

70-741: Networking with Windows Server 2016

Course Overview

This course provides students with the knowledge and skills to plan and implement IPv4 and IPv6 networks, install and configure DHCP, install and configure DNS, implement and manage IP address management, implement remote access, install and configure branch office networking, and implement advanced networking features.

Course Introduction

6m

Course Introduction

Chapter 01 - Plan and Implement IPv4 and IPv6 Networks

3h 4m

Topic A: Plan and Implement IP Addressing Schemes for IPv4 Networks

General Networking Requirements

IPv4 Required Settings

IPv4 Addresses

IPv4 Subnet Masks

Default Gateways

Demo - Understanding Binary Addressing

IPv4 Address Classes

What are Subnets?

The Subnetting Method

Subnet Creation Process

Demo - Subnetting a Network

IPv4 Address Types

IPv4 Network Types

Demo - Examining VLSM

Topic B: Configuring IPv4 Hosts

IPv4 Configuration

IPv4 Configuration Tools

Demo - Configuring IPv4

Topic C: Managing and Troubleshooting IPv4 Connectivity

Network Routing

Working with Routing Tables

Adding Static Routes

IPv4 Troubleshooting Methodology

Command Line Troubleshooting Tools

Graphical Troubleshooting Tools

Troubleshooting with Windows PowerShell

Demo - Troubleshooting IPv4

Microsoft Message Analyzer

Topic D: Implementing IPv6 for Network Hosts

The Purpose of IPv6

Reasons to Use IPv6

Comparing IPv4 and IPv6

IPv6 Address Structure
IPv6 Address Types
IPv6 Autoconfiguration
Configuring IPv6
Tools for Configuring IPv6
Topic E: Implementing IPv6 Transitioning and Coexistence
Understanding Node Types
Options for Coexistence
IPv6 over IPv4 Tunneling
Understanding ISATAP
Understanding 6to4
Understanding Teredo
Transitioning Process
Chapter 01 Review

Chapter 02 - Installing and Configuring DHCP

1h 42m

Topic A: Overview of the DHCP Server Role
Introducing DHCP
DHCP Components and Processes
Lease Generation Process
Lease Renewal Process
DHCP Considerations
Topic B: Deploying DHCP
Install and Configure a DHCP Server
DHCP Authorization
Demo - Installing DHCP
Creating Scopes
Configuring DHCP Options
Demo - Creating and Configuring Scopes
DHCP Relay Agents
Topic C: Managing and Troubleshooting DHCP
Implementing Security for DHCP
DHCP Auditing
Demo - Configuring Security and Auditing
DHCP Advanced Options
Additional Scope Types
High Availability for DHCP
DHCP Failover
Demo - Configuring DHCP Failover
DHCP Database
Migrating DHCP
Troubleshooting DHCP
Chapter 02 Review

Chapter 03 - Installing and Configuring DNS

2h 55m

Topic A: Implementing DNS Servers
Name Resolution Basics
What is DNS?
DNS Namespace
Types of Names

Internet Name Resolution
DNS Components
DNS Zones and Resource Records
Installing the DNS Server
Demo - Installing DNS
Topic B: Creating and Configuring DNS Zones
Resource Records
Zone Types
Replicating Zones
Demo - Creating and Configuring DNS Zones
Standard DNS Name Resolution
Modifying DNS Name Resolution
Working with DNS Cache
Demo - Configuring Cache and Forwarding
Understanding Domain Delegation
Demo - Domain Delegation
Topic C: Understanding Active Directory Integration
Overview of AD DS and DNS Integration
SRV Records
Demo - Examining SRV Records
Active Directory Integrated Zones
Application Partitions
Demo - Configuring Active Directory Integrated Zones
Topic D: Configuring Advanced DNS Settings
Advanced Name Resolution
The GlobalNames Zone
Demo - Configuring the GlobalNames Zone
Split DNS
Introducing DNS Policies
DNS Policy Objects
Demo - Configuring DNS Policies
Implementing DNS Security
DNS Security (DNSSEC)
Implementing DNSSEC
Topic E: Troubleshooting DNS Name Resolution
Introduction to DNS Troubleshooting
Obtaining DNS Server Statistics
Command Line Tools
Troubleshooting Process
Managing DNS Services
Testing DNS Servers
Demo - Managing and Troubleshooting DNS
Chapter 03 Review

