

S E C O N D E D I T I O N

Local Area Networking with NOVELL[®] Software

*Alvin L. Rains
Michael J. Palmer*

Local Area Networking with **Novell® Software**

Second Edition

Alvin L. Rains
Casper College

Michael J. Palmer
University of Wyoming



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To Deborah, Jennifer, and Greta — ALR

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For more information contact:

Course Technology

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Local Area Networking
with
Novell® Software

Preface

Novell's NetWare has not remained static since the first edition of this book. Novell continues to introduce new products and capabilities. Novell's standing as the leading source of network operating systems has grown with each new product.

About This Book

As NetWare has evolved, so has the second edition of this book. The book still targets students and NetWare system managers. In the process, the book is changed to reflect new features of NetWare, such as NetWare version 4. There is still a strong introduction to networking components that is linked with use of NetWare. But new advances in networking are included to parallel enhancements in NetWare.

The practical side of the book has evolved to provide start-to-finish information on setting up a file server, from selecting the CPU to setting-up network printers. There is also more on file server management, application software installation, memory management, hardware selection, and problem solving.

Every chapter has been revised or rewritten. Several new chapters have been added to broaden the scope of the text. There are new chapters on operating systems, network printing, NetWare and Microsoft Windows, and future directions of technology.

Five appendices have been added to the book for general reference. They provide information on NetWare commands and utilities, hardware diagnostics, menu design, login scripts, the capture utility, and Microsoft Windows.

Organization

Chapter 1 introduces networking basics and describes why LANs have become an important part of computing. Chapter 2 presents more complex networking concepts such as network topologies, standards, media, and protocols. Chapter 3 compares non-network operating systems with network operating systems, using NetWare as the networking standard. Chapter 4 shows how to configure the file server hardware and install NetWare. Chapter 5 focuses on workstation selections and connecting the workstation to the network. Chapter 6 shows how to set up a file server, including creating users, establishing directories, and assigning security access. Chapter 7 describes how to install application software such as word processors and databases on a file server. Chapter 8 explains how to establish network printing for users. Chapter 9 shows how Microsoft Windows can be integrated into NetWare. Chapter 10 describes how to successfully manage all aspects of a network. Chapter 11 explains the details of interconnecting networks across town and around the world. Chapter 12 introduces new technologies such as wireless networking.

Each chapter begins with a statement of chapter objectives. A list of key terms is provided at the end of each chapter. The key terms are highlighted in bold when first introduced in the chapter. The chapter questions and exercises are new to this edition, and they reflect changes in NetWare and networking.

Novell NetWare is a major force in today's computer industry and this book is intended to give you a strong start in mastering this powerful networking tool.

Acknowledgements

The authors especially thank Jim Edwards for making this book possible. We also appreciate the dedicated assistance of the boyd & fraser staff. Jean Castro in particular was invaluable in coordinating and shepherding the production of this book. Casper College was instrumental in supporting all the efforts that made this book possible. Finally, and very importantly, we thank our families for their profound support.

Brief Contents

CHAPTER 1	Local Area Networking: The Basics	1
CHAPTER 2	Network Topology, Standards, Protocols, and Media	17
CHAPTER 3	Operating Systems	41
CHAPTER 4	The File Server: Hardware and Operating System	61
CHAPTER 5	The LAN Workstation	87
CHAPTER 6	Setting Up the File Server	111
CHAPTER 7	Application Software: Selection and Installation	153
CHAPTER 8	Network Printing	181
CHAPTER 9	NetWare and Windows Integration	215
CHAPTER 10	Network Management	249
CHAPTER 11	Enterprise Networking: LANs and Beyond	285
CHAPTER 12	Looking Ahead: New Directions and Technologies	301
APPENDIX A	Hardware Diagnostics	309
APPENDIX B	Login Scripts, NET.CFG, and Shell Command Parameters	327
APPENDIX C	DOS Batch File Menus, DOS Text Screens, and the GETNUM Utility	343
APPENDIX D	The Capture Utility	369
APPENDIX E	Windows Initialization Files	373
	Index	385

