

# **70-741: Networking with Windows Server 2016 - Retired2020**

**Modality: On Demand**

**Duration: 14 Hours**

***This course prepares you for the 70-741 Exam leading to 70-741 Certification. This course does not include the Official Exam Voucher, however, you can request to purchase the **Official Exam Voucher** separately.***

## **About this course:**

The Microsoft Windows Server 2016 is a server OS (operating system) which was previously referred to as Windows Server vNext. This server OS was particularly developed for running networked applications. This intermediate level course has been designed to equip the candidates with basic networking skills which are essential for installing and supporting Windows Server 2016 in most organizations. It covers remote access technologies, IP fundamentals, Software Defined Networking and other advanced content. By enrolling in this course, candidates will be prepared for Microsoft 70-741: Networking with Windows Server 2016 certification exam.

On average, a Windows Server Administrator can earn up to **\$55,929/-** per annum.

## **Course Objective:**

Once the course is complete, candidates will be able to;

- Understand the process of planning and deploying IPv4 network
- Understand the process of deploying DHCP (Dynamic Host Configuration Protocol)
- Deploy IPv6
- Understand the process of deploying DNS (Domain Name System)
- Understand the process of deploying as well as managing IPAM (IP Address Management)
- Understanding the process of planning for remote access
- Deploy Direct Access
- Understand the process of deploying VPNs (virtual private networks )
- Understand the process of deploying networking for brand offices
- Configure the advanced features of networking
- Understand the process of deploying SDN (Software Defined Networking)

## **Audience:**

This course is designed to be undertaken by;

IT professional, having basic knowledge and experience of networking and are searching for course which offers detailed information about the core as well as advanced technologies for networking in Windows Server 2016. The audience usually consists of the following.

- Network Administrators wishing to upgrade their skills and gain information about the latest

networking technology changes along with the functionality in Windows Server 2016.

- Infrastructure or System Administrators having general networking knowledge, and wish to gain basic as well as advanced skills and knowledge of networking in Windows Server 2016.

## Prerequisites:

Prior to enrolling in this course, candidates should possess;

- Knowledge as well as experience of Windows Server 2008 and Windows Server 2012
- Knowledge as well as experience of enterprise environment in a Windows Server infrastructure
- Knowledge and understanding of the OSI (open system interconnection) model
- Knowledge and understanding of basic networking infrastructure technologies and components like routers, cabling, hubs, and switches
- Familiarity and knowledge of networking architectures and topologies like LANs (Local Area Networks), wireless networking, and WANs (Wide Area Networks)
- Basic knowledge and understanding of TCP/ IP addressing, protocol stack, and name resolution
- Knowledge and experience of virtualization and Hyper-V
- Practical experience of working with Windows Client Operating Systems like Windows 8.1 or Windows 10

## Course Outline:

### Introduction

- Instructor Bio
- Course Introduction

### Chapter 01 - Plan and Implement IPv4 and IPv6 Networks

- Plan and Implement IPv4 and IPv6 Networks
- Chapter Introduction
- **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 Summary

## Chapter 02 - Installing and Configuring DHCP

- Installing and Configuring DHCP
- Chapter Introduction
- **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 Summary

## Chapter 03 - Installing and Configuring DNS

- Installing and Configuring DNS
- Chapter Introduction
- **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 Summary

## Chapter 04 - Implementing and Managing IP Address Management

- Implementing and Managing IP Address Management
- Chapter Introduction
- **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 Summary

## Chapter 05 - Implementing Remote Access

- Implementing Remote Access
- Chapter Introduction
- **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 Summary

## Chapter 06 - Installing and Configuring Branch Office Networking

- Installing and Configuring Branch Office Networking
- Chapter Introduction
- **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 Summary

## Chapter 07 - Implementing Advanced Networking Features

- Implementing Advanced Networking Features
- Chapter Introduction
- **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 Summary

## Course Conclusion

- Course Summary