

VENDORS AGREE: COLLABORATION IS KEY TO AN IP FUTURE

Artel, Calrec, and Sonifex come together to discuss how deeper technology relationships between manufacturers and dedicated installations for both R&D and technology demonstrations are helping broadcasters and other media organisations better navigate a path toward IP-based media workflows

Creating an environment in which vendors can come together to provide interoperable media-over-IP solutions, interop events have proved valuable in moving the market forward and in giving broadcasters some faith that equipment from different manufacturers would work together. However, because these events necessarily address the broader requirements of the industry, they tend to cover only fundamental topics such as discovery and audio flow.

"AoIP interoperability is at the heart of everything we design and manufacture," says Dave Sampson, network specialist at Calrec. "But it shouldn't be confined to interops; it should be integral to what we do. By collaborating with industry partners on solutions for specific broadcasters and workflows, we can ensure the best user experience from end to end."

Collaboration among specific vendors can build on the successes of interop events by identifying more detailed levels at which products are compatible; and areas of incompatibility as well. "For broadcasters and other end users, this level of detail is critical," says Marcus Brooke, managing director at Sonifex. "Their applications need robust solutions, but without in-depth knowledge of IP, it's difficult to know whether one manufacturer's equipment will work specifically with another's, unless they've been tested together."

Collaboration among vendors in practical use cases – real-world settings, applications, and environments – validates the work done by the standards associations, such as AIMS and others.

By verifying most, if not all, scenarios that might be exercised in actual deployments, collaboration also reduces operational costs. From a project timeline perspective, it reduces solution commissioning time by minimising the probability of dealing with unknown issues to those use cases not seen before.

"From an adoption of IP perspective, collaboration among vendors provides assurance and trust in the technology, the standards supporting the technology, and in the vendors who implemented it all," adds



Rafael Fonseca

Rafael Fonseca, VP of product management, at Artel. "All of these gains combine to ease and accelerate adoption of IP"

PUTTING IP SOLUTIONS TO THE TEST

Testing of specific use cases typically starts with an agreement among vendors of the solution to be implemented, the elements involved, and the scope. From there the collaborative project moves on to a solution design stage that includes products from each participating vendor. Staging at the vendors' facilities follows, and this is when validation, troubleshooting, and verification occurs.

The intent of this test process is to catch any issues with interoperability in the lab rather than later, in the field. Testing can prevent issues such as:

- Conflicts with regard to response to signaling messages
- Conflicts with regard to interpretation of standards
- Hidden performance problems when the elements are stressed with load (heavy traffic)
- Conflicts with regard to the elements supporting the same version of a protocol or protocols

"Whenever we're using equipment from other manufacturers, we'll run through – as best as possible – emulations of whatever a customer is likely to do in terms of typical set-ups and configurations," says Brooke. "Our goal is to define default configurations and gather enough data to be able to help the customer fault-find."

This process was particularly important for Sonifex in combining RAVENNA/AES67 and Dante networks. Multicast address ranges can sometimes be an issue, and the company needs to ensure that customers understand discovery differences between Bonjour (RAVENNA/AES67) and SAP (Dante).

Vendors also use collaboration as an opportunity to examine solutions in terms of how to get the most resilience, flexibility, and scalability out of their products; and do so in the most cost-effective manner. For example, Calrec worked with partners including Artel



Marcus Brooke

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to test and ultimately implement the same levels of resilience in its IP equipment that it had achieved with its proprietary Hydra2 network system, which worked well across thousands of networks because it was intelligent and robust, with automatic discovery and management.

Taking a more architectural approach to products and solutions can complement the more standards-focused industry interop events. This helps every vendor provide the most efficient and robust solutions.

ACCELERATING TIME TO MARKET

Collaborative work among vendors gives end users a tremendous advantage in getting their projects up and running quickly. Most vendors offer advice in advance of a sale to ensure proper planning of the network topology, as well as selection of the right switch types and configuration at the minimum required to ensure the system works reliably. If they also are familiar with the default configurations of third-party products being deployed on the network, they can be confident that when products are initially connected on the end user's network, they can communicate straight away.

When vendors undertake this work prior to a sale or solution design, they help accelerate time to market or to air by reducing the sheer number of issues that can surface when products from different vendors are put together to create a solution. If not addressed prior to a project, signaling and interoperability issues take longer to troubleshoot, in turn delaying projects as vendors modify software to interoperate correctly.

"Rarely does a single solution fit all requirements," adds Sampson. "Cooperation between vendors encourages a creative environment where innovative solutions are tried and tested. This gives vendors powerful design concepts that can be passed onto our customers in the form of documentation or plug-and-play configuration files, which can drastically decrease the implementation phase of an IP project."

Calrec has done just this, working with Sonifex and Artel to develop a methodology of splitting the Sonifex PTP GMC into separate vLANs on an Artel switch to create a more efficient SMPTE ST 2022-7 PTP environment for Calrec's audio-over-IP (AoIP) products.

LEVERAGING THE BENEFITS OF NMOS

Increasing adoption of NMOS IS-04 and IS-05 make it even more important and timely that vendors work closely in developing larger IP-based solutions.

By automating discovery and registration (IS-04) and by standardising connection management (IS-05) for configuring devices to send and receive IP streams, NMOS creates a framework of standards that allow users to reduce the amount of human interaction required. Automation not only saves users time and work but also reduces opportunity for human error in configuring large IP-based solutions.

NMOS does more than define how media-over-IP devices should communicate; it dictates an ecosystem in which flexible and creative workflows can be constructed. Not every NMOS implementation will look the same, and some broadcasters will use the APIs in more intricate ways than others. Direct collaboration with other vendors on NMOS interoperability allows all parties to pool and increase their knowledge around various user experiences and to use that knowledge as inspiration for future product design.



Dave Sampson

REAPING THE REWARDS

As manufacturers invest more time and resources in ensuring interoperability in the IP realm, several changes will happen for the industry, for end users, and for vendors.

Fonseca explains: "The industry will develop trust in IP technology as a viable replacement for existing SDI-based infrastructures. End users will be able to concentrate more on their end product and workflows rather than spend time troubleshooting and chasing interoperability issues, which are extremely time consuming, require signalling expertise, and demand product expertise that only vendor personnel have. Vendors will be able to provide proven solutions, which means they will have more time and resources to concentrate on workflows."

"The more time and resources that are invested by manufacturers to establish interoperability prior to product release decreases implementation time for all our customers," agrees Sampson. He also notes that testing of AoIP equipment at interops allows vendors to test their workflows in a very real broadcast environment, and lessons learned there aid the development of efficient workflows prior to deployment.

"IP audio is incredibly complex, and the learning curve is pretty steep for those users who come from traditional analogue/digital audio backgrounds," says Brooke. "For the industry to move forward, it's essential that we as manufacturers make it easier to connect IP audio equipment together."

The market is maturing, vendors are collaborating more closely to simplify connectivity, and improved standards provide a strong foundation for this work. All these factors signal an even better experience for end users implementing IP-based media workflows. ■