

# Cisco CcIE Fundamentals Network Design Case Studies

Programming and Automating Cisco Networks  
 Deploying IPv6 in Broadband Access Networks  
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 A guide to network programmability and automation in the data center, campus, and WAN

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**Programming and Automating Cisco Networks** Cisco Systems  
 CCIE Professional Development: Advanced IP Network Design provides the solutions network engineers and managers need to grow and stabilize large IP networks. Technology advancements and corporate growth inevitably lead to the necessity for network expansion. This book presents design concepts and techniques that enable networks to evolve into supporting larger, more complex applications while maintaining critical stability. CCIE Professional Development: Advanced IP Network Design provides you with a basic foundation to understand and implement the most efficient network design around the network core, distribution and access layers, and the common and edge network services. After establishing an efficient hierarchical network design, you will learn to apply OSPF, IS-IS, EIGRP, BGP, NHRP, and MPLS. Case studies support each protocol to provide you with valuable solutions to common stumbling blocks encountered when implementing an IGP- or EGP-based network.

**Deploying IPv6 in Broadband Access Networks** Cisco Press  
 Trust the best-selling Official Cert Guide series from Cisco Press to help you learn, prepare, and practice for exam success. They are built with the objective of providing assessment, review, and practice to help ensure you are fully prepared for your certification exam.

- \* Master Cisco CCNP/CCIE ENCOR exam topics
- \* Assess your knowledge with chapter-opening quizzes
- \* Review key concepts with exam preparation tasks

This is the eBook edition of the CCNP and CCIE Enterprise Core ENCOR 350-401 Official Cert Guide. This eBook does not include access to the Pearson Test Prep practice exams that comes with the print edition. CCNP and CCIE Enterprise Core ENCOR 350-401 Official Cert Guide presents you with an organized test preparation routine through the use of proven series elements and techniques. "Do I Know This Already?" quizzes open each chapter and enable you to decide how much time you need to spend on each section. Exam topic lists make referencing easy. Chapter-ending Exam Preparation Tasks help you drill on key concepts you must know thoroughly. CCNP and CCIE Enterprise Core ENCOR 350-401 Official Cert Guide focuses specifically on the objectives for the Cisco CCNP/CCIE ENCOR 350-401 exam. Networking experts Brad Edgeworth, Ramiro Garza Rios, Dave Hucaby, and Jason Gooley share preparation hints and test-taking tips, helping you identify areas of weakness and improve both your conceptual knowledge and hands-on skills. Material is presented in a concise manner, focusing on increasing your understanding and retention of exam topics. This complete study package includes\* A test-preparation routine proven to help you pass the exams \* Do I

Know This Already? quizzes, which enable you to decide how much time you need to spend on each section \* Chapter-ending exercises, which help you drill on key concepts you must know thoroughly \* Practice exercises that help you enhance your knowledge \* More than 90 minutes of video mentoring from the author \* A final preparation chapter, which guides you through tools and resources to help you craft your review and test-taking strategies \* Study plan suggestions and templates to help you organize and optimize your study time Well regarded for its level of detail, assessment features, comprehensive design scenarios, and challenging review questions and exercises, this official study guide helps you master the concepts and techniques that will enable you to succeed on the exam the first time. The official study guide helps you master all the topics on the CCNP/CCIE ENCOR exam, including \* Enterprise network architecture \* Virtualization \* Network assurance \* Security \* Automation

**Network Design and Case Studies** Cisco Systems  
 A comprehensive introduction to all facets of MPLS theory and practice Helps networking professionals choose the suitable MPLS application and design for their network Provides MPLS theory and relates to basic IOS configuration examples The Fundamentals Series from Cisco Press launches the basis to readers for understanding the purpose, application, and management of technologies MPLS has emerged as the new networking layer for service providers throughout the world. For many service providers and enterprises MPLS is a way of delivering new applications on their IP networks, while consolidating data and voice networks. MPLS has grown to be the new default network layer for service providers and is finding its way into enterprise networks as well. This book focuses on the building blocks of MPLS (architecture, forwarding packets, LDP, MPLS and QoS, CEF, etc.). This book also reviews the different MPLS applications (MPLS VPN, MPLS Traffic Engineering, Carrying IPv6 over MPLS, AToM, VPLS, MPLS OAM etc.). You will get a comprehensive overview of all the aspects of MPLS, including the building blocks, its applications, troubleshooting and a perspective on the future of MPLS.

