



Implementing Microsoft Azure Infrastructure Solutions

Course 20533E Five days Instructor-led, Hands-on

Introduction

This five-day instructor-led course teaches IT professionals how to provision and manage services in Microsoft Azure. Students will learn how to implement infrastructure components such as virtual networks, virtual machines, containers, web and mobile apps, and storage in Azure. Students also will learn how to plan for and manage Azure AD, and configure Azure AD integration with on-premises Active Directory domains.

This course is intended for IT professionals who are familiar with managing on-premises IT deployments that include Active Directory Domain Services (AD DS), virtualization technologies, and applications. 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 Microsoft 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 configure cross-premises connectivity.
- Plan and create Azure VMs.
- Configure, manage, and monitor Azure VMs to optimize availability and reliability.
- Implement Azure App Service.
- Plan and implement storage, backup, and recovery services.
- Implement container-based workloads in Azure.
- Deploy, configure, monitor, and diagnose cloud services.
- Implement Azure AD.
- Manage an Active Directory infrastructure in a hybrid environment.
- Automate operations in Azure by using Azure Automation runbooks.

Prerequisites

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

- Completed the Microsoft Certified Systems Administrator (MCSA) certification in Windows Server 2012 or Windows Server 2016.

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- Understanding of on-premises virtualization technologies, including: VMs, virtual networking, and virtual hard disks.
- 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 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.
- 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.

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- Use Azure portals to manage Azure services and subscriptions.
- Use Azure PowerShell and Azure CLI to manage Azure services and subscriptions.
- Use Azure management services to manage and monitor Azure resources.

Module 2: Implementing and managing Azure networking

This module explains how to plan virtual networks in Azure and implement and manage virtual networks. It also explains how to configure cross-premises connectivity and connectivity between virtual networks in Azure. Additionally, it explains how to configure an Azure virtual network and provides an overview of Azure classic networking.

Lessons

- Overview of Azure networking
- Implementing and managing Azure virtual networks
- Configuring Azure virtual networks
- Configuring Azure virtual network connectivity
- Overview of Azure classic networking

Lab : Using a deployment template and Azure PowerShell to implement Azure virtual networks

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

Lab : Configuring VNet peering

- Using the Azure portal to configure VNet peering
- Configuring VNet peering–based service chaining
- Validating virtual network connectivity

After completing this module, students will be able to:

- Plan virtual networks in Azure.
- Implement and manage virtual networks.
- Configure cross-premises connectivity and connectivity between virtual networks in Azure.
- Configure an Azure virtual network.
- Describe Azure classic networking.

Module 3: Implementing virtual machines

This module introduces the fundamentals of Azure VMs and discusses the different ways in which you can deploy and manage them.

Lessons

- Overview of Azure virtual machines

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- Planning and deployment of Azure virtual machines
- Deploying Azure virtual machines
- Overview of classic Azure VMs

Lab : Deploying Azure VMs

- Creating Azure VMs by using the Azure portal, Azure PowerShell, and Azure CLI
- Validating Azure VM deployment

Lab : Deploying Azure VMs by using Azure Resource Manager templates

- Using Visual Studio and an Azure Resource Manager template to deploy Azure VMs
- Using Azure PowerShell and an Azure Resource Manager template to deploy Azure VMs using Azure CLI and an Azure Resource Manager template to deploy Azure VMs

After completing this module, students will be able to:

- Describe the main characteristics of Azure VMs.
- Plan for Azure VM deployments.
- Deploy Azure VMs.
- Describe the main characteristics of classic Azure VMs.

Module 4: Managing Azure virtual machines

This module explains how to configure and manage Azure VMs, including configuring virtual machine disks and monitoring Azure VMs.

Lessons

- Configuring Azure VMs
- Managing disks of Azure VMs
- Managing and monitoring Azure VMs
- Managing classic Azure VMs

Lab : Managing Azure virtual machines

- Implementing Desired State Configuration (DSC)
- Implementing Storage Spaces–based volumes

After completing this module, students will be able to:

- Configure Azure VMs.
- Manage Azure VM disks.
- Manage and monitor Azure VMs.
- Manage classic Azure VMs.

