SIP Trunk Wireshark Analysis

This course is aimed at those who install and maintain IP Address Authentication and Registry based SIP trunks.

In order to fully understand how to use Wireshark as effectively as possible delegates will be able to:

- Recognise where on the network they need to be analysing so that data saved will be relevant and related to the fault.
- Identify the different OSI layers and how they are presented in the Packet Details Pane, it is important to be able to identify signalling (SIP), data (SDP) or speech (RTP - RTCP).
- Determine if there is a signalling or speech issue, where in the call flow (and network) the link was blocked or miss-directed. Whether to enable 802,1p or DSCP/TOS.
- Quickly identify any device at layer 3 (IP address) by detecting their MAC address used at layer 2 when they send a broadcast.
- Use display and capture filters in order to reduce the size of the file which will speed up analysis.
- Establish which error code has been returned and therefore be able to identify how to make the necessary programming changes to supplied equipment.
- Listen to VoIP calls in order to establish if an issue is network or equipment induced and be able to identify if packets have been received out of sequence, suffered unacceptable delays or high levels of jitter.

The following scenarios are included:

1) Topology analysis and where to connect at layer 1
2) Changing colours in the packet list pane
3) Detection of layer 2 broadcasts (including ARP)
4) Capture filter and/or multiple capture filters
5) Common display filters
6) SIP trunk outbound call analysis (using both IP address resolution and user name/password)
7) SIP trunk inbound call analysis
8) Multiple simultaneous call analysis
9) Detecting and resolving common SIP error codes, 403, 404, 480, 503
10) Resolving issues using Call Flow
11) Detecting jitter, packet rate and out of order layer 3 IP packet sequencing
12) RTP playback
13) Firewall/ALG analysis
14) Saving meaningful and condensed traces to forward on for escalation

Scenarios are designed around the concept of self discovery whereby the delegate has to use their own logical skills, in other words be self sufficient. Experience shows that this approach is more useful than being shown or told what to do so that when the delegate is back in the real world he/she uses the same rationale to work out how to resolve issues that may not have been covered.