Specifying Alternate Semantics for the ECN Field

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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?