Contents

Introduction xix
Assessment Test xxxviii

Chapter 1 Understanding Windows Server 2003 Networking 1
The OSI Model 2
Protocol Stacks 4
Communication between Stacks 13
Microsoft’s Network Components and the OSI Model 14
Device Drivers and the OSI Model 14
The Basics of Network Protocols 15
Understanding IP Addressing 23
The Hierarchical IP Addressing Scheme 23
Subnetting a Network 27
Implementing Subnetting 28
Applying Subnetting 35
Quickly Identifying Subnet Characteristics 41
Summary 44
Exam Essentials 44
Review Questions 45
Answers to Review Questions 53

Chapter 2 Installing and Configuring TCP/IP 57
Configuring Basic TCP/IP Settings 58
The Default Gateway and DNS Settings 58
Configuring Automatic TCP/IP Settings 61
Configuring Manual TCP/IP Settings 64
Configuring Advanced TCP/IP Settings 65
Expanding the Basic Settings 65
Configuring Advanced DNS Settings 67
Configuring WINS Clients 68
Configuring Network Bindings 71
Monitoring Network Traffic 74
Installing the Network Monitor Driver and Application 76
How to Use Network Monitor 76
Monitoring Network Activity with System Monitor 84
Troubleshooting Network Protocols 88
Analyzing Recent Changes 88
Pinpointing the Cause of the Problem 89
Checking Physical Connections 90
xii  Contents

Using Ipconfig 91
Using Ping, Tracert, and Pathping 92
Using Nslookup 96
Summary 100
Exam Essentials 100
Review Questions 102
Answers to Review Questions 109

Chapter 3 Administering Security Policy 113

An Overview of User and Group Accounts 114
   User Accounts 115
   Group Accounts 116
Security Policy Types and Tools 117
   Group Policies within Active Directory 117
   Administering Local Computer Policy 124
   Configuring Security Settings 126
Administering the Local Computer’s System Policies 138
   User Profiles Policies 139
   Logon Policies 140
   Disk Quota Policies 140
   Group Policy Policies 141
   Windows File Protection Policies 142
Analyzing Security Configurations with the Security Configuration and Analysis Tool 143
   Specifying a Security Database 143
   Importing a Security Template 145
   Performing a Security Analysis 147
   Reviewing the Security Analysis and Resolving Discrepancies 148
Managing Software Installation and Maintenance 150
   Windows Update 151
   Windows Automatic Updates 153
   Using Windows Server Update Services 155
   Using the Microsoft Baseline Security Analyzer 169
Managing Windows Server 2003 Services 173
   Configuring General Service Properties 174
   Configuring Service Log On Properties 174
   Configuring Service Recovery Properties 175
   Checking Service Dependencies 175
Summary 177
Exam Essentials 178
Review Questions 179
Answers to Review Questions 187
Chapter 4 Managing IP Security 189

Managing IP Security 189

Understanding How IPSec Works 190
- IPSec Fundamentals 191
- IPSec Authentication 197
Installing IPSec 199
- The IP Security Policy Management Snap-In 199
Configuring IPSec 201
- Creating a New Policy 201
- Assigning and Unassigning Policies 204
- Other Policy Management Features 205
- Configuring IPSec Policies 206
Configuring IPSec for Tunnel Mode 217
Managing and Monitoring IPSec 220
- Using IP Security Monitor 220
- Using netsh for IPSec Management 226
- Using Event Logging 227
- Monitoring IPSec Activity in Network Monitor 228
Troubleshooting IPSec 229
- Identifying Common IPSec Issues 229
- Verifying That the Right Policy Is Assigned 230
- Checking for Policy Mismatches 230
Summary 230
Exam Essentials 231
Hands-On Lab: Using Event Viewer to Troubleshoot IPSec Connections 232
Review Questions 234
Answers to Review Questions 240

Chapter 5 Managing the Dynamic Host Configuration Protocol (DHCP) 243

Managing the Dynamic Host Configuration Protocol (DHCP) 243

Overview of DHCP 244
- Advantages and Disadvantages of DHCP 245
- The DHCP Lease Process 245
- Understanding Scope Details 250
Installing DHCP 252
- Authorizing DHCP for Active Directory 254
Creating and Managing DHCP Scopes 255
- Creating a New Scope 255
- Changing Scope Properties 261
- Changing Server Properties 262
- Managing Reservations and Exclusions 264
- Setting Scope Options 265
- Activating and Deactivating Scopes 268
Chapter 6 Installing and Managing Domain Name System (DNS) 297

DNS Fundamentals 298
  What DNS Does 299
  Servers, Clients, and Resolvers 302
  The DNS Zone File 307
  DNS and Windows Server 2003 312
Installing and Configuring a DNS Server 317
  Installing a DNS Server 318
  Configuring a DNS Server 318
  Creating New Zones 320
  Setting Zone Properties 324
  Configuring Zones for Dynamic Updates 328
  Delegating Zones for DNS 330
  Manually Creating DNS Records 332
Monitoring and Troubleshooting DNS 335
  Monitoring DNS with the DNS Snap-In 335
  Monitoring DNS Servers with System Monitor 337
  Monitoring DNS Events in the Event Viewer 338
  Monitoring DNS in Replication Monitor 339
  Troubleshooting DNS 341
Summary 347
Exam Essentials 347
Review Questions 349
Answers to Review Questions 356

Creating a Superscope 268
Creating Multicast Scopes 269
Integrating Dynamic DNS and DHCP 273
Using Multiple DHCP Servers 275
Monitoring and Troubleshooting DHCP 276
  Monitoring DHCP Leases 276
  Logging DHCP Activity 276
  Working with the DHCP Database Files 279
  Reconciling DHCP Scopes 281
  Solving the Problem of Multiple DHCP Servers and Scopes 282
  Correcting Client Problems 282
Summary 284
Exam Essentials 284
Review Questions 286
Answers to Review Questions 293