

ALL-IN-ONE

MCSE Windows 2000 Designing 考试指南

MCSE Windows 2000 Designing All-in-One Exam Guide

英文原版

- 既可以作为考试指南，更是有用的参考书
- 完全覆盖三门 Designing 考试的所有内容
- 由权威 Microsoft 认证培训专家与行业专家编写



Hundreds of questions
and Learnkey
video clips on CD

[美] Harry Brelsford Michael Hinrichsen 著



电子工业出版社
Publishing House of Electronics Industry
www.phei.com.cn



Mc
Graw
Hill

麦格劳-希尔教育出版集团

专业认证考试丛书

MCSE Windows 2000 Designing 考试指南

(英文原版)

MCSE Windows 2000 Designing All-in-One Exam Guide

[美] Harry Brelsford Michael Hinrichsen 著



电子工业出版社



麦格劳 - 希尔教育出版集团

内 容 简 介

本书是美国著名的出版商 McGraw-Hill 出版的畅销认证系列丛书 All-in-One 中的一本。本书包含现行的 MCSE Windows 2000 Designing 核心考试的全部内容，即 Directory Services Infrastructure、Network Infrastructure 和 Network Security 三门 Designing（设计）考试。作者在本书中提供了极具洞察力的专家经验，每一章都包括详细的考试目标、实践问题和实用练习，详细讲述了 Windows 的安装、配置和故障排除等方面的内容，光盘中包含大量原汁原味的考试试题、测试引擎和专题讲座视频片断。本书适合 MCSE 认证考试的备考者使用。

Harry Brelsford & Michael Hinrichsen: **MCSE Windows 2000 Designing All-in-One Exam Guide.**

ISBN 0-07-212936-0 Reprint ISBN 0-07-120326-5

Copyright ©2001 by The McGraw-Hill Companies, Inc.

Original language published by The McGraw-Hill Companies, Inc. All rights reserved. No part of this publication may be reproduced or distributed in any means, or stored in a database or retrieval system, without the prior written permission of the publisher.

Authorized English language reprint edition jointly published by McGraw-Hill Education (Asia) Co. and Publishing House of Electronics Industry. This edition is authorized for sale in the People's Republic of China only, excluding Hong Kong, Macao SAR and Taiwan. Unauthorized export of this edition is a violation of the Copyright Act. Violation of this Law is subject to Civil and Criminal Penalties.

本书英文影印版由电子工业出版社和美国麦格劳-希尔教育出版（亚洲）公司合作出版。此版本仅限在中华人民共和国境内（不包括香港、澳门特别行政区及台湾地区）销售。未经许可之出口，视为违反著作权法，将受法律之制裁。

未经出版者预先书面许可，不得以任何方式复制或抄袭本书的任何部分。

本书封面贴有 McGraw-Hill 公司激光防伪标签，无标签者不得销售。

图书在版编目（CIP）数据

MCSE Windows Designing 2000 考试指南（英文原版）/（美）布莱利福特（Brelsford, H.）等著。

-北京：电子工业出版社，2001.9

（专业认证考试丛书）

书名原文：MCSE Windows 2000 Designing All-in-One Exam Guide

ISBN 7-5053-7018-9

I . M... II .布... III .窗口软件，Windows 2000 - 工程技术人员 - 资格考核 - 自学参考资料 - 英文 IV . TP316.7

中国版本图书馆 CIP 数据核字（2001）第 066288 号

从 书 名：专业认证考试丛书

书 名：MCSE Windows 2000 Designing 考试指南（英文原版）

著 作 者：〔美〕 Harry Brelsford Michael Hinrichsen

责 任 编 辑：窦 吴

排 版 制 作：今日电子公司制作部

印 刷 者：北京东光印刷厂

出 版 发 行：电子工业出版社 www.phei.com.cn

北京市海淀区万寿路 173 信箱 邮编：100036

经 销：各地新华书店

开 本：787 × 1092 1/16 印张：42 字数：1075 千字

版 次：2001 年 9 月第 1 版 2001 年 9 月第 1 次印刷

书 号：ISBN 7-5053-7018-9

TP · 4023

定 价：88.00 元（含光盘一张）

著作权合同登记号 图字：01-2001-3305

凡购买电子工业出版社的图书，如有缺页、倒页、脱页、所附磁盘或光盘有问题者，请向购买书店调换。

若书店售缺，请与本社发行部联系调换。联系电话：88211980 68279077

DEDICATION

Again and again, my family provides the strong support needed to complete one of these books and, while I can never fully repay them, I do offer my heartfelt thanks and love (if not olive branch).
Thanks to my wife, Kristen, and sons, Geoffrey and Harry. Even our beloved Springer Spaniels, Brisker and Jaeger, deserve part of this dedication.

