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## KEY=MULTICAST - YANG SANIYA

### ALCATEL-LUCENT SERVICE ROUTING ARCHITECT (SRA) SELF-STUDY GUIDE

#### PREPARING FOR THE BGP, VPRN AND MULTICAST EXAMS

John Wiley & Sons A comprehensive resource for professionals preparing for Alcatel-Lucent Service Routing Architect (SRA) certification Networking professionals are taking note of Alcatel-Lucent and its quick ascent in the networking and telecom industries. IP networking professionals looking for a comprehensive guide to obtaining the Alcatel-Lucent Service Routing Architect (SRA) certification will be pleased to learn of this new publication, Alcatel-Lucent Service Routing Architect (SRA) Self-Study Guide: Preparing for the BGP, VPRN and Multicast Exams. The book comprises approximately 2,100 pages of print and additional online content, making it the foremost resource for those looking to make themselves IP subject matter experts. In this impressive resource, readers will find detailed information to prepare them for various sections of the Service Routing Architect certification, and to familiarize them with topics and learning material for three of the SRA written exams. Pre- and post-chapter assessment questions, sample written exam questions, and valuable lab exercises ensure that readers will gain knowledge and develop strategies for successfully obtaining certification. Other highlights of the book include: Offers a comprehensive look at certification topics through 1,200 pages of printed content and an additional 900 pages of authoritative online information Provides strategies for troubleshooting complex network problems Serves as the premier resource for Service Routing Architect certification—similar books do not offer this level of detail Alcatel-Lucent Service Routing Architect (SRA) Self-Study Guide: Preparing for the BGP, VPRN and Multicast Exams has been developed for industry professionals working in network environments where Alcatel-Lucent products are deployed, and for industry professionals with Cisco and Juniper certifications looking to expand their knowledge and skill base. Engineers and networking professionals with an SRA certification from Alcatel-Lucent will be in high demand. Let this must-have learning resource prepare you for success!

### ALCATEL-LUCENT SERVICE ROUTING ARCHITECT SECRETS TO ACING THE EXAM AND SUCCESSFUL FINDING AND LANDING YOUR NEXT ALCATEL-LUCENT SERVICE ROUTING

Tebbo Good solid advice and great strategies in preparing for and passing the Alcatel-Lucent Service Routing Architect (SRA) exam, getting interviews and landing the Alcatel-Lucent Service Routing Architect (SRA) job. If you have prepared for the Alcatel-Lucent Service Routing Architect (SRA) exam - now is the moment to get this book and prepare for passing the exam and how to find and land a Alcatel-Lucent Service Routing Architect (SRA) job, There is absolutely nothing that isn't thoroughly covered in the book. It is straightforward, and does an excellent job of explaining some complex topics. There is no reason to invest in any other materials to find and land a Alcatel-Lucent Service Routing Architect (SRA) certified job. The plan is pretty simple, buy this book, read it, do the practice questions, get the job. This book figures out ways to boil down critical exam and job landing concepts into real world applications and scenarios. Which makes this book user-friendly, interactive, and valuable as a resource long after students pass the exam. People who teach Alcatel-Lucent Service Routing Architect (SRA) classes for a living or for their companies understand the true value of this book. You certainly will too. To Prepare for the exam this book tells you: - What you need to know about the Alcatel-Lucent Service Routing Architect (SRA) Certification and exam - Preparation Tips for passing the Alcatel-Lucent Service Routing Architect (SRA) Certification Exam - Taking tests The book contains several suggestions on how preparing yourself for an interview. This is an aspect that many people underestimate, whilst having a well-written CV, a personal blog, and possibly a number of past projects is definitively important - there is much more to prepare for. It covers non-technical aspects (how to find a job, resume, behavioral etc.). A 'Must-study' before taking a Tech Interview. To Land the Job, it gives you the hands-on and how-to's insight on - Typical Alcatel-Lucent Service Routing Architect (SRA) Careers - Finding Opportunities - the best places to find them - Writing Unbeatable Resumes and Cover Letters - Acing the Interview - What to Expect From Recruiters - How employers hunt for Job-hunters.... and More This book offers excellent, insightful advice for everyone from entry-level to senior professionals. None of the other such career guides compare with this one. It stands out because it: - Explains how the people doing the hiring think, so that you can win them over on paper and then in your interview - Is filled with useful work-sheets - Explains every step of the job-hunting process - from little-known ways for finding openings to getting ahead on the job This book covers everything. Whether you are trying to get your first Alcatel-Lucent Service Routing Architect (SRA) Job or move up in the system, you will be glad you got this book. For any IT Professional who aspires to land a Alcatel-Lucent Service Routing Architect (SRA) certified job at top tech companies, the key skills that are an absolute must have are having a firm grasp on Alcatel-Lucent Service Routing Architect (SRA) This book is not only a compendium of most important topics for your Alcatel-Lucent Service Routing Architect (SRA) exam and how to pass it, it also gives you an interviewer's perspective and it covers aspects like soft skills that most IT Professionals ignore or are unaware of, and this book certainly helps patch them. When should you get this book? Whether you are searching for a job or not, the answer is now.

