

Free Solution Manual Of Telecommunication Switching Systems And Networks

This book discusses the structure and performance of networks in the context of the services they provide. Chapters are devoted to public and private networks, ISDN, intelligent networks, mobile radio networks and broadband networks.

From the review of the Third Edition: "A must for anyone involved in the practical aspects of the telecommunications industry." —CHOICE Outlines the expertise essential to the successful operation and design of every type of telecommunications networks in use today New edition is fully revised and expanded to present authoritative coverage of the important developments that have taken place since the previous edition was published Includes new chapters on hot topics such as cellular radio, asynchronous transfer mode, broadband technologies, and network management

This textbook takes a unified view of the fundamentals of wireless communication and explains cutting-edge concepts in a simple and intuitive way. An abundant supply of exercises make it ideal for graduate courses in electrical and computer engineering and it will also be of great interest to practising engineers.

Spread spectrum and CDMA are cutting-edge technologies widely used in operational radar, navigation and telecommunication systems and play a pivotal role in the development of the forthcoming generations of systems and networks. This comprehensive resource presents the spread spectrum concept as a product of the advancements in wireless IT, shows how and

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when the classical problems of signal transmission/processing stimulate the application of spread spectrum, and clarifies the advantages of spread spectrum philosophy. Detailed coverage is provided of the tools and instruments for designing spread spectrum and CDMA signals answering why a designer will prefer one solution over another. The approach adopted is wide-ranging, covering issues that apply to both data transmission and data collection systems such as telecommunications, radar, and navigation. Presents a theory-based analysis complemented by practical examples and real world case studies resulting in a self-sufficient treatment of the subject Contains detailed discussions of new trends in spread spectrum technology such as multi-user reception, multicarrier modulation, OFDM, MIMO and space-time coding Provides advice on designing discrete spread spectrum signals and signal sets for time-frequency measuring, synchronization and multi-user communications Features numerous Matlab-based problems and other exercises to encourage the reader to initiate independent investigations and simulations This valuable text provides timely guidance on the current status and future potential of spread spectrum and CDMA and is an invaluable resource for senior undergraduates and postgraduate students, lecturers and practising engineers and researchers involved in the deployment and development of spread spectrum and CDMA technology. Supported by a Companion website on which instructors and lecturers can find a solutions manual for the problems and Matlab programming, electronic versions of some of the figures and other useful resources such as a list of abbreviations. Since 1986 Information Technology has extended its borders still further into virtually every human activity. This book covers technical, social, political and management aspects of Information Technology in tutorial jargon-free style. It includes major new developments in the

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fields of Image Processing, Desktop Publishing, Multimedia, High Definition Television, Expert Systems, Satellite Systems, Speech Recognition and many others. Volume I contains chapters covering Information Systems and Information and Library Science, while Volume II contains chapters covering Applied Technology and Social and Political issues plus 11 chapters by guest authors about a variety of subjects. Identical Acknowledgement, Abbreviations and Acronyms, Glossary and Index sections are included in both volumes. Students, specialists and managers who need to find comprehensive coverage of a diverse subject in one place will find this book invaluable.

An accessible, yet mathematically rigorous, one-semester textbook, engaging students through use of problems, examples, and applications.

This book will provide a comprehensive technical guide covering fundamentals, recent advances and open issues in wireless communications and networks to the readers. The objective of the book is to serve as a valuable reference for students, educators, scientists, faculty members, researchers, engineers and research strategists in these rapidly evolving fields and to encourage them to actively explore these broad, exciting and rapidly evolving research areas.

. This book is designed for introductory one-semester or one-year courses in communications networks in upper-level undergraduate programs. The second half of the book can be used in more advanced courses. As pre-requisites the book assumes a general knowledge of computer systems and programming, and elementary calculus. The second edition expands on the success of the first edition by updating on technological changes in networks and responding to comprehensive market feedback..

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"This book provides original, in-depth, and innovative articles on telecommunications policy, management, and business applications"--Provided by publisher.

