



SAP on Azure Azure Fundamentals

Tuesday, September 22, 2020

10am – 12 pm SGT

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Microsoft APAC

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Agenda



Basics of cloud computing



Core Cloud Services -
Azure compute options



Azure footprint



Core Cloud Services - Azure
data storage options



Azure AD



Core Cloud Services -
Azure networking options

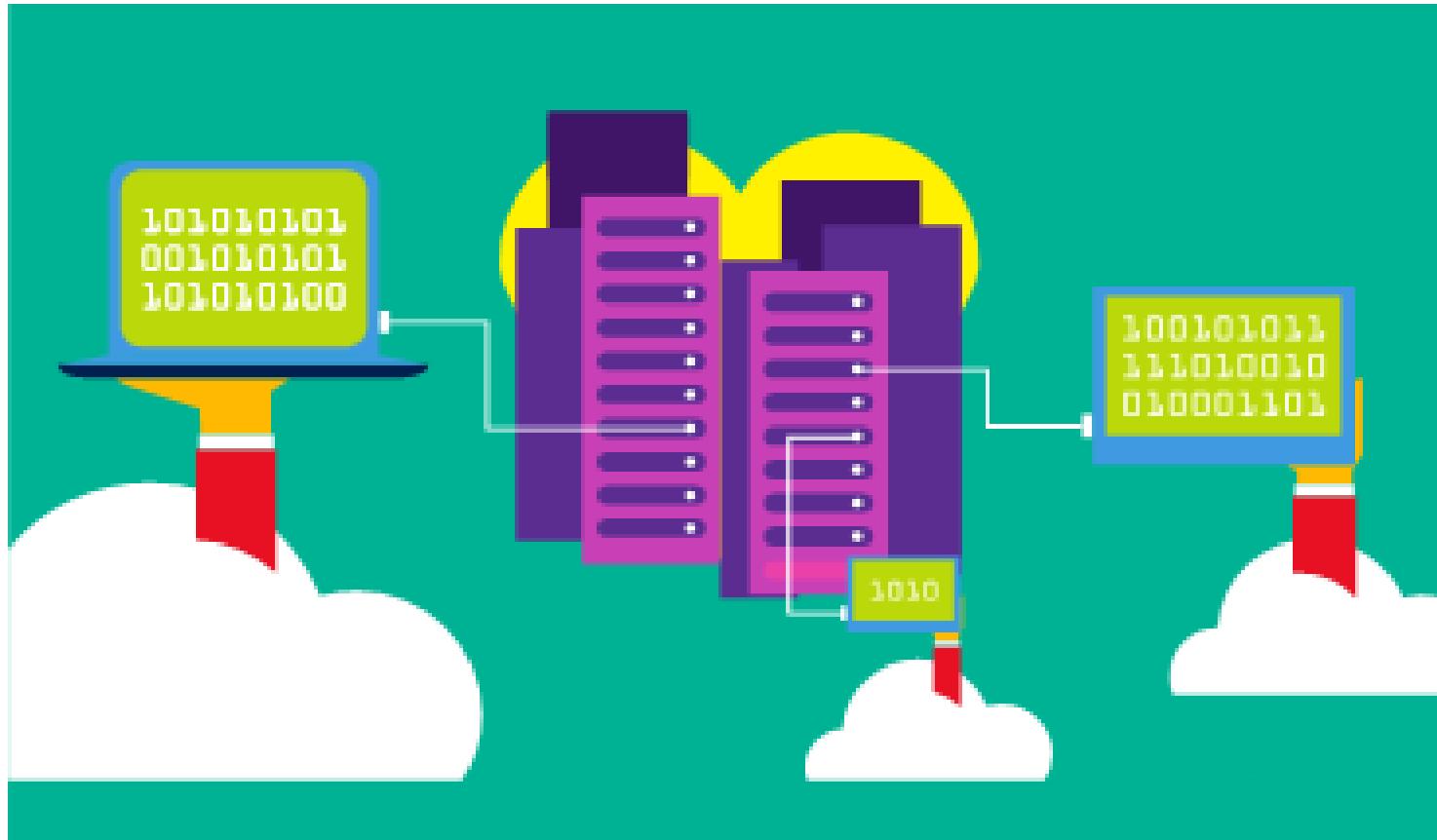


Azure Onboarding



Governance

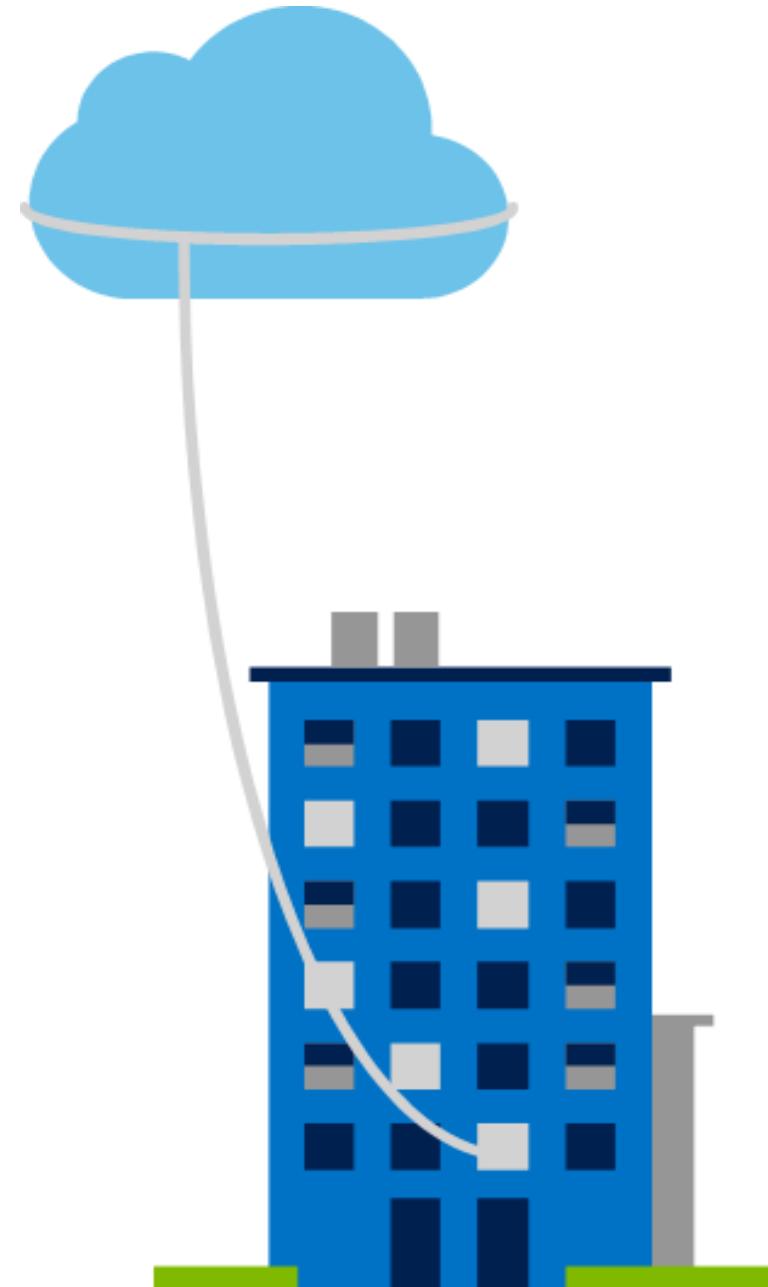
Public cloud



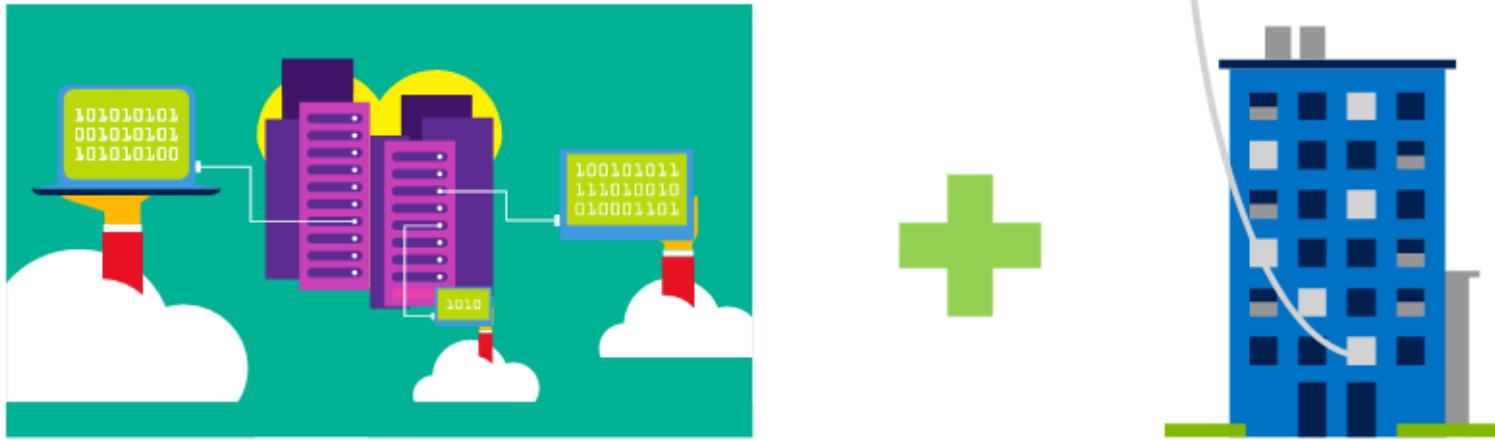
A *public cloud* is owned by a cloud services provider (also known as a *hosting provider*).

Private cloud

A *private cloud* is owned and operated by the organization that uses the resources from that cloud.



Hybrid cloud

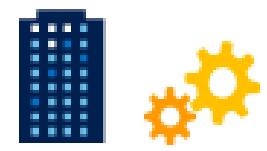


A *hybrid cloud* combines both public and private clouds, allowing you to run your applications in the most appropriate location.

IaaS

IaaS is the most basic category of cloud computing services. With IaaS, you rent IT infrastructure servers, and virtual machines (VMs), storage, networks, and operating systems from a cloud provider on a pay-as-you-go basis. It's an instant computing infrastructure, provisioned and managed over the internet.

IaaS

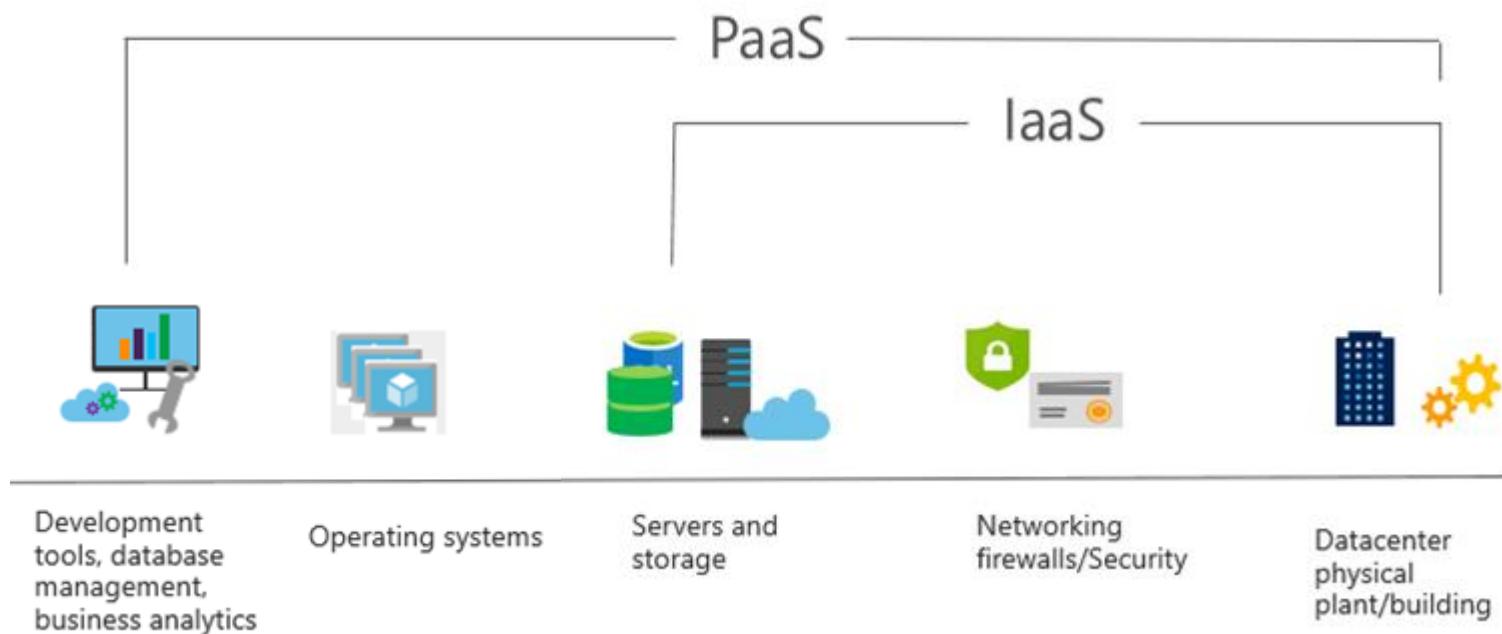


Servers and storage

Networking firewalls/Security

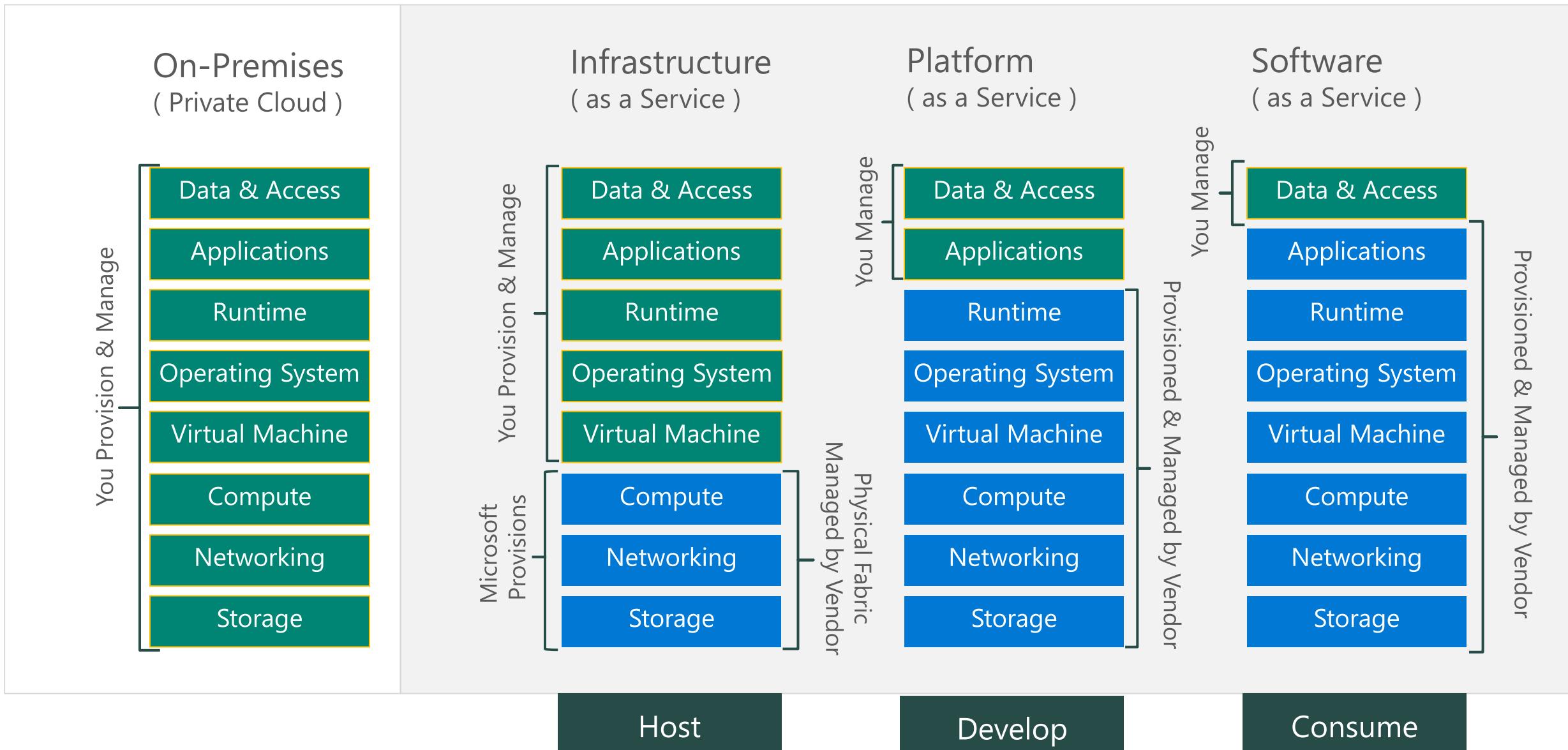
Datacenter physical plant/building

PaaS



PaaS provides an environment for building, testing, and deploying software applications. The goal of PaaS is to help create an application as quickly as possible without having to focus on managing the underlying infrastructure.

