Mobile Core Network

Architecture, Procedures & Signalling Protocols

Who Should Attend?

The course is intended for those who require in-depth knowledge of Mobile Core Network procedures.

Course Content

1. Mobile Network Architecture Evolution
2. Data Service procedures in mobile networks
    - Key procedures will be explained in details:
        - IMSI Attach/ Detach,
        - Routing update (inter/intra SGSN)
        - PDP Context Activation/Deactivation
        - PDP Context Modification
    - The following protocols will be explained in details:
        - DTAP SM/GMM
        - GTP & GTP
3. CS services.
    - Key procedures will be explained in details:
        - Location update
        - Mobile originating/terminating call
        - Supplementary Services registration/activation/deactivation
    - The following protocols will be explained in details:
        - DTAP MM & CC
4. SM Service
    - SM (Short Message) architecture will be explained as well as key procedures: SM submission, SM delivery, SM report
    - SMTP and SMRP protocols will be introduced and briefly explained.
5. Signalling protocols in Core Network
    - MAP, ISUP
    - BICC, MEGACO (optionally)
    - Transport & routing protocols (briefly)
        - MTP
        - SCCP & TCAP

6. CAMEL Architecture
    - Inteligent Network. Concept and Architecture.
    - CAMEL Phases
        - CAMEL phase 1: GSM network nodes, call forwarding, IN nodes – SSF/SSP, SCF/SCP, SDP; protocol overview, BCSM principles, cross PLMN boundary protocols.
        - CAMEL phase 2: full roaming, pre-paid charging, user interaction, SSIN, USSD, supported CAP operations, cross PLMN boundary protocols.
        - CAMEL Phase 3: new IN features, CAMEL inter-working with GPRS, MO SMS, mobility management and location services.
        - CAMEL Phase 4: Plans for the future…
    - Detailed discussion of CAP operations, parameters in each CAMEL phase.
    - Procedure examples.

Course Objectives

5-day Core Network Signalling advanced course focuses on the architecture and functions of the protocols used on the different interfaces in a core part of todays's mobile networks. Each of the protocols is illustrated with example traces captured in commercial networks. Practical issues related to testing and troubleshooting will be also discussed.

Pre-requisites

None.

Training Structure

Five days training divided into logical sessions.

Methodology

Instructor led training extended with illustration of real signalling traces.