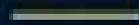


5G Network Slicing

Mobile & Wireless



Massive IoT



Automotive



Manufacturing



3gpp Network Slicing Ietf

**Stefan Rommer, Peter Hedman, Magnus
Olsson, Lars Frid, Shabnam
Sultana, Catherine Mulligan**

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IPv6 Network Slicing Zhenbin Li, Jie Dong, Yawei Zhang, Xinzong Zeng, 2024-03-01 This book is an essential guide to IPv6 network slicing. It covers both the fundamentals and cutting edge technologies of IPv6 network slicing and provides insights into future industry developments. IP network slicing is an architectural innovation that provides multiple dedicated logical networks on a shared physical network. It comprises a complete set of solutions designed to meet the differentiated service requirements of the 5G and cloud era. This book focuses on IP network slicing based on the data plane of IPv6, a second generation network layer protocol standard designed to address many of the problems encountered with IPv4. The book explores the technical implementation of IPv6 network slicing by introducing its architecture, implementation, solutions, resource partitioning technologies, data plane technologies, and control plane technologies. It also explains how to deploy IPv6 network slicing through slice controllers and provides deployment suggestions based on Huawei practices. It is a must read for professional engineers involved in network planning, design, and technology support. Researchers and students in information and communication technology and communication system design will also find it useful.

Computing in Communication Networks Frank H. P. Fitzek, Fabrizio Granelli, Patrick Seeling, 2020-05-20 *Computing in Communication Networks: From Theory to Practice* provides comprehensive details and practical implementation tactics on the novel concepts and enabling technologies at the core of the paradigm shift from store and forward dumb to compute and forward intelligent in future communication networks and systems. The book explains how to create virtualized large scale testbeds using well established open source software such as Mininet and Docker. It shows how and where to place disruptive techniques such as machine learning, compressed sensing, or network coding in a newly built testbed. In addition, it presents a comprehensive overview of current standardization activities. Specific chapters explore upcoming communication networks that support verticals in transportation, industry, construction, agriculture, health care, and energy grids, underlying concepts such as network slicing and mobile edge cloud, enabling technologies such as SDN, NFV, ICN, disruptive innovations such as network coding, compressed sensing, and machine learning, how to build a virtualized network infrastructure testbed on one's own computer, and more. Provides a uniquely comprehensive overview on the individual building blocks that comprise the concept of computing in future networks. Gives practical hands on activities to bridge theory and implementation. Includes software and examples that are not only employed throughout the book but also hosted on a dedicated website.

Science and Technologies for Smart Cities Sara Paiva, Sérgio Ivan Lopes, Rafik Zitouni, Nishu Gupta, Sérgio F. Lopes, Takuro Yonezawa, 2021-05-21 This book constitutes the refereed proceedings of the 6th Annual Smart City 360 Summit. Due to COVID-19 pandemic, the conference was held virtually. The volume combines selected papers of seven conferences, namely AISCOVID 2020, International Conference on AI assisted Solutions for COVID-19 and Biomedical Applications in Smart Cities, EdgeIoT 2020, International Conference on Intelligent Edge Processing in the IoT Era, IC4S 2020, International Conference on

Cognitive Computing and Cyber Physical Systems CiCom 2020 International Conference on Computational Intelligence and Communications S Cube 2020 International Conference on Sensor Systems and Software SmartGov 2020 International Conference on Smart Governance for Sustainable Smart Cities and finally the Urb IOT 2020 International Conference on IoT in Urban Space