This Book, Telecommunication Switching And Networks Is Intended To Serve As A Textbook For Undergraduate Course Of Information Technology, Electronics And Communication Engineering, And Telecommunication Engineering. Telecommunication Switching Is Fastgrowing Field And Enormous Research And Development Are Undertaken By Various Organisations And Firms. This Book Provides An In-Depth Knowledge On Telecommunication Switching And A Good Background For Advanced Studies In Communication Networks. For Best Understanding, More Diagrams (202), Tables (35) And Related Websites, Which Provide Sufficient Information Have Been Added.

From semiconductors to networks and exchanges, busy telecom engineers can now get up to speed on the latest advances in the field with this vital tool for the rapid understanding and mastering of the latest implementation and development techniques.

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The state of the art of modern lightwave system design Recent advances in lightwave technology have led to an explosion of high-speed global information systems throughout the world. Responding to the growth of this exciting new technology, Lightwave Technology provides a comprehensive and up-to-date account of the underlying theory, development, operation, and management of these systems from the perspective of both physics and engineering. The first independent volume of this two-volume set, Components and Devices, deals with the multitude of silica- and semiconductor-based optical devices. This second volume, Telecommunication Systems, helps readers understand the design of modern lightwave

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systems, with an emphasis on wavelength-division multiplexing (WDM) systems. * Two introductory chapters cover topics such as modulation formats and multiplexing techniques used to create optical bitstreams * Chapters 3 to 5 consider degradation of optical signals through loss, dispersion, and nonlinear impairment during transmission and its corresponding impact on system performance * Chapters 6 to 8 provide readers with strategies for managing degradation induced by amplifier noise, fiber dispersion, and various nonlinear effects * Chapters 9 and 10 discuss the engineering issues involved in the design of WDM systems and optical networks Each chapter includes problems that enable readers to engage and test their new knowledge to solve problems. A CD containing illuminating examples based on RSoft Design Group's award-winning OptSim optical communication system simulation software is included with the book to assist readers in understanding design issues. Finally, extensive, up-to-date references at the end of each chapter enable students and researchers to gather more information about the most recent technology breakthroughs and applications. With its extensive problem sets and straightforward writing style, this is an excellent textbook for upper-level undergraduate and graduate students. Research scientists and engineers working in lightwave technology will use this text as a problem-solving resource and a reference to additional research papers in the field.

Computer and Communication Networks, Second Edition, explains the modern technologies of networking and communications, preparing you to analyze and simulate complex networks, and to design cost-effective networks for emerging requirements. Offering uniquely balanced coverage of basic and advanced topics, it teaches through case studies, realistic examples and exercises, and intuitive illustrations. Nader F. Mir establishes a solid foundation in basic

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networking concepts; TCP/IP schemes; wireless and LTE networks; Internet applications, such as Web and e-mail; and network security. Then, he delves into both network analysis and advanced networking protocols, VoIP, cloud-based multimedia networking, SDN, and virtualized networks. In this new edition, Mir provides updated, practical, scenario-based information that many networking books lack, offering a uniquely effective blend of theory and implementation. Drawing on extensive field experience, he presents many contemporary applications and covers key topics that other texts overlook, including P2P and voice/video networking, SDN, information-centric networking, and modern router/switch design. Students, researchers, and networking professionals will find up-to-date, thorough coverage of Packet switching Internet protocols (including IPv6) Networking devices Links and link interfaces LANs, WANs, and Internetworking Multicast routing, and protocols Wide area wireless networks and LTE Transport and end-to-end protocols Network applications and management Network security Network queues and delay analysis Advanced router/switch architecture QoS and scheduling Tunneling, VPNs, and MPLS All-optical networks, WDM, and GMPLS Cloud computing and network virtualization Software defined networking (SDN) VoIP signaling Media exchange and voice/video compression Distributed/cloud-based multimedia networks Mobile ad hoc networks Wireless sensor networks Key features include More than three hundred fifty figures that simplify complex topics Numerous algorithms that summarize key networking protocols and equations Up-to-date case studies illuminating concepts and theory Approximately four hundred exercises and examples honed over Mir's twenty years of teaching networking

