving special rates for some services (e.g. VMs, SQL Database, Logic Apps, ...)
- Certain services (**25+**) are always free
- Also look at **DevTest Labs** and **Azure Marketplace Test Drive**

Which products are always free?

These products are always free. Availability is based on resource and region.

 Azure Cosmos DB DATABASES 400 RU/s provisioned throughput Build modern apps with a fast NoSQL database service with open APIs at any scale.	 App Service COMPUTE 10 web, mobile, or API apps Quickly create powerful apps for any platform or device using your choice of tools including Node.js and PHP.	 Functions COMPUTE 1,000,000 requests per month Process events with a serverless code architecture.
 Event Grid INTEGRATION 100,000 operations per month Get reliable event delivery at massive scale.	 Azure Kubernetes Service (AKS) COMPUTE Free Deploy and manage containers using the tools you choose.	 DevTest Labs DEVELOPER TOOLS Free Enable fast, easy, and lean dev-test environments.

Azure Marketplace

Results in All apps (43)

 VM-Series Next-Generation Firewall from Palo Alto by Palo Alto Networks, Inc. Protect your virtual applications in Azure, protect against threats and prevent data loss.	 Chef Automate by Chef Software, Inc. Get visibility into your applications in Azure, protect operational visibility into the Coded Enterprise.	 FortiGate NGFW Single VM with ARM Template by Fortinet FortiGate NGFW imposes on the Azure firewall with complete data, application and network protection.	 Sophos XG Firewall by Sophos Next-gen Firewall with Industry Leading Price Performance.
 Stormshield Network Security for Cloud by Stormshield Control and ensure the security of your cloud environment and multi-cloud security features.	 NetApp Cloud Backup Cloud-Based Appliance by NetApp Reduce time, cost, and risk with the NetApp Cloud Backup Cloud-Based Appliance (Formerly Afariavail) cloud-based.	 Yellowfin for Azure by Yellowfin Free 1-year subscription for 3 users included.	 LoadMaster Load Balancer ADC Content Switch by Netscaler Layer 4 Application Delivery Controller (ADC) Load Balancer, Content Switch and Traffic Manager.
 Bring your own license by Microsoft Cloud plans start at \$0.67/hour.	 Bring your own license by Microsoft Cloud plans start at \$0.20/hour.	 Bring your own license by Microsoft Cloud plans start at \$0.20/hour.	 Bring your own license by Microsoft Cloud plans start at \$0.20/hour.

Azure Reserved Instances (RIs) and Hybrid Use Benefit (HUB)

Windows Server VMs SQL Server VMs SQL Database

Enter the number of core licences that you own that are covered with active Software Assurance or Windows Server Subscriptions

40 i

Enter planned Azure deployment of Windows Virtual Machines

[Learn more about Windows Server instances >](#)

Region

West Europe v

Instance size

D4 v2: 8 cores, 28 GB RAM, 400 GB SSD, \$1.066 v

Hours/month

730

Monthly estimates

Without Azure Hybrid Benefit per month	\$3,890.90
With Azure Hybrid Benefit per month	\$1,985.600
Savings across eligible Virtual Machines per month	\$1,905.30 (49.0% savings)

Annual estimates

Your estimated annual savings on Azure across all virtual machines	\$22,863.60
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<https://azure.microsoft.com/en-gb/pricing/hybrid-benefit/>

Windows Server and SQL Server license cores with Software Assurance

Server licences that

Other ways to keep your costs down in Azure

- Use [Azure Pricing Calculator](#) and [Total Cost of Ownership \(TCO\) Calculator](#) to estimate costs and savings when you migrate on-premises workloads to Azure
- Overlook your **design decisions that impact cost** (VM Size, Region, Availability options and SLA, Storage Redundancy, Storage Tier, Traffic, ...)
- Delete **unused Azure resources**, like **Public IP address(es)**
- Look at **Auto-shutdown** or **Start/Stop virtual machines (VMs) during off-hours** (Azure Automation)

The screenshot shows the Azure portal interface for managing a Public IP address. The IP address is named 'pip-tst-dem-prd'. The 'Associate' button, which allows linking the IP to a virtual machine, is highlighted with a red box. Other visible details include the Resource group ('rg-dem-prd-app'), Location ('West Europe'), Subscription ('sub-myh-prd-03'), and various tags like 'applicationName : network', 'businessCriticality : low', 'costCenter : demo', and 'env : pre'.