### ALCATEL-LUCENT NETWORK ROUTING SPECIALIST II (NRS II) SELF-STUDY GUIDE

#### PREPARING FOR THE NRS II CERTIFICATION EXAMS

John Wiley & Sons The definitive resource for the NRS II exams—three complete courses in a book Alcatel-Lucent is a world leader in designing and developing scalable systems for service providers. If you are a network designer or operator who uses Alcatel-Lucent's 7750 family of service routers, prepare for certification as an A-L network routing specialist with this complete self-study course. You'll get thorough preparation for the NRS II exams while you learn to build state-of-the-art, scalable IP/MPLS-based service networks. The book provides you with an in-depth understanding of the protocols and technologies involved in building an IP/MPLS network while teaching you how to avoid pitfalls and employ the most successful techniques available. Topics covered include interior routing protocols, multiprotocol label switching (MPLS), Layer 2/Layer 3 services and IPv6. The included CD features practice exam questions, sample lab exercises, and more. Prepares network professionals for Alcatel-Lucent Service Routing Certification (SRC) exams 4A0-101, 4A0-103, 4A0-104 and NRSII4A0 Covers content from Alcatel-Lucent's SRC courses on Interior Routing Protocols, Multiprotocol Label Switching, and Services Architecture Specific topics include MPLS (RSVP-TE and LDP), services architecture, Layer 2/Layer 3 services (VPWS/MPLS/VPRN/IES/service inter-working/IPv6 tunneling), and OSPF and IS-IS for traffic engineering and IPv6. CD includes practice exam questions, lab exercises and solutions. This Self-Study Guide is the authoritative resource for network professionals preparing for the Alcatel-Lucent NRS II certification exams.

### ALCATEL-LUCENT SCALABLE IP NETWORKS SELF-STUDY GUIDE

#### PREPARING FOR THE NETWORK ROUTING SPECIALIST I (NRS 1) CERTIFICATION EXAM

John Wiley & Sons By offering the new Service Routing Certification Program, Alcatel-Lucent is extending their reach and knowledge to networking professionals with a comprehensive demonstration of how to build smart, scalable networks. Serving as a course in a book from Alcatel-Lucent—the world leader in designing and developing scalable systems—this resource pinpoints the pitfalls to avoid when building scalable networks, examines the most successful techniques available for engineers who are building and operating IP networks, and provides overviews of the Internet, IP routing and the IP layer, and the practice of opening the shortest path first.

### ADVANCED QOS FOR MULTI-SERVICE IP/MPLS NETWORKS

John Wiley & Sons Advanced QoS for Multi-Service IP/MPLS Networks is the definitive guide to Quality of Service (QoS), with comprehensive information about its features and benefits. Find a solid theoretical and practical overview of how QoS can be implemented to reach the business objectives defined for an IP/MPLS network. Topics include standard QoS models for IP/MPLS networks, essential QoS features, forwarding classes and queuing priorities, buffer management, multipoint shared queuing, hierarchical scheduling, and rate limiting. This book will enable you to create a solid QoS architecture/design, which is mandatory for prioritizing services throughout the network.

### INTERNET OF THINGS APPLICATIONS

#### FROM RESEARCH AND INNOVATION TO MARKET DEPLOYMENT

Internet of Things Applications aims to provide a broad overview of various topics of Internet of Things (IoT) from the research, innovation, and development priorities to enabling technologies, nanoelectronics, cyber physical systems, architecture, interoperability, and industrial applications. It is intended to be a standalone book in a series that covers the IoT activities of the Internet of Things European Research Cluster (IERC) from technology to international cooperation and the global "state of play." The book builds on the ideas put forward by the IERC Strategic Research Agenda and presents global views and state-of-the-art results on the challenges the research, development, and deployment of IoT face at the global level. IoT is creating a revolutionary new paradigm with opportunities in every industry, including Health Care, Pharmaceuticals, Food and Beverage, Agriculture, Computer, Electronics Telecommunications, Automotive, Aeronautics, Transportation Energy, and Retail, to apply the massive potential of the IoT to achieving real-world solutions. The beneficiaries will include semiconductor companies, device and product companies, infrastructure software companies, application software companies, consulting companies, and telecommunication and cloud service providers. IoT will create new revenues annually for these stakeholders and potentially create substantial market share shakeups due to increased technology competition. The IoT will fuel technology innovation by creating the means for machines to communicate several different types of information with one another. At the same time, it will contribute to the increased value of information created by the number of interconnections among things and the transformation of the processed information into knowledge shared in the Internet of Everything. The success of IoT depends strongly on enabling technology development, market acceptance, and standardization, which provides interoperability, compatibility, reliability, and effective operations on a global scale. The connected devices are part of ecosystems connecting people, processes, data, and things which are communicating in the cloud, using the increased storage and computing power and pushing for standardization of communication and metadata. In this context, product manufacturers have to address security, privacy, safety, and



trust through the life cycle of their products, from design to the support processes. The IoT developments address the whole IoT spectrum - from devices at the edge to cloud and datacentres on the backend and everything in between - through ecosystems created by industry, research, and application stakeholders that enable real-world use cases to accelerate the IoT and establish open interoperability standards and common architectures for IoT solutions. Enabling technologies such as nanoelectronics, sensors/actuators, cyber-physical systems, intelligent device management, smart gateways, telematics, smart network infrastructure, cloud computing, and software technologies will create new products, services, and interfaces by creating smart environments and smart spaces with applications ranging from Smart Cities, smart transport, buildings, energy, and grid to smart health and life. Technical topics discussed in the book include: \* Introduction \* Internet of Things Strategic Research and Innovation Agenda \* Internet of Things in the industrial context: Time for deployment. \* Integration of heterogeneous smart objects, applications and services \* Evolution from device to semantic and business interoperability \* Software define and virtualization of network resources \* Innovation through interoperability and standardisation when everything is connected anytime at anyplace \* Dynamic context-aware scalable and trust-based IoT Security, Privacy framework \* Federated Cloud service management and the Internet of Things \* Internet of Things Applications

