



JPEG XS in Action for IP Production

The world's first full JPEG-XS deployment!

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Nevion



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Overview of customer requirements

- Large sports broadcaster
- Pan-European operation
- Intra-facility (campus) and inter-facility (Wide area) connectivity
- Lowest latency possible
- Optimized use of finite WAN resources
- ST2110 based
- ST2022-7 protection in WAN and LAN
- Short timescales!



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Mezzanine compression options

- | | |
|------------------------------|----------------------------|
| • JPEG 2000 – TR-01 2013 | 60ms + buffering + transit |
| • JPEG 2000 ULL – TR-01 2018 | 15ms + buffering + transit |
| • JPEG XS | <1ms + buffering + transit |

Typical mid-west-European transit delay of 10ms (2000km fibre)



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JPEG XS (ISO/IEC 21122)

- Wavelet based
- Intra-frame
- Fixed latency
- Adjustable compression ratio – typically up to 10:1
- CBR (constant bit rate)
- Supports 4:4:4, 4:2:2 & 4:2:0
- Supports any colour space (RGB, YCbCr, YUV, XYZ)
- Supports bit depth: 8, 10, 12
- Supports Interlaced & Progressive frame
- Supports SD, HD, 2K, 4K spatial resolutions
- Supports all main frame rates



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More details on XS compression here tomorrow

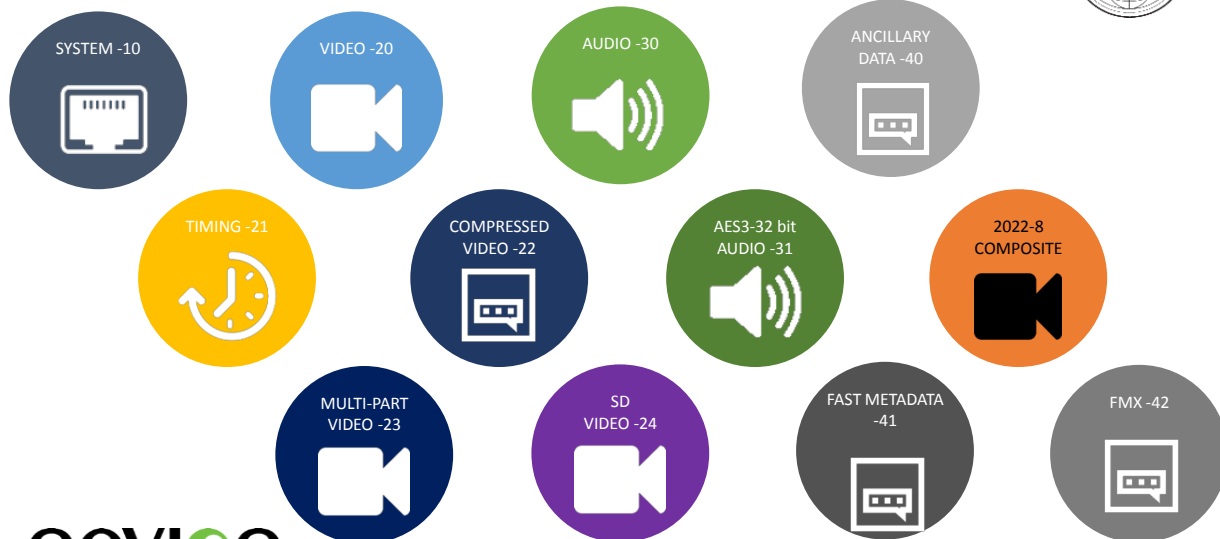
- SMPTE ST 2110 Using JPEG-XS
- Jean-Baptiste Lorent, intoPix
- 10:00am Saturday 14th
- IP showcase theatre



