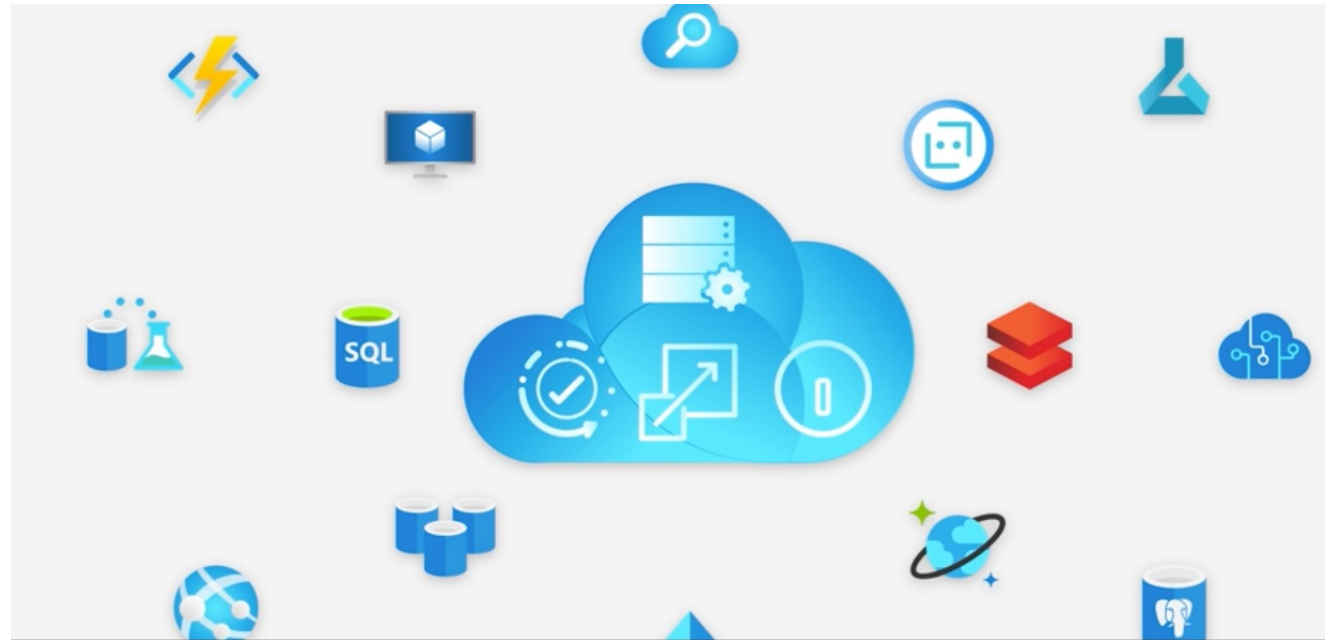


Microsoft Azure Fundamentals

- A Cloud Computing platform
- It Provides a wealth of below cloud-based services
 - Remote Storage
 - Database Hosting
 - Centralized account Management
 - AI and Internet of Things (IoT)
 - Compute
 - Network
- The Pre-requisite is to understand the fundamentals of "**Cloud Computing**"





Cloud Computing

What is Cloud Computing ?

- Delivery of Computing Services over Internet
- These Services include – Servers, storage, Network, Database, Software
- Offers Faster Innovation and Flexible resources
- Pay-as-you go Model
- Scale as your business needs change



Advantages of Cloud Computing

High Availability

Scalability

Elasticity

Agility

Geo-distribution

Disaster Recovery

Types of Cloud Models

Public Cloud

- No CapEx to Scale up
- Applications can be quickly provisioned and deprovisioned
- Organization only pay what they use

Private Cloud

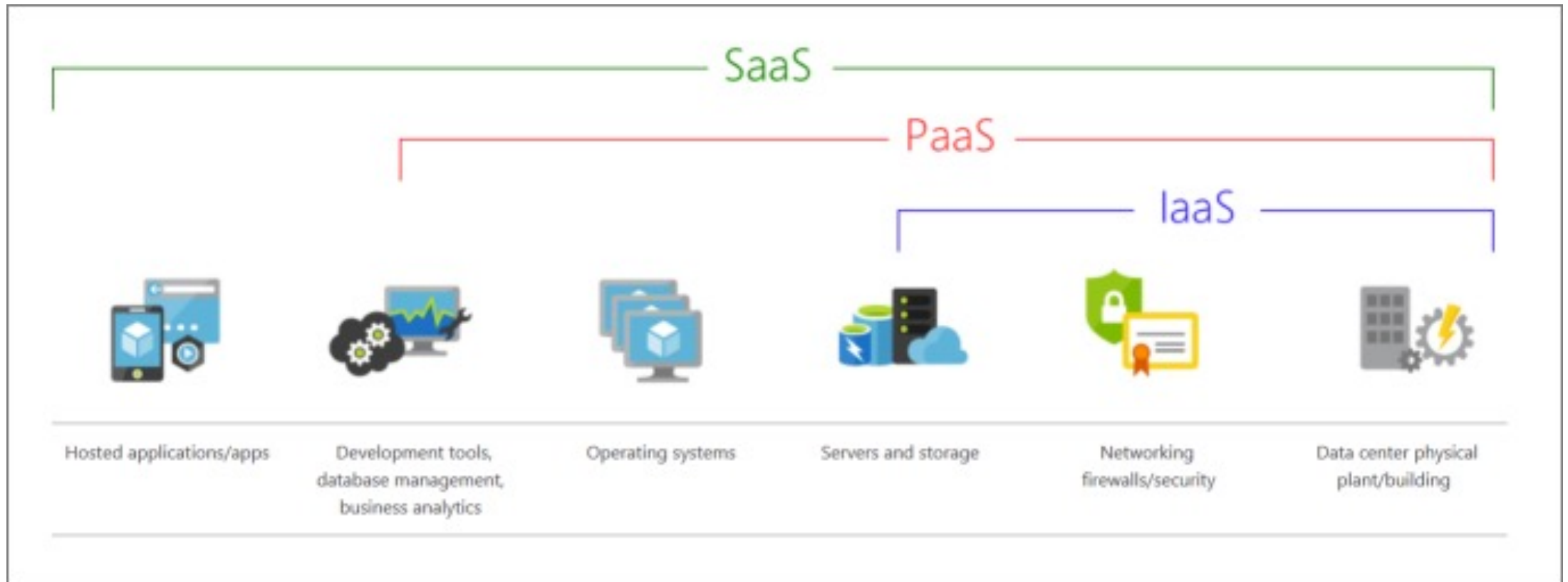
- Hardware must be purchased for start-up and maintenance
- Organization will have complete control over resources and security
- Organizations are responsible for maintaining update

