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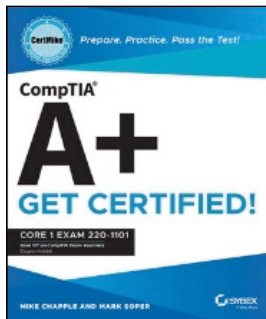
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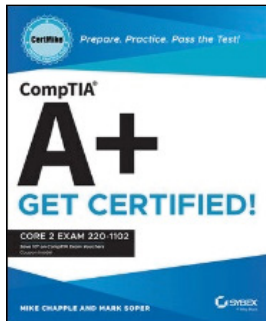
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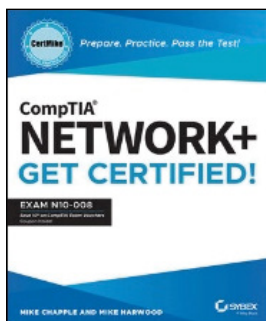
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Prepare. Practice. Pass the Test! Get Certified!

Exam N10-008

Mike Chapple

Craig Zacker



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ACKNOWLEDGMENTS

From Mike Chapple:

This book marks the start of a new series of CertMike Test Prep books, and I'd first like to thank the people who helped shape the vision for this series. The original idea was hatched over breakfast with two very supportive editors from the Wiley team: Ken Brown and Jim Minatel. I've worked with both Jim and Ken on many books over many years, and they're both insightful industry experts who know what it takes to produce a great book.

Craig Zacker did the heavy lifting of putting this book together, and I am grateful to him for lending this series his expertise on end-user support and the Network+ exam.

I'd also like to extend a special thank-you to my agent, Carole Jelen of Waterside Productions. Carole is also an experienced industry pro who can deftly navigate the murky waters of publishing. Carole is the one who pushed me to create my own series.

Of course, the creation of any book involves a tremendous amount of effort from many people other than the authors. I truly appreciate the work of Adaobi Obi Tulton, the project editor. Adaobi and I have now worked together on many books and she keeps the train on the tracks! I'd also like to thank Buzz Murphy, the technical editor, who provided insightful advice and gave wonderful feedback throughout the book, and Saravanan Dakshinamurthy, production editor, who guided me through layouts, formatting, and final cleanup to produce a great book. I would also like to thank the many behind-the-scenes contributors, including the graphics, production, and technical teams who make the book and companion materials into a finished product.

Finally, I would like to thank my family, who supported me through the late evenings, busy weekends, and long hours that a book like this requires to write, edit, and get to press.

ABOUT THE AUTHORS

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INTRODUCTION

If you're preparing to take the Network+ exam, you might find yourself overwhelmed with information. This exam covers a very broad range of topics, and it's possible to spend weeks studying each one of them. Fortunately, that's not necessary!

As part of the CertMike Test Prep series, this book is designed to help you focus on the specific knowledge that you'll need to pass the exam. CompTIA publishes a detailed list of exam objectives, and this book is organized around those objectives. Each chapter clearly states the single objective that it covers and then concisely covers the material you need to know about that objective.

You'll find two important things at the end of each chapter: Exam Essentials and Practice Questions. The CertMike Exam Essentials distill the major points from the chapter into just a few bullet points. Reviewing the Exam Essentials is a great way to prepare yourself right before the exam. We've also recorded a free audio version of the Exam Essentials that you'll find on the book's companion website at www.wiley.com/go/sybextestprep. They're great listening when you're in the car, at the gym, or mowing the lawn!

Each chapter concludes with two Practice Questions that are designed to give you a taste of what it's like to take the exam. You'll find that they're written in the same style as the Network+ exam questions and have detailed explanations to help you understand the correct answer. Be sure to take your time and thoroughly read these questions.

Finally, the book's website includes a full-length practice exam that you can use to assess your knowledge when you're ready to take the test. Good luck on the Network+ exam!

NOTE

Don't just study the questions and answers! The questions on the actual exam will be different from the Practice Questions included in this book. The exam is designed to test your knowledge of a concept or objective, so use this book to learn the objectives behind the questions.

THE NETWORK+ CERTIFICATION

Network+ is designed to be a vendor-neutral certification for those seeking to demonstrate their networking expertise. CompTIA recommends this certification for individuals who want to develop careers in IT infrastructure, specifically in the areas of troubleshooting, configuring, and managing networks. Common job roles held by Network+ certified individuals include the following:

- ▶ Junior network administrator
- ▶ Network engineer
- ▶ NOC technician

- ▶ Cable technician
- ▶ Data center support technician
- ▶ System administrator
- ▶ Telecommunications technician

The exam covers five major domains of knowledge:

1. Networking Fundamentals
2. Network Implementations
3. Network Operations
4. Network Security
5. Network Troubleshooting

These five areas include a range of topics, from securing networks to configuring subnets, while focusing heavily on the core knowledge expected of all networking professionals.

