



Cloud Computing - Overview

- **Define Cloud Computing**
- **Benefits of cloud services**
 - Scalability
 - Vertical Scaling
 - Horizontal Scaling
 - High Availability
 - Reliability
 - Predictability
 - Manageability
 - Security and Governance
- **Describe the shared responsibility model**
- **Cloud Models**
 - Service models (IaaS, PaaS, SaaS)
 - Deployment models (Public, Private, Hybrid and Multi-cloud)

Azure Platform - Overview

- **Azure Cloud Introduction**
- **Azure Portal - Overview**
- **Azure physical and Management Infrastructure**
 - Region
 - Availability Zone
 - Region Pairs and Geography
 - Resources / Resource Group
 - Management Groups
 - Subscriptions and cost management
 - Virtualization - Basics
 - Azure Services - Overview
 - Compute Services
 - Storage Services
 - Networking Services
 - Azure Active Directory
 - Azure Integration Services
 - Azure Backup and Recovery
 - Azure Monitor
 - Azure Free Account - Overview

Session Lab - Azure Portal overview

Practice Lab - Azure Portal Free Account Creation

Azure Compute Services

- **Azure Virtual Machines - Overview**
 - IaaS and virtual machines
 - Azure virtual desktop
 - Virtual Machine Planning and configuration
 - Determine basic settings
 - Determine virtual machine sizing
 - Determine virtual machine storage
 - Determine operating system
 - Virtual Machines Connectivity
 - RDP
 - SSH

- Azure Bastion

Session Lab - Create Windows Virtual Machines in the Azure Portal

Practice Lab - Create Linux Virtual Machines in the Azure Portal

- **Azure VM Configuration and High Availability - Overview**
 - Manage images by using Azure Compute Gallery
 - Azure Disk Encryption
 - Add data disks
 - Managing VM sizes
 - Move VMs between resource groups
 - Maintenance planning and downtime
 - High Availability Options
 - Vertical and Horizontal Scaling
 - Availability Set
 - Update domains
 - Fault domains
 - Virtual Machine Scale Sets (VMSS)
 - Auto Scaling

Session Lab - Implement Virtual Machine Scalesets

Practice Lab - Implement Availability Set

- **App Service Plan - Overview**
 - Implement Azure App Service plans
 - Configure scaling settings
- **Azure App Services - Overview**
 - Implement Azure App Service
 - Secure App Service App
 - Create Custom domain names
 - Back up and restore your App Service app
 - Use Azure Application Insights

Session Lab - Implement Azure Web Apps

- **Azure Container Instances - Overview**
 - Sizing and scaling for Azure Container Instances
 - Container groups for Azure Container Instances
- **Azure Kubernetes Service (AKS) - Overview**
 - AKS cluster and node architecture
 - Storage configuration for AKS
 - Scaling configuration for AKS
 - Network connections configuration for AKS
 - Upgrade an AKS cluster

Session Lab - Implement Azure Kubernetes Service

Practice Lab - Implement Azure Container Instances

Practice Lab - Host a web application with Azure App Service

Azure Resource Manager - Overview

- **Azure Resource Manager - Introduction**
 - Infrastructure as Code
 - Azure CLI
 - Azure Cloud Shell
 - Azure PowerShell
 - Environment Set-up (Azure CLI, VS Code and Shell Script)

- ARM Template overview
- Create JSON file and deploy using Azure CLI
- Deploy a template
- Save a deployment as ARM template
- Deploy virtual machine (VM) extensions

Session Lab - Manage Azure Resources Azure CLI

Session Lab - Manage Azure Resources Azure PowerShell

Session Lab - Manage Azure Resources Azure Cloud Shell

Session Lab - Environment Set-up (Azure CLI, VS Code and Shell Script)

Session Lab - Create a sample JSON template and deployment process

Session Lab - Create Multiple VMs using ARM Template

Azure Storage Services

- **Azure Storage Account - Overview**
 - Azure Disk
 - Azure Files
 - Azure Blob Storage
 - Azure Table Storage
 - Storage Queues
 - Storage Encryption - Configuration
 - Network Access - Configuration
 - Stored Access Policies
- **Access Configuration**
 - Access Keys
 - Shared Access Signature
 - Azure AD Authentication
- **Manage data in Azure storage accounts**
 - Create import and export jobs
 - Manage data by using Azure Storage Explorer and AzCopy
 - Implement Azure Storage redundancy
 - Configure object replication
- **Configure Azure Files and Azure Blob Storage**
 - Configure storage tiers
 - Configure blob lifecycle management

Session Lab - Create Storage Account

Session Lab - Implement Azure Disk and Azure Files

Session Lab - Implement Azure Blob Storage and access methods

Practice Lab - Use stored access policies to delegate access to Azure Storage

Practice Lab - Usage of storage explorer

Practice Lab - Implement Table Storage

Practice Lab - Configure blob lifecycle management

Azure Networking Services

- **Basic Networking Concepts - Overview**
 - IP addressing
 - Public and Private IP address
 - Subnetting
 - CIDR
 - Subnet Mask
- **Azure Virtual Networks**
 - Virtual Networks - Overview
 - Subnets
 - User-Defined Routes (UDR)
 - Azure DNS

