

ECT(1) and the Internet

TSVWG Interim Meeting – Feb 20, 2020

David L. Black
(on behalf of the TSVWG Chairs)

Now this is not the end. It is not even the beginning of the end. But it is, perhaps, the end of the beginning.

-- Winston Churchill (1942)

The End of the Beginning

- TSVWG needs to make a decision about ECT(1) usage in the Internet
 - Core element of Issue #20 in the Issue Tracker
- TSVWG Chairs: Propose to make that decision in Vancouver (March)
 - But, what exactly is to be decided?
- The End of the Beginning: Agreeing on the decision to be made.

ECT(1): Agreeing on the Decision to be Made

- Next two slides: TSVWG Chairs attempt to state the decision
 - Goal of this Interim Meeting: Rough consensus on decision to be made
 - Non-goal of this Interim Meeting: Actually make the decision
- Vancouver meeting plan (in order):
 1. Begin with revised versions of next two slides
 2. L4S and SCE each present a few slides on best use of ECT(1) for the Internet
 - TSVWG Chairs set time & content guidelines, review and post in advance (1 week or more)
 3. TSVWG Chairs frame and moderate Vancouver meeting discussion
 4. A small miracle happens, and the decision is made (we hope)
- Now: Review next two slides for content
 - Do not attempt to make decision now.

DRAFT Vancouver SLIDE 1:

Framing the ECT(1) Codepoint Decision

Background: RFC 4774 “Specifying Alternate Semantics for the Explicit Congestion Notification (ECN) Field”

- RFC 4774 assumes DSCP as signal of alternate ECN semantics.
- TSVWG situation: Two proposals that use ECT(1) as that signal [L4S, SCE]

Decision: How ECT(1) signals alternate ECN semantics to network:

- A. Input, e.g., classifier for “queue” selection [L4S]
- B. Output, e.g., indication of lesser degree of “queue” congestion [SCE]

At Internet scope: Choose exactly one, not both.

DRAFT Vancouver SLIDE 2:

Friendly Coexistence with Competing Traffic

Both proposals [L4S, SCE] employ RFC 4774 Option 3 (section 4.3):

- Incremental Deployment Option 3: Friendly Coexistence with Competing Traffic
- Competing Traffic uses existing TCP congestion control, e.g., Reno, Cubic, etc.

Coexistence Focus: Shared bottleneck queue with ECN AQM [RFC 3168]

- FQ network nodes: No coexistence problems

Scenario: Traffic competition at shared bottleneck queue:

1. Starvation of one class of traffic is not an acceptable outcome.
 - a. Starvation may occur in network and/or at endpoints (e.g., caused by congestion response)
2. Competing Traffic drives bottleneck queue occupancy level.

Proposals need to explain how to deal with this scenario.