Extensions to RSVP-TE for LSP Ingres s Local Protection

draft-ietf-teas-rsvp-ingress-protection-05

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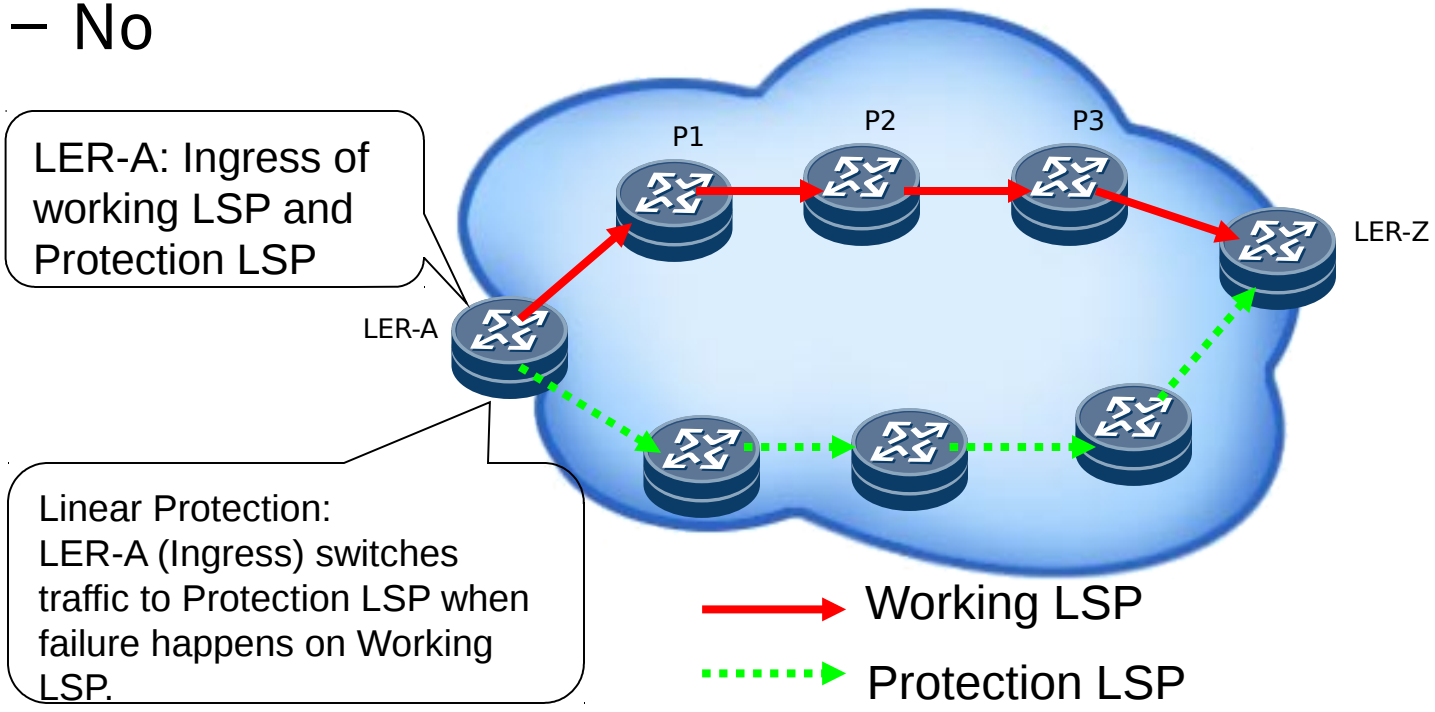
Contents

- Address some comments
- Problem Summary
- Objectives and Scope

Address comments

- For ingress and backup ingress not adjacent

  Configure a tunnel between primary ingress and back up ingress if they are not one hop away
- Can Linear Protection protect ingress of LSP?
  - No



Problem Summary

- Need for fast, efficient protection for ingress of LSP (P2MP or P2P LSP)
- Existing solution: Two end to end P2MP/P2P LSPs
  - Consumes lots of network resources (Double states need to be maintained in the network since two end to end TE LSPs are created. Double link bandwidth is reserved and used when both the primary and the secondary end to end TE LSPs carry the traffic at the same time)
  - More operations (configurations of two end to end TE LSPs and BFDs from each of the egress nodes to its corresponding ingress node)
  - Detection of ingress failure may not be reliable
  - Speed of protection against ingress failure may be slow

