COURSE DESCRIPTION
INTELLIGENT NETWORKS & CAMEL
The course was very insightful and the lessons learnt from the course will be very relevant to the telecoms industry.

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COURSE CONTENTS

SECTION 1 - SERVICES IN MODERN NETWORKS
- Modern Network Architecture – A Brief Overview
- Services and Features of Modern Networks
- Advanced Services and Applications
- IN Service Support in Fixed Networks - Entities
- SS7 In Modern Networks - Basics

SECTION 2 - INTELLIGENT NETWORKS
- Switching and Signalling In Modern Networks
- Call Control – ISUP (ISDN User Part)
- Example Basic Call Scenarios
- The Intelligent Network Concept Explained
- Benefits of Using the IN Concept
- IN Services
- Service Creation
- The IN Capability Sets
- The Standard IN Architecture and Functional Entities
- Basic Call State Models (BCSMs)
- The Intelligent Network Application Part (INAP)
- IN Operation - Basic Calls and Services
- Overview of the Underlying SS7 Network: INAP, TCAP, and SCCP
- Protection and Resilience
- Example Service Scenario

SECTION 3 - SS7 PROCEDURES IN SUPPORT OF IN
- Message Transfer Part of SS7
- SCCP in the Modern Network
- SCCP Architecture and IN
- TCAP Explained
- TCAP in Support of IN Procedures
- INAP - the IN Application Part of SS7
- IN Procedures and Signal Flows

SECTION 4 - IN IMPLEMENTATION
- Deployment Options
- Mapping Functional to Physical Entities
- Resilience and Redundancy
- Compatibility of Protocols
- SIGTRAN and IN
- Testing

SECTION 5 - 3GPP OPERATION
- The GSM / UMTS Architectures
- Defining Mobility and Roaming
- Procedures – Location Update, Routing a Call, Sending a Short Message
- GPRS – Its Role and Basic Operation

SECTION 6 - CAMEL – INTRODUCING IN INTO MOBILE NETWORKS
- IN Techniques In Mobile Networks – The problems
- Roaming Issues
- The Role of CAMEL
- The Features of each CAMEL Phase
- Example Services Provided by CAMEL
- Example Prepay Architecture

SECTION 7 - CAMEL – ARCHITECTURE AND PROTOCOLS
- The Modified Mobile Architecture - Incorporating CAMEL into GSM and UMTS
- The CAMEL Application Part (CAP) and Messages Explained
- CAMEL Operation, including:
  - Basic – Mobile Originated,
  - Mobile Terminated, Forwarding
  - With User Interaction
  - With GPRS
  - With SMS
  - With Location Information / Handovers
  - In Fraud Prevention
  - As a Prepay Feature
  - Interaction with the GSM Databases

SECTION 8 - CAMEL AND PREPAID
- Using CAMEL For Prepay Solutions
  - In The Home Network
  - Whilst Roaming
  - Circuit-Switched, GPRS, Short Message Service

SECTION 9 - THE EVOLVING MOBILE NETWORK
- The Role of CAMEL in the Evolving Mobile Network
- CAMEL in an Evolved Packet Core (EPC) / IP Core Network Environment
- CAMEL Phase 4 and the IMS / SIP Architecture
- PCC and CAMEL - Operation
- The Role of Diameter Signalling
- Advanced Network Signalling Scenarios
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