



International Telecommunication Union



Basic NGN Architecture Principles & Issues

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Industry Canada

ITU-T Workshop on NGN (jointly organized with IETF)
Geneva, 1-2 May 2005

Basic Ngn Architecture Principles Itu

Judd E. Hollander



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Pervasive Networks and Connectivity , NGN Architectures, Protocols and Services Toni Janevski, 2014-03-06
Comprehensive coverage explaining the correlation and synergy between Next Generation Networks and the existing standardized technologies This book focuses on Next Generation Networks NGN in particular on NGN architectures protocols and services including technologies regulation and business aspects NGN provides convergence between the traditional telecommunications and the Internet and it is globally standardized by the ITU International Telecommunication Union where ITU is the United Nations specialized agency for Information and Communication Technologies ICTs The convergence towards the NGN is based on the Internet technologies and the introductory chapters cover the Internet fundamentals of today including architectures protocols IPv4 IPv6 TCP DNS etc Internet services WWW e mail BitTorrent Skype and more as well as Internet governance Further the prerequisite for convergence of all ICT services over single network architectures is broadband access to the Internet Hence the book includes architectures of fixed broadband Internet access networks such as DSL Digital Subscriber Line networks cable networks FTTH Fiber To The Home next generation passive and active optical networks and metro Ethernet It also covers network architectures for next generation 4G mobile and wireless networks LTE LTE Advanced and Mobile WiMAX 2 0 then Fixed Mobile Convergence FMC next generation mobile services as well as business and regulatory aspects for next generation mobile networks and services Comprehensive coverage explaining the correlation and synergy between Next Generation Networks and the existing standardized technologies Focuses on Next Generation Networks NGN as defined by the ITU including performance service architectures and mechanisms common IMS IP Multimedia Subsystem control and signalling protocols used in NGN security approaches identity management NGN Service Overlay Networks and NGN business models Examines the most important NGN services including QoS enabled VoIP IPTV over NGN web services in NGN peer to peer services Ubiquitous Sensor Network USN services VPN services in NGN Internet of things and web of things Includes the transition towards NGN from the PSTN Public Switched Telephone Networks and from the best effort Internet via the same Internet access Explores advanced topics such as IPv6 based NGN network virtualization and future packet based networks as well as business challenges and opportunities for the NGN evolved networks and services Essential reading for engineers and employees from regulatory bodies government organisations telecommunication companies ICT companies **Handbook of Research on Heterogeneous Next Generation Networking: Innovations and Platforms** Kotsopoulos, Stavros, Ioannou, Konstantinos, 2008-10-31 This book presents state of the art research developments and integration activities in combined platforms of heterogeneous wireless networks Provided by publisher **IP Multimedia Subsystem (IMS) Handbook** Mohammad Ilyas, Syed A. Ahson, 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 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

Linear and Non-Linear Video and TV Applications Daniel Minoli, 2012-06-26 Provides options for implementing IPv6 and IPv6 multicast in service provider networks New technologies viewing paradigms and content distribution approaches are taking the TV video services industry by storm Linear and Nonlinear Video and TV Applications Using IPv6 and IPv6 Multicast identifies five emerging trends in next generation delivery of entertainment quality video These trends are observable and can be capitalized upon by progressive service providers telcos cable operators and ISPs This comprehensive guide explores these evolving directions in the TV video services industry including worldwide deployment of IPv6 IPTV services web produced video content and the plethora of different screens available from TV to iPad It offers practical suggestions as to how these technologies can be implemented in service provider networks to support cost effective delivery of entertainment and how new revenue generating services can be brought to market Important topics include Evolving video consumption habits and possible network implications An overview of IPv6 address capabilities protocols quality of service QoS and more Process descriptions of IP multicast and IPv6 multicast approaches and challenges A detailed overview of IPTV systems and technologies including architectural requirements QoE and QoS security and content protection networks and more Internet based TV technologies streaming content distribution networks P2P networks and cloud computing Non traditional video content sources and their implications Linear and Nonlinear Video and TV Applications Using IPv6 and IPv6 Multicast is indispensable reading for planners CTOs and engineers at broadcast TV operations Cable TV operations satellite operations Internet and IS providers telcos and wireless providers