Cloud computing models and responsibilities



- Available region
- Announced region
- Edge Site
- WAN Links

60+

Regions
worldwide

130K+

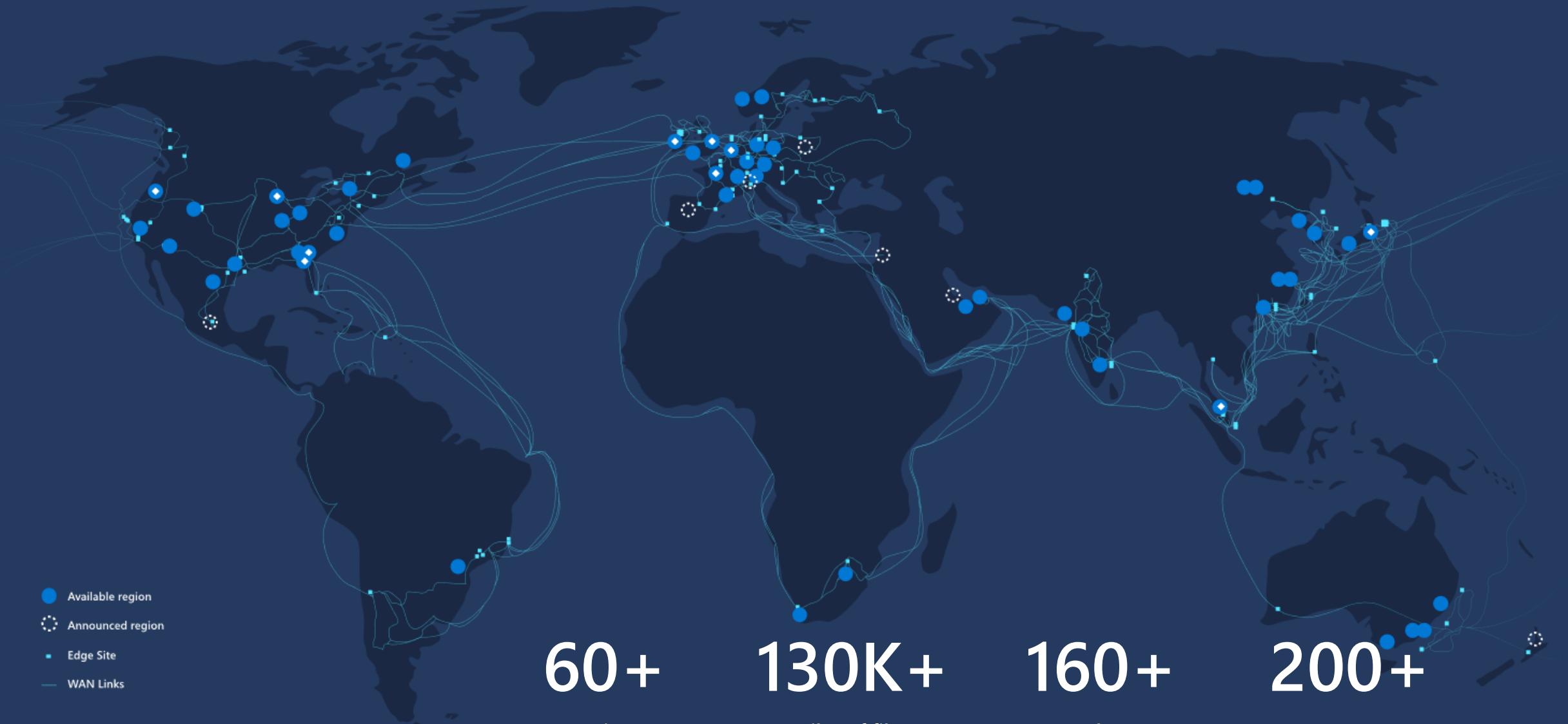
Miles of fiber
and subsea cable

160+

Edge
sites

200+

ExpressRoute
partners





Azure datacenter design

Microsoft has invested billions of dollars in building a highly secure, scalable, available, and sustainable cloud infrastructure on which customers can rely



Obvious redundancies — power utility feeds, onsite generators, battery arrays, as well as heating, ventilation and air conditioning (HVAC)



Expanding Availability Zones (AZs) — isolated power, networking, and cooling to provide redundancy against DC-level failures, launched in the 10 largest regions



Open Compute Project — sharing hardware designs with the community to learn from feedback, including our datacenter buildings and server specifications

Geographies

- Defined by geo-political boundaries or country borders
- Defines the data residency and compliance boundary for customer data
- Geographies:
 - Americas
 - Europe
 - Asia Pacific
 - Middle East
 - Africa



Microsoft Azure Regions

Microsoft Azure Geographies

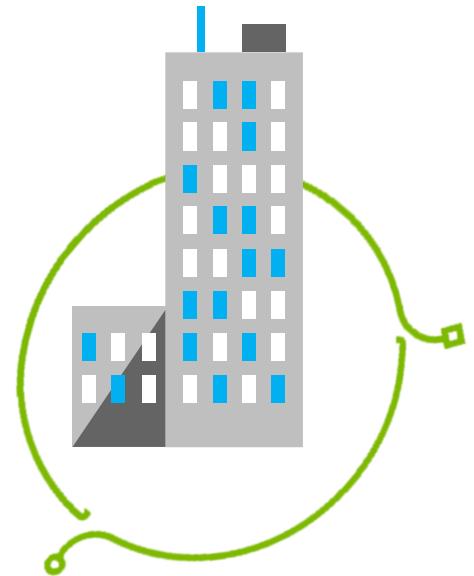


Regions - continued

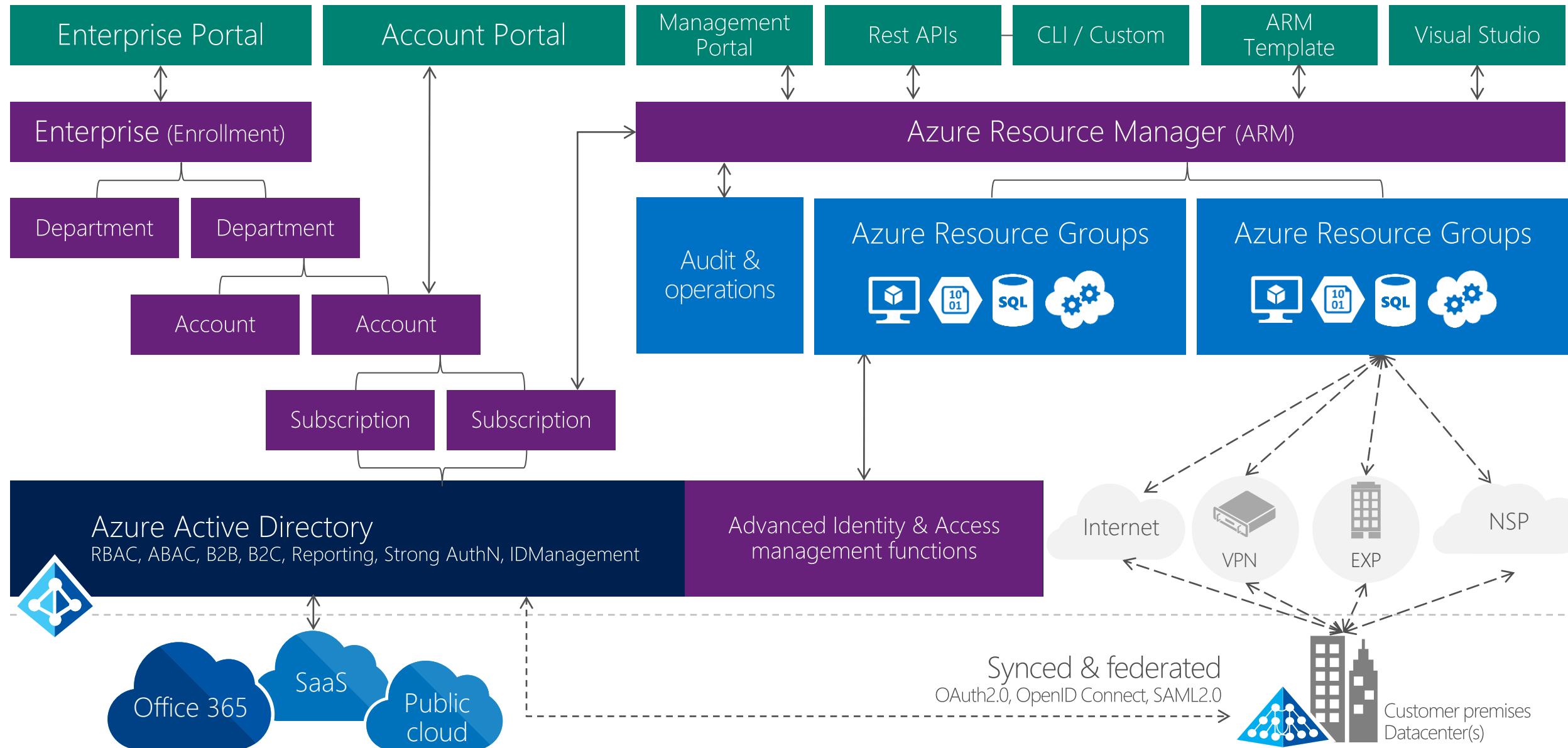
Azure special regions

For applications with specific compliance or legal requirements.

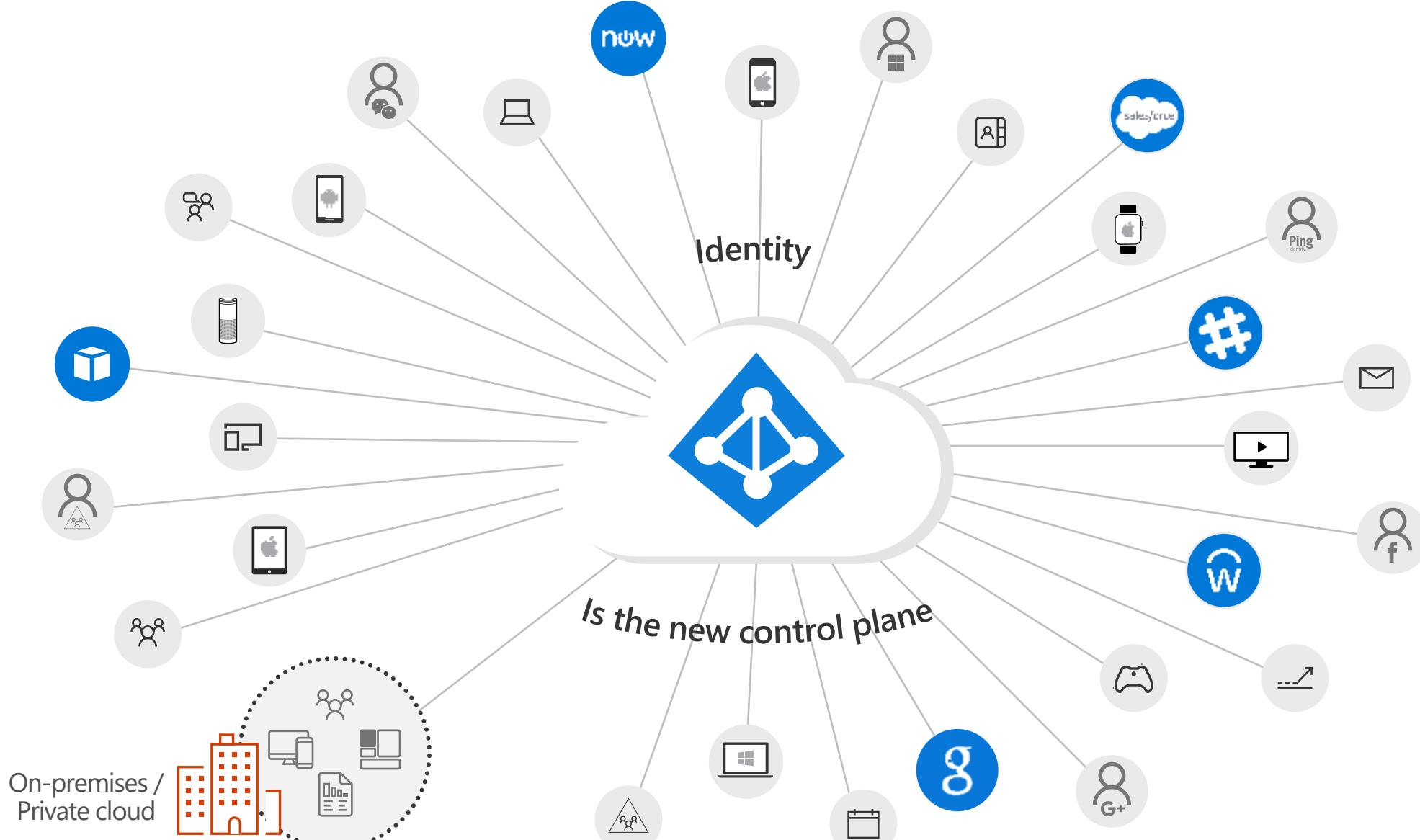
- Azure Government (North America)
- Azure China 21Vianet



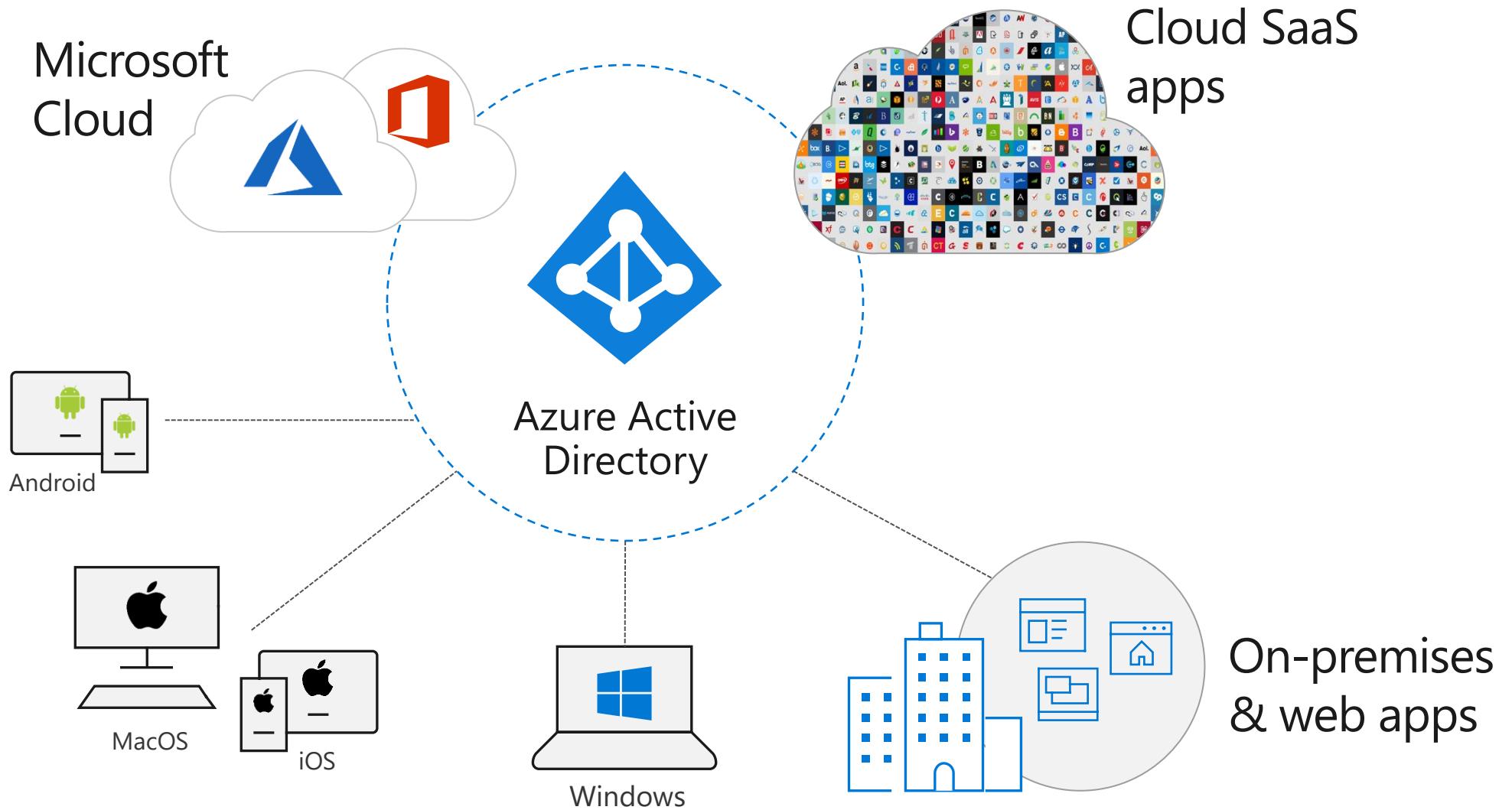
Microsoft Azure Cloud – the big picture



Azure Active Directory



Azure AD – not just for Microsoft resources



Authentication vs Authorization



- Authentication
 - Establishes an identity
 - Challenges access for credentials
- Azure AD
 - Cloud-based identity
 - B2B (Federation)
 - B2C (Consumer)
- Multi-factor authentication
 - Something you know, have, or are
- Authorization
 - Assumes successful **authentication**
 - Establishes appropriate level of access based on the authenticated identity

