[eBooks] 3g Ip Multimedia Subsystem Ims Merging The Internet And The Cellular Worlds

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The 3G IP Multimedia Subsystem (IMS) - Gonzalo Camarillo - 2007-01-11
The 3G IP Multimedia Subsystem (IMS): Merging the Internet and the Cellular Worlds, Second Edition is an updated version of the best-selling guide to this exciting technology that will merge the Internet with the cellular world, ensuring the availability of Internet technologies such as the web, email, instant messaging, presence and videoconferencing nearly everywhere. In this thoroughly revised overview of the IMS and its technologies, goals, history, vision, the organizations involved in its standardization and architecture, the authors first describe how each technology works on the Internet and then explain how the same technology is adapted to work in the IMS, enabling readers to take advantage of any current and future Internet service. Key features of the Second Edition include: New chapter on Next Generation Networks, including an overview on standardization, the architecture, and PSTN/ISDN simulation services. Fully updated chapter on the Push-to-talk over Cellular (PoC) service, covering the standardization in the Open Mobile Alliance (OMA), architecture, PoC session types, user plane, and the Talk Burst Control Protocol. Several expanded sections, including discussion of the role of the Open Mobile Alliance in the standardization process, IPv4 support in IMS, a description of the IMS Application Layer Gateway and the Transition Gateway, and a description of the presence data model. Updated material on the presence service, session-based instant messages with the Message Session Relay Protocol (MSRP), and the XML Configuration Access Protocol (XCAP). Supported by a companion website on which instructors and lecturers can find electronic versions of the figures. Engineers, programmers, business managers, marketing representatives, and technically aware users will all find this to be an indispensable guide to IMS and the business model behind it.

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Messaging, Multimedia Telephony Services, and chapter on the Push-to-talk over Cellular (PoC) service, covering the standardization in the Open Mobile Alliance (OMA), architecture, PoC session types, user plane, and the Talk Burst Control Protocol. Several expanded sections, including discussion of the role of the Open Mobile Alliance in the standardization process, IPv4 support in IMS, a description of the IMS Application Layer Gateway and the Transition Gateway, and a description of the presence data model. Updated material on the presence service, session-based instant messages with the Message Session Relay Protocol (MSRP), and the XML Configuration Access Protocol (XCAP). Supported by a companion website on which instructors and lecturers can find electronic versions of the figures. Engineers, programmers, business managers, marketing representatives, and technically aware users will all find this to be an indispensable guide to IMS and the business model behind it.

The 3G IP Multimedia Subsystem (IMS) - Gonzalo Camarillo - 2011-08-24

Third edition of this best-selling guide to IMS: fully revised, and updated with brand new material. The IMS (IP Multimedia Subsystem) is the technology that merges the Internet with the cellular world. It makes Internet technologies such as the web, email, instant messaging, presence, and videoconferencing available nearly everywhere at any time. The third edition of this bestselling book is fully updated and provides comprehensively expanded content, including new chapters on emergency calls and on Voice Call Continuity (VCC). As well as this, The 3G IP Multimedia Subsystem (IMS) presents updated material including a comprehensive picture of Session Initiation Protocol (SIP) as well as its applicability to IMS. As most of the protocols have been designed in the IETF, this book explains how the IETF developed these protocols and describes how these protocols are used in the IMS architecture. This is an indispensable guide for engineers, programmers, business managers, marketing representatives and technically aware users who want to understand how the IMS works and explore the business model behind it. New chapters on emergency calls, Voice Call Continuity (VCC), service configuration (XCAP, XDM), and conferencing Fully updated throughout, including Policy and Charging Control (PCC), QoS, Presence, Instant Messaging, Multimedia Telephony Services, and Push-to-talk over Cellular (PoC) Describes the IP Multimedia Subsystem from two different perspectives: from the IETF perspective, and from the 3GPP perspective. Provides details on the latest policy technology and security architecture. Written by experienced professionals in the field.

The IMS - Miikka Poikselkä - 2004-11-19

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...
that there is immense value in communicating 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.

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**Convergence Technologies for 3G Networks** - Jeffrey Bannister - 2004-02-13

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.
The 3G IP Multimedia Subsystem (IMS) -
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
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protocols, the use of ATM/AAL2 and the new
AAL2 signalling protocol for voice/multimedia
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The 3G IP Multimedia Subsystem (IMS) -
Gonzalo Camarillo - 2004

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IP Multimedia Subsystem (IMS) Handbook -
Mohammad Ilyas - 2018-10-03
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
canny 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
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environment in which new services and concepts
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communications or related areas, and Business 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.