Harry Brelsford

I want to thank my darling Kim, who is the love of my life and my biggest supporter and advisor along with my two kids, Ryan and Sierra, who are the best children a father could have.

Michael Hinrichsen

ABOUT THE CONTRIBUTORS

Author **Harry Brelsford** is the founder and CEO of NetHealthMon.com, a Seattle-based firm providing fee-based consulting and remote network monitoring for BackOffice 2000 and Small Business Server 2000. Harry holds the following technology vendor certifications: MCSE, MCT, CNE (retired), CLSE, and CNP, as well as an MBA from the University of Denver. He writes monthly columns for *Microsoft Certified Professional Magazine* (where he is a contributing editor), *IT Contractor Magazine*, *IT Insider*, and *Computer Source*. He is a long-time instructor in Seattle Pacific University's MCSE certification program (a Microsoft AATP).

When free time allows, you'll find Harry and his family sampling cross-country ski resorts from Vermont to Alaska! The author of eight technology books, Harry can be reached at harryb@nethealthmon.com or www.nethealthmon.com. Harry is a resident of Bainbridge Island, Washington.

Author **Michael Hinrichsen** is a Senior Trainer and Consultant who lives and works in Skagit Valley, Washington. He holds the two Microsoft systems and network certifications (MCP, MCSE) in addition to an MBA from Pacific Lutheran University in Tacoma, Washington. Michael is an adjunct faculty member of the Seattle Pacific University's MCSE AATP training program and teaches graduate-level networking courses.

Additionally, Michael is the Director of Information Systems for Small Planet Foods, a division of General Mills, Inc., and has over 20 years of IT systems and business-related experience. In July of 1997, Michael participated in an intensive professional seminar at the Harvard Graduate School of Business focused on melding an organization's business and technology strategies. He lives in Washington State with his wife, Kim, and his two children, Ryan and Sierra. When not trying to make the world a better place for people and computers, Michael can be found spending time with his family, golfing, walking the beach, or gardening. He can be reached via email at michaelhinrichsen@hotmail.com.

Technical editor, **Evan Morris**, MCSE, MCT, and Master ASE, is a System Engineer at Compaq's Redmond Office. His focus is on technical research and consulting in the areas of Active Directory design, storage area networks, and hosted Exchange deployments. He also delivers training on Windows 2000 and Exchange 2000.

FOREWORD

If you think you have picked up just another book about becoming a Microsoft Certified Systems Engineer in Windows 2000, think again! This particular book happens to be written by Harry Brelsford and Michael Henrichsen who are definitely not just average MCSEs. What you will find, as in Harry's previous books, is a writing style that is understandable by not only the technical professional working in the field today, but also by the person considering a career transition to the technical profession—and that includes people with no technical background at all. Harry and Michael present the material in a scenario-based format, presenting problems and describing solutions with detailed explanations. This is very similar to the way the Windows 2000 exams are presented, although Harry and Michael admit early on in the book that the text alone will probably not prepare a person to take the certification exams. Hands-on experience with the product is extremely important and is strongly emphasized in the new curriculum.

I've managed a Certified Technical Education Center (CTEC) for more than two years with Paladin Data Systems in Poulsbo, Washington. It was a challenge to absorb the MCSE NT 4.0 requirements and then articulate these requirements to potential students in an understandable way. In comparing the MCSE NT 4.0 with the Windows 2000 certification, I discovered quickly that there is really very little to compare. The exams now measure the ability of a person to think on their feet and solve real-world problems. On the positive side, with the certification becoming more of a challenge to complete, we probably won't see MCSEs saddled with the denigrating sobriquet of "paper MCSE," a term made common in many magazine and newspaper articles about the MCSE field. In the good old days, it was possible for students to pass the exams through memorization and self-study of exam materials. The new program has shifted the focus to real-world problems and situations, and the new exams reflect this change. Be prepared to think and solve problems when taking the Windows 2000 exams.

