

Ngn Architectures Protocols And Services

Algorithms for Next Generation Networks
Guide to Voice and Video over IP
Architecture and Governance for Communication Services
Managing Next Generation Networks and Services
Next Generation Networks System Engineering for IMS Networks
Enhanced Services on the Next-Generation Network: Technologies, Business Drivers, Markets, and Architectures
Handbook of Research on Mobile Multimedia, Second Edition
5G for the Connected World
Wired/Wireless Internet Communications
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Building Next-Generation Converged Networks
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Algorithms for Next Generation Networks

Comprehensive coverage explaining the correlation and synergy between Next Generation Networks and the existing standardized technologies This book focuses on Next Generation Networks (NGN); in particular, on NGN architectures, protocols and services, including technologies, regulation and business aspects. NGN provides convergence between the traditional telecommunications and the Internet, and it is globally standardized by the ITU (International Telecommunication Union), where ITU is the United Nations specialized agency for Information and Communication Technologies – ICTs. The convergence towards the NGN is based on the Internet technologies, and the introductory chapters cover the Internet fundamentals of today, including architectures, protocols (IPv4, IPv6, TCP, DNS, etc.), Internet services (WWW, e-mail, BitTorrent, Skype, and more), as well as Internet governance. Further, the prerequisite for convergence of all ICT services over single network architectures is broadband access to the Internet. Hence, the book includes architectures of fixed broadband Internet access networks, such as DSL (Digital Subscriber Line) networks, cable networks, FTTH (Fiber To The Home), next generation passive and active optical networks, and metro Ethernet. It also covers network architectures for next generation (4G) mobile and wireless networks (LTE/LTE-Advanced, and Mobile WiMAX 2.0), then Fixed Mobile Convergence - FMC, next generation mobile services, as well as

business and regulatory aspects for next generation mobile networks and services. Comprehensive coverage explaining the correlation and synergy between Next Generation Networks and the existing standardized technologies Focuses on Next Generation Networks (NGN) as defined by the ITU, including performance, service architectures and mechanisms, common IMS (IP Multimedia Subsystem), control and signalling protocols used in NGN, security approaches, identity management, NGN Service Overlay Networks, and NGN business models Examines the most important NGN services, including QoS-enabled VoIP, IPTV over NGN, web services in NGN, peer-to-peer services, Ubiquitous Sensor Network (USN) services, VPN services in NGN, Internet of things and web of things Includes the transition towards NGN from the PSTN (Public Switched Telephone Networks) and from the best-effort Internet via the same Internet access Explores advanced topics such as IPv6-based NGN, network virtualization, and future packet based networks, as well as business challenges and opportunities for the NGN evolved networks and services Essential reading for engineers and employees from regulatory bodies, government organisations, telecommunication companies, ICT companies.

Guide to Voice and Video over IP

Supplying a comprehensive introduction to next-generation networks, Building Next-Generation Converged Networks: Theory and Practice strikes a balance between how and why things work and how to make them work. It compiles recent advancements along with basic issues from the wide range of fields related to next generation networks. Containing the co

Architecture and Governance for Communication Services

Understand the business case for deploying MPLS-based services and solutions * Provides network managers and architects a precise MPLS primer * Defines MPLS service problems and their associated solutions * Includes ROI models for MPLS-based solutions * Discusses pros and cons of various options for each MPLS service Network managers often question the value that MPLS brings to their business environment. This book provides them with a precise guide for evaluating the benefits of MPLS-based applications and solutions. The book guides the network manager through the business case for MPLS by exploring other technology alternatives, including their applications, benefits, and deficiencies. Understanding the service creation process as the basis for MPLS-based solutions is pivotal when describing the benefits that MPLS offers. Furthermore, the book explores MPLS technology and its components, providing an overview of the architecture necessary to reap the true advantages that MPLS brings to a service provider or enterprise network. These advantages include new revenue opportunities and a total cost of ownership reduction that positively impacts a company`s bottom-line. ROI models and case study examples further confirm the business impact and help decision-makers create a blueprint for MPLS service creation. Specific aspects such as security, network management, advanced services and the future of the technology complete the book, helping decision makers assess MPLS as a candidate for implementation. In short, you can use this comprehensive guide to understand and build a business case for the inclusion of MPLS in your network.

