Microsoft | Learning

Developing Microsoft Azure Solutions

Course 20532C: 4 days; Instructor-Led

Introduction

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.

At Course Completion

After completing this course, students will be able to:

- review the services available in the Azure platform and the Management Portals used to manage the service instances.

- create a Virtual Machine using the Azure Management Portal and create an image of the VM.

- create an Azure Web Site and publish an existing ASP.NET web application to the site.

- create an Azure SQL server and database.

- describe and identify the common practices and patterns for building resilient and scalable web applications that will be hosted in Azure.

- create an Azure Cloud Service project in Visual Studio 2013 and debug locally.

- create a background process using a Azure Worker Role.

- create an Azure Table Storage table and manage the table data using the .NET API for Azure Storage.

- create Azure Files SMB file share and store documents.

- create an Azure Storage Queue instance to store requests.

- create an Azure Service Bus queue instance to store requests.

- create an Azure Service Bus namespace and use the namespace to connect a cloud web application to the local WCF service.

- create a Virtual Machine using the existing SQL template and connect this Virtual Machine to the existing application.

- create a test environment using PowerShell and the Azure Service Management CmdLets.

- integrate ASP.NET Identity for the administration portal with Azure Active Directory.

- deploy the web application projects to Azure.

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 WebSites using the gallery.

- Deploying and monitoring Azure WebSites.

- 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.

Course 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.

Lessons

- Azure Services

- Management Portals

Lab : Using the Azure Preview Portal

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 also monitor VMs.

Lessons

- Constructing Azure Virtual Machines

- Azure Virtual Machine Workloads

- Migrating Azure Virtual Machine Instances

- Using Remote Desktop Protocol (RDP) to Connect to a Virtual Machine

Lab: Creating an Azure Virtual Machine for Development & Testing

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.

Lessons

- 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

Lab : Creating an ASP.NET Web Site Using Azure Websites

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.

Lessons

- 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

Lab : Storing Event Data in Azure SQL

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.

Lessons

- 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

Lab : No lab

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.

Lessons

- 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

Lab : Creating Azure Web Roles Using Visual Studio 2013

Lab : Creating a Background Process Using Azure Worker Roles

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

Module 7: Storing NoSQL Data in Azure

In this module, students will learn how to store data in Azure Table Storage.

Lessons

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

Lab : Storing Attendee Registration Data in Azure Table Storage

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.

Lessons

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

Lab : Storing Generated Documents in Azure Blob Storage

Lab : Creating File Shares using Azure Files

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.

Lessons

- 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

Lab : Using Storage Queues to Manage Requests Between Web Applications in Azure

Lab : Using Service Bus to Manage Communication Between Web Applications in Azure

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.

Lessons

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

Lab : Managing Multiple Virtual Machines in a Virtual Network

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.

Lessons

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

Lab : Automating the Creation of a Test Environment using PowerShell

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.

Lessons

- Azure Active Directory

- Introduction to Identity Providers

- Azure AD Directories

- Azure AD Multi-Factor Authentication

- Azure Role-Based Access Control

Lab : Integrating Azure Active Directory with the Events Administration Portal

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.

Lessons

- Deployment Strategies for Web Applications

- Deploying Azure Services

- Continuous Integration

- Monitoring Cloud Applications

Lab : Deploying the Events Web Application to Azure

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