All IP in 3G CDMA Networks - Jonathan P. Castro - 2005-07-08
All IP in 3G CDMA Networks covers all the key aspects of UMTS and its implementation from both the engineering designer and the operator and service providers' point of view. It addresses the essential tasks involved in the UMTS network deployment in new regions and within existing 2G/2.5G networks. Key features: Presents solutions for the integration and coexistence of 2G and 3G systems and highlights the seamless interoperability functions between GSM and UMTS. As part of the evolution towards All IP cellular networks, it outlines the IP Multimedia Subsystem - IMS and the packet optimized Radio Access Network, including High Speed Download Packet Access. Provides a complete picture of broadband wireless through UMTS, whilst describing applications enabler platforms and the criteria for 3G services that enhance the user experience. By providing one integrated source in UMTS and its evolution, All IP in 3G CDMA Networks represents an invaluable resource for design engineers, operators and services providers. Likewise, Technical and Marketing Executives and Managers in wireless communications or related areas, and Business or Sales channels representatives, will benefit from this concise volume in 3G networks and services enablers. Academic programmes in Telecommunications and Information Technology segments at senior or postgraduate level, will also find valuable contributions in this book.

Testbeds and Research Infrastructures, Development of Networks and Communities - Thomas Magedanz - 2010-12-15
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.
provide a telephone service in the IMS

Development of Networks and Communities - Thomas Magedanz - 2010-12-15
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Voice over LTE - André Pérez - 2013-09-03
Voice over LTE (Long Term Evolution) presents the mechanisms put in place in 4G mobile networks for the transportation of IP packets containing voice data and telephone signaling, as well as the technologies used to provide a telephone service in the IMS (IPMultimedia Sub-system) network. Despite the difficulty connected to the handover of the 4G network to the 2G/3G network, a telephone communication will not be established on the 4G network. This book analyzes the technologies that have been put in place, such as CSFB (Circuit ServiceFallBack), an interim solution that enables a mobile connected to the 4G network to receive an alert transmitted by the 2G/3G network. The book also goes on to develop the SIP (Session Information Protocol) on which the telephone signaling transferred by the 4G network is based, the IMS network that provides the service and defines the routing, the SRVCC (Single Radio Voice Call Continuity) mechanism that maintains communication and the TAS (Telephony Application Server) that supplies supplementary services. Contents 1. The EPS Network. 2. The LTE Interface. 3. The CSFB Function. 4. SIP and SDP Protocols. 5. The IMS Network. 6. Telephone Services. 7. The SRVCC Function. About the Authors André Perez is a consultant and teacher in networks and telecommunications. He works with industrialists and operators regarding architecture studies and leads training on the 4G and IMS networks for NEXCOM.

Converging NGN Wireline and Mobile 3G Networks with IMS - Rebecca Copeland - 2008-12-22
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
Emerging Wireless Networks - Christian 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.

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Emerging Wireless Networks - Christian Makaya - 2011-12-12
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 wireless

