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