TestOut

Lesson Plans

Microsoft's Planning and Maintaining a Microsoft Windows Server 2003 Network Infrastructure

(Exam 70-293)

The lessons only experience can teach

Table of Contents

Table of Contents 1
Course Overview 2
Section 0-1: Introduction 4
Section 1-1: Remote Management 5
Section 1-2: Network Monitor 6
Section 1-3: Performance 7
Section 2-1: DNS Concepts 8
Section 2-2: Namespace Design 9
Section 2-3: Controlling Name Resolution 10
Section 2-4: DNS Performance 11
Section 2-5: DNS Security 12
Section 2-6: Troubleshooting DNS 13
Section 3-1: Configuring WINS 14
Section 3-2: Managing WINS 15
Section 3-3: Integrating WINS and DNS 16
Section 4-1: TCP/IP Configuration 17
Section 4-2: Network Components 18
Section 4-3: Optimizing DHCP 19
Section 4-4: Troubleshooting TCP/IP 20
Section 5-1: Routing 21
Section 5-2: Remote Access 22
Section 5-3: Wireless Networking 23
Section 6-1: Internet Connectivity 24
Section 6-2: Network Address Translation (NAT) 25
Section 6-3: Firewalls 26
Section 7-1: Security Planning and Monitoring 27
Section 7-2: Group Policy 28
Section 7-3: Templates and Baselines 29
Section 7-4: Encryption 30
Section 7-5: Authentication and Communication 31
Section 7-6: Software Security 32
Section 8-1: PKI Concepts 33
Section 8-2: Configuring Certificate Services 34
Section 8-3: Managing Certificates 35
Section 8-4: Smart Cards 36
Section 9-1: Load Balancing 37
Section 9-2: Clustering 38
Section 9-3: Backup and Recovery 39
Section 9-4: Distributed File System 40

Course Overview

Introduction

The introduction covers the different versions of Windows Server 2003. Each version is constructed to meet specific networking requirements. Students learn the capabilities of each version, and how each version can be deployed.

Module 1

This module covers different server management practices. Students learn how to perform remote management tasks and monitor server and network performance.

Module 2

This module covers DNS name resolution. Students learn about every facet of DNS from name resolution to DNS integration with Active Directory. Students also learn how to configure and control name resolution in a network environment.

Module 3

This module covers NetBIOS name resolution. Though a legacy deployment, many networks and applications require NetBIOS to function properly. Students learn when and how to deploy NetBIOS name resolution.

Module 4

This module covers network addressing and network protocols. Students learn about TCP/IP and address assignment through DHCP. They also learn practices to help optimize DHCP performance.

Module 5

This module covers routing and remote access. Students learn how to choose and deploy a routing solution and configure remote access. This module also introduces students to wireless networking.

Module 6

This module covers Internet connectivity. Student learn the different methods for establishing network connections to the Internet. This module also introduces students to basic security practices, like firewall deployment.

Module 7

This module covers security. Students will learn how to create a security plan, implement security through Group Policy and security templates, use encryption, establish secure network authentication, and secure software.

Module 8

This module introduces students to PKI (Public Key Infrastructure). Students learn about the components of PKI, how to use PKI in a network environment, and smart card deployment.

Module 9

This module covers network availability. Students learn how to use features and tools designed to accomplish network and data fault tolerance and redundancy.

Section 0-1: Introduction

Preparation

Make a chart similar to the one in the video. Prepare to discuss the advantages, disadvantages, and best uses for each Server 2003 version.

Exam Objective(s)

204. Plan network traffic monitoring. Tools might include Network Monitor and System Monitor.

Lecture Focus Questions:

- How do the various 2003 server editions differ from each other?
- What are the domain and forest functional levels?
- How can Network Monitor help you analyze network traffic?
- When would you use Network Monitor?

