TC-NAS emerging trends

7 November 2014

AES67

AES67 is an interoperability standard for high-performance audio over IP. It can be implemented as an interoperability mode or it can be used as a system's native low-level audio networking protocol. The standard is tightly focused on getting audio across a network using standard protocols. Since publication in September 2013 it has been downloaded nearly 1000 times and several manufacturers have announced AES67 implementations and plans for implementation. An interoperability "plugfest" test organized by the AES occurred in October 2014 in Munich another is being planned for North America in 2015.

MNA

The Media Networking Alliance is a new trade association whose purpose is to provide industry support for the proliferation of AES67. We do so by providing information and resources to the industry as well as promoting the benefits of AES67. Our focus is on three areas of activity, Technical, Marketing, and Education.   The MNA held our first meetings and presentations at the recent AES convention in Los Angeles. The presentations were well attended and included a lot of dialog and discussion with audience members. Since then, the MNA has created our web site (http://www.medianetworkingalliance.com/) and has received a lot of interest from manufacturers and others in becoming members.

AVB

AVnu Alliance announced the first certified switch at the end of 2013 and first certified Pro Audio endpoint in mid-2014. New certification programs to be announced in 2015 include automotive and Pro Video. The IEEE has expanded the scope of AVB – now denoted as Time Sensitive Networking (TSN) – with new features such as ultra-low latency and seamless redundancy. The AVnu Alliance has announced that it will certify TSN features in addition to AVB product features.

ACIP2

ACIP2 is an EBU working group addressing the contribution of audio material over IP. Participants are members of the EBU and manufacturers from all over the world. ACIP2 was set up as a follow-up group to ACIP. Basing on the formerly produced TechDoc 3326, a standard for Audio Contribution over IP (known as N/ACIP), ACIP2 answers new rising questions and harmonizes the new world of audio over IP for broadcasters. During last IBC a new version of the TechDoc 3326 has been agreed on, and also a TechDoc on profiles (a set of parameters describing how to transmit and receive audio streams and for the decoder to successfully decode the audio, based on the sent parameters) will be published by end of this year. Ongoing work covers SIP infrastructures, control and management. Recently, the North American Broadcasters Association (NABA) has shown great interest in this work.

JT-NM

A Joint Task Force on Professional Networked Streamed Media (JT-NM) was formed in 2013 by The European Broadcasting Union (EBU), The Society of Motion Picture and Television Engineers (SMPTE) and The Video Services Forum (VSF). The task force collected and categorized use cases for broadcast applications of media networking and then invited manufacturers and technology providers to indicate which use cases are addressed by existing and emerging technology. The task force completed phase 1 work with the publication of a Gap Analysis Report which compared use cases with technology capabilities. The report is available for download at https://tech.ebu.ch/docs/groups/jtnm/GapAnalysisReport_231213.pdf. The task force has since embarked on phase 2 projects including definition of a reference model for media networking.

Internet performance

Audio networking relies on real-time performance from networks. Due to a variety of factors, notably bufferbloat, delays across the internet can be measured in seconds. Active queue management (AQM) and fair queuing are being developed and deployed to reduce these delays. The IETF AQM and RMCAT working groups are preparing proposed standards in these areas (https://datatracker.ietf.org/doc/draft-nichols-tsvwg-codel/, https://tools.ietf.org/html/draft-pan-aqm-pie-02 and https://tools.ietf.org/html/draft-hoeiland-joergensen-aqm-fq-codel-00)

Lip sync standard

Synchronizing separate audio and video streams in a broadcast plant and other facilities has been a detailed and error-prone engineering problem. With the inclusion of networked AV in these applications, the situation appeared to only be getting more difficult. However, in June 2014, the IETF published RFC 7272 which continues work started by ETSI and establishes an architecture and communication protocols for time synchronizing multiple media streams with sub-nanosecond accuracy. Any media networking based on RTP may use the techniques described in this standard. Other use cases addressed include social TV, video walls and phase-coherent multichannel audio (e.g. stereophonic sound, line arrays, mic arrays and wave field synthesis).