MULTIPLE RTP SESSIONS OVER ONE TRANSPORT

draft-westerlund-avtcore-transport-multiplexing

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OUTLINE

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- Open Issues
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  - SHIM Size
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GOALS

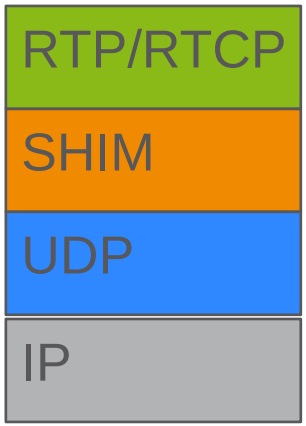
- Create a WG item for multiple RTP sessions over one transport flow
- Resolve the main open issues

MOTIVATION

- The classic One RTP session per transport flow
- Proposed multiple media types in one RTP session
- Multiple RTP sessions over one transport flow is needed:
  - NAT/FW traversal simplification is still main reason
  - Application doesn't need transport level separation
  - Some applications desire multiple RTP sessions
    - Logical separation of type of flows
    - Tailored RTP/RTCP Extensions to RTP session content
  - Enable mixed (single transport flow and not) multi-party sessions without special translation
  - Usage of XOR FEC etc that require multiple sessions
- We have no solution for multiple sessions over one transport
  - Bias against using multiple RTP sessions

SHIM LOCATION

- In the stack processing the SHIM is between the RTP/RTCP and the transport layer (UDP)
- However, the Session ID value in the SHIM can be located either at the end of the RTP/RTCP packet or in the beginning
- The location affects the solutions property



SHIM IN FRONT

- Enables aware network nodes to process the SHIM header
- Enables middleboxes that only process headers to add or strip the SHIM
- Cause the packet to not look like regular RTP/RTCP
  - Potential deployment issues
- Reduced efficiency in header compression (IP/UDP only)
- Third party monitors can easily take SHIM into account
- Long term better solution

SHIM AT THE END

- Any network node doing processing on header only can't read the SHIM header
  - Makes future stream aware processing impossible
- Makes packet look like standard RTP
- Multiple flows with same SSRC (different Session IDs)
  - Jumping field values from a non SHIM reading entity
    - Header compression will work poorly
    - Stateful Firewalls may block transport flow
- Likely easier initial deployment, long term worse

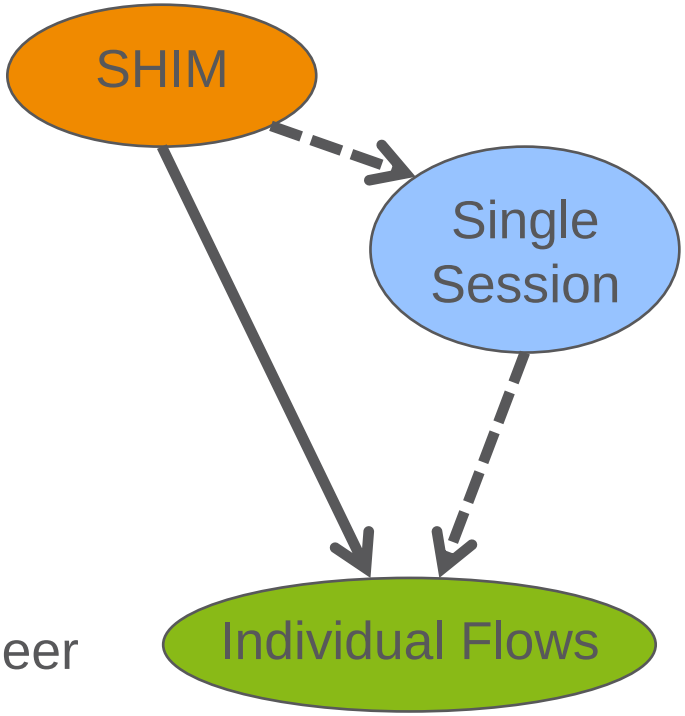
SHIM LOCATION

- Proposes that the SHIM is pre-fixed

SHIM SIZE

- What is the appropriate size of the SHIM header:
  - 1 byte
  - 2 byte
  - 4 bytes
- From number of Session IDs 256 identifiers are more than sufficient:
  - Supports 128 to 256 RTP sessions depending on RTCP mux or not
- Primarily Question of alignment vs. overhead
- Any fixed ID in first byte to enable separation from STUN etc?

SIGNALING



- Latest version does not use BUNDLE
- Reason is to enable better fallback
- SHIM users prefer RTP sessions
  - Fallback to Individual flows
- Using Bundle with extensions
  - Fallback would result in Single Session if peer supports Bundle but not SHIM
- SHIM will use a small bounded set of the BUNDLE rules regarding transport parameters
  - Rest is RTP session specific

IN-BAND KEYING

- In-band keying mechanisms needs to provide unique keys to each SRTP session
- Thus DTLS-SRTP and ZRTP would need to be run also within the context of a specific Session ID(s)
- Running DTLS-SRTP for each Session ID
  - Additional overhead
  - Session resumption can be used if delay is not an issue
- Means that SHIM implementation needs to be integrated with STUN/ICE and DTLS-SRTP
- Alternatives?

NEXT STEPS

- We will update the draft based on feedback
- Does the WG support the creation of a WG item:
  - To define a method to provide multiple RTP sessions over one transport flow
- Does the WG want to adopt this document?