Cloud Basics

Azure

Agenda

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Azure Architecture

Azure Services

Azure

Microsoft Azure is a set of cloud services to build,manage and deploy applications on a network with help of tools and frameworks.

Available in more than 54 regions around the world

PAAS & IAAS industry leader

Supports various programming language

Geographies

- Geographies are Microsoft's global locations for Azure

- America, Europe ,Asia Pacific ,Middle East & Africa

- Contains one or more regions

- Meets specific data residency and compliance requirements.

Regions

- A region is a set datacenter deployed within a latency defined perimeter and connected through dedicated low latency cable
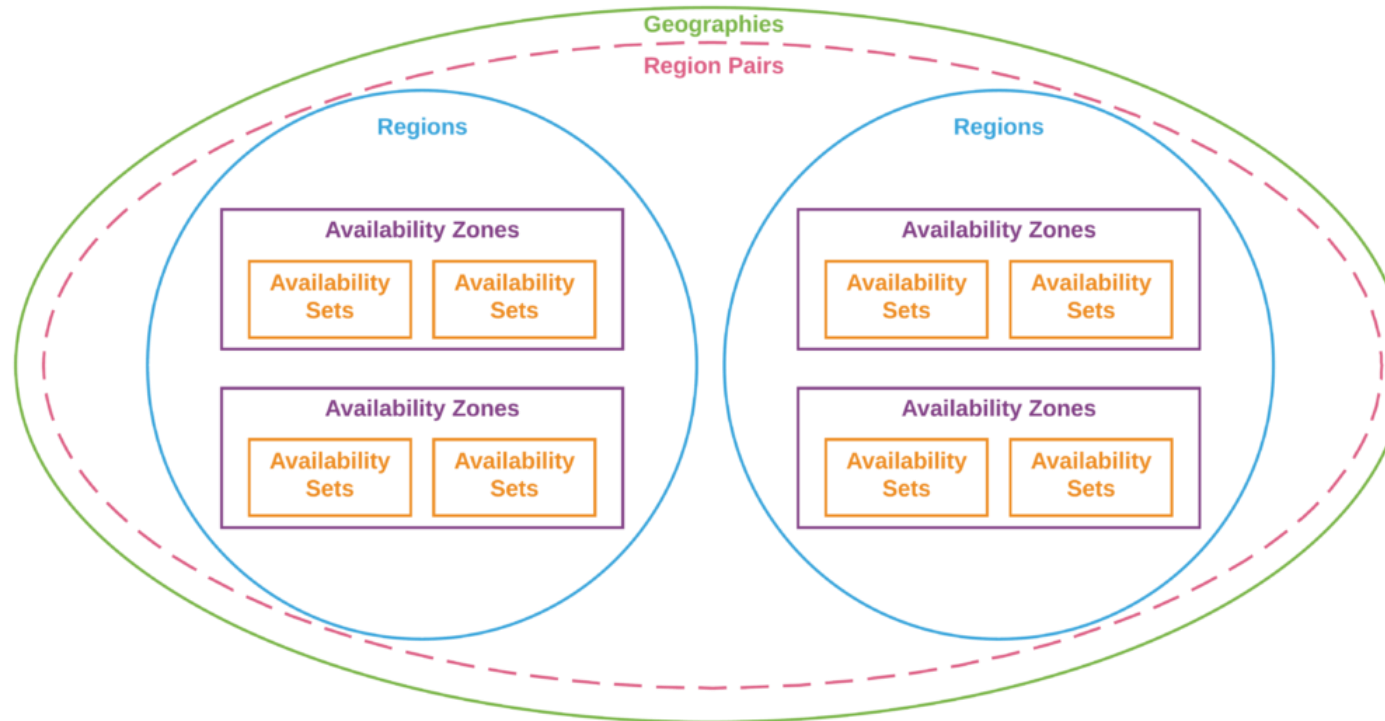
Datacenter

- A datacenter are centralized locations where computing and networking equipment is concentrated for storing , processing and distributing large volume of data

How to handle failures?

