

Developing Ip Multicast Networks 1 Design Implementation

This complete guide to setting up and running a TCP/IP network is essential for network administrators, and invaluable for users of home systems that access the Internet. The book starts with the fundamentals -- what protocols do and how they work, how addresses and routing are used to move data through the network, how to set up your network connection -- and then covers, in detail, everything you need to know to exchange information via the Internet. Included are discussions on advanced routing protocols (RIPv2, OSPF, and BGP) and the gated software package that implements them, a tutorial on configuring important network services -- including DNS, Apache, sendmail, Samba, PPP, and DHCP -- as well as expanded chapters on troubleshooting and security. TCP/IP Network Administration is also a command and syntax reference for important packages such as gated, pppd, named, dhcpcd, and sendmail. With coverage that includes Linux, Solaris, BSD, and System V TCP/IP implementations, the third edition contains:

- Overview of TCP/IP
- Delivering the data
- Network services
- Getting started
- M Basic configuration
- Configuring the interface
- Configuring routing
- Configuring DNS
- Configuring network

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servers Configuring sendmail Configuring Apache Network security Troubleshooting Appendices include dip, pppd, and chat reference, a gated reference, a dhcpd reference, and a sendmail reference This new edition includes ways of configuring Samba to provide file and print sharing on networks that integrate Unix and Windows, and a new chapter is dedicated to the important task of configuring the Apache web server. Coverage of network security now includes details on OpenSSH, stunnel, gpg, iptables, and the access control mechanism in xinetd. Plus, the book offers updated information about DNS, including details on BIND 8 and BIND 9, the role of classless IP addressing and network prefixes, and the changing role of registrars. Without a doubt, TCP/IP Network Administration, 3rd Edition is a must-have for all network administrators and anyone who deals with a network that transmits data over the Internet. Intended for organisations needing to build an efficient and reliable enterprise network linked to the Internet, this second edition explains the current Internet architecture and shows how to evaluate service providers dealing with connection issues. 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. The most complete guide to Cisco Catalyst(r) switch network design, operation, and configuration Master key

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foundation topics such as high-speed LAN technologies, LAN segmentation, bridging, the Catalyst command-line environment, and VLANs

Improve the performance of your campus network by utilizing effective Cisco Catalyst design, configuration, and troubleshooting techniques

Benefit from the most comprehensive coverage of Spanning-Tree Protocol, including invaluable information on troubleshooting common Spanning Tree problems

Master trunking concepts and applications, including ISL, 802.1Q, LANE, and MPOA

Understand when and how to utilize Layer 3 switching techniques for maximum effect

Understand Layer 2 and Layer 3 switching configuration with the Catalyst 6000 family, including coverage of the powerful MSFC

Native IOS Mode Cisco LAN Switching provides the most comprehensive coverage of the best methods for designing, utilizing, and deploying LAN switching devices and technologies in a modern campus network. Divided into six parts, this book takes you beyond basic switching concepts by providing an array of proven design models, practical implementation solutions, and troubleshooting strategies. Part I discusses important foundation issues that provide a context for the rest of the book, including Fast and Gigabit Ethernet, routing versus switching, the types of Layer 2 switching, the Catalyst command-line environment, and VLANs. Part II presents the most

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detailed discussion of Spanning-Tree Protocol in print, including common problems, troubleshooting, and enhancements, such as PortFast, UplinkFast, BackboneFast, and PVST+. Part III examines the critical issue of trunk connections, the links used to carry multiple VLANs through campus networks. Entire chapters are dedicated to LANE and MPOA. Part IV addresses advanced features, such as Layer 3 switching, VTP, and CGMP and IGMP. Part V covers real-world campus design and implementation issues, allowing you to benefit from the collective advice of many LAN switching experts. Part VI discusses issues specific to the Catalyst 6000/6500 family of switches, including the powerful Native IOS Mode of Layer 3 switching. Several features in Cisco LAN Switching are designed to reinforce concepts covered in the book and to help you prepare for the CCIE exam. In addition to the practical discussion of advanced switching issues, this book also contains case studies that highlight real-world design, implementation, and management issues, as well as chapter-ending review questions and exercises. This book is part of the Cisco CCIE Professional Development Series from Cisco Press, which offers expert-level instruction on network design, deployment, and support methodologies to help networking professionals manage complex networks and prepare for CCIE exams.

This guide to multicasting routing explains the

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complexities of this growing technology. It provides an overview of the current state of development, analyzes its relevant protocols, and shows how they work together. Real-world examples illustrate key concepts. Specific topics include: PIM-SM and MSDP, Any-Source and Source-Specific delivery models, building dedicated multicast environments, and IGMP and its various versions. A glossary defines key terms and important acronyms. The authors are engineers and technical writers. Annotation copyrighted by Book News, Inc., Portland, OR

A tutorial and complete description of the core concepts and real-world applications of IP multicast, one of the most effective solutions alleviating network congestion. The author, one of the key technologists in multicasting, describes a series of multicast applications and shows how they can be used to improve business processes and information dispersal without causing network infrastructure overload.

