LPWAN WG

WG Chairs:
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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.

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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

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

[16:10] LoRaWAN IID (Olivier)   [5min]
[16:15] Update on OpenSCHC   [10min]
[16:25] Plans for interop testing at IETF107 hackathon   [5min]
[16:30] OAM draft update   [10min]
[16:40] RFC-to-be 8724 update: work in progress (AUTH48)   [10min]
[16:50] SCHC Tutorial at IETF107   [5min]
[16:55] AOB   [5min]

WG progress

Milestones

Date	Milestone
Done	Submit CoAP compression mechanism to the IESG for publication as a Proposed Standard
Done	Submit IP/UDP compression and fragmentation mechanism to the IESG for publication as a Proposed Standard
Done	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

Document advancement

Document		Date		Status		IPR	AD / Shepherd
Active Internet-Drafts (5 hits)							
draft-ietf-lpwan-coap-static-context-hc-12 **LPWAN Static Context Header Compression (SCHC) for CoAP**		2019-12-10 28 pages		AD Evaluation **for 75 days** Submitted to IESG for Publication:Proposed Standard Reviews: iotdir			Suresh Krishnan Pascal Thubert
draft-ietf-lpwan-ipv6-static-context-hc-24 **Static Context Header Compression (SCHC) and fragmentation for LPWAN, application to UDP/IPv6**		2019-12-05 83 pages		RFC Ed Queue : EDIT for 28 days Submitted to IESG for Publication:Proposed Standard Reviews: genart, intdir, opsdir, secdir			Suresh Krishnan Pascal Thubert
draft-ietf-lpwan-schc-over-lorawan-05 **Static Context Header Compression (SCHC) over LoRaWAN**		2019-12-20 24 pages		I-D Exists WG Document			
draft-ietf-lpwan-schc-over-nbiot-01 **SCHC over NB-IoT**		2019-11-16 22 pages		I-D Exists WG Document			
draft-ietf-lpwan-schc-over-sigfox-01 **SCHC over Sigfox LPWAN**		2019-11-04 10 pages		I-D Exists WG Document			
Related Internet-Drafts (5 hits)							
draft-thubert-lpwan-schc-over-ppp-00 **SCHC over PPP**		2019-12-03 5 pages		I-D Exists			

IETF 107 Meeting Req

Working Group Name:	IPv6 over Low Power Wide-Area Networks (lpwan)
Area Name:	Internet Area
Number of Sessions Requested:	1
Length of Session 1:	1.5 Hours
Number of Attendees:	60
Conflicts to Avoid:	Chair Conflict: 6lo roll rift core intarea raw 6man Technology Overlap: detnet netconf lwig suit cbor lake Key Participant Conflict: bier ace
Other WGs that included IPv6 over Low Power Wide-Area Networks in their conflict list:	intarea, babel
Resources requested:	*None so far*
People who must be present:	▪ Suresh Krishnan ▪ Pascal Thubert ▪ Alexander Pelov

IETF 107 Dates

- **2019-12-16 (Monday):** Working Group and BOF scheduling begins. To request a Working Group session, use the IETF Meeting Session Request Tool. If you are working on a BoF request, it is highly recommended to tell the IESG now by sending an email to iesg@ietf.org to get advance help with the request.
- **2019-12-16 (Week of):** IETF Online Registration Opens. Register here.
- **2020-02-03 (Monday):** Early Bird registration and payment cut-off at UTC 23:59. Register here.
- **2020-02-07 (Friday):** Cut-off date for BOF proposal requests to Area Directors at UTC 23:59. To request a BOF, please see instructions on Requesting a BOF.
- **2020-02-07 (Friday):** Cut-off date for requests to schedule Working Group Meetings at UTC 23:59. To request a Working Group session, use the IETF Meeting Session Request Tool.
- **2020-02-14 (Friday):** Cut-off date for Area Directors to approve BOFs at UTC 23:59.
- **2020-02-21 (Friday):** Preliminary Agenda published for comment.
- **2020-02-26 (Wednesday):** Cut-off date for requests to reschedule Working Group or BOF meetings UTC 23:59.
- **2020-02-28 (Friday):** Final agenda to be published.
- **2020-03-09 (Monday):** Internet Draft submission cut-off (for all drafts, including -00) by UTC 23:59. Upload using the ID Submission Tool.
- **2020-03-09 (Monday):** Standard rate registration and payment cut-off at UTC 23:59..
- **2020-03-11 (Wednesday):** Draft Working Group agendas due by UTC 23:59. Upload using the Meeting Materials Management Tool.
- **2020-03-16 (Monday):** Registration cancellation cut-off at UTC 23:59.
- **2020-03-16 (Monday):** Revised Working Group agendas due by UTC 23:59. Upload using the Meeting Materials Management Tool.
- **2020-04-17 (Friday):** Proceedings submission cutoff date by UTC 23:59. Upload using the Meeting Materials Management Tool.
- **2020-05-11 (Monday):** Proceedings submission corrections cutoff date by UTC 23:59.

