英文原版

CCNP Cisco LAN Switch Configuration

复习重点及模拟试题

CCNP Exam Notes: Cisco LAN Switch Configuration

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Cisco认证考试系列丛书说明

Cisco认证考试及其背景

当前，计算机系统及其网络系统的开发、管理、使用和维护需要大量不同层次的专业技术人员。真实地评价各种技术人员的技术水平是一件既复杂而又必不可少的工作。为此，许多世界著名的大公司和厂家纷纷推出了各自的认证考试方案。如Microsoft公司的MCSE、MCSD，Novell公司推出的CNE/CNA等，世界著名的网络系统公司——Cisco公司，则推出了其CCNA、CCDA、CCNP、CCDP、CCIE认证考试方案。那么，Cisco公司认证考试的意义、考试内容及其做法是怎样的呢？

Cisco公司建立于20世纪80年代，主要致力与开发、生产、销售高档网关、路由器和网络互联设备，其产品广泛应用于局域网、广域网和Internet等领域。基于Cisco产品领先的技术、优异的性能和良好的服务，Cisco公司的产品遍及世界各地，其业务量每年以非常高的速度递增，该公司的股票也以极高的速度逐年攀升。可以说，Cisco公司是计算机、特别是网络时代所创造的又一个奇迹。

Cisco公司的产品不同于普通的计算机软、硬件产品，它的技术含量高，原理复杂，因此学习和掌握其工作原理及使用方法需要许多相关知识和实践经验，需要高层次、高技术水准的技术人员。为保证使用、管理或提供Cisco产品服务的技术人员能够具备相应的技术水平，Cisco公司设立了一整套认证考试方案（见图0.1）。可以坦言，Cisco考试的难度高于其它公司的考试方案，自然通过其考试后也更容易得到一些高薪的职位。也许是高难度的挑战所带来的诱惑，也许是高薪职位的吸引，目前参加或准备参加Cisco认证考试的人员正在逐年增加。

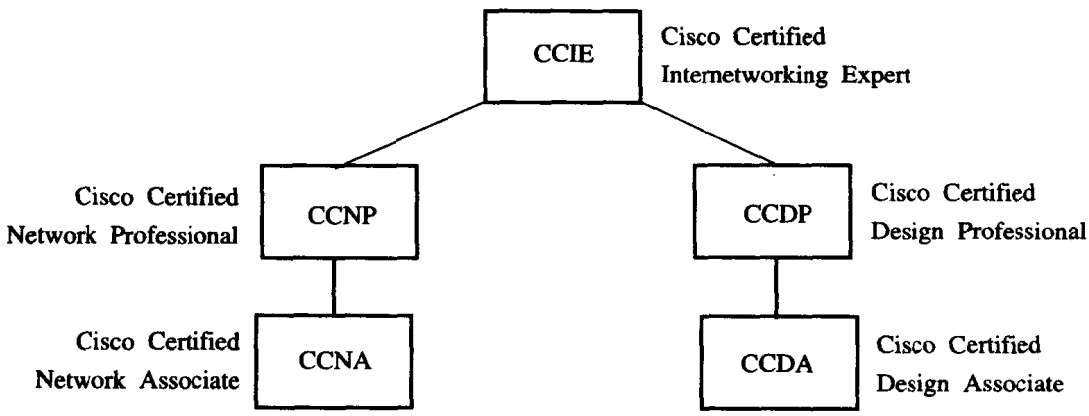

图0.1 Cisco认证考试由高及低的层次结构

要通过各项认证考试，具体的要求见表0.1中所示。

表0.1 CISCO认证证书及考试要求

证书名称	考试要求和考试科目	考试代码	注释
CCNA (Cisco Certified Network Associate)	Cisco Certified Network Associate	Exam 640-407	
CCNP (Cisco Certified Network Professional)	CCNA证书 ACRC (Advanced Cisco Router Configuration) CLSC (Cisco Lan Switch Configuration) CMTD (Configuring, Monitoring and Troubleshooting Dial-up Servics) CIT (Cisco Internetwork Troubleshooting)	 Exam 640-403 Exam 640-404 Exam 640-405 Exam 640-406	①
	CCNA证书 CIT (Cisco Internetwork Troubleshooting) F R/S (Foundation Routing and Switching)	 Exam 640-406 Exam 640-409	②
CCDA (Cisco Certified Design Associate)	CDS (Cisco Design Specialist)	Exam 9E0-004	
CCDP (Cisco Certified Design Professional)	CCDA证书 CCNP证书 CID (Cisco Internetwork Design)	 Exam 640-025	③
	CCDA证书 ACRC，CLSC，CIT，CMTD四门考试		④ 见CCNP
CCIE (Cisco Certified Internetworking Expert)	CCNP证书 CID (Cisco Internetwork Design) IMCR (Installing and Maintaining Cisco Router)课程 Cisco实际上机考核 CCIE-R/S (Exam Qualification)	 Exam 640-025 Exam 350-001	 ⑤

