MPRTP

draft-singh-avtcore-mprtp-01.txt

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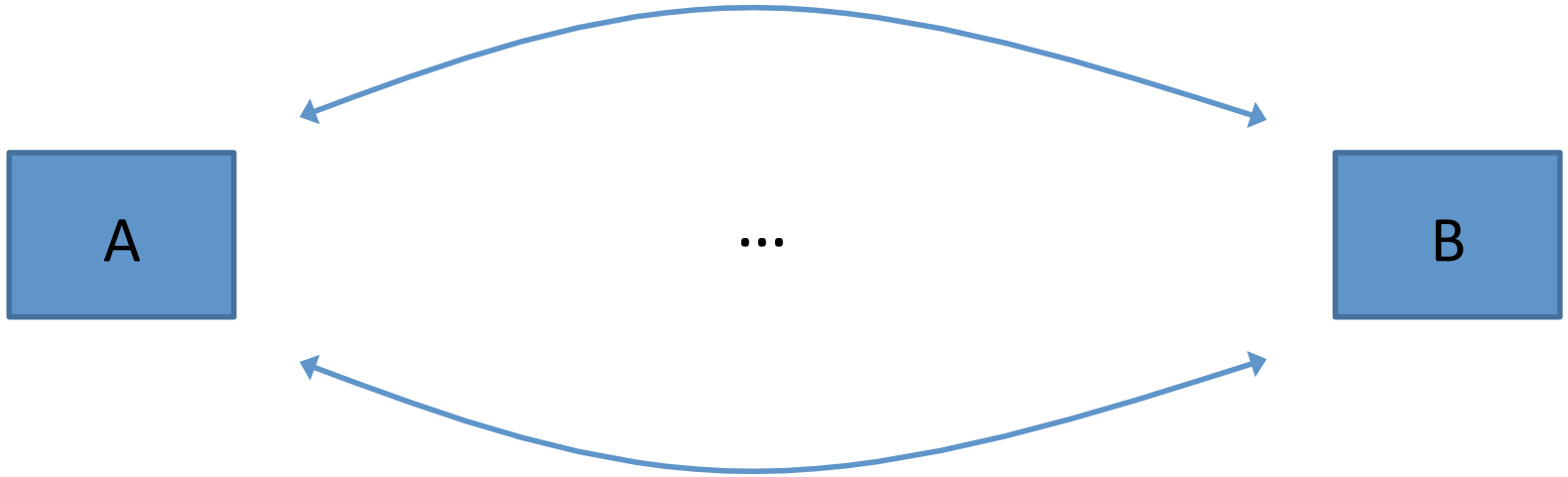
AVT Core WG – 28 March 2011

