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Advances in Optical Networks and Components
Mobile Radio Communications and 5G Networks
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Triple Play
Telecommunication Networks
Smart House技術與產品發展趨勢探索研究報告
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迎接光纖世代的來臨—全球光通訊市場現況與元件廠商動態剖析
Broadband Access
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Digital and Analog Fiber Optic Communications for CATV and FTTx Applications

PRATT CLARENCE

Advances in Optical Networks and Components 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 o 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 *Mobile Radio Communications and 5G Networks* Springer Nature Modeling, Simulation, Design and Engineering of WDM Systems and Networks provides readers with the basic skills, concepts, and design techniques used to begin design and engineering of optical communication systems and networks at various layers. The latest semi-analytical system simulation techniques are applied to optical WDM systems and networks, and a review of the various current areas of optical communications is presented. Simulation is mixed with experimental verification and engineering to present the industry as well as state-of-the-art research. This contributed volume is divided into three parts, accommodating different readers interested in various types of networks and applications. The first part of the book presents modeling approaches and simulation tools mainly for the physical layer including transmission effects, devices, subsystems, and systems), whereas the second part features more engineering/design issues for various types of optical systems including ULH, access, and in-building systems. The third part of the book covers networking issues related to the design of provisioning and survivability algorithms for impairment-aware and multi-domain networks. Intended for professional scientists, company engineers, and university researchers, the text demonstrates the effectiveness of computer-aided design when it comes to network engineering and prototyping. **The ComSoc Guide to Passive Optical Networks** Springer Science & Business Media

內容簡介 資策會產業情報研究所（MIC）透過「2013 ICT 產業白皮書」，彙整資訊硬體、行動暨網路通訊、顯示、消費性電子、軟體服務等領域包函14項資通訊產業與3 項軟體服務市場，回顧2012 年資通訊產業與軟體服務市場的整體表現並前瞻未來的發展，以更寬廣的視野正確解讀、抓緊趨勢，為企業提供完整且詳盡的經營策略分析參考。全書共分為上下兩冊，上冊包含資訊硬體領域之主機板、筆記型電腦（含迷你筆記型電腦）、伺服器、平板電腦產業；以及涵蓋行動暨網路通訊領域之 台灣智慧型行動電話、WiMAX（World Interoperability for Microwave Access）、IP STB（IP Set-Top Box）與PON（Passive Optical Network）產業。

Triple Play 資策會產業情報研究所

The book features original papers by active researchers presented at the International Conference on Mobile Radio Communications and 5G Networks. It includes recent advances and upcoming technologies in the field of cellular systems, 2G/2.5G/3G/4G/5G and beyond, LTE, WiMAX, WMAN, and other emerging broadband wireless networks, WLAN, WPAN, and various home/personal networking technologies, pervasive and wearable computing and networking, small cells and femtocell networks, wireless mesh networks, vehicular wireless networks, cognitive radio networks and their applications, wireless multimedia networks, green wireless networks, standardization of emerging wireless technologies, power management and energy conservation techniques.

Telecommunication Networks Artech House

COST – the acronym for European COoperation in Science and Technology – is the oldest and widest European intergovernmental network for cooperation in - search. Established by the Ministerial Conference in November 1971, COST is presently used by the scientific communities of 35 European countries to coop- ate in common research projects supported by national funds. The funds provided by COST – less than 1% of the total value of the projects – support the COST cooperation networks (COST Actions) through which, with € 30 million per year, more than 30,000 European scientists are involved in - search having a total value which exceeds € 2 billion per year. This is the financial worth of the European added value which COST achieves. A “bottom up approach” (the initiative of launching a COST Action comes from the European scientists themselves), “à la carte participation” (only countries interested in the Action participate), “equality of access” (participation is open also to the scientific communities of countries not belonging to the European - ion) and “flexible structure” (easy implementation and light management of the research initiatives) are the main characteristics of COST.

