



xSIGHT User VoLTE

(VVS0004)

Course Outline

xSIGHT User - VoLTE

This three-day course provides network engineers with theoretical training of the xSIGHT products combined with student activities which allow the attendee to explore the xSIGHT products at their own pace. The course has an emphasis on students gaining experience of the xSIGHT product whilst providing an end to end understanding of a typical VoLTE deployment, enhancing the learning experience. Broken down into eight sections the course covers the principles behind the xSIGHT portfolio, the VoLTE architecture and also provides analysis of the key procedural aspects, including initial registration and call establishment.

Section 1 - xSIGHT Product Familiarization

Duration: 1.5 hours

- Overview of the xSIGHT Portfolio
- Outline of xSIGHT network integration
- Navigation of the xSIGHT portal

Section 2 - Network Orientation

Duration: 2.5 hours

- Fundamental elements of the LTE EPS required to support VoLTE operation
- Utilization of PCC to provide service orientated session establishment information to the LTE network
- Breakdown of the IMS elements expected to be encountered in a typical VoLTE deployment
- Identify location of relevant xSIGHT “tap points” connected to the VoLTE network, the information which will be collected and made available to the xSIGHT products

Section 3 – VoLTE Foundation Technologies

Duration: 2.5 hours

- Using xSIGHT to acquire SIP signalling, flow of SIP through the network, key concepts of how SIP operates and typical failure scenarios encountered in the network
- Acquisition and exploration of general SIP messages, identifying which SIP methods are utilized in the network and where
- Understanding the composition of a typical Diameter message
- Key considerations related to the LTE bearer network
- Policy and Charging Control, with focus on Service Data Flow concepts and their relation to VoLTE
- Exploration of typical failure messages encountered in the network using KPI analysis
- Identifying hotspots in the network where failures are occurring

Section 4 - Registering for VoLTE Services

Duration: 3 hours

- IMS Identities, including IMPU, IMPI and PSIs
- Initial procedures for VoLTE Registration
- VoLTE Registration process, including P-CSCF resolution, S-CSCF allocation and a step by step registration procedure analysis
- Peripheral events associated with a typical VoLTE registration
- Using xSIGHT CEA Portal to discover common failure scenarios associated with registration
- KPI Analysis centric to registration success and failure
- Using xSIGHT Performance Explorer to identify underperforming network elements involved in the VoLTE registration

Section 5 - Making a VoLTE Call

Duration: 4 hours

- VoLTE considerations, including focus on codecs, RTP and SDP
- Understanding the high level VoLTE to VoLTE SIP signaling flow

- Step by step analysis of a VoLTE to VoLTE call procedure
- PCC considerations associated with establishing the Dedicated EPS Bearer
- Tracking resource establishment in the LTE bearer network
- Utilizing xSIGHT for VoLTE performance monitoring
- Investigating issues in the network and identifying underperforming network nodes (using the xSIGHT CEA Portal workflow)
- Call analysis using Session Trace

Section 6 - PSTN Interworking

Duration: 2 hours

- Key elements required for PSTN interworking
- MGCF, IM-MGW and BGCF functionality
- Breakout determination using DNS ENUM
- Overall understanding of the MO and MT call flows associated with VoLTE to PSTN interworking
- Emergency services
- KPI Analysis centric to PSTN breakout
- Using xSIGHT Performance Explorer to identify underperforming network elements involved in PSTN breakout procedures

Section 7 – ICS and SRVCC

Duration: 2 hour

- Key concepts associated with ICS and SRVCC
- IMS Centralized Services architecture and example call flows
- SRVCC architectural enhancements
- SRVCC and VoLTE Registration
- Media anchoring concepts
- Key steps associated with an SRVCC handover (Release 10 onwards)
- Using xSIGHT CEA Portal to determine SRVCC failure scenarios
- KPI Analysis centric to an SRVCC handover procedure

Section 8 - xSIGHT Session Trace

Duration: 0.5 hour

- Demonstration of how a Session Trace search is configured and executed
- Key stages associated with configuring a search in xSIGHT Session Trace
- Key techniques used in Session Trace in order to customize the displaying of results