LPWAN WG

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<evyncke@cisco.com>
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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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Reminder:

Minutes are taken *
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Presence is logged ***

* Please contribute to the minutes at: https://codimd.ietf.org/notes-ietf-interim-2021-lpwan-07-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 [15min]
  o Note-Well, Scribes, Agenda Bashing
  o WG Status, IETF 111 query

[16:20] SCHC Architecture [20min]
  new version

[16:40] Data Model for SCHC [15min]
  Yang Doctors feedback

[16:55] AOB [ QS ]
## WG Status

<table>
<thead>
<tr>
<th>Date</th>
<th>Milestone</th>
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<tbody>
<tr>
<td>Feb 2022</td>
<td>Produce a Standards Track document for SCHC over NBIOT draft-ietf-lpwan-schc-over-nbiot</td>
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<tr>
<td>Oct 2021</td>
<td>Produce a Standards Track document for SCHC over SigFox draft-ietf-lpwan-schc-over-sigfox</td>
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<tr>
<td>Jul 2021</td>
<td>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)</td>
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<tr>
<td>Feb 2021</td>
<td>Produce a Standards Track document to define the generic data models to formalize the compression and fragmentation contexts for LPWANs</td>
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<tr>
<td>Dec 2020</td>
<td>Produce Standard Track documents to apply SCHC IPv6/UDP over the baseline technologies</td>
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<tr>
<td>May 2020</td>
<td>Perform SCHC Maintenance, including enabling SCHC mechanisms for Upper layer Protocols</td>
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**Document advancement**

### Active Internet-Drafts (4 hits)

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<th>Draft</th>
<th>Title</th>
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<th>Pages</th>
<th>Status</th>
<th>IPR</th>
<th>Shepherd</th>
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<tr>
<td>draft-ietf-lpwan-coap-static-context-hc-19</td>
<td>LPWAN Static Context Header Compression (SCHC) for CoAP</td>
<td>2021-03-08</td>
<td>34 pages</td>
<td>RFC Ed Queue: RFC-EDITOR for 53 days</td>
<td>genart, iotdir, opsdir, secdir, tsvart</td>
<td>Éric Vyncke</td>
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<td>draft-ietf-lpwan-schc-over-nb-iot-04</td>
<td>SCHC over NB-IoT</td>
<td>2021-01-19</td>
<td>22 pages</td>
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<td>draft-ietf-lpwan-schc-over-sigfox-05</td>
<td>SCHC over Sigfox LPWAN</td>
<td>2021-02-22</td>
<td>25 pages</td>
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<td>WG Document</td>
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<td>draft-ietf-lpwan-schc-yang-data-model-04</td>
<td>Data Model for Static Context Header Compression (SCHC)</td>
<td>2021-02-02</td>
<td>42 pages</td>
<td>I-D exists</td>
<td>WG Document</td>
<td>Reviews: yangdoctors</td>
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### RFCs (3 hits)

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<tr>
<td>RFC 8376 (was draft-ietf-lpwan-overview)</td>
<td>Low-Power Wide Area Network (LPWAN) Overview</td>
<td>2018-05</td>
<td>43 pages</td>
<td>Informational RFC</td>
<td></td>
<td>Suresh Krishnan, Alexander Pelov</td>
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<tr>
<td>RFC 8724 (was draft-ietf-lpwan-ipv6-static-context-hc)</td>
<td>SCHC: Generic Framework for Static Context Header Compression and Fragmentation</td>
<td>2020-04</td>
<td>71 pages</td>
<td>Proposed Standard RFC</td>
<td></td>
<td>Suresh Krishnan, Pascal Thubert</td>
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<td>RFC 9011 (was draft-ietf-lpwan-schc-over-lorawan)</td>
<td>Static Context Header Compression and Fragmentation (SCHC) over LoRaWAN</td>
<td>2021-04</td>
<td>26 pages</td>
<td>New</td>
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<td>Éric Vyncke, Dominique Barthel</td>
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### Related Internet-Drafts (2 hits)

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<td>draft-barthel-lpwan-oam-schc-02</td>
<td>OAM for LPWAN using Static Context Header Compression (SCHC)</td>
<td>2020-11-02</td>
<td>14 pages</td>
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<td>draft-pelov-lpwan-architecture-02</td>
<td>LPWAN Static Context Header Compression (SCHC) Architecture</td>
<td>2021-04-29</td>
<td>10 pages</td>
<td>I-D exists</td>
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Action items

• RFC 9011 published
  – Congrats to the authors !!!!
• draft-ietf-lpwan-coap-static-context-hc
  – Soon too!!!
• Nothing much else
IETF 111