Reminder

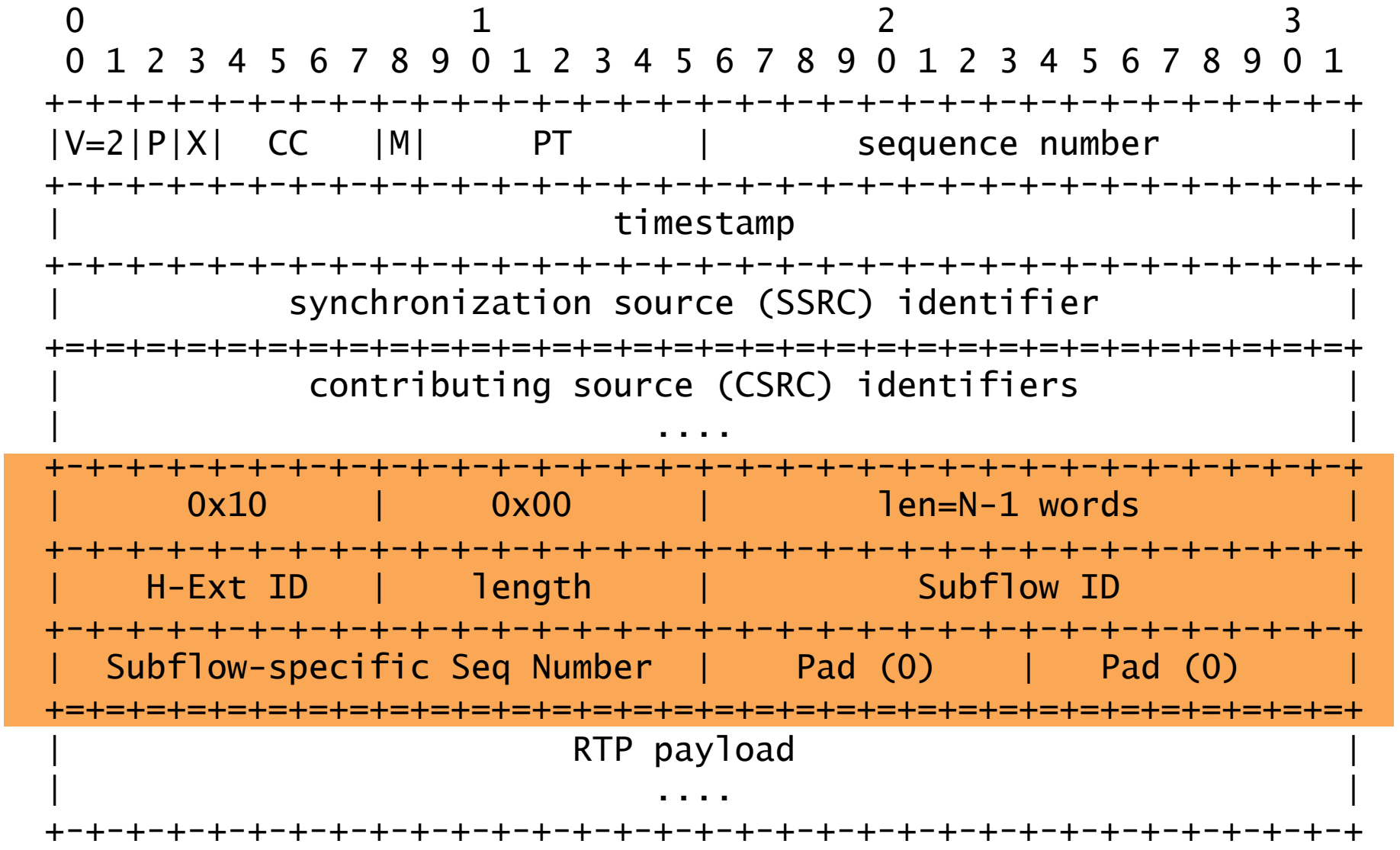
- Splitting an RTP session across multiple paths for load balancing and/or robustness
- Seemed to be a ok idea as per Maastricht and Beijing feedback



Basic MP-RTP Operation

- Backwards-compatible design
- Start with an initial RTP session
  - Learn about additional paths/interfaces
    - SDP signaling up front (e.g., ICE) and RTCP signaling
  - Upgrade to MP-RTP during an ongoing session
    - Basic capability indicated in SDP
    - Instantiate sub-sessions in-band to avoid complex synchronization with signaling
    - Subflow have own identifier and sequence #