Next Generation Networks Jingming Li Salina, Pascal Salina, 2008-02-28 Next Generation Networks NGN provide ubiquitous connectivity with pervasive accessibility to service application content and information NGN will bring tremendous

advantages to companies and individuals in terms of access to information education and knowledge efficiency dematerialisation and new user experiences Next Generation Networks Perspectives and Potentials explores the potentials of NGN and provides an outlook of future services for the end users and opportunities for the traditional network operators and new players It creates a framework to aid the understanding of NGN exploring the strategic development and practical deployment of NGN This book provides a complete and comprehensive picture of the future directions substantial benefits issues applications and services for NGN Offers an in depth exploration of NGN covering both basic and advanced concepts Examines critical issues with the implementation of NGN Covers NGN technology architecture transport services and evolution and standardization Written by industry experts focusing on the business opportunities of NGN with chapters on NGN standardization development and corporate responsibility Next Generation Networks is ideal for network operators equipment vendors researchers Telecoms regulators and engineers working in next generation networking It will also be of interest to graduate students on electrical engineering and computer science programmes with a focus on networks

Grid Networks Franco Travostino, Joe Mambretti, Gigi Karmous-Edwards, 2006-07-11 A book that bridges the gap between the communities of network and Grid experts Grid Networks describes the convergence of advanced networking technologies and Grid technologies with special focus on their symbiotic relationship and the resulting new opportunities Grid technology is applicable to many implementations Computational Grids Data Grids Service Grids and Instrumentation Grids The authors cover a breadth of topics including recent research featuring both theoretical concepts and empirical results Beginning with an overview of Grid technologies an analysis of distinguishing use cases and architectural attributes and emerging standards Travostino et al discuss new directions in multiple networking technologies that are enabling enhanced capabilities for Grids An appendix also provides an overview of experimental research test beds and prototype implementations These topics will enable network experts to design networks to best match Grid requirements while Grid experts will learn how to effectively utilize network resources Grid Networks Enabling Grids with Advanced Communication Technology Bridges the gap between the communities of network and Grid experts Covers new network requirements posed by the Grid and the paradigm shifts prompted by Grid applications Discusses basic architectural concepts and directions related to the integration of Grid and networking technologies especially those that elevate network resources to first class entities within Grid environments Details new directions in networking technologies for the Grid including Network Infrastructure Management Service Provisioning High Performance Data Transport Performance Monitoring Reliability and Network Assisted Service Frameworks Provides an overview of advanced research testbeds and innovative early implementations of emerging architecture and technology Many communities will find this book an invaluable resource including engineers and product managers research scientists within academia industry and government agencies advanced students and faculty in distributed systems courses network and systems architects CIOs administrators of advanced networks application

developers and providers of next generation distributed services

The Cable and Telecommunications Professionals' Reference Goff Hill, 2012-07-26 This book is for any telecommunications convergence professional who needs to understand the structure of the industry the structure of telephony networks and services and the equipment involved With the growing variety of networks and technologies now on offer it is inevitable that some convergence will take place between different networks services and products New VOIP voice over internet protocol networks must interwork with traditional networks For instance mobile phones can offer data services wireless broadband connections to laptops will allow VOIP phone calls away from base users could have the option of convergent phones that can be used on a landline when at home or business but which can be used as a mobile when on the move and so on

