Building Bridges

AJA is Making ProAV over IP More Interoperable & Intuitive

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AJA VIDEO SYSTEMS

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Q&A: Real-World Interoperability

AV Technology editor-at- large, Margot Douaihy, interviews Bryce Button, Director of Product Marketing, & Steve Holyhead, Senior Product Manager, AJA Video Systems

AJA is known as a leader in the broadcast sector, specifically with your well-known IP-based technologies. Are you seeing similar IP interest in the proAV market?

BRYCE BUTTON: We're seeing more demand for IP within the proAV market. As we've expanded our presence at trade shows like ISE and InfoComm, we've noticed that on the display side in terms of driving content to LED walls, it's fairly common to use AV over IP with ethernet connections and the like. Going with the AIMS approach opens that up across multiple products from many vendors and extends reach. Now, we have edge transmitters as well as receivers, in addition to supporting all of the creative tools in the center of it.

What is AJA doing to make AV over IP more interoperable and seamless, so that workflow is easier, and there's less friction between points?

BUTTON: The basic transport of video and audio over IP in the initial stage is quite simple. With SMPTE ST 2022-6, an SDI stream is essentially embedded as a combined entity for transport within an IP stream.

The next step is SMPTE ST 2110. A lot of clients waited for this standard to coalesce because those streams are now separate in terms of video and audio, so you can embed and dis-embed –effectively allowing insertion or reception of the elements you want at any desired point in the stream. By way of example, you could add a different language track into a piece from anywhere you choose.

Bryce Button
Director of Product Marketing,
AJA Video Systems

STEVE HOLYHEAD: We think there are four strands to making real-world interoperability seamlessly achievable for clients. Customers may have a significant investment, perhaps in their core infrastructure, but may not want to put all of those eggs in one basket. Or, there may not be the right product fit from a single vendor. So, first, we try to make sure that we're good industry partners by aligning with both AIMS and as many parts of the ST 2110 standard as possible, even as the specification grows. Second, we also attend multiple interoperability events throughout the year, including major trade shows like NAB, ISE, InfoComm and IBC. Third, for bringing all of the various IP devices together into one unified control platform, the devices on the network need to be discoverable, registerable, and then controllable in as automated of a fashion as possible. AJA supports two main industry standards for IP workflows, namely Ember+ and NMOS. Ember+ is an older technology which allows control of the device but doesn't fulfill the entire job of discovery and registration. NMOS, while fairly new and still maturing, enables automated discovery registration and control across the full range of our SMPTE ST 2110 IP devices.

So, whether it's a SMPTE ST 2110 receiver, or transmitter, or indeed a KONA IP you might find either virtualized in a stack of servers, or an Io IP that sits in an edit bay, we bring it all together.

Fourth, we've done a tremendous amount of work with our interface so that a creative operator doesn't need to mess with typing in port numbers and IP addresses, or any other tasks that belong to the engineering department. That's why we've implemented mechanisms to make this more straightforward. We don't want professional creatives wasting precious time that could instead be devoted to their creative output.

Steve Holyhead
Senior Product Manager,
AJA Video Systems

As such, we support both JSON scripts and SDP (session descriptor protocol). SDP is really nice because you can have one interface open for a receiver and one for an editorial bay. Just right-click, copy, paste it, and boom—a connection is made between two devices. JSON scripts are a more powerful data set that describe all of the video and audio streams, their IP addresses, ports, etc. When these are set up ahead of time as a template for various tasks – they can be used to essentially load a connection and format set, that can rapidly reconfigure the bay for news production, or promos editing, or story editing – without an engineer having to visit the bay. We also offer the option to edit or version JSON scripts manually.

You mentioned the manual element. Is there interest in automation, taking the guesswork out of the AV over IP process? Is that part of making systems more efficient?

HOLYHEAD: Everything that applies to streamlining processes for AV applies to IT as well. We provide infrastructure and creative tools, and more open ways to bring it all together. In addition to separating the user settings from the IP settings, we've also bolstered our global preferences, so if a department within a broadcast or a post facility wants a standard global set of settings that loads on a workstation every time it's used, we support that too; i.e. essentially loading the

"house standard" without the editor or other creative artist needing to know or keep track of what all those settings and preference are.

