

COURSE
OVERVIEW

Implementing Microsoft Azure Infrastructure Solutions

Duration: 5 days

Overview

About this course

This course is aimed at experienced IT Professionals who currently administer their on-premises infrastructure. The course introduces the students to Microsoft Azure and then teaches them how to manage their infrastructure in Azure rather than on-premises.

Audience profile

This course is intended for information technology (IT) professionals who have some knowledge of cloud technologies and want to learn more about Microsoft Azure.

- *IT professionals who want to deploy, configure, and administer services and virtual machines in Microsoft Azure.*
- *IT professional who have used Microsoft System Center to manage and orchestrate a Microsoft server infrastructure.*
- *Windows Server administrators who are looking to evaluate and migrate on-premises Active Directory roles and services to the cloud.*
- *IT professionals who want to use Windows Azure to host web sites and mobile app back-end services.*
- *IT professionals who are experienced in other non-Microsoft cloud technologies, who meet the course prerequisites, and are looking to cross-train on Microsoft Azure.*
- *IT professionals who want to take the Microsoft Certification exam, 70-533, Implementing Microsoft Azure Infrastructure Solutions.*

This course can also be used by Engineers who have used DevOps approaches to optimize the management and lifecycle of the software in their organization.

At course completion

After completing this course, students will be able to:

- *Describe Azure architecture components including infrastructure, tools, and portals.*
- *Implement and manage virtual networking within Azure and to connect to on-premises environments.*
- *Plan and create Azure virtual machines.*
- *Configure, manage, and monitor Azure virtual machines to optimize availability and reliability.*



- *Implement, manage, backup and monitor storage solutions.*
- *Plan and implement data services based on SQL Database to support applications.*
- *Deploy and configure websites.*
- *Deploy, configure, monitor, and diagnose cloud services.*
- *Publish content through CDNs and publish videos by using Media Services.*
- *Create and manage Azure AD directories, and configure application integration with Azure AD.*
- *Integrate on-premises Windows AD with Azure AD.*
- *Automate operations in Azure management by using PowerShell runbooks.*

Prerequisites

In addition to their professional experience, students who attend this training should already have the following technical knowledge:

- *Understanding of on-premises virtualization technologies including: virtual machines, virtual networking, and virtual hard disks.*
- *Understanding of network configuration including: TCP/IP, DNS, virtual private networks, firewalls, and encryption technologies.*
- *Understanding of websites including: create, configure, monitor and deploy a website on Internet Information Services (IIS).*
- *Understanding of Active Directory concepts including: Domains, Forests, Domain Controllers, replication, Kerberos, and LDAP.*
- *Understanding of database concepts including: Tables, queries, Structured Query Language (SQL), and database schemas*
- *Understanding of resilience and disaster recovery including: backup and restore operations.*

Students who attend this training can meet the prerequisites by attending the following course, or obtaining equivalent knowledge and skills:

- *Completing the MCSA certification in Windows Server 2012.*

Completing the 10979 Azure Essentials course

Course Details

Module 1:

Introduction to Azure. This module provides the students a high level introduction to Azure.

Lessons

- *Cloud Technology Overview*
- *Microsoft Azure*
- *Azure Portals*
- *Managing Azure with Windows PowerShell*

Lab : Introduction to Azure



- *Using Azure Portals*
- *Using Azure PowerShell*

After completing this module, students will be familiar with:

- *Cloud technology.*
- *Microsoft Azure.*
- *The Azure Portals.*
- *Managing Azure using Windows PowerShell.*

Module 2:

Implement and Manage Virtual Networks. In this module students will learn how to Implement Virtual Networks, why they are important and how to manage them post-implementation.

Lessons

- *Planning Virtual Networks*
- *Implementing and Managing Virtual Networks*
- *Configuring Connections to Virtual Networks*

Lab : Creating Virtual Networks

- *Creating the Virtual Network*

Lab : Connecting Virtual Networks

- *Connecting the Virtual Networks*
- *Validating Virtual Network Connectivity*
- *Optional: Configuring a Point-to-Site VPN*

After completing this module students will be able to :

- *Plan virtual networks in Microsoft Azure.*
- *Implement and manage virtual networks.*
- *Configure inter-site connectivity with Microsoft Azure virtual networks.*

Module 3:

Implement Virtual Machines In this module, students will see how Microsoft Azure VMs can host services for their users and customers and how to create, install, and configure VMs with different operating systems and software platforms.