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## INTERNET OF THINGS

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### CONVERGING TECHNOLOGIES FOR SMART ENVIRONMENTS AND INTEGRATED ECOSYSTEMS

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River Publishers The book aims to provide a broad overview of various topics of the Internet of Things (IoT) from the research and development priorities to enabling technologies, architecture, security, privacy, interoperability and industrial applications. It is intended to be a stand-alone book in a series that covers the Internet of Things activities of the IERC - Internet of Things European Research Cluster - from technology to international cooperation and the global "state of play." The book builds on the ideas put forward by the European Research Cluster on the Internet of Things Strategic Research and Innovation Agenda and presents views and state of the art results on the challenges facing the research, development and deployment of IoT at the global level. Today we see the integration of Industrial, Business and Consumer Internet which is bringing together the Internet of People, Internet of Things, Internet of Energy, Internet of Vehicles, Internet of Media, Services and Enterprises in forming the backbone of the digital economy, the digital society and the foundation for the future knowledge and innovation based economy. These developments are supporting solutions for the emerging challenges of public health, aging population, environmental protection and climate change, the conservation of energy and scarce materials, enhancements to safety and security and the continuation and growth of economic prosperity. Penetration of smartphones and advances in nanoelectronics, cyber-physical systems, wireless communication, software, and Cloud computing technology will be the main drivers for IoT development. The IoT contribution is seen in the increased value of information created by the number of interconnections among things and the transformation of the processed information into knowledge shared into the Internet of Everything. The connected devices are part of ecosystems connecting people, processes, data, and things which are communicating in the Cloud using the increased storage and computing power while attempting to standardize communication and metadata. In this context, the next generation of Cloud computing technologies will need to be flexible enough to scale autonomously, adaptive enough to handle constantly changing connections and resilient enough to stand up to the huge flows of data that will occur. In 2025, analysts forecast that there will be six devices per human on the planet, which means around 50 billion more connected devices over the next 12 years. The Internet of Things market is connected to this anticipated device growth from industrial Machine to Machine (M2M) systems, smart meters and wireless sensors. Internet of Things technology will generate new services and new interfaces by creating smart environments and smart spaces with applications ranging from Smart Cities, Smart Transport, Buildings, Energy, Grid, to Smart Health and Life.

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## COGNITIVE RADIO ARCHITECTURE

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### THE ENGINEERING FOUNDATIONS OF RADIO XML

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John Wiley & Sons An exciting new technology, described by the one who invented it This is the first book dedicated to cognitive radio, a promising new technology that is poised to revolutionize the telecommunications industry with increased wireless flexibility. Cognitive radio technology integrates computational intelligence into software-defined radio for embedded intelligent agents that adapt to RF environments and user needs. Using this technology, users can more fully exploit the radio spectrum and services available from wireless connectivity. For example, an attempt to send a 10MB e-mail in a zone where carrier charges are high might cause a cognitive radio to alert its user and suggest waiting until getting to the office to use the LAN instead. Cognitive Radio Architecture examines an "ideal cognitive radio" that features autonomous machine learning, computer vision, and spoken or written language perception. The author of this exciting new book is the inventor of the technology and a leader in the field. Following his step-by-step introduction, readers can start building aware/adaptive radios and then make steps towards cognitive radio. After an introduction to adaptive, aware, and cognitive radio, the author develops three major themes in three sections: Foundations Radio Competence User Domain Competence The book makes the design principles of cognitive radio more accessible to students of teleinformatics, as well as to wireless communications systems developers. It therefore embraces the practice of cognitive radio as well as the theory. In particular, the publication develops a cognitive architecture that integrates disparate disciplines, including autonomous machine learning, computer vision, and language perception technologies. An accompanying CD-ROM contains the Java source code and compiled class files for applications developed in the book. In addition, for the convenience of the reader, Web resources introducing key concepts such as speech applications programmer interfaces (APIs) are included. Although still five to ten years away from full deployment, telecommunications giants and research labs around the world are already dedicating R&D to this new technology. Telecommunications engineers as well as advanced undergraduate and graduate students can learn the promising possibilities of this innovative technology from the one who invented it. Note: CD-ROM/DVD and other supplementary materials are not included as part of eBook file.

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### COGNITIVE RADIO, SOFTWARE DEFINED RADIO, AND ADAPTIVE WIRELESS SYSTEMS

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Springer Science & Business Media Today's wireless services have come a long way since the roll out of the conventional voice-centric cellular systems. The demand for wireless access in voice and high rate data multi-media applications has been increasing. New generation wireless communication systems are aimed at accommodating this demand through better resource management and improved transmission technologies. The interest in increasing Spectrum Access and improving Spectrum Efficiency combined with both the introduction of Software Defined Radios and the realization that machine learning can be applied to radios has created new intriguing possibilities for wireless radio researchers. This book is aimed to discuss the cognitive radio, software defined radio (SDR), and adaptive radio concepts from several aspects. Cognitive radio and cognitive networks will be investigated from a broad aspect of wireless communication system enhancement while giving special emphasis on better spectrum utilization. Applications of cognitive radio, SDR and cognitive radio architectures, spectrum efficiency and soft spectrum usage, adaptive wireless system design, measurements and awareness of various parameters including interference temperature and geo-location information are some of the important topics that will be covered in this book. Cognitive Radio, Software Defined Radio, and Adaptive Wireless Systems is intended to be both an introductory technology survey/tutorial for beginners and an advanced mathematical overview intended for technical professionals in the communications industry, technical managers, and researchers in both academia and industry.

