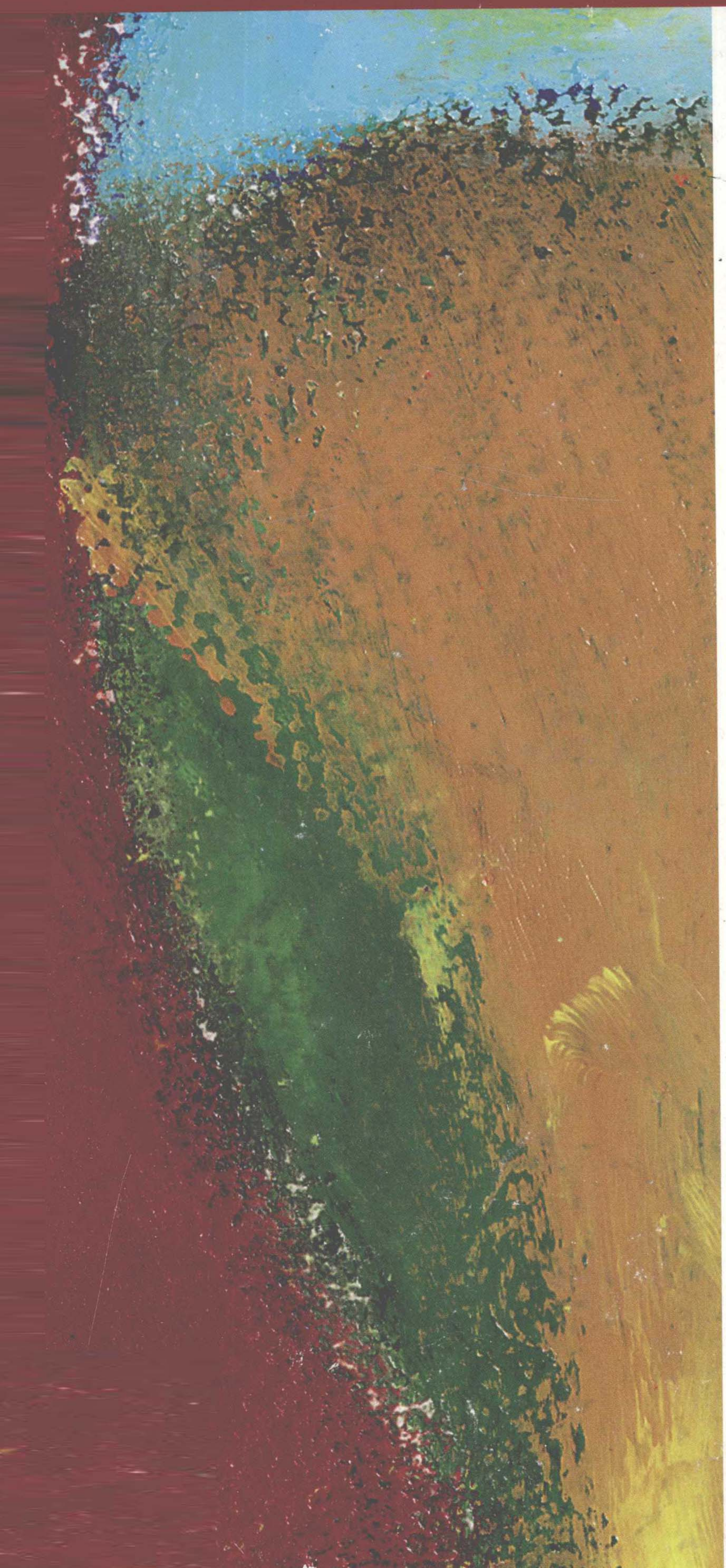
UNDERSTANDING & USING



# The Internet

*Bruce J. McLaren*

*South-Western Educational Publishing*

UNDERSTANDING & USING

# The Internet


***Bruce J. McLaren***

*Indiana State University*



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# Preface

*Understanding & Using the Internet* is about accessing information on the Internet with a personal computer. It is based on the Windows graphical user interface and is designed for use on a variety of Internet software packages. Although this book is aimed at those who can directly access the Internet from an office computer or a microcomputer lab, it also explains how to obtain the telecommunications tools to dial in to the Internet. Although the book appears with screens from Windows 95, Windows 3.x users can also take advantage of this textbook.

