

70-740: Installation, Storage, and Compute with Windows Server 2016

Course Overview

This course provides students with the knowledge and skills to install Windows servers in host and computer environments, implement local and enterprise storage solutions, implement Hyper-V virtualization, implement Windows containers, implement high availability, and maintain and monitor server environments.

<u>Course Introduction</u>	6m
Course Introduction	
<u>Chapter 01 - Installing Windows Servers in Host and Computer Environments</u>	3h 4m
Topic A: Determining Windows Server 2016 Installation	
Installing Windows Server 2016	
Introduction to Windows Server 2016	
Windows Server Editions	
Hardware Requirements	
Hardware Considerations	
Installation Options	
Options for Managing Servers	
Windows PowerShell	
Windows PowerShell Basics	
Demo - Using Windows PowerShell	
What's New Since 2008?	
What's New in Windows Server 2016	
Topic B: Installing Windows Server 2016 Core and Nano Editions	
Planning for Installation	
Planning for Nano Server	
Understanding Nano Server Roles	
Installing Nano Server Roles	
Planning for Server Core	
Server Core vs. Nano Server	
Nano Server Installation	
Installation Steps	
Alternative Steps to Install Nano Server	
Demo - Performing Nano Server Installation	
Managing and Configuring Nano	
Demo - Configuring Nano Server	
Installing Server Core	
Demo - Installing Windows Server 2016	
Demo - Configure the Local Installation	
Upgrades vs. Migrations	
Choosing In-Place Upgrades	
Choosing to Migrate	

Installation and Migration Tools
Choosing an Activation Model
Activation Methods
Topic C: Managing Windows Installations with Windows PowerShell
Post Installation Tasks
Topic D: Create, Manage, and Maintain Windows Images to Deploy
Creating and Managing Deployment Images
File-Based Imaging
Windows Image File Format
Types of Images
Image-Based Installation Tools
Creating Install Images
Considerations for Image Creation
Windows ADK for Windows 10
Basic Deployment Process
Windows Deployment Services
WDS Components
Microsoft Deployment Toolkit 2013
Chapter 01 Review

Chapter 02 - Implementing Local and Enterprise Storage Solutions

3h 29m

Topic A: Managing Disks and Volumes in Windows Server 2016
Managing Disks and Volumes
Partition Table Formats
Disk Types
Required Disk Volumes
File Systems
Resilient File System
Demo - Working with File Systems
Virtual Hard Disks
Managing Virtual Hard Disks
Selecting Physical Disk Types
Working with Disk Volumes
Volume Management Tools
Demo - Managing Volumes
Understanding RAID
Hardware vs. Software RAID
RAID Types
Topic B: Implementing and Managing Storage Spaces
Implementing and Managing Storage Spaces
Requirements for Storage Spaces
Storage Space Features
Demo - Configuring Storage Spaces
Changes to Storage Spaces
Storage Space Usage Scenarios
Storage Spaces Direct Deployment Scenarios
Managing Storage Spaces

Using Windows PowerShell with Storage Spaces
Managing Disk Failure with Storage Spaces
Monitoring Storage Spaces
Topic C: Configuring Data Deduplication
Overview of Data Deduplication
Enhancements in Windows Server 2016
Data Deduplication Requirements
Data Deduplication Components
Data Deduplication Process
Planning Data Deduplication
Data Deduplication Usage Scenarios
Demo - Installing and Configuring Data Deduplication
Monitoring and Maintaining Data Deduplication
Topic D: Understanding Various Types of Storage
Overview of Storage Solutions
Direct Attached Storage
Network Attached Storage
Storage Area Networks
Comparing Storage Solutions
Comparing Storage Technology
Topic E: Fibre Channel, iSCSI, and Fibre Channel over Ethernet
Fibre Channel
Fibre Channel Layouts
Fibre Channel Considerations
iSCSI
iSCSI Target Server
iSCSI Initiator
Considerations for Implementing iSCSI
Topic F: Understanding iSNS, DCB, and MPIO
iSNS
iSNS Functions and Installation
Data Center Bridging
MPIO
Topic G: Configuring File and Folder Sharing in Windows Server 2016
Configuring Sharing in Windows Server 2016
Server Message Block
Configuring SMB Shares
Demo - Configuring SMB Shares
Network File System
Configuring NFS Shares
Chapter 02 Review

Chapter 03 - Implementing Hyper-V Virtualization

1h 41m

Topic A: Installing Hyper-V Virtualization
Introducing Hyper-V
New Host Features in Windows Server 2016
New VM Features in Windows Server 2016

