COURSE SYLLABUS

MCSA

- Managing and Maintaining a Microsoft Windows Server 2003 Environment (Exam 70-290)
- Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network Infrastructure (Exam 70-291)
- Implementing and Managing Microsoft Exchange Server 2003 (Exam 70-284)

50 Cragwood Rd, Suite 350
South Plainfield, NJ 07080

Victoria Commons, 613 Hope Rd Building #5,
Eatontown, NJ 07724

130 Clinton Rd,
Fairfield, NJ 07004
Avtech Institute of Technology Course

Instructor:
Course Duration:
Date/Time:
Training Location:

Course: NEPE 105 (Exam 70-290)

Text / Lab Books:
MCSA/MCSE Self-Paced Training Kit (Exam 70-290): Managing and Maintaining a Microsoft® Windows Server™ 2003 Environment
Dan Holme and Orin Thomas
ISBN 0-7356-1437-7

Course Description
In this course students will learn to manage and maintain a Microsoft Windows Server 2003 Environment. This course aids in the preparation for the Microsoft Exam 70-290

Learning Objectives

1.0 Introducing Microsoft Windows Server 2003

2.0 Administering Microsoft Windows Server 2003
2.1. Understand basic functions of the Microsoft Management Console such as building a customized MMC and various console options that can be used to build and save consoles.
2.2. Manage computers remotely with the MMC and set up the Snap-In for remote use. Enable and configure remote desktop for administration and establish a remote desktop connection. Understand how to configure the remote desktop client and how to troubleshoot terminal services.
2.3. Identify how to make a request for remote assistance and practice using remote assistance through Windows Messenger.

3.0 User Accounts
3.1. Create and manage user objects with active directory users and computers. Create multiple user objects utilizing user object templates and importing user objects using
CSVDE. Understand how to use active directory Command-Line Tools.

3.2. Manage profiles such as user profiles, local profiles and roaming user profiles. Create a preconfigured user and group profile. Configure a mandatory profile and become familiar with managing all profiles.

3.3. Secure authentication with policies. Audit and administer user authentication and practice how to secure and troubleshoot authentication when necessary.

4.0 Group Accounts

4.1. Understand group types such as Group Scope, Group Conversation and Special Identities. Practice how to change the group type and scope. Identify how to manage group accounts by creating a security group and modifying group membership. Identify domain groups to which a user belongs.

4.2. Use automation to manage group accounts using LDIFDE. Create groups with DSADD and modify groups with DSMOD. Practice using LDIFDE to manage group accounts.

5.0 Computer Accounts

5.1. Create computer accounts and understand the difference between the computers container vs. OUs. Practice joining a computer to an active directory domain.

5.2. Manage computer object permissions and configure computer properties. Identify how to find and connect to objects in Active Directory and practice how to manage computer accounts.

6.0 Files and Folders

6.1. Understand how to set up shared folders by sharing and managing a shared folder. Configure share permissions and manage user sessions and open files.

6.2. Configure file system permissions and understand what is meant by “Inheritance”. Define effective permissions and resource ownership. Practice configuring file system permissions.

6.3. Configure and enable audit settings and examine security logs. Administer Internet information services and identify how to install IIS 6.0. Administer the web environment and manage web and FTP sites. Become familiar with securing files on IIS.

7.0 Backing up Data

7.1. Understand the fundamentals of backing up data. Use the back up utility to determine a backup strategy. Identify how to combine various backup types and practice performing different backup types.

7.2. Understand how to restore data using the backup utility and become familiar with the various restore options provided. Understand the advanced features that can be used when performing a backup and restore such as the use of VSS.
7.3. Understand how to secure a backup and manage media. Become familiar with a range of backup options and how to use the ntbackup command. Schedule backup jobs and shadow copies of shared folders.

8.0 Printers
8.2. Become familiar with using advanced printer configuration properties. Manage printer properties and set up a printer pool. Configure multiple logical printers for a single printer. Understand how Windows Server 2003 printers are integrated with Active Directory. Understand how Internet printing is utilized.
8.3. Understand how to maintain, monitor and troubleshoot a printer. Understand how to set up a printer, create printer use groups, assign permissions to the printers and configure a performance log. Become familiar with changing printer drivers.