## Why This Book?

It is my intention to offer a book that not only teaches how to use the Internet, but also examines the larger issues dealing with information found on the Internet. Students are first walked through simple activities. Then, more advanced concepts are presented in realistic scenarios with an emphasis on *why* rather than simply *how*. The writing style is straightforward and friendly.

This book serves an important role in that it unifies the approach to Internet tools under Windows. In many cases, when students use software offered as shareware, they have no available documentation. This book fills that need by providing explanations for essential use of the most popular client tools.

*Understanding & Using the Internet* serves as part of the *Internet Series* published by South-Western Educational Publishing (see pages xiv–xv for information about other products in this series). This text can be used alone, in combination with other books in the series, or to supplement any other book in a course where a knowledge of the Internet is desired.

## What's New in This Edition

This edition adds coverage of the latest available versions of the Internet client software tools. In particular, the book includes Netscape Communicator 4.0 and Microsoft Internet Explorer 4.0. All units use screens from Windows 95 software. There are more guided activities in this edition.

Unit 5, a new unit, covers searching for Web sites and personal information on the Internet using search engines. Unit 8 on building home pages is based both on HTML and on Netscape Composer. Unit 9 is strengthened by its enhanced coverage of electronic commerce and recent Internet news, including the Telecommunications Act of 1996 and Intranets. The unit on Gopher clients was deleted; Gopher servers can be accessed by Web browsers.

## Content Highlights

*Understanding & Using the Internet* consists of nine independent chapters called units.

**Unit 1: Development of the Internet** serves as an introduction to Internet terminology and presents an overview of basic Internet applications such as e-mail, FTP, Telnet, news groups, Gopher, and the World Wide Web. Directions are given to locate the shareware software used in this book.

**Unit 2: Connecting to the Internet** covers technical issues associated with connecting to the Internet and is of primary interest to those who must dial in to an Internet service provider. Dial-up users will find instructions on how to create a dial-up PPP connection under Windows 95. Users who have access through an office or microcomputer lab can skip this unit.

**Unit 3: Electronic Mail—The Basic Internet Tool** explains how to use e-mail with Eudora Light, a widely used Windows-based e-mail client. Basic and advanced e-mail features are presented.

**Unit 4: Hypertext and the World Wide Web** is the second largest unit in the book. It uses Netscape Communicator and Microsoft Internet Explorer to demonstrate how World Wide Web services can be used with hypertext and multimedia data. The unit was moved closer to the front of the book, reflecting its importance to Internet access.

**Unit 5: Searching for Information on the Web** is new to this edition. It covers use of search engines such as Yahoo and Lycos to locate Web sites of interest. This unit also contains a section on finding business and personal information such as phone number, address, and e-mail address.

**Unit 6: Discussion Groups—News Groups and Mailing Lists** provides an overview of news groups and mailing list discussion groups found on the Internet. Examples show how to use these tools to find information about a multitude of topics as well as to respond to areas of interest.

**Unit 7: File Transfer Protocol (FTP) and Telnet** presents the basics of file transfers and remote terminal sessions. This short unit covers enough material to enable students to use FTP and Telnet, but also points users to the advanced tools available in the World Wide Web.

**Unit 8: Creating Web Documents in HTML** serves as an introduction to creating home pages for the Web. It introduces HTML formatting tags for building home pages with Notepad. It also demonstrates how to create a Web document with Netscape Composer.

**Unit 9: Electronic Commerce and the Future of the Internet** highlights emerging areas of personal and business applications on the Internet. It includes many examples of innovative use, including Intranets. The unit features a discussion of security issues for transmitting such sensitive information as credit card data.

