

TME

Azure Enablement



Today's instructors



Jeroen Bolle
Cloud Solution Architect



Eric Jadi
Cloud Solution Architect



Gertjan Vanthienen
Solution Expert
Cloud native



Agenda

- 9:00 – 9:30 - Introduction
- 9:30 – 10:30 - Azure Basics
 - Quick tour Azure Portal
 - Azure Resource Model (resource groups / subscriptions)
 - RBAC
- 10:30 – 12:00 - Virtual Machines
- 12:00 – 13:00 - Lunch
- 13:00 – 14:30 - Networking
- 14:30 – 16:00 - Databases
- 16:00 – 16:30 - Wrap-up + Next sessions



Introduction

6 pillars to work around



SECURITY

Access management,
Reducing attack
surface, Policy
management,...



MONITORING

Uptime &
Performance
monitoring



COST CONTROL

Creating consumption
reports, Cost
reduction activities,...



AUTOMATION

Creating self-service
for other IS teams,
Automating
deployments, IaC,...



INNOVATION

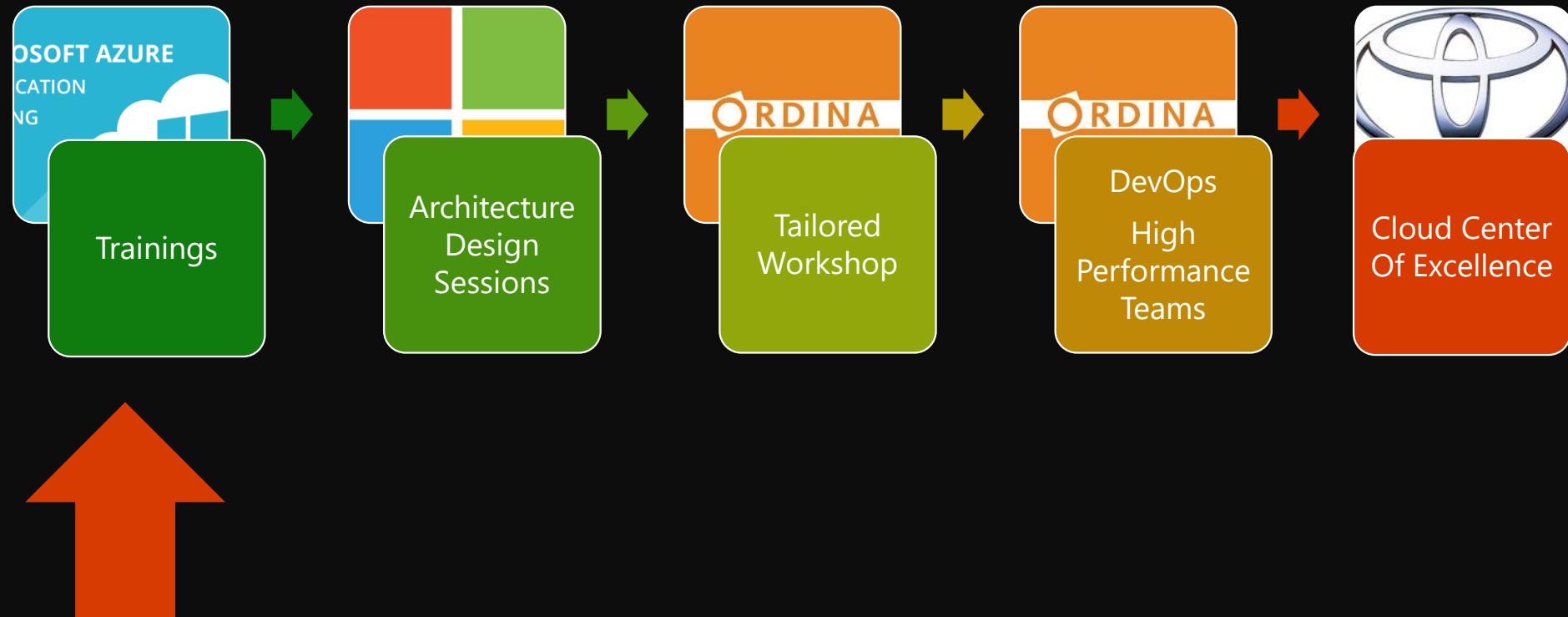
Investigating new
technologies and
verifying against our
business/use cases.
Selecting POC
candidates.



OPTIMIZATION

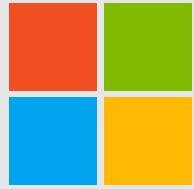
Continuous kaizen of
the services and
hosting products we
provide.