The Network+ exam uses a combination of standard multiple-choice questions and performance-based questions that require you to manipulate objects on the screen. This exam is designed to be straightforward and not to trick you. If you know the material in this book, you will pass the exam.

The exam costs \$348 in the United States, with roughly equivalent prices in other locations around the globe. You can find more details about the Network+ exam and how to take it at www.comptia.org/certifications/network#examdetails

You'll have 90 minutes to take the exam and will be asked to answer up to 90 questions during that time period. Your exam will be scored on a scale ranging from 100 to 900, with a passing score of 720.

NOTE

CompTIA frequently does what is called *item seeding*, which is the practice of including unscored questions on exams. It does so to gather psychometric data, which is then used when developing new versions of the exam. Before you take the exam, you will be told that your exam may include these unscored questions. So, if you come across a question that does not appear to map to any of the exam objectives—or for that matter, does not appear to belong in the exam—it is likely a seeded question. You never really know whether or not a question is seeded, however, so always make your best effort to answer every question.

Taking the Exam

Once you are fully prepared to take the exam, you can visit the CompTIA website to purchase your exam voucher:

<https://store.comptia.org>

Currently, CompTIA offers two options for taking the exam: an in-person exam at a testing center and an at-home exam that you take on your own computer.

TIP

This book includes a coupon that you may use to save 10 percent on your CompTIA exam registration.

In-Person Exams

CompTIA partners with Pearson VUE's testing centers, so your next step will be to locate a testing center near you. In the United States, you can do this based on your address or your zip code, while non-U.S. test takers may find it easier to enter their city and country. You can search for a test center near you at the Pearson Vue website, where you will need to navigate to "Find a test center."

www.pearsonvue.com/comptia

Now that you know where you'd like to take the exam, simply set up a Pearson VUE testing account and schedule an exam on their site.

On the day of the test, take two forms of identification, and be sure to show up with plenty of time before the exam starts. Remember that you will not be able to take your notes, electronic devices (including smartphones and watches), or other materials in with you.

At-Home Exams

CompTIA began offering online exam proctoring in 2020 in response to the coronavirus pandemic. As of this writing, the at-home testing option was still available and appears likely to continue. Candidates using this approach will take the exam at their home or office and be proctored over a webcam by a remote proctor.

Due to the rapidly changing nature of the at-home testing experience, candidates wishing to pursue this option should check the CompTIA website for the latest details.

After the Exam

Once you have taken the exam, you will be notified of your score immediately, so you'll know if you passed the test right away. You should keep track of your score report with your exam registration records and the email address you used to register for the exam.

After you earn the Network+ certification, you're required to renew your certification every three years by either earning an advanced certification, completing a CertMaster continuing education program, or earning 20 continuing education units over a three-year period.

Many people who earn the Network+ credential use it as a stepping stone to earning other certifications in their areas of interest. Those interested in end-user support work toward the A+ credential, data analytics professionals might go on to earn the Data+ certification, and the Security+ program is a gateway to a career in cybersecurity.

WHAT DOES THIS BOOK COVER?

This book covers everything you need to know to pass the Network+ exam. It is organized into five parts, each corresponding to one of the five Network+ domains.

Part I: Domain 1.0: Networking Fundamentals

- Chapter 1: OSI Model
- Chapter 2: Network Topologies
- Chapter 3: Cables and Connectors
- Chapter 4: IP Addressing
- Chapter 5: Ports and Protocols
- Chapter 6: Network Services
- Chapter 7: Network Architecture
- Chapter 8: Cloud Computing

Part II: Domain 2.0: Network Implementations

- Chapter 9: Network Devices
- Chapter 10: Routing and Bandwidth Management
- Chapter 11: Switching
- Chapter 12: Wireless Standards

Part III: Domain 3.0: Network Operations

- Chapter 13: Network Availability
- Chapter 14: Organizational Documents and Policies
- Chapter 15: High Availability and Disaster Recovery

Part IV: Domain 4.0: Network Security

- Chapter 16: Security Concepts
- Chapter 17: Network Attacks
- Chapter 18: Network Hardening
- Chapter 19: Remote Access
- Chapter 20: Physical Security

Part V: Domain 5.0: Network Troubleshooting

- Chapter 21: Network Troubleshooting Methodology
- Chapter 22: Troubleshooting Cable Connectivity
- Chapter 23: Network Software Tools and Commands
- Chapter 24: Troubleshooting Wireless Connectivity
- Chapter 25: Troubleshooting Network Issues

Study Guide Elements

This study guide uses a number of common elements to help you prepare. These include the following:

Exam Tips Throughout each chapter, we've sprinkled practical exam tips that help focus your reading on items that are particularly confusing or important for the exam.

