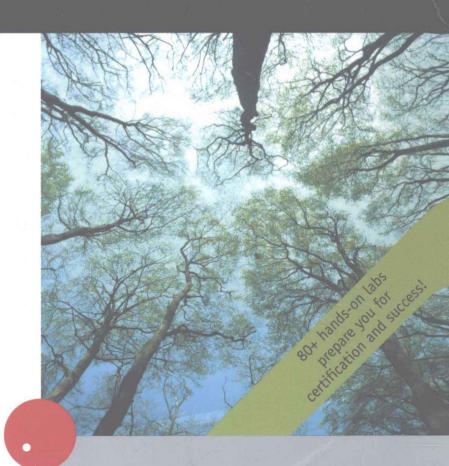


NETWORKING

Lab Manual for Network+ Guide to Networks Second Edition

Michael Grice Tamara Dean



Lab Manual for Network+ Guide to Networks, Second Edition







Lab Manual for Network+ Guide to Networks, Second Edition

is published by Course Technology

Associate Publisher:

Steve Elliot

Senior Editor:

Lisa Egan

Product Manager:

Amy M. Lyon

Developmental Editor:

Jill Batistick

Production Editor:

Melissa Panagos

Technical Editor:

James I. Conrad, Accusource CC, Inc.

Manufacturing Coordinator:

Alexander Schall

Quality Assurance Technical Lead:

Nicole Ashton

Marketing Manager:

Toby Shelton

Associate Product Manager:

Tim Gleeson

Editorial Assistant:

Nick Lombardi

Text Designer:

GEX Publishing Services

Compositor:

GEX Publishing Services

Cover Design:

Julie Malone

COPYRIGHT © 2002 Course Technology, a division of Thomson Learning, Inc. Thomson Learning™ is a trademark used herein under license.

Printed in Canada

2 3 4 5 6 7 8 9 WC 05 04 03 02

For more information, contact Course Technology, 25 Thomson Place, Boston, Massachusetts, 02210.

Or find us on the World Wide Web at: www.course.com

ALL RIGHTS RESERVED. No part of this work covered by the copyright hereon may be reproduced or used in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, Web distribution, or information storage and retrieval systems—without the written permission of the publisher.

For permission to use material from this text or product, contact us by Tel (800) 730-2214
Fax (800) 730-2215
www.thomsonrights.com

Disclaimer

Course Technology reserves the right to revise this publication and make changes from time to time in its content without notice.

ISBN 0-619-12134-3

INTRODUCTION

ands-on learning is the best way to master the networking skills necessary for both CompTIA's Network+ exam and a networking career. This book contains dozens of hands-on exercises that apply fundamental networking concepts as they would be applied in the real world. In addition, each chapter offers multiple review questions to reinforce your mastery of networking topics. The organization of this book follows the same organization as Course Technology's Network+ Guide to Networks, Second Edition, and using the two together will provide a substantial, effective learning experience. This book is suitable for use in a beginning or intermediate networking course. As a prerequisite, students should have at least six months of computer experience and should be familiar with some basic networking components, such as NICs and patch cables. Passing the A+ certification exam would suffice in lieu of this experience. This book is best used when accompanied by the Course Technology textbook Network+ Guide to Networks, Second Edition, or another introduction to networking textbook.

FEATURES

In order to ensure a successful experience for instructors and students alike, this book includes the following features:

- Network+ Certification Objectives Each chapter lists the relevant objectives from the CompTIA Network+ 2001 Exam.
- Lab Objectives Every lab has a brief description and list of learning objectives.
- **Materials Required** Every lab includes information on network access privileges, hardware, software, and other materials you will need to complete the lab.
- **Completion Times** Every lab has an estimated completion time, so that you can plan your activities more accurately.
- Activity Sections Labs are presented in manageable sections. Where appropriate, additional Activity Background information is provided to illustrate the importance of a particular project.
- **Step-by-Step Instructions** Logical and precise step-by-step instructions guide you through the hands-on activities in each lab.
- **Review Questions** Questions help reinforce concepts presented in the lab.

