

Contents

<i>Introduction</i>		<i>xxiii</i>
<i>Assessment Test</i>		<i>xxxi</i>
Chapter 1	Optimizing the Performance of Databases and Database Servers	1
	Troubleshooting the Performance of a SQL Server Solution	2
	Methodology for Troubleshooting Performance	4
	Tools for Troubleshooting Performance	6
	Troubleshooting Physical Server Performance	20
	Troubleshooting Tools	20
	Troubleshooting Methodology	20
	Troubleshooting Processor Problems	21
	Troubleshooting Memory Performance	22
	Troubleshooting I/O Bottlenecks	23
	Troubleshooting Instance Performance	24
	Troubleshooting Tools	24
	Troubleshooting Methodology	38
	Troubleshooting Processor Problems	39
	Troubleshooting Memory Problems	42
	Troubleshooting I/O Bottlenecks	44
	Troubleshooting tempdb Problems	45
	Troubleshooting Database Performance	47
	Troubleshooting Tools	47
	Troubleshooting Methodology	56
	Summary	57
	Exam Essentials	57
	Review Questions	59
	Answers to Review Questions	67
Chapter 2	Optimizing the Performance of Queries	69
	Troubleshooting and Maintaining Query Performance	70
	Identifying Poorly Performing Queries	76
	Analyzing a Query Plan to Detect Inefficiencies in Query Logic	81
	Maintaining and Optimizing Indexes	94
	Enforcing Appropriate Stored Procedure Logging and Output	114
	Troubleshooting Concurrency Issues	116
	Troubleshooting Latches	118
	Troubleshooting Locks	122
	Troubleshooting Deadlocks	141

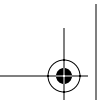
	Summary	151
	Exam Essentials	152
	Review Questions	153
	Answers to Review Questions	161
Chapter 3	Optimizing and Implementing a Data Recovery Plan for a Database	163
	Diagnosing Causes of Failure	164
	Planning for Fault Tolerance	164
	RAID	165
	High Availability	169
	Recovering from a Failure of SQL Server 2005	177
	Recovering from a Database Failure	179
	Planning a Database Backup Strategy	179
	Database Recovery Model	180
	Backing Up Databases	182
	Restoring Databases	194
	Configuring Logins	204
	Recovering Lost Data	205
	Maintaining Server and Database Scripts for Recoverability	205
	Salvaging Good Data from a Damaged Database by Using Restoration Techniques	206
	Restoring Pages	207
	Using Emergency Mode Repair	208
	Summary	209
	Exam Essentials	209
	Review Questions	210
	Answers to Review Questions	217
Chapter 4	Designing a Strategy to Monitor a Database Solution	219
	Choosing a Performance Monitoring Tool	220
	Performance Monitoring Tools	222
	Choosing the Appropriate Information to Monitor	222
	Defining and Implementing Monitoring Standards for a Physical Server	223
	Monitoring Proactively	224
	Define Which Types of Information to Monitor on the Physical Server	227
	Establishing Baselines for Performance	229
	Establishing Thresholds for Performance	234
	Implementing Traces	238

	Implementing Alerts	242
	Implementing Triggers	262
	Implementing Event Notifications	274
	Summary	281
	Exam Essentials	281
	Review Questions	283
	Answers to Review Questions	290
Chapter 5	Designing a Strategy to Maintain a Database Solution	293
	Creating and Implementing a Maintenance Strategy for Database Servers	294
	Running Database Consistency Checks	296
	Creating a Job Dependency Diagram	320
	Managing the Maintenance of Database Servers	321
	Designing a Database Maintenance Plan	325
	Designing a Strategy to Manage Reporting Services	336
	Managing the SSRS Configuration	336
	Managing SSRS Servers	341
	Managing the SSRS Databases	348
	Summary	350
	Exam Essentials	351
	Review Questions	352
	Answers to Review Questions	357
Chapter 6	Designing and Managing SSIS Packages	359
	Understanding How SSIS Is Different from DTS	360
	Installing SSIS	362
	Identifying the SSIS Tools	363
	Using SSMS with SSIS	370
	Understanding Control Flow Items and Maintenance Plan Tasks	373
	Control Flow Items	373
	Maintenance Plan Tasks	375
	Understanding Data Flow Sources, Transformations, and Destinations	375
	Sources	375
	Transforms	376
	Destinations	378
	Scheduling Package Execution	378
	Securing Packages	378
	Using Checkpoints and Restarting Failed Packages	380
	Moving Packages	382

