Guidelines for Adding Congestion Notification to Protocols that Encapsulate IP

draft-ietf-tsvwg-ecn-encap-guidelines-07
draft-briscoe-tsvwg-rfc6040bis-01

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Recap (1/2) draft-ietf-tsvwg-ecn-encap-guidelines-07

- Purpose of this BCP draft:
  - Guidelines on addition of explicit congestion notification (ECN) to protocols that encapsulate IP,
  - e.g. tunnels, lower layers

- Not straightforward
  - cross-organisation, cross-WG
    - IEEE: https://datatracker.ietf.org/liaison/1364/
    - 3GPP: https://datatracker.ietf.org/liaison/1424/
    - IETF: trill, nvo3, intarea (and previously mpls)
  - cross-layer
    - some lower layers have very different feedback structure
    - incremental deployment
      ECN propagation requires new logic in layer-egress and hosts
Recap (2/2)

Problem unique to ECN

- Both Diffserv (traffic class) and ECN have to propagate across layers
  - DS propagates 'requirements' down
  - ECN propagates...
    • ECN-capable transport (ECT) down
    • congestion experienced (CE) up

- ECN needs combination of inner and outer on decap
  - see [RFC6040] for IP-in-IP
draft-briscoe-tsvwg-rfc6040bis* (1/2)

- Recently split out parts that update PS RFCs from draft-ietf-tsvwg-ecn-encap-guidelines (BCP)
  - likely to be fast-tracked

- Problem: RFC6040 “Tunnelling of ECN”
  - scope was only IP-in-IP tunnels
  - unclear whether this includes IP-shim-IP

- 6040bis solely extends scope of RFC6040
  - to include 'tightly coupled shim'
    = shim added in same step as IP outer
  - “RFC 6040 SHOULD apply”
  - not MUST in case infeasible given structure of implementation

* Just an update, not a bis.
I didn't know that 'bis' is an IETF reserved word for a complete replacement.
If adopted, I'll use a different file-name.
draft-briscoe-tsvwg-rfc6040bis (2/2)

- rfc6040bis updates a number of PS tunnel specs (if approved)
  - RFC6040 ECN tunnelling (solely to widen scope)
  - RFC1701; RFC2784: GRE; RFC7637: NVGRE
  - RFC2661: L2TPv2; RFC3931: L2TPv3
  - RFC2637: PPTP
  - Includes non-IETF specs with same structure that will need to be updated:
    - [GTPv1], [GTPv1-U], [GTPv2-C] GPRS Tunnelling Protocol (3GPP)
    - RFC7348: VXLAN

- aim:
  - if spec/implementation is being modified add RFC6040 support too

- rfc6040bis also lists specs that already require RFC6040 support
  - [draft-ietf-nvo3-gue] STD track Generic UDP Encapsulation
  - [draft-ietf-nvo3-geneve] STD track Geneve
Next steps

• **draft-ietf-tsvwg-ecn-encap-guidelines-07**
  - review from intarea / nvo3 please
  - comprehensibility? gaps?

• **draft-briscoe-tsvwg-rfc6040bis**
  - review from intarea / nvo3 please
  - is the list of tightly coupled shim specs complete?
  - would implementing RFC6040 with any of the listed tunnelling protocols present problems?