Essential reference providing best practice of LTE-A, VoLTE, and IoT Design/deployment/Performance and evolution towards 5G This book is a practical guide to the design, deployment, and performance of LTE-A, VoLTE/IMS and IoT. A comprehensive practical performance analysis for VoLTE is conducted based on field measurement results from live LTE networks. Also, it provides a comprehensive introduction to IoT and 5G evolutions. Practical aspects and best practice of LTE-A/IMS/VoLTE/IoT are presented. Practical aspects of LTE-Advanced features are presented. In addition, LTE/LTE-A network capacity dimensioning and analysis are demonstrated based on live LTE/LTE-A networks KPIs. A comprehensive foundation for 5G technologies is provided including massive MIMO, eMBB, URLLC, mMTC, NGCN and network slicing, cloudification, virtualization and SDN. Practical Guide to LTE-A, VoLTE and IoT: Paving the Way Towards 5G can be used as a practical comprehensive guide for best practices in LTE/LTE-A/VoLTE/IoT design, deployment, performance analysis and network architecture and dimensioning. It offers tutorial introduction on LTE-A/IoT/5G networks, enabling the reader to use this advanced book without the need to refer to more introductory texts. Offers a complete overview of LTE and LTE-A, IMS, VoLTE and IoT and 5G introduces readers to IP Multimedia Subsystems (IMS)Performs a comprehensive evaluation of VoLTE/CSFB Provides LTE/LTE-A network capacity and dimensioning Examines IoT and 5G evolutions towards a super connected world Introduce 3GPP NB-IoT evolution for low power wide area (LPWA) network Provide a comprehensive introduction for 5G evolution including eMBB, URLLC, mMTC, network slicing, cloudification, virtualization, SDN and orchestration Practical
IP for 3G - Dave Wisely - 2002-08-02
What is an 'all-IP' network? What difference will IP networking make to 3G services? Third Generation (3G) mobile offers access to broadband multimedia services - and in the future most of these, even voice and video, will be IP-based. However 3G networks are not based on IP technologies, rather they are an evolution from existing 2G networks. Much work needs to be done to IP QoS and mobility protocols and architectures for them to be able to provide the functionality 3G requires. IP for 3G gives a comprehensive overview of 3G networking functionality and examines how IP protocols can be developed to provide some of the basic building blocks of a mobile system (mobility, QoS and call control) Features: * Clear explanation of how 3G works at the network level. * Review of IP protocol and architectural principles. * Extensive review, classification and analysis of IP mobility protocols - macro and micro- including IPv6. * Analysis of IP QoS protocols and proposed solutions for mobile networks. * Tutorial on SIP (Session Initiation Protocol) and how SIP can be used for multimedia session control. * Description of latest UMTS developments - including Release 5. * Discussion of 4G networks - what does 4G mean? IP for 3G will appeal to mobile telecommunications and network engineers who want to know about future developments as well as system designers and developers. Students and academics on postgraduate courses related to telecommunications, especially 3G networking or IP protocols, will find this text ideal supplementary reading, only assuming a general knowledge of GSM and general networking principles.

Essential reference providing best practice of LTE-A, VoLTE, and IoT

Design/deployment/Performance and evolution towards 5G This book is a practical guide to the design, deployment, and performance of LTE-A, VoLTE/IMS and IoT. A comprehensive practical performance analysis for VoLTE is conducted based on field measurement results from live LTE networks. Also, it provides a comprehensive introduction to IoT and 5G evolutions. Practical aspects and best practice of LTE-A/IMS/VoLTE/IoT are presented. Practical aspects of LTE-Advanced features are presented. In addition, LTE/LTE-A network capacity dimensioning and analysis are demonstrated based on live LTE/LTE-A networks KPIs. A comprehensive foundation for 5G technologies is provided including massive MIMO, eMBB, URLLC, mMTC, NGCN and network slicing, cloudification, virtualization and SDN. Practical Guide to LTE-A, VoLTE and IoT: Paving the Way Towards 5G can be used as a practical comprehensive guide for best practices in LTE/LTE-A/VoLTE/IoT design, deployment, performance analysis and network architecture and dimensioning. It offers tutorial introduction on LTE-A/IoT/5G networks, enabling the reader to use this advanced book without the need to refer to more introductory texts. Offers a complete overview of LTE and LTE-A, IMS, VoLTE and IoT and 5G Introduces readers to IP Multimedia Subsystems (IMS)Performs a comprehensive evaluation of VoLTE/CSFB Provides LTE/LTE-A network capacity and dimensioning Examines IoT and 5G evolutions towards a super connected world Introduce 3GPP NB-IoT evolution for low power wide area (LPWA) network Provide a comprehensive introduction for 5G evolution including eMBB, URLLC, mMTC, network slicing, cloudification, virtualization, SDN and orchestration Practical Guide to LTE-A, VoLTE and IoT will appeal to all deployment and service engineers, network designers, and planning and optimization engineers working in mobile communications. Also, it is a practical guide for R&D and standardization experts to evolve the LTE/LTE-A, VoLTE and IoT towards 5G evolution.

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the LTE market. It also extends some of the comprehensive overview of 3G networking functionality and examines how IP protocols can be developed to provide some of the basic building blocks of a mobile system (mobility, QoS and call control) Features: * Clear explanation of how 3G works at the network level. * Review of IP protocol and architectural principles. * Extensive review, classification and analysis of IP mobility protocols - macro and micro- including IPv6. * Analysis of IP QoS protocols and proposed solutions for mobile networks. * Tutorial on SIP (Session Initiation Protocol) and how SIP can be used for multimedia session control. * Description of latest UMTS developments - including Release 5. * Discussion of 4G networks - what does 4G mean? IP for 3G will appeal to mobile telecommunications and network engineers who want to know about future developments as well as system designers and developers. Students and academics on postgraduate courses related to telecommunications, especially 3G networking or IP protocols, will find this text ideal supplementary reading, only assuming a general knowledge of GSM and general networking principles.