Time

About 45 minutes

Section 1-1: Remote Management

Preparation

Make sure you understand the differences between out-of-band and in-band management tools to explain to the class. If possible, set up a terminal services client and server. Run a session during the class to show how terminal services functions.

Exam Objective(s)

302. Plan security for remote access users.

- Plan remote access policies.
- Plan authentication methods for remote access clients.

Lecture Focus Questions:

- What is the difference between an in-band and out-of-band remote management tool?
- How do you configure EMS?
- What are some in-band remote management tools?
- What group membership and user rights must a user have to use Remote Desktop?
- What are three ways to submit a Remote Assistance request?

Time

About 45 minutes

Lab/Activity

- Enable Remote Desktop

Section 1-2: Network Monitor

Preparation

If possible, install Network Monitor on a machine. Show students captured data, and explain how to interpret the data.

Exam Objective(s)
204. Plan network traffic monitoring. Tools might include Network Monitor and System Monitor.

Lecture Focus Questions:

- What are the differences between the two versions of Network Monitor?
- What is promiscuous mode?
- What do capture and display filters do?
- Why would you implement Dedicated Capture Mode?
- When would you use a trigger?

Time

About 45 minutes

Lab/Activity

- Use Network Monitor

Section 1-3: Performance

Preparation

Use the chart in the lesson and video to create some performance scenarios. Using the information on the chart, help the students diagnose and suggest corrective actions for the problems in the scenarios. If possible, open the Performance Console and create a log to monitor performance. Show the students real-time and logged data.

Exam Objective(s)

402. Identify system bottlenecks, including memory, processor, disk, and network related bottlenecks.

- Identify system bottlenecks by using System Monitor.

Lecture Focus Questions:

- What is the difference between an Object and a Counter?
- What conditions indicate a processor bottleneck?
- What action would you take to correct the situation where the pagefile counter was over 70%?

Time

About 45 minutes

Section 2-1: DNS Concepts

Preparation

DNS is a difficult concept for students to grasp. Make sure you know the material in the section very well before your class.

Exam Objective(s)

207. Plan a host name resolution strategy.
- Plan zone replication requirements.
- Plan a forwarding configuration.

Lecture Focus Questions:

- What are the steps in the DNS name resolution process?
- How does a zone differ from a domain?
- What are the advantages of Active Directory-integrated zones?
- Why would you choose to use a stub zone or conditional forwarding?

Time

About 45 minutes

Section 2-2: Namespace Design

Preparation

Create some scenarios for which the students can suggest namespace strategies.

Exam Objective(s)

207. Plan a host name resolution strategy.

- Plan a DNS namespace design.

Lecture Focus Questions:

- When using internal and external DNS, what are three possible scenarios for the DNS namespace?
- What are the advantages and disadvantages of each of the three methods?
- What are the four goals of any split namespace design?

Time

About 45 minutes

Section 2-3: Controlling Name Resolution

Preparation

Make a copy of the Cache.dns file to discuss during class. Understand and explain the function of the root hint servers.

Exam Objective(s)

207. Plan a host name resolution strategy.
- Plan a forwarding configuration.

Lecture Focus Questions:

- What configuration options do you have to control and manage name resolution?
- How does conditional forwarding differ from standard forwarding?
- How do conditional forwarders differ from stub zones?
- What is the purpose of the root hints file?
- What is the name and location(s) of the root hints file on a Windows 2003 server?
- When might you want to create a root zone?

Time

About 45 minutes

Lab/Activity

- Configure root hints
- Create a root zone
- Configure a server to use forwarders
- Configure conditional forwarding

Section 2-4: DNS Performance

Preparation

Create some scenarios that allow students to suggest methods for improving DNS performance. Be sure to discuss the tradeoffs among reliability, price, performance, and security.

Exam Objective(s)

207. Plan a host name resolution strategy.

- Plan zone replication requirements.
- Plan a forwarding configuration.

