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PRO AUDIO CONVENTION


AIMS
Alliance for IP Media Solutions

Introduction to AES67 and its relationship with SMPTE ST 2110-30

AES67 and SMPTE ST 2110

- Two significant open standards have emerged in the past several years to provide wide-ranging interoperability for professional media networking
- AES67 and SMPTE ST 2110 are core standards in the AIMS roadmap
- AES67 first published in 2013; updated in 2015 and 2018
- SMPTE ST 2110 suite of standards; initial sections published in December 2017
- What is the relationship between these two standards?

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AES67 Standard

What was the original goal?

- “Provide a method to connect disparate Audio-over-IP systems to achieve workaround-free networked audio interoperability”

How is AES67 defined?

- Interoperability Standard for high performance Audio-over-IP networks
- Based on existing and trusted IT standards
  - This ensures compatibility with existing network infrastructure
  - Also allows coexistence with other IT data

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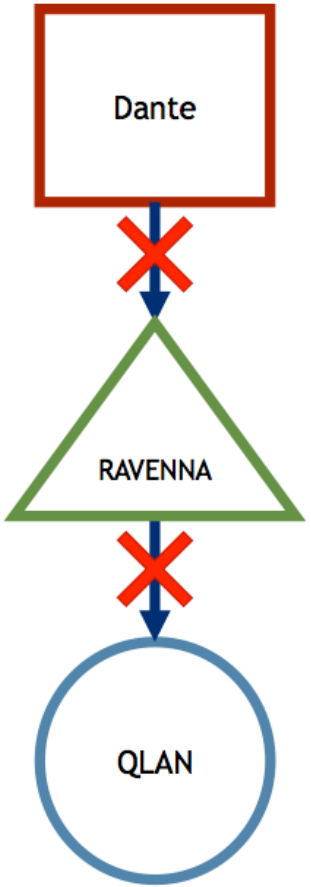
Problem Statement

- Audio-over-IP (Networked Audio) provides simpler and better connection between audio equipment
- Coupled with many advantages, one clear challenge presented itself: **Compatibility**
- While each Audio-over-IP solution offered in-system connectivity, there was no standard to provide inter-system connectivity



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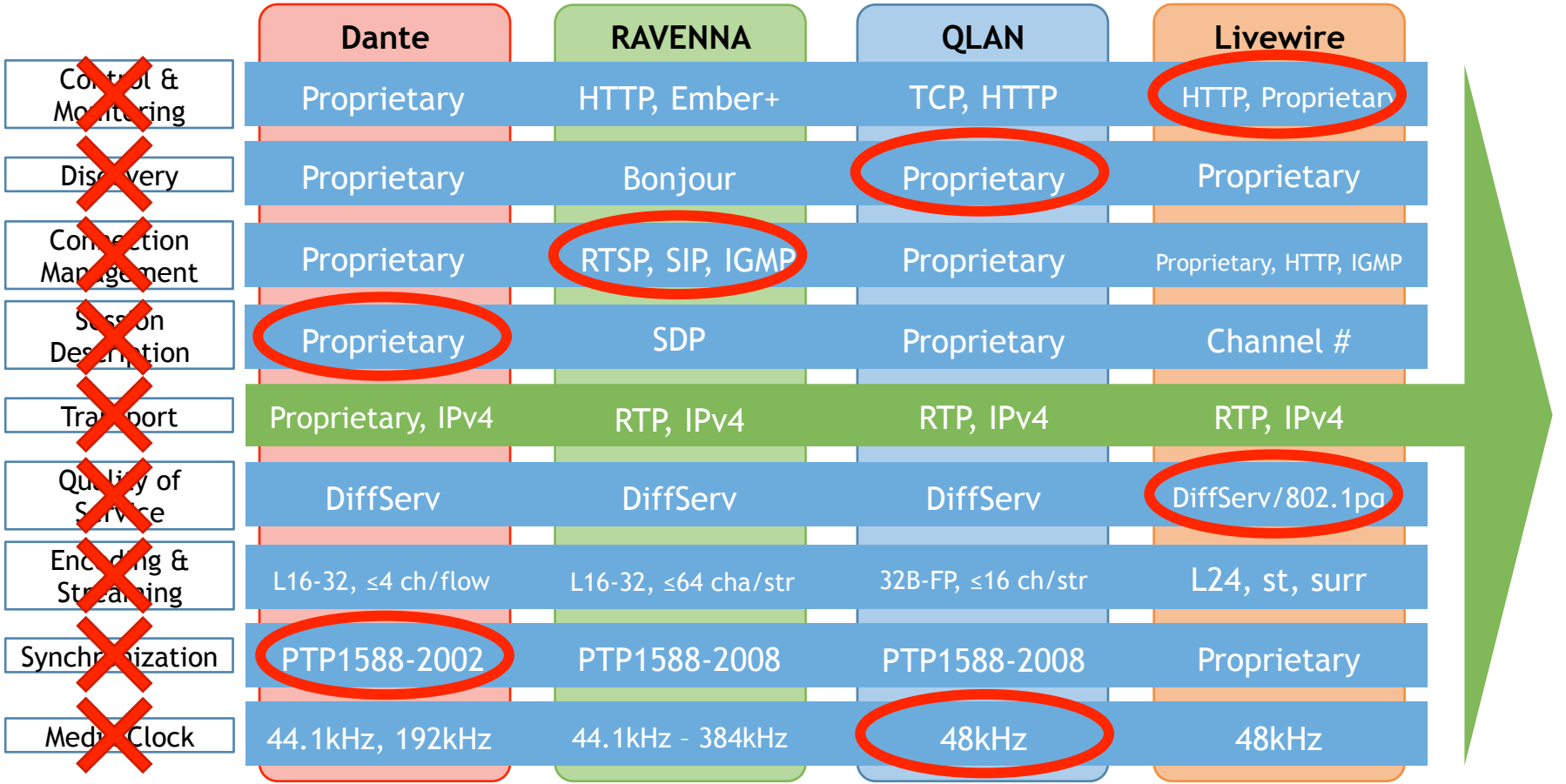
The Road to Incompatibility…