Cert/Mike Exam Essentials The Exam Essentials focus on major exam topics and critical knowledge that you should take into the test. The Exam Essentials focus on the exam objectives provided by CompTIA.

Practice Questions Two questions at the end of each chapter will help you assess your knowledge and if you are ready to take the exam based on your knowledge of that chapter's topics.

Additional Study Tools

This book comes with a number of additional study tools to help you prepare for the exam. They include the following:

NOTE

Go to www.wiley.com/go/sybextestprep to register and gain access to this interactive online learning environment and test bank with study tools.

Sybex Test Preparation Software

Sybex's test preparation software lets you prepare with electronic test versions of the Practice Questions from each chapter and the Practice Exam that is included in this book. You can build and take tests on specific domains or by chapter, or cover the entire set of Network+ exam objectives using randomized tests.

Audio Review

I've (Mike) recorded an audio review where I read each of the sets of chapter Exam Essentials. This provides a helpful recap of the main material covered on the exam that you can use while you're commuting, working out, or relaxing.

NOTE

Like all exams, the Network+ certification from CompTIA is updated periodically and may eventually be retired or replaced. At some point after CompTIA is no longer offering this exam, the old editions of our books and online tools will be retired. If you have purchased this book after the exam was retired, or are attempting to register in the Sybex online learning environment after the exam was retired, please know that we make no guarantees that this exam's online Sybex tools will be available once the exam is no longer available.

EXAM N10-008 EXAM OBJECTIVES

CompTIA goes to great lengths to ensure that its certification programs accurately reflect the IT industry's best practices. They do this by establishing committees for each of its exam programs. Each committee consists of a small group of IT professionals, training providers, and publishers who are responsible for establishing the exam's baseline competency level and who determine the appropriate target-audience level.

Once these factors are determined, CompTIA shares this information with a group of hand-selected subject matter experts (SMEs). These folks are the true brainpower behind the certification program. The SMEs review the committee's findings, refine them, and shape them into the objectives that follow this section. CompTIA calls this process a job-task analysis.

Finally, CompTIA conducts a survey to ensure that the objectives and weightings truly reflect job requirements. Only then can the SMEs go to work writing the hundreds of questions needed for the exam. Even so, they have to go back to the drawing board for further refinements in many cases before the exam is ready to go live in its final state. Rest assured that the content you're about to learn will serve you long after you take the exam.

CompTIA also publishes relative weightings for each of the exam's objectives. The following table lists the five Network+ objective domains and the extent to which they are represented on the exam.

Domain	% of Exam
1.0 Networking Fundamentals	24%
2.0 Network Implementations	19%
3.0 Network Operations	16%
4.0 Network Security	19%
5.0 Network Troubleshooting	22%

N10-008 CERTIFICATION EXAM OBJECTIVE MAP

Objective	Chapter
1.0 Networking Fundamentals	
1.1 Compare and contrast the Open Systems Interconnection (OSI) model layers and encapsulation concepts	1
1.2 Explain the characteristics of network topologies and network types	2
1.3 Summarize the types of cables and connectors and explain which is the appropriate type for a solution	3
1.4 Given a scenario, configure a subnet and use appropriate IP addressing schemes	4
1.5 Explain common ports and protocols, their application, and encrypted alternatives	5
1.6 Explain the use and purpose of network services	6
1.7 Explain basic corporate and datacenter network architecture	7
1.8 Summarize cloud concepts and connectivity options	8
2.0 Network Implementations	
2.1 Compare and contrast various devices, their features, and their appropriate placement on the network	9
2.2 Compare and contrast routing technologies and bandwidth management concepts	10
2.3 Given a scenario, configure and deploy common Ethernet switching features	11
2.4 Given a scenario, install and configure the appropriate wireless standards and technologies	12

Objective	Chapter
3.0 Network Operations	
3.1 Given a scenario, use the appropriate statistics and sensors to ensure network availability	13
3.2 Explain the purpose of organizational documents and policies	14
3.3 Explain high availability and disaster recovery concepts and summarize which is the best solution	15
4.0 Network Security	
4.1 Explain common security concepts	16
4.2 Compare and contrast common types of attacks	17
4.3 Given a scenario, apply network hardening techniques	18
4.4 Compare and contrast remote access methods and security implications	19
4.5 Explain the importance of physical security	20
5.0 Network Troubleshooting	
5.1 Explain the network troubleshooting methodology	21
5.2 Given a scenario, troubleshoot common cable connectivity issues and select the appropriate tools	22
5.3 Given a scenario, use the appropriate network software tools and commands	23
5.4 Given a scenario, troubleshoot common wireless connectivity issues	24
5.5 Given a scenario, troubleshoot general networking issues	25

NOTE

Exam objectives are subject to change at any time without prior notice and at CompTIA's discretion. Please visit CompTIA's website (www.comptia.org) for the most current listing of exam objectives.

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