The screenshot shows the Azure portal interface for configuring the 'Auto-shutdown' settings for a virtual machine named 'vm-dem-app01-01'. The 'Enabled' switch is set to 'On' and highlighted with a red box. The 'Scheduled shutdown' time is set to 6:00:00 PM. Other settings shown include the Time zone ('(UTC+01:00) Brussels, Copenhagen, Madrid, Paris'), 'Send notification before auto-shutdown?' (set to 'Yes'), and an 'Email address' field containing 'demo@demo.com'. A red box also highlights the 'Auto-shutdown' section in the navigation bar.

€7.13

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Group by: None

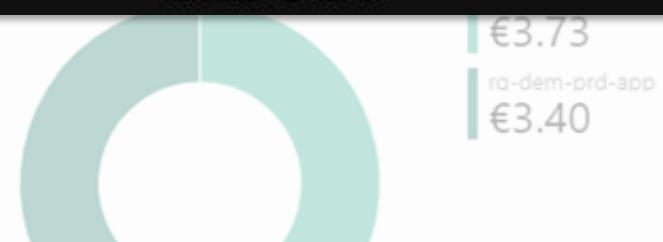
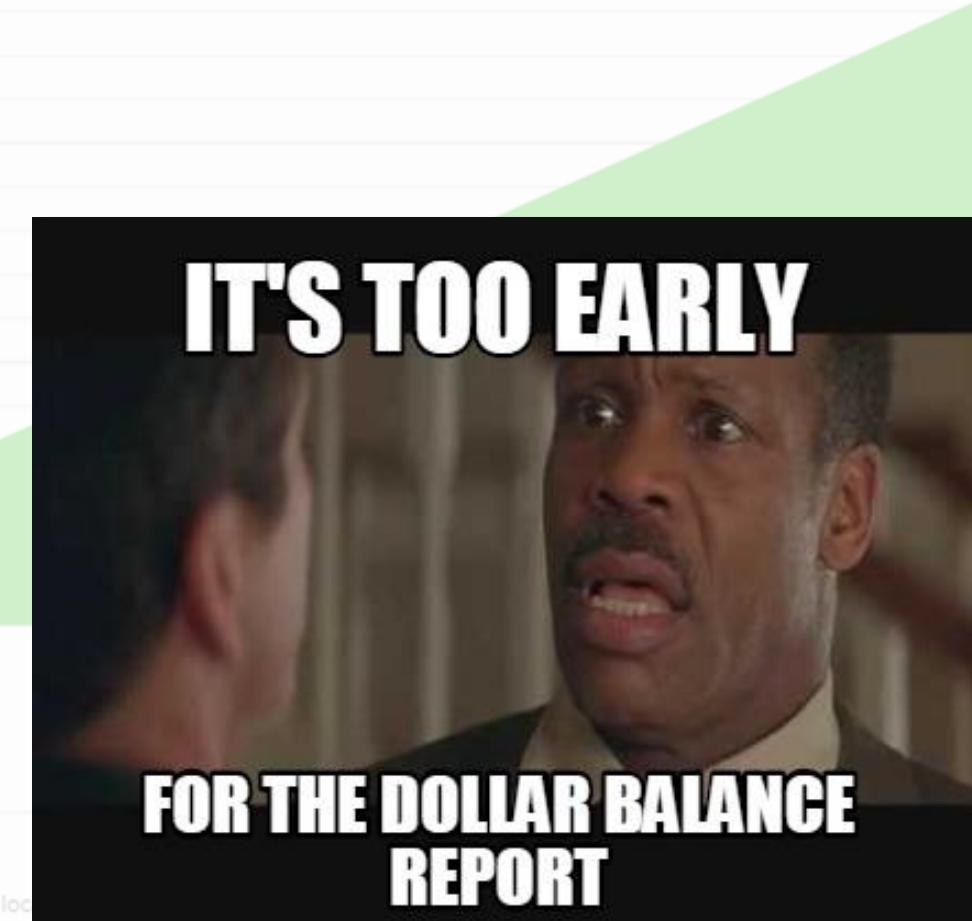
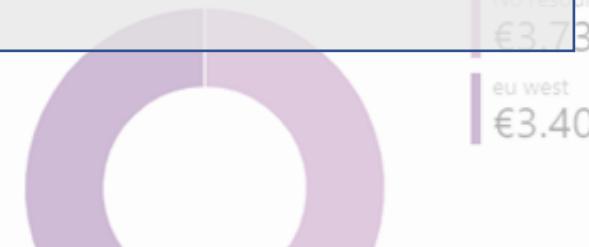
Granularity: Accumulated