AES67 Compatibility Mode

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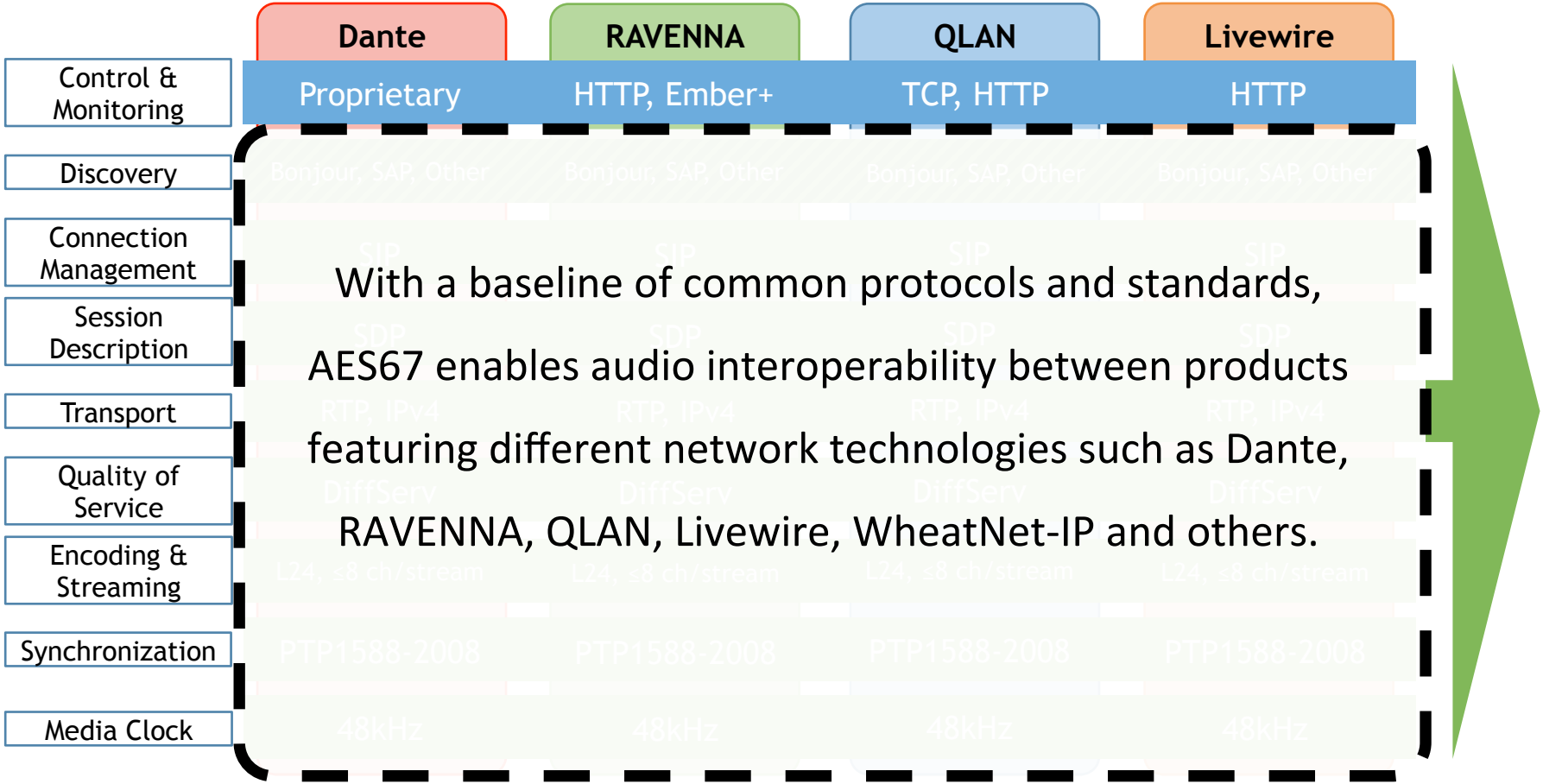
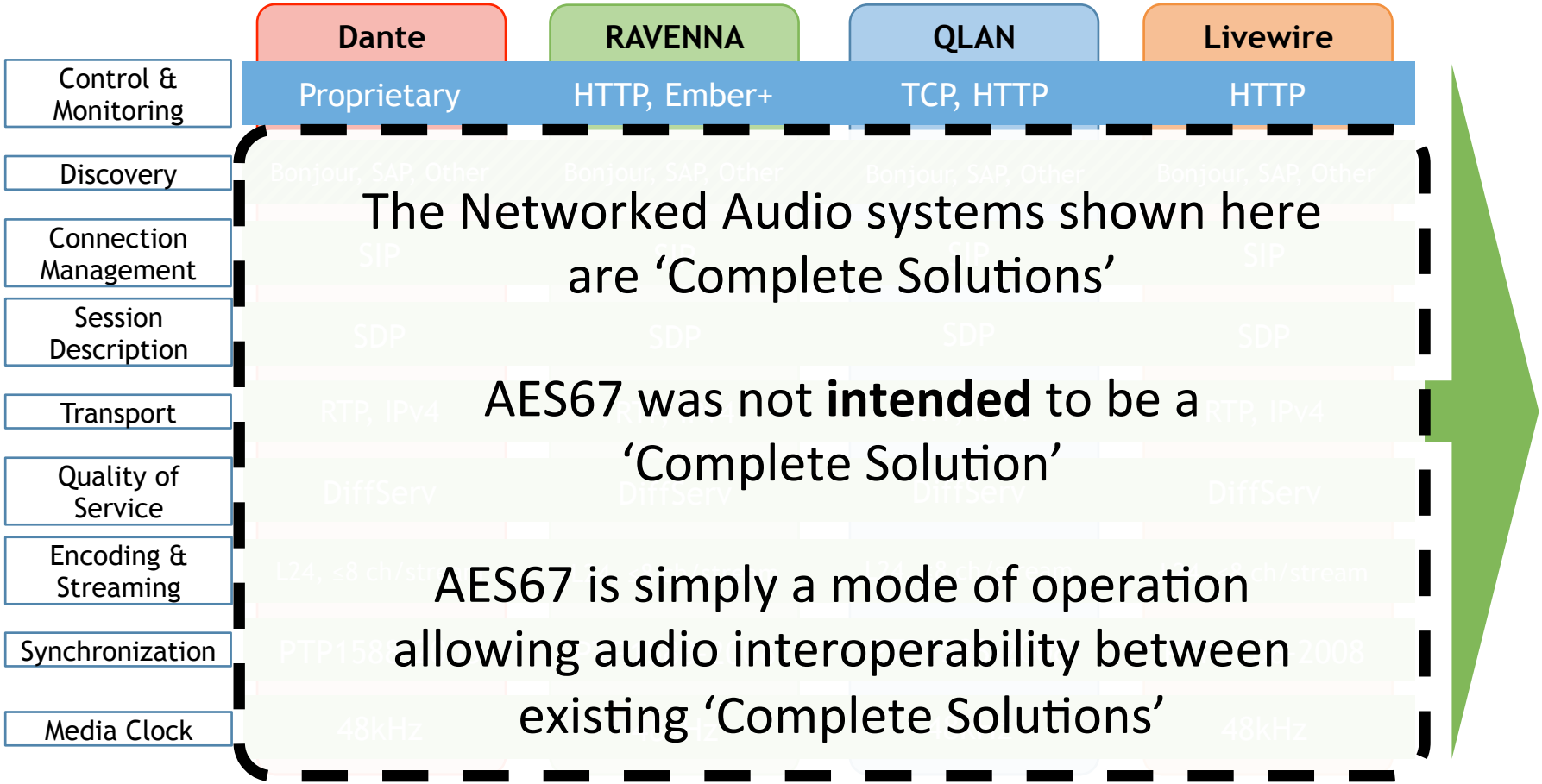


