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THE TRANSFORMATIVE ROLE OF IPMX

Andrew Starks, marketing work group chair at AIMS, and director of project management at Macnica, explains the role of the IPMX standard in bridging the broadcast and AV worlds

I n the dynamic world of media production, the broadcast and pro AV industries have long existed as separate entities, each with its unique standards and practices. However, the emergence of Internet Protocol Media Experience (IPMX) is set to revolutionise this landscape, offering a unified standard that bridges the gap between these two worlds, fostering innovation and streamlining operations.

Converging paths: avigating the pro AV and broadcast divide

Historically, the pro AV industry has been without uniform standards, leading to a complex mix of interfaces such as HDMI, DisplayPort, SDI, and composite video. This fragmentation has created a bewildering landscape for users, inducing frustration and operational inefficiencies. In contrast, the broadcast industry has a long-standing tradition of developing and maintaining consistent standards, dating back to the era of black-and-white television, accepting the occasional proprietary technology sneaking through.

Despite their differences, however, the broadcast and pro AV industries share common ground. They are both notably influenced by consumer technologies such as GoPro cameras and laptops, and the rise of integrating tools like Zoom for video communication has further blurred the lines between them. Furthermore, in broadcast, it's common for professionals to take on pro AV duties, managing tasks such as digital signage and integrating pro AV components into their workflows.

Similarly, large organisations, including financial institutions and universities, often engage in substantial live production, investing in broadcast-grade equipment within the pro AV sector.

Yet, there remains a notable divide when it comes to melding traditional pro AV gear with broadcast equipment, which often necessitates expensive converters. This divide becomes even more evident, and even more frustrating, with the advent of IP-based systems such as AV over IP, which diverge from traditional broadcast practices. IPMX – an emerging AV-over-IP standard created by AIMS – was introduced to bridge this divide.

Bridging the gap with enhanced standards for pro AV and broadcast

IPMX borrows from broadcast industry standards and enhances them to meet the extensive demands of the pro AV sector. The goal of IPMX isn't to retrofit broadcast standards for pro AV use; it retains the advantageous elements of SMPTE 2110 and introduces new features such as PTP operations, asynchronous audio and video support, and includes a profile that supports 4K60 transmission over a single gigabit network connection,

along with key protections like HDCP for content security in the pro AV landscape.

IPMX represents a holistic approach designed for dual purposes: to facilitate live production – the core of broadcast – and to cater to the pro AV industry's presentation needs. For example, it supports synchronous content delivery for live production workflows, while also supporting asynchronous presentation workflows that adjust the content to fit the needs of the display environment. By adding support for use cases in both industries, IPMX promises to become an indispensable technology for both. With both industries adopting IP technology and already sharing common physical connections, standardising these protocols seems a logical step. The groundwork is already laid, making standard alignment a practical and straightforward progression.

A universal standard for enhanced interoperability in pro AV and broadcast

The advent of a universal standard such as IPMX signifies the dismantling of long-standing barriers within the equipment market. This innovation ensures that the gear produced can be made compatible with both the broadcast and pro AV environments with much less effort and more efficiently, streamlining the process for users to amalgamate equipment suited for live production or pro AV contexts.

This also simplifies the process for manufacturers who can now readily support a wider range of applications due to the transport layer's interoperability, removing the complication of converting between systems. This shift opens a gateway for manufacturers to either conceive new products or modify existing ones, thus extending their reach across diverse markets by creatively repurposing their established technologies.

From the perspective of the customer, the integration of IPMX into their systems heralds a range of new capabilities while also helping to cut costs. It does so by simplifying the complexity of infrastructure management, removing the need for converting signals or engaging in intermediary tasks that add no real value to the production or the system's core functions. These tasks are often about bridging disparate technologies with unnecessary complexities, and it's here that IPMX shines, offering a way to streamline and make these processes more efficient.

For broadcasters, it also means a much wider array of compatible equipment options than before. A system that intrinsically supports the video formats prevalent in a facility's workflow means more affordable and appropriate television sets for off-site monitoring, streamlining the integration process by obviating the need for complex modifications and expanding camera choices. Crucially for broadcasters, regular engagement with both the pro

AV and consumer realms means that adopting a common control plane and uniform video formats across these domains enhances production quality, cuts costs, and consolidates system management, while broadening the pool of compatible gear.

For broadcast equipment manufacturers, IPMX's widespread adoption represents a pivotal shift. It opens up a larger market space, enabling them to focus on innovations that cater to a broader audience rather than navigating through a maze of divergent protocols and standards. It's particularly well-suited to the display and camera sectors. IPMX's role isn't confined to basic updates like a camera's firmware to support H.264 video, although support for H.264 is being considered. It ushers in a native format that ensures top-notch quality, low latency, and efficient codec performance; key components for achieving superior results, made feasible only through an open standard.

This universal standard is not only reshaping equipment compatibility but also revolutionising control systems in the industry.

Pioneering a universal control layer for seamless device interoperability

A key breakthrough of IPMX in the realm of converged systems is its robust control layer, provided by AMWA's NMOS specifications; a control framework for device discovery and connection, with an emphasis on interoperability. This eliminates the need for specific proprietary systems to manage these devices. IPMX allows for device interaction using any controller that supports NMOS, unlike the limited compatibility seen with previous proprietary technologies.

The inclusion of NMOS as IPMX's control plane is set to significantly boost the adaptability of control systems for users, regardless of the specific hardware they opt to use. This shift is expected to drive innovation across a broad spectrum of AV-over-IP applications, paving the way for even small companies to develop bespoke control solutions, thereby promoting new creativity and advancements in the sector.

IPMX represents a monumental shift in the broadcast and pro AV industries, bridging the gap between these historically separate domains. Its introduction is a game-changer, promising enhanced interoperability, streamlined operations, and the opening of new avenues for creativity and technological advancement. As the industry moves towards more IP-centric workflows, the role of IPMX as a catalyst for innovation and standardisation cannot be overstated. It marks the beginning of a new era in unified media experiences, where the lines between broadcast and pro AV are not just blurred but effectively erased.