

Extensions to PCE for SR Tunnel/Path Ingress Protection

draft-chen-idr-sr-ingress-protection-00

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Introduction

- Critical, Real Time Live Traffic in SR Path
- SR Path Fast Protection needed

Real Time Trade for Stock



Remote Surgery

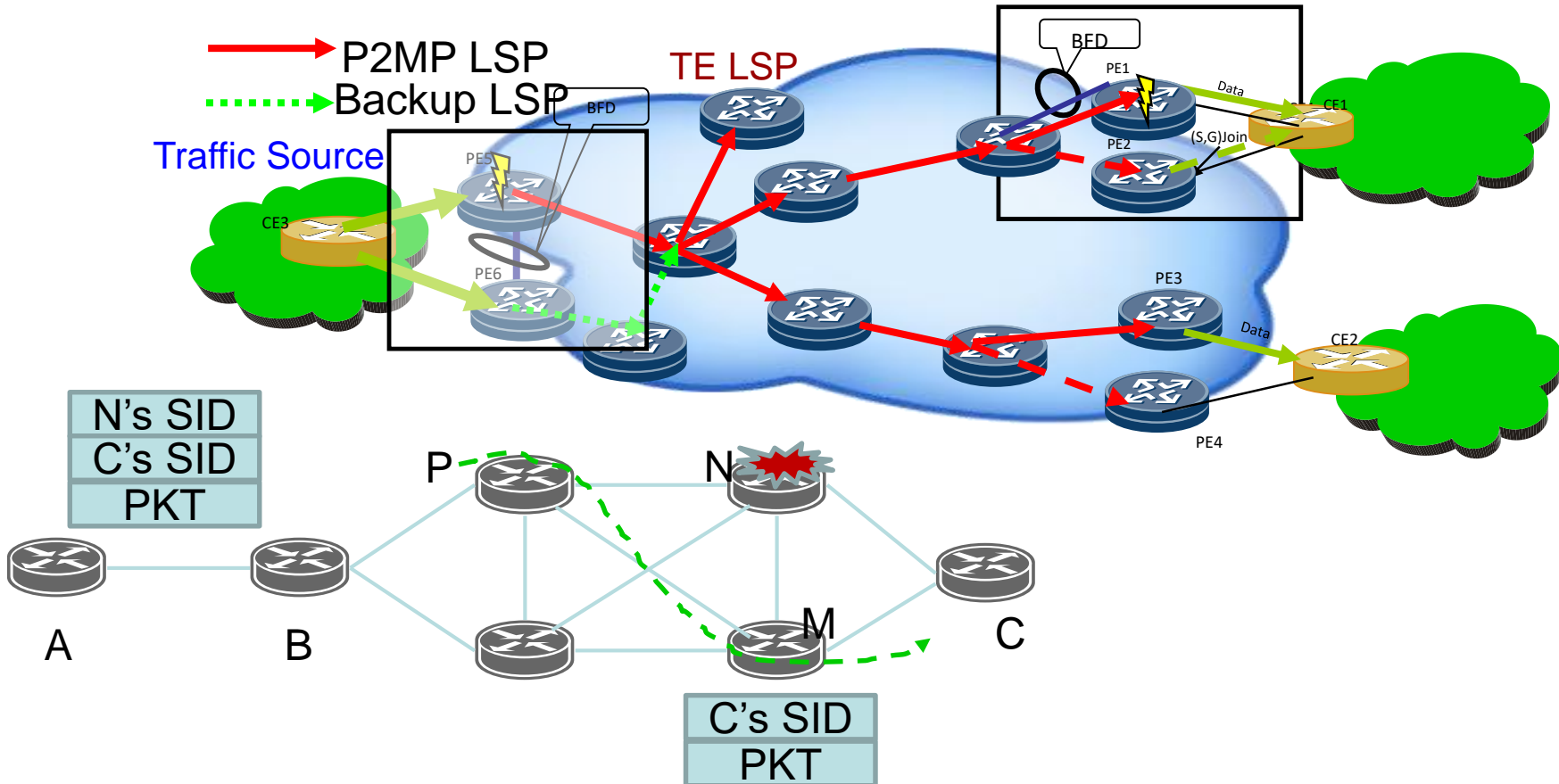


Live Events
(World Cup)