AES67 Compatibility Mode



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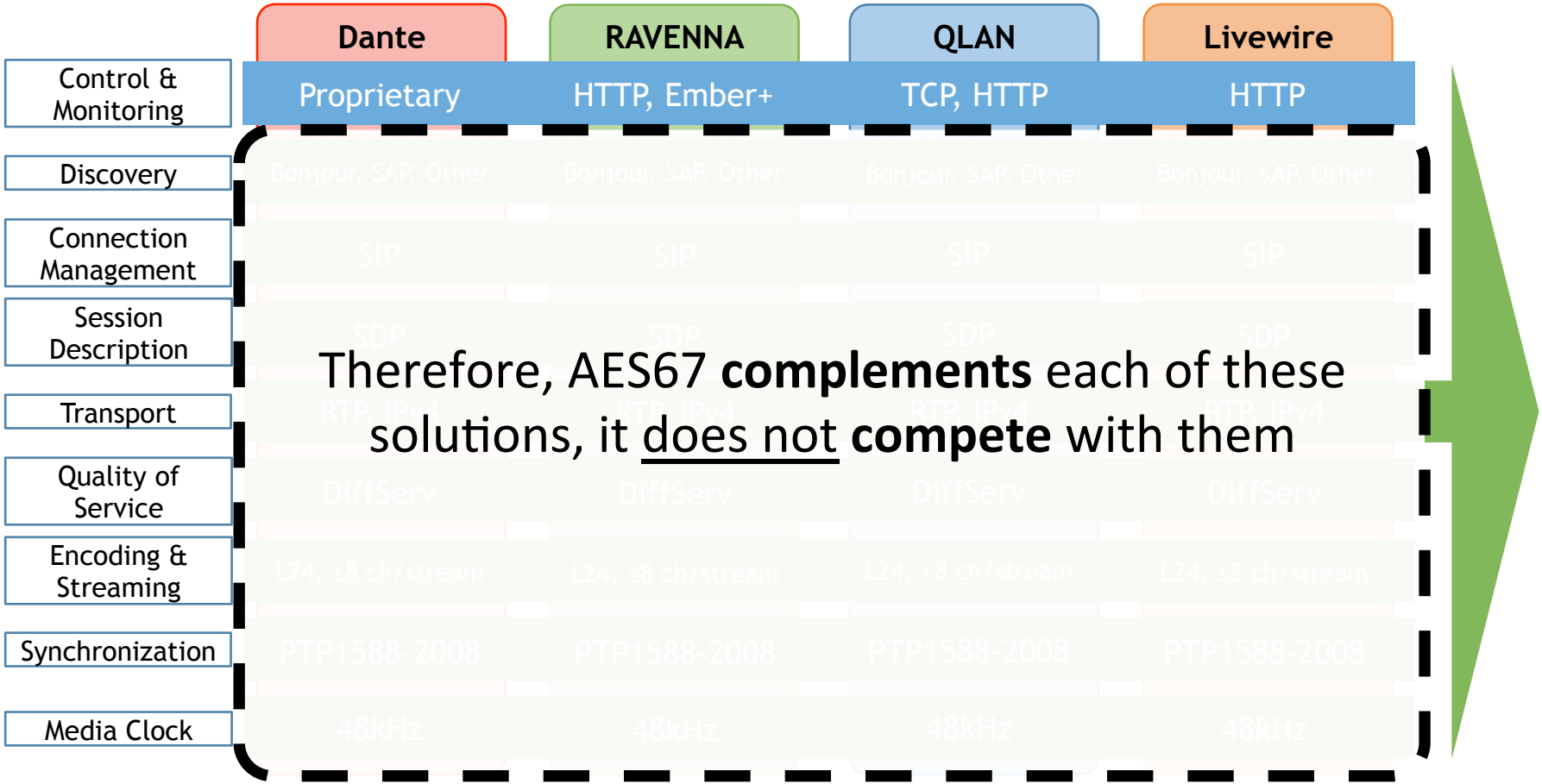
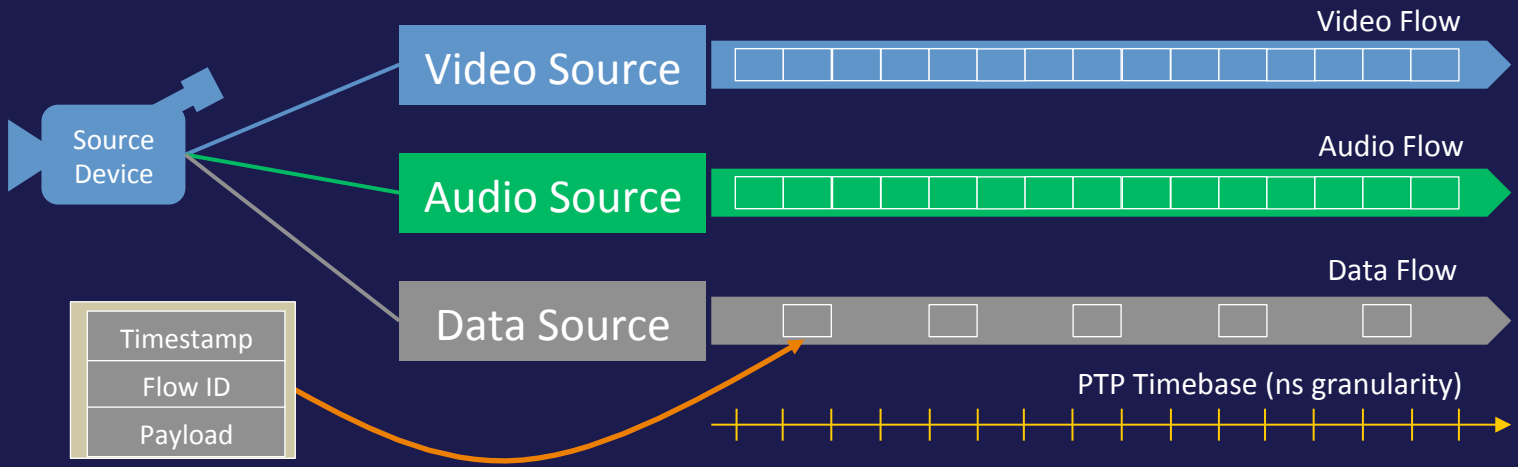


