LPWAN WG

WG Chairs:
Alexander Pelov <a@ackl.io>
Pascal Thubert <pthubert@cisco.com>

AD: Eric Vyncke
<evyncke@cisco.com>

Interim, June 2nd, 2020

Webex

Note Well

This is a reminder of IETF policies in effect on various topics such as patents or code of conduct. It is only meant to point you in the right direction. Exceptions may apply. The IETF's patent policy and the definition of an IETF "contribution" and "participation" are set forth in BCP 79; please read it carefully.

As a reminder:

- **By participating in the IETF, you agree to follow IETF processes and policies.**
- **If you are aware that any IETF contribution is covered by patents or patent applications that are owned or controlled by you or your sponsor, you must disclose that fact, or not participate in the discussion.**
- **As a participant in or attendee to any IETF activity you acknowledge that written, audio, video, and photographic records of meetings may be made public.**
- **Personal information that you provide to IETF will be handled in accordance with the IETF Privacy Statement.**
- **As a participant or attendee, you agree to work respectfully with other participants; please contact the ombudsteam (https://www.ietf.org/contact/ombudsteam/) if you have questions or concerns about this.**

Definitive information is in the documents listed below and other IETF BCPs. For advice, please talk to WG chairs or ADs:

BCP 9 (Internet Standards Process)

BCP 25 (Working Group processes)

BCP 25 (Anti-Harassment Procedures)

BCP 54 (Code of Conduct)

BCP 78 (Copyright)

BCP 79 (Patents, Participation)

https://www.ietf.org/privacy-policy/ (Privacy Policy)

Reminder:

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

* Please contribute to the minutes at: https://etherpad.ietf.org:9009/p/notes-ietf-interim-2020-lpwan-09-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] Administrivia [5min]
- Note-Well, Scribes, Agenda Bashing
- WG Status, IETF 108

[16:10] SCHC over LoRaWAN [25min]
[16:35] CoAP static Context [15min]
[16:50] AOB [QS]

WG Status

Milestones

Date	Milestone
Jul 2021	Produce a Standards Track document to enable operations, administration and maintenance (OAM) to the LPWAN device, including support for delayed or proxied liveness verification (Ping)
Feb 2021	Produce a Standards Track document to define the generic data models to formalize the compression and fragmentation contexts for LPWANs
Dec 2020	Produce Standard Track documents to apply SCHC IPv6/UDP over the baseline technologies
May 2020	Perform SCHC Maintenance, including enabling SCHC mechanisms for Upper layer Protocols

Documents advancement

Document	Date	Status	IPR	AD / Shepherd
Active Internet-Drafts (5 hits)				
draft-ietf-lpwan-coap-static-context-hc-14 **LPWAN Static Context Header Compression (SCHC) for CoAP**	2020-05-26 30 pages New	IESG Evaluation::AD Followup for 82 days Submitted to IESG for Publication: Proposed Standard Reviews: genart, iotdir, opsdir, secdir, tsvart		Éric Vyncke Pascal Thubert
draft-ietf-lpwan-schc-over-lorawan-07 **Static Context Header Compression (SCHC) over LoRaWAN**	2020-04-17 25 pages	I-D Exists WG Document	1	Éric Vyncke
draft-ietf-lpwan-schc-over-nbiot-02 **SCHC over NB-IoT**	2020-05-17 23 pages	I-D Exists WG Document		Éric Vyncke
draft-ietf-lpwan-schc-over-sigfox-02 **SCHC over Sigfox LPWAN**	2020-05-16 13 pages	I-D Exists WG Document		Éric Vyncke
draft-ietf-lpwan-schc-yang-data-model-02 **Data Model for Static Context Header Compression (SCHC)**	2020-02-28 34 pages	I-D Exists WG Document		Éric Vyncke
RFCs (2 hits)				
RFC 8376 *(was draft-ietf-lpwan-overview)* **Low-Power Wide Area Network (LPWAN) Overview**	2018-05 43 pages	Informational RFC		Suresh Krishnan Alexander Pelov
RFC 8724 *(was draft-ietf-lpwan-ipv6-static-context-hc)* **SCHC: Generic Framework for Static Context Header Compression and Fragmentation**	2020-04 71 pages	Proposed Standard RFC		Suresh Krishnan Pascal Thubert

