



True IP interoperability: the importance of NMOS to AoIP

By **Dave Letson**, Calrec's VP of Sales

As our industry hurtles towards interoperability, those with their sights on the future are trying hard to play together. AES67 and SMPTE 20110-30 have given us a common language, but what are we doing to manage the transition?

As we all know, AoIP has been discussed for many years across both TV and radio, with deployments well underway. Radio stations have been leading the way and have been ahead of TV broadcasters for years; the BBC's Virtual Local Radio (ViLoR) project is a landmark example of this.

This is partly because the radio world's relationship with IP has no need for video and has more static routing of signals. But in radio it has tended to be manufacturers' proprietary IP protocols, which means they are using AoIP solutions that are vendor specific. This isn't the promised land of true IP interoperability with all the advantages that brings. Meanwhile, from a TV point of view, a Calrec console has to interface with, for example, a Riedel comms system, Grass Valley switchers and Evertz routing, which brings added complexity.

One of the key touted benefits of moving to IP is the ability to use existing network infrastructures and COTS (Commercial-Off-The-Shelf) hardware. Customers want to be able to pass audio, video, control and other data over shared IP networks, and they want to use open standards to do so between devices made by different manufacturers. Standardised IP connectivity eradicates much of the cost, space, system complexity and cabling overhead of having a multitude of interfaces for analogue, AES3, MAD1, SDI, etc. This is the goal of both

AES67 and ST2110. Additionally, broadcasters can future-proof their systems by moving to COTS equipment.

Manufacturers have jumped on AES67 and its implementation. But it's still not easy to integrate AoIP systems from multiple manufacturers. An interesting article published last year by Solent University (UK) described a presentation by BBC Research and Development looking at AoIP and the future of radio. Presenter Jamie Laundon explained that interoperability is key, and central to this is AES67, which has been added to ST2110 to create ST2110-30. But what many don't fully understand is that this only addresses the transport layer, not device discovery/registration on a network, connection management or network control. This is where NMOS comes in.

Calrec believes that the continued development and adoption of NMOS is vital in the deployment of IP-based systems. Currently, customers have to configure all the streams that they want to output from a given device. A user – or more likely an engineer – has to login through the UI of that device to do this. If a station wants to receive the streams on another device, that device also has to be configured. Without advertisement, the other device doesn't know that stream exists. An engineer has to manually key in the Session Description Protocol (SDP), which describes a media stream: what and where it is.

Currently there's no automated or standardised mechanism to exchange SDPs; control and management is not factored into AES67 or ST2110-30. However, there are various methods of doing it, each one dependent on different manufacturers.

NMOS standardises that across all devices and allows

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it to be managed centrally. Streams are advertised, so a user can go to a mixing desk, see all the streams and select what they want to receive. A single PC application can also be used to make these stream connections. This provides the ability to use an IP network as a router without having to go from device to device, login, configure and select.

Doing it manually generally means engineers are needed to set it all up. It all needs testing and bedding in, and then it tends to be the case that the setup isn't touched after that, leaving all these static streams. NMOS allows the dynamic routing of the streams. That's interesting for a number of reasons. It's much cheaper because it makes it possible to use the IP network as the router rather than having to buy a bespoke audio router, and it allows COTS technologies to be used rather than bespoke equipment.

Broadcasters have been demanding IP interoperability for years although as an industry adoption has been slow; but we mustn't back away from it.

With Calrec's IP-native modular Type R radio system and ImPulse IP Core, discovery and management were central to the design from the outset, and we believe that NMOS is vital in the push towards true AoIP interoperability. We took onboard customer desire for interoperability and COTS IP equipment. It is the future. We are committed to being fully interoperable, making as many vendors as possible compatible with our technology. ■



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