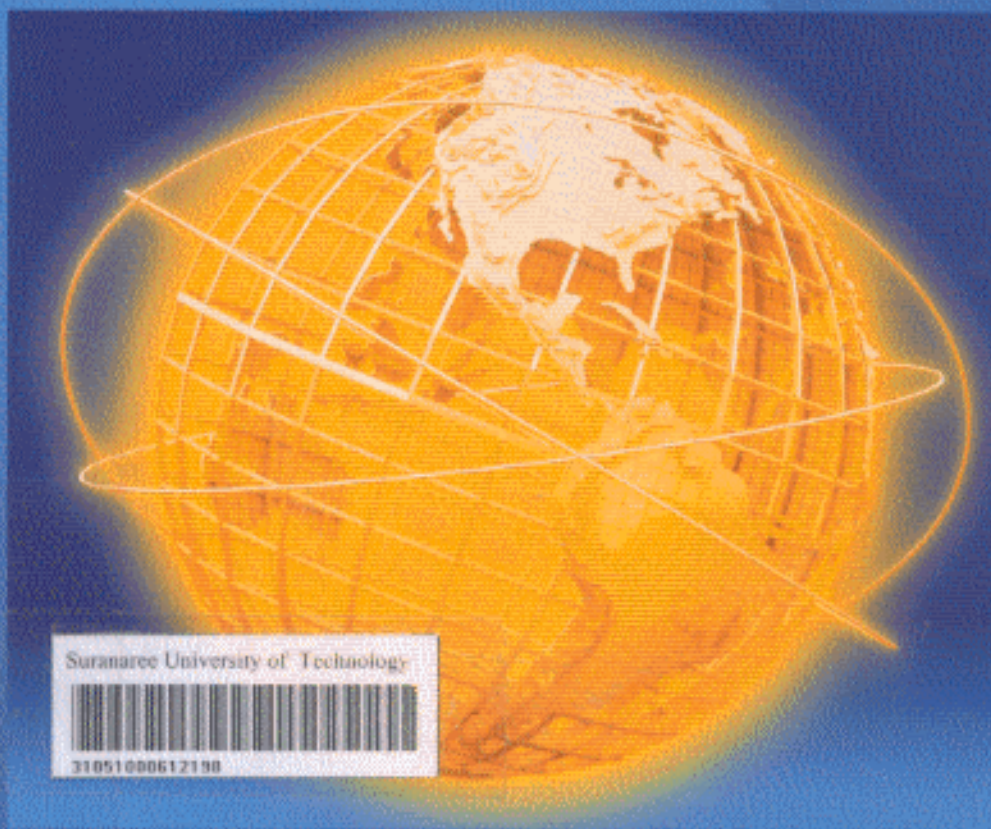


THE INTERNET TODAY



Suranaree University of Technology



31051000612190

THOMAS J. FALLON

Contents

Chapter 1 The Internet Introduced 1

- 1.1 Perceptions of the Internet 1
- 1.2 Timeline of Telecommunications 8
- 1.3 Timeline of the Internet 14
- 1.4 Major Components of the Internet 19
- 1.5 Major Players 23
- 1.6 Impact on Society 25
- Summary 26

Chapter 2 The TCP/IP Protocol: The Language of the Internet 29

- 2.1 A Protocol Primer 30
- 2.2 OSI versus ARPANET: Communication Models 31
- 2.3 Dissecting IP, TCP, and UDP Headers 35
- 2.4 IP Addresses and Subnet Masks 44
- 2.5 DNS and DHCP 47
- 2.6 Putting It All Together: An Example 56
- 2.7 Diagnostic Methods and Tools 58
- 2.8 Tracking a Packet Through the Internet 64
- 2.9 SLIP versus PPP 66
- Summary 68

Chapter 3 Internet Connectivity: Fundamental Issues 71

- 3.1 A Network Primer 72
 - LAN, MAN, and WAN 73
 - A/D and PCM 73
 - Synchronous versus Asynchronous 75
 - Multiplexing 76
 - Compression 79
 - Network Topologies 80
 - Switching 81
 - Internetworking Devices 83
- 3.2 Understanding Bandwidth and Capacity 85
- 3.3 Understanding File Types 87
- 3.4 Understanding Data Traffic Characteristics 89
- 3.5 On-line Services Providers versus ISP
(Internet Service Provider) 90
- Summary 92

Chapter 4 Internet Connectivity: Network Technologies 93

- 4.1 Backbone Technologies 93
 - Ethernet 94
 - Token Ring 96
 - Wireless Communications 98
 - Point-to-Point Connectivity (Leased Lines) 106
 - Frame Relay 107
 - ATM (Asynchronous Transmission Mode) 109
- 4.2 Access Technologies 112
 - Dialup Access 113
 - xDSL (Digital Subscriber Loop Services) 114
 - ISDN (Integrated Systems Digital Network) 115
 - Cable Modem 116
- Summary 118

Chapter 5 Primitive Applications 119

- 5.1 Telnet: Logging into a Remote Host 119
 - Telnet Commands 121
- 5.2 Hytelnet: An Aid to Telnet 122
- 5.3 FTP (File Transfer Protocol) 124
 - FTP Commands 126
- 5.4 Archie: An Aid to FTP 127
 - Archie Commands 129
- 5.5 Gopher: Burrowing Through the Internet 129
- 5.6 Veronica: An Aid to Gopher 131
- Summary 131

Chapter 6 The World Wide Web 133

- 6.1 Spinning the Web 133
- 6.2 Web Browsers and Servers 134
- 6.3 URL Formats 142
- 6.4 Examples of Web Usage 144
- 6.5 Using Search Engines 154
- 6.6 HTML 4.0 157
- 6.7 A Cornucopia of Elements 159
- 6.8 Dissecting a Web Page 172
- 6.9 Parental Safeguards 177
- Summary 177

Chapter 7 Breathing Life into the Web 179

- 7.1 Tables, Style Sheets, and Frames 180
 - Tables 180
 - Style Sheets 183
 - Frames 191
- 7.2 Embedded Objects 194
 - Java Applets 194
 - Javascript 198
 - ActiveX Controls 202
 - VRML Worlds 206
 - Animated GIFs 209
 - Audio and Video 209
- 7.3 Streaming Technologies 210
- 7.4 Push versus Pull Technology 211
- 7.5 Forms, CGI Scripts, and Database Connectivity 214
- 7.6 Cookies 220
- Summary 220

Chapter 8 Modes of Communication 223

- 8.1 E-mail 224
- 8.2 Listservs 228
- 8.3 USENET 229
- 8.4 IRC (Internet Relay Chat) 229
- 8.5 Video Conferencing 232
- 8.6 IP Telephony 234
- Summary 234

Chapter 9 The Evolving Internet 237

- 9.1 Security Issues 238
 - Cryptography 238
 - Firewalls 239
 - Viruses 241
- 9.2 A Few Key Technologies 242
 - Interactive TV 242
 - E-commerce 243
 - XML (eXtensible Markup Language) 245
 - IPv6 246
 - VPN (Virtual Private Network) 247
- Summary 248

Conclusion: The Internet Today 251

Appendix 1: Suggested Resources: Periodicals 255

Appendix 2: Suggested Resources: URLs 257

Bibliography 263

Index 267