ECN++: Adding Explicit Congestion Notification (ECN) to TCP Control Packets
draft-ietf-tcpm-generalized-ecn-05

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ECN++ Recap

TCP packet type	RFC3168	ECN++ [draft-ietf-tcpm-generalized-ecn-05]		
		AccECN f/b negotiated	RFC3168 f/b negotiated	response to congestion experienced (CE)
SYN[1]	not-ECT	ECT	not-ECT[3]	[2]Reduce IW
SYN-ACK	not-ECT	ECT	ECT	Reduce IW
Pure ACK	not-ECT	ECT	not-ECT	[2] "Usual" cwnd response & MAY AckCC [RFC5690]
Window probe	not-ECT	ECT	ECT	Usual cwnd response
FIN	not-ECT	ECT	ECT	None or MAY AckCC [RFC5690]
RST	not-ECT	ECT	ECT	N/A
Re-XMT	not-ECT	ECT	ECT	Usual cwnd response
Data	ECT	ECT	ECT	Usual cwnd response

NEW →

[1] For SYN, 'negotiated' means requested
[2] Obviously only in AccECN case
[3] **ECT if IW1 (client → server)**

Status

Thorough review from Michael Scharf, resulted in numerous changes in v5.

Clarifications (support for servers that use IW of 1 MSS), rewordings, justification of design choices, rearrangment of contents in new subsections (new L4S subsection, grouping all L4S related information), clarified terminology (s/legacy TCP/non L4S enabled TCP), added references (RFC2140 and others), moved references between normative and informative.

See next

ECN Support in SYN pkts

v04 - ECT could be set in SYN pkst only if AccECN was negotiated

3 types of servers supported: AccECN servers, non-ECT servers, classic ECN servers i.e. not possible for ECT SYNs with RFC3168 servers.

Rationale: support of ECT SYNs require to be able to respond to CE SYNs, not worthwhile to allocate one TCP header bit to convey ECE of the SYN for RFC3168 servers.

v05 - ECT can be marked in the SYNs with RFC3168 servers as long as the client reduces the IW to 1 MSS i.e. assumes worth case (CE in the SYN) and reacts

NOT RECOMMENDED due to the performance penalty.

Also, includes the possibility of ECT SYNs for future CE feedback mechanisms

Next steps

Elaborate the security considerations section, some additional mostly editorial comments from Michael response to our response -> v06

We expect v06 to be ready fro WGLC.

Looking for comments and further reviews.