9.0 Maintaining the Operating System
9.1. Understand the use and purpose of Software Update Services. Identify how to install SUS on a Windows Server 2003 computer and determine how to configure and administer SUS. Configure automatic updates through group policy. Understand how to troubleshoot, backup and recover SUS.
9.2. Download and extract service packs. Deploy service packs with group policy. Administrator software licenses and obtain a client access license. Understand what is meant by “Per-Server, Per-Device or Per-User licensing”. Administer site licensing and configure automatic updates.

10.0 Managing Hardware Devices and Drivers
10.1. Become familiar with installing hardware devices and drivers. Identify the use of the Device Manager and driver signing options. Determine how to update, roll back and uninstall drivers. Practice using configuring devices such as Resource Configuration, Control Panel and Device Configuration tools.
10.2. Troubleshoot hardware devices and drivers when recovering from device disaster.

11.0 Managing Microsoft Windows Server 2003 Disk Storage
11.1. Define the various type of disk storage options and methods to be used such as physical disks, logical volumes, mounted volumes, fault tolerance, separation of data and the use of basic and dynamic disks.
11.2. Manage and configure disks and volumes. Identify how to extend volumes, move disks between servers and convert disk storage. Perform disk management tasks from the command prompt.
11.3. Main disk storage volumes by using CHKDSK, disk defragmenter and disk quotas. Implement disk fault tolerance as well as striped, mirrored and RAID-5 volumes. Determine what the differences are between mirrored volumes and RAID-5 volumes. Create fault tolerance for the system volume and practice planning RAID configuration.

12.0 Monitoring Microsoft Windows Server 2003

12.1. Understand the use and purpose of the Event Viewer. Identify the logs available in Event Viewer and identify how to configure event viewer logs. Practice event monitoring.

12.2. Configure system monitor and identify the decisions about objects and counters using the performance console.

12.3. Understand the features used within Task Manager such as the functions that can be performed using the Applications tab, Processes tab, Performance tab, Networking tab and Users tab.

12.4. Use the WMI event logging provider and understand WMI works. Use WMIC in monitoring and practice using WMI data from Event Viewer.

13.0 Recovering from System Failure

13.1. Understand the various methods of recovery options used for recovering from system failure. Understand the system state and the system state on a domain controller. Identify how to use the automated system recovery and become familiar with the recover console.

Course: NEPE 106 (Exam 70-291)

Text / Lab Books:

MCSA/MCSE Self-Paced Training Kit (Exam 70-291): Implementing, Managing, and Maintaining a Microsoft® Windows Server™ 2003 Network Infrastructure

J. C. Mackin and Ian McLean


Course Description

In this course students will lean to implement, manage and maintain a Microsoft Windows Server 2003 network. This course aids in the preparation for the Microsoft Exam 70-291: Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network certification exam.
Learning Objectives

1.0 Understanding Windows Server 2003


1.2. Extend a Windows Server 2003 network infrastructure by adding components to a connection as well as installing Windows networking components. Add active directory to a windows infrastructure.

2.0 Understand TCP/IP

2.1. Understand and explore the layers of the TCP/IP model. Understand and examine how IP addresses use private and public addressing methods. Understand the structure of an IP address and explain the use of subnet masks and default gateways. Practice working with Octet Notations.

2.2. Understand the purpose of subnetting and supernetting IP networks. Estimate subnet address ranges and summarize routes through supernetting. Practice working with subnet masks and subnets using classless interdomain routing and variable-length subnet masks.

3.0 Monitoring and Troubleshooting TCP/IP Connections

3.1. Understand the use of the network monitor and explore its components. Understand how it works and practice using the network monitor to analyze traffic.

3.2. Troubleshoot faulty TCP/IP connections and configure it as required. Perform network diagnostics and troubleshoot connections using common command such as ping, pathping and tracert. Troubleshoot using the ARP tool and practice running network diagnostics and netdiag command.

