Audio Boards Play Nice With AES67

Adoption of audio over IP adds capabilities, flexibility

BY STEVE HARVEY

LOS ANGELES—With the growing adoption of IP networking in broadcast facilities and the downward pressure on production budgets, audio mixing consoles are entering a new era, one in which the board may be out of sight—indeed, miles and miles away—and may have no faders, or even an operator.

So what do customers now expect of mixing product manufacturers, and what is the likely next step in the evolution of the broadcast console?

"It seems like consoles have to do everything and cost half as much as they used to, these days," says Wheatstone Senior Sales Engineer Phil Owens who adds that U.S. stations essentially fall into three categories. Typically, the station needs a board that addresses the needs of the board ops, or they have some dayparts manned and others automated, or the station is fully automated.

Martin Dyster, vice president, business development, TV Solutions Group for the Telos Alliance

"For the U.S. market in particular, a console has to be easy to drive," he says, with a relatively simple first-layer user interface. "But maybe the layer just below the simple user interface gives you all the tools that an audio hotshot would want. The consoles that I'm primarily talking about are [Wheatstone's] Strata 32 and the IP64—they share these same characteristics."

STANDARD LIMITATIONS

On the topic of networking, Owens adds, "There are the SMPTE ST 2110 standards that will ultimately be embraced by pretty much everybody, so any board these days has to play nice

with AES67, because AES67 is the transport stream for 2110."

But Owens also predicts that AES67 will never reach the point where it can provide the necessary transport discovery, control, and logic that a proprietary network does, although NMOS will make connection management easier.

Wheatstone Strata 32

Systems will always need to be able to interoperate with third-party devices via AES67, he says, noting that the company's WheatNet-IP network handles the AES standard.

"But AES67 will never be the glue that holds the whole infrastructure system together," he says. "That will always be a proprietary network."

Many of IP's benefits are currently more obvious on the video side of things. "Where you interface with prod-

Dave Letson, vice president of sales for Calrec.

ucts that are being made by a company in the video space, that's where AES67 and 2110 tend to come in, said Martin Dyster, vice president, business development-TV, TV Solutions Group for the Telos Alliance. "Then when you're connecting to products from other audio

companies around the control room and the studio floor, that might be where you see Dante more."

While more prevalent in radio facilities, Telos recently launched a new console—Quasar—for its Axia product range that is attracting attention in TV markets, Dyster reports. The entire Axia range, in common with all brands under the Telos umbrella, are fully AES67 compliant, he notes. Indeed, the AES standard evolved out of the company's Livewire protocol, introduced in 1999, and RAVENNA.

Telos was involved with Notre Dame's Martin Media Center, one of the first all-IP facilities to be built, where Axia Fusion consoles are handling TV production, with an Axia backbone connecting over AES67 to an Evertz EQX routing system. Livewire+AES67 connects the various campuses, alongside video-over-IP. "So we can stay pretty much native, and with Dante now embracing AES67 and our ability to connect to that, using SIP discovery and advertisement, that puts our products in a very strong place that I think is probably a little bit unique," says Dyster.

CONSOLE VIRTUALIZATION

Customers are generally either happy with their present Calrec Hydra2 network, or are taking a gateway or hybrid approach, integrating Hydra2 with islands of IP to overcome the limitations of baseband, or simply familiarize themselves with IP technology, observes Dave Letson, vice president of sales for Calrec.

"We have about 10 installations where there is a Hydra2 console with our AoIP gateway unit connecting it to a 2110 environment," he said. 'They've got the best of both worlds. We're able to maximize all the resources from a router or from the video architecture into the [Calrec] audio network."

In addition to driving the use of REMI or at-home remote production workflows, AoIP has enabled "console virtualization," which, hand-in-hand with a general desire to reduce production budgets, is beginning to enjoy more widespread adoption.

"I've been to a lot of facilities in the last 12 months where a physical surface was not required or was gathering dust because everything is either virtualized or is being driven from the vision switcher," says Dyster. "I see that model now all the time, particularly in the U.S., at news affiliates, where you don't see a physical console."