The second edition of a comprehensive introduction to machine learning

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approaches used in predictive data analytics, covering both theory and practice. Machine learning is often used to build predictive models by extracting patterns from large datasets. These models are used in predictive data analytics applications including price prediction, risk assessment, predicting customer behavior, and document classification. This introductory textbook offers a detailed and focused treatment of the most important machine learning approaches used in predictive data analytics, covering both theoretical concepts and practical applications. Technical and mathematical material is augmented with explanatory worked examples, and case studies illustrate the application of these models in the broader business context. This second edition covers recent developments in machine learning, especially in a new chapter on deep learning, and two new chapters that go beyond predictive analytics to cover unsupervised learning and reinforcement learning.

Data Mining: Concepts and Techniques provides the concepts and techniques in processing gathered data or information, which will be used in various applications. Specifically, it explains data mining and the tools used in discovering knowledge from the collected data. This book is referred as the knowledge discovery from data (KDD). It focuses on the feasibility, usefulness, effectiveness, and scalability of techniques of large data sets. After describing

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data mining, this edition explains the methods of knowing, preprocessing, processing, and warehousing data. It then presents information about data warehouses, online analytical processing (OLAP), and data cube technology. Then, the methods involved in mining frequent patterns, associations, and correlations for large data sets are described. The book details the methods for data classification and introduces the concepts and methods for data clustering. The remaining chapters discuss the outlier detection and the trends, applications, and research frontiers in data mining. This book is intended for Computer Science students, application developers, business professionals, and researchers who seek information on data mining. Presents dozens of algorithms and implementation examples, all in pseudo-code and suitable for use in real-world, large-scale data mining projects Addresses advanced topics such as mining object-relational databases, spatial databases, multimedia databases, time-series databases, text databases, the World Wide Web, and applications in several fields Provides a comprehensive, practical look at the concepts and techniques you need to get the most out of your data

An unaltered reprint of the original Addison-Wesley edition of 1971. A textbook for a one-semester advanced undergraduate or graduate level course that deals with the understanding and use of devices and configurations of devices that

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bridge the gap between semiconductor or vacuum tube manufacture a
This book constitutes the refereed proceedings of the Second International Workshop on Intelligent Agents for Telecommunication Applications, IATA'98, held in Paris, France, in July 1998, in conjunction with the 1998 Agents World Conference. The book presents 17 revised full papers carefully selected for inclusion in the volume. The book is divided into topical sections on network architecture, network configuration and planning, network optimization, network management, agent-based architectures for service applications.

"This multiple-volume publications exhibits the most up-to-date collection of research results and recent discoveries in the transfer of knowledge access across the globe"--Provided by publisher.

For one- or two-semester, senior-level undergraduate courses in Communication Systems for Electrical and Computer Engineering majors. This text introduces the basic techniques used in modern communication systems and provides fundamental tools and methodologies used in the analysis and design of these systems. The authors emphasize digital communication systems, including new generations of wireless communication systems, satellite communications, and data transmission networks. A background in calculus, linear algebra, basic electronic circuits, linear system theory, and probability and random variables is

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assumed.

Introduction to Fiber-Optic Communications provides students with the most up-to-date, comprehensive coverage of modern optical fiber communications and applications, striking a fine balance between theory and practice that avoids excessive mathematics and derivations. Unlike other textbooks currently available, this book covers all of the important recent technologies and developments in the field, including electro-optic modulators, coherent optical systems, and silicon integrated photonic circuits. Filled with practical, relevant worked examples and exercise problems, the book presents complete coverage of the topics that optical and communications engineering students need to be successful. From principles of optical and optoelectronic components, to optical transmission system design, and from conventional optical fiber links, to more useful optical communication systems with advanced modulation formats and high-speed DSP, this book covers the necessities on the topic, even including today's important application areas of passive optical networks, datacenters and optical interconnections. Covers fiber-optic communication system fundamentals, design rules and terminologies Provides students with an understanding of the physical principles and characteristics of passive and active fiber-optic components Teaches students how to perform fiber-optic system design,

