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Signalling System No.7 in GSM

"Signalling System No.7 in GSM" course focuses on signalling between GSM Core Network nodes. The course also describes co-operation between Core Network and Base Station System during procedures like call set-up and location update.

Target audience

The course is intended for experienced network engineers, network tuning staff and anyone with network experience, who needs deep technical knowledge on functionality of GSM Core Network signalling.

Training contents

- **Introduction**
  (GSM architecture, GSM architecture for SMS, data and fax services, mobile intelligent network components, identity numbers, physical and logical channels, types of signalling, GSM protocol stack),

- **Traffic cases**
  (radio connection establishment, location updating, IMSI detach, mobile originating , call, mobile terminating call, handover, security procedures),

- **MTP – Message Transfer Part**
  (MTP level 1, MTP level 2, signal units, acknowledgement and retransmissions, alignment procedure, processor outage, flow control, MTP level 3, signalling point codes, routing, load sharing, signalling network management: signalling link changeover and changeback, forced rerouting, controlled rerouting, MTP restart, link inhibiting and uninhibiting, transfer prohibited/allowed/restricted/controlled, user part availability control, signalling link test),

- **ISUP - ISDN User Part**
  (message structure, call set-up, unsuccessful call set-up, normal call release, suspend/resume, propagation delay determination, echo control procedure, continuity-check, blocking/unblocking of circuits, reset of circuits, unreasonable messages),

- **SCCP - Signalling Connection Control Part**
  (point code, subsystem number and global title addressing, different types of global titles, global title translation, addressing examples for GSM procedures, SCCP classes, connection oriented and connection less mode, usage of connection oriented mode at BSC-MSC interface, management procedures),

- **BSSAP – Base Station System Application Part**
  (DTAP – Direct Transfer Application Part and handling of transparent messages, BSSMAP – BSS Management Application Part and handling of non-transparent and initial MS messages, TCH activation, handover and location update, relation between SCCP and BSSAP procedures),

- **TCAP – Transaction Capabilities Application Part**
  (dialogues, transactions and components, relation between TCAP and MAP/INAP/CAP procedures),

- **MAP – Mobile Application Part**
  (MAP versions, MAP protocol fallback, location update, MS purging, basic and subsequent handover, VLR and HLR restoration, MT call, supplementary services, USSD, SMS),

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- **Intelligent Network Overview**
  (differences between CAP – CAMEL Application Part and INAP – Intelligent Network Application Part, CAMEL subscription information, triggering of IN services, detection points, BCSM – Basic Call State Model, VPN call set-up),
- **SIGTRAN Overview**
  (protocol stack, SCTP – Stream Control Transmission Protocol overview).

Prerequisites

The participants should have attended "GSM Technology" course or should have the equivalent knowledge. Practical experience in GSM would be recommended.

Training method

Lectures and theoretical exercises.

Duration

3 days

Level

Advanced

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