

# **70-533 - Implementing Microsoft Azure Infrastructure**

## **Solutions Syllabus**

### **Cloud Computing Introduction**

- ❖ What is Cloud Computing
- ❖ Cloud Characteristics
- ❖ Cloud Computing Service Models
- ❖ Deployment Models in Cloud Computing
- ❖ Advantages and Disadvantages of Cloud Computing
- ❖ Cloud Computing Job Roles.
- ❖ Cloud Computing Platforms and Certifications.

### **Getting Starting with Azure**

- ❖ Introduction to Azure
- ❖ Why, What and Benefits of Azure
- ❖ Azure Hosting Models
- ❖ Azure Services
- ❖ Subscribing to Microsoft Azure
- ❖ Azure Portals
- ❖ Azure Key Concepts
- ❖ Azure Resource Group
- ❖ Installing Microsoft Azure SDK

### **Azure Virtual Networks**

- ❖ Overview of Azure Networking
- ❖ Virtual Network Benefits
- ❖ Understanding Network Resources
- ❖ Create a VNet using Azure Portal
- ❖ Create a Subnet
- ❖ Setup Network Security Group
- ❖ Create a Public IP Address
- ❖ Create Network Interface Card with public, and private IP addresses

- ❖ Create a Virtual Machine
- ❖ Configure external and internal load balancing
- ❖ Understanding and Creating Availability Sets
- ❖ Azure Application Gateway
- ❖ Azure Traffic Manager
- ❖ User Defined Routes (UDRs),
- ❖ Understanding Azure DNS
- ❖ Design and implement a multi-site or hybrid network
  - Point-to-Site Network
  - Site-to-Site Network
  - ExpressRoute Solution

### ARM Virtual Machines

- ❖ Introduction
- ❖ About Virtual Machine Workloads
- ❖ Comparing VM with Web Apps and Cloud Services
- ❖ Create a Windows Virtual Machine using Portal / PowerShell / ARM Templates
- ❖ Deploy popular application frameworks by using Azure Resource Manager templates
- ❖ Understand and Capture VM Images
- ❖ Upload an on-premise VHD to Storage Account
- ❖ Deploy a New VM from the Captured Image
- ❖ Virtual Machine Scale Sets
- ❖ Virtual Machine Disk Types and VM Storage
- ❖ Virtual Machine Sizes in Azure
- ❖ Importing and Exporting Disks
- ❖ Configuring VM Security
- ❖ Perform configuration management
  - VM Extensions & VM Agents
  - Custom Script Extensions
  - Desired State Configuration (DSC)
  - Puppet or Chef
- ❖ Configure VM monitoring, configure alerts, diagnostic and monitoring storage location.

- ❖ Azure VM Backup and Restore Services

### **Azure App Services - Web Apps**

- ❖ Introduction
- ❖ App Service - Application Types
- ❖ Deploy Web Apps
  - Deploying Web App directly from Visual Studio
  - Automate deployment from Dropbox and One Drive
  - Create, configure and deploy packages
  - Implement pre- and post-deployment actions
- ❖ App Service plans
  - Create App Service Plan
  - Migrate Web Apps between App Service plans
  - Create a Web App within an App Service plan
- ❖ Configuring Web Apps
  - Application Settings Configuration
  - Database Connection Strings
  - Configuring Handlers and Virtual Directories
- ❖ Configure a custom domain name
- ❖ Enable SSL for your custom domain
- ❖ Understanding Deployment Slots and Roll back deployments;
- ❖ Configure Web Apps for scale and resilience
  - Horizontal and Vertical Scaling of a Web App
  - Configure auto-scale
  - Change the size of an instance
- ❖ Azure Traffic Manager to Scale out Globally
- ❖ Monitoring, Debugging and Diagnosis
  - Retrieve Diagnostics data
  - View Streaming Logs
  - Configure endpoint monitoring
  - Configuring Alerts
  - Configure diagnostics
  - Use remote debugging