Objectives and Scope

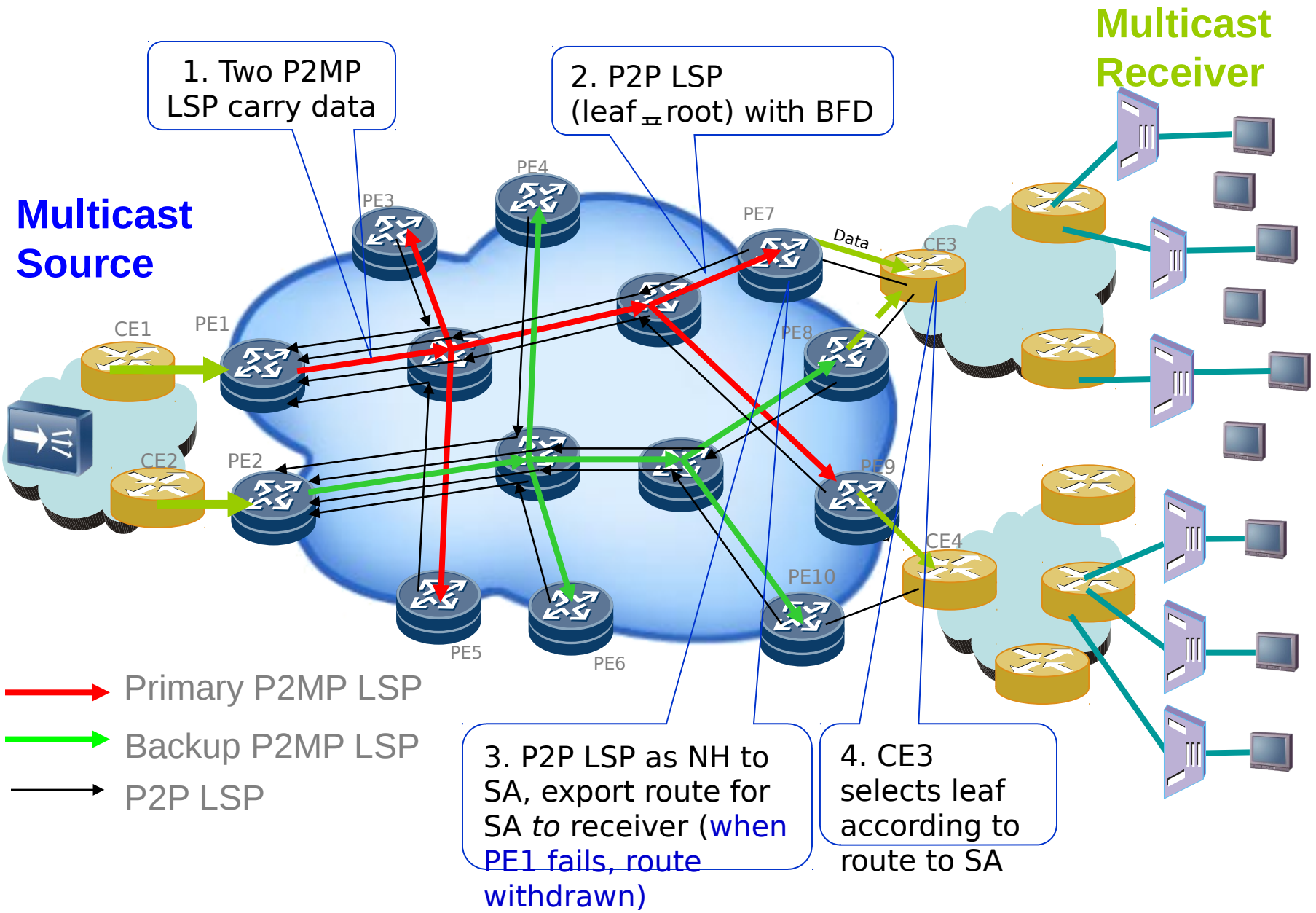
- Objectives
  - Fast protection for ingress
    (minimize traffic interruption when ingress fails)
  - Efficient protection for ingress
    (minimize usage of network resources, including m emory for states and link bandwidth)
  - Simple operations

- Scope
  - Local Protection/Repair for Ingress
  - (Not end to end protection)
  - (Not for links attached to ingress)

