Voice and Video over IP (VoIP) Overview

Quad Play (Voice, Video, Data, and Wireless) is the name for the latest evolution in the communications industry. Since more people will be responsible for operating, maintaining and working with IP-centric networks, this course provides the essential knowledge on Voice and Video services using IP (VVoIP) in modern communications networks. We begin the course with a look at the motivation for change and the network architectures of today and tomorrow. We move on to provide an end-to-end view of the call setups that establish VVoIP networks, followed by a look at IPTV, and a high-level examination of the underlying protocols and technologies used in the devices, the edge (access) networks, and the core networks that provide appropriate Quality of Service (QoS). The course offers exercises designed to reinforce key objectives and make participant comfortable with the concepts.

Learning Objectives

After completing this course the student will be able to:
• Describe the motivation behind VVoIP
• Provide an overview of VVoIP
• Explain how VVoIP calls are set up
• Introduce IPTV
• Describe how Quality of Service (QoS) can be implemented
• Illustrate video traffic operations
• Explain the interworking of VVoIP networks with other types of networks
• Discuss VVoIP deployments

Intended Audience

This course is intended for those seeking a high-level but comprehensive understanding of VVoIP in both its voice and video renditions. The intended audience includes those in sales, marketing, product and strategic planning, product documentation, product management, system design and integration, and application verification and deployments. The course is also good preparation for more advanced courses in the underlying subjects.

Course Length

3 hours of eLearning

Course Outlines / Knowledge Knuggets

1. Introduction
1.1. Motivation for VVoIP
1.2. Characteristics of VVoIP
1.3. Network architecture
1.3.1. Today --> Tomorrow
1.3.2. PSTN --> Managed packets
1.4. Key requirements
1.5. Challenges of VVoIP and convergence

2. Setting up a Call
2.1. Architecture of a SIP network
2.2. Voice over IP call flow
2.2.1. Authentication
2.2.2. QoS negotiation
2.2.3. Monitoring traffic flow
2.3. Video over IP call flow
2.4. SIP and SDP basics
2.5. Comparison of SIP and H.323

3. IPTV
3.1. The changing TV service model
3.2. IPTV networks and protocols

4. QoS Requirements and Solutions
4.1. QoS challenges
4.2. Possible solutions

5. Traffic Operations
5.1. Device traffic operations
5.2. Media encoding
5.3. Media transport

6. Interworking with Other Networks
6.1. Architecture and media gateways
6.2. SIGTRAN and SCTP
6.3. End-to-end call set up with the PSTN

7. Deployment Considerations
7.1. Dimensioning
7.2. Key performance indicators
7.3. Security

8. Summary

Put it all Together
Assess the knowledge of the participant based on the objectives of the course