Note for instructors: Answers to review questions are available on the Course Technology Web site at www.course.com/irc/. Search on this book's ISBN, which is found on the back cover.

HARDWARE REQUIREMENTS

The following is a list of hardware required to complete all the labs in the book. The hardware requirements for many of the individual labs are less than what is listed.

- Three computers with Pentium 166 MHz CPU or higher processors (400 MHz recommended) with the following features:
 - 128 MB of RAM minimum (256 MB recommended) in each computer
 - A 2-GB hard disk with at least 1 GB of available storage space (4-GB hard disk or larger with at least 2 GB available storage space recommended) in each computer
 - Two additional hard drives
 - A CD-ROM drive
- A telephone line or another type of connection to the Internet (cable, DSL, or faster preferred)
- Two modems
- A dial-up Internet account
- Internet access (this does not need to be through the dial-up account)
- At least four PCI Ethernet network interface cards with the following features:
 - Four with RJ-45 connectors
 - Two with BNC connectors (some network interface cards are available with both RJ-45 and BNC connectors)
 - Two from the following list: 3Com 3C509, 3Com 3C595, 3Com 3C905, Realtek NE2000 compatible, Realtek NE2000 PCI compatible, or ISA/PCI NE2000 compatible
- Category 5 UTP cabling to make cables
- Category 3 UTP cabling to make cables
- At least six Category 5 UTP straight-through patch cables
- At least two Category 5 UTP crossover patch cables
- RJ-45 connectors
- A computer professional's toolkit that includes a Phillips-head screwdriver, a ground strap, and a ground mat
- A networking professional's kit that includes a cable tester, crimper, wire stripper, and a wire cutting tool
- Four 10/100 Ethernet hubs
- Coaxial cable, T-connectors, and terminators
- Two fiber-optic bridges with AUI interfaces
- Two twisted-pair transceivers with an RJ-45 connection on one end and an AUI connection on the other end
- At least six feet of fiber-optic cable
- Access to two analog outside phone lines (or two digital lines and two digital-to-analog converters)

You may choose to install multiple network operating systems on each computer, as this will allow you to boot into a particular operating system when needed for a lab.

SOFTWARE/SETUP REQUIREMENTS

- At least two copies of Windows 2000 Server with Windows 2000 Service Pack 1
- At least one copy of Windows 2000 Professional
- Novell NetWare 5.x network operating system
- Linux Red Hat 7.x
- Microsoft IIS Version 5 installed on Windows 2000 Server
- A web browser such as Internet Explorer (Internet Explorer 5.0 is used in the text)
- Novell Client for Windows NT/2000 4.81
- Anti-virus software such as McAfee's VirusScan
- FREESCO 0.27 downloaded from www.freesco.org
- Microsoft Project 2000

ACKNOWLEDGMENTS

Michael Grice: I would like to thank Tamara Dean for her gracious help, and for introducing me to Course Technology. I would also like to thank Lisa Egan for bringing me on this project, Amy Lyon for being so well-organized and enthusiastic, Jill Batistick for making the labs more readable, James Conrad for catching all my mistakes in the first draft, and Nicole Ashton for catching everything that slipped through. Thanks also to all the peer reviewers who worked under very tight deadlines and gave us great feedback: Todd Koonts, Pat Lyon, Brian McCann, Judson Miers, David Pope, Sara Robben, and Chris Ward. Finally, I'd like to thank my lovely wife, Nancy, for her support and patience.

Tamara Dean: A warm thanks to the entire Course Technology team for making this book a reality. In particular, I would like to thank our Product Manager, Amy Lyon, and our Senior Editor, Lisa Egan, for their efficiency, planning, and support. Thanks also to Steve Elliot, Associate Publisher, Melissa Panagos, Production Editor, Nicole Ashton, Quality Assurance Technical Lead, and other editorial, production, and marketing staff who fostered the book from inception to fruition. Kudos to Jill Batistick, our Developmental Editor, for minding the clarity and consistency of our writing through every draft. Thanks also to the Technical Editor, James Conrad, who scrutinized the content and helped to make this lab manual more accurate and complete. Thanks to our dedicated team of peer reviewers: Todd Koonts, Pat Lyon, Brian McCann, Judson Miers, David Pope, Sara Robben, and Chris Ward. Thanks to my coauthor, Michael Grice, for being so diligent, personable, and just plain smart. Finally, thanks to friends and family who've shown enough interest in this series so that they now know the difference between a study guide and a lab manual (or so they say).