Smart House技術與產品發展趨勢探索研究報告 Springer Nature

With ever-increasing demands on capacity, quality of service, speed, and reliability, current Internet systems are under strain and under review. Combining contributions from experts in the field, this book captures the most recent and innovative designs, architectures, protocols, and mechanisms that will enable researchers to successfully build the next-generation Internet. A broad perspective is provided, with topics including innovations at the physical/transmission layer in wired and wireless media, as well as the support for new switching and routing paradigms at the device and sub-system layer. The proposed alternatives to TCP and UDP at the data transport layer for

emerging environments are also covered, as are the novel models and theoretical foundations proposed for understanding network complexity. Finally, new approaches for pricing and network economics are discussed, making this ideal for students, researchers, and practitioners who need to know about designing, constructing, and operating the next-generation Internet.

Fundamentals of Computer Networks CRC Press

資策會產業情報研究所（MIC）透過「2014 ICT產業白皮書」，彙整資訊硬體、行動暨網路通訊、顯示、消費性電子、軟體服務等領域包涵13項資通訊產業與3項軟體服務市場，回顧2013年資通訊產業與軟體服務市場的整體表現並前瞻未來的發展，以更寬廣的視野正確解讀、抓緊趨勢，為企業提供完整且詳盡的經營策略分析參考。全書共分為上下兩冊，上冊包含資訊硬體領域之主機板、筆記型電腦（含迷你筆記型電腦）、伺服器、平板電腦產業；以及涵蓋行動暨網路通訊領域之台灣智慧型行動電話、WiMAX（World Interoperability for Microwave Access）、IP STB（IP Set-Top Box）與PON（Passive Optical Network）產業。下冊包含顯示領域之大尺寸液晶電視面板、液晶電視與中小尺寸TFT（Thin Film Transistor）面板產業，消費性電子領域之數位相機與數位衛星機上盒產業，以及軟體服務領域之台灣資訊安全產業、台灣網路購物市場與台灣線上遊戲市場。

Telecommunication Networks for the Smart Grid CRC Press

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.

Next-Generation Internet John Wiley & Sons

隨著資通訊科技的發展與進步，從E化、M化到U化，應用無所不在的科技，創造資訊化、數位化、人性化的Smart House，提升人們日常生活與工作的效率、安全、舒適與便利，已成未來必然趨勢。本研究試以切入空間、科技與人的關係，探討Smart House應用情境、產品與關鍵技術概況與趨勢，以及台灣廠商切入產業機會與瓶頸，提供相關建議，進而創造產業商機，讓「人」真正享受Smart House所能提供的價值。 Smart House意義在於「建築物運用智慧材料及資通訊技術，建造主動感知及滿足使用者需求之建築空間，創造以人為主體的生活空間。」進一步剖析「人」對於Smart House情境需求，圍繞在五大重點「安全監控、健康照護、舒適便利、環保/節能與娛樂休閒」，以居家環境來說，安全監控、健康照護為優先考量，

其次是舒適便利、娛樂休閒、環保/節能等項目的重要性稍低。在安全監控、健康照護、舒適便利、環保/節能及娛樂休閒之五大情境下，衍生相關產品與技術，重點產品包括監控系統、生理監測設備、睡眠輔助、家電自動化產品、智慧型辦公室、數位電視與影音週邊產品；關鍵技術包括家庭網路技術、無線感測技術、寬頻網路技術與多媒體娛樂技術四大項目。鑒於使用者相當重視「安全監控」與「健康照護」，衍生「監控系統」與「生理監測」應用潛力值得關注。監控系統是由前端影像收集設備和後端傳輸、轉換與保存儲存設備二大部份組成，未來更以結合「數位遠端監控系統」、「門禁管理系統」、「網路管理」的整合服務模式發展，建構更全方位的遠端數位監控安全系統。生理監測未來則朝向整合後端緊急救援、醫療院所平台，提供居家照顧者完整的健康照顧服務，為主要發展方向。雖各類Smart House（如住宅、辦公室與商場等）不同會影響關鍵技術應用意願，但整體來說，如何降低佈建/使用成本、提升穩定度與系統整合程度皆為發展重要關鍵。 Smart House廣大商機讓深具ICT製造實力的台灣業者無不躍躍欲試，但仍面對異業整合困難、產品生命週期落差等問題，意識思維落差，以使用者需求發展產品。乃至於政府扮演異業整合平台、標準制訂之角色，皆將有助台灣建築業者、系統/產品業者從國內內需往外銷拓展。

