



Course 20532 • Microsoft Azure

# MOC Workshop: Developing Microsoft Azure Solutions

## Length

- 4 days

## What You'll Learn

- How to create a Virtual Machine using the Azure Management Portal and create an image of the VM
- Creating an Azure Web Site and publish an existing ASP.NET web application to the site
- Azure SQL server and database
- Creating an Azure Cloud Service project in Visual Studio 2013
- Create a background process
- Create an Azure Table Storage table and manage the table data using the .NET API
- Create Azure Files SMB file share and store documents
- Create Azure Storage and Service Bus Queues to store requests
- Connecting cloud web application to the local WCF service with Azure Service Bus namespaces
- Creating a Virtual Machine using an SQL template and connecting to applications
- Creating a test environment
- Integrate ASP.NET Identity for the administration portal with Azure Active Directory

This 4-day, instructor-led workshop 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.

## Workshop Outline

### Module 1: Overview Of The 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

### Module 2: Building Application Infrastructure in Azure

Although many Microsoft Azure services use virtual machines, sometimes your application might have a unique need where it requires a virtual machine that is completely unmanaged. Azure provides networking, backup, and virtualization services as part of its Infrastructure-as-a-Service (IaaS) offering.

- Constructing Azure Virtual Machines
- Azure Virtual Machine Workloads
- Highly Available Azure Virtual Machines
- Virtual Machine Configuration Management
- Customizing Azure Virtual Machine Networking

### **Module 3: Hosting Web Applications on the Azure Platform**

This module provides an overview of the Azure Web Apps service. Lesson 1, “Azure Web Apps”, describes the Web Apps service in Azure.

- Azure Web Sites
- Hosting Web Applications in Azure
- Configuring an Azure Web Site
- Publishing an Azure Web Site

### **Module 4: Storing SQL Data in Azure**

Dynamic web applications must store the data that is being managed and manipulated by end users. ASP.NET technologies such as ADO.NET and Entity Framework provide a way for accessing data in SQL Server. In the cloud, the Microsoft Azure platform provides a database as a service offering that allows developers to use SQL in the same way as they would in an on-premises location.

- Storing SQL Data in Azure
- Managing SQL Databases in Azure
- Azure SQL Database Tools
- Securing and Recovering an Azure SQL Database Instance

### **Module 5: Designing Cloud Applications for Resiliency**

As a developer, you should keep in mind certain considerations while designing applications for the cloud. Although there are many platform improvements available in the ASP.NET ecosystem, you need to rethink the way you design your applications, and the patterns that are used, with respect to the scalability and reliability metrics present for the cloud applications.

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

### **Module 6: Storing Tabular Data in Azure**

Dynamic web applications will invariably need to store the data that is being managed and manipulated by users. ASP.NET has always relied on technologies like ADO.NET and Entity Framework to access data from Microsoft SQL Server. For the cloud, the Microsoft Azure platform provides a SQL as a Service that allows developers to use SQL data and queries in the same manner as they would use in an on-premises implementation.

- Azure Storage Overview
- Azure Storage Tables Overview
- Table Entity Transactions

## **Module 7: Storing and Consuming Files from Azure Storage**

When you want to scale to different cloud instances, storing files to a local disk becomes a difficult process to maintain and eventually an unreliable method of storage. Azure provides a Blob storage mechanism that not only offers high performance but also supports integration to Microsoft Azure Content Delivery Network (CDN) for low latency downloads.

- Storage Blobs
- Controlling Access to Storage Blobs and Containers
- Configuring Azure Storage Accounts
- Azure Files

## **Module 8: Designing a Communication Strategy by Using Queues and Service Bus**

With web applications presenting content and worker roles processing the logic, there needs to be a mechanism that facilitates the communication between these different entities. Microsoft Azure provides two queuing mechanisms that you can use for this purpose.

- Azure Storage Blobs
- Azure Service Bus
- Azure Service Bus Queues
- Azure Service Bus Relay
- Azure Service Bus Notification Hubs

## **Module 9: Automating Integration with Azure Resources**

Although you can manage most of the Azure services by using both of the Azure portals or Microsoft Visual Studio 2013, you can use scripting to completely automate the management of the same resources. This module will look at automating the lifecycle of the services by using client libraries, Windows PowerShell, REST, and the Resource Manager.

- Azure SDK Client Libraries
- Scripting Azure Service Management by Using Windows PowerShell
- Azure REST Interface
- Azure Resource Manager

## **Module 10: Securing Azure Web Applications**

Just like on-premises applications, applications in the cloud need streamlined security mechanisms that are flexible. Azure Active Directory is an identity provider that can provide identity and access functionality for your custom applications or SaaS applications.

- Azure Active Directory
- Azure AD Directories
- Azure AD Multi-Factor Authentication

## Labs

- Using the Azure Preview Portal
- Creating an Azure Virtual Machine for Development & Testing
- Creating an ASP.NET Web Site Using Azure Websites
- Storing Event Data in Azure SQL
- Creating Azure Web Roles Using Visual Studio 2013
- Creating a Background Process Using Azure Worker Roles
- Storing Attendee Registration Data in Azure Table Storage
- Storing Generated Documents in Azure Blob Storage
- Creating File Shares using Azure Files
- Using Storage Queues to Manage Requests Between Web Applications in Azure
- Using Service Bus to Manage Communication Between Web Applications in Azure
- Managing Multiple Virtual Machines in a Virtual Network
- Automating the Creation of a Test Environment using PowerShell
- Integrating Azure Active Directory with the Events Administration Portal
- Deploying the Events Web Application to Azure