Area

Azure Cost Management

Optimizing cloud costs while maximizing cloud potential

- Monitor **cloud spending** and manage costs across **all your clouds - Azure and AWS** (private preview)
- Built into Azure - on by **default** and **free for use**
- Increase organizational accountability
- Use **cost analysis, budgets** and **alerts** (in preview) to optimize your cloud efficiency. Use **Cost Management Labs** to sneak peek (Azure Preview Portal)



Azure Policy

- Allow only a **certain SKU size of Virtual Machines (VM)** in your Azure environment
- Restrict the **Public IP creation** to avoid any security risk to the VM explosion to the Internet
- Enforce specific **Azure Resource Tags**: Environment, ResourceOwner, CostCenter, ...
- Allow Azure resources **deployment to a specific location (Regions)**. E.g. VMs can only be deployed in the West Europe Region

The screenshot shows the Azure Policy Assignments blade. On the left, there's a sidebar with links like Overview, Getting started, Join Preview, Compliance, Remediation, Authoring (which is selected), Definitions, and Related Services (Blueprints (preview), Resource Graph, User privacy). The main area has a search bar, buttons for Assign initiative, Assign policy, Refresh, and a Scope dropdown set to '4 selected'. It also has filters for Definition type (All definition types) and a search bar. Below these are three summary counts: Total Assignments (2), Initiative Assignments (0), and Policy Assignments (2). At the bottom is a table with columns: name, Scope, and Type. Two rows are listed: 'Allowed locations' and 'Allowed virtual machine size SKUs', both with a scope of 'mg-myh-be' and type 'Policy'. These two rows are highlighted with a red box.

name	Scope	Type
Allowed locations	mg-myh-be	Policy
Allowed virtual machine size SKUs	mg-myh-be	Policy



DEMO

"Grab the Cat!"

5

Azure Service Health and Azure Advisor

Remain informed about outages and best practice recommendations



Azure Service Health



- No additional cost – **free Azure service**
- Personalized **guidance and support** when issues in Azure services affect you
- Notify and help you **understand impact of issues**
- It **keeps you updated when issues are resolved**
- Health history for up to **90 days**
- Create and manage **service health alerts**



Service Health Events

- Service issues: Problems in the **Azure services that affect you right now**
- Planned Maintenance: **Upcoming maintenance** that can affect the availability of your services in the future
- Health and Security Advisory (Preview): Changes or security elements in **Azure services that require your attention**. Examples include when Azure features are phased out or if you exceed a usage quota



 Overview Recommendations Cost Your recommendations have been loadedSubscriptions: All 4 selected – Don't see a subscription? [Open Directory + Subscription settings](#)

