Problem Statement and Requirements for a More Accurate ECN Feedback

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Reviews and Updates

Changes from -03 to -04

- Discussion on ECN Nonce
- Use Cases [new section]
  - Examples from introduction copied
  - Introductional text on ConEx and DCTCP
  - Added: Using CE for checking integrity
- Requirements [see next slides]
  - Extended: Accuracy, Integrity, and complexity
  - Added: Backward and forward compatibility
- Editorial changes...

→ Thanks to Bob Briscoe and Michael Welzl!

→ More Reviews are welcome! Or WGCL?

Open Issue: Naming

Proposals: full, complete, more detailed, more accurate, fine-grained...

Requirements

- **Resilience** (delayed ACK by two or more packets and ACK loss)
- **Timeliness** (feedback within one RTT)
- **Integrity** (misbehaving receiver or network node)
  - Should assure the integrity of the feedback at least as well as the ECN Nonce
  - But no requirement that the ECN Nonce mechanism must be employed to achieve this
- **Accuracy** (more than one congestion notification per RTT)
  - Should preserve the order at which any ECN signal
  - Should be able to reconstruct the occurrence of any of the four code points (CE, ECT(0), ECT(1), Not-ECT)

    → TODO: Make wording more explicit to require at least ECT(1) feedback
- **Complexity** (minimum state information)

  The receiver should not take assumptions about the mechanism that was used to set the marking nor about any interpretation or reaction to the congestion signal
- **Overhead** (no additional segments and overhead in each segment minimal)
- **Backward and forward compatibility** (negotiation and fallback to classic ECN)
  - Should aim to be able to traverse most existing middleboxes
  - Should be used asthe default feedback mechanism