Lecture Focus Questions:

- How can using secondary servers increase performance?
- How does an Active Directory-integrated zone improve performance?
- What are the key configuration characteristics of a caching-only server?
- When would you choose a stub zone over a caching-only server or a secondary server?

Time

About 45 minutes

Lab/Activity

- Install DNS and create a secondary zone
- Create an Active Directory-integrated zone
- Convert a zone to Active Directory-integrated zone
- Configure a caching only server
- Configure a stub zone

Section 2-5: DNS Security

Preparation

Create some scenarios in which DNS data is at risk. Allow the students to explore alternatives for correcting the potential risks.

Exam Objective(s)

207. Plan a host name resolution strategy.
- Plan for DNS security.

Lecture Focus Questions:

- How can you secure the dynamic DNS update process?
- How can you disable zone transfers but still maintain zone data replication on multiple servers?
- What type of zone automatically secures zone transfers?
- How can you secure zone transfers between primary and secondary servers?

Time

About 45 minutes

Lab/Activity

- Create an Active Directory-integrated zone
- Enable zone transfer to name servers
- Enable zone transfer to listed servers
- Disable zone transfer

Section 2-6: Troubleshooting DNS

Preparation

Create some scenarios that illustrate DNS problems. Allow the students to determine the tools and methods most appropriate for dealing with the problems.

Exam Objective(s)

207. Plan a host name resolution strategy.
    - Examine the interoperability of DNS with third-party DNS solutions.

209. Troubleshoot host name resolution.
    - Diagnose and resolve issues related to DNS services.

Lecture Focus Questions:

- What are some of the troubleshooting tools available for DNS?
- How does using Ipconfig /registerdns differ from restarting the Netlogon service?
- How does Nslookup differ from Dnscmd?
- How can you tell the difference between an IP address problem and a name resolution problem?
- What versions of BIND support key features required by Active Directory?

Time

About 45 minutes

Lab/Activity

- Monitoring DNS

Section 3-1: Configuring WINS

Preparation

Create some scenarios in which WINS in necessary to the success of the network deployment. Have the students decide which types of WINS solutions work most effectively.

Exam Objective(s)
208. Plan a NetBIOS name resolution strategy.

Lecture Focus Questions:

- What is the purpose of WINS?
- How do clients register with WINS?
- How is WINS different from DNS?

Time

About 45 minutes

Lab/Activity

- Install WINS
- Install and configure WINS
- Configure WINS clients
- Disable NetBIOS over TCP/IP

Section 3-2: Managing WINS

Preparation

Create some scenarios in which students have to design a WINS replication strategy.

Exam Objective(s)

208. Plan a NetBIOS name resolution strategy.
- Plan a WINS replication strategy.

Lecture Focus Questions:

- What is the purpose of WINS replication?
- Why can't two servers, each configured as Pull partners, replicate WINS data with each other?
- What is tombstoning?
- When might you need to create static WINS records?

Time

About 45 minutes

Lab/Activity

- Manage the WINS server
- Configure WINS replication
- Troubleshoot WINS replication
- Manage WINS records
- Create a static record

Section 3-3: Integrating WINS and DNS

Preparation

Create some scenarios that both require and don't require WINS and DNS integration. Have the students decide when it's appropriate to integrate WINS and DNS.

Exam Objective(s)
208. Plan a NetBIOS name resolution strategy.

Lecture Focus Questions:

- How can a DNS server search the WINS database?
- When is it appropriate to create a WINS-integrated zone?
- What DNS record type is created when you configure a WINS-integrated zone?
- Why might you not replicate WINS data in a DNS zone?

Time

About 20 minutes

Lab/Activity

- Configure a WINS-integrated zone
- Create a WINS-integrated zone

Section 4-1: TCP/IP Configuration

Preparation

Subnetting is a difficult concept for student to grasp. Create several addresses for which students must find the subnet masks. Have students (if possible) convert decimal numbers to binary and vice versa.