## How to Use This Book

See pages xii–xiii for an illustrated guide to the features of the student textbook.
This book is designed so that you can read Unit 1 and then go through remaining units in any order. Unit 2 provides technical material for dial-up users. We strongly suggest that the user work through *all* of the Guided Activities while sitting at the computer. You may learn this material best by practicing it actively. Each unit contains the following features:

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- **Learning Objectives** at the beginning of each Unit comprise the knowledge you will acquire and skills you will develop as you master the unit content.
- **Net Ethics** features ask you to consider the unique ethical concerns that have arisen as the Internet continues to expand its role in our lives. Topics include use of copyrighted material, privacy issues, and competitive practices within the software industry. Discuss these issues with your peers as you apply your sense of ethics to a new arena.
- **Guided Activities** are step-by-step, hands-on, illustrated activities. They are embedded in key locations within the text material to allow for immediate reinforcement of chapter concepts. The activities contain *Checkpoints* which ask critical thinking questions to increase your knowledge and understanding while you work. (Answers to Checkpoints are in an Appendix within the student text.)

*End-of-Unit Material:*

- **Command Reviews** at the end of each Unit are the keyboard and mouse commands covered in the unit in the format of a quick-reference table.
- **Vocabulary Exercises** ask you to review key terms and concepts within each unit. Through this feature you will master a new vocabulary for success with the Internet.
- **Review Questions** are designed for reinforcement and to test your knowledge of Unit content. These can serve as a Unit quiz and are excellent preparation for Unit tests.
- **Exercises** are additional assignments to give you practice. Some exercises have specific instructions, while others are less structured. Most exercises will use the computer.
- **Projects** are open-ended minicases. Projects tend to be more challenging than exercises in that they not only draw upon the skills you learned within the Unit but often ask you to be creative by extending beyond what you have learned. The *Team Option* encourages you to work with your peers to solve problems as you may do within a team in a business setting.

*Other Features:*

- The **Glossary Of Internet Terms** is a list of important Internet terms with definitions at the end of the textbook. This is a quick key to your new Internet vocabulary.
- **Answers To Checkpoints** and **Selected Review Questions** are included as an appendix to the student text. Checkpoints within the Guided Activities pose critical thinking questions, and these answers allow for a self-check.
- The **Electronic Instructor** contains general teaching suggestions with sample syllabi; solutions to Review Questions, Exercises, and Projects; and test questions.
- The **Web Home Page** is a comprehensive Web page that has been developed for this textbook. It is frequently cited in exercises and activities. The Web page contains breaking news about the Internet, updates to the textbook, current hot

links to the Internet references, and links to the Internet shareware software used in the textbook. Its URL address is *computered.swep.com*. Select the Resources link.

## A Note of Thanks


- To Connie, my wife and colleague, for her steady encouragement, suggestions, and careful reading of this manuscript. Without her support this book would not exist.
- To my children, Anne and Cathy, who have unlimited patience with my writing habit, even on family vacations.
- To Dean Donald Bates and my colleagues in the School of Business at Indiana State University for their support.
- To Mark Cheatham of South-Western Educational Publishing for initiating the concept and keeping the book on track.
- To Jeanne Busemeyer, Malvine Litten, and others involved in the production of this book. Their professionalism and careful attention to details have made this an enjoyable task and a learning experience for me.
- Finally, to my students, who inspire me to write in a way that they can understand.

*B. J. M.*
*Terre Haute, Indiana*

# *About the Author*

**Bruce J. McLaren** is Professor of Systems and Decision Sciences at Indiana State University. He holds a BS degree in Aeronautical Engineering and a Ph.D. in Operations Management from Purdue University. He has been a consultant to many organizations in the integration of management information systems, and he has served on numerous computing committees at ISU. He formerly was a faculty member at the University of Virginia's Darden School.