注释：① 要获取CCNP证书，需先具有CCNA证书，并通过四门考试。

② 获取CCNP证书，也可采取第二种方法，即先获取CCNA证书，再通过CIT考试和FR/S考试、后者是一个相当长的测试过程，内容涵盖了ACRC、CLSC、CMTD三项，选择此方式比前者节省约100美元。

③ 要获取CCDP证书，需先具有CCDA和CCNP证书，再经过CID考试。

④ 如果尚不具备CCNP证书，可在具有CCDA证书的前题下，分别通过CCNP的四门考试。

⑤ 获得CCIE证书是一项非常艰难的过程，因此CCIE几乎成为了一种“出类拔萃”的标志。在进行严格的CISCO上机实验操作之前，CISCO推荐考生先完成CID并学习IMCR课程（本书写作时尚没有IMCR考试）。CISCO建议要有最少两年相关的工作经历，并通过上述考试后进行CCIE-R/S资格考试，再完成实际上机考核，并获得CCIE证书。

关于Cisco认证考试系列丛书

计算机认证考试是计算机业界人士和高等院校学生的一个“热点”，同时也是出版界的一个“时髦话题”。从1998年开始我们在国内领先推出了“微软MCSE系列丛书”，合计20余册（见本书封底的书目），结果非常成功。利用与国外出版公司的密切合作关系，加之我们认真负责的翻译、编辑和出版印刷方面努力，MCSE系列丛书以其快速的出版速度、较高的质量和适中的价格得到了广大读者的欢迎，取得了很好的社会效益和经济效益。借助过去的成功经验，我们再次引进Sybex公司的版权，采用“原版引进，重新排版印刷”的方式，出版Cisco认证考试系列丛书（英文版），在1999年我们推出Cisco认证考试的学习指南系列（见表0.2），在2000年我们再推出Cisco认证考试的复习重点及模拟试题系列（见表0.3）。

表0.2 Cisco认证考试系列丛书

书　　名	适用考试科目
CCNA: Cisco Certified Network Associate（CCNA）学习指南	CCNA Exam 640-407
CCNP: Advanced Cisco Router Configuration（ACRC）学习指南	CCNP Exam 640-403
CCNP: Cisco LAN Switch Configuration（CLSC）学习指南	CCNP Exam 640-404
CCNP: Cisco Internetwork Troubleshooting（CIT）学习指南	CCNP Exam 640-440
CCDA: Cisco Certified Design Associate（CCDA）学习指南	CCDA Exam 640-441

表0.3 Cisco认证考试复习重点及模拟试题系列

书　　名	适　用 考试科目
CCNP: Advanced Cisco Router Configuration（ACRC）复习重点及模拟试题	640-403
CCNP: Cisco LAN Switch Configuration（CLSC）复习重点及模拟试题	640-404
CCNP: Cisco Internetwork Troubleshooting（CIT）复习重点及模拟试题	640-440

以后，我们将推出其余认证考试科目的书籍。请读者留意书店内的销售广告或本系列书中的最新说明（恕不另行通知）。

最后，向支持和喜爱我们图书的广大读者表示感谢，并恳请读者对书中存在的问题提出批评和指正。

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Acknowledgments

Many thanks to those who helped us complete yet another Sybex book. From development through production, your hard work and dedication to this project are recognized and appreciated.

We would like to acknowledge Neil Edde, who developed and oversaw the project to the end with patience and insight.

Many thanks also to the editing team for their attention to details large and small (but all equally important): Editor Ronn Jost, who kept the flow with his careful editing; Technical Editor Jim Taylor, who kept things technically honest; and Project Editor Donna Crossman, who stayed busy keeping us all on schedule.

Much appreciation goes to the production team for taking the words and making them look great on the page: Project Team Leader Jennifer Durning, who motivated and organized the production side of the project with gusto and energy; and Jan Fisher and her talented team of proofreaders and electronic publishing specialists at Publication Services.

Thanks to everyone for contributing their hard work, energy, and motivation.

Introduction

This book is intended to start you out on an exciting new path toward obtaining your CCNP certification. It reaches beyond popular certifications such as the MCSE and CNE to provide you with an indispensable factor in understanding today's network—insight into the Cisco world of internetworking.

If you've purchased this book, you are probably chasing one of the Cisco professional certifications: CCNA/CCNP, CCDA/CCDP, or CCIE. All of these are great goals, and they are also great career builders. Glance through any newspaper and you'll find employment opportunities for people with these certifications—these ads are there because finding qualified network administrators is a challenge in today's market. The certification means you know something about the product, but, more importantly, it means you have the ability, determination, and focus to learn—the greatest skills any employee can have!