- VNet Peerings
- **Secure access to Virtual Networks**
 - Network security groups (NSGs)
 - Application security groups (ASGs)
 - Azure Bastion
 - Network Service Endpoints
 - Private Endpoints
- **Load Balancing**
 - Azure Load Balancer
 - Azure Application Gateway
 - Traffic Manager
 - Troubleshooting Load Balancing
- **Monitor Virtual Networking**
 - Express Route and monitor on-premises connectivity
 - Azure Monitor for networks - Configuration
 - Azure Network Watcher
 - Troubleshoot external networking
 - Troubleshoot network connectivity

Session Lab - Create Virtual network and subnets

Session Lab - VNet Peerings

Session Lab - Implement Azure DNS

Session Lab - Implement Network Service Endpoints

Session Lab - Implement Load Balancer and NSG & ASG

Practice Lab - Azure Bastion

Practice Lab - Implement User Defined Route

Practice Lab - Implement Private Endpoint

Practice Lab - Implement Application Gateway

Practice Lab - Implement Traffic Manager

Manage Azure identities and governance

- **Identity and Access Management (IAM) - Overview**
- **Azure Active Directory - Overview**
- **Managing Azure AD Objects**
 - User and Groups
 - Create and manage users and groups
 - Manage guest accounts
 - Perform bulk updates
 - Manage Licenses in Azure AD
 - Administrative Units
 - Manage device settings and device identity
- **Azure AD Connect**
- **Azure AD Tenants**
- **Managed identity**
- **Custom Domain**
- **SSPR - Self-Service Password Reset**
- **Manage access control**
 - Create custom role-based access control (RBAC) and Azure AD roles
 - Provide access to Azure resources by assigning roles at different scopes
 - Interpret access assignments
- **Manage Azure subscriptions and governance**
 - Microsoft Purview
 - Configure and manage Azure Policy
 - Configure resource locks
 - Apply and manage tags on resources
 - Manage resource groups
 - Manage subscriptions

- Manage costs by using alerts, budgets, and recommendations
- Configure management groups
- Service Trust Portal

Session Lab - Create user account in Azure AD and manage groups

Session Lab - Grant access using Azure RBAC and View activity logs for Azure RBAC changes

Session Lab - Create AD Tenants

Practice Lab - Set up self-service password reset

Practice Lab - VM login using Azure AD account

Monitor and Maintain Azure Resources

- **Azure Monitor Service**
 - Azure Advisor
 - Azure monitor - Overview
 - Alerts and metrics
 - Azure Monitor Logs
 - Query and Analyze logs
 - Setting up alerts and actions
 - Configure monitoring of VMs, storage accounts, and networks by using VM insights
- **Azure Backup and Recovery**
 - Azure Recovery Services Vault
 - Azure Backup Vault
 - Backup Policy - Configuration
 - Perform backup and restore operations by using Azure Backup
 - Azure Site Recovery for Azure resources
 - Perform failover to a secondary region by using Azure Site Recovery
 - Configure and review backup reports

Session Lab - Configure Azure Monitor and extract from log data

Session Lab - Create an Azure Recovery Services Vault

Session Lab - Implement an Azure virtual machine-level backup and file & folder backup

Practice Lab - Use an activity log alert and an action group to notify users about events in your Azure infrastructure

Practice Lab - Perform file recovery by using the Microsoft Azure Recovery Services (MARS) agent

Practice Lab - Perform file recovery by using Azure Virtual Machines snapshots

Practice Lab - Review the Azure Recovery Services soft delete functionality

Practice Lab - Set up a Log Analytics workspace and Azure Monitor VM Insights

Azure Cost Management

- Factors affecting cost management
- Pricing and TCO calculators
- Microsoft Cost Management Tool
- Estimate Workload costs
- Compare Workload costs

Session Lab - Estimate workload costs by using the Pricing calculator

Session Lab - Compare workload costs using the TCO calculator

Additional Topics - MUST KNOW

- **Azure Integration Services**
 - Service Bus
 - Event Grid
 - Event Hub
 - Logic Apps
 - API Management
- **Azure Functions**
- **Azure Key Vault**
- **Azure SQL**

- **Azure Cosmos DB**
- **Azure Blueprints**

Practice Lab - Create workflow using Logic Apps

Practice Lab - Deployment of Azure Key Vault

Practice Lab - Deployment of Azure SQL

Practice Lab - Deployment of Azure Cosmos DB

Cloud Migration - Overview

- Introduction
- On-premises workloads
- Migration Process
- Migration strategies
- System Assessment
- Azure Migrate overview
- Azure Migrate demo overview
- AWS to Azure VM Migration Using Azure Migrate Service

Session Lab - Sample migration activities

Microsoft Certification Materials

Study Materials:

- Exam AZ-900: Microsoft Azure Fundamentals
- Exam AZ-104: Microsoft Azure Administrator

Exam Preparation:

- 120 - Assessment Questions and Answers

Frequently Asked - Interview Questions