AES67 Enables Disparate Networked Audio Solutions to Talk to Each Other

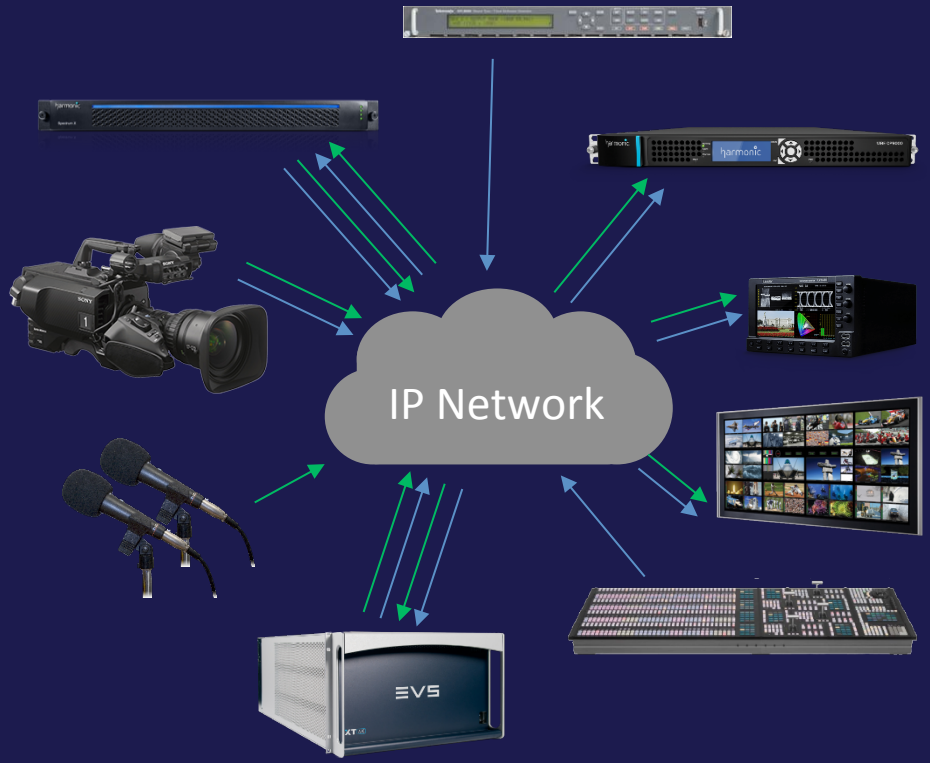
What is SMPTE ST 2110?

- Standard for transport of video, audio and data over IP networks primarily for broadcast applications
- Video, audio and data carried as independent flows



What is the Role of SMPTE ST 2110?

- Flexible alternative to SDI for real time systems
- Enables greater flexibility for contribution, production and playout workflows



SMPTE ST 2110 Suite of Standards

SMPTE ST 2110-10	Timing and definitions – SMPTE ST 2059 aka PTP
SMPTE ST 2110-20	Uncompressed active video – RFC-4175 transport of video
SMPTE ST 2110-30	Uncompressed PCM audio – AES67 transport of audio
SMPTE ST 2110-40	Ancillary data – IETF ANC 291
SMPTE ST 2110-21	Video Sender Traffic Shaping for uncompressed video
SMPTE ST 2110-22	Carriage for compressed video over IP
SMPTE ST 2110-31	Full AES3 transport

SMPTE ST 2110-30
A CONSTRAINED SUBSET OF AES67

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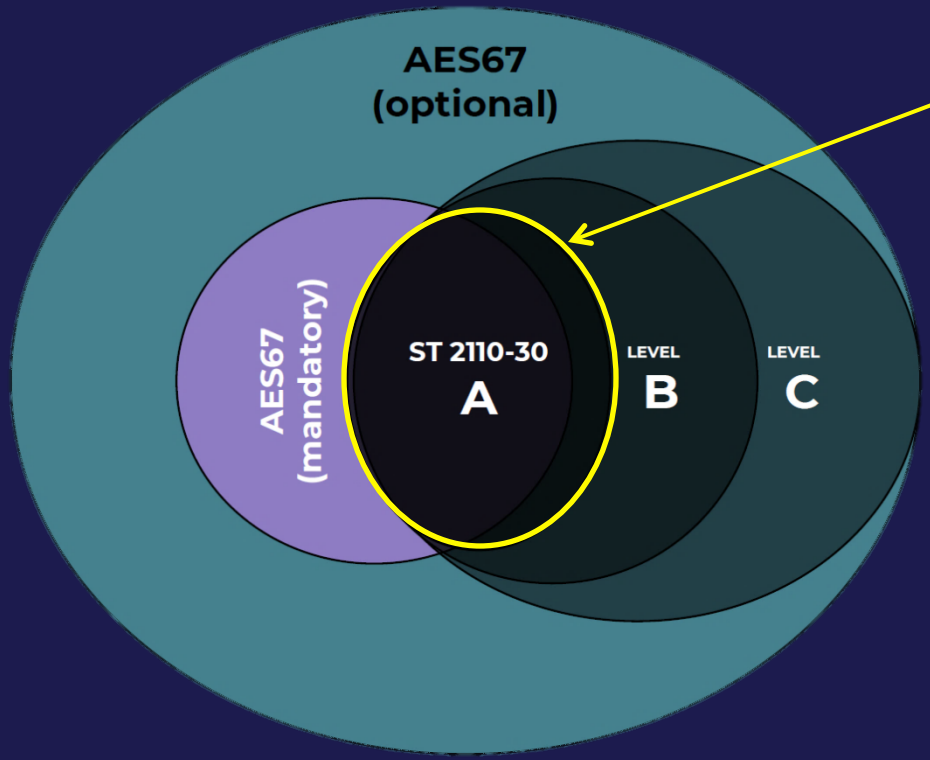
CONSTRAINTS = BETTER INTEROPERABILITY (via tighter operating point definition)