The complete resource for understanding and deploying IP quality of service for Cisco networks Learn to deliver and deploy IP QoS and MPLS-based traffic engineering by understanding: QoS fundamentals and the need for IP QoS The Differentiated Services QoS architecture and its enabling QoS functionality The Integrated Services QoS model and its enabling QoS functions ATM,

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Frame Relay, and IEEE 802.1p/802.1Q QoS technologies and how they work with IP QoS MPLS and MPLS VPN QoS and how they work with IP QoS MPLS traffic engineering Routing policies, general IP QoS functions, and other miscellaneous QoS information Quality-of-service (QoS) technologies provide networks with greater reliability in delivering applications, as well as control over access, delay, loss, content quality, and bandwidth. IP QoS functions are crucial in today's scalable IP networks. These networks are designed to deliver reliable and differentiated Internet services by enabling network operators to control network resources and use. Network planners, designers, and engineers need a thorough understanding of QoS concepts and features to enable their networks to run at maximum efficiency and to deliver the new generation of time-critical multimedia and voice applications. IP Quality of Service serves as an essential resource and design guide for anyone planning to deploy QoS services in Cisco networks. Author Srinivas Vegesna provides complete coverage of Cisco IP QoS features and functions, including case studies and configuration examples. The emphasis is on real-world application-going beyond conceptual explanations to teach actual deployment. IP Quality of Service is written for internetworking professionals who are responsible for designing and maintaining IP services for corporate intranets and for service

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provider network infrastructures. If you are a network engineer, architect, manager, planner, or operator who has a rudimentary knowledge of QoS technologies, this book will provide you with practical insights on what you need to consider when designing and implementing various degrees of QoS in the network. Because incorporating some measure of QoS is an integral part of any network design process, IP Quality of Service applies to all IP networks-corporate intranets, service provider networks, and the Internet.

Master advanced MPLS VPN deployment solutions to design, deploy, and troubleshoot advanced or large-scale networks. This title builds on the bestselling success of the first volume with more advanced features to get more out of a network. 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,

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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

From Charles M. Kozierek, the creator of the highly regarded www.pcguide.com, comes The TCP/IP Guide. This completely up-to-date, encyclopedic reference on the TCP/IP protocol suite will appeal to newcomers and the seasoned professional alike. Kozierek details the core protocols that make TCP/IP

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internetworks function and the most important classic TCP/IP applications, integrating IPv6 coverage throughout. Over 350 illustrations and hundreds of tables help to explain the finer points of this complex topic. The book's personal, user-friendly writing style lets readers of all levels understand the dozens of protocols and technologies that run the Internet, with full coverage of PPP, ARP, IP, IPv6, IP NAT, IPSec, Mobile IP, ICMP, RIP, BGP, TCP, UDP, DNS, DHCP, SNMP, FTP, SMTP, NNTP, HTTP, Telnet, and much more. The TCP/IP Guide is a must-have addition to the libraries of internetworking students, educators, networking professionals, and those working toward certification. Today, the internet and computer networking are essential parts of business, learning, and personal communications and entertainment. Virtually all messages or transactions sent over the internet are carried using internet infrastructure- based on advanced internet protocols. Advanced internet protocols ensure that both public and private networks operate with maximum performance, security, and flexibility. This book is intended to provide a comprehensive technical overview and survey of advanced internet protocols, first providing a solid introduction and going on to discuss internetworking technologies, architectures and protocols. The book also shows application of the concepts in next generation networks and discusses

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protection and restoration, as well as various tunnelling protocols and applications. The book ends with a thorough discussion of emerging topics. Demand is growing for Internet Protocol (IP) multicast services to extend applications across Internet service provider (ISP) network boundaries to a wider audience. To meet this need, sophisticated protocols such as Protocol Independent Multicast sparse mode (PIM-SM), Multiprotocol Border Gateway Protocol (MBGP), and Multicast Source Discovery Protocol (MSDP) are available in Cisco Internet Operating System (Cisco IOS(r)) software that provide solutions for successfully implementing native interdomain multicast service. *Interdomain Multicast Solutions Guide* is a complete, concise, solutions-based book that shows how to deploy IP multicast services. The book begins with a technology description that defines IP multicast and summarizes various methods of deploying multicast services. From there, readers are presented two distinct interdomain multicast solutions using MSDP and Source Specific Multicast (SSM), respectively. These two solutions feature complete design and implementation scenarios that reflect real-world applications. The appendix includes a command summary that describes all the IOS commands discussed in the book. Cisco IOS software is a feature-rich network operating system that runs on almost every platform and device that Cisco(r) offers.