Wireless and Mobile All-IP Networks - Yi-Bing Lin - 2005-11-22

An Introduction to LTE - Christopher Cox - 2014-05-12

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...
SAE is the next step, allowing data rates above 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.

**EPC and 4G Packet Networks** - Magnus Olsson  
- 2012

Future mobile access networks will require upgraded telecommunications networks; 3G LTE/SAE is the next step, allowing data rates above 100 Mbps. Telecommunications engineers will need to understand the new SAE/EPC architecture and its tendency towards automatic configuration, but the complexity, length and dryness of the standards documents make it difficult for them to find the information they need and work out how to apply it to their daily product and network development. This book - a new edition of SAE and the Evolved Packet Core - provides clear, concise and comprehensive coverage of the entire SAE/EPC architecture, explaining concepts and standards and how they are used in commercial service settings. More than just a précis of the standards, it gives real insight into their development and the real-world scenarios in which they have been used since the publication of the first edition. This second edition places more emphasis on key aspects such as mobile systems and protocols (Diameter, GTP, S1-AP), and includes new coverage of femtocells, SIPTO, LIPA, LTE relay and LTE Advanced. 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

**Voice over LTE** - Miikka Poikselkä - 2012-03-05

Describes the technological solutions and standards which will enable the migration of voice and SMS services over to LTE/EPC networks Main drivers for the introduction of Long Term Evolution of UTRAN (LTE) is to provide far better end user experience for mobile broadband services. However, service providers also need to have a clear strategy of how to offer voice and messaging services for consumers and enterprises. The voice service over LTE is becoming increasingly important when the smartphone penetration is increasing rapidly. Smartphones require both good quality voice and high speed broadband data. This book provides the exhaustive view to industry-approved
information. Covering the technical and practical elements of VoLTE, explaining the various approaches for providing voice services over LTE.

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Describes the technological solutions and standards which will enable the migration of voice and SMS services over to LTE/EPC networks. Main drivers for the introduction of Long Term Evolution of UTRAN (LTE) is to provide far better end user experience for mobile broadband services. However, service providers also need to have a clear strategy of how to offer voice and messaging services for consumers and enterprises. The voice service over LTE is becoming increasingly important when the smartphone penetration is increasing rapidly. Smartphones require both good quality voice and high speed broadband data. This book provides the exhaustive view to industry-approved technologies and standards behind the Voice over LTE (VoLTE). Whether a decision maker or technology analyst, this book explains a topic of substantial global market interest. It provides a good introduction to the technology and is useful for operators who may be deploying VoLTE, product managers responsible for VoLTE products and those who work in implementation and standardization of related technologies. Provides a comprehensive overview of industry-approved technologies and standards, providing vital information for decision makers and those working on the technology. Written by authors working at the cutting edge of mobile communications technology today, bringing a mix of standards and product background, guaranteeing in-depth practical and standards elements of VoLTE, explaining the various approaches for providing voice services over LTE.

**CAMEL** - Rogier Noldus - 2006-08-04
Learn how to use CAMEL to transfer the Intelligent Network concept to the mobile world! CAMEL (Customized Application for the Mobile network Enhanced Logic) is a standard for Intelligent Networks for mobile communications networks. It is currently deployed in all regions of the world, enabling mobile network operators to offer fast and efficient services to their subscribers. This book is an in-depth and dedicated reference on CAMEL, taking the reader through the history and development of Intelligent Networks and the essential principles of CAMEL, to the future of the technology. The author provides guidance on the various standards and specifications, and explains not only how CAMEL works but also why it works this way. Practical hints on the installation of CAMEL in the network are given throughout the book. CAMEL: Intelligent Networks for the GSM, GPRS and UMTS Network: Offers a comprehensive guide to implementing CAMEL. Covers a complete picture, including the network entities & data flows involved. Describes and explains the four CAMEL phases and their aspects. Presents an overview of the principles of Intelligent Networks, such as Finite State Machines, Trigger Detection Points, Event Detection Points and dialogue, essential to understanding CAMEL. Covers charging and accounting issues, and the impact of CAMEL on the charging system in the mobile network. Provides practical hints over and above those mentioned in the formal specifications. This text will be an invaluable resource for intelligent network service logic designers, service network designers, network engineers, and GSM/UMTS network designers and implementers. Advanced students on courses such as ‘Intelligent Networks’, ‘Value Added Services’, and ‘Service Networks’ will also find it an excellent guide to the topic.

