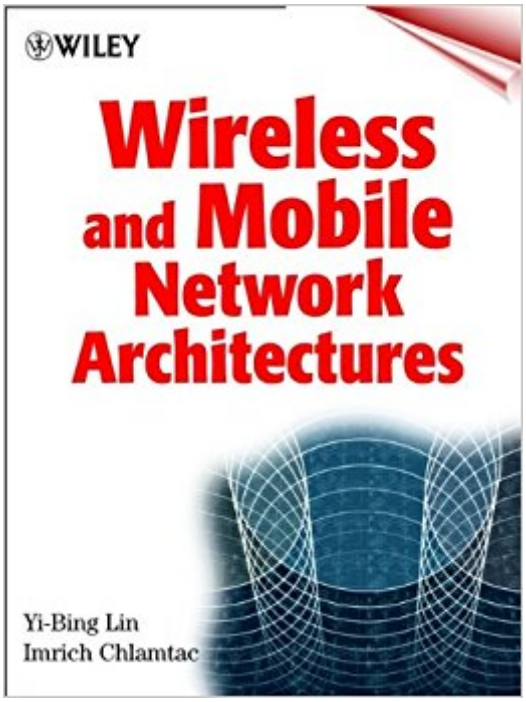
Wireless And Mobile Network Architectures



Synopsis

A comprehensive guide to building wireless and mobile networks and services. Based on advanced wireless and mobile network architectures, Personal Communication Services (PCS) offers the enterprise freedom of communication through mobility. This book gives network engineers and managers a window on the world of wireless and mobile networks, from the enabling technologies and protocols to creating and managing mobile services. Lin and Chlamtac use a unique sustained example approach to teach you how PCS concepts apply to real network operation. For example, they use location update to illustrate concepts in chapters on network signaling, - Mobility management for different systems - Wireless Application Protocol Network signaling for IS-41-based systems, PACS, and GSM - Roaming procedures and international roaming - Operational management - VoIP service for mobile networks - Mobile number portability - GPRS - Third generation (3G) mobile systems - Wireless enterprise networks - Wireless Local Loop - And much more

Book Information

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Customer Reviews

The only reason I didn’t give five stars is because this book is listed as New, but when I received the book, the lower left corner, by the binding, was damaged. I’m guessing it was the packaging and the delivery because it didn’t come in a cardboard box of any sort. It came in a thin brown stiff, but not hard cardstock like packaging. Besides for that, the book was in good condition.

Excellent!

I use this book as a reference for many technologies I work which. Sometimes I need to focus on data, sometimes on voice, sometimes signalling. In order to review the basis or even to go into details, this book is very useful. I highly recomend this book as part of the library of telecom workers.

The reviewer was in search of a book that could provide the basis for a course on mobile communications at the graduate level for students from a mixed (EE and CS) background. The new book by Lin and Chlamtac fits the bill perfectly. It assumes neither knowledge of wireless physical layer, nor knowledge of higher layer applications and application interfaces. In fact, it is a book with an original approach, being the first to present mobile networks by emphasizing the services that can be provided and the mobility management schemes needed to support such services. Because of its particular focus, the book is also an excellent text for systems and systems software developers as well as the senior undergrad or grad level science and engineering reader who is curious about the particular subject. Certain decisions were necessary to keep the book focused. For example, it stays clear of elaborating on modulation, coding and modeling for wireless communication (presenting just the essential info). It also avoids being IP-centric, although, naturally, it cannot escape discussing data services, such as SMS, GPRS, WAP etc.An aspect that weighs in favor of the book is the inclusion of research results from the research of its two world renowned authors. The included research results can help the graduate level reader appreciate the available research opportunities, and the context in which solutions can be developed. The researcher will also find the collection of references (as recent as 2000) extremely helpful in studying the area. The teacher can use the material to develop simulation and analytical models for students to gain better insight to the workings of mobile services.Another objective of the book, is to function as reference material. Its authors have done the hard work of distilling the essence of a large collection of standards documents related to mobility management. >From this point of view, the book will be of value in the longer term as well, making it an a perfectly sound investment.A

