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Training Course Description

Course: Use of WireShark in a Broadcast Environment
Course code: BTC151
Duration: 1 day

Format: Classroom explanation, demonstration and workshop.

Supporting materials:

Each delegate completing the course will receive the following:

- A full set of course notes
- Certificate of attendance

Overview:

The course provides delegates with a detailed understanding of the use Wireshark applied to the analysis of MPEG and DVB streams; covering the installation, configurations and use of Wireshark specific to broadcast trouble shooting and analysis.

Who should attend:

Engineering staff working in a digital television environment who work with and need to understand and troubleshoot IP encapsulated video, audio and multiplexes/Transport Streams..

Prerequisites:

The course requires existing experience and familiarity of, and of working with, MPEG, DVB and IP TV systems. To maximise the effectiveness of the training delegates should have a laptop or PC, with wired network connection, available on which to run Wireshark during the class. A PC video projector should be available for presentation and demonstration.

Key benefits:

At the end of the course delegates will be able to:

- Install and configure Wireshark for use in a broadcast environment
- Use Wireshark's MPEG and DVB specific tools
- Configure capture and display filters to locate specific data
- Extract and save content of IP streams as native video/TS files
- Measure network jitter and packet loss
- Use Wireshark in conjunction with other DVB and MPEG tools and analysers
- Troubleshoot DVB and MPEG carried over IP

Course Content:

All course content is hands-on and is presented using live multicast Transport Streams, other network traffic and sample WireShark recordings.

Installing Wireshark

- Downloading and installing
- Wireshark and WinPcap
- Configure default start-up options
- Configure MPEG and DVB specific options

Discovering stream parameters

- Reading and configuring packet time information
- Reading L2 parameters and MAC addressing
- Reading L3 IP addressing
- Reading L3 IP packet parameters
- Reading L4 TCP and UDP ports and parameters
- Reading RTP timings and counters

Wireshark Filters

- Use of capture filters to discard unwanted traffic
- Use of display filters to find wanted traffic
- Use of the expression builder
- Writing filter expressions
- Use of logical operators in filters
- Discovering FTP usernames and passwords
- Measuring and graphing jitter with RTP
- Using WireShark and TS analysis tools to measure UDP stream jitter
- Discovering ARP and gratuitous ARP
- Use of WireShark with SNMP messaging
- Discovering Multicast streams and traffic
- Discovering packet loss at RTP level
- Discovering packet loss at MPEG TS level
- Saving embedded streams as native TS files
- Reading TS Packet headers and parameters
- Filtering for MPEG PID streams
- Reading PES headers and parameters
- Use of TS PUSI to discover PES headers
- Reading MPEG PCR values
- Reading MPEG PTS and DTS values
- Use of WireShark with other MPEG and DVB analysers
- Using WireShark with Pro-MPEG Forum CoP3 FEC