SCHC fragmentation

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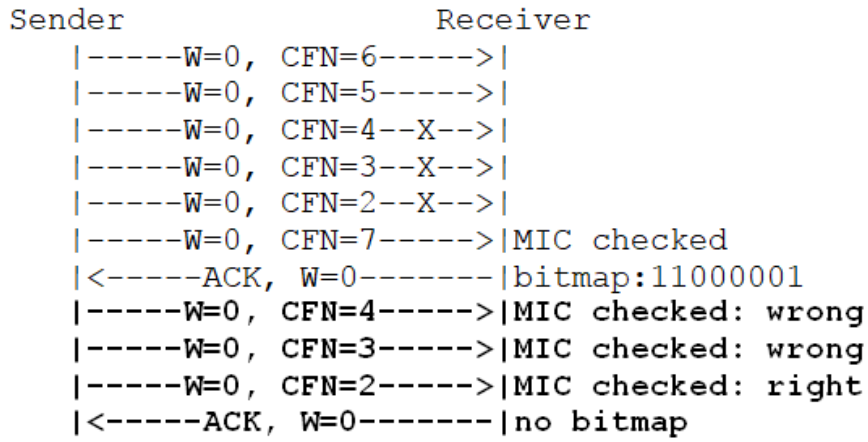
Status

- Since IETF 99
  - revisions -06 and -07 published
- Plan for -08
  - Complete the work in -07
  - Review, solve corner cases
    - Side-meeting Tuesday (Butterworth room, 9:30-12:00)
  - Possibly intended for WGLC

Technical updates in -06 (I)

- ACK Always
  - Clarified when to check the MIC after retries in the last window
  - After all-1 frag received, check MIC after each retransmitted frag received
  - If reassembly OK, frag receiver sends the ACK



Technical updates in -06 (II)

- ACK Always
  - MAX_FRAG_RETRIES and MAX_ACK_REQUESTS simplified into a single parameter
    - MAX_ACK_REQUESTS
  - Recommended ACK Always timer to be reasonably short
- ACK on error
  - Added MAX_FRAG_RETRIES
  - Discussed also in the Security Considerations section

Editorial updates in -06

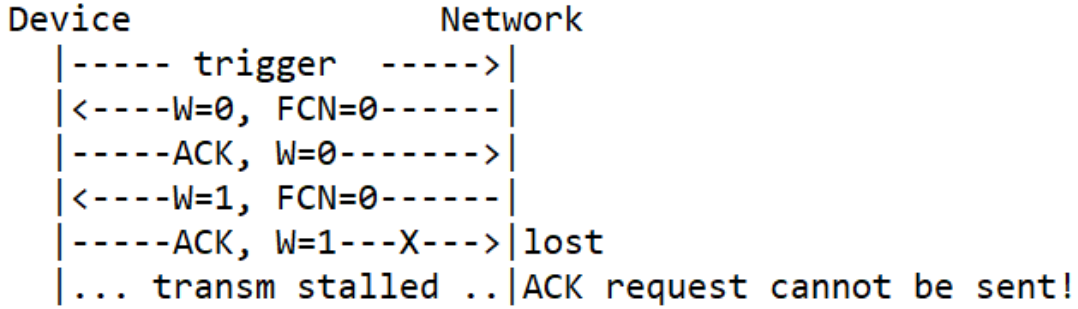
- Abstract
  - Minor improvement (fragmentation part)
- Merged sections 5.2 and 5.3
  - 5.2. Reliability options: definition
  - 5.3. Reliability options: discussion
- Added examples (Appendix B)
  - Window mode – ACK "always"
    - Last window behavior

For -08: Problem

- Downlink fragmentation and ACK Always
  - In some technologies, an uplink message is required prior to the transmission of X downlink messages
    - E.g. X=1

```
----> Uplink
<---- Downlink
```

If ACK lost, neither the next fragments (if any) nor the "ACK request" can be sent



For -08: solution

- Solution: timer-based ACK retransmission
  - Fragment receiver: ACK Retry timer
    - Except for an ACK reporting no losses in response to all-1 fragment
    - Stopped upon receipt of a frag of the next window or a missing frag from the current window
  - Fragment sender
    - Last fragment, initialization of ACK Always Timer to long value
    - If timer expires and no ACK received, sender assumes
      - All-1 fragment (and the whole last window) successfully received
      - Last ACK, reporting no losses, lost (most likely)

Corner cases

- MIC check fails but FCNs apparently correct
  - Possible at all?
  - If yes, reaction of the receiver in ACK modes?
- Issue in ACK on error
  - If all fragments sent and lost
    - False positive
  - To discuss: adding (the option to have) a final ACK?
    - At the end of the packet
    - Unconditionally

Thanks!

Comments?

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