

# **Developing Microsoft Azure Solutions (70-532) 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 Storage Service

- ❖ Importance of Azure Storage Service
- ❖ Creating Storage Account
- ❖ Implement Azure storage blobs and Azure files
  - 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
- ❖ Implement Azure storage tables and queues
  - Implement CRUD with and without transactions; design and manage partitions; query using OData, scale tables and partitions, add and process messages, retrieve a batch of messages, scale queues
- ❖ Implement Azure files
- ❖ 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

#### **Managing Data in Azure SQL Database**

- ❖ Introduction/Overview of SQL Database.
- ❖ Comparing SQL Azure Database to Azure / 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
- ❖ Create a backup vault, deploy a backup agent, backup and restore data

### Azure CosmosDB Service

- ❖ What is CosmosDB
- ❖ Understanding DocumentDB database Schema
- ❖ Creating and Saving Documents using Portal
- ❖ Programming Schema
- ❖ Adding / Editing / Deleting and Reading Documents

### Redis Caching

- ❖ Caching Overview
- ❖ What is Redis Cache
- ❖ Creating a Redis Cache
- ❖ Developing Redis Cache Client
- ❖ Controlling Expiration

### Azure Search Service

- ❖ About Search Service,
- ❖ Create Search Service,
- ❖ Create Index
- ❖ Import Data,
- ❖ Handle Search Results
- ❖ Programming Search in .NET using Azure Search SDK

### Azure Service Bus

- ❖ Service Bus Basics
- ❖ Hosting WCF Service in Azure
- ❖ Relayed Messaging
- ❖ Service Bus Queues
- ❖ Topics and Subscriptions
- ❖ Notification Hubs
- ❖ Monitoring Event Hubs
- ❖ Handling Sessions
- ❖ Handling Transactions

**Azure App Services - Web Apps**

- ❖ Introduction
- ❖ Design Azure App Service Web Apps
- ❖ Deploying Web App directly from Visual Studio.
- ❖ Deploying Packages
- ❖ App Service plans
- ❖ Automate deployment from Dropbox
- ❖ Implement pre- and post- deployment actions
- ❖ Application Settings Configuration.
- ❖ Define Handlers and Virtual Directories
- ❖ Understanding Deployment Slots
- ❖ Configure a custom domain and Certificates
- ❖ Enable SSL for your custom domain
- ❖ Scaling a Web Apps using built-in and Custom schedules
- ❖ Traffic Manager
- ❖ Configure and Retrieve Diagnostics Data and Streaming Logs
- ❖ Configure Alerts and Monitoring Web App resources
- ❖ **Manage Web App using API**

**Azure Web Jobs**

- ❖ Introduction
- ❖ Developing and Hosting Web Jobs Application
- ❖ Azure WebJobs SDK
- ❖ Sample Application including WebApps and WebJobs.

**Implement Azure Functions**

- ❖ About Azure Functions.
- ❖ Azure Web Jobs vs Azure Functions
- ❖ Create an Azure Function
- ❖ Create an event processing function
  - Timer Triggered Function,
  - GitHub Webhook Triggered Function.
  - Blog Storage Triggered Function

- ❖ Implement an Azure-connected functions
  - Adding message to Storage Queue
    - Connecting to SQL Database

#### **App Service – Mobile Apps**

- ❖ Mobile Apps Introduction
- ❖ Creating Server and Client Projects
- ❖ Working with Easy tables using Azure Portal
- ❖ Developing Windows 8 Client Application
- ❖ Mobile App Authentication
  - Facebook Authentication
  - Azure Active Directory Authentication
- ❖ Enabling Offline Sync
- ❖ Implementing Push Notification

#### **App Service - API Apps**

- ❖ Introduction
- ❖ Creating an API App
- ❖ Deploying an API App
- ❖ Consuming an API App
- ❖ Using API App in Logic App

#### **Azure App Service – Logic Apps**

- ❖ Introduction
- ❖ Creating a Simple Logic App
- ❖ Handling array of Items using for-each and condition
- ❖ Understanding Triggers and Actions
- ❖ create a Logic App with B2B capabilities
- ❖ create Logic App with XML capabilities
- ❖ Trigger a Logic App from another app
- ❖ Create custom and long-running actions
- ❖ Using Custom API App in Logic App
- ❖ Monitor Logic Apps

**API Management Service**

- ❖ Overview of API Management
- ❖ Components of API Management System.
- ❖ API Apps vs API Management.
- ❖ Create managed APIs.
- ❖ Configure API management policies.
- ❖ Protect APIs with rate limits.
- ❖ Add caching to improve performance.

**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

**Design and implement Azure Service Fabric apps**

- ❖ What are Microservices
- ❖ Overview of Service Fabric
- ❖ How Service Fabric Works
- ❖ Key capabilities of Service Fabric
- ❖ Cloud Services vs Service Fabric
- ❖ Service Fabric Application Model
- ❖ Service Fabric Programming Model
- ❖ Prepare development environment

- ❖ Create a .NET Service Fabric Application
- ❖ Making the service to listen and connect with other services
- ❖ Specifying environment specific parameters
- ❖ Deploying Service Fabric application to Azure
- ❖ Service Fabric Explorer
- ❖ Scale applications and services in a cluster.
- ❖ Perform a rolling application upgrade
- ❖ Guest Executables programming model

#### **Azure Active Directory Implementation**

- ❖ Azure AD Introduction
- ❖ Relationship between AD DS and Azure AD
- ❖ Adding Co-Administrators / Owner for a Subscription
- ❖ Managing Multiple Active Directories
- ❖ Integrate an Azure Active Directory (Azure AD) with existing directories.
- ❖ Adding a custom domain name to Azure AD
- ❖ Managing Users, Groups and Devices
- ❖ Configure single sign-on with SaaS applications using federation and password based.
- ❖ Grant and Revoke access to SaaS applications
- ❖ Configuring Role Based Access Control
- ❖ Integrating On-Premise AD Identities with Azure AD
- ❖ Integrating Gallery Applications with Azure AD

#### **Identity Management using Azure Active Directory**

- ❖ Develop apps that use WS-federation, OAuth, and SAML-P endpoints
- ❖ Query the directory using Graph API
- ❖ Design and Implementing Azure AD B2B Collaboration
- ❖ Design and Implementing apps with Azure AD B2C Collaboration leveraging Microsoft account, Facebook, Google+, Amazon and LinkedIn;