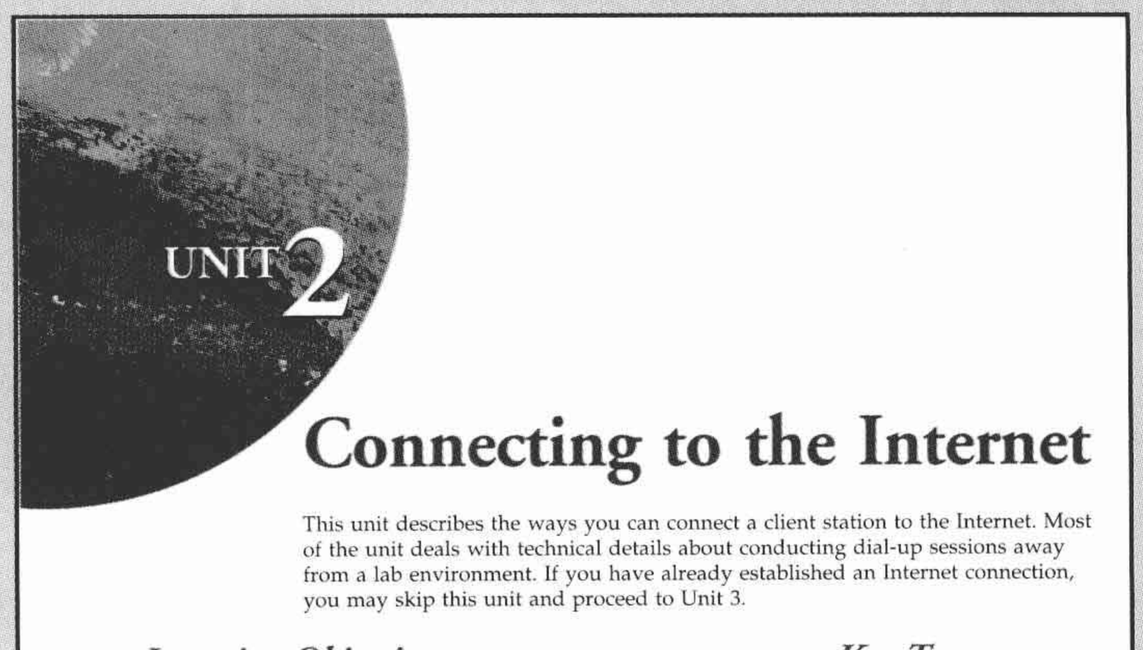
Bruce teaches courses in management information systems, database management, telecommunications, network management, advanced microcomputer applications, and operations management. He has been recognized for outstanding teaching at Indiana State University.

He is the author of a column, "Your Business and the Internet," found in the *Terre Haute Journal of Business.* McLaren has authored more than twenty textbooks in the computer and business areas. He would like to hear from users of this book, and can be contacted by e-mail at *B-McLaren@indstate.edu.* His personal home page can be found at *http://www.indstate.edu/mclaren/home.html/.*

# *Using This Book*

**Learning Objectives** at the beginning of each Unit comprise the knowledge you will acquire and skills you will develop as you master the unit content.

**Key Terms** are listed on the unit opener and highlighted in color within the text narrative so you can quickly learn the vocabulary of the Internet.



UNIT 2

## Connecting to the Internet

This unit describes the ways you can connect a client station to the Internet. Most of the unit deals with technical details about conducting dial-up sessions away from a lab environment. If you have already established an Internet connection, you may skip this unit and proceed to Unit 3.

### *Learning Objectives*

At the completion of this unit, you should be able to

1. explain the role of TCP/IP and Winsock software,
2. describe the various methods of connecting to the Internet,
3. list the advantages of using the dial-up method,
4. install Windows 95 Dial-Up Networking,
5. configure the Windows 95 TCP/IP settings,
6. create a Windows 95 PPP connection,
7. establish a PPP connection to the Internet.

### *Key Terms*

*The following terms are introduced in this unit. Be sure you know what each of them means.*

Asymmettric Digital Subscriber Line (ADSL)
Authentication
Chameleon Sampler
Dial-up connection
Direct connection
Domain name server (DNS)
Internet Protocol (IP)
Internet service provider (ISP)
IP address
ISDN
Ping
Point to Point Protocol (PPP)
Routing
Serial Line Internet Protocol (SLIP)
Shell account
TCP/IP stack
Transmission Control Protocol (TCP)
Trumpet
V9.0 (56 Kbps)
V.32bis (14.4 Kbps)
V.34 (28.8 or 33.6 Kbps)
Web TV
Winsock