SMPTE ST 2110-30
A CONSTRAINED SUBSET OF AES67

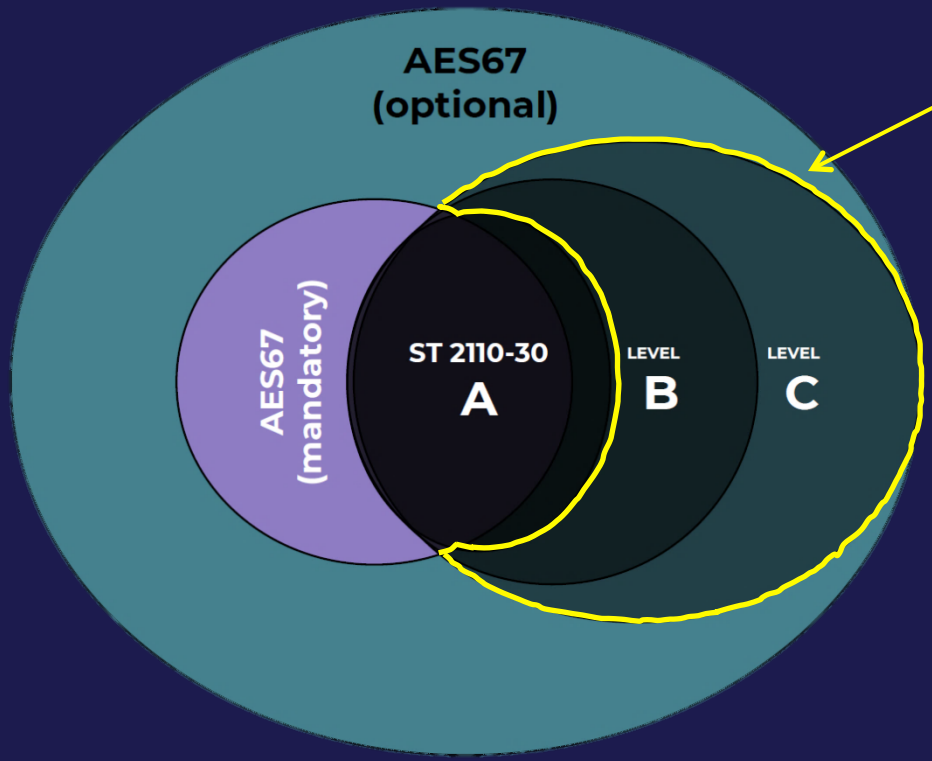


PRIMARY OPERATING POINT:

- **1 msec** packet times
- 2 & 8 channels per stream
- Common PTP operating point per AES-R16-2016
- RTP offset = 0 (unique to ST 2110-30)

CONSTRAINTS = BETTER INTEROPERABILITY (via tighter operating point definition)

SMPTE ST 2110-30
A CONSTRAINED SUBSET OF AES67



These two operating points (ST 2110-30 Level B & Level C) both support a shorter packet time of **125 µs**, ideal for low-latency **LIVE PRODUCTION**

LEVEL B: up to 8 channels/ stream

LEVEL C: up to 64 channels per stream

CONSTRAINTS = BETTER INTEROPERABILITY (via tighter operating point definition)

AES67 / SMPTE ST 2110 COMMONALITIES AND CONSTRAINTS

Explanation of the relationship between the SMPTE ST 2110 standard and the AES67 standard from the Audio Engineering Society

Updated – APRIL 2019