

# Interoperability - Does compliance equal compatibility?

*In the analogue CCTV world, equipment from virtually every manufacturer is compatible with every other manufacturer; you can plug a camera from one vendor into a matrix switch from another and view the video on a monitor provided by a third.*

To promote a similar concept of interoperability in the digital IP CCTV world, more and more projects and tender opportunities are stipulating that the technology used must meet open, published standards. To some extent this has been achieved with the MPEG2 system. From the outset, the MPEG2 standard has specified the video bit stream, channel multiplexing and stream transportation. This has allowed a high degree of interoperability between MPEG2 systems from a range of manufacturers. One only has to look at the digital TV broadcast industry for proof.



## ■ Compression

The growing popularity of MPEG4 has led virtually all IP CCTV manufacturers to produce MPEG4 variants of their key products and platforms.

With each manufacturer interpreting the MPEG4 specification in a 'similar-but-different' manner or implementing only a subset of the specification, the result has been a 'back-to-square-one' scenario in terms of compatibility. Essentially each manufacturer's bit-stream, whilst compliant, is at best only partially-compatible with others. In practical terms, there is no more chance of true cross-manufacturer interoperability than there was in the days of H.261/263 and the numerous proprietary codecs.

## ■ Transportation

However, the problem doesn't end with the provision of compatible bit-streams; we still have the issue of media transmission. Here there has been a move towards a common open standard with the adoption of RTP (Real-time Transport Protocol). Nearly all manufacturers have products which use RTP for media transport, as with the MPEG4 specification though, the 'similar-but-different' implementation approach has once again been followed.

So, even with two manufacturers providing compatible bit-streams, unless they both use a compatible transmission technology, the two products will not be interoperable.

## ■ Control

Compatibility issues also arise at the next layer. Given a compatible bit-stream transported using a compatible transport, we still have the problem of controlling each end of the link.

RTSP (Real-Time Streaming Protocol) and its related protocols are emerging as a potential contender for the common standard. Adopted from the multi-media streaming world, RTSP provides generic control of media

clients and servers. Only a few manufacturers implement RTSP or another open standard as their control technology, with the majority of manufacturers using in-house protocols, remote-console technology (e.g. telnet), or simply providing a web-based user interface.

From this, we can see that specifying the use of compliant MPEG4 doesn't fully solve interoperability problems unless the surrounding layers are also compatible. In the short to medium time-frame, the problem of interoperability is best solved by building applications with cross-manufacturer compatibility designed in from the start.

## Solutions

One such application is Quorum View - its all-in-one architecture is based on one standard Windows PC acting as an IP video stream recording service, surveillance system manager and live video, PTZ control, play back and recorder control client for Windows.

Integrating IP cameras and encoders from multiple manufacturers, including Mobotix, Axis, Ganz and Sony, to mention but a few, it supports standard and mega-pixel resolutions across all common digital video codecs, such as MJPEG, MPEG4, H.264, MxPEG, MPEG2, and Wavelet: ADV601 and ADV202 (JPEG-2000).

Another Codestuff product which crosses interoperability boundaries is Quorum Play, a standards-based RTSP viewing client that can be used to view video streams from the Quorum range of products or from any compliant RTSP stream. Standard viewing clients on the market are often only compatible with standard video codecs such as MPEG4 or H.264. Nowadays however, many IP Camera manufacturers are using modified video codecs.

Quorum Play has been designed with these IP Camera manufacturers in mind and handles these modifications effortlessly.

In keeping with all Codestuff products, the Quorum range is based on industry standards, wherever possible.

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