You've probably also heard all the rumors about how hard the Cisco tests are—believe us, the rumors are true! Cisco has designed a series of exams that truly challenge your knowledge of their products. Each test not only covers the materials presented in a particular class, it also covers the prerequisite knowledge for that course.

Is This Book for You?

This book covers everything you need to know to pass the Cisco CLSC exam. It will teach you how to perform basic configurations on Cisco switches using both the command line interface (CLI) and the menu systems of the different Catalyst switches. Each chapter begins with a list of the CLSC test objectives covered in it; make sure you read them over before working through the chapter.

The Sybex Exam Notes books were designed to be succinct, portable exam review guides. They can be used either in conjunction with a more complete study program—supplemented by books, CBT courseware, or practice in a classroom/lab environment—or as an exam review for those who don't feel the need for more extensive test preparation. It isn't our goal to "give the answers away," but rather to identify those topics on which you can expect to be tested and to provide sufficient coverage of these topics.

Perhaps you've been working with Cisco internetworking technologies for years now. The thought of paying lots of money for a specialized Cisco exam preparation course probably doesn't sound too appealing. What can they teach you that you don't already know, right? Be careful, though. Many expe-

rienced network administrators, even CCIEs, have walked confidently into test centers only to walk sheepishly out of them after failing a Cisco exam. As they discovered, there's the Cisco of the real world and the Cisco of the Cisco certification exams. It's our goal with these Exam Notes books to show you where the two converge and where they diverge. After you've finished reading through this book, you should have a clear idea of how your understanding of the technologies involved matches up with the expectations of the Cisco test makers.

Or perhaps you're relatively new to the world of Cisco internetworking, drawn to it by the promise of challenging work and higher salaries. You've just waded through an 800-page Cisco CLSC study guide or taken a class at a local training center. Lots of information to keep track of, isn't it? Well, by organizing the Exam Notes books according to the Cisco exam objectives, and by breaking up the information into concise, manageable pieces, we've created what we think is the handiest exam review guide available. Throw it in your briefcase and carry it to work with you. As you read through the book, you'll be able to quickly identify those areas you know best and those that require more in-depth review.

SEE ALSO The goal of the Exam Notes series is to help Cisco certification candidates familiarize themselves with the subjects on which they can expect to be tested in the certification exams. For complete, in-depth coverage of the technologies and topics involved in Cisco networking, we recommend the Cisco Certification Study Guide series from Sybex.

How Is This Book Organized?

As mentioned above, this book is organized according to the official exam objectives list prepared by Cisco for the CLSC exam. Within each chapter, the individual exam objectives are addressed in turn. Each objective section is further divided according to the type of information presented.

Critical Information

This section presents the greatest level of detail on information that is relevant to the objective. This is the place to start if you're unfamiliar with or uncertain about the technical issues related to the objective.

Necessary Procedures

Here you'll find instructions for procedures that require a lab computer to be completed. From logging in to a switch to configuring IP, the information in these sections addresses the hands-on requirements for the CLSC exams.

NOTE Not every objective has a hands-on procedure associated with it. For such objectives, the "Necessary Procedures" section has been left out.

Exam Essentials

In this section, we've put together a concise list of the most crucial topics of subject areas that you'll need to fully comprehend prior to taking the Cisco exam. This section can help you identify those topics that might require more study on your part.

Key Terms and Concepts

Here we've compiled a mini-glossary of the most important terms and concepts related to the specific objective. You'll understand what all those technical words mean within the context of the related subject matter.

Sample Questions

For each exam objective, we've included a selection of questions similar to those you'll encounter on the actual Cisco exam. Answers and explanations are provided so you can gain some insight into the test-taking process.

How Do You Become a CCNP?

The CCNP certification is the new, hot Cisco certifications program. With the new certification programs, Cisco has created a stepping-stone approach to CCIE (Cisco Certified Internetwork Engineer) certification. By taking four more exams after you pass your CCNA, you can achieve CCNP status. One of the required CCNP exams is the CLSC exam.

Why Become a CCNP?

Cisco has created a certification process, not unlike Microsoft's or Novell's, to give administrators a set of skills, and prospective employers an authenticated way to measure those skills. Becoming a CCNP can be the initial step of a successful journey toward a new or refreshed, highly rewarding, and sustainable career.

As you study for the CLSC exam, we can't stress this enough: it's critical that you have some hands-on experience with Cisco switches. If you can get your hands on some Catalyst switches, you're set! But if you can't, we've worked hard to provide dozens of configuration examples throughout this book to help network administrators (or people who want to become network administrators) learn what they need to know to pass the CLSC exam.

