CSCI 5902 - Fall 23 - Azure Tutorial

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Recap

Azure Storage Services

- Services available in Azure Storage - Blob, File, Queue, Tables, Disk, NetApp Files.

- Blob is best suited for- images, video and audio, backups, DR

- Files is a NFS supports which SMB, REST API and NFS for access. Best suited for lift and shift of on-prem file share.

- Queue - stores large number of messages each upto 64 KB. Best suited to create backlog of work to process asynchronously.

- Table - store structured non-relational data.

- Managed Disk - Virtual Hard Disk

Azure Storage Services(Contd.)

- Redundancy - LRS, ZRS, GRS, RAGRS, GZRS

- Access Tiers - Hot, Cool, Cold, Archive

- Lifecycle Policies

- Encryption in Storage - CMK, MMK

- Static Website in Azure - Blob, Static Web Apps

- File Share mount on a VM

Azure Compute Services

- Hosting models - IaaS, PaaS, FaaS

- Services available - VM, App service, AKS, ACI, Container Apps, Functions, Batch

- When to choose a VM - Total control, run custom software, custom hosting configurations.

- VM Use cases - Development and Test, Apps in Cloud, Extended datacenter

- Availability Options - Availability Zones, Scale Sets, Availability Set
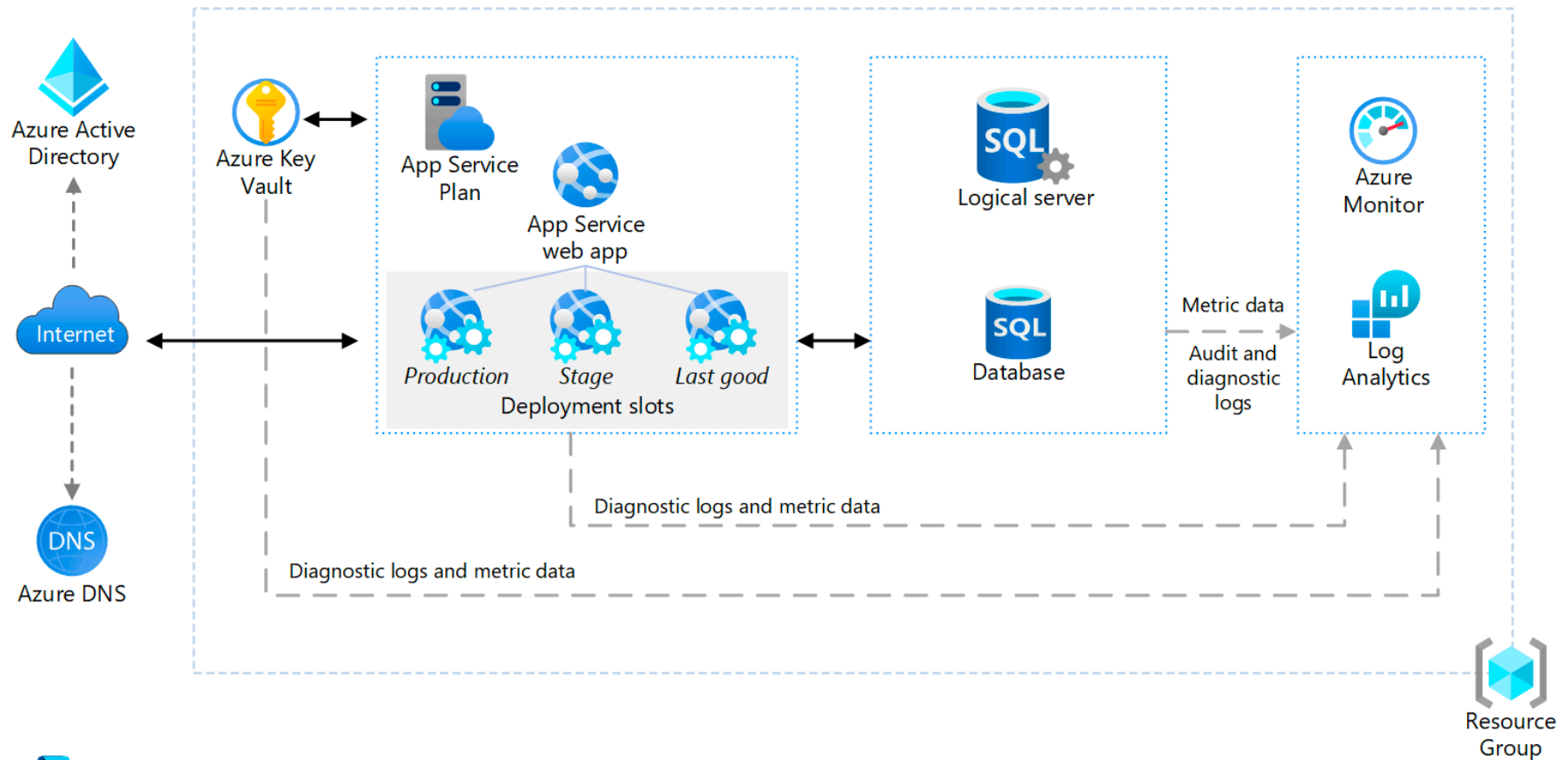
- Configuration options with VM