xviii Contents

	Debugging Packages	383
	Using SSIS for Performance Monitoring	386
	Configuring Packages	386
	Summary	388
	Exam Essentials	388
	Review Questions	390
	Answers to Review Questions	395
Chapter 7	Designing a Database Data Management Strategy	397
	Managing Data for Quality	398
	Documenting Your Actions	400
	Assessing the Data	400
	Verifying the Data	402
	Validating the Data	404
	Designing Data Integrity	426
	Reconciling Data Conflicts	427
	Assigning Explicit Constraints on Your Data	434
	Assigning Data Types	439
	Summary	445
	Exam Essentials	446
	Review Questions	447
	Answers to Review Questions	452
Chapter 8	Designing a Strategy to Manage Replication	455
	Designing a Strategy to Manage Data Across Linked Servers	456
	Implementing a Linked Server Solution	458
	Managing Linked Servers	464
	Designing a Replication Strategy	474
	Understanding Replication Terminology	474
	Understanding Replication Types	476
	Deciding How to Distribute Your Data	480
	Understanding Replication Environments	480
	Configuring a Replication Strategy	481
	Administering Replication	490
	Considering Implementation Issues	491
	Designing Replication Alerts	494
	Verifying Replication	500
	Designing a Maintenance Plan	504
	Designing a Plan to Resolve Replication Conflicts	505
	Designing a Plan to Modify Agent Profiles	508
	Tuning Replication Configuration	511
	Setting Up a Performance Baseline	513

	Summary	514
	Exam Essentials	514
	Review Questions	515
	Answers to Review Questions	520
Chapter 9	Protecting Your SQL Server from Attack	523
	Analyzing Your Physical Server Security	524
	Comparing Existing Security to Business and Regulatory Requirements	526
	Identifying Variations from the Security Design	527
	Preparing for and Responding to Threats and Attacks	527
	Understanding SQL Server Injection Attacks	528
	Understanding Denial-of-Service Attacks Specific to SQL Server	529
	Understanding Virus and Worm Attacks Specific to SQL Server	530
	Understanding Internal Attacks Specific to SQL Server	533
	Optimizing a Database Control Strategy to Meet Business Requirements	537
	Picking a Version Control System	538
	Identifying All Database Objects Related to a Particular Deployment	539
	Verifying Change Control Procedures Are Being Followed	539
	Summary	546
	Exam Essentials	547
	Review Questions	548
	Answers to Review Questions	552
Chapter 10	Designing a Strategy to Manage and Maintain Database Security	555
	Maintaining a Server-Level Security Strategy	556
	Designing a Strategy for Auditing Windows Account Permissions	557
	Designing a Strategy to Audit SQL Server Service Access	559
	Maintaining a Strategy to Assign the Appropriate Minimum Level of Privileges	561
	Designing a Strategy to Apply Service Packs and Security Updates	564
	Configuring the Surface Area	567
	Maintaining an Encryption Strategy That Meets Business Requirements	570
	Using a Server-Level Audit Checklist	574



xx Contents

Maintaining a User-Level Security Strategy	575
Verifying the Existence and Enforcement of Account Policies	575
Verifying SQL Server Login Authentication	577
Verifying Permissions on SQL Server Roles and Accounts	578
Summary	589
Exam Essentials	590
Review Questions	591
Answers to Review Questions	595

Glossary **597**

Index 617