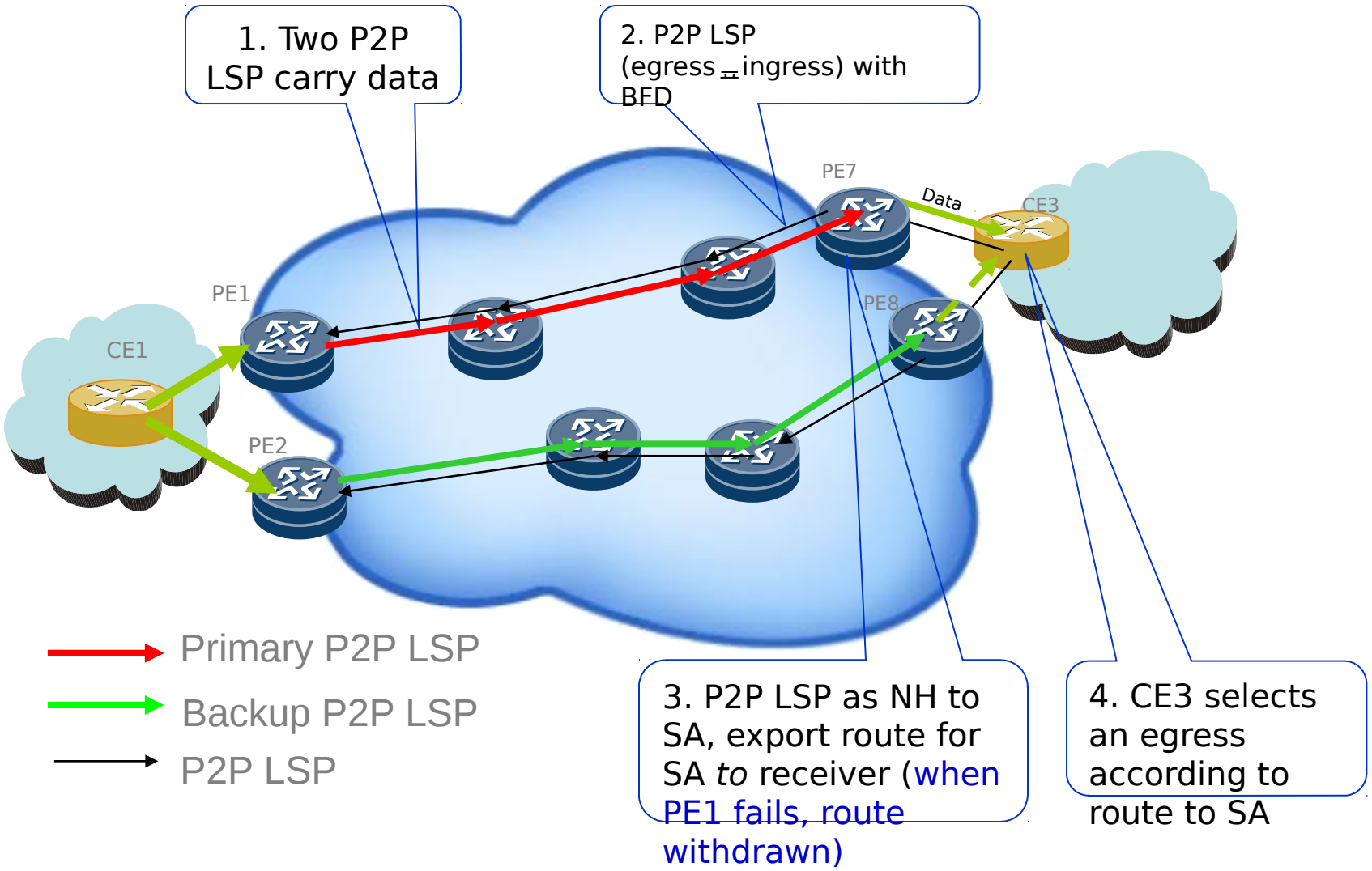
Thanks

- Any comments?