Enablement framework





Azure Basics



Microsoft Azure

Productive + Hybrid + Intelligent + Trusted

Azure: Productive



Integrated tooling
for developers

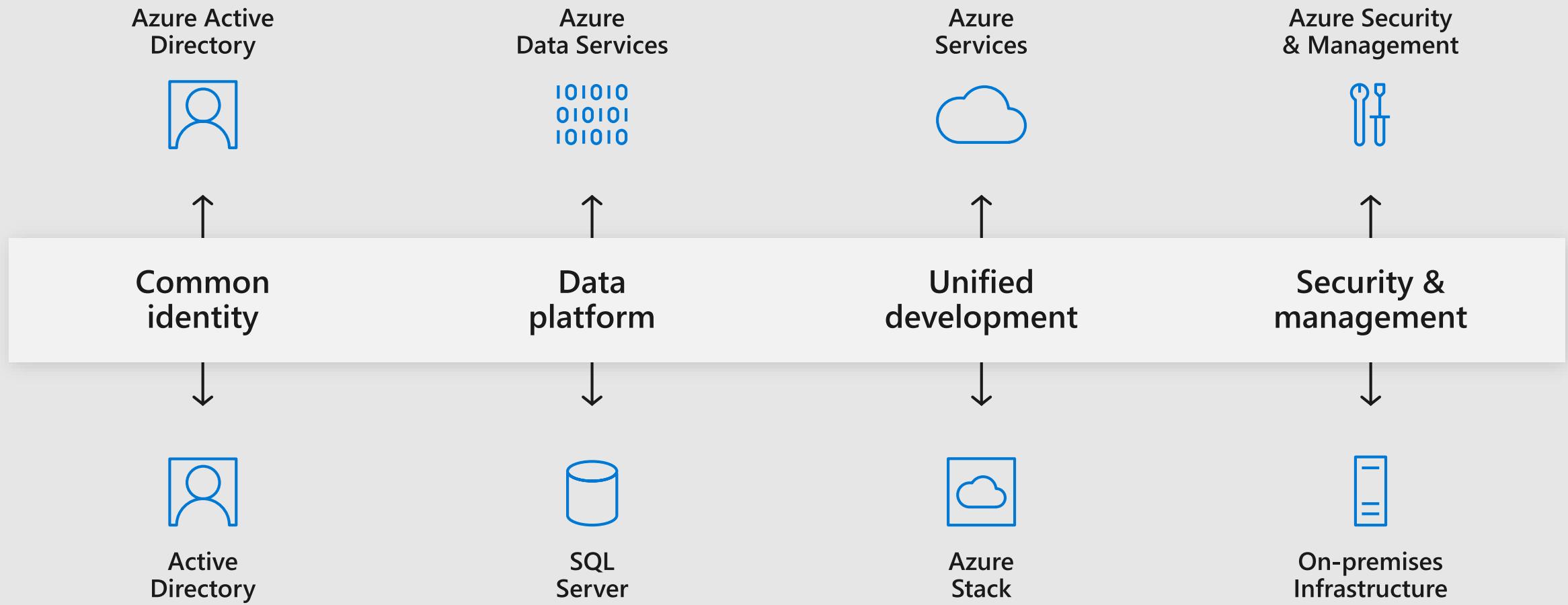


100+ cloud
services



Unified management
for IT admins

Consistent hybrid environment



Azure: Intelligent

Azure Cosmos DB

Azure SQL Data
Warehouse

Azure SQL DB



Azure Databricks



Azure Cognitive
Services



Azure Bot
Service



Azure SQL Data
Warehouse



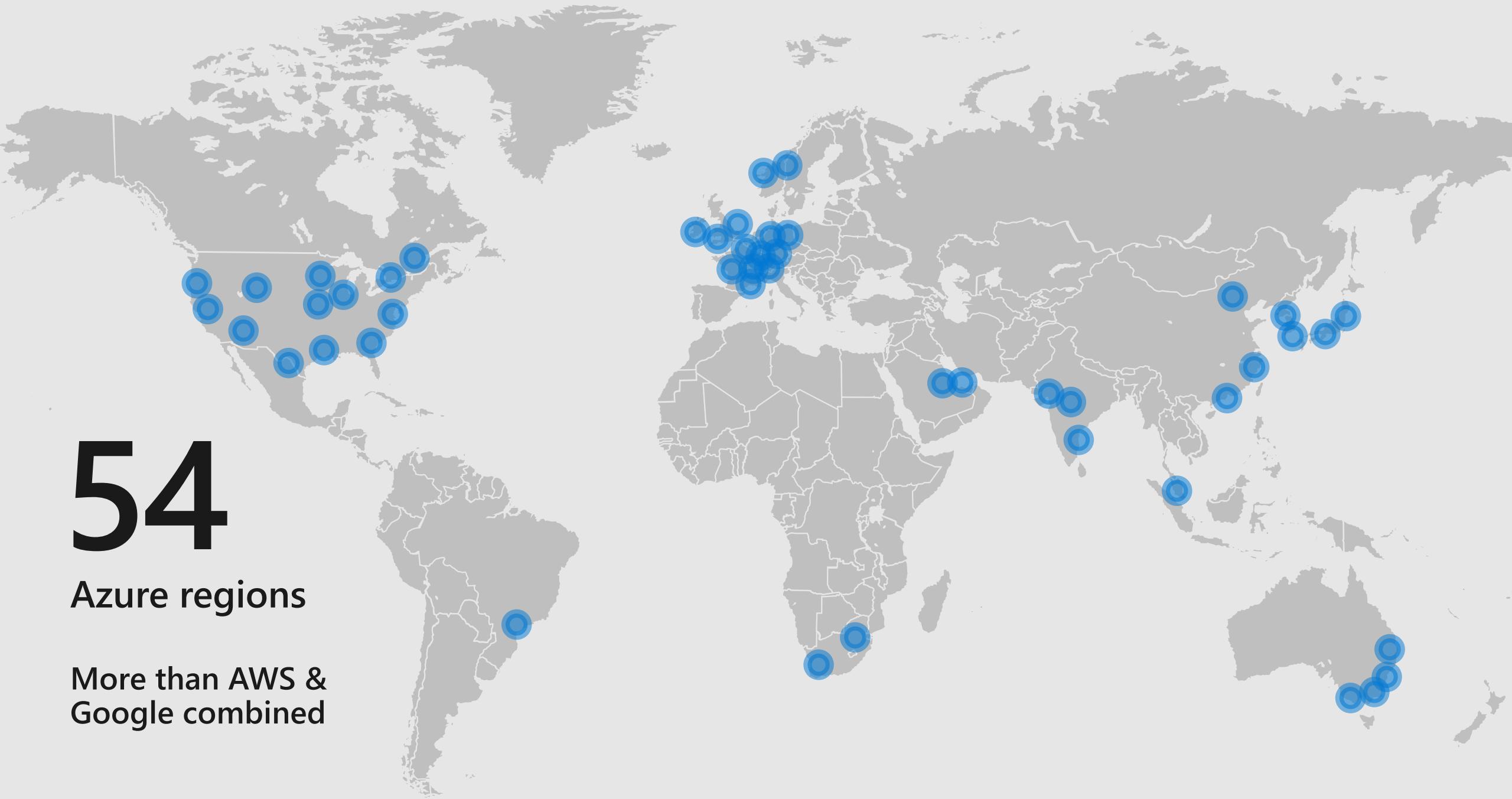
Azure SQL Data
Warehouse

Azure: Trusted

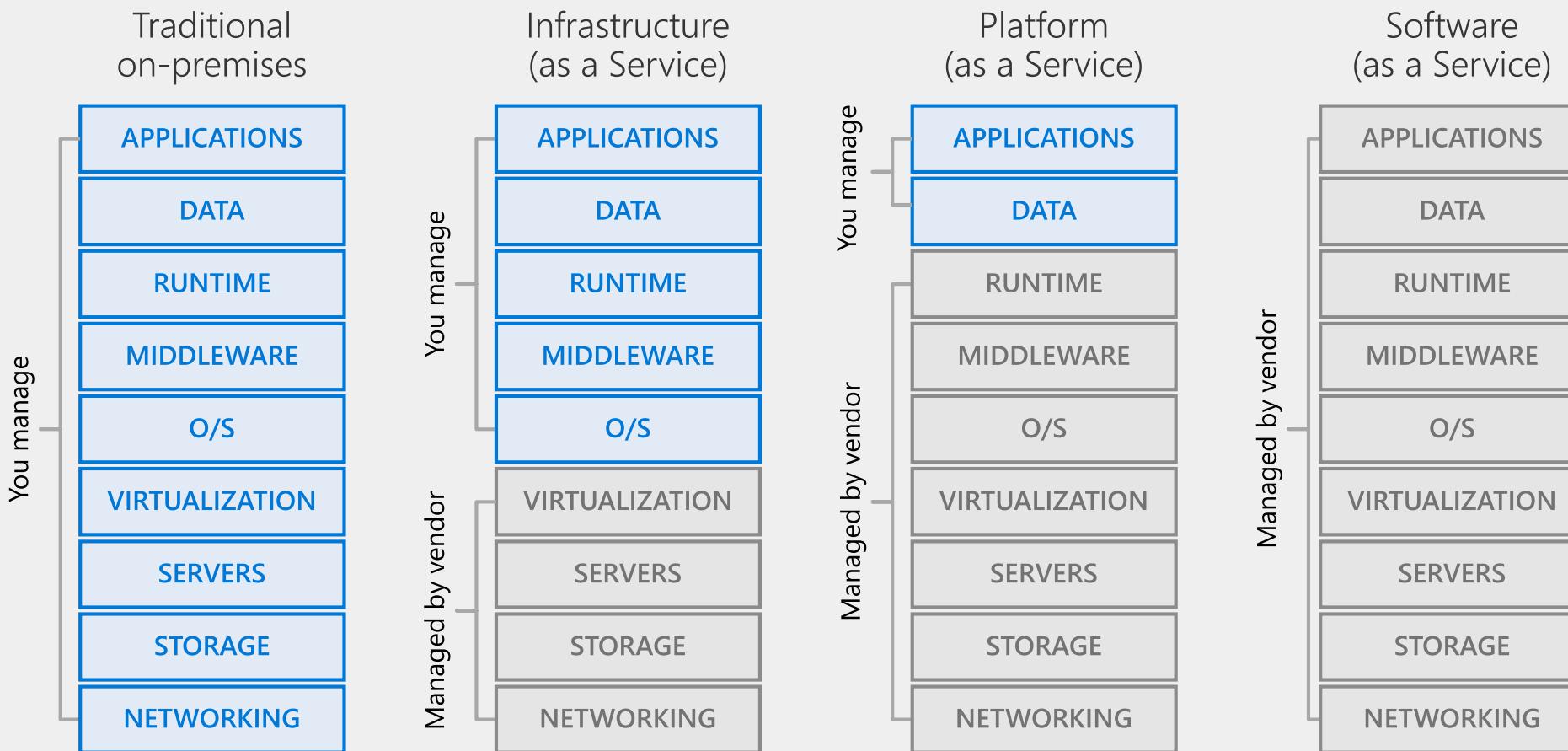
54

Azure regions

More than AWS &
Google combined



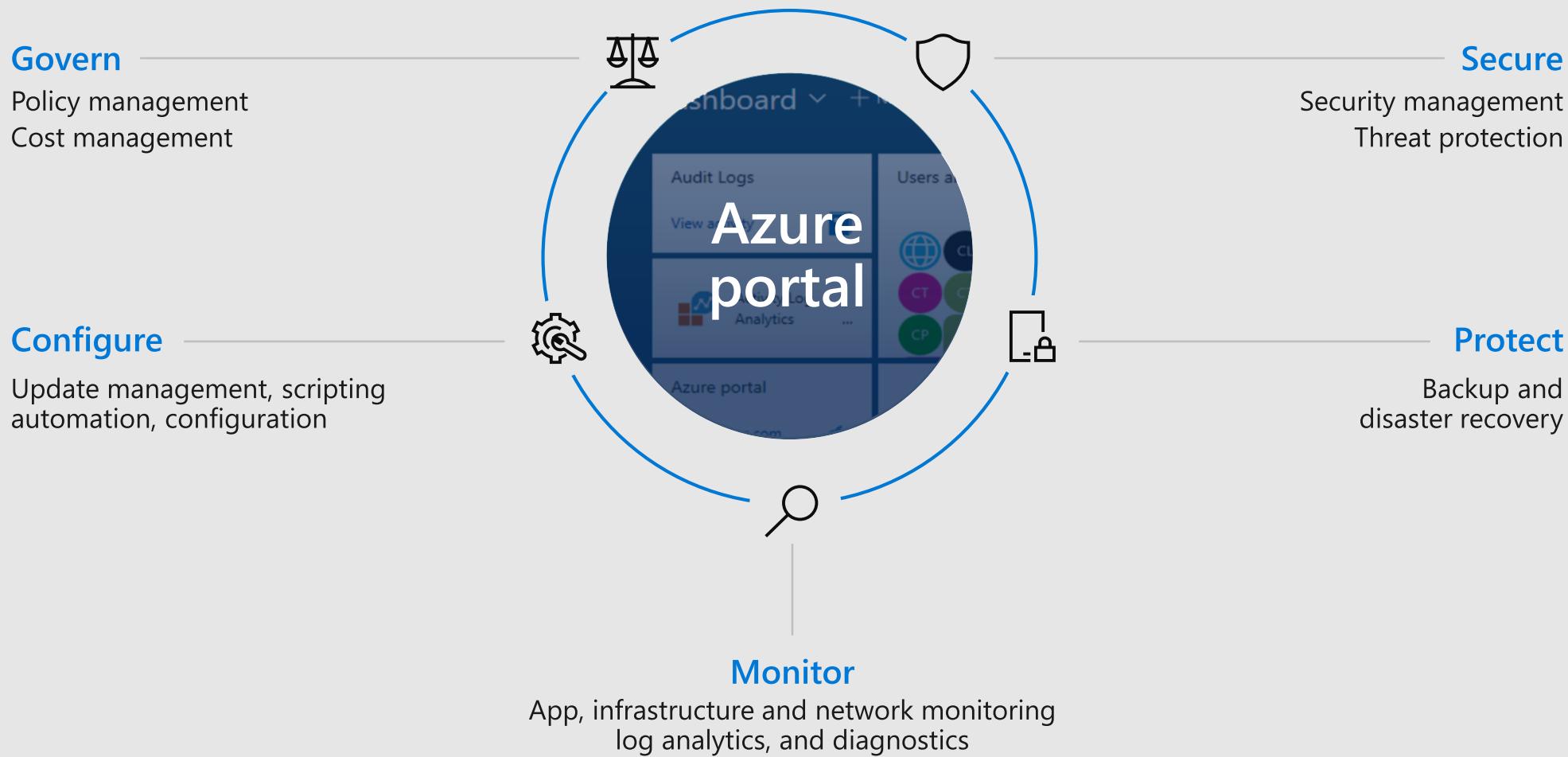
Cloud service models





Portal Introduction

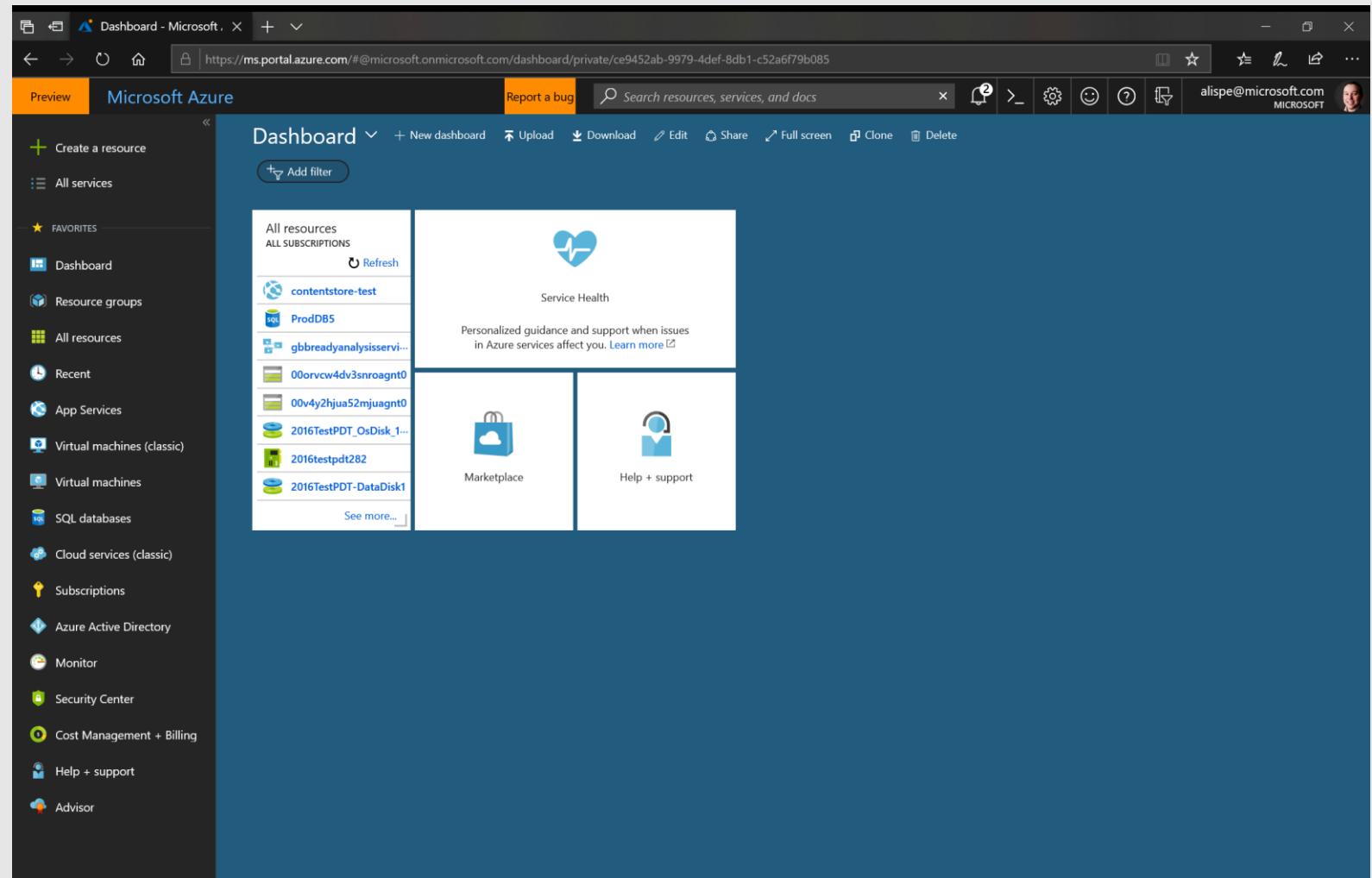
