ITU-T P.NATS Phase 1 – Current progress and plans

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Development conducted in ITU SG12 Q14 (J. Gustafsson, A. Raake)
P.NATS overview

- Services: **HTTP-streaming, adaptive**
- Video-encoding-resolutions: **360p, 480p, 720p, 1080p**
- Covered degradations:
  - Encoding changes (bitrate/QP, framerate, scaling) due to stream-switching
  - stalling,
  - initial loading.
- Input: model **mode-dependent**, from side-info to full bitstream
- Output: audiovisual quality estimate for up to **5 min** video + diagnostic information
- 8 participants
**I.GEN:** display resolution

**I.11:** audio coding information (e.g. audio codec, bitrate, ..., non-/encrypted bitstream*)

**I.13:** video coding information (e.g. video codec, ..., frame-based info*, non-/encrypted bitstream*)

**I.12:** **I.11** + **I.13** without the bitstream

**I.14:** Stalling event start and duration

(* model-mode dependent)
O.46: Final media session quality score, single score for the session

Diagnostic info:

- All inputs I.NN
- O.21: Audio coding quality per segment (here segment = 1s)
- O.22: Video coding quality per segment
- O.34: Audiovisual segment coding quality per segment.
- O.35: Final audiovisual coding quality score per session.
- O.23: Perceptual buffering indication per session
### P.NATS modes

<table>
<thead>
<tr>
<th>Mode</th>
<th>Encryption</th>
<th>Video frame info available</th>
<th>Bitstream parsing</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
</tr>
<tr>
<td>1</td>
<td>Yes</td>
<td>Yes</td>
<td>Headers only</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td>Yes</td>
<td>2% of bytes</td>
</tr>
<tr>
<td>3</td>
<td>No</td>
<td>Yes</td>
<td>100% of bytes</td>
</tr>
</tbody>
</table>
P.NATS subjective tests

Test design
- Audiovisual
- ACR, 5-point scale
- No SRC repetition within a test, but 50%-67% SRCs re-used between labs
- Use of anchors, at least for tests with same SRCs duration
- Degradation types: quality switches, stalling, initial loading, mix
- Same proportion of degradation types in all tests

Training
- 5 databases from P.NAMS-PD (progressive download)
- 2 buy-in databases (progressive download and adaptive streaming)
- 16 new training databases
  - 9 LCD: 4x1min-SRCs, 3x3min-SRCs, 2x5min-SRCs
  - 8 mobile: 4x1min-SRCs, 3x3min-SRCs, 1x5min-SRCs

Validation
- 16 validation databases
P.NATS current progress

- Stable test procedure
- Stable processing chain
- Current activities:
  - Selection of SRCs for training tests
  - Test matrices design for training test
P.NATS work plan

- Training SRCs: June 30
- Training test matrices: June 30
- Training PVSs: July 30
- Training databases submitted and checked: Sept 30\textsuperscript{th}
- Model submission: Nov. 20\textsuperscript{th}
- Validation SRCs: Nov. 31\textsuperscript{st}
- Validation test matrices: Dec. 23\textsuperscript{rd}
- Validation databases submitted and checked: Feb. 28, 2015
- Winning model selection: March 15, 2015
- Consent P.NATS: May 2015 (ITU SG12 meeting)
THANK YOU!