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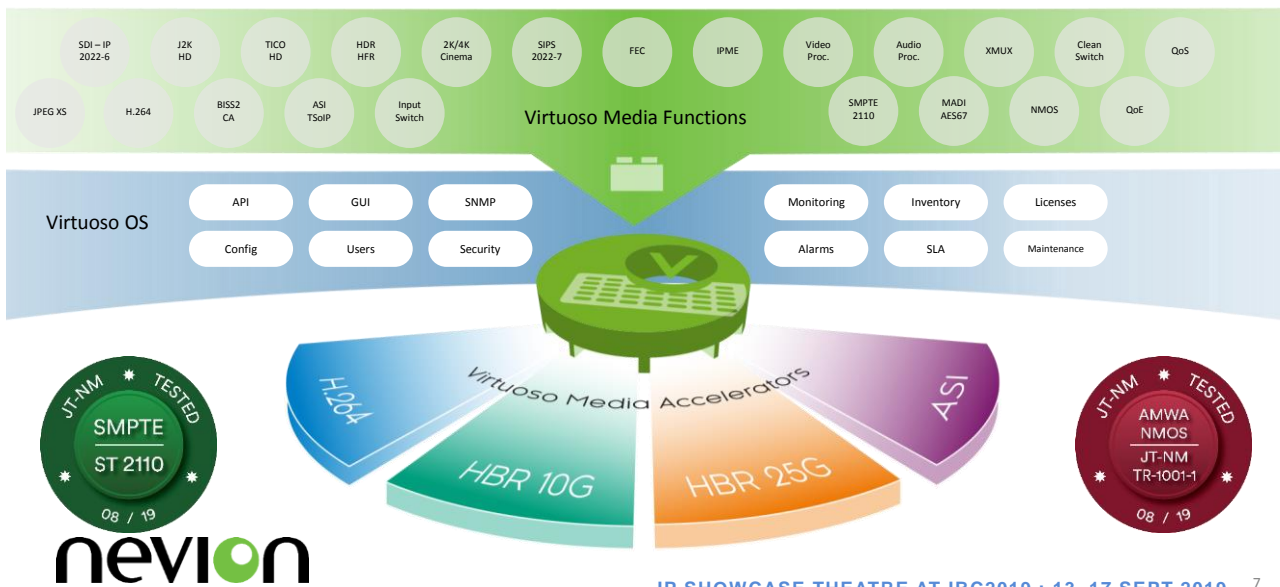
SMPTE ST 2110 suite



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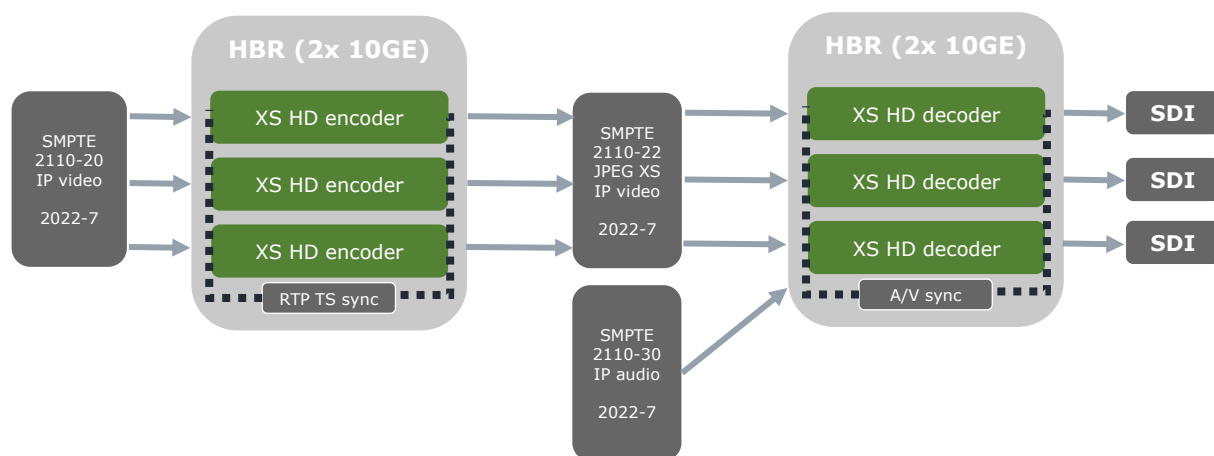
VIRTUOSO