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## ORGANIZATIONAL DYNAMICS OF TECHNOLOGY-BASED INNOVATION: DIVERSIFYING THE RESEARCH AGENDA

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### IFIP TC8 WG 8.6 INTERNATIONAL WORKING CONFERENCE, JUNE 14-16, 2007, MANCHESTER, UK

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Springer Science & Business Media This volume presents papers from the 10th Working Conference of the IFIP WG 8.6 on the adoption and diffusion of information systems and technologies. It explores the dynamics of how some technological innovation efforts succeed while others fail. The book looks to expand the research agenda, paying special attention to the areas of theoretical perspectives, methodologies, and organizational sectors.

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## CISCO CALLMANAGER BEST PRACTICES

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### A CISCO AVVID SOLUTION

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Pearson Education Delivers the proven solutions that make a difference in your Cisco IP Telephony deployment Learn dial plan best practices that help you configure features such as intercom, group speed dials, music on hold, extension mobility, and more Understand how to manage and monitor your system proactively for maximum uptime Use dial plan components to reduce your exposure to toll fraud Take advantage of call detail records for call tracing and accounting, as well as troubleshooting Utilize the many Cisco IP Telephony features to enable branch site deployments Discover the best ways to install, upgrade, patch, and back up CallManager Learn how backing up to remote media provides both configuration recovery and failure survivability IP telephony represents the future of telecommunications: a converged data and voice infrastructure boasting greater flexibility and more cost-effective scalability than traditional telephony. Having access to proven best practices, developed in the field by Cisco IP Telephony experts, helps you ensure a solid, successful deployment. Cisco CallManager Best Practices offers best practice solutions for CallManager and related IP telephony components such as IP phones, gateways, and applications. Written in short, to-the-point sections, this book lets you explore the tips, tricks, and lessons learned that will help you plan, install, configure, back up, restore, upgrade, patch, and secure Cisco CallManager, the core call processing component in a Cisco IP Telephony deployment. You'll also discover the best ways to use services and parameters, directory integration, call detail records, management and monitoring applications, and more. Customers inspired this book by asking the same questions time after time: How do I configure intercom? What's the best way to use partitions and calling search spaces? How do I deploy CallManager regionally on my WAN? What do all those services really do? How do I know how many calls are active? How do I integrate CallManager with Active Directory? Years of expert experiences condensed for you in this book enable you to run a top-notch system while enhancing the performance and functionality of your IP telephony deployment.

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## BROADBAND NETWORK ARCHITECTURES

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### DESIGNING AND DEPLOYING TRIPLE-PLAY SERVICES

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Pearson Education Service providers are increasingly focused on delivering triple-play bundles that incorporate Internet, video, and VoIP services—as well as multi-play bundles containing even more advanced services. Broadband Network Architectures is the first comprehensive guide to designing, implementing, and managing the networks that make triple-play services possible. Hellberg, Greene, and Boyes present their field-tested industry best practices and objectively evaluate the tradeoffs associated with key up-front architectural decisions that balance the complexities of bundled services and sophisticated traffic policies. Broadband Network Architectures not only documents what is possible on this rapidly changing field of networking, but it also details how to divide Internet access into these more sophisticated services with specialized Quality of Service handling. Coverage includes · An in-depth introduction to next-generation triple-play services: components, integration, and business connectivity · Triple-play backbone design: MPLS, Layer 3 VPNs, and Broadband Network Gateways (BNGs)/Broadband Remote Access Servers (B-RAS) · Protocols and strategies for integrating BNGs into robust triple-play networks · Triple-play access network design: DSLAM architectures, aggregation networks, transport, and Layer 2 tunneling · VLAN-per-customer versus service-per-VLAN architectures: advantages and disadvantages · PPP or DHCP: choosing the right access protocol · Issues associated with operating in wholesale, unbundled environments · IP addressing and subscriber session management · Broadband network security, including Denial of Service attacks and VoIP privacy · The future of wireless broadband: IMS, SIP, and non-SIP based fixed mobile convergence and wireless video



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## COOPETITION STRATEGY

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### THEORY, EXPERIMENTS AND CASES

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Taylor & Francis The book examines the theories of co-opetition and follows this up with empirically based case studies as well as experimental evidence from the laboratory and will be of interest to those involved with strategic management.

### ARCHITECTURAL UTILITIES

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Goodwill Trading Co., Inc.