Chapter 04 - Implementing and Managing IP Address Management

1h 22m

Topic A: Overview of IPAM
Introducing IPAM
IPAM Benefits
New Features in Windows Server 2016
IPAM Architecture

IPAM Deployment Requirements
IPAM Deployment Considerations
Topic B: IPAM Deployment
Implementing IPAM
Demo - Installing and Provisioning the IPAM Role
IPAM Administration
Default IPAM Groups
Demo - Administering IPAM
Configuring IPAM Options
Demo - Managing DNS and DHCP Servers using IPAM
Topic C: Managing IP Address Spaces by using IPAM
Managing IP Addressing
Viewing and Managing IP Addressing
Monitoring DHCP and DNS Servers
Adding Address Spaces
Finding, Allocating, and Reclaiming
Demo - Managing IP Addressing with IPAM
Chapter 04 Review

Chapter 05 - Implementing Remote Access

1h 59m

Topic A: Remote Access Overview
What is Remote Access?
Remote Access Options
Managing Remote Access
Demo - Installing the Remote Access Role
The Remote Access Management Console
Network Policy Server
NPS Policies
Using a PKI for Remote Access
Routing with Windows Server 2016
Network Address Translation
Topic B: Implementing the Web Application Proxy
Overview of Web Application Proxy
Authentication Options
Configuring the Web Application Proxy
Topic C: Planning and Implementing VPNs
Remote Access with VPNs
VPN Connection Properties
Tunneling Protocols
Authentication Protocols
VPN Reconnect
App-triggered VPNs
Configuring a VPN Server
VPN Configuration Options
Demo - Configuring a VPN Server
Topic D: Overview of DirectAccess
Introducing DirectAccess
DirectAccess Components
Deployment Options
DirectAccess Server Prerequisites

Tunneling Protocol Options
DirectAccess Process Internally
DirectAccess Process Externally
Topic E: Implementing DirectAccess
Simple DirectAccess Configuration
Configuration Changes
Limitations of Simple Configuration
Advanced DirectAccess Options
High Availability
Multisite Deployments
Configuring a PKI for DirectAccess
Implementing Client Certificates
Internal Network Configuration Options
Configuring DNS Settings
Monitoring DA Connectivity
Chapter 05 Review

Chapter 06 - Installing and Configuring Branch Office Networking

1h 47m

Topic A: Configuring Networking for Branch Offices
Branch Office Scenarios
Considerations for Branch Offices
WAN Connectivity
Network Services for Branch Offices
Implementing RODCs
Demo - Installing an RODC
Presentation Virtualization
Remote Desktop Services
File Services for Branch Offices
Print Services for Branch Offices
Topic B: Implementing Distributed File Systems
Introducing DFS
DFS Components
Types of DFS Namespaces
Deploying DFS Namespaces
Creating and Managing a DFS Namespace
Demo - Creating a DFS Namespace
DFS Replication
DFS Scenarios
Demo - Configuring Replication
Optimizing DFS
Managing the DFS Database
Monitoring and Troubleshooting DFS
Topic C: Implementing BranchCache
Introducing BranchCache (edit end)
BranchCache in Windows Server 2016
BranchCache Modes
Data Retrieval using BranchCache
BranchCache Requirements
Demo - Configuring and Enabling BranchCache
Chapter 06 Review

Chapter 07 - Implementing Advanced Networking Features

1h

Topic A: Implementing Networking Features for High Performance

High Performance Networking Features

NIC Teaming

Demo - Implementing NIC Teaming

SMB 3.1.1 Shared Folders

Advanced SMB 3.1.1 Functionality

Quality of Service (QoS)

Understanding RSS

Understanding RSC

Topic B: Implementing Hyper-V Advanced Networking Features

Virtual Switch Improvements

Extensible Virtual Switch

Understanding SR-IOV

Dynamic VMQ

Advanced Features for Network Adapters

NIC Teaming in Virtual Machines

Topic C: Introduction to Software-Defined Networking

SDN Concepts and Tools

SDN Benefits

Planning for Software-Defined Networking

SDN Deployments

Topic D: Overview of Network Virtualization

Introduction to Network Virtualization

Network Virtualization Benefits

Generic Route Encapsulation

Chapter 07 Review

Course Closure

Total Duration: 13h 54m