Azure portal offers enterprise-grade management



Azure portal is customizable—portal.azure.com

Recommendation:

Create portal dashboards by key roles,
(e.g., operations, finance, development),
key projects, and key service KPIs.

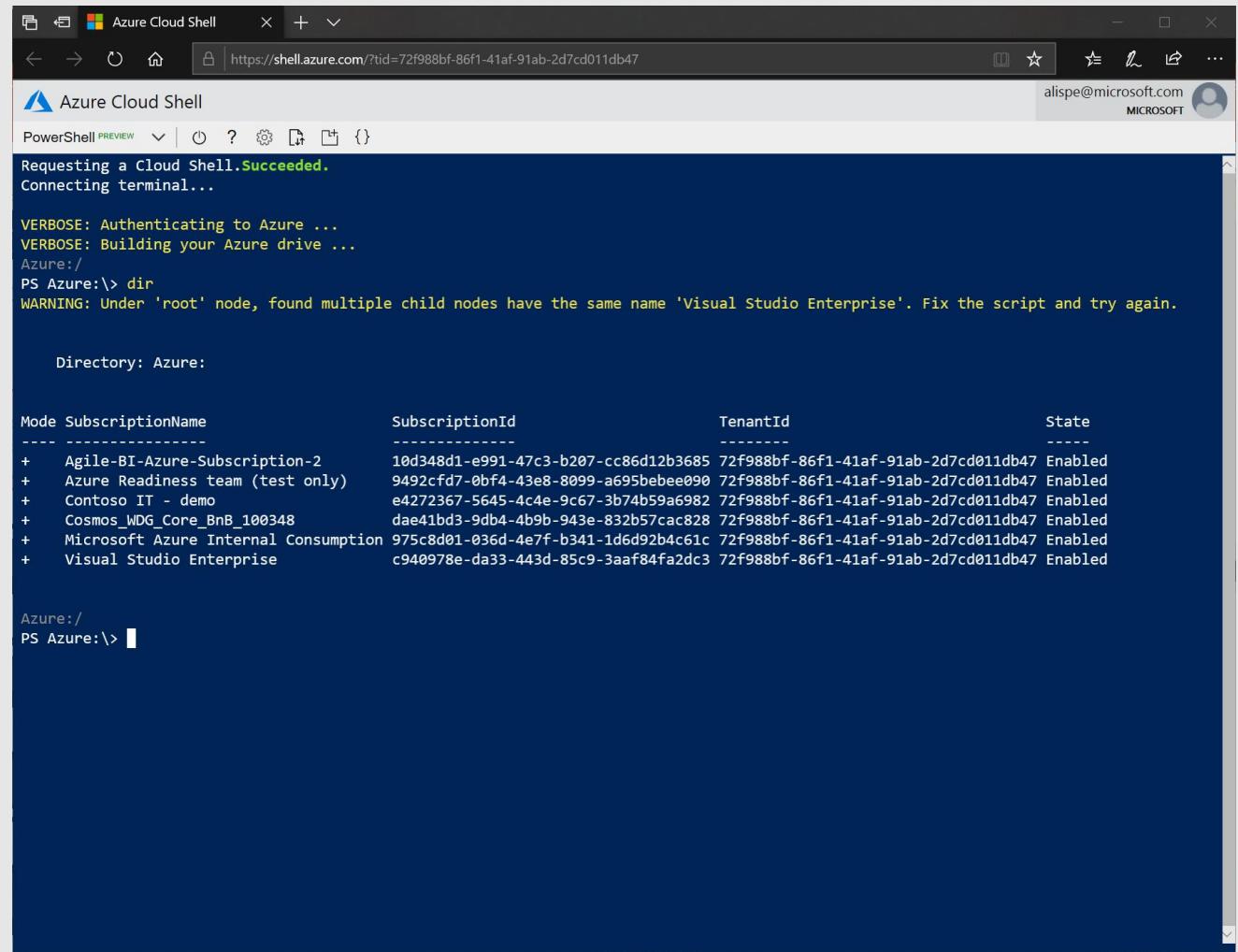


Azure supports automation

Recommendations:

Define ARM templates for commonly used resource configurations

Use Azure Policy to define which resources you allow teams to provision



The screenshot shows the Azure Cloud Shell interface in a browser window. The title bar says "Azure Cloud Shell". The address bar shows the URL "https://shell.azure.com/?tid=72f988bf-86f1-41af-91ab-2d7cd011db47". The user name "alispe@microsoft.com" is visible in the top right corner.