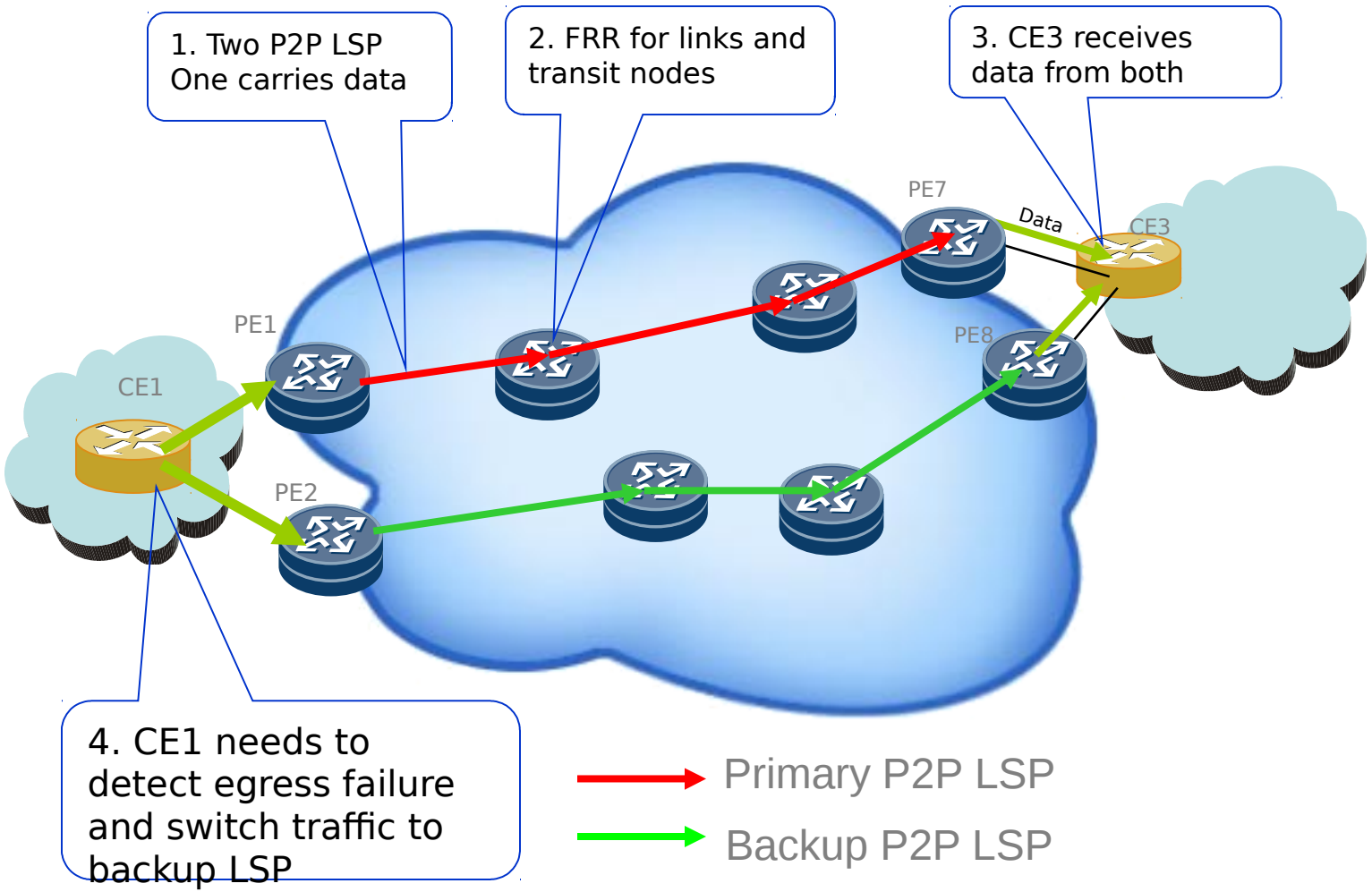
Existing P2MP LSP Ingress & Egress Protections



P2P LSP Ingress & Egress Protections



P2P LSP Ingress & Egress Protections



Extensions to RSVP-TE for LSP Egress Local Protection

draft-ietf-teas-rsvp-egress-protection-04

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Contents

- Re-use and extend SERO (to replace EGRESS_BACKUP object)
- Enhance on operations

