NMOS and ST 2110 for AV over IP in Pro AV: How and Why?

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- **Andrew Starks**
- Director of Product Management for

  MACNICA AMERICAS

- Formerly Co-Founder of Tightrope Media Systems (20 Years)

- *Extremely* Happy to be here!

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Currently in Pro AV…

Some of the Marketing/Proprietary "Standards"…

NDI	**NewTek NDI and NDI|HX**
SDVoE ALLIANCE	**SDVoE Alliance**
HDBT	**HDBaseT** Not IP – point to point, popular

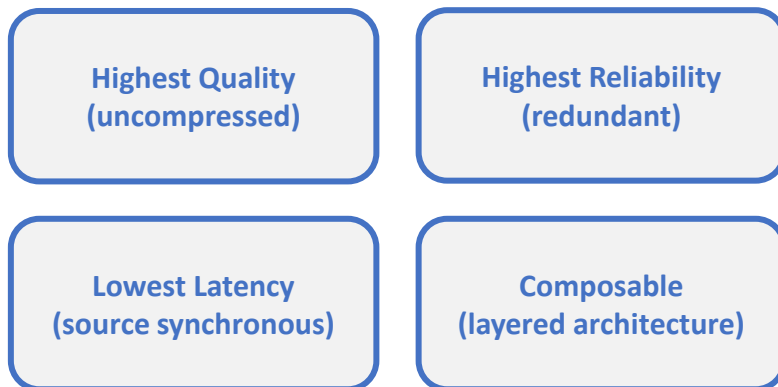### Proposed Open Standard

SMPTE · AMWA · ST 2110 · NMOS · AIMS

Adding profiles and standards that are
reducing cost and widening adoption

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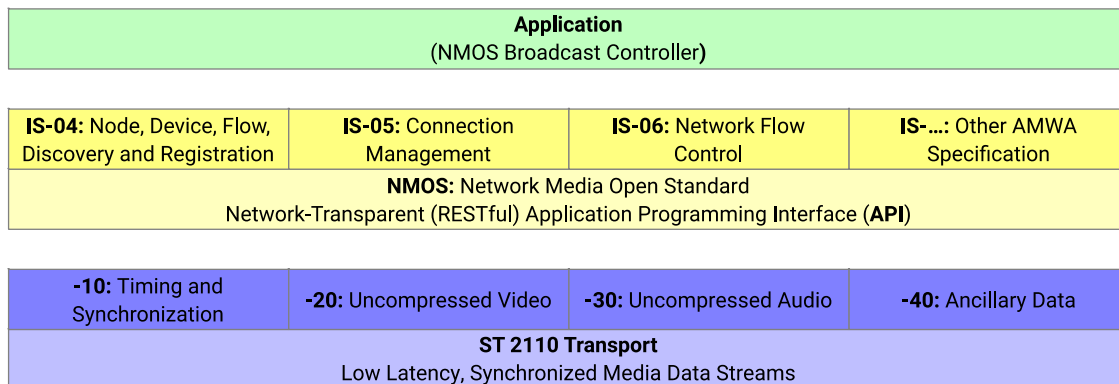# Broadcast Roots

Highest Quality (uncompressed)	Highest Reliability (redundant)
Lowest Latency (source synchronous)	Composable (layered architecture)

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Layers and Components

Application (NMOS Broadcast Controller)			

IS-04: Node, Device, Flow, Discovery and Registration	**IS-05:** Connection Management	**IS-06:** Network Flow Control	**IS-…:** Other AMWA Specification
NMOS: Network Media Open Standard Network-Transparent (RESTful) Application Programming Interface (**API**)			

-10: Timing and Synchronization	**-20:** Uncompressed Video	**-30:** Uncompressed Audio	**-40:** Ancillary Data
ST 2110 Transport Low Latency, Synchronized Media Data Streams			

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What is needed for AV over IP for Pro AV?

Flexible tradeoffs

Quality ⟷ Bandwidth

Latency

Dynamic Behavior
HDCP, CEC, EDID, HPD, USB, …

HDMI

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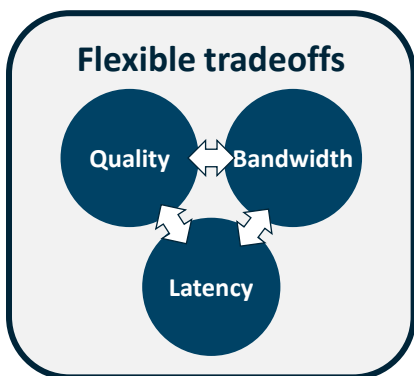
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Building the Profile

- **Compression:** video and audio
- **Security:** stream encryption (HDCP, etc.), authentication, access control
- **Timing:** flexibility for constrained / shared networks
- **Control:** interoperable for common use cases
  (HPD, EIDID, CEC, PTZ, USB, etc.)

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Success is…

Highest performance for the specific pain that you are relieving	Simple, transparent, and **scalable interoperability**	**One clean and simple API** that models the problem	It is… **better than what it replaces**

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The Gutenberg Press
(replica)

https://en.wikipedia.org/wiki/Printing_press

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The Goal of AIMS…

To foster the **adoption** *of*
one set of common, ubiquitous,
standards-based *protocols*

for **interoperability over IP**

in the media, entertainment and

pro AV *industries*

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Thank you

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Thank you to our Media Partners

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