SEE ALSO One way to get the hands-on router experience you'll need in the real world is to attend one of the seminars offered by Globalnet System Solutions, Inc. (**http://www.lammle.com**), produced by Todd Lammle.

SEE ALSO Keystone Learning Systems is producing high-quality training through videos featuring Todd Lammle. Go to **http://www.klscorp.com** for more information about all Cisco certification videos.

SEE ALSO Go to **www.routersim.com** for router training tools to help you with your Cisco certifications.

Where Do You Take the Exams?

You may take the exams at any one of the more than 800 Sylvan Prometric Authorized Testing Centers around the world. For the location of a testing center near you, call 800-204-3926. Outside the United States and Canada, contact your local Sylvan Prometric Registration Center.

To register for a Cisco LAN Switch Configuration exam:

1. Determine the number of the exam you want to take. (The CLSC exam number is 640-404.)
2. Register with the Sylvan Prometric Registration Center nearest you. You will need to pay in advance for the exam. At this writing, registration costs $100 per exam, and the test must be taken within one year of payment. You can sign up for an exam up to six weeks in advance or as late as one working day prior to the day you wish to take it. If something comes up and you need to cancel or reschedule your exam appointment, contact Sylvan Prometric at least 24 hours in advance. Same-day registration isn't available for the Cisco tests.
3. When you schedule the exam, you'll be provided with instructions regarding all appointment and cancellation procedures, the ID requirements, and the testing center location.

What the Cisco CLSC Exam Measures

The CLSC program was created to provide a solid introduction not only to the Cisco internetworking operating system (IOS) and to Cisco Catalyst hardware, but to internetworking in general, making it helpful to you in areas not exclusively associated with Cisco. It's hard to say at this point in the certification process, but it's not unrealistic to imagine that future network managers—even those without Cisco equipment—could easily require Cisco certifications of their job applicants.

To meet the CLSC certification skill level, you must be able to understand or do the following:

- Describe the major features of the Catalyst switches
- Describe the architecture and functions of the major components of the Catalyst switches
- Place Catalyst series switches in a network for optimal performance benefit
- Use the command line or menu-driven interface to configure the Catalyst series switches and their switching modules
- Use the command line or menu-driven interface to configure trunks, virtual LANs, and ATM LAN Emulation
- Maintain Catalyst series switches and perform basic troubleshooting

Tips for Taking Your Cisco CLSC Exam

The CLSC test contains 70 questions, which are to be answered in 90 minutes. You must schedule the test at least 24 hours in advance (unlike the Novell or Microsoft exams), and you aren't allowed to take more than one Cisco exam per day.

Many questions on the exam will have answer choices that at first glance look identical—especially the syntax questions! Remember to read through the choices carefully, because a "close" answer won't cut it. If you choose an answer in which the commands are in the wrong order or there is even one measly character missing, you'll get the question wrong. So to practice, take the sample quizzes at the end of each objective section over and over again until they feel natural to you. All of the exam questions are multiple choice, just like the examples in this book. Unlike Microsoft or Novell tests, the exam has answer choices that are really similar in syntax—some syntax will be dead wrong, but more than likely, it will just be very *subtly* wrong. Some other syntax choices may be almost right, except that the variables are shown in the wrong order.

Also, never forget that the right answer is the Cisco answer. In many cases, they'll present more than one correct answer, but the "correct" answer is the one Cisco recommends.

Here are some general tips for exam success:

- Arrive early at the exam center so you can relax and review your study materials—particularly IP tables and lists of exam-related information.
- Read the questions *carefully*. Don't jump to conclusions. Make sure you're clear on *exactly* what the question is asking.

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- Don't leave any unanswered questions. These will be counted against you.
- When answering multiple-choice questions you're not sure about, use a process of elimination to get rid of the obviously incorrect answers first. Doing this will greatly improve your odds if you need to make an educated guess.
- Because the hard questions will eat up the most time, save them for last. You can move forward and backward through the exam.
- If you are unsure of the answer to a question, choose one of the answers anyway. Mark the question so that, if you have time, you can go back to it and double-check your answer. Remember, an unanswered question is as bad as a wrong one, so answer questions even if you're not certain of the correct choice; if you don't and you run out of time or forget to go back to the question, you'll get it wrong for sure.

Once you have completed an exam, you'll be given immediate online notification of your pass or fail status, plus a printed Examination Score Report indicating whether you passed or failed, along with your exam results by section. (The test administrator will give you the printed score report.) Test scores are automatically forwarded to Cisco within five working days after you take the test, so you don't need to send your score to them. If you pass the exam, you'll receive confirmation from Cisco, typically within two to four weeks.

There's one more thing you can do to prepare. Visit Brian Horakh's Web site—http://www.networkstudyguides.com—and go through the exercises and practice test questions he provides. This will really help you keep abreast of any changes made to the test.

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