The PowerShell session is running in PREVIEW mode. The output shows:

```
Requesting a Cloud Shell. Succeeded.  
Connecting terminal...  
  
VERBOSE: Authenticating to Azure ...  
VERBOSE: Building your Azure drive ...  
Azure:/  
PS Azure:\> dir  
WARNING: Under 'root' node, found multiple child nodes have the same name 'Visual Studio Enterprise'. Fix the script and try again.  
  
Directory: Azure:  
  
Mode SubscriptionName SubscriptionId TenantId State  
---- -- -- -- --  
+ Agile-BI-Azure-Subscription-2 10d348d1-e991-47c3-b207-cc86d12b3685 72f988bf-86f1-41af-91ab-2d7cd011db47 Enabled  
+ Azure Readiness team (test only) 9492cf7-0bf4-43e8-8099-a695bebee090 72f988bf-86f1-41af-91ab-2d7cd011db47 Enabled  
+ Contoso IT - demo e4272367-5645-4c4e-9c67-3b74b59a6982 72f988bf-86f1-41af-91ab-2d7cd011db47 Enabled  
+ Cosmos_WDG_Core_BnB_100348 dae41bd3-9db4-4b9b-943e-832b57cac828 72f988bf-86f1-41af-91ab-2d7cd011db47 Enabled  
+ Microsoft Azure Internal Consumption 975c8d01-036d-4e7f-b341-1d6d92b4c61c 72f988bf-86f1-41af-91ab-2d7cd011db47 Enabled  
+ Visual Studio Enterprise c940978e-da33-443d-85c9-3aaaf84fa2dc3 72f988bf-86f1-41af-91ab-2d7cd011db47 Enabled  
  
Azure:/  
PS Azure:\>
```

Azure policy for enterprise cloud control and compliance



Enforcement and compliance

Turn on built-in policies or build custom ones for all resource types

Real-time policy evaluation and enforcement

Periodic and on-demand compliance evaluation



Apply policies at scale

Apply policies to a Management Group with control across your entire organization

Apply multiple policies and aggregate policy states with policy initiative

Exclusion scope



Remediation

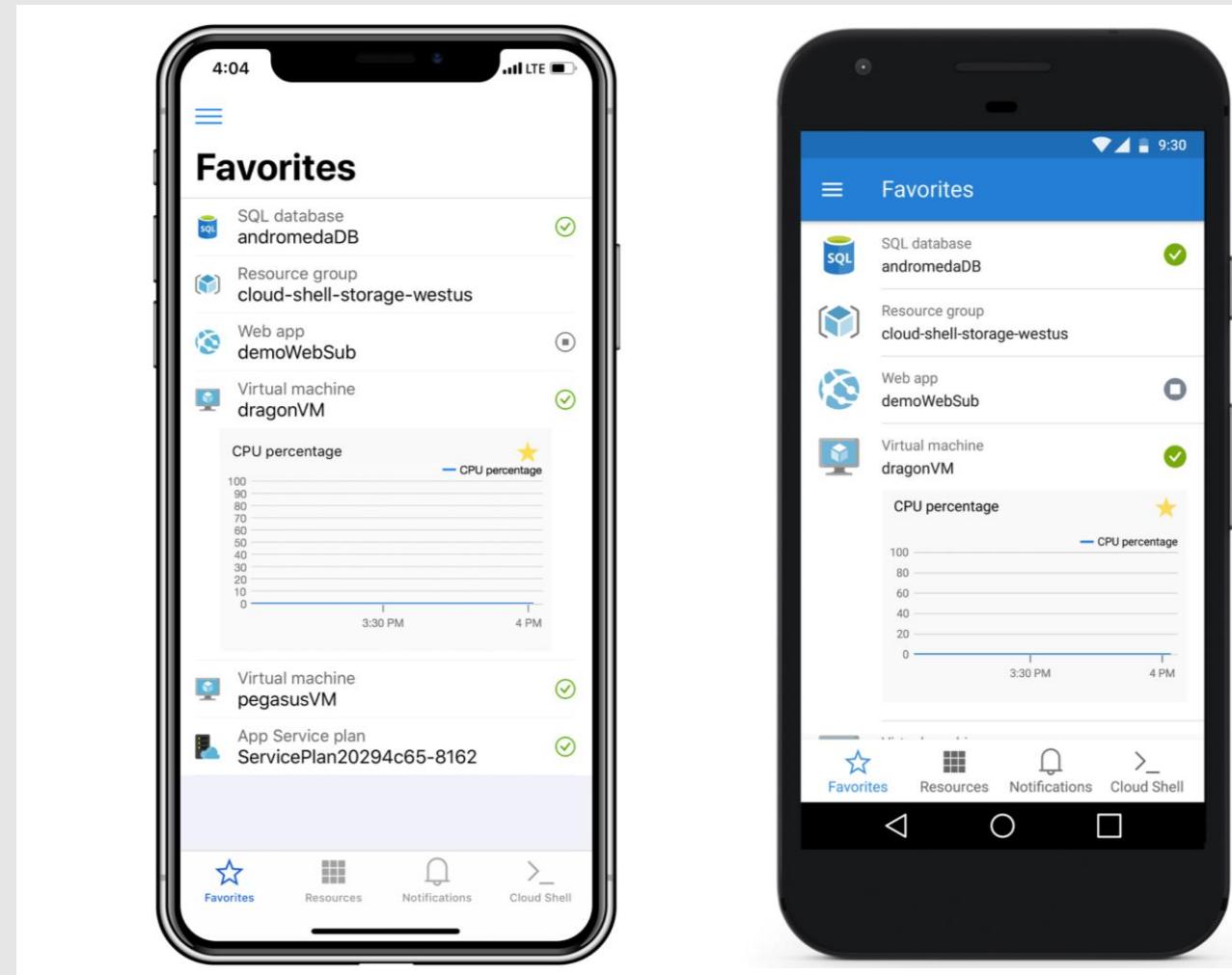
Real time remediation

Remediation on existing resources (Ignite 2018)

Azure mobile app

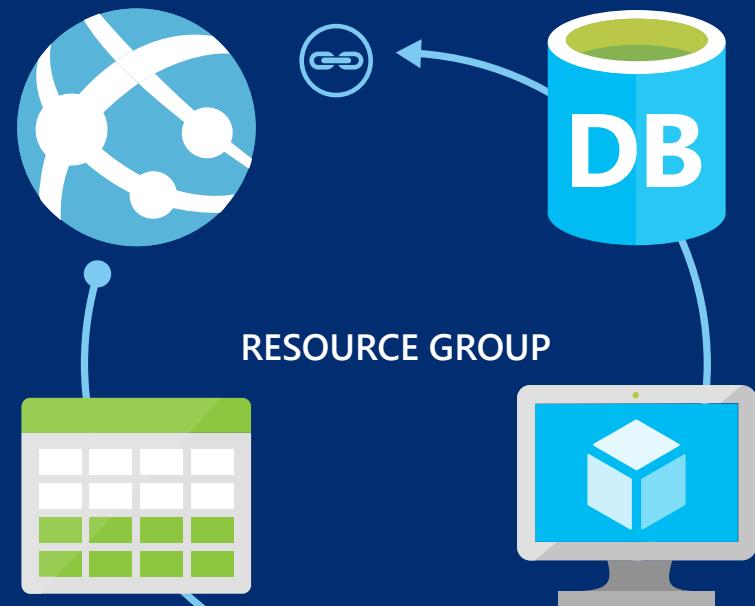
Stay connected to your Azure resources – anytime, anywhere

- Monitor the health and status of your Azure resources on the go
- Get quick access to your favorite resources
- Get notifications and alerts about important health issues
- Quickly diagnose and fix issues from your mobile device
- Run Azure Cloud Shell scripts (PowerShell or Bash) from the app
- **New:** Control access to resources using Role Based Access Control
- Now available on iOS and Android