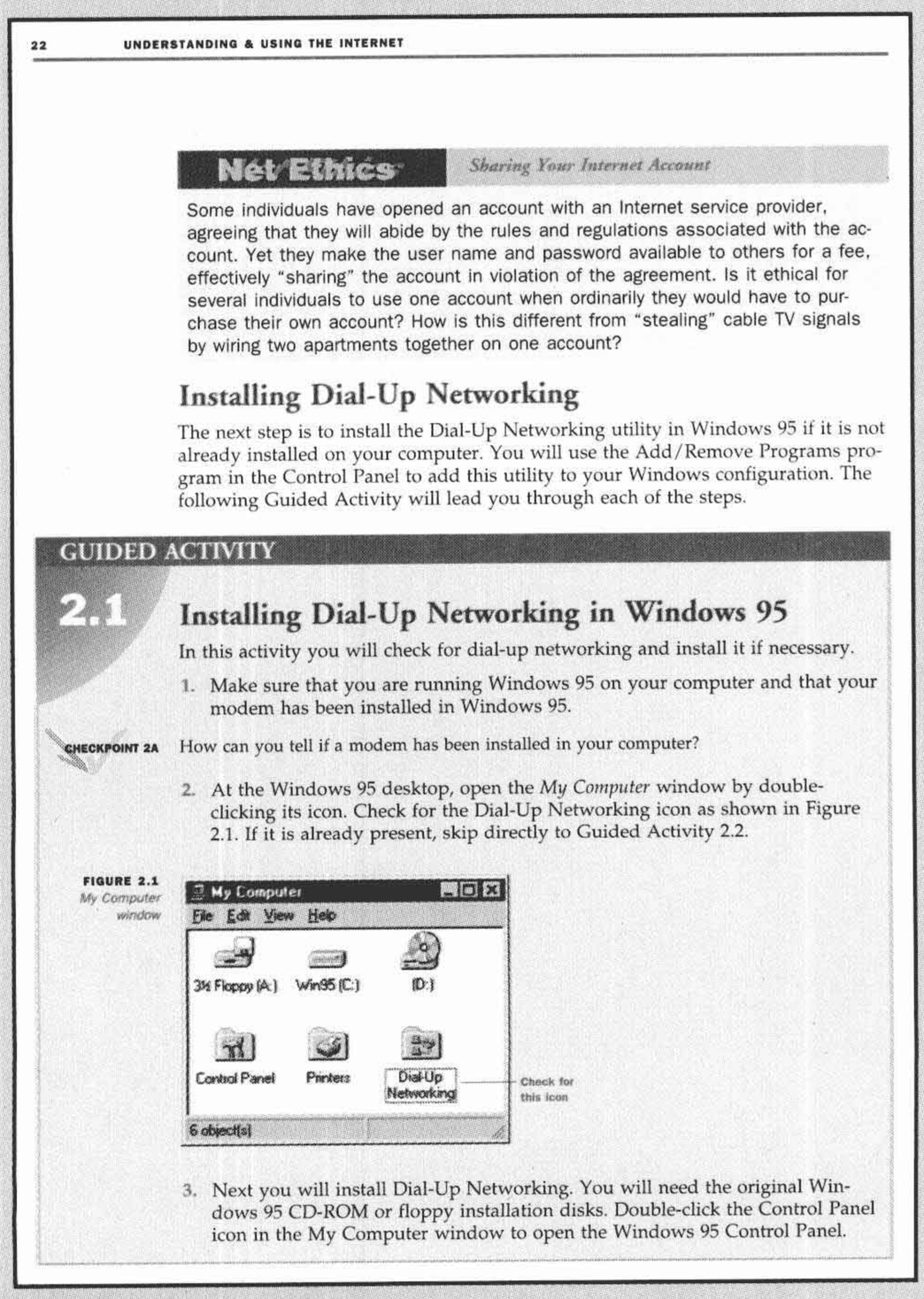
### *TCP/IP Software*

As mentioned in Unit 1, the TCP/IP protocol provides a method for delivering data packets through the Internet from your computer to the server and vice versa. You must have a software package for your computer that understands how to communicate with the Internet. Any computer that is connected to the Internet must have a TCP/IP program.

