

VoLTE EXPLAINED

COURSE OUTLINE



Course Details

Name: 3GPP VoLTE Explained

Target Audience

This training would benefit Engineers/Associates from Core Network Domain who would like to learn VoLTE and upgrade their skills.

Course brief description

VoLTE Explained course covers technical aspects of how voice is harnessed in LTE Networks by leveraging the architecture of IMS .This course would cover comprehensive information of VoLTE architecture, interfaces, interworking, and call flows.

Training Objective

- Describe VoLTE concepts
- Discuss EPS Overview
- Describe IMS Core
- Describe Protocols, Access procedures and QoS in VoLTE networks
- Discuss MMTel and VoLTE call management

Duration of Training: 4 days

Max Number of Participants: 15

Prerequisite: Basic knowledge GSM, Data and Core Networks

List of Modules

- Module 01: Introduction to VoLTE
- Module 02: EPS Overview
- Module 03: IMS Core for VoLTE
- Module 04: Protocols in VoLTE
- Module 05: VoLTE Access Procedures
- Module 06: QoS in VoLTE
- Module 07: VoLTE Call Management
- Module 08: MMTel AS

Module List Detailed

Module 1: Introduction to VoLTE

Topics discussed in this module are listed below:

- What is VoLTE?
- VoLTE Drivers
- LTE voice evolution—all-IP network
- Voice Evolution – 3GPP Release (R97-R10)
- 3GPP Release 8 Network Architecture
- LTE Voice Solution Alternatives
- Overview of CSFB, VoLGA, SRVCC and Voice over IMS
- VoLTE System Architecture
- IP- CAN
- Logical Components of VoLTE Solution

Module 2 .EPS Overview

Topics discussed in this module are listed below:

- LTE/EPC Overview
- LTE/SAE/EPC Network Architecture
- Network nodes and roles of HSS,MME,S-GW,P-GW,PCRF
- EPS bearers – Default & Dedicated
- Basic EPS signalling procedures
- 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 for VoLTE

Topics discussed in this module are listed below:

- VoLTE Network Configuration with IMS
- 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 VoLTE

Topics discussed in this module are listed below:

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

Module 5: VoLTE Access Procedures

Topics discussed in this module are listed below:

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

Module 6: QoS in VoLTE

Topics discussed in this module are listed below:

- QoS in LTE-EPC
- PCC architecture
- PCRF, PCEF Interaction
- Interfaces: Gx, Rx Use case
- GBR and Non-GBR for services in IMS
- Standardized QCI for LTE

Module 7: MMTel AS

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
- SMS Interworking
- SMS Delivery flow in IMS – MO/MT
- PSI (Public Service Identifier)
- SRVCC

Module 8: VoLTE Call 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
- Emergency calls in IMS