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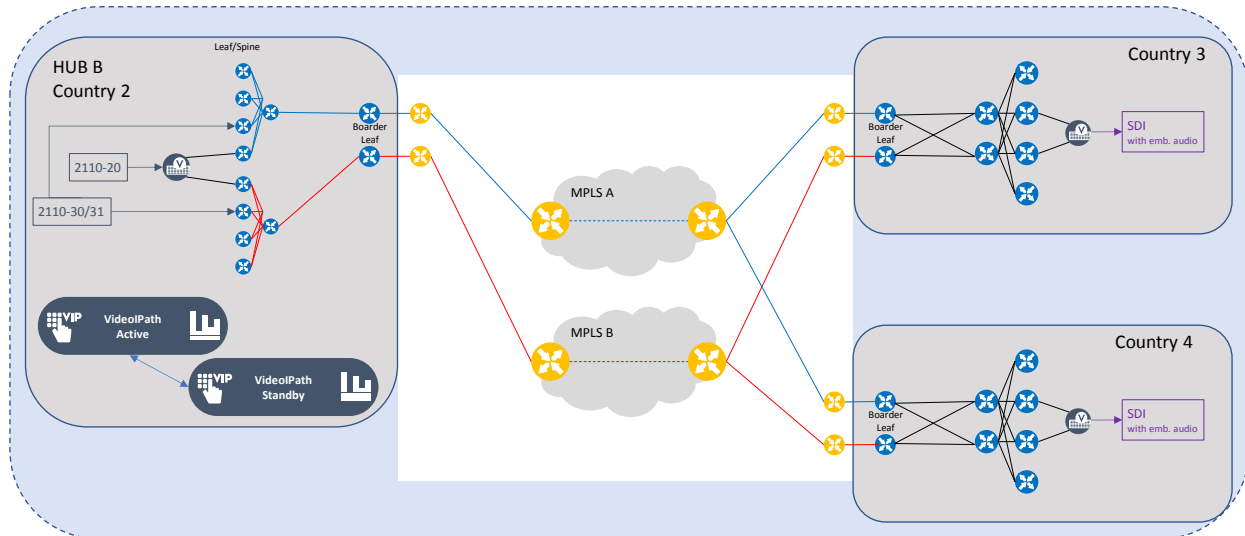
JPEG-XS implementation



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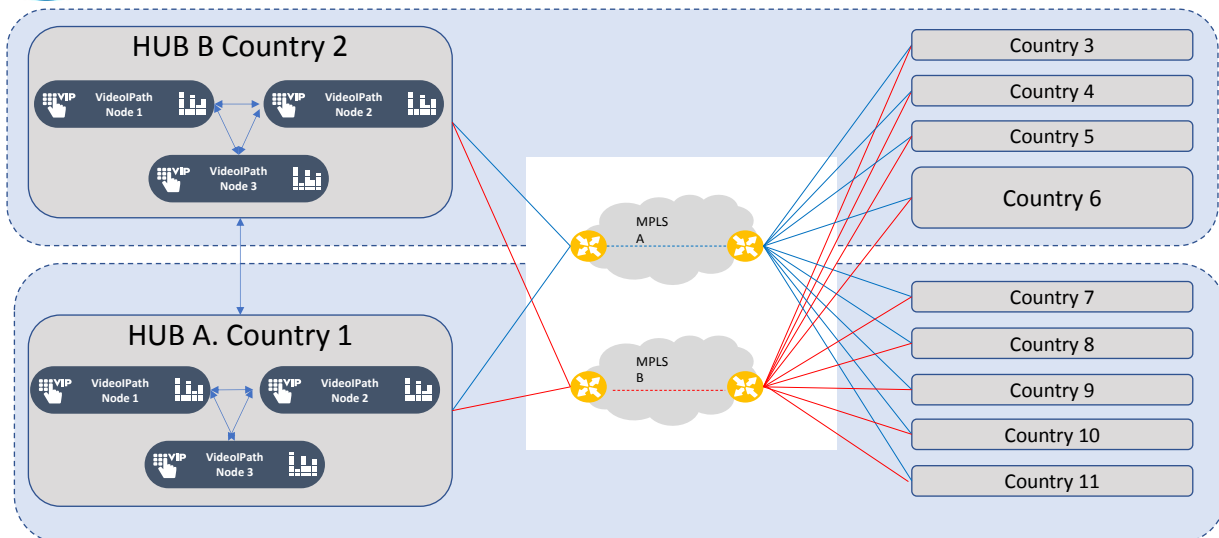
Deployment Phase 1 – July 2019