Letson reports that one U.S. broadcaster is using Calrec's Type R as a virtualized solution, with no control surface, connecting it to the station's automation system at a fully-IP central hub. Calrec's RP1 remote production unit supports the creation of local IFBs at a remote studio.

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"That's an interesting workflow, because you've got two sides of the virtual world," Letson said. "We never saw those products working alongside each other for local news, but for that customer it works really well. It's great for a local news production environment because they get to reduce some of the key staff. Some of the key staff are aging out, so you don't have the same level of staffing that you used to have."

Owens is seeing similar workflows in more localized situations, where two or more call-letter stations share a building with separate control rooms but a single set.

"Instead of having a standalone audio board you have a networked appliance that is fully routable," Owens said. "At 5:00 you can route all the ABC sources into it and at 6:00 you can route the CBS sources into it. Either control room may need to grab certain shared resources,

IN THE NEWS

Moving Broadcast Into the Next Decade With All-IP

New opportunities await broadcasters who adopt IT protocol

BY MATTHEW GOLDMAN

Given the effect and pervasiveness of IT in our personal and professional lives, it is encouraging to see that the media and entertainment industry's transition to All-IP has steadily gathered pace. IP is an enabling technology and our industry's adapting its use to our needs, responding to a number of challenges across contribution, live production and playout that we see today. Consider the hundreds of thousands—perhaps millions—of pieces of equipment that is used by broadcasters worldwide. Then, offset that against other operators who are developing the use of IT protocols, interfaces, and infrastructure— and

therefore utilizing the maturity of perhaps a trillion pieces of equipment— and you can see there are better economies of scale that exist elsewhere. By moving away from broadcast-industry-specific architectures towards IP-based infrastructure and solutions, the media and entertainment industry can become more agile in their operations.

In other words, the reasons to migrate are compelling and have gone beyond applications such as OTT or real-time internet video delivery, and are now permeating across mission-critical use cases at fledgling start-ups and major international broadcasters. For many, the catalyst has been the demand from consumers for content everywhere, which has ramped

up increasingly in the last 10 years as we move towards a mobile-first environment. Bringing new OTT services to market has been a natural fit for IP transformation. Launching a new service on a software- and IP-centric infrastructure, supported by the cloud and microservices, now means a lead time measured in weeks and months and not years, as would be the case in the legacy world.

FLEXIBILITY AND ELASTICITY

In the application-specific integrated circuit history of broadcast technologies, when capacity is reached, it requires a major CAPEX expenditure and significant hardware upgrade. In a software and IP-centric world, capacity, performance, and connectivity can all scale quickly, based on demand and then contract if required. This flexibility and elasticity matches the current commercial imperatives that broadcasters face when expanding their content reach, while at the same time, helps to build new revenue models that take advantage of IP-compatible concepts such as targeted and dynamic advertising and OTT-based subscription models.

At the closest edge of the wave, real innovators are adopting fully software-defined media workflows. This starts at

Matthew Goldman

the production level from studio cameras, to editing suites and progresses through content processing and distribution. The rationale is simple. Creating, managing and distributing content across a real-time, IP-based workflow with software as the controlling entity is much easier than the myriad transitional steps that are limited by custom-built hardware solutions. Today's broadcasters can handle more content across a wider range of distribution paths with fewer staff than ever before.

Capacity and resiliency is assured through the ability to spin up more virtualized capacity—not just across media processing but for critical connectivity requirements through network function virtualizations. The transition to All-IP has also gone beyond arcane technical requirements. According to the highly regarded Devoncroft 2019 Big Broad-

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so the network aspect of the new consoles becomes more important," says Owens.

The next step in console evolution is likely to encompass features for immersive audio production. Broadcasters are currently using 5.1 consoles for immersive productions, but, says Letson, the logical next step is to develop new

metering, monitoring and other functionality.

But with so many immersive standards in play worldwide, from 5.1.4 to 22.2, anyone providing an international mix will need to generate multiple deliverables. "I think that's where the tools will have to go next on consoles," says Letson. "That's part of where we are with ImPulse," Calrec's new processing core. "It will have those tools built-in."