4.0 Configuring DNS Servers and Clients

4.1. Understand the purpose of name resolution in Windows Server 2003 and compare DNS and NetBIOS. Determine how to disable NetBIOS and practice how to capture name resolution traffic.

4.2. Determine how DNS is used in Windows Server 2003 and explore its uses and its components. Understand how a DNS query and caching works. Install and configure a DSN Server and determine the various types associated with it. Create resource records and clear the DNS server cache.

4.3. Configure DNS client settings and dynamic update options. Understand the default client update behavior tool and configure TCP/IP setting for DNS clients. Practice configuring a
primary DNS suffix and configuring a DNS server to perform recursion.

5.0 Maintaining a Network Infrastructure

5.1. Explore DNS server properties and compare NetBIOS and DNS name resolution traffic. Verify SRV resource records for active directory in DNS. Explore DNS zone properties and practice deploying a secondary DNS server. Configure advanced DNS server properties and tune advanced server options. Create a zone delegation.

5.2. Understand the purpose of stub zones and become familiar with the benefits of stub zone and know when to use it. Practice deploying a Stub zone.

6.0 Monitoring and Troubleshooting DNS

6.1. Identify how to use the DNS troubleshooting tools to query DNS with nslookup and view the DNS events log. Use replication monitor feature on DNS monitoring tool and monitor DNS performance with system monitor.

7.0 Configuring DHCP Servers and Clients

7.1. Understand the benefits of DHCP. Install the DHCP server service, authorize the server, configure and activate scopes, assign DHCP options configure the client and verify the configuration.

7.2. Manage a DHCP in Windows Networks from a command line and change the DHCP server status. Connect clients to a remote DHCP server, change addressing of a subnet, back up the server database and compact a DHCP server. Create a new superscope.

8.0 Monitoring and Troubleshooting DHCP

8.1. Understand how clients obtain configuration and analyze DHCP messages. Monitor and explore DHCP audit logging and understand DHCP server log file format.

8.2. Troubleshoot DHCP and verify the client and server configuration. Reconcile the DHCP database.

9.0 Routing with Windows Server 2003

9.1. Understand how why and how routing and remote access is used. Configure routing and remote access service properties and manage general IP routing properties. Work with routing tables, explore LAN routing scenarios and understand static routes as well as design considerations for a static route. Enable and configure routing and remote access.


9.3. Understand the purpose of NAT. Install, configure and troubleshoot NAT. Understand the uses of routing protocols and understand how it works. Configure RIP and understand DHCP relay agent. Understand the use of packet filters and configure packet filters when required.
10.0 Configuring and Managing Remote Access

10.1. Configure remote access connections by using dial-up networking and remote access client addressing. Configure remote access authentication and practice creating a dial-up access server.

10.2. Configure dial-in properties of a user account and understand remote access policies. Explore remote access authorization scenarios and troubleshoot remote access connections. Configure access beyond the remote access server and manage remote access clients. Practice deploying remote access.

10.3. Understand virtual private networks and troubleshoot remote access and router-to-router VPNs. Configure various PN types.

10.4. Deploy the Internet Authentication Service and explore RADIUS server scenarios and RADIUS proxy scenarios. Deploy IAS as a RADIUS server.

11.0 Managing Network Security

11.1. Understand the use of network security protocols. Use security templates to administrator network security and understand the network security template settings that affect a network security. Apply the Principle of Least Privilege rule and practice creating and using the security and configuration and analysis console.

11.2. Monitor the network protocol security and understand IPSec as well as the negotiating process. Define the meaning of “Kerberos” and understand its use. Practice using network security protocols.

11.3. Troubleshoot the network protocol security and determine how to make the IPSec policy work. Determine whether the IPSec blocking rules are working. Determine whether Kerberos is being used for authentication. Practice troubleshooting IPSec with IPSec Monitor and troubleshooting logon issues with network monitor. Understand how to use event logs for troubleshooting. Service and explore RADIUS server scenarios and RADIUS proxy scenarios.

12.0 Maintaining a Network Infrastructure


12.2. Troubleshoot Internet connectivity by identifying the specific networking issue and verifying the computer’s network settings. Understand how to bridge multiple networks and practice verifying the configuration of DNS forwarding.

