RID in RTCP

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Overview

- Defining a new identifier, “RID”
- In SDP, negotiates constraints to be applied to a Source RTP Stream
- In RTCP (and RTP headers), carries an identifier to bind a Source RTP Stream to its negotiated constraints
- Key motivator is constraining and identifying multiple encodings in Simulcast
Overview: Negotiation

Endpoint 1

MCU / MDD

I can send up to three encodings of my video. We will call these encodings "A", "B", and "C". I can receive one encoding, no larger than 4k. We will call it "D".

Send me two encodings. Make sure "A" is no larger than 1080p, and "B" is no larger than 320x180. I will send you "D". It will never be larger than 1080p.
Overview: All the Streams

Endpoint 1 (recently active)

MCU / MDD

Endpoint 2 quiet, can display 2 streams

Endpoint 3 active, can display 1 stream
Overview: Endpoint 1’s Streams

- **MCU / MDD**
  - Thumbnail (320x180)
  - Main Video (1080p)

- **Endpoint 1**
  - Thumbnail
  - A
  - B
  - D

- **Endpoint 2**
  - Thumbnail

- **Endpoint 3**
Why do we need an identifier?

• When a stream arrives at the conference server, it needs to know how it is constrained so that it knows what to do with it.
  – In the previous example, it needs to know which stream is “thumbnail” and which is “main video”
• In architectures such as PERC, the server will not be able to inspect the stream to determine its characteristics.
• When FEC and RTX are used, you need RID to know which FEC and RTX RTP Stream applies to which Source RTP Stream.
But isn’t that the same as…?

- **CNAME**? No, there will be multiple RIDs per CNAME.
- **SSRC**? No, although there will be a one-to-one mapping at any given time.
- **MSID**? No – these group media sections together. There will be multiple RIDs per MSID.
- **MID**? No – there will be multiple RIDs per MID.
- **M-line index**? No; see MID.
- **PT**? No. You can hack things together to act like that in simple cases, but if you start adding new PTs for each encoding, you can actually run out.
RTCP and RTP Don’t Require SDP

• One key observation is that RTP and RTCP do not require SDP (e.g., Jingle, H.248, ORTC).

• Because of this, it would be nice to have the RID usage in RTCP (and RTP header extensions) defined in a document separate from the SDP.

• Finally, WebRTC needs this split
  — If MMUSIC simulcast is finished “in time” (which is a semi-subjective “really soon” on the order of a small number of months), we really, really want that.
  — If it isn’t, we need a fallback that can be forward-compatible with what MMUSIC finally produces.
Proposal

• Split RTCP and RTP sections out of draft-pthatcher-mmusic-rid-02 into their own document
  – I’d expect this to be *very short* – order of 2 pages or so, most of which is IANA registrations

• RTCP and RTP sections are progressed in avtext

• We’d want to finish this inside a month or two.