#### TCP Protocol

TCP stands for Transmission Control Protocol and represents the part of the system that transmits your message from computer to computer across the Internet. It breaks down your message into







**Net Ethics** *Sharing Your Internet Account*

Some individuals have opened an account with an Internet service provider, agreeing that they will abide by the rules and regulations associated with the account. Yet they make the user name and password available to others for a fee, effectively "sharing" the account in violation of the agreement. Is it ethical for several individuals to use one account when ordinarily they would have to purchase their own account? How is this different from "stealing" cable TV signals by wiring two apartments together on one account?

### Installing Dial-Up Networking

The next step is to install the Dial-Up Networking utility in Windows 95 if it is not already installed on your computer. You will use the Add/Remove Programs program in the Control Panel to add this utility to your Windows configuration. The following Guided Activity will lead you through each of the steps.

GUIDED ACTIVITY

**2.1** **Installing Dial-Up Networking in Windows 95**

In this activity you will check for dial-up networking and install it if necessary.

1. Make sure that you are running Windows 95 on your computer and that your modem has been installed in Windows 95.

**CHECKPOINT 2A** How can you tell if a modem has been installed in your computer?

2. At the Windows 95 desktop, open the *My Computer* window by double-clicking its icon. Check for the Dial-Up Networking icon as shown in Figure 2.1. If it is already present, skip directly to Guided Activity 2.2.

**FIGURE 2.1** *My Computer window*



3. Next you will install Dial-Up Networking. You will need the original Windows 95 CD-ROM or floppy installation disks. Double-click the Control Panel icon in the My Computer window to open the Windows 95 Control Panel.

**Net Ethics** features ask you to consider the unique ethical concerns that have arisen as the Internet and new technologies continue to expand their role in our lives. Topics include use of copyrighted material, privacy issues, and competitive practices within the software industry. Discuss these issues with your peers as you apply your sense of ethics to a new arena.

**Guided Activities** are step-by-step, hands-on, illustrated activities embedded in key locations within the text material. They immediately reinforce chapter concepts. The activities contain *Checkpoints* which ask critical thinking questions to increase your knowledge and understanding while you work.

## End-of-Unit Material

**Summaries** provide a quick overview of each Unit.

**Command Reviews** at the end of each Unit are the keyboard and mouse commands covered in the unit in the format of a quick-reference table.

**Vocabulary Exercises** ask you to review key terms and concepts within each unit.



### SUMMARY

This unit contains a detailed discussion of the TCP/IP protocol, including IP addresses. The domain name server converts a name address into the 16-bit IP address. It is necessary to have a TCP/IP stack on your computer in order to connect to the Internet. In Windows, the Winsock software represents the TCP/IP stack.

There are three main ways to connect to the Internet. Direct connections are the fastest, using a dedicated connection to your school, campus, or office. Dial-up connections are the most common way to connect to the Internet, using a modem to connect to an Internet service provider. Shell accounts use a terminal connection to a text-based host.

The unit contains a step-by-step discussion of creating a dial-up connection in Windows 95 to an ISP. First add Dial-Up Networking, and then add the TCP/IP protocol. Next create a PPP connection to a specific ISP, and then use that connection to make the link. The unit includes a short demonstration of the Ping TCP/IP utility to test the connection and concludes with directions for disconnecting.

#### *Command Review*

| | |
|---|---|
| Ping (MS-DOS) | Test the TCP/IP connection, returns IP address |
| Start→Programs | Launch a Windows program from the taskbar |
| Start→Settings→Control Panel | Open Windows Control Panel for making configuration changes |

#### *Vocabulary Exercise*

*Write a short definition for each term in the following list.*

| | | |
|---|---|---|
| Asymmettric Digital Subscriber Line (ADSL) | Chameleon Sampler | Domain name server (DNS) |
| Authentication | Dial-up connection | Internet Protocol (IP) |
| | Direct connection | Internet service provider |



#### *Review Questions*

1. What is the World Wide Web?
2. Explain the concept of hypertext.
3. What types of multimedia information can be viewed from Web documents?
4. What are Internet Explorer and Netscape Communicator?
5. Explain the following World Wide Web terms.
   a. home page
   b. URL
   c. HTTP
   d. link
   e. .GIF file
6. Explain how bookmarks or favorites can be used in your browser. Explain how to customize your bookmarks or favorites list.
7. What Web protocols or services are available through your browser? Briefly define the use of each protocol.
8. Explain how to play a multimedia file through your browser.