Hybrid Cloud

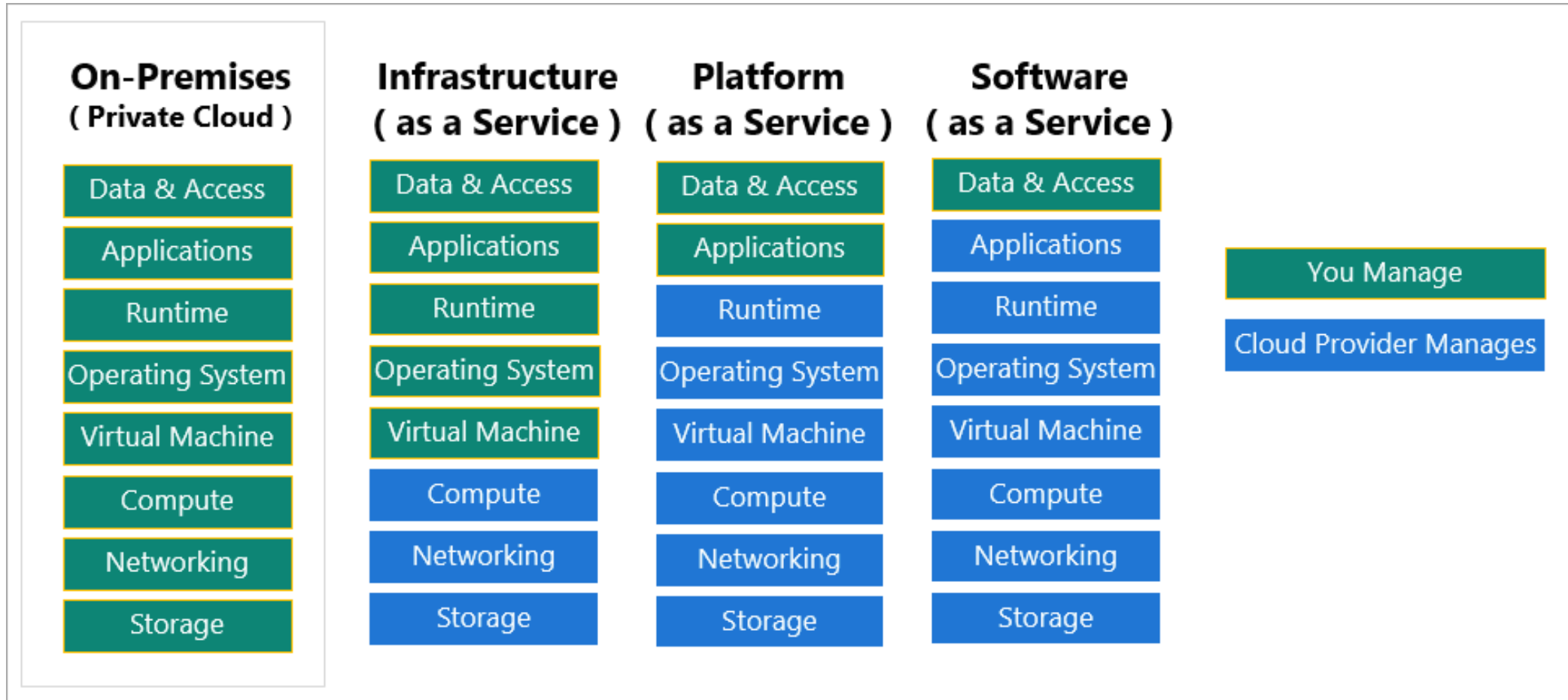
- Provides the most flexibility
- Organizations determine where to run applications and control security and compliance

Cloud Service Models

- These models define the different levels of shared responsibility that a cloud provider and cloud tenant are responsible for

