

On the Validation of TCP Sequence Numbers

(draft-gont-tcpm-tcp-seq-validation-00)

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Overview of TCP packet processing

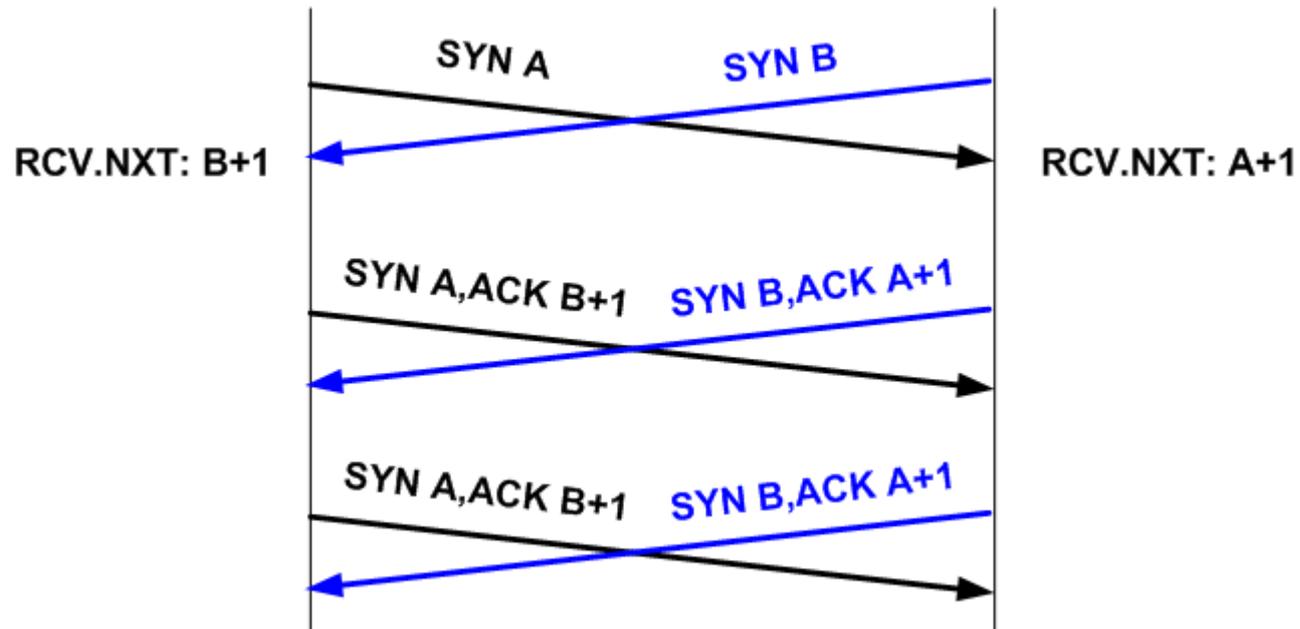
Case	Action
in-window, in-order	Process the packet
in-window, out-of-order	Queue for later processing
out-of-window, in-order	Send {ACK, RST, nothing} and drop
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Overview of TCP packet processing

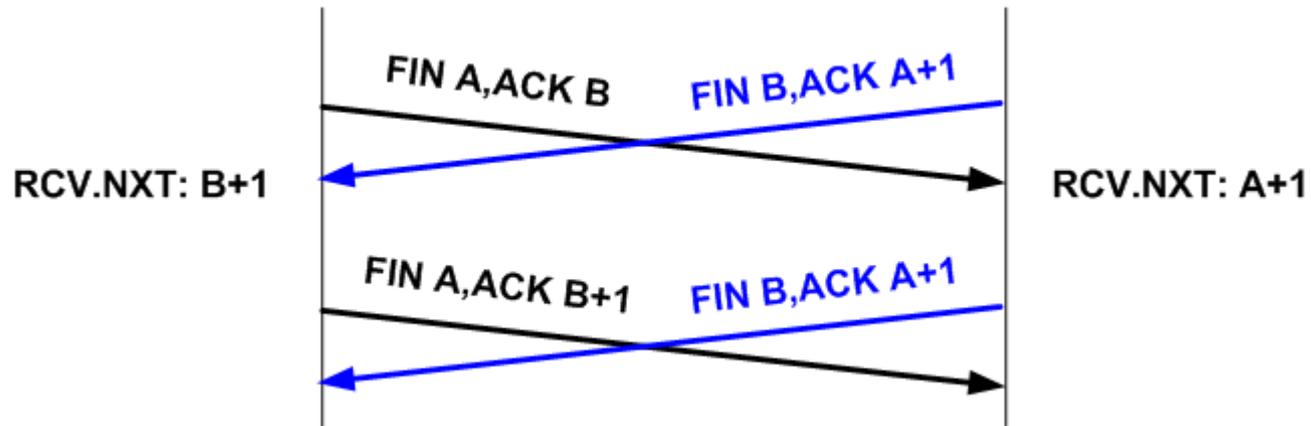
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These work fine, except for some corner cases, in which ACK information is lost, and a packet war takes place