Internet of Things - The Call of the Edge Ovidiu Vermesan, Joël Bacquet, 2022-09-01 This book provides an overview of the Internet of Things IoT covering new ideas concepts research and innovation to enable the development of IoT technologies in a global context The work is intended as a standalone book in a series covering the activities of the Internet of Things European Research Cluster IERC including research technological innovation validation and deployment The book chapters build on the developments and innovative ideas put forward by the IERC the IoT European Large Scale Pilots Programme and the IoT European Security and Privacy Projects presenting new concepts ideas and future IoT trends and ways of integrating open data frameworks and IoT marketplaces into larger deployment ecosystems The IoT and Industrial Internet of Things technologies are moving towards hyperautomated solutions combining hyperconnectivity artificial intelligence AI distributed ledger technologies and virtual augmented extended reality with edge computing and deep edge processing becoming an assertive factor across industries for implementing intelligent distributed computing resources and data to keep the efficient data exchange and processing local to reduce latency exploit the sensing actuating capabilities and enable greater autonomy Expanding the adoption of consumer business industrial and tactile IoT requires further development of hyperautomated IoT concepts for collaborative solutions involving machines and humans to expand augmented creativity at the application level using AI to optimise the industrial processes and progress towards a symbiotic economy based on distributed federated cloud edge infrastructure allowing resource sharing in the form of computing memory and analytics capabilities The advances of autonomous IoT applications delivering services in real time encompasses development in servitisation robotisation automation and hyperconnectivity which are essential for the rapid evolution of industrial enterprises in the new digital era The rise of digital twins integrated into IoT platforms as fully interactive elements embedded into the simulation and optimisation environment as well as the embedment of AI techniques and methods enhances the accuracy and performance of models in the various IoT and Industrial Internet of Things applications The convergence of technologies to provide scalable interoperable IoT enabled applications pushed the requirements for high bandwidth low latency and robust and dependable connectivity to support the industry s demand for deeper integration and improved analytics to deliver sustainable competitive advantage products and services enabling digital transformation with a focus on new business models Safety and security are interlinked for the next wave of IoT technologies and applications and combined prove a greater value for rapid adoption The new IoT technologies are essential for facilitating sustainable development reducing energy consumption and by supporting the optimisation of products and processes mitigating unnecessary carbon emissions thereby reducing the environmental impact through real time data collection analysis

exchange and processing **5G for the Connected World** Devaki Chandramouli, Rainer Liebhart, Juho Pirskanen, 2019-03-08 Comprehensive Handbook Demystifies 5G for Technical and Business Professionals in Mobile Telecommunication Fields Much is being said regarding the possibilities and capabilities of the emerging 5G technology as the evolution towards 5G promises to transform entire industries and many aspects of our society 5G for the Connected World offers a comprehensive technical overview that telecommunication professionals need to understand and take advantage of these developments The book offers a wide ranging coverage of the technical aspects of 5G with special consideration of the 3GPP Release 15 content how it enables new services and how it differs from LTE This includes information on potential use cases aspects of radio and core networks spectrum considerations and the services primarily driving 5G development and deployment The text also looks at 5G in relation to the Internet of Things machine to machine communication and technical enablers such as LTE M NB IoT and EC GSM Additional chapters discuss new business models for telecommunication service providers and vertical industries as a result of introducing 5G and strategies for staying ahead of the curve Other topics include Key features of the new 5G radio such as descriptions of new waveforms massive MIMO and beamforming technologies as well as spectrum considerations for 5G radio regarding all possible bands Drivers motivations and overview of the new 5G system especially RAN architecture and technology enablers e g service based architecture compute storage split and network exposure for native cloud deployments Mobile edge computing Non 3GPP access Fixed Mobile Convergence Detailed overview of mobility management session management and Quality of Service frameworks 5G security vision and architecture Ultra low latency and high reliability use cases and enablers challenges and requirements e g remote control industrial automation public safety and V2X communication An outline of the requirements and challenges imposed by massive numbers of devices connected to cellular networks While some familiarity with the basics of 3GPP networks is helpful 5G for the Connected World is intended for a variety of readers It will prove a useful guide for telecommunication professionals standardization experts network operators application developers and business analysts or students working in these fields as well as infrastructure and device vendors looking to develop and integrate 5G into their products and to deploy 5G radio and core networks *End-to-End Mobile Communications: Evolution to 5G* Syed S. Husain, Athul Prasad, Andreas Kunz, JaeSeung Song, Adrian Buckley, Emmanouil Pateromichelakis, 2020-09-04 Explore mobile communications and discover how the technology has evolved to 5G This hands on textbook lays out the foundations of mobile communications from architecture to function with a special focus on 5G services networks and applications Written by a stellar team of academics and mobile networking practitioners End to End Mobile Communications Evolution to 5G clearly explains the latest capabilities standards and practices along with background and examples The book contains a primer on the vast topic of mobile technology security and offers a look toward future trends and emerging technologies Coverage includes An introduction to mobile communications Background on mobile network services Evolution of mobile

technologies 5G services and applications 5G radio access network architecture 5G core network architecture Security Future evolution of mobile systems