### VERSATILE ROUTING AND SERVICES WITH BGP

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### UNDERSTANDING AND IMPLEMENTING BGP IN SR-OS

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John Wiley & Sons Design a robust BGP control plane within a secure, scalable network for smoother services A robust Border Gateway Protocol setup is vital to ensuring reliable connectivity, an essential capability for any organization. The Internet has become a necessary, always-on service in homes and businesses, and BGP is the protocol that keeps communication flowing. But BGP also has become crucial to delivery of intra-domain business services. But the network is only as reliable as BGP, so service enablement depends upon making BGP more stable, reliable, and service-rich. Alcatel-Lucent Service Router Operating System is engineered to bear the load of the most demanding networks. The system features support for Symmetric Multiprocessing and unprecedented depth of advanced routing features, all within a single OS that's supported across the entire Alcatel-Lucent IP/MPLS router portfolio. Versatile Routing and Services with BGP provides guidance toward implementation of BGP within SR-OS, and details the use and control of each feature. The book provides in-depth coverage of topics such as: BGP/MPLS IP-VPN, VPLS, VPWS Labeled Unicast IPv4, reconvergence, and multicast Security, graceful restart and error handling IPv6 PE (6PE) and IPv6 extensions to BGP/MPLS IP-VPN A look at forthcoming features such as Ethernet VPN Basic BGP competency is assumed, but the book is accessible even to those with zero familiarity with Alcatel-Lucent's SR-OS. It underscores the idea that BGP is more than just service enablement, and can also be used for infrastructure layer transport - but both layers must be solid, scalable, and able to quickly reconverge. Versatile Routing and Services with BGP demonstrates the creation of a robust BGP control plane within a, secure network, allowing the delivery of flawless, uninterrupted service.

### THE MODERNISATION OF THE WEST COAST MAIN LINE

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The Stationery Office This NAO report examines how effectively the Strategic Rail Authority/Department for Transport and Network Rail turned around the West Coast programme between 2002 and 2006 in terms of delivering outputs and expected outcomes in line with the schedule and targets set by the government and set out in the West Coast Main Line Strategy of June 2003. Three areas were examined in detail: how the Strategic Rail Authority/Department of Transport and Network Rail addressed the weaknesses in programme management before 2002 to achieve delivery to schedule; whether costs have been brought under control; whether the programme is delivering its anticipated benefits. A number of findings and conclusions have been set out, including: that the SRA and Network Rail did turn around the programme through an industry-supported strategy, reducing technology risk through reliance on conventional signalling for most of the upgrade; there were some implementation problems in two areas, axle counters and computer-based interlocking signalling, which resulted in an increase in costs; in general, Network Rail's control of costs has improved, but an analysis of its reported and forecast expenditure shows a final programme spend of £8.6 billion, with an overspend of around £300 million; for renewal work on the west coast route, Network Rail is within its overall funding allowance and on course to achieve 70% of the £940 million cost efficiencies assumed by the rail Regulator; at present the Strategic Rail Authority provides subsidies on an annual basis to Virgin West Coast of £590 million in 2005-06 period, this amount represents a payment needed to maintain train services and is outside the £8.6 billion; the project has delivered journey time improvements, with punctuality and train reliability on the West Coast having improved since 2005; in the 2005-06 period, passenger journeys on Virgin West Coast grew by over 20%, and the remaining work on the programme to 2009 will increase passenger train and freight capacity, but the consensus in the rail industry is that around 2015 to 2020, the line will have insufficient capacity to sustain current levels of growth in passenger and freight traffic; the overall strategy has delivered passenger benefits from a modernised track, but value for money for the programme has not been maximised. The report sets out a number of recommendations, including: that the Department in future should model and appraise costs and benefits for different options for the timing of delivery of the project; that the Department and the Office of Rail Regulation should further develop standard definitions for costs for different stages and elements of transport projects; where projects propose new technology at significant cost, the Department and ORR should ensure that Network Rail draws up a supporting business case, addressing costs, benefits and possible challenges along with a supporting implementation and maintenance strategy; the ORR should ensure Network Rail progresses its plans and adopts best practice strategy, and this approach should include a company-wide strategy that addresses whole life costs in its investment appraisal/project business cases, along with improved recording of maintenance and renewals costs for its equipment.

### OPTIMIZATION AND INDUSTRY: NEW FRONTIERS

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Springer Science & Business Media Optimization from Human Genes to Cutting Edge Technologies The challenges faced by industry today are so complex that they can only be solved through the help and participation of optimization experts. For example, many industries in e-commerce, finance, medicine, and engineering, face several computational challenges due to the massive data sets that arise in their applications. Some of the challenges include, extended memory algorithms and data structures, new programming environments, software systems, cryptographic protocols, storage devices, data compression, mathematical and statistical methods for knowledge mining, and information visualization. With advances in computer and information systems technologies, and many interdisciplinary efforts, many of the "data avalanche challenges" are beginning to be addressed. Optimization is the most crucial component in these efforts. Nowadays, the main task of optimization is to investigate the cutting edge frontiers of these technologies and systems and find the best solutions for their realization. Optimization principles are evident in nature (the perfect optimizer) and appeared early in human history. Did you ever watch how a spider catches a fly or a mosquito? Usually a spider hides at the edge of its net. When a fly or a mosquito hits the net the spider will pick up each line in the net to choose the tense line? Some biologists explain that the line gives the shortest path from the spider to its prey.

### SPOKEN MULTIMODAL HUMAN-COMPUTER DIALOGUE IN MOBILE ENVIRONMENTS

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Springer Science & Business Media This book is based on publications from the ISCA Tutorial and Research Workshop on Multi-Modal Dialogue in Mobile Environments held at Kloster Irsee, Germany, in 2002. The workshop covered various aspects of development and evaluation of spoken multimodal dialogue systems and components with particular emphasis on mobile environments, and discussed the state-of-the-art within this area. On the development side the major aspects addressed include speech recognition, dialogue management, multimodal output generation, system architectures, full applications, and user interface issues. On the evaluation side primarily usability evaluation was addressed. A number of high quality papers from the workshop were selected to form the basis of this book. The volume is divided into three major parts which group together the overall aspects covered by the workshop. The selected papers have all been extended, reviewed and improved after the workshop to form the backbone of the book. In addition, we have supplemented each of the three parts by an invited contribution intended to serve as an overview chapter.

