

Course ID

IMS

Course Duration

2 days

Course Title

IMS: The Technology, Applications, and Challenges

Related Courses

- Multimedia Applications: IMS, SIP, and VoIP (MULTIMEDIA, 2 days)
- Internetworking with TCP/IP Version 6 (IPV6, 2-3 days)
- IP-Based Systems: TCP/IP and Mobile IP (IPSYS, 2-3 days)
- VoIP: Protocols, Design, and Implementation (VOIP, 2-3 days)
- VoIP Security (VOIPSEC, 2 days)
- State-of-the-art of VoIP Technology for Professionals, Managers, and Executives (VOIP-EXEC, 1 day)
- Traffic Engineering Models for Network Design (TRAFFIC, 3 days)
- MPLS: Integrated Routing with End-to-End QoS for the Next Generation Networks (MPLS, 2-3 days)

Aimed At

Those responsible for telecommunications planning, design, engineering, deployment, business strategy, marketing, and services creation.

Group Size

5-25

Prerequisites

While there are no specific course prerequisites, the standard presentation of this course assumes a bachelor of science in Electrical Engineering, Mathematics, Physics, or a related subject along with an appropriate background in communications. However, the course presentation style can be modified to suit a less technical audience as needed.

Course in a Nutshell

Communications networks are rapidly evolving into policy-based, packet-oriented networks designed to provide a particular quality-of-services (QoS) for subscribers while reducing the costs associated with capital expansions, network operations, and management. If you are involved with telecommunications engineering, deployment, strategy, marketing, or services creation, it is critical that you understand the technology and business implications of IMS.

In this course, you will study IMS from all angles including the technology, status of wireless and wireline standards, key challenges posed by the technology, financial drivers for its adoption, deployment, and even security considerations. You will also study the issue of network policy and how the different levels and types of policies for QoS and admission control have important bearing on traffic engineering in the evolving networks. We will conclude with a look at the future of telecommunications networks, including a flat, all-IP infrastructure.

Customize It!

Let us know your reason for interest in this technology, so we can expand those portions of this course that are pertinent to your job. For instance:

- Are you *a network engineer* with a mobile or fixed wireless operator? Let us know the areas of interest to you – whether -- planning, growth, capital budgeting, or operations – so we can tailor the course accordingly.
- Are you *an RF engineer* who would like to “fill in the holes” in your knowledge of core networks? If so, we can present an overview of the state-of-the-art of core networks and how IMS fits into it.
- Are you *in marketing* and interested in value-added services? Let us know so we can focus on the types of new services that are enabled by IMS.
- Are you *a manager or executive* involved with technology strategy? *If so, we can* emphasize the economic impact of the technologies such as capital expenditure, meeting financial targets, parts of the network that may be candidates for cost savings versus those that may not be, and the economic issues posed by the potential technology migration options.

Learn How To

- Identify the market trends that are currently shaping the evolution of fixed and wireless networks.
- List the key technology considerations that impact the evolution of networks.
- Describe the major components of the IMS system and how they work together.
- Describe how the traffic engineering of the evolving networks will require an understanding of the underlying network policies.

Course Outline

- Introduction
 - Historical perspective of wireless and wireline network evolution
 - Advantages and disadvantages of legacy technologies
- IMS Basics
 - Key terminology
 - IMS layers, concepts, and elements
 - Definitions/functions per node
 - Policy overview
 - IMS in GSM, CDMA, fixed and WiMAX networks
 - IMS key market trends
 - SIP overview
 - MPLS/DiffServ and packet networks overview
- IMS: A Functional Study
 - P,I,S-CSCF
 - SBC

- BGCF
 - MGCF
 - SGW
 - MRF
 - PDF/PEF
 - SPDF/A-RACF
 - SCIM
 - HSS
 - SLF
 - Interfaces
 - Protocols
- IMS Applications
 - Overview of services
 - SCIM and composite services
 - Services policy
- System Functionality
 - Quality of Service (QoS)
 - Peering policy
 - Access policy
 - Applications policy
 - Network policy
 - Subscriber policy
 - Third party policy
- Call Flows
 - Mobile to land
 - Land to mobile
 - 2G mobile to 3G VoIP/IMS mobile
 - 3G VoIP/IMS mobile to 2G Mobile
 - 2G SMS to 3G/IMS SMS
- Current Standards Work and Challenges
 - IPv6
 - Legacy internetworking
 - Security
 - Privacy
 - RAN performance requirements
 - SCIM
 - Session based QoS
 - Non-SIP and legacy applications and admission control
 - Voice call continuity
 - IMS centralized services
- Wrap-up
 - Putting it all together
 - End game, economics, strategy, financial drivers

- Future of mobile networking
- Q/A and Evaluations

**How You Will
Learn**

- A seasoned telecommunications expert/instructor will present this course in interactive lecture format.
- Along with lecture, we use exercises, puzzles, case studies, and interesting group activities to enrich the instruction and drive home the essential points.
- If you already know something about the technology, we will build on that. We'll compare and contrast what's familiar with what's new, making new ideas easier to learn as well as more relevant.
- If your background is less technical, we will use meaningful and ingenious examples and analogies to simplify the complex subject matter.
- You will receive a printed Participant Handbook which will help you remember and retain what you learned in class and apply it on your job.

Revised

Feb. 24, 2007