Lessons

- *Introduction to IaaS Cloud Services*
- *Planning Virtual Machine Workloads*

- *Creating Virtual Machines*

Lab : Implementing Virtual Machines

- *Deploying Windows Virtual Machines*
- *Deploying Linux Virtual Machines*

After completing this module students will know:

- *How to configure and manage Microsoft Azure IaaS cloud services and endpoints.*
- *How to identify suitable workloads for Microsoft Azure IaaS virtual machines.*
- *How to create Windows and Linux virtual machines in Microsoft Azure by using the portal and Microsoft Azure PowerShell.*
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Module 4:

Managing Virtual Machines

In this module the student will learn how to properly configure Virtual Machines and Virtual Machine Disks as well as managing and monitoring the Virtual Machine environments ensuring security, availability and scalability.

Lessons

- *Configuring Virtual Machines*
- *Managing and Configuring Virtual Machine Disks*
- *Managing and Monitoring Virtual Machines*

Lab : Managing Virtual Machines

- *Exploring Availability*
- *Configuring Virtual Machine Storage*
- *Using the Cross Platform Command-Line Interface*

After completing this module students will be able to:

- *Describe the implementation of public and private IP addressing in Azure virtual machines.*
- *Configure IP addresses for Azure virtual machines.*
- *Explain the options for configuring VMs for availability.*
- *Explain the options for configuring VMs for scalability.*
- *Outline the options for configuring virtual machine security.*

Module 5:

Implementing Websites In this module students will learn how to plan for website deployment, covering different levels of website and differing deployment models. They will then learn how to deploy a website, how to configure the site, how to monitor the performance of the site, what Webjobs are and how to use them and finally what Traffic Manager is and how it is used.

Lessons

- *Planning for Website Deployment*
- *Deploying Websites*
- *Configuring Websites*
- *Monitoring Websites*
- *Traffic Manager*

Lab : Implementing Websites

- *Creating Websites*
- *Deploying a Website*
- *Managing Websites*

After this module, students will be able to:

- *Choose a hosting plan and deployment method for a website in Azure.*
- *Use Visual Studio, FTP clients, and PowerShell to deploy a website to Azure.*
- *Configure websites and use WebJobs to schedule tasks.*
- *Monitor the performance of a website.*
- *Use Traffic Manager to distribute requests between two or more Azure websites.*

Module 6:

Planning and Implementing Storage

In this module students will look at types of storage, how to choose/plan storage, storage accounts, and affinity groups. They will move on to learn how implement BLOBs and azure files, recovery services and backup, diagnostics, monitoring, and analytics.

Lessons

- *Planning Storage*
- *Implementing and Managing Storage*
- *Backup and Monitoring Storage*

Lab : Planning and Implementing Storage

- *Creating and Configuring Storage*
- *Using Azure File Storage*
- *Protecting Data with Azure Backup*

After completing this module, students will be able to:

- *Plan Azure storage.*
- *Implement and manage Azure storage.*
- *Back up and monitor Azure storage.*

Module 7:

Planning and Implementing Data Services In this module students will look at the differences between SQL databases on-premises and Azure SQL databases. They will learn how to implement Azure SQL databases, how to migrate data to SQL Azure, how to monitor the databases once created in Azure and learn about business continuity using database copy and export, Self-service restore and Geo-replication.

Lessons

- *Data Services in Microsoft Azure*
- *Implementing Azure SQL Database*
- *Managing Azure SQL Database Security*
- *Monitoring Azure SQL Database*
- *Managing Azure SQL Database Business Continuity*

Lab : Planning and Implementing Data Services

- *Creating, Securing and Monitoring an Azure SQL Database*
- *Migrating a SQL Server Database to an Azure SQL Database*
- *Restoring a Database*

After completing this module, students will be able to:

- *Identify data services in Microsoft Azure.*
- *Provision, configure, and manage Azure SQL Database.*
- *Configure security for Azure SQL Database.*
- *Monitor Azure SQL Database.*
- *Manage data recovery and availability for Azure SQL Database.*

Module 8:

Implementing PaaS Cloud Services and Mobile Services

In this module students will look at cloud services and how they compare to VM and website execution models. They will also look at Web roles and worker roles. They will then move onto learn about deploying and configuring cloud services. They will also look mobile services, at how to create, deploy and configure. Finally they will learn about monitoring and diagnostics

