

JVT-T059

Comments on the RTP payload format for SVC

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July, 15-21 2006



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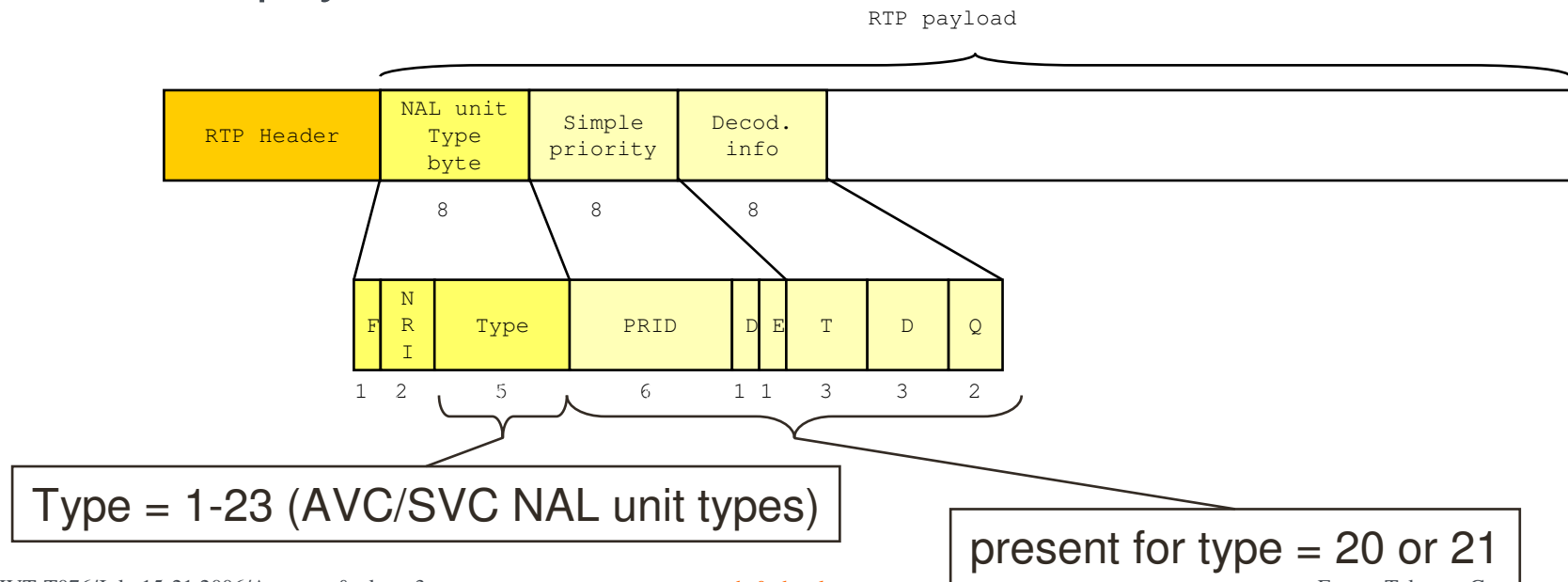


Summary

- The RTP Payload Format for SVC is currently being defined at the AVT working group of IETF
 - draft-wenger-avt-rtp-svc-02.txt
- The current draft uses some fields of the NAL Unit header for providing information to the transport layer.
- For this purpose, it assigns specific semantics to these fields that restrict what is currently specified in the SVC text.

RTP Payload format

- As in RFC3984, the first byte(s) of the payload (NAL header) co-serves as the RTP payload header and, in some cases, as the first byte(s) of the payload.
- The payload structure can be identified by the first byte of the RTP payload



PRID

- Definition of PRID in the Joint Draft

- **simple_priority_id** specifies a priority identifier for the NAL unit. When the NAL unit is a suffix NAL unit, the priority identifier also apply to the associated NAL unit, which is the previous NAL unit in decoding order

- In the RFC:

1. For PRID, in addition to the semantics specified in [SVC], according to this RTP payload specification, values of PRID **indicate** the relative transport priority, as determined by the sender, which is typically increasing from a layer of lower to a layer of higher importance. MANEs implementing unequal error protection **can use** this information to protect more important NAL units better than less important ones, for example by including only the more important NAL units in a FEC protection mechanism. The transport priority increases as the PRID value increases.
2. P and (T,D,Q) may be used also in combination for relative transport priority

- In some applications, this field is not to be taken as an absolute priority indicator, but has to be used in combination with (T,D,Q) .

- New formulation :

1. [...] values of PRID **MAY** indicate the relative transport priority, as determined by the sender, which is typically increasing from a layer of lower to a layer of higher importance. MANEs implementing unequal error protection **COULD** use this information to protect [...].

Definitions

- **Operation point:** *A operation of a SVC bitstream represents a certain level of **temporal, spatial and quality scalability**. An operation point contains all NAL units required for successfully decoding a certain SVC enhancement layer, which represents the highest value of **temporal and, or spatial and, or quality** of the operation point.*
 - This is true for temporal and spatial dimensions only.
 - The quality levels may vary from an Access Unit to the other, from a slice to another slice. The only constraint is that All NAL units with QL=0 shall be present
 - This definition is fine for a CGS representation
- We suggest the following definition : *A operation of a SVC bitstream represents a certain level of **temporal and spatial and SNR scalability**. An operation point contains all NAL units required for successfully decoding a certain SVC enhancement layer, which represents the highest value of **temporal and, or spatial and, or ~~quality~~ bitrate** of the operation point.*
 - Bitrate could be defined through Priority_id (see contribution T051)

Definitions

- **Scalable enhancement layer:** *an SVC enhancement layer is identified by a certain NAL unit header value (transport priority) of simple_priority_id **or**, if present, by a combination of temporal_level, dependency_id, quality_level as defined in [SVC] and summarized in section 3.3.*
 - The T, D and Q are always present in the NAL header in the last versions of the JD
 - This is not **or** but **and**
- We suggest the following definition : *an SVC enhancement layer is identified by a certain NAL unit header value combination of simple_priority_id, temporal_level, dependency_id, (quality_level) as defined in [SVC] and summarized in section 3.3.*
- The relation between scalable enhancement layers and operation points should be clarified
 - using the current definition, a scalable enhancement layer is not equivalent to an operation point

Conclusions

- We feel that JVT should work along with the IETF to build specifications that keeps inline with the Joint draft
- The FNB asked for a liaison between JVT and groups
 - **M13602**
 - The AVT working group of IETF is currently defining an RTP payload for SVC. The current draft uses some fields of the NALUnit header for providing information to the transport layer. However, for this purpose, it assigns specific semantics to these fields that restrict what is currently specified in the SVC PDAM text.
 - The FNB recommends JVT to send a liaison to IETF/AVT via its parent body WG11, proposing collaborative work in order to clarify the semantics and use of the NALUnitHeader fields