Availability Set

- An **Availability Set** is a logical grouping capability for isolating VM resources from each other when they are deployed.

- **Azure** makes sure that the VMs you place within an **Availability Set** run across multiple physical servers, compute racks, storage units, and network switches

Availability Zone

- **Availability zones** (AZs) are isolated locations within data center regions from which public cloud services originate and operate.

- Unique physical locations within a region. Each zone is made up of one or more datacenters equipped with independent power, cooling, and networking.

- Fauld domain, update domain

Region Pair

- A regional pair consists of two regions within the same geography.

- Azure serializes platform updates (planned maintenance) across regional pairs, ensuring that only one region in each pair updates at a time.

- If an outage affects multiple regions, at least one region in each pair will be prioritized for recovery.
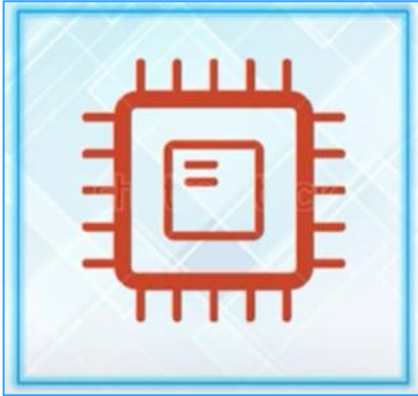
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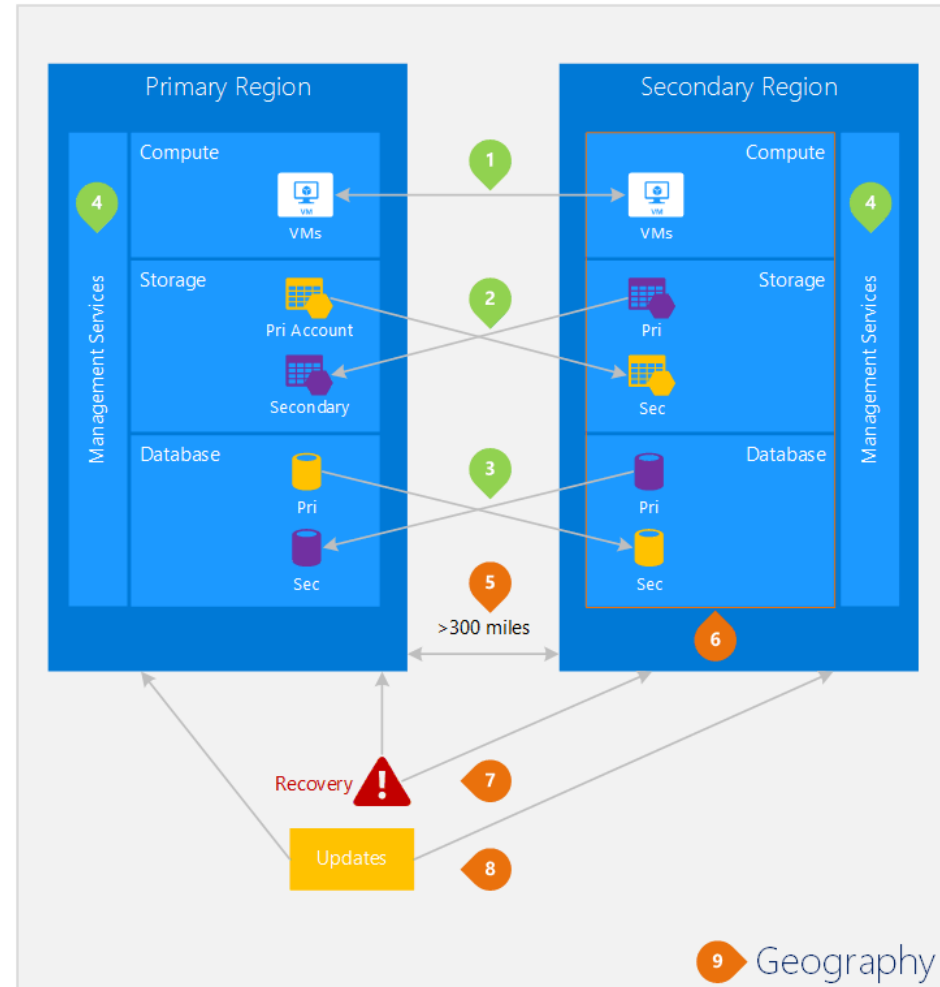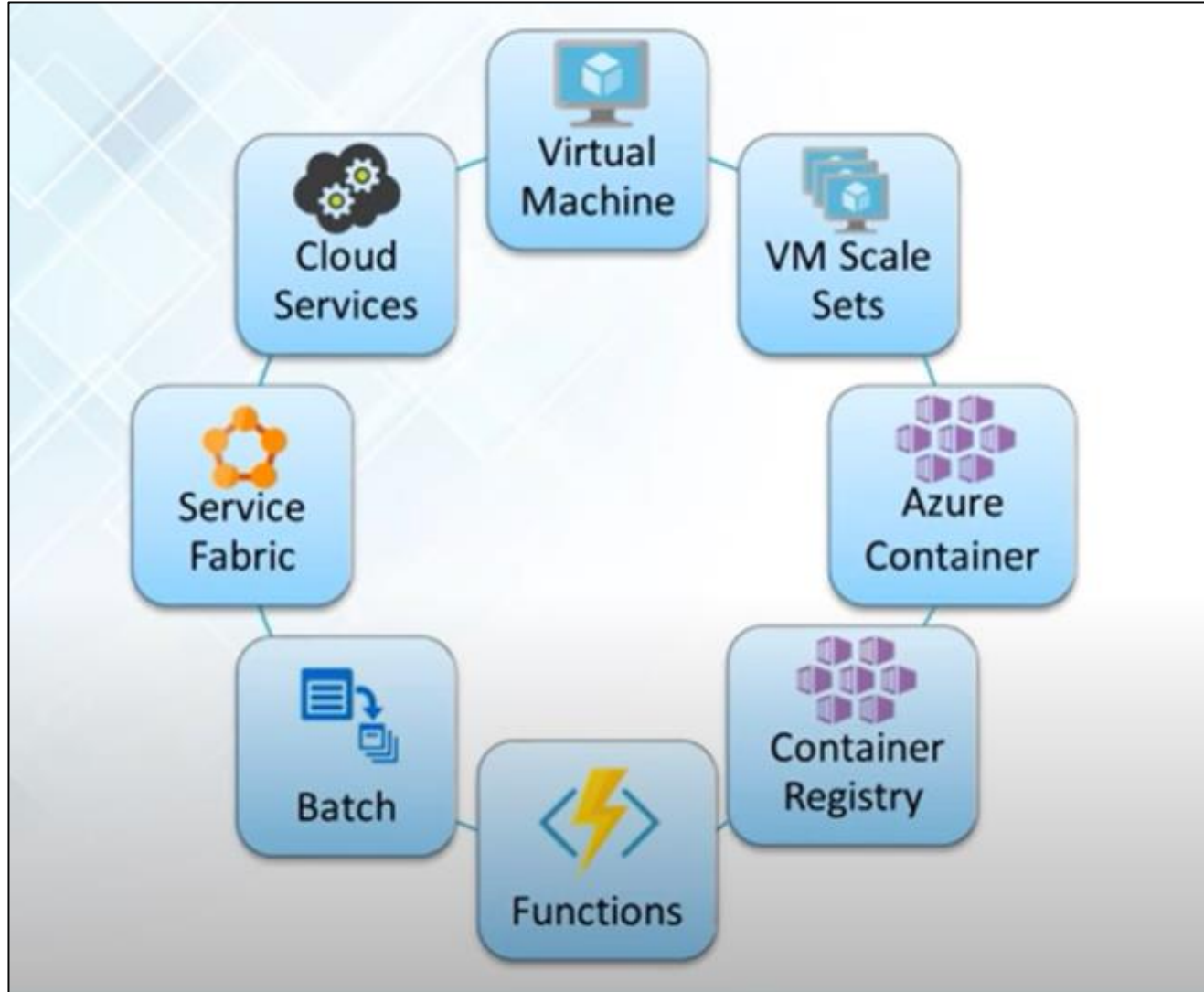
Azure Services