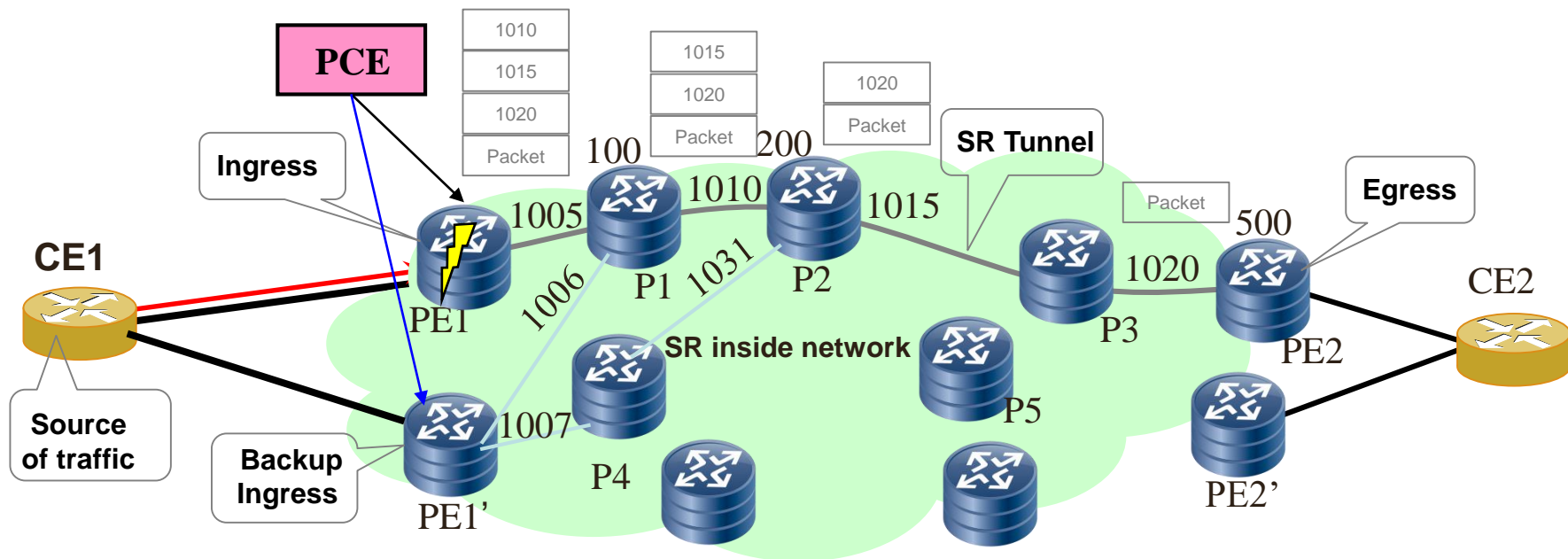
SR Path Protection Overview

- E2E fast protection for TE LSP exists (E2E: Ingress fast protection/RFC8424, midpoint/RFC4090, egress/RFC8400)
- Midpoint, egress fast protection for SR path proposed (a few drafts)
- **Ingress fast protection for SR path** is needed



PCE for SR Ingress Protection

- PCE extended for SR Tunnel/Path
- Natural to extend PCE for SR Ingress Protection



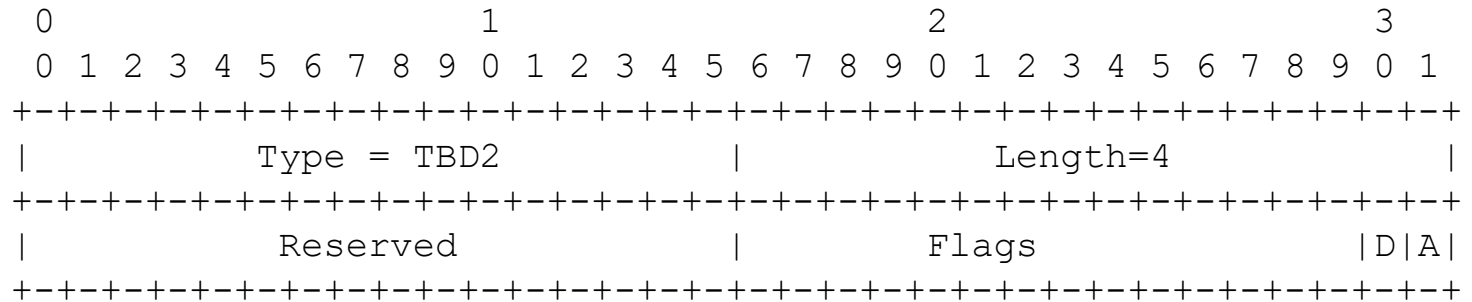
Information Needed at Backup Ingress

- **Backup SR Path** (can be encoded in the same way as primary SR path)
- **Primary Ingress** Address if backup ingress detects failure of primary ingress
- **Description of Traffic** carried by SR path
- **Service** Label/ID carried by SR path