### INTERNET OF THINGS, SMART SPACES, AND NEXT GENERATION NETWORKING

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#### 12TH INTERNATIONAL CONFERENCE, NEW2AN 2012, AND 5TH CONFERENCE, RUSMART 2012, ST. PETERSBURG, RUSSIA, AUGUST 27-29, 2012, PROCEEDINGS

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Springer This book constitutes the joint refereed proceedings of the 12 International Conference on Next Generation Teletraffic and Wired/Wireless Advanced Networking, NEW2AN, and the 5th Conference on Internet of Things and Smart Spaces, ruSMART 2012, held in St. Petersburg, Russia, in August 2012. The total of 42 papers was carefully reviewed and selected for inclusion in this book. The 14 papers selected from ruSMART are organized in topical sections named: defining an internet-of-things ecosystem; future services; and smart space governing through service mashups. The 28 papers from NEW2AN deal with the following topics: wireless cellular networks; ad-hoc, mesh, and delay-tolerant networks; scalability, cognition, and self-organization; traffic and internet applications; and wireless sensor networks. They also contain 4 selected papers from the NEW2AN 2012 winter session.

### FUTURE ACCESS ENABLERS FOR UBIQUITOUS AND INTELLIGENT INFRASTRUCTURES

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#### 4TH EAI INTERNATIONAL CONFERENCE, FABULOUS 2019, SOFIA, BULGARIA, MARCH 28-29, 2019, PROCEEDINGS

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This book constitutes the refereed post-conference proceedings of the Fourth International Conference on Future Access Enablers for Ubiquitous and Intelligent Infrastructures, FABULOUS 2019, held in Sofia, Bulgaria, in March 2019. This year's conference topic covers Globalization through Advanced Digital Technologies - as the digitalization in all spheres of life has an impressive influence on communication and daily life in general. The 39 revised full papers were carefully reviewed and selected from 54 submissions. The main topics deal with: healthcare/wellness applications; IoT and sensor networks; IoT security in the digital transformation era; wireless communications and networks; virtual engineering and simulations.

### LIVING IN A NETWORKED WORLD

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### INTEGRATED RESEARCH AGENDA CYBER-PHYSICAL SYSTEMS (AGENDACPS)

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Herbert Utz Verlag The rapid progress of information technology allows for increasingly powerful software intensive embedded systems (machines) executing integrated applications connected by and to global networks. Thus these systems are more and more networked among each other, but also with data and services on the Internet. Intelligent solutions originate which gather processes of the living environment by means of sensors and actuators, connect them to virtual software worlds and interpret, monitor and control these processes in interaction with people. In this way, so-called Cyber-Physical Systems evolve - a living in a networked world. The interlocking applications include smart cities, social infrastructures with integrated telemedicine care, enhanced connected mobility with fully or semi-autonomous driving cars and traffic systems, safety, security and privacy as well as networked production and the sustainable energy turnaround. The integrated research agenda Cyber-Physical-Systems (agendaCPS) provides a comprehensive overview of the capabilities and benefits of the arising CPS-applications and manifold technological and social challenges involved. The agenda illustrates which value the subject for economy and society has: revolutionary applications of Cyber-Physical Systems address technological and social trends and needs; at the same time they penetrate and interconnect more and more areas of life. On the basis of concrete future scenarios essential application domains are shown. Their analysis reveals which capabilities and technologies form the basis of Cyber-Physical systems and which innovation and possible conflict potential is inherent. The agendaCPS makes clear which research and action areas are of particular importance. In these contexts opportunities, but also risks become apparent for Germany by Cyber-Physical Systems. This is the English translation of the report agenda Cyber-Physical Systems finished three years ago as a German acatech project by a German publication.

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## ON A METHOD OF MULTIPROGRAMMING

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Springer Science & Business Media Here, the authors propose a method for the formal development of parallel programs - or multiprograms as they prefer to call them. They accomplish this with a minimum of formal gear, i.e. with the predicate calculus and the well-established theory of Owicki and Gries. They show that the Owicki/Gries theory can be effectively put to work for the formal development of multiprograms, regardless of whether these algorithms are distributed or not.

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## RELATIONSHIPS MADE SIMPLE

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Wordclay Finally, a book that takes a simple approach to improving relationships. In straightforward language this book introduces the reader to the 'Relationship Banking' concept, which has the power to change forever the way people look and conduct at all their relationships. This book contains all the information required to teach readers exactly what they need to do to rekindle, repair or rescue their relationship and for a lot less than the cost of one professional counselling session. This book is an easy to read 105 pages, written by a psychologist. It contains all the information needed to dramatically improve our most important relationship - the one with our life partner.

