LPWAN WG

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Webex

Note Well

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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)

I E T F

Reminder:

Minutes are taken *
This meeting might be 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

LPWAN

[16:05] Administrivia   [5min]
- o   Note-Well, Scribes, Agenda Bashing
- o   WG Status

[16:10] SCHC-over-LoRaWAN Update   [30min]

[16:40] SCHC-over-Sigfox Update   [10min]

[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	

Interims

LPWAN

Every two weeks, starting May 19th

16h-17h CEST

IETF 108 will be online

> Interims and online meetings will be the way ahead for the forseable future (IETF109…)

Documents advancement

LPWAN

Active Internet-Drafts (5 hits)

draft-ietf-lpwan-coap-static-context-hc-13 **LPWAN Static Context Header Compression (SCHC) for CoAP**	2020-03-05 29 pages	IESG Evaluation::Revised I-D Needed **for 68 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
draft-ietf-lpwan-schc-over-nbiot-02 **SCHC over NB-IoT**	2020-05-17 23 pages New	I-D Exists WG Document	
draft-ietf-lpwan-schc-over-sigfox-02 **SCHC over Sigfox LPWAN**	2020-05-16 13 pages New	I-D Exists WG Document	
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	Suresh Krishnan ✉

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	I-D Exists	

Documents advancement

LPWAN

Interim M...

Charter item:
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).

draft-ietf-lpwan-schc-over-lorawan

Editors:

Ivaylo Petrov (ivaylo@ackl.io)

Olivier Gimenez (ogimenez@semtech.com)

Interim meeting, May 19th, 2020

Upcoming changes in draft-008

- 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

Use RFC8376 generic terminology or LoRaWAN?

Function/ Technology	LoRaWAN	NB-IoT	Sigfox	Wi-SUN	IETF
Sensor, Actuator, device, object	End Device	User Equipment	End Point	Leaf Node	Device (DEV)
Transceiver Antenna	Gateway	Evolved Node B	Base Station	Router Node	Radio Gateway
Server	Network Server	PDN GW/ SCEF*	Service Center	Border Router	Network Gateway (NGW)
Security Server	Join Server	Home Subscriber Server	Registration Authority	Authent. Server	LPWAN-AAA Server
Application	Application Server	Application Server	Network Application	Appli-cation	Application (App)

DTAG

A LoRaWAN device cannot interleave several fragmented SCHC datagrams on the same FPort. This field is not used and its size is 0.

Note: The device can still have several parallel fragmentation sessions with one or more SCHC gateway(s) thanks to distinct sets of FPorts, cf Section 5.2

- <u>Question:</u> Should we write that there is implicit DTAG ?

Retransmission timer

Retransmission timer: LoRaWAN end-devices MUST NOT implement a "retransmission timer", this changes the specification of [RFC8724], see Section 5.6.3.5. It must transmit MAX_ACK_REQUESTS time the SCHC ACK REQ at it own timing; ie the periodicity between retransmission of SCHC ACK REQs is device specific and can vary depending on other application uplinks and regulations..

Ack-on-Error (uplink): Conflicts with duty cycle, especially if it implements non SCHC traffic.

Ack-Always (downlink): Retransmission timer cannot be used with LoRaWAN class A device as the RX window is opened by the device

All-1 SCHC Fragment and SCHC Sender-Abort ALL-0 SCHC Fragment and SCHC ACK REQ

RFC8724 All-1: *This condition is also met if the SCHC Fragment Header is a multiple of L2 Words*

RFC8724 All-0: *This condition is met if the RCS is present and is at least the size of an L2 Word*

Question: Those conditions are met in LoRaWAN profile. Should we explicitly write it ?

RFC8724 – Appendix D

RFC8724 *The profile may define a delay to be added after each SCHC message transmission for compliance with local regulations or other constraints imposed by the applications*

<u>Question:</u> Not used in LoRaWAN profile. Should we explicitly say it ?

Thank you for your attention

draft-ietf-lpwan-schc-over-sigfox-02
&
PySCHC Implementation

Juan Carlos Zúñiga (Sigfox), Carles Gómez (U Catalunya), Laurent Toutain (IMT-Atlantique),

Diego Wistuba, Sandra Céspedes, Rodrigo Muñoz (U Chile)

Draft Status

- Last draft updates (rev 02)