Capability for SR Tunnel Ingress Protection

PCC and PCE exchange capabilities of protecting ingress of an SR tunnel

Sub-TLV below is included in the PATH_SETUP_TYPE_CAPABILITY TLV with PST = TBD1 in Open

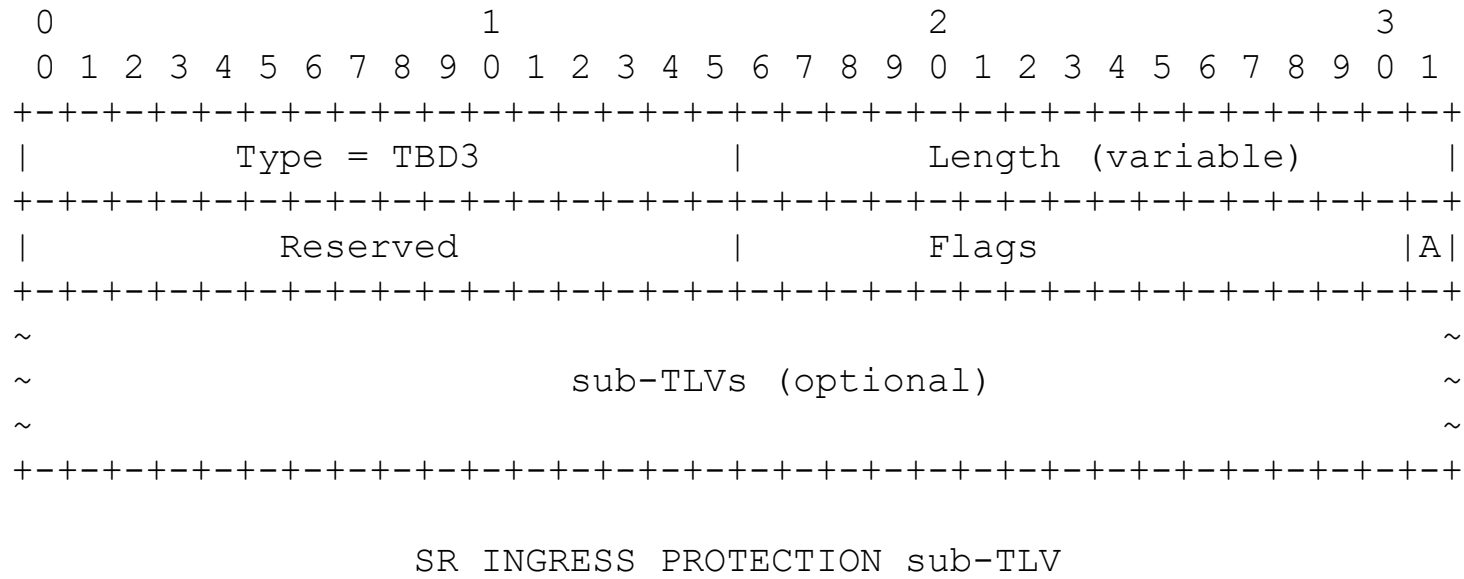


SR_INGRESS_PROTECTION_CAPABILITY sub-TLV

- o D flag: A PCC sets this flag to 1 to indicate that it is able to detect its adjacent node's failure quickly
- o A flag: A PCE sets this flag to 1 to request a PCC to let the forwarding entry for the backup SR path/tunnel be Active.

SR Path Ingress Protection Sub-TLV

- SR_INGRESS_PROTECTION Sub-TLV is defined below
- When PCE sends PCC a PCInitiate for initiating a backup SR tunnel to protect ingress of Primary SR tunnel, containing it



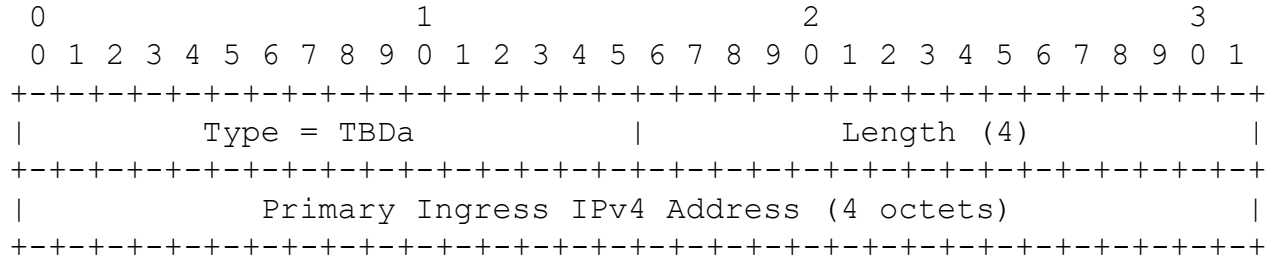
- A flag: A PCE sets this flag to 1 to request a PCC to let the forwarding entry for the backup SR path/tunnel be Active.