Springer Science & Business Media

Broadband Optical Access and Fiber-to-the-Home (FTTH) will provide the ultimate broadband service capabilities. Compared with the currently well-deployed broadband access technologies of ADSL (Asymmetric Digital Subscriber Line) and Cable Modems, optical broadband access with Fiber-to-the-User’s home will cater for much higher speed access for new services. Broadband Optical Access Networks and Fiber-to-the-Home presents a comprehensive technical overview of key technologies and deployment strategies for optical broadband access networks and emerging new broadband services. The authors discuss network design considerations, new services, deployment trends and operational experiences, while explaining the current situation and providing insights into future broadband access technologies and services. Broadband Optical Access Networks and Fiber-to-the-Home: Offers a comprehensive, up-to-date introduction to new developments in broadband access network technologies and services. Examines the impact of research and development in photonics technologies on broadband access and FTTH. Covers ADSL, VDSL with FTTC (Fiber-to-the-Curb), Cable Modem over HFC (Hybrid-Fiber Coax) and Gigabit Ethernet. Discusses the roles of Broadband Wireless LAN and integrated FTTH/Wireless Broadband Access as well as Broadband Home Networks. Provides a global view of broadband network development, presenting different technical and system deployment approaches and strategic considerations for comparison. Gives insight into the worldwide broadband competition and the future of this technology. Broadband Optical Access Networks and Fiber-to-the-Home will be an invaluable resource for engineers in research and development, network planners, business managers, consultants as well as analysts and educators for a better understanding of the future of broadband in the field of telecommunications, data communications, and broadband multimedia service industries.

Next-Generation FTTH Passive Optical Networks

Artech House

Considering the key evolutions within the access network technologies as well as the unprecedented levels of bandwidth demands by end users, this book condenses the relentless research, design, and deployment experience of state-of-the-art access networks. Furthermore, it shares the critical steps and details of the developments and deployment of these emergent technologies;

which is very crucial particularly as telecommunications vendors and carriers are looking for cost-effective ultra-broadband “last-mile” access solutions to stay competitive in the “post bubble” era. The book is written to provide a comprehensive overview of the major broadband access technologies and deployments involving internationally recognized authors and key players. Due to its scope and depth, the proposed book is able to fill an important gap of today’s available literature.

2013 ICT □□□□□(□)—□□□□/□□□□□□□ Springer Nature

This book is intended as a graduate/post graduate level textbook for courses on high-speed optical networks as well as computer networks. The ten chapters cover basic principles of the technology as well as latest developments and further discuss network security, survivability, and reliability of optical networks and priority schemes used in wavelength routing. This book also goes on to examine Fiber To The Home (FTTH) standards and their deployment and research issues and includes examples in all the chapters to aid the understanding of problems and solutions. Presents advanced concepts of optical network devices Includes examples and exercises inall the chapters of the book to aid the understanding of basic problems and solutions for undergraduate and postgraduate students Discusses optical ring metropolitan area networks and queuing system and its interconnection with other networks Discusses routing and wavelength assignment Examines restoration schemes in the survivability of optical networks

Towards Digital Optical Networks John Wiley & Sons

Optical communication networks have played and will continue to play a prominent role in the development and deployment of communication network infrastructures. New optical systems and protocols will enable next generation optical networks to meet the diverse requirements from a wide range of new applications and services. Optical networks have evolved to become more flexible, intelligent and reliable. New optical switching architectures, technologies, and sophisticated control and management protocols have already enabled optical networks to be used not only in the core but also the metropolitan and access networks. The widespread deployment of optical communication networks will continue to have a big impact on our future lifestyle. Current Research Progress of Optical Networks is aimed to provide an overview on recent research progresses in optical networking with proposed solutions, survey and tutorials on various issues and topics in optical network technologies and services.

