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DOUGLAS HADASSAH

Ethernet Passive Optical Networks Springer

Explaining what CWDM is, how it is achieved, and why it should be deployed, *Coarse Wavelength Division Multiplexing: Technologies and Applications* merges coverage of isolated aspects of Coarse Wavelength Division Multiplexing (CWDM) traditionally found as device-related or specific system topics. Emphasizing cost savings and performance enhancement, the book integrates information on component issues, system architectures, concepts for extensions and upgrades, as well as practical applications into a comprehensive, single-volume resource. Beginning with a summary of the ITU-T standards defining CWDM, the book addresses the three essential component classes, optical fibers, transceivers, and WDM filters, which combine to form the basis for the CWDM transmission link. The following chapters include coverage of different architectures such as hubbed rings and meshed networks, and upgrade paths to overcome limitations of current CWDM systems. The book outlines the feasibility of optically amplified CWDM systems, investigates the challenges present with high-speed CWDM and bidirectional transmission, and finally elucidates the importance of CWDM for a wide range of applications. Each chapter provides sufficient information to be used independently and contains references to relevant papers and articles for further study. The last sections of the book focus on applications and case studies where CWDM plays an ever-increasing role. They include extensive studies on networking, reach extension by amplification, and the latest concepts of transmission capacity upgrades using

increased bit-rates or new channel plans. Filled with practical information, the book provides a clear understanding of recent developments in the dynamic field of CWDM.

Optical and Microwave Technologies for Telecommunication Networks John Wiley & Sons

This resource provides the latest details on 5th generation photonic systems that can be readily applied to projects in the field. Moreover, the book provides valuable, time-saving tools for network simulation and modeling. It includes coverage of optical signal transmission systems and networks; a wide range of critical methods and techniques, such as MIMO (multiple-input and multiple-output) by employing spatial modes in few-mode and multicore optical fiber; OFDM (orthogonal frequency-division multiplexing) utilized to enhance the spectral efficiency and to enable elastic optical networking schemes; and advanced modulation and coding schemes to approach the Shannon's channel capacity limit. There are detailed discussions on the basic principles and applications of high-speed digital signal processing, as well as description of the most relevant post-detection compensation techniques

Broadband Communications Networks Elsevier

An in-depth piece that focuses on how companies can migrate their traditional networks to broadband—yet support new services without sacrificing the quality or profitability of either—this guide discusses which technology should be deployed and what the network impact of delivering such emerging services is.

WDM Systems and Networks John Wiley & Sons

The volume includes a set of selected papers extended and revised from the 2011 International Conference on Mechanical Engineering and Technology, held on London, UK, November 24-25, 2011. Mechanical engineering technology is the application of physical principles and current technological developments to the creation of useful machinery and operation design. Technologies such as solid models may be used as the basis for finite element analysis (FEA) and / or computational fluid dynamics (CFD) of the design. Through the application of computer-aided manufacturing (CAM), the models may also be used directly by software to create "instructions" for the manufacture of objects represented by the models, through computer numerically controlled (CNC) machining or other automated processes, without the need for intermediate drawings. This volume covers the subject areas of mechanical engineering and technology, and also covers interdisciplinary subject areas of computers, communications, control and automation. We hope that researchers, graduate students and other interested readers benefit scientifically from the book and also find it stimulating in the process.

Evolving the Access Network Springer Science & Business Media

Describes the major architectures, standards, and technologies of Passive Optical Networks (PONs) The ComSoc Guide to Passive Optical Networks provides readers with a concise explanation of the key features of Passive Optical Networks (PONs); the different types of PON architectures and standards; key issues of PON devices, management, and implementation; and the promising business opportunities in access networks. Written for a broad audience, ranging from developers to users, this indispensable book provides an understanding of the evolutionary path of PON access systems and their positioning with respect to the cable, copper, and wireless competitors for broadband access networks. In addition, The ComSoc Guide to Passive Optical Networks: Provides brief, high-level overviews of the architectures and applications of Fiber-to-the-Home (FTTH) or Fiber-to-the-Curb (FTTC) access networks and the alternative HFC, subscriber line, and WiMAX access systems Awards readers with a clear understanding of what BPON, GPON, WDM-PON and EPON are and how they work, together with an introduction to their respective standards Carefully defines all acronyms and technical terms, making the book accessible to those who may not be specialists in this area Gives readers an appreciation of the last mile problems in telecommunications access networks, and the opportunities in optical-wireless integration