Contents

CHAPTER 1	Local Area Networking: The Basics	1
	Definition of a Network	2
	Local Area Network	3
	Metropolitan Area Network	4
	Wide Area Network	5
	Why a LAN?	5
	Mainframes and Minis Versus LANs	6
	Growth of Networks	7
	Types of Networks	9
	Novell Network Components	10
	Summary 12 • Key Terms 12 • Questions and Exercises	15
CHAPTER 2	Network Topology, Standards, Protocols, and Media	17
	Network Topology	18
	Bus Topology	19
	Ring Topology	19
	Star Topology	20
	Network Standards	22
	OSI Seven-Layer Model	22
	Protocol	24
	Carrier Sense Multiple Access with Collision Detection	25
	Ethernet Protocol	25
	Ethernet Media	26
	Thick Coax	26
	Thin Coax	27
	Twisted Pair	28
	Fiber Optic	29

Token Passing	31
Token-Ring Protocol	31
ARCNET Protocol	34
FDDI Protocol	36
Summary 36 • Key Terms 37 • Questions and Exercises	38

CHAPTER 3

Operating Systems 41

Host and Desktop Computers	42
Distributed Computing	42
Conceptual Operating System Model	43
Desktop Operating Systems	44
Disk Operating System (DOS)	44
Windows	44
OS/2	45
Future 80xxx Operating Systems	45
Unix	46
Macintosh	46
Network Operating Systems	46
NetWare	47
Peer-to-Peer Networks	48
File Services	49
Print Services	49
Application Interface Service	50
Security Services	51
Communication Services	52
Desktop Operating Services	55
Messaging Services	55
Host Computer Services	55
Summary 56 • Key Terms 56 • Questions and Exercises	58

CHAPTER 4

The File Server: Hardware and Operating System 61

File Server Hardware	64
An Overview of the File Server Components and Architecture	64
Hard Disk Drives	65
Floppy Disk Drives	67
Network Interface Card	67
File Server Memory	68
Disk Directory Caching	69
An Example of Memory Calculation	70
NLM Memory Requirement	70

Memory for Application Software	70
Testing the Hardware	71
Configuring Hardware Components	71
Site Preparation	72
Power Conditioning	73
Installing the Network Operating System	74
Creating a DOS Partition	74
General Installation Steps for NetWare	74
Running SERVER.EXE	75
The INSTALL Program	76
Creating NetWare Partitions	76
Mirrored Disk Drives	77
Creating Volumes	79
System and Public Files	80
Loading the LAN Drivers	81
Creating the File Server Boot Files	82
Summary 83 • Key Terms 84 • Questions and Exercises 85	

CHAPTER 5

The LAN Workstation

87

The Workstation Processor	88
Workstation Computing Environment	88
Workstation Memory	90
Configuring the Hardware	91
Installing the Network Interface Card	91
The Network Software	93
The IPX Driver	93
IPXODI	95
SPX and NCP	96
The NETX Shell	96
EMSNETX and XMSNETX	97
Configuring IPX.COM	98
CONFIG.SYS	100
NET.CFG	101
NETBIOS	101
AUTOEXEC.BAT File	102
The Boot Disk	102
Diskless Booting	103
Creating an ODI Boot Diskette	103
Logging into the File Server	104
Problems with IPX	105
Connectivity Problems	105
Memory Problems	105
Summary 106 • Key Terms 107 • Questions and Exercises 108	

