Installation, Storage, and Compute with Windows Server

Duration: 5 Days   Course Code: M55341

Overview:

This five-day course is designed primarily for IT professionals who have some experience with Windows Server. It is designed for professionals who will be responsible for managing storage and compute by using Windows Server, and who need to understand the scenarios, requirements, and storage and compute options that are available and applicable to Windows Server.

Although this course and the associated labs are written for Windows Server 2022, the skills taught will also be backwards compatible for Server 2016 and Server 2019.

The course and labs also focus on how to administer Windows Server using not only the traditional tools such as PowerShell and Server manager, but also Windows Admin Center.

Target Audience:

This course is intended for IT professionals who have some experience working with Windows Server, and who are looking for a single five-day course that covers storage and compute technologies in Windows Server. This course will help them update their knowledge and skills related to storage and compute for Windows Server.

Candidates suitable for this course would be:

Windows Server administrators who are relatively new to Windows Server administration and related technologies, and who want to learn more about the storage and compute features in Windows Server.
IT professionals with general IT knowledge who are looking to gain knowledge about Windows Server especially around storage and compute technologies in Windows Server.

Objectives:

- At Course Completion

- Prepare and install Windows Server and plan a server upgrade and migration strategy.

- Describe the various storage options, including partition table formats, basic and dynamic disks, file systems, virtual hard disks, and drive hardware, and explain how to manage disks and volumes.

- Describe enterprise storage solutions, and select the appropriate solution for a given situation.

- Implement and manage Storage Spaces and Data Deduplication.

- Install and configure Microsoft Hyper-V, and configure virtual machines.

- Deploy, configure, and manage Windows and Hyper-V containers.

- Describe the high availability and disaster recovery technologies in Windows Server.

- Plan, create, and manage a failover cluster.

- Implement failover clustering for Hyper-V virtual machines.

- Configure a Network Load Balancing (NLB) cluster, and plan for an NLB implementation.

- Create and manage deployment images.

- Manage, monitor, and maintain virtual machine installations.

Prerequisites:

- A basic understanding of networking fundamentals.
- An awareness and understanding of security best practices.
- An understanding of basic Active Directory concepts.
- Basic knowledge of server hardware.

- Experience supporting and configuring Windows client operating systems such as Windows 10 or Windows 11.
- M-MD100 - Windows Client

Content:

Module 1: Installing, upgrading, and migrating servers and workloads

This module describes the new features of Windows Server, and explains how to prepare for and install Server Core. This module also describes how to plan a server upgrade and migration strategy, and explains how to perform a migration of server roles and workloads within and across domains. Finally, this module explains how to choose an activation model based on your environment characteristics.

Lessons M1

- Introducing Windows Server
- Preparing and installing Server Core
- Preparing for upgrades and migrations
- Migrating server roles and workloads
- Windows Server activation models

Lab 1: Installing and configuring Windows Server

- Click here to enter text.After completing module 1, students will be able to:
- Describe the new features of Windows Server.
- Prepare for and install Windows Server.
- Plan a server upgrade and migration strategy.
- Perform a migration of server roles and workloads within a domain and across domains.
- Choose an appropriate activation model.

Module 2: Configuring local storage

This module explains how to name, declare, assign values to, and use variables. It also describes how to store data in an array. (e.g. This module explains how to install, upgrade and migrate to Windows 7. It also describes the key features, editions, and hardware requirements of Windows 7)

Lessons M2

- Managing disks in Windows Server
- Managing volumes in Windows Server

Lab 1: Configuring local storage

- Creating and managing volumes
- Resizing volumes
- Managing virtual hard disksAfter completing module 2, students will be able to:
- Manage disks in Windows Server.
- Manage volumes in Windows Server.

Module 5: Installing and configuring Hyper-V and virtual machines

This module provides an overview of Hyper-V and virtualization. It explains how to install Hyper-V, and how to configure storage and networking on Hyper-V host servers. Additionally, it explains how to configure and manage Hyper-V virtual machines.

