

# Increase of the Congestion Window when the Sender is Rate-Limited

draft-welzl-ccwg-ratelimited-increase-03

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IETF 121

# The proposal in a nutshell

maxFS: the largest value of FlightSize since the last time that cwnd was decreased. If cwnd has never been decreased, maxFS is the maximum value of FlightSize since the start of the transfer.

From Section 3:

Irrespective of the current state of a congestion control algorithm, senders using a congestion-controlled transport protocol:

- **MUST** include a limit to the growth of cwnd when  $\text{FlightSize} < \text{cwnd}$ .
- **SHOULD** limit cwnd when  $\text{FlightSize} < \text{cwnd}$  to be no larger than  $\text{limit}(\text{maxFS})$ .
- **MAY** limit maxFS as  $\min(\text{maxFS}, \text{pipeACK})$ , using "pipeACK" as defined in [RFC7661], when  $\text{FlightSize} < \text{cwnd}$ .

New, to address a comment from Neal Cardwell @ IETF-120

Open question: is PS referring EXP with "MAY" legal? ( Else we'll reformulate. )

# News since IETF-120

- The new "MAY", see previous slide
- Replaced "inc" with "limit" and adapted the wording of rule 2 to make it clearer (thanks to Neal Cardwell).
- Appendix (listing of implementations):
  - Updated ns-3 in line with the recent implementation.
  - Appendix: made RFC 9002 text clearer and shorter. (At IETF-120, Ian Swett asked if it's necessary to update RFC 9002?).

And now, please....



- This is a problem that we understand enough to tackle and the wg should take this on (IETF-119, IETF-120).
- This document is a good starting point for a solution (IETF-120).

# **Thank you!**

Your feedback is very welcome:

<https://github.com/mwelzl/draft-ccwg-ratelimited-increase>

Questions?

# Answers to Questions

- IETF-119

- This is a problem that we understand enough to tackle and the wg should take this on:
- Yes: **22**
- No: **0**
- No Opinion: 7
- Participants: 64

- IETF-120

- I have read draft-welzl-ccwg-ratelimited-increase: 10 Yes, 30 No (of 74).
- The working group should work on this topic: **19** (physical hands in the room due to Meetecho poll issue).
- The working group should NOT work on this topic: **none**.
- This document is a good starting point for a solution: **25** Yes, **2** No, 5 No Opinion
- Participants: 82.