**Data Center Fundamentals** Cisco Press

Today, billions of devices are Internet-connected, IoT standards and protocols are stabilizing, and technical professionals must increasingly solve real problems with IoT technologies. Now, five leading Cisco IoT experts present the first comprehensive, practical reference for making IoT work. IoT Fundamentals brings together knowledge previously available only in white papers, standards documents, and other hard-to-find sources—or nowhere at all. The authors begin with a high-level overview of IoT and introduce key concepts needed to successfully design IoT solutions. Next, they walk through each key technology, protocol, and technical building block that combine into complete IoT

solutions. Building on these essentials, they present several detailed use cases, including manufacturing, energy, utilities, smart+connected cities, transportation, mining, and public safety. Whatever your role or existing infrastructure, you'll gain deep insight what IoT applications can do, and what it takes to deliver them. Fully covers the principles and components of next-generation wireless networks built with Cisco IOT solutions such as IEEE 802.11 (Wi-Fi), IEEE 802.15.4-2015 (Mesh), and LoRaWAN Brings together real-world tips, insights, and best practices for designing and implementing next-generation wireless networks Presents start-to-finish configuration examples for common deployment scenarios Reflects the extensive first-hand experience of Cisco experts

**Data Center Virtualization Fundamentals** Cisco Press  
 Learn how to manage and deploy the latest IP services in Cisco-centric networks. Understand VPN security concepts: confidentiality, integrity, origin authentication, non-repudiation, anti-replay, perfect forward secrecy Deploy quality of service technologies to protect your mission-critical applications Find out how IPsec technology works and how to configure it in IOS Learn how to set up a router as a firewall and intrusion detection system Gain efficient use of your IP address space with NAT, VLSM, IP unnumbered Solve real-world routing problems with redistribution, route filtering, summarization, policy routing Enable authentication, authorization, and accounting (AAA) security services with RADIUS and TACACS+ servers Enhanced IP Services for Cisco Networks is a guide to the new enabling and advanced IOS services that build more scalable, intelligent, and secure networks. You will learn the technical details necessary to deploy quality of service and VPN technologies, as well as improved security and advanced routing features. These services will allow you to securely extend the network to new frontiers, protect your network from attacks, and enhance network transport with application-level prioritization. This book offers a practical guide to implementing IPsec, the IOS Firewall, and IOS Intrusion Detection System. Also included are advanced routing principles and quality of service features that focus on improving the capability of your network. A good briefing on cryptography fully explains the science that makes VPNs possible. Rather than being another routing book, this is a guide to improving your network's capabilities by understanding and using the sophisticated features available to you in Cisco's IOS software

**Business-Driven Design** Pearson Education India  
 Cisco IOS 12.0 Bridging and IBM Network Solutions contains configuration scenarios and command reference information that demonstrate bridging and IBM networking options. Written for network administrators, this guide explores transparent and source-route transparent bridging, Source-Route Bridging (SRB), data link switching plus (DLSw+), serial tunnel and block serial



tunnel, SDLC and LLC2 parameters, and advanced peer-to-peer networking.

#### **CCIE Fundamentals** Cisco Systems

**The Art of Network Architecture Business-Driven Design** The business-centered, business-driven guide to architecting and evolving networks **The Art of Network Architecture** is the first book that places business needs and capabilities at the center of the process of architecting and evolving networks. Two leading enterprise network architects help you craft solutions that are fully aligned with business strategy, smoothly accommodate change, and maximize future flexibility. Russ White and Denise Donohue guide network designers in asking and answering the crucial questions that lead to elegant, high-value solutions. Carefully blending business and technical concerns, they show how to optimize all network interactions involving flow, time, and people. The authors review important links between business requirements and network design, helping you capture the information you need to design effectively. They introduce today's most useful models and frameworks, fully addressing modularity, resilience, security, and management. Next, they drill down into network structure and topology, covering virtualization, overlays, modern routing choices, and highly complex network environments. In the final section, the authors integrate all these ideas to consider four realistic design challenges: user mobility, cloud services, Software Defined Networking (SDN), and today's radically new data center environments.