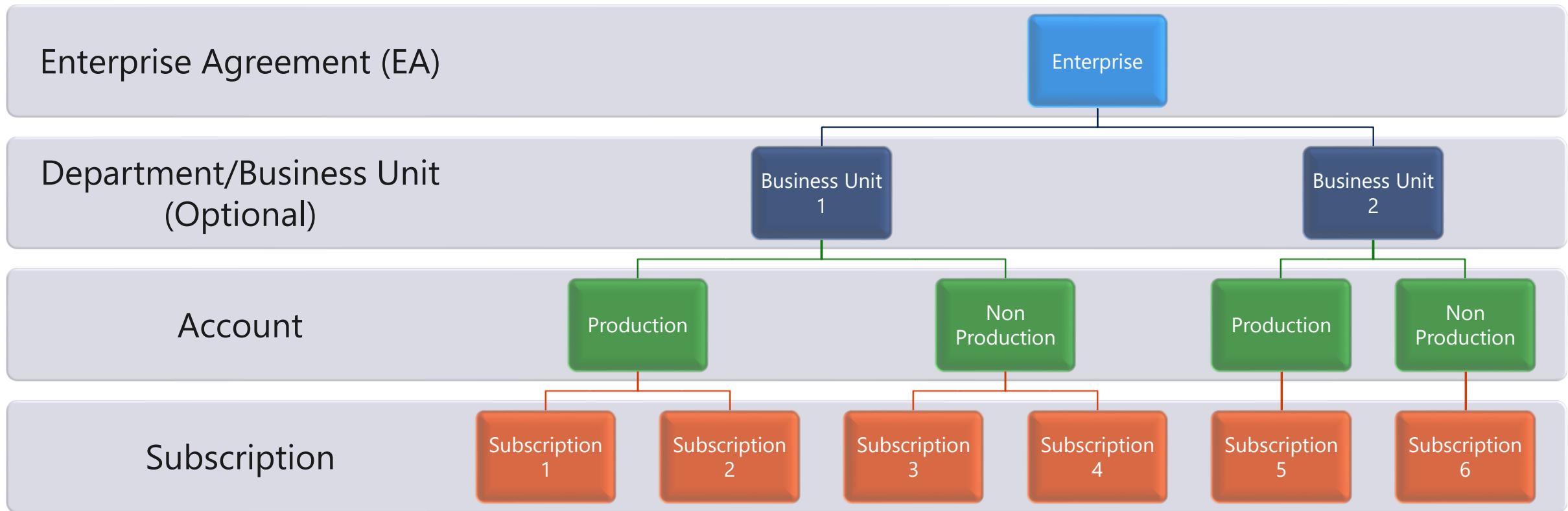
Identity and Access Management Use Cases

- ① I want to provide my employees secure and easy access to every application from any location and any device
- ② I want to quickly deploy applications to devices, do more with less and automate Join/Move/Leave processes
- ③ I need my customers and partners to access the apps they need from everywhere and collaborate seamlessly
- ④ I want to protect access to my resources from advanced threats
- ⑤ I need to comply with industry regulation and national data protection laws
- ⑥ I want to write applications that work with my identities in Azure Active Directory



Azure onboarding

Azure Governance layers



Azure Subscriptions

Multiple subscriptions per account

Provides access and boundaries between products and services

- Billing boundaries
- Access control boundaries with Azure Policy

Various subscription types

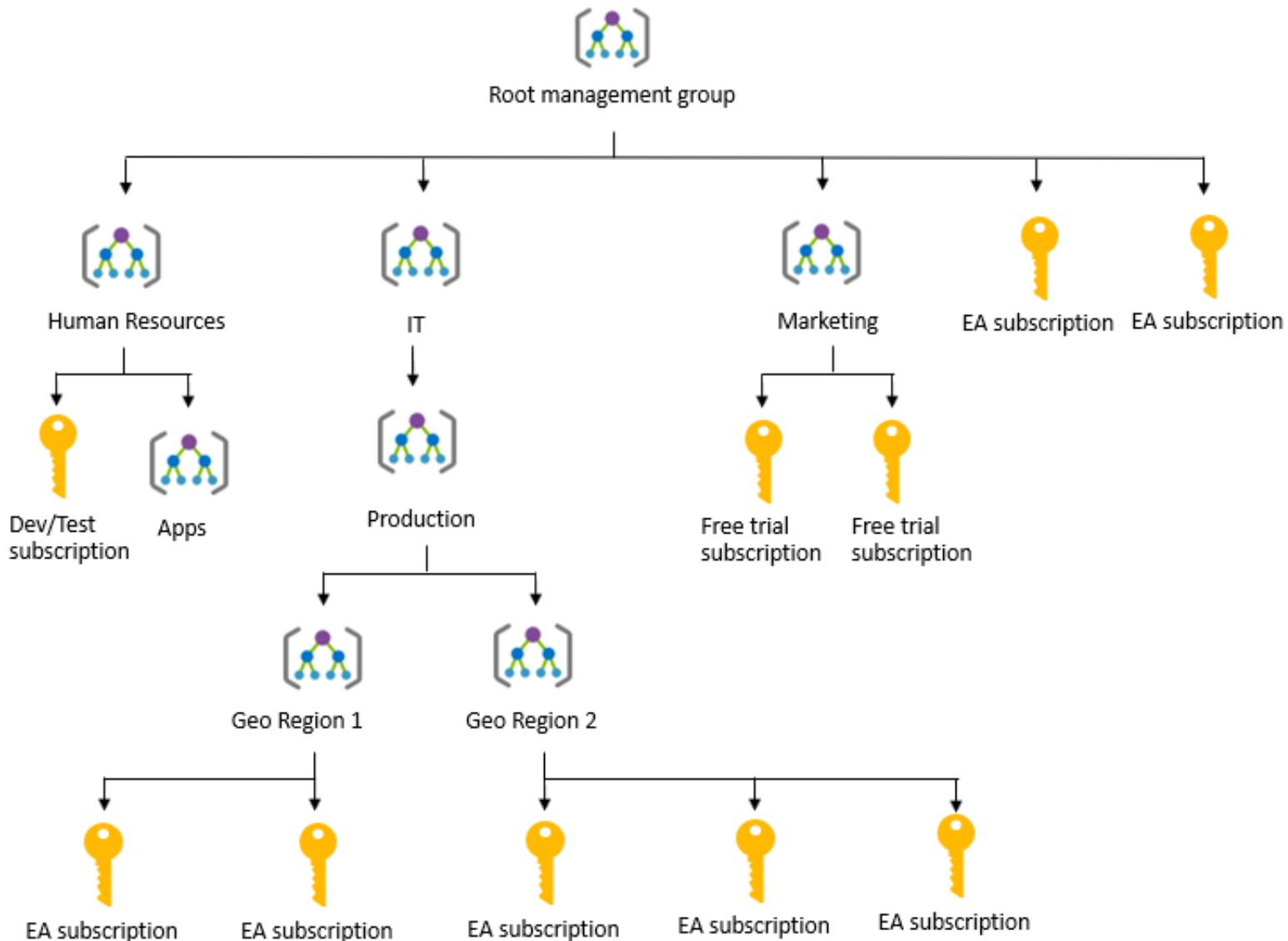
- Free
- Pay-as-you-go
- Enterprise Agreement

Create management hierarchy with Management Groups



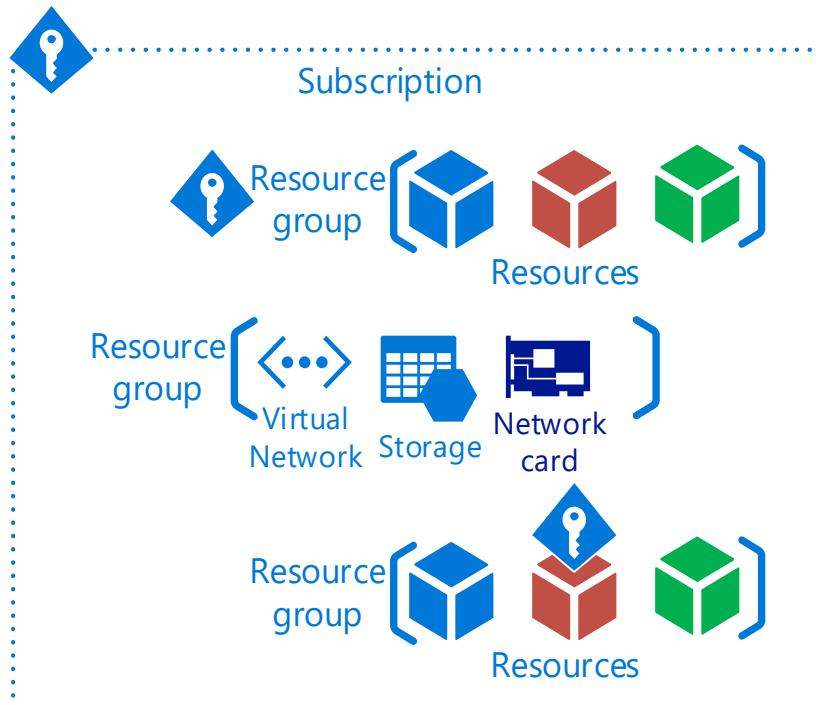
Management groups

- *Azure Management groups* are containers for managing access, policies, and compliance across multiple Azure subscriptions
- *Management groups* allow you to order your Azure resources hierarchically into collections, which provide a further level of classification beyond subscriptions.



Containers and resources

- Subscription is the top-level container
- Create resource groups in the subscription
- Place resources within the resource groups



Subscription principles

Subscriptions are...

- Administrative security boundaries
- Equipped to support RBAC delegation
- Logical limits of scale
- The first container that you create

Considerations

- Subscriptions do not cost anything
- Each subscription has its own admins, although a single account can be an admin in multiple subscriptions
- Subscriptions are global
- Multiple subscriptions may introduce additional complexities.

Azure subscription limits

Virtual Machines limits - Azure Resource Manager

The following limits apply when you use Azure Resource Manager and Azure resource groups.

Resource	Limit
VMs per subscription	25,000 ¹ per region.
VM total cores per subscription	20 ¹ per region. Contact support to increase limit.
Azure Spot VM total cores per subscription	20 ¹ per region. Contact support to increase limit.
VM per series, such as Dv2 and F, cores per subscription	20 ¹ per region. Contact support to increase limit.
Availability sets per subscription	2,500 per region.
Virtual machines per availability set	200
Certificates per subscription	Unlimited ²

¹Default limits vary by offer category type, such as Free Trial and Pay-As-You-Go, and by series, such as Dv2, F, and G. For example, the default for Enterprise Agreement subscriptions is 350.

²With Azure Resource Manager, certificates are stored in the Azure Key Vault. The number of certificates is unlimited for a subscription. There's a 1-MB limit of certificates per deployment, which consists of either a single VM or an availability set.

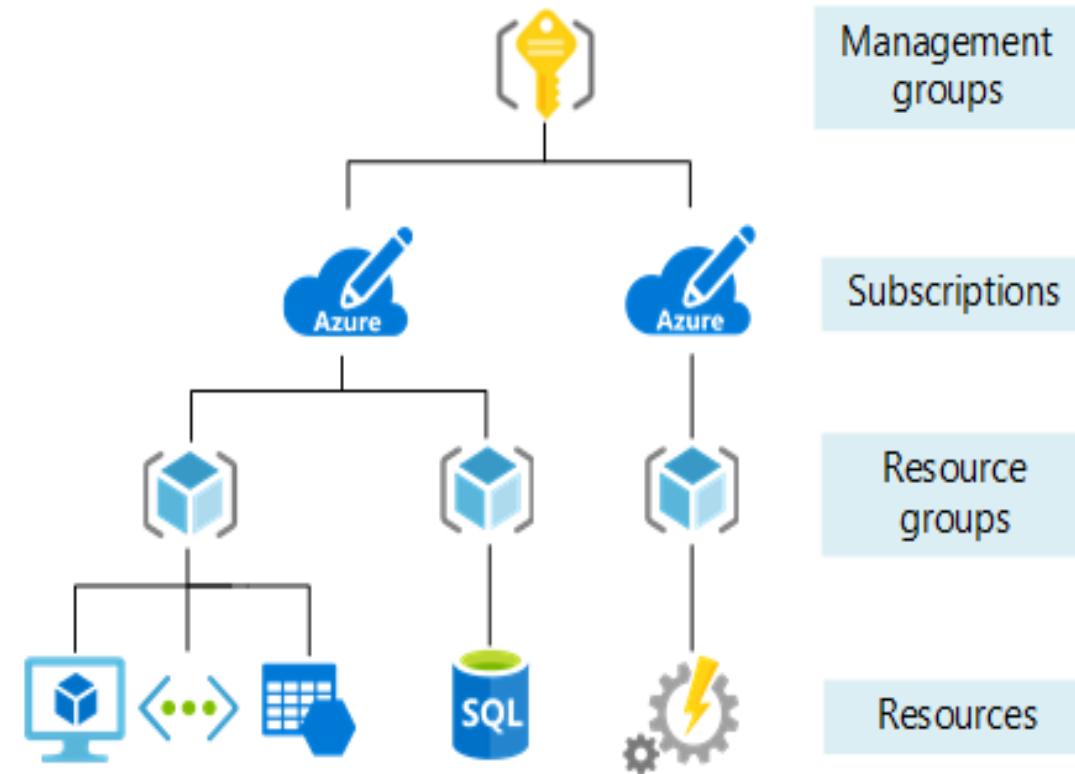
<https://docs.microsoft.com/en-us/azure/azure-subscription-service-limits>

