



## Session Initiation Protocol

### PROGRAM OVERVIEW

As more and more businesses converge their voice and data networks, they will use VoIP as their voice integration technology. The emerging standard for VoIP and unified communication applications is the Session Initiation Protocol (SIP).

This course examines SIP and its associated protocols (SDP, RTP) in depth. We will explore the positioning of SIP in the VoIP and Unified Communications (UC) world. The program exposes participants not only to the frame content and simple call flows but also to actual trace files for successful and unsuccessful call scenarios. It explores the details of SIP messaging and architectures, as well as implementation issues.

This course is recommended for the technically-oriented audience looking for the details of a SIP VoIP implementation, including designing SIP systems. It is also recommended for network professionals responsible for detailed troubleshooting.

The program has six primary objectives.

- Explain where SIP fits into the Internet protocol suite
- Identify the major components of a SIP request or response
- List the messages used in normal calls
- Identify the components of the Session Description Protocol (SDP)
- Discuss SIP and security
- Relate the deployment of a SIP system to DHCP, NAT, and firewalls

Hill Associates can customize this program to address your specific Sales Engineering talent development program goals. We will work with you to identify the specific technologies and solutions you wish to discuss, to understand your particular competitive market, and develop case studies that focus on unique challenges facing your customers.

### About Hill Associates, Inc.

At Hill Associates, we excel at creating custom talent development programs. Our experts help identify and assess your needs, and create training and educational programs that exactly meet those needs. Though we specialize in information technology, we've strengthened companies and organizations in a wide range of industries for over 25 years. Let us help you create a world-class talent development program that moves your business forward.

### PROGRAM OUTLINE

#### Lesson 1: Introduction to Telephony

- Review the concepts of PSTN architecture, signaling systems, traffic engineering, digital voice encoding, and converged systems

#### Lesson 2: Packet Voice

- Explore the concepts of line efficiencies, toll bypass, voice over IP standards, and architectures
- Discuss impairments in a packet voice system (e.g., jitter, echo, latency)

#### Lesson 3: Introducing SIP

- Explore the architecture, RFCs, call flow, networking issues, proxy, and directory server functions of SIP

#### Lesson 4: SIP Messages

- Explain the details of SIP message structure, including types, references, content, call flow, and exceptions

#### Lesson 5: Session Description Protocol

- Explain the details of SDP message structure fields, syntax, and call scenarios

#### Lesson 6: Media Transport with SIP

- Examine Real-Time Transport Protocol (RTP) encapsulation, payloads, and control protocol details

#### Lesson 7: Media Traces

- Explore protocol traces (normal, answer busy, out-of-service) and VoIP troubleshooting scenarios (normal, gateway, proxy, and timing)