#### *Exercises*

*You should use your own Web browser for these exercises. Keep in mind that the World Wide Web is constantly changing, and that information may appear in different formats and in different places over time. For the latest updates, see the textbook home page at* http://computered.swep.com *and select the* Resources *link.*

1. Use your Web browser to access your school or organization home page. Make a list of the important things that appear on the opening page.
2. Use your Web browser to access the home pages for the following sites. Print a copy of the home page for each site. Make a note of the important items on each opening page.

**Review Questions** are designed for reinforcement and to test your knowledge of Unit content. These can serve as a Unit quiz and are excellent preparation for Unit tests.

**Exercises** are additional assignments for reinforcement. Some exercises have specific instructions, while others are less structured. Most exercises require use of the computer.

**Projects** are open-ended minicases that summarize the activities of the unit. Projects tend to be more challenging than exercises. The *Team Option* encourages you to work with your peers to solve problems as you will do within a team in a business setting.



PROJECTS

### Internet Service Provider Study

In this project you are asked to prepare a report about Internet service providers in your community. Search through the local telephone directory, look in the newspapers, ask colleagues and instructors to come up with names of organizations that provide local Internet access. Your report should include:

- Name of the ISP
- Modem telephone number(s) for connection
- Voice telephone number for help, service, or billing questions
- Description of the basic Internet connection service offered and the monthly cost
- Web address for the ISP, if they have one
- Cost of extra services such as second e-mail account, Web server space
- Ratio of subscribers to incoming modem lines
- Special connection availability: 56K, ISDN

***PROJECT TEAM OPTION***

Extend the ISP analysis to include regional and national ISPs such as AT&T WorldNet, IBM, Netcom, AOL, MCI, and Sprint. Table 2.2 (see page 17) includes a list of popular providers.

# See These Other Texts About the Internet!

***Internet Explorer 4.0*** by Dennis O. Gehris
This product is an introductory text to the Microsoft Web browser Internet Explorer 4.0.

| Product | ISBN |
|---|---|
| Student Text | 0-538-68597-2 |
| Electronic Instructor Package | 0-538-68598-0 |

**Table of Contents**

Chapter 1: Introduction to the Internet and the Internet Explorer Browser
Chapter 2: Downloading and Configuring Internet Explorer
Chapter 3: Browsing the World Wide Web
Chapter 4: Searching the Internet
Chapter 5: Finding and Downloading Files
Chapter 6: Using Multimedia Tools
Chapter 7: Sending and Receiving E-Mail Using Outlook Express
Chapter 8: Internet Newsgroups Using Netmeeting
Chapter 9: Authoring Web Pages Using FrontPage Express
Chapter 10: Using Other Internet Tools

***FrontPage 98*** by Mark Ciampa
This text introduces Microsoft® FrontPage 98 and allows users to create Web pages with ease.

| Product | ISBN |
|---|---|
| Student Text | 0-538-68601-4 |
| Electronic Instructor Package | 0-538-68602-2 |

**Table of Contents**

Chapter 1: FrontPage Basics
Chapter 2: Making It Look Good
Chapter 3: Images
Chapter 4: Elements and Components
Chapter 5: Tables
Chapter 6: Managing Files and Webs

***Internet Concepts and Activities*** by Barksdale, Rutter, Rand
This popular text delivers the Internet in a fun and colorful format. It is an Internet quick-start that focuses on the practical side of the 'Net to answer the question, "What does it mean to me?"

| Product | ISBN |
|---|---|
| Student Text (perfect bound) | 0-538-72166-9 |
| Student Text (spiral bound) | 0-538-72088-3 |
| Electronic Instructor Package | 0-538-72131-6 |

