

VOICE OVER IP (VOIP) CONCEPTS AND PROTOCOLS

This course is a comprehensive overview of the technical, business and marketing aspects of VoIP. This class is an ideal introduction to VoIP for buyers, sellers and implementers and also provides a technical crash course on the protocols and internal operation of Voice over IP.

Audience:

Anyone buying, selling or implementing VoIP.

Prerequisites:

Basic knowledge of IP network and phone operations.

Objectives:

At the conclusion of this course the student will be able to:

- Explain the reasons to use VoIP
- Explain the technical and service-related shortcomings of VoIP relative to traditional telephone service
- Describe new features enabled by VoIP
- Explain the technical and configuration options of VoIP
- Describe the operation of the key protocols used in VoIP-based systems

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COURSE OUTLINE

Day 1: Concepts

1. What is VoIP? (Part 1)

- Technical Definition
- Market Definitions
- User Definitions

2. VoIP: The Opportunity

- Residential
- Enterprise

3. Why Customers are Buying VoIP

- Residential
- Business

4. VoIP's Shortcomings

- Technical
- Business
- Expectation Issues

5. VoIP Success

- Drivers
- Enablers
- Speed Bumps
- Show Stoppers

6. VoIP Devices and Systems

- Premises/User Devices
- Network Devices

7. What is VoIP (Part 2)

- Comparison with Traditional Telephony
- Strategic and Tactical Uses
- New Technologies and Applications

8. VoIP Implementation Models

- PC-PC
- PC-PSTN
- PSTN-PC
- PSTN-PSTN

9. VoIP Legal & Regulatory Highlights

- FCC
- CALEA
- USF
- 9-1-1

10. Implementing VoIP

- Do-It-Yourself
- VoIP Services
- Planning and User Satisfaction
- Configuration Options and Trade-Offs

Day 1 Review

Day 2: Protocols

11. VoIP Considerations

- VoIP and Broadband
- Analog Voice over Digital Networks
- Premises Wiring
- VoIP/Digital Voice over Cable
- VoIP over WiFi

12. Primary VoIP Protocols

- H.323
- SIP
- CSCCP (Cisco Skinny)
- MGCP
- MEGACO/H.248
- TGCP

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13. Supporting Protocols

- IP
- UDP
- TCP
- RTP/RTCP
- SIP In Depth
- SIP Call Trace
- A Brief Discussion of QoS
- Service Differentiation

14. Quality of Experience (QoE)

- QoE vs QoS
- The Human Factor
- QoE Focused VoIP Implementation
- QoE, QoS and SLAs

Day 2 Review