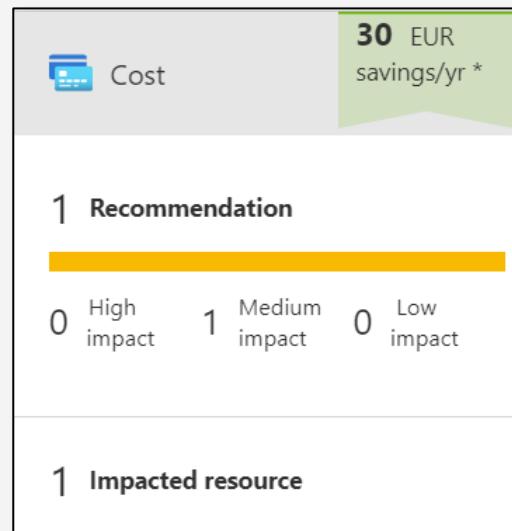
All subscriptions

All types

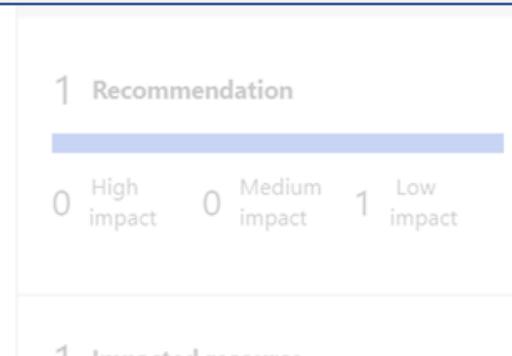
Active



Azure Advisor



- No additional cost – **free Azure service**
- Personalized **best practices** to optimize your **Azure workloads**, like **Cost recommendations**
- One place to optimize **all your Azure subscriptions**
- Delivers **customizable recommendations**
- Analyses workloads with **telemetry data** gathered from various **Azure Monitor services**

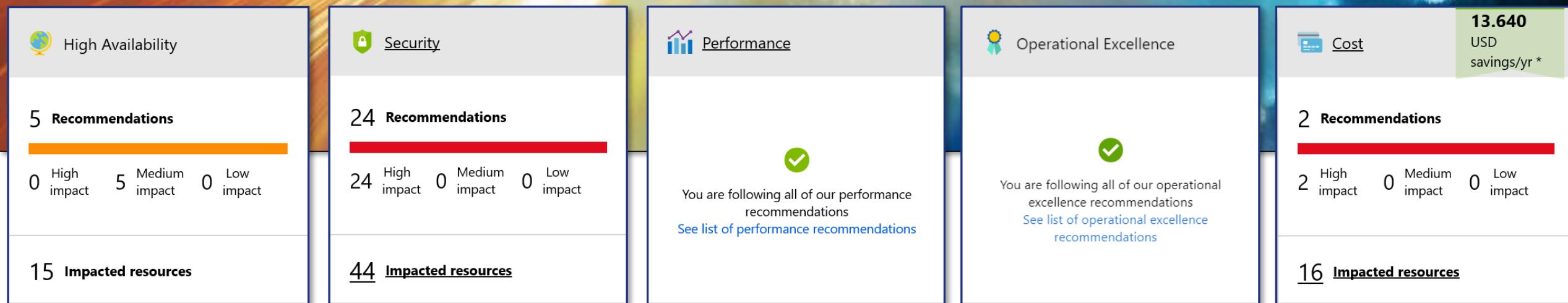


You are following all of our performance recommendations
[See list of performance recommendations](#)



**Azure Advisor your free
personalized cloud consultant**

Azure Advisor Dashboards



DEMO

"Beam me up, Scotty"



5

Secure Hybrid Network Connection

Remain secured when connecting to your Azure environment



How to connect in a secure way?

- Never use a **Public IP address (PIP)** to connect via **RDP** or **SSH** to an **Azure IaaS VM** -> **Brute force attacks**
- Secure network connections: **Point to Site (P2S VPN)**, **Site to Site (S2S VPN)** and **Express Route**
- Use a **Jump box** with **Just-In-Time VM Access (JIT)** for a secure hybrid connection



