



Deploying NGA in Broadcast Services

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Dolby AC-4 enables broadcasters to deliver the audio experiences consumers want



IMMERSIVE

- 3-D sound
- Dolby Atmos support



ACCESSIBLE

- Dialog audibility
- Audio description



PERSONALIZED

- Customized experiences
- Multi-language

Trials and Services

Telewizja Polska (TVP) – Euros



Euros football via DVB-T2 in AC-4

- Choice of commentator
- Stadium experience
- Existing deployed TVs



TVP - NGA Experiences

TVP offered the following experiences to customers during the Euros:

- Stadium Ambience Only
- Stadium Ambience + Polish Commentary
- Stadium Ambience + Radio Commentary
- Stadium Ambience + English Commentary

All experiences enable the “Dialogue Enhancement” feature to allow end-users to adjust the dialogue level to their needs.

Poland - Standard and transition plan

- Currently AC4 Stereo is on air 24/7 in most parts of Poland (AC-4 Stereo at 64kbps & 96kbps including Dialogue Enhancement)
- According to Polish regulation, NGA capable AC-4 is mandatory for DVB-T2 UHD HEVC IDTV receivers.
 - The receivers enable personalization of the sound reception including soundtrack selection, dialogue enhancement and mixing main with additional audio broadcast as audio objects.
- Poland's national plan foresees a switch from DVB-T to DVB-T2 in 2022.

French Open Tennis - 2021



French Open tennis

- World first – open standard sADM production workflow
- Broadcast in AC-4
- Receivable on existing UHDTVs

Roland Garros 2021 - Summary

- France TV goals
 - Adhere to TR045 recommendations "... broadcasters need an open, codec-independent workflow for NGA production deployment"
 - French FAVN Audio & Interop WG recommend AC-4 as a distribution codec
 - A third-party implementation of Dolby AC-4 codec
- Deliver Dolby AC-4 Next Generation Audio 5.1.4+D
- Control encoding mode switch with Serialized ADM (Audio Definition Model)
 - Advertisement in 5.1 and Stereo

France Télévisions – Roland Garros 2021

France Télévisions is preparing to launch a UHD service over DVB-T2.

- A key aspect of the service is NGA and the use of metadata in open standards distribution formats to author and control the NGA experiences.
- The metadata is authored at the broadcast and is carried through the workflow to configure the emission encoder at the platform operator's site. Metadata is also used to automatically re-configure the emission audio encoder when playout switches to pre-recorded advertisements in stereo.
- The emission encoder feeds DVB T2 (free-to-air) transmissions.

US – NextGen TV (ATSC)



NextGen TV now reaches 35% of US households

- AC-4 audio
- Focus on dialogue enhancement as key feature
- Works for existing content with no infrastructure change

SRF - Objectives and Context

In this workflow, dynamic metadata is used inside a SMPTE ST 2110 environment to control NGA experiences for live sports.

SRF leveraged Object-Based Audio to address two major issues:

- provision of personalized sound experiences
- optimizing the use of bandwidth

SRF has developed Europe's first all-IP UHD OB Van and has built a new Playout and Switching centre completely based on SMPTE ST 2110.

- One of the lessons learned from this innovation was the need for flexible Metadata-handling in an IP environment.

Summary

Deploying AC-4 for European services

1

TVs with AC-4 decoding are shipping in significant numbers (over 4 out of 5 UHD TVs ship with AC4)