Lessons M5

- Overview of Hyper-V
- Installing Hyper-V
- Configuring storage on Hyper-V host servers
- Configuring networking on Hyper-V host servers
- Configuring Hyper-V virtual machines
- Managing virtual machines

Lab 1: Installing and configuring Hyper-V

- Verify installation of the Hyper-V server role
- Configuring Hyper-V networks
- Creating and configuring virtual machines
- Enable nested virtualization for a virtual machineAfter completing module 5, students will be able to:
- Describe Hyper-V and virtualization.
- Install Hyper-V.
- Configure storage on Hyper-V host servers.
- Configure networking on Hyper-V host servers.
- Configure Hyper-V virtual machines.
- Manage Hyper-V virtual machines.

Module 6: Deploying and managing containers

This module provides an overview of containers in Windows Server. Additionally, this module explains how to deploy Windows Server and Hyper-V containers. It also explains how to install, configure, and manage containers by using Docker.

Lessons M6

- Overview of containers in Windows Server
- Deploying Windows Server and Hyper-V containers
- Installing, configuring, and managing containers by using Docker

Lab 1: Installing and configuring containers

Module 9: Implementing failover clustering with Windows Server Hyper-V

This module describes how Hyper-V integrates with failover clustering. It also explains how to implement Hyper-V virtual machines (VMs) in failover clusters.

Lessons M9

- Overview of the integration of Hyper-V with failover clustering
- Implementing Hyper-V VMs on failover clusters
- Key features for VMs in a clustered environment

Lab 1: Implementing failover clustering with Windows Server Hyper-V

- Configure iSCSI storage
- Configuring a failover cluster for Hyper-V
- Configuring a highly available VMAfter completing module 9, students will be able to:
- Describe how Hyper-V integrates with failover clustering.
- Implement Hyper-V VMs on failover clusters.
- Describe the key features for VMs in a clustered environment.

Module 10: Implementing Network Load Balancing

This module provides an overview of NLB clusters. It also explains how to plan and configure an NLB cluster implementation.

Lessons M10

- Overview of NLB
- Configuring an NLB cluster
- Planning an NLB implementation

Lab 1: Implementing NLB

- Implementing a Network Load Balancing (NLB) cluster
- Configuring and managing the NLB cluster
- Validating high availability for the NLB clusterAfter completing module 10, students will be able to:
- Describe NLB.
- Configure an NLB cluster.
- Explain how to plan an NLB implementation.

Module 11: Creating and managing

Module 3: Implementing enterprise storage solutions

This module discusses direct-attached storage (DAS), network-attached storage (NAS), and storage area networks (SANs). It also explains the purpose of Microsoft Internet Storage Name Service (iSNS) Server, data center bridging (DCB), and Multipath I/O (MPIO). Additionally, this module compares Fibre Channel, Internet Small Computer System Interface (iSCSI), and Fibre Channel over Ethernet (FCoE), and describes how to configure sharing in Windows Server.

Lessons M3

- Overview of DAS, NAS, and SANs
- Comparing Fibre Channel, iSCSI, and Fibre Channel over Ethernet
- Understanding iSNS, DCB, and MPIO
- Configuring sharing in Windows Server

Lab 1: Planning and configuring storage technologies and components

- Planning storage requirements
- Configuring iSCSI storage
- Configuring and managing the share infrastructureAfter completing module 3, students will be able to:
- Describe DAS, NAS, and SANs.
- Compare Fibre Channel, iSCSI, and FCoE.
- Explain the use of iSNS, DCB, and MPIO.
- Configure sharing in Windows Server.

Module 4: Implementing Storage Spaces and Data Deduplication

This module explains how to implement and manage Storage Spaces. This module also explains how to implement Data Deduplication.

Lessons M4

- Implementing Storage Spaces
- Managing Storage Spaces
- Implementing Data Deduplication

Lab 1: Implementing Storage Spaces

- Creating a Storage Space

Lab 2: Implementing Data Deduplication

- Installing Data Deduplication
- Configuring Data DeduplicationAfter completing module 4, students will be able to:
- Describe and implement the Storage

- Installing and configuring Windows Server containers by using Windows PowerShell
- Deploying containers using DockerAfter completing module 6, students will be able to:
- Describe containers in Windows Server.
- Explain how to deploy containers.
- Explain how to install, configure, and manage containers using Docker.

