

# Extensions to PCEP for Backup Ingress and Egress of LSP

draft-chen-pce-compute-backup-ingress-01

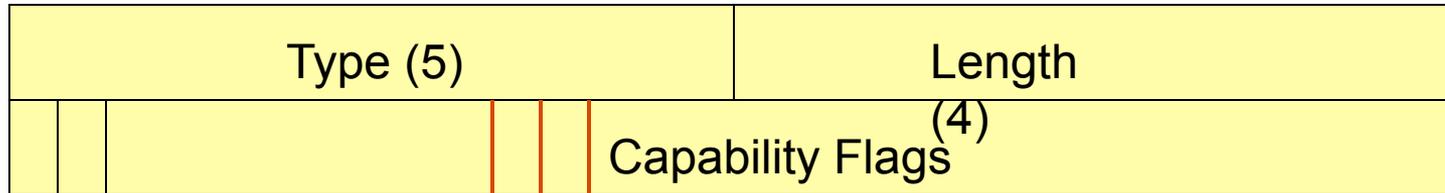
draft-chen-pce-compute-backup-egress-01

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# Overview

- Suggested the options for capability flags in 01
- Backup Ingress & Egress Capability Advertisement
  - ◆ Capability TLV in PCE Discovery
  - ◆ A Optional TLV in Open Message
- Request and Reply Message Extension
  - ◆ RP Object Extension
  - ◆ External Source Node Object
  - ◆ External Destination Nodes Object

# Capability TLV in PCE Discovery

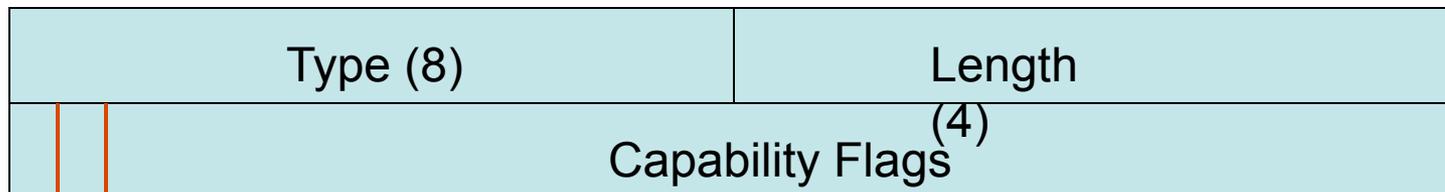


- Two flags for backup ingress/egress: one for backup ingress/egress of P2MP LSP, another for backup of P2P LSP

bit

- 11/13 Backup ingress/egress computation for P2MP LSP
- 12/14 Backup ingress/egress computation for P2P LSP

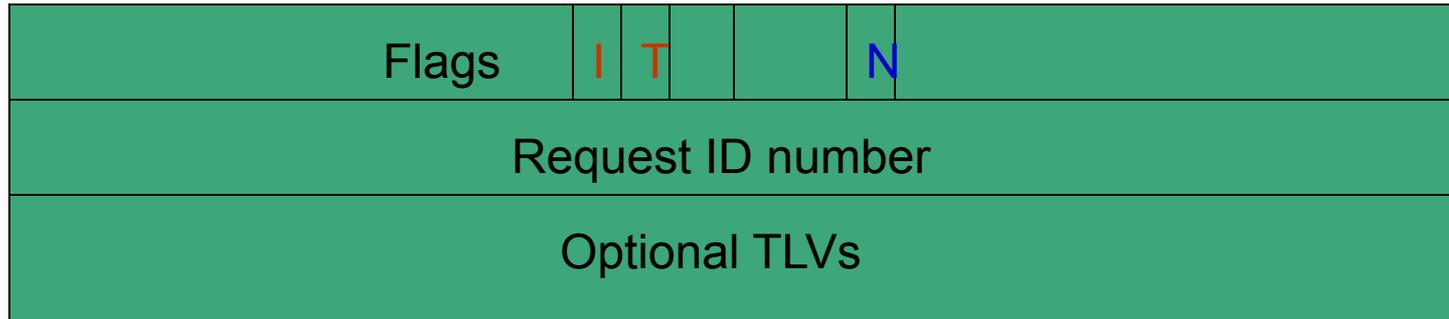
## A Optional TLV in Open Message



- ◆ **Similar to above.** Two flags for backup ingress/egress: one for backup ingress/egress of P2MP LSP, another for backup of P2P LSP

# RP Object Extension

## ➤ RP Object Body:



**I/T** (backup **I**ngress/**T**ail) bit is added in flags:

0: Not PCReq/PCRep for backup ingress/egress

1: PCReq/PCRep for backup ingress/egress

**I** with **N**:

**I**=1 & **N**=1: PCReq/PCRep for backup ingress/egress of P2MP LSP

**I**=1 & **N**=0: PCReq/PCRep for backup ingress/egress of P2P LSP

# External Source/Destination Node (ESN/EDN) Object

## ➤ ESN Object Body (object-type 1 for IPv4)

External source node IPv4 address (4 bytes)
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## ➤ EDN Object Body (object-type 1 for IPv4)