2

AC-4 audio can start simple now and evolve over time

3

THERE'S AN OPPORTUNITY TO IMMERSE AND ENGAGE OUR AUDIENCES LIKE NEVER BEFORE

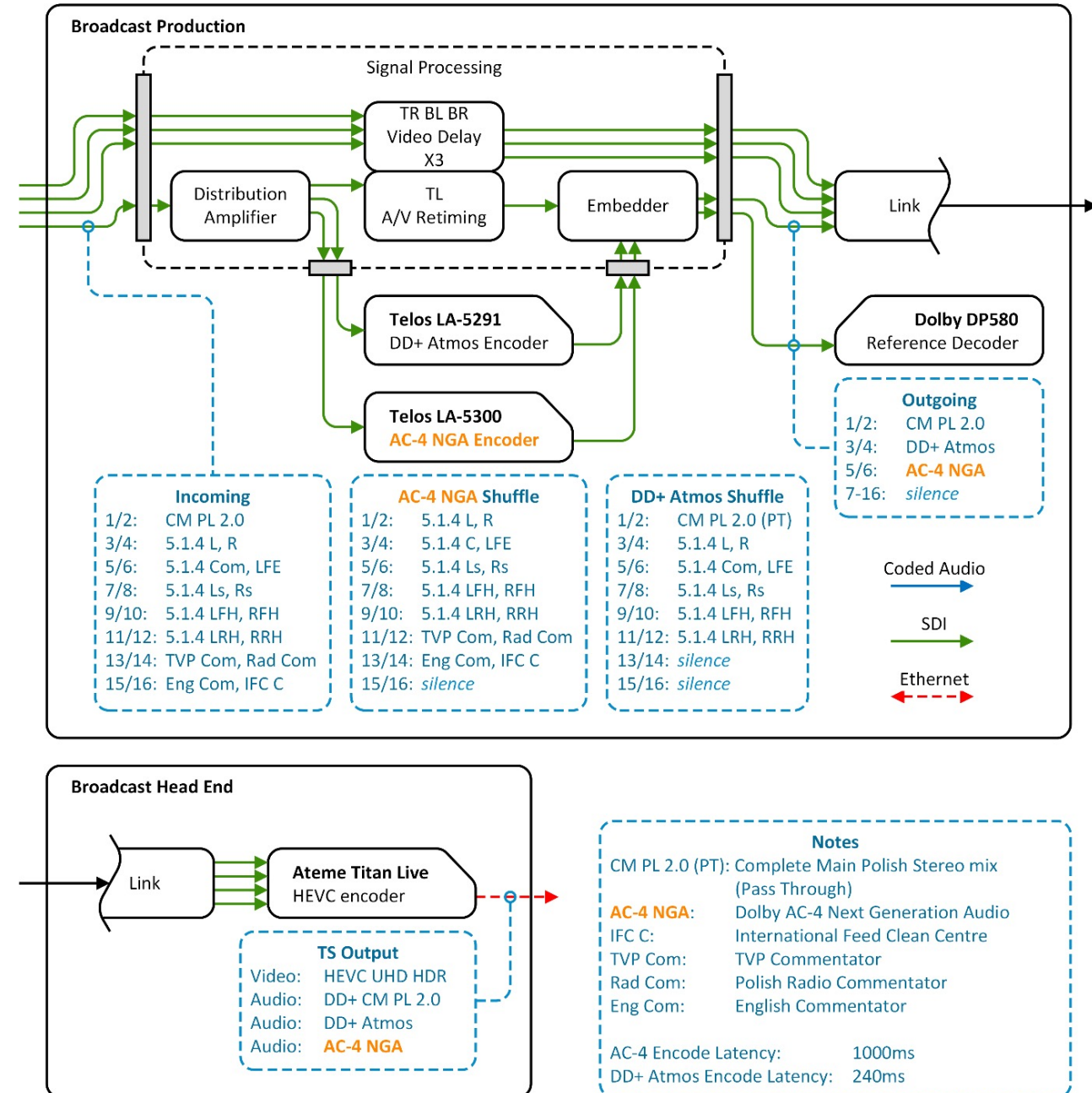
Conclusions

- Deployment phase has started – service providers and technology partners are working to solve practical workflow challenges with deploying NGA
- SDI will likely be around for some time. NGA is possible, with or without metadata being carried through the station infrastructure. Use cases and flexibility may be constrained.
- The transition to IP infrastructure will bring additional agility and flexibility for carriage of NGA. When moving to IP, metadata-controlled NGA brings several potential advantages.
- Dolby shares the EBU's vision of open NGA production based around the metadata format Serialized ADM.