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High level architecture

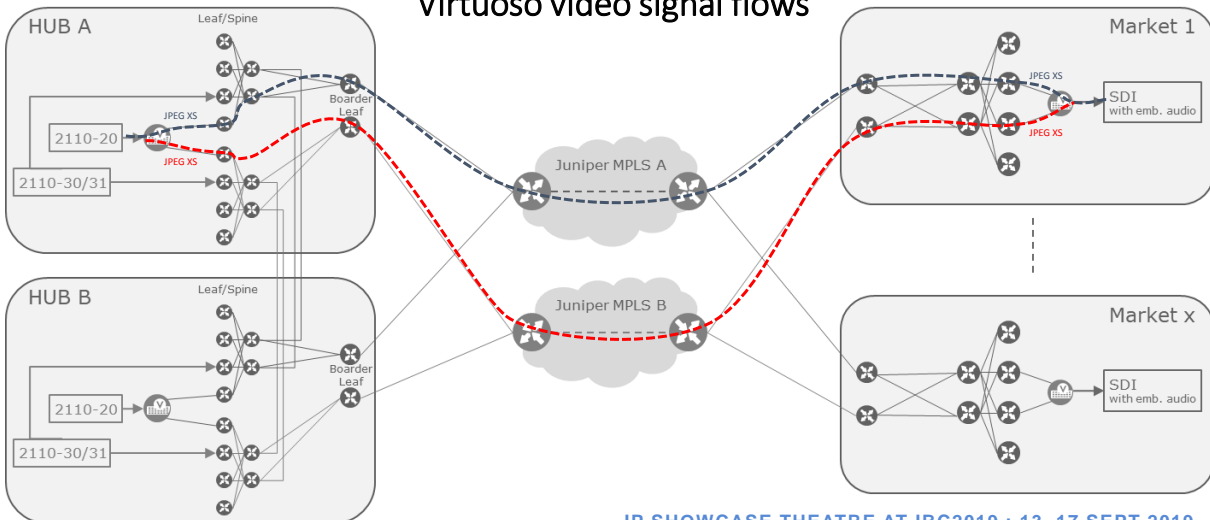


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VIP VideoIPath

Virtuoso video signal flows

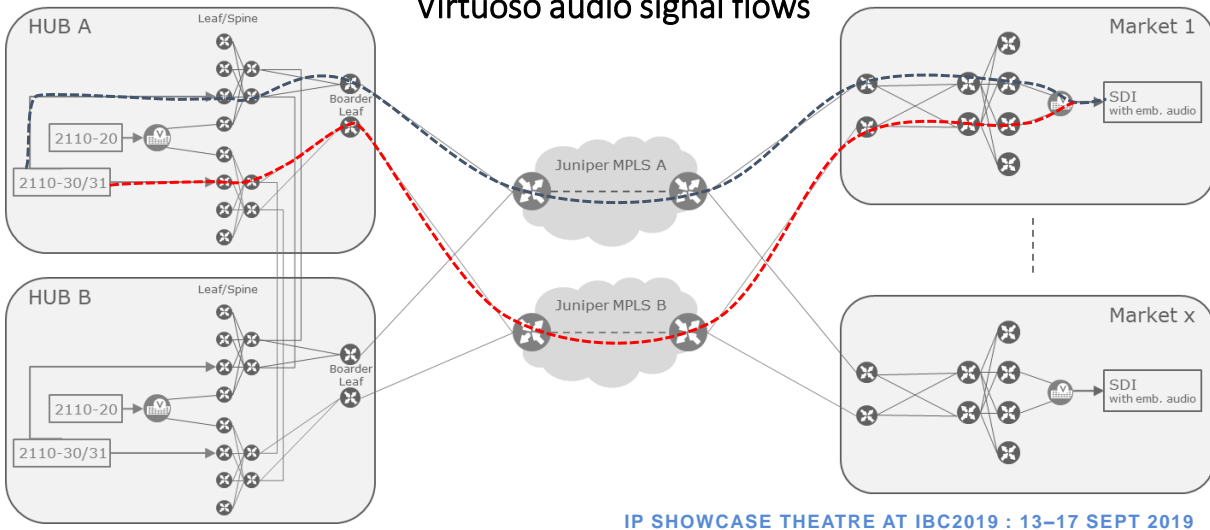


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VIP VideoIPath

