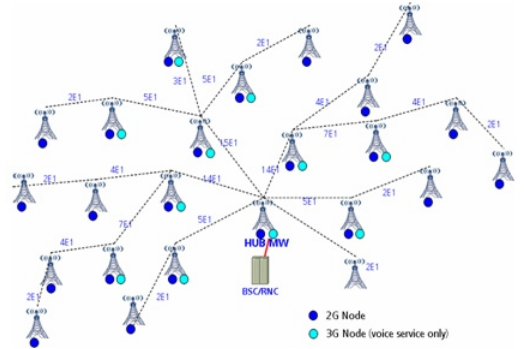


Telecom



Corporate Trainer's Profile

Corporate Trainers are having the experience of 4 to 12 years in development, working with TOP CMM level 5 companies (Project Leader /Project Manager) qualified from NIT/IIT/IIM and work exp in USA and UK.



CMM (Capability Maturity Model) level Project Standard:-

The Capability Maturity Model (CMM) is a method for evaluating the maturity of organizations on a scale of 1 to 5. Get the Opportunities to work on Client Projects Of US/UK, which follow the all standard of CMM level 5 Company.

Projects



NOKIA

SIEMENS
symbian

ALCATEL
spice

MOTOROLA

Course Name:SS7 Fundamentals- Signaling Switching Number 7 Training

Course Duration:2 Days

Deployment Option:Onsite Training

Course Price:\$1499.00

Who Should Attend:

This course is designed to provide a general overview for strategic or technical managers, consultants, communications professionals, software engineers, system engineers, network professionals, marketing and sales professional, information systems engineers, and other telecommunications/data communications professionals who plan on using, evaluating or working withSS7 and related products, applications and services.

Prerequisites:

This is an introductory course with no prerequisites.

Course Description:

The dramatic increase in Internet traffic is driving the need to standardize strategies for offloading data from the circuit-switched network and optimizing the performance of IP-centric next generation networks. The PSTN is expected to continue providing the vast majority of residential users with access to the Internet and other data services. SS7 Fundamentals provides a thorough introduction to Ss7.

Course Objectives:

Upon completion of this course, the participant will have a through understanding of:

- SS7 (Signaling System 7) Network
- SS7 Protocol Stack
- Signaling Network Elements: SSPs, STPs and SCPs
- Signaling Network Structures
- SS7 Signal Units
- Signaling Links
- Message Transfer Part (MTP) Level 1-3
- SCCP, TCAP and ISUP
- SS7 and VoIP
- SS7 in Next-Generation Networks
- SS7 Products and Related Equipment
- SS7 Enabling Products
- SS7 Vendors

Course Outline:

INTRODUCTION AND OVERVIEW:

Signaling Overview

- What is Signaling?

- What is Out-of-Band Signaling?
- Signaling Network Architecture
- Network Signaling Evolution
- The North American Signaling Architecture
- Signaling System No 7
- SS7, IN, AIN, Wireless, and VoIP
- Standards Organizations

SS7 EVOLUTION, ARCHITECTURE, and APPLICATIONS:

SS7 Network Architecture

- Signal Switching Points (SSPs)
- Signal Transfer Points (STPs)
- Signal Control Points (SCPs)
- Intelligent Peripherals (IPs)
- Service Nodes (SNs)
- Service Management and Creation

SS7 Signal Data Links

- Access Link (A)
- Bridge Link (B)
- Cross Link (C)
- Diagonal Link (D)
- Extended Link (E)
- Fully Associated Link (F)

SS7 Applications

- Advanced Intelligent Networks (AIN)
- Basic Call Setup Example
- Database Query Example
- Layers of the SS7 Protocol
- What Goes Over the Signaling Link?
- Addressing in the SS7 Network
- Signal Unit Structure
- What are the Functions of the Different Signaling Units?
- Message Signal Unit Structure
- Local Number Portability (LNP)
- SS7 and Database Connection
- Wireless Applications
- OSS Interconnection: E911/911, LIDB, OS/DA