TABLE OF CONTENTS

CHAPTER ONE	
AN INTRODUCTION	on to N etworking1
Lab 1.1	Understanding Elements of a Network 2
Lab 1.2	Understanding How Networks Are Used 4
Lab 1.3	Creating a Free Internet E-mail Account 8
Lab 1.4	Searching for Networking Jobs 10
	Building a Simple Peer-to-Peer Network 12
CHAPTER TWO	
NETWORKING ST	ANDARDS AND THE OSI MODEL17
Lab 2.1	Networking Standards Organization 18
Lab 2.2	The OSI Model 20
Lab 2.3	Investigating IEEE 802.11 Standards 23
	Determining the MAC Address of a Windows 2000 Computer 25
	Understanding Frame Types 27
CHAPTER THREE	
NETWORK PROT	ocols31
Lab 3.1	Using Address Resolution Protocol (ARP) 32
Lab 3.2 l	Removing and Reinstalling the TCP/IP Protocol on a
	Windows 2000 Server 35
	Unbinding the TCP/IP Protocol on a Novell NetWare 5.x Server 38
	Changing the Binding Order on a Multiprotocol Network 41
	Disabling Unnecessary Protocols 44
CHAPTER FOUR	
Transmission B	ASICS AND NETWORKING MEDIA49
Lab 4.1 I	Learning Media Characteristics 50
Lab 4.2 (Creating a 10BaseT Crossover Cable to Connect Two Computers 52
	Comparing 10BaseT and 100BaseT Transmission 57
	Understanding How a 10BaseT Cable Fails 61
	Understanding Cable Types 64
CHAPTER FIVE	
PHYSICAL AND LO	ogical Topologies67
Lab 5.17	The Bus Topology 68
Lab 5.2 7	The Star Topology 70
Lab 5.3 I	Building a Daisy Chain 73

	Lab 5.4 Using Network Monitor to View Data Packets 76
	Lab 5.5 Examining Different Types of Ethernet Frames 79
Снарти	ER SIX
NETWO	ORK HARDWARE85
	Lab 6.1 Creating a Multi-homed Computer by Installing Two NICs 86
	Lab 6.2 Activating Routing and Remote Access in Windows 2000 89
	Lab 6.3 Activating a Routing Protocol on Windows 2000 Server 94
	Lab 6.4 Setting up a Floppy Disk Linux Router 97
	Lab 6.5 Setting Up a Linux Floppy Disk Bridge 102
Снарте	ER SEVEN
WANs	AND REMOTE CONNECTIVITY107
	Lab 7.1 Establishing Remote Connectivity Using Fiber-Optic Bridges 108
	Lab 7.2 Pricing WAN Services 111
	Lab 7.3 Connecting to an Internet Service Provider in Windows 2000 114
	Lab 7.4 Configuring a Remote Access Server 118
	Lab 7.5 Creating a VPN with the Point-to-Point Tunneling Protocol 122
Снарте	ER EIGHT
September 10	ork Operating Systems and Windows 2000-Based Networking127
1421110	Lab 8.1 Converting from a FAT File System to an NTFS File System 128
	Lab 8.2 Establishing an Explicit One-Way Trust Relationship 130
	Lab 8.3 Adding Domain and Local Accounts in Windows 2000 134
	Lab 8.4 Sharing Folders and Setting Permissions on an NTFS File System 137
	Lab 8.5 Remotely Managing a Computer With Active Directory 141
Снарте	
	Are-Based Networking145
IVEIVVA	
	Lab 9.1 Starting and Shutting Down a Novell NetWare 5.x Server 146 Lab 9.2 Understanding NetWare Volumes 149
	Lab 9.3 Understanding Drive Mappings 153
	Lab 9.4 Understanding NDS Objects 156
	Lab 9.5 Understanding NDS Contexts 161
Снарте	
NETWO	RKING WITH UNIX165
	Lab 10.1 User and Group Management 166
	Lab 10.2 Managing Directories and Files 169
	Lab 10.3 Understanding UNIX Help 172
	Lab 10.4 Understanding Wildcard Symbols, Redirection Symbols, and the Pipe Symbol 175
	Lab 10.5 Navigating the UNIX File System 180
	Lab 10.3 Travigating the OTMA File System 100