Managing Next Generation Networks and Services

This book constitutes the refereed proceedings of the 9th Asia-Pacific Network Operations and Management Symposium, APNOMS 2007, held in Sapporo, Japan, October 2007. The 48 revised full papers and 30 revised short papers cover management of distributed networks, network configuration and planning, network security management, sensor and ad-hoc networks, network monitoring, routing and traffic engineering, management of wireless networks and security on wireless networks.

Next Generation Networks

'Next Generation' refers to the new technologies and services that telecommunications operators will have at their disposal as they create new 3G networks where voice and data converge and which are based on packet switched rather than circuit switched telephony. Providing a much needed overview of the latest communication technologies and describing the influences of the so-called "next generation" networks on telecommunication operators' environments, this text begins with a very brief history of telecommunications, and explains how the advent of the internet has changed the way people think about communications. The book is split into three parts: 1. Technologies: Describes the different technologies that are influencing the change from circuit switched to packet switched telephony. Covers Media Gateway Control (MEGACO), application service provision, models for management, mobile and fixed technologies such as Digital Subscriber Line and GPRS. 2. Services: Explains the new services that are made possible by the new technologies, and how they improve on current services. This section also brings in important techniques from software engineering (such as application frameworks) and shows how they may be used to create flexible network architectures. 3. Going Forward: The effects of all the recent changes on the telecommunications operators, and how it is possible to capitalise on this. Roadmaps provide a picture of the state of the industry in six months, one year and three years' time. * Presents overviews of all the new technologies and services, demonstrating how they interrelate * Written by a consultant with a wide experience of installing networks, as well as advising on network strategies for companies including Marconi, BT, IPL, Mercury, BTCellnet and Cable & Wireless * Coverage includes Internet connectivity, e-commerce, call centres, application service provision, UMTS, WAP, billing, security and directory enable networks A leading edge reference resource for telecommunications network managers, network strategists and designers.

System Engineering for IMS Networks

A rapidly growing number of services and applications along with a dramatic shift in users' consumption models have made media networks an area of increasing importance. Do you know all that you need to know? Supplying you with a clear understanding of the technical and deployment challenges, Media Networks: Architectures, Applications, and Standard

Enhanced Services on the Next-Generation Network:

Technologies, Business Drivers, Markets, and Architectures

This book explains the evolutions of architecture for mobiles and summarizes the different technologies: - 2G: the GSM (Global System for Mobile) network, the GPRS (General Packet Radio Service) network and the EDGE (Enhanced Data for Global Evolution) evolution; - 3G: the UMTS (Universal Mobile Telecommunications System) network and the HSPA (High Speed Packet Access) evolutions: - HSDPA (High Speed Downlink Packet Access), - HSUPA (High Speed Uplink Packet Access), - HSPA+; - 4G: the EPS (Evolved Packet System) network. The telephone service and data transmission are the two main services provided by these networks. The evolutions are fundamentally dictated by the increase in the rate of data transmission across the radio interface between the network and mobiles. This book is intended as a readily understandable support to help students and professionals wishing to quickly acquire the main concepts of networks for mobiles understand the technologies deployed.