Introducing Windows Server Containers
Hyper-V Prerequisites
Nested Virtualization
Demo - Installing the Hyper-V Role
Topic B: Configuring Storage and Networking on Hyper-V Hosts
Using Virtual Hard Disks in Hyper-V
Virtual Hard Formats
Virtual Hard Disk Types
Considerations for Virtual Hard Disks
Fibre Channel in Hyper-V
Choosing Storage for Virtual Machines
Demo - Managing Storage in Hyper-V
Hyper-V Networks
Demo - Creating a Virtual Switch
Considerations for Hyper-V Networks
New Features in Windows Server 2016
Topic C: Configuring and Managing Virtual Machines
Overview of Virtual Machines
Configuration Versions
Generation Versions
Demo - Creating Virtual Machines
Virtual Machine Settings
New Options in Windows Server 2016
Shielded Virtual Machines
Best Practices for Virtual Machines
Overview of Virtual Machine Management
Managing Virtual Machine States
Working with Checkpoints
Importing and Exporting VMs
Windows PowerShell Direct
Chapter 03 Review

Chapter 04 - Implementing Windows Containers

39m

Topic A: Understanding Windows Server and Hyper-V Containers
Overview of Windows Server Containers
Concepts and Definitions
Windows Server Containers
Overview of Hyper-V Containers
Benefits of Hyper-V Containers
Usage Scenarios
Installation Requirements
Topic B: Deploying Windows Server and Hyper-V Containers
Deploying Windows Server Containers
Deploying Hyper-V Containers
Managing Containers
Demo - Installing the Containers Feature
Topic C: Using Docker to Install, Configure, and Manage Containers

Overview of Docker
Support for Docker in Windows
Docker Terminology
Docker Toolbox
Docker Solutions
Management of Docker
Overview of Docker Hub
Docker with Microsoft Azure
Chapter 04 Review

Chapter 05 - Implementing High Availability

3h 34m

Topic A: Overview of High Availability and Disaster Recovery
Understanding High Availability
Continuous Availability
Business Continuity
Business Continuity Strategies
Developing Disaster Recovery Plans
Service Level Agreements
Highly Available Networking
Highly Available Storage
High Availability for Virtual Machines
Understanding Live Migration
Live Migration Process
Hyper-V Replica
Planning for Hyper-V Replica
Implementing Hyper-V Replica
Overview of Windows Backup
Demo - Installing and Configuring Windows Server Backup
Overview of Failover Clustering
High Availability through Failover Clustering
Failover Clustering Terminology
Clustering Types and Categories
Topic B: Implementing Network Load Balancing
Understanding NLB
NLB Operation
NLB Features in Windows Server 2016
NLB Deployment Requirements
Demo - Deploying NLB
NLB Configuration Options
NLB Host Parameters
Network Considerations for NLB
Planning NLB Implementation
Topic C: Planning and Configuring Failover Clustering
The Importance of Planning
Application Considerations
Storage Considerations
Storage Requirements

Hardware Requirements
Network Requirements
Demo - Verifying NIC Capabilities
Additional Planning Considerations
Introducing Quorum
Dynamic Quorum
Testing the Configuration
Creation Process
Demo - Creating a Failover Cluster
Cluster Roles
Common Cluster Management Tasks
Cluster Properties
Failover and Failback Configuration
Storage Configuration
Network Configuration
Configuring Quorum Options
Demo - Configuring the Quorum
Topic D: Maintaining a Failover Cluster
Overview of Maintaining Failover Clusters
Monitoring Failover Clusters
Backup and Restore
Troubleshooting Failover Clusters
Managing Cluster Communication
Cluster Aware Updating (CAU)
Topic E: Troubleshooting Failover Clustering
Troubleshooting Communication
Troubleshooting Cluster Name Objects
Quorum Issues
Using Event Viewer
Using Windows PowerShell
Topic F: Integrating Failover Clustering and Hyper-V
High Availability Options
Host Clustering Overview
Failover Clustering for Hyper-V in Windows Server 2016
Hyper-V Cluster Components
Hyper-V Failover Cluster Prerequisites
Implementation Process
Cluster Shared Volumes
Configuring a Shared Virtual Hard Disk
Scale Out File Server (SOFS)
SOFS Requirements
Topic G: Configuring Site Availability
Stretch Clustering
Prerequisites for Stretch Clustering
Types of Replication
Overview of Storage Replica
Quorum Modes for Stretch Clusters
Chapter 05 Review

Chapter 06 - Maintaining and Monitoring Server Environments

1h 35m

Topic A: Windows Server Update Services

Overview of WSUS

Deployment Options

Server Requirements

Configuring Clients

Administering WSUS

Approving Updates

Demo - Installing and Configuring WSUS

Topic B: Windows PowerShell Desired State Configuration (DSC)

Overview of PowerShell DSC

Requirements for PowerShell DSC

Implementing PowerShell DSC

Topic C: Windows Server 2016 Monitoring Tools

Overview of Monitoring Tools

Using Task Manager

Demo - Using Task Manager

Performance Monitor

Demo - Using Performance Monitor

Monitoring Resources and Reliability

Event Viewer

Demo - Using Event Viewer

Monitoring with Server Manager

Chapter 06 Review

Course Closure

Total Duration: 14h 9m