LPWAN WG

WG Chairs:
Alexander Pelov <a@ackl.io>
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AD: Suresh Krishnan
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Note Well

Reminder:

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

* Scribe; please contribute online to the minutes at: http://etherpad.tools.ietf.org:9000/p/lpwan
** Recordings and Minutes are public and may be subject to discovery in the event of litigation.
*** From the Webex login

Agenda bashing

16:05> Opening, agenda bashing (Chairs)   [10min]

- Note-Well, Scribes, Agenda Bashing
- Approval minutes from last meeting
- Review last interim todos
- Terminology

16:15> LPWAN Overview Presentation and Discussion (Stephen Farrel)   [5min]

- https://datatracker.ietf.org/doc/draft-ietf-lpwan-overview/
- WGLC

16:20> Static Context Header Fragmentation (Carles)   [10min]

- https://datatracker.ietf.org/doc/draft-ietf-lpwan-ipv6-static-context-hc/

16:30> Static Context Header Compression for IPv6 and UDP (Ana, Laurent)   [10min]

- https://datatracker.ietf.org/doc/draft-ietf-lpwan-ipv6-static-context-hc/

16:40> LPWAN Static Context Header Compression (SCHC) for CoAP (Laurent)   [10min]

- https://datatracker.ietf.org/doc/draft-ietf-lpwan-coap-static-context-hc/

16:50> New Items (Ana)   [10min]

17:00> AOB   [QS]

Status

WG formed October 14th

- Charter item #1 (Informational document)
  - Baseline technology description
- Charter item #2 (Standards track document)
  - Enable the compression and fragmentation of a CoAP/UDP/IPv6 packet over LPWA networks

Charter - Milestones

Milestones

Date	Milestone
Jul 2017	Submit CoAP compression mechanism to the IESG for publication as a Proposed Standard
May 2017	Submit IP/UDP compression and fragmentation mechanism to the IESG for publication as a Proposed Standard
Apr 2017	Submit LPWAN specification to the IESG for publication as an Informational Document
Done	Adopt CoAP compression mechanism as a WG item
Done	Adopt IP/UDP compression and fragmentation mechanism as a WG item
Done	Adopt LPWAN specifications as WG item

Last meeting Action items

- ~~JCZ, DD: Review IP/UDP drafts~~

- <u>CB, MV: Review CoAP draft</u>

- ~~SF: Send revision, WG to review by May, 30th~~

- ~~CG: CFN/AFN, new ideas around fragmentation~~

- CG: Default fragmentation mode (Window mode)

LPWAN Overview

Editor: Stephen Farrell
(many contributors)

Terminology

- WG call started on Monday, 19
  - Ends in 2 weeks, July 3rd

LPWAN SCHC Fragmentation

Authors:
Ana Minaburo <ana@ackl.io>
Laurent Toutain <laurent.toutain@imt-atlantique.fr>
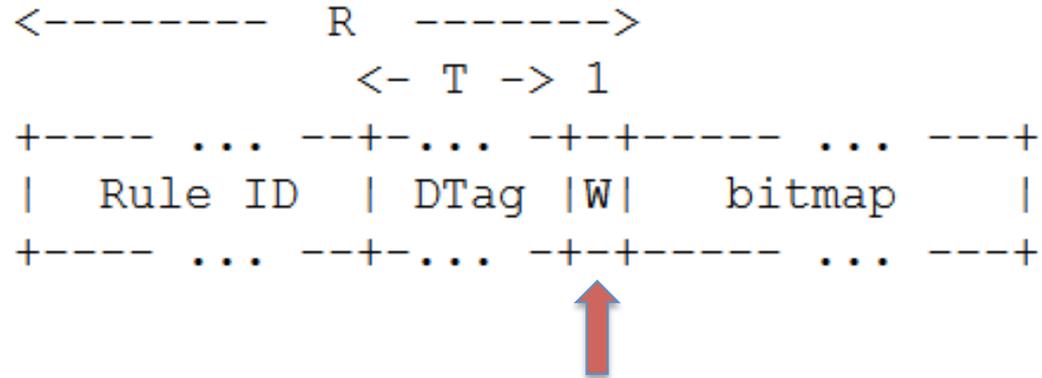Carles Gomez <carlesgo@entel.upc.edu>

Status

- Updates since the last interim (7th June)

- Available in -04

- Thanks for the input/feedback!

