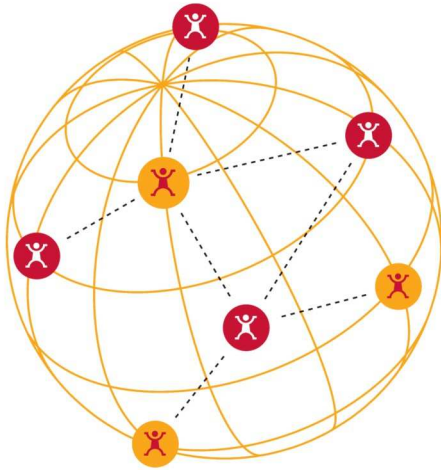


TRAINING PROGRAM OUTLINE



ENG-408E VOIP FUNDAMENTALS

DESCRIPTION

A 2-day Training Program to provide participants with the fundamental knowledge required to understand how real-time traffic, namely voice, is carried over a data network. This Training Program explores the challenges required to accomplish this task, as well as the architecture considerations and protocols that help make it happen. A number of existing tools are also presented to get the participant started with setting-up Voice over Internet Protocol (VoIP).

Through demonstrations, the participant will gain a better appreciation of the underlying concepts behind VoIP.

PREREQUISITE

To fully appreciate the contents of this Training Program, the participant should have attended the following Training Program or have acquired the equivalent experience in the subject matter:

- ENG-401E Introduction to Data Networks & TCP/IP



OBJECTIVES

- Describe the basics of telephony and data networking
- Identify the compelling reasons to integrate voice and data, as well as the new applications that it presents
- Provide an assessment of the challenges faced when introducing voice, or any other real-time traffic, into a data network
- Explain how voice, and other real-time traffic, is carried over a data network
- Define the different protocols used to signal VoIP calls and when to use each one
- List the important elements that must not be overlooked when planning a VoIP implementation
- Present methods to put together a business case for a particular setting
- Present several Internet-based VoIP networks, VoIP platforms for corporate or home use, as well as VoIP clients

TOPICS

- Telephony basics, data networking basics and the appeal of integration
 - Telephony basics
 - Data networking basics
 - What is the appeal of integration? What novelty does it provide?
- Challenges of carrying voice over a network built to carry data
 - What are the challenges?
 - Internetworking
 - Maintaining voice quality: techniques for dealing with echo, delay and, something new, delay variation (jitter)
 - Privacy



- Voice transport over a data network
 - Real-time Transport Protocol (RTP) and Real-time Transport Control Protocol (RTCP)
 - Secure RTP (SRTP)
 - ZRTP

- Voice call signalling within a data network, between a data network and the Public Switched Telephone Network (PSTN), and from the PSTN to the PSTN through a data network
 - H.323
 - Session Initiation Protocol (SIP)
 - Media Gateway Control Protocol (MGCP)/Media gateway control (Megaco)

- Implementation considerations: Is VoIP always the way to go?
 - Assessing your particular setting: Where are you now in terms of voice and data networks?
 - Where are you looking to get to? What needs to be put in place?
 - Important elements to not forget about
 - Building the business case for your particular setting

- Existing freeware VoIP tools
 - Internet-based VoIP networks, such as Skype, Gizmo5 (formerly Gizmo Project) and Google Talk
 - VoIP platforms, such as Asterisk, Trixbox, SIP Express Router (SER), 3CX and Ekiga (formerly known as GnomeMeeting)
 - VoIP clients, such as X-Lite, SJphone, Zfone and Express Talk

TARGET AUDIENCE

- Technical personnel in engineering or operations interested in or needing to understand VoIP architecture and protocols
- Technical managers or others looking to complement their skill-set by gaining a better understanding of VoIP fundamentals



METHODOLOGY

Our 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 neotelis.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.