12.3. Troubleshoot server services by diagnosing and resolving issues related to service dependency. Use service recovery options to diagnose and resolve service-related issues and practice configuring services.
Course: NEPE 110 (Exam 70-284)

Text / Lab Books:
MCSA/MCSE Implementing and Managing Exchange Server 2003 Exam 70-284
Will Willis & Ian McLean
Microsoft Press

Course Description

In this course students will learn to implement and manage a Microsoft Exchange Server 2003 Environment. This course aids in the preparation for the Microsoft Exam 70-284: Implementing and Managing a Microsoft Exchange Server 2003 certification exam.

Learning Objectives

1.0 Microsoft Exchange Server 2003 and active Directory

1.1. Define what Active Directory is, its hierarchical structured database and its use across domains. Define the operative masters associated and understand how the schema is related to Active Directory.

2.0 Preparing MS Exchange Server 2003 Infrastructure

2.1. Install Windows Exchange Server 2003 and identify the requirements and components which must be installed and enabled to support the installation. Prepare forest, domain preps and understand the groups associated with it. Perform an installation of Exchange Server 2003 into a new organization. Create a file for unattended Setup and perform an unattended installation of Exchange Server 2003. Remove an exchange server from an organization and understand the pre-requisites that must be met.

3.0 Configuring a Microsoft Exchange Server 2003 Infrastructure

3.1. Identify which services rely on each other and identify how authority can be delegated to security groups. Add and remove Exchange 2003 components by re-running Setup and changing the installed components.

3.2. Define and enable and manage administrative and routing groups in Exchange System Manager. Understand how mixed mode native mode is used and how it affects administrative and routing groups

3.3. Identify how the front-end and back-end server architecture affects the mail and folder access to users.
4.0 Coexistence with Microsoft Exchange Server 5.5

4.1. Identify how ADC is used and its relation between Active Directory and Exchange Server 5.5. Install the ADC and recognize which user accounts are to be used to install the ADC. Configure directory synchronization using ADC tools configure advanced connection agreements.

4.2. Install Exchange Server 2003 into an existing Exchange Server 5.5 organization.

4.3. Troubleshoot connectivity between Active Directory and exchange Server 5.5 by merging duplicate accounts and troubleshooting ADC and site replication service to resolve replication problems and connection agreement issues.

5.0 Migrating from MS Exchange Server and Other Mail Systems

5.1. Perform an upgrade from an existing Exchange Server and migrate all its resources to the new server.

5.2. Configure Exchange Server 2003 to coexist with other messaging systems by installing connectors for Lotus Notes and X.400 and the requirements associated with it. Migrate from one messaging system to another.

6.0 Installing MS Exchange Server 2003 Clusters

6.1. Identify what is required to use clustering technologies and define the two technologies that exist in Windows Server 2003. Install Exchange Server in a clustered environment.


6.3. Install Exchange Server 2003 in a Front-End and Back-End configuration. Understand which servers work best with Network load balancing and Cluster Service and identify the guidelines related to them.

7.0 Managing Recipient Objects and Address Lists

7.1. Configure recipient objects such as recipient types and manage mailboxes and mail-enabled groups. Identify the use of the Exchange Task Wizard. Configure settings on an individual user basis, such as storage limits, messaging restrictions, forwarding addresses and mailbox rights and define the system policies used to configure these settings.

7.2. Create, modify and administer address lists. Manage a Recipient Update Service and work offline with address lists. Create and apply recipient policies.

8.0 Public Folders

8.1. Define the use of a public folder and creating a public folders as well as configuring a general purpose public folder tree. Manage and enable email properties for public folders. Set storage limits and replication settings through a public store policy or
through public folders. Move public folders within a public folder tree.

8.2. Configure permissions through Exchange System Manager for a public folder. Configure email related properties and administrative rights to run utilities that set public folder settings such as limits and replication.

9.0 Virtual Servers

9.1. Define the purpose of Exchange Server 2003 Virtual Servers and how it is used in a Windows Clustering and network balancing Environment. Define the server requirements of POP3, IMAP4, NNTP, HTTP and SMTP virtual servers.

