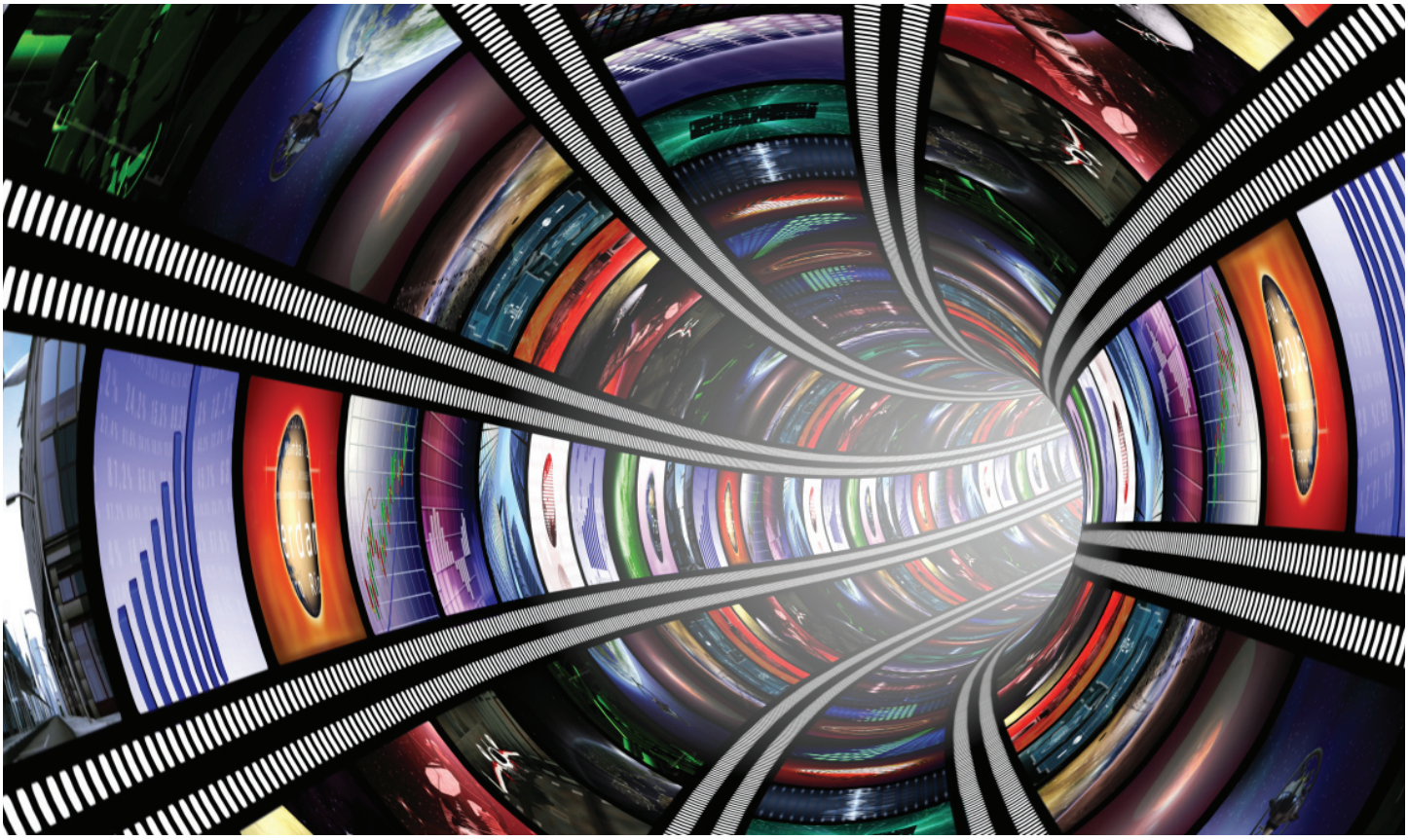

How Open Standards Will Move the AV Industry

Professional broadcast platforms translate into new opportunities for AV integrators

By Andrew Starks

The days of running signals over HDMI cables or on specialized network equipment will soon fade away, as VGA did. We understand the benefits of leveraging a standard IT infrastructure and want well-engineered solutions for high-quality, low-latency video and audio over IP networks.

The market is active, but nobody is standing out as even more contenders enter the field.

Some are quite promising, able to deliver high-quality signals with sub-frame latency, visually lossless compression (or no compression) on well-specified COTS gear.