Entwicklung einer referenzmodellbasierten Unternehmensarchitektur für die Telekommunikationsindustrie Christian Czarnecki, 2013 Die Telekommunikationsindustrie hat in den letzten Jahrzehnten einen enormen Wandel vollzogen Für Telekommunikationsunternehmen erfordert dies fundamentale Umstrukturierungen von Strategie Prozessen Anwendungssystemen und Netzwerktechnologien Dabei spielen Unternehmensarchitekturen und Referenzmodelle eine wichtige Rolle Zwar existieren in der Praxis anerkannte Referenzmodelle aber wie sind diese für eine systematische Transformation zu gestalten Wie sieht eine konkrete Lösung für die Telekommunikationsindustrie aus Als Antwort stellt Christian Czarnecki in seinem Buch eine referenzmodellbasierte Unternehmensarchitektur vor Basierend auf einer umfangreichen Untersuchung von Transformationsprojekten werden Probleme und Anforderungen der Praxis identifiziert für die mit Methoden der Unternehmenstransformation Referenzmodellierung und Unternehmensarchitektur ein Lösungsvorschlag entwickelt und evaluiert wird Dieser besteht u a aus detaillierten Anwendungsfällen Referenzprozessabläufen einer Zuordnung von Prozessen zu Anwendungssystemen sowie Handlungsempfehlungen zur Virtualisierung Für Wissenschaftler und Studierende der Wirtschaftsinformatik zeigt das Buch neue Erkenntnisse einer anwendungsorientierten Referenzmodellierung Für Praktiker liefert es eine methodisch fundierte Lösung für die aktuellen Transformationsbedarfe der Telekommunikationsindustrie Christian Czarnecki arbeitet seit 2004 als Unternehmensberater und hat viele Telekommunikationsunternehmen bei deren Transformation begleitet In 2013 erfolgte die Promotion zum Doktoringenieur an der Otto von Guericke Universität Magdeburg

Security Management of Next Generation Telecommunications Networks and Services Stuart Jacobs, 2013-12-16 This book will cover network management security issues and currently available security mechanisms by discussing how network architectures have evolved into the contemporary NGNs which support converged services voice video TV interactive information exchange and classic data communications It will also analyze existing security standards and their applicability to securing network management This book will review 21st century security concepts of authentication authorization confidentiality integrity nonrepudiation vulnerabilities threats risks and effective approaches to encryption and associated credentials management control The book will highlight deficiencies in existing protocols used for management and the transport of management

information **Mobility Management** Shanzhi Chen,Yan Shi,Bo Hu,Ming Ai,2016-06-22 This is the first book devoted to mobility management covering the important principles technologies and applications of mobility management based on years of academic research and industry experiences The content is organized according to the reference models proposed by the authors and emphasizes on technical principles rather than protocol details a systematic and comprehensive introduction is presented yet without losing focuses the existing technologies in cellular system mobile Internet and IMS SIP are also extensively compared This book can be an indispensable reference for mobile communication engineers computer network engineers researchers and anyone else involved in academic industrial and standardization activities on mobility management

Traffic Engineering and QoS Optimization of Integrated Voice and Data Networks Gerald R. Ash,2006-11-03 This book describes analyzes and recommends traffic engineering TE and quality of service QoS optimization methods for integrated voice data dynamic routing networks These functions control a network s response to traffic demands and other stimuli such as link failures or node failures TE and QoS optimization is concerned with measurement modeling characterization and control of network traffic and the application of techniques to achieve specific performance objectives The scope of the analysis and recommendations include dimensioning call flow and connection routing QoS resource management routing table management dynamic transport routing and operational requirements Case studies are included which provide the reader with a concrete way into the technical details and highlight why and how to use the techniques described in the book Includes Case Studies of MPLS and GMPLS Network Optimization Presents state of the art traffic engineering and quality of service optimization methods and illustrates the tradeoffs between the various methods discussed Contains practical Case Studies based on large scale service provider implementations and architecture plans Written by a highly respected and well known active expert in traffic engineering and quality of service

Mobile Evolution Sebastian Thalanany,2015-03-02 This book presents insights interpretations concepts and interdependent views in the landscape of mobile connectivity and service that emphasize the significance of a harmonious interplay cooperation and coalescing of a variety of interdisciplinary domains of science and art Mobile Evolution Insights on Connectivity and Service explores the f