Azure Resource Manager

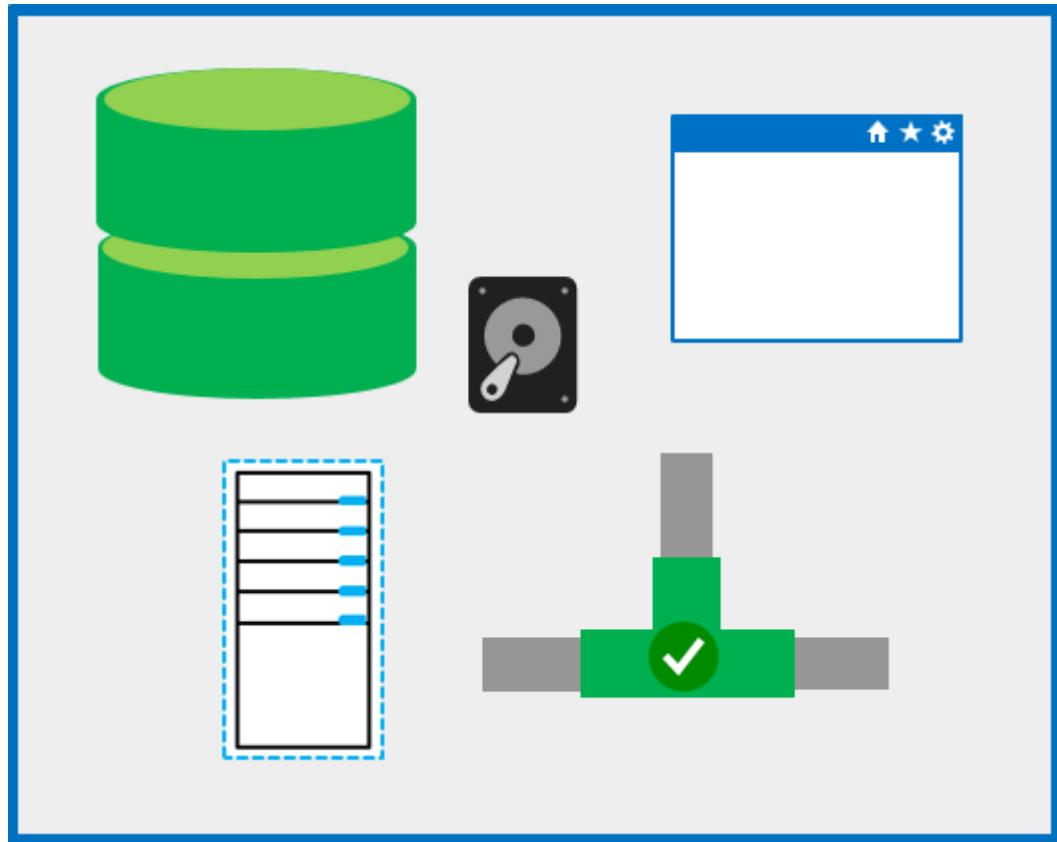
Provides a management layer in which resource groups and all the resources within it are created, configured, managed, and deleted

With Azure Resource Manager, you can:

- Create, configure, manage and delete resources and resource groups
- Organize resources
- Control access and resources
- Automate using different tools and SDKs



Resource groups



- Tightly coupled containers of multiple resources of similar or different types
- Azure resources contained should have the same lifecycle
- Every resource **must** exist in one and only one resource group
- Resource groups can span regions
- Nesting of resource groups not supported

Azure Services

Compute

- VMs, Availability Sets & Zones, Scale sets, App services, Azure Functions, Containers

Networking

- vNets, Load Balancers, Application Gateways, VPN Gateways, CDN, ExpressRoute

Databases

- CosmosDB, Azure SQL, Azure Database Migration service

Big Data & Analytics

- Azure SQL Data Warehouse, HDInsight, Data Lake Analytics

AI & IoT

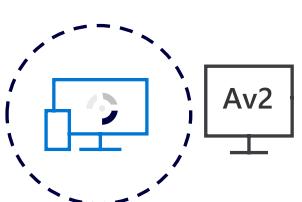
- IoT Central & Hub, Azure Machine Learning



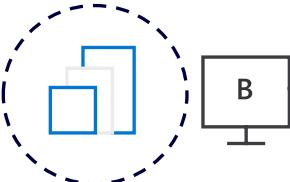
Azure Compute

Computing options for every workload

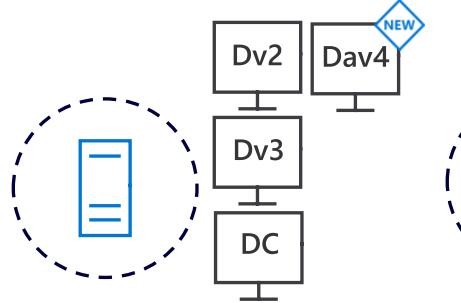
Virtual Machines



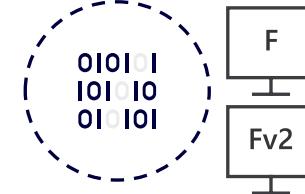
Entry level



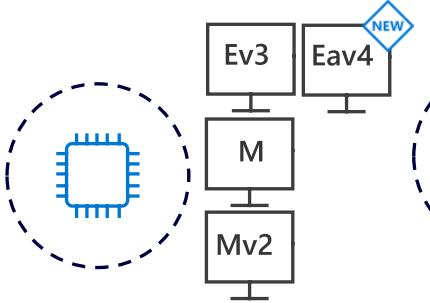
Burstable



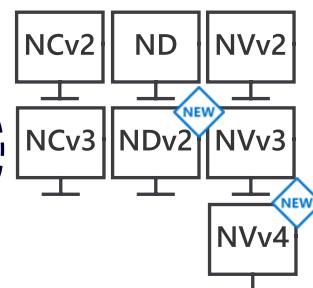
General Purpose and
Confidential Computing



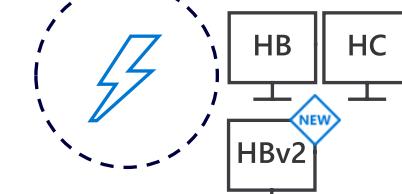
Compute intensive



Memory optimized



GPU accelerated



High Performance
Computing



Storage optimized

Purpose-Built



NetApp®

Availability zones and SLA's

Region



Resource Group

Single Instance VM



99.9% Availability

* With premium storage

VMs in Availability Set



99.95% Availability

*in a single availability zone

VMs in Availability Zones



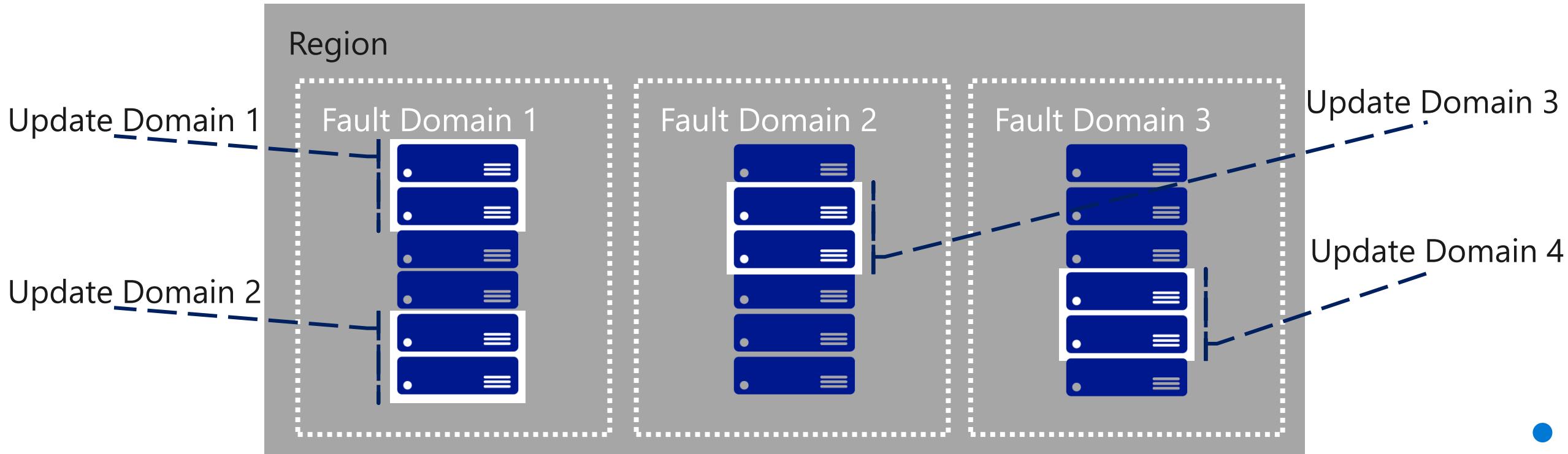
99.99% Availability

* across availability zones



Availability sets

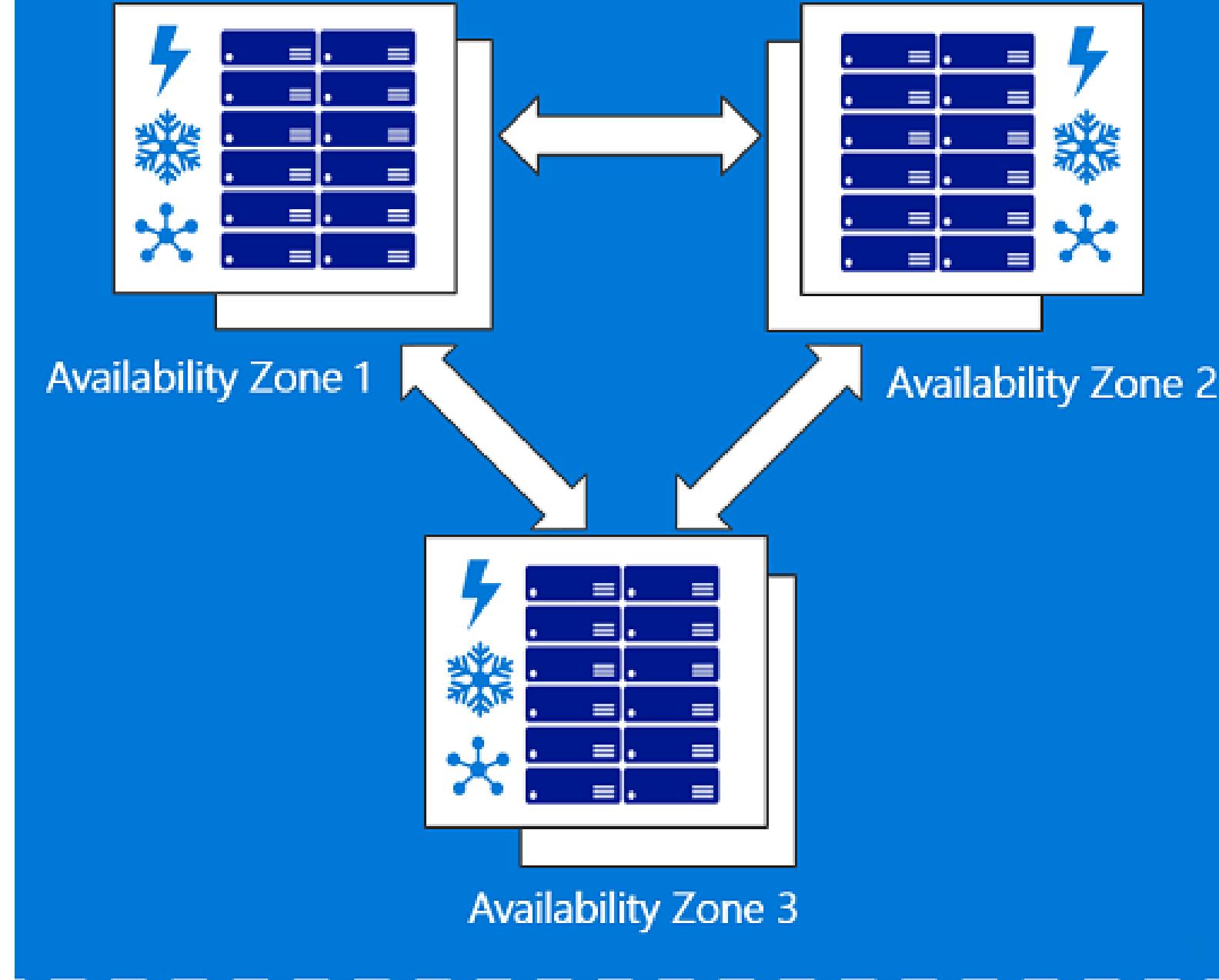
- Fault Domains
 - Segments clusters within a region (Up to 3)
- Update Domains
 - Segments updates and patches to clusters (Up to 20)



Availability zones

- Separate locations
- Independent
 - Power
 - Cooling
 - Networking
- Isolation Boundary

Azure Region



Azure compute services - virtual machine services

VMs are software emulations of physical computers. Examples of Azure services for virtual machines include:



- Azure VMs: Infrastructure as a service (IaaS) to create and use VMs in the cloud
- VM scale sets: Designed for automatic scaling of identical VMs
- App services: Platform as a service (PaaS) offering to build, deploy, and scale enterprise-grade web, mobile, and API apps
- Functions: Creates infrastructure based on an event



Azure compute services – container services

Containers are a virtualization environment. However, unlike virtual machines, they do not include an operating system. Containers are meant to be lightweight, and are designed to be created, scaled out, and stopped dynamically. Examples of Azure services for containers include:



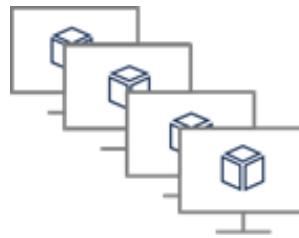
- Azure Container Instances: A PaaS offering that allows you to upload your containers, which it then will run for you
- Azure Kubernetes Service: A container orchestrator service for managing large numbers of containers



Azure Spot VMs defined



Azure Spot Virtual Machines provide a purchasing option to buy unused Azure compute capacity (VMs) at deep discounts compared to pay-as-you-go prices.



Spot VMs prices depend on the current unused capacity that Azure is experiencing.

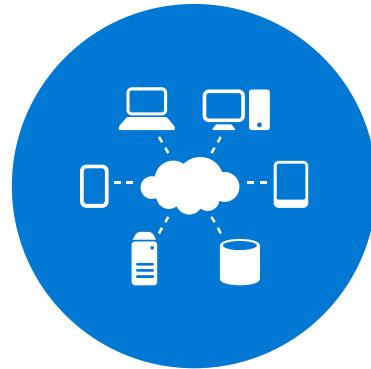


Committing to services through Reserved VM Instances

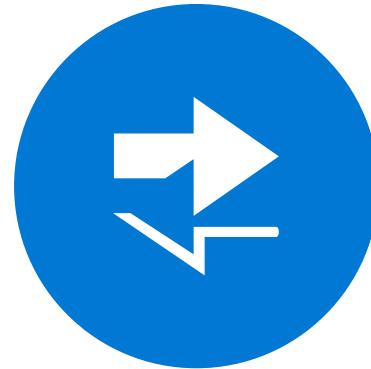
- Reserve virtual machines in advance
- Select 1- or 3-year terms with significant benefits



Significant cost
savings up to 82%* over
pay-as-you-go models



Budget predictability
and prioritized compute
capacity



Flexibility to modify
reservations and simplicity
of purchase

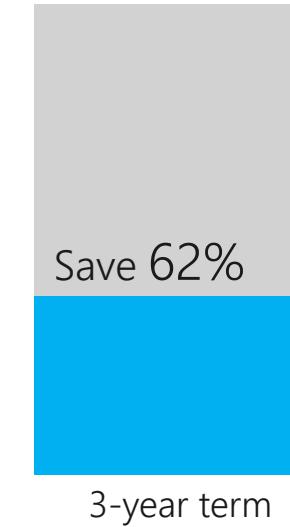
Typical savings with RI



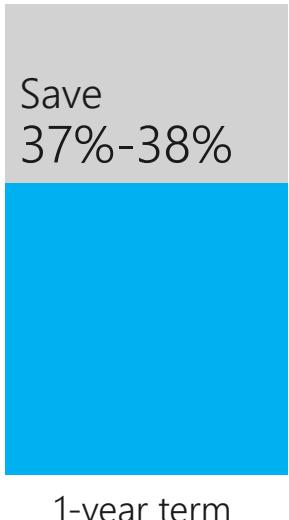
Dv2 Series



Ev3 Series



F Series



M Series



Azure Dedicated Host defined



Microsoft Azure *Dedicated Host* is an Azure service that provides **physical servers** – able to host one or more **Azure virtual machines** for Windows and Linux – dedicated to one Azure customer.



The server is dedicated to your organization and workloads—capacity **isn't shared with other customers** (i.e., single-tenant dedicated hardware).