Re-use and Extend SERO

Secondary Explicit Route object (SERO) in RFC 4873

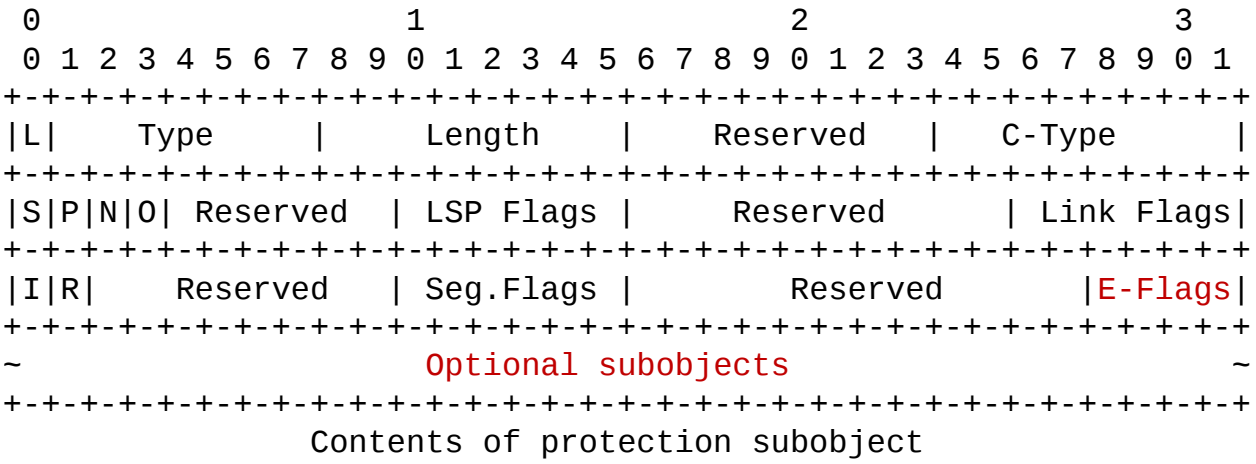
- Its format is re-used
- Some contents are extended/changed

SERO in RFC 4873
Branch node subobject
Protection subobject
Merge node subobject

SERO for egress protection
Branch node subobject (PH of egress)
Protection subobject extended
Backup egress node subobject

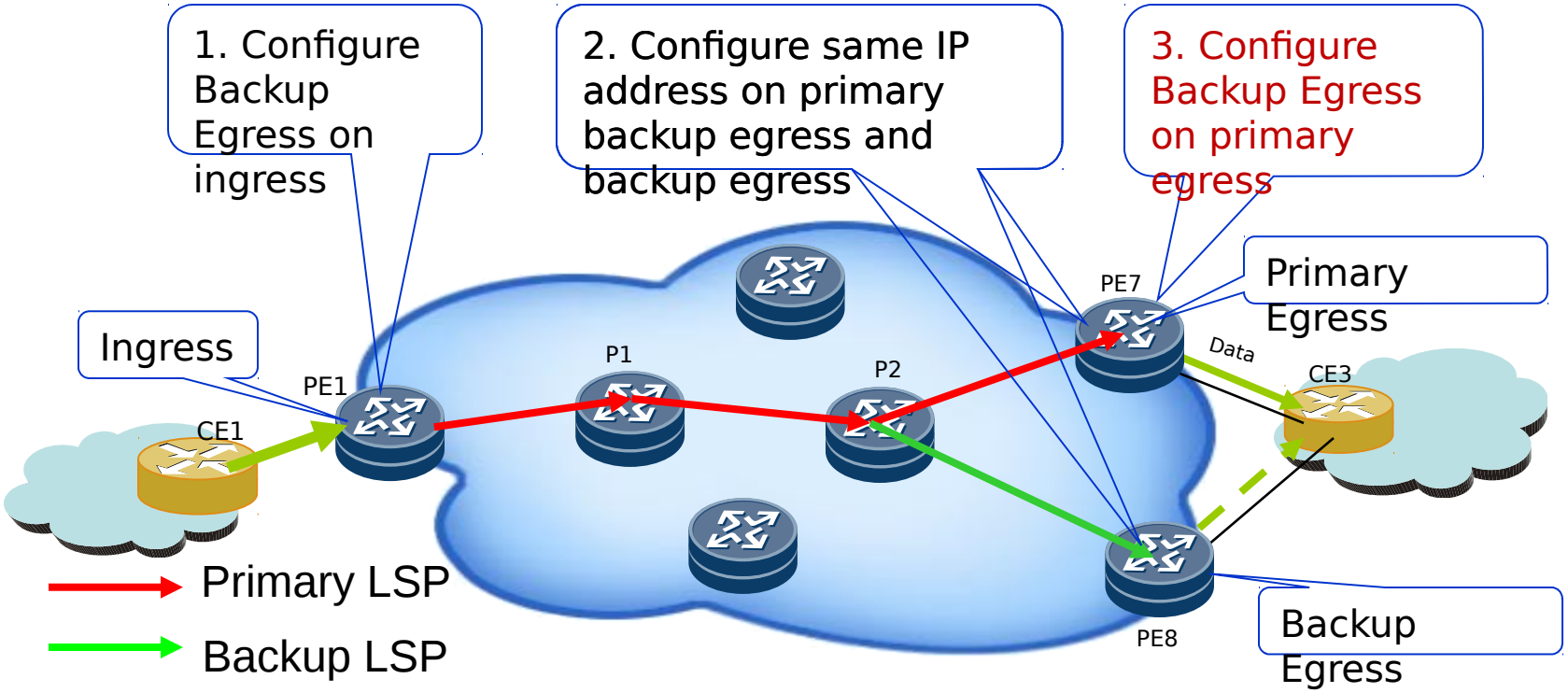
Contents of protection subobject is extended below