Reference Architecture: VM in Azure
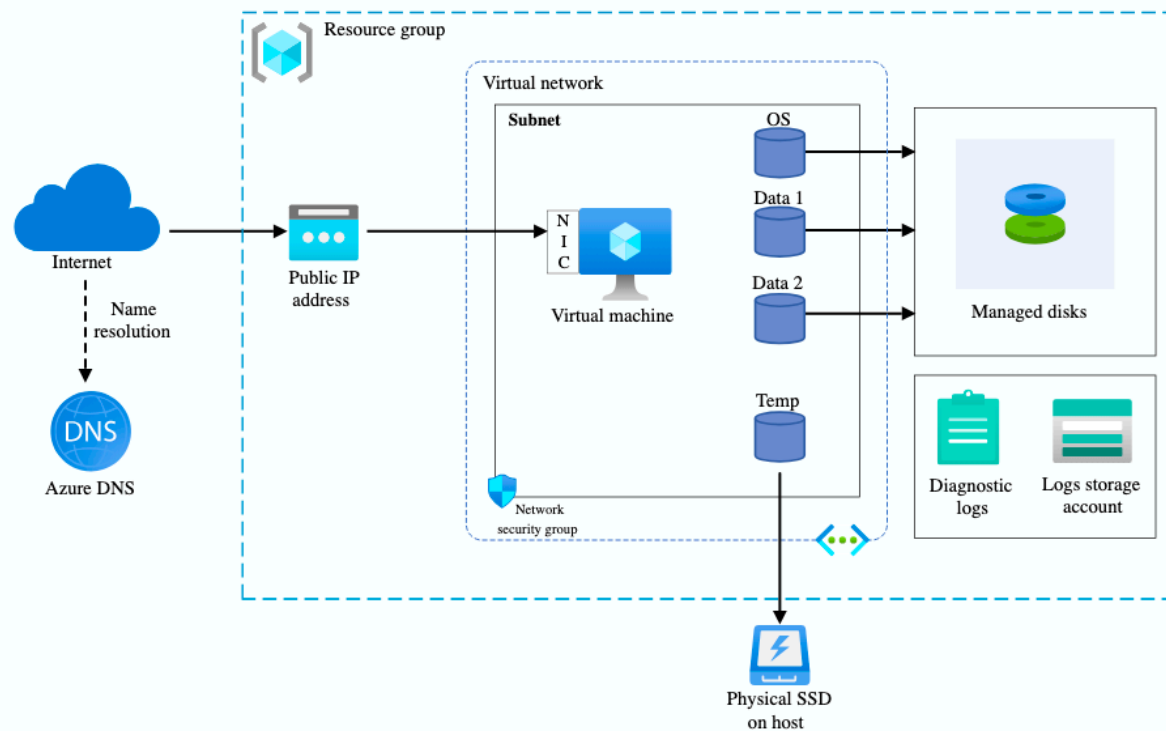
Azure Compute Services(Contd.)

- App Service

- App Service Plan - OS, region, VM instances, Pricing tier

  - Free, Shared, Basic, Standard, Premium, Isolated

- App Service configuration options

Reference Architecture: App Service

Source: [3]

Database Services in Azure

- Azure SQL, Oracle, PostgreSQL, MariaDB, MySQL, CosmosDB

- Azure SQL Family - SQL Server on VM, SQL managed instance, SQL database, SQL Edge

- Azure PostgreSQL - PaaS. Supports two deployment modes - single, flexible.

- Azure CosmosDB - offers single digit millisecond response times. Automatic and instant scalability.

- Offers multiple APIs - NoSQL, MongoDB, PostgreSQL, Cassandra, Gremlin, Table. Supports upto 5 9s availability.

- Distributed DB with Cosmos - NoSQL and relational

Database Services in Azure

- ACID guarantees with CosmosDB

- Azure Synapse - enterprise datawarehousing solution.

- SQL, Spark, ETL, Data explorer for log and time series analytics. Can connect with services like Power BI, CosmosDB and AzureML

