Installation, Storage, and Compute with Windows Server

About this course

This 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..

Duration

40 hs

Audience Profile

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.

At Course Completation

- 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.

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- 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

- Some exposure to and experience with Active Directory concepts and technologies in Windows Server.
- Experience working with and configuring Windows Server.
- Experience and an understanding of core networking technologies such as IP addressing, name resolution, and Dynamic Host Configuration Protocol (DHCP)
- Experience working with and an understanding basic server virtualization concepts.
- An awareness of basic security best practices.
- Hands-on working experience with Windows client operating systems such as Windows 10 or Windows 11.
- Basic experience with the Windows PowerShell command-line interface.

Course outline

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

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

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

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

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

- 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

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

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

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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

- 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

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

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

- 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

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

- 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

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

- 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

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

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

Module 11: Creating and managing 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

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

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

- 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