

Multi-Session and Multi-Source Transmission in the Real-Time Transport Protocol (RTP) –

**draft-schierl-avt-rtp-multi-session-
transmission-00**

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What is it about?

- Identified problems of data and source correlation during recent work on media codes allowing multi session transmission (session multiplexing) as SVC, MVC, G.718, MPEG Surround
- Also discusses multi source transmission (SSRC multiplexing) issues

RTP Solution

- Data Alignment:
 - Data alignment is not mentioned in RFC3550
 - implicitly based on NTP timestamp alignment?
- Source correlation:
 - All sources of the same media have the same SSRC across multiple sessions
 - SSRC collision detection is applied on the base layer
 - Defined in RFC3550

Problems – Data Alignment

- NTP based approaches typically implemented for a/v sync, not for exact numerical alignment of sample timestamps
- Delay introduced by SR
- Lost SR packets
- Clock skew
- Imprecise system clocks
- *Existing implementations may not work, due to their “inaccuracy”*

Possible Solutions – Data Alignment

- RTP Timestamp Alignment
- Initial RTP timestamp / offset signaling
- New message for fast synchronization
see: draft-perkins-avt-rapid-rtp-sync-00
- Header Extension
- Payload Specific Methods

Problems - Source Correlation

- Source Correlation based on same SSRC, with SSRC collision detection in the base layer:
 - MVC as well as SVC may have sessions without dependencies to other sessions of the same media

Possible Solutions - Source Correlation

- Exclude those sessions from multi session transmission, assign different SSRC.
 - Delayed synchronization if there are multiple senders in the sessions; problems if a single participant has multiple sources.
- Extra signaling of session to be used for SSRC collision detection
 - Have to join this session even if you don't care about its content.
- Do collision detection on all layers, not just the base layer
 - Doesn't work for sources in non-overlapping sets of sessions

Feedback on mailing list

- Ye-Kui:
 - Describe problems of timestamp based data alignment – We will add those
 - Use of same timescale may not be a problem for audio codecs as G.718.
 - Problem of non-dependent sessions of same SVC/MVC stream
- Ingemar: Why not using header extension?
- Randell/Colin: Header extensions may be discarded

Current suggestions

- We are in favor of RTP timestamp alignment
 - No new messages required (RTCP or signaling)
 - Implementation / updating existing code should be easy
 - Works for video and also audio? (to be checked for MPEG surround)
 - Works for uni-directional channels (as DVB)
- Keep source correlation for base layer

Open Issues

- Are the identified problems convincing reasons?
- Is there a need for an addition to the existing data alignment mechanism?
- Is there a need for an addition to the existing source alignment mechanism?