Ip Multicast With Applications To Iptv And Le Dvb H

One of the first books to provide a comprehensive description of OPNET® IT Guru and Modeler software, The Practical OPNET® User Guide for Computer Network Simulation explains how to use this software for simulating and modeling computer networks. The included laboratory projects help readers learn different aspects of the software in a hands-on way. Quickly Locate Instructions for Performing a Task The book begins with a systematic introduction to the basic features of OPNET, which are necessary for performing any network simulation. The remainder of the text describes how to work with various protocol layers using a top-down approach. Every chapter explains the relevant OPNET features and includes step-by-step instructions on how to use the features during a network simulation. Gain a Better Understanding of the "Whats" and "Whys" of the Simulations Each laboratory project in the back of the book presents a complete simulation and reflects the same progression of topics found in the main text. The projects describe the overall goals of the experiment, discuss the general network topology, and give a high-level description of the system configuration required to complete the simulation. Discover the Complex Functionality Available in OPNET By providing an in-depth look at the rich features of OPNET software, this guide is an invaluable reference for IT professionals and researchers who need to create simulation models. The book also helps newcomers understand OPNET by organizing the material in a logical manner that corresponds to the protocol layers in a network.

Written by key members of Juniper Network's ScreenOS development team, this one-of-a-kind Cookbook helps you troubleshoot secure networks that run ScreenOS firewall appliances. Scores of recipes address a wide range of security issues, provide step-by-step solutions, and include discussions of why the recipes work, so you can easily set up and keep ScreenOS systems on track. ScreenOS Cookbook gives you real-world fixes, techniques, and configurations that save time -- not hypothetical situations out of a textbook. The book comes directly from the experience of engineers who have seen and fixed every conceivable ScreenOS network topology, from small branch office firewalls to appliances for large core enterprise and government, to the heavy duty protocol driven service provider network. Its easy-to-follow format enables you to find the topic and specific recipe you need right away and match it to your network and security issue. Topics include: Configuring and managing ScreenOS firewalls NTP (Network Time Protocol) Interfaces, Zones, and Virtual Routers Mitigating Denial of Service Attacks DDNS, DNS, and DHCP IP Routing Policy-Based Routing Elements of Policies Authentication Application Layer Gateway (SIP, H323, RPC, RTSP, etc.,) Content Security Managing Firewall Policies IPSEC VPN RIP, OSPF, BGP, and NSRP Multicast -- IGPM, PIM, Static Mroutes Wireless Along with the usage and troubleshooting recipes, you will also find plenty of tricks, special considerations, ramifications, and general discussions of interesting tangents and network extrapolation. For the accurate, hard-nosed information you require to get your ScreenOS firewall network secure and operating smoothly , no book matches ScreenOS Cookbook.

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.

Detailed examples and case studies make this the ideal hands-on guide to implementing Juniper Networks systems. It contains something for everyone, and covers all the basics for beginners while challenging experience users with tested configuration examples throughout the book.

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Java Message Service, Second Edition, is a thorough introduction to the standard API that supports "messaging" -- the software-to-software exchange of crucial data among network computers. You'll learn how JMS can help you solve many architectural challenges, such as integrating dissimilar systems and applications, increasing scalability, eliminating system bottlenecks, supporting concurrent processing, and promoting flexibility and agility. Updated for JMS 1.1, this second edition also explains how this vendor-agnostic specification will help you write messaging-based applications using IBM's MQ, Progress Software's SonicMQ, ActiveMQ, and many other proprietary messaging services. With Java Message Service, you will: Build applications using point-to-point and publish-and-subscribe messaging models Use features such as transactions and durable subscriptions to make an application reliable Implement messaging within Enterprise JavaBeans (EJB) using message-driven beans Use JMS with RESTful applications and with the Spring application framework Messaging is a powerful paradigm that makes it easier to uncouple different parts of an enterprise application. Java Message Service, Second Edition, will quickly teach you how to use the key technology that lies behind it.

