Communicating Systems With Uml 2 Modeling And Analysis Of Network Protocols

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Cyber-Vigilance and Digital Trust Springer
This book constitutes the refereed proceedings of the 5th International Workshop on System Analysis and Modelling, SAM 2006, held in Kaiserslautern, Germany in May/June 2006. The 14 revised full papers cover language profiles, evolution of development languages, model-driven development, and language implementation.
Queues Applied to Telecoms IOS Press
Random SALOHA and CSMA protocols that are used to access MAC in ad hoc networks are very small compared to the multiple and spontaneous use of the transmission channel. So they have low immunity to the problems of packet collisions. Indeed, the transmission time is the critical factor in the operation of such networks. The simulations demonstrate the positive impact of erasure codes on the throughput of the transmission in ad hoc networks. However, the network still suffers from the intermittency and volatility of its efficiency throughout its operation, and it switches quickly to the saturation zone. In this context, game theory has demonstrated his ability to lead the network to a more efficient equilibrium. This, we were led to propose our model code set that formalizes the behavior of nodes during transmission within SALOHA networks and CSMA respectively.
Lehrbuch der Softwaretechnik: Basiskonzepte und Requirements Engineering John Wiley & Sons
This book presents the technical characteristics of the two radio network interfaces of mobile 4G, LTE and LTE Advanced, based on Release 8, 9 and 10 of the 3GPP specifications. Points covered include a detailed description of various components of the radio interface. RRC signaling messages used to establish the connection, enabling the security, the paging, the establishment and the release of dedicated and default support and the handover. The PDCP ensures the security of the transmission and allows the recovery during handover and the compression of the headers. The RLC protocol defines the transmission modes with or without acknowledgment. The MAC protocol determines the random access, the data transfer, the timing advance, the scheduling and the discontinuous reception. The physical layer includes a description of the methods of multiplexing (time, frequency and space) and the various signals and physical channels.
Software Networks Springer
Vehicular networks were first developed to ensure safe driving and to extend the Internet to the road. However, we can now see that the ability of vehicles to engage in cyber-activity may result in tracking and privacy violations through the interception of messages, which are frequently exchanged on road. This book serves as a guide for students, developers and researchers who are interested in vehicular networks and the associated security and privacy issues. It facilitates the understanding of the technologies used and their various types, highlighting the importance of privacy and security issues and the direct impact they have on the safety of their users. It also explains various solutions and proposals to protect location and identity privacy, including two anonymous authentication methods that preserve identity privacy and a total of five schemes that preserve location privacy in the vehicular ad hoc networks and the cloud-enabled internet of vehicles, respectively. This book also presents a new privacy-aware blockchain-based pseudonym management framework.Vehicular networks were first developed to ensure safe driving and to extend the Internet to the road. However, we can now see that the ability of vehicles to engage in

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Deterministic Network Calculus John Wiley & Sons

This volume contains revised and extended research articles written by prominent researchers participating in the ICF4C 2011 conference. 2011 International Conference on Future Communication, Computing, Control and Management (ICF4C 2011) has been held on December 16-17, 2011, Phuket, Thailand. Topics covered include intelligent computing, network management, wireless networks, telecommunication, power engineering, control engineering, Signal and Image Processing, Machine Learning, Control Systems and Applications, The book will offer the states of arts of tremendous advances in Computing, Communication, Control, and Management and also serve as an excellent reference work for researchers and graduate students working on Computing, Communication, Control, and Management Research.

Complex Systems Design & Management John Wiley & Sons

This book constitutes the thoroughly refereed postproceedings of the 4th International Workshop on SDL and MSC, SAM 2004, held in Ottawa, Canada in June 2004. The 19 revised full papers presented were carefully selected during two rounds of reviewing and revision from initially 46 submissions. The papers are organized in topical sections on SDL and eODL, evolution of languages, requirements and MSC, security, SDL and modeling, and experience.

System Analysis and Modeling Communicating Systems with UML 2

This book constitutes revised papers of the proceedings of the 7th International Workshop on System Analysis and Modeling, SAM 2012, held in Innsbruck, Austria, in October 2012. The 12 papers presented were carefully reviewed and selected from 27 submissions. In addition, the book contains two keynote speeches in full-paper length. The contributions are organized in topical sections named: test and analysis, language enhancements, fuzzy subjects, components and composition, and configuring and product lines.

LTE and LTE Advanced John Wiley & Sons

There have been considerable developments in information and communication technology. This has led to an increase in the number of applications available, as well as an increase in their variability. As such, it has become important to understand and master problems related to establishing radio links, the layout and flow of source data, the power available from antennas, the selectivity and sensitivity of receivers, etc. This book discusses digital modulations, their extensions and environment, as well as a few basic mathematical tools. An understanding of degree level mathematics or its equivalent is a prerequisite to reading this book. Digital Communication Techniques is aimed at licensed professionals, engineers, Masters students and researchers whose field is in related areas such as hardware, phase-locked loops, voltage-controlled oscillators or phase noise.

