CONTENTS

Pretace xvii	
Introduction xix	
Chapter 1—The Intranet Impact	1
Overview 1	
WHAT IS AN INTRANET? 2	
Client/Server Roots 5	
Intranet Building Blocks 5	
Intranet Applications 8	
WHY BUILD AN INTRANET? 15	
Communications 16	
Collaboration 17	
Knowledge Management 20	
Intranet Benefits 22	
A Word about Intranet Costs 25	
Is It Time to Start Building an Intranet?	27
Early Adopters 28	
Mainstream Buyers 29	
Late Adopters 29	
Chapter 2—The 12-Step Program	31
Overview 31	
THE MAIOR STEPS DECISION TREE 32	
The Tools to Support Decision-Making	32

Acknowledgments xv

IF ALL ELSE FAILS

SUMMARY OF ST	EPS 34
Step 1: Sho	ould We Implement? 35
Step 2: Do	We Need Help? 37
Step 3: Enl	ist User Support 39
Step 4: Add	dress Organizational Issues 40
Step 5: De	termine Technical Architecture 41
Step 6: De	cide on Applications and Prototype 42
Step 7: Co	mplete Registration and IP Addressing 43
Step 8: Fin	alize the Plan 43
Step 9: Im	plement the Architecture 44
Step 10: D	evelop the Applications 45
Step 11: li	mplement Intranet Policies and Procedures 46
Step 12: N	Nanaging the Intranet 47

Chapter 3—Taking the First Steps 49

48

OVFRVIEW 49 Making the Decisions 50 STEP 1: SHOULD WE IMPLEMENT AN INTRANET? 50 **Define Your Business Values** 51 **Information Needs Assessment 52** I-TIPS 55 STEP 2: DO WE NEED HELP? 56 **Skills Assessment** 57 **Acquiring Skills** 59 **Outside Resources** 61 Partnering versus Outsourcing 63 STEP 3: ENLIST USER SUPPORT 66 **Gaining Executive Support Grassroots Support** THE REGISTRATION PROCESS 73 Registering IP Addresses

Chapter 4—Organizational Issues 77

OVERVIEW 77 **EVOLVING CORPORATE STRUCTURE** 78 79 CULTURAL ISSUES **Agility** Just-in-Time Culture 81 **Openness versus Security** 81 **Managing Change** The Role of Intranet Policies 83 ORGANIZING THE INTRANET IMPLEMENTATION PROJECT 86 **Intranet Resources and Development Differences** 86 Managing the Implementation Project INTEGRATING THE INTRANET WITH THE IS ORGANIZATIONAL STRUCTURE 92 The Web Information Framework 92 Intranet Organizational Structure 94 LEGAL ISSUES 99 **Information Access and Publishing Policies** 99 E-Mail 100 Intellectual Property 101 **Domain Names** 101 **Trademarks** 102 Copyright 102 **Trade Secrets** 103 Protecting Physical Assets and Intellectual Property 103

103

Chapter 5—Intranet Architectures 105

OVERVIEW 105

ELEMENTS OF A WEB-BASED SYSTEM 106

Abstraction 109

WEB FRAMEWORK 111

General Reference Information

Broad Architectures 113
ARCHITECTURE SELECTION 114
COMPONENT SELECTION 116
Presentation Layer 117
Client Browser 117
Network Communications Services 118
Web Server 120
Server Application Interface Layer 121
Application Layer 122
Service Interface Layer 122
Service Layer 123
Operating System Services 123
Hardware 125
Basic Server Components 126
Universal Resource Locator (URL) 127
Server Software Components 129
LOGICAL SERVER ARRANGEMENTS 133
Stand-Alone Systems 134
Single-Server Systems 136
Multiserver Systems 136
Distributed Systems 139
Mainframe Integration 140
3270 Data Streams (Screen Scraping) 140
RPC Architecture 140
Message Architecture 142
TP Monitor (Transaction Processing Monitor) 142
ORB (Object Request Broker) 143
Publish and Subscribe Architecture 143
Service Brokers 144

Chapter 6—Object Request Brokers (ORBs) 145

Overview 145
What Is Object Technology? 146

DEFINITION OF ORB 146	
ORB Standards 147	
Slow Adoption 150	
Current Popularity 151	
DISTRIBUTED OBJECT TECHNOLOGY AND THE WEB 151	
ISSUES RELATED TO DISTRIBUTED OBJECT TECHNOLOGY AND THE WEB	152
THREE MAJOR CONTENDERS 153	
INTEROPERABILITY 155	
Making a Choice 156	
FUTURE TRENDS 157	

Chapter 7—Intranet Design 159

OVERVIEW 159 Type of Intranet 160 The Communications Intranet 160 The Integrating Intranet 160 The Catalog Intranet The Single Sign-On Intranet 161 **PERFORMANCE** 161 Cost 162 163 SECURITY The Major Threats 165 The Major Needs 170 **Security Protocols** 172 **Security Trends** 174 **MANAGEABILITY** 175 **Naming Conventions** 175 **Defined Roles** 176 **Standards** 176 **Procedures** 177 **Documentation** 177 **Style Guides** 177 **Site Management Tools** 180

181 Centralized Data **Multimedia Production** 181 182 USABILITY TRADE-OFFS 183

Chapter 8—Intranet Development 187

188

189

217

187 OVERVIEW **DIFFERENCES FROM TRADITIONAL DEVELOPMENT EFFORTS** Rapid, Incremental Iterations and Prototyping 189 User Involvement Location-Independence 191 Methodologies 193 STEP 9: IMPLEMENT THE ARCHITECTURE 194 **Communications Infrastructure** 194 202 Architectural Infrastructure 204 STEP 10: DEVELOP THE APPLICATIONS Selecting the Prototype 205 **Application Scope** 208 **Functional Specifications** 208 Resource Planning 209 210 Timeline **Standards** 210 **Iterations** 211 Testing 211 **User Acceptance Testing**

