The Ims Ip Multimedia Concepts And Services

As the cellular world and the Internet converge, mobile networks are transitioning from circuit to packet and the Internet Protocol (IP) is now recognized as the fundamental building block for all next-generation communication networks. The all-IP vision provides the flexibility to deliver cost-effective services and applications that meet the evolving needs of mobile users. RF engineers, mobile network designers, and system architects will be expected to have an understanding of IP fundamentals and how their role in delivering the end-to-end system is crucial for delivering the all-IP vision that makes the Internet accessible anytime, anywhere. IP Design for Mobile Networks discusses proper IP design theory to effectively plan and implement your next-generation mobile network so that IP integrates all aspects of the network. The book outlines, from both a standards and a design theory perspective, both the current and target state of mobile networks, and the technology enablers that will assist the migration. This IP transition begins with function-specific migrations of specific network domains and ends with an end-to-end IP network for radio, transport, and service delivery. The book introduces many concepts to give you exposure to the key technology trends and decision points affecting today⊠s mobile operators. The book is divided into three parts: Part I provides an overview of how IP is integrated into mobile systems, including radio systems and cellular networks. Part II provides an overview of IP, the technologies used for transport and connectivity of today⊠s cellular networks, and how the mobile core is evolving to encompass IP technologies. Part III provides an overview of the end-to-end services network based on IP, including context awareness and services. Presents an overview of what mobile networks look like today⊠including protocols used, transport technologies, and how IP is being used for specific functions in mobile networks Provides an all-inclusive reference manual for IP design theory as related to the broader application of IP for mobile networks Imparts a view of upcoming trends in mobility standards to better prepare a network evolution plan for IP-based mobile networks This book is part of the Networking Technology Series from Cisco Press®, which offers networking professionals valuable information for constructing efficient networks, understanding new technologies, and building successful careers. ciscopress.com

Take Part in the Future of Wireless/Wireline Convergence The IP multimedia subsystem (IMS), established as the foundation for future wireless and wireline convergence, is the bedrock that will facilitate easy deployment on new, rich, personalized multimedia communication services that mix telecom and data services. Designers, planners, and researchers of communication systems will need to make full use of the technology occurring with this convergence if they want to be the ones providing end users with new and efficient services that are as cost-effective as they are innovative. To provide researchers and technicians with the tools they need to optimize their role in this communication revolution, the IP Multimedia Subsystem (IMS) Handbook presents all the technical aspects of the IMS needed to support the growth of digital traffic and the implementation of underlying networks. This guide covers everything from basic concepts to research-grade material, including the future direction of the architecture. Organized in three sections, the book brings together the technical savvy of 50 pioneering experts from around the world, providing complete coverage of relevant concepts, technologies, and services. Learn How IMS Will Speed Innovation Filling the gap between existing traditional telecommunications and Internet technologies, IMS has led to an environment in which new services and concepts are introduced more quickly than ever before, such as reusable service components and real-time integration. The technology promises to be a cost-effective evolutionary path to future wireless and wireline convergences that will meet next-generation service requirements.

We have telephony to talk to each other, messaging to dispatch mail or instant messages, browsing to read published content and search engines to locate content sites. However, current mobile networks do not provide the possibility for one application rich terminal to communicate with another in a peer-to-peer session beyond voice calls. Mobile telephony with the current technology has been hugely successful and shows that there is immense value in communicating with peers while being mobile, and with increasingly available smarter multimedia terminals the communication experience will be something more than just exchanging voice. Those multimedia terminals need IP multimedia networks. Hence, the Third Generation Partnership Project (3GPP) has developed a standard for SIP based IP multimedia service machinery known as 'The IMS (IP Multimedia Subsystem)' and this informative book explains everything you need to know about it⊠⊠... Presents the architecture and functionality of logical elements of IMS and their interfaces providing detailed description of how elements are connected, what protocols are used and how they are used Explains how the optimisation and security of the mobile communication environment has been designed in the form of user authentication and authorisation based on mobile identities Illustrates how optimisation at the radio interface is achieved using specific rules at the user to network interface. This includes signalling compression mechanisms as well as security and policy control mechanisms, allowing radio loss and recovery detection Addresses important aspects from an operator's point of view while developing architecture such as charging framework, policy and service control Describes many services on top of IMS in detail, including voice, presence, messaging and conferencing. Written in a manner that allows readers to choose the level of knowledge and understanding they need to gain about the IMS, this volume will have instant appeal to a wide audience ranging from marketing managers, research and development engineers, network engineers, developers, test engineers to university students.

