

PCEP Extensions for MPLS-TE LSP protection with stateful PCE

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Introduction

- Protection is important component of MPLS-TE network
- PCE-Stateful defines basic mechanism and extensions to provision primary LSPs
- This draft defines provision protecting TE-LSPs via PCE-Stateful
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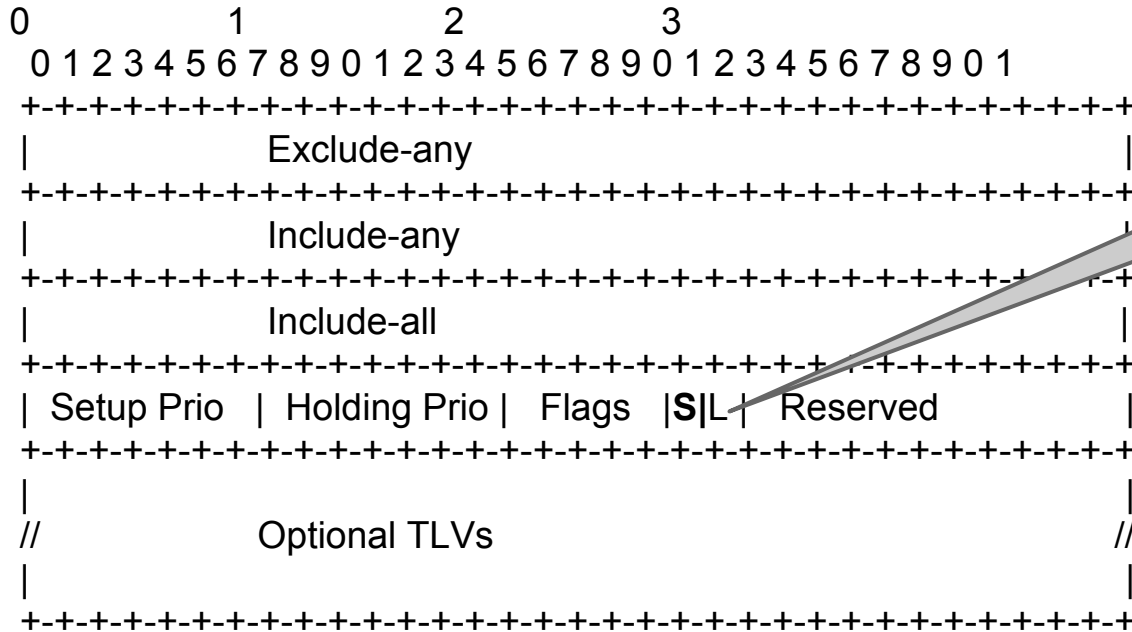
Overview

- **Global Default restoration**
 - PCE Indicates desire for secondary LSP
 - PCC computes secondary path, reports it back to PCE
- **Global Path Protection**
 - Standby
 - Non-Standby
- **Local protection**
 - Bypass or Facility backup

PCE Provisioned Path Protection

- Ingress based switchover when ingress detects primary LSP failure
- Few additional information required
 - Stanby or Not
 - Priority
- Priority defines PCE's preferred paths to swtichover
 - Weight TLV indicates PCE is preference