Satellite Communications and Networks Marko Höyhty,2024-12-23 This textbook provides fundamental theory and application of satellite communications and networks in a format suitable for university students and professionals working in the field The book first outlines the types of satellites and their uses then goes on to cover satellite orbits and constellation design satellite system architecture air interface and physical layer and integrated satellite terrestrial networks A thorough discussion on 5G and 6G non terrestrial networking NTN is included The book shows how and why satellites are playing a key role in supporting critical infrastructures of society such as energy and telecommunication networks and different forms of traffic on roads sea and in the air The book also discusses threats to satellites and how cybersecurity plays a role The book features end of chapter questions and exercises homework problems including mathematical exercises and practice questions PowerPoint slides and a solution manual The book is ideal for upper undergraduate and graduate students in telecommunications curriculum

Emerging Wireless Multimedia Apostolis Salkintzis,Nikos Passas,2005-08-19 The provision of IP based multimedia services is one of the most exiting and challenging aspects of next generation wireless networks A significant evolution has been underway for enabling such multimedia services and for ultimately migrating the Internet to the wireless world This book examines this evolution looking at an array of the most up to date wireless multimedia technologies and services The first part focuses on enabling technologies for wireless multimedia while the second is dedicated to the new wireless multimedia services that are expected to play a key role in the future wireless environment In addition the related recent standardization research and industry activities are addressed Covers a complete range of multimedia hot topics ranging from audio video coding techniques to multimedia protocols and applications Discusses QoS issues in WLANs 3G and hybrid 3G WLAN networks Provides in depth discussion of the most modern multimedia services such as Push to Talk Instant Messaging Presence mobile payments MMS WAP and location based multimedia services Addresses the emerging Multimedia Broadcast Multicast Service MBMS and the key aspects of IP Multimedia Subsystem IMS in 3G networks Numerous on line references will assist readers in their quest for the most up to date information This comprehensive resource will have instant appeal to students in electrical and computer engineering or IT disciplines It is also essential reading for engineering managers engineers in wireless systems and multimedia and wireless multimedia researchers

A Network Architect's Guide to 5G Syed Farrukh Hassan,Alexander Orel,Kashif Islam,2022-06-08 THE NETWORK PROFESSIONAL S GUIDE TO PLANNING DESIGNING AND DEPLOYING 5G TRANSPORT NETWORKS As 5G transforms mobile usage and services network professionals will need to significantly evolve their transport network architectures towards greater sophistication and stronger integration with radio networks and facilitate transition towards cloud native 5G mobile core Until now however most 5G guides have foregrounded RF radio and mobile core innovations not its implications for data networks A Network Architect s Guide to 5G fills the gap giving network

architects designers and engineers essential knowledge for designing and planning their own 5G networks Drawing on decades of experience with global service providers and enterprise networks the authors illuminate new and evolving network technologies necessary for building 5G capable networks such as segment routing network slicing timing and synchronization edge computing distributed data centers integration with public cloud and more They explain how 5G blurs boundaries between mobile core radio access and transport as well as the changes in the composition of a traditional cell site with the adoption of Open and Virtualized RAN resulting in a transition to mobile xHaul Every chapter builds on earlier coverage culminating in a big picture presentation of a complete 5G network design Understand the evolution of mobile technologies over the generation leading to 5G s foundational concepts and principles Explore 5G changes to Radio Access Networks RAN the Mobile Core Mobile Transport and the need for tighter integration between them Use Segment Routing to architect simplified SDN capable networks and enable network slicing for 5G Rethink transport design to incorporate Far Edge Edge and public cloud based data centers augmenting centralized DCs to support distributed peering and Multi access Edge Compute Provide guidance to meet the criteria and requirements for various aspects of Fronthaul Midhaul and Backhaul architecture such as transport protocol evaluation latency consideration routing design QoS modeling network device selection and more Forge a cohesive 5G network architecture by combining mobile communications principles with advanced transport technologies