Document	Date	Status	IPR	AD / Shepherd
Related Internet-Drafts (3 hits)				
draft-barthel-lpwan-oam-schc-01 **OAM for LPWAN using Static Context Header Compression (SCHC)**	2020-03-09 14 pages	I-D Exists		
draft-thubert-lpwan-command-reg-01 **Command and Control Registry for SCHC**	2020-03-25 4 pages	I-D Exists		
draft-thubert-lpwan-schc-over-ppp-00 **SCHC over PPP**	2019-12-03 5 pages Expires soon	I-D Exists		

IESG reviews (Magnus, June 28th)

Discuss
Roman Danyliw
Benjamin Kaduk
(Alexey Melnikov)
Magnus Westerlund

Yes
(Suresh Krishnan)

No Objection
Deborah Brungard
Alissa Cooper
Warren Kumari
(Mirja Kühlewind)
Barry Leiba
Alvaro Retana
(Adam Roach)
Martin Vigoureux
Éric Vyncke

No Record
Martin Duke
Erik Kline
Murray Kucherawy
Robert Wilton

- What I am asking for is really only an description of the changed architectural context and the requirements on a solution for the SCHC context establishment mechanism.
  - Discover the peers capability to perform SCHC for COAP or can one opportunistically try?
  - Taking into account that an COAP application can potentially talk to a number of peers, each having different capabilities.
  - Are there need for a redirection/invocation mechanism
  - The actual context exchange mechanism.
- Can we please write a paragraph or two in the suitable section in this document rather a single sentence pointing to an appendix. That appending containing a single bullet that are supposed to be added:

This section extends the RFC8724 Annex D list.

o How to establish the End-to-End context initialization using SCHC for CoAP header only.

- Annex D of RFC 8724 list is preface by:

"This section lists the information that needs to be provided in the LPWAN technology-specific documents."

- That is not really information to be provided, there are procedures that are needed.

IETF 108

- Register an online WG session ?
  - https://www.ietf.org/blog/ietf108-online/
  - 11AM UTC -> 5 hours (1PM to 6PM CEST)
  - Or continue with interims
  - cutoff Friday June 12th
- Duration ?
  - 50 mn / 100 mn
- Fees
  - https://www.ietf.org/blog/ietf108-registration-fees/

Early Bird	$230
Standard	$280
Late	$330
One Day Pass	$125
Full Time Student	$50

draft-ietf-lpwan-schc-over-lorawan

Editors:

Ivaylo Petrov (ivaylo@ackl.io)

Olivier Gimenez (ogimenez@semtech.com)

Interim meeting, June 02nd, 2020

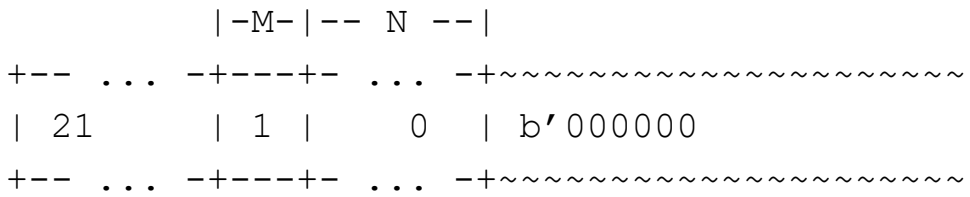
Upcoming changes in draft-008 (Presented 19/05/20)

- Add uplink All-1 example with last tile
- Fixed IID example
- Use RFC8376 terminology
- List all bitmap possibilities in SCHC ACK example
- Add payload to downlink All-1
- Fixed some nits

