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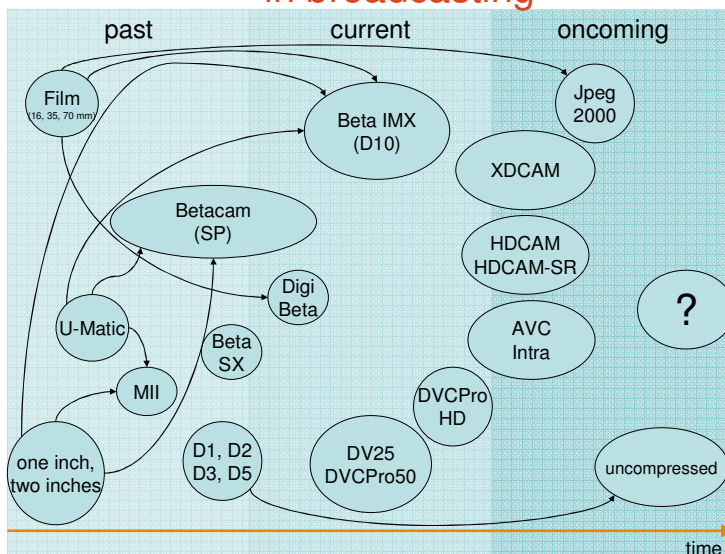
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Breakout session One
Preservation in Broadcast Archives context

Vienna, 2009-10-06
Christoph Bauer, Laurent Boch, P. Schallauer, Richard Wright




Most (but not all!) of the video formats used in broadcasting




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File formats in use & to be considered

- **Wrappers**
 - MXF
 - Op1A
 - Atom
 - MOV
 - AVI
- **Formats**
 - MPEG-2: D10 (50Mbit 50i, 80Mbit, 70Mbit IGOP, 30Mbit), 8Mbit
 - Uncompressed SDI
 - DV25 420
 - DVCpro 50
 - DVCpro 100
 - MPEG-4, AVC, H264
 - JPEG2K
- **Problems**
 - with HD: capture, encode, store
 - differences in header of wrapper (from various applications) eg D10
 - getting 'standard' MPEG2 from IMX or Sony BlueRay XDCAM
 - getting content out of a wrapper
- **Migration concerns**
 - MPEG2 is considered long term reliable standard BUT compatibility problems already detected

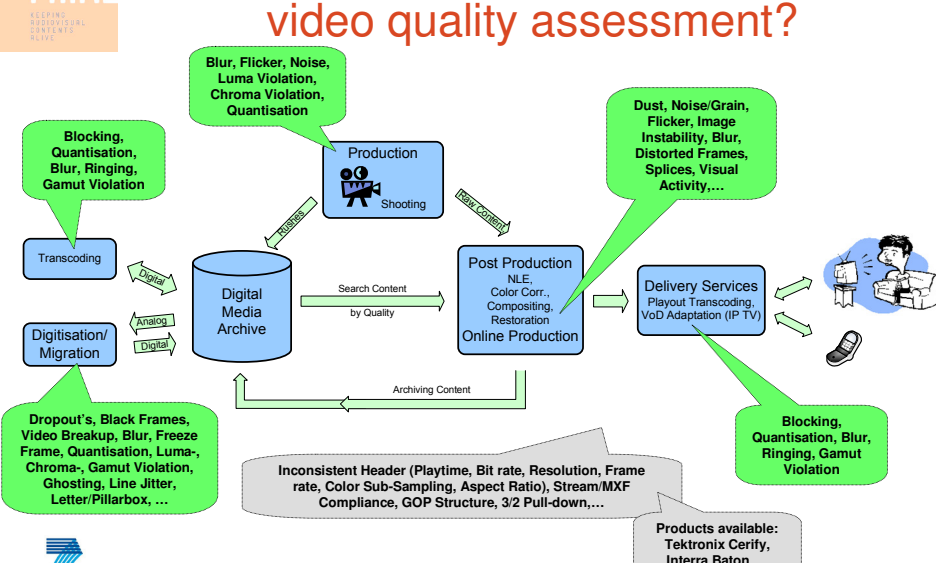




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What is content based video quality assessment?



Production (Shooting) issues: Blur, Flicker, Noise, Luma Violation, Chroma Violation, Quantisation

Post Production (NLE, Color Corr., Compositing, Restoration, Online Production) issues: Dust, Noise/Grain, Flicker, Image Instability, Blur, Distorted Frames, Splices, Visual Activity,...


Delivery Services (Playback Transcoding, VoD Adaptation (IP TV)) issues: Blocking, Quantisation, Blur, Ringing, Gamut Violation


Digital Media Archive issues: Inconsistent Header (Playtime, Bit rate, Resolution, Frame rate, Color Sub-Sampling, Aspect Ratio), Stream/MXF Compliance, GOP Structure, 3/2 Pull-down,...

Transcoding issues: Blocking, Quantisation, Blur, Ringing, Gamut Violation


Digitisation/Migration issues: Dropout's, Black Frames, Video Breakup, Blur, Freeze Frame, Quantisation, Luma-, Chroma-, Gamut Violation, Ghosting, Line Jitter, Letter/Pillarbox, ...

Products available: Tektronix Cerify, Interra Baton,....





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Video Quality analysis in the preservation domain

- Quality checking needed
 - Fully vs semi-automatic
 - Fully automatic needs standardised workflow
- Syntax-checking:
 - Solutions and products available (e.g. Cerify, Baton, etc.)


- AV-defects:
 - Black frames
 - Freeze frames
 - Bitrate sufficiency
 - Audio synchronisation
 - Audio level(s)



SEVENTH FRAMEWORK
PROGRAMME

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Loss: has anybody had problems with digital technology?

Two particular issues were mentioned by participants:
database corruption, and problems with datatape

- Corruption of MAM database
 - 90% recovered from from backup
 - 10% needed to be re-ingested
 - Thanks to keeping original carriers

- Unreadable LTO tapes
 - Writer device from one manufacturer and reader device from a different one
 - Compatibility issues?



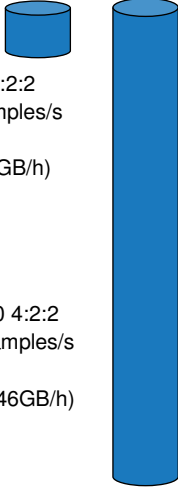
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The next big problem: Transition to HD



- SDTV
 - 720x576x25 4:2:2
 - 20736000 samples/s
 - 8 bits/sample
 - 166Mbit/s (75GB/h)
- HDTV
 - 1920x1080x50 4:2:2
 - 207360000 samples/s
 - 8 bits/sample
 - 1659Mbit/s (746GB/h)


- HD in production is going to be in high-end lossy compression formats
- preserving data-reduced content: big issue for "true archives"
- PPrime should make path to non-proprietary files
- Consider uncompressed in MXF for HD?
 - Yes, in theory
 - Affordability to be verified!

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Wishes for the future of digital AV

- Open formats
- Open applications, coders and players
- Open MAM/DAM systems – at least an open format for export of content and metadata (so people weren't 'locked in' to one system)
- Open digital repository
- Open communities – PrestoPRIME could form this community!

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