5G Explained Jyrki T. J. Penttinen, 2019-04-29 Practical Guide Provides Students and Industry Professionals with Latest Information on 5G Mobile Networks Continuing the tradition established in his previous publications Jyrki Penttinen offers 5G Explained as a thorough yet concise introduction to recent advancements and growing trends in mobile telecommunications In this case Penttinen focuses on the development and employment of 5G mobile networks and more specifically the challenges inherent in adjusting to new global standardization requirements and in maintaining a high level of security even as mobile technology expands to new horizons The text discusses for example the Internet of Things IoT and how to keep networks reliable and secure when they are constantly accessed by many different devices with varying levels of user involvement and competence 5G Explained is primarily designed for specialists who need rapid acclimation to the possibilities and concerns presented by 5G adoption Therefore it assumes some prior knowledge of mobile communications However earlier chapters are structured so that even relative newcomers will gain useful information Other notable features include Three modules each consisting of three chapters Introduction Technical Network Description and Planning of Security and Deployment Comprehensive coverage of topics such as technical requirements for 5G network architecture radio and core networks and services applications Discussion of specific security techniques in addition to common sense guidelines for planning deploying managing and optimizing 5G networks 5G Explained offers crucial updates for anyone involved in designing deploying or working with 5G networks It should prove a valuable guide for operators equipment manufacturers and other professionals in mobile equipment engineering and security network planning and

optimization and mobile application development or anyone looking to break into these fields **5G** Ulrich Trick,2023-12-18

With 5G telecommunications networks have entered a new phase 5G mobile networks use unique concepts and technologies to deliver current and future applications across a wide spectrum from high bit rate smartphones to high availability car to x and mass IoT applications This book on 5G technology starts with the evolution of mobile networks to 5G It then addresses basic concepts and technologies such as NGN IMS virtualization with NFV and MEC SDN and Service Function Chaining The 5G environment is comprehensively presented starting with use cases and usage scenarios and moving on to concrete requirements as well as the standardization at ITU and especially 3GPP including regulation In this context the 5G system design the 5G access networks with their high performance transmission technology and the core network with the innovative concepts of Service Based Architecture and Network Slicing play a significant role A 5G system is presented here in an integrated view rounded off by an overview of all relevant IT security aspects The overall view is concluded by looking at the environmental influences of electromagnetic radiation and the energy and raw material resources requirements Furthermore the future development of 5G up to 6G is outlined The book s main objective is to provide people interested in 5G technology and application scenarios with a well founded knowledge for an introduction to 5G and encourage further discussion of this topic The target audience is generally technically interested persons mostly employees of public and private network operators This book should be of particular interest especially within the IT departments of potential 5G user companies and of course among computer science and electrical engineering students Multimedia Streaming in SDN/NFV and 5G Networks Alcardo Barakabitze,Andrew Hines,2022-12-28

Multimedia Streaming in SDN NFV and 5G Networks A comprehensive overview of Quality of Experience control and management of multimedia services in future networks In Multimedia Streaming in SDN NFV and 5G Networks renowned researchers deliver a high level exploration of Quality of Experience QoE control and management solutions for multimedia services in future softwarized and virtualized 5G networks The book offers coverage of network softwarization and virtualization technologies including SDN NFV MEC and Fog Cloud Computing as critical elements for the management of multimedia services in future networks like 5G and 6G networks and beyond Providing a fulsome examination of end to end QoE control and management solutions in softwarized and virtualized networks the book concludes with discussions of probable future challenges and research directions in emerging multimedia services and applications 5G network management and orchestration network slicing and collaborative service management of multimedia services in softwarized networks and QoE oriented business models The distinguished authors also explore Thorough introductions to 5G networks including definitions and requirements as well as Quality of Experience management of multimedia streaming services Comprehensive explorations of multimedia streaming services over the internet and network softwarization and virtualization in future networks Practical discussions of QoE management using SDN and NFV in future networks as well as QoE management of multimedia services in emerging architectures

including MEC ICN and Fog Cloud Computing In depth examinations of QoE in emerging applications 5G network slicing architectures and implementations and 5G network slicing orchestration and resource management Perfect for researchers and engineers in multimedia services and telecoms Multimedia Streaming in SDN NFV and 5G Networks will also earn a place in the libraries of graduate and senior undergraduate students with interests in computer science communication engineering and telecommunication systems