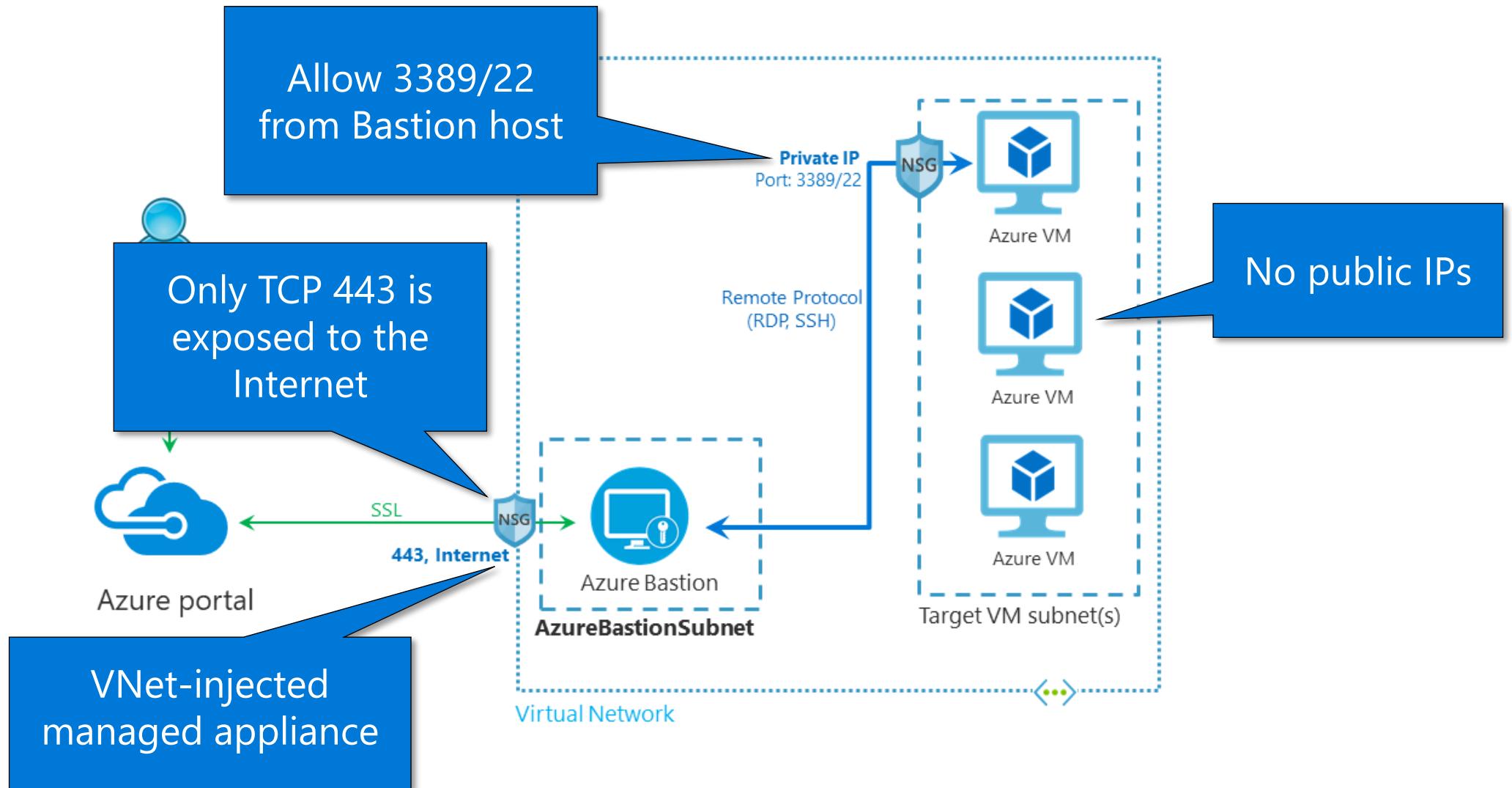
Just-In-Time VM Access (JIT)

- Limit exposure to **brute force attacks**
- Lock down inbound traffic and **limit the time management ports** (RDP/SSH) are open
- Available on the **Standard tier of ASC**
- Only supports **Azure Resource Manager VMs**
- A user needs to **request access** to a VM
- All requests can be reviewed in the **Activity Log**

Virtual machines		
	Configured	Recommended
VMs for which we recommend you to apply the just in time VM access control.		
61 VMs		
<input type="text"/> Search to filter items...		
VIRTUAL MACHINE	STATE	SEVERITY
AA-Contoso-01	Open	!! High
App01	Open	!! High
App03	Open	!! High
App04	Open	!! High
App05	Open	!! High
App06	Open	!! High
App07	Open	!! High
App08	Open	!! High
App09	Open	!! High



Azure Bastion



DEMO

"We talking or we racing?"