W bit in ACKs

- Needed to allow a sender always know what is being ACKed

- Format

```
<-------   R   ------->
          <- T -> 1
+---- ... --+-... -+-+---- ... ---+
|  Rule ID  | DTag |W|   bitmap   |
+---- ... --+-... -+-+---- ... ---+
```
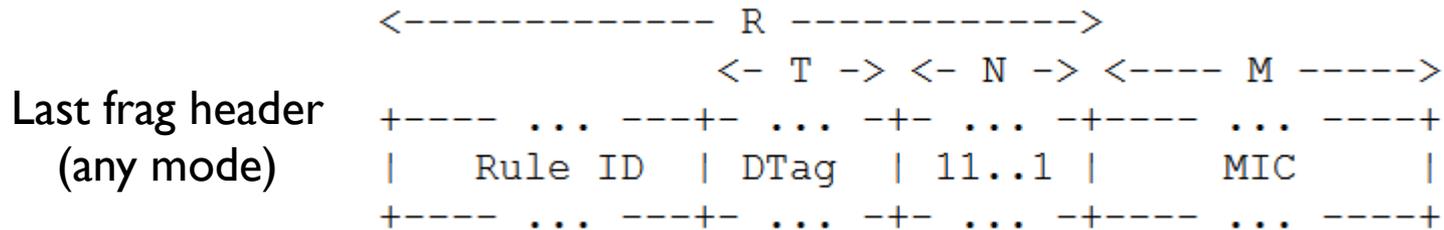
Bitmap feedback for last frag

- Frag CFN=2^N - 1
  - Feedback only given by last bit of the corresponding bitmap

```
Sender                    Receiver
|-----W=1, CFN=6----->|
|-----W=1, CFN=5----->|
|-----W=1, CFN=4--X-->|
|-----W=1, CFN=3----->|
|-----W=1, CFN=2--X-->|
|-----W=1, CFN=1----->|
|-----W=1, CFN=0----->|
|<----ACK, W=1-------|bitmap:11010111
|-----W=1, CFN=4----->|
|-----W=1, CFN=2----->|
|<----ACK, W=1-------|no bitmap
|-----W=0, CFN=6----->|
|-----W=0, CFN=5----->|
|-----W=0, CFN=4--X-->|
|-----W=0, CFN=7----->|MIC checked
|<----ACK, W=0-------|bitmap:11000001
|-----W=0, CFN=4----->|MIC checked =>
|<----ACK, W=0-------|no bitmap
(End)
```

W bit for last frag ? (I/II)

- Current formats

Frag header
(window mode)

```
            <----------- R ---------->
                      <--T--> 1 <--N-->
+-- ... --+- ... -+-+- ... -+
| Rule ID | DTag   |W|   CFN   |
+-- ... --+- ... -+-+- ... -+
```

Last frag header
(any mode)

```
            <----------- R ------------>
                     <- T -> <- N -> <---- M ----->
+---- ... --+- ... -+- ... -+---- ... ---+
|   Rule ID  | DTag  | 11..1 |      MIC      |
+---- ... --+- ... -+- ... -+---- ... ---+
```
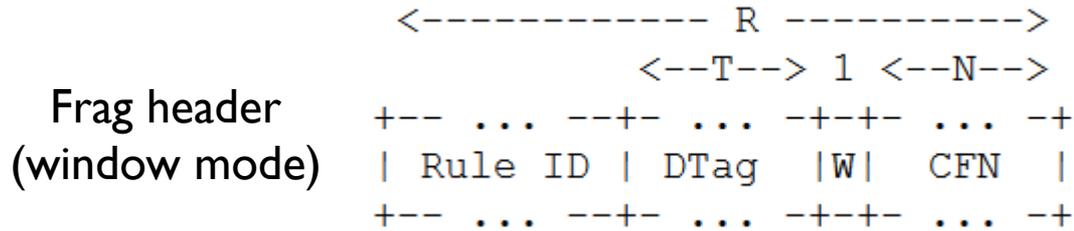
W bit for last frag ? (II/II)

- Not strictly needed
  - Last frag cannot be confused by a receiver as belonging to the previous window
- More uniform format
  - Same fields in all fragmentation headers (window mode) except the MIC
- One bit less for Rule ID in last frag
  - Would it be "used" anyway?

Thanks!

Comments?

Authors:
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Laurent Toutain <laurent.toutain@imt-atlantique.fr>
Carles Gomez <carlesgo@entel.upc.edu>

LPWAN CoAP SCHC

Authors:
Ana Minaburo <ana@ackl.io>
Laurent Toutain <laurent.toutain@imt-atlantique.fr>

SCHC Compression

- Padding
  - IF the compressed header is not byte boundary, two choices:
    - Put padding after compressed header, before data

| Compressed header | ■ | Data |

    - Put padding after data

| Compressed header | Data | ■ |

New Items

Ana Minaburo

New Items (Answers on ML)

- ICMP Compression
- SCHC over Foo
  - Profile Technologies. Develop the different document for each technology in order to define the different parameters.
- Security, all the security solution for the LPWAN
- Rules-ID's management – Use to identify some specific cases:
  - Fragmentation
  - Format Values
  - Rule-IDs dedicated for some specific cases as CBOR structure representation, fragmentation, etc
  - The way to use the Rule-Id and their configuration
- YANG data modeling for SCHC

Next steps (prev. call)

- YANG data modeling for SCHC
- Profile Technologies. Develop the different document for each technology in order to define the different parameters.
- Security, all the security solution for the LPWAN
- Rules-ID's management
  - Use to identify some specific cases:
    - Fragmentation
    - Format Values
    - Rule-IDs dedicated for some specific cases as CBOR structure representation, fragmentation, etc
  - The way to use the Rule-Id and their configuration
- ICMP Compression