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Quick-Start for DCCP

draft-fairhurst-tsvwg-dccp-qs-00

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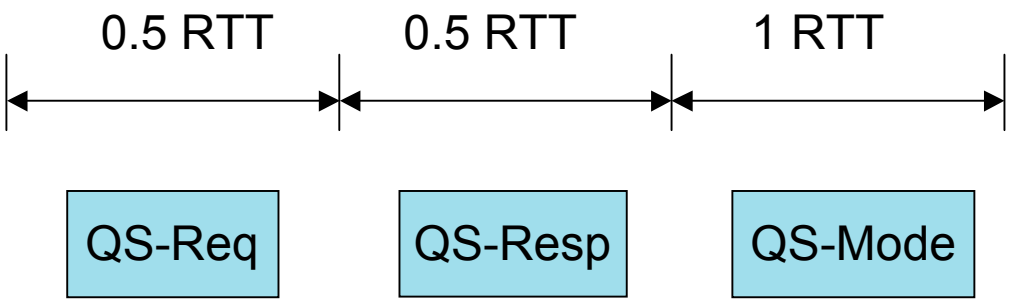
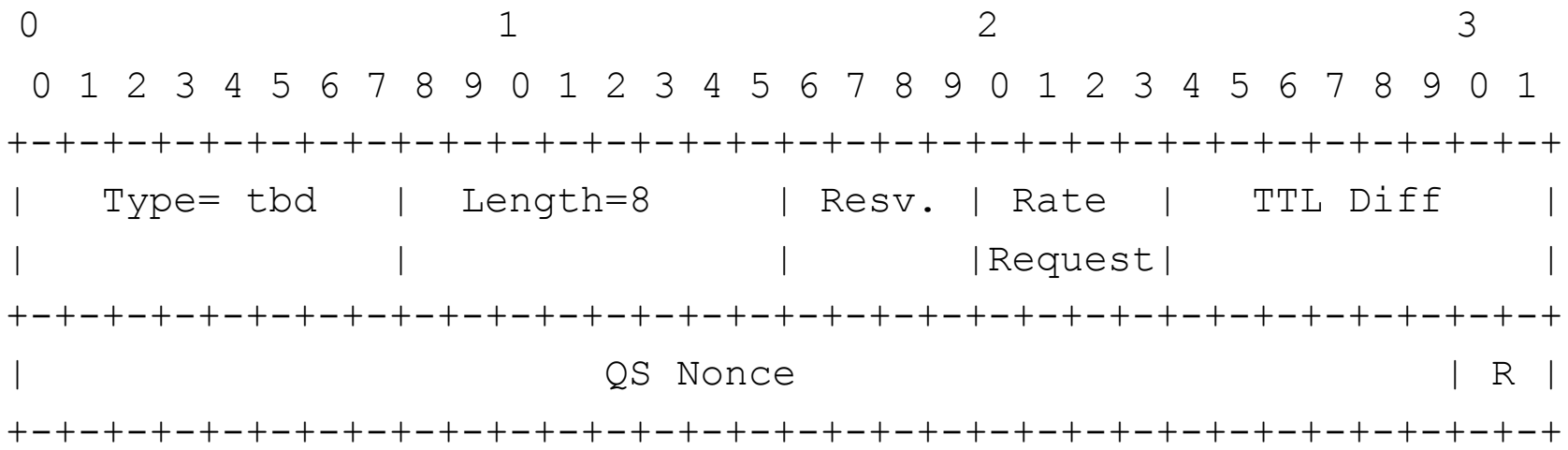
QS for DCCP



- Similar to QS with TCP [RFC 4782].
- Sender MAY use a Quick-Start request:
  - At start of a connection.
  - In the middle of a connection.
- SHOULD send the request on a packet that requires an acknowledgement (DCCP-Request, DCCP-Response, or DCCP-Data).
- MUST NOT make a subsequent Quick-Start Request within four RTTs.
  - CCID-3 responds slowly to changes.