Quantum Communications in New Telecommunications Systems Springer

The communication chain is constituted by a source and a recipient, separated by a transmission channel which may represent a portion of cable, an optical fiber, a radio channel, or a satellite link. Whatever the channel, the processing blocks implemented in the communication chain have the same foundation. This book aims to itemize. In this first volume, after having presented the base of the information theory, we will study the source coding techniques with and without loss. Then we analyze the correcting codes for block errors, convutional and concatenated used in current systems.

VoLTE and ViLTE John Wiley & Sons

LTE (Long Term Evolution) is commonly marketed as 4G. LTE and LTE Advanced have been recognized by ITU-R and ITU-T (International Telecommunications Union – Telecommunications) as the principal solution for the future mobile communication networks standards. They are thus the framework of what the marketing calls 4G and possibly also 5G. This book describes various aspects of LTE as well as the change of paradigm, which it is bringing to mobile communications, focusing on LTE standards and architecture, OFDMA, the Full IP Core Network and LTE security.

Mobile and Wireless Networks John Wiley & Sons

Software Networks describe new concepts for the Internets next generation. This architecture is based on virtual networking using Cloud and datacenter facilities. The main problems to be dealt with are the placement of virtual resources for opening a new network on the fly, and the urbanization of virtual resources implemented on physical network equipment. The digital architecture also deals with mechanisms capable of automatically controlling the placement of all virtual resources within the physical network. This book describes how to create and delete virtual networks on the fly. Indeed, the system is able to create any new network with any kind of virtual resource (e.g. switches, routers, LSRs, optical paths, firewalls, SIP-based servers, devices, servers, access points, etc.). Software Networks shows how this architecture is compatible with new advances in SDN (Software Defined Networking), new high-speed transport protocols such as TRILL (Transparent Interconnection of Lots of Links) and LISP (Locator/Identifier Separation Protocol), NGN, IMS, new generation Wi-Fi, and 4G/5G networks. Finally, the author introduces Clouds of security and the virtualization of secure elements (smartcards) that could certainly transform how to secure the Internet. For this second edition, the author addresses in five new chapters the importance of open source software for networks, mobile edge computing, fog networking, tactile internet a network environment allowing remote access, and security the use of Cloud of security, secure elements and the emergence of the blockchain.

Security in Vehicular Networks John Wiley & Sons

This book constitutes the proceedings of the 18th International GI/ITG Conference on Measurement, Modelling and Evaluation of Computing Systems and Dependability and Fault Tolerance, MMB & DFT 2016, held in Münster, Germany, in April 2016. The 12 full papers and 3 short papers included in this volume were carefully reviewed and selected from 23 submissions. The papers deal with the fields of performance evaluation, dependability, and fault-tolerance of computer and communication systems. A relatively new topic of smart grids is also covered.

Digital Communications 2 Springer

Nowadays, the Internet is becoming more and more complex due to an everincreasing number of network devices, various multimedia services and a prevalence of encrypted traffic. Therefore, in this context, this book presents a novel efficient multi modular troubleshooting architecture to overcome limitations related to encrypted traffic and high time complexity. This architecture contains five main modules: data collection, anomaly detection, temporary remediation, root cause analysis and definitive remediation. In data collection, there are two sub modules: parameter measurement and traffic classification. This architecture is implemented and validated in a software-defined networking (SDN) environment.

Network Security John Wiley & Sons

Cyber threats are ever increasing. Adversaries are getting more sophisticated and cyber criminals are infiltrating companies in a variety of sectors. In today’s landscape, organizations need to acquire and develop effective security tools and mechanisms – not only to keep up with cyber criminals, but also to stay one step ahead. Cyber-Vigilance and Digital Trust develops cyber security disciplines that serve this double objective, dealing with cyber security threats in a unique way. Specifically, the book reviews recent advances in cyber threat intelligence, trust management and risk analysis, and gives a formal and technical approach based on a data tainting mechanism to avoid data leakage in Android systems

Measurement, Modelling and Evaluation of Dependable Computer and Communication Systems John Wiley & Sons

From queues to telecoms. Queues are, of course, omnipresent in our world, at the bank, the supermarket, the shops, on the road… and yes, they also exist in the domain of telecoms. Queues Applied to Telecoms studies the theoretical aspect of these queues, from Poisson processes, Markov chains and queueing systems to queueing networks. The study of the use of their resources is addressed by the theory of teletraffic. This book also outlines the basic ideas in the theory of teletraffic, presenting the teletraffic of loss systems and waiting systems. However, some applications and explanations are more oriented towards the field of telecommunications, and this book contains lectures and more than sixty corrected exercises to cover these topics. On your marks…

Communicating Process Architectures 2017 & 2018 John Wiley & Sons

Concurrent and parallel systems are intrinsic to the technology which underpins almost every aspect of our lives today. This book presents the combined post-proceedings for two important conferences on concurrent and parallel systems: Communicating Process Architectures 2017, held in Sliema, Malta, in August 2017, and Communicating Process Architectures 2018, held in Dresden, Germany, in August 2018. CPA 2017: Fifteen papers were accepted for presentation and publication, they cover topics including mathematical theory, programming languages, design and support tools, verification, and multicore infrastructure and applications ranging from supercomputing to embedded. A workshop on domain-specific concurrency skeletons and the abstracts of eight fringe presentations reporting on new ideas, work in progress or interesting thoughts associated with concurrency are also included in these proceedings. CPA 2018: Eighteen papers were accepted for presentation and publication, they cover topics including mathematical theory, design and programming language and support tools, verification, multicore run-time infrastructure, and applications at all levels from supercomputing to embedded. A workshop on translating CSP-based languages to common programming languages and the abstracts of four fringe presentations on work in progress, new ideas, as well as demonstrations and concerns that certain common practices in concurrency are harmful are also included in these proceedings. The book will be of interest to all those whose work involves concurrent and parallel systems.