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Module 5: Implementing Azure App services

This module explains the different types of apps that you can create by using the Azure App Service, and how you can select an App Service plan and deployment method for apps in Azure. It also explains how to use Microsoft Visual Studio, File Transfer Protocol (FTP) clients, Azure PowerShell, and Azure CLI to deploy Azure web and mobile apps. Additionally, the module explains how to configure web apps and use the Azure WebJobs feature to run custom tasks. It also explains how to monitor the performance of web apps and create and configure mobile apps. Lastly, this module explains how to use Azure Traffic Manager to distribute requests between two or more 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
- Implementing 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 App Service.
- Create a service plan and select a deployment method for App Service apps in Azure.
- Use Visual Studio, FTP clients, Azure PowerShell, and Azure CLI to deploy web and mobile apps to Azure.
- Configure web apps and use the Azure WebJobs feature to run custom 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. It explains how to choose appropriate Azure Storage options to address business needs and how to implement and manage Azure Storage. It also explains how to improve web-application performance by implementing Azure Content Delivery Networks (CDNs). Contact ISInc for more information at 916.920.1700 or by visiting our website at <http://www.isinc.com>



Lastly, this module explains how to protect cloud-resident and on-premises workloads by using Azure Backup and Azure Site Recovery.

Lessons

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

Lab : Planning and implementing Azure storage

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

After completing this module, students will be able to:

- Choose appropriate Azure Storage options to address business needs.
- Implement and manage Azure Storage.
- Improve web application performance by implementing Azure CDNs.
- Protect cloud-resident and on-premises workloads by using Azure Backup and Azure Site Recovery

Module 7: Implementing containers in Azure

This module explains how to implement containers in Azure. It starts by introducing the concept of containers and presents different options for implementing containers on Windows and Linux Azure VMs. Next, it explains container orchestration in the context of Azure Container Service (ACS) and describes how to use ACS to deploy Docker Swarm, Kubernetes, and DC/OS clusters.

Lessons

- Implementing Windows and Linux containers in Azure
- Implementing Azure Container Service

Lab : Implementing containers on Azure VMs

- Implementing Docker hosts on Azure VMs
- Deploying containers to Azure VMs
- Deploying multicontainer applications with Docker Compose to Azure VMs
- Implementing Azure Container Registry

Lab : Implementing Azure Container Service

- Creating an ACS cluster
- Managing an ASC cluster

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After completing this module, students will be able to:

- Implement Windows and Linux containers in Azure.
- Implement Azure Container Service.

Module 8: Implementing Azure cloud services

This module explains how to plan and deploy Azure Cloud Services. It also explains how to manage and maintain Azure Cloud Services.

Lessons

- Planning and deploying Azure Cloud Services
- Managing and maintaining Azure Cloud Services

Lab : Implementing Azure cloud services

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

After completing this module, students will be able to:

- Plan and deploy Azure Cloud Services.
- Explain how to manage and maintain Azure Cloud Services

Module 9: Implementing Azure Active Directory

This module explains how to implement Azure AD. It explains how to create and manage Azure AD tenants. It also explains how to configure single sign-on (SSO) for cloud applications and resources, and implement Azure Role-Based Access Control (RBAC) for cloud resources. Lastly, it explains the functionality of Azure AD Premium, and how to implement Azure Multi-Factor Authentication.

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 Multi-Factor Authentication
- Configuring SSO from a Windows 10–based computer

After completing this module, students will be able to:

- Create and manage Azure AD tenants.

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- 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. It explains how to extend an on-premises Active Directory domain to Azure infrastructure as a service (IaaS) environments and synchronize user, group, and computer accounts between on-premises AD DS and Azure AD. This module also explains how to set up SSO by using federation and pass-through authentication between on-premises Active Directory and Azure AD.

Lessons

- Extending on-premises Active Directory domain to Azure
- Implementing directory synchronization by using Azure AD Connect
- Implementing SSO in hybrid scenarios

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 Azure IaaS environments.
- Synchronize user, group, and computer accounts between on-premises AD DS and Azure AD.
- Set up SSO by using federation and pass-through authentication 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. It explains how to implement Microsoft Operations Management Suite (OMS) solutions and Azure Automation. The module also describes how to create different types of Azure Automation runbooks and implement Azure Automation-based management by using runbooks.

Lessons

- Implementing Microsoft Operations Management Suite (OMS)
- Implementing Azure Automation
- Implementing Automation runbooks
- Implementing Azure Automation-based management

Lab : Implementing Automation

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- Configuring Automation accounts
- Creating runbooks

After completing this module, students will be able to:

- Implement OMS solutions.
- Implement Azure Automation.
- Implement different types of Azure Automation runbooks.
- Implement Azure Automation-based management.