LPWAN WG

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BCP 9 (Internet Standards Process)

BCP 25 (Working Group processes)

BCP 25 (Anti-Harassment Procedures)

BCP 54 (Code of Conduct)

BCP 78 (Copyright)

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I E T F

Reminder:

Minutes are taken *
This meeting is recorded **
Presence is logged ***

* Scribe; please contribute online to the minutes at: https://etherpad.tools.ietf.org/p/lpwan
** Recordings and Minutes are public and may be subject to discovery in the event of litigation.
*** From the Webex login

Agenda bashing

17:05	Opening, agenda bashing (Chairs)	10mn

- Note-Well, Scribes, Agenda Bashing, Approval minutes from last meeting
- Review todo
- Status of drafts

17:15	SCHC WGLC Tickets	35mn
17:50	CoAP SCHC	10mn
?	AOB	QS

Status of documents

- RFC 8376 <draft-ietf-lpwan-overview-10.txt>
  - In AUTH48, handling missing links
- SCHC main spec (v-11 published since IETF)
  - Passed WGLC, handling tickets
- SCHC CoAP
  - Stalled, rebooting
- Technology specific drafts
  - NB IOT, LoRaWAN, SIGFOX
- draft-lagos-lpwan-icmpv6-static-context-hc

IETF 101 To-Do's

- Milestone Dates to revisit
  - Jul 2017   SCHC CoAP for publication
  - May 2017   SCHC IP/UDP for publication
- SCHC UDP checksum => refer to RFC 6282
- Adoption of Technology dependent specs
- Recharter work

Charter II

1~~2~~. Produce a Standards Track document to enable the compression and fragmentation of a CoAP ~~/UDP/IPv6 packet~~ messages over LPWA networks. This will be
achieved through stateful mechanisms, ~~specifically designed for star topology and severely constrained links~~ for a relevant subset of the possible CoAP interactions (TBD as part of the work).
2. Produce a Standards Track document to ~~The work will include the~~define the ~~definition of~~ generic data models to formalize ~~describe~~ the compression and fragmentation contexts.
3. Produce Standard Track documents to apply SCHC IPv6/UDP over the baseline technologies. ~~This work may also include to define technology-specific adaptations of the generic compression/fragmentation mechanism wherever necessary.~~

Charter II (2)

New Work Item derived from work on ICMP:

4 Produce a Standards Track document to enable operations, administration and maintenance (OAM) to the LPWAN device, including support for delayed or proxyed liveliness verification (Ping).

draft-ietf-lpwan-ipv6-static-context-hc-11

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Open Tickets

- #5   Decoupled Fragmentation and SCHC compression -TbC
- #10   Interleave different packets
- #11   ACK format
- #12   Padding place
- #13   Terminology Sublayers -TbC
- #14   Legacy devices
- #17   Compression Terminology -TbC
- #18   MSB/LSB argument -TbC
- #19   Fragmentation Terminology -TbC
- #20   Byte Boundary
- #21   C bit in ACK
- #22   Fragmentation use
- #23   NB-IoT
- #24   DTag
- #25   Rules not synchronized
- #15 SCHC technology specific parameters => updated to version 11

[#5](#) Decoupled Fragmentation and SCHC compression

- To be closed:
  - Do we include the Dominique suggestion about SCHC F/R (Fragmentation/Reassembly) ?
    - This will leave more clearly which part is achieved when talking about fragmentation
  - Agree about: A SCHC
    AN SCHC WHATEVER
  - Pronounced: esss-seee-heych-seee or shiiic

#13 Terminology Sublayers

- Closed
  - Modified figure 5 draft version 11 (and its text)

```
| Rule ID + DTAG + W + FCN [+ MIC ] |  Comp. Header | Payload |
+-----------------------------------+-------------------------+
|           Fragment Header         |         Fragment        |
+-----------------------------------+-------------------------+
```

  - To:

```
| Rule ID + DTAG + W + FCN [+ MIC ] |  Part of SCHC Packet    |
+-----------------------------------+-------------------------+
|           Fragment Header         |         Fragment        |
+-----------------------------------+-------------------------+
```
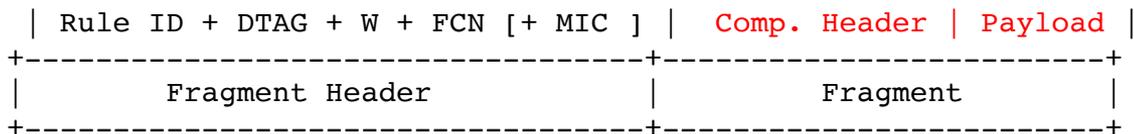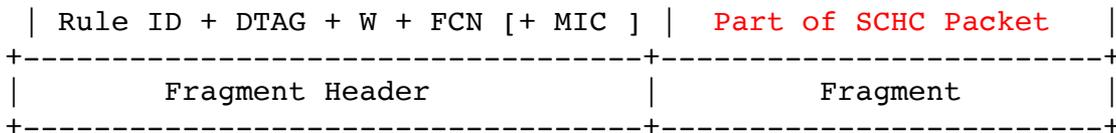
  - Done in version 12 that will be published after the meeting

