

# IMS Core Architecture & Signalling Protocols



## Who Should Attend?

This is advanced signalling course intended for network engineers, network planning tuning staff, and anyone who needs to broaden his/her knowledge about IMS architecture, the role of SIP and Diameter in Multimedia over IP Systems.

## Course Scope

1. Introduction to IMS Concept & Architecture.
  - Introduction to IMS.
  - Network & Services Evolution brought by IMS.
  - Deployment outlook.
2. Technical Aspects of IMS.
  - IMS standardisation.
  - IMS architecture & functional elements.
  - IMS identities.
  - Charging aspects in IMS.
  - IMS interfaces & signalling protocols.
3. SIP Fundamentals.
  - SIP main architecture.
  - SIP components (servers and clients) and their functions: SIP user agents (AU client and server).
  - SIP servers: proxy (statefull and stateless), redirect, registrar.
  - SIP location servers.
  - SIP gateways.
  - SIP message structure.
  - SIP requests and response codes.
  - SIP supporting IETF protocols (SAP, SDP).
  - SIP sessions: session setup, proxying and redirecting requests, address resolution, media negotiation via SDP.
  - SIP security.
  - General SIP message flow examples.
4. Diameter Fundamentals.
  - Diameter architecture.
  - Diameter agents: Relay, Proxy, Redirection & Translation.
  - Diameter message structure.
  - Diameter peers and peers association.
  - Diameter user session.
  - Diameter accounting session concept.
5. Detailed discussion of selected Diameter applications.
  - Cx, Dx.
  - Dh, Sh.
6. Policy and Charging Architecture.
  - Introduction to content-based charging and policy enforcement.
  - Online and offline charging.

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- PCC architecture.
  - Roaming aspects in PCC enforcement.
  - Gx, Gxx, Rx, Gy Diameter Applications and Procedures.
7. IMS procedures over SIP & Diameter.
- Registration (initial registration, re-registration, deregistration).
  - IMS to IMS Call.
  - Non-IMS to IMS call.
  - IMS to non-IMS call.
8. Q&A, open discussion.

## Course Objectives

This technical, 4-day IMS training seminar provides the participants with a deep knowledge of IMS architecture and signalling protocols. It is recommended for technical staff with basic knowledge of wired and wireless telecommunication systems who need to deploy or maintain IMS network.

## Prerequisites

None, but basic knowledge about IP is recommended.

## Training Structure

Four-day training divided into logical sessions.

## Methodology

Instructor-led training, presentation, and discussion; signalling trace analysis.