EkasCloud Online Courses

This is a reference document to understand how class flows.

Azure New and Upgraded

Azure Cloud Computing Overview

Learning Objective

- **Understanding of Cloud Computing and Azure Overview.**

Topics Covered

- What is Cloud Computing
- Service Model of Cloud
- Types of Cloud
- Azure Fundamentals
- Azure Certifications
- Azure Regions and Services
- Azure Domain and Services
- Azure Subscriptions

Azure Virtual Machine in Compute Domain

Learning Objective

- **Design a compute strategy**
  - **Design a compute provisioning strategy**
  - **Design a secure compute strategy**

- **Determine appropriate compute technologies**
- **Design an Azure HPC environment**
- **Identify compute requirements**
- **Recommend management tools for compute**

❖ **Create and configure a VM for Windows and Linux**

- **Configure high availability**
- **Configure monitoring**
- **Configure networking**
- **Configure storage**
- **Configure virtual machine size**
- **Implement dedicated hosts**
- **Deploy and configure scale sets**

❖ **Implement solutions that use virtual machines (VM)**

- **Provision VMs**
- **Create Azure Resource Manager templates**
- **Configure Azure Disk Encryption for VMs**
- **Implement Azure Backup for VMs**

❖ **Automate deployment of VMs**

- **Modify Azure Resource Manager template**
- **Configure location of new VMs**
- **Configure VHD template**
- **Deploy from template**
- **Save a deployment as an Azure Resource Manager template**
- **Deploy Windows and Linux VMs**

Topics Covered:

- Launching VM Instance and Connect
  - Windows Instance
  - Linux Instance
- VM Types
  - General Purpose
  - Compute Optimise
  - Memory Optimise
  - Storage Optimise
  - GPU Optimise
- VM Instance Pricing Options
  - On-Demand

- Spot
- Reserved

- Types of Images to Launch Virtual Machine Instance
  - Azure Published
  - Azure Marketplace
  - Creating from existing Instance
  - Upload Virtual Machines
- Azure Service Limits and Support Plans
- Summary of Virtual Machine Services
- Exam Essentials

Hand-on Lab:

- Launch Virtual Machine Instance (Windows) with Standard SSD Storage, Connect to Windows Instance with Remote Desktop Protocol, and make Web Server.
- Launch Virtual Machine Instance (Linux) with Standard SSD Storage, Connect to Linux instance with Secure Shell via Putty software and make Web Server.
- Create Custom Image using existing Windows Instance to Launch a new Preconfigured Windows Web Server.
- Create Custom Image using existing Linux Instance to Launch a new Preconfigured Linux Web Server.

Azure Storage Service

Learning Objective

- **Design a storage strategy**
  - **Design a storage provisioning strategy**
  - **Design storage access strategy**
  - **Identify storage requirements**
  - **Recommend a storage solution**
  - **Recommend storage management tools**
- **Create and configure storage accounts**
  - **Configure network access to the storage account**

- **Create and configure storage account**
- **Generate shared access signature**
- **Implement Azure AD authentication for storage**
- **Install and use Azure Storage Explorer**
- **Manage access keys**
- **Monitor activity log by using Azure Monitor logs**
- **Implement Azure storage replication**
- **Implement Azure storage account failover**

Topics Covered

- Understanding Cloud Storage
- Advantages of Cloud Storage
- Understanding Terminologies of Cloud Storage
  - Physica Hard Disk
  - Virtual Hard Disk
  - Virtual Hard Disk
  - HDD/SSD
  - IOPS
  - Disk I/O
  - Storage Memory in GiB, MiB, KiB
- Azure Storage Accounts
  - Managed Disks
  - Unmanaged Disks
- Azure Elastic Block Store
- Hard Disk Snapshots
- Azure Storage Services
  - Block Blob
  - Blob
  - File
  - Table
  - Queue
- Azure Storage Types
  - Standard
  - Premium
- Azure Storage Redundancy
  - Local Redundant
  - Zone Redundant
  - Geo-Redundant

- ❏ Read-Access Geo-Redundant
- ❏ Summary of Cloud Storage
- ❏ Exam Essentials

Hands-On

- ❏ Launch Windows Virtual Machine Instance with Unmanaged Virtual Hard Disk (Default Size).
- ❏ Create a Virtual Hard Disk in Local Computer and upload the VHD to Storage Account
- ❏ Implement RAID Configuration in Windows for Data and Application Backup using Disk Management.
- ❏ Create a File Share in Azure Files and Mount the File Share in Azure VMs.