Handbook of Research on Mobile Multimedia, Second Edition

Find out everything you need to know about how current networks will have to evolve to provide for future broadband services. In this book, the authors provide an overview of the status, challenges, architectures, and technological solutions for core and metropolitan networks. Furthermore, the book describes the current state of core and metropolitan telecommunication networks, as well as the drivers and motives behind the current paradigm shift in the telecommunications industry. Moreover, the authors elaborate system design guidelines for both point-to-point and multi-hop optical networks taking into consideration the analogue nature of the transmission channel. Key Features: Provides coverage of all aspects of core and metro networks supporting future broadband services, and a detailed description of the state-of-the-art. Presents a clear path for migrating from point-to-point to data-centric, dynamic, multi-hop optical networks. Shows how current systems will need to evolve over the coming years, summarizing challenges and issues to be investigated in future research. Covers a wide range of topics from network architectures, to control plane, to key optical and optoelectronic devices, and best practice in transmission and system design. Provides results, best practices and guidelines for various technical problems, including numerous hands-on examples. Written by authors from cutting-edge companies such as Alcatel-Lucent, Siemens, Lucent, France Telecom, BT, and Telefonica. Optical Core and Metro Networks will be of interest to researchers in industry and academia, and advanced (final year undergraduate) and postgraduate students undertaking communications, networking and optics courses.

5G for the Connected World

Communication services are evolving at an unprecedented rate. No longer limited to interpersonal vocal communication, they now integrate functions such as address books, content sharing and messaging. The emergence of social networks - which may also include these features - is an important element of this transformation. Content services are becoming flagship services themselves, and are sometimes paired up with conversation services. The boundaries between

different services are becoming less and less distinct. This book meets the need for a better understanding of communication services, and for a general framework of their description. A detailed overview on service architecture in the Telco, Web and IT worlds is presented, offering a roadmap with explanations on how to improve the architecture and governance of communication service architectures by exploiting the syntax and semantics that are common to different services is clearly outlined. This book also responds to recurring questions about service design, such as the functional scope of enablers or SOA (Service Oriented Architecture) services, the relevance of service composition to the user and collaboration between different services in a converged environment. Many concrete examples from telecoms service providers' operations illustrate these concepts. Contents 1. Describing Service Architectures. 2. Convergence of Service. 3. Building an Architectural Framework for Telecom Services. 4. Modeling and Case Study. 5. Organizational and Software Applications. About the Authors Emmanuel Bertin is senior service architect at Orange Labs in France. He is the author of more than 40 research papers, and holds more than 10 patents in the area of communication services. Noël Crespi worked at Bouygues Telecom, France Telecom R&D, and then at Nortel Networks where he led the Telephony Programme. He is currently Professor and Head of the Service Architecture Laboratory at Institut Mines-Telecom, Telecom Sud Paris in France and is the author/co-author of more than 160 research papers and 140 contributions in standardization.

Wired/Wireless Internet Communications

Provides extensive coverage of standardized QoS technologies for fixed and mobile ultra-broadband networks and services—bringing together technical, regulation, and business aspects The Quality of Service (QoS) has been mandatory for traditional telecommunication services such as telephony (voice) and television (TV) since the first half of the past century, however, with the convergence of telecommunication networks and services onto Internet technologies, the QoS provision remains a big challenge for all ICT services, not only for traditional ones. This book covers the standardized QoS technologies for fixed and mobile ultra-broadband networks and services, including the business aspects and QoS regulation framework, which all will have high impact on the ICTs in the current and the following decade. QoS for Fixed and Mobile Ultra-Broadband starts by introducing readers to the telecommunications field and the technology, and the many aspects of both QoS and QoE (Quality of Experience). The next chapter devotes itself to Internet QoS, starting with an overview of numerous technology protocols and finishing with business and regulatory aspects. The next three chapters look at QoS in NGN and Future Networks, QoS for fixed ultra-broadband, and QoS for mobile ultra-broadband. The book also provides readers with in-depth accounts of services in fixed and mobile ultra-broadband; broadband QoS parameters, KPIs, and measurements; network neutrality; and the QoS regulatory framework. Comprehensively covers every aspect of QoS technology for fixed and mobile ultra-broadband networks and services, including the technology, the many regulations, and their applications in business Explains how the QoS is transiting from the traditional telecom world to an all-IP world Presents all the fundamentals of QoS regulation, as well as SLA regulation QoS for Fixed and Mobile Ultra-Broadband is an excellent resource for managers, engineers, and employees from regulators, ICT government organizations, telecommunication companies

(operators, service providers), ICT companies, and industry. It is also a good book for students and professors from academia who are interested in understanding, implementation, and regulation of QoS for fixed and mobile ultra-broadband.