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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 - David Wisely - 2009-01-21
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...
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**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.

**UMTS Networks** - Sumit Kasera - 2004
In India, the mobile subscribers base is increasing at a phenomenal rate. After the successful adoption of Second Generation (2G) Technology GSM and 2.5G Technology GPRS, the industry is now rapidly moving towards Third Generation (3G) Networks. The book, written by two young engineers, touches almost every imaginable aspect of a 3G Network, spanning across topics such as: UMTS Network Architecture (including Access Network and Core Network), Protocols (including RRC, NBAP, RANAP, MM/GMM, MAP and GTP), Procedures (including UTRAN Procedures, Mobility Management, Call/Session handling and Security Management), and Services (including Supplementary Services and Value-added Services). Also, the book covers topics like IP Multimedia Sub-system (IMS) and SIGTRAN. Besides these, the book includes the status of deployment of 3G UMTS Networks across the world and provides a brief introduction to 4G Networks setting the tone for future advancements.

**UMTS Signaling** - Ralf Kreher - 2012-04-27
This completely revised and updated edition of the highly successful UMTS Signaling provides a deep insight into all aspects of UMTS signalling. The chapter structure has been reworked for improved “usability” for readers, as well as including many new features and updates. The successful trial, deployment, operation and troubleshooting of 3G or UMTS infrastructures and applications is the biggest challenge facing today’s mobile communications. Network element instability, network element and multi-vendor interoperability, configuration and network planning faults are just a few of the challenges affecting performance and profitability that need to be addressed. This book is an invaluable guide to resolving such problems. Highlights of the Second Edition: Includes new information and scenarios on HSPA / HSDPA / HSUPA, and IMS Covers not only WCDMA, but also TD-SCDMA issues. Contains up-to-date information on releases 5 and 6, and includes a new chapter on the future releases 7 and 8. Provides crucial information for network operators and equipment suppliers keen to understand how to handle and analyse UMTS signaling procedures in order to get the network into operation, detect errors and troubleshoot faults. Uses first-hand, real-world information to explain issues which are unclear in the standards. Includes comprehensive descriptions and documentation of UMTS reference scenarios for different UMTS procedures. The unified comprehensive approach taken by the authors makes this book essential reading for engineers in network operators, integrators or system suppliers who need to be at the cutting edge of this technology. It will also be an invaluable resource for students and researchers in the field of telecommunications.
step instructions together with challenging telecommunications courses, especially those with a focus on signal analysis.

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**Guide to Voice and Video over IP** - Lingfen Sun - 2013-01-12
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.

**Practical VoIP Security** - Thomas Porter, CISSP, CCNP, CCDA, CCS - 2006-03-31
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).
illustrations, this cutting-edge reference 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.

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**IP Communications and Services for NGN** - Johnson I Agbinya - 2009-12-23
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.
the EPS evolution of the 3G/UMTS standard 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.

**Evolved Packet System (EPS)** - Pierre Lescuyer - 2008-02-28
2G/GSM and 3G/UMTS are key mobile communication technologies, chosen by more than 2 billion people around the world. In order to adapt to new services, increasing demand for user bandwidth, quality of service and requirements for network convergence, major evolutions are introduced in 3G network standard. Evolved Packet System (EPS) presents the EPS evolution of the 3G/UMTS standard introduced by the 3rd Generation Partnership Project (3GPP) standard committee. This new topic is looked at from a system perspective, from the radio interface to network and service architecture. Hundreds of documents being issued by Standard organisations are summarised in one book to allow the reader to get an accessible comprehensive view of EPS evolution. Proposes a system view of Evolved UMTS, from the radio to Core and service architecture Gives a comprehensive and global view of the system that technical specifications do not provide Describes the new system as well as the inheritance and migration from 2G/GSM and 3G/UMTS Written by experts in the field who specialise in two complementary but very different technical domains (i.e. "radio interface" and "network architecture") Contains many figures and examples for better understanding. This book is essential for industry professionals in the telecommunication business, telecommunication system architects and designers, product manufacturers and operators and postgraduate students.

