



# Microsoft Azure Realtime Admin & Architect Training

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**AZ-900/AZ-104/AZ-305 (Beta)**

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# Course Content

## 1. Introduction to Azure

- Cloud technology overview
- Overview of Azure
- Managing Azure with the Azure portal
- Managing Azure with Windows PowerShell
- Overview of Azure Resource Manager
- Azure management services

## 2. Implementing and managing Azure networking

- Overview of Azure networking
- Implementing and managing Azure virtual networks
- Configuring Azure virtual networks
- Configuring Azure virtual network connectivity
- Configuring the Subnets
- Configuring Virtual Network Region Peering
- Configuring Virtual Network Global Peering
- Understanding Azure to On-Prem Connectivity
- Deploying Azure Virtual Network Gateway.
- Understanding User Defined Routes(UDR).
- Configuring Azure Virtual Network Gateway with AWS over IPSec VPN.
- Implementing Azure Service End Points.

## 3. Understanding and Configuring Network Security Groups(NSG)

- Understanding Azure Network Security Groups (NSG)
- Creating and Updating Inbound & Outbound Security Rules.
- Understanding NSG Rule Hierarchy.
- Testing Network Security Groups and learning rule priority.
- Creating NSG Rules with Service tags.
- Understanding Application Security Groups (ASG).
- Creating NSG with Application Security Groups.

## 4. Understanding and Configuring Azure Firewall

- Overview of Azure Firewall as a Service.
- Creating UDR and AzureFirewallSubnet.
- Deploy Azure Firewall.
- Configure routing on UDR and assigning to subnets.
- Create Network Rule Collection and check the traffic.
- Create Application Rule Collection and block traffic to websites.
- Understand SNAT and DNAT in Azure Firewall.
- Creating DNAT for Azure machine using Azure Firewall.



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### 5. Implementing & Configuring Azure Virtual Machines

- Overview Azure virtual machines
- Deploy virtual machines in Azure portal
- Deploy virtual machines using Azure CLI
- Managing Azure Virtual machine storage
- Understanding Availability sets, Fault Domain & Update Domain.
- Creating & placing virtual machines in Availability Sets.
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### 6. Designing & Implementing Azure Load Balancing

- Overview on Load Balancing
- Type of Load Balancers in Azure
- Basic Vs Standard Load Balancer
- Deploying Basic Load Balancer with Availability Sets.
- Creating Backend Pools, Health probes and Load Balance rules.
- Checking the Load Balancing scenarios.
- Configuring NAT using Basic Load Balancer.

### 7. Implement and configure Azure DNS & Azure Standard Load Balancer

- Understanding Azure DNS.
- Buying a domain name for Godaddy.com
- Creating Azure DNS Zone and configuring it with Godaddy.
- Creating 3 Availability Sets and placing a single virtual machine in each AV-Set.
- Create Azure Standard Load Balancer and create a backend pool and assign all the 3 AVSets.
- Check the Load Balancing between the servers in different AV-Sets.
- Create Host Records for Server and check the name resolution.
- Create the CNAME record for the Load Balancer and check the website resolution.

### 8. Configuring Azure Application gateway

- Understanding Azure Application Gateway architecture.
- Understanding Path Based Routing in AGW.
- Creating multiple VMs and configuring application gateway.
- Configuring the SSL Off-loading on Application gateway.
- Check pathing based routing using AGW.

### 9. Configuring Auto Scaling with Virtual Machine Scale Sets(VMSS)

- Understanding Azure VMSS
- Creating a Azure VM Image for VMSS
- Deploy VMSS with the custom image.
- Performing stress testing on the VMSS.
- Check AutoScaling of VMs under stress testing



## 10. Planning and implementing Azure Storage

- Azure Storage account overview
- Understand Blob Storage
- Understand File Shares
- Configuring Azure FileSync
- Data migration using Azure storage explorer
- Manage Azure Storage permissions
- Azure Static Website deployment
- Custom domains

## 11. Configure and Manage Azure Backup and Disaster Recovery Services

- Backup and disaster recovery overview
- Backup VMware Servers to Azure
- Backup Azure VM & Azure SQL instances
- Azure replication and failover groups
- Azure disaster recovery vault configuration
- How to implement full BCDR strategy

## 12. Planning and implementing Azure SQL Database

- Azure SQL database(PaaS) vs SQL database (IaaS)
- Structured vs Unstructured data
- DTUs - Azure SQL
- RUs – Azure Cosmos DB
- Azure SQL Global Replication and Failover Groups
- Azure MySQL Deployment

## 13. Implementing Azure App services

- Azure Web Apps overview ( PaaS)
- Deploying and Managing Web Apps
- Azure App Service plan
- Azure Deployment slots
- App Service Security
- Serverless computing concepts
- Azure Web Apps for scale and resilience

## 14. Implementing Azure Active Directory

- Azure Domain services.
- Azure Active Directory overview.
- Deploy and configure Active directory.
- Create and manage users and groups.
- Extending On-premise Active directory to Azure.
- Configure Azure AD connect.
- Role based access control (RBAC) overview.



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- Configure domain users and groups to access Azure portal.

### 15. Implementing Azure-based management and automation

- Implementing Azure Automation.
- Implementing Automation runbooks.
- Managing Azure Automation.
- Creating and Managing Azure DSC.

### 16. Designing and developing apps for Containers

- Virtual Machine vs Containers.
- Install and configure Docker Engine.
- Deploy and manage Containers.
- Deploying container images using Azure Container Instances(ACI).
- Introduction to Azure Kubernetes Services(AKS).
- Creating Azure AKS Cluster.
- Deploying application on AKS.

### 17. Configure Diagnostics, Monitoring, and Analytics

- Azure Monitoring and alerts configuration.
- Log analytics.
- Insights virtual machines and network.
- Insights applications and containers.

### 18. Azure Migrate projects and customer billing optimization

- Azure Migration projects.
- Recovery services vaults.
- Azure Database migration services.
- Azure cost calculator.
- Azure price optimization.

### 19. Azure NAT Gateway CDN WAF

- Deploy Azure NAT Gateway for Private Subnets.
- Deploying CDN for Web Applications.
- Deploy Web Application Firewall for Securing Web Applications.

### 20. Introduction to Infrastructure as a Code (IaaS)

- Understanding JSON files.
- Introduction Azure Resource Manager Templates(ARM).
- Deploying ARM Templates from Azure Powershell & Azure Portal.
- Using ARM Functions and Dry Run with Powershell 7.0
- Working with ARM Template Modes.
- Deploy basic Azure Infrastructure with Terraform
- Azure Image management with Packer.



## **21. Understanding Azure DevOps**

- Learning Azure DevOps application/tool.
- Creating KANBAN boards.
- Creating Repos and branches
- Installing 3<sup>rd</sup> Party Plugins
- Building software packers with Azure DevOps Build Pipelines.
- Deploying infrastructure using Release Pipelines.
- Azure integration with Service Pipelines.
- Integrating with 3rd Party Clouds and Applications using Plugins.
- Developing YAML Pipelines with Stages.
- Working with Secrets & Securefiles
- Complete CI/CD Pipeline with Azure DevOps.

## **22. Azure Functions & Logic Apps**

- Understanding Azure functions.
- Creating and executing Azure Functions.
- Creating Logic Apps and executing.
- Introduction to Azure API Management.

## **23. Azure Management & Governance**

- Understanding Azure Policies for Compliance & Governance.
- Understanding Azure Management Groups.
- Azure Landing Zone & Cloud Adoption Framework.
- Extending Azure Governance using Azure Arc.

## **24. Azure Certification & Project.**