

# 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

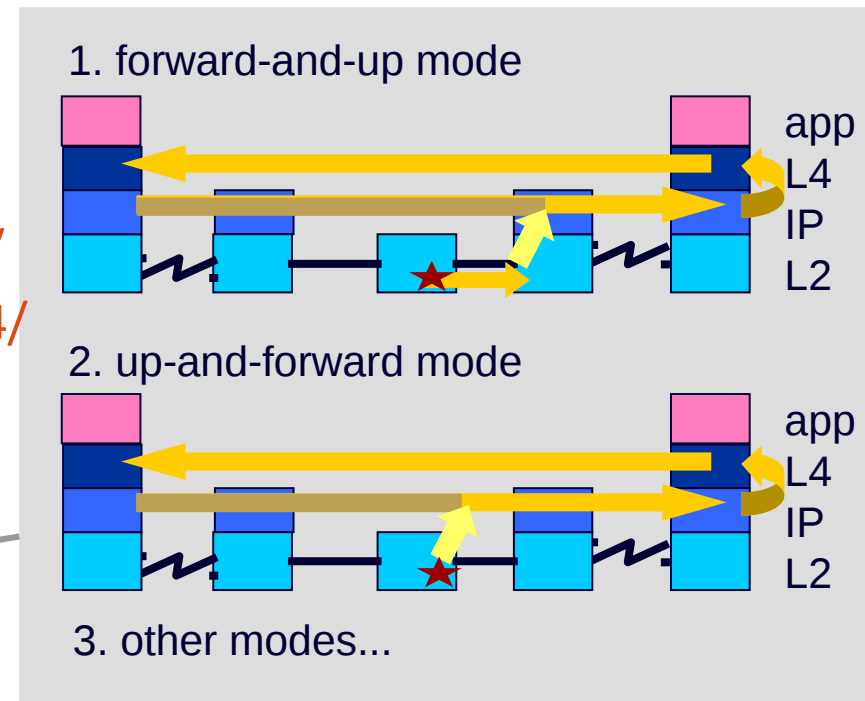
- IEEE: <https://datatracker.ietf.org/liaison/1364/>
- 3GPP: <https://datatracker.ietf.org/liaison/1424/>
- IETF: trill, nvo3, intarea (and previously mpls)

- cross-layer

- some lower layers have very different feedback structure

- incremental deployment

ECN propagation requires new logic in layer-egress and hosts

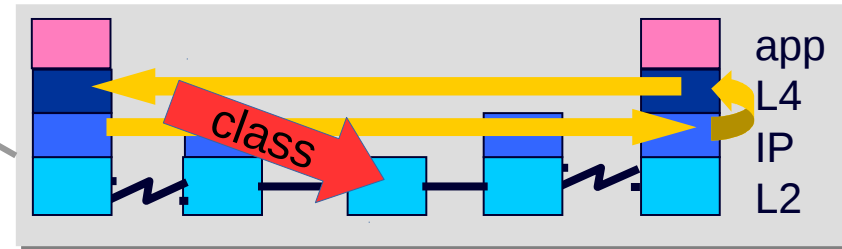


# Recap (2/2)

## Problem unique to ECN

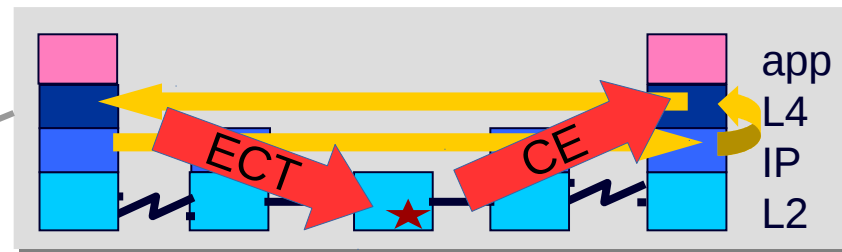
- Both Diffserv (traffic class) and ECN have to propagate across layers

- DS propagates 'requirements' down



- ECN propagates...

- ECN-capable transport (ECT) down
- congestion experienced (CE) up



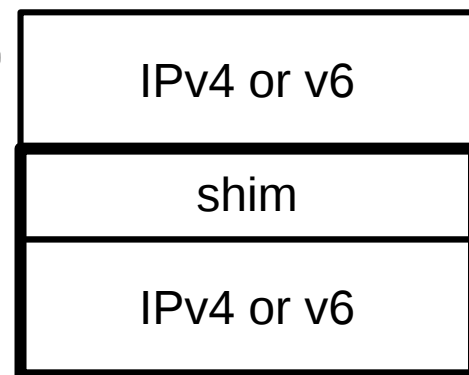
- ECN needs combination of inner and outer on decap

- see [RFC6040] for IP-in-IP

incoming inner	incoming outer			
	Not-ECT	ECT(0)	ECT(1)	CE
Not-ECT	Not-ECT	Not-ECT	Not-ECT	drop
ECT(0)	ECT(0)	ECT(0)	ECT(1)	CE
ECT(1)	ECT(1)	ECT(1)	ECT(1)	CE
CE	CE	CE	CE	CE
Outgoing header				

# draft-briscoe-tsvwg-rfc6040bis\* (1/2)

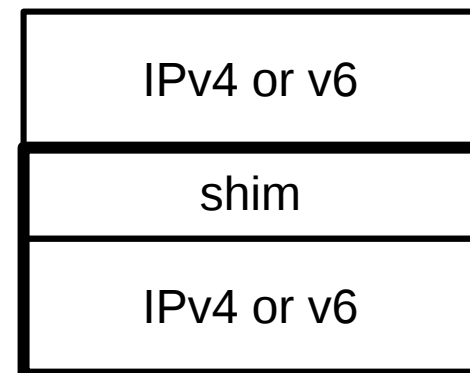
- Recently split out parts that update PS RFCs from draft-ietf-tsvwg-ecn-encap-guidelines (BCP)
  - likely to be fast-tracked
- Problem: RFC6040 “Tunnelling of ECN”
  - scope was only IP-in-IP tunnels
  - unclear whether this includes IP-shim-IP
- 6040bis solely extends scope of RFC6040
  - to include '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?