Video Frame Info RTP Header Extension

draft-ietf-avtext-framemarking-02

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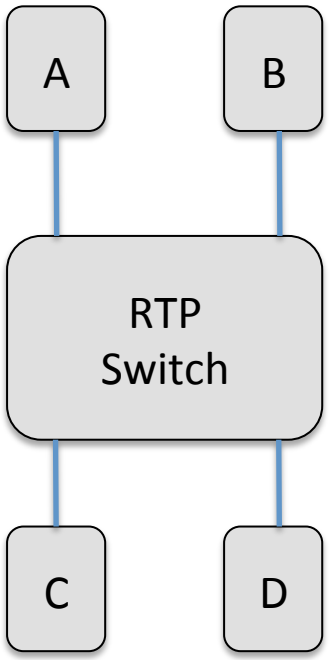
Review: Main Motivation

Payload-Agnostic RTP Switch

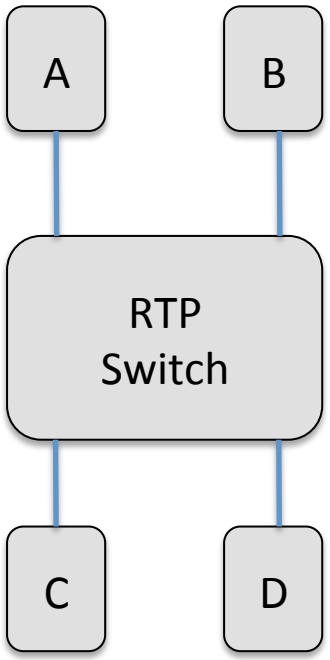
- Payload may be encrypted
  - Avoid decryption cost to improve switch scale and latency
- Payload may be encrypted end-to-end
  - Impossible to decrypt / inspect payload without end-to-end keys
- Payload may be unknown format
  - Codec-agnostic switching can support any format, old or new



Review: More Motivations

Smarter RTP Switch

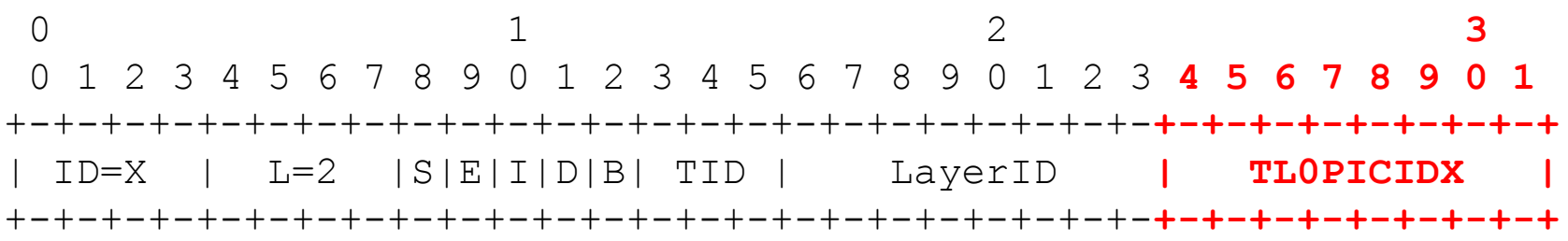
- Clean video switching at intra-frames
- Better recovery during packet loss
- Drop least important packets during congestion
- Drop scalable enhancement layers for constrained endpoints



Smarter Endpoints

- Better recovery during packet loss

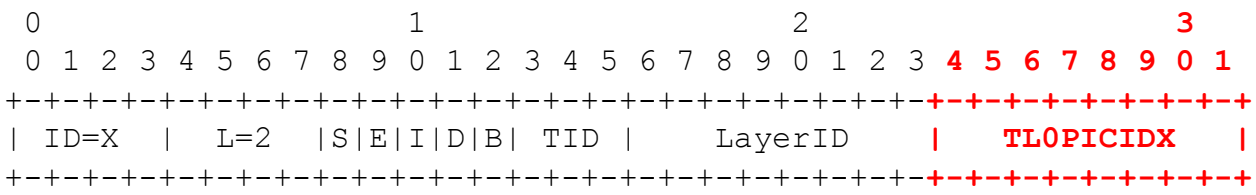
Video Frame Info Extension



- S: Start of Frame - MUST be 1 in the first packet in a frame within a layer.
- E: End of Frame - MUST be 1 in the last packet in a frame within a layer.
- I: Independent Frame - MUST be 1 for frames that can be decoded independent of prior frames, e.g. key/intra-frame; otherwise MUST be 0.
- D: Discardable Frame - MUST be 1 for frames that can be dropped, and still provide a decodable media stream; otherwise MUST be 0.
- B: Base Layer Sync - MUST be 1 if this frame only depends on the base layer; otherwise MUST be 0.
- TID: Temporal ID (3 bits) - The base temporal quality starts with 0, and increases with 1 for each temporal layer/sub-layer.
- LID: Layer ID (8 bits) - The spatial and quality layer ID defined by scalable codecs.
- TL0PICIDX: Temporal Base Layer 0 Picture Index (8 bits) - Running index of base temporal layer frames and dependencies on them.