CHAPTER 6	Setting Up the File Server	111
	Process Overview	112
	File Server Use	112
	Creating A Manageable Directory Structure	112
	NetWare System Directories	114
	Directories Added by the Supervisor	115
	DOS Directories	116
	Application Directories	116
	Data Directories	117
	User Directories	118
	Creating Directories	118
	Using FILER to Create Directories	119
	Using SYSCON to Create User Home Directories	121
	Managing Directories	122
	Limiting User Space with DSPACE	122
	NDIR	123
	RENDIR	123
	CHKDIR	123
	LISTDIR	124
	MAP	124
	Implementing a Security System	126
	Login and Password Security	126
	Network Trustee Rights Security	128
	Effective Rights	130
	Adding Trustee Rights with GRANT	131
	Removing Trustee Rights	132
	Attribute Security	133
	Changing File Attributes with FLAG	134
	Changing Inherited Rights Masks with ALLOW	135
	Setting Directory Attributes with FLAGDIR	136
	Utilities for Identifying Security Holes	137
	RIGHTS	137
	TLIST	138
	USERLIST	138
	WHOAMI	139
	SECURITY	139
	Establishing Users and Groups	140
	Creating Users and Groups with SYSCON	140
	Workgroup Managers	143
	Creating Users with MAKEUSER	143
	Creating Users with USERDEF	145

System Login Scripts	145
User Login Scripts	148
Summary 149 • Key Terms 150 • Questions and Exercises	151

CHAPTER 7 Application Software: Selection and Installation 153

Selecting Application Software	154
Licensing of Application Software	154
Application Directory Structure and Management	155
Software Installation Concerns	157
DOS Workstation Concerns	158
Menus	159
Installation	161
Installing WordPerfect	161
Customizing WordPerfect	164
Running WordPerfect	167
Flagging WordPerfect Files	169
Installing Quattro Pro	170
Quattro Pro Directory Structure	170
Steps for Installing Quattro Pro	171
A Further Look at the Installation Steps:	
Directory Structure	172
Modifying the AUTOEXEC.BAT File	173
Installing Configuration Files	173
Quattro Pro Drive Mappings	173
Printing in Quattro Pro	174
Restoring Lost Work	177
Creating a Quattro Pro Menu	177
Summary 178 • Key Terms 178 • Questions and Exercises	179

CHAPTER 8 Network Printing 181

DOS Printing	182
Network Printing	182
Netware Printing Utilities	183
PCONSOLE	184
PRINTDEF	187
PRINTCON	191
CAPTURE	195
NPRINT	197
Three Printing Solutions	197
Novell Print Servers	198
Installing Printers	198

Creating Print Queues	198
Creating the Print Server	199
Defining the Printers	199
Assigning Queues to the Printers	199
Running the Print Server Program	201
Hewlett-Packard's Network Printer Interface	201
Installing the Interface Card	202
Creating a Print Queue	203
Configuring the Queue Server	203
Enabling Unencrypted Passwords	203
Invoking the Print Server Name	203
Starting the Network Printer Interface	205
Brightwork's PS-Print	207
PSP-CFG	207
QueueIT	209
PSP-CON	209
Summary 211 • Key Terms 212 • Questions and Exercises 213	

CHAPTER 9

NetWare and Windows Integration 215

Hardware Required for Windows	216
The Workstation Operating System and Memory	217
Workstation Shells	218
AUTOEXEC.BAT and CONFIG.SYS Files	219
Where to Install Windows	221
Shared Files	222
User Files	222
Swap File	222
Four Installation Choices	222
Installing Windows on the File Server	224
Running SETUP	224
Server Setup	225
Workstation Setup	225
Running Windows	227
File Manager	228
Print Manager	229
Windows Resource Kit	231
Netware Workstation Services	233
Installing WordPerfect for Windows on a File Server	235
WordPerfect Documentation	236
Running the Install Program	236
Printer Drivers	238

System Login Script	242
Trustee Rights	242
Environment Files	243
Flagging Files	244
Testing	244
Documentation	245
After Installation	245
Summary 245 • Key Terms 246 • Questions and Exercises	247

CHAPTER 10

Network Management 249

Duties of the Network Manager	250
Selection and Training of the Network Manager	254
Establishing Back-up Personnel	254
Defining Network Standards	255
Standardizing Directories	255
Naming the File Server	256
Log-In ID Names	257
Group Names	258
Menus	258
Network Utilities	259
Network Loadable Modules	259
System Back-up and Disaster Recovery	259
SBACKUP	262
ARCserve	262
Archivist	264
Bindery Maintenance	265
BINDFIX and BINDREST	265
Monitoring the Server	266
Remote Management	267
Salvaging Files	269
Security	271
TRACK ON	271
Volume Repair	273
Virus Checking and Metering	275
User Training	276
Folio	277
Reporting LAN Problems	278
Equipment for Resolving Problems	279
LAN Growth and Modifications	280
Summary 281 • Key Terms 282 • Questions and Exercises	283