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performance evaluation and troubleshooting Includes modern advances in modulation and decoding strategies

Whether you are an executive or sales manager in a networking company, a data communications engineer, or a telecommunications professional, you must have a thorough working knowledge of the ever growing and interrelated array of telecom and data communications technologies. From protocols and operation of the Internet (IP, TCP, HTTP, ...) and its access systems such as ADSL, and GSM... to the basics of transmission and switching, this newly revised resource delivers an up-to-date introduction to a broad range of networking technologies, clearly explaining the networking essentials you need to know to be a successful networking professional. Moreover, the book explores the future developments in optical, wireless and digital broadcast communications.

Focusing on the physical layer, Networking Fundamentals provides essential information on networking technologies that are used in both wired and wireless networks designed for local area networks (LANs) and wide-area networks (WANs). The book starts with an overview of telecommunications followed by four parts, each including several chapters. Part I explains the principles of design and analysis of information networks at the lowest layers. It concentrates on the characteristics of the transmission media, applied transmission and coding, and medium access control. Parts II and III are devoted to detailed descriptions of important WANs and LANs respectively with Part II describing the wired Ethernet and Internet as well as cellular networks while Part III covers popular wired LANs and wireless LANs (WLANs), as well as wireless personal area network (WPAN) technologies. Part IV concludes by examining

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security, localization and sensor networking. The partitioned structure of the book allows flexibility in teaching the material, encouraging the reader to grasp the more simple concepts and to build on these foundations when moving onto more complex information. Networking Fundamentals contains numerous illustrations, case studies and tables to supplement the text, as well as exercises with solutions at the end of each chapter. There is also a companion website with password protected solutions manual for instructors along with other useful resources. Provides a unique holistic approach covering wireless communication technologies, wired technologies and networking One of the first textbooks to integrate all aspects of information networks while placing an emphasis on the physical layer and systems engineering aspects Contains numerous illustrations, case studies and tables to supplement the text, as well as exercises with solutions at the end of each chapter Companion website with password protected solutions manual and other useful resources

This book provides a big picture of the key wireless industries, what systems and technologies they use, how they operate, their market trends, and what services they provide. If you are involved or you are getting involved in the wireless industry, your life is changing. The growth and decline of wireless industries can be well over 40% per year and it rapidly changes. Some wireless systems that were "hot technologies" just 10 years ago with billions of dollars in investment with national or global presence are simply gone. This information covered in this book ranges from the basics to what's new in wireless. You will learn that each wireless industry has its own unique advantages and limitations, which offer important economic and technical choices for managers, salespeople, technicians, and others involved with wireless telephones and systems. This book provides the background for a good understanding of the

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major wireless technologies, issues, and options available. The book starts with a basic introduction to wireless communication. It covers the different types of industries, who controls and regulates them, and provides a basic definition of each of the major wireless technologies. A broad overview of the telecom voice, data, and multimedia applications is provided. You will discover the fundamentals of wireless technologies and their terminology are described along with how the radio frequency spectrum is divided, the basics of radio frequency transmission and modulation, antennas and radio networks. The different types of analog and digital mobile telephone systems and their evolution are covered. Included is the basic operation, attributes and services for analog cellular (1st generation), digital cellular (2nd generation), packet based cellular (2 = generation), and wideband cellular (3rd generation) communication systems. Private land mobile radio (PLMR) dispatch and two-way radio systems are explained along with how they are changing from proprietary analog systems to advanced digital multimedia communication systems. The basics of mobile data are provided along with the available types of packet and circuit switched data systems and how they operate. Descriptions of paging systems are provided and you will discover how paging systems are evolving from one-way numeric messaging to two-way interactive information services. Important characteristics of satellite systems are covered. An overview of fixed wireless systems including point to point microwave, wireless cable, and broadband wireless is included. The fundamentals of radio and television broadcast systems are covered along with how they are converting from analog to digital systems and why in just a few years service to existing radios and telephones will stop. The fundamentals of residential cordless, public cordless and WPBX telephone systems covered. Wireless local area networks (WLANs) basics are provided including the different

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versions of 802.11. Short-range Bluetooth wireless is explained along with how it is used by accessories such as headsets, keyboards, cameras, and printers. The fundamentals of billing and customer care systems are provided along with these systems collect and process service and usage charges.