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Cisco customers who use IOS documentation have requested more robust and more complete configuration examples to help in their day-to-day implementation of IOS. The Cisco Systems(r) IOS Documentation department has met that customer demand by creating a new documentation type called an integrated solutions document (ISD). ISDs provide concise design and application information, explaining how to integrate specific feature functionality within an existing network environment. By combining solutions-based ISDs with Cisco IOS configuration and command reference material, Interdomain Multicast Solutions Guide provides you with a complete interdomain multicast deployment guide. Learn from Cisco-tested and industry-proven solutions with configuration examples Explore concise design and application information that details how to integrate specific IOS feature functionality within an existing network environment Incorporate the solutions in a variety of service provider and enterprise networking environments Refer to command reference and configuration material essential to implementing interdomain multicast Assess the three stages of implementing multicast: establishing intradomain multicast, establishing interdomain multicast, and connecting customers to an ISP infrastructure Understand how SSM is in use in networks today and look ahead to how Internet Group Management Protocol version 3

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(IGMPv3) will be utilized in the future Cisco Systems,(r) Inc., is the worldwide leader in networking for the Internet. Cisco solutions, which include industry-leading publications from Cisco Press, educate and provide competitive advantage to customers through more efficient and timely exchange of information, leading to cost savings, process efficiencies, and closer business relationships. These solutions form the networking foundation for many

CCIE Professional Development: Large-Scale IP Network Solutions is a core textbook for preparation for the CCIE Routing and Switching exam track. As well as CCIE preparation, Large-Scale IP Network Solutions provides solutions for network engineers as IP networks grow and become more complex.

The book discusses all major IP protocols in depth, including RIP, IGRP, EIGRP, OSPF, IS-IS, and BGP. It evaluates the strengths and weaknesses of each protocol, helping you to choose the right ones for your environments. Special sections address scalability, migration planning, network management, and security for large-scale networks. Router configuration examples, network case studies, and sample scenarios all help you put the information presented in the book to use.

Prepare for CCIP certification as you learn to design and deploy MPLS-based VPNs Assists in preparation for the CCIP MPLS elective exam with

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detailed technology coverage and review questions
Offers in-depth analysis of MPLS architecture Helps you learn how MPLS scales to support tens of thousands of virtual private networks (VPNs)
Provides extensive case studies that guide you through the design and deployment of real-world MPLS/VPN networks Presents configuration examples and guidelines that assist you in configuring MPLS on Cisco devices Provides design and implementation options that help you build various VPN topologies Multiprotocol Label Switching (MPLS) is an innovative technique for high-performance packet forwarding. The most widely deployed usage of MPLS today is the enabling of VPNs. With the introduction of MPLS-enabled VPNs, network designers can better scale their networks than ever before. MPLS and VPN Architectures, CCIP Edition, is a practical guide to understanding, designing, and deploying MPLS-based VPNs. This book covers MPLS theory and configuration, network design issues, and one major MPLS application: MPLS-based VPNs. The MPLS/VPN architecture and all its mechanisms are explained with configuration examples, suggested design and deployment guidelines, and extensive case studies. This book has been revised from the first edition to include coverage of the CCIP MPLS elective exam. New chapters cover MPLS troubleshooting and MPLS/VPN troubleshooting; self-assessment

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questions at the end of each chapter help you prepare for the CCIP MPLS elective exam. CCIP candidates choosing to follow the MPLS elective will find this book to be a valuable self-study component in their exam preparation. MPLS and VPN Architectures, CCIP Edition, is part of a recommended learning path from Cisco Systems that can include simulation and hands-on training from authorized Cisco Learning Partners and self-study products from Cisco Press. To find out more about instructor-led training, e-learning, and hands-on instruction offered by authorized Cisco Learning Partners worldwide, please visit

Design, operate, and troubleshoot advanced Cisco IP multicast in enterprise, data center, and service provider networks IP Multicast, Volume II thoroughly covers advanced IP multicast designs and protocols specific to Cisco routers and switches. It offers a pragmatic discussion of common features, deployment models, and field practices for advanced Cisco IP multicast networks, culminating with commands and methodologies for implementation and advanced troubleshooting. After fully discussing inter-domain routing and Internet multicast, the authors thoroughly explain multicast scalability, transport diversification, and multicast MPLS VPNs. They share in-depth insights into multicast for the data center, a full chapter of best-practice design solutions, and a start-to-finish troubleshooting

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methodology designed for complex environments. Reflecting the authors' extensive experience with service provider and enterprise networks, IP Multicast, Volume II will be indispensable to IP multicast engineers, architects, operations technicians, consultants, security professionals, and collaboration specialists. Network managers and administrators will find its case studies and feature explanations especially valuable. Understand the fundamental requirements for inter-domain multicast Design control planes for identifying source and receiver, as well as the downstream control plane Support multicast transport where cloud service providers don't support native multicast Use multicast VPNs to logically separate traffic on the same physical infrastructure Explore the unique nuances of multicast in the data center Implement Virtual Port Channel (vPC), Virtual Extensible LAN (VXLAN), and Cisco's Application Centric Infrastructure (ACI) Design multicast solutions for specific industries or applications Walk through examples of best-practice multicast deployments Master an advanced methodology for troubleshooting large IP multicast networks Advanced MPLS Design and Implementation enables you to: Understand MPLS through a detailed analysis of MPLS architecture and operation Design and implement packet-based MPLS Virtual Private Networks (VPNs) using label switching