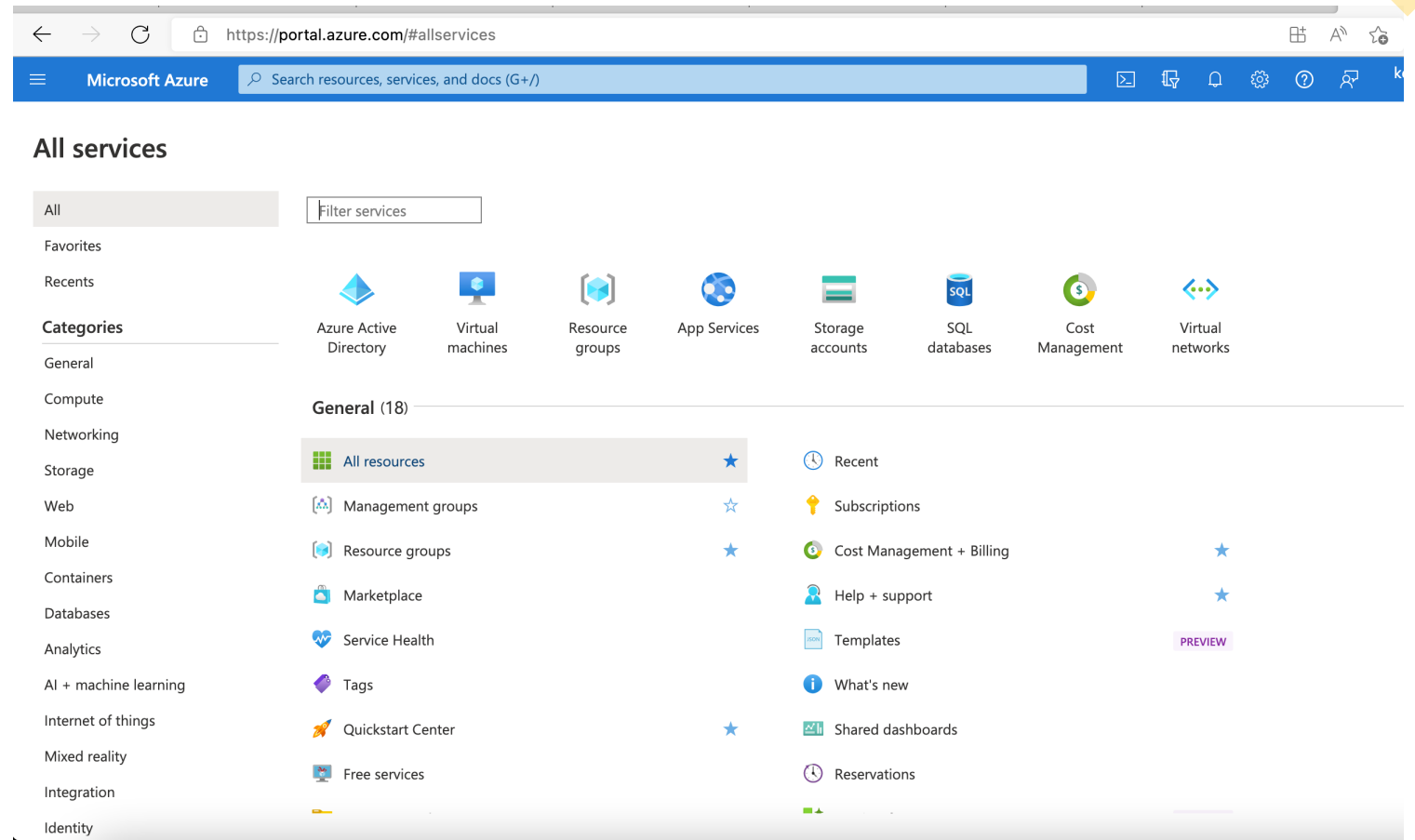


Cloud Service Model Comparison



What is the Azure Portal?

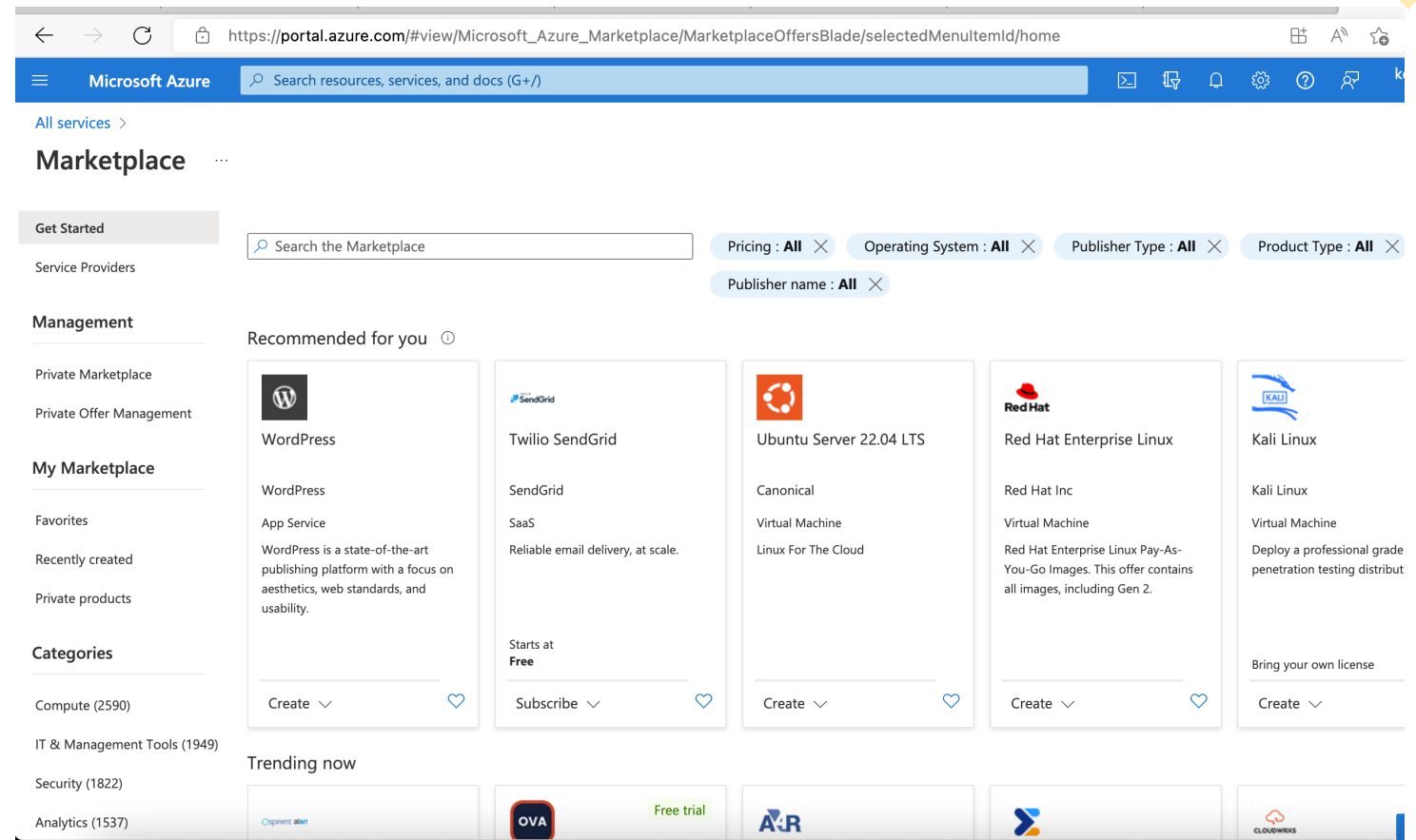
- Web-based unified console
- Alternative to Azure command-line tool
- Manage Azure Subscription
- Build and Manage Every service
- Create Custom dashboards