- Monitor Web App resources
- Azure Application Insights

### Managing Data in Azure SQL Database

- ❖ Introduction/Overview of SQL Database.
- ❖ Comparing SQL Azure Database to IAAS / On-Premise SQL Server.
- ❖ Creating and Using SQL Server and SQL Database Services.
- ❖ Azure SQL Database Tools.
- ❖ Migrating on premise database to SQL Azure.
- ❖ Planning the Deployment of an Azure SQL Database
- ❖ Elastic Pools.
- ❖ Monitoring Azure SQL Database
- ❖ Configure SQL Database Auditing
- ❖ Manage Business Continuity
- ❖ Export and Import of Database
- ❖ Backup and Recovery options in SQL Database
- ❖ Active GEO-Replication
- ❖ Long Term Backup Retention
- ❖ Pricing Tier Comparisons.

### Azure Storage

- ❖ Importance of Azure Storage Service
- ❖ Creating Storage Account
- ❖ Storage Replication Models
  - Locally Redundant Storage
  - Zone Redundant Storage
  - Geo Redundant Storage
  - Read Access Geo Redundant Storage
- ❖ Implement Azure storage blobs
  - Read data, change data, set metadata on a container, store data using block and page blobs, stream data using blobs, access blobs securely, implement async blob copy, configure a Content Delivery Network (CDN), design blob hierarchies, configure custom domains, scale blob storage
- ❖ Azure Table Storage

- ❖ Azure Queue Storage
- ❖ Azure Files Storage
- ❖ Manage Access
  - Create and manage shared access signatures, use stored access policies, regenerate keys.
  - Configure and use Cross-Origin Resource Sharing (CORS)
- ❖ Configure diagnostics, monitoring and analytics
  - Set retention policies and logging levels, analyze logs
- ❖ Implementing Content Delivery Network

#### **Azure Cloud Service (Only Video Access)**

- ❖ What is Cloud Service
- ❖ Cloud Service vs App Service
- ❖ Understand Cloud Service Roles
- ❖ Developing Cloud Service Application with Web Role
- ❖ Deploying Cloud Service Application
- ❖ Production and Staging Slots
- ❖ Using Azure Database in Cloud Service
- ❖ Adding Worker Role to the Solution.
- ❖ Delete deployments and a cloud service
- ❖ Configure application for SSL
- ❖ Configure Roles for Remote Desktop Login
- ❖ Running Multiple Websites
- ❖ Scaling a Cloud Service

#### **Azure Active Directory**

- ❖ Azure AD Introduction
- ❖ Relationship between AD DS and Azure AD
- ❖ Managing Active Directories
- ❖ Adding a custom domain name to Azure AD
- ❖ Managing Users, Groups and Devices
- ❖ Configuring Role Based Access Control
- ❖ Synchronizing On-Premise AD Identities with Azure AD
- ❖ Using Single Sign-On with Azure AD

- ❖ Integrating Gallery Applications with Azure AD
- ❖ Integrating On-Premise Applications with Azure AD
- ❖ Implementing Azure AD B2B Collaboration
- ❖ Implementing Azure AD B2C Collaboration

#### **Managing Azure with Windows PowerShell**

- ❖ Installing the required modules
- ❖ Managing Azure Accounts and Subscriptions
- ❖ Managing Resource Group
- ❖ Managing App Service Plans and App Service Web Apps
- ❖ Create and Configure a Storage Account
- ❖ Managing Storage Accounts using PowerShell
- ❖ Understanding Azure Resource Manager (ARM)
- ❖ Exporting and Importing ARM templates.

#### **Design and Deploy ARM templates**

- ❖ Implement ARM templates
  - Author ARM templates; create ARM templates to deploy ARM Resource Providers resources; deploy templates with PowerShell, CLI, and REST API
- ❖ Control access
  - Leverage service principles with ARM authentication, use Azure Active Directory Authentication with ARM, set management policies, lock resources
- ❖ Design role-based access control (RBAC)
  - Secure resource scopes, such as the ability to create VMs and Azure Web Apps; implement Azure role-based access control (RBAC) standard roles; design Azure RBAC custom role