

Certified IP Professional (CIPP) Track: Practical VoLTE/IMS Networking

Covers: RTSP, SIP, IMS, DIAMETER, ISIM, roaming, IMS services



Overview

With the widespread global deployment of 4G/LTE, many operators have now launched Voice over LTE (VoLTE) to bring new voice services natively to 4G/LTE networks. The deployment of VoLTE and the IP Multimedia Subsystem (IMS) platform provides an environment for the creation of rich voice & video services.

This hands-on program will provide the participant with a detailed understanding of the protocols and procedures used to deliver Voice and Video over 4G/LTE via the IMS, specifically focusing on the essential building blocks of Session Initiation Protocol (SIP) and DIAMETER.

You will be able to

- Describe the options for Voice in a 4G/LTE network
- Explain the rationale & importance of IMS
- Configure VoLTE/IMS client software
- Understand IMS architecture and operation
- Use a protocol analyser to monitor & understand VoLTE/IMS traffic flows
- Configure user settings in the HSS
- Identify QoS requirements for IMS
- Configure voice roaming
- Explain the voice security framework
- Understand IMS/PSTN interworking

Who can benefit

Technical managers, consultants, communications professionals, Access and Core system engineers, network planners for 3G/4G.

Pre requisite knowledge

It is essential that the participants have a good knowledge of the fundamentals of IP. The participant should have successfully completed the Certified IP Associate (CIPA) and Understanding LTE practical and theory assessment.

Outline

Introduction to VoLTE & IMS

- Use of IP in IMS
- Mobile evolution to IMS
- IMS service delivery model
- Delivering Voice in 4G networks
 - Circuit switched Fallback (CS-FB)
 - Voice over LTE via Generic Access (VoLGA)
 - Voice over LTE

Real-time traffic delivery

- Sampling, coding and codecs
- Real-time traffic requirements
- Real-time Protocol (RTP)
- Real-time Control Protocol (RTCP)

VoLTE/IMS System Architecture

- Architecture & interfaces
- Key components & functions

- Operation of the Call Session Control Function (CSCF)
- Role of the ISIM
- IMS application servers
- IMS security architecture
- The Home Subscriber System (HSS)
- Session Border Control
- Introduction to SIP**
 - SIP architecture
 - Standards for SIP and related protocols
 - SIP Addressing
- VoLTE/IMS Protocols & Procedures**
 - The SIP protocol
 - SIP Methods & Responses
 - Session Description Protocol (SDP)
 - SIP Extensions for IMS
 - DIAMETER Protocol & Applications
 - Operation of DIAMETER
- Policy and Charging Control**
 - Evolution of 3GPP Policy Control
 - Policy and Charging Control
 - QoS Policy
- VoLTE/IMS Applications**
 - Detailed VoLTE/IMS voice call signaling flows
 - Detailed CSFB voice call signaling flows
 - SMS and Instant messaging over LTE
 - VoLTE/IMS and Circuit Core/PSTN Interworking
 - VoLTE/IMS roaming architecture

Hands-on exercises, review questions & section summaries throughout

DURATION 4 days
MAXIMUM CLASS SIZE 12