Azure Storage

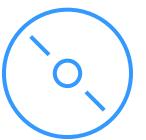
Azure Storage Services

IaaS	PaaS
 Storage	 Existing frameworks
 Virtual machines	 Web and mobile
 Networking	 Microservices
	 Serverless Compute
<h2>Disks</h2> <p>Persistent disks for Azure IaaS VMs Premium Storage Disks option: SSD based, high IOPS, low latency</p>	<h2>Files</h2> <p>Fully Managed File Shares in the Cloud SMB and REST access "Lift and shift" legacy apps</p>
	<h2>Objects</h2> <p>Highly scalable, REST based cloud object store Block Blobs: Sequential file I/O Cool Tier Available Page Blobs: Random-write pattern data Append Blobs</p>
	<h2>Tables</h2> <p>Massive auto-scaling NoSQL store Dynamic scaling based on load Scale to PBs of table data Fast key/value lookups</p>
	<h2>Queues</h2> <p>Reliable queues at scale for cloud services Decouple and scale components Message visibility timeout and update message to protect against unreliable dequeuers</p>

Built on a unified Distributed Storage System

Durability, Encryption at Rest, Strongly Consistent Replication, Fault Tolerance, Auto Load-Balancing

Secure, scalable and highly available storage options for every use case



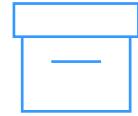
Disk Storage

Ultra

Premium

Standard

Reliable, persistent, high performing storage for Virtual Machines



Object Storage

Azure Blobs

-Premium

-Standard

Secure, centralized storage target for backup/disaster recovery



File storage

Azure Files

Azure NetApp Files

Lift and shift of legacy applications that require file shares to the cloud

101010
010101
101010

Data Transport

Azure Import/Export

Azure DataBox

Move or migrate data into Azure



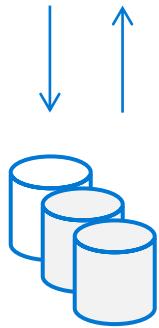
Hybrid Storage

Azure Databox Gateway

Azure File Sync

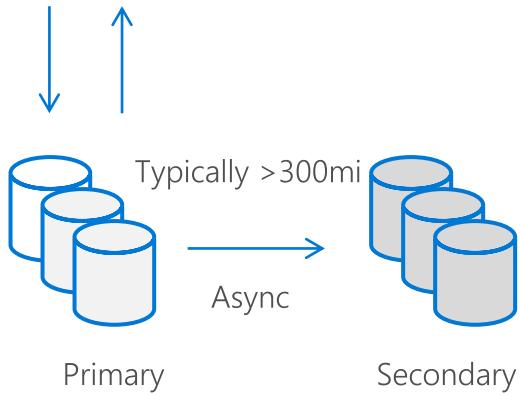
Secure, intelligent data tiering between on-premises and cloud storage

Azure Storage Durability



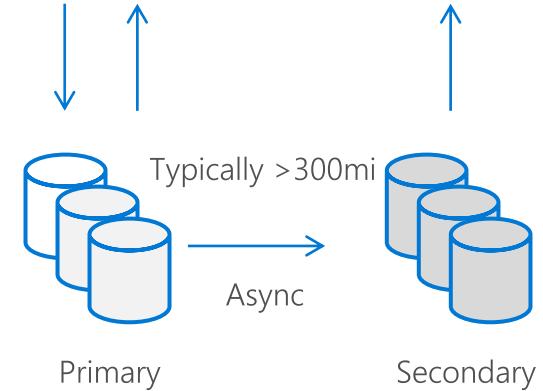
LRS

3 replicas, 1 region
Protect against disk,
node, rack failures
Write is ack'd when all
replicas are committed
Superior to dual-parity
RAID



GRS

6 replicas, 2 regions (3/region)
Protects against major
regional disasters
Asynchronous to secondary



RA-GRS

GRS + Read access to
secondary
Separate secondary
endpoint
RPO delay to secondary can
be queried

What is the Blob Storage Service?

Object Storage: Store and serve unstructured data

- App and Web scale data
- Big Data from IoT, Genomics, etc.
- Backups and Archive

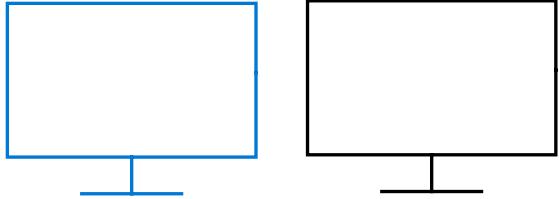
Key Features

- Store PBs of data
- Durable – Choose level of durability: LRS, ZRS, GRS
- Highly Available - 99.9% SLA, 99.99% for reads (RA-GRS)
- Strongly consistent
- Dynamically scale up on bandwidth and TPS
- Cost Effective



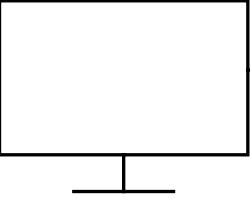
Azure Disks

Performance Tiers



Premium Disks

SSD based,
provisioned
performance

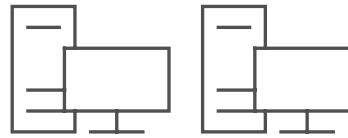


Standard Disks

HDD based,
cost effective

Management Options

Resource Group



Managed Disks

Highly available
and manageable



Industry leading
ZERO % Annual
Failure Rate

Enterprise grade
durability with 3 replicas

< 1ms latency for
cached
operations

Blob Cache technology
Up to 160,000 IOPS

Best in class
High IOPS/BW

80,000 IOPS & 2,000 MB/s
Disk throughput per VM

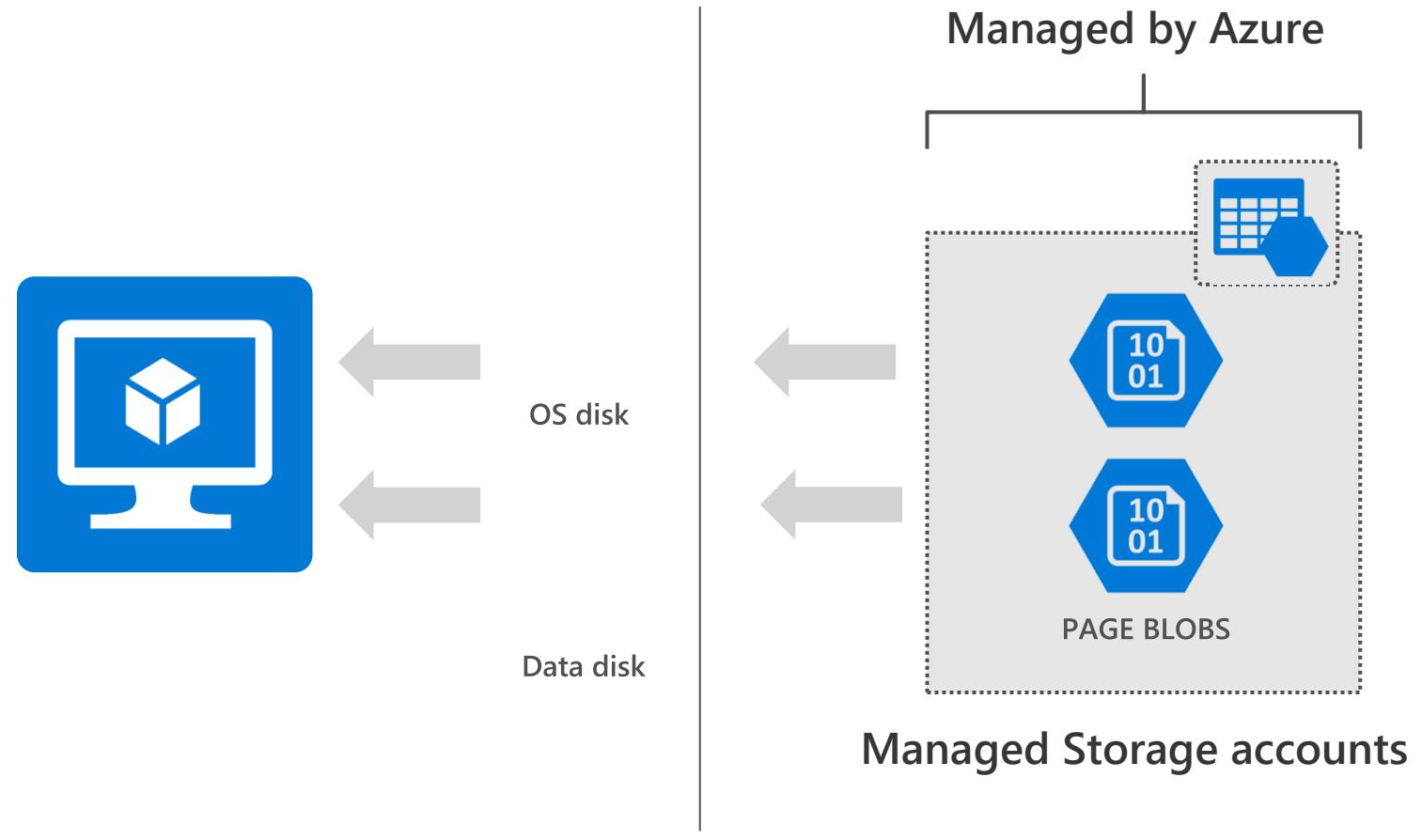
What are Managed Disks?

Simple - Abstracts storage accounts from customers

Granular access control – Top level ARM resource, apply Azure RBAC

Better performance - Storage account limits do not apply

Big scale - Up to 10,000 disks per region per subscription



Azure Files

What is Azure Files?

Cloud file shares that are...



Easily managed

No servers required



Secure

Data encrypted at rest and in transit



Cross-platform

Mount on Windows, Linux, and macOS



Built for a hybrid world

Access data where you want to,
how you want to



Smart

Make the most of limited networks
with intelligent caching



Harmonious

Migrate applications to the cloud
without the headaches

Azure File Sync

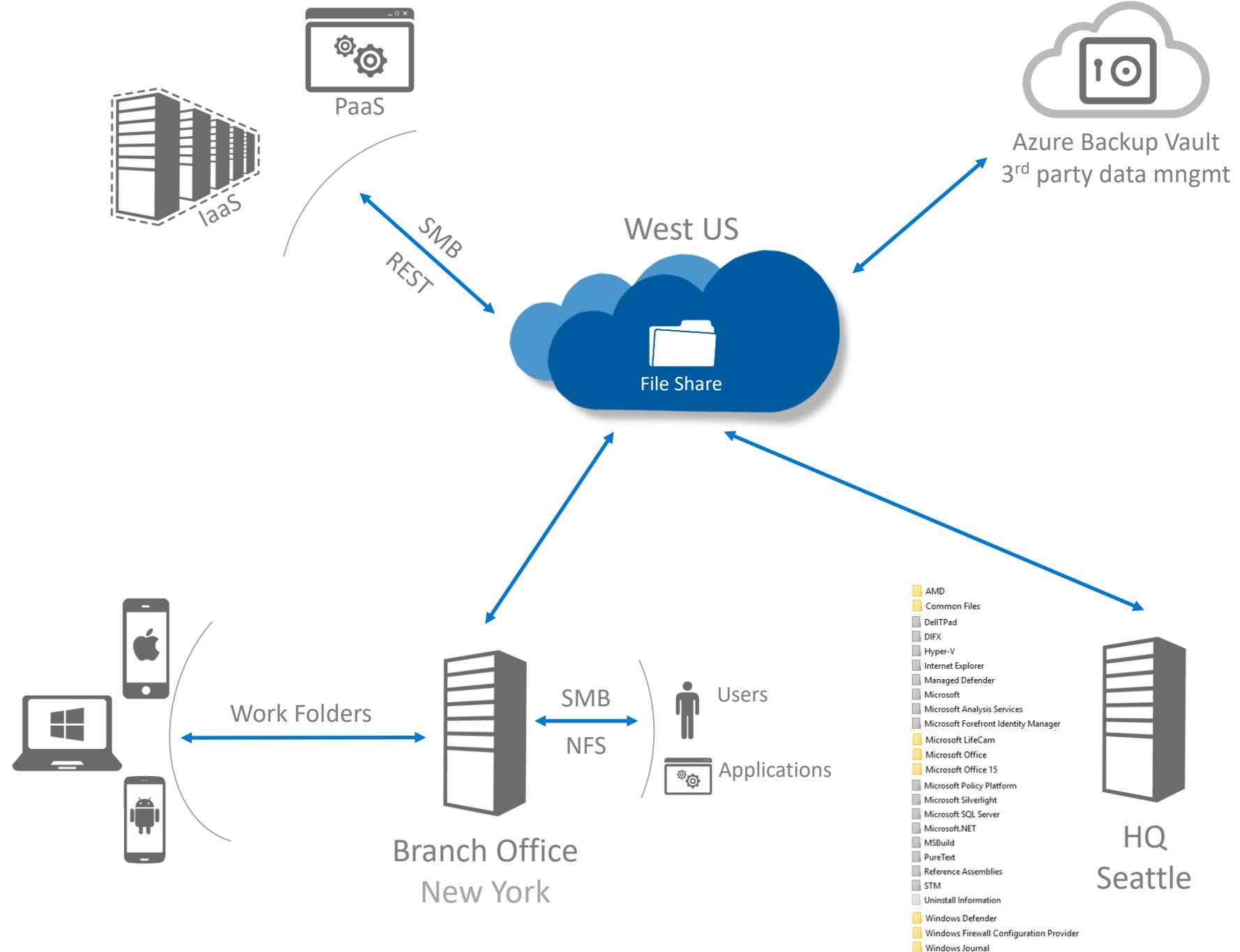
Cloud Tiering

Multi-site sync

Rapid file server DR

Direct cloud access

Integrated cloud backup





Storage protection

Protection and peace of mind for your data



Data protection prioritized over time to recover – we will endure a longer outage to prevent data loss, but customer-initiated storage failover is in public preview



Data replicated in triplicate – choose to store these in the same DC (LRS), across zonal DCs in the same region (ZRS), or across geographically separated regions (GRS)



Protect data against accidental customer deletion using role-based access control (RBAC), immutable storage, applied through forced retention policies

Networking

The Big (Networking) Picture



Service consumers
••••• (Internet)

Front-End Network Access

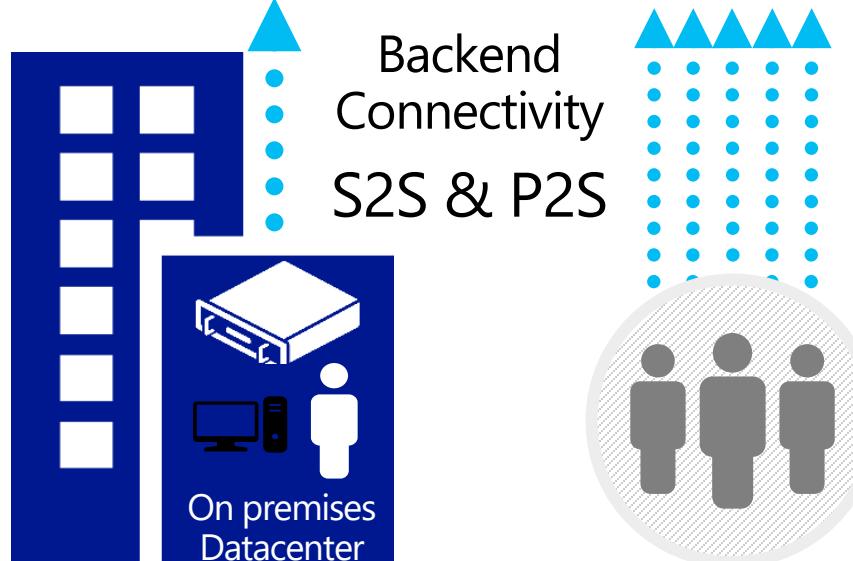
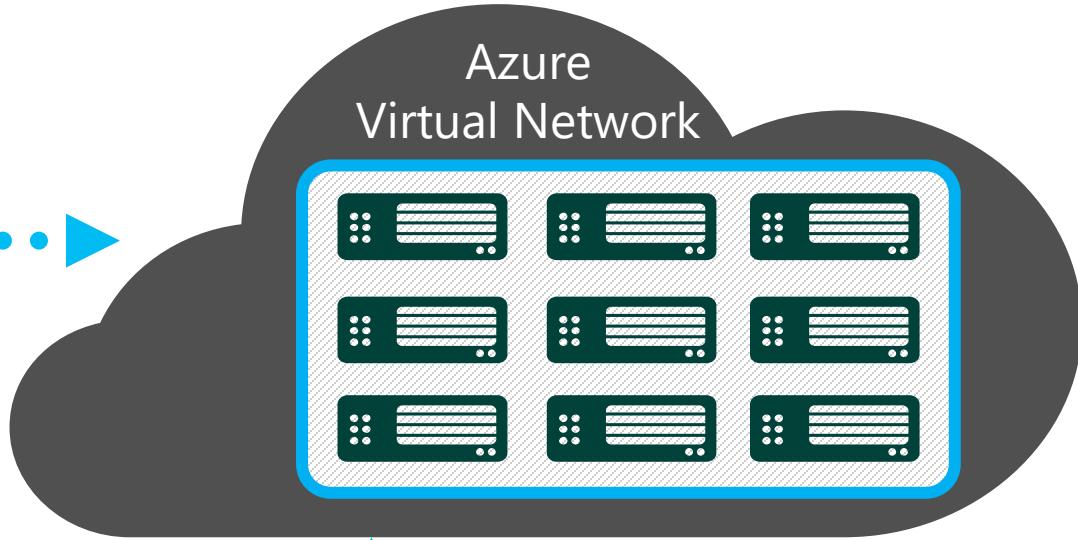
Public IP addresses (VIPs) with direct, Internet-facing TCP/UDP ports

Load-balanced by Azure Software Load Balancer (SLB)

NSG/ACL for restricting inbound access

WATM for DNS-based service balancing

DDoS protection



Virtual Network

"Bring Your Own Networks" – Specify your address spaces & subnet topology in Azure

Backend Connectivity

S2S and P2S – Secure cross-premise connectivity over the Internet

Direct- / Carrier-based dedicated, high-bandwidth connectivity into Azure*

Azure network services

Networking on Azure allows you to connect cloud and on-premises infrastructure and services.