SS7 PROTOCOL OVERVIEW SS7 Layers

- Physical Layer
- Message Transfer Part (MTP) - Level 2
- Message Transfer Part (MTP) - Level 3
- Signaling Connection Control Part (SCCP)
- ISDN User Part (ISUP)
- Transaction Capabilities Application Part (TCAP)
- Operations, Maintenance, and Administration Part (OMA&P)

Network Service Part (NSP) of SS7

- Message transfer part (MTP)
- Signaling data link level signaling link function level
- SS7 signaling units
- Signaling network function level
- Signaling information
- SS7 signaling message types
- SS7 network node identification
- SS7 network management message types
- Link and route management
- Traffic management
- Signaling connection control part (SCCP)
- Routing and discrimination
- Global title routing
- Subsystem management

User Part of SS7

- Transaction capabilities application part (TCAP)
- Operation, maintenance, and administration part (OMAP)
- Application services part (ASP)
- ISDN user part (ISUP)
- PRA and ISU

Message Transfer Part (MTP)

- MTP Levels 1, 2, and 3
- Message Routing
- MTP Level One
- Structure of MTP Level Two
- Basic Error Control Method
- CRC
- LSSU
- Signal Unit Alignment Procedure
- Structure of MTP Level Three
- Message Handling
- Normal routing Procedure
- Signaling Network Management
- Network Maintenance
- Network and Link Management

ISDN User Part (ISUP)

- ISUP Services
- Call Setup and Teardown
- Connection Control
- Messages and Formats
- Interworking with ISDN Q.931

Signaling Connection Control Part (SCCP)

- Enhancements to MTP Routing
- Flow Control

- Connection-Oriented and Connectionless Services
- Global Title Translation
- SCCP Management
- SCCP Management Structure
- Message Types
- Task of SCCP Messages
- Parameters of SCCP Messages
- The Principle of a SCCP Connection

Transaction Capabilities Application Part (TCAP)

- Component and Transaction Portions
- ASP Services
- TCAP Message Structure
- Connectionless TCAP
- TCAP Parameters

SS7 for Wireless and VoIP:

Wireless Market Summary

- Elements in a Mobile Network
- Mobile Switching Center (MSC)
- Base Station Controller (BSC)
- Base Transceiver Station (BTS)
- Home Location Register (HLR)
- Visitor Location Register (VLR)
- Short Message Service Center (SMSC) ANSI-41 and Mobile Application Part (MAP)
- GSM, CDMA and SS7

VoIP

- VoIP Call Control Protocol Overview
- SS7 Interworking with H.323, SIP, and Media Gateway Control (MEGACO)
- SS7 and IP Transport
- Stream Control Transmission Protocol (SCTP)
- SS7-IP Interworking

SS7 PRODUCTS:

SS7 Enabling Products

- SS7 Enabling Products
- SS7 STACKS
- Source Code
- Binary Stacks
- SS7 BOARDS
- SS7 PLATFORMS
- VoIP Gateways
- VoIP Policy Servers

SS7 Equipments

- Service Switching Points (SSP) And MSC
- SS7 Connectivity Software

- Signaling Transfer Points (STP)
- Service Control Points (SCP)/Adjunct Processors (AP)
- Intelligent Peripherals (IP)/Service Nodes (SN)
- Home Location Registers (HLR)/Visitor Location Registers (VLR)
- Short Message Service Centers (SMSC)
- VoIP Gateways

course description

The dramatic increase in Internet traffic is driving the need to standardize strategies for offloading data from the circuit-switched network and optimizing the performance of IP-centric next generation networks. The PSTN is expected to continue providing the vast majority of residential users with access to the Internet and other data services. SS7 Fundamentals provides a thorough introduction to SS7. Signaling System #7 Fundamentals training is the hands-down choice for engineers and network managers everywhere. It gives you a bedrock understanding of the signaling network, its architecture, and the protocols used to communicate through it.