New IID proposition

- Device only know a « local » IP
- SCHC gateway can solve conflicts
- No need of out of band sharing of data
- « Outside » adress can respect RFC7217

DEVICE

Application

IP: 128bits generated from devEui

SCHC

LoRaWAN stack

IP traffic based on unique IP address

SCHC gateway

IP correspondance table	
devEui1	IP1
devEui2	IP2
devEui3	IP3

IP = RID = F(Prefix, Net_Iface, Network_ID, DAD_Counter, secret_key)
From RFC7217

LoRaWAN network

IP not transmitted as compressed
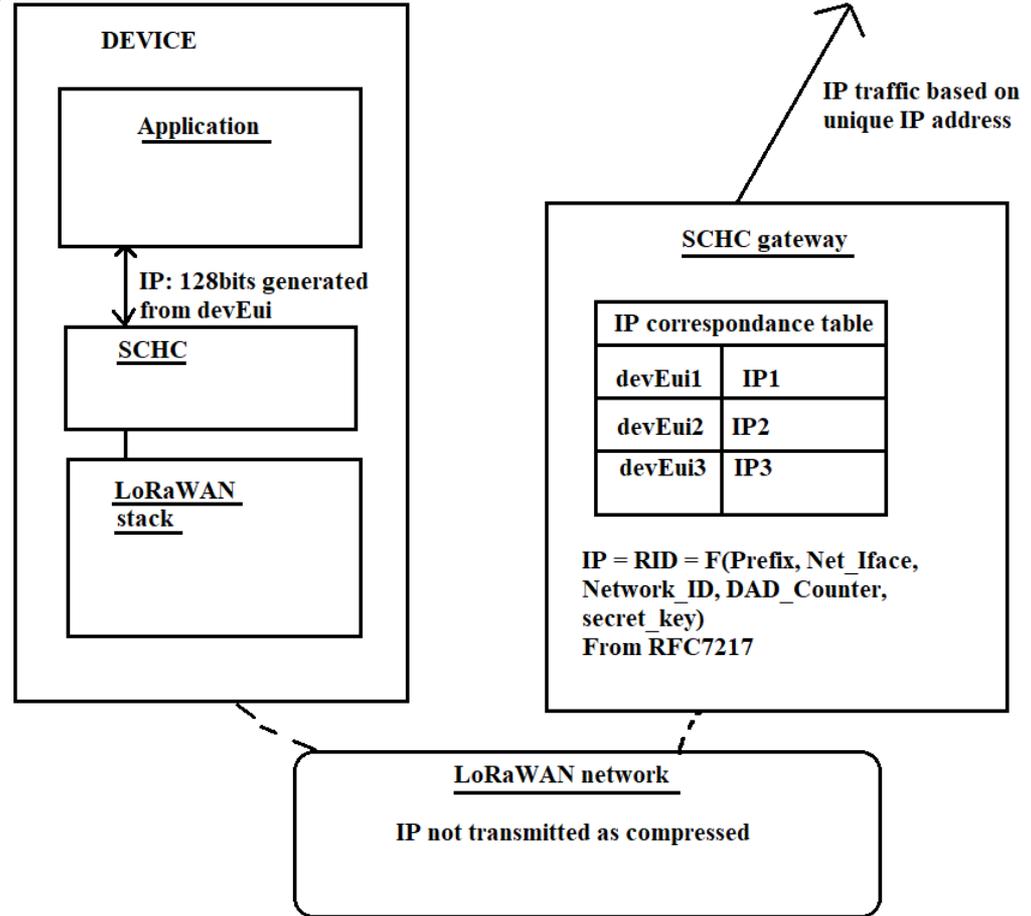
Other IID Proposition

1. key = LoRaWAN AppSKey
2. cmac = aes128_cmac(key, devEui)
3. IID = cmac[0..7]

LoRa Alliance should accept to reuse AppSKey, then indroduce another key for this purpose later

openSCHC status

Cedric Adjih,
Dominique Barthel,
Olivier Gimenez,
Laurent Toutain

Interim, February 5th, 2020

openSCHC status

- Implementation written for Python 3.4+ (compatible with MicroPython)
- Implements:
  - Gateway and device
  - Fragmentation: NoACK, Ack-On-Error, Ack-always
  - Compression, rules described in JSON format