Exam Objective(s)

201. Plan a TCP/IP network infrastructure strategy.
- Create an IP subnet scheme.

Lecture Focus Questions:
- What is the purpose of a subnet mask?
- How can we divide networks into subnetworks using subnet masks?
- How can we merge subnetworks into larger, super networks?

Time

About 3 hours

Lab/Activity

- Configure IP settings
- Choose IP settings 1, 2, & 3

Section 4-2: Network Components

Preparation

This section covers different network protocols. Create scenarios that require different protocols (integrate a Netware server into the network, for example). Allow the students to decide which protocols work most effectively.

Exam Objective(s)

205. Plan and modify a network topology.

- Identify network protocols to be used.

Lecture Focus Questions:

- What is the difference between protocols that have been installed and bound?
- What is the difference between a protocol, service, and client component?
- When can you safely disable NetBIOS over TCP/IP?

Time

About 45 minutes

Lab/Activity

- Remove the NetWare client
- Disable network components

Section 4-3: Optimizing DHCP

Preparation

Create scenarios that allow the students to suggest and discuss different DHCP design options, including implementing split scopes and relay agents.

Exam Objective(s)

201. Plan a TCP/IP network infrastructure strategy.
    - Analyze IP addressing requirements.

206. Troubleshoot TCP/IP addressing.
    - Diagnose and resolve issues related to DHCP server address assignment.

401. Plan services for high availability.

Lecture Focus Questions:

- What are three ways you can provide DHCP redundancy and fault tolerance?
- What is the single-most effective way to increase DHCP server performance?
- When should you use the 50/50 rule over the 80/20 rule for scope configuration?

Time

About 45 minutes

Lab/Activity

- Configure a split scope
- Add a DHCP server on another subnet
- Add a DHCP server to a subnet
- Design a DHCP strategy 1 & 2

Section 4-4: Troubleshooting TCP/IP

Preparation

If possible, prepare several machines to allow you to demonstrate the troubleshooting commands. Use the commands to isolate problems on each of the individual machines.

Exam Objective(s)

206. Troubleshoot TCP/IP addressing.

- Diagnose and resolve issues related to client computer configuration.
- Diagnose and resolve issues related to DHCP server address assignment.

Lecture Focus Questions:

- What are some TCP/IP troubleshooting tools available for your use?
- What is the difference between Tracert, Ping, and Pathping?
- What protocol do most of these tools use?

Time

About 45 minutes

Lab/Activity

- Troubleshoot TCP/IP 1, 2, 3, & 4

Section 5-1: Routing

Preparation

Create scenarios that allow students to explore different routing solutions.

Exam Objective(s)

201. Plan a TCP/IP network infrastructure strategy.
- Plan an IP routing solution.

301. Plan a routing strategy.
- Identify routing protocols to use in a specified environment.
- Plan routing for IP multicast traffic.

Lecture Focus Questions:

- What is the purpose of routing?
- What is a routing table?
- What is the difference between static and dynamic routing?
- How do RIP and OSPF differ?

Time

About 45 minutes

Lab/Activity

- Configure RIP routing
- Configure a routing solution 1 & 2

Section 5-2: Remote Access

Preparation

Create some remote access policies. Make them complex enough to have the students work through authentication and permissions problems for several different users and groups.

Exam Objective(s)

302. Plan security for remote access users.

- Plan remote access policies.
- Analyze protocol security requirements.
- Plan authentication methods for remote access clients.

Lecture Focus Questions:

- What are the three steps in the remote access connection process?
- What is the purpose of authentication?
- What are six authentication protocols supported by Windows?
- How does authorization differ from authentication?
- What is the policy logic (in detail) for Remote Access Policies?
- Where are Remote Access Policies stored?
- How does IAS/RADIUS differ from a normal RRAS server? Why use it?
- What are the three A's handled by the IAS server?
- When using IAS, where are remote access policies stored?