MP-RTP Header



MP-RTCP reports

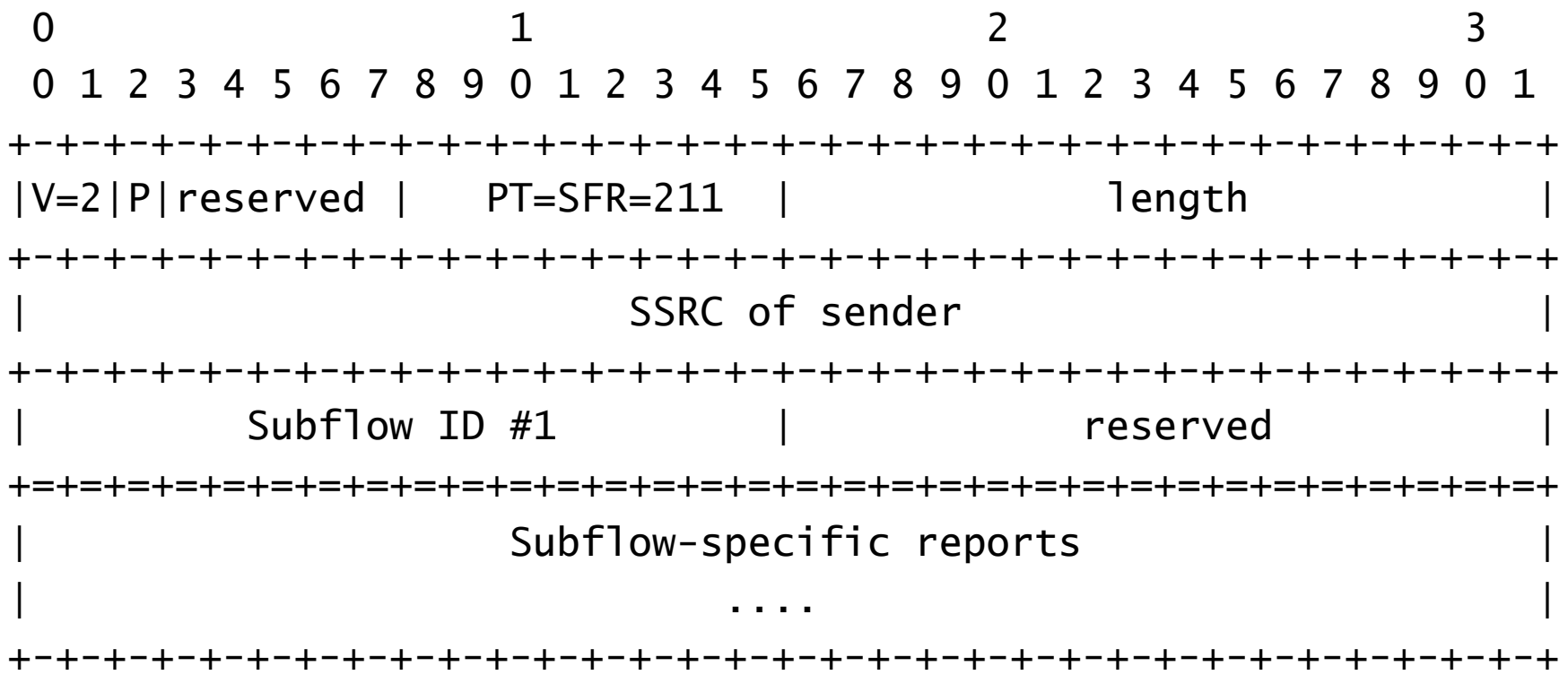
- In-band advertisement
- Connectivity Checks
  - Extend STUN instead of using RTCP
- Keep Alive for passive paths
- Subflow reporting