CHAPTER ELEVEN
NETWORKING WITH TCP/IP AND THE INTERNET185
Lab 11.1 Understanding the Purpose of the Default Gateway 186
Lab 11.2 Understanding the TCP/IP Hosts File 189
Lab 11.3 Configuring Dynamic Host Configuration Protocol (DHCP) 193
Lab 11.4 Configuring Domain Name System (DNS) Properties 197
Lab 11.5 Using FTP 201
Lab 11.6 Understanding Port Numbers 205
CHAPTER TWELVE
TROUBLESHOOTING NETWORK PROBLEMS
Lab 12.1 Using the Ping Utility to Troubleshoot a TCP/IP Network 210
Lab 12.2 Using the Traceroute Command to Troubleshoot a TCP/IP Network 214
Lab 12.3 Troubleshooting Client Logon Problems 217
Lab 12.4 Troubleshooting Web Client Problems 223
CHAPTER THIRTEEN
Maintaining and Upgrading a Network229
Lab 13.1 Researching Network Solutions 230
Lab 13.2 Installing and Removing a Service Pack on Windows 2000 233
Lab 13.3 Upgrading an Ethernet Network to a Fast Ethernet Network 236
Lab 13.4 Replacing a Web Server 240
CHAPTER FOURTEEN
ENSURING INTEGRITY AND AVAILABILITY245
Lab 14.1 Viruses 246
Lab 14.2 Uninterruptible Power Supplies (UPSs) 248
Lab 14.4 Implementing RAID Level 0 (Disk Striping) 252
Lab 14.4 Implementing RAID Level 1 (Disk Mirroring) 255 Lab 14.5 Understanding Backups 258
CHAPTER FIFTEEN
NETWORK SECURITY263
Lab 15.1 Auditing 264
Lab 15.2 Checking for Vulnerable Software 268
Lab 15.3 Implementing Password Restrictions in Novell NetWare 271
Lab 15.4 Implementing Network Address Restrictions in a
Lab 15.4 Implementing Network Address Restrictions in a Novell NetWare LAN 276
Lab 15.4 Implementing Network Address Restrictions in a Novell NetWare LAN 276 Lab 15.5 Implementing Time of Day Restrictions in Novell NetWare 280
Lab 15.4 Implementing Network Address Restrictions in a Novell NetWare LAN 276 Lab 15.5 Implementing Time of Day Restrictions in Novell NetWare 280 CHAPTER SIXTEEN
Lab 15.4 Implementing Network Address Restrictions in a Novell NetWare LAN 276 Lab 15.5 Implementing Time of Day Restrictions in Novell NetWare 280
Lab 15.4 Implementing Network Address Restrictions in a Novell NetWare LAN 276 Lab 15.5 Implementing Time of Day Restrictions in Novell NetWare 280 CHAPTER SIXTEEN
Lab 15.4 Implementing Network Address Restrictions in a Novell NetWare LAN 276 Lab 15.5 Implementing Time of Day Restrictions in Novell NetWare 280 CHAPTER SIXTEEN MANAGING NETWORK DESIGN AND IMPLEMENTATION

An Introduction to Networking

Labs included in this chapter

- ➤ Lab 1.1 Understanding Elements of a Network
- ➤ Lab 1.2 Understanding How Networks Are Used
- ➤ Lab 1.3 Creating a Free Internet E-mail Account
- ➤ Lab 1.4 Searching for Networking Jobs
- ➤ Lab 1.5 Building a Simple Peer-to-Peer Network