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## EVOLUTION OF TELECOMMUNICATION SERVICES

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### THE CONVERGENCE OF TELECOM AND INTERNET: TECHNOLOGIES AND ECOSYSTEMS

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Springer In the telecom world, services have usually been conceived with a specific mindset. This mindset has defined the traditional characteristics of these services; services distinguished by their linkage with the access network, tight control over service use (e.g., authentication, billing), lack of deep personalization capabilities (mass services only) and reliance on standardization to achieve end-to-end interoperability between all the actors of the value chain (e.g., operators, platform manufacturers, device manufactures). This book offers insights into this complex but exciting world of telecommunications characterized by constant evolution, and approaches it from technology as well as business perspectives. The book is appropriately structured in three parts: (a) an overview of the state-of-the-art in fixed/mobile NGN and standardization activities; (b) an analysis of the competitive landscape between operators, device manufactures and OTT providers, emphasizing why network operators are challenged on their home turf; and (c) opportunities for business modeling and innovative telecom service offers.

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## TWELVE YEARS A SLAVE

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Prabhat Prakashan "Having been born a freeman, and for more than thirty years enjoyed the blessings of liberty in a free State—and having at the end of that time been kidnapped and sold into Slavery, where I remained, until happily rescued in the month of January, 1853, after a bondage of twelve years—it has been suggested that an account of my life and fortunes would not be uninteresting to the public." -an excerpt

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## 5G FOR THE CONNECTED WORLD

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Wiley 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.

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## A CULTURE OF INNOVATION

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### INSIDER ACCOUNTS OF COMPUTING AND LIVE AT BBN

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This is a collection of chapters by prior and present senior employees of Bolt Beranek and Newman (BBN) describing the technology and business history the company from the company's founding in 1948 until the mid-2000s. BBN is renowned in computing history as a leading technology innovator.

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## CISCO NETWORKING ACADEMY PROGRAM

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### CCNA 1 AND 2 COMPANION GUIDE

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Cisco Systems The only Cisco authorized textbook and portable desk reference for the CCNA 1 and 2 course in the Networking Academy

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### ARUBA CERTIFIED SWITCHING ASSOCIATE OFFICIAL CERTIFICATION STUDY GUIDE (EXAM HPE6-A72)

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## THE BIOS COMPANION

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Lulu.com This text describes the functions that the BIOS controls and how these relate to the hardware in a PC. It covers the CMOS and chipset set-up options found in most common modern BIOSs. It also features tables listing error codes needed to troubleshoot problems caused by the BIOS.

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## COMPUTER SECURITY HANDBOOK

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Wiley

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## MORE THAN MOORE

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### CREATING HIGH VALUE MICRO/NANOELECTRONICS SYSTEMS

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Springer Science & Business Media In the past decades, the mainstream of microelectronics progression was mainly powered by Moore's law focusing on IC miniaturization down to nano scale. However, there is a fast increasing need for "More than Moore" (MtM) products and technology that are based upon or derived from silicon technologies, but do not simply scale with Moore's law. This book provides new vision, strategy and guidance for the future technology and business development of micro/nanoelectronics.

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### SMARTKOM: FOUNDATIONS OF MULTIMODAL DIALOGUE SYSTEMS

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Springer Science & Business Media With contributions by leading scientists in the field, this book gives the first comprehensive overview of the results of the seminal SmartKom project - one of the most advanced multimodal dialogue systems worldwide.

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## NETWORKED RFID

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### SYSTEMS, SOFTWARE AND SERVICES

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Springer Science & Business Media This book introduces the technologies and techniques of large-scale RFID-enabled mobile computing systems. The discussion is set in the context of specific system case studies where RFID has been the core enabling technology in retail, metropolitan transportation, logistics and e-passport applications. RFID technology fundamentals are covered including operating principles, core system components and performance trade-offs involved in the selection of specific RFID platforms.

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## GMPLS

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### ARCHITECTURE AND APPLICATIONS

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Elsevier The last two years have seen significant developments in the standardization of GMPLS and its implementation in optical and other networks. GMPLS: Architecture and Applications brings you completely up to date, providing the practical information you need to put the growing set of GMPLS-supported services to work and manage them effectively. This book begins by defining GMPLS's place in a transport network, leveraging your knowledge of MPLS to give you an understanding of this radically new control plane technology. An overview of GMPLS protocols follows, but the real focus is on what comes afterwards: in-depth examinations of the architectures underpinning GMPLS in real-world network environments and current and emerging GMPLS applications. This one-of-a-kind resource delivers immensely useful information for software architects, designers and programmers, hardware developers, system testers, and network operators--and also for managers and other decision-makers. Written by two industry researchers at the forefront of the development of GMPLS. Provides a practical look at GMPLS protocols for signaling, routing, link and resource management, and traffic engineering. Delves deep into the world of GMPLS applications, including traffic engineering, path computation, layer one VPNs, point-to-multipoint connectivity, service management, and resource protection. Explores three distinct GMPLS control plane architectures: peer, overlay, and hybrid, and explains the GMPLS UNI and NNIs. Explains how provisioning challenges can be met in multi-region



networks and details the provisioning systems and tools relied on by the GMPLS control plane, along with the standard MIB modules used to manage a GMPLS system.

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## WORLD TELECOMMUNICATION DEVELOPMENT CONFERENCE

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[Vol. 2:] contributions from representatives of international and regional organizations and telecommunication operators and manufacturers / official statements and addresses.