- Azure Virtual Network: An IaaS service to create and use VMs in the cloud



- Azure Load Balancer: Designed for automatic scaling of identical VMs



- VPN Gateway: A PaaS offering to build, deploy, and scale enterprise-grade web, mobile, and API apps



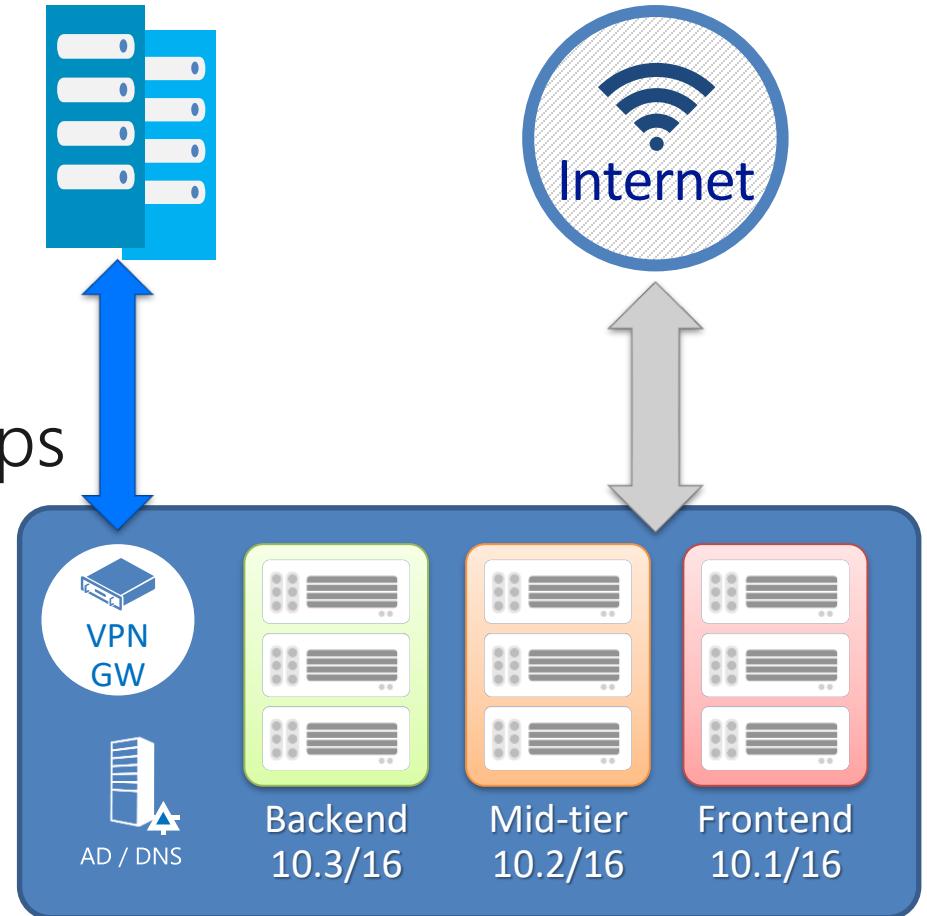
- Azure Application Gateway: Creates infrastructure based on an event



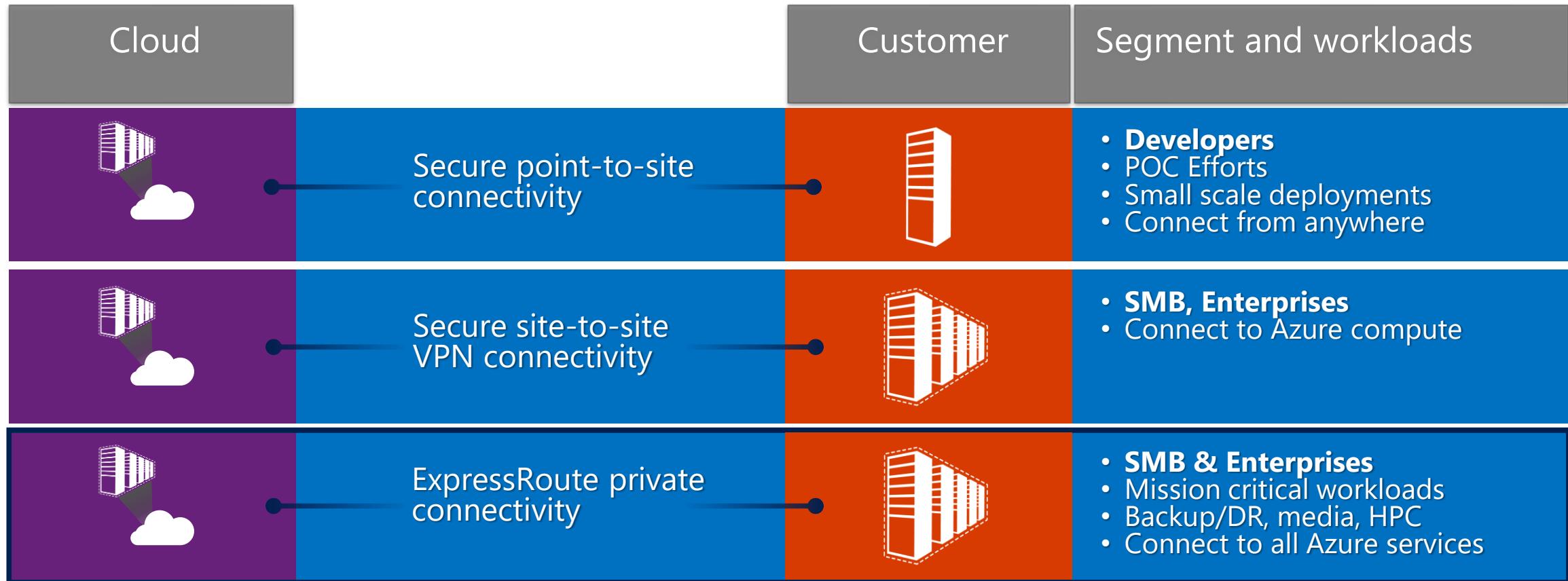
- Content Delivery Network: Creates infrastructure based on an event

Azure Virtual Network

- Bring Your Own Network
 - Address spaces – Private/RFC1918 & Public IP*
 - Multi-tier subnet topology
 - Bring your own AD & DNS
 - Linux, virtual appliances, & Windows
- Logical isolation with control over network segmentation using Network Security Groups
- Secure cross premises connectivity

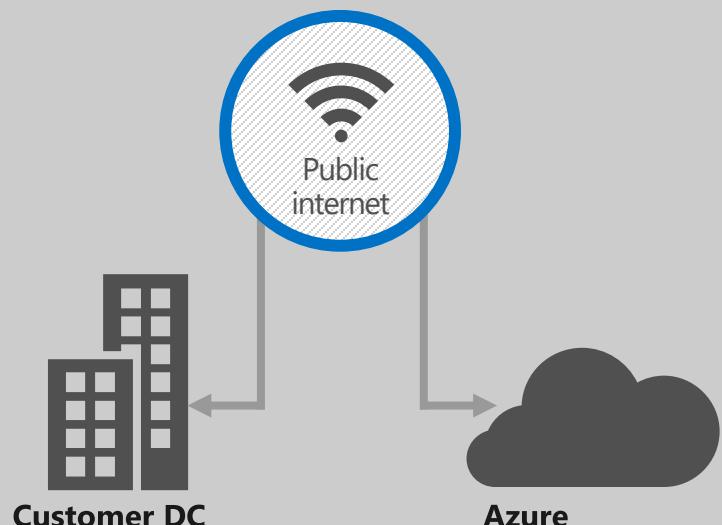


Hybrid Network Offerings



VPN and ExpressRoute

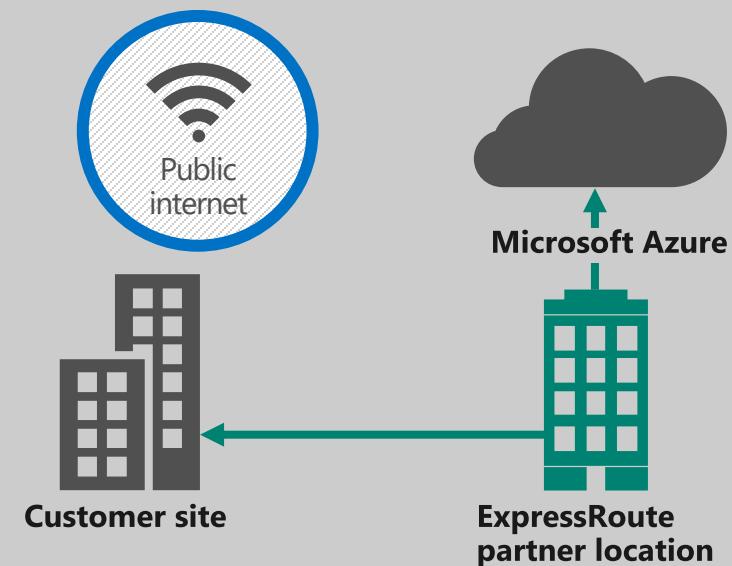
Scenario 1: IPSec VPN over internet



Connect via an encrypted link over public internet

Virtual Network - Compute only.

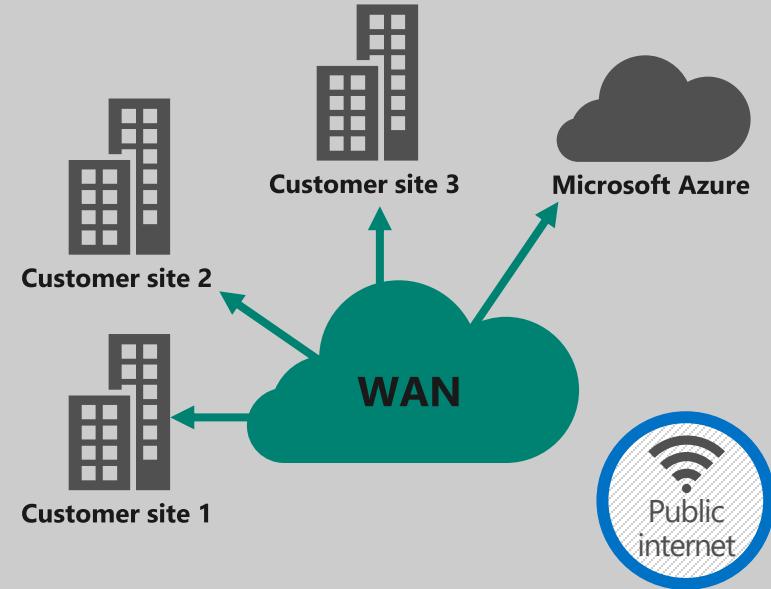
Scenario 2: Exchange Provider



Peer at an ExpressRoute location, an Exchange Provider facility

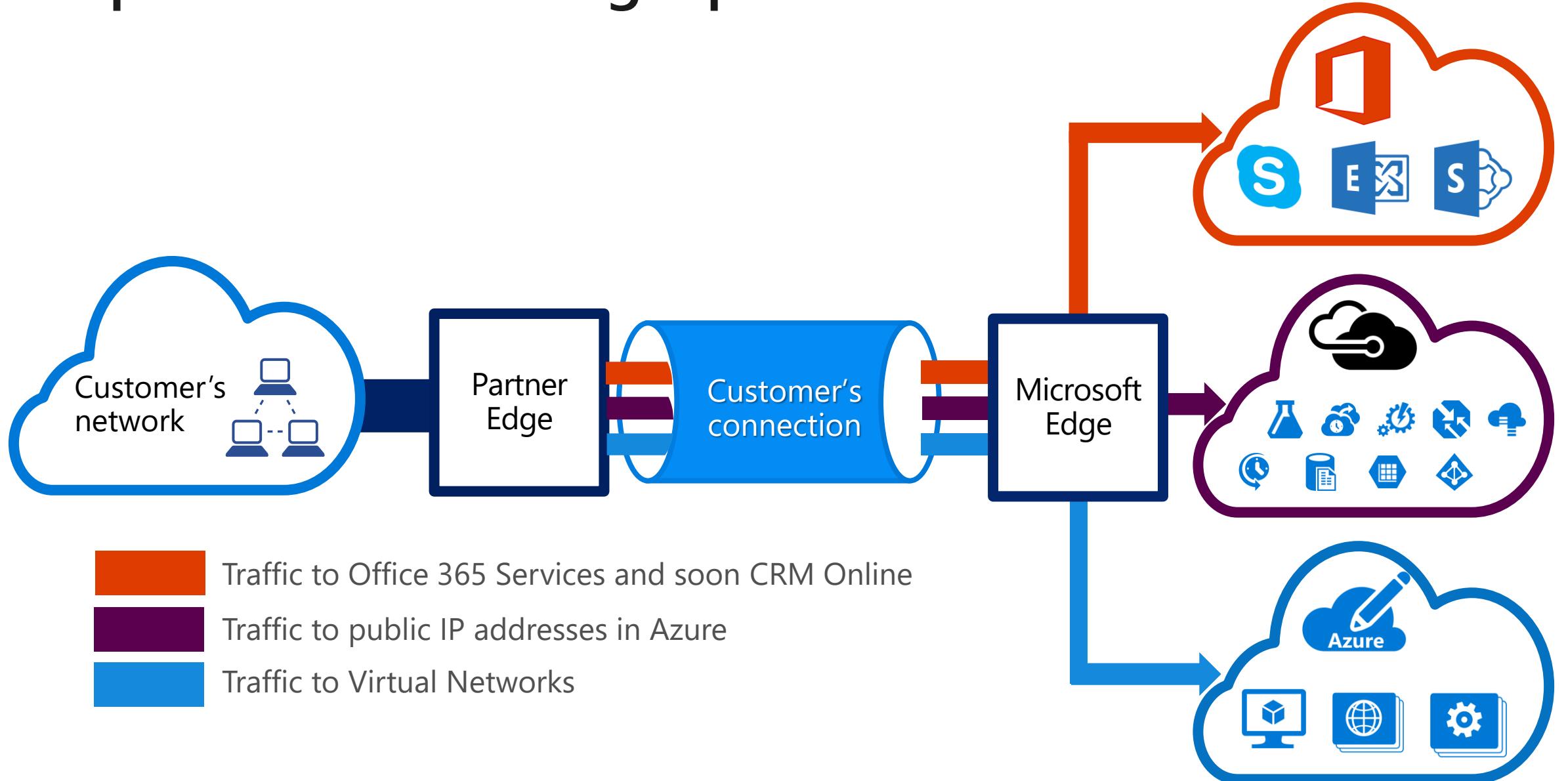
ExpressRoute - Provides customer choice and include access to compute, storage, and other Azure services.

Scenario 3: Network Service Provider



Connection from a WAN provided by Network Service Provider (e.g. telco). Azure becomes another site on the customer's WAN network.

