



Implementing Microsoft Azure Infrastructure Solutions

Course 20533C – Five days - Instructor-led - Hands-on

Introduction

This five day instructor led course is intended for IT professionals who are familiar with managing on-premises IT deployments that include AD DS, virtualization technologies, and applications. The students typically work for organizations that are planning to locate some or all of their infrastructure services on Azure. This course also is intended for IT professionals who want to take the Microsoft Certification exam, 70-533, Implementing Azure Infrastructure Solutions.

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 (VMs) in Azure.
- IT professional who use Microsoft System Center to manage and orchestrate 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 websites and mobile app backend services.
- IT professionals who are experienced in other non-Microsoft cloud technologies, meet the course prerequisites, and want to cross-train on Azure.
- IT professionals who want to take the Microsoft Certification exam 70-533, Implementing Azure Infrastructure Solutions.

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 connect to on-premises environments.
- Plan and create Azure virtual machines.
- Configure, manage, and monitor Azure virtual machines to optimize availability and reliability.
- Deploy and configure web apps and mobile apps.
- Implement, manage, backup, and monitor storage solutions.
- Plan and implement data services based on SQL Database to support applications.
- Deploy, configure, monitor, and diagnose cloud services.
- Create and manage Azure AD tenants, and configure application integration with Azure AD.
- Integrate on-premises Windows AD with Azure AD.
- Automate operations in Azure management by using automation.

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Prerequisites

Before attending this course, students must have the following technical knowledge:

- Completed the Microsoft Certified Systems Administrator (MCSA) certification in Windows Server 2012.
- Understanding of on-premises virtualization technologies, including: virtual machines, virtual networking, and virtual hard disks (VHDs).
- Understanding of network configuration, including: TCP/IP, Domain Name System (DNS), virtual private networks (VPNs), firewalls, and encryption technologies.
- Understanding of websites, including: how to create, configure, monitor and deploy a website on Internet Information Services (IIS).
- Understanding of Active Directory concepts, including: domains, forests, domain controllers, replication, Kerberos protocol, and Lightweight Directory Access Protocol (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

Student Materials

The student kit includes a comprehensive workbook and other necessary materials for this class.

Course Outline

Module 1: Introduction to Azure

This module introduces cloud solutions in general and then focuses on the services that Azure offers. The module goes on to describe the portals that you can use to manage Azure subscriptions and services before introducing Windows PowerShell as a scripting solution for managing Azure. Finally, the module provides explanations and guidance for the use of Azure Resource Manager and Azure management services.

Lessons

- Cloud technology overview
- Overview of Azure
- Managing Azure with the Azure portal
- Managing Azure with Windows PowerShell
- Overview of Azure Resource Manager
- Azure management services

Lab : Managing Microsoft Azure

- Use the Azure portals.
- Use Azure Resource Manager features via the Azure portal.

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- Use Azure PowerShell.

After completing this module, students will be able to:

- Identify suitable apps for the cloud.
- Identify services and capabilities that Microsoft Azure provides.
- Use Azure portals to manage Azure services and subscriptions.
- Use Windows PowerShell to manage Azure services and subscriptions.
- Use Azure Resource Manager to manage Azure resources.
- Use Azure Resource Manager to manage Azure resources.

Module 2: Implementing and managing Azure networking

This module explains how virtual networking provides the glue that brings together VMs, web apps, and storage to enable you to publish a service onto the Internet.

Lessons

- Overview of Azure networking
- Implementing and managing Azure virtual networks
- Configuring Azure virtual networks
- Configuring Azure virtual network connectivity
- Overview of Azure networking in an infrastructure as a service (IaaS) version 1 (v1)

Lab : Using a deployment template to implement Azure virtual networks

- Creating an Azure virtual network by using a deployment template
- Creating a virtual network by using PowerShell
- Configure virtual networks

Lab : Configuring connectivity between the IaaS v1 and IaaS version 2 (v2)

- Using a PowerShell script to Connect IaaS v1 VNet and IaaS v2 VNet
- Configuring a point-to-site VPN
- Using a PowerShell script to connect IaaS v1 VNet and IaaS v2 VNet

After completing this module, students will be able to:

- Plan virtual networks in Azure.
- Implement and manage virtual networks.
- Configure intersite connectivity with virtual networks in Azure.
- Configure networking components.
- Plan virtual networks in IaaS v1.

Module 3: Implementing virtual machines

This module explains how to implement virtual machines.

Lessons

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- Overview of IaaS v2 virtual machines
- Planning for Azure virtual machines
- Deploying Azure IaaS v2 virtual machines
- Authoring Azure Resource Manager templates
- Overview of IaaS v1 virtual machines

Lab : Creating IaaS v2 virtual machines in Azure

- Creating virtual machines by using the Azure portal and Azure PowerShell
- Validating virtual machine creation

Lab : Deploying IaaS v2 virtual machines by using Azure Resource Manager templates

- Using Visual Studio and an Azure Resource Manager template to deploy IaaS v2 virtual machines
- Using Azure PowerShell and an Azure Resource Manager template to deploy virtual machines

After completing this module, students will be able to:

- Explain IaaS v2 VMs.
- Plan for Azure Virtual Machines.
- Deploy IaaS v2 VMs.
- Author Azure Resource Manager templates.
- Explain IaaS v1 virtual machines.

Module 4: Managing virtual machines

This module explains how to manage virtual machines.

