draft-ietf-avt-rtp-h264-03.txt

Changes compared to draft-ietf-avt-rtp-h264-02.txt

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Summary

- Packetization modes simplified
- Control of interleaving improved
- Other
  - Straightforward bug fixes
  - Closing of open issues
  - Editorial clarifications and new informative notes
- Open issues

Packetization Modes Simplified

- In draft-ietf-avt-rtp-h264-02.txt, one mode with multi-time aggregation packets and another one without
- Motivation for the change: Packets including decoding order number (DON) cannot be mixed with packets not including DON anymore, and therefore the derivation of the decoding order becomes easier and more tolerant to transmission delay jitter.

1. Single NAL unit packetization mode
   - Compatibility with ITU-T Recommendation H.241
   - Only single NAL unit packets in decoding order allowed
2. Non-interleaved mode
   - Single NAL unit packets, single-time aggregation packets (STAPs), and fragmentation units (FUs) allowed
   - No DON in STAPs and FUs
3. Interleaved mode
   - STAPs, FUs, and multi-time aggregation packets (MTAPs) allowed
   - DON in STAPs, MTAPs, and the first FU of a fragmented NAL unit

Control of Interleaving Improved

In draft-ietf-avt-rtp-h264-02.txt

- interleaving-depth for receiver buffer size signaling and receiver buffer control
- init-buf-time for signaling of initial buffering period

In draft-ietf-avt-rtp-h264-03.txt

- A third option, max-don-diff, was added
- Specified similarly to the maximum displacement parameter in the draft-ietf-avt-mpeg4-simple Internet Draft
  - Instead of a maximum difference in terms of RTP timestamps, a maximum difference in terms of decoding order numbers is used, because:
    1. RTP timestamp indicates the capture/display timestamp.
    2. H.264/AVC allows decoding order different from output order.
    3. The receiver buffer is used to reorder packets from transmission/reception order to decoding order.
    4. Thus, displacement specified between differences in RTP timestamps cannot be used to reception-to-decoding-order reorganization.

Other

Straightforward bug fixes

- Assignment of DON values for NAL units in an STAP-B and decoding order of NAL units in an STAP-B corrected and clarified. De-packetization process changed accordingly.
- Derivation of DON for MTAPs changed to allow wraparound of DON values within one MTAP.

Closing of open issues

- The use of RTP timestamp and picture timing SEI message is clarified.
- Base64 encoding used in the optional parameter-sets MIME parameter instead of hexadecimal encoding to improve compression efficiency.

Editorial changes and new informative notes

Open Issues

- Security section needs review.
- Does max-don-diff bring benefits that justify the complicated receiver description?
- ITU-T H.241 provides a way for decoders to signal capability for greater processing speed or memory amount than required in the profile and level that is used. H.241 specifies CustomMaxMBPS, CustomMaxFS, CustomMaxDPB, and CustomMaxBRandCPB. Should similar parameters be specified as optional MIME/SDP parameters to enhance the capability exchange procedure of SIP-based video conferencing?