Azure Market Place

- It is designed for IT pros and developers interested in commercial and IT software also helps connect users with

- Microsoft Partners
- Independent Software Vendors
- Startups that are offering their solutions
- Purchase 3rd party applications



Security & Management




-  Security Center
-  Azure portal
-  Azure Active Directory
-  Azure AD B2C
-  Multi-Factor Authentication
-  Automation
-  Key Vault
-  Azure Marketplace
-  VM Image Gallery
-  REST API and CLI

Platform Services





Media & CDN

-  Media Services
-  Media Analytics
-  Content Delivery Network








Integration

-  API Management
-  Service Bus
-  Azure Logic Apps







Compute Services

-  Container Service
-  VM Scale Sets
-  Azure Batch
-  Dev/Test Lab








Application Platform

-  Web Apps
-  Mobile Apps
-  API Apps
-  Cloud Services
-  Service Fabric
-  Notification Hubs
-  Functions

Developer Services

-  Visual Studio
-  Mobile Engagement
-  Azure DevOps
-  Xamarin
-  Application Insights
-  Visual Studio App Center











Data

-  SQL Database
-  Azure Synapse Analytics
-  Cosmos DB
-  SQL Server Stretch Database
-  Azure Cache for Redis
-  Table Storage
-  Azure Search




Intelligence

-  Cognitive Services
-  Bot Services
-  Azure ML Studio

Analytics & IoT

-  HDInsight
-  Machine Learning
-  Stream Analytics
-  Data Catalog
-  Data Lake Analytics Service
-  Data Lake Storage
-  IoT Hub
-  Event Hubs
-  Data Factory
-  Power BI Embedded

Hybrid Cloud

-  Azure AD Connect Health
-  AD Privileged Identity Management
-  Domain Services
-  Backup
-  Azure Monitor
-  Import/Export
-  Azure Site Recovery
-  StorSimple

Infrastructure Services

Compute

-  Virtual Machines
-  Containers and Azure Kubernetes

Storage

-  Blob
-  Queues
-  Files
-  Disks

Networking

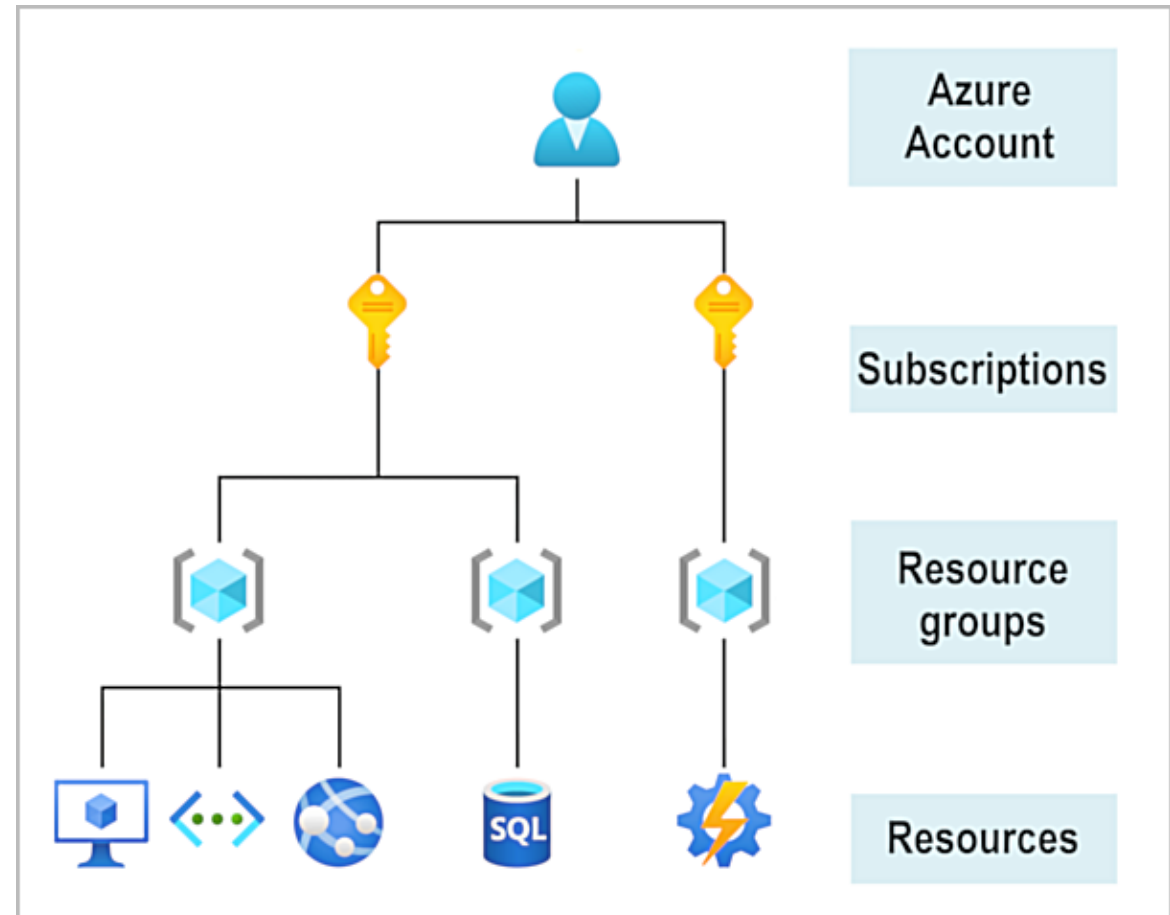
-  Virtual Network
-  Load Balancer
-  DNS
-  Express Route
-  Traffic Manager
-  VPN Gateway
-  App Gateway