The IMSIP Multimedia Concepts and ServicesJohn Wiley & Sons

Triple Play

Cross-Media Communications

IP Multimedia Concepts And Services, Second Edition

Protocols, Design and Applications

Multimedia Networks

Developing SIP and IP Multimedia Subsystem (IMS) Applications

Converging NGN Wireline and Mobile 3G Networks with IMS

Following on from the successful first edition (March 2012), this book gives a clear explanation of what LTE does and how it works. The content is expressed at a systems level, offering readers the opportunity to grasp the key factors that make LTE the hot topic amongst vendors and operators across the globe. The book assumes no more than a basic knowledge of mobile telecommunication systems, and the reader is not expected to have any previous knowledge of the complex mathematical operations that underpin LTE. This second edition introduces new material for the current state of the industry, such as the new features of LTE in Releases 11 and 12, notably coordinated multipoint transmission and proximity services; the main short- and long-term solutions for LTE voice calls, namely circuit switched fallback and the IP multimedia subsystem; and the evolution and current state of the LTE market. It also extends some of the material from the first edition, such as inter-operation with other technologies such as GSM, UMTS, wireless local area networks and cdma2000; additional features of LTE Advanced, notably heterogeneous networks and traffic offloading; data transport in the evolved packet core; coverage and capacity estimation for LTE; and a more rigorous treatment of modulation, demodulation and OFDMA. The author breaks down the system into logical blocks, by initially introducing the architecture of LTE, explaining the techniques used for radio transmission and reception and the overall operation of the system, and concluding with more specialized topics such as LTE voice calls and the later releases of the specifications. This methodical approach enables readers to move on to tackle the specifications and the more advanced texts with confidence.

Providing a holistic approach to IMS technologies, IMS: A Development and Deployment Perspective explores service architecture for development and delivery of IMS services. Approaching IMS from the perspective of the user and the service provider it examines both the current state of deployment and future trends. The book offers a realistic view of IMS deployment to operators and service providers, giving practical examples, application cases and business models. It also presents IMS deployment strategies based on real-life deployment statistics from a live IMS test bed connected to an operator network and proof-of-concept applications including inter-operability trials and results. Focusing on IMS potential in terms of service creation, service composition and service provision the book discusses the ability of IMS to act not only as a service delivery framework, but also as a service integration framework. It presents the possible future of IMS in terms of convergence with Internet services, including discussions about integration with web technologies including the WIMS 2.0 initiative. The book enables a better understanding of how web technologies can complement the IMS service architecture and pioneer the post-IMS progress and success. Presents a novel service-oriented approach to IMS services and applications from a deployment perspective Places IMS in the context of the current telecom environment providing business models through WIMS 2.0 initiative Predicts the trends and potential future for the IMS evolution Provides a technical foundation to IMS principles and architecture Gives examples and solutions to the challenges of service creation and implementation and analyses deployment hurdles and interoperability trials Describes trends of convergence based on IMS and Web technologies

• Clear, concise and comprehensive view of IMS and Rich Communication Suite (RCS) for developers • Shows how to use RCS to create innovative applications for rapid uptake by end-users • Covers service and operator scenarios for the IMS architecture • Explains IMS architecture and protocols, from an application developer's perspective IMS Application Developer's Handbook gives a hands-on view of exactly what needs to be done by IMS application developers to develop an application and take it "live" on an operator's network. It offers practical guidance on building innovative applications using the features and capabilities of the IMS network, and shows how the rapidly changing development environment is impacting on the business models employed in the industry and how existing network solutions can be moved towards IMS. Elaborating on how IMS applies basic VoIP principles and techniques to realize a true multi-access, and multimedia network, this book ensures that developers know how to use IMS most effectively for applications. Written by established experts in the IMS core network and IMS service layer, with roots in ISDN and GSM, with experience from working at Ericsson, who have been active in standardisation and technology development and who have been involved in many customer projects for the implementation of fixed mobile converged IMS network and service. The authors of this book bring their in-depth and extensive knowledge in the organizations involved in the IMS standardization and its architecture. Clear, concise and comprehensive view of the IMS and Rich Communication Suite (RCS) for developers Written by established experts in the IMS services layer, who have been involved in many customer projects for the implementation of fixed mobile converged IMS network and service Covers potential service and operator scenarios for the IMS architecture; it is significantly more than merely a description of the IMS standards

The merging of voice and data on a single network opens powerful new possibilities in communications. Only a fundamental understanding of both technologies will ensure you are equipped to maximise their full potential. Convergence Technologies for 3G Networks describes the evolution from cellular to a converged network that integrates traditional telecommunications and the technology of the Internet. In particular, the authors address the application of both IP and ATM technologies to a cellular environment, including IP telephony protocols, the use of ATM/AAL2 and the new AAL2 signalling protocol for voice/multimedia and data transport as well as the future of the UMTS network in UMTS Release 5/6 All-IP architecture. Convergence Technologies for 3G Networks: Explains the operation and integration of GSM, GPRS, EDGE, UMTS, CDMA2000, IP, and ATM. Provides practical examples of 3G connection scenarios. Describes signalling flows and protocol stacks. Covers IP and ATM as used in a 3G context. Addresses issues of QoS and real-time application support. Includes IP/SS7 internetworking and IP softswitching. Outlines the architecture of the IP Multimedia Subsystem (IMS) for UMTS. Convergence Technologies for 3G Networks is suited for professionals from the telecommunications, data communications and computer networking industries..

