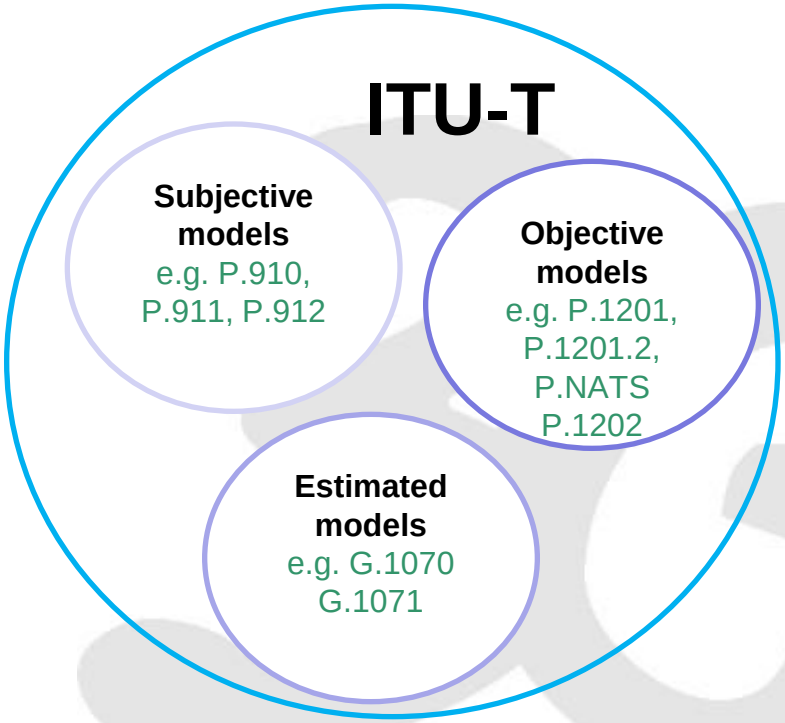
Introduction of video MoS

ITU-T work for video MOS



- ITU-T develops MOS mechanisms to evaluate video quality. The evaluation method is classified into subjective, objective and estimated model.
  - Estimated model requires source video stream which is not available for OTT streaming over wireless network.
  - Subjective model requires human viewers for quality evaluation. It is time consuming and not automatic.
  - Objective model is classified into 2 sub-categories: non-intrusive and intrusive.
    - Intrusive option: comparing the reference video stream with the degraded video stream
    - non-intrusive option: using quality parameters extracted from the bit stream carrying the video stream to the receiver or the degraded video stream itself (signal) without using the reference video

ITU-T work for objective video MOS

Inputs (Non-intrusive subjective model)		
Packet header	Bit Streaming	decoded video
P.1201		
P.1202.1 (lower resolution)		
P.1202.2 (mode 1, lower resolution)		
P.1202.2 (mode 2, higher resolution)		

- Targeted Applications
  - IPTV services; non-adaptive streaming; non-interactive
- Targeted protocols
  - non-HTTP (RTP, TS over UDP, etc.)
  - P.1201 is extended to support HTTP/TCP protocol

ITU-T work for objective video MOS

	UDP based			TCP based		
	Project	Scope		Project	Scope	
		Video resolution	Video codec		Video resolution	Video codec
Monitoring model	P.1201.1	HVGA, QVGA, QCIF	MPEG4 Part 2, H.264 (MPEG4 Part 10)	P.1201 Amd (progressive download, not HLS or DASH)	HVGA, HD (1080i50, 1080p24, 1080i60, 1080p30)	H.264 (MPEG4 Part 10)
	P.1201.2	SD (PAL/NTSC), HD (720p50, 720p60, 1080i50, 1080p25,1080i60, 1080p30)	H.264 (MPEG4 Part 10)	P.NATS phase1 (note 1) (progressive download, and HLS /DASH)	240p, 360p, 480p, 720p, 1080p	H.264 (MPEG-4 Part 10) baseline*, main*, high*, and high10 profiles

Note 1: P.NATS phase 1 work is ongoing. It mainly focuses on the evaluation model and the formula of objective MoS measurements. The target completion date is Q3,2016.

DASH QoE metrics vs video MoS

- Video MoS provides following advantage:
  - Avoid different interpretation of DASH QoE metrics by the MNO for different UEs consuming the same streaming content.
  - Avoid different interpretation of DASH QoE metrics by the OTT party for different UEs consuming the same streaming content over different MNO's network.
  - Avoid different interpretation of DASH QoE metrics by the application of the UE consuming different streaming content over the same/different MNO's network.
  - From delivery view point, the unified QoE metric to both MNO and OTT party ease the analysis of DASH QoE result and problem identification.
- Video MoS can be a complementary metric to existing DASH QoE metrics

Proposal

- Introduce video MoS metric for 3GPP DASH streaming
  - including both regular DASH and DASH over MBMS

Annex-DASH QoE metrics

- QoE Metrics
  - List of HTTP Request/Response Transactions
  - List of of Representation Switch Events
  - Average Throughput
  - Initial Playout Delay
  - Buffer Level
  - Play List
  - MPD Information

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