[Learn more.](#)

Azure Resource Model

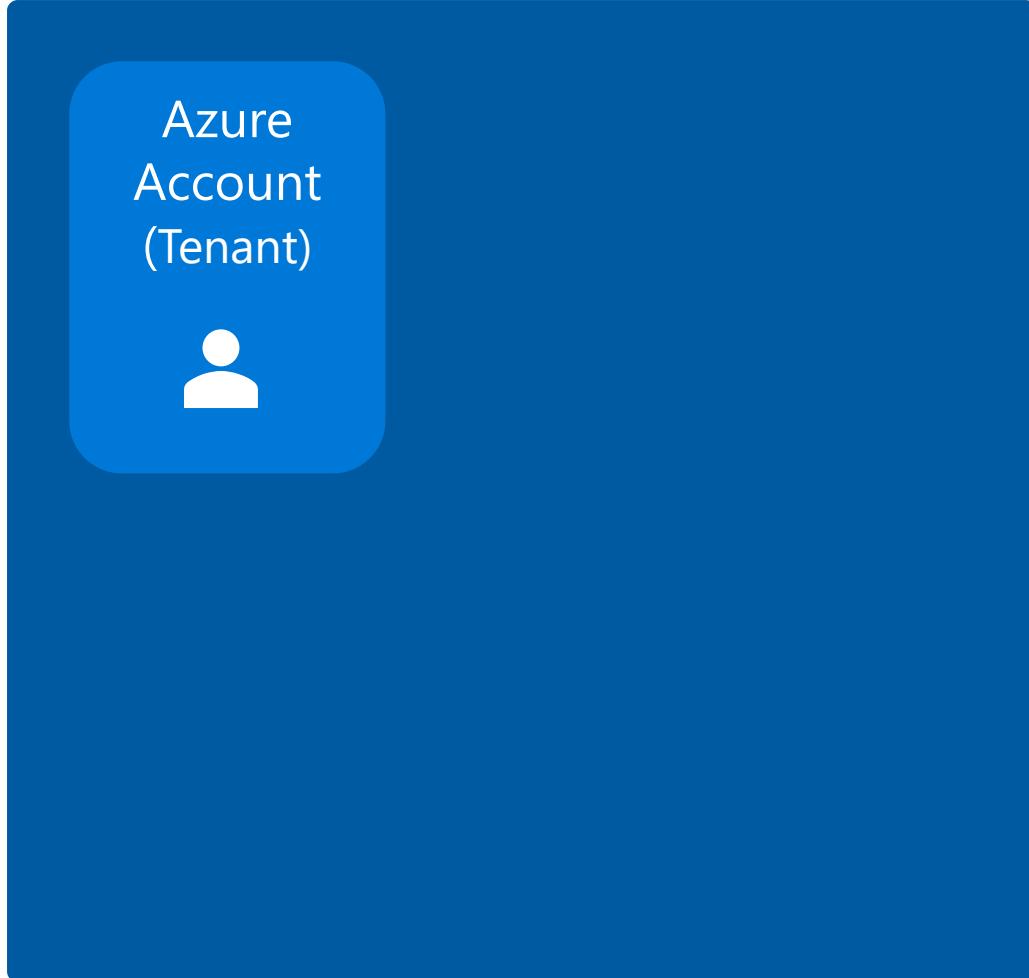


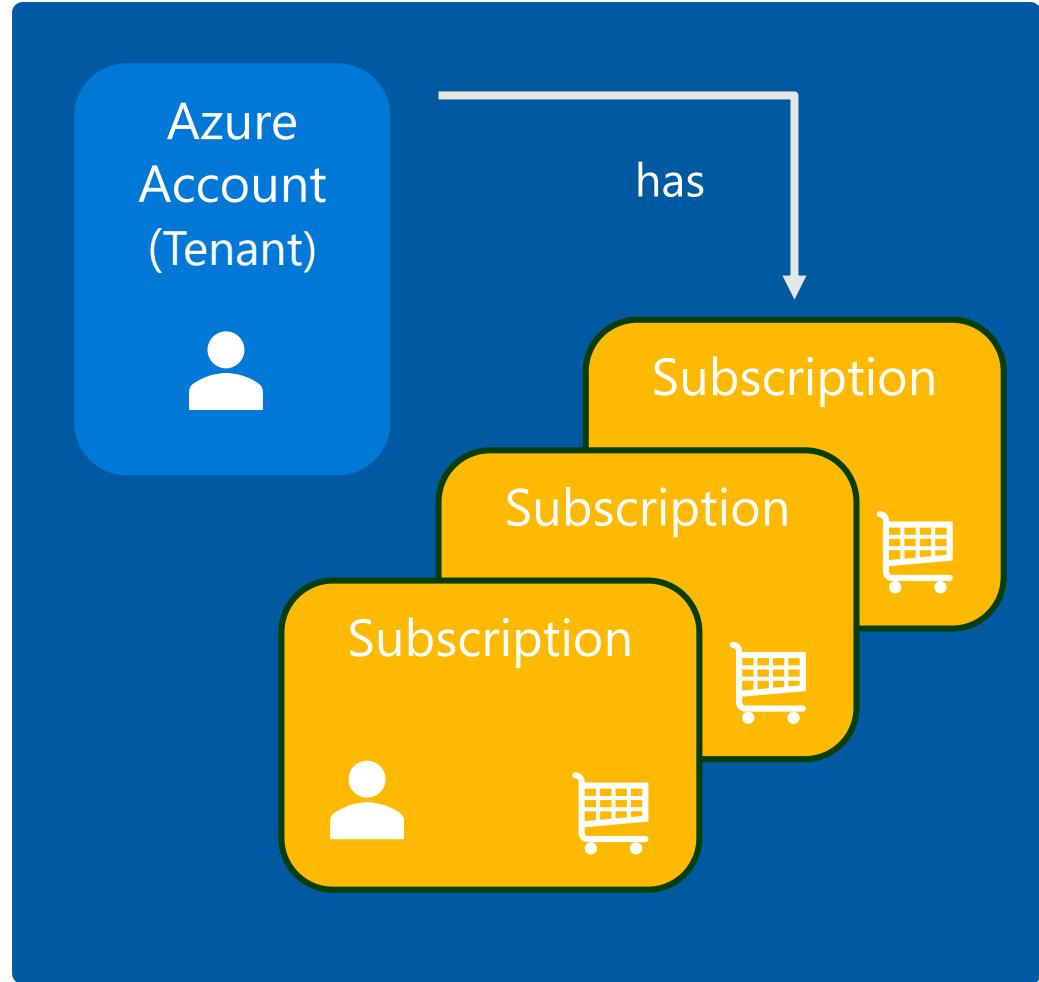
Azure Resource Manager

- Manage resources as a single unit
- Role based access and control (RBAC) on groups or resources
- Billing integrated tagging on groups or resources

Account

- Access into Microsoft Azure
- Uniquely identifies you in Azure
- Security policy
- Subscription





Subscription

- Access to Microsoft Azure resources
- Multiple subscription per Account
- Types
 - Azure free account
 - Pay-As-You-Go
 - Visual Studio (a.k.a. MSDN)
 - CSP
 - Enterprise Agreements