- Understand how your choices of technologies and design paradigms will impact your business
- Customize designs to improve workflows, support BYOD, and ensure business continuity
- Use modularity, simplicity, and network management to prepare for rapid change
- Build resilience by addressing human factors and redundancy
- Design for security, hardening networks without making them brittle
- Minimize network management pain, and maximize gain
- Compare topologies and their tradeoffs
- Consider the implications of network virtualization, and walk through an MPLS-based L3VPN example
- Choose routing protocols in the context of business and IT requirements
- Maximize mobility via ILNP, LISP, Mobile IP, host routing, MANET, and/or DDNS
- Learn about the challenges of removing and changing services hosted in cloud environments
- Understand the opportunities and risks presented by SDNs
- Effectively design data center control planes and topologies

#### **CCIE Routing and Switching Exam Certification Guide** Cisco Systems

**Data Center Virtualization Fundamentals** For many IT organizations, today's greatest challenge is to drive more value, efficiency, and utilization from data centers. Virtualization is the best way to meet this challenge. **Data Center Virtualization Fundamentals** brings together the comprehensive knowledge Cisco professionals need to apply virtualization throughout their data center environments. Leading data center expert Gustavo A. A. Santana thoroughly explores all components of an end-to-end data center virtualization solution, including networking, storage, servers, operating systems, application optimization, and security. Rather than focusing on a single product or technology, he explores product capabilities as interoperable design tools that can be combined and integrated with other solutions, including VMware vSphere. With the author's guidance, you'll learn how to define and implement highly-efficient architectures for new, expanded, or retrofit data center projects. By doing so, you can deliver agile application provisioning without purchasing unnecessary infrastructure, and establish a strong foundation for new cloud computing and IT-as-a-service initiatives. Throughout, Santana illuminates key theoretical concepts through realistic use cases, real-world designs, illustrative configuration examples, and verification outputs. Appendixes provide valuable reference information, including relevant Cisco data center products and CLI principles for IOS and NX-OS. With this approach, **Data Center Virtualization Fundamentals** will be an indispensable resource for anyone preparing for the CCNA Data Center, CCNP Data Center, or CCIE Data Center certification exams. Gustavo A. A. Santana, CCIE No. 8806, is a Cisco Technical Solutions Architect working in enterprise and service provider data center projects that require deep integration across technology areas such as networking, application optimization, storage, and servers. He has more than 15 years of data center experience, and has led and coordinated a team of specialized Cisco engineers in Brazil. He holds two CCIE certifications (Routing & Switching and Storage Networking), and is a VMware Certified Professional (VCP) and SNIA Certified Storage Networking Expert (SCSN-E). A frequent speaker at Cisco and data center industry events, he blogs on data center virtualization at [gustavoasantana.net](http://gustavoasantana.net). Learn how virtualization can transform and improve traditional data center network topologies Understand the key characteristics and value of each data center virtualization technology Walk through key decisions, and transform choices into architecture Smoothly migrate existing data centers toward greater virtualization Burst silos that have traditionally made data centers inefficient Master foundational technologies such as VLANs, VRF, and virtual contexts Use virtual PortChannel and FabricPath to overcome the limits of STP Optimize cabling and network management with fabric extender (FEX) virtualized chassis Extend Layer 2 domains

to distant data center sites using MPLS and Overlay Transport Virtualization (OTV) Use VSANs to overcome Fibre Channel fabric challenges Improve SAN data protection, environment isolation, and scalability Consolidate I/O through Data Center Bridging and FCoE Use virtualization to radically simplify server environments Create server profiles that streamline "bare metal" server provisioning "Transcend the rack" through virtualized networking based on Nexus 1000V and VM-FEX Leverage opportunities to deploy virtual network services more efficiently Evolve data center virtualization toward full-fledged private clouds -Reviews - "The variety of material that Gustavo covers in this work would appeal to anyone responsible for Data Centers today. His grasp of virtualization technologies and ability to relate it in both technical and non-technical terms makes for compelling reading. This is not your ordinary tech manual. Through use of relatable visual cues, Gustavo provides information that is easily recalled on the subject of virtualization, reaching across Subject Matter Expertise domains. Whether you consider yourself well-versed or a novice on the topic, working in large or small environments, this work will provide a clear understanding of the diverse subject of virtualization." -- Bill Dufresne, CCIE 4375, Distinguished Systems Engineer, Cisco (Americas) ".this book is an essential reference and will be valuable asset for potential candidates pursuing their Cisco Data Center certifications. I am confident that in reading this book, individuals will inevitably gain extensive knowledge and hands-on experience during their certification preparations. If you're looking for a truly comprehensive guide to virtualization, this is the one!" -- Yusuf Bhajji, Senior Manager, Expert Certifications (CCIE, CCDE, CCAr), Learning@Cisco "When one first looks at those classic Cisco Data Center blueprints, it is very common to become distracted with the overwhelming number of pieces and linkages. By creating a solid theoretical foundation and providing rich sets of companion examples to illustrate each concept, Gustavo's book brings hope back to IT Professionals from different areas of expertise. Apparently complex topics are demystified and the insertion of products, mechanisms, protocols and technologies in the overall Data Center Architecture is clearly explained, thus enabling you to achieve robust designs and successful deployments. A must read... Definitely!" -- Alexandre M. S. P. Moraes, Consulting Systems Engineer -- Author of "Cisco Firewalls"

