

IPv6 over networks of resource-constrained nodes (6lo) BoF

IETF 87, Berlin, July 2013

Chairs: Ralph Droms, Ulrich Herberg

Online Agenda:

<https://datatracker.ietf.org/meeting/87/agenda/6lo/>

Proposed Charter: <https://github.com/6lo/charter>

Mailing list: <https://www.ietf.org/mailman/listinfo/6lo>

Note Well

This summary is only meant to point you in the right direction, and doesn't have all the nuances. The IETF's IPR Policy is set forth in BCP 79; please read it carefully.

The brief summary:

- **By participating with the IETF, you agree to follow IETF processes.**
- **If you are aware that a contribution of yours (something you write, say, or discuss in any IETF context) is covered by patents or patent applications, you need to disclose that fact.**
- **You understand that meetings might be recorded, broadcast, and publicly archived.**

For further information, talk to a chair, ask an Area Director, or review the following:

BCP 9 (on the Internet Standards Process)

BCP 25 (on the Working Group processes)

BCP 78 (on the IETF Trust)

BCP 79 (on Intellectual Property Rights in the IETF)

Remote Participants

PLEASE, REMEMBER THE REMOTE
PARTICIPANTS.....

- Speak/comment/questions using the microphones
- State your name before speaking

Agenda

- Administrivia / Bash the Agenda [5]
- Goals of the BoF: Chairs [15]
- Review of potential WG work items: Bormann [15]
- Open Discussion: Chairs [30]
- Key Questions: Chairs [20]

Goal of the BOF (from RFC5434)

- At the end of the meeting, being able to answer:
 - How do you feel about the proposed work / charter?
 - Is the scope of the work clear?
 - Is there enough energy for contributing to a potential new WG (i.e., contributions to drafts / reviews / implementations)?
 - Does the room agree that the IETF should form a WG with the proposed charter?

Problem

- Running IPv6 on constrained nodes / link layers
 - E.g., some 802.15.4 link layers have an MTU of 127 octets; IPv6 requires 1280 bytes
 - 6lowpan WG specified RFC4944, an adaptation layer for sending IPv6 packets over such link layers
 - RFC4944 also specified header compression
 - 6lowpan WG was closed
- A number of IPv6-over-foo have been suggested in I-Ds, based on RFC4944, but no home
- Related MIBs for 6lowpan allow for management of such constrained interfaces
- Current header compression scheme requires new specification for each new IP header; generic header compression scheme would avoid that

Proposed Charter (Piece by piece)

Work areas:

- adaptation layer specifications for link layer technologies of interest in constrained node networks;
- related MIBs;
- common infrastructure specification such as header compression specific to constrained node networks;
- maintenance and informational documents required for the existing IETF specifications in this space.

Proposed Charter (Piece by piece)

Scope:

- Small, focused pieces of INT area work
- No larger cross-layer efforts (such as the 6TSCH work under discussion)
- Continue to reuse existing protocols and mechanisms whenever reasonable and possible.
- Security and management work that is not specific to the link layers being worked on is out of scope
- Routing is out of scope

Proposed Charter (Piece by piece)

Coordination:

- Close coordination with 6man (who work on IPv6-over-foo for non-constrained networks)
- Coordination with 6man for adaptation layer specifications with potential implications on IPv6 architecture
- Coordination with LWIG, INTAREA, but also with CORE, ROLL etc. (and others, such as COMAN/SOLACE)

Internet-Drafts relevant to 6Lo

Carsten Bormann, 2013-08-01

Adaptation Layers (IP-over-foo) for **constrained node networks**

- Model on 6LoWPAN (RFC 4944/6282/6775)
- **draft-ietf-6lowpan-btle-12.txt** (in 6LoWPAN)
- **draft-brandt-6man-lowpanz-02**
 - G.9959 (⊂ **Z-Wave**)
- **draft-mariager-6lowpan-v6over-dect-ule-02**
 - **DECT** ultra-low energy
- **draft-ietf-6man-6lobac-01**
 - Run IPv6 over low-speed serial lines (RS485)

MIB work

Define the management instrumentation (counters) we need on constrained nodes:

- draft-schoenw-6lowpan-**mib**-03

Header Compression for Constrained Nodes

- Basis: RFC 6282 (6LoWPAN-HC)
- draft-bormann-6lowpan-**ghc**-05
 - Generic compression of headers and header-like payloads (LZ77-based), covers ICMP, RPL, DTLS
- draft-raza-**6lowpan-ipsec**-00
 - Specific Header Compression for IPsec

Plumbing for setting up Constrained Node Networks

- Basis: RFC 6775 (6LoWPAN-ND)
- draft-kelsey-intarea-**mesh-link-establishment-05**
 - Cover gaps between 802.15.4 MAC, 6LoWPAN-ND and RPL
- draft-thubert-6lowpan-**backbone-router-03**
 - Make multiple Edge Routers (6LBR) act as one
- draft-thubert-roll-**forwarding-frags-01**
 - Optimize fragment (re)transmission

Security in setting up Constrained Node Networks

- draft-sarikaya-6lo-bootstrapping-solution-00.txt
 - Describe how EAP/PANA can be used to bootstrap network security in a constrained node network

(Out of scope in currently proposed charter)

Optimize interaction with Constrained Node Networks

- draft-bormann-intarea-alfi-02
 - Adaptation Layer Fragmentation Indication
 - Enable “PMTUD” style adaptation to “transparent” fragmentation that happens at adaptation layer

Meta

- draft-bormann-6lowpan-roadmap-03
 - Overview over all this
 - Explain how things fit together
 - ~ Errata

Discussion –
Time for questions / discussions

(back to chairs)

Proposed Charter

6Lo focuses on INT area work that is needed for constrained node networks. Specifically, it is working on

- adaptation layer specifications for link layer technologies of interest in constrained node networks;
- related MIBs;
- common infrastructure specification such as header compression specific to constrained node networks;
- maintenance and informational documents required for the existing IETF specifications in this space.

6Lo will work closely with the 6man working group, which will continue to work on IP-over-foo documents outside the constrained node network space and will continue to be the focal point for IPv6 maintenance. For adaptation layer specifications that do not have implications on IPv6 architecture, 6man will be notified about 6Lo's working group last call. Specifications that might have such an impact (e.g., by using IPv6 addresses in a specific way or by introducing new ND options) will be closely coordinated with 6man, and/or specific parts will be fanned out to 6man documents. Beyond 6man, 6Lo will also coordinate with LWIG and INTAREA.

6Lo works on small, focused pieces of INT area work. 6Lo does not take on larger cross-layer efforts (such as the 6TSCH work under discussion). The working group will continue to reuse existing protocols and mechanisms whenever reasonable and possible.

Security and management work that is not specific to the link layers being worked on is out of scope. Work related to routing is out of scope. 6Lo will coordinate closely with the working groups in other areas that focus on constrained node networks, such as today ROLL (RTG) and CoRE (APP), and appropriate groups in the IETF OPS and Security areas including potential future groups spawned from efforts such as COMAN and SOLACE.

Questions to the Audience

1. Is this a topic the IETF **should** try to address?
2. Is this a topic the IETF **should not** try to address?
3. Do you not understand the problem well enough?

Questions to the Audience

1. Do you **agree** with the charter?
2. Do you **disagree** with the charter?
3. Do you not know enough to make a conclusion?

Questions to the Audience

1. How many people are willing to **comment** documents?
2. How many people are willing to **edit** documents?
3. How many people are willing to **implement** documents?