

Developing Microsoft Azure (CC107)

40 Hours

Outline

This course is intended for students who have experience building vertically scaled applications. Students should also have experience with the Microsoft Azure platform and a basic understanding of the services offered in Azure. This course offers students the opportunity to take an existing web application and expand its functionality as part of moving it to Azure. The course does not require any existing experience with the ASP.NET platform. This course focuses on the architectural considerations and decisions necessary when building a highly available solution in the cloud. This course also prepares the students for the 70-532: Developing Microsoft Azure Solutions certification exam.

Target Audience

The candidates targeted by this training have basic experience in implementing and monitoring Microsoft Azure solutions. Candidates are also proficient with the development tools, techniques and approaches used to build application solutions.

Prerequisites

Before attending this course, students must be able to:

- Compare the services available in the Azure platform.
- Configure and deploy web applications. Create Azure Web Sites using the gallery.
- Deploying and monitoring Azure Web Sites.
- Create and configure Azure Virtual Machines.
- Describe the relationship between Cloud Services and Virtual Machines.
- Deploy existing Cloud Service packages.
- Create and manage a Storage account.

- Manage blobs and containers in a Storage account.
- Create, configure and connect to a SQL Databases instance.
- Identify the implications of importing a SQL Standalone database.
- Manage users, groups and subscriptions in an Azure Active Directory instance.
- Create a virtual network.
- Implement a point to site network.

Contents

Module 1: Overview of Microsoft azure platform

This module reviews the services available in the Azure platform and the Management Portals used to manage the service instances.

- Azure Services
- Management Portals

After completing this module, students will be able to create a Web Site using both the Azure Management and Preview Portals.

Module 2: Establishing a Development Environment using Azure Virtual Machines

This module describes the Virtual Machine hosting options available in Azure. Students will be able to deploy custom workloads to an Azure Virtual Machine, manage the VM and images and monitor VMs. Constructing Azure Virtual Machines.

- Azure Virtual Machine Workloads
- Migrating Azure Virtual Machine Instances
- Using Remote Desktop Protocol (RDP) to Connect to a Virtual Machine

After completing this module, students will be able to create a Virtual Machine using the Azure Management Portal and create an image of the VM.

Module 3: Hosting Web Applications on the Azure Platform

In this module, Students will be able to create and host a simple website using Azure Web Sites. Students will learn how to monitor and manage the website using the Management Portal.

- Azure Web Sites
- Hosting Web Applications in Azure
- Configuring an Azure Web Site
- Publishing an Azure Web Site
- Monitoring and Analyzing Running Azure Web Sites
- Lab Overview

After completing this module, students will be able to create an Azure Web Site and publish an existing ASP.NET web application to the site.

Module 4: Storing SQL Data in Azure

In this module, students will learn how to use Azure SQL Databases to store and retrieve data. Azure SQL Database Overview

- Managing SQL Databases in Azure
- Using Azure SQL Databases with SQL Server Data Tools
- Migrating Data to Azure SQL Databases
- Replication and Recovery of Azure SQL Database Instances

After completing this module, students will be able to create an Azure SQL server and database. They will also be able to use Entity Framework Code First to migrate tables to Azure.

Module 5: Designing Cloud Applications for Resiliency

In this module, students will understand and identify the common practices and patterns for building resilient and scalable web applications that will be hosted in Azure.

- Design Considerations for Scale with Cloud Applications
- Application Design Practices for Highly Available Applications
- Building High Performance Applications using ASP.NET
- Common Cloud Application Patterns
- Application Analytics
- Caching Application Data

After completing this module, students will be able to describe and identify the common practices and patterns for building resilient and scalable web applications that will be hosted in Azure.

Module 6: Managing Cloud Services in Azure

In this module, students will learn how to use Cloud Service Worker Roles and Web Sites Web Jobs to process data in the background. Students will also be able to use Cloud Service Cache Roles to store data in the cache.

- Overview of Cloud Services
- Cloud Service Web Roles
- Customizing Cloud Service Configurations
- Updating and Managing Cloud Service Deployments
- Cloud Service Worker Role
- Cloud Service Worker Role Processing
- Analyzing Application Cloud Service Role Instances

After completing this module, students will be able to create a background process using Azure Worker Role.

Module 7: Storing NoSQL Data in Azure

- In this module, students will learn how to store data in Azure Table Storage.
- Azure Storage Overview
- Azure Storage Tables Overview
- Table Entity Transactions
- Azure DocumentDB

After completing this module, students will be able to create an Azure Table Storage table and manage the table data using the .NET API for Azure Storage.

Module 8: Storing and Consuming Files from Azure Storage

In this module, students will be able to store and access multimedia files in Azure using Blob Storage.

- Azure Storage Blobs
- Controlling Access to Storage Blobs & Containers
- Monitoring Storage Blobs
- Configuring Azure Storage Accounts
- Azure Files
- Uploading and Migrating Storage Data

After completing this module, students will be able to create Azure Files SMB file share and store documents related to the event website.

Module 9: Designing a Communication Strategy using Queues and Service Bus

In this module, students will use Azure Queue Storage to queue data for asynchronous processing. Students will also be able to identify the Service Bus offerings and identify which ones to use in appropriate scenarios. Students will be able to use the Azure Service Bus Relay to connect on-premise services with client applications.

- Queue Mechanisms in Azure
- Azure Storage Queues
- Handling Storage Queue Messages
- Azure Service Bus
- Azure Service Bus Queues
- Azure Service Bus Relay
- Azure Service Bus Notification Hubs

After completing this module, students will be able to create an Azure Storage Queue instance to store requests. They will also create an Azure Service Bus queue instance to store requests. Students will then create an Azure Service Bus namespace and use the namespace to connect a cloud web application to the local WCF service.

Module 10: Managing Infrastructure in Azure

In this module students will explore the Infrastructure components in Azure. Students will be able to describe Virtual Networks and understand the relationship between the VNets and the different services offered in Azure. Students will also be able to add Cloud Services and Virtual Machines to VNets. Finally students will scale multiple instances of services in a VNet.

- Azure Virtual Networks
- Highly Available Azure Virtual Machines
- Customize Azure Virtual Machine Networking

After completing this module, students will be able to create a Virtual Machine using the existing SQL template and connect this Virtual Machine to the existing application.

Module 11: Automating Integration with Azure Resources

In this module, students will explore the options for automating their interactions with Azure Resources using PowerShell, Client Libraries or the REST API. Students will also explore the two sets of modules available for PowerShell automation.

- Azure SDK Client Libraries
- Virtual Machine Configuration Management
- Scripting Azure Service Management using PowerShell
- Azure REST Interface
- Azure Resource Manager

After completing this module, students will be able to create a test environment using PowerShell and the Azure Service Management CmdLets

Module 12: Securing Azure Web Applications

In this module, students will be able to use Azure Active Directory to implement security in a Cloud web application.

- Azure Active Directory
- Introduction to Identity Providers
- Azure AD Directories
- Azure AD Multi-Factor Authentication
- Azure Role-Based Access Control

After completing this module, student will be able to integrate ASP.NET Identity for the administration portal with Azure Active Directory.

Module 13: Maintaining and Monitoring Web Solutions in Azure

In this module, students will learn how to deploy web applications to Azure by using WebDeploy and Service Packages.

- Deployment Strategies for Web Applications
- Deploying Azure Services
- Continuous Integration
- Monitoring Cloud Applications

After completing this module, students will be able to deploy the web application projects to Azure