Lessons

- Configuring virtual machines
- Configuring virtual machine disks
- Managing and monitoring Azure virtual machines
- Managing IaaS v1 virtual machines

Lab : Managing Azure virtual machines

- Configuring availability
- Implementing desired state configuration (DSC)
- Implementing storage space-based volumes

After completing this module, students will be able to:

- Configure virtual machines.
- Configure virtual machine disks.
- Manage and monitor virtual machines

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Module 5: Implementing Azure App services

This module explains how to implement Azure Web App services.

Lessons

- Introduction to App Service
- Planning app deployment in App Service
- Implementing and maintaining web apps
- Configuring web apps
- Monitoring web apps and WebJobs
- Implementing mobile apps
- Traffic Manager

Lab : Implementing websites

- Creating web apps
- Deploying a web app
- Managing web apps
- Implementing Traffic Manager

After completing this module, students will be able to:

- Explain the different types of apps that you can create by using the Microsoft Azure App Service.
- Select an App Service plan and deployment method for apps in Microsoft Azure.
- Use Microsoft Visual Studio, File Transfer Protocol (FTP) clients, and Azure PowerShell to deploy web and mobile apps to Azure.
- Configure web apps and use the Azure WebJobs feature to schedule tasks.
- Monitor the performance of web apps.
- Create and configure mobile apps.
- Use Azure Traffic Manager to distribute requests between two or more app services.

Module 6: Planning and implementing storage, backup, and recovery services

This module explains how to plan and implement storage, backup, and recovery services.

Lessons

- Planning storage
- Implementing and managing storage
- Implementing Azure Content Delivery Networks
- Implementing Azure Backup
- Planning for and implementing Azure Site Recovery

Lab : Planning and implementing storage

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- Creating and configuring storage
- Using Azure file storage
- Protecting data with Microsoft Azure Backup

After completing this module, students will be able to:

- Choose appropriate Microsoft Azure Storage options to address business needs.
- Implement and manage Azure Storage.
- Improve web application performance by implementing Azure Content Delivery Networks (CDNs).
- Protect on-premises systems and Azure virtual machines (VMs) by using Azure Backup.
- Describe Azure Site Recovery capabilities.

Module 7: Planning and implementing Azure SQL Database

This module explains how to plan and implement Azure SQL Database

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- Planning and deploying Azure SQL Database
- Implementing and managing Azure SQL Database
- Managing Azure SQL Database security
- Monitoring Azure SQL Database
- Managing Azure SQL Database business continuity

Lab : Planning and implementing Azure SQL Database

- Creating, securing, and monitoring an Azure SQL Database
- Migrating a Microsoft SQL Server database to Azure SQL Database
- Restoring a database

After completing this module, students will be able to:

- Identify relational database services in Microsoft Azure.
- Provision, configure, and manage the Azure SQL Database data-management service.
- 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

This module explains how to implement platform as a service (PaaS) cloud services.

Lessons

- Planning and deploying PaaS cloud services

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- Managing and maintaining cloud services

Lab : Implementing PaaS cloud services

- Deploying a PaaS cloud services
- Configuring deployment slots and Remote Desktop Protocol (RDP)
- Monitoring cloud services

After completing this module, students will be able to:

- Plan and deploy a platform as a service (PaaS) cloud service in Microsoft Azure.
- Configure PaaS cloud services by using configuration files or the Azure portal.
- Monitor the performance of cloud services and diagnose bottlenecks.

Module 9: Implementing Azure Active Directory

This module explains how to implement Azure AD.

Lessons

- Creating and managing Azure AD tenants
- Configuring application and resource access with Azure AD
- Overview of Azure AD Premium

Lab : Implementing Azure AD

- Administering Active AD
- Configuring SSO
- Configuring Mlti-FactorAauthentication
- Configuring SSO from a Windows 10–based computer that is joined to Azure AD

After completing this module, students will be able to:

- Create and manage Azure AD tenants.
- Configure single sign-on (SSO) for cloud applications and resources, and implement Azure Role-Based Access Control (RBAC) for cloud resources.
- Explain the functionality of Azure AD Premium and implement Azure Multi-Factor Authentication.

Module 10: Managing Active Directory in a hybrid environment

This module explains how to manage Active Directory in a hybrid environment.

Lessons

- Extending on-premises Active Directory domain to Azure
- Implementing directory synchronization by usig Azure AD Connect

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- Implementing federation

Lab : Implementing and managing Azure AD synchronization

- Configuring directory synchronization
- Synchronizing directories

After completing this module, students will be able to:

- Extend an on-premises Active Directory domain to Microsoft Azure.
- Synchronize user accounts between on-premises AD DS and Azure AD.
- Set up SSO by using federation between on-premises Active Directory and Azure AD.

Module 11: Implementing Azure-based management and automation

This module explains how to implement Azure-based management and automation.

Lessons

- Implementing Microsoft Operations Management Suite (OMS)
- Implementing Azure Automation
- Implementing Automation runbooks
- Managing Azur Automation

Lab : Implementing Automation

- Configuring Automation accounts
- Creating runbooks

After completing this module, students will be able to:

- Implement Microsoft Operations Management Suite (OMS) solutions.
- Implement the core components of Microsoft Azure Automation.
- Implement different types of Azure Automation runbooks.
- Manage Azure Automation by publishing runbooks and scheduling their execution.