New master version

- Merge of Ack on Error used by IMT for papers
- Include in Rule Manager
  - compression rule direction
  - no compression rule
- Work on connectors:
  - IP connector: 2 openSCHC process exchanging UDP packets containing SCHC packets

Interop Vancouver
Announcement on the Mailing List

- We plan to provide a set of Rules (in the openSCHC format), that you can convert into your local representation.
- We plan to provide test packets as text file containing JSON hex string.
- A first test will be that some packets are compressed and compared to the known SCHC Packet output. Some SCHC Packets are decompressed and compared to the known packet output. Each implementation can perform this test independently of the others.
- A second test is to interconnect two implementations in real time, and to compare the decompressed output with the original packet (before compression). This allows for some degree of random testing,
- We propose that the direct communication between two implementations uses UDP sockets.
- If time permits, the No-ACK mode of fragmentation can be tested the same way as compression: first with test vectors, second with direct unidirectional communication between two implementations.
- Note : the other modes of fragmentation require bidirectional communication and the notion of time, which is more involved. This is beyond the scope of this first event.

Participation

- Acklio (local)
- libSCHC (remote)
- openSCHC (local)
- Chile's implementation (local ?)

draft-barthel-oam-schc-00 status

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Work resuming!

- Editorial changes to be done
  - Issues GitHub issues for ticketing
  - Shuffle sections around (ping, error messages)
  - Use with xml v3 ([RFC7991](#)) and SVG drawings?
  - Add drawing for each of the 4 use cases
- Technical
  - Use SCHC packet matching and Rule in context to trigger proxy action
  - Write example Rule in draft
  - Ping Identifier, Seq Number: explain uses and processing
  - Proxy aggregation of Echo Replies to save on the downlink? Discuss on WG mailing list.
  - Detecting Traceroute?
  - SCHC core a routing proxy ? Decrease TTL?
  - Need new architecture diagram. Present to WG.
  - Security considerations

Conclusions, next steps

- Work among co-authors
- Revive discussion on WG mailing list
- Publish by cut-off date for IETF107 (March 9)
- Engage WG at IETF107 meeting

SCHC tutorial at IETF meetings?

Authors:
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Who else wants to join?

Need to publicize SCHC

- Part of a broad initiative to draw attention on SCHC
  - Publish RFCs
  - Publish scientific papers
  - Teach SCHC in academia
  - Provide Open Source implementation
  - Communicate to other SDOs, industry fora
  - **Publicize SCHC within IETF itself!**

- Virtuous circle
  - Implementations + performance studies ⌑ better standard

Tutorial on SCHC

- Table of Content
  - LPWAN technologies ([RFC8376](#))
  - Prior art: 6LoWPAN, RoHC
  - The fundamental principles of SCHC
  - Related drafts: upperlayer-over-SCHC, SCHC-over-foo
  - Details on SCHC compression
  - Overview on the three fragmentation modes
  - Details on Ack-on-Error fragmentation mode
  - Known implementations
  - Market traction, known uses of the technology

Tutorial at IETF meetings

- What is the process to submit a tutorial?
- Who wants to contribute material, actually present?
- Is it still time for IETF107?
- Volunteers?

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

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What has happened since last interim?

- Entered AUTH48 phase
  - Number 8724 assigned to RFC-to-be
- RFC Editor worked on the document
  - Converted document to xml v3 ([RFC7991](#))
  - General editing work (punctuation, capitalization, spelling …)
  - Changes can be seen at https://www.rfc-editor.org/authors/rfc8724-diff.html
  - Raised 15 questions to the co-authors
- Co-authors currently at work
  - Checking the changes above
  - Responding to the questions (done 10/15)
  - Considering last chance for text changes
  - Working status visible at https://github.com/lp-wan/ip-compression/pull/23/files

Question 1: title of RFC

- Before
  - Static Context Header Compression (SCHC) and fragmentation for LPWAN, application to UDP/IPv6

- After?
  - SCHC: a generic framework for header compression and fragmentation for Low-Power Wide Area Networks (LPWANs)

Question 2: SCHC name

LPWAN

- Shall we use SCHC as a name, no longer an acronym?
  - Can still mention origin as an acronym, in passing.
- Would clear up confusion
  - SCHC Compression: why does compression appear twice?
  - SCHC Fragmentation: is it compression or fragmentation?

Conclusions, next steps

- Complete editing work this week
- RFC publication next week?
- Then celebrate!

Thank you!

AOB ?