Video Frame Info RTP Header Extension

draft-ietf-avtext-framemarking-03

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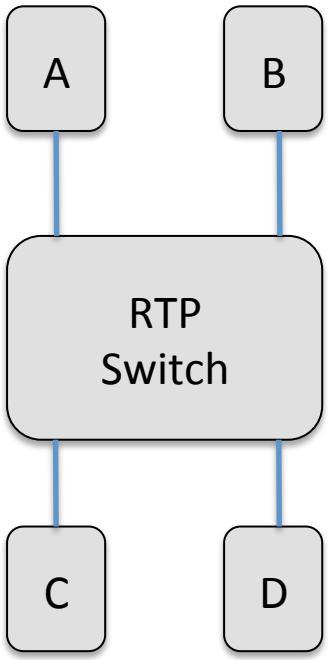
Note Well

- IPR declaration (ID#2876) from Vidyo, which may relate to scalability, perhaps more specifically to TL0PICIDX (but draw your own conclusions).
  - https://datatracker.ietf.org/ipr/2876/
- Separated sections with/without scalability
  - 3.1 Extension for Non-Scalable Streams
  - 3.2 Extension for Scalable Streams
- Authors see no issues continuing to progress this draft given the licensing terms, but the WG needs to weigh in (again, draw your own conclusions).

Review: Main Motivation

Payload-Agnostic RTP Switch

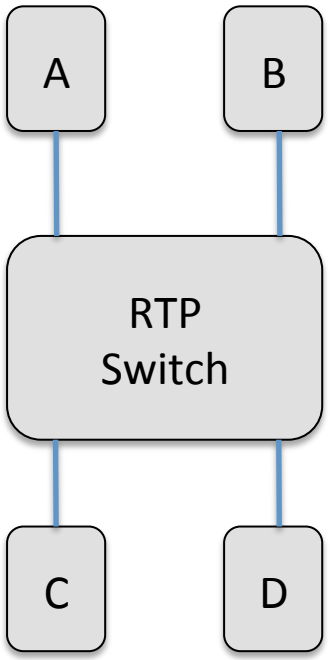
- Payload may be encrypted
  - Avoid decryption cost to improve switch scale and latency
- Payload may be encrypted end-to-end
  - Impossible to decrypt / inspect payload without end-to-end keys
- Payload may be unknown format
  - Codec-agnostic switching can support any format, old or new



Review: More Motivations

Smarter RTP Switch

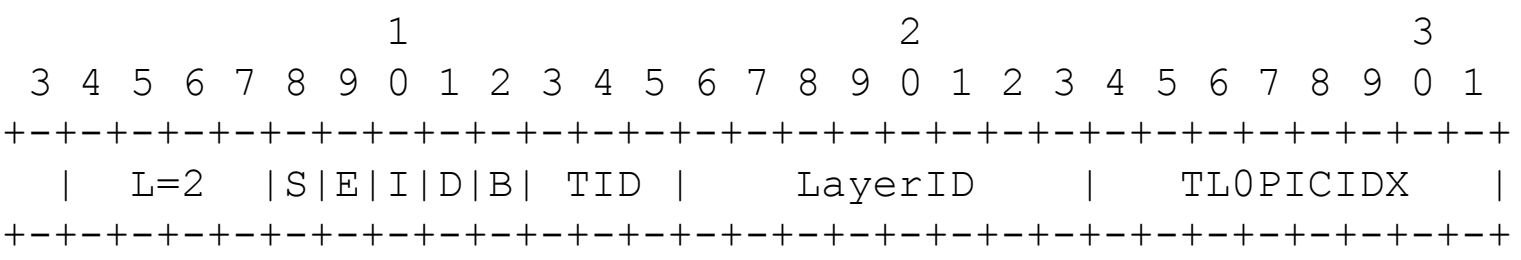
- Clean video switching at intra-frames
- Better recovery during packet loss
- Drop least important packets during congestion
- Drop scalable enhancement layers for constrained endpoints



Smarter Endpoints

- Better recovery during packet loss

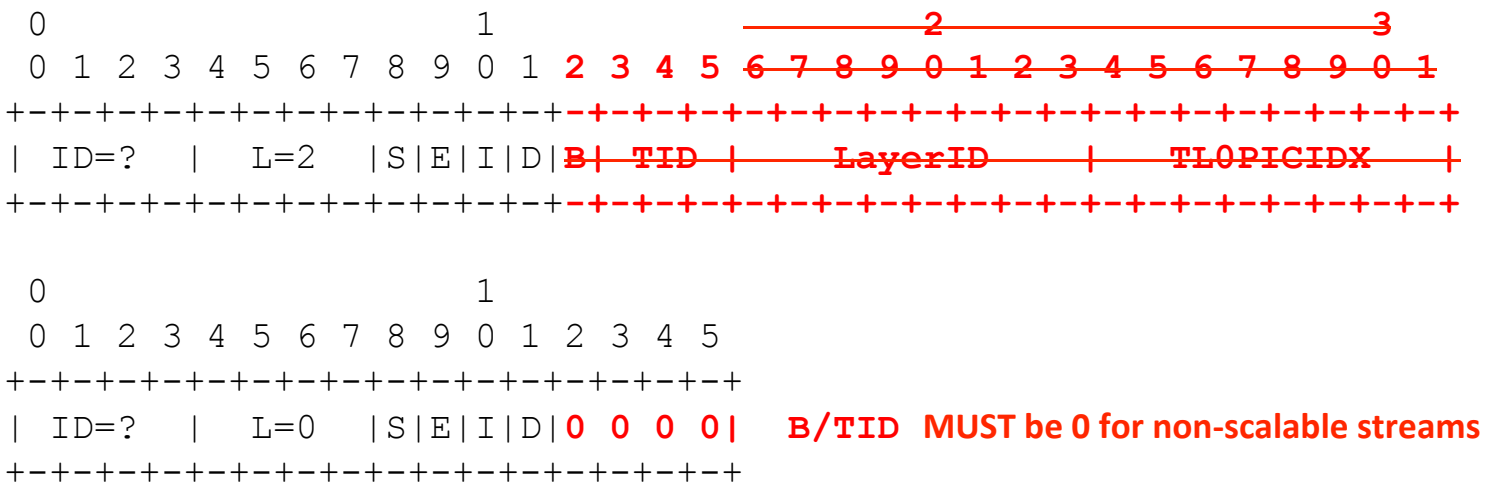
Video Frame Info Extension in -02



- **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.

Changes in -03

- Added a short variant for non-scalable streams
  - Omits all fields which only apply to scalability
  - Documented in new section 3.1



Editorial Changes in -03

- References to relevant codec payload formats were added to the Layer ID Mapping sections 3.2.1 - 3.2.1.5.
- References to drafts were updated to RFCs.
  - Except draft-aboba-avtcore-sfu-rtp which expired
  - Options:
    - Remove this reference
    - Keep it and progress that other draft
    - Merge relevant content from that draft

Open Issues

- Resolve IPR declaration actions, if any.
- Resolve references to expired drafts.
- Layer refresh indication needed for LRR draft?
- Add frame size? (mentioned on the list)
  - RID is a better solution
  - It can signal frame size more compactly (1 vs. 4 octets), will likely already be present (so really 0 octets), and more directly matches app needs (low/mid/high resolution which the app said it cares to distinguish)
  - It can signal all types of fidelities / constraints (frame rate, bitrate, etc.) in addition to frame size
  - Recommend RID instead of adding frame size

Next Steps

- Ready for WGLC after resolving open issues.
- Questions?
- Thank you!