Next Generation Telecommunications Networks, Services, and Management

This book describes the essential components of the SCION secure Internet architecture, the first architecture designed foremost for strong security and high availability. Among its core features, SCION also provides route control, explicit trust information, multipath communication, scalable quality-of-service guarantees, and efficient forwarding. The book includes functional specifications of the network elements, communication protocols among these elements, data structures, and configuration files. In particular, the book offers a specification of a working prototype. The authors provide a comprehensive description of the main design features for achieving a secure Internet architecture. They facilitate the reader throughout, structuring the book so that the technical detail gradually increases, and supporting the text with a glossary, an index, a list of abbreviations, answers to frequently asked questions, and special highlighting for examples and for sections that explain important research, engineering, and deployment features. The book is suitable for researchers, practitioners, and graduate students who are interested in network security.

Parallel and Distributed Processing and Applications - ISPA 2005 Workshops

Advanced Internet Protocols, Services, and Applications

In the NGN world, no truer words are spoken than "the future is now." And the competition in the information networking arena will only intensify in the next 5-10 years. Choosing the correct NGN-VAS strategy now will set your company apart. Value Added Services for Next Generation Networks examines the quest for the real added value in modern commu

Core and Metro Networks

"The book is intended to clarify the hype, which surrounds the concept of mobile multimedia through introducing the idea in a clear and understandable way, with a strong focus on mobile solutions and applications"--Provided by publisher.

Handbook of Research on Heterogeneous Next Generation Networking: Innovations and Platforms

Comprehensive Handbook Demystifies 5G for Technical and Business Professionals in Mobile Telecommunication Fields Much is being said regarding the possibilities and capabilities of the emerging 5G technology, as the evolution towards 5G promises to transform entire industries and many aspects of our society. 5G for the Connected World offers a comprehensive technical overview that

telecommunication professionals need to understand and take advantage of these developments. The book offers a wide-ranging coverage of the technical aspects of 5G (with special consideration of the 3GPP Release 15 content), how it enables new services and how it differs from LTE. This includes information on potential use cases, aspects of radio and core networks, spectrum considerations and the services primarily driving 5G development and deployment. The text also looks at 5G in relation to the Internet of Things, machine to machine communication and technical enablers such as LTE-M, NB-IoT and EC-GSM. Additional chapters discuss new business models for telecommunication service providers and vertical industries as a result of introducing 5G and strategies for staying ahead of the curve. Other topics include: Key features of the new 5G radio such as descriptions of new waveforms, massive MIMO and beamforming technologies as well as spectrum considerations for 5G radio regarding all possible bands Drivers, motivations and overview of the new 5G system – especially RAN architecture and technology enablers (e.g. service-based architecture, compute-storage split and network exposure) for native cloud deployments Mobile edge computing, Non-3GPP access, Fixed-Mobile Convergence Detailed overview of mobility management, session management and Quality of Service frameworks 5G security vision and architecture Ultra-low latency and high reliability use cases and enablers, challenges and requirements (e.g. remote control, industrial automation, public safety and V2X communication) An outline of the requirements and challenges imposed by massive numbers of devices connected to cellular networks While some familiarity with the basics of 3GPP networks is helpful, 5G for the Connected World is intended for a variety of readers. It will prove a useful guide for telecommunication professionals, standardization experts, network operators, application developers and business analysts (or students working in these fields) as well as infrastructure and device vendors looking to develop and integrate 5G into their products, and to deploy 5G radio and core networks.

Media Networks

This book presents a review of the latest advances in speech and video compression, computer networking protocols, the assessment and monitoring of VoIP quality, and next generation network architectures for multimedia services. The book also concludes with three case studies, each presenting easy-to-follow step-by-step instructions together with challenging hands-on exercises. Features: provides illustrative worked examples and end-of-chapter problems; examines speech and video compression techniques, together with speech and video compression standards; describes the media transport protocols RTP and RTCP, as well as the VoIP signalling protocols SIP and SDP; discusses the concepts of VoIP quality of service and quality of experience; reviews next-generation networks based on the IP multimedia subsystem and mobile VoIP; presents case studies on building a VoIP system based on Asterisk, setting up a mobile VoIP system based on Open IMS and Android mobile, and analysing VoIP protocols and quality.

