

A Unified Control Channel for Pseudowires

draft-ietf-pwe3-vccv-for-gal

Issues and questions raised by
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De-Conflation

- There are four PW OAM topics under discussion
 1. GAL for PW
 2. Default CC type
 3. Deprecating CC Type 2
 4. VCCVbis
- I propose that:
 - We focus this draft on 1 and/or 2
 - That another draft deals with 3 and/or 2
 - That 4 is a problem that we can only address after 1..3 are dealt with, and will take much longer.

ECMP recap

- Consider two LSP environments P2P and MP2P
- P2P (MPLS-TP & RSVP-TE) LSP are unconditionally ECMP safe.
- In MP2P (LDP) environments there are many deployed LSRs that ECMP based on “a few” of the bottom labels.
- LSRs that support RFC6790 (which neutralize effect of imposing GAL and make them ECMP safe) are not universally deployed.
- CC Type 1 (ACH) is unconditionally ECMP safe.
- CC Type 4 (GAL) whilst ECMP safe in pure RFC6790 networks is not ECMP safe in legacy MP2P networks.

The Default

- We are writing this to:
 - Introduce a default CC type
 - Reduce the number of CC types
 - Unify MPLS OAM indication
- Given the impact on ECMP safety and stack size*
 - Should Type 1 (ACH) or Type 4 (GAL) be the default, mandatory to implement CC type?
 - Should the answer be LSP type dependent?
 - In practice does this draft reduce or increase the number of CC types?
 - If increase, is that OK?

*Assuming CW:

Type1 = {0,1} labels (OAM, OAM+FAT),

Type4 = {1,2,3} labels (OAM, OAM+FAT, OAM+ELI+EL)

GAL and FAT

- LSP
- PW
- FAT
- GAL

Preserves the operation “if FAT
PW discard next”

Needs a minor change to FAT
defn (before it after PW implied
BOS). Keeps GAL BOS.



- LSP
- PW
- GAL
- FAT

Keeps FAT at BOS but needs new
specification for GAL and FAT
stack positions.



EL and GAL

- If we use EL and GAL, candidate stacks are:
 - LSP
 - ELI
 - EL
 - PW
 - GAL
 - LSP
 - PW
 - ELI
 - EL
 - GAL
- LSP
 - GAL
 - PW
 - ELI
 - EL

Left – No change to GAL, associates EL with LSP which controls the ECMP choice - LSP layer knows if EL removal supported

Mid – No change to GAL – The PW knows whether it is ECMP safe and can support EL removal – a tentative ✓

We could also use LSP, PW, GAL, ELI, EL a less tentative ✓

Right – Changes GAL otherwise same as Mid.

TTL

- Current text:
 - “When the PW is a single segment PW, the TTL field of the PW Label Stack Entry (LSE) SHOULD be set to 1.”
- When writing RFC3985 TTL=1 was problematic hence:
 - “When a MPLS label is used as a PW Demultiplexer, setting of the TTL value [[RFC3032](#)] in the PW label is application specific.”
- RFC5085 says:
 - Type 3: MPLS PW Label with TTL == 1
- So, I think we have to have TTL = 2, maybe 3 due to some legacy implementations

Anything else?

- Assuming there is time, are there any other issues that need to be addressed in the next version?