Encyclopedia of Information Science and Technology Academic Press

Many argue that telecommunications network infrastructure is the most impressive and important technology ever developed. Analyzing the telecom market’s constantly evolving trends, research directions, infrastructure, and vital needs, Telecommunication Networks responds with revolutionized engineering strategies to optimize network construction. Omnipresent

in society, telecom networks integrate a wide range of technologies. These include quantum field theory for the study of optical amplifiers, software architectures for network control, abstract algebra required to design error correction codes, and network, thermal, and mechanical modeling for equipment platform design. Illustrating how and why network developers make technical decisions, this book takes a practical engineering approach to systematically assess the network as a whole—from transmission to switching. Emphasizing a uniform bibliography and description of standards, it explores existing technical developments and the potential for projected alternative architectural paths, based on current market indicators. The author characterizes new device and equipment advances not just as quality improvements, but as specific responses to particular technical market necessities. Analyzing design problems to identify potential links and commonalities between different parts of the system, the book addresses interdependence of these elements and their individual influence on network evolution. It also considers power consumption and real estate, which sometimes outweigh engineering performance data in determining a product's success. To clarify the potential and limitations of each presented technology and system analysis, the book includes quantitative data inspired by real products and prototypes. Whenever possible, it applies mathematical modeling to present measured data, enabling the reader to apply demonstrated concepts in real-world situations. Covering everything from high-level architectural elements to more basic component physics, its focus is to solve a problem from different perspectives, and bridge descriptions of well-consolidated solutions with newer research trends.

Optical and Microwave Technologies for Telecommunication Networks □□□□□□□□□□

Optical networks have been in commercial deployment since the early 1980s as a result of advances in optical, photonic, and material technologies. Although the initial deployment was based on silica ?ber with a single wavelength modulated at low data rates, it was quickly demonstrated that ?ber can deliver much more bandwidth than any other transmission medium, twisted pair wire, coaxial cable, or wireless. Since then, the optical network evolved to include more exciting technologies, gratings, optical ?lters, optical multiplexers, and optical ampli?ers so that today a single ?ber can transport an unprecedented aggregate data rate that exceeds Tbps, and this is not the upper limit yet. Thus, the ?ber optic network has been the network of choice, and it is expected to remain so for many generationsto come, for both synchronousand asynchronouspayloads; voice, data, video, interactive video, games, music, text, and more. In the last few years, we have also witnessed an increase in network attacks as a result of store andforwardcomputer-basednodes. These attackshave manymaliciousobjectives: harvestsomeone else's data, impersonate another user, cause denial of service, destroy ?les, and more. As a result, a

new ?eld in communicationis becomingimportant,communicationnetworksand informationse- rity. In fact, the network architect and system designer is currently challenged to include enhanced features such as intruder detection, service restoration and countermeasures, intruder avoidance, and so on. In all, the next generation optical network is intelligent and able to detect and outsmart malicious intruders.

Optical Networks and Components Springer Science & Business Media

Provides a comprehensive and updated account of WDM optical network systems Optical networking has advanced considerably since 2010. A host of new technologies and applications has brought a significant change in optical networks, migrating it towards an all-optical network. This book places great emphasis on the network concepts, technology, and methodologies that will stand the test of time and also help in understanding and developing advanced optical network systems. The first part of Optical WDM Networks: From Static to Elastic Networks provides a qualitative foundation for what follows—presenting an overview of optical networking, the different network architectures, basic concepts, and a high-level view of the different network structures considered in subsequent chapters. It offers a survey of enabling technologies and the hardware devices in the physical layer, followed by a more detailed picture of the network in the remaining chapters. The next sections give an in-depth study of the three basic network structures: the static broadcast networks, wavelength routed networks, and the electronic/optical logically routed networks, covering the characteristics of the optical networks in the access, metropolitan area, and long-haul reach. It discusses the networking picture; network control and management, impairment management and survivability. The last section of the book covers the upcoming technologies of flex-grid and software defined optical networking. Provides concise, updated, and comprehensive coverage of WDM optical networks Features numerous examples and exercise problems for the student to practice Covers, in detail, important topics, such as, access, local area, metropolitan, wide area all-optical and elastic networks Includes protocols, design, and analysis along with the control and management of the networks Offers exclusive chapters on advance topics to cover the present and future technological trends, such as, software defined optical networking and the flexible grid optical networks Optical WDM Networks: From Static to Elastic Networks is an excellent book for under and post graduate students in electrical/communication engineering. It will also be very useful to practicing professionals in communications, networking, and optical systems.