Internet of Things, Smart Spaces, and Next Generation Networks and Systems

This book constitutes the refereed proceedings of the 6th International Conference

on Wired/Wireless Internet Communications, WWIC 2008, held in Tampere, Finland, in May 2008. The 18 revised full papers presented were carefully reviewed and selected from 67 submissions. The papers are organized in topical sessions on performance analysis of wireless systems, resource and QoS management, implementation techniques, mobility, cross-layer design, and wireless sensor networks.

Next Generation Network Services

Data networking now plays a major role in everyday life and new applications continue to appear at a blinding pace. Yet we still do not have a sound foundation for designing, evaluating and managing these networks. This book covers topics at the intersection of algorithms and networking. It builds a complete picture of the current state of research on Next Generation Networks and the challenges for the years ahead. Particular focus is given to evolving research initiatives and the architecture they propose and implications for networking. Topics: Network design and provisioning, hardware issues, layer-3 algorithms and MPLS, BGP and Inter AS routing, packet processing for routing, security and network management, load balancing, oblivious routing and stochastic algorithms, network coding for multicast, overlay routing for P2P networking and content delivery. This timely volume will be of interest to a broad readership from graduate students to researchers looking to survey recent research its open questions.

NGN Architectures, Protocols and Services

In *Securing VoIP Networks*, two leading experts systematically review the security risks and vulnerabilities associated with VoIP networks and offer proven, detailed recommendations for securing them. Drawing on case studies from their own fieldwork, the authors address VoIP security from the perspective of real-world network implementers, managers, and security specialists. The authors identify key threats to VoIP networks, including eavesdropping, unauthorized access, denial of service, masquerading, and fraud; and review vulnerabilities in protocol design, network architecture, software, and system configuration that place networks at risk. They discuss the advantages and tradeoffs associated with protection mechanisms built into SIP, SRTP, and other VoIP protocols; and review key management solutions such as MIKEY and ZRTP. Next, they present a complete security framework for enterprise VoIP networks, and provide detailed architectural guidance for both service providers and enterprise users.

- 1 Introduction
- 2 VoIP Architectures and Protocols
- 3 Threats and Attacks
- 4 VoIP Vulnerabilites
- 5 Signaling Protection Mechanisms
- 6 Media Protection Mechanisms
- 7 Key Management Mechanisms
- 8 VoIP and Network Security Controls
- 9 A Security Framework for Enterprise VoIP Networks
- 10 Provider Architectures and Security
- 11 Enterprise Architectures and Security

Protocols and Architectures for Wireless Sensor Networks

This comprehensive text/reference examines the various challenges to secure, efficient and cost-effective next-generation wireless networking. Topics and features: presents the latest advances, standards and technical challenges in a

broad range of emerging wireless technologies; discusses cooperative and mesh networks, delay tolerant networks, and other next-generation networks such as LTE; examines real-world applications of vehicular communications, broadband wireless technologies, RFID technology, and energy-efficient wireless communications; introduces developments towards the 'Internet of Things' from both a communications and a service perspective; discusses the machine-to-machine communication model, important applications of wireless technologies in healthcare, and security issues in state-of-the-art networks.

Next Generation Networks. Networks and Services for the Information Society

This book constitutes the refereed proceedings of the Second Asian Internet Engineering Conference, AINTEC 2006, held in Pathumthani, Thailand, in November 2006. The 12 revised full papers presented together with 5 invited papers are organized in topical sections on service architecture, multicast, performance in WLAN, routing, and multihoming in mobile networks.

Next-generation Network Services

A new era of network services has evolved to meet the needs of IP-centric networking requirements and customer opportunity. The emphasis is on service as IP has become a prolific communications portal through which to deliver interactive solutions that improve business execution, tie the individual consumer into commerce, and extend market reach by removing the last barriers of time and distance.

