

# Addressing the challenges of IP for audio

By **Stephen Brownsill**, audio product manager, TSL Products

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**W**ith customers now realising the benefits of IP infrastructures using SMPTE 2022-6 and the soon to be ratified SMPTE 2110, what does this mean for those needing to manage and monitor audio?

Whilst the transition to IP is certainly allowing for new efficiencies in operation, and for new business models, it is by no means a guarantee of increased revenues. So, as ever, the expectation remains for customers to do more with less, and to reach more and more consumers across multiple platforms with the same or fewer staff.

A key challenge for any audio solution is to create and present an operational experience that is both simple and intuitive, regardless of the method being used to carry audio throughout a broadcast facility. The transition to IP infrastructures, coupled with the need to do more with less, only serves to increase the importance of being able to address this challenge.

At the very least, operators needing to manage and monitor audio within an IP infrastructure, need a set of quick and easy to use controls, made available by a friendly and intuitive control interface, that will allow them to monitor and manipulate audio in the same manner that they have grown used to when working in traditional SDI environments.

When considering an IP audio monitoring device, its basic functionality, such as the need to display audio levels, present audio metadata, support Dolby audio formats and to monitor audio loudness, remains much the same as when using an audio monitoring device to monitor audio presented as an SDI, AES, MADI or Analogue source. Similarly, the very nature of the tasks an operator will need to perform remain all too familiar. Does the audio meet the required standards for audio levels and audio loudness? Is the audio in

the correct format – mono, stereo, surround? In the case of a multi-lingual feed, are the correct languages present and on the correct audio channels? Are audio channels in phase? Is the audio in sync with the video? And of course, is the audio free of noise, distortion and audible artefacts?

However, whilst it may be preferable for IP audio monitoring devices to retain a familiar operational experience, the very nature of an IP infrastructure allows for a new breed of audio monitoring device, one that can take full advantage of the benefits inherent in an IP infrastructure. The potential for an audio monitoring device to subscribe to any multicast stream made available by the network and even to generate and present multicast streams of its own, begins to present customers with the kind of operational efficiency that could not be considered until now.

SMPTE 2022-6 has already allowed early adopters to deploy IP infrastructures and begin realising operational efficiencies such as these and with the arrival of SMPTE 2110 providing an ‘essence based’ approach, by separating audio, video and metadata into separate streams, customers will not only be able to make far more efficient use of the available bandwidth across their network, they will also be able to achieve the business goals of the organisation through simpler, more logical workflows.

Within SMPTE 2110, the use of the AES67 open standard for the carriage of PCM audio means that some Audio over IP devices may already be suitable for use within a SMPTE 2110 IP network. Whilst AES67 looks set to be the preferred AoIP standard for the foreseeable future, TSL also see the importance to continue the development and support for AoIP solutions for use on Dante networks.

Whilst audio remains our primary concern, our

customers have told us that they value the ability to monitor video within our audio monitoring devices. As well as providing confidence monitoring, the ability to monitor the video is clearly vital when an operator wishes to check for issues such as lip sync. To this end, TSL audio products will support the full suite of SMPTE 2110, not just SMPTE 2110-30.

Not included in the SMPTE 2110 standard though, is any mechanism to discover and register a device made available to the IP network. Discovery and registration allows an IP network to recognise a device and its capabilities, and in doing so makes that device available for use with other devices belonging to the same network. Customers already using Dante AoIP solutions are used to such a mechanism, which further helps to make the deployment and control of a Dante network remarkably straightforward.

Of course, we have grown used to 'plug and play' behaviour in the broadcast world when using SDI, AES, MADI and Analogue infrastructures to transport content. If IP networks are to provide the same level of flexibility, then a clear policy on discovery and registration is required.

AMWA has taken on this challenge as part of its NMOS (Networked Media Open Specifications) project. IS-04 is a specification that allows for device discovery and registration on an IP network. Whilst IS-04 does not form part of the SMPTE 2110 standard, it is very

much a part of the AIMS roadmap, which TSL is very much committed to.

When talking to customers about the transition to IP, they all ask one key question, "can I continue to choose best of breed technology?" Every organisation is different and every solution must be individually tailored to the technical, operational and commercial requirements of that customer.

Audio should not add to your worries when making the transition to IP and operational processes should not be compromised. Rather, the transition to IP should allow for new efficiencies that can be implemented in ways that are both intuitive and familiar. With open standards now available to the industry and being implemented by an ever-increasing number of manufacturers, users will be able to choose best of breed components, with the same level of confidence that we have all enjoyed when working with SDI. ■



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Stephen Brownhill,  
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