Reference Architecture for the Telecommunications Industry Christian Czarnecki,Christian Dietze,2017-01-26 This book reflects the tremendous changes in the telecommunications industry in the course of the past few decades shorter innovation cycles stiffer competition and new communication products It analyzes the transformation of processes applications and network technologies that are now expected to take place under enormous time pressure The International Telecommunication Union ITU and the TM Forum have provided reference solutions that are broadly recognized and used throughout the value chain of the telecommunications industry and which can be considered the de facto standard The book describes how these reference solutions can be used in a practical context it presents the latest insights into their development highlights lessons learned from numerous international projects and combines them with well founded research

results in enterprise architecture management and reference modeling The complete architectural transformation is explained from the planning and set up stage to the implementation Featuring a wealth of examples and illustrations the book offers a valuable resource for telecommunication professionals enterprise architects and project managers alike

Engineering Information Security Stuart Jacobs, 2011-10-31 Information security is the act of protecting information from unauthorized access use disclosure disruption modification or destruction This book discusses why information security is needed and how security problems can have widespread impacts It covers the complete security lifecycle of products and services starting with requirements and policy development and progressing through development deployment and operations and concluding with decommissioning Professionals in the sciences engineering and communications fields will turn to this resource to understand the many legal technical competitive criminal and consumer forces and influences that are rapidly changing our information dependent society If you re a professor and would like a copy of the solutions manual please contact ieeepress@ieee.org The material previously found on the CD can now be found on www.booksupport.wiley.com

Technologies for Advanced Heterogeneous Networks II Kenjiro Cho, 2006-11-10 This book constitutes the refereed proceedings of the Second Asian Internet Engineering Conference AINTEC 2006 held in Pathumthani Thailand in November 2006 The 12 revised full papers presented together with 5 invited papers were carefully reviewed and selected from 36 submissions The papers are organized in topical sections on service architecture multicast performance in WLAN routing and multihoming in mobile networks

Mobile Peer-to-Peer Computing for Next Generation Distributed Environments: Advancing Conceptual and Algorithmic Applications Seet, Boon-Chong, 2009-05-31 This book is dedicated to the coverage of research issues findings and approaches to Mobile P2P computing from both conceptual and algorithmic perspectives Provided by publisher

Media Networks Hassnaa Moustafa, Sherali Zeadally, 2016-04-19 A rapidly growing number of services and applications along with a dramatic shift in users consumption models have made media networks an area of increasing importance Do you know all that you need to know Supplying you with a clear understanding of the technical and deployment challenges Media Networks Architectures Applications and Standard

SIP und Telekommunikationsnetze Ulrich Trick, Frank Weber, 2015-05-19 Moderne Telekommunikationsnetze sind IP basiert und integrieren alle Dienste und Zugangsnetztechniken Aktuelle Stichworte in diesem Zusammenhang sind Voice und Multimedia over IP das Session Initiation Protocol SIP das Konzept der Next Generation Networks NGN IMS IP Multimedia Subsystem Software Defined Networking SDN und Netzwerkvirtualisierung F r das Befassen mit solchen Netzen stellt dieses Buch das notwendige Fachwissen bereit und gibt Impulse zur Gestaltung und Optimierung moderner Telekommunikationsinfrastrukturen Next Generation Networks Multimedia over IP Funktionsweise Techniken Protokolle Quality of Service SIP und SDP Protokollfunktionen Netzelemente Routing Network Address and Port Translation Mobilit t Sicherheit u a WebRTC Web Real Time Communication between Browsers Moderne Telekommunikationsnetze inkl Mobilfunknetze der 4 und 5 Generation

Netzwerkvirtualisierung und SDN M2M und Internet der Dinge Hauptziel dieses Buches ist es fundiertes theoretisches und praktisches Wissen ber SIP Multimedia over IP NGN und moderne Kommunikationsnetze zu vermitteln sowie Wege in die Zukunft aufzuzeigen **Encyclopedia of Multimedia Technology and Networking** Margherita Pagani, 2008-08-15 This publication offers a research compendium of human knowledge related to the emerging multimedia digital metamarket Provided by publisher

The Enigmatic Realm of **Basic Ngn Architecture Principles Itu**: Unleashing the Language is Inner Magic

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