

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

Stephan Wenger

Ye-Kui Wang

Thomas Schierl

Public

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 rtpssm draft)
 - Require receivers to avoid SSRC collisions with media sender (like rtpssm 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 be 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?