Time

About 45 minutes

Lab/Activity

- Configure a remote access server
- Create a remote access policy 1 & 2

Section 5-3: Wireless Networking

Preparation

If possible, allow the students to connect to a wireless network. Discuss the different types of authentication and encryption available.

Exam Objective(s)

505. Plan security for wireless networks.

- Plan security for data transmission.
- Secure data transmission between client computers to meet security requirements.

Lecture Focus Questions:

- What is the difference between ad hoc and infrastructure wireless networks?
- What two problems exist with wireless network security?
- How can you effectively secure your wireless network?

Time

About 45 minutes

Section 6-1: Internet Connectivity

Preparation

Create scenarios that require different types of Internet connectivity solutions. Have the students explore the different options to come up with the most effective deployments.

Exam Objective(s)
203. Plan an Internet connectivity strategy.

Lecture Focus Questions:

- Why implement NAT instead of normal routing?
- When would you use ICS an alternative to NAT?
- What are the advantages of a proxy server?
- In what ways can you secure a connection to the Internet?
- What IP addresses should you use on your private network when connected to the Internet?

Time

About 45 minutes

Section 6-2: Network Address Translation (NAT)

Preparation

Find examples of networks that use NAT. If possible, create a NAT server for the students to work with.

Exam Objective(s)
203. Plan an Internet connectivity strategy.

Lecture Focus Questions:

- What is the purpose of NAT?
- How does NAT accomplish its goal?
- Why do you have to tell NAT what is the private interface vs. the public interface?
- What is address and port mapping?

Time

About 45 minutes

Lab/Activity

- Configure a NAT router
- Add NAT to a router
- Configure NAT for DHCP and DNS

Section 6-3: Firewalls

Preparation

Create some scenarios in which certain networks offer only certain services. Have the students decide which ports must be opened and closed to provide the appropriate types of access.

Exam Objective(s)

503. Plan for network protocol security.

- Specify the required ports and protocols for specified services.

Lecture Focus Questions:

- What is the purpose of a firewall?
- What are the basic methods we can use to block traffic?
- What are the three firewalls built into Windows 2003 and how do they differ?
- What are some common ports?

Time

About 45 minutes

Lab/Activity

- Configure firewalls

Section 7-1: Security Planning and Monitoring

Preparation

Create scenarios that call for different types of security planning. Have the students make create security plans to meet the needs given in the scenarios.

Exam Objective(s)
603. Plan a framework for planning and implementing security.

Lecture Focus Questions:

- What are the two basic goals of any security system?
- What is the principle of least privilege?
- What are some of the most important security considerations for computer systems?

Time

About 45 minutes

Lab/Activity

- Delegate administrative control

Section 7-2: Group Policy

Preparation

If possible, create some group policies. Use these group policies for demonstrations during the lecture.

Exam Objective(s)
503. Plan for network protocol security.
504. Plan secure network administration methods.

Lecture Focus Questions:

- What is the purpose of Group Policy?
- What basic things can you deploy using Group Policy?
- What is the default processing order of Group Policies? (hint: LSDOU)
- What are the six exceptions to LSDOU?
- What are some new features of Group Policy?
- What are the four ways to retrieve RSOP information?

Time

About 45 minutes

Section 7-3: Templates and Baselines

Preparation

If possible, show the students the preconfigured templates, where they're located, and how to deploy them. Run the MBSA and have your students analyze the data that it retrieves.

Exam Objective(s)

101. Configure security for servers that are assigned specific roles.
102. Plan a secure baseline installation.
    - Plan a strategy to enforce system default security settings on new systems.
    - Identify client operating system default security settings.
    - Identify all server operating system default security settings.

Lecture Focus Questions:

- What are the two purposes of security templates?
- What are the basic features of the built-in templates?
- What is the easiest way to deploy uniform security settings to a group of computers?
- What tools can be used to deploy templates to a single computer?