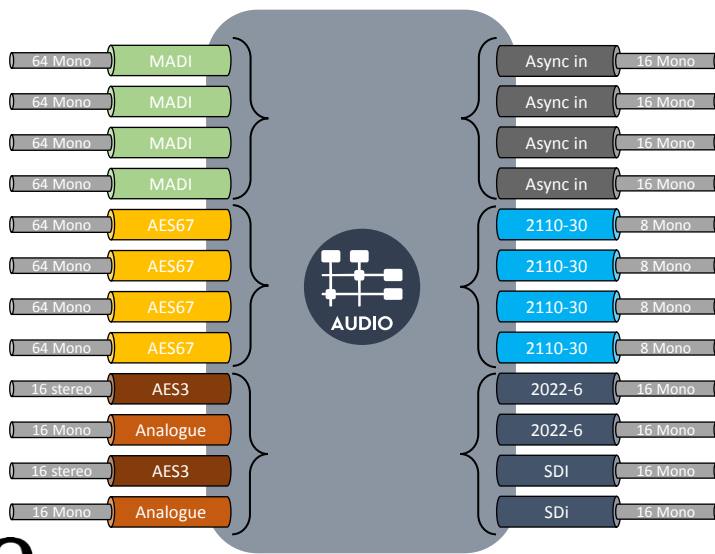
Virtuoso audio signal flows



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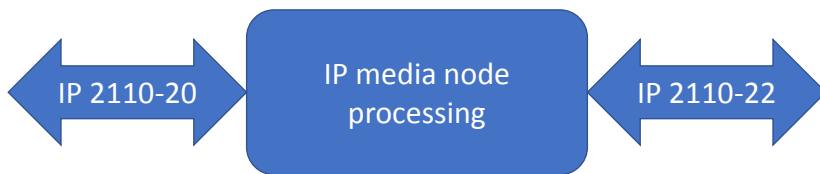
Don't forget the audio!



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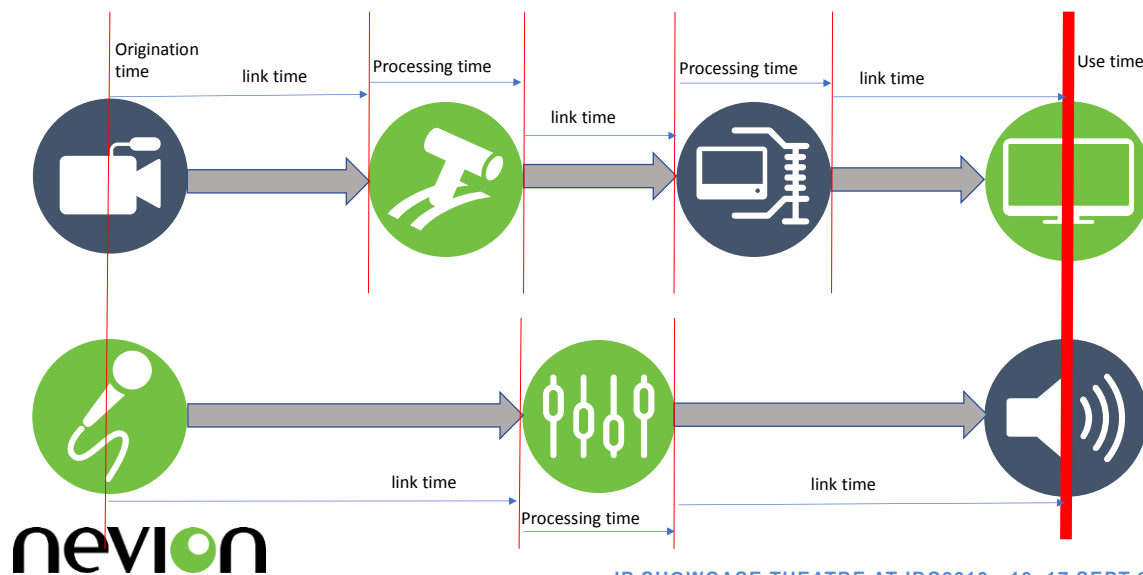
The IP-IP processing world