Upcoming changes in draft-008

- Changed “fragmentation session” to “fragmentation datagram”
- Uplink retransmission timer SHALL be set by the application
- Explicitly state:
  - Other frag. param. can be used in addition to defined param. in profile
  - Additional delay to comply with regulation is not mandatory
  - Why all-1 and SCHC Sender-Abort can be distinguished
  - Why All-0 and SCHC ACK REQ can be distinguished in uplink fragmentation

Downlink All-0 vs SCHC ACK REQ



Unable to distinguish an All-0 with 6 bits of payload (or less) equal to 0 from SCHC ACK REQ

1. Ask implementation to ensure that for an All-0: len(payload) > 6 bits
2. Ask implementation to add a byte=0 (0b00000000) after the payload if len(payload)<=6 bits. This byte will be dropped by C/D layer as regular padding

Option 1 is more efficient, but event occurrence is low, so option 2 might be easier for implementation. Any recommendations ?

Downlink retransmission timer 1/2

Context:

- LoRaWAN class A devices opens a reception window only after a transmission, for few seconds.
- LoRaWAN class B devices opens a reception window after a transmission + regular windows every [2;128] seconds (depending on configuration)
- LoRaWAN class C devices are always in reception mode if not transmitting.

For class B & C we can have a retransmission timer “set depending on the application requirements”; but regarding the class A we cannot as the SCHC gateway will never know when the device will open a reception window.

Downlink retransmission timer 2/2

1. Queue a downlink when the retransmission tiler timer expires. Next time it expires, clear the previous downlink, queue an new one, repeat up to MAX_ACK_REQ or until the inactivity timer expires, then clean the queue
   - Pro: Respect the usual layer separation architecture
   - Con: Not all LoRaWAN network servers allows to select the element to be deleted in the queue
2. Not use retransmission timer: If the device sends an uplink the SCHC gateway will be able to send a SCHC ACK REQ that the device should receive during its reception window. The state machine can go out of this “waiting for uplink” state thanks to the inactivity timer
   - Pro: It will work with all network servers, SCHC gateway does not have to manage the queue.
   - Con: The SCHC gateway have to know if the device is a Class A or Class B/C device

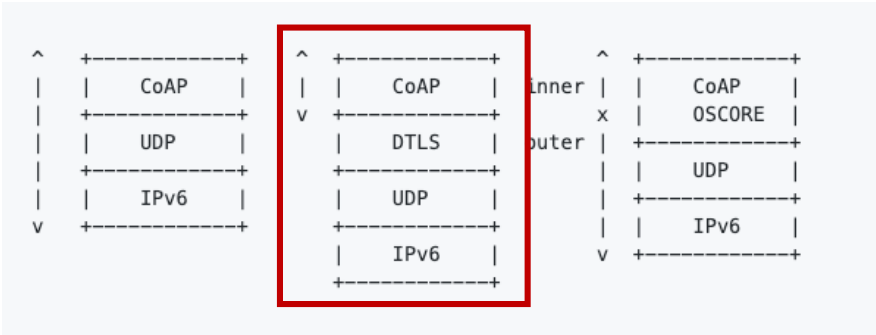
draft-ietf-lpwan-coap-static-context-hc-0*14*

Authors:
Ana Minaburo
Laurent Toutain
Ricardo Andreasen

Interim, June 2nd, 2020

Review Inputs

- Magnus Westerlund
  - SCHC is used on the top of security layer, push SCHC implementation into CoAP stacks at the end-points rather than lower layers on top of L2 infrastructure.
  - This change results in several architectural considerations and didn't exist before for the entity that are going to determine the SCHC capability in the peer as well as the context establishment.



Review Inputs

- Asking a description of the architectural change context and the requirements on a solution for the SCHC context establishment mechanism.
  - Discover the peers capability to perform SCHC for COAP or can one opportunisticly try?
  - Taking into account that an COAP application can potentially talk to a number of peers, each having different capabilities.
  - Are there need for a redirection/invocation mechanism
  - The actual context exchange mechanism.
- Can we please write a paragraph or two in the suitable section in this document rather a single sentence pointing to an appendix.
- That is not really information to be provided, there are procedures that are needed.

AOB ?