Specifying Alternate Semantics for the ECN Field

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draft-floyd-ecn-alternates-02.txt
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November 2005
Status:

• Presented at August IETF.
• Approved to be a WG document.
• Discussion last time: BCP or Informational?
  – The goal is probably to be a BCP.
• I think this is ready for WG Last Call.
Changes from -01:

- Changed requirement for TCP friendliness, to a requirement of friendliness with IETF-conformant congestion control.

- Added to discussion of robustness to route changes.

- Added an explicit note that the ECN nonce is agnostic to the semantics of the other ECN codepoints, and could be used with alternate ECN semantics.
Viewgraphs from August 2005:
What is the problem?

1: How do routers know which ECN semantics to use with which packets?

2: Problems with incremental deployment?

3: For incremental deployment, co-existence with traffic using standard ECN?

4: Evaluating alternate-ECN semantics.
How do routers know?

• In most proposals, a diffserv field is used.
  – Out-of-band mechanisms have also been proposed.

• Note that RFC 3168 gives the default ECN semantics for all packets, regardless of the diffserv codepoint.

• Do all routers using the diffserv codepoint know that it indicates alternate ECN semantics?

• What if the diffserv codepoint is changed along the path?
Problems with incremental deployment?

• What if some routers along the path don’t understand the alternate ECN semantics?

How does the alternate-ECN traffic perform?
Co-existence with competing traffic (when some routers don’t understand the alternate-ECN semantics)?

• There are three possibilities:
  – 1: Unsafe in the global Internet; or
  – 2: Methods to guarantee that all routers along the path understand the alternate semantics; or
  – 3: Alternate ECN semantics can co-exist with routers using default ECN semantics.

  • E.g., if a default-ECN router sets the ECT codepoint, the alternate-ECN traffic responds appropriately.
Evaluation of alternate ECN semantics:

(In an environment where all routers understand the alternate ECN semantics.)

• 1: Is the **ECN nonce** used?
  – If not, is there some way to verify feedback from receiver?

• 2: **Co-existence with competing traffic** (when all routers along the path understand the alternate ECN semantics).

• 3: **General merits** of the alternate-ECN semantics?