This is the eBook version of the printed book.Note that this eBook does not contain the practice test software that accompanies the print book. 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 CCIE Routing and Switching 4.0 blueprint exam topics Assess your knowledge with chapter-opening quizzes Review key concepts with Exam Preparation Tasks CCIE Routing

and Switching Certification Guide, Fourth Edition, is a best-of-breed Cisco® exam study guide that focuses specifically on the objectives for the CCIE® Routing and Switching written exam. Well-respected networking professionals Wendell Odom, Rus Healy, and Denise Donohue 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. CCIE Routing and Switching Certification Guide, Fourth Edition, 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 allow you to decide how much time you need to spend on each section. Exam topic lists make referencing easy. Chapter-ending Exam Preparation Tasks sections help drill you on key concepts you must know thoroughly. Well regarded for its level of detail, assessment features, 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. CCIE Routing and Switching Certification Guide, Fourth Edition, is part of a recommended learning path from Cisco that includes 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 www.cisco.com/go/authorizedtraining. The official study guide helps you master all the topics on the CCIE Routing and Switching written exam, including: Bridging and LAN switching IP addressing, IP services, TCP, UDP, and application protocol details Layer 3 forwarding concepts EIGRP, OSPF, and BGP routing protocols Quality of service Frame Relay MPLS IP multicast IPv6 Router and switch security Troubleshooting This volume is part of the Certification Guide Series from Cisco Press®. Books in this series provide officially developed exam preparation materials that offer assessment, review, and practice to help Cisco Career Certification candidates identify weaknesses, concentrate their study efforts, and enhance their confidence as exam day nears.

Written by the instructors and creators of the JNTCP-ER Certification Exams, JUNOS Enterprise Routing is the only comprehensive book for Juniper enterprise and edge routing environments. It offers complete coverage of all the services available to the JUNOS administrator, including JUNOS Enhanced Services (ES). This book is the official study guide for all three Juniper Enterprise Routing certification exams, and is highly recommended reading to pass the exams. With its field-guide emphasis on practical solutions, you can easily take the book beyond the classroom and into working networks as a design, maintenance, and troubleshooting reference par excellence. JUNOS Enterprise Routing covers all three certification exams in this track: Juniper Networks Certified Internet Associate (JNCIA-ER) Juniper Networks Certified Internet Specialist (JNCIS-ER) Juniper Networks Certified Internet Expert (JNCIE-ER) With more services such as voice, conference, and multicast on the IP router platform, the market for enterprise routers is growing exponentially, and the need for certified engineers to keep up with network developments in protocols and security is paramount. For everyone who works with Juniper enterprise and edge routing environments, this is a must-have book.

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, 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.

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 choose from and you will learn how the characteristics vary between the protocols such 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

Peer-to-Peer (P2P) networks enable users to directly share digital content (such as audio, video, and text files) as well as real-time data (such as telephony traffic) with other users without depending on a central server. Although originally popularized by unlicensed online music services such as Napster, P2P networking has recently emerged as a viable multimillion dollar business model for the distribution of information, telecommunications, and social networking. Written at an accessible level for any reader familiar with fundamental Internet protocols, the book explains the conceptual operations and architecture underlying basic P2P systems using well-known commercial systems as models and also provides the means to improve upon these models with innovations that will better performance, security, and flexibility. Peer-to-Peer Networking and Applications is thus both a valuable starting point and an important reference to those practitioners employed by any of the 200 companies with approximately $400 million invested in this new and lucrative technology. Uses well-known commercial P2P systems as models, thus demonstrating real-world applicability. Discusses how current research trends in wireless networking, high-def content, DRM, etc. will intersect with P2P, allowing readers to account for future developments in their designs. Provides online access to the Overlay Weaver P2P emulator, an open-source tool that supports a number of peer-to-peer applications with which readers can practice.

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 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.

IP Multicast with Applications to IPTV and Mobile DVB-HJohn Wiley & Sons

This guide to multicasting routing explains the 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 guide for system and network administrators explains TCP, IP, and UDP, including protocols, packets, field structure, and platform-specific notes.

Rapid advances in networking technology have promoted a fully revised second edition of this successful introduction to communication networks.

Provides the most thorough examination of Internet technologies and applications for researchers in a variety of related fields. For the average Internet consumer, as well as for experts in the field of networking and Internet technologies.