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Chapter 1: Quick Operating System Know-How
Chapter 2: Virtual Filing Cabinet: Save It for Later
Chapter 3: Through the Looking Glass: A Browser Primer
Chapter 4: WWWhat? Understanding Net Addresses
Chapter 5: Beyond the Looking Glass: Your Dream Browser
Chapter 6: Bringing It Home: Downloading Files
Chapter 7: Goodbye Snail-Mail: An Intro to E-Mail
Chapter 8: What's New(s)? An Intro to Newsgroups
Chapter 9: "I Think I Can!" The Little Search Engine That Could
Chapter 10: Virtual Library: Using Online Resources
Chapter 11: Exploring Sciences and Math
Chapter 12: Exploring Writing, Journalism, and History
Chapter 13: Exploring Business
Chapter 14: Exploring Government
Chapter 15: Movies, TV, Music: The Web's Got You Covered
Chapter 16: Your First Web Page: Your Parents Will Be So Proud
Chapter 17: The Many Languages of the Internet

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Instructor support materials available on Web site (for instructors only; password protected) include approximately 4 pages per module of teaching tips, lecture notes, background information, and answers to the student exercises.

Internet Custom Modules:

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| 2. | Web Design Basics Using PageMill | 0-538-68623-5 |
| 3. | Web Design Basics Using FrontPage | 0-538-68622-7 |
| 4. | Netscape Basics | 0-538-68625-1 |
| 5. | Internet Explorer Basics | 0-538-68624-3 |
| 6. | Lotus Notes Basics | 0-538-68626-X |
| 7. | AOL Basics | 0-538-68630-8 |
| 8. | Introduction to Internet Research Using Search Engines | 0-538-68631-6 |
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| 10. | Intranet Basics | 0-538-68643-X |
| 11. | Internet Graphics Basics | 0-538-68633-2 |
| 12. | Internet Multimedia Basics | 0-538-68634-0 |
| 13. | HTML Basics | 0-538-68627-8 |
| 14. | Web Design Basics Using Home Page | 0-538-68635-9 |
| 15. | Web Page Maintenance | 0-538-68636-7 |
| 16. | Java Basics | 0-538-68628-6 |
| 17. | Writing for the Internet | 0-538-68637-5 |
| 18. | Using the Internet for Career Exploration | 0-538-68638-3 |
| 19. | Internet Business Applications Using Microsoft Office | 0-538-68639-1 |
| 20. | Ethics and the Internet | 0-538-68640-5 |
| 21. | MSN Basics | 0-538-68629-4 |
| 22. | Internet Activities | 0-538-68641-3 |
| 23. | Internet Business Simulation | 0-538-68642-1 |
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UNIT 1

# Development of the Internet

This unit serves as an introduction to the "information superhighway" called the Internet. It presents the basics of networks and describes the development of the Internet. It concludes with an overview both of information found on the Internet and of the tools you can use to access this information.

## *Learning Objectives*

At the completion of this unit, you should be able to

1. describe the basics of networks,
2. explain how the Internet evolved,
3. describe how data packets are transferred across the network,
4. list the kinds of information found on the Internet,
5. discuss the tools used to access information found on the Internet.

## *Key Terms*

*The following terms are introduced in this unit. Be sure you know what each of them means.*

10Base-T
Anonymous FTP
Bandwidth
Browser
Client
Communications channel
Discussion group
Download
Driver
Electronic mail (e-mail)
FTP
Gateway
Home page
Host
Hypertext
Information superhighway
Internet
Local area network (LAN)
Mid-level network
Network
Packet
Server
Shared resource
Stand-alone computer
Store and forward
Surfing the Internet
Telnet
Viewer
Wide area network (WAN)
Workstation
World Wide Web (WWW)

## *Network Basics*

**Networks** are composed of computers and various computing devices such as printers and disk drives. Networks are connected with some **communications channel** in such a way that all users can have access to the resources found in that network. The channel is typically a copper telephone wire or fiber optic cable but can also include high-speed wireless microwave and satellite connections.

The individual user's computer is called a **workstation** or **client**. The workstation or client

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