IPv6 over Low power WPAN WG (6lowpan)

68th IETF
Praha, CZ, March 19, 2007

Chairs:
Geoff Mulligan <geoff@mulligan.com>
Carsten Bormann <cabo@tzi.org>
Secretary:
Christian Schumacher <schumacher@danfoss.com>
Mailing List:
6lowpan@ietf.org
Jabber:
6lowpan@jabber.ietf.org

- **We assume people have read the drafts**
- **Meetings serve to advance difficult issues by making good use of face-to-face communications**
- **Be aware of the IPR principles, according to RFC 3979**

✓Blue sheets
✓Scribe(s)

68th IETF: 6lowpan WG Agenda

09:00	Introduction, Agenda	Chairs (15)
09:15	Document Status	Chairs (10)
09:45	Rechartering Process	Chairs (10)
09:55	Downselecting potential topics	all (60)
10:55	Input on charter topics	(35)

What is 6lowpan?

- Interesting L2 network: IEEE 802.15.4
  - Low power, 20..250 kbit/s, 900 and 2400 MHz
  - Almost, but not entirely, unlike 802
    - Small MTU, limited range
- Job of 6lowpan: make this look like an IPv6 link
  - Classical encapsulation issues ➜ format document
  - Reachability: mesh routing
  - No multicast: emulate, avoid (e.g., ND)

6lowpan Wiki

- http://6lowpan.tzi.org
- Read: Everyone
- Update/Create: AuthorGroup
  - Send mail to cabo@tzi.org to get in there
- Your changes are welcome
  - If we really don't like them, we'll revert them :-)
- Gives us a chance to compile material that will be useful for next steps
  - Of course, mailing list is better for actual discussion

Segment 1: Document Status 09:15–09:45

Chairs

Slides from Gabriel Montenegro

Milestones (from WG charter page)

- Mar 05 draft-ietf-6lowpan-problem: WG last call
- Apr 05 draft-ietf-6lowpan-problem ➳ IESG
  - Informational
- May 05 draft-ietf-6lowpan-format: WG last call
- Jul 05 draft-ietf-6lowpan-format ➳ IESG
  - Proposed Standard

- Almost done…
- We are not chartered for work beyond this

What we need to do today

1. Take up remaining format document comments
2. Discuss future work
   - How much should we bite off?
   - Plan for a Rechartering that keeps focus

6LoWPAN Meeting
68 IETF Prague
PS & Format Document update

Monday,March 19, 2007

(Based on Slides from:)

Gabriel Montenegro

Document Status

- **Both drafts went through IETF Last Call**
  - **LC expired on 2007-03-01**
- **6LoWPAN: Overview, Assumptions, Problem Statement and Goals ("problem statement" draft)**
  - **draft-ietf-6lowpan-problem-08.txt for Informational**
  - **Approval announcement sent on 2007-03-16**
  - **Tracker info at: https://datatracker.ietf.org/public/pidtracker.cgi?command=view_id&dTag=13494**
  - **IESG approval has 4 RFC editor notes**
  - **1-3 were already taken care of in rev 08**
  - **Will be carried out by RFC editor — out of our hands now**

Format Document

- Transmission of IPv6 Packets over IEEE 802.15.4 Networks ("format" draft)
  - draft-ietf-6lowpan-format-11.txt for Proposed Standard
  - IESG Evaluation::Revised ID Needed
  - Tracked info at: https://datatracker.ietf.org/public/pidtracker.cgi?command=view_id&dTag=13475
  - 2 discuss items (Jari Arkko and Magnus Westerlund)

datagram_tag size

- Must grow beyond the current 10 bits to protect against wraparound.
- Question: should we grow to 18 bits (one extra octet?)
- Should we grow by less than that (say, 6 bits or so) and leave the rest reserved?
- Current position:
  - We should grow from 10 to 18 bits and put this fear of wraparound to rest
- Suggested fix: grow tag to 18 bits.

Prefix vs PAN ID

- Current wording maps a PAN ID to a prefix in some parts of the document
- But IPv6 allows multiple prefixes on a link, so the above is confusing.
- Such limitation is actually not needed, as header compression handles multiple prefixes, router advertisements are used to discover them, etc.
- Suggested fix: get rid of text constraining PAN ID to a prefix. The correct text (some of which was already in the text) should map a PAN ID to a link. Fixed by deleting extra text that constraints to a prefix.

2 ways to support multicast (broadcast and mapping in section 9)

- Section 9 only applies to mesh-enabled LoWPANs
- Suggested fix: Make this explicit: multicast functionality MUST NOT be used in non-mesh LoWPANs

Several clarifications

- **UDP Header compression**
  - **P value – change text to indicate P value will be "determined" and does not now require IANA coordination**
- **Removed text talking about future WG work**

Segment 2: Rechartering Process 09:45–09:55

Chairs

Charter: Status

- Proposed charter items agreed in meeting at IETF66
- Validation on mailing list held up by non-completion of milestones
  - That is now (almost) done
- Has anything changed? (This meeting)
- Re-validate on mailing list (after this meeting)

Segment 3: Downselecting potential topics 09:55–10:55

Chairs

Charter 1/5

Produce **"6lowpan Bootstrapping and 6lowpan IPv6 ND Optimizations"** to define the required optimizations to make IPv6 ND applicable in 6lowpans, given the fact that IPv6 ND is too expensive for the devices of 6lowpan and requires multicast. This document will define how to bootstrap a 6lowpan network and explore ND optimizations such as reusing the 802.15.4 network structure (use the coordinators), and obviate multicast by having devices talk to coordinators without creating a single point-of-failure, and changing the IPv6 ND multicast semantics. This document will be a proposed standard.

Charter 2/5

Produce **"Problem Statement for Stateful Header Compression in 6lowpans"** to document the problem of using stateful header compression (2507, ROHC) in 6lowpans. Currently 6lowpan only specifies the use of stateless header compression given the assumption that stateful header compression may be too complex. This document will determine if the assumption is correct and will be an informational document.

Charter 3/5

Produce **“Recommendations for 6lowpan Applications”** to define a set of recommendations of protocols to use for applications. The recommendations will cover protocols for transport, application layer, discovery, configuration and commissioning. This document will be an informational document.

Charter 4/5

Produce **“6lowpan Mesh Routing”** to evaluate different mesh routing protocols for use within 6lowpans. While most routing protocols are defined above the IP layer, 6lowpan requires a mesh routing protocol below the IP layer. “6lowpan Mesh Routing” may be several proposed standard documents.

Charter 5/5

Produce **"6lowpan Security Analysis"** to define the threat model of 6lowpans and to document suitability of existing key management schemes and to discuss bootstrapping/installation/commissioning/setup issues. This document will be an informational document.

Segment 4: Input on charter topics 10:55–11:30

All