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## THE ELECTRONIC DESIGN AUTOMATION HANDBOOK

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Springer Science & Business Media When I attended college we studied vacuum tubes in our junior year. At that time an average radio had 7ve vacuum tubes and better ones even seven. Then transistors appeared in 1960s. A good radio was judged to be one with more thententtransistors. Latergoodradioshad15-20transistors and after that everyone stopped counting transistors. Today modern processors runing personal computers have over 10milliontransistorsandmoremillionswillbeadedevery year. The difference between 20 and 20M is in complexity, methodology and business models. Designs with 20 tr- sistors are easily generated by design engineers without any tools, whilst designs with 20M transistors can not be done by humans in reasonable time without the help of Prof. Dr. Gajski demonstrates the Y-chart automation. This difference in complexity introduced a paradigm shift which required sophisticated methods and tools, and introduced design automation into design practice. By the decomposition of the design process into many tasks and abstraction levels the methodology of designing chips or systems has also evolved. Similarly, the business model has changed from vertical integration, in which one company did all the tasks from product speci?cation to manufacturing, to globally distributed, client server production in which most of the design and manufacturing tasks are outsourced.

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## CCNA: CISCO CERTIFIED NETWORK ASSOCIATE

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### FAST PASS

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John Wiley & Sons Organized by exam objectives, this is a focused, concise review guide that works hand-in-hand with any learning tool, including the Sybex CCNA: Cisco Certified Network Associate Study Guide, 6th and Deluxe editions. The book will consist of four high-level chapters, each mapping to the four main Domains of the exam skill-set. The book will drill down into the specifics of the exam, covering the following: Designing Cisco internetworks Developing an access list Evaluating TCP/IP communication Configuring routers and switches Configuring IP addresses, subnet masks, and gateway addresses Performing LAN, VLAN, and WAN troubleshooting Understanding rules for packet control The interactive CD contains two bonus exams, handy flashcard questions, and a searchable PDF of a Glossary of Terms.

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## DESIGNING AND IMPLEMENTING IP/MPLS-BASED ETHERNET LAYER 2 VPN SERVICES

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### AN ADVANCED GUIDE FOR VPLS AND VLL

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John Wiley & Sons A guide to designing and implementing VPLS services over an IP/MPLS switched service provider backbone Today's communication providers are looking for convenience, simplicity, and flexible bandwidth across wide area networks-but with the quality of service and control that is critical for business networking applications like video, voice and data. Carrier Ethernet VPN services based on VPLS makes this a reality. Virtual Private LAN Service (VPLS) is a pseudowire (PW) based, multipoint-to-multipoint layer 2 Ethernet VPN service provided by services providers By deploying a VPLS service to customers, the operator can focus on providing high throughput, highly available Ethernet bridging services and leave the layer 3 routing decision up to the customer. Virtual Private LAN Services (VPLS) is quickly becoming the number one choice for many enterprises and service providers to deploy data communication networks. Alcatel-Lucent VPLS solution enables service providers to offer enterprise customers the operational cost benefits of Ethernet with the predictable QoS characteristics of MPLS. Items Covered: Building Converged Service Networks with IP/MPLS VPN Technology IP/MPLS VPN Multi-Service Network Overview Using MPLS Label Switched Paths as Service Transport Tunnels Routing Protocol Traffi c Engineering and CSPF RSVP-TE Protocol MPLS Resiliency — Secondary LSP MPLS Resiliency — RSVP-TE LSP Fast Reroute Label Distribution Protocol IP/MPLS VPN Service Routing Architecture Virtual Leased Line Services Virtual Private LAN Service Hierarchical VPLS High Availability in an IP/MPLS VPN Network VLL Service Resiliency VPLS Service Resiliency VPLS BGP Auto-Discovery PBB-VPLS OAM in a VPLS Service Network

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## CCNA ROUTING AND SWITCHING COMPLETE REVIEW GUIDE

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### EXAM 100-105, EXAM 200-105, EXAM 200-125

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John Wiley & Sons Cisco has announced big changes to its certification program. As of February 24, 2020, all current certifications will be retired, and Cisco will begin offering new certification programs. The good news is if you're working toward any current CCNA certification, keep going. You have until February 24, 2020 to complete your current CCNA. This means if you already have CCENT/ICND1 certification and would like to earn CCNA, you have until February 23, 2020 to complete your CCNA certification in the current program. Likewise, if you're thinking of completing the current CCENT/ICND1, ICND2, or CCNA Routing and Switching certification, you can still complete them between now and February 23, 2020. Tight, focused CCNA review covering all three exams The CCNA Routing and Switching Complete Review Guide offers clear, concise review for Exams 100-105, 200-105, and 200-125. Written by best-selling certification author and Cisco guru Todd Lammle, this guide is your ideal resource for quick review and reinforcement of key topic areas. This second edition has been updated to align with the latest versions of the exams, and works alongside the Sybex CCNA Routing and Switching Complete Study Guide, 2nd Edition. Coverage includes LAN switching technologies, IP routing, IP services, IPv4 and IPv6 addressing, network device security, WAN technologies, and troubleshooting—providing 100% coverage of all objectives for the CCNA ICND1, ICND2, and Composite exams. The Sybex online learning environment gives you access to additional study tools, including practice exams and flashcards to give you additional review before exam day. Prepare thoroughly for the ICND1, ICND2, and the CCNA Composite exams Master all objective domains, mapped directly to the exams Clarify complex topics with guidance from the leading Cisco expert Access practice exams, electronic flashcards, and more Each chapter focuses on a specific exam domain, so you can read from beginning to end or just skip what you know and get right to the information you need. This Review Guide is designed to work hand-in-hand with any learning tool, or use it as a stand-alone review to gauge your level of understanding. The CCNA Routing and Switching Complete Review Guide, 2nd Edition gives you the confidence you need to succeed on exam day.