Should RFC 2861 on TCP Congestion Window Validation move towards Proposed Standard?

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Comparing RFC 2581 and RFC 2861

• **Response to idle periods > an RTO:**
  – RFC 2581: SHOULD set cwnd to initial window.
  – RFC 2861: Halve cwnd, towards initial window.
    Slow-start back up.

• **Response to data-limited periods > an RTO:**
  – RFC 2581: Don’t reduce cwnd at all.
  – RFC 2861: Halve cwnd towards flight size.
    Slow-start back up.

• **Note:** RFC 2581 has completely different responses to idle and to data-limited periods!
What do current TCPs actually do?

- Some use CWV for response to idle periods.
  - Enabled by default in Linux.
  - Implemented by Microsoft, but not enabled.
- Some don’t reduce cwnd at all after idle periods?
- Do any follow the SHOULD in RFC 2581?
  - (and slow-start after an idle period?)

What about the response to data-limited periods? (E.g., sending one packet per RTO)?
How to evaluate CWV?

- **Which is better for a connection:**
  - to use CWV?
  - or to use RFC 2581?

- **Which is better:**
  - when all $N$ active connections use CWV?
  - or when all $N$ active connections use RFC 2581?

- **When there is no congestion, connections would prefer the least restrictive approach:**
  - Never reducing cwnd after idle or data-limited periods.
Does it matter whether CWV moves towards Proposed Standard?

- It **could** matter for TCP implementations.

- **It matters for revising TFRC (RFC3448),** for the response to data-limited periods:
  - Should RFC3448bis follow RFC 2581?
  - Or follow CWV?