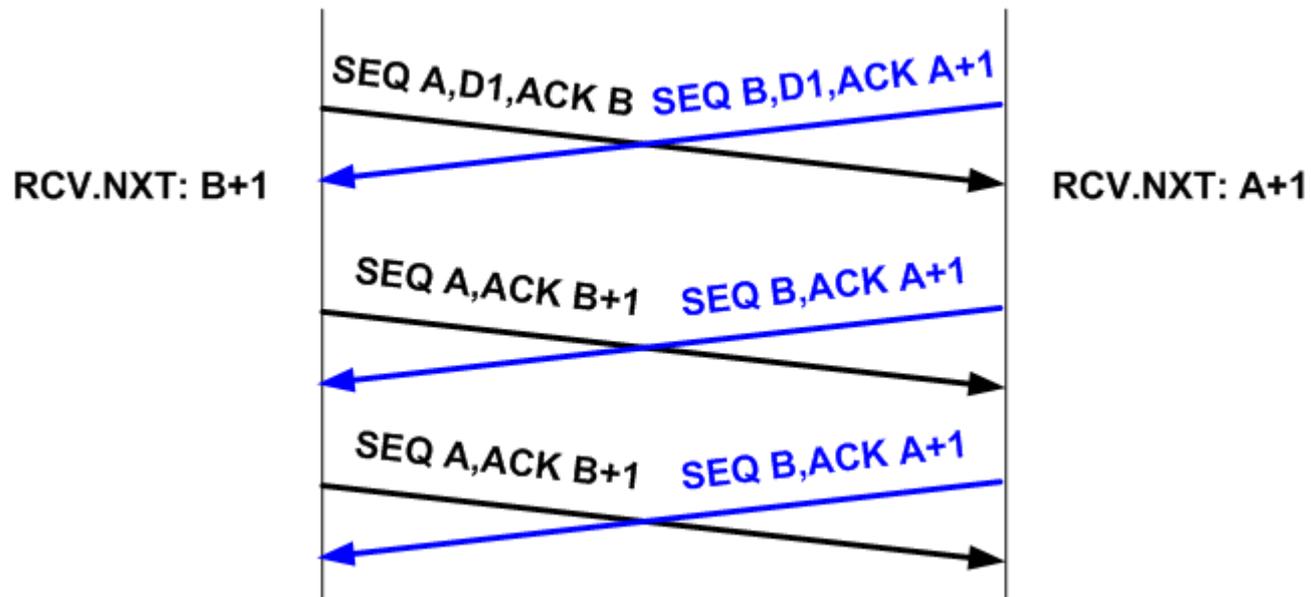
Case #1: Simultaneous Open



Case #2: Simultaneous Close



Case #3: Simultaneous ZWP



Implementation support

	Sim. Open	Self-connect	Sim. ZWP	Sim. close
FreeBSD	Yes	Yes	Yes	Yes
OpenBSD	Yes	No [1]	Yes	Yes
OpenSolaris	Yes	No [2]	Yes	Yes
Linux	Yes	Yes	Yes	Yes

[1] Results in SYN, SYN/ACK, RST

[2] Error reported by connect(): "Cannot assign requested address"

Moving forward

- Comments?
- Adopt this document as a tcpm wg item?