9.2. Configure virtual servers and configure additional virtual servers on both front-end and back-end Exchange Server 2003 servers. Distinguish virtual servers by host name. Limit and control connections and access using authentication. Encrypt emails and configure a virtual server to relay email for POP3 and IMAP4 clients. Identify the three methods of user authentication. Maintain a virtual server by viewing and managing connected users on an IMAP4 virtual server.

10.0 SMTP Protocol Configuration and Management

10.1. Manage SMTP message transfer support and define how SMTP and ESMTP are used to implement a connection. Control Internet access with the use of additional SMTP virtual server and connectors. Configure SMTP relays to restrict relay traffic.

10.2. Configure incoming and outgoing connections on SMTP server and secure traffic by using authentication, encryption and reverse DNS lookup. Prevent or restrict open relaying and restrict users and groups from sending and receiving email. Configure SMTP server to retrieve email in a queue from a remote SMTP server. Use nslookup and telnet utilities to identify message delivery failure.

10.3. Understand how Exchange Server 2003 supports connectivity to other systems through the configuration of SMTP. Override global defaults for specific users to support HTTP, IMAP4, POP3, NNTP clients.

11.0 Microsoft Exchange Server 2003 Security

11.1. Understand how a firewall works and identify the requirements of strong firewall protection. Configure Exchange Server 2003 to use RPC over HTTP. Download antivirus software to protect against computer viruses such as worms, Trojan horses and prepare an antivirus strategy.

11.2. Identify the guidelines used securing mailboxes. Configure the junk email feature in Outlook 2003 and enable connection filtering. Deploy digital signature and encryption certificates.

11.3. Administer and delegate various levels of administrative control over administrative groups to user and security groups. Assign advanced security permissions by delegating roles to users and groups to grant local rights. Use Asdiedit.exe tool to configure
advanced administrative settings.

11.4. Identify the services used by Exchange Server 2003. Disable services on Exchange Server 2003 that are not required. Use Exchange System Manager to configure protocol logging for HTTP virtual servers.

12.0 Backup and Restore

12.1. Understand how Exchange Server 2003 manages data and how transaction logs protect your data. Identify how storage technologies are used. Differentiate between the different methods used to back up data and the strategies used to perform such backups. Recover databases from disaster and backup and restore system state data. Perform a trial restore to restore an entire network.

13.0 Monitoring MS Exchange Server 2003


13.2. Schedule maintenance tasks and use performance and protocol logs to manage mailbox limits. Understand how to review and manage the badmail folder and postmaster mailbox on a regular basis. Monitor mailbox size log events using Event Viewer. Use eseutil and isinteg tools to defragment Exchange database and repair its integrity should an issue arise.

14.0 Troubleshooting MS Exchange Server 2003

14.1. Troubleshoot the installation of Exchange Server 2003 and become familiar with removing an Exchange Server 2003. Identify how to troubleshoot connectivity, migration and interoperability. Use support tools such as netdiag and dcdiag to check network connectivity, DNS and Active Directory operation.

14.2. Troubleshoot Server health, data storage, clusters, backup and restore and understand how to configure an alert.

14.3. Troubleshoot public, virtual servers, front and back-end servers, and connectivity. Restrict write and delete permissions on public folders to create top level public folders to select users and groups. Increase the range of events written to event viewer by configuring diagnostic logging.

14.4. Troubleshoot connectivity across firewalls, permissions, and encryption and digital signatures as well as checking that email is encrypted.

14.5. Troubleshoot technologies that support the Exchange Server such as the host resolution, DNS, Active Directory issues and network connectivity. Manage and analyze an ARP packet.
Prerequisite
Familiarity with PC & Windows OS

Contact Hours
______ Contact Hours  (Lecture ___ Hours / Lab ____ Hours)

Semester Credit Hours
__________ semester credit hours

Teaching Strategies
A variety of teaching strategies may be utilized in this course, including but not limited to, lecture, discussion, written classroom exercises, written lab exercises, performance based lab exercises, demonstrations, quizzes and examinations. Some quizzes may be entirely or contain lab based components. A mid-course and end course examination will be given.