Azure Resource Model

SUBSCRIPTION



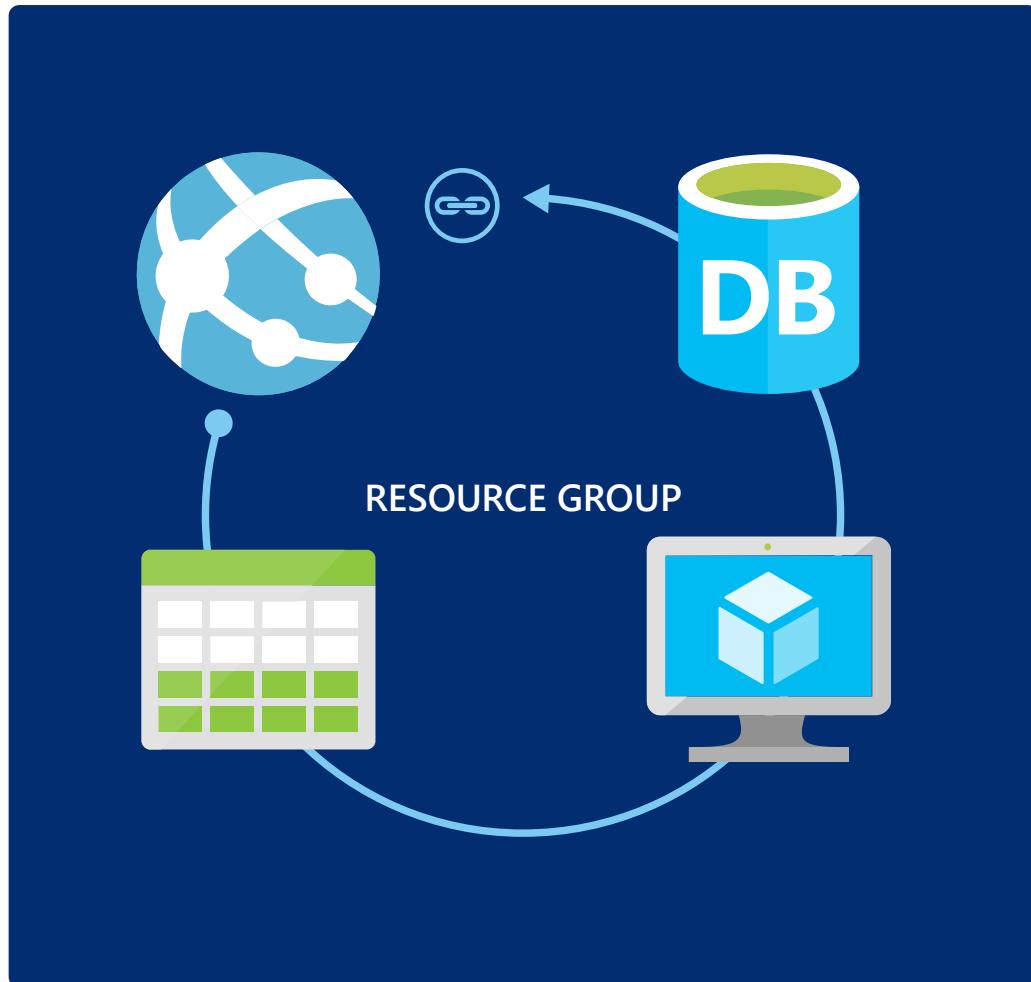
RESOURCE GROUPS



RESOURCES



Why Azure Resource Groups?

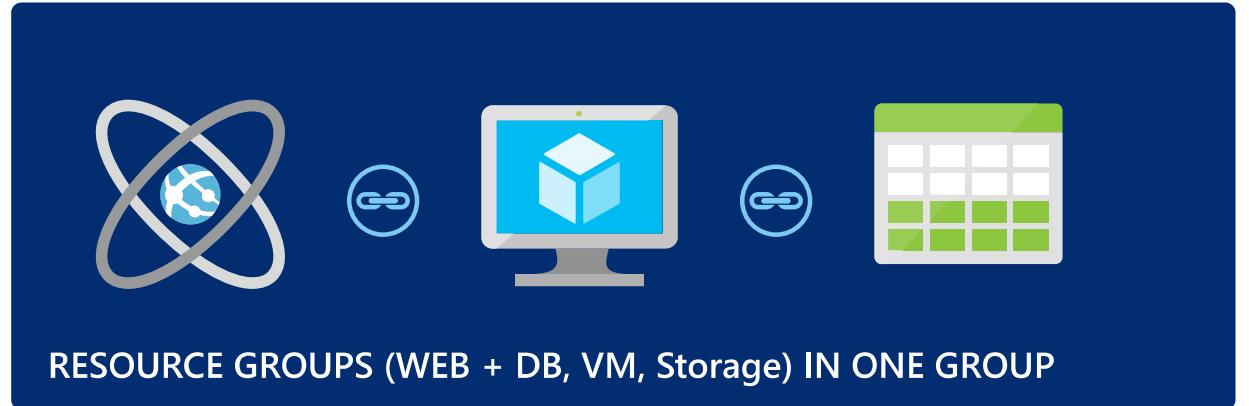


- Management – deploy, update, delete and get status on all resources in a resource group from a single point.
- Flexibility - some resources can be moved between resource groups.
- Portability - resource groups can be exported to templates for easier redeployment.
- Billing – a bill can be retrieved on a per resource group basis.
- Access Control – Permissions can be applied on a per resource group basis.

Resource Group Structure

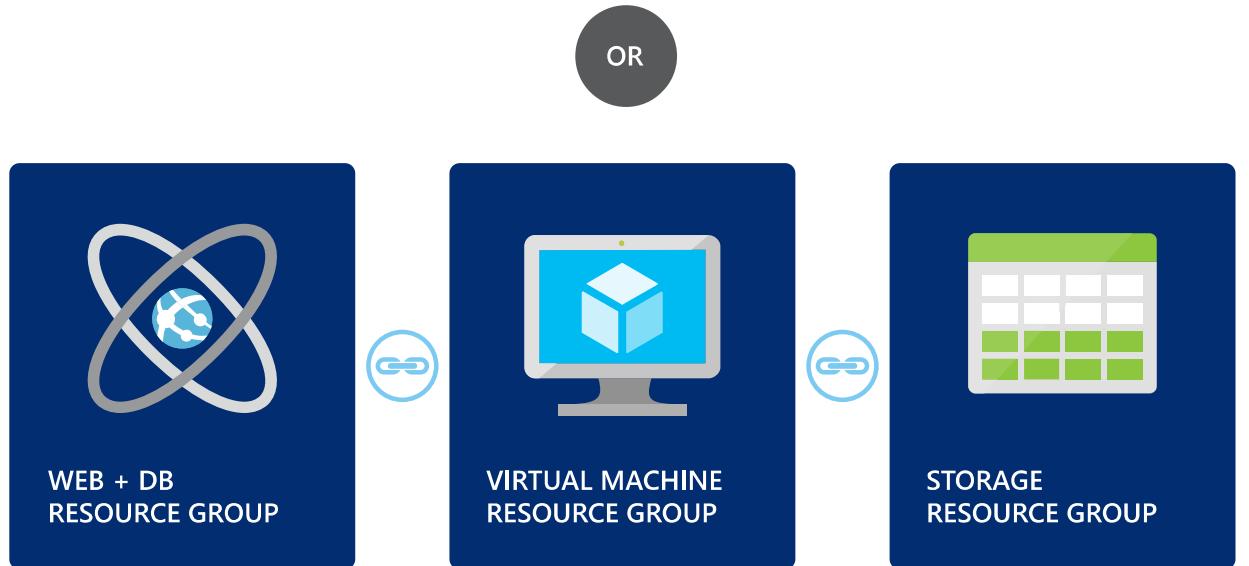
Design:

Should resources be in the same group or a different one?



Consideration:

Do they have common lifecycle and management?



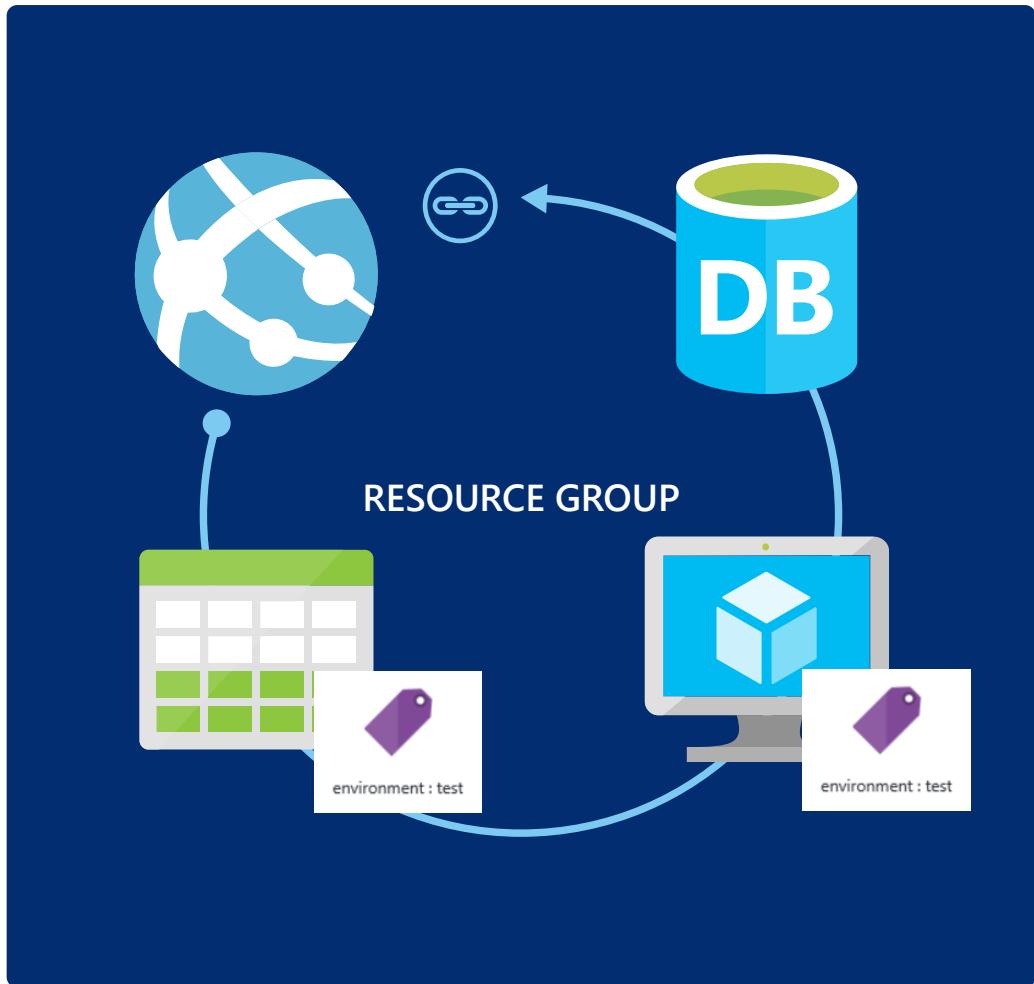
What are Azure Resource (Group) Tags?

