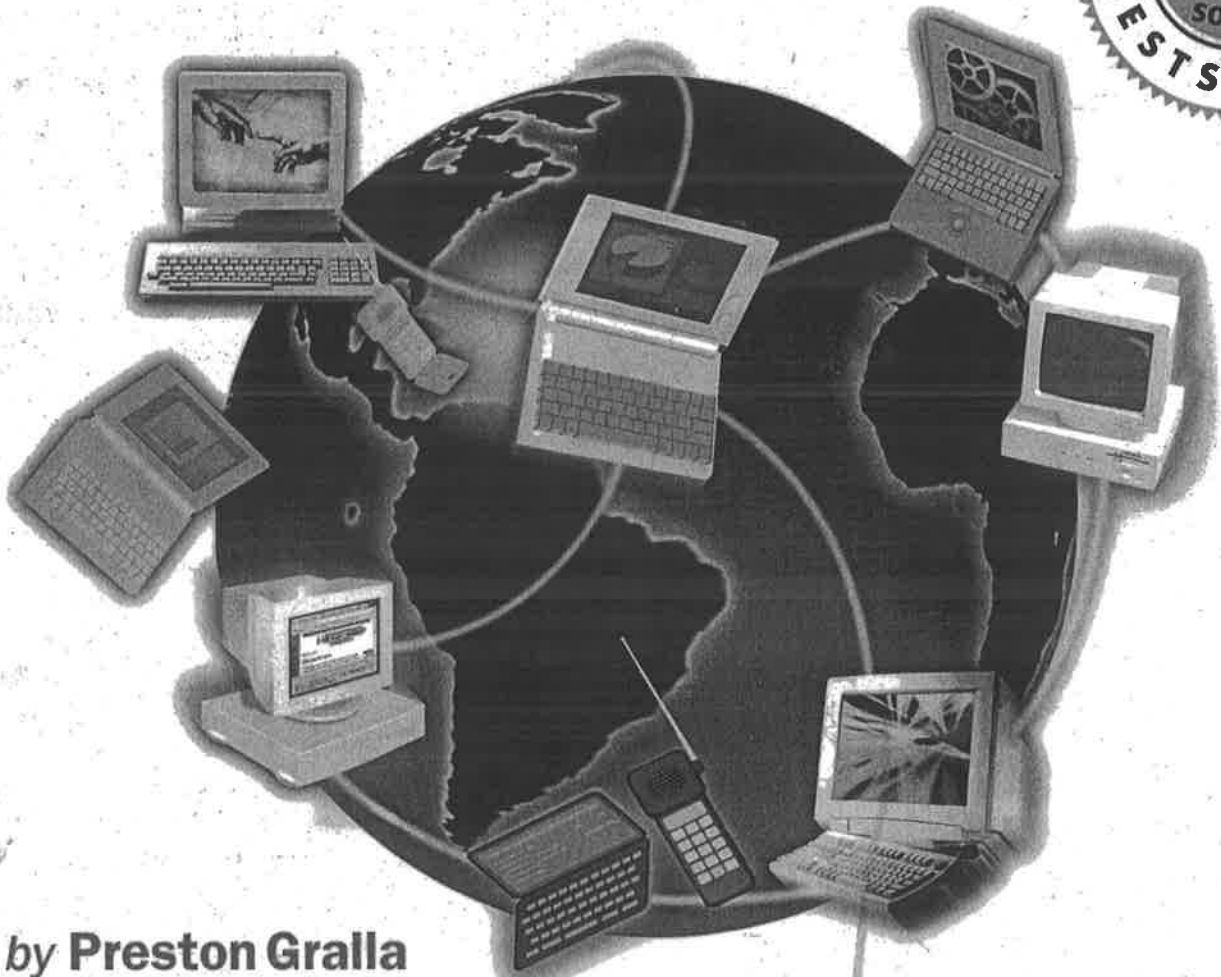


MILLENNIUM EDITION

HOW THE INTERNET WORKS

NATIONAL
BESTSELLER
MORE
THAN
2,000,000
How It Works
SOLD



by Preston Gralla

Illustrated by SARAH ISHIDA,
MINA REIMER, & STEPHEN ADAMS

que

DOCKET
A L A R M

Find authenticated court documents without watermarks at docketalarm.com.

