

3GPP IMS EXPLAINED

COURSE OUTLINE



Course Details

Name: 3GPP IMS Explained

Target Audience

This training would benefit working Engineers/Associates from Core Network & Packet Core domain who would like to learn IMS and upgrade their knowledge

Course brief description

IMS Explained course covers technical aspects of how **IP Multimedia Core Network Subsystem (IMS)** is used for delivering IP multimedia services i.e. Voice Data rich services This course would cover comprehensive information of IMS architecture, interfaces, interworking, and call flows.

Training Objective

- Describe IMS Architecture ,Standards
- Discuss IMS IP-CAN and VoLTE
- Discuss IMS Core Essentials
- Describe Protocols, Registration, Call procedures a IMS networks
- Discuss MMTel AS and AS call management
- Discuss IMS charging Control Flows and trigger conditions

Duration of Training: 4 days

Max Number of Participants: 15

Prerequisite: GSM core network, VoIP, SIP, AAA Protocol

List of Modules

- Module 01: Introduction to IMS
- Module 02: IMS IP-CAN
- Module 03: IMS Core Essentials
- Module 04: Protocols in IMS
- Module 05: User Access, Authentication, Registration, Procedures in IMS
- Module 06: MMTel AS
- Module 07: IMS Call Control & Management
- Module 09: IMS charging control

Module List Detailed

Module 1: Introduction to IMS

Topics discussed in this module are listed below:

- What is IMS?
- IMS Drivers
- Voice Evolution – 3GPP Release (R97-R10)
- IMS System Architecture
- Logical Components of IMS Solution
- IMS access network – VoLTE, WiFi, xDSL
- IMS most deployed solution - VoLTE

Module 2. IMS IP-CAN-VoLTE Overview

Topics discussed in this module are listed below:

- VOLTE architecture Overview
- LTE/SAE/EPC Network Architecture
- Network nodes and roles of HSS,MME,S-GW,P-GW,PCRF
- Key Reference points: S1-C/U, S5/S8 S6, S10 and S11
- Home Subscriber Server (HSS)
- Policy and Charging Rule Function (PCRF)

Module 3: IMS Core Essentials

Topics discussed in this module are listed below:

- IMS Standardization: 3GPP, 3GPP2, TISPAN,OMA,IETF
- IMS Core Architecture
- IMS Layers - Access Layer, Transport Layer, Control Layer, Application Layer
- MS Numbering and addressing– IMS Identifiers – IMPI,IMPU,SIP URI,TEL URI,PSI
- IMS Interfaces and Protocols
- IMS Core Enablers – (P/I/S-CSCF)
- MMTel Server
- IMS – HSS and interfaces
- Role of DNS/ENUM in IMS
- IMS – PLMN/PSTN Interworking via MGCF & IM-MGW
- IMS Media Enablers MRFC/MRFP (Media Controller and processor)
- IMS Basic call Flow – MO/MT
- SBC in IMS (Session Border Controller) A-SBC,I-SBC
- IFC(Initial Filter criteria)

Module 4: Protocols in IMS

Topics discussed in this module are listed below:

- SIP and SDP
- DNS and ENUM
- Diameter
- H.248 (Megaco)
- RTP and RTCP

Module 5: User Access, Authentication, Registration Procedures in IMS

Topics discussed in this module are listed below:

- PDN connection for IMS APN
- Default EPS bearer setup(VoLTE)
- P-CSCF Discovery
- SIP Registration
- IMS registration procedures
- Overview of AKAv2-MD5
- IMS authentication

Module 6: MMTel (TAS Server)

Topics discussed in this module are listed below:

- Service architecture and role of AS (IM-AS,IM-SSF,OSA-SCS)
- MMTel /TAS Server
- Example supplementary services
- Role of RCS and MMTel
- IM –SSF – SMS Inetworking
- SMS Delivery flow in IMS – MO/MT
- PSI (Public Service Identifier)
- TAS – SRVCC Server
- SRVCC Concept – ATCF,ATGW

Module 7: IMS Call Control & Management

Topics discussed in this module are listed below:

- Voice call setup in IMS
- PCC Procedures
- Media Negotiations
- IMS to IMS ,IMS to PSTN /PLMN ,PLMN /PSTN to IMS
- Emergency calls in IMS

Module 8: IMS charging control

- Basic Concepts of IMS charging
- Charging Architecture ,network elements and interfaces
- Trigger Conditions
- Solution Examples
- Typical Flows