5G Ulrich Trick,2021-02-22 With 5G telecommunications networks have entered a new phase 5G mobile networks use unique concepts and technologies to deliver current and future applications across a wide spectrum from high bit rate smartphones to high availability car to x and mass IoT applications This book on 5G technology starts with the evolution of mobile networks to 5G It then addresses basic concepts and technologies such as NGN IMS virtualization with NFV and MEC SDN and Service Function Chaining The 5G environment is comprehensively presented starting with use cases and usage scenarios and moving on to concrete requirements as well as the standardization at ITU and especially 3GPP including regulation In this context the 5G system design the 5G access networks with their high performance transmission technology and the core network with the innovative concepts of Service Based Architecture and Network Slicing play a significant role A 5G system is presented here in an integrated view rounded off by an overview of all relevant IT security aspects The overall view is concluded by looking at the environmental influences of electromagnetic radiation and the energy and raw material resources requirements Furthermore the future development of 5G up to 6G is outlined The book s main objective is to provide people interested in 5G technology and application scenarios with a well founded knowledge for an introduction to 5G and encourage further discussion of this topic The target audience is generally technically interested persons mostly employees of public and private network operators This book should be of particular interest especially within the IT departments of potential 5G user companies and of course among computer science and electrical engineering students

Future Networks, Services and Management Mehmet Toy,2021-11-24 This book describes the networks applications services of 2030 and beyond their management Novel end to end network and services architectures using cloud wired wireless and space technologies to support future applications and services are presented The book ties key concepts together such as cloud space networking network slicing AI ML edge computing burst switching and optical computing in achieving end to end automated future services Expected future applications services and network and data center architectures to support these applications and services in the year 2030 and beyond along with security routing QoS and management architecture and capabilities are described The book is written by recognized global experts in the field from both industry and academia

An Introduction to 5G Christopher Cox,2020-12-14 A comprehensive and approachable introduction to 5G Written by a noted expert on the subject An Introduction to 5G The New Radio 5G Network and Beyond offers an introductory system level guide to 5G The material covered includes The use cases and requirements of the 5G system The architecture of the next generation radio access network and the 5G core The principles

of radio transmission millimetre waves and MIMO antennas The architecture and detailed design of the 5G new radio The implementation of HTTP 2 on the service based interfaces of the 5G core The signalling procedures that govern the end to end operation of the system The new features that are introduced in Releases 16 and 17 An Introduction to 5G is written for engineering professionals in mobile telecommunications for those in non technical roles such as management marketing and intellectual property and for students It requires no more than a basic understanding of mobile communications and includes detailed references to the underlying 3GPP specifications for 5G The book s approach provides a comprehensive end to end overview of the 5G standard which enables readers to move on with confidence to the more specialized texts and to the specifications themselves

5G Backhaul and Fronthaul Esa Markus Metsälä, Juha T. T. Salmelin, 2023-03-07 5G BACKHAUL AND FRONTHAUL In depth coverage of all technologies required for deployment and further evolution of 5G mobile network backhaul and fronthaul In this book a team of communications technology experts deliver an up to date and technical discussion of 5G backhaul and fronthaul preparing readers for the deployment of 5G technologies covering the technologies essentials and offering views of further 5G backhaul and fronthaul evolution 5G Backhaul and Fronthaul serves both advanced level experts with senior roles in organizations who are already proficient in these technologies and general interest readers seeking a primer on what these technologies can provide Readers will also find Thorough introductions to 5G backhaul and fronthaul as well as selected industry forums and activities Analysis of high level requirements for 5G backhaul and fronthaul and 5G network architecture In depth explorations of wireless backhaul and fronthaul access technologies including fiber optic and wireless technologies network security network slicing IP VPNs Ethernet services time sensitive networks and shared transport Practical treatments of the functions and services provided by backhaul and fronthaul Coverage of new 5G enterprise industrial and smart city deployments Perfect for mobile network industry professionals 5G Backhaul and Fronthaul will also earn a place in the libraries of people with an interest in 5G technologies fiber technologies IP and security Ethernet mobile network synchronization and mobile network performance

5G Radio Access Network Architecture Sasha Sirotkin, 2020-12-07 Discover how the NG RAN architecture is and isn t ready for the challenges introduced by 5G 5G Radio Access Network Architecture The Dark Side of 5G explores foundational and advanced topics in Radio Access Network RAN architecture and why a re thinking of that architecture is necessary to support new 5G requirements The distinguished engineer and editor Sasha Sirotkin has included numerous works written by industry insiders with state of the art research at their disposal The book explains the relevant standards and technologies from an academic perspective but also explains why particular standards decisions were made and how a variety of NG RAN architecture options could be deployed in real life networks All major standards and technologies associated with the NG RAN architecture are discussed in this book including 3GPP O RAN Small Cell Forum IEEE and IETF Readers will learn about how a re design of the RAN architecture would ensure that 5G networks can deliver their promised throughput and low