FTTx Networks SPIE Press

Optical Communications in the 5G Era provides an up-to-date overview of the emerging optical communication technologies for 5G next-generation wireless networks. It outlines the emerging applications of optical networks in future wireless networks, state-

of-the-art optical communication technologies, and explores new R&D opportunities in the field of converged fixed-mobile networks.Optical Communications in the 5G Era is an ideal reference for university researchers, graduate students, and industry R&D engineers in optical communications, photonics, and mobile and wireless communications who need a broad and deep understanding of modern optical communication technologies, systems, and networks that are fundamental to 5G and beyond. Describes 5G wireless trends and technologies such as cloud radio access networks (C-RAN), massive multiple-input and multiple-output (MIMO), and coordinated multipoint (CoMP) Gives an insight into recent advances on the common public radio interface (CPRI), the evolved CPRI (eCPRI), and the open radio access networks (O-RAN) interface Presents X-haul technologies and how transportation technologies can satisfy the mobile network requirements Describes recent technological advances in access, aggregation, metro, data center, backbone, and undersea optical networks Discusses the vision and use cases of the 5th generation fixed network (F5G) to help realize a fully connected, intelligent world for the benefit of our global society

Current Research Progress of Optical Networks CRC Press

Providing straightforward practical guidance, this highly accessible resource presents today's most advanced topics on photonic communications. You get the latest details on 5th generation photonic systems that can be readily applied to your projects in the field. Moreover, the book provides valuable, time-saving tools for network simulation and modeling. You find in-depth coverage of optical signal transmission systems and networks. The book includes coverage of a wide range of critical methods and techniques, such as MIMO (multiple-input and multiple-output), OFDM (Orthogonal frequency-division multiplexing), and advanced modulation and coding. You find detailed discussions on the basic principles and applications of high-speed digital signal processing. Other key topics include advanced concepts on coded-modulation, turbo equalization, polarization-time coding, spatial-domain-based modulation and coding, and multidimensional signaling. This comprehensive book includes a complete set of problems at the end of each chapter to help you master the material.

FTTx Monthly Newsletter November 2009 BoD – Books on Demand

Written by experts in the field, this book provides an overview of all forms of broadband subscriber access networks and technology, including fiber optics, DSL for phone lines, DOCSIS for coax, power line carrier, and wireless. Each technology is described in depth, with a discussion of key concepts, historical development, and industry standards. The book contains comprehensive coverage of all broadband access technologies, with a section each devoted to fiber-based technologies, non-fiber wired technologies, and wireless technologies. The four co-authors’ breadth of knowledge is featured in the chapters comparing the relative strengths, weaknesses, and prognosis for the

competing technologies. Key Features: Covers the physical and medium access layers (OSI Layer 1 and 2), with emphasis on access transmission technology Compares and contrasts all recent and emerging wired and wireless standards for broadband access in a single reference Illustrates the technology that is currently being deployed by network providers, and also the technology that has recently been or will soon be standardized for deployment in the coming years, including vectoring, wavelength division multiple access, CDMA, OFDMA, and MIMO Contains detailed discussion on the following standards: 10G-EPON, G-PON, XG-PON, VDSL2, DOCSIS 3.0, DOCSIS Protocol over EPON, power line carrier, IEEE 802.11 WLAN/WiFi, UMTS/HSPA, LTE, and LTE-Advanced

Next Generation Intelligent Optical Networks Cambridge University Press

"This book presents a comprehensive overview of emerging optical access network solutions to efficiently meet the anticipated growth in bandwidth demand"--Provided by publisher.

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