Services

Azure Compute Services

Compute services provides the building level products, which dictates and determines the execution of an application in Azure platform

Azure Compute Services

Azure Compute Services

- **Virtual Machines**
  - Allows you to deploy any workload, language any operating system virtually.

- **Virtual Machine Scale Sets**
  - Create thousands of virtual machines in minutes
  - Rely on integrated load balancing and auto scaling.

- **Azure Container Services**
  - Create a container hosting solution optimized for Azure
  - Scale and orchestrate applications using DC/OS ,Docker Swarm or Kube

Azure Compute Services

- **Azure Container Registry**
  - Store and manage container images across all types of Azure deployments

- **Functions**
  - Lets you write code regardless of infrastructure and provisioning of servers, especially when your functions call rate scales upRely on integrated load balancing and auto scaling.

- **Batch**
  - Scale to tens,hundreds or thousands of virtual machines
  - Stage data and execute compute pipelines.

Azure Compute Services

- **Service Fabric**

  - Simplify microservice based application development lifecycle management

  - Deliver low latency performance and efficiency at massive scale.

- **Cloud Services**

  - Focus on apps,not hardware

  - Support for Java,Node.js,PHP,Python and .NET

Azure Networking Services

- Impart scalability and security to enterprise apps using Networking solutions

- Connect privately and securely to cloud with Azure ExpressRoute

- Distribute user traffic to specific endpoints with Azure Traffic Manager

- Obtain unmatched availability and performance with Azure Load Balancer

- Tie on premises infrastructure to the Cloud with VPN Gateway

Azure Networking Services
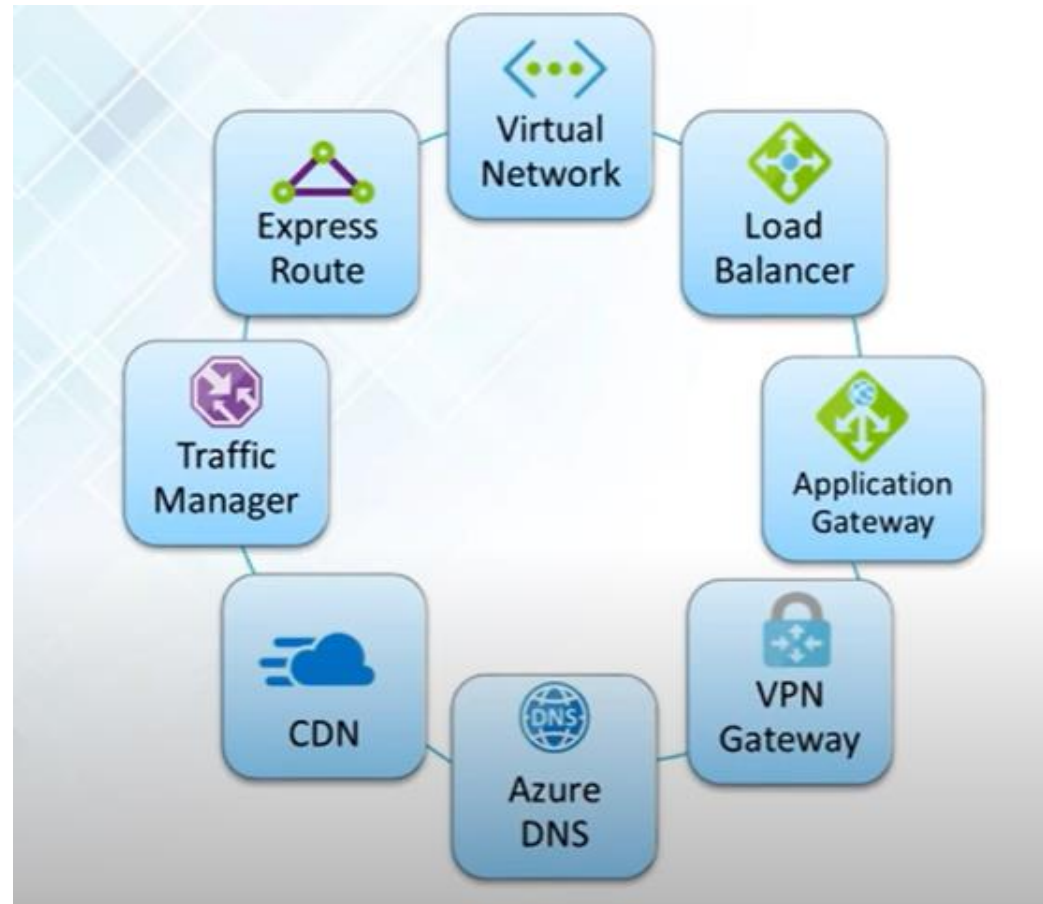
Azure Networking Services