Time

About 45 minutes

Lab/Activity

- Configure security templates
- Use MBSA

Section 7-4: Encryption

Preparation

Create some network scenarios that require encryption. Have the students determine which deployments are most effective.

Lecture Focus Questions:

- What is the overall purpose of encryption?
- What is symmetric encryption and what major security problem comes with it?
- What is asymmetric encryption?
- How is secure transmission of data implemented using asymmetric encryption?
- How is a digital signature implemented using asymmetric encryption?
- How does EFS combine symmetric and asymmetric encryption?
- What is a DRA and how can you implement multiple DRAs?
- How can you disable EFS?

Time

About 45 minutes

Lab/Activity

- Manage recovery agents

Section 7-5: Authentication and Communication

Preparation

Create scenarios in which different networks support different types of client machines. Have the students design authentication strategies for each of the scenarios.

Exam Objective(s)

501. Configure network protocol security.
- Configure protocol security by using IPSec policies.

502. Configure security for data transmission.
- Configure IPSec policy settings.

503. Plan for network protocol security.
- Plan an IPSec policy for secure network communications.

Lecture Focus Questions:

- What is the difference between Kerberos and NTLM?
- How can you enforce the use of Kerberos and NTLMv2 for maximum security?
- How does Kerberos and SMB signing contrast to IPSec?
- What are the three default IPSec policies and how do they interact?
- What is the easiest way to deploy uniform IPSec policies to a group of computers?

Time

About 45 minutes

Lab/Activity

- Configure communication policies
- Enforce SMB signing
- Troubleshoot SMB signing
- Enforce NTLM v2
- Configure IPSec policies
- Monitoring IPSec

Section 7-6: Software Security

Preparation

Create scenarios that require different types of software restrictions. Have the students decide which restriction options work best in different situations.

Exam Objective(s)

604. Plan a security update infrastructure. Tools might include Microsoft Baseline Security Analyzer and Microsoft Software Update Services.

Lecture Focus Questions:

- What are the two basic methods used to restrict software installation?
- What are the four software restriction rules?
- What is the purpose of SUS?
- What are the two basic steps to set up SUS once it is installed?
- What does a client need to use SUS?

Time

About 45 minutes

Section 8-1: PKI Concepts

Preparation

Make a diagram similar to the diagram shown in the video. Have the students fill in the trust relationships. Open the trusted certificate list in an Internet browser. Discuss the contents of the list with the students.

Exam Objective(s)

602. Plan a public key infrastructure (PKI) that uses Certificate Services.

- Identify the appropriate type of certificate authority to support certificate issuance requirements.
- Plan the enrollment and distribution of certificates.

Lecture Focus Questions:

- What is the purpose of a certificate?
- What kind of information is found on a certificate?
- What is the basic certificate lifecycle?

Time

About 45 minutes

Section 8-2: Configuring Certificate Services

Preparation

Design different scenarios for implementing certificate services. Have the students determine which type of CA is best for each of the scenarios.

Exam Objective(s)

602. Plan a public key infrastructure (PKI) that uses Certificate Services.

- Identify the appropriate type of certificate authority to support certificate issuance requirements.
- Plan the enrollment and distribution of certificates.

Lecture Focus Questions:

- What are the four types of CAs you can install with 2003 server?
- How does an Enterprise CA differ from a Standalone CA?
- What features come with Enterprise CAs?

Time

About 45 minutes

Lab/Activity

- Install a root CA
- Install a subordinate CA
- Manage a CA

Section 8-3: Managing Certificates

Preparation

Create scenarios that involve different certificate management tasks. Have the students determine the steps necessary to fulfill the requirements of each task.

Exam Objective(s)

602. Plan a public key infrastructure (PKI) that uses Certificate Services.

- Identify the appropriate type of certificate authority to support certificate issuance requirements.
- Plan the enrollment and distribution of certificates.

