Networking with Windows Server (55349AC)

Course Duration: 40 Hours (5 Days)

Overview

The Networking with Windows Server (55349AC) course is designed to provide IT professionals with the skills and knowledge necessary to implement and manage networking features in a Windows Server environment. This comprehensive course covers a range of critical networking topics, including IPv4 and IPv6 planning and implementation, Dynamic Host Configuration Protocol (DHCP), Domain Name System (DNS), IP Address Management (IPAM), Remote access solutions, and Advanced networking features for high performance and branch office scenarios. Through a blend of theory and practical labs, participants will learn how to plan and configure network infrastructure, ensure High availability, troubleshoot common network issues, and leverage Windows Server networking capabilities to support organizational needs. By mastering these skills, learners will be able to efficiently manage and maintain robust networking with Windows Server infrastructure, which is crucial for the seamless operation of modern business environments.

Audience Profile

The Networking with Windows Server (55349AC) course equips IT professionals with the skills to manage and implement advanced network solutions in enterprise environments.

- It is designed for:
- Network Administrators
- Systems Engineers
- IT Infrastructure Managers
- Windows Server Administrators
- Technical Support Specialists
- IT Professionals seeking Windows Server certification
- Network Architects involved in planning and implementing network solutions
- IT Consultants who design and maintain network infrastructures
- Cybersecurity Analysts focusing on network security configurations
- Cloud Solutions Architects working with Windows Server on cloud platforms
- Data Center Managers overseeing server networking
- IT Professionals transitioning from IPv4 to IPv6 networks
- Help Desk Technicians aiming for career advancement in network management

Course Syllabus

Module 1: Plan and Implement IPv4

- This module explains how to plan and implement an IPv4 addressing scheme to support your organization's needs. It also covers the use of fundamental networking tools and techniques to configure and troubleshoot IPv4-based networks.

Lessons:

- Plan IPv4 addressing
- Configure IPv4
- Manage and troubleshoot IPv4

Lab 1: Plan an IPv4 Addressing Scheme

- Plan IPv4 address assignments
- Verify IPv4 communication
- Troubleshoot IPv4

After completing this module, students will be able to:

- Plan IPv4 addressing and subnetting.
- Configure Windows Server with IPv4.
- Manage and troubleshoot IPv4 network connectivity.

Module 2: Implement DHCP

- Automatic IP configuration simplifies IP host management. In this module, students will learn how to deploy and manage the DHCP server role, choose a high-availability option for DHCP, and configure DHCP failover.

Lessons:

- Introduction to DHCP
- Deploy DHCP
- Manage DHCP high availability
- Manage and troubleshoot DHCP

Lab 1: Implement DHCP

- Plan a DHCP server implementation
- Implement DHCP configuration
- Configure DHCP failover
- Validate DHCP implementation

After completing this module, students will be able to:

- Plan a DHCP server implementation.
- Implement a DHCP configuration.
- Plan DHCP high-availability options.
- Validate a DHCP deployment.

Module 3: Plan and Implement IPv6

- This module explains how to plan and implement an IPv6 addressing scheme to support your organization’s needs. It also covers IPv4 and IPv6 coexistence and transition options for migrating to IPv6.

Lessons:

- Implement IPv6
- Manage IPv4 and IPv6 coexistence
- Migrate to IPv6

Lab 1: Configure and Evaluate IPv6 Transition Technologies

- Review the default IPv6 configuration
- Implement DHCPv6
- Configure network integration using ISATAP
- Configure native IPv6 connectivity
- Configure 6to4 connectivity

After completing this module, students will be able to:

- Review the default IPv6 configuration.
- Create and configure an IPv6 addressing scheme.
- Configure network integration using ISATAP.
- Configure native IPv6 connectivity.
- Configure network integration using 6to4.

Module 4: Implement Name Resolution with DNS

- This module covers the fundamentals of using the Domain Name System (DNS) for name resolution and advanced topics such as the GlobalNames zone, DNS Security Extensions (DNSSEC), and split-brain DNS. It also explains how to install, configure, and troubleshoot DNS in an organization's network.

Lessons:

- Deploy DNS servers
- Configure DNS zones

- Configure name resolution between DNS zones
- Integrate DNS with Active Directory Domain Services (AD DS)
- Configure advanced DNS settings

Lab 1: Plan and Implement DNS Name Resolution

- Plan DNS name resolution
- Implement DNS servers and zones

Lab 2: Integrate DNS with AD DS

- Integrate DNS with AD DS

Lab 3: Configure Advanced DNS Settings

- Configure DNS policies
- Validate a DNS implementation
- Troubleshoot DNS

After completing this module, students will be able to:

- Plan and implement DNS name resolution.
- Integrate DNS with AD DS.
- Configure advanced DNS settings.

Module 5: Implement and Manage IPAM

- This module introduces IP Address Management (IPAM), explains how to deploy IPAM, and demonstrates how to manage DNS and DHCP functionality using IPAM.

Lessons:

- Introduction to IPAM
- Deploy IPAM
- Manage IP address spaces with IPAM

Lab 1: Implement IPAM

- Install the IPAM Server feature
- Provision the IPAM Server
- Manage IP address spaces using IPAM

After completing this module, students will be able to:

- Understand the purpose and functionality of IPAM.
- Deploy IPAM.
- Manage IP address spaces using IPAM.

Module 6: Implement Remote Access

- In this module, students will learn how to implement remote access technologies in Windows Server. They will explore implementation scenarios for small, medium, and enterprise organizations. Windows Server integrates four remote access technologies—Virtual Private Network (VPN), DirectAccess, Routing, and Web Application Proxy (WAP)—into a unified Remote Access server role.

Lessons:

- Overview of remote access options
- Implement Web Application Proxy (WAP)
- Plan VPNs

Lab 1: Implement a Web Application Proxy

- Implement Web Application Proxy
- Validate a Web Application Proxy deployment

Lab 2: Implement a VPN

- Implement a VPN
- Validate the VPN deployment
- Troubleshoot VPN access

After completing this module, students will be able to:

- Understand remote access options.
- Implement Web Application Proxy (WAP).
- Plan and configure VPNs.

Module 7: Implement Branch Office Networking

- This module explores how Windows Server can address the challenges of branch office networking. It covers the use of Distributed File System (DFS) and BranchCache to optimize file and data access across multiple locations.

Lessons:

- Networking features and considerations for branch offices
- Implement DFS Replication (DFSR)
- Implement BranchCache for branch offices

Lab 1: Implement DFS for Branch Offices

- Implement DFS
- Validate the deployment

Lab 2: Implement BranchCache

- Implement BranchCache
- Validate the deployment

After completing this module, students will be able to:

- Understand networking features and considerations for branch offices.
- Implement DFS Replication (DFSR).
- Configure BranchCache for branch offices.

Module 8: Implement Advanced Networking

- Windows Server includes high-performance networking features such as Server Message Block (SMB) 3.1.1, Quality of Service (QoS) options, and enhancements to network packet processing. It also provides advanced networking features for Hyper-V, including virtual switch functionality, Single-Root I/O Virtualization (SR-IOV), dynamic virtual-machine queuing, and NIC Teaming for VMs. This module focuses on deploying and configuring advanced networking in Windows Server and Hyper-V.

Lessons:

- Overview of high-performance networking features
- Configure advanced Hyper-V networking features

Lab 1: Configure Advanced Hyper-V Networking Features

- Create and use Hyper-V virtual switches
- Configure and use advanced virtual switch features

After completing this module, students will be able to:

- Understand high-performance networking features.
- Configure advanced Hyper-V networking features.