IP Communications and Services for NGN

Learn all you need to know about wireless sensor networks! Protocols and Architectures for Wireless Sensor Networks provides a thorough description of the nuts and bolts of wireless sensor networks. The authors give an overview of the state-of-the-art, putting all the individual solutions into perspective with one and other. Numerous practical examples, case studies and illustrations demonstrate the theory, techniques and results presented. The clear chapter structure, listing learning objectives, outline and summarizing key points, help guide the reader expertly through the material. Protocols and Architectures for Wireless Sensor Networks: Covers architecture and communications protocols in detail with practical implementation examples and case studies. Provides an understanding of mutual relationships and dependencies between different protocols and architectural decisions. Offers an in-depth investigation of relevant protocol mechanisms. Shows which protocols are suitable for which tasks within a wireless sensor network and in which circumstances they perform efficiently. Features an extensive website with the bibliography, PowerPoint slides, additional exercises and worked solutions. This text provides academic researchers, graduate students in computer science, computer engineering, and electrical engineering, as well as practitioners in industry and research engineers with an understanding of the specific design challenges and solutions for wireless sensor networks. Check out www.wiley.com/go/wsn for accompanying course material! "I am deeply impressed

by the book of Karl & Willig. It is by far the most complete source for wireless sensor networks. The book covers almost all topics related to sensor networks, gives an amazing number of references, and, thus, is the perfect source for students, teachers, and researchers. Throughout the book the reader will find high quality text, figures, formulas, comparisons etc. - all you need for a sound basis to start sensor network research." Prof. Jochen Schiller, Institute of Computer Science, Freie Universität Berlin

Next Generation Intelligent Networks

If you want an up-to-date, in-depth understanding of next generation intelligent networks (IN), this book is essential reading. It provides you with a comprehensive survey of current and emerging intelligent telecommunications networks, including underlying software, implementation, deployment and standards. It assesses the influence of mobile networks and IP technology on the directions that IN is taking now, and looks at the way middleware is reducing the dependence of service logic on the underlying network protocols. Moreover, it discusses the role of IN in tomorrow's network.

Value-Added Services for Next Generation 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.

IPTV Delivery Networks

The IMS is the foundation architecture for the next generation of mobile phones, wireless-enabled PDAs, PCs, and the like. IMS delivers multimedia content (audio, video, text, etc.) over all types of networks. For network engineers/administrators and telecommunications engineers it will be essential to not only understand IMS architecture, but to also be able to apply it at every stage of the network design process. This book will contain pragmatic information on how to engineer IMS networks as well as an applications-oriented approach for the engineering and networking professionals responsible for making IMS function in the real world. * Describes the convergence of wireless IMS (IP Multimedia Subsystem) with other networks, including wireline and cable * Discusses building interfaces for end users and IMS applications servers * Explores network management issues with IMS

Mobile Networks Architecture

An unprecedented look into the present and future of next generation networks, services, and management in the telecommunications industry. The telecommunications industry has advanced in rapid, significant, and unpredictable ways into the twenty-first century. Next Generation Telecommunications Networks, Services, and Management guides the global industry and academia even further by providing an in-depth look at current and developing trends, as well as examining the complex issues of developing, introducing, and managing cutting-edge telecommunications technologies. This is an orchestrated set of original

chapters written expressly for this book by topic experts from around the globe. It addresses next generation technologies and architectures, with the focus on networks, services, and management. Key topics include: Opportunities and challenges of next generation telecommunications networks, services, and management Tri/Quad Play and IP-based networks and services Fault, Configuration, Accounting, Performance, and Security (FCAPS) requirements Convergence and an important convergence vehicle, IP Multimedia Subsystem (IMS) Next generation operations and network management architecture Ad hoc wireless and sensor networks and their management Next generation operations and network management standards from a strategic perspective A defining look at the future in this field This book will serve as a contemporary reference for the growing global community of telecommunication and information professionals in industry, government, and academia. It will be important to faculty and graduate students of telecommunications as a graduate textbook.

