

Preface to the Second Edition

The pace at which new IMS-related technologies have been developed in the last year has been impressive. Based on the deployment experiences of their members and on feedback from several organizations, 3GPP and 3GPP2 have worked extensively to update the IMS architecture so that it supports a wide range of new services.

While many of these updates consist of extensions to provide more functionality, some of them consist of simplifications to the IMS architecture. These simplifications make the IMS architecture more robust and reliable, or increase the performance of services implemented on top of it.

Examples of organizations that provide feedback to 3GPP and 3GPP2 on how to evolve the IMS are the OMA (Open Mobile Alliance) and the standardization bodies involved in the developing of NGN (Next Generation Networks). These organizations use the IMS as a base to provide different types of services.

The second edition of this book, in addition to describing updates to the IMS architecture, includes extensive discussions on the NGN architecture and the services it provides, and on the OMA PoC (Push-to-talk over Cellular) service. We are confident that the reader will find the chapters on these IMS-based services useful.

From the feedback received on the first edition, it seems that many readers found the structure of the book novel and useful. Readers agreed that first describing how a technology works on the Internet before discussing how it applies to the IMS provides a wider perspective than studying the technology in the IMS context alone.

Of course, we have also updated the sections dealing with Internet technologies. These sections include some of the latest protocol extensions developed in the IETF.

Based on the feedback received during the IMS seminars we have given around the world, we have clarified those concepts which were difficult to understand in the first edition.

Finally, also new to the second edition is a companion website on which instructors and lecturers can find electronic versions of the figures. Please go to

<http://www.wiley.com/go/camarillo>

Preface to the First Edition

The IMS (IP Multimedia Subsystem) is the technology that will merge the Internet with the cellular world. It will make Internet technologies, such as the web, email, instant messaging, presence, and videoconferencing available nearly everywhere. We have written this book to help engineers, programmers, business managers, marketing representatives, and technically aware users understand how the IMS works and the business model behind it.

We have distributed the topics in this book into four parts: an introduction, the signaling plane in the IMS, the media plane in the IMS, and IMS service examples. All four parts follow a similar structure; they provide both Internet and IMS perspectives on each topic.

First, we describe how each technology works on the Internet. Then, we see how the same technology is adapted to work in the IMS. Following these two steps for each technology provides the reader with a wider perspective. So, this book is not a commented version of the IMS specifications. It covers a much broader field.

Reading this book will improve anyone's understanding of the Internet technologies used in the IMS. You will know how each technology is used on the Internet and which modifications are needed to make it work in the IMS. This way you will understand how the use of Internet technologies in the IMS will make it easy to take advantage of any current and future Internet service. Finally, you will appreciate how operators can reduce the operational cost of providing new services.

Engineers who are already familiar with the IMS or with any of the IMS-related Internet protocols will also benefit substantially from this book. This way, engineers from the IETF (Internet Engineering Task Force) will understand which special characteristics of the IMS makes it necessary to add or remove certain features from a few Internet protocols so that they can be used in the IMS. On the other hand, engineers from 3GPP (Third Generation Partnership Project) and 3GPP2 will gain a wider perspective on IMS technologies. In addition, any engineer who focuses on a specific technology will gain a better understanding of the system as a whole.

Readers who want to expand their knowledge of any particular topic will find multiple references to 3GPP and 3GPP2 specifications, ITU recommendations, and IETF RFCs and Internet-Drafts in the text. Moreover, Appendix B contains a list with all the 3GPP and 3GPP2 specifications that are relevant to the IMS.

Now, let us look at each part of this book. Part I provides an introduction to the IMS: its goals, its history, and its architecture. We highlight the gains the operators obtain from the IMS. Besides, we discuss what the user can expect from the IMS. In addition, we describe how existing services, such as GRPS, WAP, SMS, MMS, and video-telephony over circuits relate to the IMS.

Part II deals with the signaling plane of the IMS, which includes protocols, such as SIP (Session Initiation Protocol), SDP (Session Description Protocol), Diameter, IPsec, and

COPS (Common Open Policy Service). As we said earlier, we describe each protocol as it is used on the Internet and, then, as it is used in the IMS.

Part III describes the media plane of the IMS. We describe how to convert audio and video into a digital form and how to transport it using protocols, such as RTP (Real-Time Transport Protocol) and RTCP (RTP Control Protocol). Furthermore, we introduce Internet protocols such as DCCP (Datagram Congestion Control Protocol) and SRTP (Secure RTP) that are not currently used in the IMS, but might be in the future.

Finally, Part IV provides IMS service examples, such as presence, instant messaging, and Push-to-Talk. These examples illustrate how to build meaningful services using the technologies described in Parts II and III.

Essentially, this book is useful to a wide range of technical and business professionals because it provides a thorough overview of the IMS and its related technologies.