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Course Outline

6435- Designing a Windows Server 2008 Network Infrastructure

Duration: 5 day (30 hours)
Target Audience:

The primary audience for this course is IT professionals (including Windows 2000, Windows Server 2003 enterprise administrators) interested in becoming a Longhorn Enterprise Administrator (who focuses on network solutions).

Prerequisites:

Before attending this course, students must have:

- Active Directory Technology Specialist level knowledge and concepts.
- Network Infrastructure Technology Specialist level knowledge and experience.
- Applications Infrastructure Technology Specialist level knowledge and experience.
- Windows Vista TS or D
- Experience with Windows operating systems such as Windows XP, Windows Server 2003, and Windows Vista
- Intermediate understanding of networking concepts such as TCP/IP, name resolution, and connection methods.
- Intermediate understanding of security best practices for authentication and file permissions.
- Intermediate understanding of server and network hardware.

Topics Covered:

- Module 1 Overview of Network Infrastructure Design
  - Preparing for Network Infrastructure Design
  - Designing the Network Topology
  - Designing Network Infrastructure for Virtualization
  - Designing a Change Management Structure for a Network
    - Lab: Designing Network Infrastructure in Windows Server 2008
      - Exercise 1: Preparing for the Network Infrastructure Design
      - Exercise 2: Designing the Network Topology
      - Exercise 3: Designing Network Infrastructure for Virtualization
      - Exercise 4: Designing a Change Management plan
      - Exercise 5: Lab Discussion

  After completing this module, students will be able to:

  - Describe the network infrastructure design.
  - Design the network topology.
  - Design network infrastructure for virtualization.
  - Design a change management structure for a network.

- Module 2: Designing Network Security
  - Overview of Network Security Design
  - Creating a Security Plan
  - Identifying Threats to Network Security
  - Analyzing Security Risks
  - The Defense-in-Depth Model
    - Lab: Designing a Network Security Plan
      - Exercise 1: Designing a Team for the Security Plan
      - Exercise 2: Identifying Threats
      - Exercise 3: Analyzing Risk
      - Exercise 4: Discussion of Designing a Network Security Plan

  After completing this module, students will be able to:

  - Describe the security design process.
  - Describe the components of a security plan.
  - Describe how to identify threats.
  - Describe how to assess risk.
  - Describe the defense-in-depth model.
- Module 3: Designing IP Addressing
  - Designing an IPv4 Addressing Scheme
  - Designing an IPv6 Addressing Scheme
  - Designing DHCP Implementation
  - Designing DHCP Configuration Options
    - Lab: Designing IP Addressing in Windows Server 2008
      - Exercise 1: Designing an IPv4 Addressing Scheme
      - Exercise 2: Designing an IPv6 Addressing Scheme
      - Exercise 3: Designing a DHCP Implementation
      - Exercise 4: Discussion of IP Address Allocation

  After completing this module, students will be able to:

  - Describe how to integrate IPv4 and IPv6.
  - Describe how to allocate IPv4 and IPv6 addresses.
  - Describe how to implement DHCP placement.
  - Describe how to determine DHCP options
- Module 4: Designing Routing and Switching
  - Preparing for Designing a Network Routing Topology
  - Selecting Network Devices
  - Designing Internet Connectivity and Perimeter Networks
  - Designing Routing Communications
  - Evaluating Network Performance
    - Lab: Designing a Network Routing Topology
      - Exercise 1: Designing the Placement of Routers
      - Exercise 2: Designing a Perimeter Network
      - Exercise 3: Evaluating Network Performance
      - Exercise 4: Discussion of Designing a Network Routing Topology

  After completing this module, students will be able to:

  - Prepare for designing a network routing topology.
  - Design the placement of routers.
  - Design a perimeter network.
  - Design routing communications.

- Evaluate network performance.

- Module 5: Designing Security for Internal Networks
  - Designing Windows Firewall Implementation
  - Overview of IPSec
  - Designing IPSec Implementation
    - Lab: Designing a Secure Internal Network
      - Exercise 1: Designing a Windows Firewall Implementation
      - Exercise 2: Designing an IPSec Implementation

  After completing this module, students will be able to:
  - Describe how Windows Firewall can be used to secure networks
  - Describe how IPSec can be used to secure networks
- Module 6: Designing Name Resolution
  - Collecting Information for a Name Resolution Design
  - Designing a DNS Server Strategy
  - Designing a DNS Namespace
  - Designing DNS Zone Implementation
  - Designing Zone Replication and Delegation
    - Lab: Designing a Name Resolution Strategy in Windows Server 2008
      - Exercise 1: Designing a DNS server strategy
      - Exercise 2: Designing a DNS namespace
      - Exercise 3: Designing a DNS zone and replication strategy
      - Exercise 4: Discuss the design of name resolution
      - Exercise 5: Implement a DNS zone and replication strategy