- A resource group tag consists of a key/value pair that identifies resources with properties that you define e.g. Sales Project: 1
- Each resource group or resource can have a maximum of 15 tags assigned to it.
- The tag name is limited to 512 characters, and the tag value is limited to 256 characters.
- Applied at resource (group) level and are not inherited by child objects i.e. if assigned to a resource group, the resources in that resource group are not tagged.



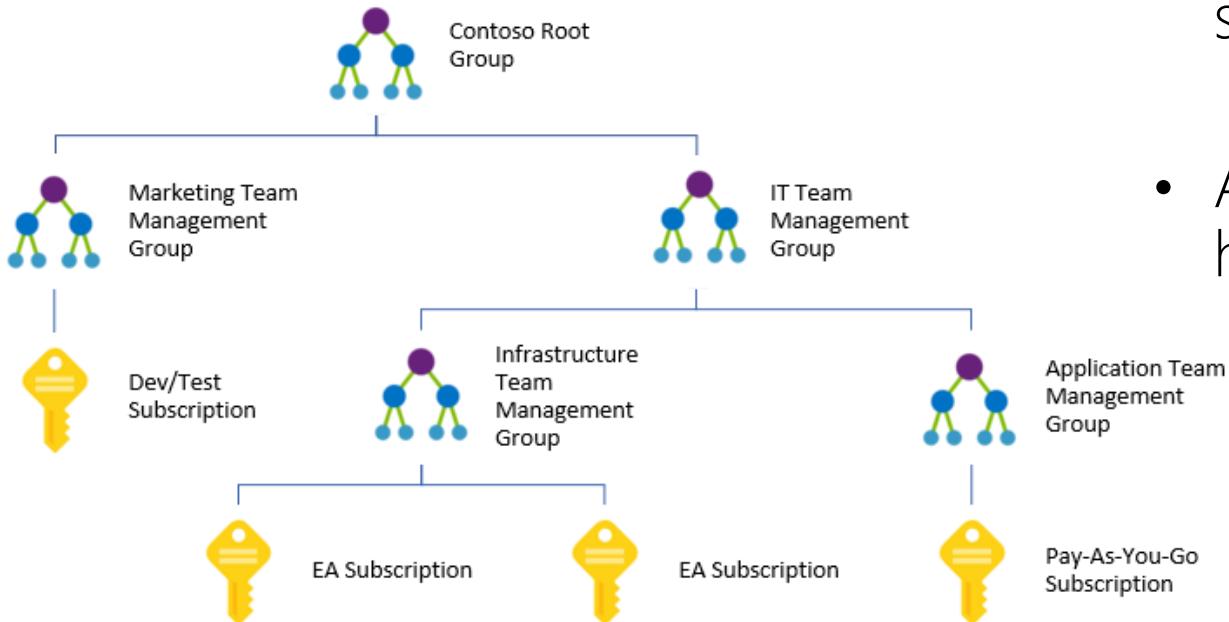
environment : test

Why Azure Resource (Group) Tags?



- Grouping – resources within or outside a resource group can be further grouped by tagging.
- Billing – for supported services, tags can be used to group billing data e.g. a bill for all resources that are tagged environment:test.

Azure Management Groups



- Management group allow level of scope above subscriptions.
- Allows deeper and more complex hierarchies



Role Based Access Control

Roles

- Contain one or more permissions
- Are assigned to users or groups of users
- Users can be assigned multiple roles

Role Based Access Control

SUBSCRIPTION



RESOURCE GROUPS



RESOURCES



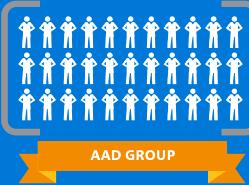
ACCESS INHERITANCE



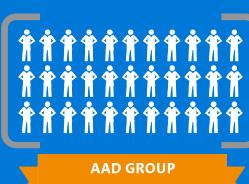
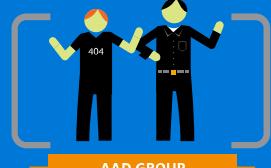
CONTRIBUTORS



OWNER



READERS



CONTRIBUTORS



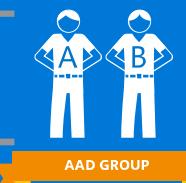
OWNER



READERS



CONTRIBUTORS



OWNER



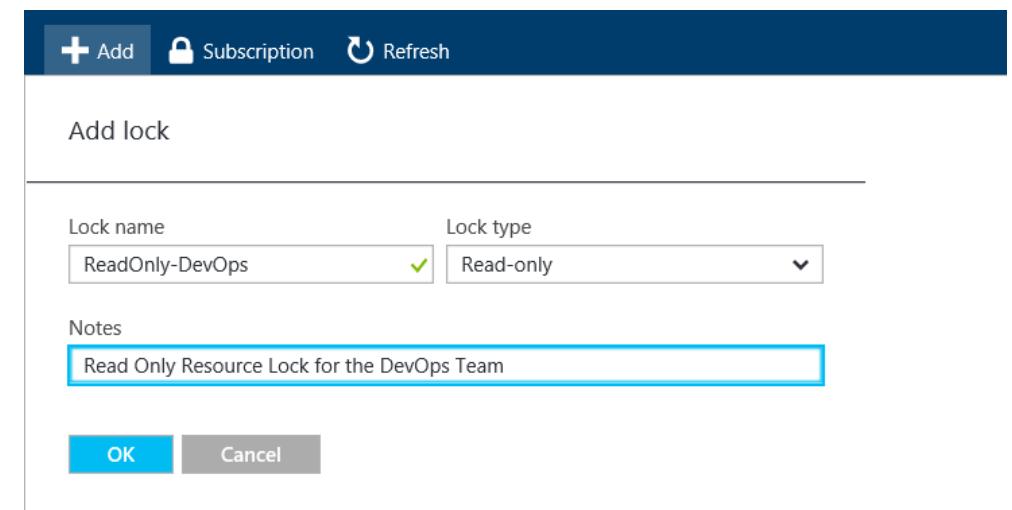
READERS



Azure Locks

Resource Locks

- ARM Resource Locks allow you to prevent the accidental deletion or modification of resource groups or resources in your subscription.
- There are 2 resource lock levels: CanNotDelete or ReadOnly.
 - CanNotDelete means authorized users can still read and modify a resource, but they can't delete it.
 - ReadOnly means authorized users can read from a resource, but they can't delete it or perform any actions on it.
- Applies to Everyone including Administrators.





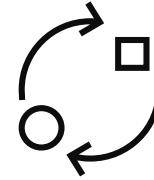
Azure Policy & Compliance

Azure policy for enterprise-level compliance



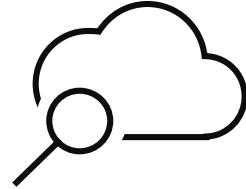
- ❯ Turn on built-in policies or build custom ones for all resource types
- ❯ Real-time policy evaluation and enforcement
- ❯ Periodic & on-demand compliance evaluation

Enforcement & Compliance



- ❯ Apply policies to a Management Group with control across your entire organization
- ❯ Apply multiple policies and aggregate policy states with policy initiative
- ❯ Exclusion Scope

Apply policies at scale



- ❯ Real time remediation
- ❯ Remediation on existing resources (Coming Soon)