TL0PICIDX

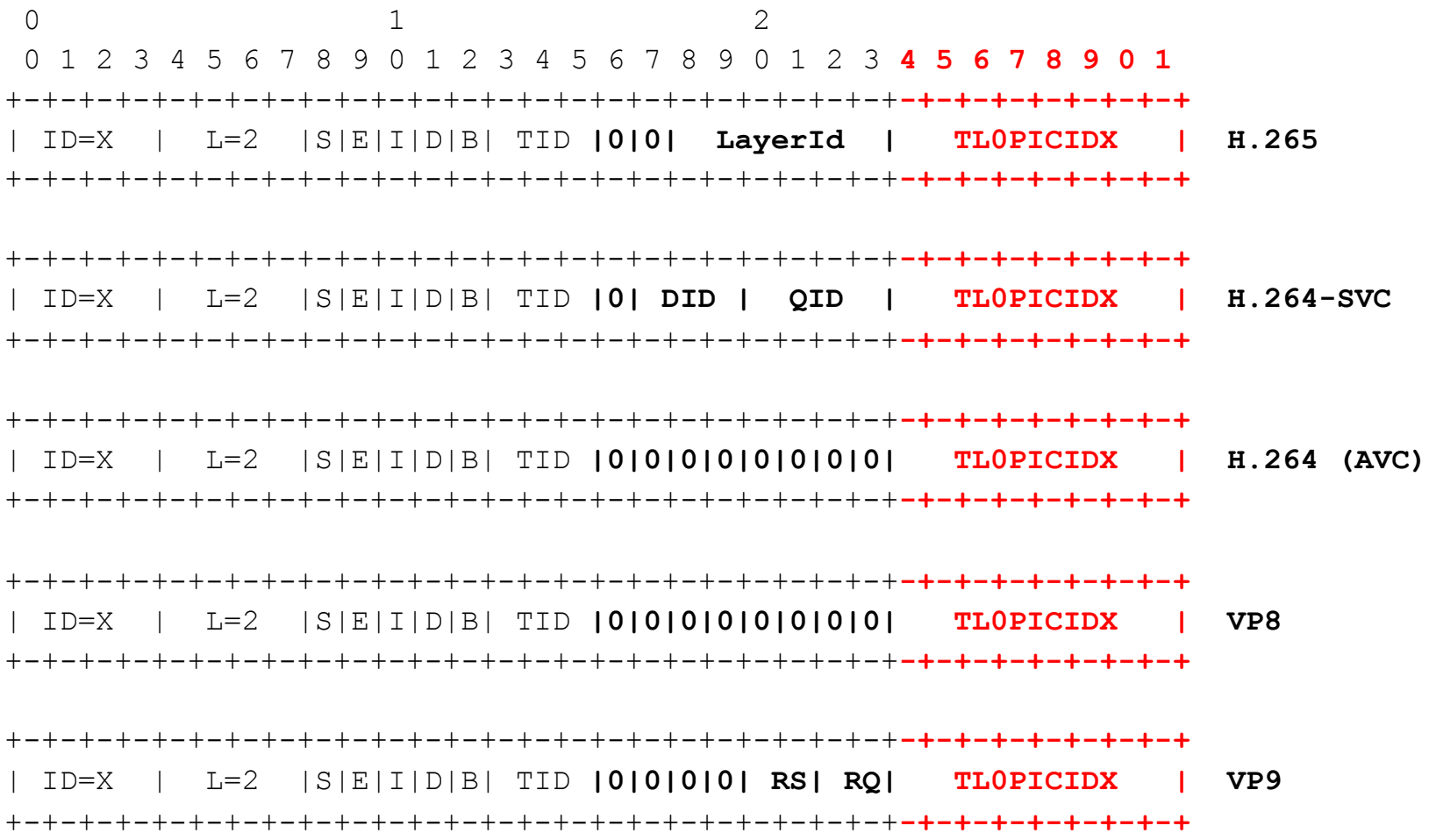
- Added TL0PICIDX in -02, per feedback from IETF 95.



- What is TL0PICIDX?
  - If TID=0, it is a running index of TID=0 frames.
  - If TID>0, it signals a dependency on only that TID=0 frame.

- How is it used?
  - After frame loss, it can be used to determine if dependencies are met for subsequently received frames so they can be forwarded by MANEs and rendered by endpoints.

Layer ID Mappings



Next Steps

- If no scalability is used, a shorter extension can omit the unused fields TID,LID,TL0PICIDX.