(PROTECTION object is extended in same way)



Contents of protection subobject

Enhance on Operations



Only one of three configurations is used (1 and 2: existing, 3: new)

- For 1, SERO w/ PE8 in Path to P2, creating backup LSP from P2 to PE8
- For 2, P2 determines backup egress PE8, creates backup LSP to PE8
- For 3, SERO w/ PE8 as backup egress in Resv to P2 from PE7, P2 creates backup LSP from P2 to PE8.

Thanks

- Any comments?

E-Flags and Optional Subobjects

E-Flags:

x01: Egress local protection

x02: Other sending UA label (existing in previous version)

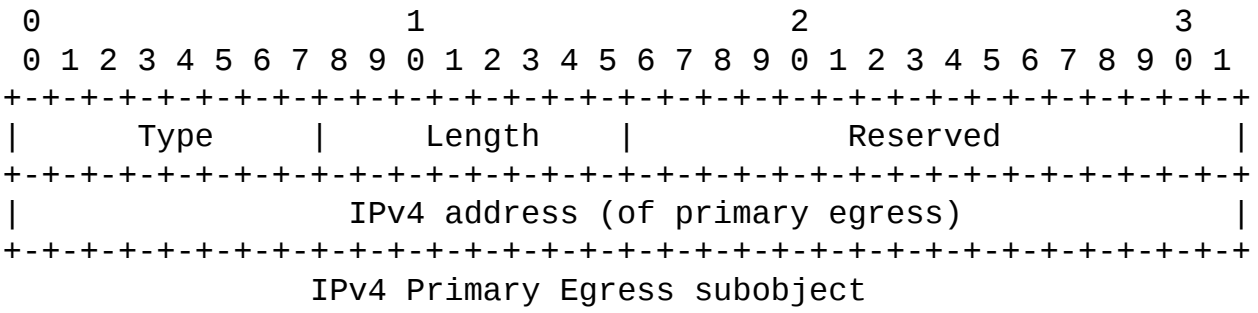
X04: S2L sub LSP backup desired (existing)

Optional Subobjects:

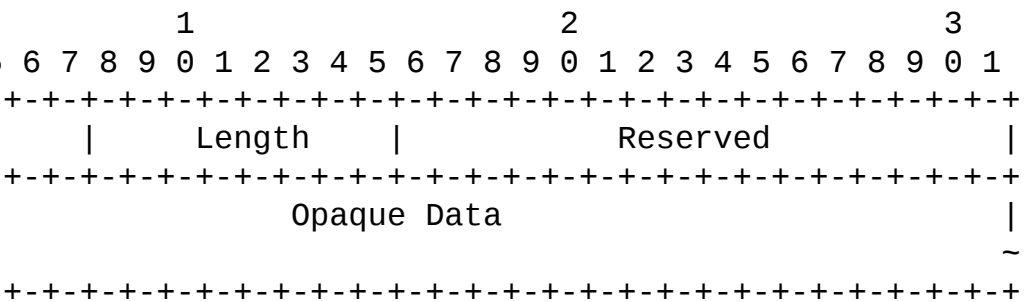
Primary Egress

P2P LSP ID (Existing in previous version)

Opaque Data (Generalized from previous version)



IPv4 Primary Egress subobject



Opaque Data subobject