SVC Payload: draft-wenger-avt-rtp-svc-03.txt

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Changes since Montreal

• Alignment with developments in JVT: Klagenfurt Draft
• Clarification of terminology around Mixer, Translator, MANE
• Editorial improvements
• Adding SSRC multiplexing

• Draft has been agreed as WG item in Montreal, but we missed the upload deadline; therefore, one last time an individual submission

• Nokia has declared that there may be Nokia IPR related to this draft
SSRC Mux: Motivation

• Layered multicast from server to middlebox (i.e. wireless base station), multiplexing streams to a single transport address on the segment between middlebox and endpoint.

• Middlebox’ mission: “aggregate” NAL units of those layers (by means of protocols or media manipulation)

• Solution 1 (straightforward): RTP Mixer. Problem: Mixer needs access to NAL unit data -> Mixer needs to be in security context

• Solution 2 (SSRC mux): Transport address translator
  • Manipulate transport addresses so that all flows terminate at the same Transport Address
  • Not better than RTP mixer (cannot use aggregation NAL units etc.), but…
  • … if we manage to somehow expose the essentials of the NAL unit header information outside the security context, then the MANE could meaningfully select which packets to forward.
  • And that’s where the SSRC “overloading” kicks in
SSRC to layer mapping

- Need to associate SSRC values with “NAL Unit Importance” (PRID). Options:
  - Explicit signaling (SSRC value(s) X relates to PRID value Y)
    - SSRCs of all layers be sent in SDP description (like rtcpssm draft)
    - Require receivers to avoid SSRC collisions with media sender (like rtcpssm draft)
      - Works, because a) sender announces all layers before RTP/RTCP comes up, and b) because we restrict ourselves to a single sender
  - Implicit association
    - Need to be simple, not to break security strength, …
    - Trick: when comparing two packet’s SSRCs, the one with higher SSRC also has the higher PRID
    - SRC collision can be avoided using the same idea as mentioned above
    - Well-designed MANEs can differentiate between RTCP and RTP forward traffic through PT, and forward all RTCP info “unfiltered”
    - Well designed MANE’s can also distinguish between RTCP reverse traffic (through PT), and handle it appropriately
Questions

• Is there a value in a mechanism that requires a MANE to be signaling-aware, but does not have the media keys?
  • Yes: makes sense to follow up the SSRC mux idea (in whatever incarnation)
  • No: SSRC mux to be taken out?

• Go for explicit mapping of SSRC value(s) to PRID?
  • One SSRC value -- cannot react to SSRC collision; is this a problem of defining the draft’s scope, or an (unsolvable) architectural question?
  • SSRC value range (give media sender a chance to react to SSRC collisions in a pseudo-random way)

• Implicit SSRC mapping?
  • Is the concept viable at all, and should it pursued?
  • Is the reaction to SSRC collisions sufficiently well specified?
  • Do we need to describe the MANE’s suggested implementation re RRs, or is that self-evident?