Today, Paladin is moving into the network support business and we are employing our own staff of MCSEs, MCSDs, and MCDBAs. We talk to customers every day who ask our advice on the different types of hardware and software they should buy to meet their business requirements. That's when the help of a qualified networking professional is indispensable. Like many employers, we know that the MCSE designation implies a certain level of expertise in the field. The good news is that we have not been disappointed! The readers of this book should know that the technical qualifications are not the whole story and Harry and Michael do a great job of investigating the other qualities a good MCSE should have to be successful. For instance, they both talk about the value of integrating MCSE technical know-how with the business savvy of the MBA. Instead of the technical person and the financial person or decision-maker sitting at opposite ends of the building, they are sitting at the same table, developing a business strategy that meets the customer's needs.

MCSEs today are in a position to make technical recommendations that impact the bottom line and they must be prepared to provide concrete justification for their recommendations. In other words, the MCSE must be an interpreter, someone who can translate a company's functional requirements and specifications and communicate them to the decision-maker. This means presenting data and information in a logical format and being prepared to discuss alternatives or options. The MCSE is also a negotiator and should be prepared to explain benefits and trade-offs for each alternative course of action.

Harry and Michael cover all the bases of network design, infrastructure, and security. They know the mind-set of the techno-professional, so they are able to address the issues that matter most to their readers. How many MCSEs are waiting for the right company to come along and ask them to design a brand-new network from the ground up? A lot! But, realistically, how often is that going to happen? As Harry and Michael point out, an MCSE typically will inherit a network and then have to make it work—a challenging

job when working with limited resources.

In presenting the topic, "Designing a Security Solution for Access Between Networks," Harry and Michael reiterate the importance of security on a network and identify the different types of security available with Windows 2000. Security and privacy are major initiatives and concerns throughout the industry. MCSEs need to be prepared to explain to a customer the different types of network security that can be activated and the possible impacts to performance or vice versa.

The essence of networks is communication and Harry and Michael's book takes this one step further. Their emphasis on the MCSE needing to be a skilled communicator is right on. One of the most frustrating moments for a customer is the not knowing what's wrong with a network and when it will be fixed. The MCSE must not only be a skilled technician to analyze the problem and ultimately solve it. He or she must also be able to communicate the extent of the problem to a non-technical user, explain the possible solutions in layman's terms, as diplomatically as possible explain how long each solution will take, and how much it could cost. In many instances, an MCSE may not have the answers either, but the MCSE needs to be able to analyze a problem and communicate with the customer. The lack of communication can leave doubt in the customers' mind.

I congratulate Harry and Michael on this book, their writing style, and approach in explaining Windows 2000. This is not only a knowledge-based book, but also an excellent reference book to use while pursuing your MCSE Windows 2000 certification. Good luck and have fun!

Peggy J. Roy
Vice President
Paladin Data Systems
Poulsbo, Washington

ACKNOWLEDGMENTS

Where do we begin with the thanks on such a mammoth undertaking?

The authors would certainly like to start with the team at Osborne/**McGraw-Hill** who helped us slay every dragon we found around every corner on this road trip. And believe us, there were more dragons than we anticipated. These helpers include Jessica Wilson, Michael Sprague, Gareth Hancock, Betsy Manini, Andy Carroll, Stefany Otis and good old John Read.

Next up are all of the worker bees who worked hard in the background and under deep cover to pull together a million bits and bytes in completing this work. A tip of the hat to Anita Varghese, who started assisting us with case study development while being a full-time graduate student in the Information Technology program in the Graduate School of Business and Economics at Seattle Pacific University. Anita has since finished her Masters and is gainfully employed in the technology industry in the Pacific Northwest (you go girl!). We called on Mike Toot and Dave Mackey to assist us with some prickly security chapters and we're forever grateful. We owe special thanks to George Oakes, and Kim Hinrichsen for their help with Test Question development, and to Bruce Rudd for helping us with the CD-ROM. A few ardent BackOffice Professional Association (BOPA) members-Russell Rosco (a college professor at Shoreline Community College in Seattle), Timothy R. Smith (Major, Network Control Center Manager, U.S. Army in Tacoma, Washington), and Alice Goodman (Network Analyst at Airborne Express in Seattle, Washington)-pitched in with pages of valued content, advice, and review.

