Utilizing ST 2110 in ProAV Applications

Scott Barella, CTO
PESA
Audio/Visual Starts with Analog

• NTSC - The beginnings of A/V begin with broadcast video standard
  – Analog Audio using high impedance
  – Video was either transport directly as baseband analog signal or RF using NTSC RF channel....later Cable RF
  – Standards were copied because devices used them...
    • TV’S
    • SPEAKERS
    • AMPLIFIERS
Standards Organizations followed Broadcasters

- Color TV was added and followed strict signal parameters
- Stereo TV followed guidelines
- Closed Captioning was added
- Analog transitioned to Digital (Serial Digital Interface – SDI)
- Standard Definition transition to High Definition
- Digital now transitioning to IP
Standards Organizations became the norm

• Society of Motion Picture and Television Engineers
• Institute of Electrical and Electronics Engineers
• Audio Engineering Society

Interoperability is the direct result
Open Systems Interconnection
SMPT 2110

• Use SDI as the ‘template’
• OSI as the rule set
• Users and Manufactures collaborate to create 2110
  – System and Timing
  – Video
  – Audio
  – Metadata

Interoperability is the goal
IP = Flexibility for Video

• Uncompressed Video BEGINS before compression
• MPEG Codecs began the Wild West
  – MPEG 2 with 100’s of profiles
  – H.264 with 1000’s of profiles
  – H.265 ....
  – IP Codecs create unique pairs where Tx must have an Rx
Pro A/V Market for IP

• Video can be compressed using choice of registered Codecs
  – 2110-22 (J2K, VC-2, JPEG XS, MPEG...)

• Audio follows AES67
  – 2110-30

• VANC follows SDI
  – 2110 – 40

• HDCP 2.2/1/4

• USB
PESA KVM Example

- 2110-22 Video using J2K (TR-01)
- 2110-30 Audio for Audio
- 2110-10 PTP for time relevancy
- USB for HID devices
- HDCP for content protection
SMPTE 2110 is the template

Like its analog roots, 2110 can be used for a lot of Pro A/V applications
Thank You

Scott Barella, PESA
scott.barella@pesa.com