Azure Services

Datacenter Infrastructure

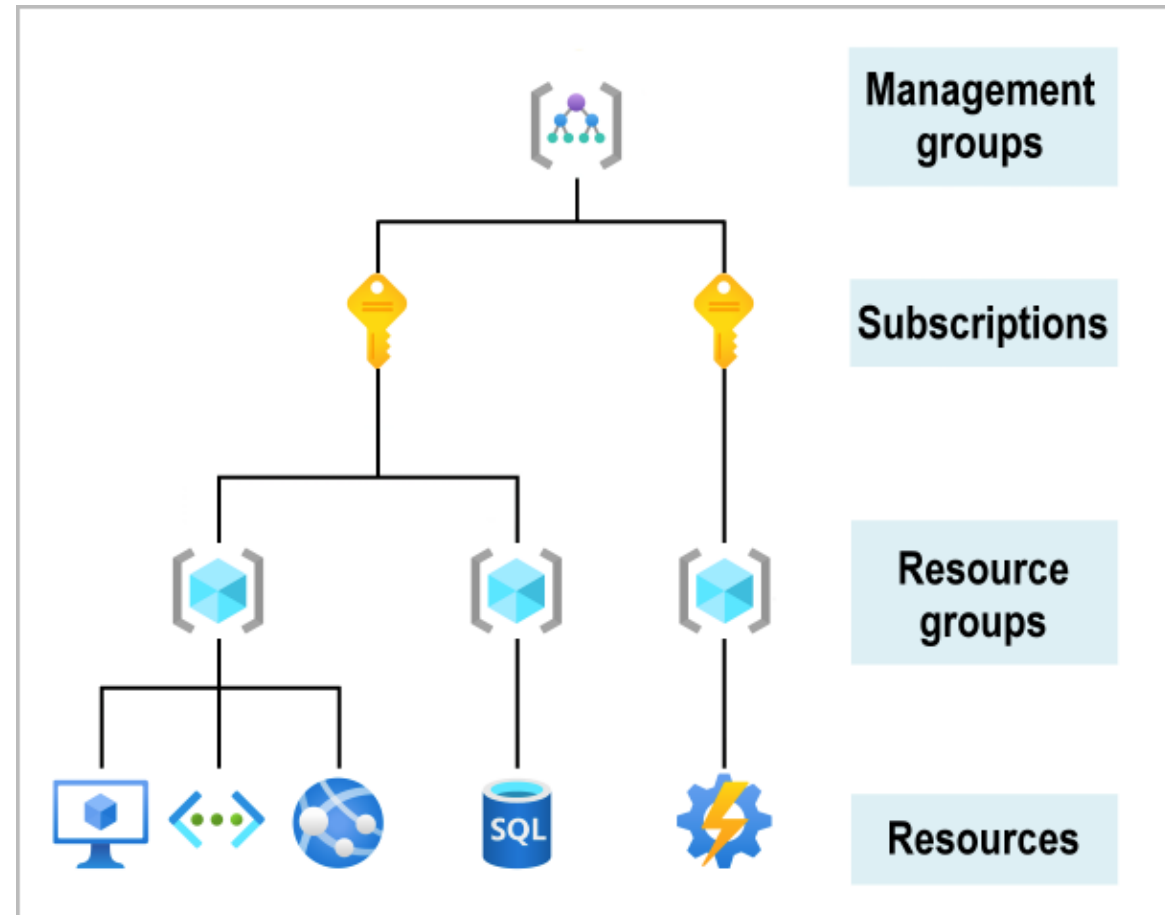
Azure Accounts

- Create Azure Account with subscription
- Signup Free tier account
- Free access to popular 40+ azure products for 2 months
- Credit to spend for the first 30 days
- Pre-requisite to create Azure Account
- Phone Number
- Credit Card
- Github/live/hotmail account