3

Azure Info and Skill set

Remain up-to-date and become a Jedi “Cloud” Master



Be informed (by Microsoft)

- Azure status & Azure Status history

<https://status.azure.com/en-us/status>

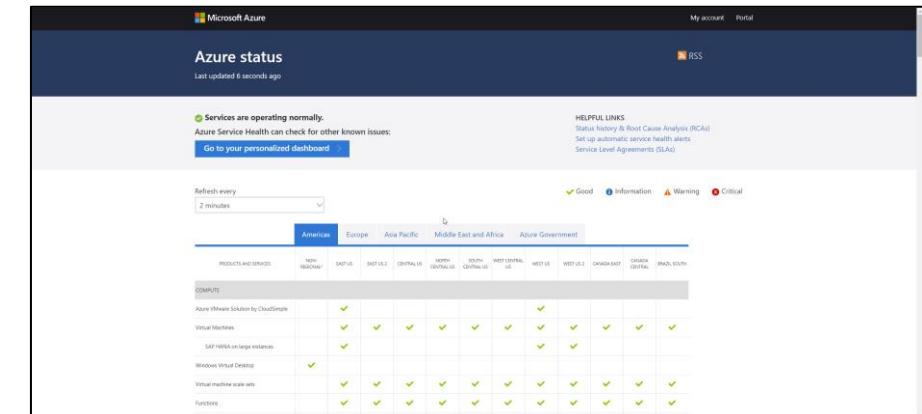
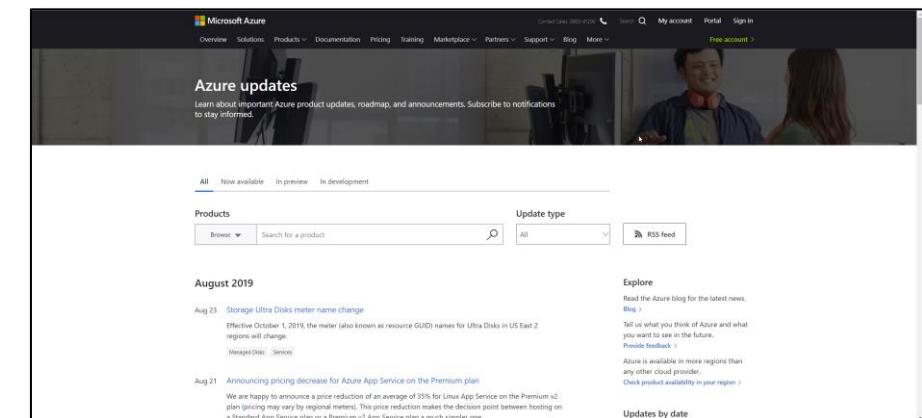
<https://status.azure.com/en-us/status/history>

 <https://azurestatuscdn.azureedge.net/en-us/status/feed/>

- Azure updates

<https://azure.microsoft.com/en-us/updates/>

 <https://azurecomcdn.azureedge.net/en-us/updates/feed/>

The screenshot shows the Azure status page with a message stating "Services are operating normally". It includes links for "HELPFUL LINKS" such as "Status history & Root Cause Analysis (RCAs)", "Set up automatic service alerts", and "Service Level Agreements (SLAs)". Below this, there's a "Refresh every" dropdown set to "2 minutes" and a legend for severity levels: Good (green), Information (blue), Warning (orange), and Critical (red). A map shows regions grouped by continent: Americas (North America, South America), Europe (Europe, Middle East and Africa), Asia Pacific (Asia Central, South Central US, West Central, West US 2, Canada East, Canada Central, Brazil South), and Azure Government.The screenshot shows the Azure updates page for August 2019. It features a banner with two people in a server room. Below the banner, there are filters for "All", "Now available", "In preview", and "In development". A search bar allows users to "Browse" or "Search for a product" and an "RSS feed" button. The main content area displays a list of updates: "Aug 23 Storage Ultra Disks meter name change" (effective October 1, 2019) and "Aug 21 Announcing pricing decrease for Azure App Service on the Premium plan". On the right side, there's an "Explore" section with links to the Azure blog, a feedback form, and information about Azure availability in other regions. There's also a "Updates by date" link at the bottom.

