Extensions to RTCP for Rapid Synchronization
draft-peilin-avt-rtp-burst-01.txt

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- Only the parts that are essentially different from draft-versteeg-avt-rapid-synchronization-for-rtp-02 are presented, based on the same terminology and message names from that draft. These differences form our proposals.

Proposal 1: Flexible burst rate control (1)

- A new message from RR to RS, conveying only one field, indicating a burst bitrate desired by the RR.

- The syntax of the message is the same as the RMS-R message with only the field "Max Receive Bitrate" being present.

- RR derives the value according to buffer fullness, characteristics of incoming bitstreams, as well as the underlying network situations.

- The RS may use this value for sending the burst, or may refine the value according to the RS' knowledge to the characteristics of the bitstreams to be sent out, as well as other information. In either case, the RS may send an RMS-I to indicate the bit rate being used.

Proposal 1: Flexible burst rate control (2)

- This allows the burst rate to be controlled by
  - the RS,
  - the RR, or
  - the RS and the RR in combination
- Such flexibility would enable the RS to be scalable according to the number of RRs it needs to serve.
  - When there are few RRs, the system can be configured to let the RS receive more RCTP receiver reports and hence more information for analysis of a desired burst rate.
  - When there are many RRs, the system can be configured to let the RS receive less RTCP receiver reports but let the RRs perform the analysis of a desired burst rate.
    - At the same time, the computation burden to the RS for simultaneously analyzing desired burst rates for all the involved RRs can be avoided.

Proposal 2: Robust rapid channel switching

- When channel changes from the current one to a new one, the RS should terminate all data streams associated with the current channel, if present, upon receiving an RMS-R message.

  - This will avoid possible stream collision due to loss or out-of-order delivery of RMS-T and/or RTCP BYE messages.

    - Collision between bursts of different channels occurs when RTCP BYE or RMS-T message gets lost or takes effect after RMS-R due to out-of-order delivery

    - Retransmission of these messages introduces additional delay, which dilutes the purpose of fast channel switch, and cannot avoid stream collision before the retransmitted message is received.

    - Stream collision causes congestion and loss of burst data, and leads to complete failure of rapid channel switching.

Next steps

- We propose
    - **to combine our draft and draft-versteeg-avt-rapid-synchronization-for-rtp-02 by integrating the two proposals presented here into draft-versteeg-avt-rapid-synchronization-for-rtp-02, and then adopt the entire work as one WG item.**