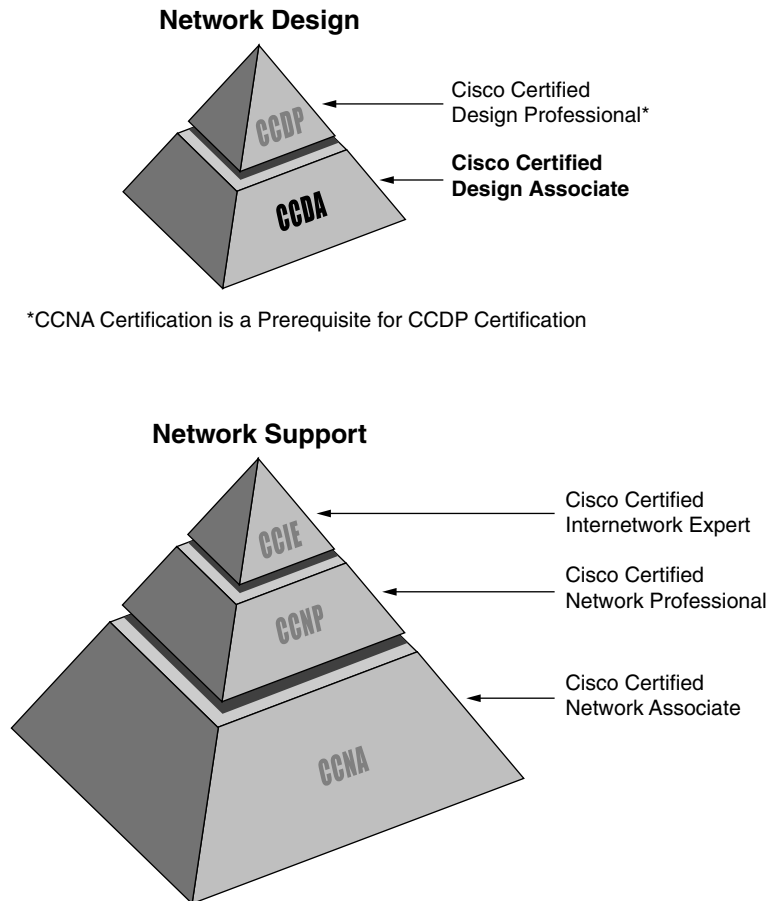# Introduction to CCDA

So you have worked on Cisco devices for a while, designing networks for your customers, and now you want to get certified? There are several good reasons to do so. Cisco's certification program permits network analysts and engineers to demonstrate their competence in different areas of networking and at different levels. The prestige and respect that come with a Cisco certification will definitely help you in your career. Your clients, peers, and superiors will recognize you as an expert in networking.

In the Cisco Routing and Switching career certification path, there are two certification tracks: the Network Design track, with which this book is concerned, and the Network Support track. Figure I-1 illustrates the various levels of the two design tracks for Cisco Routing and Switching career certification. Note that Cisco Certified Design Associate (CCDA) is the entry-level certification in the Network Design track.

Figure I–1   *Routing and Switching Certifications*

Network Design

Cisco Certified
Design Professional*

**Cisco Certified
Design Associate**

*CCNA Certification is a Prerequisite for CCDP Certification

Network Support

Cisco Certified
Internetwork Expert

Cisco Certified
Network Professional

Cisco Certified
Network Associate

The test to obtain CCDA certification is called Designing Cisco Networks (DCN) Exam #640-441. This is a computer-based test that currently consists of between 80 and 90 questions and has a 120-minute time limit. All exam registrations are made by calling Sylvan Prometric at 1-800-204-3926. The cost for the exam is $100 USD. Throughout this book, you will see the exam referred to as the DCN exam or the CCDA exam; they are the same exam for the purposes of this text.

The DCN exam measures your ability to design networks that meet certain requirements for performance, security, capacity, and scalability. The exam is focused on small- to medium-sized networks. The candidate should have at least one year of experience in the design of small- to medium-sized networks using Cisco products. A CCDA candidate should have an understanding of internetworking technologies, including network topologies, routing, switching, WAN technologies, LAN protocols, and network management. Cisco suggests taking the Designing Cisco Networks self-paced training material before you take the CCDA exam. For more information on the various levels of certification, career tracks, and Cisco exams, go to the Cisco Learning Connection page of the Cisco Connection Online (CCO) Web site at http://www.cisco.com/certifications.

About This Book

CCDA Exam Certification Guide is intended to help you prepare for the CCDA exam, recognize and improve your areas of weakness, and increase your chances of passing the test. The book is designed to provide you with mastery of the CCDA objectives. Because the scope of this book focuses on helping you master the CCDA exam objectives, the authors assume that readers have a certain level of internetworking knowledge. It is strongly recommended that you take the DCN course or acquire an equivalent amount of on-the-job training before solidifying your CCDA knowledge with the elements of this book. You might even want to review the extensive internetworking reference materials provided in the appendixes of this book.

At the beginning of each chapter you will find a "Do I Know This Already?" Quiz to help you assess the degree to which you need to review the subject matter covered in that chapter. You may then read the entire chapter thoroughly or skip directly to only those sections and objectives that you need to review further. In addition, at the end of each chapter is a "Q&A" review quiz. Use this after you have read the chapter to determine your knowledge of the topics.

Objective of This Book

The objective of this book is to help you fully understand, remember, and recall all the details of the topics covered on the CCDA exam. If that objective is reached, passing the CCDA exam should follow easily. The CCDA exam will be a stepping stone for most people as they progress through the other Cisco certifications; passing the exam because of a thorough understanding and recall of the topics will be incredibly valuable at the next steps.