Concepts, Methodologies, Tools, and Applications

IP-Based Next-Generation Wireless Networks

Multimedia Networking Technologies, Protocols, and Architectures

Powering Digitalization

IP, UMTS, EGPRS and ATM

IMS Application Developer's Handbook

An Introduction to Mobile Networks and Mobile Broadband

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

The transportation of multimedia over the network requires timely and errorless transmission much more strictly than other data. This had led to special protocols and to special treatment in multimedia applications (telephony, IP-TV, streaming) to overcome network issues. This book begins with an overview of the vast market combined with the user's expectations. The base mechanisms of the audio/video coding (H.20x etc.) are explained to understand characteristics of the generated network traffic. Further chapters treat common special underlying IP network functions which cope with multimedia data in conjunction which special time adaption measures. Based on those standard functions these chapters can treat uniformly SIP, H.248, High-End IP-TV, Webcast, Signage etc. A special section is devoted to home networks which challenge high-end service delivery due to possibly unreliable management. The whole book treats concepts described in accessible IP-based standards and which are implemented broadly. The book is aimed at graduate students/practitioners with good basic knowledge in computer networking. It provides the reader with all concepts of currently used IP technologies of how to deliver multimedia efficiently to the end user. Accompanying website currently in prep (April 2016) - www.wiley.com/go/barzett16

This practical resource provides a survey on the technologies, protocols, and architectures that are widely used in practice to implement networked multimedia services. The book presents the background and basic concepts behind multimedia networking, and provides a detailed analysis of how multimedia services work, reviewing the diverse network protocols that are of common use to implement them. To guide the explanation of concepts, the book focuses on a representative set of networked multimedia services with proven success and high penetration in the telecommunication market, namely Internet telephony, Video-on-Demand (VoD), and live IP television (IPTV). Contents are presented following a stepwise approach, describing each network protocol in the context of a networked multimedia service and making appropriate references to the protocol as needed in the description of other multimedia services. This book also contains questions and exercises to provide the reader with insight on the practical practice is included, based on open-source tools and software, to analyze the operation of an Internet telephony service from a practical perspective, as well as to deploy some of its fundamental components.

Voice Over IP (VoIP) phone lines now represent over 50% of all new phone line installations. Every one of these new VoIP phone lines and handsets must now be protected from malicious hackers because these devices now reside on the network and are accessible from the Internet just like any server or workstation. This book will cover a wide variety of the publicly available exploit tools and how they can be used specifically against VoIP (Voice over IP) Telephony systems. The book will cover the attack methodologies that are used against the SIP and H.323 protocols as well as VoIP network infrastructure. Significant emphasis will be placed on both attack and defense techniques. This book is designed to be very hands on and scenario intensive· More VoIP phone lines are being installed every day than traditional PBX phone lines· VoIP is vulnerable to the same range of attacks of any network device· VoIP phones can receive as many Spam voice mails as your e-mail can receive Spam e-mails, and as result must have the same types of anti-spam capabilities

Convergence Technologies for 3G Networks

6th International ICST Conference, TridentCom 2010, Berlin, Germany, May 18-20, 2010, Revised Selected Papers

Encyclopedia of Networked and Virtual Organizations

An Introduction to LTE

Practical VoIP Security

VoIP Evolution in a Converged Telecommunication World

IP Multimedia Subsystem (IMS) Handbook

The 3rd edition of this highly successful text builds on the achievement of the first two editions to provide comprehensive coverage of IMS. It continues to explore the concepts, architecture, protocols and functionalities of IMS while providing a wealth of new and updated information. It is written in a manner that allows readers to choose the level of knowledge and understanding they need to gain about the IMS. With 35% new material, The IMS, IP Multimedia Concepts and Services, 3rd Edition has been completely revised to include updated chapters as well as totally new chapters on IMS multimedia telephony and IMS voice call continuity. Additional new material includes IMS transit, IMS local numbering, emergency sessions, identification of communication services in IMS, new authentication model for fixed access, NAT traversal and globally routable user agents URI. Detailed descriptions of protocol behaviour are provided on a level that can be used for implementation and testing. Key features of the 3rd edition: Two new chapters on IMS multimedia telephony service and IMS Voice Call Continuity Updated information on Third Generation Partnership Project (3GPP) Release 7 level, including architecture, reference points and concepts Substantially extended coverage on IMS detailed procedures Completely rewritten and extended chapters on IMS services

This revised edition of Communication Systems from GSM to LTE: An Introduction to Mobile Networks and Mobile Broadband Second Edition (Wiley 2010) contains not only a technical description of the different wireless systems available today, but also explains the rationale behind the different mechanisms and implementations; not only the 'how' but also the 'why'. In this way, the advantages and also limitations of each technology become apparent. Offering a solid introduction to major global wireless standards and comparisons of the different wireless technologies and their applications, this edition has been updated to provide the latest directions and activities in 3GPP standardization up to Release 12, and importantly includes a new chapter on Voice over LTE (VoLTE). There are new sections on Building Blocks of a Voice Centric Device, Building Blocks of a Smart Phone, Fast Dormancy, IMS and High-Speed Downlink Packet Access, and Wi-Fi-Protected Setup. Other sections have been considerably updated in places reflecting the current state of the technology. • Describes the different systems based on the standards, their practical implementation and design assumptions, and the performance and capacity of each system in practice is analyzed and explained • Questions at the end of each chapter and answers on the accompanying website make this book ideal for self-study or as course material

[Administration (référence électronique) ; informatique].