**Developing SIP and IP Multimedia Subsystem (IMS) Applications** - IBM Redbooks - 2007-01-01

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**Triple Play** - Francisco J. Hens - 2008-04-30
“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
High Speed DSL second generation), 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 and Multiprotocol 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.

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**3g Ip Multimedia Subsystem** - Muhammad Alam - 2011-02

The IP Multimedia Subsystem (IMS) is the technology that merges the Internet with the cellular world. The existing session establishment scenario of IMS suffers from triangular routing for a certain period of time when an end user is mobile. The other problem areas in optimizing presence service, dimensioning a push-to-talk over cellular service and analyzing service rates of instant messaging relay extensions in IMS are identified. In order to mitigate the drawbacks of these crucial aspects, this book contributes with a robust scheduler to improve performance of the presence service, several derived models to dimension push-to-talk over cellular service, a new mechanism to reduce cost for the session set ups in mobile environment and the evaluation of message blocking and stability in instant messaging service by applying queuing theories. The analysis of performance enhancements and the derived models of this book should help shed some light on the emerging environment of IMS infrastructure. They should also be very useful to professionals who may be considering pursuing research in the field of wireless communications and mobility management using stochastic process.

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**SIP Demystified** - Gonzalo Camarillo - 2001-09-18
State-of-the-art SIP primer SIP (Session Initiation Protocol) is the open standard that will make IP telephony an irresistible force in communications, doing for converged services what http does for the Web. SIP Demystified — authored by Gonzalo Camarillo, one of the contributors to SIP development in the IETF—gives you the tools to keep your company and career competitive. This guide tells you why the standard is needed, what architectures it supports, and how it interacts with other protocols. As a bonus, you even get a context-setting background in data networking. Perfect if you’re moving from switched voice into a data networking environment, here’s everything you need to understand: * Where, why, and how SIP is used * What SIP can do and deliver * SIP’s fit with other standards and systems * How to plan implementations of SIP-enabled services * How to size up and choose from available SIP products

**Web Information Systems and Technologies** - José Cordeiro - 2010-04-14
This book contains a selection of the best papers from WEBIST 2009 (the 5th Int- national Conference on Web Information Systems and Technologies), held in Lisbon, Portugal, in 2009, organized by the Institute for Systems and Technologies of Inf- mation, Control and Communication (INSTICC), in collaboration with ACM SIGMIS and co-sponsored by the Workflow Management Coalition (WFMC). The purpose of the WEBIST series of conferences is to bring together researchers, engineers and practitioners interested in the technological advances and business applications of Web-based information systems. The conference has four main tracks, covering different aspects of Web information systems, including Internet Techn- ology, Web Interfaces and Applications, Society, e-Communities, e-Business and e-Government.

WEBIST 2009 received 203 paper submissions from 47 countries on all con- nents. A double-blind review process was enforced, with the help of more than 150 experts from the International Program Committee; each of them specialized in one of the main conference topic areas. After reviewing, 28 papers were selected to be published and presented as full papers and 44 additional papers, describing work-- progress, published and presented as short papers. Furthermore, 35 papers were p- sented as posters. The full-paper acceptance ratio was 13%, and the total oral paper acceptance ratio was 36%. Therefore, we hope that you find the papers included in this book interesting, and we trust they may represent a helpful reference for all those who need to address any of the research areas mentioned above. January 2010 José Cordeiro Joaquim Filipe
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**WCDMA for UMTS** - Harri Holma - 2005-01-14  
Highly regarded as the book on the air interface of 3G cellular systems WCDMA for UMTS has again been fully revised and updated. The third edition now covers the key features of 3GPP Release 6 ensuring it remains the leading principal resource in this constantly progressing area. By providing a deep understanding of the WCDMA air interface, the practical approach of this third edition will continue to appeal to operators, network and terminal manufacturers, service providers, university students and frequency regulators. Explains the key parts of the 3GPP/WCDMA standard Presents network dimensioning, coverage and capacity of WCDMA Introduces TDD and discusses its differences from FDD Key third edition updates include: Covers the main 3GPP Release 6 updates Further enhances High Speed Downlink Packet Access (HSDPA) chapter with a number of new simulation results Explains High Speed Uplink Packet Access (HSUPA) study item Introduces the new services including their performance analysis: Push-to-Talk over Cellular (PoC), streaming, See What I See (SWIS) and multiplayer games Presents a number of new WCDMA field measurement results: capacity, end-to-end performance and handovers Includes completely updated antenna beamforming and multiuser detection sections featuring new simulation results Introduces TD-SCDMA and compares it to Release TDD

**Handbook of Research on Heterogeneous Next Generation Networking: Innovations and Platforms** - Kotsopoulos, Stavros - 2008-10-31  
“This book presents state-of-the-art research,
multi-antenna processing, and more combined platforms of heterogeneous wireless networks”--Provided by publisher.

