802.1CB maintenance

“257” – FRER
Fixing recovery window

IEEE 802.1 Maintenance TG
March, 2020

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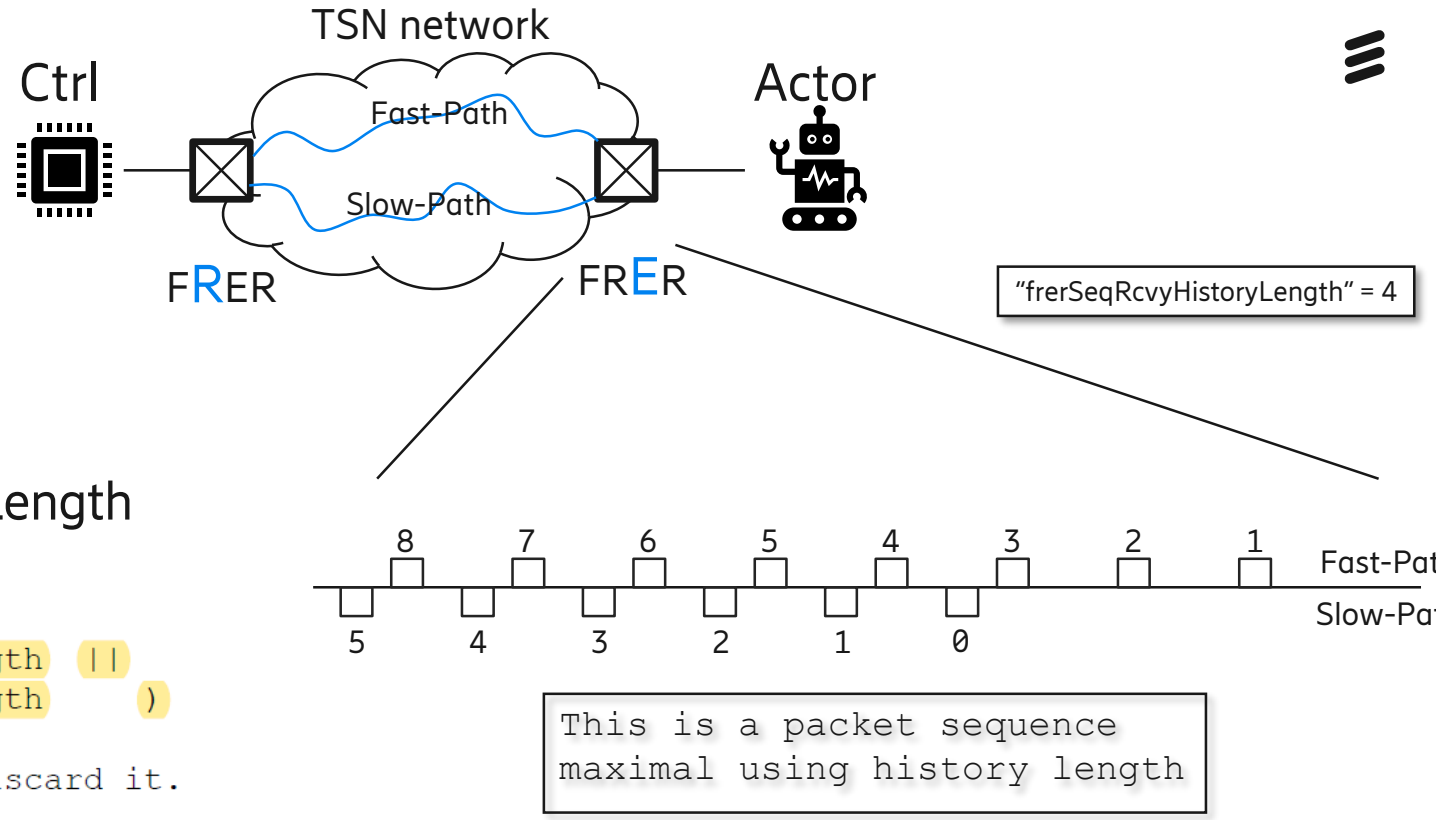
Analysis of 802.1CB
Recovery window



7.4.3.4 VectorRecoveryAlgorithm

— Actual text on recovery window
  — Last accepted ± frerSeqRcvyHistoryLength
— Also in the C code

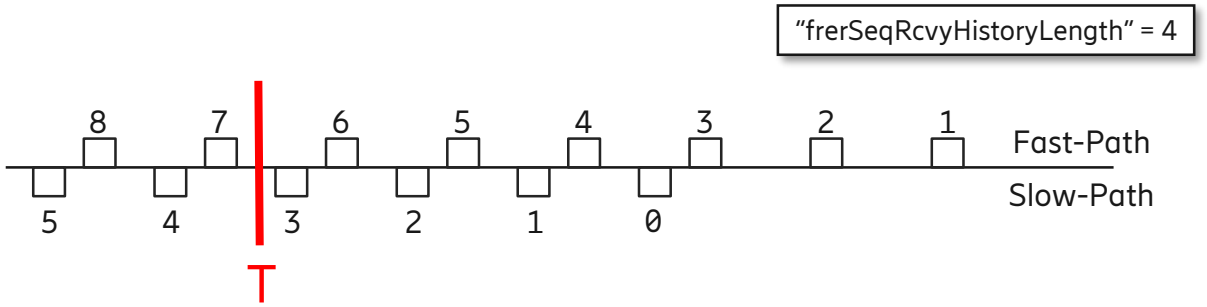
```
} else if (delta >= frerSeqRcvyHistoryLength ||
           delta <= -frerSeqRcvyHistoryLength    )
{
   // Packet is out-of-range.  Count and discard it.
```

