Non-compound RTCP

draft-johansson-avt-non-compound-rtcp

Ingemar Johansson, Ericsson AB

ERICSSON

TAKING YOU FORWARD

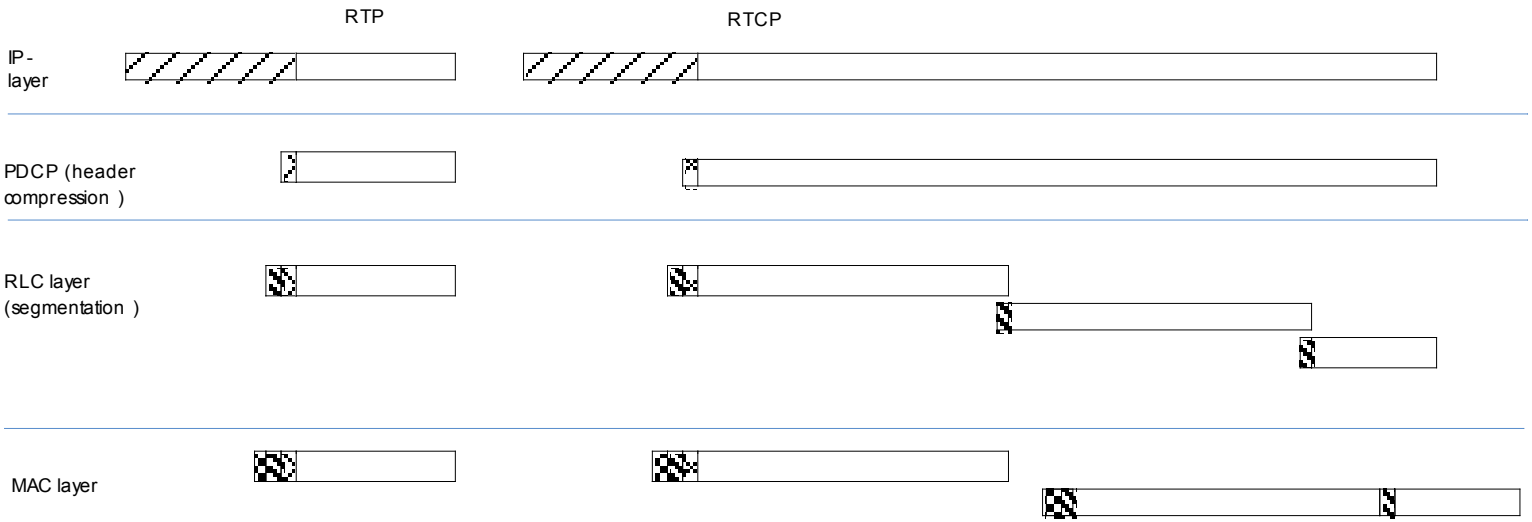
Non-compound RTCP

- Arguments for Non-compound RTCP
  - Bandwidth, robustness..
- Issues with Non-compound RTCP
  - Middle boxes, packet validation...
- Requirements
  - Early, immediate AVPF
  - Implicit verification...

Arguments for... (section 3)

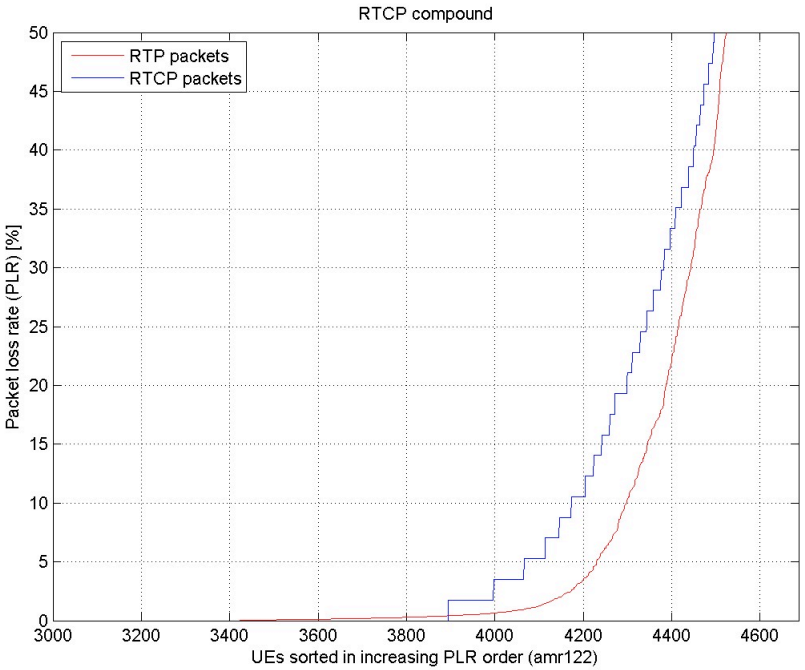
- Shorter serialization time in fixed bandwidth links
  - Large RTCP in narrow bandwidth links might lead to more delay (or jitter) for RTP
- Makes it possible to transmit e.g. frequent adaptation feedback in the early and immediate AVPF framework.
  - Use of Non-compound RTCP minimizes risk of over consumption of RTCP bandwidth
- Good for links where packet loss probability increases with packet size