challenge dealt with successfully in this book is that in order to present mobility management, it ultimately needs to discuss about signaling protocols, and SS7 in particular. The book takes an approach of presenting background material on signaling on "as needed" basis. A reader not familiar with signaling, will likely progress slowly when signalling is first introduced, but, at the end, will have the double benefit of being exposed to signaling’s central role in advanced communication services, and gain understanding on how mobile networks really work. Certainly, there are parts of the text where the density of acronyms calls for careful parsing of the sentences, but such is the case for any technical book that maintains a formal presentation style. It still beats reading standards documents.After a short review and classification of the systems covered in the text, the book introduces the need and nature of mobility management followed by the most important aspect of mobility management, that of handoff management (detection, assignment and radio link transfer). Following the introduction, extensive attention is given to IS-41 (where, in a way, AMPS, IS-136 and IS-95 "meet" together) and to the GSM counterpart, the Mobile Application Part (MAP). Covered GSM services include the Short Message Service (SMS), International Roaming, and Operations, Administration and Maintenance. In this, first part of the book, what may appear odd at first is the inclusion of low-tier systems with few mobility management capabilities (such as CT 2, DECT etc.) but it serves as a reminder that little gems of protocols can be found in places one may not think looking at. Certainly the point is justified by the discussion of PACS signalling in a separate chapter. Another topic placed in this first part of the book (due to its relation with AMPS and IS-136) is CDPD’s architecture and its radio resource allocation and roaming management.The remaining half of the book is service-oriented. It covers how different types of services can be supported. The services include mobile number portability, VoIP service for mobile networks, GPRS, prepaid mobile phone services, and WAP. Following are two chapters covering the topic of heterogeneous PCS systems integration and the new (3rd) generation mobile services. The final three chapters cover three addition services that follow their own evolution path. Namely, paging systems, the wireless local loop and wireless enterprise networks.Overall, this book is worth having. Whether you approach it as a student, as an instructor, as an engineer or just as interested to expand your knowledge, it has something to give you. It is unique in its approach and future books on the topic will be measured against it.

It is the personal opinion of the current reviewer that in order to understand the inside and out of wireless networking, you have to know not only the physical layer but also the high layer networking aspects. Some books do cover both physical layer and high layer, however, most of them lack the

deepth on either one aspects or both. The reviewer understands the difficult task for both coverages, in the process of developing his new course on wireless networks, he took the following approach: use the best part on physical layer in one book, and switch to another book on high layer. The current reviewer chose this book to cover the high layer wireless networking aspects, this book provides most fundamental elements of wireless networking.The nice thing about this book is that it is written by two individuals who have been extensively involved in developing the wireless networking technologies. It starts with the most important issue in wireless mobile networks: the mobility management in the general setting, detailing what call processes are involved, how handoff strategies are designed, how channel assignments affect the performance, how the control signaling among the commuincations entities are accomplished (IS-41 and GSM MAP). Then the authors shift their focus on the specific wireless systems: PACS, CDPD, GSM, GPRS and other applications. In distinction to other books, this book attempts to present the main ideas, and is a very good book for those who really want to know what is going on in wireless networking area, yet do not have time to figure out (do not care about) the details. It is also very excellent reference book for those technical experts who want to broad their horizon. The current reviewer finds the book very useful in his research when he wants to clear some doubts on certain topics.

Wireless and Mobile Network Architectures is an excellent introduction to fundamental concepts of mobile communications. The book’s co-authors, who are leading experts in the field, provide a well-written, thorough description of today’s wireless mobile systems. Emphasis is on mobile network protocols and standards rather than radio technology. In particular, the book provides in-depth explanations of IS-41 and GSM protocols. Topics covered include international roaming, short message services, OA&M, mobile number portability, mobile prepaid services, mobile VoIP and WAP. 2.5G technology such as GPRS and 3G systems/trials, Bluetooth, and aspects of signal handoff. The explanations and descriptions of architectures and protocols are made clear through the use of many diagrams. Each chapter includes questions that can be used to reinforce the material, or for course assignments. There is also an extensive bibliography for those wishing to further explore mobile networking issues. This book is a comprehensive resource for anyone interested in understanding wireless and mobile networks. It would also make an excellent advanced undergraduate or graduate course textbook.

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