Queueing Theory with Applications to Packet Telecommunication is an efficient introduction to fundamental concepts and principles underlying the behavior of queueing systems and its application to the design of packet-oriented electrical communication systems. In addition to techniques and approaches found in earlier works, the author presents a thoroughly modern computational approach based on Schur decomposition. This approach facilitates solution of broad classes of problems wherein a number of practical modeling issues may be explored. Key features of communication systems, such as correlation in packet arrival processes at IP switches and variability in service rates due to fading wireless links are introduced. Numerous exercises embedded within the text and problems at the end of certain chapters that integrate lessons learned across multiple sections are also included. In all cases, including systems having priority, developments lead to procedures or formulae that yield numerical results from which sensitivity of queueing behavior to parameter variation can be explored. In several cases multiple approaches to computing distributions are presented. Queueing Theory with Applications to Packet Telecommunication is intended both for self study and for use as a primary text in graduate courses in queueing theory in electrical engineering, computer science, operations research, and mathematics. Professionals will also find this work invaluable because the author discusses applications such as statistical multiplexing, IP switch design, and wireless communication systems. In addition, numerous modeling issues, such as

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the suitability of Erlang-k and Pade approximations are addressed.

From the reviews of the Second Edition . "The book stresses how systems operate and the rationale behind their design, rather than presenting rigorous analytical formulations . [It provides] the practicality and breadth essential to mastering the concepts of modern communications systems." -Telecommunication Journal In this expanded new edition of his bestselling book, telephony expert John Bellamy continues to provide telecommunications engineers with practical, comprehensive coverage of all aspects of digital telephone systems, while addressing the rapid changes the field has seen in recent years. Bellamy discusses the near-complete conversion to digital technology in telephone networks worldwide, examines both existing and emerging technologies, and explores the intricacies of carrying voice over data networks as well as the use of telephone networks for carrying data for Internet access. He emphasizes system design, implementation, and application, but also correlates the practice to communications theory. With 30 percent new material, Digital Telephony, Third Edition features:

- * Clear explanations on how to overcome problems associated with the replacement of old analog technology with new digital technology
- * A new chapter on digital mobile telephone technology
- * New material on how, data networks support voice communication
- * A new chapter on digital subscriber access technologies
- * More than 300 graphs illustrating concepts
- * Examples from the U.S. network as well as ITU public telephone networks
- * An Instructor's Manual presenting detailed solutions to all the problems in the book is available from the Wiley editorial department.

Quantum computers will revolutionize the way telecommunications networks function.

Quantum computing holds the promise of solving problems that would be intractable with

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conventional computers by implementing principles from quantum physics in the development of computer hardware, software and communications equipment. Quantum-assisted computing will be the first step towards full quantum systems, and will cause immense disruption of our traditional networks. The world's biggest manufacturers are investing large amounts of resources to develop crucial quantum-assisted circuits and devices. Quantum Computing and Communications: Gives an overview of basic quantum computing algorithms and their enhanced versions such as efficient database searching, counting and phase estimation. Introduces quantum-assisted solutions for telecom problems including multi-user detection in mobile systems, routing in IP based networks, and secure ciphering key distribution. Includes an accompanying website featuring exercises (with solution manual) and sample algorithms from the classical telecom world, corresponding quantum-based solutions, bridging the gap between pure theory and engineering practice. This book provides telecommunications engineers, as well as graduate students and researchers in the fields of computer science and telecommunications, with a wide overview of quantum computing & communications and a wealth of essential, practical information.

A modern mathematical approach to the design of communication networks for graduate students, blending control, optimization, and stochastic network theories alongside a broad range of performance analysis tools. Practical applications are illustrated by making connections to network algorithms and protocols. End-of-chapter problems covering a range of difficulties support student learning.