What's more, wherever we can, we add information to outbound channels for educating users. For example, if you were to go hit the AJA product page for KONA IP, Io IP or any of our IP Mini-Converters, you would see that apart from the normal items like the manual and tech specs, we're building a big library of FAQs to help people better understand the aspects of workflow and infrastructure that wrap around and in some cases go in between our devices.

When we engage with a client, we try and set expectations about what the minimally viable setup will be to even conduct a proof of concept. Sometimes, a customer might be new to IP and may not know that PTP is required for ST 2110. They also might not know that an IGMP capable switch is required for ST 2110. We believe in the importance of education, and that it's completely separate from selling products. It's similar to the goodwill and collaboration that you may have seen back at the introduction of tape-based workflows, where new processes were required for the move away from film pipelines as a base, to tape and later from tape to digital file-based workflows.

How else are you supporting users in the migration to IP?

BUTTON: Again, education is key. Both Steve and I have spent time internally and externally trying to educate and become educated. There are indeed two different types of worlds coming together, each with its own strengths. It's an amalgamation of traditional tasks within IT, IP, and the pro audio and video worlds. While they both know a lot about their own sectors, there are unique characteristics; you've got to blend the different types of technologies and carry over knowledge from the one side to the other and vice versa. For example, IT professionals are used to moving around tons of small packets, so they know a lot about connectivity, but they may not have as much experience moving around huge continuous streams of packages where timing is of the essence. On the flip side, video professionals are used to connecting with simplicity but know a lot about image integrity and latency.

KEY TAKEAWAYS:

1 **Alliance for IP Media Solutions (AIMS):** AJA Video Systems is an active member of AIMS. With more than 100 members, AIMS focuses on open standards, collaboration, and specifications for interoperable IP video and audio in the broadcast and now proAV markets.

2 **Seamless Workflow with IP:** AJA's KONA IP and Io IP are IP-enabled video and audio I/O cards and devices. They can be used anywhere in the chain and simplify processes for professionals transitioning from Baseband to IP. These tools are seen as standard I/O cards by NLEs, VFX, and color packages and don't require creatives to change their workflows outside of initial configuration settings in AJA Control Panel. This intuitive user- and workflow-centered approach is key to AJA's success and a big differentiator from peer manufacturers.

3 **No Limits:** IP offers incredibly dense routing, up to thousands of signals at a time, and richer metadata possibilities. With IP, the only distance limitation is your network's range; it can reach across the planet when desired. What's more, migrating to IP means better access to technology and software stacks in the future, leveraging access to a video feed for a range of tasks.

4 **Flexible Bridging:** AJA's line of transmitters and receivers can now bridge SDI and HDMI sources to an IP network, as well as receive and distribute signals back to displays, baseband routers, and more. It's no longer just for monitoring or reception.

5 **NMOS Enables Discovery:** NMOS allows for discovery, registration, and control.

6 **Wider Compatibility:** SMPTE ST 2110 enables audio and video embedding and disembedding and wide compatibility with IP networks. For KONA IP and Io IP, this SMPTE ST 2110 support extends to: 2110-10 (System Timing), 2110-20 (Uncompressed video), 2110-21 (Traffic shaping for Uncompressed video), 2110-30 (PCM Audio), and 2110-40 (Ancillary Data).

We went into this knowing education would be important. When we started the video streaming end of our business, one of the first things we did was create a solutions page on our website that explains the various protocols and processes involved. There is basic education with AV over IP that we're trying to do and expand.

We also haven't put all our eggs in just one technology basket, because it's going to be a combination of approaches that takes things forward for a while. Our approach has been to offer bandwidth where we can; so SDI all the way up to 12G, for instance. Fiber with bandwidth for up to 10km of point to point connectivity for distance. Traditional streaming for latency agnostic use. At the same time, we keep pushing IP because it is inevitable in the end. The advantages are obvious, and the benefits down the road are too compelling to pass by.