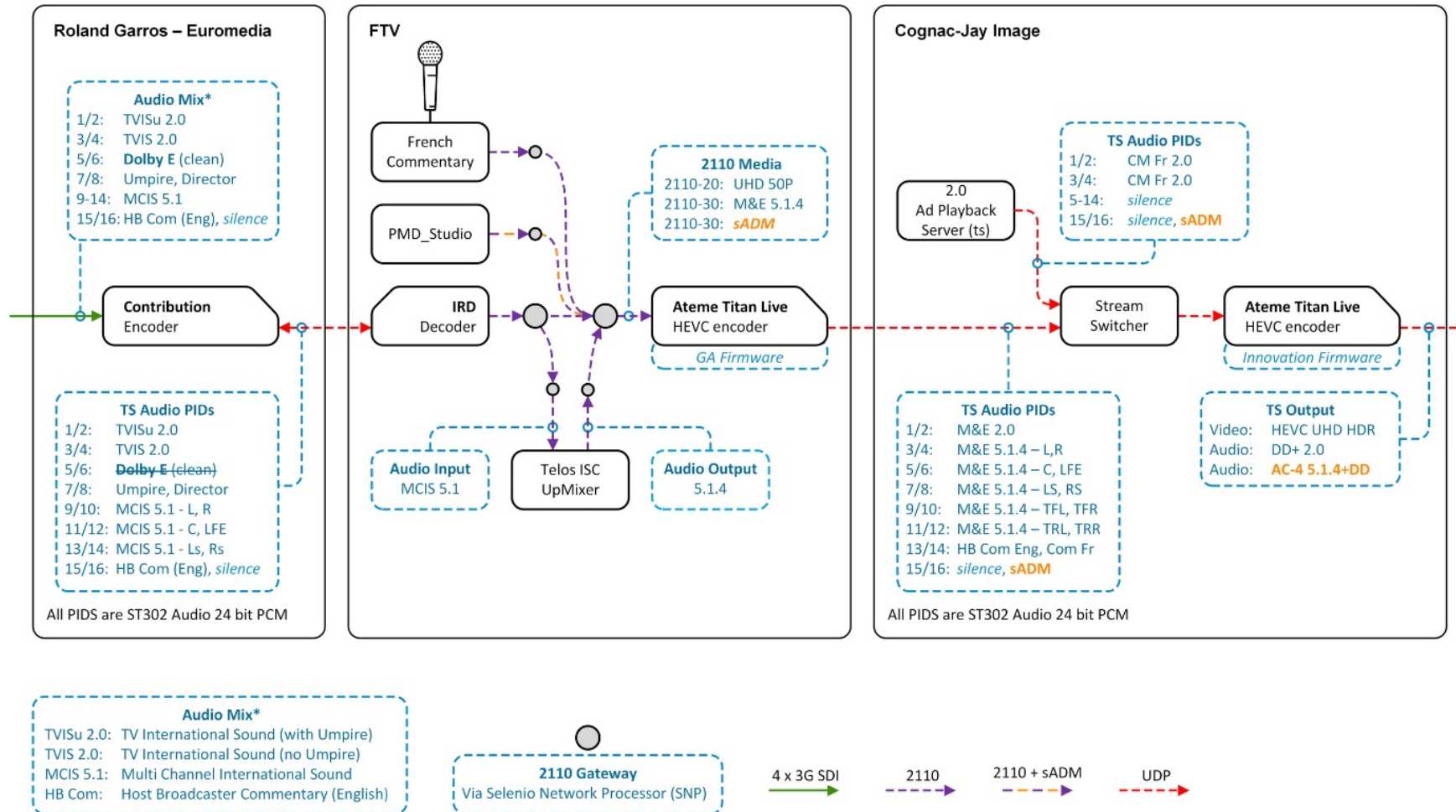
APPENDIX

Telewizja Polska (TVP)