#### **Connecting Networks Companion Guide** Cisco Press

The essential guide for understanding Ethernet switched networks Understand various Ethernet technologies from 10BASE-T to Gigabit Ethernet Learn about common switching modes, paths, and architectures Delve into the Cisco Catalyst switch architecture and examine the various Catalyst switch models, including the 6000/6500, 4500, and 3750 Become familiar with VLAN concepts, including types of trunks, VLAN Trunking Protocol (VTP), and private VLANs Understand Multilayer Switching (MLS) and the various hardware components that make MLS work Learn how to configure Cisco Catalyst switches in both native and hybrid mode Implement QoS on Cisco Catalyst switches Deploy multicast features and protocols, including PIM, IGMP snooping, and CGMP Utilize data link layer features such as BPDU Guard, BPDU Filter, Root Guard, Loop Guard, RSTP, and MST Evaluate design and configuration best practices Learn how to manage LANs and troubleshoot common problems Local-area networks (LANs) are becoming increasingly congested and overburdened because of a dramatic increase in traffic, faster CPUs and operating systems, and more network-intensive applications. Many organizations that use network and computing technology use LAN switching to take advantage of high-speed traffic forwarding and improved performance of traditional Ethernet technologies that don't require costly wiring upgrades or time-consuming host reconfiguration. **Cisco LAN Switching Fundamentals** provides administrators of campus networks with the most up-to-date introduction to LAN switching within a traditional Ethernet environment. **Cisco LAN Switching Fundamentals** presents an in-depth look at modern campus network requirements. It provides an easy-to-understand introduction to LAN switching best practices using Cisco Catalyst switches. This book provides you with a wealth of details on the architecture, operation, and configuration of the Cisco Catalyst family of switches. You learn about a wide range of topics, including quality of service (QoS), multicast, Rapid Spanning Tree Protocol (RSTP), Multiple Spanning Tree (MST), private virtual LANs (VLANs), and configuration using the native and hybrid software interfaces. Design advice and configuration examples are discussed liberally throughout the book to provide you with the best perspective on effective deployment techniques. Finally, the book wraps up with a discussion of steps necessary to troubleshoot common problems and optimize LAN performance. Whether you are looking for an introduction to LAN switching principles and practices or a Cisco Catalyst configuration and troubleshooting reference, this book provides you with the invaluable insight you need to design and manage high-performance campus networks.

#### **The Art of Network Architecture** Cisco Press

This is the eBook version of the printed book. If the print book includes a CD-ROM, this content is not included within the eBook version. Learn practical guidelines for designing and deploying a

scalable BGP routing architecture Up-to-date coverage of BGP features like performance tuning, multiprotocol BGP, MPLS VPN, and multicast BGP In-depth coverage of advanced BGP topics to help design a complex BGP routing architecture Practical design tips that have been proven in the field Extensive configuration examples and case studies BGP Design and Implementation focuses on real-world problems and provides not only design solutions, but also the background on why they are appropriate and a practical overview of how they apply into a top-down design. The BGP protocol is being used in both service provider and enterprise networks. The design goals of these two groups are different, leading to different architectures being used in each environment. The title breaks out the separate goals, and resulting solutions for each group to assist the reader in further understanding different solution strategies. This book starts by identifying key features and functionality in BGP. It then delves into the topics of performance tuning, routing policy development, and architectural scalability. It progresses by examining the challenges for both the service provider and enterprise customers, and provides practical guidelines and a design framework for each. BGP Design and Implementation finishes up by closely looking at the more recent extensions to BGP through Multi-Protocol BGP for MPLS-VPN, IP Multicast, IPv6, and CLNS. Each chapter is generally organized into the following sections: Introduction, Design and Implementation Guidelines, Case Studies, and Summary.

