TFRC for Voice: the VoIP Variant

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draft-ietf-dccp-tfrc-voip-05.txt

Slides: http://www.icir.org/floyd/talks.html

Graphics:

http://www.icir.org/floyd/papers/voipimages-05.pdf

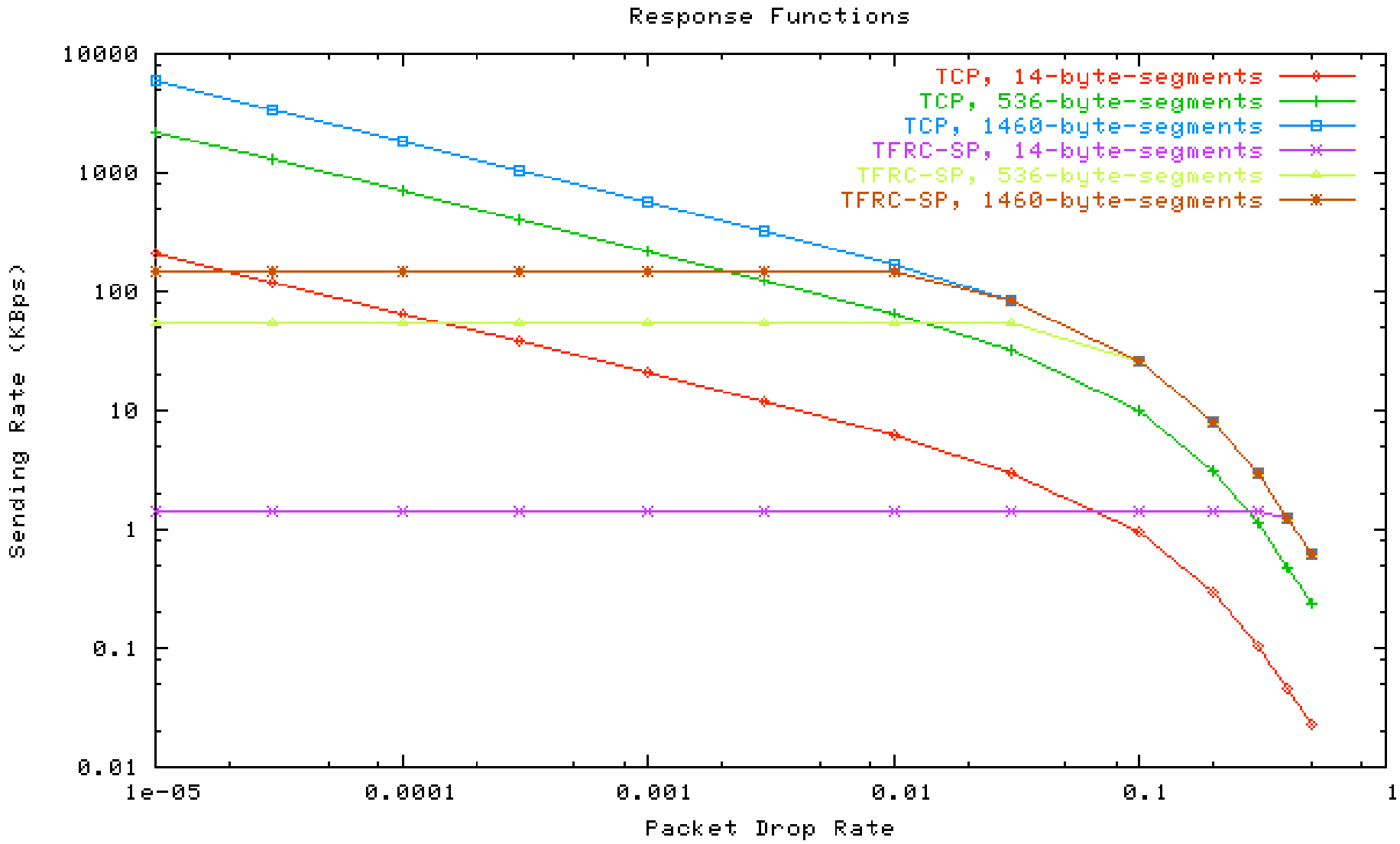
VoIP: fairness in Bps.

