

Contents

<i>Introduction</i>		<i>xxv</i>
<i>Assessment Test</i>		<i>xxxvi</i>
Chapter 1	Overview of Active Directory	1
	The Industry before Active Directory	3
	The Windows NT 4 Domain Model	3
	The Limitations of Windows NT 4	5
	The Benefits of Active Directory	7
	Understanding Active Directory's Logical Structure	11
	Components and Mechanisms of Active Directory	11
	An Overview of Active Directory Domains	13
	Overview of an Active Directory Forest	15
	Understanding Active Directory Objects	17
	Names and Identifiers of Objects	17
	Using Organizational Units (OUs) in Active Directory	19
	Security Features of User, Computer, and Group Objects	21
	Delegation of Administrative Control	22
	Introducing Windows Server 2008 Server Roles	23
	Active Directory Certificate Services	24
	Active Directory Domain Services	25
	Active Directory Federation Services	26
	Active Directory Lightweight Directory Services	27
	Active Directory Rights Management Services	27
	Introducing Identity and Access (IDA) in Windows Server 2008	28
	Using Directory Services	30
	Strong Authentication	30
	Federated Identities	31
	Information Protection	31
	Identity Lifecycle Management	32
	Summary	33
	Exam Essentials	34
	Key Terms	35
	Review Questions	36
	Answers to Review Questions	40
Chapter 2	Domain Name System (DNS)	43
	Introducing DNS	44
	The Form of an IP Address	45
	Understanding Servers, Clients, and Resolvers	50
	Understanding the DNS Process	51

xvi Contents

Introducing DNS Database Zones	57
Understanding Primary Zones	58
Understanding Secondary Zones	59
Understanding Active Directory Integrated DNS	60
Understanding Stub Zones	62
Zone Transfers and Replication	63
New Functionality in Windows Server 2008 DNS	67
Background Zone Loading	67
Support for IPv6 Addresses	67
Support for Read-Only Domain Controllers	68
GlobalName Zones	68
Introducing DNS Record Types	68
Start of Authority (SOA) Records	69
Name Server (NS) Records	70
Host Record	71
Alias Record	71
Pointer (PTR) Record	72
Mail Exchanger (MX) Record	72
Service (SRV) Record	73
Configuring DNS	74
Installing DNS	74
Load Balancing with Round Robin	75
Configuring a Caching-Only Server	75
Setting Zone Properties	76
Configuring Zones for Dynamic Updates	80
Delegating Zones for DNS	81
Manually Creating DNS Records	82
Monitoring and Troubleshooting DNS	85
Monitoring DNS with the DNS Snap-In	85
Troubleshooting DNS	87
Summary	95
Exam Essentials	95
Review Questions	97
Answers to Review Questions	104
Chapter 3 Planning and Installation of Active Directory	107
Verifying the Filesystem	108
Setting Up the NTFS Partition	110
Verifying Network Connectivity	112
Basic Connectivity Tests	112
Tools and Techniques for Testing Network Configuration	113
Understanding Domain and Forest Functionality	115
About the Domain Functional Level	115
About Forest Functionality	116

Planning the Domain Structure	118
Installing Active Directory	119
Verifying Active Directory Installation	124
Using Event Viewer	124
Using Active Directory Administrative Tools	126
Testing from Clients	128
Creating and Configuring Application Data Partitions	129
Creating Application Data Partitions	130
Managing Replicas	132
Removing Replicas	132
Using ntdsutil to Manage Application Data Partitions	133
Configuring DNS Integration with Active Directory	135
Summary	137
Exam Essentials	137
Review Questions	139
Answers to Review Questions	144
Chapter 4	
Installing and Managing Trees and Forests	147
Reasons for Creating Multiple Domains	148
Reasons for Using Multiple Domains	148
Drawbacks of Multiple Domains	150
Creating Domain Trees and Forests	151
Planning Trees and Forests	151
The Promotion Process	155
Creating a Domain Tree	156
Joining a New Domain Tree to a Forest	162
Adding Additional Domain Controllers	167
Demoting a Domain Controller	168
Managing Multiple Domains	171
Managing Single Master Operations	171
Forest Operations Masters	171
Domain Operations Masters	172
Assigning Single-Master Roles	173
Managing Trusts	175
Managing UPN Suffixes	181
Managing Global Catalog Servers	182
Managing Universal Group Membership Caching	184
Summary	186
Exam Essentials	186
Review Questions	188
Answers to Review Questions	194

xviii Contents

Chapter 5	Configuring Sites and Replication	197
	Overview of Network Planning	198
	The Three Types of Network	198
	Exploring Network Constraints	199
	Overview of Active Directory Replication and Sites	200
	Replicating Active Directory	200
	Understanding Active Directory Site Concepts	201
	Implementing Sites and Subnets	205
	Creating Sites	206
	Creating Subnets	209
	Configuring Sites	212
	Configuring Replication	214
	Intrasite Replication	215
	Intersite Replication	215
	Configuring Server Topology	225
	Monitoring and Troubleshooting Active Directory Replication	226
	About System Monitor	228
	Troubleshooting Replication	228
	Summary	231
	Exam Essentials	231
	Review Questions	233
	Answers to Review Questions	240
Chapter 6	Configuring Active Directory Server Roles	243
	Understanding Server Manager	245
	Configuring Active Directory Certificate Services	246
	Installing Active Directory Certificate Services	247
	Enrolling User and Computer Certificates	255
	Revoking Certificates	261
	Configuring Additional CA Server Settings	263
	Understanding Active Directory Domain Services	266
	Introducing the New Domain Services Features in Windows Server 2008	266
	Security Features Available for Domain Services	267
	Active Directory Federation Services	268
	Installing AD FS	269
	Configuring AD FS	273
	Active Directory Lightweight Directory Services	273
	Installing AD LDS	273
	Configuring AD LDS	275
	Active Directory Rights Management Services	281
	Summary	287
	Exam Essentials	288