How the Internet Works

Millennium Edition

Preston Gralla

QUE[®]

A division of Macmillan Computer Publishing, USA
201 W. 103rd Street
Indianapolis, IN 46290

How the Internet Works, Millennium Edition

Copyright® 1999 by Que®

Executive Editor	Greg Wiegand
Acquisitions Editor	Stephanie J. McComb
Development Editor	Nicholas Goetz
Managing Editor	Thomas F. Hayes
Project Editor	Karen S. Shields
Copy Editor	Kay Hoskin
Indexer	Christine Nelsen
Proofreader	Maribeth Echard
Technical Editor	Bill Bruns
Illustrators	Sarah Ishida, Mina Reimer, Stephen Adams, and Shelley Norris
Book Designers	Carrie English and Bruce Lundquist
Copy Writer	Eric Borgert
Layout Technicians	Lisa England, Cyndi Davis-Hubler

All rights reserved. No part of this book shall be reproduced, stored in a retrieval system, or transmitted by any means, electronic, mechanical, photocopying, recording, or otherwise, without written permission from the publisher. No patent liability is assumed with respect to the use of the information contained herein. Although every precaution has been taken in the preparation of this book, the publisher and author assume no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein.

International Standard Book Number: 0-7897-2132-5

Library of Congress Catalog Card Number: 99-63011

Printed in the United States of America

First Printing: August 1999

01 00 5

This book was produced digitally by Macmillan Computer Publishing and manufactured using computer-to-plate technology (a filmless process) by GAC, Indianapolis, Indiana.

Trademarks

All terms mentioned in this book that are known to be trademarks or service marks have been appropriately capitalized. Que cannot attest to the accuracy of this information. Use of a term in this book should not be regarded as affecting the validity of any trademark or service mark.

Warning and Disclaimer

Every effort has been made to make this book as complete and as accurate as possible, but no warranty or fitness is implied. The information provided is on an "as is" basis. The authors and the publisher shall have neither liability nor responsibility to any person or entity with respect to any loss or damages arising from the information contained in this book.

Introduction

Part 1: What Is the Internet?**I**

Chapter 1

The Wired World of the Internet 4

Chapter 2

How Information Travels Across the Internet 8

Chapter 3

How TCP/IP Works 12

Chapter 4

Understanding Internet Addresses and Domains 16

Chapter 5

Anatomy of a Web Connection 20

Chapter 6

Internet File Types 24

Part 2: The Internet's Underlying Architecture 28

Chapter 7

How the Domain Name System Works 32

Chapter 8

How Routers Work 36

Chapter 9

The Internet's Client/Server Architecture 40

Part 3: Connecting to the Internet 44

Chapter 10

Connecting Your Computer 48

Chapter 11

Connecting to the Internet from Online Services 52

Chapter 12

Chapter 13

The Internet/Television Connection 60

Chapter 14

How Network Computers (NCs) Work 66

Chapter 15

How the Digital Subscriber Line (DSL) Works 70

Chapter 16

How Satellite and Palmtop Connections Work 74

Part 4: Communicating on the Internet 80

Chapter 17

How Email Works 84

Chapter 18

Email Spam and Blocking 98

Chapter 19

How Usenet Newsgroups Work 104

Chapter 20

How Internet Chat and Instant Messaging Work 110

Chapter 21

Making Phone Calls on the Internet 116

Part 5: How the World Wide Web Works 122

Chapter 22

How Web Pages Work 126

Chapter 23

How Web Browsers Work 134

Chapter 24

How Markup Languages Work 144

Chapter 25

How Hypertext Works 150

Chapter 26	
How URLs Work	154
Chapter 27	
How Imagemaps and Interactive Forms Work	158
Chapter 28	
How Web Host Servers Work	162
Chapter 29	
How Web Sites Work with Databases	166

Part 6: Common Internet Tools 170

Chapter 30	
How Telnet Works	174
Chapter 31	
FTP and Downloading Files	178
Chapter 32	
Searching the Internet	184
Chapter 33	
How Push Technology Works	190
Chapter 34	
How Java, JavaScript, and ActiveX Work	198
Chapter 35	
How Agents Work	206
Chapter 36	
How CGI Scripting Works	210

Part 7: Multimedia on the Internet 214

Chapter 37	
Audio on the Internet	218
Chapter 38	
Video on the Internet	226

Chapter 39	
How Multicast IP and the Mbone Work	234
Chapter 40	
Virtual Reality on the Internet	238
Chapter 41	
Animation on the Web	242

Part 8: Intranets and Shopping on the Internet 248

Chapter 42	
How Intranets Work	252
Chapter 43	
How Workgroup Software Works	256
Chapter 44	
Shopping on the Internet	260

Part 9: Safeguarding the Internet 270

Chapter 45	
How Firewalls Work	274
Chapter 46	
How "Smurf Attacks" Can Cripple Internet Service Providers	280
Chapter 47	
How Viruses Work	284
Chapter 48	
How Cookies, Passports, and Web Tracking Work	290
Chapter 49	
Cryptography, Privacy, and Digital Certificates	298
Chapter 50	
Parental Controls on the Internet	304
Index	308

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.