



20533: Implementing Microsoft Azure Infrastructure Solutions

About this course

This 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.

Audience profile

This course is intended for IT professionals who have some knowledge of cloud technologies and want to learn more about 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.



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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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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.

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.



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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.



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Module 3: Implementing virtual machines

This module explains how to implement virtual machines.

Lessons

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.



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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

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



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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



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Planning for and implementing Azure Site Recovery

Lab : Planning and implementing storage

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.

Lessons

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



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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

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.



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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 Multi-Factor Authentication

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 using Azure AD Connect

Implementing federation

Lab : Implementing and managing Azure AD synchronization



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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 Azure 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.



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Additional Reading

To help you prepare for this class, review the following resources:

<https://azure.microsoft.com/en-us/documentation/>

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.