	Review Questions	289
	Answers to Review Questions	293
Chapter 7	Administering Active Directory	295
	An Overview of OUs	296
	The Purpose of OUs	297
	Benefits of OUs	298
	Planning the OU Structure	298
	Logical Grouping of Resources	298
	Understanding OU Inheritance	300
	Delegating Administrative Control	301
	Applying Group Policies	302
	Creating OUs	303
	Managing OUs	306
	Moving, Deleting, and Renaming OUs	307
	Administering Properties of OUs	308
	Delegating Control of OUs	309
	Troubleshooting OUs	314
	Creating and Managing Active Directory Objects	314
	Overview of Active Directory Objects	314
	Managing Object Properties	321
	Understanding Groups	324
	Filtering and Advanced Active Directory Features	326
	Moving, Renaming, and Deleting Active Directory Objects	328
	Resetting an Existing Computer Account	329
	Publishing Active Directory Objects	330
	Making Active Directory Objects Available to Users	330
	Publishing Printers	330
	Publishing Shared Folders	334
	Querying Active Directory	336
	Summary	338
	Exam Essentials	339
	Review Questions	340
	Answers to Review Questions	348
Chapter 8	Configuring Group Policy Objects	351
	Introducing Group Policy	352
	Understanding Group Policy Settings	353
	Group Policy Objects	355
	Group Policy Inheritance	356
	Planning a Group Policy Strategy	357
	Implementing Group Policy	358
	Creating GPOs	358
	Linking Existing GPOs to Active Directory	364

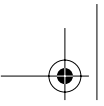
xx Contents

Managing Group Policy	365
Managing GPOs	365
Security Filtering of a Group Policy	366
Delegating Administrative Control of GPOs	370
Controlling Inheritance and Filtering Group Policy	373
Assigning Script Policies	375
Managing Network Configuration	376
Automatically Enrolling User and Computer Certificates in Group Policy	377
Redirecting Folders	380
Deploying Software through a GPO	383
The Software Management Life Cycle	383
The Windows Installer	385
Deploying Applications	389
Implementing Software Deployment	390
Preparing for Software Deployment	390
Publishing and Assigning Applications	391
Applying Software Updates	394
Verifying Software Installation	396
Configuring Automatic Updates in Group Policy	396
Configuring Software Deployment Settings	397
The Software Installation Properties Dialog Box	397
Removing Programs	400
Microsoft Windows Installer Settings	401
Troubleshooting Group Policies	402
RSoP in Logging Mode	403
RSoP in Planning Mode	406
Using the <i>gpresult.exe</i> Command	406
Summary	407
Exam Essentials	408
Review Questions	410
Answers to Review Questions	415
Chapter 9 Planning Security for Active Directory	417
Active Directory Security Overview	419
Understanding Security Principals	419
Managing Security and Permissions	429
Using ACLs and ACEs	430
Implementing Active Directory Security	432
Using User Templates	435
Delegating Control of Users and Groups	437
Using Group Policy for Security	439

Understanding Smart Card Authentication	443
Preparing a Smart Card Certificate Enrollment Station	444
Writing Certificate Information onto Smart Cards	446
Configuring Group Policy Settings for Smart Cards	446
Understanding Security Configuration and Analysis Tools	448
Using the Security Configuration And Analysis Utility	448
Understanding the <i>secedit.exe</i> Command	452
Implementing an Audit Policy	455
Overview of Auditing	456
Implementing Auditing	456
Viewing Auditing Information	459
Summary	461
Exam Essentials	462
Review Questions	463
Answers to Review Questions	470

Chapter 10 Active Directory Optimization and Reliability 473

Overview of Windows Server 2008 Performance Monitoring	475
Using Windows Server 2008 Performance Tools	477
Deciding What to Monitor	478
Viewing Performance Information	480
Managing Performance Monitor Properties	482
Saving and Analyzing Data with Performance Logs and Alerts	485
Monitoring and Troubleshooting Active Directory Components	487
Monitoring Domain Controller Performance	488
Monitoring Active Directory Performance with Performance Monitor	490
Using Other Performance Monitoring Tools	496
Troubleshooting Active Directory Performance Monitoring	503
Backup and Recovery of Active Directory	503
Overview of the Windows Server 2008 Backup Utility	505
Backing Up Active Directory	509
Restoring Active Directory	515
Offline Maintenance with <i>ntdsutil.exe</i>	523
Monitoring Replication	523
Summary	525
Exam Essentials	526
Review Questions	527
Answers to Review Questions	533



Appendix A	About the Companion CD	535
	What You'll Find on the CD	536
	Sybex Test Engine	536
	PDF of the Book	536
	Adobe Reader	536
	Electronic Flashcards	537
	System Requirements	537
	Using the CD	537
	Troubleshooting	538
	Customer Care	538
Glossary		539
<i>Index</i>		553