ALWAYS AT YOUR SERVICE!



The community has you covered

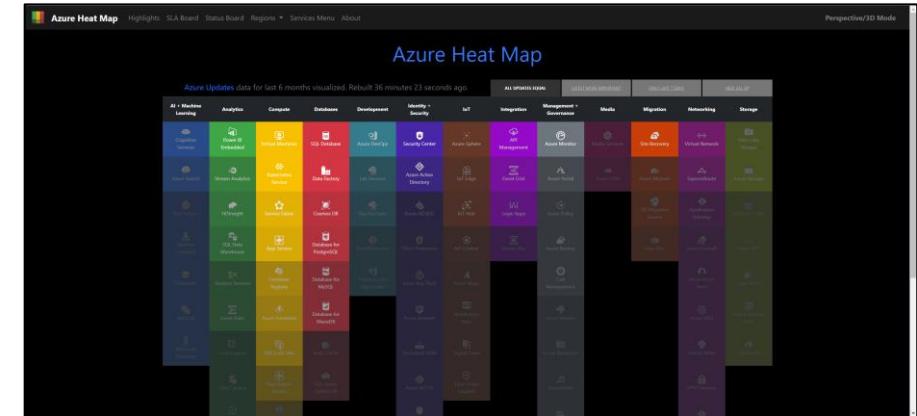
M C ²

Be informed (by the Community)

- Azure Heat Map

Azure Heat Map is a set of **auto-rebuilt charts** to keep you updated on **Azure changes, news, stats**. Public updates, RSS channels and web pages are used as data sources.

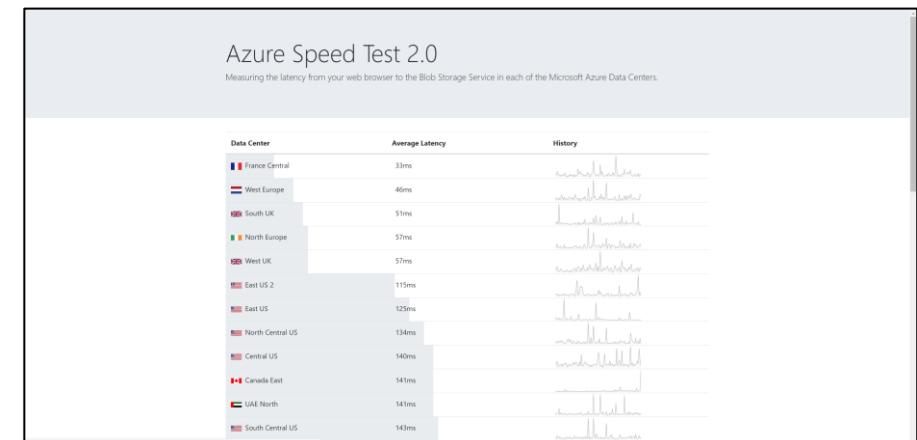
<https://azurecharts.com/>



- Azure Speed Test and Azure Latency Test

Measuring the **latency** from your **web browser** to the **Blob Storage Service** in each of the **Microsoft Azure Data Centers**

<https://azurespeedtest.azurewebsites.net/>
<https://www.azurespeed.com/Azure/Latency>



- @gregor_suttie / AzureResources

<https://github.com/gsuttie/AzureResources/tree/master/Useful%20Links>

Learn

- Azure Architecture Center

<https://docs.microsoft.com/en-us/azure/architecture/>

- Microsoft Learn

<https://docs.microsoft.com/en-us/learn/>

- Azure role-based certifications

<https://www.microsoft.com/en-us/learning/azure-exams.aspx>

- Azure Quickstart Center and Global search in the Azure portal

Quickly start your projects in Azure with **step-by-step guidance**
Type in "**how to ...**" to know how to do certain things

- Microsoft Tech Community, UGs (MC2MC, TechNine, ...) blogs and vlogs



DEMO

The force is strong in this one...