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

Building the converged network for IP, VoIP and IPTV

The Application of Systems Engineering Concepts to Achieve Information Assurance

LTE, LTE-Advanced, SAE, VoLTE and 4G Mobile Communications

VoIP
System Engineering for IMS Networks
Concepts, Techniques and Applications
IMS

IMS Multimedia Telephony service has been standardized in 3GPP as the replacement of the circuit switched telephony service in cellular networks. The multimedia telephony service consists of several service components such as voice, video and text. 'IMS Multimedia Telephony over Cellular Systems' provides a comprehensive overview of the service that will enable enriched telephony for mobile users. Enriched telephony fulfils the user's desire to communicate in new ways, for example by sharing pictures and video clips. In addition to an overview of the Multimedia Telephony service, the book focuses on the modern media processing methods, which allows the quality of the packet switched voice and video telephony not only to match but also possibly exceed the quality of circuit switched telephony. Such key components as adaptive jitter buffering and adaptation of conversational media are explained in detail. Key features: Detailed description of how Multimedia Telephony sessions are set-up and controlled Analysis showing the capacity and quality of VoIP and Multimedia Telephony in cellular networks Coverage of other IMS services such as PoC specified by 3GPP and OMA Description of suitable QoS and radio bearers for Multimedia Telephony Explanation of the modern radio interface, especially High Speed Packet Access, which is based on concepts such as link adaptation and fast hybrid ARQ The possibilities for the current and future standards covered in this book make it an indispensable resource for engineers, designers and researchers in VoIP, telecommunication companies and universities teaching and conducting research in telecommunications. It will also be of interest to managers needing an in-depth knowledge of the engineering and key issues of this complex technology, and students aspiring to develop a career in this area.
Building on the success of the first edition, UMTS Networks second edition allows readers to continue their journey through UMTS up to the latest 3GPP standardization phase, Release 5. Containing revised, updated and brand new material, it provides a comprehensive view on the UMTS network architecture and its latest developments. Accompanied by numerous illustrations, the practical approach of the book benefits from the authors' pioneering research and training in this field. Provides a broad yet detailed overview of the latest worldwide developments in UMTS technology. Includes brand new sections on the IP Multimedia Subsystem and High Speed Downlink Packet Access according to 3GPP Release 5 specifications. Contains heavily revised sections on the evolution from GSM to UMTS Multi-access, the UMTS Radio Access Network, the UMTS Core Network and services. Includes updated versions on services in the UMTS environment and UMTS protocols. Illustrates all points with cutting-edge practical examples gleaned from the authors' research and training at the forefront of UMTS. The illustrative, hands-on approach will appeal to operators, equipment vendors, systems designers, developers and marketing professionals who require comprehensive, practical information on the latest developments in UMTS. This second edition will also benefit students and researchers in the field of mobile networking.
This book constitutes the proceedings of the 6th International ICST Conference, TridentCom 2010, held in Berlin, Germany, in May 2010. Out of more than 100 submitted contributions the Program Committee finally selected 15 full papers, 26 practices papers, and 22 posters. They focus on topics as Internet testbeds, future Internet research, wireless sensors, media and mobility, and monitoring in large scale testbeds.
This work provides a general description of IMS (IP Multimedia Subsystem), including system concepts, architecture, and functionality, and a detailed description of key functionalities.
Driving the Mobile Broadband Revolution
A Modern Approach Including Java® Practice
Quality of Service Architectures for Wireless Networks: Performance Metrics and Management
Wireless, P2P and New Enterprise Voice over IP
SAE and the Evolved Packet Core
Performance Metrics and Management
IP Multimedia Concepts and Services in the Mobile Domain
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.
"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.
This book is for programmers who want to learn about real-time communication and utilize the full potential of WebRTC. It is assumed that you have working knowledge of setting up a basic telecom infrastructure as well as basic programming and scripting knowledge.
The IMS: IP Multimedia Concepts and Services in the Mobile Domain, Second Edition, builds on the success of the previous best-selling edition, providing comprehensive coverage of IMS - its concepts, architecture, protocols and functionalities with a wealth of new and updated material. Mobile telephony with the current technology has been hugely successful and demonstrates the immense value of communicating with peers while being mobile, and with increasingly available smarter multimedia terminals, the communication experience will be something more than just exchanging voice. These multimedia terminals need IP multimedia networks. Hence the Third Generation Partnership Project (3GPP) has developed a standard for SIP-based IP multimedia service machinery known as 'The IMS' (IP Multimedia Subsystem). This completely up-to-date and informative guide explains everything you need to know about it ... Key features of the Second Edition include: Two new chapters on push-to-talk over cellular and group management. Additional new material includes: fixed and mobile convergence, interworking between IPv4 and IPv6 in the IMS, combined circuit-switched and IMS services (combinational services), IMS security and alternative session establishment procedures. More coverage of the benefits of IMS, particularly with regard to its role in fixed-mobile convergence. Special emphasis on services, featuring more detailed descriptions of presence, messaging, group management and push-to-talk over cellular (conferencing). Updates on Third Generation Partnership Project Agreement (3GPP) Release 6 level. New examples and case studies, including a variety of scenarios, how to handle multiple terminals and end-user preferences. Written in a manner that allows readers to choose the level of knowledge and understanding they need to gain about the IMS, this volume will have instant appeal to a wide ranging audience including marketing managers, research and development engineers, network engineers, developes, test engineers and university students.
A Development and Deployment Perspective
Architecture, Mobility and Services
5G Core Networks
IP Multimedia Concepts and Services
From GSM to LTE-Advanced
IP for 4G
The IMS: IP Multimedia Concepts and Services in the Mobile Domain, Second Edition, builds on the success of the previous best-selling edition, providing comprehensive coverage of IMS – its concepts, architecture, protocols and functionalities with a wealth of new and updated material. Mobile telephony with the current technology has been hugely successful and demonstrates the immense value of communicating with peers while being mobile, and with increasingly available smarter multimedia terminals, the communication experience will be something more than just exchanging voice. These multimedia terminals need IP multimedia networks. Hence the Third Generation Partnership Project (3GPP) has developed a standard for SIP-based IP multimedia service machinery known as 'The IMS' (IP Multimedia Subsystem). This completely up-to-date and informative guide explains everything you need to know about it... Key features of the Second Edition include: Two new chapters on push-to-talk over cellular and group management. Additional new material includes: fixed and mobile convergence, interworking between IPv4 and IPv6 in the IMS, combined circuit-switched and IMS services (combinational services), IMS security and alternative session establishment procedures. More coverage of the benefits of IMS, particularly with regard to its role in fixed-mobile convergence. Special emphasis on services, featuring more detailed descriptions of presence, messaging, group management and push-to-talk over cellular (conferencing). Updates on Third Generation Partnership Project Agreement (3GPP) Release 6 level. New examples and case studies, including a variety of scenarios, how to handle multiple terminals and end-user preferences. Written in a manner that allows readers to choose the level of knowledge and understanding they need to gain about the IMS, this volume will have instant appeal to a wide ranging audience including marketing managers, research and development engineers, network engineers, developes, test engineers and university students.
