MPEG-DASH & GPAC @ Telecom-Paristech

jean.lefeuvre@telecom-paristech.fr

DASH Activities

- **Standardization**
  - Main Specification
  - Conformance & Ref Software
- **Dissemination**
  - Open-source tools
  - Scientific publications
    - Inc. references by other accademics
  - Blogs
- **R&D**
  - Contracts
  - In-house

DASH @ GPAC

- **GPAC: Media framework featuring:**
  - Content creation tools: MP4Box, MP42TS
  - Content distribution tools: IP streamers, T-DMB muxers
  - Content playback tools: Osmo4 / MP4Client
- **DASH support**
  - Segment generation: TS and MP4
  - Segment plaback: TS and MP4
  - Utility tool for MPEG
  - Generation of conformance sequences

DASH in MP4Box

- **HLS support**
  - Converts m3u8 to mpd
- **TS segmenter**
  - Generates mpd
  - Splits TS if desired
  - Generates sidx
  - Supports adaptation sets
- **MP4 segmenter**
  - Profiles: onDemand, Live and Main
  - Large set of segmenting options
  - Supports adaptation sets

DASH in MP4Box

- **ISOFF Features**
  - Spliting based on « sync » box or « rap « and « roll » groups
  - Support for disposable samples
- **Limitations**
  - NO TRANSCODING: Requires alignment of GOP structures in adaptation sets
  - Single adaptation set
- **Future Works**
  - CENC (not yet supported)
  - Subsample information and scalability

DASH in MP42TS

- **TS Muxer**
  - MP4 input
  - RTP/SDP input
- **HLS support**
  - Segment and manifest generation
  - Segment destruction
- **DASH requirements**
  - N complete AUs per segment
  - AU/PES alignment at segment begin
  - PAT/PMT insertion at segment start
- **Future Works**
  - Add MPD Generation
  - Support for multiple representation

DASH Player

- **Integration in GPAC players**
  - Support for various codecs
  - bifs/svg/x3d integration
- **DASH formats**
  - TS, MP4, AAC (from HLS)
  - MPD, m3u8
  - Segment switching
- **Future improvements**
  - Segment switching based on sidx
    - Not constrained to segment boundaries
  - Better switching algorithm
    - Scriptable one ?

DASH, GPAC and R&D

- **Hybrid networking**
  - TS broadcast and broadband
  - eMBMS and broadband
- **Cloud computing**
- **P2P systems**