Lecture Focus Questions:

- What is the purpose of Certificate Templates?
- What are three basic certificates groups?
- What are the basic CA permissions?
- What are the basic Certificate template permissions?

Time

About 45 minutes

Lab/Activity

- Request and issue certificates
- Use certificate templates
- Configure certificate auto-enrollment
- Revoke certificates

Section 8-4: Smart Cards

Preparation

Discuss with the students the advantages and disadvantages of smart cards. Have them suggest uses for smart card authentication.

Exam Objective(s)

602. Plan a public key infrastructure (PKI) that uses Certificate Services.

- Plan for the use of smart cards for authentication.

Lecture Focus Questions:

- What is a smart card?
- Why are smart cards a more secure authentication method than a simple username and password?
- Why must an enterprise CA issue smart card certificates?

Time

About 45 minutes

Lab/Activity

- Require smart cards for computer logon
- Require smart cards for user logon

Section 9-1: Load Balancing

Preparation

Create scenarios that call for an NLB implementation. Have the students suggest different NLB solutions for each scenario's requirements. Prepare to discuss the advantages and disadvantages of NLB. If possible, prepare an example of an actual NLB deployment.

Exam Objective(s)

401. Plan services for high availability.

- Plan a high availability solution that uses Network Load Balancing.

404. Manage Network Load Balancing. Tools might include the Network Load Balancing Monitor Microsoft Management Console (MMC) snap-in and the WLBS cluster control utility.

Lecture Focus Questions:

- What is the purpose of Network Load Balancing?
- What is a cluster IP and how do clients find it?
- What is meant by the term convergence?
- What is the difference between Unicast and Multicast modes?
- How does NLB differ from Round Robin DNS?

Time

About 45 minutes

Lab/Activity

- Configure load balancing

Section 9-2: Clustering

Preparation

Create scenarios that require the use of clustering. Have the students design a clustering solution for each scenario. Also, create scenarios for cluster recovery. Walk the students through the process of recovering from a cluster failure.

Exam Objective(s)

401. Plan services for high availability.

- Plan a high availability solution that uses Network Load Balancing.

404. Manage Network Load Balancing. Tools might include the Network Load Balancing Monitor Microsoft Management Console (MMC) snap-in and the WLBS cluster control utility.

Lecture Focus Questions:

- What is the purpose of clustering?
- What is the quorum resource?
- What is meant by Active vs. Passive nodes?
- What tool is used to configure Clustering?

Time

About 45 minutes

Lab/Activity

- Configure clustering

Section 9-3: Backup and Recovery

Preparation

Create scenarios that require different backup strategies. Have the students determine which strategies are best given the scenario requirements.

Exam Objective(s)

405. Troubleshoot print queues.

407. Monitor file and print servers. Tools might include Task Manager, Event Viewer, and System Monitor.

- Monitor print queues.

Lecture Focus Questions:

- What are the differences among the various types of backups?
- How does a daily backup work?
- What two types of backups would you not use together?
- What would you select to back up if you needed to back up the registry?
- What is VSS?
- When would you need to install the Previous Versions client?
- How does VSS save time when you need to recover a document?
- What are the options for recovering a system?

Time

About 45 minutes

Lab/Activity

- Backup data
- Restore data
- Use VSS

Section 9-4: Distributed File System

Preparation

Create scenarios that require the deployment of a stand-alone or fault-tolerant DFS root. Use the solutions the students provide to discuss the advantages and disadvantages of each type of deployment.

Windows Server 2003 Objectives
401. Plan services for high availability.

Lecture Focus Questions:

- What is the purpose of DFS?
- How does DFS make searching for files easier for users?
- How can you implement fault tolerance with DFS?

Time

About 45 minutes

Lab/Activity

- Configure a DFS root and links
- Create a standalone DFS root
- Create a domain DFS root
- Design a DFS solution
- Add root and link replicas
- Design DFS fault tolerance