Net+ Exam Objectives		
Objective		
Identify the purpose, features, and functions of the following network components: hubs, switches, bridges, routers, gateways, CSU/DSU, Network Interface Cards/ISDN adapters/system area network cards, wireless access points, modems	1.1, 1.2,	
Recognize the following logical or physical network topologies given a schematic diagram or description: star, bus, mesh, ring, wireless	1.1	
Recognize the following media connectors and/or describe their uses: RJ-11, RJ-45, AUI, BNC, ST, SC	1.1, 1.5	
Identify the basic capabilities (i.e., client support, interoperability, authentication, file and print services, application support, and security) of the following server operating systems: UNIX/Linux, NetWare, Windows, Macintosh	1.2, 1.5	
Define the function of the following remote access protocols and services: RAS, PPP, PPTP, ICA	1.2	

LAB 1.1 UNDERSTANDING ELEMENTS OF A NETWORK

Objectives

When first learning about network components, it is often helpful to observe a live network and talk with experienced networking professionals. The concept of segments, connectivity devices, or structured wiring techniques, for example, can be more easily demonstrated on a real network than in a textbook. The goal of this lab is to explore some real-life examples of basic networking concepts. To complete this lab, you will be required to tour your school's computer laboratory or network and identify various networking components at that site. Alternately, your instructor might arrange your class to tour a business's network with a willing network professional.

After completing this lab, you will be able to:

- ➤ Identify and sketch the organization's network topology
- ➤ Identify the nodes on a real-life network
- ➤ Identify a network's network operating system and client software
- ➤ Identify protocols used by the network

Materials Required

This lab will require the following:

- A network professional or instructor willing to give you a tour of your school's computer laboratory or data center or a network professional willing to give you a tour of a network at a business, school, or other site
- ➤ Pencil and paper

Estimated completion time: 3 hours



ACTIVITY

- 1. If you cannot tour your school's computer laboratory or data center, contact a business, school, or other organization and ask to interview the person in charge of their network. Explain that your purpose is purely educational and that you desire to learn more about networking. Also, explain that you will need to take notes.
- 2. Make the visit and with the guidance of the network administrator, observe the organization's network. Remember to ask for details about the network's topology, hardware, operating system, and protocols.
- 3. On a separate piece of paper, draw the site's network topology, using boxes to represent the components such as computers and printers. Draw lines to

- connect the components. You might also use network-diagramming software such as Microsoft Visio in order to diagram the network.
- 4. On your diagram, label servers with the letter "S," workstations with the letter "W," and printer with the letter "P." Label devices used to connect other devices together (such as a hub) with a "C." If you are unsure about a network component, label the box with the letter "O" for "other."
- 5. Ask the networking professional or instructor for specifics about the network operating system (NOS) types and versions and the client types and versions used within this network. Record this information.
- 6. Record the make and model of any network interface cards (NICs). Note how many different types of NICs this network uses. If the number of different types is high (for example, over six), ask the network administrator how this variability affects network maintenance and troubleshooting.
- 7. Record the protocols used in the network.
- 8. If you toured an outside organization's network, thank the person you interviewed. Follow up later with a letter of thanks.

Certification Objectives

Objectives for the Network+ Exam:

- ➤ Identify the purpose, features, and functions of the following network components: hubs, switches, bridges, routers, gateways, CSU/DSU, Network Interface Cards/ISDN adapters/system area network cards, wireless access points, modems
- ➤ Recognize the following logical or physical network topologies given a schematic diagram or description: star, bus, mesh, ring, wireless
- ➤ Recognize the following media connectors and/or describe their uses: RJ-11, RJ-45, AUI, BNC, ST, SC

Review Questions

- 1. Which of the following best describes a network's physical topology?
 - a. the method by which multiple nodes transmit signals over a shared communications channel
 - b. the physical layout of a network
 - c. the organization of a network's cable and wireless infrastructure
 - d. the software used to ensure reliable connections between nodes on a network
- 2. Which of the following is the most popular type of modern network architecture?
 - a. client/server
 - b. terminal/mainframe
 - c. peer-to-peer
 - d. mainframe/dial-up