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routers (LSRs) Design and implement ATM-based MPLS VPNs using WAN-switched ATM LSRs Implement MPLS traffic engineering on your core network and optimize traffic flows dynamically Implement MPLS QoS and provide hard service guarantees with multiple classes of service Acquire practical design and implementation knowledge of real-world MPLS VPNs, TE, and QoS through case studies and configuration examples Multiprotocol Label Switching (MPLS), intended for internetwork engineers and administrators who are responsible for designing, implementing, and supporting service provider or enterprise MPLS backbone networks, is a highly scalable, high-performance forwarding technology that has multiple applications in the service provider and enterprise environment. Use this book, which contains MPLS theory, design, configuration, and various case studies, as a reference and a guide for designing, implementing, and supporting an MPLS network. Even if you are not using Cisco equipment, this book can increase your awareness and understanding of MPLS technology, as well as provide you with detailed design concepts and rules for building scalable MPLS networks.

Go beyond layer 2 broadcast domains with this in-depth tour of advanced link and internetwork layer protocols, and learn how they enable you to expand to larger topologies. An ideal follow-up to Packet

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Guide to Core Network Protocols, this concise guide dissects several of these protocols to explain their structure and operation. This isn't a book on packet theory. Author Bruce Hartpence built topologies in a lab as he wrote this guide, and each chapter includes several packet captures. You'll learn about protocol classification, static vs. dynamic topologies, and reasons for installing a particular route. This guide covers:

- Host routing—Process a routing table and learn how traffic starts out across a network
- Static routing—Build router routing tables and understand how forwarding decisions are made and processed
- Spanning Tree Protocol—Learn how this protocol is an integral part of every network containing switches
- Virtual Local Area Networks—Use VLANs to address the limitations of layer 2 networks
- Trunking—Get an indepth look at VLAN tagging and the 802.1Q protocol
- Routing Information Protocol—Understand how this distance vector protocol works in small, modern communication networks
- Open Shortest Path First—Discover why convergence times of OSPF and other link state protocols are improved over distance vectors

IP Multicast Volume I: Cisco IP Multicast Networking Design, deploy, and operate modern Cisco IP multicast networks IP Multicast, Volume I thoroughly covers basic IP multicast principles and routing techniques for building and operating enterprise and

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service provider networks to support applications ranging from videoconferencing to data replication. After briefly reviewing data communication in IP networks, the authors thoroughly explain network access, Layer 2 and Layer 3 multicast, and protocol independent multicast (PIM). Building on these essentials, they introduce multicast scoping, explain IPv6 multicast, and offer practical guidance for IP multicast design, operation, and troubleshooting. Key concepts and techniques are illuminated through real-world network examples and detailed diagrams. Reflecting extensive experience working with Cisco customers, the authors offer pragmatic discussions of common features, design approaches, deployment models, and field practices. You'll find everything from specific commands to start-to-finish methodologies: all you need to deliver and optimize any IP multicast solution. IP Multicast, Volume I is a valuable resource for network engineers, architects, operations technicians, consultants, security professionals, and collaboration specialists. Network managers and administrators will find the implementation case study and feature explanations especially useful.

- Review IP multicasting applications and what makes multicast unique
- Understand IP multicast at the access layer, from layered encapsulation to switching multicast frames
- Work with Layer 2 switching domains, IPv4 group addresses, and MAC address maps
- Utilize

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Layer 3 multicast hosts and understand each PIM mode · Implement basic forwarding trees and rendezvous points · Compare multicast forwarding modes: ASM, SSM, and PIM Bidir · Plan and properly scope basic multicast networks · Choose your best approach to forwarding replication · Apply best practices for security and resiliency · Understand unique IPv6 deployment issues · Efficiently administer and troubleshoot your IP multicast network 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.

Category: Networking Covers: IP Multicast

The Best Damn Cisco Internetworking Book Period shows readers everything they need to know about all Cisco internetworking topics. The book provides an understanding of Cisco's current VoIP solutions and the means to put them to work, showing how to configure all of Cisco's core VoIP products—among them Cisco CallManager software, Cisco 7910 series phones, and server-based IP PBXs. It discusses IPv6 Protocols, as well as IP Quality of Service (QoS) and how it applies to Enterprise and Internet Service Provider (ISP) environments. In addition, Cisco wireless technologies are covered in detail. Cisco has placed a high priority on security and here readers will find complete coverage of all

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the Cisco Security products such as the PIX firewall suite of products, Network Address Translation (NAT), Cisco VPN Concentrator and IPSec, Cisco Authentication, Authorization, and Accounting (AAA), Content Services Switch (CSS), and the Cisco Secure Network Intrusion Detection System. This book is sure to become a dog eared reference for all Cisco engineers and administrators. - The one book that covers all major Cisco Internetworking concepts and configurations. - The only book to cross reference Cisco internetworking topics: Voice Over IP, Remote Access, Wireless, AVVID, and QoS. In addition, new technologies are covered in depth: AVVID, SIP, MGCP, and more. - A 1-stop reference for Cisco professionals needing coverage of core Cisco exam topics.

