

# Changes in CCID 2 and CCID 3

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# CCID 2:

Changes from draft-ietf-dccp-ccid2-05.txt:

- Response to Idle and Application-limited Periods
- Detecting Lost and Marked Acknowledgements

# Section 5.1: Response to Idle and Application-limited Periods

What does TCP do?

- RFC 2581 says that TCP SHOULD slow-start after an idle period.
- RFC 2861, Experimental, has a slightly more moderate mechanism for TCP.

# Section 6.1.1: Detecting Lost and Marked Acknowledgements

- When a packet is lost from DCCP B to DCCP A, DCCP A doesn't know if this was a data packet or an ACK packet.
- For the purposes of Ack Ratio calculation, DCCP A assumes that every loss from DCCP B to DCCP A was an ACK loss.
  - (The NDP Count option can give more information.)

## Section 6.1.1, continued:

### Appendix B: Cost of Loss Inference Mistakes to Ack Ratio

- The cost occurs when DCCP B is sending roughly the same amount of data and non-data packets, without NDP Count options, with all acknowledgement information in DCCP-Ack packets.
- The cost is moderate.

## CCID 3: Changes from draft-ietf-dccp-ccid3-05.txt:

- Response to Idle and Application-limited Periods
- Response to Data Dropped and Slow Receiver
- Other Possible Changes to TFRC
- Added a paragraph on the sending rate when no feedback is received from the receiver. (Specified in RFC 3448.)
- Expanded on the discussion of the packet size  $s$  used in the TCP throughput equation. (One could set the packet size  $s$  to MSS).

# Section 5.1: Response to Idle and Application-limited Periods

- After an idle period, the allowed sending rate is not reduced to less than the initial sending rate.
- After that, the sending rate is at most doubled from one RTT to the next.

## Section 5.2: Response to Data Dropped and Slow Receiver

- Adjusting the receive rate after **Data Dropped or Slow Receiver events**, to limit the sending rate in the next RTT. This is "SHOULD".

# Section 10.2: Other Possible Changes to TFRC

Issues listed for future research and engineering:

- [Sending fewer acknowledgements](#) when the sending rate is low (less than one packet per RTT)?
- [More than doubling the sending rate](#), from one RTT to the next?
- [A higher sending rate after an idle period?](#)
- Follows an old section on [Possible Changes to the Initial Window](#).

## Possible new efforts:

- Standardizing **QuickStart** (for a faster start-up, with feedback from routers).
- A new **CCID for VoIP** based on RFC 3714, IAB Concerns Regarding Congestion Control for Voice Traffic in the Internet.
- At some point, **TFRC-PS**, a variant of TFRC for flows that adapt their packet size.