- In the TCP throughput equation, use the measured loss event rate and a packet size of 1460 bytes.
- Reduce the allowed transmit rate to account for the fraction of the VoIP bandwidth that would be used by 40-byte headers:
- Enforce a Min Interval between packets of 10 ms.
- For short loss intervals (at most two RTTs), count the actual packet loss rate (but don't increase the number of loss intervals).

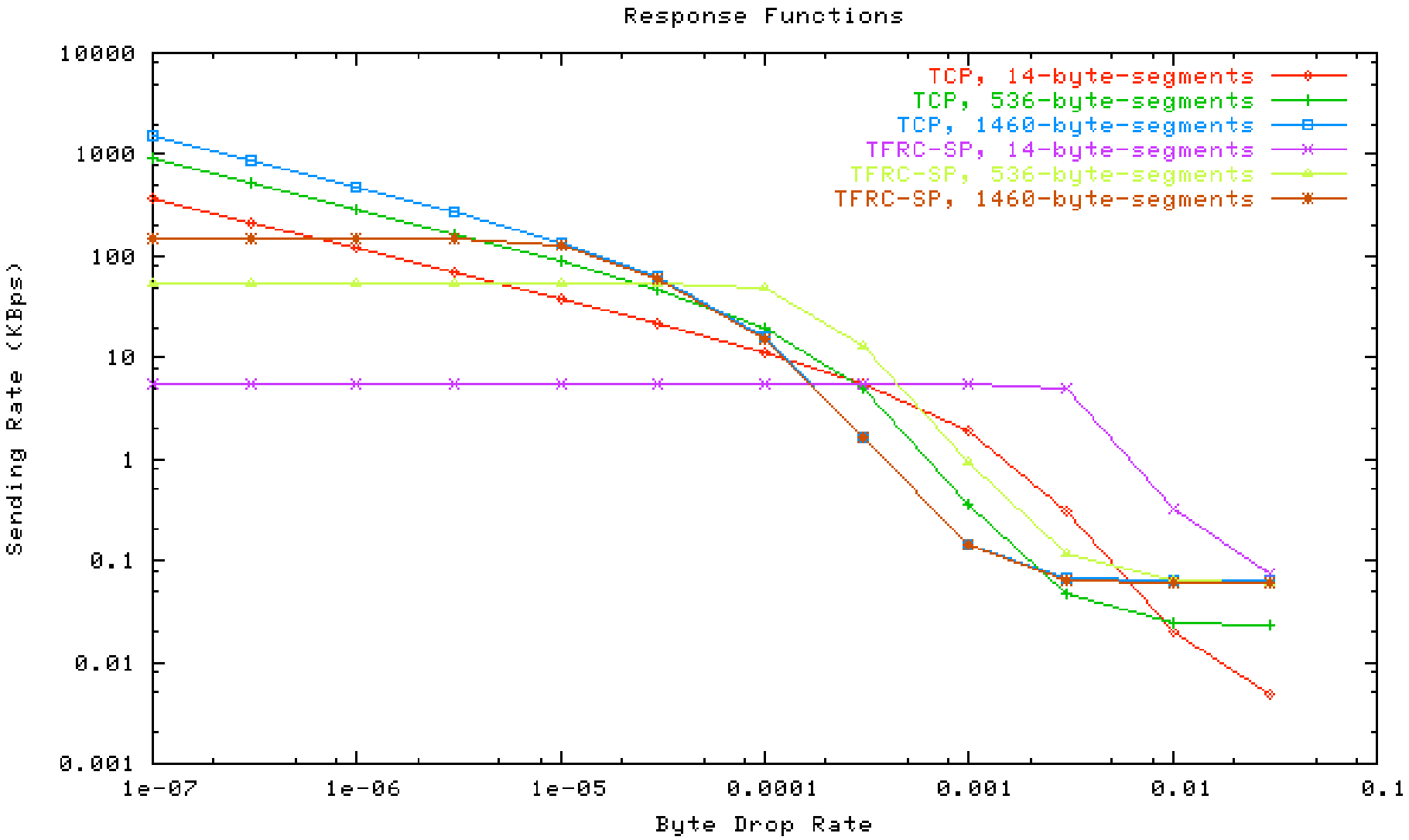
Changes from WG Last Call:

- Various editing changes listed in the draft.
- Added "Initializing the Loss History after the First Loss Event"
- Added tables showing the response function for TCP, TFRC, and TFRC-SP.
- Added simulations comparing the effects of TFRC and of TFRC-SP, for Drop-Tail queues in bytes.
- Added that separate document will be used to specify an experimental CCID based on this.