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. 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 (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
Selecting MPLS VPN Services helps you analyze migration options, anticipate migration issues, and properly deploy IP/MPLS VPNs. Detailed configurations illustrate effective deployment while case studies present available migration options and walk you through the process of selecting the best option for your network. Part I addresses the business case for moving to an IP/MPLS VPN network, with a chapter devoted to the business and technical issues you should review when evaluating IP/MPLS VPN offerings from major providers. Part II inclues detailed deployment guidelines for the technologies used in the IP/MPLS VPN.
Multicast Sockets: Practical Guide for Programmers is a hands-on, application-centric approach to multicasting (as opposed to a network-centric one) that is filled with examples, ideas, and experimentation. Each example builds on the last to introduce multicast concepts, frameworks, and APIs in an engaging manner that does not burden the reader with lots of theory and jargon. The book is an introduction to multicasting but assumes that the reader has a background in network programming and is proficient in C or Java. After reading the book, you will have a firm grasp on how to write a multicast program. Author team of instructor and application programmer is reflected in this rich instructional and practical approach to the subject material Only book available that provides a clear, concise, application-centric approach to programming multicast applications and covers several languages—C, Java, and C# on the .NET platform Covers important topics like service models, testing reachability, and addressing and scoping Includes numerous examples and exercises for programmers and students to test what they have learned
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 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 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 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 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.
In today's interconnected society, media, including news, entertainment, and social networking, has increasingly shifted to an online, ubiquitous format. Artists and audiences will achieve the greatest successes by utilizing these new digital tools. Digital Arts and Entertainment: Concepts, Methodologies, Tools, and Applications examines the latest research and findings in electronic media, evaluating the staying power of this increasingly popular paradigm along with best practices for those engaged in the field. With chapters on topics ranging from an introduction to online entertainment to the latest advances in digital media, this impressive three-volume reference source will be important to researchers, practitioners, developers, and students of the digital arts.
The Internet is quickly becoming the backbone for the worldwide information society of the future. Point-to-point communication dominates the network today, however, group communication--using multicast technology--will rapidly gain importance as digital, audio, and video transmission, push technology for the Web, and distribution of software updates to millions of end users become ubiquitous. Multicast Communication: Protocols and Applications explains how and why multicast technology is the key to this transition. This book provides network engineers, designers, and administrators with the underlying concepts as well as a complete and detailed description of the protocols and algorithms that comprise multicast. * Presents information on the entire range of multicast protocols, including, PIM-SM, MFTP, and PGM and explains their mechanisms, trade-offs, and solid approaches to their implementation * Provides an in-depth examination of Quality of Service concepts, including: RSVP, ST2, IntServ, and DiffServ * Discusses group address allocation and scoping * Discusses multicast implementation in ATM networks * Builds a solid understanding of the Mbone and surveys the successes and current limitations of real multicast applications on the Internet such as videoconferencing, whiteboards, and distance learning
Provides options for implementing IPv6 and IPv6 multicast in service provider networks New technologies, viewing paradigms, and content distribution approaches are taking the TV/video services industry by storm. Linear and Nonlinear Video and TV Applications: Using IPv6 and IPv6 Multicast identifies five emerging trends in next-generation delivery of entertainment-quality video. These trends are observable and can be capitalized upon by progressive service providers, telcos, cable operators, and ISPs. This comprehensive guide explores these evolving directions in the TV/video services industry, including worldwide deployment of IPv6, IPTV services, web-produced video content, and the plethora of different screens available, from TV to iPad. It offers practical suggestions as to how these technologies can be implemented in service provider networks to support cost-effective delivery of entertainment, and how new revenue-generating services can be brought to market. Important topics include: Evolving video consumption habits and possible network implications An overview of IPv6 address capabilities, protocols, quality of service (QoS), and more Process descriptions of IP multicast and IPv6 multicast approaches and challenges A detailed overview of IPTV systems and technologies, including architectural requirements, QoE and QoS, security and content protection,

networks, and more Internet-based TV technologies: streaming, content distribution networks, P2P networks, and cloud computing Non-traditional video content sources and their implications Linear and Nonlinear Video and TV Applications: Using IPv6 and IPv6 Multicast is indispensable reading for planners, CTOs, and engineers at broadcast TV operations, Cable TV operations, satellite operations, Internet and IS providers, telcos, and wireless providers.

This book constitutes the refereed proceedings of the Thyrrhenian International Workshop on Digital Communication, IWDC 2001, held in Taormina, Italy in September 2001. The 46 revised full papers presented are a mix of invited papers and selected submitted papers and reflect the state of the art in multiservice IP network research and development. The book offers topical sections on WDM technologies for the next generation Internet, mobile and wireless Internet access, QoS in the next generation Internet, multicast and routing in IP networks, mulitmedia services over the Internet, performance of Internet protocols, dynamic service management, and source encoding and Internet applications.

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-access) network segments, interactions with other routing protocols, and protocol extensions. Annotation copyrighted by Book News, Inc., Portland, OR

This book describes the key concepts, principles and implementation options for creating high-assurance cloud computing solutions. The guide starts with a broad technical overview and basic introduction to cloud computing, looking at the overall architecture of the cloud, client systems, the modern Internet and cloud computing data centers. It then delves into the core challenges of showing how reliability and fault-tolerance can be abstracted, how the resulting questions can be solved, and how the solutions can be leveraged to create a wide range of practical cloud applications. The author’s style is practical, and the guide should be readily understandable without any special background. Concrete examples are often drawn from real-world settings to illustrate key insights. Appendices show how the most important reliability models can be formalized, describe the API of the Isis2 platform, and offer more than 80 problems at varying levels of difficulty.