This book prepares you to *pass the CCDA exam* by doing the following:

- Helping you discover which test topics you have not mastered

- Providing explanations and information to fill in your knowledge gaps

- Supplying exercises and case studies that enhance your ability to recall and deduce the answers to test questions

- Providing a practice exam and exercises on the CD-ROM that will help you assess your overall progress and preparation level for the CCDA exam

Who Should Read This Book?

This book is intended to tremendously increase your chances of passing the CCDA exam. This book is intended for an audience who has taken the Designing Cisco Networks course or has an equivalent level of on-the-job experience. Although others may benefit from using this book, the book is written assuming that you want to pass the exam.

So why should you want to pass CCDA? For one of many reasons: to get a raise; to show your manager you are working hard to increase your skills; to fulfill a manager's requirement (before he will spend money on another course); to enhance your résumé; because you work in a presales job at a reseller and want to eventually become CCDP–certified; to prove you know the topic, if you learned via on-the-job experience rather than from taking the prerequisite classes—or one of many other reasons.

Have You Mastered All the Exam Objectives?

The exam tests you on a wide variety of topics; most people will not remember all the topics on the exam. Because some study is required, this book focuses on helping you obtain the maximum benefit from the time you spend preparing for the exam. You can access many other sources for the information covered on the exam; for example, you could read the Cisco Documentation CD. However, this book is the most effective way to prepare for the exam.

You should begin your exam preparation by spending ample time reviewing the exam objectives listed in the section "The CCDA Exam Objectives," later in this introduction. Check out Cisco's Web site for any future changes to the list of objectives.

How This Book Is Organized

The book begins with a chapter that generally defines the topics that will be covered by the CCDA exam. Before you begin studying for any exam, it is important that you know the topics that could be covered. With the CCDA exam, knowing what is on the exam is seemingly straightforward; Cisco publishes a list of CCDA objectives. However, the objectives are certainly open to interpretation.

Chapters 1 through 8 directly follow Cisco's CCDA exam objectives and provide detailed information on each objective. Each chapter begins with a quiz so that you can quickly determine your current level of readiness. Each chapter ends with a review "Q&A" quiz as well as case study questions.

Appendix A, "Answers to Quiz Questions," provides the answers to the various chapter quizzes. The answers to the case study questions can be found at the end of each chapter.

Finally, in the back of the book you will find an invaluable CD-ROM. It contains exercise questions on study cards and flash cards that provide answer explanations and links to the appropriate section in an electronic version of the book. The CD-ROM also enables you to take a timed practice CCDA exam that is very similar in format to the actual CCDA exam you will be taking. The practice exam is complete with both general knowledge and case study questions and draws on your knowledge of all the published CCDA exam objectives. The practice exam has a database of more than 200 questions, so you can test yourself more than once.

Features and Conventions of This Book

This book features the following:

- **Cross-Reference to CCDA Objectives**—Cisco lists the objectives of the CCDA exam on its Web site. That list is included in this Introduction. The beginning of each core chapter will include a reference to the CCDA objectives discussed in that chapter. Each major section also begins with a list of the objectives covered in that section.

- **Do I Know This Already? Quiz**—This beginning section of each chapter is designed to quiz you on the topics in that chapter. This gives you an opportunity to assess just how much you need to review the subject matter covered in that chapter.

- **Foundation Topics**—This section in each chapter explains and reviews topics that will be covered in the exam. Each section in the Foundation Topics begins with a list of objectives covered in that section and then follows up with extensive review of that subject matter. Foundation Topics sections are the bulk of the material in this book.

- **Foundation Summaries**—Most of the major facts covered in each chapter are summarized in tables and charts in this section. This format enables you to review a chapter quickly, focusing on these summaries, so that you can solidify your knowledge of the major subject matter of the chapter.

- **Q&A**—Each chapter contains a section of review questions. These questions test you on your retention of the knowledge presented in the Foundation Topics for that chapter.

- **Case Studies**—Each chapter ends with case studies that include a battery of questions. These case studies are intended for use after you have reviewed the chapter and are ready to validate your mastery of the CCDA objectives presented in that chapter. Chapter 9, "Additional Case Studies," is a complete chapter of new case studies that you should read and work on after you feel you have mastered all the objectives presented in the book. The CCDA exam will most likely include some questions based on a design case study.

- **Test Questions**—Using the test engine on the CD-ROM, you can take simulated exams. You can also choose to be presented with several questions on an objective that you need more work on. This testing tool provides you with practice that will make you more comfortable when you actually take the CCDA exam.

The CCDA Exam Objectives

Cisco lists the objectives for CCDA Exam on its Web site at http://www.cisco.com/warp/public/10/wwtraining/certprog/ testing/pdf/ccda.pdf. This list provides the most key information about what the test covers. Table I-1 lists these CCDA exam objectives and the corresponding chapters in this book that cover those objectives. Each chapter and each major section of the book begins with a listing of the objectives covered. Use these references as a road map to find the exact materials you need to study to master all the CCDA exam objectives.

Table I-1   *CCDA Objectives and the Chapters Where They Are Covered*

Objective	Description	Chapter
Overall Objectives		
1	Design a network that meets a customer's requirements for performance, security, capacity, and scalability.	1
2	Assemble Cisco product lines into an end-to-end networking solution.	4, 5
Small- to Medium-Sized Business Solutions Framework		
3	Upon completion of this introduction, you will be able to describe a framework you can use to simplify the complexities associated with analyzing customer network problems and creating Cisco scalable solutions.	1
Identify Customer Needs—Characterize the Existing Network		