A/V Standards for Pro A/V
How and Why

Scott Barella
AIMS co-Chair
CTO for PESA

Why standards for a market that doesn’t use them?

• Interoperability
• Interoperability
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We had A/V standards before

- Analog Video – NTSC/PAL/SECAM broadcast
- Analog Audio – 600/150 ohm balanced – Broadcast Radio
- Digital Video – Serial Digital Interface (SDI) – Broadcast SMPTE
- Digital Audio – AES varieties – Broadcast AES
- Now we move to IP

Internet Protocol (IP) is a STANDARD!

- OSI Model is IP
  - PHY
  - ETHERNET
  - UDP
  - RTP
  - PTP
Standards Groups provide the means

- IETF (Internet Engineering Task Force)
  - RFC’s (Request for Comments) formal documents
- IEEE (Institute of Electrical and Electronics Engineers)
  - Standards for many things including time (1588)
- SMPTE (Society for Motion Picture & Television Engineers)
  - Video Standards – 259M, 292M, 424M
- AES (Audio Engineering Society)
  - Audio Standards – AES67, AES3

So why is Pro A/V avoiding IP standards?

- Interoperability
- Interoperability
- Interoperability

The prevailing theme is VERY dangerous!

Nearly all Pro A/V IP derivations are PROPRIETARY
What’s the AIMS way?

SMPTE 2110 Suite of Professional Standards
• 2110 – 10 Timing and Synchronization (IEEE 1588 based)
• 2110 – 20 Video (RFC 4175)
• 2110 – 30 Audio (AES67)
• 2110 – 40 ANC data (SMPTE 291)
• NMOS Registration & Discovery

What’s missing for Pro A/V?

The Roadmap for Pro A/V is missing!
• 2110 – 22 Compressed video
  – VC-2 (SMPTE 2042)
  – TICO XS (JPEG XS)
  – Other Registered codecs such as H.264/265

While we have compression solutions what about the rest?
The missing links!*

- HDCP
- Simplified Timing
- Secondary interfacing
  - USB (standard)
  - GPI/GPO (standard)
  - RS 232 (standard)
  - EDID (standard)
- Encryption & Security

HDCP

- HDCP 2.2 (High bandwidth Digital Content Protection)
  - Intel based
  - AIMS Pro A/V has begun preliminary discussions
- Used for HDMI interfaces
- Allows 4K and lower
Simplified Timing

- PTP timing may be too much for Pro A/V
- Easier methods for non-synchronous signal types

Secondary Interfaces

- USB
  - USB to IP needs a common methodology to/from IP
  - Very common interface among thousands of devices
- GPI/GPO
  - Common methodology for triggering events via contact closure
- RS 232
  - This is pretty much common among manufacturers but a common method needs to be identified
  - Other types could be included such as RS422, RS 495, etc.
Security & Encryption

• Security in IP is key to success
• Various methodologies
  – FIPS 140-2 crypto means
  – Certificate means
  – Others

Standards Basics

Getting involved
• Join AIMS!
  – Bring your ideas and start the process
• Participate in allied bodies
  – VSF (Video Services Forum)
  – AMWA (Advanced Media Workflows Association)
• Invite from other organizations
  – CEA for example
Thank you

Scott Barella, PESA

scott.barella@pesa.com // +1 (303) 503-7572

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