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**Fundamentals of LTE** - Arunabha Ghosh - 2010-09-09

The Definitive Guide to LTE Technology Long-Term Evolution (LTE) is the next step in the GSM evolutionary path beyond 3G technology, and it is strongly positioned to be the dominant global standard for 4G cellular networks. LTE also represents the first generation of cellular networks to be based on a flat IP architecture and is designed to seamlessly support a variety of different services, such as broadband data, voice, and multicast video. Its design incorporates many of the key innovations of digital communication, such as MIMO (multiple input multiple output) and OFDMA (orthogonal frequency division multiple access), that mandate new skills to plan, build, and deploy an LTE network. In Fundamentals of LTE, four leading experts from academia and industry explain the technical foundations of LTE in a tutorial style—providing a comprehensive overview of the standards. Following the same approach that made their recent Fundamentals of WiMAX successful, the authors offer a complete framework for understanding and evaluating LTE. Topics include Cellular wireless history and evolution: Technical advances, market drivers, and foundational networking and communications technologies Multicarrier modulation theory and practice: OFDM system design, peak-to-average power ratios, and SC-FDE solutions Frequency Domain Multiple Access: OFDMA downlinks, SC-FDMA uplinks, resource allocation, and LTE-specific implementation Multiple antenna techniques and tradeoffs: spatial diversity, interference cancellation, spatial multiplexing, and multiuser/networked MIMO LTE standard overview: air interface protocol, channel structure, and physical layers Downlink and uplink transport channel processing: channel encoding, modulation mapping, Hybrid ARQ, Physical/MAC layer procedures and scheduling: channel-aware scheduling, closed/open-loop multi-antenna processing, and more Packet flow, radio resource, and mobility management: RLC, PDCP, RRM, and LTE radio access network mobility/handoff procedures.
multimedia technologies within their many
PDCP, RRM, and LTE radio access network
mobility/handoff procedures

**Cellular Communications** - Nishith Tripathi -
2014-09-12

Even as newer cellular technologies and
standards emerge, many of the fundamental
principles and the components of the cellular
network remain the same. Presenting a simple
yet comprehensive view of cellular
communications technologies, Cellular
Communications provides an end-to-end
perspective of cellular operations, ranging from
physical layer details to call set-up and from the
radio network to the core network. This self-
contained source for practitioners and students
represents a comprehensive survey of the
fundamentals of cellular communications and the
landscape of commercially deployed 2G and 3G
technologies and provides a glimpse of emerging
4G technologies.

**Multimedia Technologies: Concepts,
Methodologies, Tools, and Applications** -
Syed, Mahbubur Rahman - 2008-06-30

"This book offers an in-depth explanation of
multimedia technologies within their many
specific application areas as well as presenting
developing trends for the future"--Provided by
publisher.

**IP in Wireless Networks** - Basavaraj Patil -
2003

IP in Wireless Networks is the first network
professional's guide to integrating IP in 2G, 2.5G,
and 3G wireless networks. It delivers systematic,
expert implementation guidance for every
leading wireless network, including 802.11,
Bluetooth, GSM/GPRS, W-CDMA, cdma2000, and
i-mode. In-depth coverage encompasses
architecture, technical challenges, deployment
and operation strategies, mobility models,
routing, and applications. The book presents
future evolution of the Wireless IP Networks with
emerging applications and the role of
standardization bodies.

