Guidelines for Adding Congestion Notification to Protocols that Encapsulate IP
(draft-ietf-tsvwg-ecn-encap-guidelines-07)

Bob Briscoe (Simula Research Lab)
John Kaippallimalil (Huawei)
Pat Thaler (Broadcom)

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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-layer
  - some lower layers have very different feedback structure
  - incremental deployment
    ECN propagation requires new logic in layer-egress and hosts

- cross-organisation
  - IEEE: https://datatracker.ietf.org/liaison/1364/
  - 3GPP: https://datatracker.ietf.org/liaison/1424/
recent activity

• 3GPP liaison – two outcomes:
  • 3GPP specs mandate ECN marking where PDCP header has no ECN field
    – 3GPP-specific example added to Section 6 “Feed-Up-and-Forward Mode”
  • Misunderstanding of AQM marking as on/off (for VoLTE only)
    – Ought we to send a final formal liaison, giving pointers to advice?

• draft-ecn-encap-guidelines
  • Split out updates to ECN tunnelling [RFC6040] into separate draft
    • intended, proposed standard – see next slide
  • Closed off all open issues
draft-briscoe-tsvwg-rfc6040bis*

- Problem: RFC6040 “Tunnelling of ECN”; scope was all IP-in-IP tunnels
- 6040bis extends scope of RFC6040; to include 'tightly coupled shim' added in same step as IP outer
  - “RFC 6040 SHOULD apply”
  - not MUST in case infeasible given structure of implementation
- updates a number of PS tunnel specs (if approved)
  - RFC6040 ECN tunnelling
  - 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
  - Also lists specs in progress that already cite RFC6040
    - [draft-ietf-nvo3-gue] STD track Generic UDP Encapsulation
    - [draft-ietf-nvo3-geneve] STD track Geneve

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* 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.
1. Introduction: Added to list of examples of tightly coupled shims between IP headers

5.1. IP-in-IP Tunnels with Tightly Coupled Shim Headers
   - Replaced normative text with ref to new draft-briscoe-tsvwg-rfc6040bis

5.2. Wire Protocol Design: Indication of ECN Support: Added TRILL as an example of a
well-design protocol that does not need an indication of ECN support in the wire
protocol – see [draft-eastlake-trill-ecn-support]

Encapsulation Guidelines: In the case of a Not-ECN-PDU with a CE outer, replaced
SHOULD be dropped, with explanations of when SHOULD or MUST are appropriate

Feed-Up-and-Forward Mode: Explained examples more carefully, referred to PDCP
and cited UTRAN spec as well as E-UTRAN

Added the people involved in liaisons to the acknowledgements

Updated references

Marked open issues as resolved, but did not delete Open Issues Appendix (yet)
Next steps

- Finalise liaison with 3GPP?
- WGLC ecn-encap draft … please
- draft-briscoe-tsvwg/rfc6040bis
  - adopt and fast-track? … please
  - same as when it was in tunnel section of ecn-encap
  - just a different container