MCNS
Mobile | Cloud | Network Services

MCNS Training Program

Voice over LTE (VoLTE)

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Voice over LTE (VoLTE) will offer to participants a deep understanding on VoLTE, IMS, signaling, CSFB, SRVCC, SIP signaling, MMTel server, VoLTE over 5G NSA, VoLTE and ENDC services, LTE RAN, LTE EPC Core.

COURSE REVIEW

This LTE(4G) course will introduce audience into **VoLTE** solution in a stepwise path. The ultimate need to transform the society into all IP services will make clear to audience the necessity for voice over IP solutions. Over the Top voice IP solutions are the fastest way to ofer IP voice services but **LTE VoLTE** offer superior quality fully configurable from operator point of view.

The participants will follow the **VoLTE technology** from **LTE RAN** to **EPC core** and **IMS platform**. The **E2E signaling analysis** for typical VoLTE functions including mobility will be covered in some details, **supported by trace log file exercises and analysis**. Finally a good introduction to **LTE planning** and optimizing for VoLTE is included together with a discussion for the VoLTE implementation over **5G NSA architectures**.

AIMED AT

Voice over LTE (VoLTE) is aimed at a technical audience as well as managers and non-technical personnel who want to get some insight overview into **LTE VoLTE technology.** It is suitable for technical professionals, **RAN operators**, **Radio planning engineers**, **Technical managers** who currently are or will be involved in VoLTE technology. Finally **students**, **researchers** and **technical consultants** into various other fields than mobile technology, will find this course valuable to fill the gap between **CS** domain and **PS** domain Voice implementations.

Prerequisites: In order for the attendant to better understand the content of this topic and to gain a further insight into VoLTE solution, a prior knowledge on **LTE network** as well as **LTE RAN signaling** and physical layer is recommended.

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Course Benefits for individuals (Professionals)

- Understand basic principles behind LTE VoLTE solution.
- Understand the VoLTE implementation on **RAN, EPC core** and IMS platform
- Get a good insight into **IMS platform**, signaling and services
- Learn how to plan LTE including **VoLTE services**
- Optimize LTE network for combined PS and VoLTE service provisioning
- Experience on **LTE VoLTE signaling analysis**
- Understand how to implement VoLTE over **NSA 5G networks**

Course Benefits for your Organization

- Equip organization engineers with the necessary knowledge of LTE VoLTE
- Develop technology solutions and roadmaps that are better aligned with the expected industry Voice over IP and LTE direction
- Take into account of latest technology VoLTE developments and initiatives, migrating from **LTE VoLTE** to **ENDC 5G NSA VoLTE**
- Keep ahead of competitors in preparing your network for LTE Volte services.
- Prepare for future network expansions and quality performance optimization

Training Format

Instructor-Led Training
On-Site Classroom: 3 days
Web delivered (Virtual): 3 days
Excellent and descriptive course material (pdf file) will be provided

Customer Tailored!

We can tailor the included topics, tech level, and duration of this course right to your team's technical requirements and needs

Section 1: LTE EPC introduction

Course Program Outline

Module 1: EPC Network Architecture

- LTE network architecture overview
- EPC architecture overview
- EPC node description
- LTE RAN to EPC network deployments

Module 2: Voice Service and requirements

- 3GPP standards description
- Voice service requirements
- Voice over the top (OTT) services
- Voice over LTE service description
- VoLTE vs. OTT pros and cons
- Simultaneous support for VoLTE and 4G Data
- CS domain fallback (CSFB) general description
- Voice over LTE architecture using IMS platform
- LTE Scenarios and Use Cases

Module 3: IMS platform

- IMS standardization
- IMS architecture
- IMS Node elements
- IMS service platforms
- IMS MMtel solution for voice traffic
- Introduction to IMS signaling

Section 2: VoLTE signaling

Course Program Outline

Module 4: IMS signaling

- IMS protocols
- IMS messages
- IMS SIP description
- IMS to MSS interconnection
- IMS to MSS signaling description
- IMS case studies analysis with signaling log files

Module 5: LTE RAN VolTE signaling

- LTE SIP accessibility
- LTE SIP analysis
- LTE VoLTE Attach procedure
- LTE VoLTE call setup procedure
- CSFB signaling procedure analysis
- SRVCC signaling procedure analysis
- Exercises using log file analysis

Module 6: VoLTE mobility

- VoLTE mobility in LTE
- VoLTE mobility parameters
- VoLTE mobility signaling flows
- VoLTE mobility best practice from operators
- SRVCC mobility
- CSFB mobility
- Exercisers with signaling log files

Section 3: VoLTE Design

Course Program Outline

Module 7: VoLTE planning

- LTE VoLTE planning principles
- VoLTE QoS in LTE
- VoLTE important RAN parameters
- VoLTE RAN optional features
- VoLTE important core and IMS parameters
- Cell coverage range vs. CSFB implementation
- VoLTE RAN Optimization
- VoLTE mobility optimization
- VoLTE statistics and KPIs
- Exercises using excel calculator

Module 8: VoLTE special planning

- VoLTE and LTE FWA
- VoLTE FWA special requirements
- VoLTE over satellite
- VoLTE over Li-Fi

Module 9: VoLTE implementation in 5G NSA

- 5G NSA architecture
- 5G NSA ENDC service overview
- 5G NSA with LTE MN MCG DRB
- VoLTE implementation in ENDC
- VoLTE parameters in NSA
- ENDC mobility with VoLTE
- Signaling trace log files analysis