Intended for courses in TCP/IP, routing protocols and advanced networking. This volume presents an examination of exterior routing protocols (EGP and BGP) and advanced IP routing issues such as multicast routing, quality of service routing, Ipv6, and router management. It enables students learn IP design and management techniques.

Written for TCP/IP network administrators, protocol designers, and network application developers, this introductory text explains the inner workings of the OSPF (Open Shortest Path First) TCP/IP routing protocol for the Internet. Topics covered include: OSBF virtual links, NBMA (nonbroadcast multi-

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access) network segments, interactions with other routing protocols, and protocol extensions.

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Portland, OR

Quality of Service (QoS) is a standards effort to provide consistent levels of service despite delivery problems. Providing students with an understanding of the technologies and techniques that will enable Internet QoS, this book is for courses in network management.

This book explains how to send IP data packets from one source to multiple receivers. You will discover how multicasting (one-to-many or many-to-many) can dramatically increase the efficiency of a network compared to unicasting (one-to-one) or broadcasting (one-to-all) transmission. Multicasting is critical for mass media streaming sources such as IP television and Internet radio. Without the use of multicasting, a 3 Mbps television streaming service would require data connections of 30 Gbps to provide service to 10,000 customers. This book explains the fundamentals of how multicasting systems operate including how members find, join and disconnect from multicast sessions. You will learn about addressing along with multicast member and group management. Explained are some of the ways that multicast systems can provide varying levels of quality of service for different multicast members. There are many types of multicast protocols to

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choose from and you will learn how the characteristics vary between the protocols such as latency, scalability and protocol overhead. The multicast protocols explained in this book include IGMP, PIM-DM, PIM-SM, MOSPF, CBT and BGMP. Multicast security methods are covered that can be used to ensure only authorized members may attach and decode multicast media. An introduction to emerging gridcasting and peercasting processes is included. Some of the most important topics featured are:

- .Multicast Applications and Operation
- .Dense and Sparse Mode Multicasting
- .Intra-Domain and Inter-Domain Multicasting
- .Bandwidth Control
- .Multicast Quality of Service
- .Multicast Security
- .Member Addressing and Group Management
- .Multicast Protocols IGMP, PIM-SM, PIM-DM, MOSPF, CBT, and BGMP.
- .Multicasting in Ethernet Networks
- .Gridcasting and Peercasting

The most common transmission scheme used in networks today is unicast, which represents "one-to-one" transmission with one sender and one receiver. Sometimes there is a need for one host to send packets that are received by multiple hosts. The problem with implementing this kind of transmission using unicast is that the stream of packets must be replicated as many times as there are receivers. IP Multicast addresses the problem by intelligently sending only one stream of packets and then replicating the stream when it reaches the target

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domain that includes multiple receivers or reaches a necessary bifurcation point leading to different receiver domains. In this IBM® Redpapers™ publication, we introduce principles of IP Multicast and describe the IPv4 addressing used for multicast. We discuss the protocols that are used to implement multicast in an IP network and then provide the general IP Multicast configuration procedures and then presents IP Multicast configuration in a sample network using IBM System Networking Ethernet Switches. We conclude this paper with command references that include all commands and their parameters for configuration of multicast protocols and features. After understanding the basics of how to configure IP Multicast for the networking scenario described in this paper, IT network professionals will be able replicate a similar design and configuration to suit their network infrastructure.

It used to be that two laptops, sitting side by side, couldn't communicate with each other; they may as well have been a thousand miles apart. But that was then, before the advent of Zero Configuration Networking technology. This amazing cross-platform open source technology automatically connects electronic devices on a network, allowing them to interoperate seamlessly-without any user configuration. So now you don't have to lift a finger! Needless to say, it has completely changed the way people connect to devices and programs for printing,

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file sharing, and other activities. Zero Configuration Networking: The Definitive Guide walks you through this groundbreaking network technology, with a complete description of the protocols and ways to implement network-aware applications and devices. Written by two Zero Configuration Networking experts, including one of Apple's own computer scientists, the book covers more than just file sharing and printing. Zero Configuration Networking also enables activities such as music and photo sharing and automatic buddy discovery on Instant Messaging applications. In fact, Zero Configuration Networking can be used for virtually any device that can be controlled by a computer. And this handy guide has the inside scoop on all of its capabilities- and how you can easily apply them in your own environment. For the technically advanced, Zero Configuration Networking: The Definitive Guide examines the three core technologies that make up Zero Configuration Networking: Link-Local Addressing, Multicast DNS, and DNS Service Discovery. It also reviews a series of APIs, including C-API, Java API, CFNetServices, and Cocoa's NSNetServices. Whether you want to understand how iTunes works, or you want to network a series of laptops and other devices at your office for maximum efficiency, you'll find all the answers in this authoritative guide.