latency KPIs consistently and sustainably The book is structured as follows An overview of the market drivers of the NG RAN architecture like spectrum models 5G relevant regulatory considerations and 5G radio interface technical requirements An overview of the 5G System from the core network to the RAN to the radio interface protocols and physical layer with emphasis on how these are different compared to 4G Release 15 RAN architectures defined in 3GPP O RAN and Small Cell Forum RAN architecture evolution in Release 16 and Release 17 Enabling technologies like virtualization open source technologies multi access edge MEC computing and operations administration and management OAM NG RAN deployment considerations objectives and challenges like costs spectrum and radio propagation considerations and coverage Perfect for network designers and operators who require a solid understanding of the NG RAN architecture 5G Radio Access Network Architecture also belongs on the bookshelves of network engineers who aim to increase their understanding of the standards and technologies relevant to the NG RAN architecture

5G Radio Access Network Architecture Sasha Sirotkin,2020-11-13 Discover how the NG RAN architecture is and isn't ready for the challenges introduced by 5G 5G Radio Access Network Architecture The Dark Side of 5G explores foundational and advanced topics in Radio Access Network RAN architecture and why a rethinking of that architecture is necessary to support new 5G requirements The distinguished engineer and editor Sasha Sirotkin has included numerous works written by industry insiders with state of the art research at their disposal The book explains the relevant standards and technologies from an academic perspective but also explains why particular standards decisions were made and how a variety of NG RAN architecture options could be deployed in real life networks All major standards and technologies associated with the NG RAN architecture are discussed in this book including 3GPP O RAN Small Cell Forum IEEE and IETF Readers will learn about how a re design of the RAN architecture would ensure that 5G networks can deliver their promised throughput and low latency KPIs consistently and sustainably The book is structured as follows An overview of the market drivers of the NG RAN architecture like spectrum models 5G relevant regulatory considerations and 5G radio interface technical requirements An overview of the 5G System from the core network to the RAN to the radio interface protocols and physical layer with emphasis on how these are different compared to 4G Release 15 RAN architectures defined in 3GPP O RAN and Small Cell Forum RAN architecture evolution in Release 16 and Release 17 Enabling technologies like virtualization open source technologies multi access edge MEC computing and operations administration and management OAM NG RAN deployment considerations objectives and challenges like costs spectrum and radio propagation considerations and coverage Perfect for network designers and operators who require a solid understanding of the NG RAN architecture 5G Radio Access Network Architecture also belongs on the bookshelves of network engineers who aim to increase their understanding of the standards and technologies relevant to the NG RAN architecture

5G Core Networks Stefan Rommer,Peter Hedman,Magnus Olsson,Lars Frid,Shabnam Sultana,Catherine Mulligan,2019-11-14 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 *Design Innovation and Network Architecture for the Future Internet* Boucadair, Mohamed, Jacquenet, Christian, 2021-04-16 For the past couple of years network automation techniques that include software defined networking SDN and dynamic resource allocation schemes have been the subject of a significant research and development effort Likewise network functions virtualization NFV and the foreseeable usage of a set of artificial intelligence techniques to facilitate the processing of customers requirements and the subsequent design delivery and operation of the corresponding services are very likely to dramatically distort the conception and the management of networking infrastructures Some of these techniques are being specified within standards developing organizations while others remain perceived as a buzz without any concrete deployment plans disclosed by service providers An in depth understanding and analysis of these approaches should be conducted to help internet players in making appropriate design choices that would meet their requirements as well as their customers This is an important area of research as these new developments and approaches will inevitably reshape the internet and the future of technology *Design Innovation and Network Architecture for the Future Internet* sheds light on the foreseeable yet dramatic evolution of internet design principles and offers a comprehensive overview on the recent advances in networking techniques that are likely to shape the future internet The chapters provide a rigorous in depth analysis of the promises pitfalls and other challenges raised by these initiatives while avoiding any speculation on their expected outcomes and technical benefits This book covers essential topics such as content delivery networks network functions virtualization security cloud computing automation and more This book will be useful for network engineers software designers computer networking professionals practitioners researchers academicians and students looking for a comprehensive research book on

the latest advancements in internet design principles and networking techniques

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