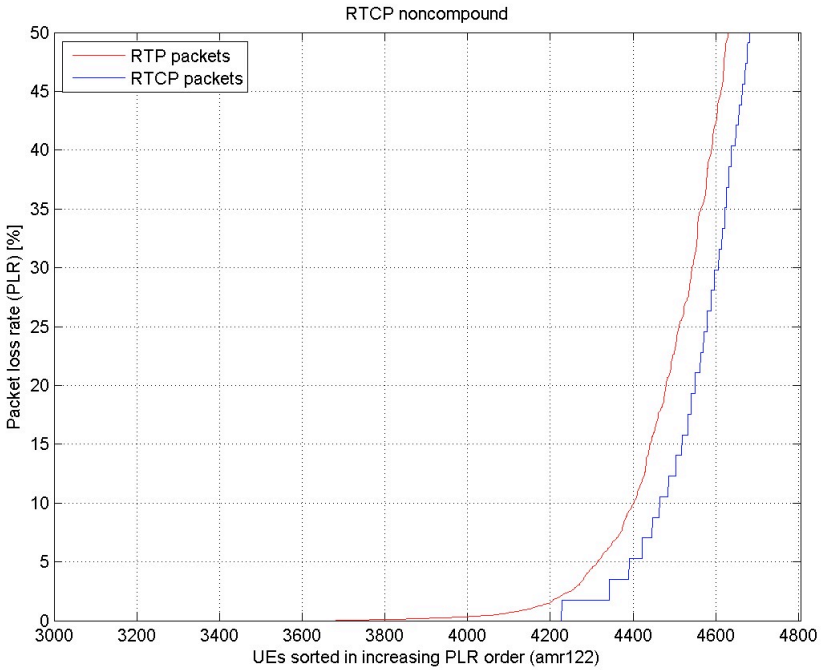
Argument #3 (3GPP example)



- MAC block size depends on current channel condition
  - Good channel conditions → large block sizes possible, moderate segmentation of large packets
  - Bad channel condition → block sizes manage to fit small packets but large packets are subject to extensive segmentation
  - Limitation of number of retransmissions → higher packet loss probability for large packets

Argument #3 (3GPP example)





- ”Turbo 3G” Enhanced uplink simulation.
  - AMR 12.2kbps, header compression of both RTP and RTCP.
  - X-axis represents users sorted after experienced loss ratio.
  - Simulation shows that compound RTCP is not suited for e.g. critical adaptation feedback.
  - Compound RTCP degrades faster/easier than RTP.

Issues (section 4)

- Middle boxes
  - ... may discard non-compound RTCP
- Packet validation
  - Packet validation according to RFC3550 discards non-compound RTCP
    - Old RTCP receivers may not react to non-compound RTCP feedback.
    - Weakened packet validation.
    - Pessimistic bandwidth computation, can lead to timeout of senders that transmits a large portion of non-compound RTCP.

Issues cont.

- Header compression
  - RTP/RTCP Classification algorithm must be aware that PT of the RTCP might differ from 200 or 201
- RTP/RTCP multiplex
  - Care must be taken to ensure that demultiplexing handles non-compound RTCP payload types

Requirements for non-compound (section 5)

- Regular (Minimal) Compound RTCP should be maintained throughout the session.
- Non-compound RTCP shall only be allowed in the early and immediate AVPF framework.
- Non-compound RTCP shall update the avg_rtcp_size.
- Implicit verification of successful transmission on non-compound RTCP required.
  - If verification fails → compound RTCP must be used throughout the session.
- Endpoints shall negotiate the use of non-compound RTCP (recommended SDP attribute ”ncp”).