This book provides a clear, concise, complete and authoritative introduction to System Architecture Evolution (SAE) standardization work and its main outcome: the Evolved Packet Core (EPC), including potential services and operational scenarios. After providing an insightful overview of SAE's historical development, the book gives detailed explanations of the EPC architecture and key concepts as an introduction: In-depth technical descriptions of EPC follow, including thorough functional accounts of the different components of EPC, protocols, network entities and procedures. Case studies of deployment scenarios show how the functions described within EPC are placed within a live network context, while a description of the services that are predicted to be used shows what EPC as a core network can enable. This book is an essential resource for professionals and students who need to understand the latest developments in SAE and EPC, the 'engine' that connects broadband access to the internet. All of the authors have from their positions with Ericsson been actively involved in GPRS, SAE and 3GPP from a business and technical perspective for many years. Several of the authors have also been actively driving the standardization efforts within 3GPP. "There is no doubt that this book, which appears just when the mobile industry starts its transition away from legacy GSM/GPRS and UMTS networks into the future will become the reference work on SAE/LTE. There are no better qualified persons than the authors of this book to provide both communication professionals and an interested general public with insights into the inner workings of SAE/LTE. Not only are they associated with one of the largest mobile network equipment vendors in the world, they have all actively contributed to and, in some cases, been the driving forces behind the development of SAE/LTE within 3GPP." - from the foreword by Dr. Ulf Nilsson, TeliaSonera R&D, Mobility Core and Connectivity "The authors have done an excellent job in writing this book. Their familiarity with the requirements, concepts and solution alternatives, as well as the standardization work allows them to present the material in a way that provides easy communication between Architecture and Standards groups and Planning/ Operational groups within service provider organizations." - from the foreword by Dr. Kalyani Bogineni, Principal Architect, Verizon Up-to-date coverage of SAE including the latest standards development Easily accessible overview of the architecture and concepts defined by SAE Thorough description of the Evolved Packet Core for LTE, fixed and other wireless accesses Comprehensive explanation of SAE key concepts, security and Quality-of-Service Covers potential service and operator scenarios including interworking with existing 3GPP and 3GPP2 systems Detailed walkthrough of network entities, protocols and procedures Written by established experts in the SAE standardization process, all of whom have extensive experience and understanding of its goals, history and vision
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.
The 3rd edition of this highly successful text builds onthe achievement of the first two editions to provide comprehensivecoverage of IMS. It continues to explore the concepts,architecture, protocols and functionalities of IMS while providinga wealth of new and updated information. It is written in a mannerthat allows readers to choose the level of knowledge andunderstanding they need to gain about the IMS. With 35% new material, The IMS,IP Multimedia Concepts andServices, 3rd Edition has been completely revised toinclude updated chapters as well as totally new chapters on IMSmultimedia telephony and IMS voice call continuity. Additional newmaterial includes IMS transit, IMS local numbering, emergencysessions, identification of communication services in IMS, newauthentication model for fixed access, NAT traversal and globallyroutable user agents URI. Detailed descriptions of protocolbehaviour are provided on a level that can be used forimplementation and testing. Key features of the 3rd edition: Two new chapters on IMS multimedia telephony service and IMSVoice Call Continuity Updated information on Third Generation Partnership Project(3GPP) Release 7 level, including architecture, reference pointsand concepts Substantially extended coverage on IMS detailed procedures Completely rewritten and extended chapters on IMSservices
Engineering Information Security
Fundamentals of Network Planning and Optimisation 2G/3G/4G
IMS Multimedia Telephony over Cellular Systems
For Fixed and Mobile Networks
An Introduction to the Art of Creating Integrated Media Experiences
Encyclopedia of Internet Technologies and Applications
Internet Multimedia Communications Using SIP
"This book further explores various issues and proposed solutions for the provision of Quality of Service (QoS) on the wireless networks"--Provided by publisher.
Excellent reference with expert insight into the future evolution of mobile communications: 4G IP for 4G examines the concept of 4G, providing an in-depth background to the key technologies and developments shaping the new generation of mobile services, including Wireless Local Area Networks (WLANs), Worldwide Interoperability for Microwave Access (WiMAX), IP developments (SIP and Media Independent Handover), Internet Multimedia Subsystem (IMS), and 3G (HSDPA and LTE). The book addresses these key technological drivers in light of commercial propositions such as generating extra revenue and reducing costs, and offers an up-to-date briefing on the future of mobile communications in the coming years. Key features: Presents and analyses the key technological drivers of 4G, including WLANs, WiMAX, convergence and IMS Examines the rationale for IP for 4G by bringing together technologies, global developments and economic arguments in one single volume Describes and puts in context the developments in the IEEE 802.21 Media Independent Handover group, in particular the options for network/terminal controlled handover and the likely mechanisms for seamless handover - including application adaptation Written for readability as well as depth - with access to detailed descriptions of technologies but also quick overviews Contains scenario descriptions to motivate the need for seamless handover and benefits for the user (single sign-on access to networks, single billing) Contains hundreds of original diagrams - carefully drawn to illustrate the complex technology and quickly provide a summary of the main issues. Accompanying website supports the book with additional diagrams, figures and references for further reading IP for 4G is an invaluable reference for professionals in mobile/fixed telecoms and ICT industries, practicing telecommunications and network engineers, system designers and developers. Graduate level students studying MSc and higher-level courses on networking will also find this book of interest.
An authoritative collection of research papers and surveys, Emerging Wireless Networks: Concepts, Techniques, and Applications explores recent developments in next-generation wireless networks (NGWNs) and mobile broadband networks technologies, including 4G (LTE, WiMAX), 3G (UMTS, HSPA), WiFi, mobile ad hoc networks, mesh networks, and wireles
This text is an introduction to the future of mass media and mass communications - cross-media communications. Cross-media is explained through the presentation and analysis of contemporary examples and project-based tutorials in cross-media development. The text introduces fundamental terms and concepts, and provides a solid overview of cross-media communications, one that builds from a general introduction to a specific examination of media and genres to a discussion of the concepts involved in designing and developing cross-media communications. There is also an accompanying DVD-ROM full of hands-on exercises that shows how cross-media can be applied. For the DVD-ROM: http: //www.lulu.com/content/817927
The IMS
Emerging Wireless Networks
Guide to Voice and Video over IP
WebRTC Integrator's Guide
Evolution to 5G
LTE Security
Testbeds and Research Infrastructures, Development of Networks and Communities
Addressing the security solutions for LTE, a cellular technology from Third Generation Partnership Project (3GPP), this book shows how LTE security substantially extends GSM and 3G security. It also encompasses the architectural aspects, known as SAE, to give a comprehensive resource on the topic. Although the security for SAE/LTE evolved from the security for GSM and 3G, due to different architectural and business requirements of fourth generation systems the SAE/LTE security architecture is substantially different from its predecessors. This book presents in detail the security mechanisms employed to meet these requirements. Whilst the industry standards inform how to implement systems, they do not provide readers with the underlying principles behind security specifications. LTE Security fills this gap by providing first hand information from 3GPP insiders who explain the rationale for design decisions. Key features: Provides a concise guide to the 3GPP/LTE Security Standardization specifications Authors are leading experts who participated in decisively shaping SAE/LTE security in the relevant standardization body, 3GPP Shows how GSM and 3G security was enhanced and extended to meet the requirements of fourth generation systems Gives the rationale behind the standards specifications enabling readers to have a broader understanding of the context of these specifications Explains why LTE security solutions are designed as they are and how theoretical security mechanisms can be put to practical use
Session Initiation Protocol (SIP) was conceived in 1996 as a signaling protocol for inviting users to multimedia conferences. With this development, the next big Internet revolution silently started. That was the revolution which would end up converting the Internet into a total communication system which would allow people to talk to each other, see each other, work collaboratively or send messages in real time. Internet telephony and, in general, Internet multimedia, is the new revolution today and SIP is the key protocol which allows this revolution to grow. The book explains, in tutorial fashion, the underlying technologies that enable real-time IP multimedia communication services in the Internet (voice, video, presence, instant messaging, online picture sharing, white-boarding, etc). Focus is on session initiation protocol (SIP) but also covers session description protocol (SDP), Real-time transport protocol (RTP), and message session relay protocol (MSRP). In addition, it will also touch on other application-related protocols and refer to the latest research work in IETF and 3GPP about these topics. (3GPP stands for "third-generation partnership project" which is a collaboration