Others who deserve mention include the staff and faculty at Seattle Pacific University, where both of us teach MCSE courses to people just like you who are reading this book! These special people include George Myers, Gerhard Steinke, Alec Hill, Kristen Gauche, Travis Voltz, and David Wicks. And our employers and clients have provided countless war stories (as well as bona fide technical experiences) that have ended up on these pages. All told, the above parties have greatly contributed to the positive outcome of this book.

A Special Note from Harry Brelsford

Speaking in the first person, I'd like to thank Michael's ongoing commitment to this book. I think Michael would now agree that the experience was as valuable (if not more) as the time he spent studying at Harvard University. Michael, shall we dance again (after a long vacation, of course)?! I also thank the staff at *Microsoft Certified Professional Magazine* for winks, nods, backslaps, and other forms of encouragement (these made no small difference in completing this work!).

A Special Note from Michael Hinrichsen

I think Harry will agree that whenever we take on a project as enormous as this one, it sounds very good. It usually takes some time before we realize the enormity of the task before us and we start looking at things like page count. Then, before you know it, someone is asking for dedications and acknowledgments. The time does fly...

I would like to thank my partner, Harry Brelsford, for offering me this opportunity and Osborne/**McGraw-Hill**. Harry originally recommended me to Osborne and is a true friend, a true professional, and someone whom I respect deeply. He also has a great "Texas accent," which was used throughout this book to its benefit. The folks at Osborne/**McGraw-Hill** have also been a pleasure to work with and I would work with them again in a heartbeat.

CONTENTS

| | |
|--|----|
| <i>Introduction</i> | 1 |
| Part I Exam 70-219: Designing a Microsoft Windows 2000 | |
| Directory Services Infrastructure | 9 |
| Chapter 1 Defining Directory Services | 10 |
| Common Understanding of Directory Services | 10 |
| Directory Services and Meta-Information | 12 |
| History and Types of Directory Services | 12 |
| Predicting the Future: Meta-Directories | 14 |
| Active Directory from the Top Down | 15 |
| Forests | 15 |
| Trees | 16 |
| Domains | 16 |
| Organizational Units | 17 |
| Lower-Level Objects | 17 |
| Data and Attributes | 19 |
| Sites | 19 |
| Directory Services in Different Versions of Windows | 19 |
| Top Reasons to Implement Windows 2000 and Active Directory | 21 |
| Top Reasons to Implement Windows 2000 | 21 |
| Top Reasons to Implement Active Directory | 26 |
| Chapter Review | 31 |
| Questions | 31 |
| Answers | 31 |
| Key Skill Sets | 31 |
| Key Terms | 31 |
| Chapter 2 Analyzing Business Requirements | 33 |
| Analyzing the Existing and Planned Business Models | 34 |
| Analyzing the Company Model and the Geographical Scope | 34 |
| Analyzing Company Processes | 41 |
| Management | 43 |

| | |
|---|-----------|
| Company Organization | 44 |
| Vendor, Partner, and Customer Relationships | 46 |
| Acquisition Plans | 46 |
| Analyzing Factors That Influence Company Strategies | 47 |
| Identifying Company Priorities | 47 |
| Identifying the Projected Growth and Growth Strategy | 48 |
| Identifying Relevant Laws and Regulations | 48 |
| Identifying the Company's Tolerance for Risk | 48 |
| Identifying the Total Cost of Operations | 48 |
| Chapter Review | 49 |
| Questions | 49 |
| Answers | 49 |
| Key Skill Sets | 49 |
| Key Terms | 49 |
| Chapter 3 Analyzing Technical Requirements | 50 |
| Evaluating Existing and Planned Technical Environment | 51 |
| Analyzing Company Size and User and Resource Distribution | 51 |
| Assessing Available Connectivity | 53 |
| Assessing Net Available Bandwidth | 55 |
| Analyzing Performance Requirements | 56 |
| Analyzing Data- and System-Access Patterns | 56 |
| Analyzing Network Roles and Responsibilities | 57 |
| Analyzing Security Considerations | 58 |
| Analyzing the Impact of Active Directory | 59 |
| Assessing Existing Systems and Applications | 59 |
| Identifying Existing and Planned Upgrades and Rollouts | 59 |
| Analyzing the Technical Support Structure | 59 |
| Analyzing Existing and Planned Network and Systems Management | 60 |
| Analyzing the Business Requirements for Client-Desktop Management | 61 |
| Chapter Review | 62 |
| Questions | 62 |
| Answers | 63 |
| Key Skill Sets | 63 |
| Key Terms | 63 |
| Chapter 4 Designing a Directory Service Architecture | 64 |
| Designing an Active Directory Forest and Domain | 65 |
| Designing a Forest and Schema Structure | 66 |
| Designing a Domain Structure | 69 |