— However, the correct reference would be
  — { RecovSeqNum + frerSeqRcvyHistoryLength ; … ; RecovSeqNum - frerSeqRcvyHistoryLength + 1 }
  — And also in C code

```
} else if (delta > frerSeqRcvyHistoryLength ||
           delta <= -frerSeqRcvyHistoryLength )
{
   // Packet is out-of-range. Count and discard it.
```

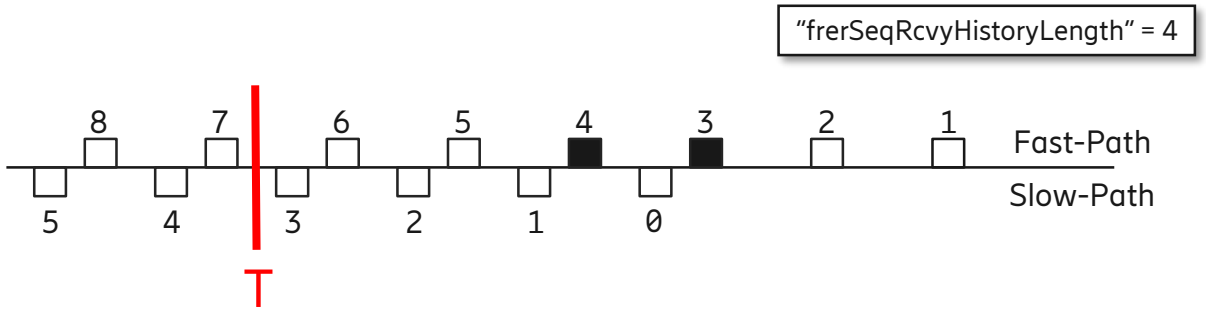
Analysis of 802.1CB
Recovery window …

- The SequenceHistory variable is a bit vector, with one bit for each value from 0 to (frerSeqRcvyHistoryLength – 1), corresponding to sequence_numbers in the range RecovSeqNum through (RecovSeqNum – frerSeqRcvyHistoryLength + 1)
- In this example
  - "frerSeqRcvyHistoryLength" = 4
  - Packet sequence maximal using history length



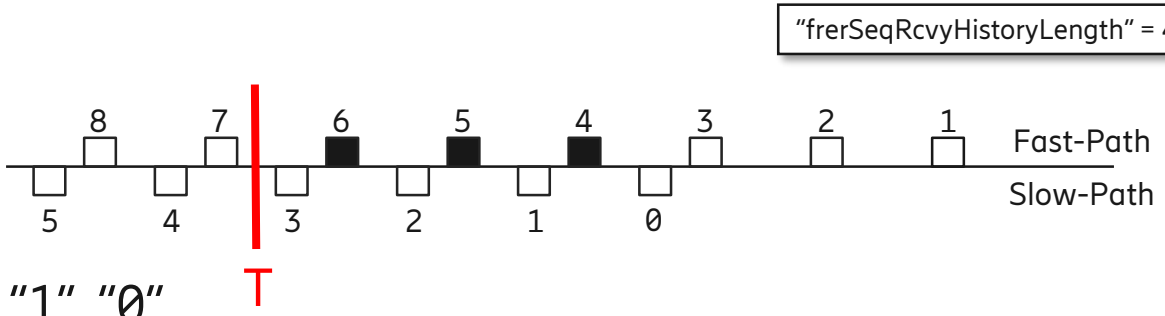
- Scene1: no loss, what is in the variables at "T"
  - Slow path packets discarded as already received over fast-path
  - RecovSeqNum = 6
  - SequenceHistory = [1, 1, 1, 1] referring to "6", "5", "4", "3"
  - Last packet "3" discarded as already in history (delta = -3)
  - Next packet "7" will be accepted (delta = 1)

Analysis of 802.1CB
Recovery window …



- Scene2: fast-path "3-4" lost due to e.g., BER
  - Slow path packets fill in what was not received over fast-path
  - RecovSeqNum = 6
  - SequenceHistory = [1, 1, 0, 1] referring to "6", "5", "4", "3"
  - Last packet "3" accepted as not in history (delta = -3)
  - Next packet "7" will be accepted (delta = 1)

Analysis of 802.1CB
Recovery window …



- Scene3: fast-path "6-5-4" lost due to e.g., link issue
  - RecovSeqNum = 3
  - SequenceHistory = [1, 1, 1, 1] referring to "3", "2", "1", "0"
  - Last packet "3" discarded as already in history (delta = 0)
  - Next packet "7" will be DISCARDED (delta = 4)

This is the issue. We cannot jump back to the fast path !!!

- Fixing this: using the correct recovery window

  { RecovSeqNum + frerSeqRcvyHistoryLength ; … ; RecovSeqNum - frerSeqRcvyHistoryLength + 1 }

```
} else if (delta > frerSeqRcvyHistoryLength ||
           delta <= -frerSeqRcvyHistoryLength )
{
   // Packet is out-of-range. Count and discard it.
```

Questions …