  - SCHC parameters

  - Enhanced text descriptions

  - UL callback/API details

  - Structure of document

  - Terminology

  - References

draft-ietf-lpwan-schc-over-sigfox
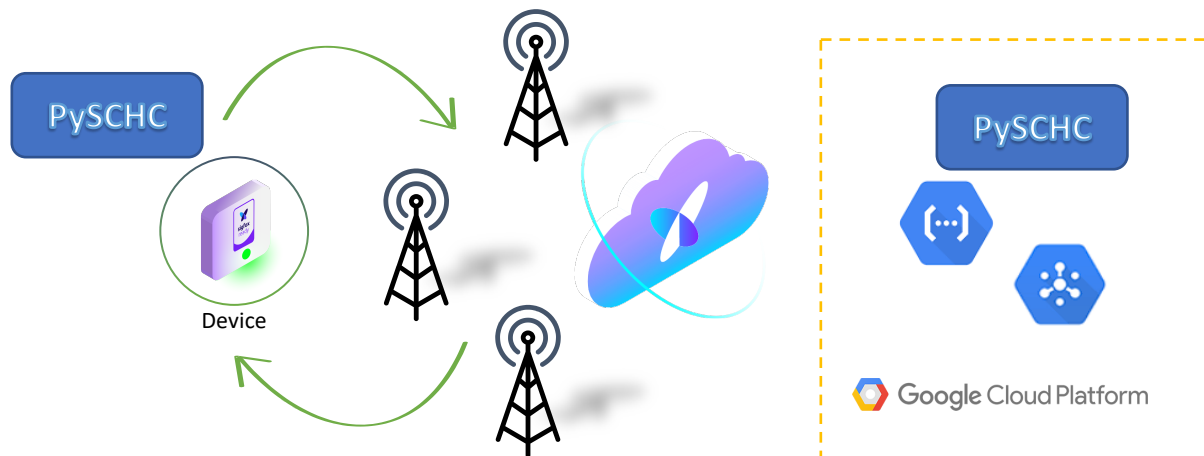
UL Callback/API

- Draft now includes availability and SCHC usage of data and metadata from UL Device transmissions:
  - Device ID
  - Message Sequence Number
  - Message Payload
  - Message Timestamp
  - Device Geolocation
  - RSSI
  - Device Temperature
  - Device Battery Voltage

All-1 + Message Sequence usage

- SCHC receiver relying on Sigfox Sequence Number to detect potential missing fragments before receiving the All-1 fragment

- SCHC ACK Bitmap constructed based on information from received fragments + Sequence Number

draft-ietf-lpwan-schc-over-sigfox
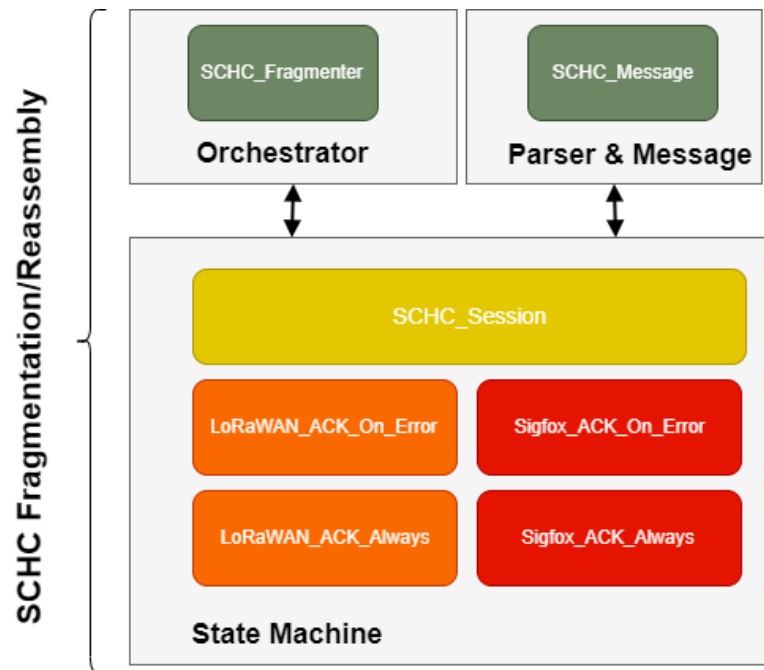
PySCHC Network Architecture

- PySCHC SW
- Pycom
- Sigfox Network
- Google Cloud *

* https://cloud.google.com/community/tutorials/sigfox-gw

draft-ietf-lpwan-schc-over-sigfox

PySCHC SW Architecture

- SCHC Fragmenter : **ACK-on-Error**

- SCHC Profile : **Sigfox**

- Dev platform : **Pycom (LoPy4)**

- App platform : **Google Cloud**

draft-ietf-lpwan-schc-over-sigfox

Next Steps

- Keep advancing on PySCHC implementation to fine-tune parameters:
  - Timers
  - Rules
  - DTag

- Interoperability tests between PySCHC and other implementations should also help fine-tuning protocol parameters
  - Planned for upcoming IETF Hackathons:
  - ~~IETF Vancouver,~~
  - ~~IETF Madrid~~
  - IETF Bangkok?

AOB ?