| | |
|---|----|
| | 3 |
| Analyzing and Optimizing Trust Relationships | 69 |
| Designing an Active Directory Naming Strategy | 71 |
| · Establishing the Scope of the Active Directory | 72 |
| Designing the Namespace | 73 |
| Planning DNS Strategy | 74 |
| Designing and Planning Organization Units | 75 |
| Developing an OU Delegation Plan | 77 |
| Planning Group Policy Object Management | 78 |
| Planning Policy Management for Client Computers | 80 |
| Planning for Coexistence | 80 |
| Designing an Active Directory Site Topology | 81 |
| Designing a Replication Strategy | 81 |
| Defining Site Boundaries | 83 |
| Designing a Schema Modification Policy | 83 |
| Designing an Active Directory Implementation Plan | 85 |
| Single-Domain Windows NT System | 85 |
| Single-Master-Domain Windows NT System | 85 |
| Multiple-Master-Domain Windows NT System | 86 |
| Complete-Trust-Domain Windows NT System | 86 |
| A New Windows 2000 Domain | 87 |
| Chapter Review | 87 |
| Questions | 88 |
| Answers | 88 |
| Key Skill Sets | 88 |
| Key Terms | 89 |
| Chapter 5 Designing Your Service Locations | 90 |
| Designing the Placement of Operations Masters | 91 |
| Understanding the Roles of Operations Masters | 91 |
| Schema Master | 91 |
| Domain Naming Master | 93 |
| Primary Domain Controller Emulator | 93 |
| Infrastructure Master | 94 |
| Relative Identifier Master | 94 |
| Role Placement | 94 |
| Permissions | 95 |
| Role Changing | 95 |
| Disaster Recovery | 96 |
| Designing the Placement of Global Catalog Servers | 96 |
| Global Catalog Servers | 97 |

| | |
|---|------------|
| Global Catalog Server Placement Considerations | 97 |
| Designing the Placement of Domain Controller Servers | 98 |
| DNS Zone Planning | 101 |
| DNS Lookup Zones | 102 |
| DNS Zone Types | 102 |
| Where, Oh Where Should My DNS Go? | 103 |
| Designing the Placement of DNS Servers | 103 |
| Design 1 | 104 |
| Design 2 | 105 |
| Design 3 | 105 |
| Design 4 | 105 |
| Next Steps | 105 |
| Chapter Review | 106 |
| Questions | 106 |
| Answers | 106 |
| Key Skill Sets | 107 |
| Key Terms | 107 |
| Part II Exam 70-220: Designing Security for a Microsoft Windows 2000 | 109 |
| Chapter 6 Introduction to Security | 110 |
| Intruder Perspectives | 110 |
| The Business Case | 111 |
| Technical Tangents of Networking and Security | 112 |
| User and Group Account Management | 112 |
| Machine Security | 113 |
| Network and Communication Security | 113 |
| Public Key Infrastructure (PKI) | 116 |
| The Security Life Cycle | 117 |
| Discovery | 117 |
| Design | 117 |
| Testing | 117 |
| Deployment | 117 |
| Evaluation | 118 |
| Final Steps-Feedback | 118 |
| Chapter Review | 119 |
| Questions | 119 |
| Answers | 119 |
| Key Skill Sets | 119 |
| Key Terms | 120 |