Method of Evaluating Students
Grade Distribution

<table>
<thead>
<tr>
<th>Class Attendance</th>
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<tr>
<td>Mid Term</td>
<td>30</td>
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<tr>
<td>Finals</td>
<td>50</td>
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<tr>
<td>Special Projects</td>
<td>10</td>
</tr>
<tr>
<td>Makeup projects</td>
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<tr>
<td><strong>Total</strong></td>
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Grading Policy
At the end of each course, each student is assigned a final grade as follows:

<table>
<thead>
<tr>
<th>Point Range</th>
<th>Interpretation</th>
<th>Grade</th>
<th>Quality Points</th>
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<tbody>
<tr>
<td>90 – 100</td>
<td>Excellent</td>
<td>A</td>
<td>4.0</td>
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<tr>
<td>80 – 89</td>
<td>Very Good</td>
<td>B</td>
<td>3.0 – 3.9</td>
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<td>70 – 79</td>
<td>Average</td>
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<td>2.0 – 2.9</td>
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<tr>
<td>60 – 69</td>
<td>Poor</td>
<td>D</td>
<td>1.0 – 1.9</td>
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<td>Below 60</td>
<td>Failure</td>
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A student earning a grade of D or above is considered to have passed the course and is eligible to pursue further studies. A student receiving a grade of F has failed the course. A failed course must be repeated and passed to meet Avtech Institute’s graduation requirements, in addition to an overall program GPA of 2.0.

**Requirements for Successful Completion of the Course**

At a minimum, students must achieve the following:

- A passing grade of **D** or above
- Completion of all required examinations
- Submission of all required lab exercises and projects and;
- Adherence to the school attendance policy.

**Equipment Needed**

Industry standard desktop computer for lab exercises.

Equipment Breakdown Lab room

Videos and Projector

**Library Assignments**

To be determined by the instructor.

**Portfolio Assignment**

Student program outcome portfolios are required to demonstrate student competencies. In conjunction with your course structure, please select a project/paper that best demonstrates what you have learned in this course and add it to your program portfolio.

**Course Policies**

**Disruptive Behavior**

Disruptive behavior is an activity that interferes with learning and teaching. Inappropriate talking during class, surfing inappropriate website, tardiness, cheating, alcohol or drug use, use of cell phone, playing loud music during class, etc. all disrupt the learning process.

**Copyright Infringement**

Specific exemptions to copyright infringement are made for student use in the context of learning activities. Graphic design students often download images from the Internet, or scan images from publications. As long as this work is for educational purpose, and subject to faculty permission, this is not a problem.

**Plagiarism**

Faculty cannot tolerate the **misrepresentation of work as the student’s own**. This often involves the use by one student or another student’s design, whether voluntarily or involuntarily. In the event that plagiarism is evident and documented, all students involved in the conscious decision to misrepresent work must receive an F as the grade for the project. A second occurrence may
result in suspension for the rest of the quarter, and return to the school only after a review by the Academic Standards Committee.

**Attendance**

**Attendance and Lateness**

In education and the workplace, regular attendance is necessary if individuals are to excel. There is a direct correlation between attendance and academic success. Attendance is mandatory. All students must arrive on time and prepared to learn at each class session. At the faculty member’s discretion, students may be marked absent if they arrive more than 15 minutes late to any class. More than five absences in a class that meets twice per week or more than two absences in a class that meets once per week may result in a failure.

**Make-Up Work**

**Late Projects and Homework**

All projects and homework must be handed in on time. Homework should be emailed to your instructor if you are going to miss a class. Work that is submitted one week late will result in the loss of one full grade; and work that is submitted two weeks late will result in the loss of two full grades; more than two weeks late you will receive a failing grade on the project.

In this course students will learn to manage and maintain a Microsoft Windows Server 2003 Environment. This course aids in the preparation for the Microsoft Exam 70-290: Managing and Maintaining a Microsoft Windows Server 2003 Environment, Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network Infrastructure: Microsoft Exam 70-291, Implementing and Managing Microsoft Exchange Server 2003: Microsoft Exam 70-284