T6 - Azure Network Services

What is a network?
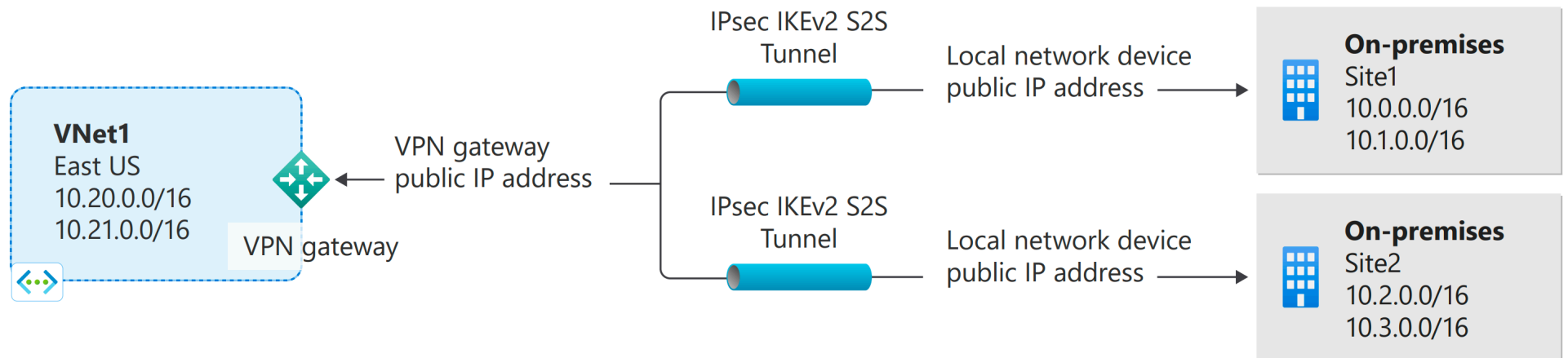
Virtual Network(VNet)

- Azure VNet is the fundamental building block of your private network in Azure.

- A VNet can be used to :

    - Communicate between Azure resources

    - Communicate to other VNets

    - Communicate to internet

    - Communicate with hybrid/on-premise networks

- Network Security Group - Contains security rules that allow or deny inbound network traffic to, or outbound network traffic from, several types of Azure resources.

Azure ExpressRoute

Source [1]
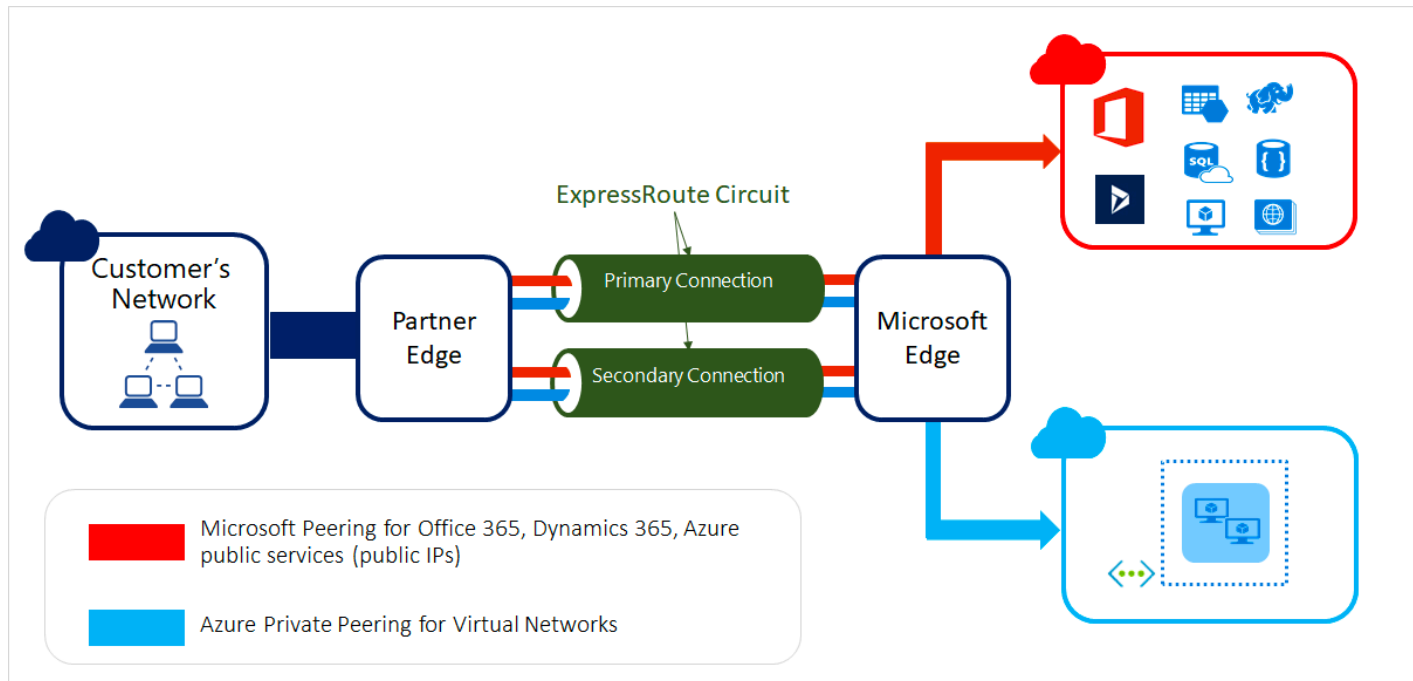
Azure VPN Gateway

- VPN Gateway helps you create encrypted cross-premises connections to your virtual network from on-premises locations.

- Can also be used to create encrypted connections between VNets.

Source [1]

References

[1]   https://learn.microsoft.com/en-us/azure/networking/fundamentals/networking-overview