Course objectives

Upon completion of this course, the participant will have a through understanding of:

- SS7 (Signaling System 7) Network Architecture
- SS7 Protocol Stack
- Signaling Network Elements: SSPs, STPs and SCPs
- Signaling Network Structures
- SS7 Signal Units
- Signaling Links
- SS7 ProtocolS
- Message Transfer Part (MTP) Level 1-3
- SCCP, TCAP and ISUP
- SS7 in Mobile Networks
- MAP, CAMEL and CAP
- SS7 in Next-Generation Networks
- SS7 and VoIP
- SS7 Enabling Products
- SS7 Troubleshooting, Configuration and Testing Scenarios

WHO SHOULD ATTEND

This course is designed to provide an overview of SS7 for communications professionals, software engineers, system engineers, networking professionals, marketing and sales professionals, information systems engineers, and other telecommunications/data communications individuals who plan on using or evaluating SS7 and related products, applications and services.

PREREQUISITES

This is an introductory course with no prerequisites.

Course Contents

What is Signalling?

- What is Signalling?
- What is the Purpose of Signalling

- Where does C7/SS7 Signalling Take Place? **SS7/C7 Network Elements**
- The Three Types of Signalling Point (SP) Explained
- Links and Linksets Explained
- The N.American SS7 Network Architecture Shown
- The UK C7 Network Architecture Shown

SS7/C7 Overview

- The C7/SS7 Protocol Stack compared with the OSI Model Shown
- C7/SS7 Functionality Overviewed
- Requirements of C7/SS7 Signalling
- Advantages of C7/SS7 Signalling
- Associated Mode
- Quasi-Associated Mode
- Who are the C7 and SS7 Protocol Standards Bodies? **Message Transfer Part 1 (MTP 1)**
- MTP1 Overviewed

Message Transfer Part 2 (MTP 2)

- MTP 2 Overviewed
- Signal Units and the Three Types Explained
- SU Layers of Operation Shown
- MTP 2 Overhead Shown
- SU Delimitation Described
- SU Error Detection/Correction Explained
- Basic Error Correction Method Shown
- Link Error Monitoring Described
- Link Initial Alignment Shown **Message Transfer Part 3 (MTP 3)**
- Functions of MTP 3 Described?
- MTP 3 Overhead Shown
- Signalling Information Field (SIF) for MTP 3 MSUs Shown
- Contents of Service Information Octet (SIO) Explained
- Service Information Octet (SIO)- SubService Field (SSF) Shown
- Service Information Octet (SIO)- Service Indicator (SI) Shown
- The ITU Routing Label Described and Shown
- The ANSI Routing Label Described and Shown
- The UK Routing Label Described and Shown
- International/National SS7/C7 Networks Hierarchy Explained
- Relationship between L1, L2 and L3 Shown
- Signalling Network Management (SNM) Overviewed
- Signalling Message Handling (SMH) Overviewed
- MTP Summarised

Fixed Line User Parts

- User Parts Described
- TUP Overviewed
- NUP/IUP Explained
- Two NUP Call Sequences Shown
- N-ISDN User Part (N-ISUP) Overviewed

- Signalling Information Field (SIF) for N-ISUP MSU Shown
- N-ISUP Evolution Explained
- N-ISUP Variants Discussed
- N-ISUP Message Groups Shown
- Five N-ISUP Messages Explained/Shown
- Two Call Sequences Shown
- Supplementary Services Described **Signalling Connection Control Part (SCCP)**
- Signalling Connection Control Part Overviewed
- Two Categories of Service and Four Protocol Classes Decribed
- Connection Orientated Procedures - Example
- Connectionless Procedure - Example

Intelligent Networks (INs)

- Intelligent Networks (INs) Described
- IN Standards Described **Transaction Capabilities Application Part (TCAP)**
- Transaction Capabilities Application Part (TCAP) Overviewed
- TCAP Definitions Detailed
- Components/Transactions Described
- The Transaction Capabilities (TC) Described

Wireless User Parts

- MAP Described
- BSSAP Described
- BSSMAP Described
- DTAP Described **C7/SS7 Protocol Standards and Recommendations**
- C7 Protocol Standards - Europe/Britain Detailed
- SS7 Protocol Standards - Europe/N.America Detaile

Appendices

- Appendix A - SS7/C7 Standards
- Appendix B - Further Reading