Building Switched Networks provides a comprehensive,

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technical survey of the networking technologies that comprise the core of evolving LAN and WAN infrastructures. This book gives you essential background information, clear descriptions of relevant technologies, and an understanding of how those technologies will be employed throughout networks in the near future. In particular, the text focuses on developments that support our increasing demand for network bandwidth - multilayer switching delivery guarantees, and multicasting - and examines performance issues, resource allocation, network policy, and network services. The definitive guide to designing and deploying Cisco IP multicast networks Clear explanations of the concepts and underlying mechanisms of IP multicasting, from the fundamentals to advanced design techniques Concepts and techniques are reinforced through real-world network examples, each clearly illustrated in a step-by-step manner with detailed drawings Detailed coverage of PIM State Rules that govern Cisco router behavior In-depth information on IP multicast addressing, distribution trees, and multicast routing protocols Discussions of the common multimedia applications and how to deploy them Developing IP Multicast Networks, Volume I, covers an area of networking that is rapidly being deployed in many enterprise and service provider networks to support applications such as audio and videoconferencing, distance learning, and data replication. The concepts used in IP multicasting are unlike any other network protocol, making this book a critical tool for networking professionals who are implementing this technology. This book provides a solid foundation of basic IP multicast concepts, as well as the information needed to actually design and deploy IP multicast networks. Using examples of common network topologies, author Beau Williamson discusses the issues that network engineers face when trying to manage traffic flow. Developing IP Multicast Networks, Volume I, includes an in-depth

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discussion of the PIM protocol used in Cisco routers and detailed coverage of the rules that control the creation and maintenance of Cisco mroute state entries. The result is a comprehensive guide to the development and deployment of IP multicast networks using Cisco routers and switches. Get a clear picture of IP Multicast applications for delivering commercial high-quality video services This book provides a concise guide to current IP Multicast technology and its applications, with a focus on IP-based Television (IPTV) and Digital Video Broadcast-Handheld (DVB-H) applications—areas of tremendous commercial interest. Traditional phone companies can use IP Multicast technology to deliver video services over their networks; cell phone companies can use it to stream video to handheld phones and PDAs; and many cable TV companies are considering upgrading to IP technology. In addition to applications in industries seeking to provide high-quality digital video and audio, there are numerous other practical uses: multi-site corporate videoconferencing; broad distribution of financial data, stock quotes, and news bulletins; database replication; software distribution; and content caching (for example, Web site caching). After an introduction that gets readers up to speed on the basics, IP Multicast with Applications to IPTV and Mobile DVB-H: Discusses multicast addressing for payload and payload forwarding Covers routing in a variety of protocols, including PIM-SM, CBT, PIM-DM, DVMRP, and MOSPF Discusses multicasting in IPv6 environments and Multicast Listener Discovery (MLD) Features examples of IP Multicast applications in the IPTV and mobile DVB-H environments Includes reference RFCs and protocols placed in the proper context of a commercial-grade infrastructure for the delivery of robust, entertainment-quality linear and nonlinear video programming This is a concise, compact reference for practitioners who seek a quick, practical review

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of the topic with an emphasis on the major and most often used aspects of the technology. It serves as a hands-on resource for engineers in the communications industry or Internet design, content providers, and researchers. It's also an excellent text for college courses on IP Multicast and/or IPTV.

"Cisco OSPF Command and Configuration Handbook is a clear, concise, and complete source of documentation for all Cisco IOS Software OSPF commands. The way you use this book will depend on your objectives. If you are preparing for the CCIE written and lab exams, then this book can be used as a laboratory guide to learn the purpose and proper use of every OSPF command. If you are a network designer, then this book can be used as a ready reference for any OSPF command. Author Bill Parkhurst provides concise snapshots of every command with regard to command purpose, usage, syntax explanation, initial introduction in Cisco IOS Software, and cross references to related commands also covered in the book. This book covers many OSPF topic areas, including interface configuration, OSPF area configuration, route filtering, OSPF process configuration, route cost, default route generation, redistribution, administrative distance, OSPF neighbor relationships, route summarization, and show, debug, and clear commands"--Resource description page.

Routing TCP/IP, Volume II: CCIE Professional Development, Second Edition The definitive guide to Cisco exterior routing protocols and advanced IP routing issues—now completely updated Praised in its first edition for its readability, breadth, and depth, Routing TCP/IP, Volume II, Second Edition will help you thoroughly understand modern exterior routing protocols and implement them with Cisco routers. Best-selling author Jeff Doyle offers crucial knowledge for every network professional who must manage routers to support growth and change. You'll find configuration and troubleshooting lessons

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that would cost thousands to learn in a classroom, plus up-to-date case studies, examples, exercises, and solutions.

Routing TCP/IP, Volume II, Second Edition covers routing and switching techniques that form the foundation of all Cisco CCIE tracks. Its expert content and CCIE structured review makes it invaluable for anyone pursuing this elite credential. While its examples focus on Cisco IOS, the book illuminates concepts that are fundamental to virtually all modern networks and routing platforms. Therefore, it serves as an exceptionally practical reference for network designers, administrators, and engineers in any environment.

