RTP Congestion Control Feedback

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Reporting on draft-ietf-avtcore-cc-feedback-message-04, which is is co-authored with Zahed Sarker, Varun Singh, and Michael A. Ramalho

Document Status

- Implementation experience during hackathon in Prague – results discussed in AVTCORE and RMCAT at IETF 104

- Submitted -04 to reflect those experiences

  - Several clarifications – no changes to the packet format

Signalling

- Add example of SDP attribute use: `a=rtcp-fb:* ack ccfb`

- Clarify that, if FEC and retransmission have been negotiated, then congestion control feedback is sent for those packets

- Clarify that congestion control feedback signalling is IDENTICAL-PER-PT when used with the SDP BUNDLE

  - This is defined in draft-ietf-sdp-mux-attributes

  - Not entirely clear what IDENTICAL-PER-PT means with wildcard PT – clarify in draft-ietf-sdp-mux-attributes?

- Clarify that if an SDP offer indicates support for several different ways of providing congestion control feedback, the receiver SHOULD pick its preferred mechanism and use it consistently

RTCP

- Clarify that feedback reports indicating that packets were lost are not explicit requests for retransmission
  - i.e., congestion control feedback doesn't supersede NACK
  - Doesn't require to send retransmissions for lost packets, but doesn't prohibit it
- Clarify that large feedback packets might need split across multiple RTCP packets
  - Shouldn't happen if RTCP bandwidth fraction is correctly configured

Congestion Control

- Add section on congestion response when congestion control feedback packets are lost:

> Like all RTCP packets, RTCP congestion control feedback packets might be lost. All RTP congestion control algorithms MUST specify how they respond to the loss of feedback packets.
>
> If only a single congestion control feedback packet is lost, an appropriate response is to assume that the level of congestion has remained roughly the same as the previous report. However, if multiple consecutive congestion control feedback packets are lost, the sender SHOULD rapidly reduce its sending rate towards zero, as this likely indicates a path failure. The RTP circuit breaker [RFC8083] provides further guidance.

Open Issues

- No technical open issues

- Non-technical issues:

  - Add comparison to Holmer draft, to explain design rationale, costs & benefits

  - Add discussion on conversion between per-SSRC sequence numbers and unified sequence numbers carried in header extension

- Hope to address these and have draft ready for WG last call before Singapore meeting

- Any other issues?