FTTx Monthly Newsletter SPIE Press

This handbook is an authoritative, comprehensive reference on optical networks, the backbone of today's communication and information society. The book reviews the many underlying technologies that enable the global optical communications infrastructure, but also explains current research trends targeted towards continued capacity scaling and enhanced networking flexibility in support of an unabated traffic growth fueled by ever-emerging new applications. The book is divided into four parts: Optical Subsystems for Transmission and Switching, Core Networks, Datacenter and Super-Computer Networking, and Optical Access and Wireless Networks. Each chapter is written by world-renown experts that represent academia, industry, and international government and regulatory agencies. Every chapter provides a complete picture of its field, from entry-level information to a snapshot of the respective state-of-the-art technologies to emerging research trends, providing something useful for the novice who wants to get familiar with the field to the expert who wants to get a concise view of future trends.

Encyclopedia of Multimedia Technology and Networking, Second Edition John Wiley & Sons

Passive optical network (PON) technologies have become an important broadband access technology as a result of the growing demand for bandwidth-hungry video-on-demand applications. Written by the leading researchers and industry experts in the field, Passive Optical Networks provides coherent coverage of networking technologies, fiber optic transmission technologies, as well as the electronics involved in PON system development. Features: - An in-depth overview of PON technologies and the potential applications that they enable - Comprehensive review of all major PON standards and architecture evolutions, as well as their pros and cons - Balanced coverage of recent research findings with economic and engineering considerations - Presents system issues of protocols, performance, management and protection - Extensive references to standards and research materials for further studies This book provides an authoritative overview of PON technologies and system requirements and is ideal for engineers and managers in industry, university researchers, and graduate students. - Balances treatment of the optical technologies with systems issues such as protocols, performance, management and protection - Covers latest developments in WDM-PONS, protection switching, dynamic bandwidth allocation - Practical coverage with a chapter on PON applications and deployment - Case studies on implementing PONs

Broadband Access Networks Academic Press

The First to Present 3D Technology as Applied to Commercial Programming for the Consumer This is the first book to provide an overview of the technologies, standards, and infrastructure required to support the rollout of commercial real-time 3 Dimension Television/3 Dimension Video (3DTV/3DV) services. It reviews the required standards and technologies that have emerged—or are just emerging—in support of such new services, with a focus on encoding mechanisms formats and the buildout of the transport infrastructure. While there is a lot of academic interest in various intrinsic aspects of 3DTV, service providers and consumers ultimately tend to take a system-level view. 3DTV stakeholders need to consider the overall architectural system-level view of what it will take to deploy an infrastructure that is able to reliably and cost-effectively deliver a commercial-grade quality bundle of multiple 3DTV content channels to paying customers with high expectations. This text, therefore, takes such a system-level view, revealing how to actually deploy the technology. Presented in a self-contained, tutorial fashion, the book begins with a review of 3DTV in the marketplace and the opportunities and challenges therein. Recent industry events related to 3D are also discussed. From there, the fundamental visual concepts supporting stereographic perception of 3DTV/3DV are explained, as are encoding approaches. Readers will understand frame mastering and compression for conventional stereo video (CSV) and more advanced methods such as video plus depth (V+D), multi-view video plus depth (MV+D), and layered depth video (LDV). Next, the elements of an end-to-end 3DTV system are covered from a satellite delivery perspective, with explanations of digital video broadcasting (DVB) and DVB-handheld. Transmission technologies are assessed for terrestrial and IPTV-based architecture; IPv6 is reviewed in detail. Finally, the book presents 3DTV/3DV standardization and related activities, which are critical to any type of broad deployment. System planners, the broadcast TV industry, satellite operators, Internet service providers, terrestrial telecommunication carriers, content developers, design engineers, venture capitalists, and students and professors are among those stakeholders in these services, and who will rely on this volume to discover the latest 3D advances, market opportunities, and competing technologies.