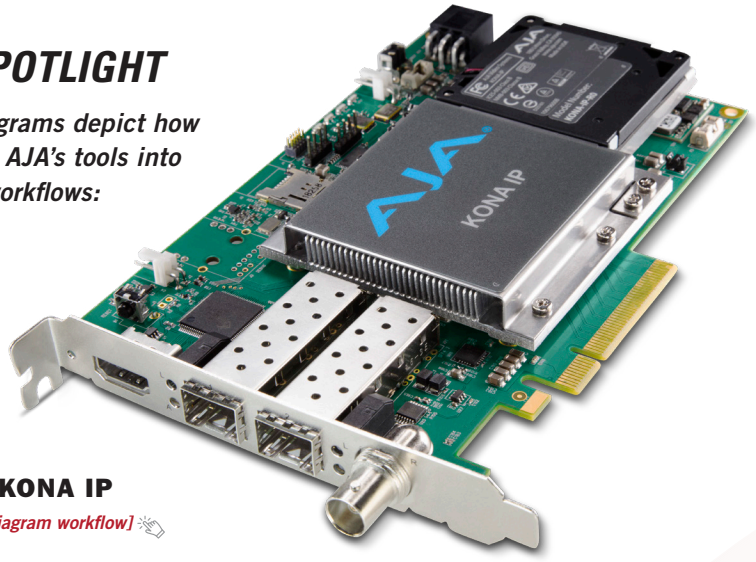
HOLYHEAD: Customers often reach out to us and engage on a proof of concept. Sometimes, they're moving past that stage into a full design; we heavily encourage them to partner with a company that provides professional IT services. They may have expertise in-house, but if they don't, we can make suggestions. While AJA doesn't design client facility networks, we encourage professionals to identify the right teams and integrators to help them carry this off correctly. Sometimes that involves us collaborating directly with other vendors or hopping on a quick call with the client to determine where they want to go, and how we can get them there in a timely fashion, working hand and hand with other vendors, regardless of any product overlap. It's that willingness to roll up our sleeves and dive into solving problems as they come up that sets AJA apart, and we hear that from small and large customers alike.

What else should proAV customers know as they explore IP?

BUTTON: From the client perspective, they can explore our IP options and look at core components from others that might suit their needs. System integrators and/or consultants can help them consider all of the elements that might come into play with more heavily utilized IP. We can also point them toward peers who have gone through similar processes. They will steer you away from expenses or approaches that are less desirable. You may pay a little extra upfront for the right approach, but chances are that the long-term savings will be worth every penny.

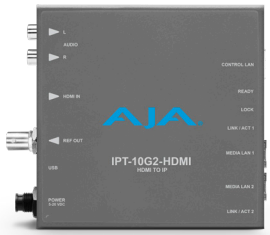
PRODUCT SPOTLIGHT

These workflow diagrams depict how users can integrate AJA's tools into SMPTE ST 2110 workflows:



KONA IP

[diagram workflow]

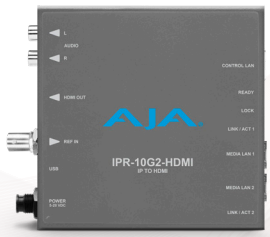


IPT-10G2-HDMI

[diagram workflow]

IPT-10G2-SDI

[diagram workflow]



IPR-10G2-HDMI

[diagram workflow]

IPR-10G2-SDI

[diagram workflow]

IO IP

[diagram workflow]

APPLICATION SPOTLIGHT

AJA's Winning Recipe for eSports Production

"We've followed the eSports market for a while now and seen several successful implementations of our FS products in these environments for multi-channel conversion, scaling and synchronization, including HDR transforms. Sometimes, those items are being used for portions where it's still baseband standards from source. When we hit the IP stream, we take care of those needs prior to that conversion point. Then, the IP products in those particular cases are picking up that prepared baseband stream and putting it on an IP network, which of course then opens up one of the real benefits of IP workflows—much denser routing. For applications like eSports, it is essential that they serve many streams. Once we get it into the IP space, one of the real benefits is routing. We allow professionals to go from baseband to IP—or vice versa—for monitoring purposes. That reality will be with us for a while. There are still many different types of devices that need to make that switch over to full IP in the proAV world. By meeting every new and legacy need—converting or bridging when useful—that's how we can best serve the eSports space

-Bryce Button, AJA Video Systems

Visit **www.aja.com** to learn more

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