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[#17](#) Compression Terminology

- Closed
  - Nit: check the correct term is Compression Residue and not Compress Residue (to be done in version 12)

#18 MSB/LSB argument

- To be closed
- The IETF 101 discussion needs to be added to the version 12
  - Do we add the examples of the different possibilities
  - Eliminate the LSB(y) argument

#19 Fragmentation Terminology

- To be closed…

- Only if we put all the Byte boundary discussion in the ticket 20?

  – The discussion is about the the

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#14 Legacy Devices

- For the moment one Rule applied per SCHC packet
  - Do you want to add and discussed the Nicolas input about: "Reconstruct successive passes for multiple rules"

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#12 Padding Place

- More discussion
  - The section 8 is not clear

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#11 ACK Format

- Improve text section 7.2

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#21 C bit in ACK

- For the moment consensus
  - Option 1: AM, DB, CG, LT, JCZ

#20 Byte Boundary

- Normally the idea is to have an integer number of bytes to complete the fragmentation header format
- The term used was byte boundary but this creates the idea of 1 byte.
- In some cases, 1 byte probably will not be enough, so we're seeking inputs to get a term that represents "AN INTEGER NUMBER OF BYTES" instead of "byte boundary"

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#20, #21, Bitmap Encoding

- Bitmap before transmission

```
                     <----         Bitmap bits      ---->
|  Rule ID  |  DTag  |W|1|0|1|1|1|1|1|1|1|1|1|1|1|1|1|1|1|
|-INTEGER NUMBER OF BYTES-| 1 byte  next  |  1 byte next  |
⇒  By byte Boundary, we didn't mean 1 byte but an INTEGER NUMBER OF BYTES
```

- Bitmap, encoded for transmission

```
<-------   R  ------->
          <- T -> 1
+---- ... --+-... -+-+-+-+
|  Rule ID  | DTag |W|1|0|
+---- ... --+-... -+-+-+-+
|---- byte boundary -----|
```

#20, #21, Bitmap Encoding

- Bitmap Encoding
  - Reduce the ACK size
  - Allows for Abort messages
  - It also works if the transmission is bit-aligned

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#22 #23 Edgar Inputs – NB-IoT

- Q: in Abstract, "fragmentation is *mandatory* when …". Some LPWAN technologies provide fragmentation, don't need SCHC's fragmentation

- A: we'll write "…is *needed* …" instead

- Some other inputs
  - Specific to 3G - NB-IoT to be solved in the technology document
  - DTag, MultiRat,

#24 DTag

- Q: what happens when DTag is not present?
  - "The DTag field, if present, is set to the same value for all SCHC fragments carrying the same SCHC packet, and to different values for different ~~datagrams. »~~ SCHC Packets

- A: when there is no Dtag, there can be only 1 SCHC Packet in transist. Only after all its fragments have been transmitted can another fragmented SCHC Packet be sent.

#26 Matching Acks with Frags

- Q: in presence of multiple Fragment IDs (because of multiple reliability modes and/or multiple window sizes), how does one match a SCHC ACK to its set of SCHC Fragments?
- A: could specify that same Rule ID will be used, or leave it to other documents to specify pairing mechanism
- What does the group think?

More Inputs to be addressed (((LPWAN)))

These topics are out of the scope of the current SCHC document

- #10 Interleaving Fragments in different radio circuits (NB-IoT) => to be addressed on NB-IoT doc
- #10 Changing SF in the middle of fragmentation (LoRaWAN) => with this doc, works ok when no error, but when retransmission is needed the fragmentation may need to be aborted
- #14 Rule ID size and uses (Legacy devices included) => this draft will explain better
- #25 Rule ID context synchronization => device management
- #14 Legacy Devices to be addressed

Next steps

- Good news: protocol is stable
- Will issue -11 version mid-April
  - A few issues to be discussed on the mailing list
  - Will try to capture all these explanations in (clear) text
  - Let us know how well we do

–

- More Questions?
  - Thanks

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AOB ?