Encode of External Destination Nodes (2)
Egress IPv4 address
External Destination IPv4 address
Egress IPv4 address
External Destination IPv4 address
.....
Egress IPv4 address
External Destination IPv4 address

# Next Step

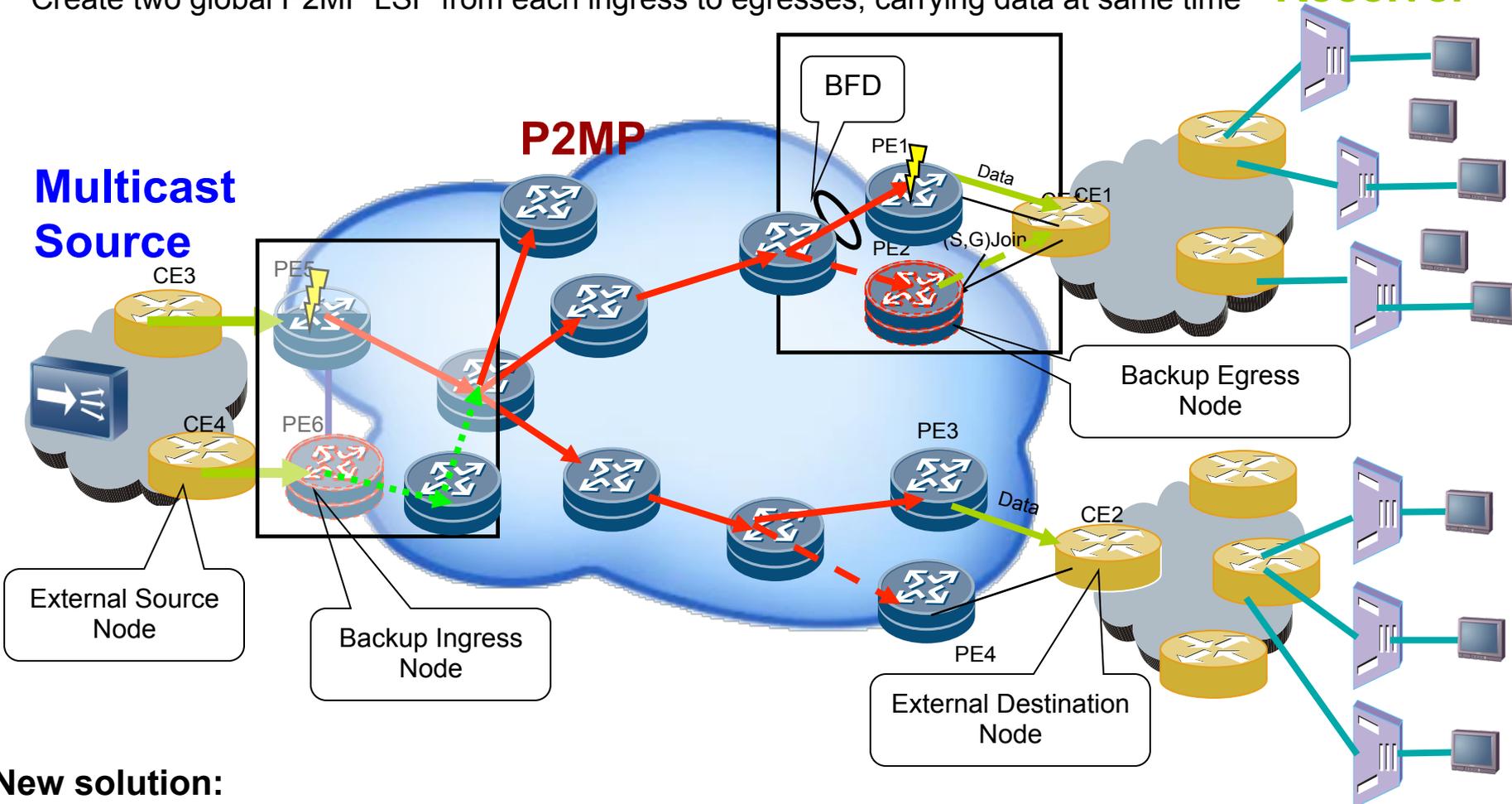
- Welcome comments
- Request to make it into a working group document

# P2MP LSP Ingress & Egress Local Protection

**Existing solution:** double ingress and every egress

Create two global P2MP LSP from each ingress to egresses, carrying data at same time

**Multicast Receiver**



**New solution:**

**One P2MP LSP for all: Every part locally protected**

**Big resource saving, Faster failure recovery**

→ P2MP LSP

→ Backup LSP