Chapter 9—Intranet Tools 213

212

OVERVIEW 213 214 **CHOOSING TOOLS Skills Requirements for Tools** 216 **Evaluating the Technologies and Toolsets**

TCHOOL 220
Open versus Proprietary Tools 221
Public Domain versus Commercial 222
Application Tools Models 222
Browser and Server Software 226
Browsers 227
Server Software 230
Major Tools Categories 230
Development Tools 230
Programming Languages 232
Search Engines 237
Client Tools 238
Management and Administrative Tools 243
Plug-ins 248

Vendor

220

Chapter 10—The User Interface 251

OVFRVIEW 251 **UNDERSTANDING YOUR DESIGN ENVIRONMENT AND GOALS** 252 **USER INTERFACE DESIGN PRINCIPLES** 253 Consistency 253 Simplicity and Intuitiveness 254 **Audience Awareness** 255 **Aesthetic Integrity** 257 **GENERAL LOOK AND FEEL** 258 **Backgrounds** 258 **Color Scheme** 261 Interface Metaphor 262 **Site Structure** 263 SPECIFIC PAGE ELEMENTS 265 **Graphic Header** 266 270 Body **Navigation Interface** 277 **Informational Footer** 285

287 GRAPHICS TIPS **Graphic File Formats** 287 Graphic File Size 289 Dithering 290 WHEN AND HOW TO SET STANDARDS 291

Chapter 11—Back-End Applications 293

OVERVIEW 293 EXTERNAL ACCESS 294 295 GROUPWARE **Notes-Based Groupware** 296 Web-Based Groupware 299 301 DATA RETRIEVAL **CONNECTING TO THE DATABASE** 302 **Third-Party Connectivity Tools** 303 **Database Vendor Extensions** 304 **Databases**

DOCUMENT RETRIEVAL 307

Nonstructured Data 307

High-End Imaging/Document Management Systems

BUSINESS-TO-BUSINESS COMMUNICATION/ELECTRONIC DATA INTERCHANGE (EDI) BUSINESS-TO-CONSUMER COMMUNICATION/ELECTRONIC COMMERCE 309

308

302

310 SECURITY

CONSIDERING THE PAST AND THE FUTURE 311

Chapter 12—Implementing an Intranet 313

OVERVIEW 313 **GUIDELINES FOR TESTING** 314 **State and Context** 315 **Simple Intranet Applications** 317

Simple Form-Based Intranet Applications 319 **Complex Intranet Applications OPERATIONS** 322 Client Management 323 Infrastructure Management 324 HELP SYSTEM CONCEPTS 327 329 Hypertext Index **Help Desk Application Support** 329 **Search Capability** 329 APPLICATION MIGRATION 330 **DATA CONVERSIONS** 331 Connecting the Intranet to the Internet 332 **Firewalls** 332 **Securing Servers** 333 **Use Tracking** 333 Performance Issues 334 Stress and Volume Considerations 335 **Contingency Planning** 336 337 SUMMARY

Chapter 13—Managing the Intranet 339

OVERVIEW 339 It's a Jungle Out There 340 AN INTRANET MANAGEMENT FRAMEWORK 343 INTRANET SYSTEMS MANAGEMENT **Recommended Policies and Procedures** 347 Intranet-Specific Considerations 352 **Planning** 353 **Operations** 354 Technical Support—The Modified Help Desk 360

AUTOMATING INTRANET MANAGEMENT 362 Tivoli Systems 363 Hewlett-Packard 365 Computer Associates 366

Chapter 14—Tips, Tricks, and Gotchas 367

367 OVERVIEW 368 LACK OF PLANNING Gotcha #1: Lack of Long-Term Planning 368 Gotcha #2: Forgetting Your Audience Gotcha #3: Underestimating Use Gotcha #4: Underestimating Complexity 371 Gotcha #4a: Selecting an Improper Architecture 372 Gotcha #5: Using Nongraphical Browsers Gotcha #6: Hard-Coding in the "Maintenance Boogeyman" 373 Gotcha #7: "Me-Too" Mania 374 Gotcha #8: Skipping the Prototype 375 Gotcha #9: Leveraging Resources 376 FAILURE TO SEEK EXPERT ASSISTANCE 376 377 Gotcha #10: Lack of Expertise Gotcha #11: Legacy Wrappering 378 378 Gotcha #12: The Skill Mix Gotcha 379 Gotcha #13: Design Blunders Gotcha #14: Advanced Feature Abuse 380 Gotcha #15: Breaking the Law 381 Gotcha #16: Loss of Security in a Database Conversion Project 382 LACK OF A MANAGEMENT FRAMEWORK 382 Gotcha #17: Version Matching 383 Gotcha #18: Testing (or the Lack Thereof) 384 Gotcha #19: Failing to Keep Current 385 Gotcha #20: Technology Cul-de-Sacs 386 Gotcha #20a: Failing to Adapt to Growth 386

APPLICATION DEVELOPMENT GOTCHAS	387
Gotcha #21: Performance Hits	387

Gotcha #22: Distributed Development 388
Gotcha #23: Reinventing the Wheel 388
Gotcha #24: The Bleeding Edge 389
Gotcha #25: Client Machine Quality 390

Gotcha #26: CGI Scripting versus API Calls 390

Gotcha #26a: Mistaking Ease of Use for Ease of Development 391 Gotcha #26b: The Merging of Content and Programming 392

Appendix A—Determining Change Magnitude 393

Appendix B—Intranet Project Workplan 401

Appendix C—Internet Service Providers 409

Appendix D—Request for Comment (RFC) Listings 415

Glossary 423

Index 433