Lessons

- *Planning and Deploying PaaS Cloud Services*
- *Configuring Cloud Services*
- *Implementing Mobile Services*
- *Monitoring and Diagnostics*

Lab : Implementing PaaS Cloud Services

- *Deploying a PaaS Cloud Service*
- *Configuring Deployment Slots and Remote Desktop Protocol*



- *Monitoring Cloud Services*

At the end of this module, students will be able to:

- *Plan and deploy a PaaS cloud service in Azure.*
- *Configure PaaS cloud services by using configuration files or the Azure portal.*
- *Create and administer a mobile service that supports an app for mobile devices.*
- *Monitor the performance of cloud services and mobile services and diagnose bottlenecks*

Module 9:

Implementing Content Delivery Networks and Media Services In this module students learn what a content delivery network is and how to implement one. They then move on to look at Azure Media Services, and how to utilize media in Azure.

Lessons

- *Implementing Azure Content Delivery Networks*
- *Publishing Content with Azure Media Services*

Lab : Implementing a Content Delivery Network

- *Configuring a Content Delivery Network*

Lab : Implementing Content Delivery Networks and Cloud Services

- *Adding Content to the Source Service*
- *Creating a Media Services Account and Uploading Content*
- *Publishing and Scaling Media*

After completing this module, students will be able to:

- *Implement an Azure content delivery network.*
- *Publish content with Azure Media Services.*

Module 10:

Implement Azure AD In this module students will learn how to implement Azure Active directory, then to manage users within the directory. They will also look at adding customer domains, at multi-factor authentication and at application integration with Azure Active Directory. Finally they will learn about the features and benefits offered by Azure Active Directory Premium.

Lessons

- *Creating and Managing Azure Directories*
- *Configuring Application Integration with Azure Active Directory*



- *Overview of Azure Active Directory Premium*

Lab : Implementing Azure Active Directory

- *Administering Active Directory*
- *Configuring Single Sign-On*
- *Configuring Multi-Factor Authentication*

After completing this module, students will be able to:

- *Create and manage Azure AD directories.*
- *Configure application integration with Azure AD.*
- *Describe the features of Azure AD Premium.*

Module 11:

Managing Active Directory in a Hybrid Environment

In this module, students look at three alternative approaches for integrating on-premises Active Directory with Microsoft Azure. These options are placing a domain controller into Azure, implementing directory synchronization with optional password synchronization or single sign-on using Active Directory Federation Services (AD FS). Finally, you will consider how to manage these types of hybrid environments.

Lessons

- *Extending On-Premises Active Directory into Azure*
- *Directory Synchronization*
- *Implementing Federation*

Lab : Managing an Active Directory Hybrid Environment

- *Configuring Directory Synchronization*
- *Synchronizing Directories*

After completing this module, students will be able to:

- *Extend the on-premises Active Directory domain into Microsoft Azure*
- *Synchronize user accounts between on-premises Active Directory and Microsoft Azure Active Directory*
- *Set up single sign-on using federation between on-premises Active Directory and Microsoft Azure Active Directory*

Module 12:

Implementing Automation

This module starts with an introduction to automation and the components. The student then moves on to look at PowerShell Workflows, particularly the move from PowerShell scripts to workflows and finally looks at managing automation through creating and publishing runbooks, creating and scheduling jobs and monitoring job execution.

Lessons

- *Overview of Automation Components*
- *Implementing PowerShell Workflows*
- *Managing Automation*

Lab : Implementing Automation

- *Configuring Automation Accounts*
- *Creating Runbooks*

After completing this module, students will be able to:

- *Describe the automation components in Microsoft Azure.*
- *Configure PowerShell workflows and convert scripts to workflows.*
- *Manage automation through creating and publishing of runbooks and scheduling jobs.*

Module 13:

Microsoft Azure Solutions

Now that the student has a technical understanding of many Azure services, they can use their knowledge to solve business problems for customers. In this module, they will read about and discuss two detailed scenarios. The instructor will help you to propose an outline solution for each scenario, in which Azure services are used to solve project goals.

Lessons

- *Tailspin Toys Business Systems Scenario*
- *Software as a Service Scenario*

At the end of this module, students will be able to:

- *Plan a migration project and architect an Azure solution that addresses a typical medium-sized manufacturing company's business needs using cloud technologies.*
- *Plan a new software as a service (SaaS) offering, built from components of Microsoft Azure.*