Module 7: High availability and disaster recovery

This module provides an overview of high availability and high availability with failover clustering in Windows Server. It further explains how to plan high availability and disaster recovery solutions with Hyper-V virtual machines. Additionally, this module explains how to back up and restore the Windows Server operating system and data by using Windows Server Backup.

Lessons M7

- Defining levels of availability
- Planning high availability and disaster recovery solutions with Hyper-V virtual machines
- Backing up and restoring by using Windows Server Backup
- High availability with failover clustering in Windows Server

Lab 1: Planning and implementing a high availability and disaster recovery solution

- Determining the appropriate high availability and disaster recovery solution
- Implementing storage migration
- Configuring Hyper-V replicasAfter completing module 7, students will be able to:
- Define levels of availability.
- Plan high availability and disaster recovery solutions with Hyper-V virtual machines.
- Back up and restore data by using Windows Server Backup.
- Describe high availability with failover clustering in Windows Server

Module 8: Implementing failover clustering

This module explains how to plan for failover clustering. It also explains how to create, manage, and troubleshoot a failover cluster.

Lessons M8

deployment images

This module provides an overview of the Windows Server image deployment process. It also explains how to create and manage deployment images by using the Microsoft Deployment Toolkit (MDT). Additionally, it describes different workloads in the virtual machine environment.

Lessons M11

- Introduction to deployment images
- Creating and managing deployment images by using MDT
- Virtual machine environments for different workloads

Lab 1: Using MDT to deploy Windows Server

- Configuring MDT
- Creating and deploying an imageAfter completing module 11, students will be able to:
- Describe the Windows Server image deployment process.
- Create and manage deployment images by using MDT.
- Describe the different workloads in the virtual machine environment.

Module 12: Managing, monitoring, and maintaining virtual machine installations

This module provides an overview on Windows Server Update Services (WSUS) and the requirements to implement WSUS. It explains how to manage the update process with WSUS. Additionally, this module provides an overview of Windows PowerShell Desired State Configuration (DSC) and Windows Server monitoring tools. Finally, this module describes how to use Performance Monitor, and how to manage event logs.

Lessons M12

- WSUS overview and deployment options
- Update management process with WSUS
- Overview of Windows PowerShell DSC
- Overview of Windows Server monitoring tools
- Using Performance Monitor
- Monitoring event logs

Lab 1: Implementing WSUS and deploying updates

- Implementing WSUS
- Configuring update settings
- Approving and deploying an update by

Spaces feature in the context of enterprise storage needs.

- Manage and maintain Storage Spaces.
- Describe and implement Data Deduplication.

- Planning a failover cluster
- Creating and configuring a new failover cluster
- Maintaining a failover cluster
- Troubleshooting a failover cluster
- Implementing site high availability with stretch clustering

Lab 1: Implementing failover clustering

- Creating a failover cluster
- Verifying quorum settings and adding a node

Lab 2: Managing a failover cluster

- Evicting a node and verifying quorum settings
- Changing the quorum from disk witness to file-share witness, and defining node voting
- Verifying high availabilityAfter completing module 8, students will be able to:
- Plan for a failover-clustering implementation.
- Create and configure a failover cluster.
- Maintain a failover cluster.
- Troubleshoot a failover cluster.
- Implement high availability and stretch clustering for a site.

using WSUS

Lab 2: Monitoring and troubleshooting Windows Server

- Establishing a performance baseline
- Identifying the source of a performance problem
- Viewing and configuring centralized event logsAfter completing module 12, students will be able to:
- Describe the purpose of WSUS and the requirements to implement WSUS.
- Manage the update process with WSUS.
- Describe the purpose and benefits of Windows PowerShell DSC.
- Describe the monitoring tools available in Windows Server.
- Use Performance Monitor.
- Manage event logs.

Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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