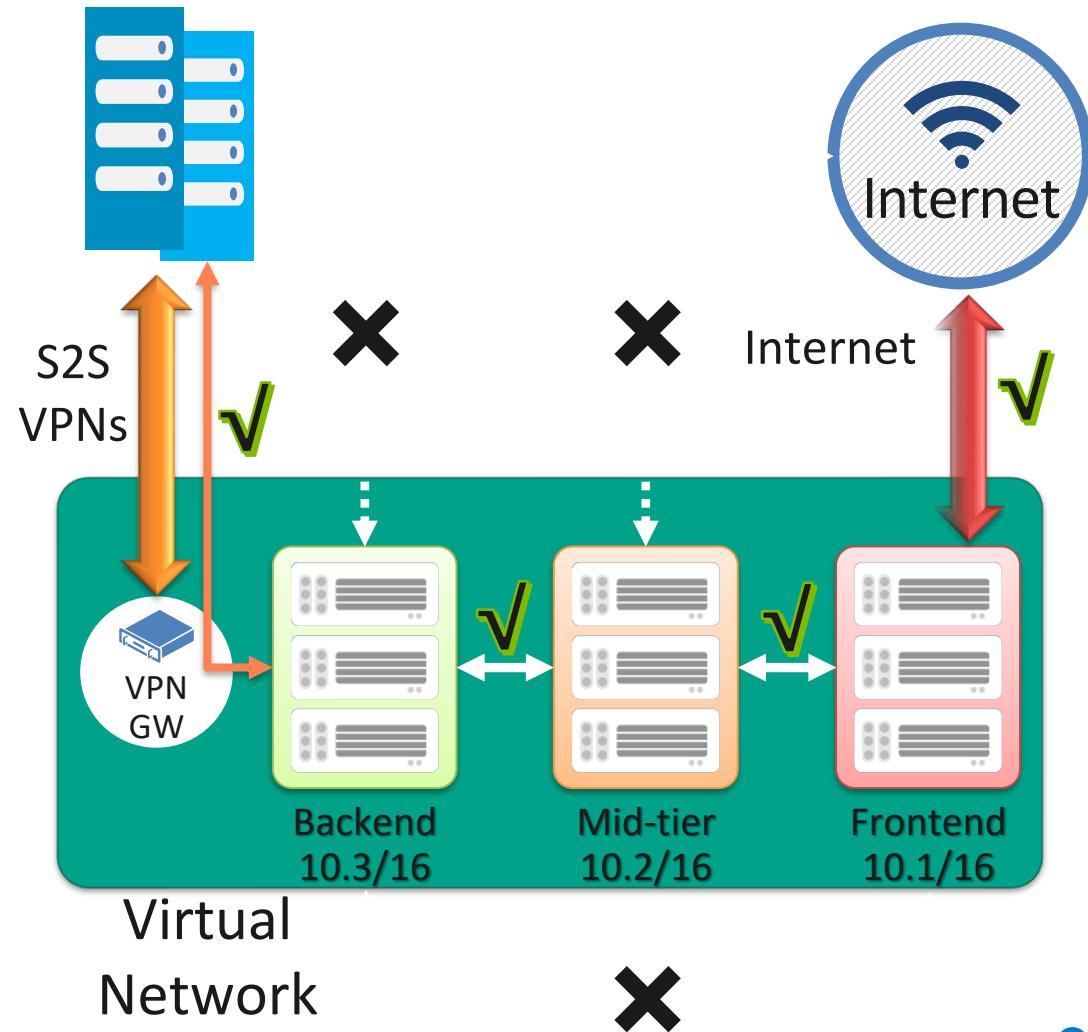
ExpressRoute Peering Options



Network Security Groups

- Enables network segmentation & DMZ
- Access Control List
 - Filter conditions with allow/deny
 - Individual addresses, address prefixes, wildcards
- Associate with VMs or VNs
 - Ingress → Subnet ACLs → VM ACLs → VM
 - Egress ← Subnet ACLs ← VM ACLs ← VM

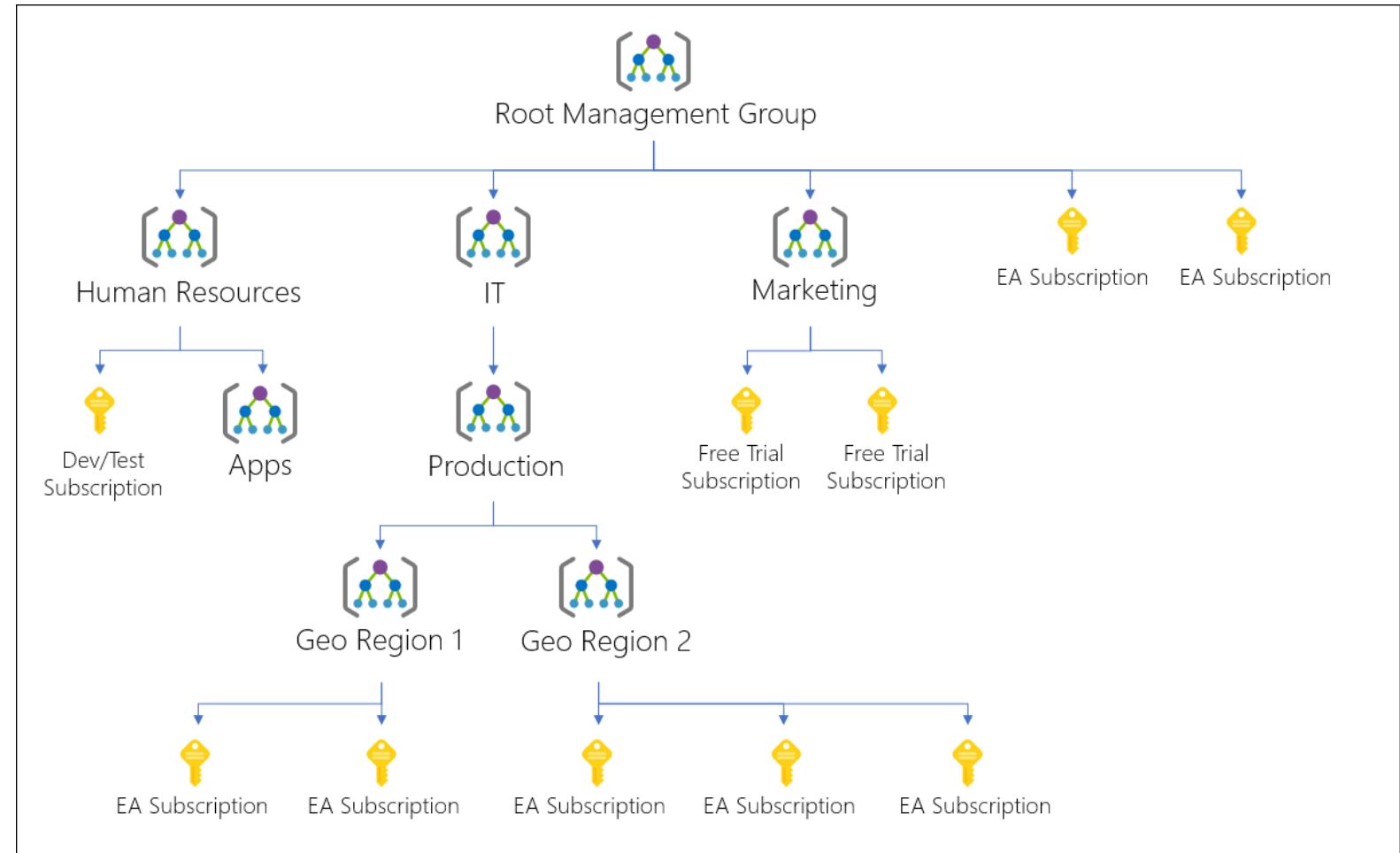
On Premises 10.0/16



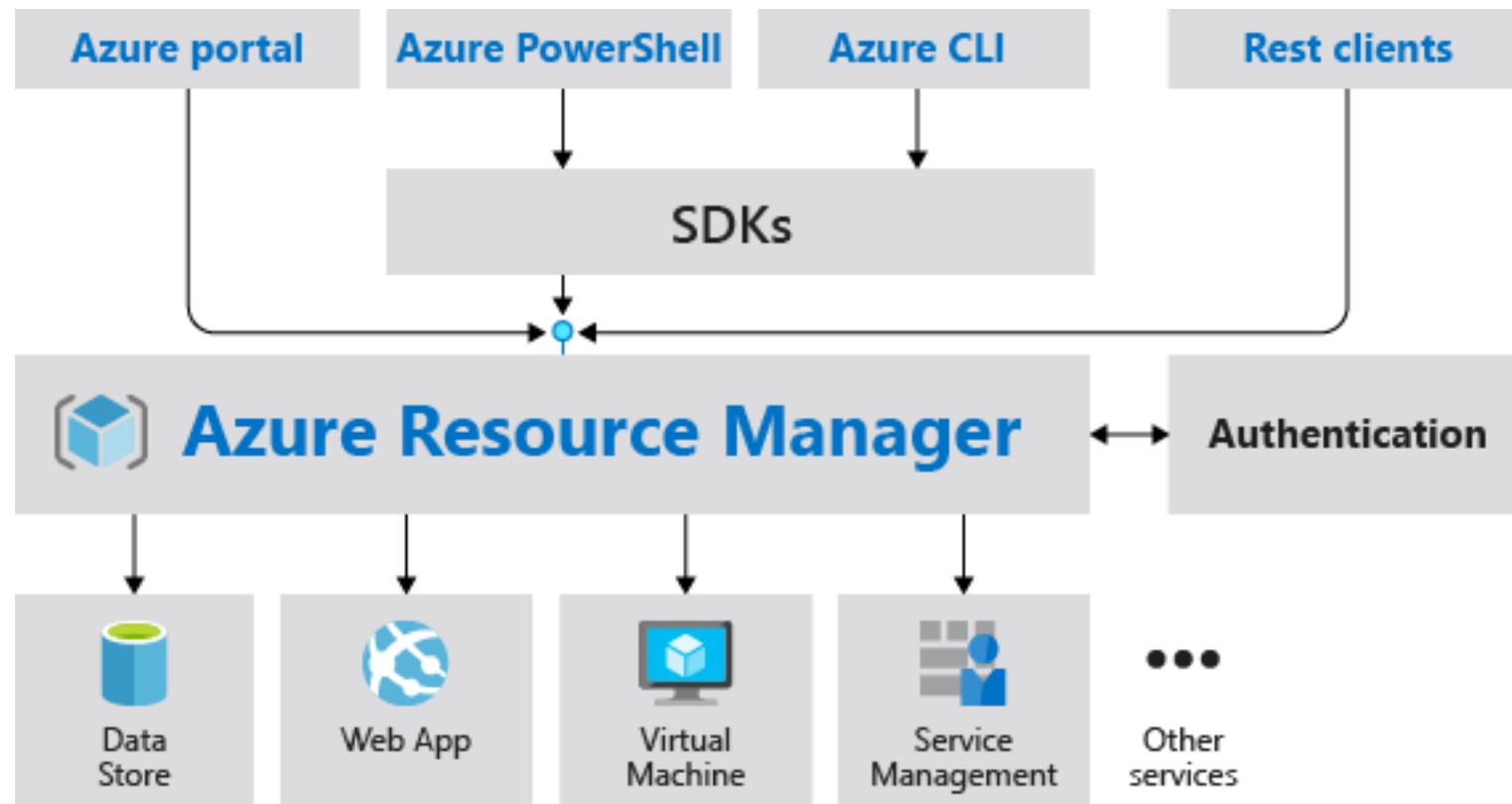
Governance

Governance

- Management Groups
- Resource Graph
- Azure Policy
- Azure Blueprints
- RBAC
- Resource locks



Azure management tools



Azure Portal

- Web portal

Azure PowerShell

- Client-based shell based on Windows (.NET), Linux, or MacOS (.NET Core)

Azure CLI

- CLI for Windows, Linux, and MacOS
- Bash on Windows Subsystem for Linux

Azure Cloud Shell

- Browser-based environment for PowerShell & Bash CLI

Azure Security Center

A monitoring service that provides threat protection across all your Azure, and on-premises, services.

Azure Security Center features :

- provides security recommendations based on your configurations, resources, and networks.
- monitors security settings across your on-premises and cloud workloads.
- automatically applies your security policies to any new services you provision.



Azure Policy

Stay compliant with your corporate standards and service level agreements (SLAs) by using policy definitions to enforce rules and effects for your Azure resources.

Azure Policy features :

- evaluates and identifies Azure resources that do not comply with your policies.
- provides built-in policy and initiative definitions, under categories such as Storage, Networking, Compute, Security Center, and Monitoring.



Policies : Example policy definitions

Allowed Storage Account size

- conditions and rules define acceptable sizes for new storage accounts.
- requests to create storage accounts outside the defined sizes are denied.

Allowed Locations

- defines the Azure locations where your organization can deploy resources, to enforce geographic compliance requirements.
- requests to deploy resources outside the defined locations are denied.

More Azure Policy examples :

docs.microsoft.com/azure/governance/policy/samples/

Initiatives

Initiatives work alongside policies in Azure Policy.

- **Initiative definitions** : Group multiple policy definitions into a single unit, to track compliance at greater/ macro-level scope.

For example, one initiative can monitor all of your Azure Security Center recommendations.

- **Initiative assignments** : Initiative definitions that are assigned to a specific scope. Initiative assignments reduce the need to make an initiative definition for each scope.

Role-based access control (RBAC)

Fine-grained access management control over your Azure resources.

Available to *all* Azure subscribers, at no additional cost.



Example uses of Azure RBAC :

- Grant specific access rights to particular users for certain jobs. One user can manage VMs, while another manages virtual networks.
- Allocate particular database types to certain database administration groups.

Locks

Protect your Azure resources from accidental deletion or modification .

Manage locks at subscription, resource group, or individual resource levels within Azure Portal.

	User Actions		
Lock Types	Read	Update	Delete
CanNotDelete	Yes	Yes	No
ReadOnly	Yes	No	No



Tags

You can apply tags to your Azure resources providing metadata to logically organize them into a taxonomy such as an organization structure, workload, geography or any other logical grouping.

Each tag consists of a name and a value pair



Name	Value
Environment	Production
Department	IT

- Tags are useful when you need to organize resources for billing or management.

Azure Monitoring



- Azure Monitor
 - Collects and analyzes telemetry from cloud and on-prem resources
 - Enable 'Diagnostics' on resources to enhance collection
- Azure Service Health
 - Azure Status
 - Service Health
 - Azure Resource Health
- Azure Advisor
 - Provides security recommendations and security governance
- Azure Sentinel



SLAs



Azure SLAs

Defines the Microsoft commitment

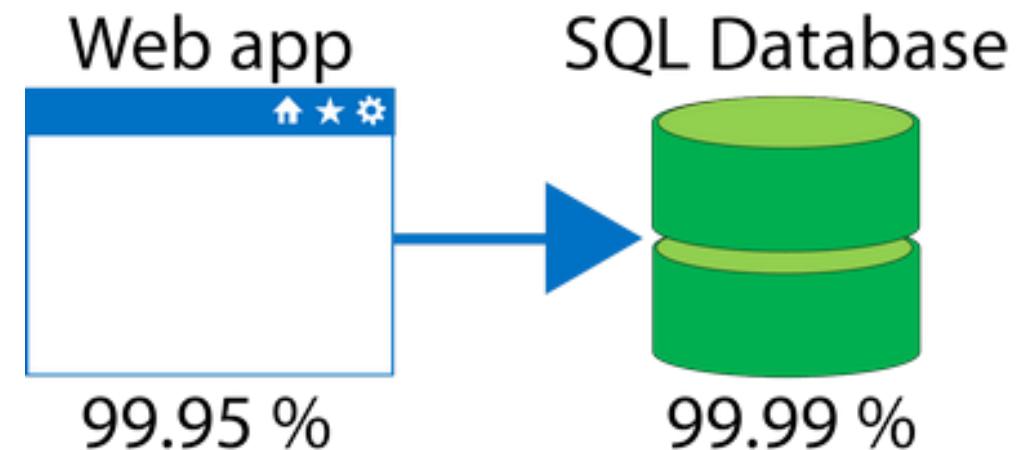
- Separate SLAs for each product and service

Three characteristics:

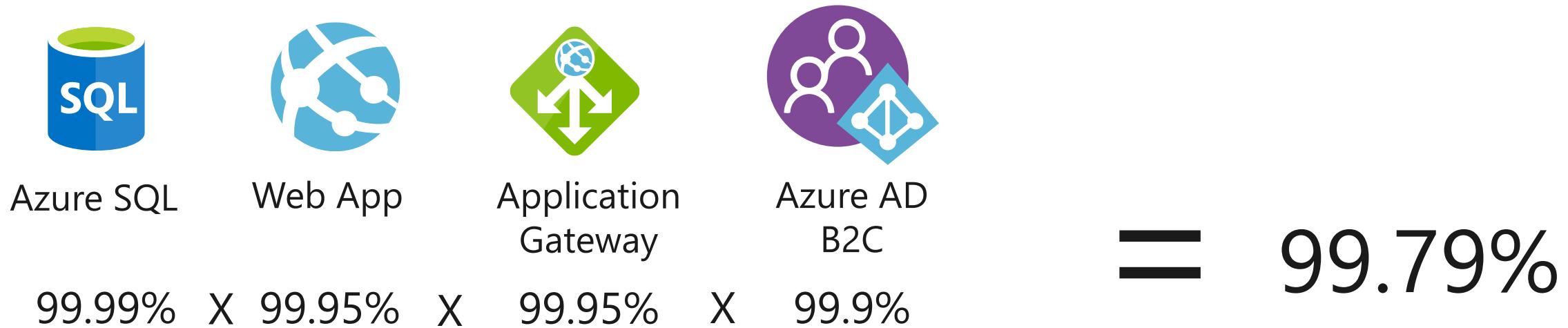
- Uptime or connectivity guarantees
- Performance target ranges (99.9% to 99.99%)
- Service credits

Composite SLAs

- At the time of this writing, an App Service web app that writes to Azure SQL Database has the following SLAs:
 - App Service Web Apps is 99.95 percent
 - SQL Database is 99.99 percent
- Question: What is the maximum downtime you would expect for this application?
- Answer: The composite SLA for this application is $99.95\% \times 99.99\% = 99.94\%$.
- This is lower than the individual SLAs. However, you can construct SLAs to improve overall application SLA.



