

004.6 1622p

This book is printed on acid-free paper. .

Copyright © 1996 by Academic Press, Inc.

All rights reserved.

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the publisher.

All brand names and product names mentioned in this book are trademarks or registered trademarks of their respective companies.

AP PROFESSIONAL
1300 Boylston St., Chestnut Hill, MA 02167

An Imprint of ACADEMIC PRESS, INC.
A Division of HARCOURT BRACE & COMPANY

United Kingdom Edition published by ACADEMIC PRESS LIMITED 24-28 Oval Road, London NW1 7DX

Tittel, Ed.
The PC networking handbook / Ed Tittel
p. cm.
Includes bibliographical references and index.
ISBN 0-12-691398-6
1. Computer networks. I. Title.
TK5105.5.T62 1995
004.6'16--dc20

95-20918 CIP

Printed in the United States of America
95 96 97 98 99 CP 9 8 7 6 5 4 3 2 1



CONTENTS

Contents v

About the Author xv

Acknowledgments xvii

I Network Cabling and Media 1

1 Network Cabling and Media Types 3

Cabling Considerations 3 • Coaxial Cable 4 • Fiber-Optic Cable 8 • Twisted-Pair Cable 13 • Wireless Media 17 • Conclusion 19

2 Coaxial Cable 21

Welcome to the Wonderful World of Coax Cable 21



vi Contents

3 Fiber-Optic Cable 33

The Power of Light 33

4 Twisted-Pair Cable 43

Twist and Shout 43

5 Wireless Networking 49

Wacky for Wireless 49 • Top Vendors 54 • Resources: Bibliography & Strategies 55

6 Cable Testing and Diagnostic Equipment 57

Cabling Catastrophes 57 ◆ Summary 61 ◆ Top Vendors 62 ◆ Resources: Bibliography and Strategies 63

7 Cable Layouts 65

Topologies 65

II Networking Technologies and Access Methods 73

8 Networking Technologies and Access Methods 75

Access Methods 76 • Networking Technologies 79 • Summary 83

9 Ethernet 85

Introduction 85 • Basic Networking and Ethernet 86 • Ethernet Frames 92 • Ethernet Cabling Specifications 95 • Hardware Considerations 100 • Building Your

Network 101 • Ethernet Resources: Bibliography and Strategies 102 • The Top Five Ethernet Vendors 103



Contents

10 Token Ring 105

Token Ring? 105 • Origins of the Ring 106 • Token Ring Examined 107 • Token Ring in Operation 110 • Summary 115 • Bibliography and References 115

11 FDDI 117

FDDI Defined 117 • Why FDDI? 118 • FDDI Standards 119 • Summary 126 • Bibliography and References 126

12 ISDN 127

ISDN Defined 127 • ISDN Standards 127 • Evolution of ISDN 129 • End-to-End ISDN 133 • Bearer Services 136 • ISDN Protocols 138 • Broadband ISDN 139 • Summary 141

13 Asynchronous Transfer Mode 143

About ATM 143 • Broadband ISDN 144 • ATM Transport 145 • Migration to ATM 149 • ATM on the Market 151 • Conclusion 152 • Bibliographies and Resources 152

14 More Access, More Transmission 155

Access 155 • ARCnet 155 • Broadband LANs 156 • Transmission 156 • X.25 157 • Synchronous Optical Network 157 • Switched Multimegabit Data

Services 157 • Frame Relay 157 • High (Bit Rate) Digital Subscriber Line 158

III Networking Protocols 159

15 Protocols 161

Protocols Defined 161 • Networking Protocols 163 • Networking Standards and Stacks 165



DOCKET

Explore Litigation Insights



Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time** alerts and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.