- Review core inter-domain routing concepts, and discover how exterior routing protocols have evolved
- Master BGP's modern operational components
- Effectively configure and troubleshoot BGP
- Control path attributes and selection to define better routes
- Take full advantage of NLRI and routing policies
- Provide for load balancing and improved network scalability
- Extend BGP to multiprotocol environments via MP-BGP
- Deploy, configure, manage, troubleshoot, and scale IP multicast routing
- Implement Protocol Independent Multicast (PIM): Dense Mode, Sparse Mode, and Bidirectional
- Operate, configure, and troubleshoot NAT in IPv4-IPv4 (NAT44) and IPv6-IPv4 (NAT64) environments
- Avoid policy errors and other mistakes that damage network performance

This book is part of the CCIE Professional Development series, which offers expert-level instruction on network design, deployment, and support methodologies to help networking professionals manage complex networks and prepare for the CCIE exams. Category: Networking Covers: BGP, Multicast, and NAT

Developing IP Multicast Networks Cisco Press

Objectives The purpose of Top-Down Network Design, Third Edition, is to help you design networks that meet a customer's business and technical goals. Whether your

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customer is another department within your own company or an external client, this book provides you with tested processes and tools to help you understand traffic flow, protocol behavior, and internetworking technologies. After completing this book, you will be equipped to design enterprise networks that meet a customer's requirements for functionality, capacity, performance, availability, scalability, affordability, security, and manageability. Audience This book is for you if you are an internetworking professional responsible for designing and maintaining medium- to large-sized enterprise networks. If you are a network engineer, architect, or technician who has a working knowledge of network protocols and technologies, this book will provide you with practical advice on applying your knowledge to internetwork design. This book also includes useful information for consultants, systems engineers, and sales engineers who design corporate networks for clients. In the fast-paced presales environment of many systems engineers, it often is difficult to slow down and insist on a top-down, structured systems analysis approach. Wherever possible, this book includes shortcuts and assumptions that can be made to speed up the network design process. Finally, this book is useful for undergraduate and graduate students in computer science and information technology disciplines. Students who have taken one or two courses in networking theory will find Top-Down Network Design, Third Edition, an approachable introduction to the engineering and business issues related to developing real-world networks that solve typical business problems. Changes for the Third Edition Networks have changed in many ways since the second edition was published. Many legacy technologies have disappeared and are no longer covered in the book. In addition, modern networks have become multifaceted, providing support for numerous bandwidth-hungry

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applications and a variety of devices, ranging from smart phones to tablet PCs to high-end servers. Modern users expect the network to be available all the time, from any device, and to let them securely collaborate with coworkers, friends, and family. Networks today support voice, video, high-definition TV, desktop sharing, virtual meetings, online training, virtual reality, and applications that we can't even imagine that brilliant college students are busily creating in their dorm rooms. As applications rapidly change and put more demand on networks, the need to teach a systematic approach to network design is even more important than ever. With that need in mind, the third edition has been retooled to make it an ideal textbook for college students. The third edition features review questions and design scenarios at the end of each chapter to help students learn top-down network design. To address new demands on modern networks, the third edition of Top-Down Network Design also has updated material on the following topics: √ Network redundancy √ Modularity in network designs √ The Cisco SAFE security reference architecture √ The Rapid Spanning Tree Protocol (RSTP) √ Internet Protocol version 6 (IPv6) √ Ethernet scalability options, including 10-Gbps Ethernet and Metro Ethernet √ Network design and management tools

Whereas unicast routing determines a path from one source node to one destination node, multicast routing determines a path from one source to many destinations, or from many sources to many destinations. We survey multicast routing methods for when the set of destinations is static, and for when it is dynamic. While most of the methods we review are tree based, some non-tree methods are also discussed. We survey results on the shape of multicast trees, delay constrained multicast routing, aggregation of multicast traffic, inter-domain multicast, and multicast virtual private networks. We focus on basic algorithmic principles, and mathematical

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models, rather than implementation level protocol details. Many historically important methods, even if not currently used, are reviewed to give perspective on the evolution of multicast routing.

Kubernetes has become an essential part of the daily work for most system, network, and cluster administrators today. But to work effectively together on a production-scale Kubernetes system, they must be able to speak the same language. This book provides a clear guide to the layers of complexity and abstraction that come with running a Kubernetes network. Authors James Strong and Vallery Lancey bring you up to speed on the intricacies that Kubernetes has to offer for large container deployments. If you're to be effective in troubleshooting and maintaining a production cluster, you need to be well versed in the abstraction provided at each layer. This practical book shows you how. Learn the Kubernetes networking model Choose the best interface for your clusters from the CNCF Container Network Interface project Explore the networking and Linux primitives that power Kubernetes Quickly troubleshoot networking issues and prevent downtime Examine cloud networking and Kubernetes using the three major providers: Amazon Web Services, Google Cloud, and Microsoft Azure Learn the pros and cons of various network tools--and how to select the best ones for your stack

Take an in-depth tour of core Internet protocols and learn how they work together to move data packets from one network to another. With this concise book, you'll delve into the aspects of each protocol, including operation basics and security risks, and learn the function of network hardware such as switches and routers. Ideal for beginning network engineers, each chapter in this book includes a set of review questions, as well as practical, hands-on lab exercises.

