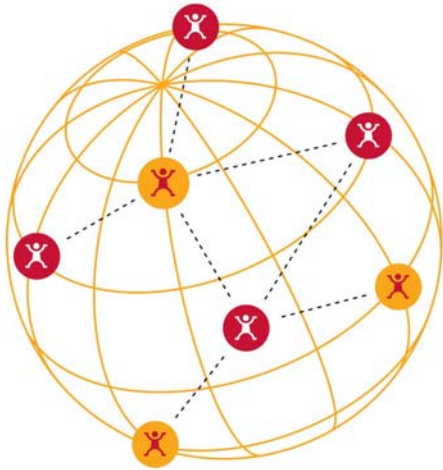


TRAINING PROGRAM OUTLINE



INTERNATIONAL IP INTERCONNECTION – TECHNICAL ASPECTS

Based on the work of the i³ Forum

DESCRIPTION

A 3-day Training Program to provide participants with an understanding of the i³ Forum's technical implementation specifications regarding the provision of international IP interconnection (i³) that will ensure trusted, secure and Quality of Service (QoS) compliant interconnection for voice services (including ISDN, fax and modem connections).

OBJECTIVES

- To explain the network architecture and relevant interconnection models as proposed by the i³ Forum that are capable of supporting the implementation of trusted, secure and QoS compliant VoIP interconnection between international carriers
- To provide and explain the specifications for international IP interconnection with respect to:
 - Transport models/IP protocols and capabilities
 - Signalling protocols
 - Media codec schemes



- QoS levels with measurements and performance needs
- E.164 addressing schemes
- Security issues
- Accounting and charging issues

TOPICS

- Introduction
 - The changing environment in international voice interconnection
 - Overview of the i³ Forum and its work
- General reference architecture for international voice IP interconnection
 - Service reference configuration
 - Introduction to transport reference configuration
- Network interconnection models
 - Direct private-oriented interconnection
 - Indirect public-oriented interconnection
 - Comparison of interconnection types
- Transport functions
 - Transport functions for private-oriented interconnections
 - Transport functions for public-oriented interconnections
 - Physical interface interconnection alternatives
 - Dimensioning requirements at the transport layer
 - IP routing and IP addressing
 - IP packet marking
 - Traffic treatment, Per Hop Behavior (PHB) type
- Signalling functions
 - Support for Session Initiation Protocol (SIP) – transport, recommended profile, message and header support
 - Support for Session Initiation Protocol with encapsulated ISUP (SIP-I) – transport, recommended profile, ISDN supplementary services
 - ISUP mapping to SIP or SIP-I



- Support for Sigtran
- Media function requirements in international VoIP interconnections
 - Voice call requirements
 - Real-time Transport Protocol (RTP) and Real-time Transport Control Protocol (RTCP)
 - Codecs supported in international voice interconnection
 - Fax connections
 - Modem connections
 - ISDN support
 - Codec/packetisation period use and transcoding guidelines
 - Voice quality estimation
 - General guidelines for codec choice and transcoding
- Handling of early media
- Security issues and border functions
 - Required capabilities of border functions
 - VoIP threats
- QoS parameters
 - Recommended border functions approach – pros and cons
 - QoS parameter definitions
 - End-to-end Key Performance Indicators (KPIs)
 - Recommended measurement segments
 - KPI points of measurement
- Numbering and addressing scheme (E.164-based)
 - International interconnection numbering and addressing
 - Telephone Uniform Resource Identifier (TEL URI) addressing scheme
 - SIP URI addressing scheme
- Accounting and charging capabilities
 - Call Detail Record (CDR) format required to account and charge for calls



TARGET AUDIENCE

Technical managers and personnel looking to gain a thorough understanding of the technical objectives and recommendations of the i³ Forum on international IP interconnection.

METHODOLOGY

Neotelis Training Programs combine expert presentations, workshops, case studies, hands-on activities and discussions on real-life situations faced by participants. Complete training material is provided to all participants for future reference and follow-up action plans.

LOCATION

Our Training Programs are held at regular intervals in selected cities around the world. Upon request, our expert trainers can lead Training Programs at the location of your choice. If interested, please contact us at training@neotelis.com.

EXPERTISE

Neotelis provides consulting and training services to organizations worldwide. Its team of experts has trained thousands of individuals in technical, managerial and executive roles, who are working for operators, regulators, policy-makers, governments and private sector corporations in over 100 countries around the world.



The i³ Forum brings together the communications expertise of more than 37 telecommunications providers, representing a combined retail base of over 1.5 billion customers across more than 100 countries. The goal of the i³ Forum is to develop collaborative recommendations for an industry-wide transition of voice and related services to Internet Protocol (IP). The forum's unified effort to expedite global IP-based voice implementation support widespread access to innovative and high quality IP-based services and applications.