Path Protection - Standby LSP

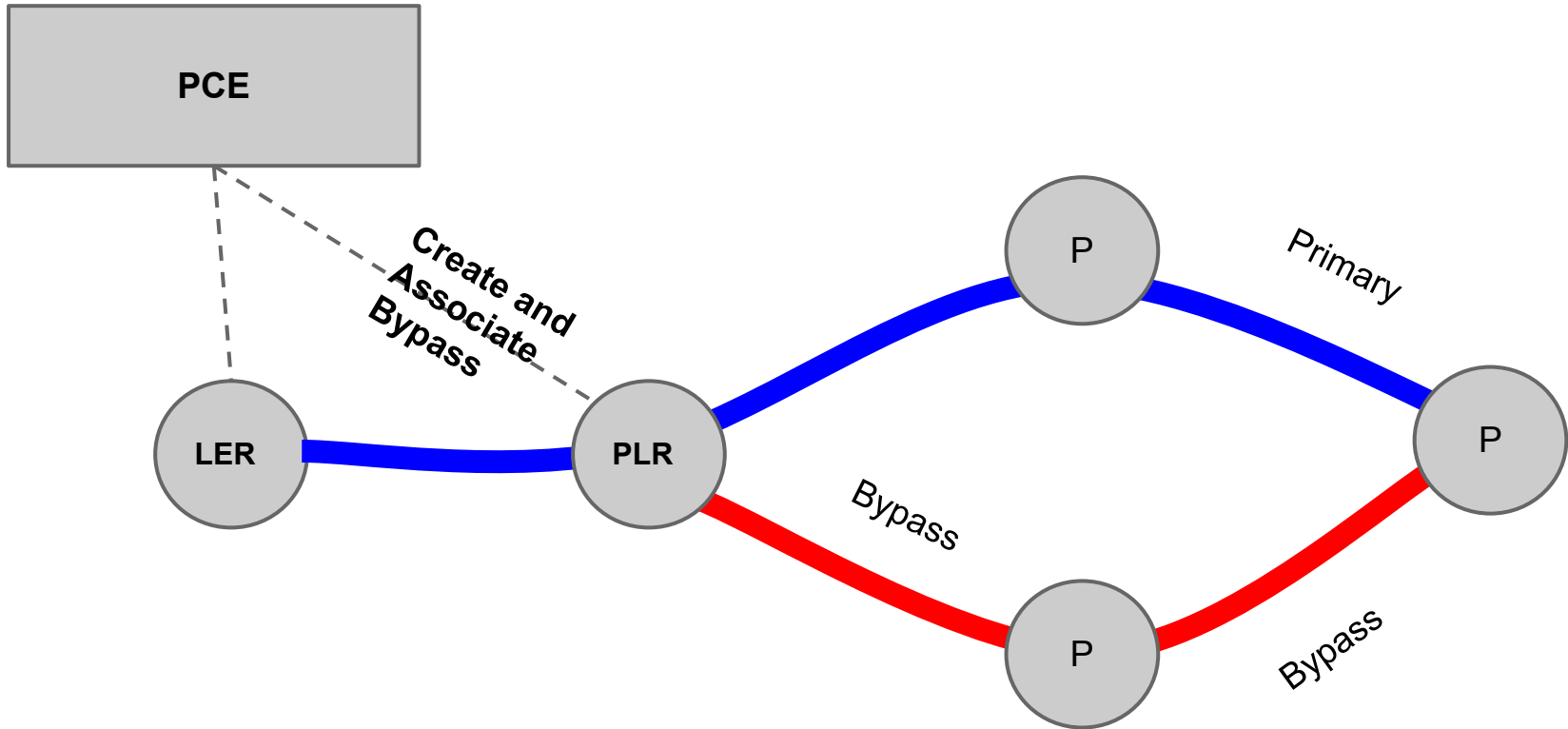


Standby
Indicator

PCE-Stateful - Local-protection

- PCE provisions Bypass LSPs on PLR
- Identical to provisioning of Primary LSP
- Reuses PCE Initiated LSP provisioning
[\[PCE-Initiated-LSP\]](#)
- This draft defines protection specific extensions

Overview - Local protection



Extensions for Local-protection

- LSPA Object that's carried PCUpd message for creating Bypass LSP, along with LSP other parameters



Bypass IPv4 Address - Protected-link or node address

**Flag: Node protecting (N == 1) or Link protecting (N ==0)
Local protection In Use (I == 1)**

Extensions for local-protection

- After creating bypass LSP, PCE can associate list of primary protected LSPs
- New TLV is defined for this purpose
"LOCALLY-PROTECTED-LSPS" TLV for LSPA object
 - Carries list of Protecting LSPs [RSVP Session Identifiers]

Associating to Protected LSP

- Symbolic Path Names are used to bind Bypass LSPs to Protected LSPs
 - There could be multiple Bypass LSPs
- Bypass LSPs update and report messages **MUST** have "**SYMBOLIC-PATH-NAME**" TLV in LSPA Object
- PLR-PCC associates Protected LSPs to PCE matching bypass LSP name

Questions?