Response Functions, #1:

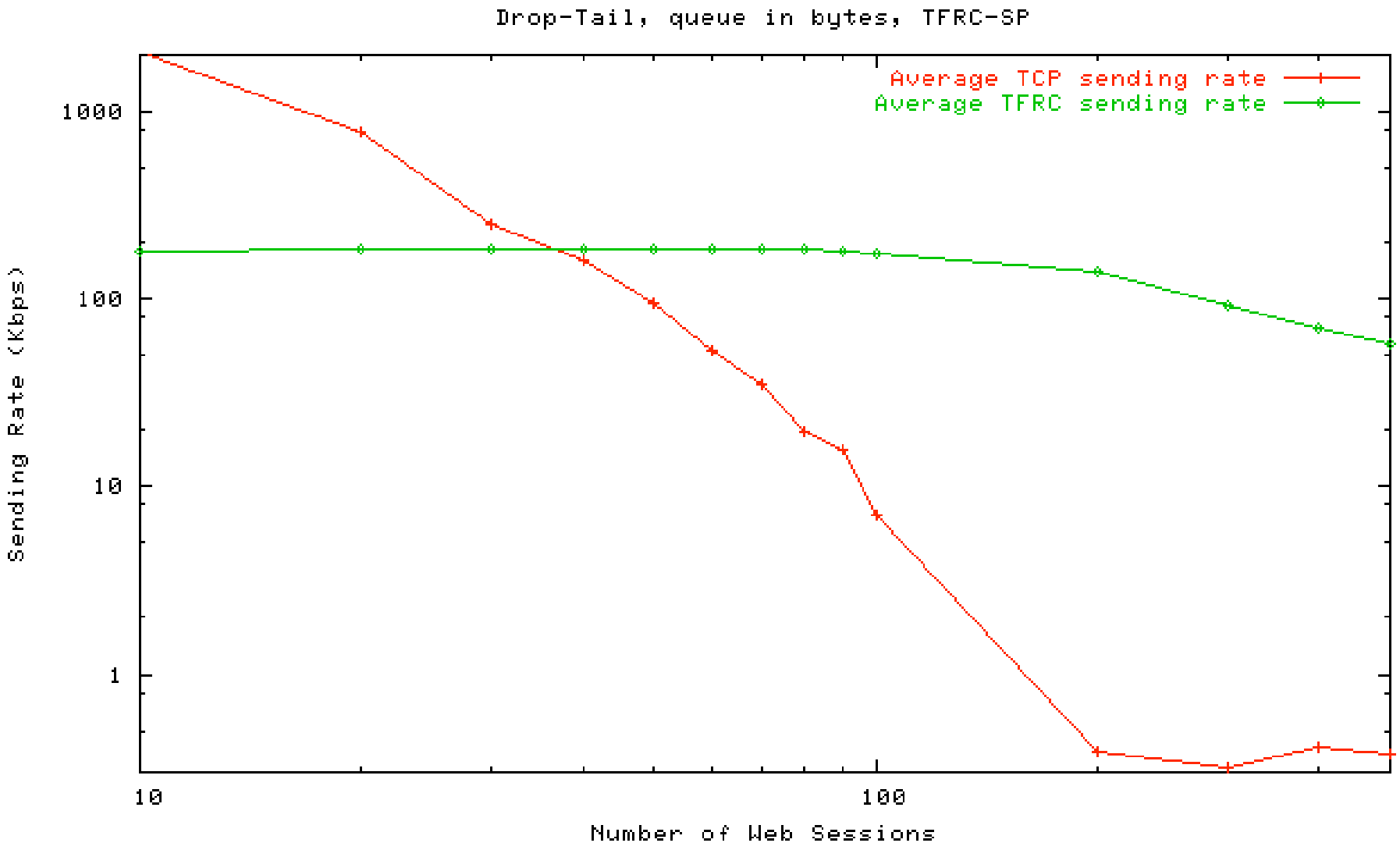


Response Functions, #2:

