IMS Core
Architecture & Signalling Protocols

Who Should Attend?

> This is an advanced signalling course intended for network engineers, network planning and tuning staff, and anyone with network experience who needs deep technical knowledge IMS Architecture & Signalling Protocols.

Course Scope

1. IMS Concept & Architecture introduction.
   - IMS introduction.
   - Network & services evolution brought by IMS.
   - Deployment outlook.
2. IMS, technical aspects.
   - IMS standardisation.
   - IMS architecture & functional elements.
   - IMS identities.
   - Charging aspects in IMS.
   - IMS interfaces & signalling protocols.
3. SIP Fundamentals.
   - SIP components (servers and clients) and their functions.
   - SIP servers: proxy (statefull and stateless), redirect, registrar.
   - SIP message structure.
   - SIP sessions: session setup, proxying and redirecting requests, address resolution.
   - SDP (Session Description Protocol).
   - General SIP message flow examples.
4. Diameter introduction.
   - Diameter architecture.
   - Diameter agents: Relay, Proxy, Redirection & Translation.
   - Diameter message structure.
   - Diameter peers, peers association.
   - Diameter user session.
   - Diamater accounting session concept.
5. Detailed discussion on selected Diameter applications.
   - Cx, Dx.
   - Dh, Sh.
6. Policy& Charging Architecture
   - Introduction to content-based charging and policy enforcement.
   - Online and offline charging
   - PCC architecture
   - Roaming aspects in PCC enforcement
   - Gx, Rx, Gy Diameter Applications & 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

4-day "IMS Core Architecture & Signalling Protocols" advanced course is focused on providing complete knowledge for those, who need to deploy or maintain IMS network.

Participants will learn first about IMS genesis and architecture, followed by detailed explanation of all key protocols used in IMS core network.

Policy & Charging architecture will be also separately discussed due to very high importance for IMS operation, especially in context of mobile-based IMS deployments.

As the main objective of the training is to provide as much as possible practical knowledge, it will be completed with session dedicated to holistic analysis of complete IMS procedures (registrations, calls) on all relevant interfaces with detailed analysis of signalling messages.

Pre-requisites
None.

Training Structure
Four days training divided into logical sessions. We recommend also one (or more)

Methodology
Instructor led training, presentation, discussion. Analysis of signalling traces.