Overview of Subscriptions, resources and resource groups

- Resources
 - VM's, Networks, Storage or SQL DB
- Resource Groups
 - Logical Container to Azure Resources
- Subscriptions
 - Organizations can use subscriptions to manage costs and the resources that are created by users, teams, or projects
- Management Groups
 - Manage access, policy, and compliance for multiple subscriptions
 - Automatically inherit the conditions applied to the management group



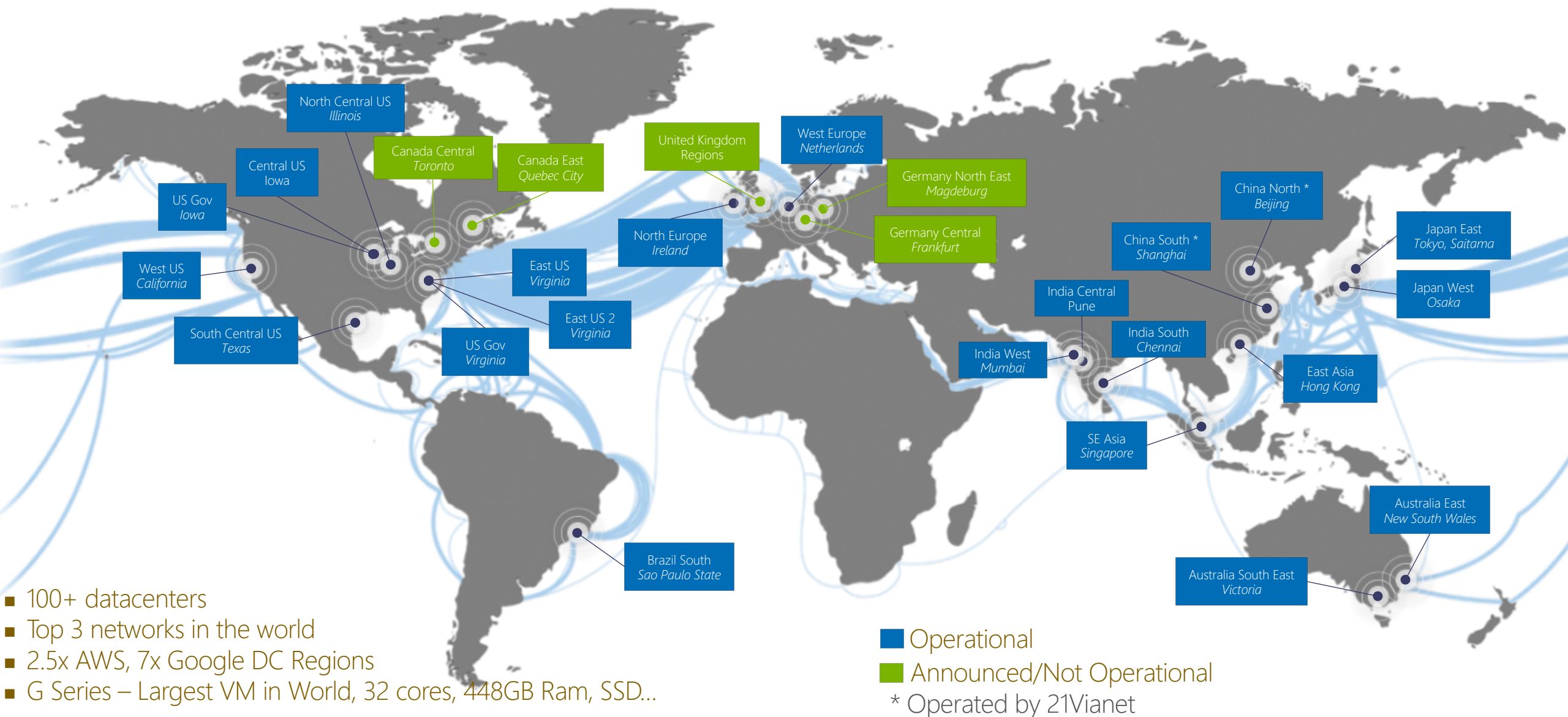


Azure Regions

- "region" is a geographical area
- Contains at least one but potentially multiple datacenters with low-latency network
- Intelligently assigns and controls the resources to ensure workloads are balanced in each region
- Not every service available in all the regions