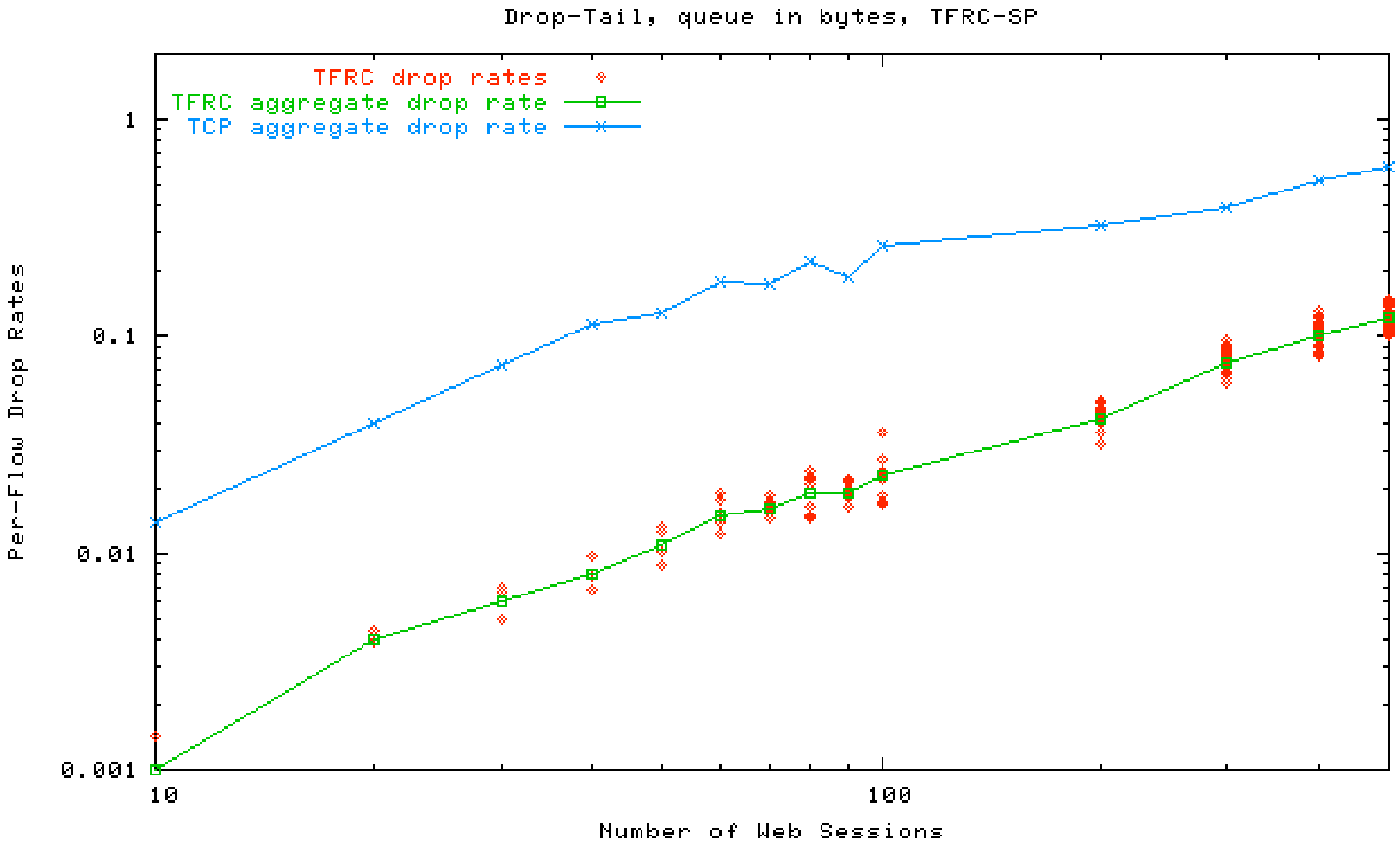


Simulations with Drop-Tail Queues in Bytes:

(TFRC-SP uses 200-byte segments)