4 Chapter 1 An Introduction to Networking

- 3. Which of the following elements is not required for a client to connect to a server on a client/server LAN?
 - a. protocols
 - b. media
 - c. e-mail account
 - d. client software
- 4. Which of the following are examples of client/server network operating systems? (Choose all that apply.)
 - a. Windows 98
 - b. Windows 2000 Server
 - c. UNIX
 - d. NetWare
- 5. Network protocols are used to do which of the following? (Choose all that apply.)
 - a. to ensure reliable delivery of data
 - b. to determine the nearest printer for a print job
 - c. to interpret keyboard commands
 - d. to indicate the source and destination addresses for data packets
- 6. On a client/server network, clients may have only one protocol installed at any time. True or False?
- 7. A significant difference between the peer-to-peer and client/server network types is that a peer-to-peer network ______.
 - a. is more difficult to set up
 - b. does not allow for resource sharing between workstations
 - c. does not usually provide centralized management for shared resources
 - d. is more secure
- 8. Why is it necessary for each client on a client/server network to have a unique address?

LAB 1.2 UNDERSTANDING HOW NETWORKS ARE USED

Objectives

As with network components, network services can be better understood through observing a live network than through simply reading a textbook. The goal of this lab is to help you learn more about how network services, such as remote access services and Internet services, are used in the real world. In addition, this lab will help you understand the importance of these services to an organization.

Server hardware includes the IBM xSeries 370, the Sun Enterprise 420R, and the Dell PowerEdge 7150 servers. Typical examples of software used for File and Print Services

include the Windows 2000, Netware 5.x, and Linux/Unix network operating systems. Typical examples of software used in communication services include Routing and Remote Access Services in Windows 2000 and NetWare Connect in Netware 5.0.

Typical examples of software used for communication services include Microsoft Exchange Server, Novell's GroupWise, and Sendmail on UNIX and Linux. Many different software products may be used for Internet services. Examples include Microsoft's Internet Information Services (IIS) on Windows Servers and the Apache HTTP Server on UNIX or Linux servers, both of which are World Wide Web (WWW) servers. Examples of software used for management services include Novell's ManageWise, Microsoft Systems Management Server, and Hewlett-Packard OpenView Network Node Manager.

To do this lab, your instructor may arrange for you to tour your school's computer laboratory or network, or another organization's network. If you do not have access to a school's network, you may arrange your own tour with a willing network professional.

After completing this lab, you will be able to:

- ➤ Identify the types of network services used by an organization
- ➤ Describe the software and hardware used to supply these network services
- ➤ Identify the consequences for the organization if any of these services were to fail

Materials Required

This lab will require the following:

- ➤ A network professional or instructor willing to give you a tour of your school's computer laboratory or data center or a network professional willing to give you a tour of a network at a business, school, or other site. The network should include at least one server.
- ➤ Pencil and paper

Estimated completion time: 2 hours



ACTIVITY

- 1. If you cannot tour your school's computer laboratory or data center, contact the network professional at the site. As in Lab 1.1, explain that your purpose is educational and that you will be taking notes about the network.
- 2. Make the visit and observe the network. Ask for descriptions of the network's File and Print Services, communications services, Internet services, and management services.
- 3. Record the software and hardware of the servers using File and Print Services. Ask your instructor or the person giving the tour for the business purpose or purposes fulfilled by these services for this organization.

6

- 4. Record the software and the hardware of the servers using communication services. What business purpose or purposes do these services fulfill for this organization?
- 5. Record the software and the hardware of the servers using e-mail services. What business purpose or purposes do these services fulfill for this organization?
- 6. Record the software and hardware of the servers using Internet services. What business purpose or purposes do these services fulfill for this organization?
- 7. Record the software and hardware of the servers using management services. What business purpose or purposes do these services fulfill for this organization?
- 8. Ask the network administrator to explain how the failure of the services described in Steps 3 through 7 would affect that organization. What steps have they taken to minimize the consequences of these failures?

