Azure for App Developers & Architects

Duration 16 hrs

Module 1: A Comprehensive comparison between Azure and AWS

This Module introduces a series of concepts that help Amazon Web Services (AWS) experts understand the basics of the Microsoft Azure platform, accounts, and services.

- Similarities and differences
- Accounts and subscriptions on Azure and AWS
- Compute services on Azure and AWS
- Networking services on Azure and AWS
- Relational database technologies on Azure and AWS
- Messaging services on Azure and AWS
- Regions and zones on Azure and AWS
- Resource management on Azure and AWS

Module 2: Implement Azure App Service web apps

Lesson 1: Explore Azure App Service

- Introduction
- Examine Azure App Service
- Examine Azure App Service plans
- Deploy to App Service
- Explore authentication and authorization in App Service
- Discover App Service networking features
- Exercise: Create a static HTML web app by using Azure Cloud Shell

Module 3: Implement Azure Functions

Lesson 1: Explore Azure Functions

- Introduction
- Discover Azure Functions
- Compare Azure Functions hosting options
- Scale Azure Functions

Lesson 2: Develop Azure Functions

- Introduction
- Explore Azure Functions development
- Create triggers and bindings
- Connect functions to Azure services
- Exercise: Create an Azure Function by using Visual Studio Code

Module 4: Implement containerized solutions

Lesson 1: Plan an Azure Kubernetes Service deployment

- Introduction
- Azure Kubernetes Service

- Azure Kubernetes cluster architecture
- Azure Kubernetes Service pods
- Nodes and node pools for Azure Kubernetes Service
- Namespaces for Azure Kubernetes Service
- Access to Azure Kubernetes Service

Lesson 2: Deploy and use Azure Container Registry

- Introduction
- Exercise - Create a container registry
- Exercise - Sign in to the container registry
- Exercise - Push an image to the registry
- Exercise - View container images
- Exercise - Run an image from the registry
- Exercise - Create a virtual network

Lesson 3: Deploy an Azure Kubernetes Service cluster

- Introduction
- Azure Kubernetes Service cluster architecture
- Network topology and connectivity considerations for AKS
- Plan the IP addresses
- Configure compute for nodes and node pools
- Integrate Microsoft Entra ID for the cluster
- Secure the network flow
- Node and pod scalability
- Exercise - Create an Azure Kubernetes Service cluster

Lesson 4: Run container images in Azure Container Instances

- Introduction
- Explore Azure Container Instances
- Exercise - Deploy a container instance by using the Azure CLI

Module 5: Develop message-based solutions

Lesson 1: Discover Azure message queues

- Introduction
- Choose a message queue solution
- Explore Azure Service Bus
- Discover Service Bus queues, topics, and subscriptions
- Explore Service Bus message payloads and serialization
- Exercise: Send and receive message from a Service Bus queue by using .NET.
- Explore Azure Queue Storage
- Create and manage Azure Queue Storage and messages by using .NET

Module 6: Azure monitoring services

Lesson 1: Monitor app performance

- Introduction
- Explore Application Insights
- Discover log-based metrics
- Instrument an app for monitoring
- Select an availability test
- Troubleshoot app performance by using Application Map

Lesson 2: Azure Monitor

- Introduction
- High-level Architecture
- Data Sources
- Data Collection and routing
- Data Platform
- Integration with other systems
- Configure Monitoring for Virtual Machines
- Configure Monitoring for Virtual Networks
- Configure Alerts and Responses

Lesson 3: Log Analytics

- Introduction
- Create a Log Analytics workspace
- Configure access to a Log Analytics Workspace
- Configure data retention for a Log Analytics workspace
- Configure Health Status Alerts for a Log Analytics workspace

Module 7: Develop solutions that use Azure Cosmos DB

Lesson 1: Explore Azure Cosmos DB

- Introduction
- Identify key benefits of Azure Cosmos DB
- Explore the resource hierarchy
- Explore consistency levels
- Choose the right consistency level
- Explore supported APIs
- Discover request units
- Exercise: Create Azure Cosmos DB resources by using the Azure portal

Lesson 2: Work with Azure Cosmos DB

- Introduction
- Explore Microsoft .NET SDK v3 for Azure Cosmos DB
- Exercise: Create resources by using the Microsoft .NET SDK v3
- Create stored procedures
- Create triggers and user-defined functions
- Explore change feed in Azure Cosmos DB

Module 8: Understanding Azure SQL Managed Instance

Lesson 1: Key Features of Azure SQL MI

- PaaS capabilities, high availability, and scalability
- Security features: Always-encrypted columns, row-level security, and auditing

Lesson 2: Built-In Performance Optimization Tools

- Query store and adaptive query processing
- Performance monitoring tools and techniques

Lesson 3: Real-Life Applications of Azure SQL MI

- Use cases: Enterprise data management, cloud-native applications, data analytics
- Case study: Optimizing performance for a business-critical database

Demo of deploying a few microservices with full-stack applications.