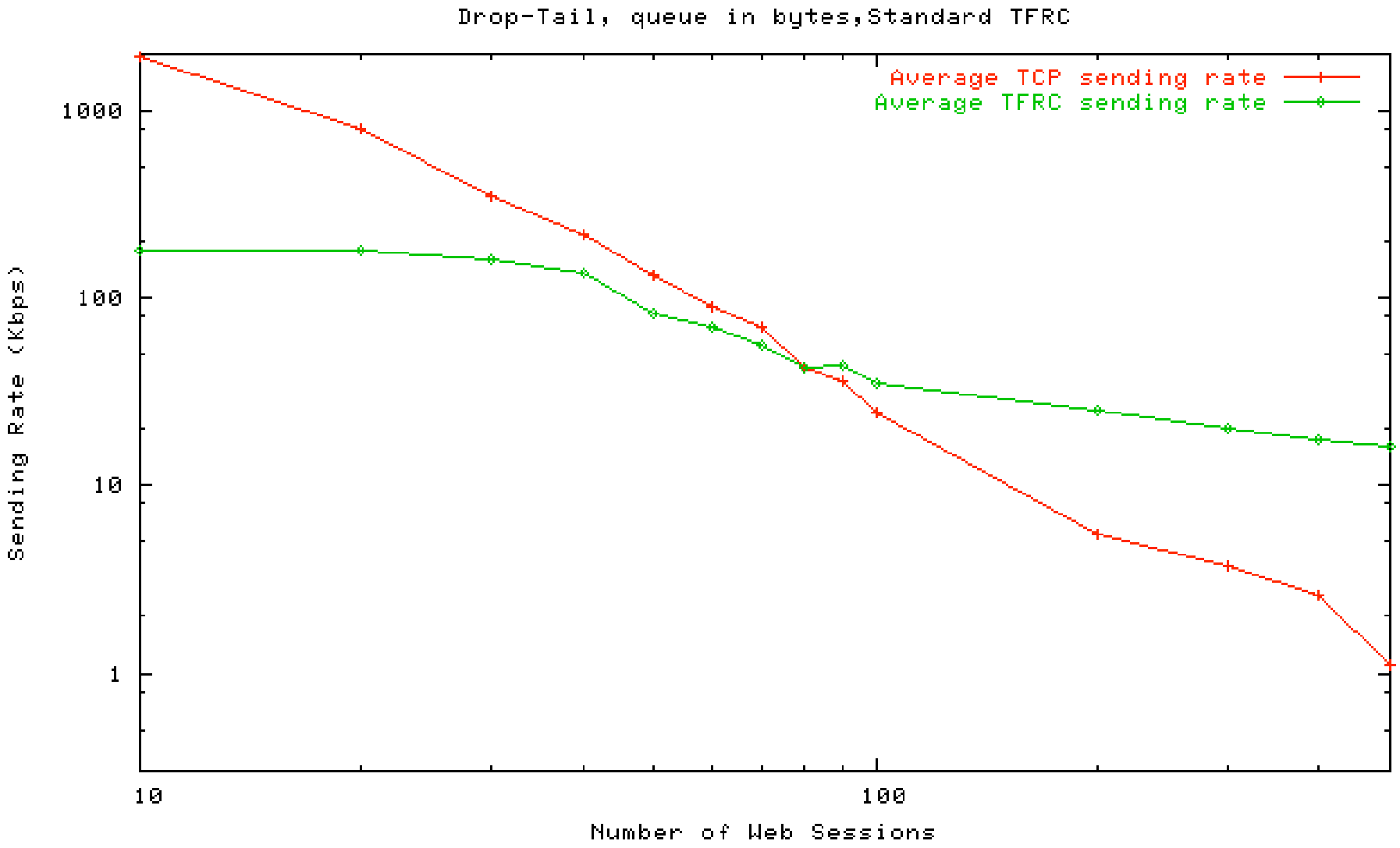


Packet drop rates:

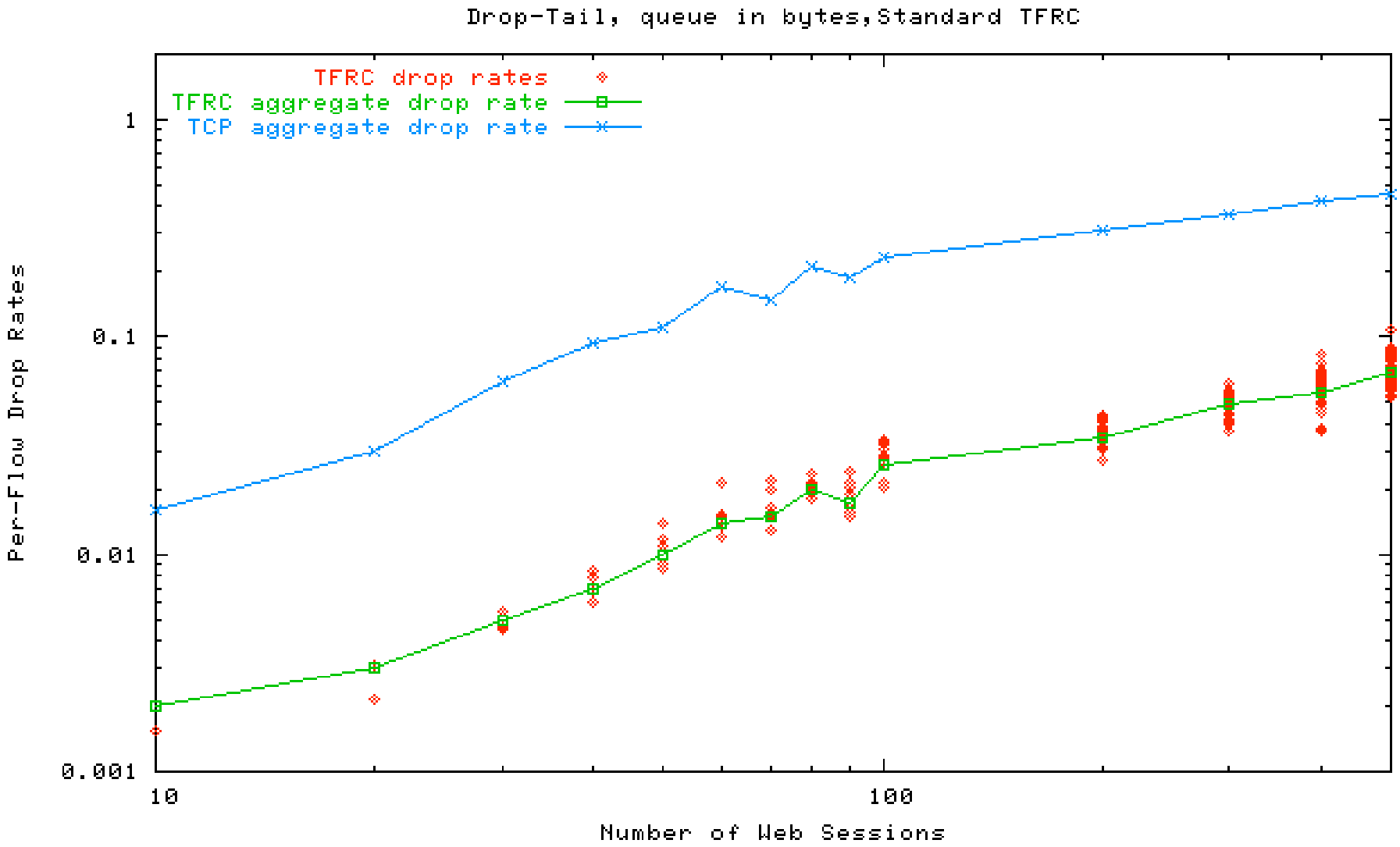


Simulations with Drop-Tail Queues in Bytes:

(TFRC uses 200-byte segments)



Packet drop rates:



Recent changes to TFRC in NS:

- CCID3, Section 5.1:

  If RFC3390 initial sending rates are enabled, then when reducing the sending rate after an idle period, don't reduce the sending rate below the initial sending rate.

- NEW, for a datalimited sender:

  When the sender has been datalimited, the sender now doesn't let the receive rate limit it to a sending rate less than the initial rate.

- NEW, small change to slow-start:

  Changed slowstart so that when the initial rate in pkts/RTT is greater than 1, the receive rate is not used to limit the sending rate when the receiver has not yet seen an entire window of data.

Recent changes to TFRC in NS, #2:

- To-Do:
  - Write an internet draft amending TFRC (RFC 3448) to use larger initial windows (as in RFC 3390), as specified in CCID-3.
  - In that draft, also include the changes on the previous page.