IP-Based Next-Generation Wireless Networks

Next-Generation Internet

This book constitutes the refereed proceedings of the 5th IFIP TC6 International Symposium INTERWORKING 2000 on Next Generation Networks held in Bergen, Norway in October 2000. The 33 revised full papers presented were carefully reviewed and selected for inclusion in the book. The papers are organized in topical sections on strategic views on future network architecture and services, Internet everywhere and on every network, preparing for the information society with performing networks, European perspective of next generation networks, quality of service and resource management, traffic management and control, bandwidth broker and IP networks, and selective topics in networks.

Next-Generation Wireless Technologies

The result of decades of research and international project experience, Multimedia Communications and Networking provides authoritative insight into recent developments in multimedia, digital communications, and networking services and technologies. Supplying you with the required foundation in these areas, it illustrates the means that will allow

Technologies for Advanced Heterogeneous Networks II

An ideal starting point for anyone wanting to learn about nextgeneration wireless networks Gives important insights into the design of wireless IPnetworks Illustrates the standards and network architectures defined byleading standards bodies (including MWIF, 3GPP and 3GPP2) Discusses protocols in four key areas: signaling, mobility,quality of service, and security The authors have a good deal of experience in this field, andhave many patents pending in the area of wireless networking

Securing VoIP Networks

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.

Mpls And Next-Generation Networks: Foundations For Ngn And Enterprise Virtualization

Service providers are increasingly focused on delivering triple-play bundles that incorporate Internet, video, and VoIP services—as well as multi-play bundles containing even more advanced services. Broadband Network Architectures is the first comprehensive guide to designing, implementing, and managing the networks that make triple-play services possible. Hellberg, Greene, and Boyes present their field-tested industry best practices and objectively evaluate the tradeoffs associated with key up-front architectural decisions that balance the complexities of bundled services and sophisticated traffic policies. Broadband Network Architectures not only documents what is possible on this rapidly changing field of networking, but it also details how to divide Internet access into these more sophisticated services with specialized Quality of Service handling. Coverage includes

- An in-depth introduction to next-generation triple-play services: components, integration, and business connectivity
- Triple-play backbone design: MPLS, Layer 3 VPNs, and Broadband Network Gateways (BNGs)/Broadband Remote Access Servers (B-RAS)
- Protocols and strategies for integrating BNGs into robust triple-play networks
- Triple-play access network design: DSLAM architectures, aggregation networks, transport, and Layer 2 tunneling
- VLAN-per-customer versus service-per-VLAN architectures: advantages and disadvantages
- PPP or DHCP: choosing the right access protocol
- Issues associated with operating in wholesale, unbundled environments
- IP addressing and subscriber session management
- Broadband network security, including Denial of Service attacks and VoIP privacy
- The future of wireless broadband: IMS, SIP, and non-SIP based fixed mobile convergence and wireless video

SCION: A Secure Internet Architecture

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.

Broadband Network Architectures

Rapid deployment and acceptance of broadband networks, including the 802.11 a/b/g, 3G cellular networks, WiMAX, and emerging 4G cellular IP networks, have sparked a growing reliance on voice over IP and the quickly emerging IP TV and Mobile TV. Providing the necessary background and technical understanding to stay abreast of and even ahead of the IP trend, IP Communications and Services for NGN explores IP development for the delivery of next generation mobile services. Packed with detailed illustrations, this cutting-edge reference examines the primary IP protocols (IPv4 and IPv6), real-time protocols, and three major IP services (VoIP, IPTV, and Mobile TV). It clearly explains the different architectures of fixed, mobile, and wireless networks along with the major advantages and disadvantages of each. It includes coverage of the latest in: The VoIP Market SCTP and Vertical Handoff RSVP: Resource Reservation Protocol MPLS: MultiProtocol Label Switching SIP: Session Initiation Protocol IMS: IP Multimedia Subsystem RTSP: Real-Time Streaming Protocol RTP: Real-Time Transport Protocol IPTV System Architectures and IPTV System Descriptions With a detailed listing of commonly used acronyms, along with a clear description of the role IP is likely to play in the development of next generation mobile services, this book provides educators, industry practitioners, regulators, and subscribers with the ideal starting point for developing the understanding required to deploy, train, and use IP services effectively and efficiently.