- **Virtual Network**
  - Perform Network isolation and segmentation
  - Filter and Route network traffic

- **Load Balancer**
  - Delivers high availability and network performance for your applications
  - Load balance incoming internet traffic to Virtual machines
  - Forward external traffic to a virtual machine.

- **VPN Gateway**
  - IT is a dedicated virtual appliance providing Application Delivery Controller as a service
  - Comprised of multiple worker instances for scalability and high availabilty

Azure Networking Services

- **Azure DNS**
  - DNS is responsible for translating a website or service name to its IP address
  - Azure DNS is a hosting service for DNS domains, providing name resolution using Microsoft

  Azure infrastructure

- **Content Delivery Network**
  - CDN caches static web content at strategically placed locations to provide maximum

  Throughput for delivering content to users

- **VPN Gateway**
  - A type of virtual network gateway that sends encrypted traffic across a public connection
  - Use VPN gateway to send traffic between Azure Virtual Networks over the Microsoft network

Azure Networking Services

- **Traffic Manager**
  - Allows you to control the distribution of user traffic for service endpoints such as Azure VMs,Webapps and cloud services in different data centers.

- **Express Route**
  - Lets you extend your on premises networks into the Microsoft cloud over a dedicated private connection facilitated by a connectivity provider
  - Establishes connections to Microsoft Azure, Office 365 and CRM oline

Azure Storage Services

- It is the cloud Storage solution for modern applications that rely on durability,availability and scalability to meet needs of their customers.

- Massively scalable , so you can store and process hundreds of terabytes of data to support the big data scenarios required by Financial , Scientific communities.

- Elastic, so you can design applications for a large global audience.

- Has an auto partitioning system that automatically load balances your data based on traffic.

Azure Storage Services

Azure Storage Services

- **Blobs**

  - Azure Blob storage is a service that stores unstructured data in the cloud as objects/blobs

  - It can store any type of text or binary data such as document ,media file or application installer

- **Queue**

  - Azure Queue storage provides cloud messaging between application components

  - Queue storage delivers asynchronous messaging for communication between application component

Azure Storage Services

- **File Storage**

    - Offers file shares in the cloud using the standard Server Message Block protocol

    - With Azure File storage you can migrate legacy applications that rely on file shares to Azure quickly

    and without costly rewrites

- **Table Storage**

    - Azure table storage is aservice that stores semi structured NoSQL data in cloud ,providing key/attributes store with schema less design

Thank you

Innovative Services

Passionate Employees

Delighted Customers