Composite SLAs - Exercise



Service Level Agreements

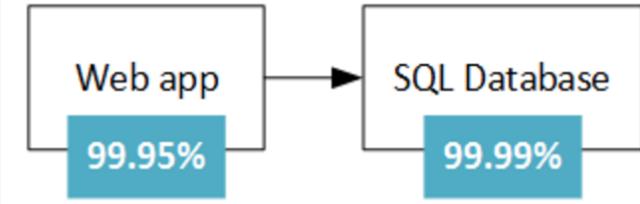
What are they really worth?

Officially document “confidence” in your platform. The “last resort” if something really goes wrong (sometimes happens)

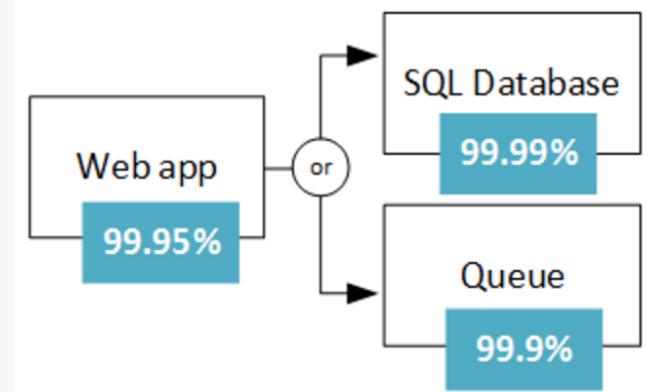
SLA	Downtime per week	Downtime per month	Downtime per year
99%	1.68 hours	7.2 hours	3.65 days
99.9%	10.1 minutes	43.2 minutes	8.76 hours
99.95%	5 minutes	21.6 minutes	4.38 hours
99.99%	1.01 minutes	4.32 minutes	52.56 minutes
99.999%	6 seconds	25.9 seconds	5.26 minutes

Resiliency comes into play to deal with the “Downtimes”...

Composite SLA = **99.94%**



Composite SLA = **99.95%**



Severities & initial response times

Severity	Business Impact	Initial Response Target (hours)					24x7 support
		Developer	Standard	ProDirect	Unified	Azure Rapid Response	
A	Critical Production systems are down	N/A	1 	1 	1 	15 mins 	Always
B	Moderate Production systems significantly affected	N/A	4 	2 	2 	2 	Optional
C	Minimum No impact on production systems	8 	8 	4 	4 	4 	N/A (business days & hours only)

<https://azure.microsoft.com/en-us/support/plans/response/>

Public and private preview features

- Microsoft offer previews of Azure features for evaluation purposes.
- With Azure previews, you can test beta and other pre-release features, products, services, software, and regions.
- There are two types of Azure preview modes:
 - **Private Preview:** An Azure feature is available to certain Azure customers for evaluation purposes
 - **Public Preview:** An Azure feature is available to all Azure customers for evaluation purposes

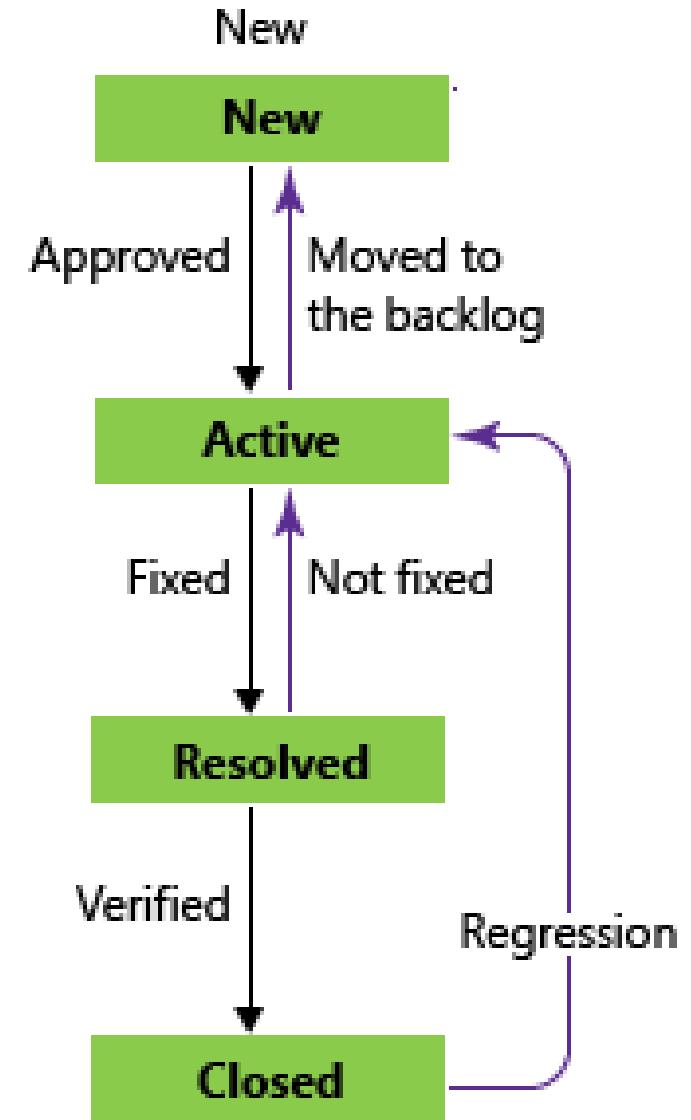
How to access preview features

- Review a list of preview features that are available for evaluation at [Azure Preview Features](#)
- To preview a feature, select the Try it button for the applicable feature
- Portal Preview features:
 - Access preview features that are specific to the Azure Portal from the [Portal Preview Features](#) page.
 - Typical portal preview features provide performance, navigation, and accessibility improvements to the Azure portal interface



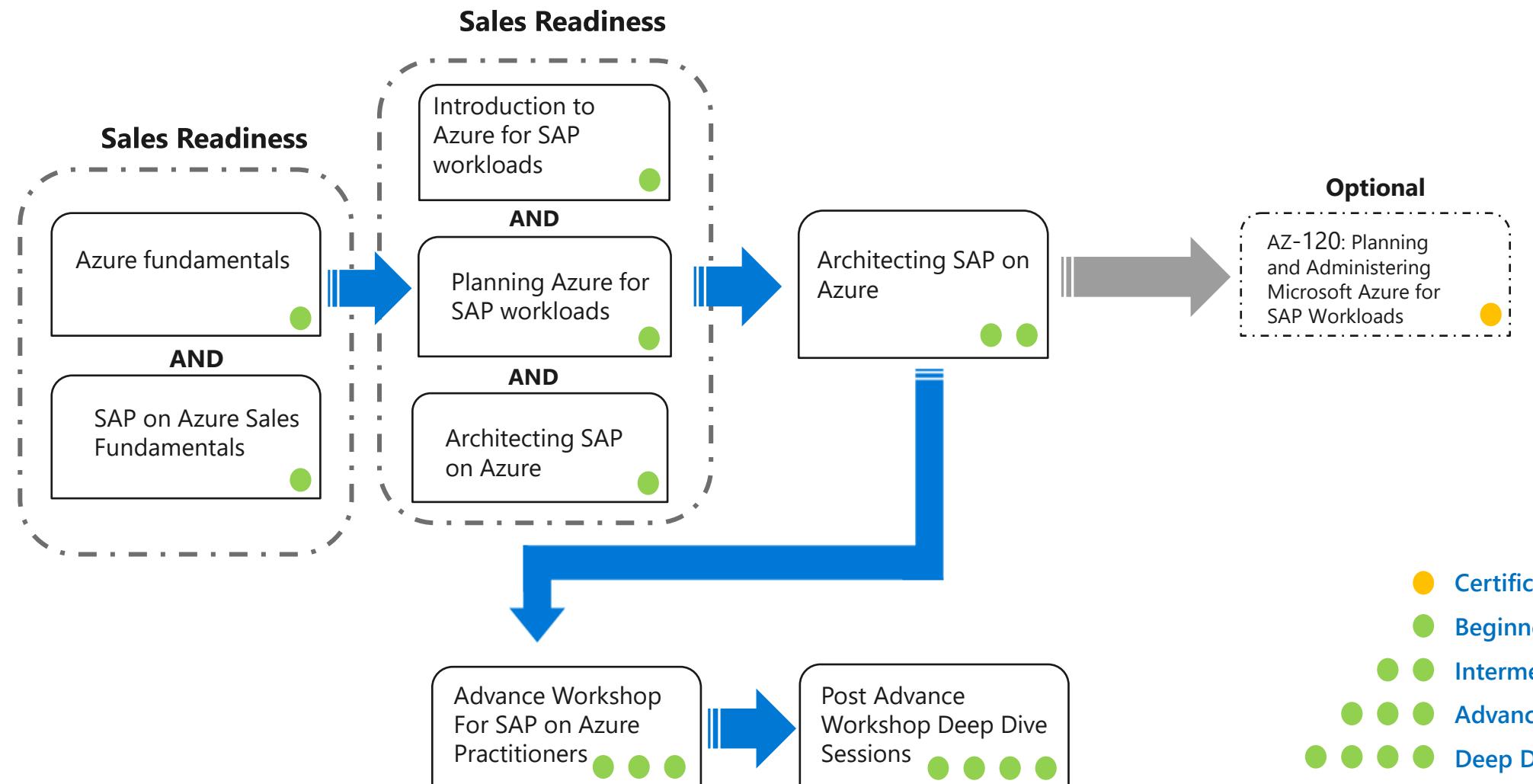
General Availability

- Once a feature is evaluated and tested successfully, it might be released to customers as part of Azure's default product, service, or feature set
- Bugs for features and products go through their lifecycle as in the graphic across.
- Once the feature meets a specific criteria the feature is released to all Azure customers, and this release is referred to *general availability*.



SAP on Azure Architect Learning Path

SAP on Azure Architects design and implement SAP solutions in Azure.



Free online digital training for partners are available at <https://partneruniversity.microsoft.com/> (MPN ID Required)



SAP on Azure Architect Learning Path

Recommended path for learning.

Course	Description	Type and Duration
Azure fundamentals	Learn cloud concepts, Understand the benefits of cloud computing in Azure and Compare and contrast basic strategies for transitioning to the Azure cloud. This course covers topics including Cloud Concepts, Core Cloud Services, security, monitoring and cost optimization.	Available Online for public, self paced, duration: 3 Hours
SAP on Azure Sales Fundamentals	This course prepares the sellers within our partner organizations to learn how to position SAP on Azure with their customers. The topics include, how to position Azure for customers, customer sales pitch and guidance on how to conduct cloud assessment workshop.	Available at Partner University , MPN ID required
Introduction to Azure for SAP workloads	Provides introduction to SAP on Azure IaaS components that include virtual machines, virtual networks, storage accounts, and Azure AD. These modules will provide the basis for running SAP workloads in Azure. This course covers fundamentals of Azure IaaS components relevant SAP deployments; Azure Virtual machines, storage, networking, identity and HANA large instances.	Available Online , for public, self paced, duration: 1 Hour
Planning Azure for SAP workloads	In this course learn how to plan for a deployment of SAP solutions on Azure, the course will also cover the preparation required for migrating SAP workloads to Azure. The topics covered in this course include: Configure SAP NetWeaver with AnyDB , Configure SAP HANA on Azure VMs, Utilize SAP HANA on Azure (Large Instances) and SAP on Azure HANA Large Instances architecture.	Available Online , for public, self paced, duration: 3.5 Hours
Architecting SAP on Azure	This course provides in-depth coverage on the fundamental components and best practices needed to successfully architect, design and deploy SAP landscapes on Microsoft Azure. This course covers SAP deployments on Azure design and architecture in details, the topics covered include : Key design aspects for SAP on Azure, Resiliency on Azure, SAP deployments on Azure Availability Zones, SAP automation deployments on VM, Azure Netapp Files for enterprise and sample deployment architectures.	This course is offered in person, virtual instructor led (VILT) or from Partner University as self paced sessions. (MPN ID Required)
Exam AZ-120: Planning and Administering Microsoft Azure for SAP Workloads (optional)	This optional certification is for architects and engineers who are knowledgeable in the SAP Landscape architecture, design and deployment and industry standards that are specific to the long-term operation of an SAP solution.	Certification Training

SAP on Azure Architect Learning Path

Recommended path for learning.

Course	Description	Type and Duration
Advance Workshop For SAP on Azure Practitioners	<p>The advanced SAP on Azure In-person training designed to empower partner solution architects with crucial concepts on architecting and designing Microsoft Azure for SAP landscapes. This onsite advanced workshop covers advanced topics:</p> <ul style="list-style-type: none">• SAP system high availability• Disaster recovery• Security• Compliance• Approaches for large multi terabyte SAP migrations• SAP on Azure reference architectures• Case studies• Hands on labs on high availability and disaster recovery for HANA systems.	On-site, 2 days (Please contact Microsoft for scheduling)
Deep dive sessions	<p>This session is conducted as a follow up to 'Advance Workshop For SAP on Azure Practitioners' to discuss any particular SAP on Azure architecture, design or deployment topics. The advanced deep dive sessions can generally include topics:</p> <ul style="list-style-type: none">• Operating Systems: Linux (SUSE/RHEL) and Windows– Comparison and nuances• Operating system Clustering• Database high availability including HANA HSR and SQL Always-On• Backup options for SAP and SAP HANA• Network design for SAP systems• Very Large multi-terabyte Database Migration Lessons learned• SAP Surround and integration topics including Azure services integration as well SAP SaaS and PaaS integration• SAP system monitoring and any other prime topic(s) partner require.	On-Site 1-2 Days depends on topic. (Please contact Microsoft for scheduling)

Free online digital training for partners are available at <https://partneruniversity.microsoft.com/> (MPN ID Required)

SAP on Azure Architect Learning Path

Additional reference materials.

Subject	Description	Links
Self Paced Learning	Digital resources for partners for self paced learning	Partner University
Building SAP on Azure Practice	Guidance on how to develop SAP on Azure sales motions and engage with customers. Topics covered include Value Proposition and Differentiation, Engaging with Customers and Best Practices for Solution Deployment.	SAP on Azure Partner Playbook
SAP on Azure IaaS components	Understand how to leverage Azure resources that include virtual machines, virtual networks, storage accounts, and Azure AD for SAP	SAP certified offerings for Azure
SAP Embrace	SAP and Microsoft will accelerate and modernize customer transitions to SAP S/4HANA and SAP Cloud Platform on Microsoft Azure	Project Embrace
SAP LaMa Integration	Learn how to use SAP LaMa connector to deallocate and start virtual machines, copy and relocate managed disks, and delete managed disks. With these basic operations, you can relocate, copy, clone, and refresh SAP systems using SAP LaMa.	SAP LaMa connector for Azure
Certified AZURE machines for HANA	List of SAP certified virtual and HANA large instance machines in Azure	SAP HANA hardware directory
Supported Products and Azure VM types for SAP	This SAP note lists all the supported infrastructure components for SAP on Azure	SAP Applications on Azure: SAP note 1928533)SAP OSS ID required)
Oracle Product support on SAP applications on Azure	Details of Oracle Database versions are supported in a Microsoft Azure environment for SAP	SAP Applications on Microsoft Azure using the Oracle Database (SAP OSS ID required)



Q&A

Reach out to the team



Ravi Gangampalli



Sajit Nair



Nicolas Yuen



Inseob Kim

Survey



Content : <https://aka.ms/SAPAPAC-Content1>

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SAP on Azure Enablement

Next Session – SAP on Azure Sales Fundamentals

Next week - Monday, Sep 28, 2020, 10am SGT

