

draft-bormann- 6lowpan-roadmap

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IETF80, 2011-03-28

Background

- Complex protocols need:
 - interpretations/clarifications
 - small fixes
 - roadmaps (how does everything fit)
- Role model: RFC 4815
 - draft-ietf-rohc-rtp-impl-guide
 - Started in 2002, went through 23 versions
 - RFC in 2007

Roadmap for 6LoWPAN

- Which documents are needed to make a “6LoWPAN”? (RFC 4944, HC-15, ND-15)
- What is defined in a confusing or misleading way by this set of documents?
- What issues need to be fixed in a grander picture?
- “Non-Milestone” charter item of 6LoWPAN WG

Roadmap issue 1: MTU

- 6LoWPAN MTU was designed for stub networks
- Set at 1280 (the minimum IPv6 allows)
- This does not work with **RPL** (tunneling)
- Change: mandate a larger MTU where RPL is in use in tunneling mode (specify details)

Roadmap issue 2: PAN identifier

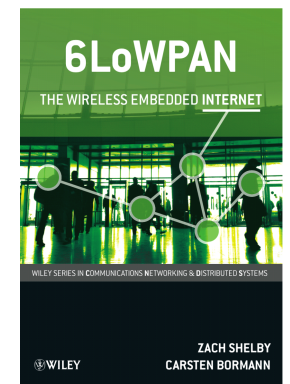
- RFC 4944 allows the use of PAN identifiers in interface IDs (IIDs) derived from 16-bit addresses
- This makes HC-15 less efficient
- Change: “Don’t do that, then”

Roadmap vs. LWIG

- Roadmap will stitch together and amend **normative specifications**
- Target: Standards Track
 - (unless obsoleted by fixing all base specs)
- **Not** focused on implementation techniques
- Techniques that should go into LWIG are e.g.:
 - 6LoWPAN Fragment forwarding
 - CoAP Token handling

LWIG technique 1: 6LoWPAN Fragment Forwarding Technique

- 6LoWPAN:
adaptation layer fragmentation can be needed
- Route-Over happens above adaptation layer
- Would have to reassemble at each hop
- Better:
 - Build cache entry on initial fragment
 - Forward initial fragment immediately
 - Forward each non-initial fragment based on cached IP header info



LWIG technique 2: CoAP Token Handling (?)

- CoAP: Tokens used for request-response matching in non-piggybacked responses
- Needs space in packet and node
- Better:
 - Use default value of 0 while not pipelining
 - Use non-zero values (or separate port numbers) with multiple outstanding requests
 - Document the rules that can minimize space used on both ends