

STREAMING

Streaming: Enhancing Media Production and Delivery in Cyberspace

BY STEVEN BILOW

Many years ago, I was watching the Winter Olympics on a CRT-based High-Definition TV in a development lab at work. ATSC was just becoming a standard, and I was astonished by the quality of the specular reflections in the ice during speed skating. I could not imagine what a 4K image would look like, let alone see it on a \$500 display. Nor could I imagine a day when millions of dollars' worth of live production gear would give way to some big, nebulous thing that everyone would call "the cloud." Yet, here we are.

"Streaming media" is no longer a "pipe dream," not even a "secondary," "over-the-top" delivery mechanism. Streaming is now mainstream, and arguably the most important delivery method since the designers of Irvine, California, proactively wired the whole city for that newfangled thing called "cable television." For this, and other reasons, SMPTE must sit at the vanguard of streaming technology. Hence, the theme of this issue.

The papers here originate from a variety of

sources and cover diverse topics. These range from interoperability and media exchange between vendors to performance measurement, protocol comparisons, network optimization, and the value of treating data as a primary product rather than simply a "byproduct" of the production and delivery pipeline. The common thread is their description and analysis of technologies that improve media streaming. This does not simply mean high-performance delivery over standard IP networks. It means everything from the European Broadcasting Union's (EBU's) Dynamic Media Facility (DMF) architecture to the monetization of associated data and the delivery to a commercial media consumer.

I am delighted to begin this journey with a paper by Vincent Trussart, Thomas Edwards, Willem Vermost, and Peter Brightwell on the topic of *MXL, the Media eXchange Layer* for the European Broadcasting Union's Dynamic Media Facility model. In general, *MXL* is exciting. However, a paper co-authored by Grass Valley, Amazon Web Services, the EBU, and the BBC

further underscores this, as it exemplifies technological collaboration for the common benefit of our industry.

In the paper “A Performance Measurement Study of Open Internet Contribution Protocols” by Ciro Noronha, Adi Rozenberg, and Wes Simpson, the authors compare two open internet transport protocols: the Reliable Internet Stream Transport (RIST) and the Secure Reliable Transport (SRT). They conclude that both RIST and SRT perform well under low packet-loss conditions, but RIST outperforms SRT under suboptimal network conditions.

“Data is Not a Byproduct—It’s the Product: Applying Data-as-a-Product Thinking in Media & Entertainment” by Dan Gesshel takes as its main premise that our industry “is generating more data than ever before, yet much of this data is underutilized.” Gesshel explores the need to better leverage this data to pursue business

objectives and argues for “Data as a Product” (DaaP) thinking. The paper covers a Data Mesh framework that the author proposes will unlock value and secure trust through more rigorous enforcement of ownership, lifecycle management, service-level agreements (SLAs), and feedback loops.

Last but certainly not least is a paper titled “Redefining Media Delivery: Integrating a Stream Transformation Engine in the Distribution Pipeline for Next-Gen Streaming Efficiency,” by Pierre Le Fevre and Adam Nilsson. In this paper, the authors discuss integrating dedicated hardware with cloud solutions to leverage the advantages of both. They explore a hardware-agnostic stream-transformation architecture to achieve this. This solution leverages GPU, FPGA/ASIC, and CPU accelerators, all orchestrated through Kubernetes.

Of course, every themed issue of our *Motion Imaging Journal* aims to

include at least one paper that is not specific to the theme. In this case, we present: “On Mobile HDR Video Capture and Distribution— Preserve Creative Intent with Ambient Viewing Environment Metadata” by Qing Song, Taoran Lu, Giggs Xu, Chris Chang, and Xin Wang.

Together, these papers make for interesting reading, especially pertinent as streaming delivery and cloud production continue their forward march toward pervasiveness. We hope you find them enlightening.

About the Author



Steve Bilow retired from corporate life in 2025 after more than 40 years in video, audio, and computer graphics. He has led product development in imaging, broadcast, media management, and orchestration. He is now a writer and specialist in post-production

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