  After completing this module, students will be able to:
  - Determine the information required to plan name resolution.
  - Describe how to design a DNS server strategy.
  - Describe how to design a DNS namespace
  - Describe how to design a DNS zone strategy.
  - Describe how to design a DNS zone replication strategy.
- Module 7: Designing Advanced Name Resolution
  - Optimizing DNS Queries
  - Designing DNS for High Availability
  - Designing a WINS Name Resolution Strategy
    - Lab: Designing a Name Resolution Strategy in Windows Server 2008
      - Exercise 1: Optimize DNS resolution
      - Exercise 2: Designing and Configuring WINS Name Resolution
      - Exercise 3: Integrating DNS and WINS Name Resolution

  After completing this module, students will be able to:
  - Optimize DNS resolution.
  - Design DNS for high availability.
  - Design a WINS Name resolution strategy.
- Module 8: Planning and Deploying the Application Virtualization Management System
  - Gathering Data for Designing Network Access Solutions
  - Securing and Controlling Network Access
  - Designing Remote Access Services
  - ‘Designing RADIUS Authentication with Network Policy Services’
  - Designing Wireless Access

- Lab: Designing Network Access Solutions
    - Exercise 1: Determining Network Access Requirements
    - Exercise 2: Designing a Remote Access Solution
    - Exercise 3: Designing Network Policy Services
    - Exercise 4: Discuss the Design of Network Access
    - Exercise 5: Designing a Wireless Connection Solution

After completing this module, students will be able to:

- Describe how to gather data for designing network access solutions.
- Describe how to secure and control network access.
- Describe how to design remote access services.
- Describe how to design a RADIUS solution.
- Describe how to design wireless access.

➢ Module 9: Designing Network Access Protection

- Designing the NAP Platform Architecture
- Network Policy Server Component Design
- Designing NAP Enforcement Point and Client Component Requirements
- IPSec Enforcement for NAP
    - Lab: Designing Network Access Protection
        - Exercise 1: Designing the NAP Platform Architecture
        - Exercise 2: Designing and Implementing the Network Policy Server Components
        - Exercise 3: Designing and Implementing the NAP Enforcement and Client Components

After completing this module, students will be able to:

- Describe how to design the NAP platform architecture.
- Describe NPS design for NAP.
- Describe how to design NAP enforcement point and client component requirements.
- Describe IPSec based NAP.

➢ Module 10: Designing Operating System Deployment and Maintenance

- Determining Operating System Deployment Requirements
- Deploying an Operating System by Using WDS
- Planning for the Creation and Modification of Images
- Designing Multicast Transmission of Images
    - Lab: Designing Operating System Deployment and Maintenance
        - Exercise 1: Designing an Operating System Deployment Solution
        - Exercise 2: Designing WDS Deployment
        - Exercise 3: Designing WDS Images
        - Exercise 4: Discussing WDS Deployment and Images Design
        - Exercise 5: Implementing Multicast Transmissions for Images

After completing this module, students will be able to:

- Determine operating system deployment requirements
- Describe operating system deployment using Windows Deployment Services.
- Plan the creation and modification of images.
- Design multicast transmission of images.

➢ Module 11: Designing File Services and DFS in Windows Server 2008

- Designing File Services
- Designing DFS
- Designing the FSRM Configuration

- Lab: Designing File Services and DFS in Windows Server 2008
    - Exercise 1: Designing and Implementing DFS
    - Exercise 2: Designing and Implementing FSRM

After completing this module, students will be able to:

- Describe the design of file services.
- Describe the design of Distributed File System (DFS).
- Describe the design of File Server Resource Manager (FSRM).

- Module 12: Designing Print Services in Windows Server 2008
    - Overview of a Print Services Design
    - Designing Print Services
        - Lab: Designing Shared Resources in Windows Server 2008
            - Exercise 1: Analyzing the Components of a Print Services Design
            - Exercise 2: Designing a Shared Printer Deployment

After completing this module, students will be able to:

- Describe the print services design.
- Design print services.

- Module 13: Designing High Availability in Windows Server 2008
    - Overview of High Availability
    - Designing Network Load Balancing for High Availability
    - Designing Failover Clustering for High Availability
    - Designing Geographically Dispersed Failover Clusters
        - Lab: Designing High Availability in Windows Server 2008
            - Exercise 1: Designing High Availability
            - Exercise 2: Implementing an NLB Design
            - Exercise 3: Implementing a Failover Cluster Design

After completing this module, students will be able to:

- Describe the need for high availability.
- Describe how to design Network Load Balancing for high availability
- Describe how to design Failover Clustering for high availability
- Describe how to design geographically dispersed failover clustering.