IP multicasting is an emerging technology that gives you considerable cost and bandwidth savings - as it paves the way for the broadcasting of voice, video, and data over the Internet and corporate Intranets, without depleting network resources. IP Multicasting: Concepts and Applications goes far beyond an overview of what this technology is. It explains how it works inside real networks, reviews all the major products available today, and tells you what to look for when purchasing and upgrading network equipment and software. Ideal for systems managers, network administrators, systems integrators, Internet managers, and even Chief Information Officers implementing or planning to implement IP multicasting, IP Multicasting: Concepts and Application provides the technical foundation for understanding IP and broadcasting over IP networks; explains how IP multicasting works in a variety of environments, including frame relay, Layer 3 Switched, and satellite networks; and includes a complete resource directory, giving you one-stop access to reliable standards-based information, plus a comprehensive list of acronyms and a glossary.

Next-generation Internet providers face high expectations, as contemporary users worldwide expect high-quality multimedia functionality in a landscape of ever-expanding network applications. This volume explores the critical research issue of turning today’s greatly enhanced hardware capacity to good use in designing a scalable multicast protocol for supporting large-scale multimedia services. Linking new hardware to improved performance in the Internet’s next incarnation is a research hot-spot in the computer communications field. The methodical presentation deals with the key questions in turn: from the mechanics of multicast protocols to current state-of-the-art designs, and from methods of theoretical analysis of these protocols to applying them in the ns2 network simulator, known for being hard to extend. The authors’ years of research in the field inform this thorough treatment, which covers details such as applying AOM (application-oriented multicast) protocol to IPTV provision and resolving the practical design issues thrown up in creating scalable AOM multicast service models.

1. What Makes an Embedded Application Tick? -- 2. Memory in Embedded Systems -- 3. Memory Architectures -- 4. How Software Influences Hardware Design -- 5. Migrating your Software to a New Processor Architecture -- 6. Embedded Software for Transportation Applications -- 7. How to Choose a CPU for Your SoC Design -- 8. An Introduction to USB Software -- 9. Towards USB 3.0.

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.

Deploying Next Generation Multicast-Enabled Applications: Label Switched Multicast for MPLS VPNs, VPLS, and Wholesale Ethernet provides a comprehensive discussion of Multicast and MVPN standards—next-generation Multicast-based standards, Multicast Applications, and case studies with detailed configurations. Focusing on three vendors—Juniper, Cisco, and Alcatel-Lucent—the text features illustrations that contain configurations of JUNOS, TiMOS (Alcatel’s OS), or Cisco IOS, and each configuration is explained in great detail. Multiple- rather than single-vendor configurations were selected for the sake of diversity as well as to highlight the direction in which the overall industry is going rather than that of a specific vendor. Beginning with a discussion of the building blocks or basics of IP Multicast, the book then details applications and emerging trends, including vendor adoptions, as well as the future of Multicast. The book is written for engineers, technical managers, and visionaries engaged in the development of next-generation IP Multicast infrastructures. Offers contextualized case studies for illustrating deployment of the Next Generation Multicast technology Provides the background necessary to understand current generation multi-play applications and their service requirements Includes practical tips on various migration options available for moving to the Next Generation framework from the legacy

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 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

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.

"Provides detailed information on existing Multicast and MVPN standards, referred to as Next-Generation Multicast based standards, Multicast Applications, and case studies with detailed configurations"--Provided by publisher.

Contains the latest research, case studies, theories, and methodologies within the field of wireless technologies.

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Large-scale applications are characterized by a large number of dynamic and often interactive group members. The nature of these applications is such that participants are not interested in all the content transmitted. We examine three currently available techniques to scope delivery of content to interested receivers in IP multicast: filtering, where data is filtered by middleware before passed to the application; addressing, where data is routed only to those receivers that express their interest; and hybrid approaches. We propose a framework that models large-scale application behavior. We use this framework to evaluate the performance of these applications and related protocols when the network is capable of filtering or addressing. Our results show that the current Internet architecture does not efficiently support large-scale applications because it can not efficiently manage multiple multicast groups. We show that network-level addressing is preferred to filtering and hybrid approaches given that groups are easy to create and manage. We highlight areas of research in the multicast architecture to bring about this change.