**Web, Artificial Intelligence and Network
Applications** - Leonard Barolli - 2019-03-14

The aim of the book is to provide latest research
findings, innovative research results, methods
and development techniques from both
theoretical and practical perspectives related to
the emerging areas of Web Computing,
Intelligent Systems and Internet Computing. As
the Web has become a major source of
information, techniques and methodologies that
extract quality information are of paramount
importance for many Web and Internet
applications. Data mining and knowledge
discovery play key roles in many of today's
prominent Web applications such as e-commerce
and computer security. Moreover, the outcome of
Web services delivers a new platform for
enabling service-oriented systems. The
the Migration from CS Voice to IMS-based paradigms, such as Cloud Computing and Mobile Computing Systems, has opened many opportunities for collaboration services, which are at the core of any Information System. Artificial Intelligence (AI) is an area of computer science that build intelligent systems and algorithms that work and react like humans. The AI techniques and computational intelligence are powerful tools for learning, adaptation, reasoning and planning. They have the potential to become enabling technologies for the future intelligent networks. Recent research in the field of intelligent systems, robotics, neuroscience, artificial intelligence and cognitive sciences are very important for the future development and innovation of Web and Internet applications.

Web, Artificial Intelligence and Network Applications - Leonard Barolli - 2019-03-14
The aim of the book is to provide latest research findings, innovative research results, methods and development techniques from both theoretical and practical perspectives related to the emerging areas of Web Computing, Intelligent Systems and Internet Computing. As the Web has become a major source of information, techniques and methodologies that extract quality information are of paramount importance for many Web and Internet applications. Data mining and knowledge discovery play key roles in many of today’s prominent Web applications such as e-commerce and computer security. Moreover, the outcome of Web services delivers a new platform for enabling service-oriented systems. The emergence of large scale distributed computing paradigms, such as Cloud Computing and Mobile Computing Systems, has opened many opportunities for collaboration services, which are at the core of any Information System. Artificial Intelligence (AI) is an area of computer science that build intelligent systems and algorithms that work and react like humans. The AI techniques and computational intelligence are powerful tools for learning, adaptation, reasoning and planning. They have the potential to become enabling technologies for the future intelligent networks. Recent research in the field of intelligent systems, robotics, neuroscience, artificial intelligence and cognitive sciences are very important for the future development and innovation of Web and Internet applications.

Unleashing VoLTE capabilities. Assessing the Migration from CS Voice to IMS-based Voice over LTE (VoLTE) - Omar Amoretti - 2016-05-18
Master's Thesis from the year 2016 in the subject Computer Science - Miscellaneous, grade: 1,0, University of Applied Sciences Technikum Vienna (Telecommunications and Internet Technologies), language: English, abstract: Operator-provided voice services will gradually migrate from today's circuit-switched (CS) voice networks to packet-switched IP networks, using Voice over LTE (VoLTE) as the foundation to provide telecommunication grade telephony services. In fact, the capability of transporting Voice over IP (VoIP) services along with the provision of high-rate data throughputs, characterizes one of the critical drivers for the LTE development. This thesis presents the first implications of introducing IMS-based VoLTE in Germany, Austria and Switzerland (DACH) from a mobile operator's perspective. Further VoLTE performance aspects such as parameter optimization and HD voice are discussed, thus serving as a basis to then analyze the DACH mobile network test results for 2014 in terms of telephony and data performance. Overall results for a DACH VoLTE trial conducted in the third quarter 2014 complement the analysis.

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depth coverage of the latest IMS security, Overall results for a DACH VoLTE trial conducted in the third quarter 2014 complement the analysis.

The IP Multimedia Subsystem (IMS): Session Control and Other Network Operations - Travis Russell - 2008-01-07
Build and maintain a converged multimedia network environment Seamlessly merge the Internet with cellular and wireless networks using next-generation IMS technology and the comprehensive information contained in this authoritative resource. The IP Multimedia Subsystem: Session Control and Other Network Operations details the steps necessary to deliver Web-based content, VoIP, streaming multimedia, conference calls, and text messages across one integrated network. Learn how to transition to IMS architecture, communicate with legacy networks, control sessions using SIP, and connect subscribers to network services. In-depth coverage of the latest IMS security, business intelligence, customer care, and billing procedures is also included. Migrate legacy networks to IMS-based technology Use the Proxy, Interrogating, and Serving Call Session Control Functions Interface with TDM-based, wireless, wireline, and VoIP networks Handle private and public user identities, domain names, and URLs Establish SIP sessions and connect subscribers to network services Deploy reliable network, access, and user-level security Prevent eavesdropping, DoS, message tampering, and amplification exploits Track services rendered and charge subscribers using DIAMETER and CDRs

System Engineering for IMS Networks - Arun Handa - 2009-03-12
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 also to 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
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