Key Takeaways

Use all (free) built-in Azure services and tools

If you do it often, automate it

Try to think beyond IaaS VMs

Remain in control of your Azure environment(s)

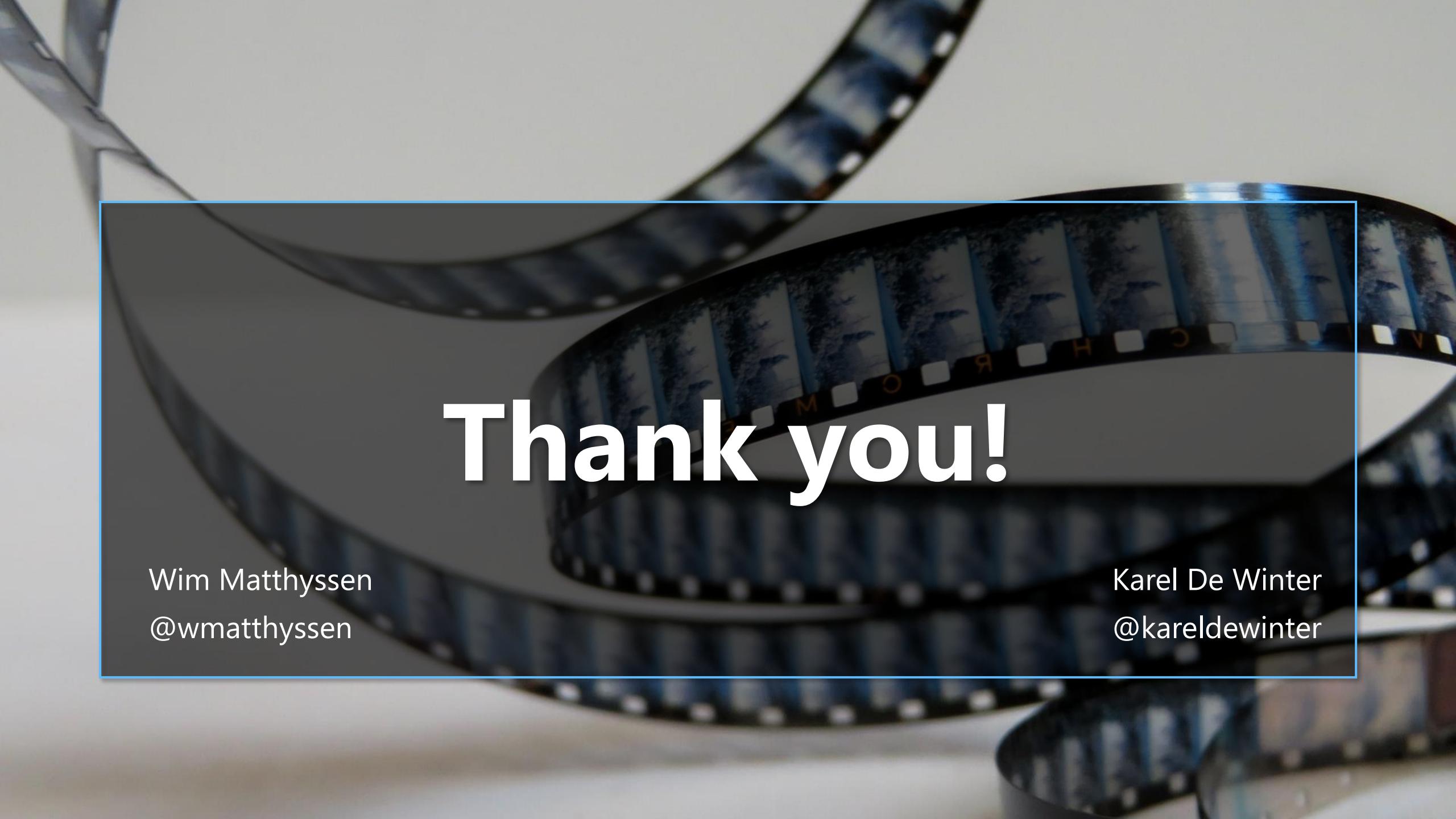
Keep an eye on your Cloud Spend

Always keep learning

Q&A

(A.K.A. your time one set)





Thank you!

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Karel De Winter
@kareldewinter