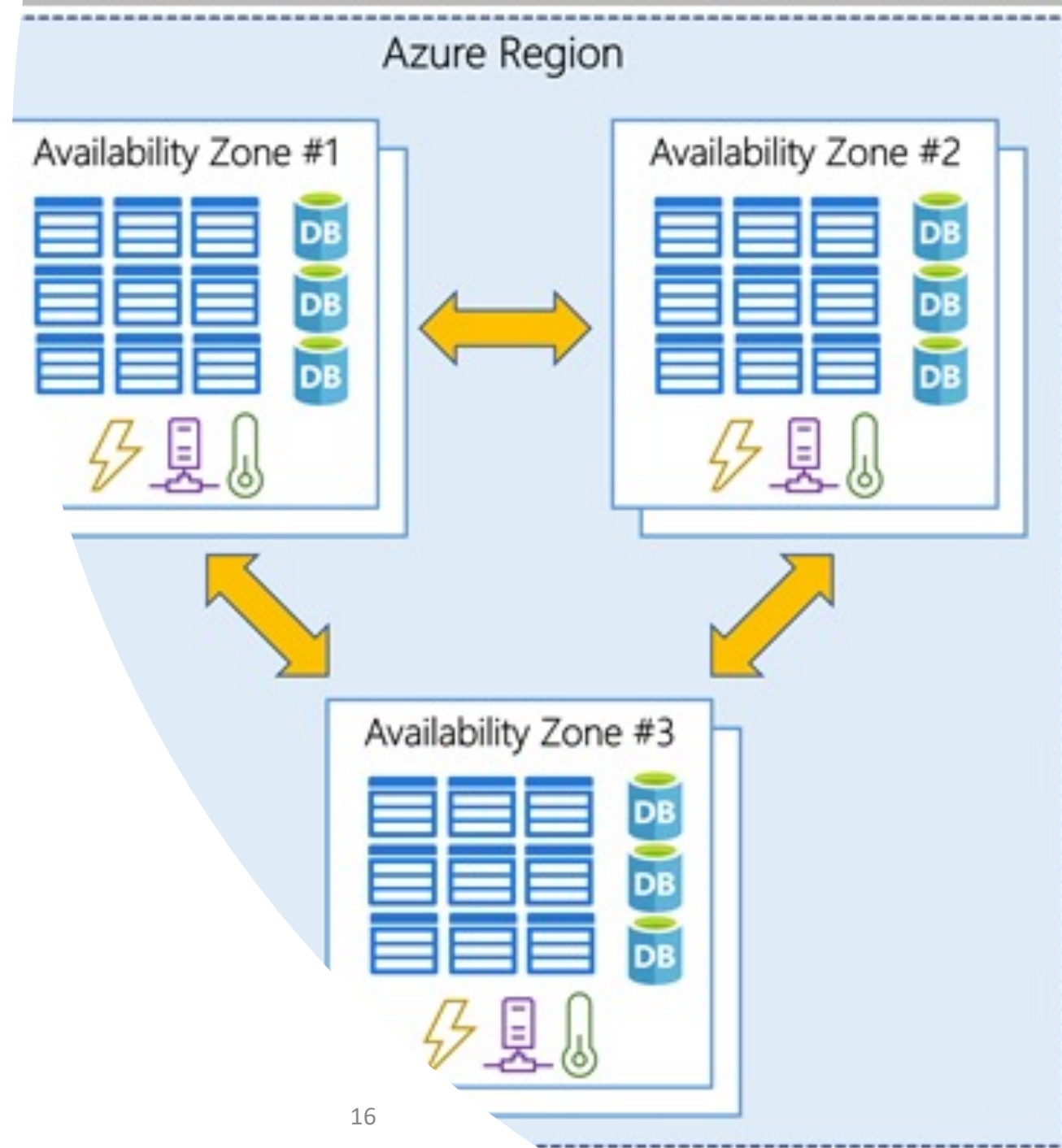
Hyper scale Infrastructure is the enabler

27 Regions Worldwide, 22 ONLINE...huge capacity around the world...growing every year

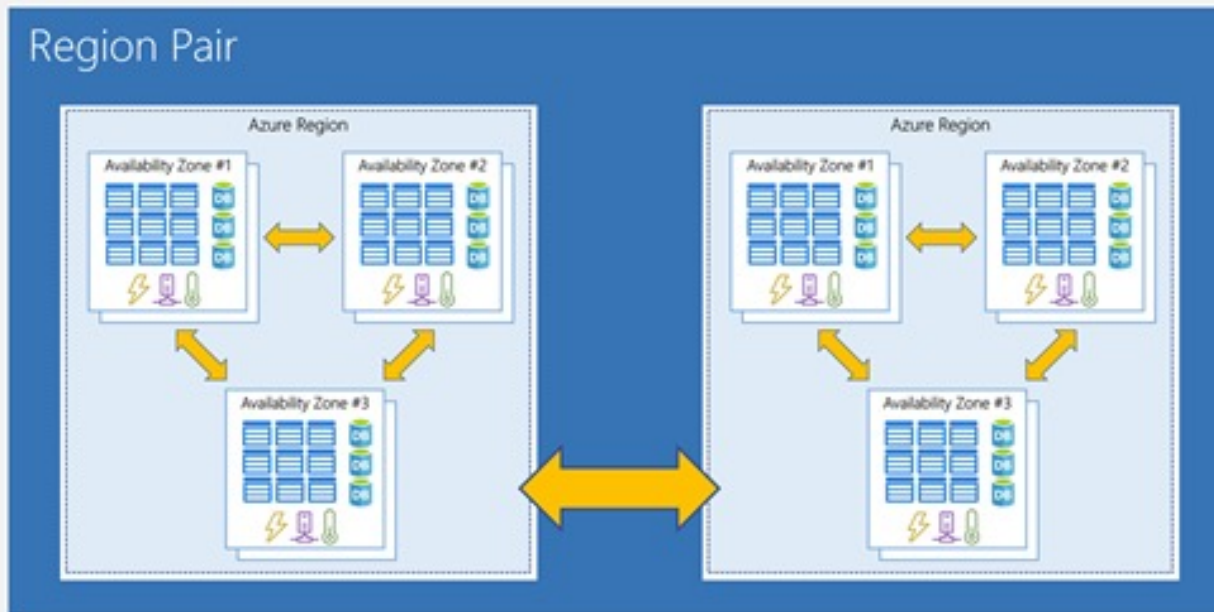
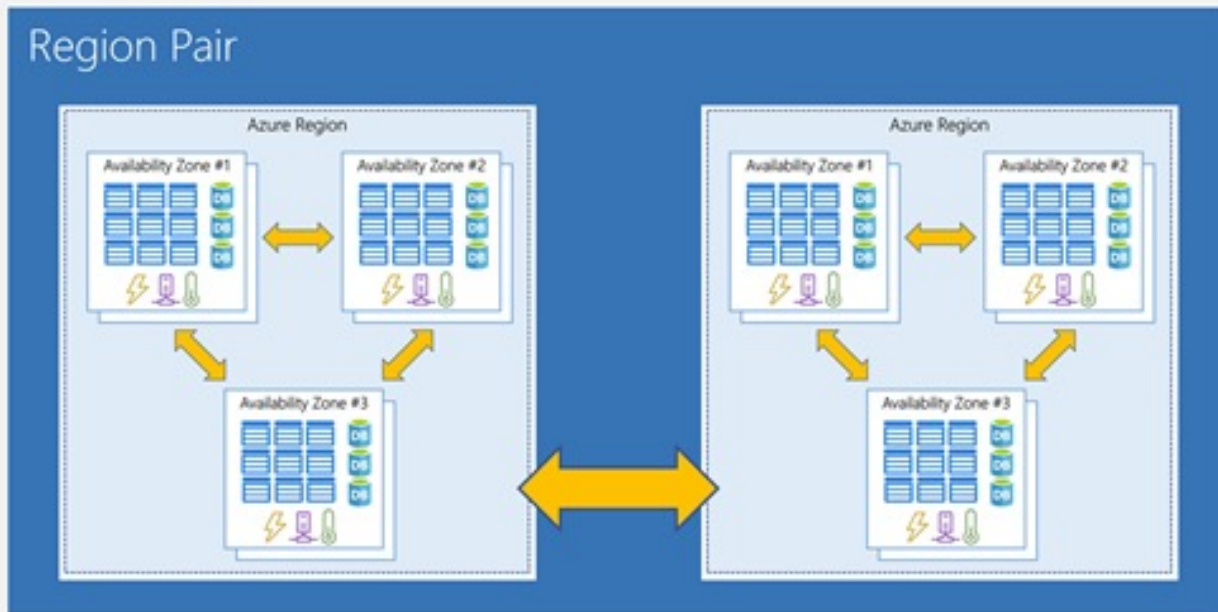


