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Book Reviews

Understanding Modern Telecommunications and the Information Superhighway

J.G. Nellist, E.M. Gilbert

The intention of the book by John G. Nellist and Elliott M. Gilbert is to help nontechnical professionals to gain a basic understanding of the latest developments in telecommunications and the global information infrastructure. Questions like ‘How does the Internet work? What benefits do optical networks offer? What is the potential of PCS? What is the role of satellites in the Information Highway?’ and others are promised to be answered. In addition the book is said to explain the potential economic impact of key communication technologies and to provide insights into who the key players are in various industry segments.

The authors have structured their book in 11 sections dealing with different topics like the evolution of telecommunications in general and several sections treating various aspects of the Information Superhighway followed by explanations on the management of these networks and on digital wireless issues. Two sections are devoted for some excursions in the future and for summary and conclusions. In nearly all sections comprehensive information on the technology applied in the US and Canada is given followed by a paragraph for conclusions and a rich biography. Pictures and drawings in the book are well explained and

can be easily understood. Thirty pages of telecommunications glossary for the basic items have been added to complete the book.

As said before the focus of the book is Canada and the US. While concentrating on this market, often issues of the rest of the world are neglected. This is the case, for example, in the plesiochronous digital hierarchy (PDH) systems. The ITU-T recommendation E.164 for addressing of international telephone numbers seems to be completely unknown. Market players like telephone companies, Internet service providers and cable companies outside the north-American continent have also been forgotten.

So who could benefit from this book? This book can be recommended for professionals whose companies are active in the US or Canada or want to enter or to understand this market. For further information more than the cited additional publications on selected topics are recommended.

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Queueing Networks—Customers, Signals and Product Form Solutions,

X. Chao, M. Miyazawa, M. Pinedo; John Wiley and Sons, Chichester, 1999, 445 pages, hardbound, ISBN 0-471-98309-8, US\$135.00.

X. Chao, M. Miyazawa and M. Pinedo have written the first book that deals with the queueing networks with customers and signals, where many other books on queueing networks only consider customers. Based on their recent research, as well as many other existing papers and books, *Queueing Networks—Customers, Signal and Product Form Solution* presents a thorough analysis of how to reach the product form solution for a very general network model. This book is proper as a graduate level textbook or for self-learning purpose for those interested in advanced queueing theory. Candidate audience may cover Master/PhD students majoring in EE, CS and Operation Research.

The book covers all the details of what the authors claimed in the outline section (Subsection 1.5). Generally the contents can be classified into three parts. The first part gives an illustrative introduction and some background knowledge based on comparing the differences between queueing networks with and without signals. The second part is the core of the book, which presents a detailed analysis of the various network models with not only conventional customers but also signals. It begins with the network with exponential service times and then extends to arbitrary service times. Networks with batch arrivals and service are also discussed, followed by networks with state-dependent transitions. The last part addresses some fundamental structure issues and extends the results to a discrete time framework.

Although a theoretical book, the stress throughout is on keeping things simple and clear. It is well-organized and clearly laid-out, with sensible chapter and subsection divisions. All the diagrams are in proper places. There are

also plenty of examples and a set of exercises after each chapter. Moreover, the content is relative new. In brief, this book is well worth the money.

However, I should mention that although the authors have said that a course in elementary queueing is not needed as a prerequisite and they do provide some background information in the book, it is recommended to have some basic knowledge of the stochastic process and queueing networks for better understanding. There is also one flaw, the web page corresponding to this book is still under heavy

construction and cannot yet provide much useful information.

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