Understand basic network architecture, and how protocols

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and functions fit together Learn the structure and operation of the Eth.

The comprehensive, hands-on guide for resolving IP routing problems Understand and overcome common routing problems associated with BGP, IGRP, EIGRP, OSPF, IS-IS, multicasting, and RIP, such as route installation, route advertisement, route redistribution, route summarization, route flap, and neighbor relationships Solve complex IP routing problems through methodical, easy-to-follow flowcharts and step-by-step scenario instructions for troubleshooting Obtain essential troubleshooting skills from detailed case studies by experienced Cisco TAC team members Examine numerous protocol-specific debugging tricks that speed up problem resolution Gain valuable insight into the minds of CCIE engineers as you prepare for the challenging CCIE exams As the Internet continues to grow exponentially, the need for network engineers to build, maintain, and troubleshoot the growing number of component networks has also increased significantly. IP routing is at the core of Internet technology and expedient troubleshooting of IP routing failures is key to reducing network downtime and crucial for sustaining mission-critical applications carried over the Internet. Though troubleshooting skills are in great demand, few networking professionals possess the knowledge to identify and rectify networking problems quickly and efficiently. Troubleshooting IP Routing Protocols provides working solutions necessary for networking engineers who are pressured to acquire expert-level skills at a moment's notice. This book also serves as an additional study aid for CCIE candidates. Authored by Cisco Systems engineers in the Cisco Technical Assistance Center (TAC) and the Internet Support Engineering Team who troubleshoot IP routing protocols on a daily basis, Troubleshooting IP Routing Protocols goes through a step-by-step process to solving real-

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world problems. Based on the authors' combined years of experience, this complete reference alternates between chapters that cover the key aspects of a given routing protocol and chapters that concentrate on the troubleshooting steps an engineer would take to resolve the most common routing problems related to a variety of routing protocols. The book provides extensive, practical coverage of BGP, IGRP, EIGRP, OSPF, IS-IS, multicasting, and RIP as run on Cisco IOS Software network devices. Troubleshooting IP Routing Protocols offers you a full understanding of invaluable troubleshooting techniques that help keep your network operating at peak performance. Whether you are looking to hone your support skills or to prepare for the challenging CCIE exams, this essential reference shows you how to isolate and resolve common network failures and to sustain optimal network operation. This book is part of the Cisco CCIE Professional Development Series, which offers expert-level instruction on network design, deployment, and support methodologies to help networking professionals manage complex networks and prepare for CCIE exams.

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Thoroughly revised and expanded, this second edition adds sections on MPLS, Security, IPv6, and IP Mobility and presents solutions to the most common configuration problems.

Offering new services is a great way for your organization to drive traffic and boost revenue, and what better foundation for these services than IP? This much is a given. The difficulty is uniting business and technical perspectives in a cohesive development and deployment process. Meeting this challenge is the focus of *Developing IP-Based Services*. The only book of its kind devoted exclusively to IP-based services, it provides a blueprint for all the engineers, managers, and analysts who must come together to build these services and bring them online. Inside, you'll find just the right balance of business and technical coverage, introduced with a lucid discussion of the principles of service development and wrapped up with three case studies illustrating effective provisioning in today's marketplace. Read the chapters relating to your role, and you'll play it more successfully. Have your team read the entire book, and you'll achieve a level of collaboration and shared understanding that will quickly accrue to the bottom line. * Valuable insight from authors with extensive service provisioning and product development experience. * Written for business and technical readers at a wide range of companies, including established telecoms, ISPs, ASPs, Clecs, bandwidth brokers, and vendors. * Probes the business issues that will make or break your effort, including shortening the development cycle and choosing a competitive model. * Provides the technical coverage required for successful implementation, according to the terms of the

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business model you choose. * Focuses on the IP technologies that offer your service and its users the greatest value, including MPLS, Voice Over IP, and multicast. * Helps you meet tough challenges relating to security and Quality of Service. * Concludes with case studies illustrating successful service development and deployment in three companies.

All readers need to know to deploy IP Multicasting now--and optimize it tomorrow--is found within these pages. This is one of the first books to closely examine the protocols which make Multicasting possible--and the thorny routing issues that arise in enterprise Multicasting.

Written by Cisco "RM" CCIEs "TM, " Technical Marketing Engineers, and Systems Engineers who have real-life experience with Cisco "RM" VoIP networks, this guide includes coverage of Virtual Private Networks (VPNs), admission control, security, fax and modem traffic, and unified messaging. Learn from real-world scenarios.

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