Digital and Analog Fiber Optic Communications for CATV and FTTx Applications McGraw Hill Professional

Broadband optical access network is an ideal solution to alleviate the first/last mile bottleneck of current Internet infrastructures. Richly illustrated throughout to help clarify important topics, Broadband Optical Access Networks covers the architectures, protocols enabling technologies of broadband optical access networks, and all current and future competing technologies for access networks. This comprehensive work presents the evolution of optical access networks, including reach extension, bandwidth enhancement, and discusses the convergence of optical and wireless technologies for broadband access, making it an invaluable reference for researchers, electrical engineers, and graduate students.

Fundamentals of Computer Networks Morgan Kaufmann

Describes the major architectures, standards, and technologies of Passive Optical Networks (PONs) The ComSoc Guide to Passive Optical Networks provides readers with a concise explanation of the key features of Passive Optical Networks (PONs); the different types of PON architectures and standards; key issues of PON devices, management, and implementation; and the promising business opportunities in access networks. Written for a broad audience, ranging from developers to users, this indispensable book provides an understanding of the evolutionary path of PON access systems and their positioning with respect to the cable, copper, and wireless competitors for broadband access networks. In addition, The ComSoc Guide to Passive Optical Networks: Provides brief, high-level overviews of the architectures and applications of Fiber-to-the-Home (FTTH) or Fiber-to-the-Curb (FTTC) access networks and the alternative HFC, subscriber line, and WiMAX access systems Awards readers with a clear understanding of what BPON, GPON, WDM-PON and EPON are and how they work, together with an introduction to their respective standards Carefully defines all acronyms and technical terms, making the book accessible to those who may not be specialists in this area Gives readers an appreciation of the last mile problems in telecommunications access networks, and the opportunities in optical-wireless integration

Broadband Optical Access Networks and Fiber-to-the-Home CRC Press

With optical fiber telecommunications firmly entrenched in the global information infrastructure, a key question for the future is how deeply will optical communications penetrate and complement other forms of communication (e.g., wireless access, on-premises networks, interconnects, and satellites). Optical Fiber Telecommunications, the seventh edition of the classic series that has chronicled the progress in the research and development of lightwave communications since 1979, examines present and future opportunities by presenting the latest advances on key topics such as: - Fiber and 5G-wireless access networks - Inter- and intra-data center communications - Free-space and quantum communication links Another key issue is the use of advanced photonics manufacturing and electronic signal processing to lower the cost of services and increase the system performance. To address this, the book covers: - Foundry and software capabilities for widespread user access to photonic integrated circuits - Nano- and microphotonic components - Advanced and nonconventional data modulation formats The traditional emphasis of achieving higher data rates and longer transmission distances are also addressed through chapters on space-division-multiplexing, undersea cable systems, and efficient reconfigurable networking. This book is intended as an ideal reference suitable for university and industry researchers, graduate students, optical systems implementers, network operators, managers, and investors. Quotes: "This book series, which owes much of its distinguished history to the late Drs. Kaminow and Li, describes hot and growing applied topics, which include long-distance and wideband systems, data centers, 5G, wireless networks, foundry production of photonic integrated circuits, quantum communications, and AI/deep-learning. These subjects will be highly beneficial for industrial R&D engineers, university teachers and students, and funding agents in the business sector." Prof. Kenichi Iga President (Retired), Tokyo Institute of Technology "With the passing of two luminaries, Ivan Kaminow and Tingye Li, I feared the loss of one of the premier reference books in the field. Happily, this new version comes to chronicle the current state-of-the-art and is written by the next generation of leaders. This is a must-have reference book for anyone working in or trying to understand the field of optical fiber communications technology." Dr. Donald B. Keck Vice President, Corning, Inc. (Retired) "This book is the seventh edition in the definitive series that was previously marshaled by the extraordinary Ivan Kaminow and Tingye Li, both sadly no longer with us. The series has charted the remarkable progress made in the field, and over a billion kilometers of optical fiber currently snake across the globe carrying ever-increasing Internet traffic. Anyone wondering about how we will cope with this incredible growth must read this book." Prof. Sir David Payne Director, Optoelectronics Research Centre, University of Southampton - Updated edition presents the latest advances in optical fiber components, systems, subsystems and networks - Written by leading authorities from academia and industry - Gives a self-contained overview of specific technologies, covering both the state-of-the-art and future research challenges

