Hands-On

IPTV Intermedate

from a Technicians Prospective

Course Description

This 3-day Intermediate course provides in-depth details for modern television broadcast systems and infrastructures, with particular focus given to the delivery of TV over the Internet. This will encompass both IPTV and Video on Demand (VoD).

The course is designed to give students practical and real-world experience to this technology, equipment and network architectures that are being utilized to deploy these services. The course also provides an incredible comparison to other broadcast technologies and markets today.

Students Will Learn

- **Understand the Equipment and Software used to Deliver IPTV and VoD Services**
- **Describe the Architecture of these Modern TV Services**
- **Compare Cable, Over-Air Terrestrial, Satellite and Internet Delivery Systems**
- **Appreciate the Trend in the Technologies**
- **And much more...**

Target Audience

Contractors, union craftsman, electricians, technicians, installers, engineers, MIS managers, facilities managers, architects and developers, systems engineers, telecom managers and anyone involved in the design, implementation, support, installing, maintaining, evaluating, troubleshooting and or repairing IPTV Systems.

Prerequisites

A basic understanding of Telecommunications, IPTV Networks and Internetworking Applications or equivalent knowledge of. This information can be obtained in our courses below

TeleCom Networks Today I
Basic Telephony & Telecom Electronics
Understanding IPTV The Triple Play for Telcos Today

Course Outline

Module 1: Television Architecture and Evolution

Introduction to Cable Broadcasting
The Signals
Analog Television
Digitally-Compressed Television
Digital Modulation: MPEG Hierarchy, MPEG1, MPEG2
Digital Video Broadcasting
Cable Networking Protocols
Over-the-air broadcasting

Module 2: Next Generation IP Network Technology

Internet Protocol (IP) Delivery
Internet delivery options QoS
IP Delivery mechanisms
Unicast vs Multicast
Multicasting Addressing and Protocol Issues
PIM and IGMP
Quality of Service Issues
MPLS
Triple/Quadruple Play Networks
21st Century Network Implications - Mobility
Internet TV Portal

Module 3: IPTV Network Architecture

Applications and their service needs
TV Program Distribution
Components of IPTV Service Network
Video Head End (HVE), Video Hub Office (VHO) , Video Serving Office (VSO)
Studio to distributor delivery
Streamers
Routers and Switches
Distribution Networks
Core Networks
Access Networks: Wired vs Wireless

DSL Technology: ADSL, VDSL
Fiber Loops
Satellite Access
WiMAX
Set-top Boxes
Media Player Applications
Video-on-demand
Integration with Telephones and Internet Access: Triple Play
End-to-End Performance
Upstream Issues

Module 4: IPTV Delivery Systems

IPTV Delivery
- From head-end to viewer
- Set-top Box Issues
- Next Generation Media Players
IPTV Service Features
Signaling - SIP
Encoders: MPEG-2, MPEG-4, DVB-T, DVB-H

Module 5: The Customer Interface: Set-top Boxes

Analog Video Reception
Digital Video Reception
Consumer Electronics Interface
Equipment Compatibility
Networking Interfaces

Module 6: Transmission for Next Generation Digital Systems

Point to Point Microwave Signal Transportation
Microwave Digital Distribution Systems
Fiber Optic Transmission
Passive Optical Fiber (PON)
Wavelength Division Multiplexing: CWDM and DWDM
Digital Fiber Architectures: SONET/SDH
WiMAX IEEE 802.16e

Module 7: Security: Protected and Conditional Access

Protected Broadcast Driver Architecture
Asymmetric Public Keys
Symmetric Keys
Revocation
Windows Media Digital Rights Management
Watermarking

Module 8: Industry Trends

Transmission innovations
HDTV and Improved Quality
Mobility

Delivery Method

Instructor led with numerous Case Studies and Hands-On exercises.

Equipment Requirements

(This apply's to our hands-on courses only)

BTS always provides equipment to have a very successful Hands-On course. BTS also encourages all attendees to bring their own equipment to the course. This will provide attendees the opportunity to incorporate their own gear into the labs and gain valuable training using their specific equipment.

Course Length

3 Days