But having all these contenders begs two questions:

1. How many standards do we need?
2. Which standard is right for the Pro AV industry?

Enter IPMX, a free and open standard promoted by AIMS, the Alliance for IP Media Solutions, and introduced this year at ISE 2020.

IPMX is based on SMPTE ST 2110 from the Society of Motion Picture and Television Engineers, but it addresses some additional needs of the Pro AV industry, including HDCP copy protection, network discovery and registration, I/O management, and the enhanced audio channel mapping required for specialized systems, including multichannel surround sound.

SMPTE is the primary source of standards for manufacturers and engineers in the broadcast industry. They are the people who originally defined what NTSC video would be, and as the industry grew and advanced, they developed the specifications that define digital video.

SMPTE ST 2110 is a set of standards that defines how essence streams (video, audio, and ancillary data) are transported in real time and in sync over IP networks. These standards are robust, scalable, extendable and composable, and they are already being implemented in broadcast.

Perhaps the most important feature of the standards and specifications that comprise IPMX is that anyone can download the complete set of standards (document fees may apply) and then build anything they like with them. That is what a truly open standard means. Every manufacturer making products that conform to the standard is on the same footing. Everyone in the community is striving to ensure that all equipment interoperates and that there are test suites and testing equipment available from multiple vendors to prove it works.

AIMS is the marketing arm of a not-for-profit industry consortium led by engineers, technologists, and business executives dedicated to bringing an open-standards approach to the Pro AV and entertainment industries.

The group includes SMPTE, Video Services Forum (VSF), the European Broadcast Union (EBU), the Advanced Media Workflow Association (AMWA) and the Audio Engineering Society (AES).

Why does this standard matter?

As we leave base band to enter the world of IP networks, we have a choice. We can shuttle between two or three (or five or ten) semi-open or proprietary standards that all do exactly the same thing, build hardware or software converter boxes that allow our products to interact with the ones we need, and then scramble when we need to work with a new one… Or we can leave that complexity behind and adopt one open standard to solve the problem and create a market. Doing so has many advantages:

Interoperability. One of the biggest advantages of leveraging IP networks is the increased opportunity for integrating with the IT world, the Internet and cloud computing platforms. In the same way, adopting a single standard for video transport will enable interoperability between Pro AV and broadcast applications, customers and equipment.

For example, SMPTE ST 2110 provides specifications for precise timing and synchronization using the Precision Time Protocol (PTP), which is a feature needed for both live broadcast production and digital signage video walls. Sports stadiums have broadcast production facilities, conference centers and digital signage. In a world of IPMX, those systems can more easily share content and blend it together in new and creative ways. No converting signals. No needless complexity. Just video on network gear, as routable as anything else.

Scalability. With a simplified infrastructure, integrators don't need to deploy individual cables for each signal connection. One network link can support numerous, compressed or uncompressed video streams along with hundreds of audio signals, no matter the frame rate or resolution. With IPMX, you will know that it is going to work with a wide range of gear and without compatibility issues.

Flexibility. SMPTE ST 2110 is efficient and flexible and that means systems integrators can design the right balance of redundancy, capacity and cost into systems that can be reconfigured and extended over time as needed. With the additional specifications that are IPMX, transmitting 4K video and control signals over standard 1GB networks is now possible, opening up a new range of exciting applications.

Are we there yet?

Almost. SMPTE, AMWA and VSF continue to work on the IPMX roadmap, and work is ongoing for some items that are unique to Pro AV. That said, a number of ST 2110 products are available today, while IPMX-based products are under development for introduction next year.

Jumping on any new standard is a lot like a surfer trying to catch a wave. Catch it too early and there's nothing to ride. Catch it too late and you're likely to be wiped out by competitors who already have a strong start. We believe now is the perfect time to start developing ST 2110/IPMX-based products.

As the IT industry matured, it migrated from proprietary systems running proprietary software using proprietary formats and standards to distributed systems running over the Internet on open protocols. Because we've needed dedicated, real-time gear to do our job, we in the AV industry have needed more time to migrate.

Now that technology is to the point where we can use IP networks for real time, low-latency video transport, we expect the same pattern, including the move to open standards, to emerge in our market. We are unlikely to be the only industry that builds itself on multiple, competing and proprietary standards, especially for a basic building block like content transport.

AIMS and the technical organizations behind IPMX are working hand-in-glove to develop the right set of standards for broadcast and Pro AV.

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