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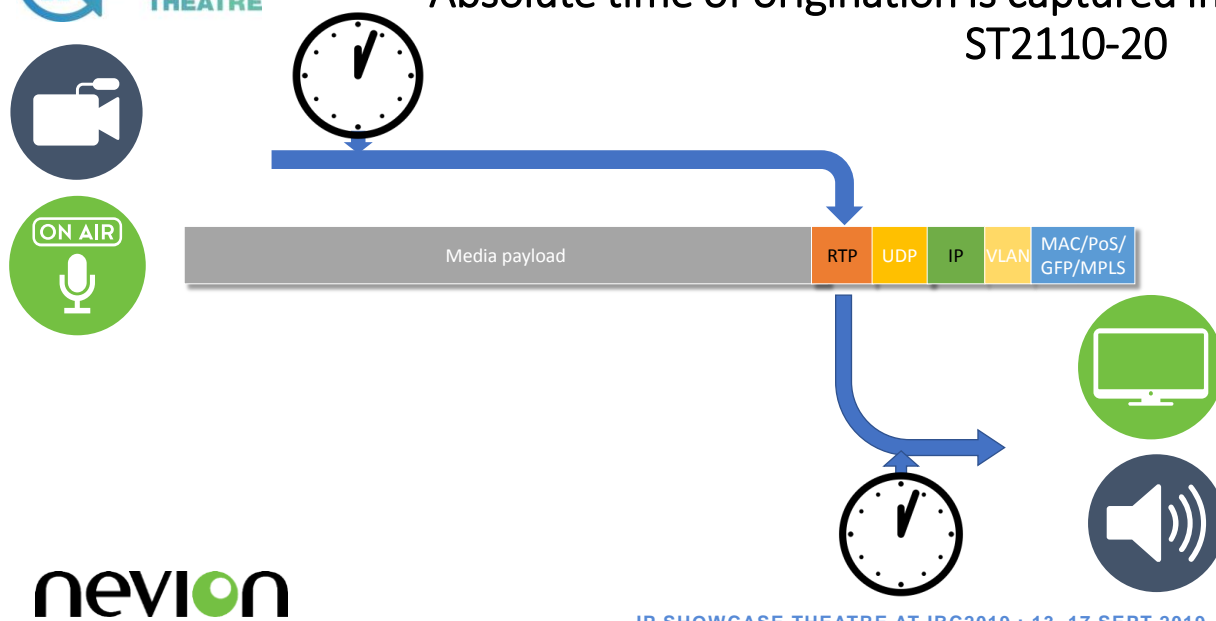
SMPTE2110 – time tracking potential



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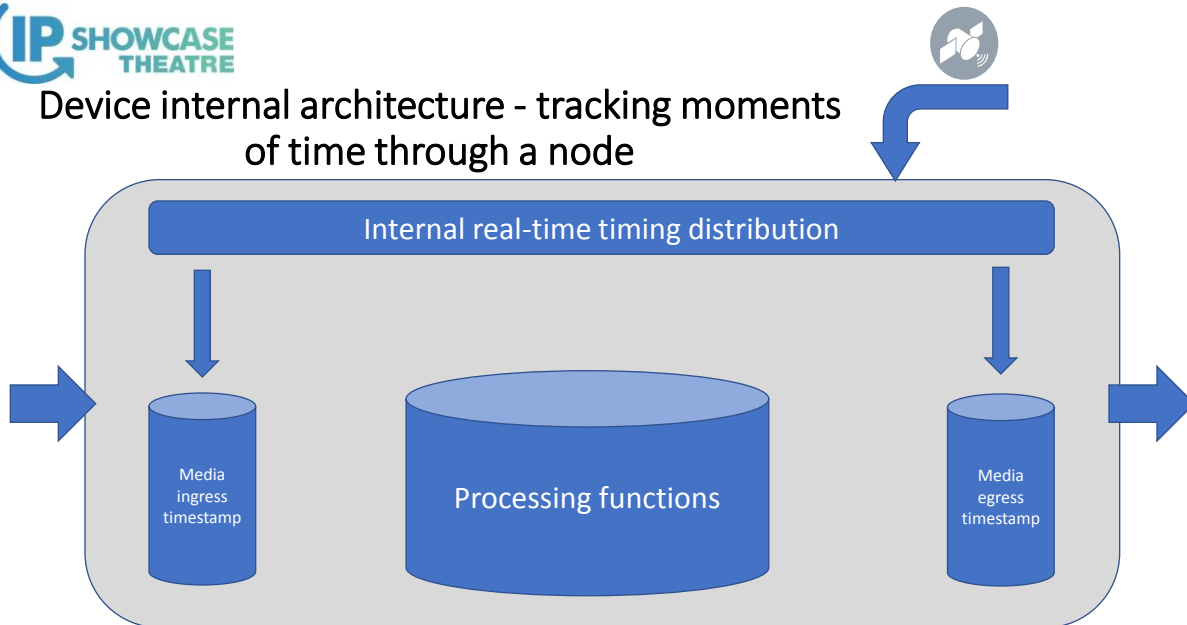
Absolute time of origination is captured in ST2110-20