agreement between ETSI (Europe), ARIB/TTC (Japan), CCSA (China), ATIS (North America) and TTA (South Korea).) The book includes discussion of leading edge theory (which is key to really understanding the technology) accompanied by Java examples that illustrate the theoretical concepts. Throughout the book, in addition to the code snippets, the reader is guided to build a simple but functional IP soft-phone therefore demonstrating the theory with practical examples. This book covers IP multimedia from both a theoretical and practical point of view focusing on letting the reader understand the concepts and put them into practice using Java. It includes lots of drawings, protocol diagrams, UML sequence diagrams and code snippets that allow the reader to rapidly understand the concepts. Focus on HOW multimedia communications over the Internet works to allow readers to really understand and implement the technology Explains how SIP works, including many programming examples so the reader can understand abstract concepts like SIP dialogs, SIP transactions, etc. It is not focused on just VoIP. It looks At a wide array of enhanced communication services related to SIP enabling the reader put this technology into practice. Includes nearly 100 references to the latest standards and working group activities in the IETF, bringing the reader completely up to date. Provides a step-by-step tutorial on how to build a basic, though functional, IP soft-phone allowing the reader to put concepts into practice. For advanced readers, the book also explains how to build a SIP proxy and a SIP registrar to enhance one's expertise and marketability in this fast moving area.

