

**AZ-300: MICROSOFT AZURE ARCHITECT TECHNOLOGIES**

Please open **About Azure Course at Deccansoft.docx** attached in the same email.

**COURSE OVERVIEW**

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This course teaches IT Professionals how to manage their Azure Infrastructure including Manage Subscriptions and Resources, Deploy and Configure Infrastructure, Create and Deploy Apps, Manage Identities using Azure Active Directory, Architect Cloud Technology Solutions, Implement Authentication and Secure Data.

This, Microsoft Azure training is targeted for ANYONE who wants to move their current skillset to Microsoft Azure cloud, taking the benefit of unlimited computing, storing and networking power, for the personal career growth.

**PREREQUISITES:**

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This course is an essential for all those I.T Professionals or Administrators who either directly or indirectly work on or provides solutions on Microsoft Platform for building, maintaining and monitoring enterprise scale applications using latest Cloud Computing features and services.

**Applicable careers include**

- Storage Administrators / Security Administrators / Database Administrators
- Network Engineers / Server Engineers / Virtualization Engineers / DevOps Engineers
- Solution Architects / Enterprise Architects / Team Leads

**WHAT YOU'LL LEARN / COURSE OBJECTIVE**

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- Manage Azure subscriptions and billing, and implement Azure policies.
- Implement access management with Azure users, groups, and role-based access control.
- Use Azure Monitor to configure Azure alerts and review the Azure Activity Log.
- Query and analyze Log Analytics data.
- Deploy resources with ARM templates and organize Azure resources.
- Optimize your use of Azure tools like the Azure portal, Azure PowerShell, Cloud Shell and the Azure CLI.
- Create Azure storage accounts for different data replication, pricing, and content scenarios.
- Implement virtual machine storage, blob storage, Azure files, and structured storage.
- Secure and manage storage with shared access keys, Azure backup, and Azure File Sync.
- Monitor Azure storage with metrics and alerts, and the Activity Log.
- Understand virtual networking components, IP addressing, and network routing options.
- Use Azure Site Recovery to migrate Hyper-V infrastructures to Azure.
- Review migration strategies for VMWare and System Center VMM virtual machines.

- Implement use cases and configuration options for Azure App Services and App Service Environments.
- Manage and secure web apps with backup, restore, snapshot, and cloning.
- Optimize your web app performance with Scale Up, Scale Out, Autoscale, and Grow out strategies.
- Deploy server less computing features like Azure Functions, Event Grid, and Service Bus.
- Implement and configure Azure Load Balancer, Azure Traffic Manager, and Azure Application Gateway.
- Implement and configure Site-to-Site VPN connections and ExpressRoute.
- Implement and configure Network Watcher and troubleshooting common network issues.
- Implement site connectivity schemas including VNet-to-VNet connections and virtual network peering.
- Configure virtual machine networking and storage options.
- Implement virtual machine high availability, scalability, and custom scripts extensions.
- Backup, restore, and monitor virtual machines.
- Implement Azure Active Directory, Self-Service Password Reset, Azure AD Identity Protection, and integrated SaaS applications.
- Implement and manage Azure Active Directory integration options and Azure AD Application Proxy.
- Use Azure RBAC to grant a granular level of access based on an administrator's assigned tasks.
- Use Azure Multi-Factor Authentication to configure a strong authentication for users at sign-in.
- User Azure AD Privileged Identity Management to configure access rights based on just-in-time administration.
- Executing Batch Jobs.
- Containerization of Application.
- Create Azure functions including bindings and triggers.
- Define and run scheduled bulk operations.
- Learn about the different authentication options, including multi-factor, available in Azure and how they operate
- Implement secure data solutions by using encryption, Azure confidential computing, and SSL/TLS communications.
- Manage cryptographic keys in Azure Key Vault.
- Learn to develop for asynchronous processing and how to implement the appropriate asynchronous compute model.

## CERTIFICATION

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With Microsoft Certification, technology professionals are more likely to get hired, demonstrate clear business impact, and advance their careers.

### [ABOUT THE CERTIFICATION](#)

## COURSE SYLLABUS

### 1. Introduction to Cloud Computing

- 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.

### 2. 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

### 3. Configure and Manage Azure Virtual Networking

- Overview of Azure Networking

- Virtual Network Benefits
- Understanding Network Resources
- Implement and manage virtual networking
  - Create a VNet using Azure Portal
  - Create a Subnet
  - Configure private and public IP addresses
  - Create Network Interface Card with public, and private IP addresses
  - Create a Virtual Machine
- Setup Network Security Group
  - Create security rules
  - Associate NSG to a subnet or network interface
  - Identify required ports
  - Evaluate effective security rules
- Understanding Azure DNS
  - Configure Azure DNS
  - Public and Private DNS Zones
- Create connectivity between virtual networks
  - Create and configure VNET peering
  - Create and configure VNET to VNET
  - Verify virtual network connectivity

#### **4. Implement Advanced Virtual Networking**

- Load Balancing
  - Configure external and internal Azure Load balancer
  - Load Balancing Rules
  - Implement front end IP configuration
  - Azure Application Gateway
  - Azure Traffic Manager
- Integrate on-premises network with Azure virtual network
  - Point-to-Site Network using Azure VPN Gateway
  - Site-to-Site VPN
  - Express Route Solution
- Monitor and Manage Networking
  - Verify, Manage and Monitor on-premises connectivity;
  - Use network resource monitoring and Network Watcher
  - Manage external networking and virtual network connectivity