Contents

5

| | |
|---|------------|
| Chapter 7 Analyzing Business and Technical Requirements | 121 |
| Defining Security in the Enterprise | 122 |
| Evaluating Business Factors That Affect Security Planning | 123 |
| Analyzing the Existing and Planned Business Models | 124 |
| Analyzing Business Factors That Influence Company Strategies | 125 |
| Evaluating Your Technology Options in Security Planning | 129 |
| Analyzing the Physical and Information-Security Models | 130 |
| Understanding the Logical Layout of Services and Applications | 133 |
| Understanding the People Factor in Security Planning | 136 |
| Analyzing Business and Security Requirements for the End User | 137 |
| Analyzing Network Roles and Responsibilities | 137 |
| Evaluating Specific Security Vulnerabilities | 139 |
| Lack of IT Staff Education | 139 |
| Ineffective, Incomplete, or Missing Corporate Security Policies | 140 |
| User Education | 141 |
| Proactive Anti-Hacking Measures | 142 |
| Disaster-Recovery Plan | 143 |
| Security Hotspots | 144 |
| Catywhompus Construction Updates | 145 |
| Chapter Review | 145 |
| Questions | 146 |
| Answers | 146 |
| Key Skill Sets | 147 |
| Key Terms | 147 |
| Additional Resources and Information | 147 |
| Chapter 8 Analyzing Security Requirements | 149 |
| Assessing Your Current Environment | 149 |
| Vulnerabilities | 150 |
| Creating a Baseline | 153 |
| Developing a Security Policy | 155 |
| Authenticating All User Access to System Resources | 156 |
| Applying Appropriate Access Control to All Resources | 158 |
| Establishing Appropriate Trust Relationships Between Multiple Domains | 160 |
| Enabling Data Protection for Sensitive Data | 161 |
| Setting Uniform Security Policies | 161 |
| Deploying Secure Applications | 167 |
| Managing Security Administration | 168 |
| Implementing Your Security Policy | 168 |
| Chapter Review | 172 |

| | |
|---|------------|
| Questions | 172 |
| Answers | 173 |
| Key Skill Sets | 173 |
| Key Terms | 174 |
| Chapter 9 Designing a Windows 2000 Security Solution | 175 |
| Windows 2000 Security Policies | 176 |
| Audit Policies | 176 |
| Delegation of Authority | 184 |
| Policy Inheritance | 189 |
| Encrypting File System (EFS) | 192 |
| Design an Authentication Strategy | 196 |
| Authentication Methods | 196 |
| Security Group Strategy | 203 |
| Design a Public Key Infrastructure | 204 |
| Certificate Authority Hierarchies | 204 |
| Certificate Server Roles | 205 |
| Managing Certificates | 208 |
| Third-Party Certificate Authorities | 212 |
| Design Windows 2000 Network Services Security | 214 |
| DNS Security | 214 |
| Remote Installation Services (RIS) Security | 215 |
| SNMP Security | 220 |
| Terminal Services Security | 223 |
| Chapter Review | 229 |
| Questions | 229 |
| Answers | 230 |
| Key Skill Sets | 230 |
| Key Terms | 231 |
| Chapter 10 Designing a Security Solution for Access Between Networks | 232 |
| Accessing the Internet | 232 |
| Proxy Server | 233 |
| Firewall | 233 |
| Gateway | 234 |
| Internet Connection Server | 234 |
| Common Internet File System (CIFS) | 236 |
| IP Security (IPSec) | 238 |
| Windows 2000's Default IPSec Policies | 239 |
| Policy Configuration | 240 |

| | |
|---|-----|
| Testing Your IPSec Configuration | 249 |
| Virtual Private Networks (VPNs) | 249 |
| The VPN Server | 251 |
| Installing a VPN Client | 256 |
| Lab Exercise 10.15: Install a VPN Client | 256 |
| Remote Access Service | 258 |
| Remote Access Authorization | 262 |
| Chapter Review | 267 |
| Questions | 267 |
| Answers | 268 |
| Key Skill Sets | 268 |
| Key Terms | 268 |
| Chapter 11 Designing Security for Communication Channels | 269 |
| Common Communication Channel Attacks | 270 |
| Designing a Signing Solution with the Server Message Block Protocol | 272 |
| SMB Signing Implementation | 272 |
| Designing IP Layer Security | 273 |
| Selecting IPSec Mode | 274 |
| Planning IPSec Protocol Usage | 275 |
| Using Predefined IPSec Policies | 276 |
| IPSec Implementation Components | 278 |
| Designing an IPSec Management Strategy | 280 |
| Defining Security Levels | 280 |
| Designing Negotiation Policies | 281 |
| Designing Security Policies and Policy Management | 283 |
| Designing IPSec Encryption | 285 |
| Designing IPSec Filters | 285 |
| IPSec Best Practices | 286 |
| Verifying IPSec Communications | 287 |
| Chapter Review | 289 |
| Questions | 289 |
| Answers | 290 |
| Key Skill Sets | 290 |
| Key Terms | 291 |
| Part III Exam 70-221: Designing a Microsoft Windows 2000 Network Infrastructure | 294 |
| Chapter 12 Overview of Designing a Network Infrastructure | 294 |
| Windows 2000 Networking Services Design Overview | 294 |