"Triple Play" is a combination of Internet access, voice communication (telephony), and entertainment services such as IP television and video on demand. The erosion of the traditional voice service, together with the ever-increasing competition between companies, is pushing the telecommunications industry towards a major shift in its business models. Customers want more services in a more flexible way. Today, this shift can only be carried out by offering converged services built around the Internet Protocol (IP). Triple Play, a bundle of voice, video, and data services for residential customers, is the basis of this new strategy. Hens and Caballero explain how and why the telecommunications industry is facing this change, how to define, implement and offer these new services, and describes the technology behind the converged network. Triple Play analyses a number of business strategies to minimise costs, while migrating infrastructures and offering new services. Triple Play: Describes the elementary concepts of triple play service provision and gives detailed technical information to highlight key aspects. Discussed access networks, transport, signaling, service definition and business models. Covers the latest innovations in Triple Play services such as Ethernet in the First Mile (EFM), VDSL2 (Very High Speed DSL second generation), pseudowires andMultiprotocol Label Switching (MPLS). Explores video solutions (encoding, IPTV, VoD) alongside transmission and switching technologies (Ethernet, DSL, PON, NG-SDH). Includes a chapter on IP Multimedia Subsystem (IMS) and on fixed/mobile convergence. Triple Play: Building the Converged Network for IP, VoIP and IPTV provides decision makers, engineers, telecommunications operators, network equipment manufacturers, installers and IT managers with a thorough understanding of the changes of traditional voice service and its impact upon the telecommunications industry.

Focusing on the future network architecture and its main principles, Converging NGN Wireline and Mobile 3G Networks with IMS provides a comprehensive view of the methods, functions, network elements, and the interfaces among them that enable the building of a service agnostic and access agnostic session control layer based on the IMS standards. After an introduction to IMS principles with market trends, technological innovations, migration issues, and global standards, the book describes converged session control and multimedia handling with ID management, service profiles, and event and applications triggering as well as admission procedures for different types of access networks. Subsequent chapters tackle the all-important aspects of IP charging mechanisms, service-based quality of service, security, border control, and legacy services, enabling a thorough appreciation of the full network requirements. Wherever possible, the author points out the convergence of standards and details different specifications and terminology for TISPAN and 3GPP. Delivering deep insight into the role of IMS in fixed line and mobile networks, this book explains the new technologies from concepts to detailed techniques to give a clear understanding of how the next generation of converged communication can be achieved with managed quality, security, and chargeability.