#### **Cisco IP Telephony** Cisco Press

A guide to successful deployment of the Cisco IP Telephony solution Real-world case studies from the Cisco design consulting engineers who developed the PDIOO process provide practical advice on all stages of successful IPT deployment Concise understanding of the PDIOO phases enables architects and engineers to successfully deploy the Cisco IPT solution Division of the process into PDIOO phases provides a logical and defined guide for network engineers and architects as they proceed through each of the phases in deploying the Cisco IPT solution Includes detailed questionnaires for each phase of deployment in the PDIOO cycle—a great aid in understanding customer networks and requirements Network infrastructure design, call processing infrastructure design and applications, and voice-mail system design are covered in depth Cisco® IP Telephony (IPT) solutions are being deployed at an accelerated rate, and network architects and engineers need to understand the various phases involved in successful deployment: planning, design, implementation, operation, and optimization (PDIOO). On the road to that understanding, those involved need to collect information for each phase of deployment, and then follow through with the best architecture, deployment model, and implementation based on the data collected. **Cisco IP Telephony: Planning, Design, Implementation, Operation, and Optimization** is a guide for network architects and engineers as they deploy the Cisco IPT solution. With this book, you will master the PDIOO phases of the IPT solution, beginning with the requirements necessary for effective planning of a large-scale IPT network. From there, you'll follow a step-by-step approach to choose the right architecture and deployment model. Real-world examples and explanations with technical details, network illustrations, and sample configurations illustrate each step in the process of planning, designing, implementing, operating, and optimizing a chosen architecture based on information you have collected. In-depth instruction on each PDIOO phase provides specific details about the tasks involved and best practices for successful implementation of the IPT solution. This book also contains predesigned questionnaires and PDIOO assistance tools that help you determine the requirements of each phase of the PDIOO cycle. Authors Ramesh Kaza and Salman Asadullah have been involved with Cisco IPT solutions from the beginning and have planned, designed, and implemented major IPT networks using the guidelines found here. **Cisco IP Telephony: Planning, Design, Implementation, Operation, and Optimization** provides the step-by-step explanations, details, and best practices acquired by the authors while working with the top Cisco IPT customers. This book is part of the Networking Technology Series from Cisco Press®, which offers networking professionals valuable information for constructing efficient networks, understanding new technologies, and building successful careers.

#### **TOP-DOWN NET DES\_c3** Cisco Press

**CCIE Fundamentals Network Design and Case Studies** CCIE Fundamentals Network Design and Case Studies Cisco Systems Pearson Education

Improve operations and agility in any data center, campus, LAN, or WAN Today, the best way to stay in control of your network is to address devices programmatically and automate network interactions. In this book, Cisco experts Ryan Tischer and Jason Gooley show you how to do just that. You'll learn how to use programmability and automation to solve business problems, reduce costs, promote agility and innovation, handle accelerating complexity, and add value in any data center, campus, LAN, or WAN. The authors show you how to create production solutions that run on or interact with Nexus NX-OS-based switches, Cisco ACI, Campus, and WAN technologies. You'll learn how to use advanced Cisco tools together with industry-standard languages

and platforms, including Python, JSON, and Linux. The authors demonstrate how to support dynamic application environments, tighten links between apps and infrastructure, and make DevOps work better. This book will be an indispensable resource for network and cloud designers, architects, DevOps engineers, security specialists, and every professional who wants to build or operate high-efficiency networks. Drive more value through programmability and automation, freeing resources for high-value innovation. Move beyond error-prone, box-by-box network management. Bridge management gaps arising from current operational models. Write NX-OS software to run on, access, or extend your Nexus switch. Master Cisco's powerful on-box automation and operation tools. Manage complex WANs with NetConf/Yang, ConfD, and Cisco SDN Controller. Interact with and enhance Cisco Application Centric Infrastructure (ACI). Build self-service catalogs to accelerate application delivery. Find resources for deepening your expertise in network automation.

**End-to-End QoS Network Design** Cisco Press  
Provides candidates for Cisco Certified Internetwork Expert certification with up-to-date, accurate information on the technology fundamentals covered in the CCIE program, including guidelines for planning internetworks and Cisco Systems software features. (Intermediate).