Azure Virtual Network and Security

Learning Objective

- ❖ **Design a networking strategy**
  - ➢ **Design a network provisioning strategy**
  - ➢ **Design a network security strategy**
  - ➢ **Determine appropriate network connectivity technologies**
  - ➢ **Identify networking requirements**
  - ➢ **Recommend network management tools**
  - ➢ **Recommend network security solutions**
- ❖ **Implement and manage virtual networking**
  - ➢ **Configure private IP addressing**
  - ➢ **Configure public IP addresses**
  - ➢ **Create and configure network routes**
  - ➢ **Create and configure network interface**
  - ➢ **Create and configure subnets**
  - ➢ **Create and configure virtual network**
  - ➢ **Create and configure Network Security Groups and Application Security Groups**
- ❖ **Create connectivity between virtual networks**
  - ➢ **Create and configure Vnet peering**
  - ➢ **Create and configure Vnet to Vnet connections**
  - ➢ **Verify virtual network connectivity**

- ➢ **Create virtual network gateway**

❖ **Implement application load balancing**

- ➢ **Configure application gateway**
- ➢ **Configure Azure Front Door service**
- ➢ **Configure Azure Traffic Manager**

❖ **Integrate on premises network with Azure virtual network**

- ➢ **Create and configure Azure VPN Gateway**
- ➢ **Create and configure site to site VPN**
- ➢ **Configure ExpressRoute**
- ➢ **Configure Virtual WAN verify on premises connectivity**
- ➢ **Troubleshoot on premises connectivity with Azure**

Topics Covered

- ❑ Basics of Networking
- ❑ Virtual Networks
- ❑ Subnets
- ❑ Route Tables
- ❑ Network Security Groups
- ❑ Public IP and NICs
- ❑ Virtual Private Gateway,
- ❑ Local Network Gateway
- ❑ V-Net Peering
- ❑ Azure Direct Connect
- ❑ Summary
- ❑ Exam Essential

Hands-On

- ❑ Create Virtual Network, Public Subnets and Route Table and Launch Virtual Machine Instance.
- ❑ Create Virtual Network Public and Private Subnets, Route table and Launch Virtual Machine instance Windows in Public and Linux in Private.
- ❑ Create Nat Gateway and allow internet access to Private Subnet.
- ❑ Create two different Virtual Network in different regions and use Virtual Network Peering Connection to Connect.
- ❑ Build Network and Instance Security Between Instances using Security Group and Network ACL
- ❑ Create Customer and VPN Gateway to describe VPN Connection.

Azure CloudFront

Learning Objective

- **Understanding Content Delivery Network for Videos and media files.**

Topics Covered

- Content Delivery Network
- Azure Edge Locations
- Distributions
- CDNProfiles
- Summary
- Exam Essentials

Hands-On

- Create Blob Storage, and Container. Upload videos to distribute to all edge locations
- Create distribution in CDNProfile to distribute videos to all edge locations.

Azure Management Tools

Learning Objective

- **Analyze resource utilization and consumption**
  - **Configure diagnostic settings on resources**
  - **Create baseline for resources**
  - **Create and test alerts**
  - **Analyze alerts across subscription**
  - **Analyze metrics across subscription**
  - **Create action groups**
  - **Monitor for unused resources**
  - **Monitor spend**
  - **Report on spend**

- ➢ **Utilize Log Search query functions**
- ➢ **View alerts in Azure Monitor logs**
- ➢ **Visualize diagnostics data using Azure Monitor Workbooks**

Topics Covered

- ❑ Azure Monitor
- ❑ Azure alerts
- ❑ Cost Management
- ❑ Event Managements
- ❑ Azure VM Extensions
- ❑ VM Boot Diagnostics
- ❑ PowerShell and Powershell Scripts
- ❑ Summary
- ❑ Exam Essential

Hands-on

- ❑ Monitor Virtual Machine instance with Detailed Monitoring
- ❑ Monitor Virtual Network
- ❑ Audit event using Event Management
- ❑ Create Azure Alert Subscribe Email to get Notifications
- ❑ Run Powershell Script to Build Azure Resource.