CCID-3 Receiver

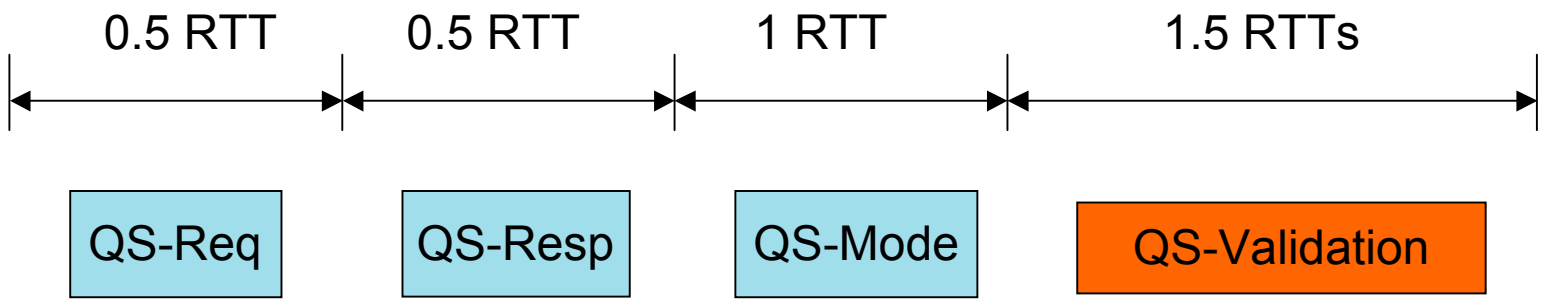
- QS-Requests processed identical to TCP.
- On receipt of QS-Request:
  - Receiver SHOULD immediately send a QS-Response (DCCP Option).



Using QS-Response with CCID-3

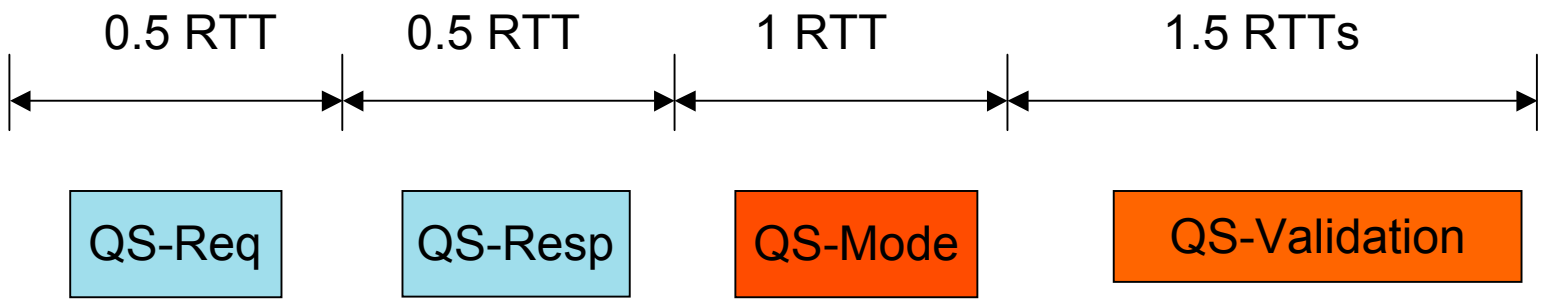
- Sender SHOULD NOT ignore a feedback packet with QS-Response option.
- Sender enters QS-Mode.
  - Sending host sets Quick-Start sending rate
    QS-sendrate = R * s/(s + H)
  - CCID 3 is rate paced protocol.
    QS packets are naturally rate paced.
- Sender exits QS Mode when either:
  - A feedback packet acknowledging one or more Quick-Start packets.
  - Detection of a loss event.
  - A period of one RTT after receipt of QS-Response.
- If no reported loss (or ECN marking), enters Quick-Start Validation Phase

QS Validation Phase



- Unlike TCP, TFRC receives a feedback once per RTT.
- Add a new Quick-Start Validation Phase.
  - Period to affirm capacity used by QS packets did not introduce congestion.
  - Sender tentatively permitted to continue sending at QS-sendrate.
  - Limited to a maximum of 1.5 RTTs (or loss, or feedback for QS Packets)
- At the end of the Quick-Start Validation phase:
  - Sender stops using the QS-sendrate.
  - Uses the standard congestion control mechanisms.

Reported Loss during Quick-Start Mode or Validation Phase



- If no feedback received within Quick-Start Mode or Validation Phase:
  - MUST return to minimum of original rate (at start of QS Mode) and one half of QS-sendrate.
- If a feedback packet arrives reporting packet loss
  - MUST immediately leave the Quick-Start Mode or Validation Phase.
  - Enters congestion avoidance phase.

Next Revision

- CCID-3 feedback timer
  - Receiver can use window counter not feedback timer expiry.
- Add CCID-2 text (should be easy)
- Which WG?
  - TSVWG or DCCP?