Remediation



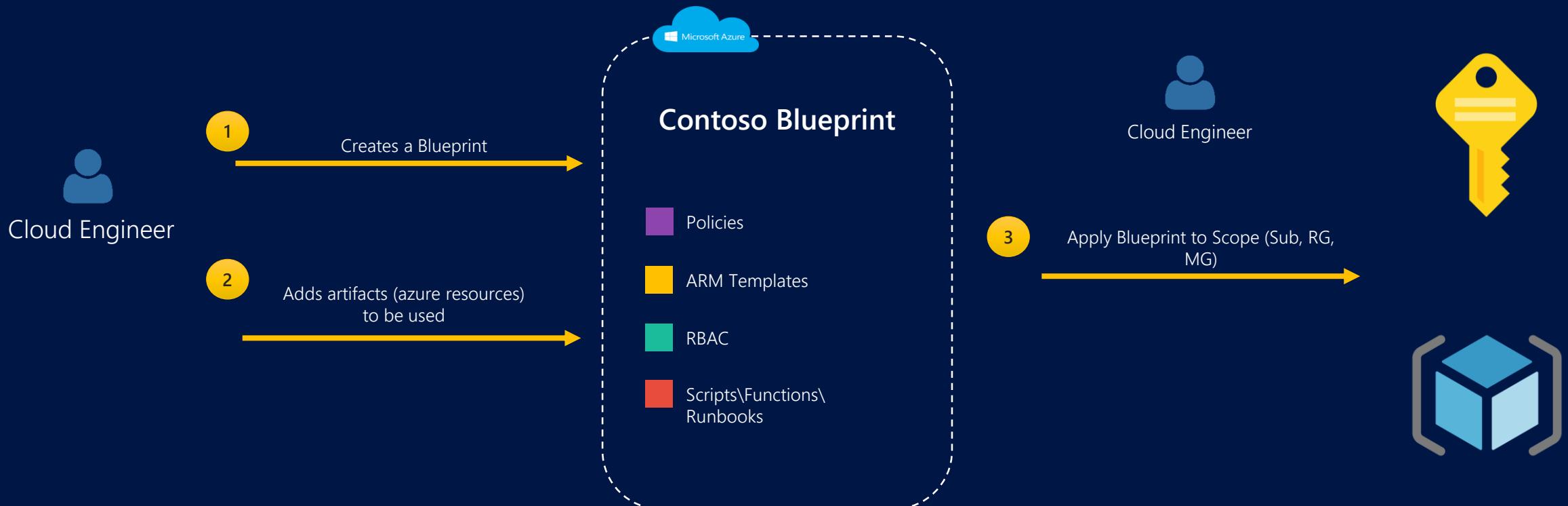
Azure Blueprints

Introducing Azure Blueprint

Blueprints enable quick creation of governed subscriptions – allowing app teams to design and build apps that meet **organizational standards**. Blueprints are composed of **artifacts** such as templates, policies, scripts and VM images.

Blueprints can be configured to **lay foundational blocks** such as networking and naming conventions while providing flexibility in resource selection and application design.

How Blueprints work

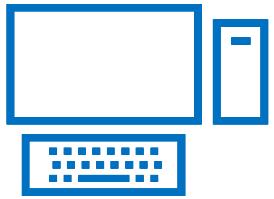




Core infrastructure

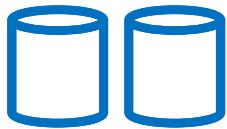


Core infrastructure



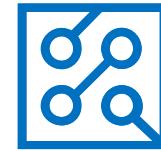
Compute

Virtual machines
Availability sets
VM scale sets
Controlled maintenance



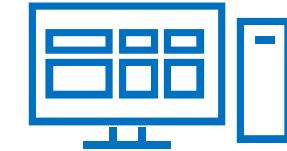
Storage

Disks
Blob storage
File sync
Hot and cold



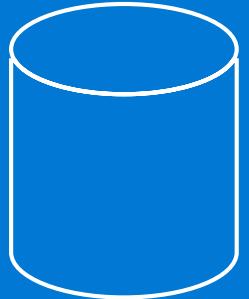
Networking

Virtual networks
VPN, ExpressRoute
Load balancer
DNS, Traffic Manager



Management

Log Analytics
Cloud Shell
Site Recovery
Security Center



Storage

Azure provides a unified distributed storage system offering durability, **encryption at rest**, strongly consistent **replication**, and auto load-balancing

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



Disk Storage

Premium
Standard

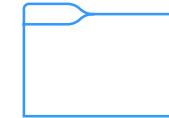
Reliable, persistent, high performing storage for Virtual Machines



Object Storage

Azure Blobs

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

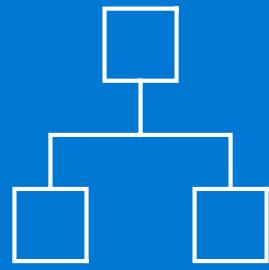


Hybrid Storage

Azure StorSimple
Azure File Sync

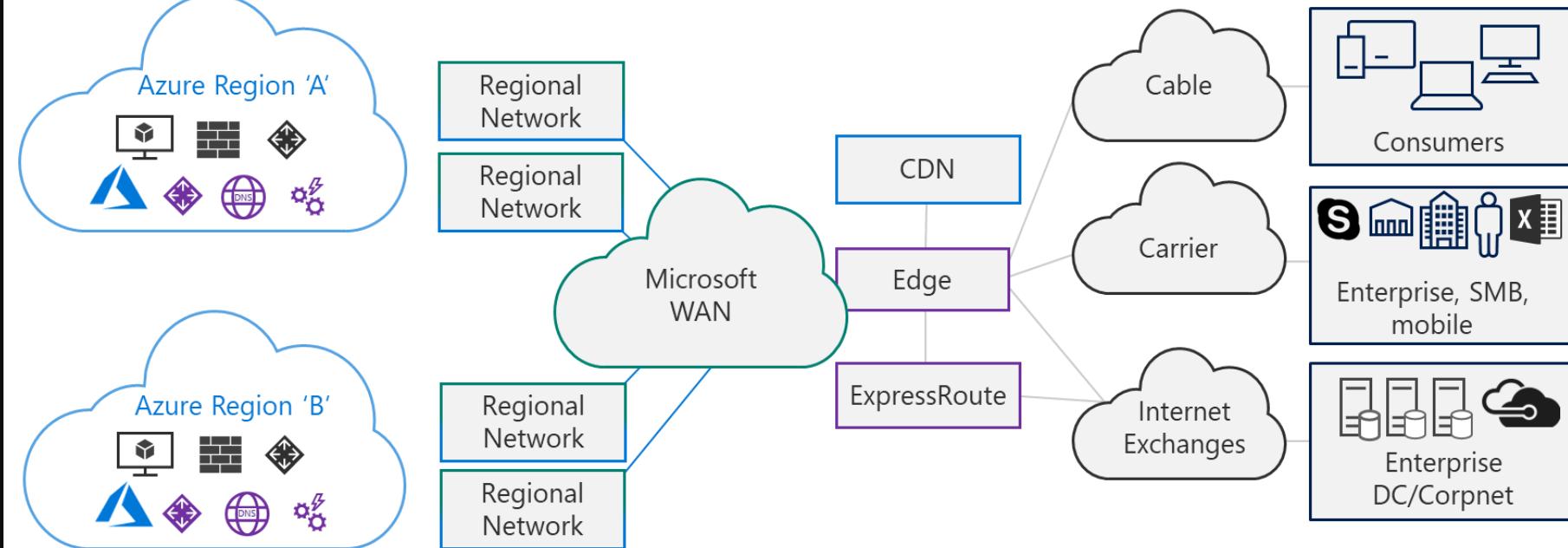
Avere*

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



Networking

Azure Networking



DC Hardware	Services	Intra-Region	WAN Backbone	Edge and ExpressRoute	CDN	Last Mile
<ul style="list-style-type: none">SmartNIC/FPGASONiC	<ul style="list-style-type: none">Virtual NetworksLoad BalancingVPN ServicesFirewallDDoS ProtectionDNS & Traffic Management	<ul style="list-style-type: none">DC NetworksRegional NetworksOptical Modules	<ul style="list-style-type: none">Software WANSubsea CablesTerrestrial FiberNational Clouds	<ul style="list-style-type: none">Internet PeeringExpressRoute	Acceleration for applications and content	E2E monitoring (Network Watcher, Network Performance Monitoring)

Robust networking infrastructure services



Virtual Network

Provision private networks, optionally connect to on premise datacenters. NSG, User Defined Routes, & IP addresses.



Load Balancer

Deliver high availability and network performance to your applications



Application Gateway/WAF

Build scalable and highly-available web front ends in Azure



DDoS Protection

Protect your Azure resources from DDoS attacks



VPN Gateway

Establish secure, cross-premise connectivity



Azure DNS

Host your DNS domain in Azure



Content Delivery Network

Ensure secure, reliable content delivery with broad global reach



Traffic Manager

Route incoming traffic for high performance and availability



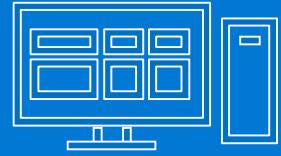
ExpressRoute

Dedicated private network fiber connections to Azure



Network Watcher

Network performance monitoring and diagnostics solution



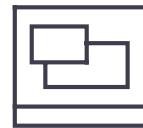
Security and Management

Security and Management



Azure Active Directory

Cloud based directory and identity management



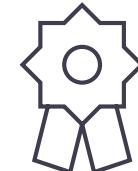
Azure Resource Manager

Organize, deploy and control resources in Azure



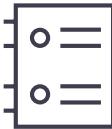
Azure Security Center

Prevent, detect, and respond to threats with increased visibility



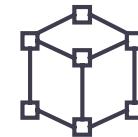
Azure Advisor

Optimize across four different areas: high availability, performance, security, and cost



Azure Log Analytics

Collect, search, and visualize machine data from on-premises and cloud



Azure Key Vault

Protect secrets such as passwords and keys securely



Azure Backup

Protect your virtual machines, data, or enterprise workloads by securely backing it up to Azure



Azure Site Recovery

Orchestrated failovers/back to Azure, Azure to Azure or data center to data center—great for migration!

Coffee Break

