RTP Payload Format for SVC Video – draft-ietf-avt-rtp-svc-02

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Status of SVC Standardization

- After the last Geneva JVT Meeting in June, SVC is essentially stable and done
  - FDAM in ISO/IEC MPEG no major technical changes possible
  - Consent in ITU-T SG16 with last call period ending August 31st, 2007 (leads to a ratified Annex to H.264)
- Payload format (and layered signaling in MMUSIC) are now the missing links to make the technology accessible to second-tier SDOs (DVB, 3GPP, …)

Draft summary

- Draft relies on modes and definitions of RFC 3984
  - Backward compatible design wherever feasible
- Documentation of NAL unit header extensions of SVC
- PASCI NAL unit (table of contents of aggregation packet)
- SVC media specific SDP signaling (referencing syntax structures of SVC in some cases)
- RTP session multiplexing with cross layer DON
  - packetization mode 2 of RFC 3984 required when session-mux layers
  - Backward compatibility issue for H.264/RFC3984 base layer (as mode 2 is not widely deployed, see open issues)
- Informative sections on application examples for SVC, and documentation of dead-end avenues we have pursued earlier

-01: Changes

- Alignment with JVT Joint Draft 11
  - NAL unit header fields, Prefix NAL unit = type 14, SVC NAL unit type = 20 + IDR flag in header
  - Removed descriptive text of FGS and added MGS
- Clarified terminology
  - Some of it is quite confusing, but that's usual in JVT :-)
  - enhancement Layer, (full) base Layer, Operation Point..
- Added Congestion Control section, including advice on how to perform bit stream thinning

Mailing list traffic

Comments received from Roni, selective list:

- Deprecate RFC3984 packetization mode 0 (single NAL unit only) for SVC:
  Intention: only in context of SVC enhancement layers, mode 0 for base layer still ok when conveyed in RFC3984
  Needs clarification in the text
- Which payload format to be used (6.1):
  Currently, if the base layer is separated in its own RTP session – use RFC3984's packetization mode 2
  See later, open issues
- SVC superset of H.264 (and other terminology issues)
  Fix those that need fixing
- Comments related to signaling, media registration, etc.
  Known to be unfinished
  Will be addressed in one of the next versions

Mailing list traffic (cont.)

- Confusing definitions:

  “scalable bitstream: A bitstream with the property that one or more bitstream subsets that are not identical to the scalable bitstream form another bitstream that conforms to the SVC specification.”

  Alignment with JVT spec more important than intuitive language
  Keep
- How to guarantee backward compatibility
  See open issues (later)
- Coordination of NAL unit type assignments

  SVC payload spec can grab from numbering space set aside for this purpose by JVT
  No action required

Our to-do list

- (De)-Packetization rules need work
- Now is the time to address the signaling stuff
  - Media type registration
  - Usage with the SDP Offer/Answer Model
  - Usage in Declarative Session Descriptions
  - Usage with Capability Negotiation
- Parameter Set considerations
- Security considerations
- Would someone PLEASE review the congestion control?

Open issue and question to WG

- Assumption: base layer is H.264/RFC3984 to support legacy; enhancement layers are according to SVC/RFCxxxx
- According to present draft, one MUST use RFC3984 packetization mode 2, **which is not widely deployed**. DON used for resequencing
- Tradeoff as discussed a number of times in AVT: document complexity vs. IPR
- We FORGOT about the backward compatibility issue…
- Proposal now: byte the bullet and allow ALL modes for base layer, specify as good as we can an informal algorithm for resequencing without DON
- It's going to be several pages and detailed SVC knowledge will be required
- OK?