| | |
|---|-----|
| The Networking Services Deployment Cycle | 297 |
| Designing the Networking Services | 298 |
| Testing the Design | 299 |
| Implementing the Design | 299 |
| Managing the Network Services | 300 |
| Microsoft Windows 2000 Networking Services | 300 |
| Lab Exercise 12.1: Developing a Design Approach | 301 |
| The Network Foundation | 302 |
| Base Protocol Support-TCP/IP | 303 |
| Automated Client Configuration-DHCP | 303 |
| Resolving Host Names-DNS | 304 |
| Lab Exercise 12.2: Solving a Name Resolution Design Problem | 305 |
| Resolving NetBIOS Names-WINS | 305 |
| Designing Internet Connectivity | 306 |
| Network Address Translation-NAT | 306 |
| Microsoft Internet Security and Acceleration Server | 307 |
| Designing Routing and Remote-Access Connectivity | 307 |
| Remote Access | 308 |
| RADIUS and IAS | 308 |
| IP Routing | 308 |
| Putting It All Together: Integrating the Network Services Infrastructure | 309 |
| Creating Performance Monitor Log Files | 310 |
| Defining the Network Design Attributes | 315 |
| Chapter Review | 316 |
| Questions | 316 |
| Answers | 317 |
| Key Skill Sets | 317 |
| Key Terms | 317 |
| Chapter 13 Analyzing Business and Technical Requirements | 318 |
| Analyzing the Business | 319 |
| Analyzing the Geographical Scope and Existing and Planned Business Models | 320 |
| Analyzing Company Processes | 323 |
| Analyzing the Existing and Planned Organizational Structures | 326 |
| Analyzing Factors That Influence Company Strategies | 329 |
| Analyzing the IT Management Structure | 332 |
| Business Requirements Analysis Checklist | 337 |
| Evaluating the Company's Technical Requirements | 337 |
| Documenting the Existing Infrastructure Design | 338 |

| | |
|--|-----|
| Analyzing Client Computer Access Requirements | 345 |
| Analyzing the Existing Disaster-Recovery Strategy | 346 |
| Directions | 349 |
| Business Background | 349 |
| Current System | 350 |
| IT Management Sample Interviews | 350 |
| Envisioned System | 351 |
| Case Study Questions: BTI Analysis | 353 |
| Chapter Review | 353 |
| Questions | 354 |
| Answers | 354 |
| Key Skill Sets | 355 |
| Key Terms | 355 |
| Chapter 14 Designing a Network Infrastructure Using TCP/IP | 356 |
| TCP/IP Background | 357 |
| TCP/IP Protocol Suite | 358 |
| TCP/IP Standards | 358 |
| TCP/IP Protocol Architecture | 359 |
| Key TCP/IP Design Considerations | 361 |
| Windows 2000 TCP/IP Features | 362 |
| Windows 2000 TCP/IP Services | 362 |
| Designing a Functional TCP/IP Solution | 363 |
| IP Addressing Review | 363 |
| Private Network IP Addressing | 366 |
| Subnet Requirements | 368 |
| IP Configuration Approaches | 369 |
| TCP/IP Design for Improving Availability | 370 |
| TCP/IP Design for Improving Performance | 371 |
| Optimizing IP Subnetting | 371 |
| Optimizing Traffic on an IP Network | 373 |
| Using QoS Mechanisms | 374 |
| TCP/IP Security Solutions | 376 |
| Packet Filtering Techniques | 377 |
| Data Encryption Design | 377 |
| IPSec Encryption Algorithms | 378 |
| IPSec Authentication Protocols | 378 |
| IPSec Internet Key Exchange | 379 |
| Chapter Review | 384 |
| Questions | 384 |