Load Balancing and Auto Scaling of Virtual Machine Instance and Traffic

Learning Objective

- ❖ **Use load balancing in the creation of highly available systems.**
- ❖ **Learn scaling applications/Systems with AutoScaling and its use in Building fault Tolerant Networks.**
- ❖ **Create web apps by using PaaS**
  - ➢ **Create an Azure app service Web App**
  - ➢ **Create documentation for the API**
  - ➢ **Create an App Service Web App for Containers**

- ➢ **Create an App Service background task by using WebJobs**
- ➢ **Enable diagnostics logging**

Topics Covered

- ❏ Fault Domain
- ❏ Update Domain
- ❏ Availability Sets
- ❏ Load Balancers Types
  - ❏ Application
  - ❏ Network
- ❏ Load Balancer Configuration
  - ❏ Service Health Check
  - ❏ Launch Configurations
- ❏ Scaling Groups
  - ❏ Scaling Policies
- ❏ VMScale Sets
- ❏ Building Fault Tolerant and Highly Available Applications
- ❏ Summary of Auto Scaling and Load Balancers
- ❏ Exam Essentials

Hands-On

- ❏ Create Availability Sets to build High Availability
- ❏ Attach a load balancer to Virtual Network and Launching VMs
- ❏ Create VMScaleset to build AutoScaling.

Azure Identity and Access Management

Learning Objective

- ❖ **Understand the use IAM in Azure**
- ❖ **Manage Azure Active Directory**
  - ➢ **Add custom domains**
  - ➢ **Configure Azure AD Identity Protection**
  - ➢ **Configure Azure AD Join**
  - ➢ **Configure self-service password reset**
  - ➢ **Implement conditional access policies manage multiple directories**
  - ➢ **Perform an access review**

- **Implement and manage hybrid identities**
  - **Install and configure Azure AD Connect**
  - **Configure federation**
  - **Configure single sign-on**
  - **Manage and troubleshoot Azure AD Connect**
  - **Troubleshoot password sync and writeback**
- **Implement multi factor authentication**
  - **Configure user accounts for MFA**
  - **Configure fraud alerts**
  - **Configure bypass options**
  - **Configure trusted IPs**
  - **Configure verification methods**
- **Manage role-based access control**
  - **Create a custom role**
  - **Configure access to Azure resources by assigning roles**
  - **Configure management access to Azure**
  - **Troubleshoot RBAC**
  - **Implement Azure Policies**
  - **Assign RBAC Roles**

Topics Covered

- IAM Principles
- Understanding Azure Active Directory
- Creating Users
- Creating Groups
- Create RBAC to Set Permissions to Users
- Summary
- Exam Essentials

Hands-On

- Create Users in Azure Active Directory
- Assign RBAC access to a Specific Resource Group.

Database Services, Backup and Migration

Learning Objective

- **Understanding Azure Database services and their use case.**
- **Develop solutions that use a relational database**
  - **Provision and configure relational databases**
  - **Configure elastic pools for Azure SQL Database**
  - **Implement Azure SQL Database managed instances**
  - **Create, read, update, and delete data tables by using code**
- **Understanding Site Recovery Services Vault**
- **Optimize consumption strategy**
  - **Optimize app service costs**
  - **Optimize compute costs**
  - **Optimize identity costs**
  - **Optimize network costs**
  - **Optimize storage costs**

Topics Covered

- Azure Databases
- Create and Manage MS SQL Databases
- Site Recovery Services Vault

Hands-On

- Create MySql Database.
- Taking Backup of VM
- Migrating Hyper-V Virtual Machines from On-Premises to Azure.