

Taught by TVMentors IPTV expert, Gerard O'Driscoll; this course walks you through how to plan, design, maintain, and upkeep IPTV and Internet TV systems. It provides telecom professionals with a complete foundation of knowledge for entering into or advancing in the IPTV networking industry. This boot camp provides a comprehensive understanding of IPTV technologies and services. It is a combination of lecture, interactive demonstrations, and extensive hands-on lab exercises. The class size for the course is limited to 12 attendees, so that each attendee can be sure to receive the attention necessary to understand the course content.



Course Schedule

Please visit www.tvmentors.com for dates at locations convenient to you.

Attendee Requirements

Knowledge of digital TV and telecommunications is helpful but not required.

Who Should Attend?

This technical training course was developed for networking, digital TV, and telecommunications professionals planning on or currently working with IPTV. In particular the course is particularly relevant to attendees from the following sectors:

Cable Operators	Telecommunication companies
Satellite Providers	IPTV System Integrators
Content Providers	Internet providers of IPTV
Semi-conductor	services
Manufacturers	Mobile and Wireless Companies

Course Materials

All attendees will be provided with the following:

- Training handbook with extensive coverage of topics discussed in the class.
- A Certificate of Completion
- A complimentary copy of Gerard O'Driscoll's latest book 'Next Generation IPTV Services and Technologies'.

Experienced Instructor

Gerard O'Driscoll is an accomplished international telecommunications expert and globally renowned authority on emerging technologies. Over the past 15 years Gerard has served in a variety of management, technical and commercial positions. He has worked across the full spectrum of technology equipment and services, including broadband, digital TV headend systems, IP networks, home networking, and enterprise IT systems.



O'Driscoll is a frequent commentator on industry events and trends in the cable and digital home industry sectors and has been quoted in a number of premier business publications, including CED Magazine, EETimes, and others. O'Driscoll has presented papers at a handful of conferences including the Marcus Evans European Digital Home conference and Xilinx's Home Networking Industry Forum.

Gerard has authored several market research reports including: IPTV & Whole Home Media Networking (WHMN) Market Analysis, 2006-2010. Gerard's other professional experience includes the authoring of four best-selling books: The Essential Guide to Digital Set-top Boxes and Interactive TV, The Essential Guide to Home Networking Technologies, CompTIA's Home Technology Integrator (HTI+) curriculum and Wileys 'Next Generation IPTV Services and Technologies' publication.

How to Register?


Please visit www.tvmentors.com to view the latest course schedule and to register for the course.

Learning Objectives

DAY 1	DAY 2	DAY 3	DAY 4
<ul style="list-style-type: none"> Describe the various next generation networking technologies used to deliver IPTV. Understand the technical differences between Internet TV and IPTV. Describe core IPTV network technologies Define important considerations when designing or upgrading a network to support IPTV. Explain compression goals and characteristics. Describe the technical architecture of the MPEG-2, H.264/AVC, and VC-1 compression standards. Explain the various layers of the IPTV communications model (IPTVCM). Understand how each layer processes IPTV packets and video frames. 	<ul style="list-style-type: none"> Describe the various components that are used to build a complete end-to-end IPTV solution. List the pros and cons of using multicasting Describe the various IPTV Multicasting Protocols used by modern day IPTV & Internet TV systems. Explain the routing protocols used by IPTV & Internet TV systems. List the key functionalities (i.e. congestion management and enforcement of QoS) of a residential gateway. Describe residential gateway industry initiatives. Specify an IP set-top box to meet your IPTV & Internet requirements. Describe the technical architecture of the various types of IP set-top boxes. 	<ul style="list-style-type: none"> Explain the functionality of the various layers used by the architecture of an IPTVCD interactive TV system. Define IPTV middleware initiatives. Explain the operation of hardware & software centric IPTV conditional systems. Understand the DRM content protection ecosystem Specify a DRM Software and Hardware system. Explain analog and digital copy protection technologies used by IPTVCD interfaces. Deploy Whole Home Media Networking (WHMN) applications. Describe the technical features of the various types of WHMN enabling technologies. Explain the two main types of software used by WHMN applications. Implement IEEE 802.1Q over a home network. 	<ul style="list-style-type: none"> Describe the various types of VoD, which may be deployed across an IP network. Implement an IP-VoD technical architecture. Explain the various protocols used by IP-VoD systems. Deploy a VLAN to facilitate the integration of IPTV services across an IP network. List the challenges of introducing HDTV as a product offering. Understand the requirements for HDTV inside the digital home. Describe the technical architecture of popular Interactive IPTV applications. Describe the importance of QoS and QoE systems. Describe the factors that affect the delivery of IPTV services. Setup a QoS and QoE monitoring program.

❖ Example MPEG-4 Compression

- A farmer herding cattle.
- The scene can be decomposed into a number of objects:
 - The field and trees in the background
 - The sky
 - The farmer, car, and cattle walking along the road
 - The farmer's voice
 - Noises emanating from the cows
- H.264/AVC treats each one of these objects separately.
- Compression is applied to each object.



Task 11: Minimising the affects of Dropped Packets on an IPTV Service

Identify which of the following techniques reduce the affects of dropped packets on IP multicast video streams are acceptable (yes) and which are unacceptable (no). If the technique is unacceptable as written, explain why.

Procedure	Yes	No	Acceptable procedure
Use the TCP protocol to detect packets that have not arrived at the destination IPTVCD			TCP is not particularly suitable to the delivery of live IPTV video content. There is however a related protocol called ARQ, which may be used to deliver IP unicast video streams to end-users.
Deploy the RTP and RTCP protocol suite			
Conceal or mask the affects of packet losses			
Deploy error correction techniques			

The Correct Answer is

IGMPv3 Query Process

Increased sophistication of IGMPv3 has increased the complexity of the querying function:

- The querier has to keep track of each host using that protocol version

Example:

- Membership query message is sent by the multicast router to all sub-multicast addresses. (224.0.0.2)
- Each of the five clients IP address does not acknowledge response to the query or sending IGMPv3 version 3 reports to an IP address destination #224.0.0.2
- The multicast router reports on its address specific to IGMPv3 response messages