LTE Standards John Wiley & Sons

The adoption of smartphones has had as a corollary the use of services that require streaming, such as video streaming, which is a constraint for the 4G mobile network. The integration of the network of Wi-Fi hotspots deployed by the operators adds capacity to the 4G mobile network. The use of Wi-Fi technology in carrier networks is the result of developments coordinated by the IEEE, WFA and WBA standardization bodies. For its part, the 3GPP standardization body has been working to integrate Wi-Fi technology into the 4G mobile network. The first part of this book presents the characteristics of the Wi-Fi radio interface. The different IEEE 802.11b / g / n / ac physical layers characterize the implementation in the 2.4 GHz ISM frequency bands and U- NII at 5 GHz. The MAC layer defines a number of media access procedures such as scanning, associating, or transferring data. The second part of this book deals with the architecture of the 4G network based on the Wi-Fi interface. This architecture defines several models corresponding, on the one hand, to Wi-Fi access controlled or not, On the other hand, to a handover controlled by the network or by the mobile. The integration of Wi-Fi technology resulted in a redefinition of attachment and session set-up procedures. Smartphones have the ability to activate simultaneously the two radio interfaces, LTE and Wi-Fi, which allows to direct certain services to one and / or the other of the interfaces. The ANDSF and HotSpot 2.0 functions provide the mobile with rules for network selection and traffic control to determine which traffic is to be routed to what type of interface.

Digital Communication Techniques John Wiley & Sons

This book presents the architecture of two networks that make up the backbone of the telephone service VoLTE and video service ViLTE. The 4G mobile network makes it possible to construct bearers through which IP packets, containing either telephone signals (SIP, SDP) or voice or video media (RTP stream), are transported. The IMS network performs the processing of the telephone signal to provide VoLTE and ViLTE services, including call routing and the provision of additional services. Different procedures are described: the set-up and termination of a session, interconnection with third-party networks, roaming and intra-system handover. The inter-system handover PS-CS is a special case that occurs when the mobile loses 4G network coverage over the course of a session. The e-SRVCC mechanism enables continuity of the service during the switch of the telephone communication to the 2G or 3G networks. The SMS service for short messages, which is a special telephone service in itself, is provided by two structures, one relying on the IMS network, and a second on the CSFB functionality.

Testing of Communicating Systems John Wiley & Sons

Nowadays, the Internet has become an irreplaceable tool, feeding us information about new innovations and the evolution of the markets relating to all human activities. What the Internet lacks, though, is a guiding narrative thread, which is crucial to understand the evolution from old technologies into the technologies available today, and to benefit from the commentary which could elucidate that process of evolution. In spite of its inherent richness, no encyclopedia can constitute the one and only referential information source. The actors involved also have the right to be heard: all those who have devoted their working lives to the collective effort of edifying networks can, of course, present their personal views about the evolution of the world of telecommunications, and thus provide invaluable testimony to companies in this area who can make use of it. It is that approach which is adopted in this book. Whilst the primary objective of this book is to encourage SMEs to use digital technologies, and help them to organize with that

goal in mind, it has proved necessary to describe the transformations currently under way in the field of networks, and to outline the efforts to obtain a competitive edge in terms of clerical applications, compare the various techniques that are available for high data rate communications, and touch upon the advent of the "Internet of Things", cloud computing and various new multimedia technologies. All in all, this book should help companies – particularly SMEs – to garner overall information about the current movement in the area of networking, and assist them in putting in place and managing their own communications systems.

LTE Advanced Pro John Wiley & Sons

This book contains all refereed papers that were accepted to the sixth edition of the « Complex Systems Design & Management Paris » (CSD&M Paris 2015) international conference which took place in Paris (France) on November 23-25, 2015.These proceedings cover the most recent trends in the emerging field of complex systems sciences & practices from an industrial and academic perspective, including the main industrial domains (aeronautics & aerospace, defense & security, electronics & robotics, energy & environment, health & welfare, software & e-services, transportation), scientific & technical topics (systems fundamentals, systems architecture & engineering, systems metrics & quality, systems modeling tools) and systems types (artificial ecosystems, embedded systems, software & information systems, systems of systems, transportation systems).The CSD&M Paris 2015 conference is organized under the guidance of the CESAMES non-profit organization, address: CESAMES, 8 rue de Hanovre, 75002 Paris, France.