

MPLS Special Purpose Labels

draft-kompella-mpls-special-purpose-labels-01

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Two Things

- Making the new name “special purpose labels” official, and listing relevant RFCs
- What about extended special purpose labels in the range 0-15?

A Rose by any other Name (would smell as special)

1. Renaming “reserved” labels to “special purpose” labels
 - IANA uses “reserved” in a different way
 - Many RFCs use the term “reserved” labels
 - State that this doc updates those RFCs
 - May help reduce confusion and maybe help evangelize the new term
- Loa has gone through this exercise
 - Renaming of “EXP field” to “TC field”

Extra Special Special Purpose Labels

2. Some reserved special purpose labels have meanings independent of where they are in the stack
 - For others, it may be convenient to assume this to avoid breaking existing implementations or to simplify implementations
- Labels to consider here: ELI, RA, GAL, OAM, Explicit Null

Extra Special Special Purpose Labels

- The Entropy Label Indicator (ELI) label (7) may occur anywhere in the stack
 - RFC 6790 says one may search through the stack looking for this label, and use the next label as the Entropy label (to use for load balancing)
 - Doesn't say anything about being after label 15!
- The ELI **MUST** retain its meaning independent of whether or not the preceding label is the extension label (15)

Extra Special Special Purpose Labels

- RFC 4182 effectively states that Explicit Null labels (0, 3) may occur anywhere in the stack
 - Used to be legal only at bottom-of-stack
- If an explicit null label bubbles to the top of stack, it should be popped
- Should explicit labels retain their meaning even if they occur after the extension label?
 - In theory, not necessary
 - In practice, need to look at implementations

Extra Special Special Purpose Labels

- GAL label (RFC 5586)
 - “Upon reception of the labeled packet, the targeted destination, after having checked both the LSP Label and GAL LSEs fields, SHOULD pass the whole packet to the appropriate processing entity.”
- OAM label (RFC 3429)
- Do current implementations look through the label stack searching for the GAL/OAM label?

Extra Special Special Purpose Labels

- Router Alert labels
 - Do current implementations look through the label stack searching for the RA label?
 - Or only act on it them when they bubble to the top of stack?

Proposed Solution

- When the extended label is defined, pre-reserve some of the non-extended special purpose labels
 - State that they retain their meaning even as extended special purpose labels
 - State that label 15 is not legal after label 15
- When a new non-extended special purpose label (0-15) is defined, check if necessary to pre-reserve same value in the extended space

Publish it already?

- Or maybe make it a WG doc first?