

## **Microsoft 2276**

# **Implementing a Microsoft Windows Server 2003 Network Infrastructure: Network Hosts**

**Length:** 2 Days

### **Introduction**

The goal of this two-day course is to provide students with the Skills and knowledge necessary to configure a Windows-based computer to operate in a Microsoft Windows Server™ 2003 networking infrastructure.

This is the third course in the Systems Administrator and Systems Engineer tracks for Windows Server 2003.

### **Audience**

The target audience for this course includes individuals who are either employed by, or who are seeking employment as, a Systems Administrator in Medium and Large organizations (M/LORG). The entry criterion for this course includes individuals who are:

- Entry-level IT professionals, new to hands-on Windows server and network administration.
- Preparing for Exam 70-291: Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network Infrastructure, a core requirement for the MCSA and MCSE certification credentials.

### **At Course Completion**

After completing the course, students will be able to:

- Describe the Transmission Control Protocol/Internet Protocol (TCP/IP) protocol architecture.
- Convert Internet Protocol (IP) addresses between decimal and binary.
- Calculate a subnet mask.
- Create subnets using Variable-Length Subnet Mask (VLSM) and Classless Inter-Domain Routing (CIDR).
- Configure a host to use a static IP address.
- Assign IP addresses in a multiple subnet network.
- Describe the IP routing process.
- Configure a host to obtain an IP address automatically.
- Configure a host so that automatic private IP address configuration is disabled.
- Configure a host to use name servers.
- Isolate common connectivity issues.

### **Prerequisites**

Before attending this course, students must have:

- A+ certification or equivalent knowledge and Skills
- Network+ certification or equivalent knowledge and Skills.
- Course 2274: Managing a Microsoft Windows Server 2003 Environment, or have equivalent knowledge and Skills.

### **Course Outline**

#### **Module 1: Reviewing the Suite of TCP/IP Protocols**

Topics: This module reviews the suite of TCP/IP protocols. By understanding the function of each of the protocols and how the protocols relate to each other, you have the context for understanding network administration tasks and network troubleshooting.

- Overview of the OSI Model
- Overview of the TCP/IP Protocol Suite

- Viewing Frames Using Network Monitor

Skills: After completing this module, students will be able to:

- Describe the architecture of the TCP/IP protocol layers.
- Associate the protocols of the TCP/IP suite with those of the OSI model.
- Describe the function of the protocols at each layer of the TCP/IP model.
- Describe how a frame moves through the TCP/IP layers and what happens at each layer.

### **Module 2: Assigning IP Addresses in a Multiple Subnet Network**

Topic: This module explains how to construct and assign IP addresses and how to isolate addressing issues associated with the IP routing process.

- Assigning IP Addresses
- Creating a Subnet
- Using IP Routing Tables
- Overcoming Limitations of the IP Addressing Scheme

Skills: After completing this unit, students will be able to:

- Convert IP Addresses from decimal to binary.
- Create a subnet.
- Calculate a subnet mask.
- Use an IP routing table.
- Create subnets using VLSM and CIDR.
- Reduce the number of wasted IP addresses.

### **Module 3: Configuring a Client IP Address**

Topics: This module describes how to configure an IP address for a client computer running Microsoft Windows Server 2003.

- Configuring a Client to Use a Static IP Address
- Configuring a Host to Obtain an IP Address Automatically
- Using Alternate Configuration

Skills: After completing this module, students will be able to:

- Configure a client to use a static IP address.
- Configure a client to obtain an IP address automatically by using DHCP.
- Configure a client to obtain an IP address automatically by using Alternate Configuration.

### **Module 4: Configuring a Client for Name Resolution**

Topics: This module describes the various types of name resolution mechanisms provided by the Windows operating systems and how to use and configure them for clients on your network.

- Resolving Client Names
- Managing the ARP Cache
- Overview of NetBIOS
- Using Static Naming Methods
- Using Dynamic Naming Methods
- Summarizing the Name Resolution Process

Skills: After completing this unit, students will be able to:

- Describe how client names are resolved.
- Use Address Resolution Protocol (ARP) to identify client media access control (MAC) addresses.
- Describe the function of Network Basic Input/Output System (NetBIOS).
- Configure a client to use a static IP address.
- Configure a client to use name resolution servers.



### **Module 5: Isolating Common Connectivity Issues**

Topics: This module explains how to isolate common connectivity issues and describes how to use utilities and tools as part of this process.

- Determining the Causes of Connectivity Issues
- Network Utilities That You Can Use to Isolate Connectivity Issues

Lab: Isolating Common Connectivity Issues

- Exercise 1: Documenting Your Current Environment
- Exercise 2: Resolving Connectivity Issues

Skills: After completing this unit, students will be able to:

- Determine the causes of common connectivity issues.
- Use a flow chart to isolate a problem.
- Use utilities to isolate a problem.