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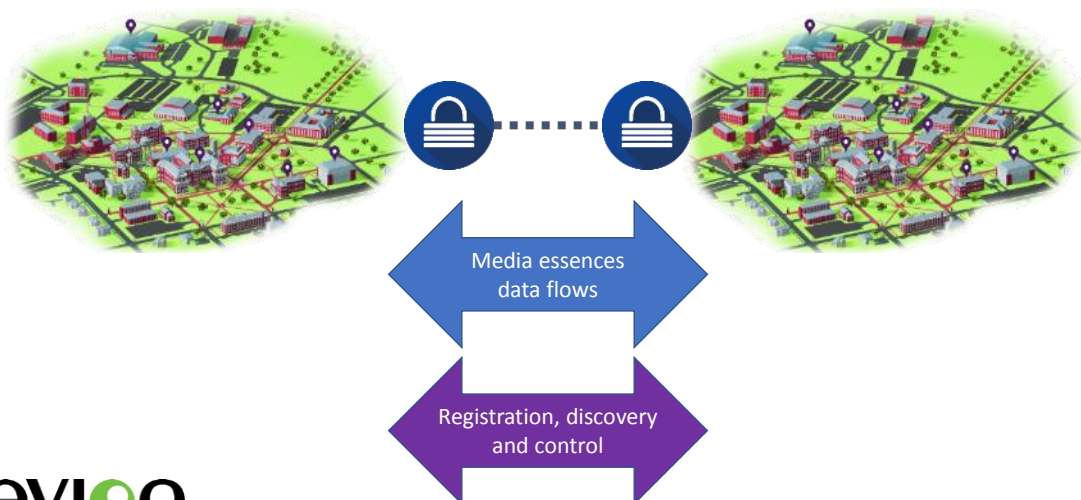
Device internal architecture - tracking moments of time through a node



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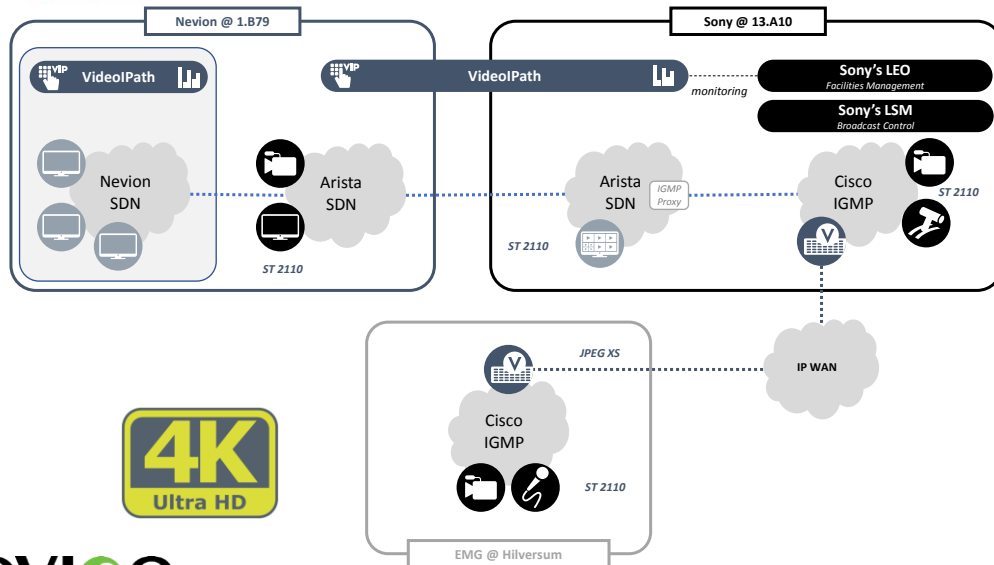
VSF TWG ST2110 over WAN Update here on Monday at 12:00 noon



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JPEG-XS UHD live remote production @ IBC 2019



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Summary

- JPEG-XS is working
- Low latency distributed production is possible
- ST2110-22 is a great addition to the 2110 suite
- Ongoing work on ST2110-WAN is important
- Delivered in short time to customer requirements



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Thank you

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Thank you to our Media Partners



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