Digital Home Networking Springer Nature

Nowadays, the Internet plays a vital role in our lives. It is currently one of the most effective media that is shifting to reach into all areas in today's society. While we move into the next decade, the future of many emerging technologies (IoT, cloud solutions, automation and AI, big data, 5G and mobile technologies, smart cities, etc.) is highly dependent on Internet connectivity and broadband communications. The demand for mobile and faster Internet connectivity is on the rise as the voice, video, and data continue to converge to speed up business operations and to improve every aspect of human life. As a result, the broadband communication networks that connect everything on the Internet are now considered a complete ecosystem routing all Internet traffic and delivering Internet data faster and more flexibly than ever before. This book gives an insight into the latest research and practical aspects of the broadband communication networks in support of many emerging paradigms/applications of global Internet from the traditional architecture to the incorporation of smart applications. This book includes a preface and introduction by the editors, followed by 20 chapters written by leading international researchers, arranged in three parts. This book is recommended for researchers and professionals in the field and may be used as a reference book on broadband communication networks as well as on practical uses of wired/wireless broadband communications. It is also a concise guide for students and readers interested in studying Internet connectivity, mobile/optical broadband networks and concepts/applications of telecommunications engineering.

Advanced Optical Communication Systems and Networks John Wiley & Sons

This book presents new communication and networking technologies, an area that has gained significant research attention from both academia and industry in recent years. It also discusses the development of more intelligent and efficient communication technologies, which are an essential part of current day-to-day life, and reports on recent innovations in technologies, architectures, and standards relating to these technologies. The book

includes research that spans a wide range of communication and networking technologies, including wireless sensor networks, big data, Internet of Things, optical and telecommunication networks, artificial intelligence, cryptography, next-generation networks, cloud computing, and natural language processing. Moreover, it focuses on novel solutions in the context of communication and networking challenges, such as optimization algorithms, network interoperability, scalable network clustering, multicasting and fault-tolerant techniques, network authentication mechanisms, and predictive analytics.

FiWi Access Networks Information Gatekeepers Inc

A compelling treatment of FTTH Written by telecommunications pioneer Paul Green Jr., *Fiber to the Home* is a comprehensive examination of the technical and social implications of fiber to the home (FTTH), the technology that extends the current fiber optic backbone to optically connect it directly to homes and offices. *Fiber to the Home* addresses the payoffs expected from this impending technological revolution; provides a detailed guide to the optoelectronic components and architectures of which the system is made; and includes an equally thorough guide to the mechanics of deploying the fiber paths, whether underground or elevated. Additionally, the book concludes with a recent country-by-country survey of the legalities and the state of play in this important new trend. Green points out how completing the "last mile" between today's fiber network backbone and customer premises will not only unleash new usage modes for consumer computers, TVs, phones, and other terminal types, but will also empower both the computer and telecommunication industries toward new levels of investment and profitability. Aimed at a general audience, *Fiber to the Home* uses essentially no mathematics, and all terms are carefully explained and reinforced with a vocabulary quiz at the end of each chapter. Because of the tutorial emphasis of the explanations, the wide spectrum of readers affected by this emerging and ever-accelerating revolution will gain a thorough understanding of the technical details of FTTH that will aid them in the practice of their professions. These readers include: Technicians, craftsmen, and engineers involved in installing fiber systems Telecommunication network planners Venture investors curious about the future of this dynamic industry sector Research and product engineers who need to know the detailed architecture, cost, and performance imperatives of this "post-bubble" optical networking business opportunity Students interested in a vibrant new industry with new jobs and new R & D challenges Telecommunication regulators and attorneys who need a quick fix on what the technology is and what it does Individuals concerned with international competitiveness in an age when the country's information infrastructure is such a key ingredient for future growth With *Fiber to the Home*, readers are armed with all they need to fully understand and participate in the FTTH revolution.

Networking and Telecommunications: Concepts, Methodologies, Tools, and Applications Information Gatekeepers Inc

FTTX Networks: Technology Implementation and Operation provides an in-depth treatment of the technology and implementation of FTTX networks, discusses the environment that gave rise to FTTX, provides a survey of the available FTTX technologies, and gives users the state-of-the-art knowledge needed for successful deployment of FTTX. The book includes hands-on project planning engineering design and operations checklists, as well as recommended best practices for configuring FTTH systems and the data networks preceding them for IPTV, voice, and data, with case studies of actual FTTH systems and a methodology for predicting the performance of real systems. This book is a must-read for all network engineers, technical businesspeople, and technical specialists engaged in building FTTX networks, from technology selection, to fielding the network in production, to implementation. - Compares, contrasts, and explains FTTX technologies - Provides hands-on project planning, engineering design, and operations checklists, allowing for a quick climb up the network design, deployment, and implementation learning curves - Discusses recommended best practices for configuring FTTH systems and the data networks preceding them, for IPTV, voice, and data - Includes case studies of actual FTTH systems and their configurations - Covers a methodology for predicting the performance of real systems, particularly in the optical domain

