Propagating ECN across IP tunnel
Headers Separated by a Shim

draft-ietf-tsvwg-rfc6040update-shim-04

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Problem #1

- RFC6040 “Tunnelling of ECN”; scope was all IP-in-IP tunnels
- 6040bis clarifies that scope of RFC6040 includes cases with shim
  - most feasible to propagate ECN if shim 'tightly coupled'
    (added in same step as IP outer)
- Standards track, so it can update standards track
  RFC6040 and shim tunnel RFCs
# Survey of IP-shim-(L2)-IP encaps

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<th>Protocol</th>
<th>RFC</th>
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<th>NOK: 6040shim updates</th>
<th>NOK: non-IETF: update recommended</th>
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Updates text for standards track tunnel RFCs

- General ACKs: Alia Atlas for helping to widen then narrow the list
  Tom Herbert, Joe Touch and Mohamed Boucadair

- L2TPv2 & L2TPv3
  - discussed at length on l2tpext list
  - ACK: Carlos Pignataro and Ignacio Goyret
  - written update text to refer to RFC 6040
  - defined and written IANA registry text for L2TP attribute-value-pair (AVP) for tunnel initiator to agree ECN capability with remote tunnel endpoint

- GRE
  - update text refers to RFC 6040
  - no response to questions on int-area list
  - “is it true that there are no automated GRE tunnel set-up protocols?”

- Teredo
  - update text refers to RFC 6040
  - ACK: Praveen Balasubramanian (Christian Huitema was original author, but just left company)
  - open question on tunnel setup – resolution in progress
Problem #2: unique to ECN

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

- forwarded ECN constructed from inner and outer on decap [RFC6040]

- If ECN decap behaviour absent, encapsulation MUST zero ECN outer
Compliance requirement for non-RFC6040 implementations!

• Written as an operator config requirement
  • if decap does not, or might not, propagate ECN to RFC 6040 (or equiv), if possible, the operator MUST configure the ingress to zero the outer ECN field

• Prerequisite implementation requirement
  • Config of ECN encap MUST be independent from DSCP encap

• Added text updates RFC 6040, and shim tunnel RFCs
Status and Next Steps
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- 4 revs in last IETF cycle
- Milestone: WGLC Sep 2017
- Been pushing to meet that, still feasible

- Await comments on Thu from int-area heads-up
- Teredo open issue: mtg next week to close off