

VoLTE WITH IMS FOCUS

Course Description

Mobile Operators are looking ahead towards future architecture, standards, technology and applications for the Core Networks.

Deploying LTE radio access technology, Voice over Long Term Evolution (VoLTE) which utilizes IMS technology is recognized as the industry-agreed progression of voice services.

The VoLTE scheme was devised as a result of operators seeking a standardized system for transferring traffic for voice over LTE.

VoLTE facilitates far richer multi-media voice services, increasing the service quality delivered to consumers.

The training “VoLTE with IMS Focus” is high-lighting coming technologies, systems and platforms. Already existing and implemented legacy systems will not be particularly focused on rather more briefly discussed and mentioned in order to be able to present the new technologies in a well-established and understood context.

The below listed topics will be discussed and analyzed as they emerge during the course of the training.

Content

3GPP & IETF

- Introduction
- Terminology
- 3GPP Releases



- 3GPP Standardization Timeline
- Internet standardization bodies
- What's an Internet standard?

EPS SYSTEM OVERVIEW

- WM-Map1: 3GPP System Overview
- Protocol Stack for EPS
- Bearers and Connections
- Location Area, Routing Area, Tracking Area
- Bearers and Connections
- Voice in LTE/EPS (options)
- WM-Map2: EPS Bearers and QoS

- Network Attach including Default Bearer Activation
- Bearer QoS Parameters
- Tunneling

UE

- Contexts, UE in idle mode
- General Cell Reselection Principles
- WM-Map3: UE in idle mode
- LTE capable UE
- E-UTRA Terminal Categories
- UE flowchart in the E-UTRAN
- Dual registration and ISR
- Coverage

Circuit Switched Fallback (CS Fallback)

- WM-Map4: CS Fallback
- CSFB Registration
- Location Update over SGs
- CS FALLBACK Scenario – MT Call
- Traffic cases
- The SGs interface and messages
- SMS over SGs vs IMS based
- Traffic cases SMS

SIP OVERVIEW

- Voice over IP connection
- Voice over IP using SIP
- SIP History
- SIP methods

- SIP extensions
- SIP – Response Codes, Definitions & Examples
- Example with SDP

IMS

- IMS Introduction
- Why IMS?
- WM-Map5: IMS Architecture
- Protocol stack in PGW
- PSTN Breakout
- Public and Private IMS Identities: IMPI & IMPU
- IMS Service Profile
- Traffic Case: IMS Invitation
- Protocol Stack IMS Profile for voice in EPS
- WM-Map6: IMS Profile for voice
- IMS Registration & De-registration
- B2BUA – Back to Back User Agent

POLICY AND CHARGING CONTROL, PCC

- WM-MAP7: PCC
- PCRF & PCEF
- The PCC Rule

ICS, ISC & SRVCC

- The diversity
- ISC & SRVCC
- Examples of ISC
- ICS (IMS Centralized Services)
- Single Radio Voice Call Continuity (SRVCC)

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- WM-Map9: SRVCC
- SRVCC EPS Attach
- SRVCC Registration & Invitation
- The Sv Interface
- Examples & Traffic cases
- Border functions

SECURITY

- Security in EPS
- Security using IMS AKA
- Security in IMS
- Key hierarchy
- The Key Derivation Function (KDF)
- Security Gateways

INTERWORKING

- Scenarios
- WM-Map10: Interworking
- Alternative Scenario (non-IMS specific)

Target audience

Target audience is core network engineers, project managers and network architects.

Pre-requisites

The participants should have a good understanding LTE-EPC.

Course length

3 days

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