Visible Light Communication (VLC) is an emerging wireless data transmission technology. Light is used simultaneously for illumination as well as for communication

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and/or positioning purposes. If fully networked, dubbed Li-Fi, VLC systems complement Wi-Fi access points. VLC is an incident of optical wireless communications (OWC). OWC systems provide high data security, are license-free, and may substitute radio systems when these either fail or are not permitted. VLC technology enhances smart lighting infrastructure and Internet-of-Things (IoT) use cases. LED-based Car-to-X communication is an enabling platform towards autonomous driving. The workbook covers exercises of OWC applications, fundamentals of illumination engineering, channel modeling, optical intensity modulation schemes, VLC standardization efforts, the software-defined radio concept, selection criteria of photonic devices, fundamental circuit designs, and visible light positioning. The training manual is written for students in electrical and information engineering or adjacent areas, as well as for engineers, information scientists, and physicists in research and development.

This book covers the basic principles for understanding radio wave propagation for common frequency bands used in radio-communications. This includes achievements and developments in propagation models for wireless communication. This book is intended to bridge the gap between the theoretical calculations and approaches to the applied procedures needed for radio links design in a proper manner. The authors emphasize propagation engineering by giving fundamental information and explain the use of basic principles together with technical achievements. This new edition includes additional information on radio wave propagation in guided media and technical issues

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for fiber optics cable networks with several examples and problems. This book also includes a solution manual - with 90 solved examples distributed throughout the chapters - and 158 problems including practical values and assumptions.

Sections on important areas such as spread spectrum, cellular communications, and orthogonal frequency-division multiplexing are provided. * Computational examples are included, illustrating how to use the computer as a simulation tool, thereby allowing waveforms, spectra, and performance curves to be generated. * Overviews of the necessary background in signal, system, probability, and random process theory required for the analog and digital communications topics covered in the book.

Thorough coverage of basic digital communication system principles ensures that readers are exposed to all basic relevant topics in digital communication system design. The use of CD player and JPEG image coding standard as examples of systems that employ modern communication principles allows readers to relate the theory to practical systems. Over 180 worked-out examples throughout the book aids readers in understanding basic concepts. Over 480 problems involving applications to practical systems such as satellite communications systems, ionospheric channels, and mobile radio channels gives readers ample opportunity to practice the concepts they have just learned. With an emphasis on digital communications, Communication Systems Engineering, Second Edition introduces the basic principles underlying the analysis and design of communication systems. In addition, this book gives a solid introduction to

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analog communications and a review of important mathematical foundation topics. New material has been added on wireless communication systems—GSM and CDMA/IS-94; turbo codes and iterative decoding; multicarrier (OFDM) systems; multiple antenna systems. Includes thorough coverage of basic digital communication system principles—including source coding, channel coding, baseband and carrier modulation, channel distortion, channel equalization, synchronization, and wireless communications. Includes basic coverage of analog modulation such as amplitude modulation, phase modulation, and frequency modulation as well as demodulation methods. For use as a reference for electrical engineers for all basic relevant topics in digital communication system design.

Mobile agents refer to self-contained and identifiable computer programs that can move within the network and can act on behalf of the user or another entity. Most of the current research work on the mobile agent paradigm has two general goals: reduction of network traffic and asynchronous interaction. These two goals stem directly from the desire to reduce information overload and to efficiently use network resources. There are certainly many motivations for the use of a mobile agent paradigm; however, intelligent information retrieval, network and mobility management, and network services are currently the three most cited application targets for a mobile agent system. The aim of the workshop is to provide a unique opportunity for researchers, software and application developers, and computer network technologists to discuss

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new developments in the mobile agent technology and applications. After last year's very successful workshop in Ottawa, Canada (110 attendees), this year's workshop will focus on mobile agent issues across the areas of network management, mobile applications, nomadic computing, e-commerce, ad-hoc networks and applications, feature interactions, Internet applications, QoS management, policybased management, interactive multimedia, and computer-telephony integration.

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