Availability Zones

- Availability zones are physically separate datacenters within an Azure region
- Each availability zone is made up of one or more datacenters equipped with independent power, cooling, and networking
- An availability zone is set up to be an *isolation boundary*.
- If one zone goes down, the other continues working. Availability zones are connected through high-speed, private fiber-optic networks.



Region Pair

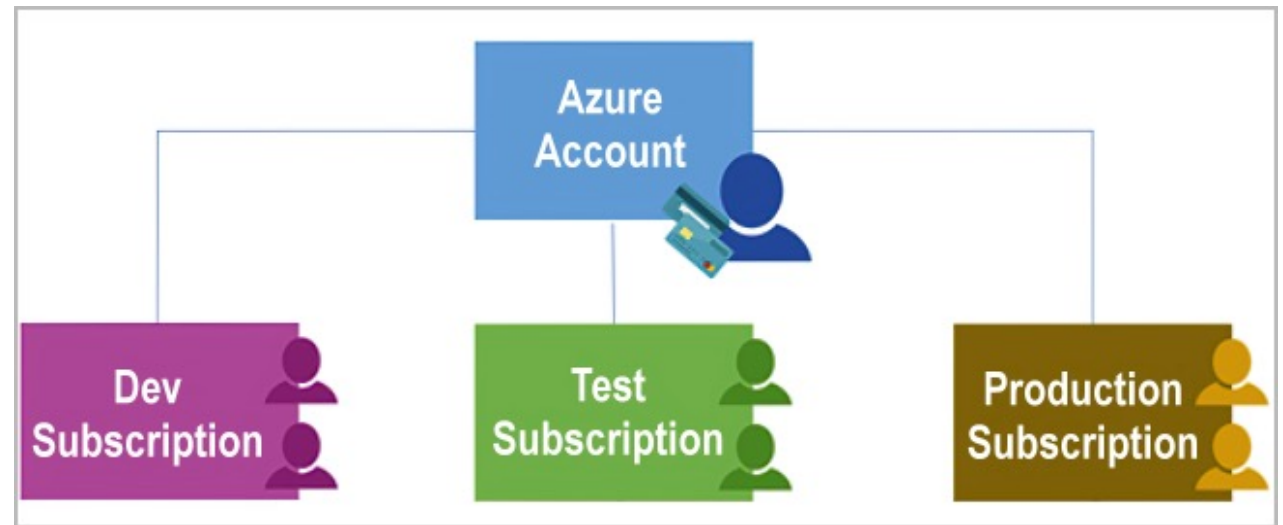


- Each Azure region is always paired with another region within the same geography (such as US, Europe, or Asia) at least 300 miles away
- This approach allows for the replication of resources (such as VM storage) across a geography that helps reduce the likelihood of interruptions because of events such as natural disasters, civil unrest, power outages, or physical network outages that affect both regions at once
- If a region in a pair was affected by a natural disaster, for instance, services would automatically failover to the other region in its region pair.
- Examples of region pairs in Azure are West US paired with East US and SouthEast Asia paired with East Asia.

Region Pairs

Azure Subscriptions and Management groups

- To use Azure require Azure Subscription
- Subscription provides authenticated and authorized access to Azure products and Services
- Allow to provision resources
- Logical unit of Azure Services
- An account can have one or multiple subscriptions
- Use Azure subscriptions to define boundaries around Azure products, services and resources



Types of Azure Subscription Boundaries

- **Billing Boundary:**
 - This type determines how an azure account is billed for using Azure
 - We can create multiple subscriptions for different types of billing requirements.
 - Separate billing reports and invoices for each subscriptions to organize and manage the costs
- **Access Control Boundary:**
 - Applies access-management policies at subscription level
 - Create separate subscriptions to reflect different organizational structures
 - This model allows you to manage and control resources that user provision with specific subscription