**Optimal Routing Design** CCIE Fundamentals Network Design and Case Studies  
CCIE Fundamentals Network Design and Case Studies "This course discusses the WAN technologies and network services required by converged applications in a complex network. The course allows you to understand the selection criteria of network devices and WAN technologies to meet network requirements. You will learn how to configure and troubleshoot network devices and resolve common issues with data link protocols. You will also develop the knowledge and skills needed to implement IPSec and virtual private network (VPN) operations in a complex network."--Back cover.

**CCIE Fundamentals Network Design and Case Studies, Second** Cisco Press  
bull; Review topics in the CCDA 640-861 DESGN exam for comprehensive exam readiness bull; Prepare with proven study

tools like foundation summaries, and pre- and postchapter quizzes to ensure mastery of the subject matter bull; Get into test-taking mode with a CD-ROM testing engine containing over 200 questions that measure testing readiness and provide feedback on areas requiring further study

**IoT Fundamentals** Pearson Education  
The indispensable official reference to the next-generation Cisco Internet operating system, IOS-XR. • A must-have book for every network professional who must design, implement, or troubleshoot networks containing IOS-XR supported routers. • Illuminates IOS-XR's architecture, offering insights for leveraging its full potential. • The only book on the market on the new Cisco IOS-XR. Cisco IOS-XR Reference Guide is a systematic, authoritative guide to configuring routers with Cisco's next-generation flagship Internet Operating system, IOS-XR. By providing quick, authoritative example-rich references to the commands most frequently used to configure and troubleshoot IOS-XR-based routers, this book will help network professionals successfully design, implement, or support network containing Cisco IOS-XR-supported routers. The authors walk readers through the details of IOS-XR's new architecture, comparing it with the traditional IOS CLI, and mapping legacy IOS CLI to the new IOS-XR CLI wherever required. They offer extensive information for simplifying migration and helping network professionals take full advantage of IOS-XR's power. For example, the authors introduce and illuminate important new features such as Logical Routers and Hitless Upgrades: features that can be used to minimize hardware requirements, downtime, and cost. The book contains concise explanations of internetworking theory, backed by detailed, tested configuration examples that network professionals can apply in their own networks. Sample configurations are included for: interface, IP addresses and services, MPLS, multicast, system management, system security, and routing (BGP, IS-IS, OSPF and static routing).  
**CCDA Exam Certification Guide** Cisco Press  
Master the design and deployment of small and medium-sized business networks.

**Delivering business-grade cloud applications and services** Cisco Press

The definitive IS-IS reference and design guide Extensive coverage of both underlying concepts and practical applications of the IS-IS protocol Detailed explanation of how the IS-IS database works and relevant insights into the operation of the shortest path first (SPF) algorithm Comprehensive tutorial on configuring and troubleshooting IS-IS on Cisco routers Advanced information on IP network design and performance optimization strategies using IS-IS Network design case studies provide a practical perspective of various design strategies Comprehensive overview of routing and packet-switching mechanisms on modern routers A collection of IS-IS packet formats and analyzer decodes useful for mastering the nuts and bolts of the IS-IS protocol and troubleshooting complex problems Interior gateway protocols such as Intermediate System-to-Intermediate System (IS-IS) are used in conjunction with the Border Gateway Protocol (BGP) to provide robust, resilient performance and intelligent routing capabilities required in large-scale and complex internetworking environments. Despite the popularity of the IS-IS protocol, however, networking professionals have depended on router configuration manuals, protocol specifications, IETF RFCs, and drafts. Mastering IS-IS, regardless of its simplicity, has been a daunting task for many. IS-IS Network Design Solutions provides the first comprehensive coverage available on the IS-IS protocol. Networking professionals of all levels now have a single source for all the information needed to become true experts on the IS-IS protocol, particularly for IP routing applications. You will learn about the origins of the IS-IS protocol and the fundamental underlying concepts and then move to complex protocol mechanisms involving building, maintaining, and dissemination of the information found in the IS-IS database on a router. Subsequent discussions on IP network design issues include configuration and troubleshooting techniques, as well as case studies with practical design scenarios.  
**IS-IS Network Design Solutions** Cisco Systems  
This is the only official Cisco Systems-endorsed study guide for the CCIE Routing and Switching exam. The CD-ROM customizable test engine contains unique practice questions and a full electronic version of the text.

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