• Meetings will be middle of the CEST night
  – Or past that

• We have interims
  – 5 interims
  – Scheduled between now and then

• Should we ask for an official meeting?
draft-pelov-lpwan-architecture

Alexnader Pelov
Pascal Thubert
Ana Minaburo

Interim, May 4th, 2021
LPWAN Technologies and Profiles

• Discusses RFC 8376, the LPWAN technologies
• Points on appendix D of RFC 8724
• RFC 9011 as an example
The Static Context Header Compression

- Discusses RFC 8724, SCHC
- C/D, parser
- ruleID
- F/R
SCHC Endpoints

DEVice / NGW model

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vs. Peer to Peer

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Figure 1: Typical LPWAN Network Architecture

Figure 2: PPP-based SCHC Deployment
SCHC Instances

- Different endpoints, different nodes

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<th>(NGW)</th>
<th>(App)</th>
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draft-pelov-lpwan-architecture
SCHC Data Model

• Same rules deployed on both side

\[
\begin{array}{c}
\text{Rules} \\
\text{read} \\
\text{update} \\
\text{create} \\
\text{delete}
\end{array}
\]

• Allows deployment / configuration through NETCONF, RESTCONF, and CORECONF
Security Considerations

• Need to protect the rule distribution
• What else?
Missing Topics / Content?

• Any coauthors to work on this?
• Do we want/need applicability statements in this document?
• Anything else needs to be on the document?
• E.g., Applicability
  • In Smart Building, smart grid?
  • e.g., Goose (?) protocol. Very chatty, long name strings.
  • Would love to SCHC-compress it.
Next steps

• Adoption call
• Like Now ?
draft-ietf-lpwan-schc-yang-data-model-04

Laurent Toutain (laurent.toutain@imt-atlantique.fr)
Ana Minaburo (ana@ackl.io)
YANG doctor review

• Many thanks to Carl Moberg
  • Very good remarks to make a better document

• Presentation: pyang -m yang
• IETF compatibility: pyang --ietf

• New model version on github:
  • https://github.com/lp-wan/datamodel/blob/master/ietf-schc%402021-04-23.yang
Changes

• Module name: ietf-schc
• Version: 1.1

• As is right now, the YANG module assumes that all implementations support all FID types defined to be derived from field-id-base-type. It includes fields related IPv6, COAP/OSCORE, and ICMPv6 all in the same module.

• Is there a possibility that some implementations won't implement all three of those protocol groups? If so, it might be worth considering making FID type groups either optional using YANG 'feature' statements or break them out into separate modules to be advertised separately.

• Hierarchical FID
  • A type for each protocol IPv6, UDP, CoAP, ICMPv6
  • A sub-type for sub-fields
Field-id

identity field-id-base-type {
  description "Field ID base type for all fields";
}

identity field-id-ipv6-base-type {
  base field-id-base-type;
  description "Field IP base type for IPv6 headers described in RFC 8200";
}

identity fid-ipv6-version {
  base field-id-ipv6-base-type;
  description "IPv6 version field from RFC8200";
}

identity fid-ipv6-trafficclass {
  base field-id-ipv6-base-type;
  description "IPv6 Traffic Class field from RFC8200";
}

identity fid-ipv6-trafficclass-ds {
  base fid-ipv6-trafficclass;
  description "IPv6 Traffic Class field from RFC8200, DiffServ field from RFC3168";
}

identity fid-ipv6-trafficclass-ecn {
  base fid-ipv6-trafficclass;
  description "IPv6 Traffic Class field from RFC8200, ECN field from RFC3168";
}
Relation between fields

• “does the authors think it important (and possible) to work towards a more stringent validation of "meaningful" configuration by capturing the relationships between fields like in this example?”
  • The current YANG permits a field-identifier ‘fid-ipv6-version' combined with a field-length ‘fl-token-length' in a rule entry, which I understand to be nonsensical.

• TV is mandatory for MO equal, MSB and match-mapping

• Window size in mandatory for AA and equal 1, any size for AoE,
  • No Window for NoAck

• ????
grouping fragmentation-content {
  description "This grouping defines the fragmentation parameters for all the modes (No Ack, Ack Always and Ack on Error) specified in RFC 8724."

  leaf direction {
    type schc:direction-indicator-type;
    mandatory true;
    description "should be up or down, bi directionnal is forbidden."
  }

  leaf dtagsize {
    type uint8;
    description "size in bit of the DTag field"
  }

  leaf wsize {
    when "not(derived-from(../fragmentation-mode, 'fragmentation-mode-no-ack'))"
    type uint8;
    description "size in bit of the window field"
  }

  leaf fcnsize {
    type uint8;
    mandatory true;
    description "size in bit of the FCN field"
  }
}
AOB ?