Telecommunication Networks BoD – Books on Demand

Advances in hardware, software, and audiovisual rendering technologies of recent years have unleashed a wealth of new capabilities and possibilities for multimedia applications, creating a need for a comprehensive, up-to-date reference. The *Encyclopedia of Multimedia Technology and Networking*

provides hundreds of contributions from over 200 distinguished international experts, covering the most important issues, concepts, trends, and technologies in multimedia technology. This must-have reference contains over 1,300 terms, definitions, and concepts, providing the deepest level of understanding of the field of multimedia technology and networking for academicians, researchers, and professionals worldwide.

3DTV Content Capture, Encoding and Transmission Intl. Engineering Consortiu

"This multiple-volume publications exhibits the most up-to-date collection of research results and recent discoveries in the transfer of knowledge access across the globe"--Provided by publisher.

Instrumentation, Measurement, Circuits and Systems IGI Global

The evolution of broadband access networks toward bimodal fiber-wireless (FiWi) access networks, described in this book, may be viewed as the endgame of broadband access. After discussing the economic impact of broadband access and current worldwide deployment statistics, all the major legacy wireline and wireless broadband access technologies are reviewed. State-of-the-art GPON and EPON fiber access networks are described, including their migration to next-generation systems such as OCDMA and OFDMA PONs. The latest developments of wireless access networks are covered, including VHT WLAN, Gigabit WiMAX, LTE and WMN. The advantages of FiWi access networks are demonstrated by applying powerful network coding, heterogeneous optical and wireless protection, hierarchical frame aggregation, hybrid routing and QoS continuity techniques across the optical-wireless interface. The book is an essential reference for anyone working on optical fiber access networks, wireless access networks or converged FiWi systems.

FTTx Networks John Wiley & Sons

A guide to the current technologies related to the delivery process for both live and on-demand services within IPTV delivery networks *IPTV Delivery Networks* is an important resource that offers an in-depth discussion to the IPTV (Internet Protocol Television) delivery networks for both live and on demand IPTV services. This important book also includes a review of the issues and challenges surrounding the delivery of IPTV over various emerging networking and communications technologies. The authors — an international team of experts — introduce a framework for delivery network applicable for live and video-on-demand services. They review the fundamental issues of IPTV delivery networks and explore the QoS (Quality of Service) issue for IPTV delivery networks that highlights the questions of security and anomaly detection as related to quality. *IPTV Delivery Networks* also contains a discussion of the mobility issues and next-generation delivery networks. This guide captures the latest available and usable technologies in the field and: Explores the technologies related to delivery process for both live (real time) and on demand services in highly accessible terms Includes information on the history, current state and future of IPTV delivery Reviews all the aspects of delivery networks including storage management, resource allocation, broadcasting, video compression, QoS and QoE Contains information on current applications including Netflix (video on demand), BBC iPlayer (time-shifted IPTV) and live (real time) streaming Written for both researchers and industrial experts in the field of IPTV delivery networks. *IPTV Delivery Networks* is a groundbreaking book that includes the most current information available on live and on demand IPTV services.

xDSL Monthly Newsletter December 2009 John Wiley & Sons

In an era of ubiquity, nomadism and ecological challenge, the maturity of wireless technologies, the readiness of broadband Internet access and the popularity of smart terminals should contribute to emancipating IT services in connection with the home and home-based resources. This book, in light of several years of applied research and technological surveys, aims at describing the digital home networking environment, its techniques, and the challenges around its service architecture. *Digital Home Networking* aims to provide a broad introduction to state-of-the-art digital home standards and protocols, as well as an in-depth description of service architectures for entertainment and domestic services involving digital home resources. The book covers aspects such as networking, remote access, security, interoperability, scalability and Quality of Service. Notably, it describes the generic architecture, which was proposed and developed in the context of the EUREKA/Celtic research project "Feel@Home".

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