

Propagating ECN across IP tunnel Headers Separated by a Shim

draft-ietf-tsvwg-rfc6040update-shim-06

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Exec Summary

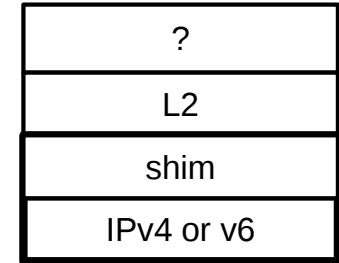
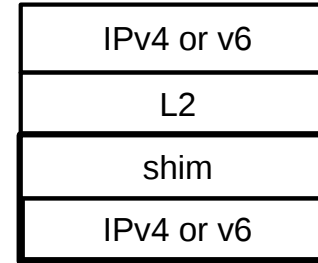
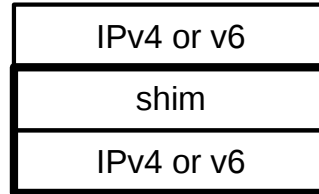
- draft-ietf-tsvwg-rfc6040update-shim-06
 - socialization and content completed
- draft-ietf-tsvwg-ecn-encap-guidelines-10
 - ready to go forward together

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Addresses 2 Problems with “Tunnelling of ECN” [RFC6040]

1) Scope omitted shims

- IP-IP tunnels, but not IP-shim-(L2)-IP

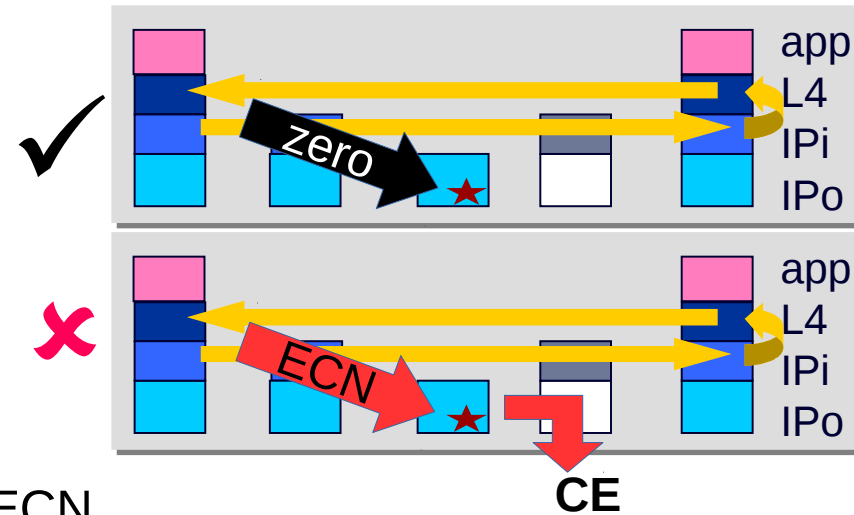


↓
outer

2) If decap non-ECN or unknown, encap MUST zero ECN outer

- How to require this, without making all pre-existing encaps non-compliant?
- RFC6040 did not take a position
- rfc6040update-shim says (paraphrasing):

“if decap does not, or might not, propagate ECN, if possible, **the operator** MUST configure the ingress to zero the outer ECN field”



Survey of IP-shim-(L2)-IP encaps

Protocol	RFC	STDs or widely deployed	AOK	NOK: 6040shim updates	NOK: non-IETF: update recommended
Geneve	nvo3-geneve	✓	✓		
GUE	intarea-gue	✓	✓		
SFC	7665	✓	N/A?		
VXLAN	7348	✓			✓
VXLAN-GPE	nvo3-vxlan-gpe	✗			
LISP	6830	✓	✓		
CAPWAP	5415	✓	✓		
Teredo	4380	✓		✓	
GTP	v1, v1U,v2C	✓			✓
GRE	2784	✓		✓	
NVGRE	7637	✓		↑	
(P)MIP{4 6}	5944,6275,5845	✓		✗	
L2TPv3	3931	✓		✓	
L2TPv2	2661	✓		✓	
PPTP	2637	✗			
NSH	8300	✓		✗ ⇨ new draft	

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Intended to update numerous PS tunnel RFCs

- Standards track, so it can update standards track RFCs
 - Updates: 6040, 2661, 2784, 3931, 4380, 7450 (if approved)
- Comprehensive scope
 - across widely deployed shim tunnel protocols
- Exceptions
 - (Proxy) Mobile IP {v4|v6}
 - decided to drop – attempt to co-opt expertise passed cut-off
 - Network Services Header (NSH) for Service Function Chaining
 - NSH shim just published [RFC8300] – ECN support omitted (sigh)
 - Approached the WG at architecture stage “cross-layer not part of SFC arch”
 - Proposed fix posted 5 Mar 18: draft-eastlake-sfc-nsh-ecn-support-00

déjà vu all over again

- Including ECN in new encaps / decaps
 - from the start: trivial
 - later: messy incremental deployment arrangements
- New encaps likely to repeat this sorry process
 - until ECN becomes critical to operators

Status and Next Steps

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- Content Development & Socialization:
 - **Complete**
- Guidelines for Adding ECN to Protocols that Encapsulate IP
 - Similar, but for when encapsulating non-IP (L2)
 - Intended Status: Best Current Practice
 - **Complete**: Updated for consistency with rfc6040update-shim
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- Both ready to go forward together