**5. Managing Azure with Windows PowerShell and Azure CLI.**

- Installing the required modules
- Login to Azure Portal
- Managing Resource Group and Resources
- Azure CLI Introduction and Setup
- Creating Resources
- Listing and Formatting output
- Connect a Web App to SQL Database
- Deleting Resources
- Interactive Mode

**6. ARM Templates and Resource Group**

- Modify ARM Templates
- Use Azure policies for resource groups
- Configure resource locks
- Configure resource policies
- Implement and set tagging on resource groups
- Move resources across resource groups
- Remove resource groups

**7. 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

## 8. Implement and Manage Azure Storage

- Importance of Azure Storage Service
- Configure network access to the storage account
- Creating Storage Account
- Install and use Azure Storage Explorer
- Manage access keys
- Implement 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
- Configure Azure Files
  - Create Azure file share
  - Create Azure File Sync service
  - Create Azure sync group
  - Troubleshoot Azure File Sync
- Manage Access
  - Create and manage shared access signatures, use stored access policies, regenerate keys.
  - Configure and use Cross-Origin Resource Sharing (CORS)
- Azure Table Storage
  - Azure Queue Storage
  - Monitor activity log by using Log Analytics

## 9. Deploy and Manage Virtual Machines

- About Virtual Machine Workloads
- Create and configure VM
  - Create a Virtual Machine using Portal
  - Create a Virtual Machine using PowerShell
  - Understand and Capture VM Images

- Upload an on-premise VHD to Storage Account
- Deploy a New VM from the Captured Image
- Configure high availability
- Virtual Machine Scale Sets
- Automate deployment of VMs
  - Modify ARM Templates
  - Configure Location of new VMs
  - Configure VHD template
  - Save and Deploy from the template
- Manage Azure VM
  - Virtual Machine Sizes
  - Virtual Machine Disks
  - Redeploy VMs
- Perform configuration management
  - VM Extensions & VM Agents
  - Custom Script Extensions
  - Desired State Configuration (DSC)
- Configure serverless computing
  - Create and manage objects;
  - Manage a Logic App resource;
  - Manage Azure Function app settings
  - Manage Event Grid
  - Manage Service Bus

#### **10. Manage Azure Subscriptions and Resources**

- Assign administrator permissions
- Configure cost center quotas and tagging
- Configure Azure subscription policies at Azure subscription level

#### **11. Azure Backup and restore**

- Configure VM backup
- Perform backup operation
- Create Recovery Services Vault
- Create and configure backup policy
- Perform a restore operation

- Azure Site Recovery

## 12. Migrating servers to Azure

- Migration Overview
- Azure Migration Service
- Azure Site Recovery
- Disaster Recovery of VM to Secondary region
- Disaster Recovery of On-Premise machines

## 13. Azure Monitoring and Diagnostics Logs

- Introduction to Azure Monitor
- Monitoring – Metrics
- Managing Alerts and Action groups
- Azure Activating logs and Diagnosing logs
- Azure Log Analytics
- Enable, collect, and View data from Azure VM

## 14. Managing Identities using Azure AD and MFA

- Manage Azure Active Directory (AD)
  - Azure AD Introduction
  - Adding a custom domain name to Azure AD
  - Multiple Active Directories
  - Configure Azure AD Identity Protection
  - Azure AD Join, and Enterprise State Roaming
  - Configure self-service password reset
  - Implement conditional access policies
  - Perform an access review
- Manage Azure AD Objects
  - Managing Users, Groups and Devices
  - Manage Guest Accounts
  - Manage user and group properties
  - Manage device settings
  - Perform bulk user updates
- Implement and manage hybrid identities
  - Synchronizing On-Premise AD Identities with Azure AD Connect



- Using Single Sign-On with Azure AD
- Manage Azure AD Connect
- Manage Password Sync and Write back
- Integrating Gallery Applications with Azure AD
- Implement Multi-Factor Authentication
  - Enable MFA for an Azure AD tenant
  - Configure user accounts for MFA
  - Configure fraud alerts
  - Configure bypass options
  - Configure trusted IPs
  - Configure verification methods

## 15. Azure active Directory Development

## 16. Azure App Service and Service Plans

- 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

### 17. Azure Functions

- About Azure Functions.
- Azure Webjobs 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

### 18. Azure App Service - Logic Apps

- Introduction
- Creating a Simple Logic App
- Handling array of Items using for-each and condition
- Understanding Triggers and Actions
- Using Custom API App in Logic Ap

### 19. 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

## **20. Develop Event-based solutions**

- Implement solutions that use Azure Event Grid
- Implement solutions that use Azure Notification Hubs
- Implement solutions that use Azure Event Hub

## **21. CosmosDB**

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

## **22. Key Vault**

- Secrets vs Keys
- Accessing Keys and Secrets
- Use cases for Key Vault
- Use Azure Key Vault from a Web Application
- Using Key Vault with ARM Template
- Encrypt and Decrypt BLOBS in Azure Storage

## **23. Create containerized solutions**

- Create an Azure Managed Kubernetes Service (AKS) cluster.
- Create container images for solutions.
- Publish an image to the Azure Container Registry.
- Run containers by using Azure Container Instance or AKS.