draft-ietf-lpwan-ipv6-static-context-hc-21

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Presentation agenda

• What is this draft about?
• What has happened since IETF104?
• IETF105-Hackathon report
• What is coming up next?
• Changes since -18
What is this draft about?
3 deliverables in one draft

- Spec. of a Header Compression engine (Section 7)
  - Generic engine, uses Static Context (→ SCHC)

- Specification of a fragmentation protocol (Section 8)
  - Has 3 different “modes” described in this draft
  - The different modes address different requirements

- Spec. of simple UDP/IPv6 compression (Section 10)
  - Using this SCHC engine
Other related drafts

• Canonical representation of context
• Apply SCHC compression to upper-layer protocols
  – For exemple, CoAP/UDP/IPv6
• Apply SCHC fragmentation to underlying networks
  – For exemple, Sigfox, LoRaWAN®
What has happened since IETF104?
What has happened since IETF104?

- *IoT Dir preliminary review by Carsten, March 4th*
  - Discussed potential changes with Carsten at IETF104
- Fixed Ack-on-Error description following implementors comments
- Received *AD Review by Suresh on July 2nd*
- Implemented changes in response to these reviews
- Published -19 on July 4th, entered IETF Last Call July 5th
- Completed *IETF Last Call July 19th*, no comment
- Published -20 (July 22nd), -21 (July 23rd)
- Currently in “Waiting for (AD) write-up” status
IETF105-Hackathon report
SCHC Hackathon at IETF105

10 team members:
- Ana (first-time hackathoner)
- Cédric
- Diego (remote from Chile)
- Dominique
- Ivaylo
- Laurent
- Matthieu
- Pascal
- Sergio (remote from Spain)
- Shoichi (remote from Japan)

https://github.com/openschc
Work done at IETF105-Hackathon

• Made OpenSCHC *easier to use*
  – Cleaned up Sphinx documentation
  – Added tutorial, for easier start

• Improved *functionalities*
  – Merged several development branches
    – More fragmentation functionalities
    – Compression and Fragmentation now integrated
  – Added some OAM functionalities
  – Wrote plan for Fragmentation random testing
What is coming up next?
What is coming up next?

• Work our way to RFC
  – IESG Evaluation
• Communicate/educate about SCHC
• Carry on the OpenSCHC development
• Evaluate performance, applicability
Current uses of SCHC

- **Drafts**
  - OSCORE/CoAP/UDP/IPv6 compression with SCHC,
  - SCHC over Sigfox, SCHC over LoRaWAN®, SCHC over NB-IoT
- **Demos**
  - CoAP/UDP/IPv6 compression over LoRaWAN®
  - CoAP compression over (IP-enabled) LTE-m
  - SSH over LoRaWAN®
- **Under evaluation**
  - DLMS/UDP/IPv6/LoRaWAN, at LoRa Alliance®
  - IPSec ESP compression
- **Implementations**
  - OpenSCHC, Acklio, Universidad de Chile, RIOT (tbc, expressed intention)
- **Scientific papers**
Changes since -18
Functional

- Specifies behavior of Field Position = 0
- Subsumes `compute-checksum` and `compute-length` into `compute-*`
- Improves specification of compression of
  - IPv6 Traffic Class field (ECN bits)
  - Downlink IPv6 Hop Limit field
  - UDP Length field
- Specifies that UDP checksum field must be verified before elision
- Fixes mistake in description of Ack-on-Error algorithm
Security Considerations

- Major rewrite, more focused
- Expansion of frames with Decompression
- New protocol introduced with Fragmentation
  -- Opportunity for loops
- UDP checksum elision
Editorial

- Reshuffling of Introduction
- Improved description of Field Position
- Added definition of scope for RuleID
- Improved description of compression algorithm
- Replaces MIC with Reassembly Check Sequence
- Fixes compression example in Appendix A
- Fixed a few RFC 2119 language abuses
Thank you for your attention