CHAPTER 11	Enterprise Networking: LANs and Beyond	285
	Bridges and Routers	286
	Internal and External Network Bridges	287
	Remote Bridges	288
	Asynchronous Remote Bridges	288
	X.25 Bridges	289
	High-Speed Bridges	289
	Networking LANs with Host Gateways	291
	IBM Gateways	291
	Asynchronous Gateways	293
	TCP Gateway	295
	Summary 297 • Key Terms 297 • Questions and Exercises 299	
CHAPTER 12	Looking Ahead: New Directions and Technologies	301
	Downsizing	302
	Emerging Applications and Technologies	303
	ATM	303
	Wireless Media	304
	Multimedia	305
	Automated Software Upgrades	305
	Netware 4	306
	Summary 306 • Key Terms 307 • Questions and Exercises 308	
APPENDIX A	Hardware Diagnostics	309
APPENDIX B	Login Scripts, NET.CFG, and Shell Command Parameters	327
APPENDIX C	DOS Batch File Menus, DOS Text Screens, and the GETNUM Utility	343
APPENDIX D	The Capture Utility	369
APPENDIX E	Windows Initialization Files	373
	Index	385



Local Area Networking: The Basics

Chapter Objectives

The objectives of this chapter are the following:

- To define computer networking.
- To provide an introduction to local, metropolitan, and wide area networks.
- To explain the popularity and growth of networking.
- To explain network components and terms.

Introduction

The use of local area networking (LAN) technology has grown phenomenally in businesses, public schools, industry, and higher education. LAN technology has proven to be very effective in making microcomputer applications available to many users. Also, new LAN software applications are rapidly emerging. More and more people now depend on LANs for processing and sharing information. LANs have taken over what were once firm minicomputer strongholds, and they are now challenging the mainframe computer.

At the forefront of this technological upheaval is the Novell Corporation and its NetWare operating system for LANs. Novell has been very successful with LANs, in both industry and education. Novell

LANs have become popular for a variety of reasons. First, they enable a range of microcomputers or workstations to be linked together for information sharing. IBM, IBM-compatible, Apple Macintosh, Unix workstations, and other computers can be networked together to share messaging capabilities, common software, documents, reports, data, and desktop publications. Networks of these computers can be as small as three or as large as 250 units. These networks can operate as independent units, or they can be linked to other networks or to many popular mini and mainframe computers.

Another attractive option of Novell networks is that they can host nearly all commercially available microcomputer software. The options include word processors, spreadsheets, databases, desktop-publishing software, computer-language compilers, office-automation software, electronic mail, and computer-aided design (CAD) software.

Novell file servers, the heart of Novell LANs, can be made by any of a number of manufacturers. File servers can contain a host of add-on equipment such as disk drives, disk controllers, memory expansion, and tape-backup equipment. Novell tests equipment for compatibility and provides that information to prospective buyers. Novell is not unique in offering these advantages, but it brings together one of the most effective software and hardware environments available.

This book is designed to explore that environment, along with specific ways to establish and enhance the Novell networking system. In this chapter, we begin the networking story with an introduction to networks.

Definition of a Network

A **network** is a communication system that links together people and their computing resources. The link may extend across a room, throughout a building, or to the other side of the world. You may have a computer and printer on your desk at work. If your computer is not connected to any other resources, it is a “stand-alone” system. If you can access other computers through cable or telephone hookups, then you are part of a network.

Each network has two main components. The first is **hardware**, which consists of computers, printers, cable, and communication equipment (see Figure 1.1). The computers can be mainframes, minicomputers, or microcomputers. Printers range from simple dot matrix printers to complex laser printers. Cable is used to physically link computers and printers. Communication equipment also connects to the cable and serves many purposes. Some communication devices extend the distances