VoLTE Troubleshooting Workshop

LTE_432x | Expert-Led Live | LTE and VoLTE | Expert
Course Duration: 3 days

This workshop focuses on End-to-End VoLTE troubleshooting techniques by examining specific failure examples throughout the VoLTE network encompassing IMS, EPC, and EUTRAN. The workshop provides practical experience in detecting, analyzing and resolving problems. The workshop emphasizes student participation via hands-on exercises allowing students to practice what they have learned. This workshop requires message traces of success and failure scenarios from the customer.

Intended Audience

This workshop is primarily intended for network performance and optimization engineers involved in monitoring and optimizing VoLTE operations in LTE networks.

Objectives

After completing this course, the student will be able to:

- Sketch a troubleshooting plan to tackle specific VoLTE failures,
- Demonstrate proficiency in VoLTE troubleshooting tasks
- Analyze VoLTE-related KPIs and identify issues in the network
- Use network traces and other resources to perform root-cause analysis of specific failures
- Analyze KPIs for VoLTE interworking scenarios and handovers
- Explain the QoS implementation for the VoLTE traffic plane
- Explain and analyze RTP and related traffic plane logs
- Analyze KPIs for VoLTE Lost Call Scenarios

Course Prerequisites

Exploring VoLTE: Architecture and Interfaces

Outline

1. VoLTE Troubleshooting Overview
1.1 VoLTE environment
1.2 Failure categories
1.3 Root causes of failures
1.4 Failure analysis
Exercise: Knowledge of tools/probes/protocol

2. VoLTE Call Setup Troubleshooting
2.1 Categorize call setup outcomes
2.2 Understanding prioritized cause codes
2.3 Review call setup statistics
2.4 VoLTE call failure signatures
2.5 Analyze the Top Ten failures
Exercise: Top Ten and EPS specific issues

3. VoLTE Drop Call Troubleshooting
3.1 Categorize call drops
3.2 Review VoLTE drop statistics
3.3 VoLTE drop signatures
Exercise: Call drop cause code chain

4. RTP-RTCP Timeout Drops
4.1 What is an RTP timeout?
Exercise: RTP timeout failure cases

5. Call Drops due to Mobility
5.1 Non-3GPP handover attempts
5.2 Intra-LTE handover failures
Exercise: VoLTE mobility failure cases

6. VoLTE Traffic Quality
6.1 Measuring quality: MOS, ACQ KPIs
6.2 RTCP Reports from UEs
6.3 Impact of high latency, jitter and packet loss
6.4 Components of the latency budget
Exercise: Quality KPIs
6.5 Understanding audio gaps
6.6 Review gap count and duration statistics
6.7 Analyze gaps in a specific call
Exercise: RTP flow information

7. Putting it all Together