Systems, Architectures, and Protocols

IP Design for Mobile Networks

Networking and Telecommunications: Concepts, Methodologies, Tools, and Applications

Creating and Deploying Innovative IMS Applications

Converging NGN and 3G Mobile

UMTS Networks

Engineering Information Security covers all aspects of information security using a systematic engineering approach and focuses on the viewpoint of how to control access to information. Includes a discussion about protecting storage of private keys, SCADA, Cloud, Sensor, and Ad Hoc networks Covers internal operations security processes of monitors, review exceptions, and plan remediation Over 15 new sections Instructor resources such as lecture slides, assignments, quizzes, and a set of questions organized as a final exam If you are an instructor and adopted this book for your course, please email ieeeproposals@wiley.com to get access to the additional instructor materials for this book.

Understand how new network technologies impact VoIP! Voice over Internet Protocol (VoIP) is revolutionizing the way people communicate – both in the corporate world and in personal life. The enormous success of VoIP has led to its adoption in a wide range of networking technologies. Each network technology has its unique features and poses distinct challenges for the performance of VoIP. VoIP: Wireless, P2P and New Enterprise Voice over IPdescribes the issues arising in the deployment of VoIP in an emerging heterogeneous network environment. Along with a brief overview of the concepts, protocols, algorithms, and equipment involved in realizing VoIP, this book focuses on two areas: quality and performance issues in deploying VoIP over various network settings, and the new mechanisms and protocols in these emerging networks to assist the deployment of VoIP. VoIP: Wireless, P2P and New Enterprise Voice over IP: Discusses the basics of VoIP, VoIP codecs and VoIP Protocols including SIP and H.323. Details new technologies such as P2P technology, VoWiFi, WiMax, and 3G Networks. Explains the QoS issues arising from deploying VoIP using the new technologies. Solves the performance issues that arise when VoIP is deployed over different network technologies. This book is an invaluable resource for professional network engineers, designers, managers, researchers, decision makers and project managers overseeing VoIP implementations. Market analysts, consultants, and those studying advanced undergraduate and graduate courses on data, voice and multimedia communications will also find this book insightful.

Updated new edition covering all aspects of network planning and optimization This welcome new edition provides comprehensive coverage of all aspects of network planning in all the technologies, from 2G to 5G, in radio, transmission and core aspects. Written by leading experts in the field, it serves as a handbook for anyone engaged in the study, design, deployment and business of cellular networks. It increases basic understanding of the currently deployed, and emerging, technologies, and helps to make evolution plans for future networks. The book also provides an overview of the forthcoming technologies that are expected to make an impact in the future, such as 5G. Fundamentals of Cellular Network Planning and Optimization, Second Edition encompasses all the technologies as well as the planning and implementation details that go with them. It covers 2G (GSM, EGPRS), 3G (WCDMA) and 4G (LTE) networks and introduces 5G. The book also looks at all the sub-systems of the network, focusing on both the practical and theoretical issues. Provides comprehensive coverage of the planning aspects of the full range of today's mobile network systems, covering radio access network, circuit and packet switching, signaling, control, and backhaul/Core transmission networks New elements in book include HSPA, Ethernet, 4G/LTE and 5G Covers areas such as Virtualization, IoT, Artificial Intelligence, Spectrum Management and Cloud By bringing all these concepts under one cover, Fundamentals of Cellular Network Planning and Optimization becomes essential reading for network design engineers working with cellular service vendors or operators, experts/scientists working on end-to-end issues, and undergraduate/post-graduate students.

5G Core Networks: Powering Digitalization provides an overview of the 5G Core network architecture, as well as giving descriptions of cloud technologies and the key concepts in the 3GPP rel-15/16 specifications. Written by the authors who are heavily involved in development of the 5G standards and who wrote the successful book on EPC and 4G Packet Networks, this book provides an authoritative reference on the technologies and standards of the 3GPP 5G Core network. Content includes: An overview of the 5G Core Architecture The Stand-Alone and Non-Stand-Alone Architectures Detailed presentation of 5G Core key concepts An overview of 5G Radio and Cloud technologies Learn The differences between the 5G Core network and previous core network generations How the interworking with previous network standards is defined Why certain functionality has been included and what is beyond the scope of 5G Core How the specifications relate to state-of-the-art web-scale concepts and virtualization technologies Details of the protocol and service descriptions Examples of network deployment options Provides a clear, concise and comprehensive view of 5GS/5GC Written by established experts in the 5GS/5GC standardization process, all of whom have extensive experience and understanding of its goals, history and vision Covers potential service and operator scenarios for each architecture Explains the Service Based Architecture, Network Slicing and support of Edge Computing, describing the benefits they will bring Explains what options and parts of the standards will initially be deployed in real networks, along with their migration paths