- Polish public broadcaster -TVP, delivered Dolby Atmos via Dolby AC-4 for a UHD channel for all Euro 2020 matches. NGA has been used in all live transmissions as well as rebroadcasts of recorded material.
- In this workflow, the existing 16-channel SDI embedded audio infrastructure was used in combination with static metadata to enable NGA content to be carried prior to final transmission encoding.



French Open - Dynamic Metadata Live Event example workflow



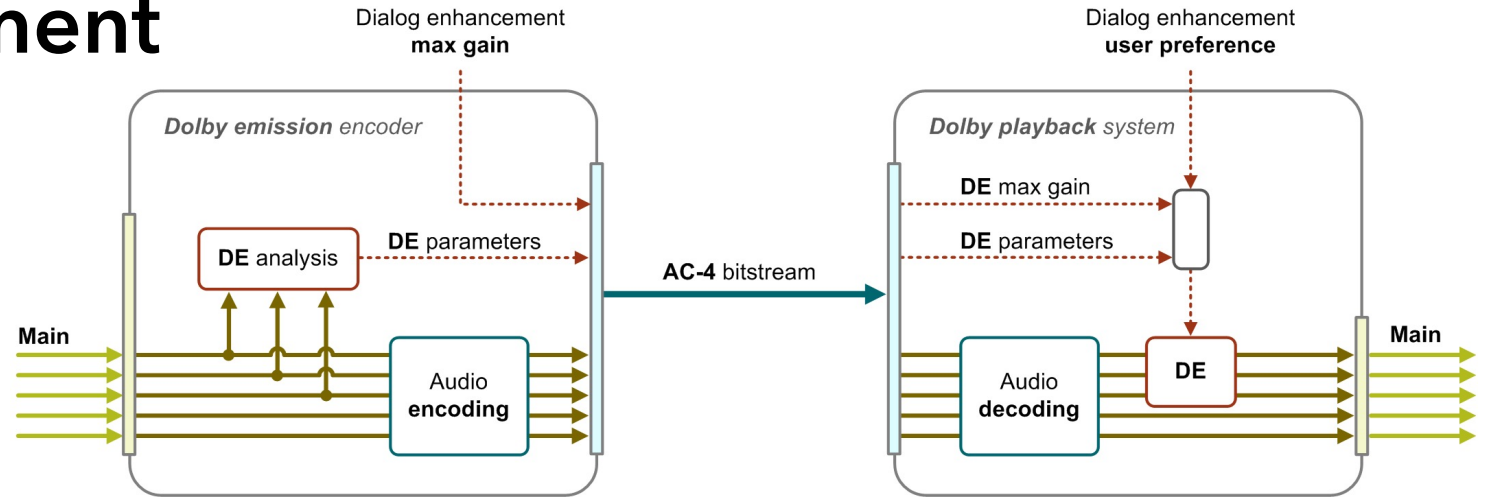
Industry Standards and workflow needs

Top level needs in the content creation and interchange to establish a healthy and growing ecosystem with NGA:

- Open solutions independent from the delivery codec solutions
- Workflow flexibility - enabling several alternatives when transitioning from today's workflow towards NGA enabled workflows.
- Interoperability - between traditional SDI based systems and new IP transport
- Graceful coexistence - with existing 2.0 and 5.1 content.
- Extensibility - can grow as use cases of NGA emission systems evolve.

Dialogue Enhancement

- **Automatic** enhances dialog for pre-mixed content. No change required to present production workflows. Extracts dialogue information from pre-mixed content



- **Advanced** uses a separate clean dialogue in addition to pre-mixed content to perform better dialogue extraction