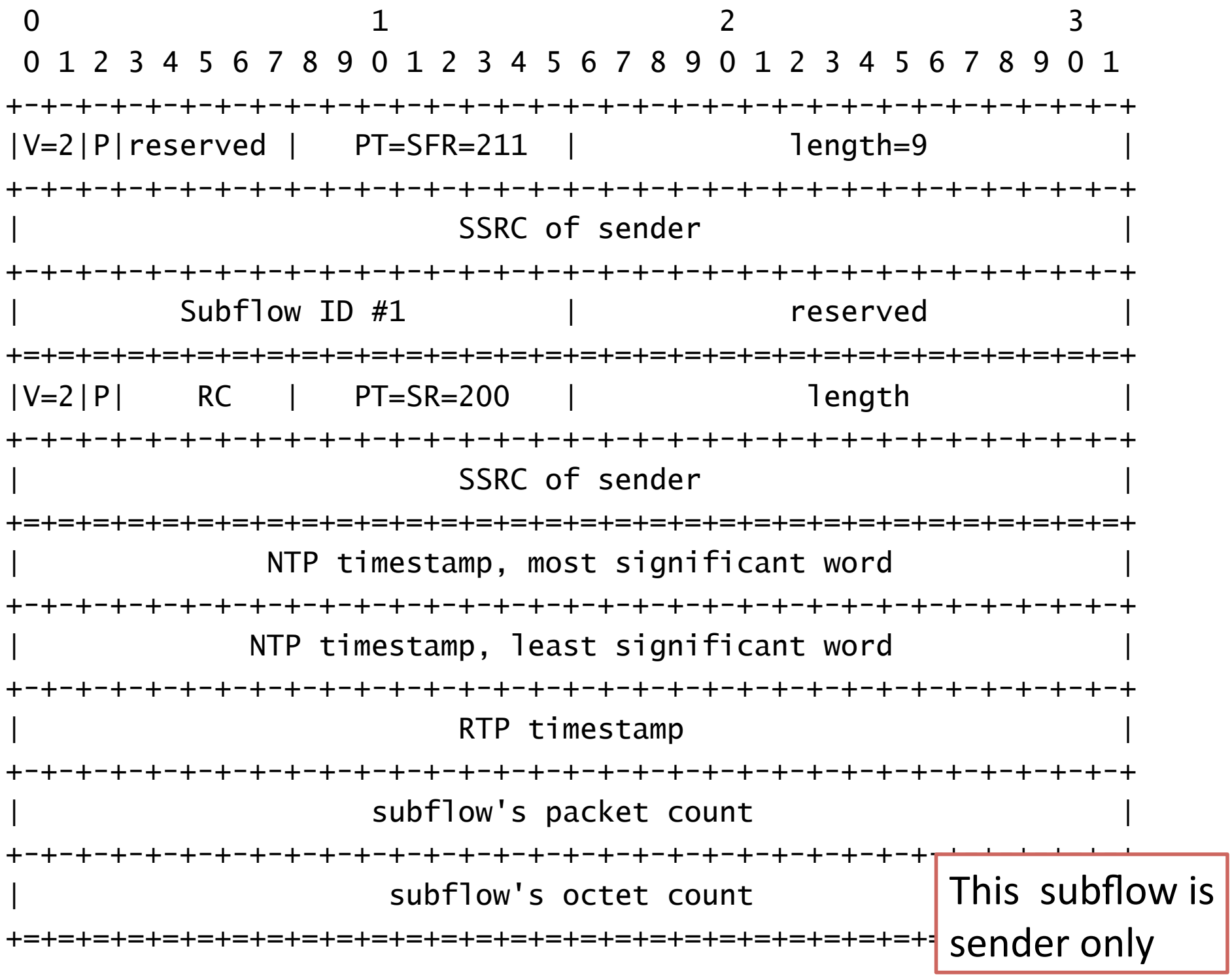
Subflow Reporting

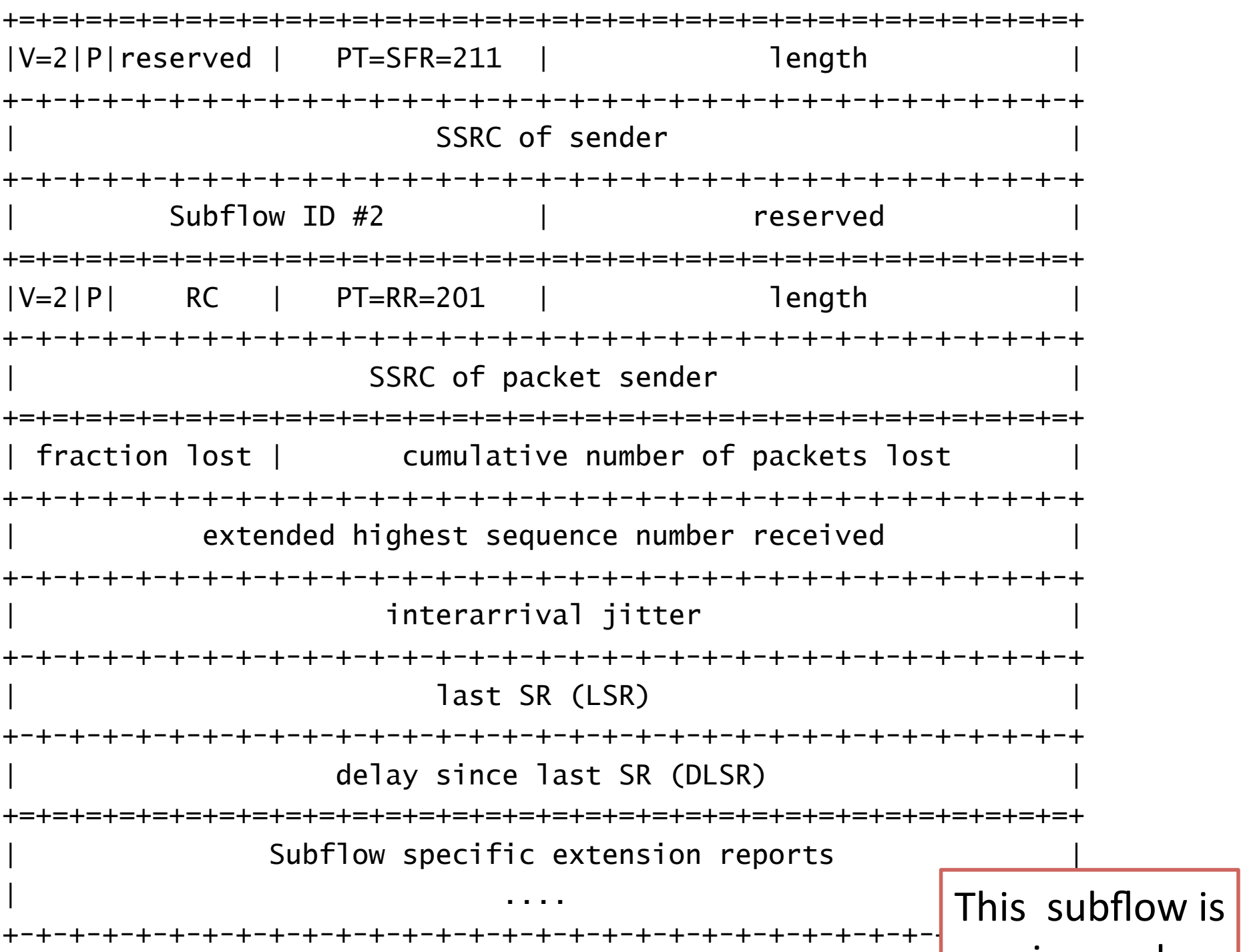
- Subflow Reporting uses Non-compound for MP-RTCP

- Subflow MP-RTCP Header encapsulates standard RTCP extensions (SR, RR, XR) for that specific subflow
  - Advantage is re-using ALL session level reports for subflow

MP-RTCP


0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
|V=2|P|reserved | PT=SFR=211 | length |
SSRC of sender
| Subflow ID #1 | reserved |
Subflow-specific reports
....


0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
|V=2|P|reserved | PT=SFR=211 | length=9 |
| SSRC of sender |
| Subflow ID #1 | reserved |
|V=2|P| RC | PT=SR=200 | length |
| SSRC of sender |
| NTP timestamp, most significant word |
| NTP timestamp, least significant word |
| RTP timestamp |
| subflow's packet count |
| subflow's octet count |
This subflow is sender only


|V=2|P|reserved | PT=SFR=211 | length |
SSRC of sender
Subflow ID #2 | reserved
|V=2|P| RC | PT=RR=201 | length |
SSRC of packet sender
fraction lost | cumulative number of packets lost
extended highest sequence number received
interarrival jitter
last SR (LSR)
delay since last SR (DLSR)
Subflow specific extension reports
....
This subflow is receiver only

Open Issues

- Differentiate between Active and passive paths?
  - Default keep-alive for ICE/NAT bindings should be 15 seconds [RFC5245], perhaps re-use this
  - What type of RTP/RTCP packet should a subflow use for keep-alive?
  - Use guidelines summarized in draft-ietf-avt-app-rtp-keepalive-10

Next version

- Roni remarked using single RTCP Payload Type
- SDP grouping
  - Increased Throughput
  - Increased Resilience
  - Decoding dependency
    - Different SVC Layers on separate subflows
- SDP for different MPRTP use-cases
- Next draft: WG item?