Encyclopedia of Internet Technologies and Applications

Next Generation Networks (NGN) provide ubiquitous connectivity with pervasive accessibility to service, application, content and information. NGN will bring tremendous advantages to companies and individuals, in terms of access to information, education and knowledge, efficiency, dematerialisation and new user experiences. Next Generation Networks: Perspectives and Potentials explores the potentials of NGN and provides an outlook of future services for the end users and opportunities for the traditional network operators and new players. It creates a

framework to aid the understanding of NGN, exploring the strategic development and practical deployment of NGN. This book provides a complete and comprehensive picture of the future directions, substantial benefits, issues, applications and services for NGN. Offers an in-depth exploration of NGN covering both basic and advanced concepts Examines critical issues with the implementation of NGN Covers NGN technology, architecture, transport, services, and evolution and standardization. Written by industry experts focusing on the business opportunities of NGN with chapters on NGN standardization, development and corporate responsibility Next Generation Networks is ideal for network operators, equipment vendors, researchers, Telecoms regulators and engineers working in next generation networking. It will also be of interest to graduate students on electrical engineering and computer science programmes with a focus on networks.

QoS for Fixed and Mobile Ultra-Broadband

The convergence of legacy telecommunications towards the Internet and Internet technologies is an ongoing process, resulting in converged Telecom and Internet worlds. Based on current and developing industry practice, this book focuses on the Internet technologies, in particular, on Internet principles, protocols, and services for fixed and mobile networks, including technologies, regulation, and business aspects. This timely resource provides readers with all-around coverage of standardized Internet technologies, Internet standardization regarding the Telecom sector, as well as the convergence of all services onto the Internet. This includes legacy telecommunication services, legacy Internet services, and emerging over-the-top services such as Skype, which appeared during the past decade on a global scale, driven by the penetration of fixed broadband and mobile broadband.

Building Next-Generation Converged Networks

Today, the internet and computer networking are essential parts of business, learning, and personal communications and entertainment. Virtually all messages or transactions sent over the internet are carried using internet infrastructure-based on advanced internet protocols. Advanced internet protocols ensure that both public and private networks operate with maximum performance, security, and flexibility. This book is intended to provide a comprehensive technical overview and survey of advanced internet protocols, first providing a solid introduction and going on to discuss internetworking technologies, architectures and protocols. The book also shows application of the concepts in next generation networks and discusses protection and restoration, as well as various tunnelling protocols and applications. The book ends with a thorough discussion of emerging topics.

Multimedia Communications and Networking

This book constitutes the joint refereed proceedings of the 17th International Conference on Next Generation Wired/Wireless Advanced Networks and Systems, NEW2AN 2017, the 10th Conference on Internet of Things and Smart Spaces,

ruSMART 2017. The 71 revised full papers presented were carefully reviewed and selected from 202 submissions. The papers of NEW2AN focus on advanced wireless networking and applications; lower-layer communication enablers; novel and innovative approaches to performance and efficiency analysis of ad-hoc and machine-type systems; employed game-theoretical formulations, Markov chain models, and advanced queuing theory; grapheme and other emerging material, photonics and optics; generation and processing of signals; and business aspects. The ruSMART papers deal with fully-customized applications and services. The NsCC Workshop papers capture the current state-of-the-art in the field of molecular and nanoscale communications such as information, communication and network theoretical analysis of molecular and nanonetwork, mobility in molecular and nanonetworks; novel and practical communication protocols; routing schemes and architectures; design/engineering/evaluation of molecular and nonoscale communication systems; potential applications and interconnections to the Internet (e.g. the Internet of Nano Things).

Internet Technologies for Fixed and Mobile Networks

"This book presents state-of-the-art research, developments, and integration activities in combined platforms of heterogeneous wireless networks"--Provided by publisher.

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