WebRTC: Media Transport and Use of RTP

draft-ietf-rtcweb-rtp-usage-04

Colin Perkins – University of Glasgow
Magnus Westerlund – Ericsson
Jörg Ott – Aalto University
Status

• The -04 draft attempts to reflect the consensus of the interim meeting

• Looking for detailed feedback on the draft via the mailing list

• This presentation will highlight major open issues; not intending to discuss details today
Choice of RTP Payload Formats

• Mandatory audio codecs:
  • Will update the draft to reflect the outcome of the discussion on Monday
  • Note: RFC 3551 states "Audio applications operating under this profile SHOULD, at a minimum, be able to send and/or receive payload types 0 (PCMU) and 5 (DVI4)" – conflicts with the recommendation from Monday’s session

• Mandatory video codecs:
  • Will update the draft to reflect any decision on mandatory video codecs
RTP Session Multiplexing

• REQUIRED to support sending each media type as a separate RTP session (i.e., separate UDP ports)

• Consensus to *also* support sending several media types on a single transport layer flow as an option
  
  • REQUIRED to support this as one RTP session with multiple media types
    
    • Violates a “SHALL NOT” in RFC 3551, can lead to anomalous RTCP behaviour, and has other limitations, but workable for current WebRTC use cases
    
    • Proposals to AVTCORE to specify this (draft-westerlund-avtcore-multi-media-rtp-session-00 and draft-lennox-avtcore-rtp-multi-stream-00) – come to AVTCORE to support their adoption

• Desirable to also have a multiplexing solution that keeps the RTP session distinction while reducing the number of transport ports
  
  • To support widest range of RTP features, and for ease of gateway operation
  
  • One option is draft-westerlund-avtcore-transport-multiplexing
  
  • Should this be RECOMMENDED or OPTIONAL?
Generation of the RTCP CNAME

- Use of RFC 6222 is RECOMMENDED in the draft
- Growing consensus that randomly chosen CNAME values need to be supported
  - draft-rescorla-avtcore-random-cname-00 will be discussed in AVTCORE this afternoon
  - Will reference this if it’s accepted as an AVTCORE work item
Congestion Control

- RTP Media Congestion Avoidance Techniques BOF this afternoon
  - If this leads to a working group, expect to reference output documents of that working group
  - If no working group is formed, need to reconsider what congestion control can be provided

- Boundary conditions
  - draft-perkins-avtcore-rtp-circuit-breakers currently REQUIRED, dependent on adoption by AVTCORE
  - Desirable to be able to specify a rate limit in SDP – open issue: what do we need to support to achieve this?
Performance Monitoring

- Basic RTCP reports on RTT, packet loss, and jitter; RTCP Extended Reports (XR) provide *many* more metrics

- Should we require support for RTCP XR?
  - No requirements in use cases draft, but draft-huang-rtcweb-monitoring-00 has some suggestions
WebRTC API Considerations

• Section 11 describes how WebRTC API features map onto RTP mechanisms described
• No consensus on current text at interim meeting

• Is it appropriate to discuss this mapping in this draft or should a separate draft be written?
RTP Implementation Considerations

• Section 12 provides guidance on implementation of the RTP features described

• Open questions noted:
  • Do we need a way to signal the number of SSRCs an end-point supports (e.g., draft-westerlund-avtcore-max-ssrc-02)?
  • Should we provide a way to set the CSRC list on outgoing RTP packets?
  • What API/signalling support is needed to support simulcast (i.e., sending the same stream at two different resolutions)?
  • How can QoS and/or stream priority be provided?

• Is it appropriate to include this guidance here, or should it be a separate draft?
Supported RTP Topologies

- Appendix A describes many different ways in which RTP endpoints and middleboxes can be organised
  - Includes discussion of how PeerConnections relate to RTP sessions
  - Aims to be useful guidance for RTCWeb implementors

- Suggest moving this material to a separate draft
Next Steps

• Any other major open issues not discussed?

• Will continue to revise the draft – please provide feedback on the details via the mailing list