Certification Objectives

Objectives for the Network+ Exam:

- ➤ Identify the purpose, features, and functions of the following network components: hubs, switches, bridges, routers, gateways, CSU/DSU, Network Interface Cards/ISDN adapters/system area network cards, wireless access points, modems
- ➤ Identify the basic capabilities (i.e., client support, interoperability, authentica tion, file and print services, application support, and security) of the following server operating systems: UNIX/Linux, NetWare, Windows, Macintosh
- ▶ Define the function of the following remote access protocols and services: RAS, PPP, PPTP, ICA

Review Questions

- 1. Which of the following network connectivity issues could be solved through the use of a communications server?
 - a. A temporary employee does not have privileges to modify the files he needs to edit.
 - b. A professor cannot connect to the Internet from his workstation on a university's LAN.
 - c. An inventory control person in a warehouse needs to scan the bar codes of hundreds of auto parts into a networked database.
 - d. A traveling salesperson needs to upload her sales figures to a database on the company's home network from her hotel room.
- 2. Which of the following is an example of a LAN's Internet service?
 - a. Web site hosting
 - b. translating data between two disparate e-mail systems
 - c. saving a week's worth of data from a database to a backup tape
 - d. issuing valid Internet IP addresses on a dynamic basis to multiple clients

- 3. Which of the following are advantages to using print services on a large LAN? (Choose all that apply.)
 - a. Sharing printers between multiple clients can make printing faster for each client.
 - b. Sharing printers between multiple clients reduces purchasing costs.
 - c. Sharing printers between multiple clients saves maintenance efforts for printers.
 - d. Sharing printers between multiple clients reduces per page printing costs.
- 4. Which two of the following network services together allow only appropriate personnel within an organization to access confidential files across a LAN?
 - a. communications services
 - b. Internet services
 - c. management services
 - d. file services
 - e. print services
- 5. What would happen to the performance of a single server if it suddenly began to run all of the services mentioned in this lab?
- 6. Which of the following services would be considered management services? (Choose all that apply.)
 - a. load balancing between servers
 - b. granting access rights to files
 - c. maintaining records of each client's network address
 - d. enabling multiple users to share the same printer
- 7. As a network administrator, what concern might you have about establishing a remote access (or communications) server for your network?
 - a. the availability of phone lines for remote users
 - b. the modification of file access rights for users when they are mobile
 - c. the assignment of printer device drivers to remote users
 - d. the potential security risk of allowing users to remotely log on to your network
- 8. When used in the context of e-mail services, a gateway performs which of the following functions?
 - a. routes e-mail messages from one LAN client to another client on the same LAN
 - b. encrypts e-mail messages before they are transmitted from a LAN to the Internet
 - allows two dissimilar e-mail programs to accept and interpret each others' messages
 - d. manages the Inboxes and Outboxes for multiple users on a LAN

LAB 1.3 CREATING A FREE INTERNET E-MAIL ACCOUNT

Objectives

In this lab, you will set up a free e-mail account, which you can use to send and receive Internet e-mail from all over the world. This is an example of the sort of services that, as a network administrator, you will be helping to provide to the users of the networks you administer. Many people depend quite heavily on Internet e-mail in order to do their jobs, and as a network administrator, your users will never be shy about letting you know when it isn't working.

After completing this lab, you will be able to:

➤ Create a free Internet e-mail account, allowing you to send and receive e-mail messages

Materials Required

This lab will require the following:

- ➤ A computer with access to the Internet. You can visit a local library if you have no other Internet access.
- ➤ A Web browser

Estimated completion time: 10–15 minutes



ACTIVITY

- Start an Internet browser such as Microsoft Internet Explorer or Netscape Navigator.
- 2. Go to www.yahoo.com.
- Click the Check Email icon.
- 4. Click the **Sign up now** link. A page appears offering you the opportunity to sign up for the Free Edition and the Custom Edition of Yahoo! Mail.
- 5. Click the Sign Me Up! link for the Free Edition of Yahoo! Mail.
- 6. Decide upon a Yahoo! e-mail ID and enter it in the Yahoo! ID: text box.
- 7. Type a password in the Password: text box. Type the password a second time in the Re-type Password: text box.