Three optional sub-TLVs are defined

1. Primary-Ingress sub-TLV
2. Service sub-TLV
3. Traffic-Description sub-TLV

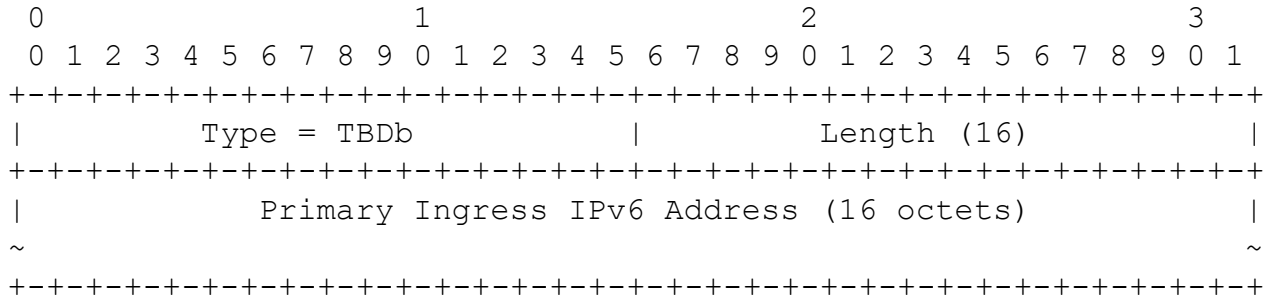
Primary Ingress IPv4/6 Address Sub-TLV

Primary-Ingress IPv4 sub-TLV indicates the IPv4 address of the primary ingress of a SR tunnel



Primary Ingress IPv4 Address sub-TLV

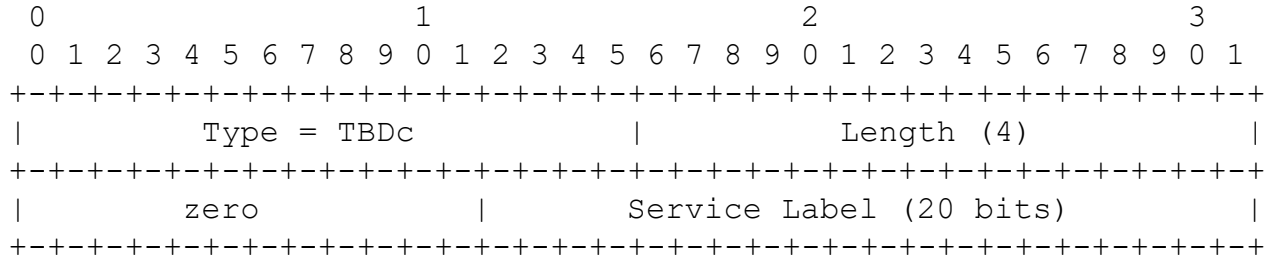
Primary-Ingress IPv6 sub-TLV indicates the IPv6 address of the primary ingress of a SR tunnel.



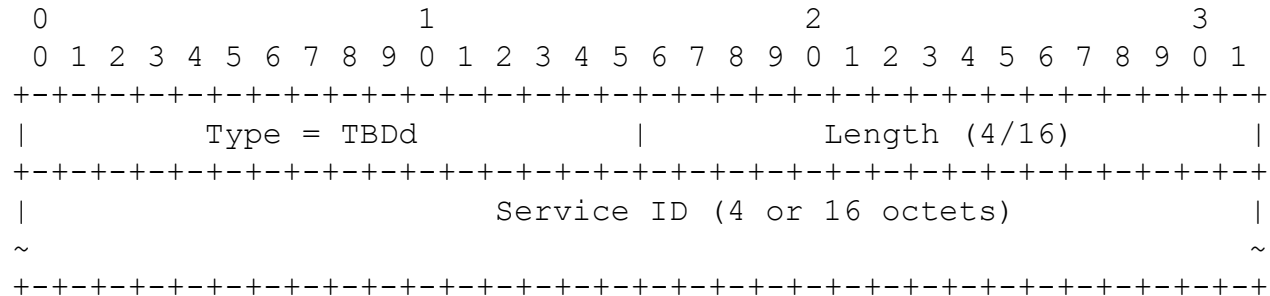
Primary Ingress IPv6 Address sub-TLV

Service Sub-TLVs

A Service sub-TLV contains a service ID or label to be added into a packet to be carried by a SR path/tunnel. It has two formats: one for the service identified by a label and the other for the service identified by a service identifier (ID) of 32 or 128 bits.



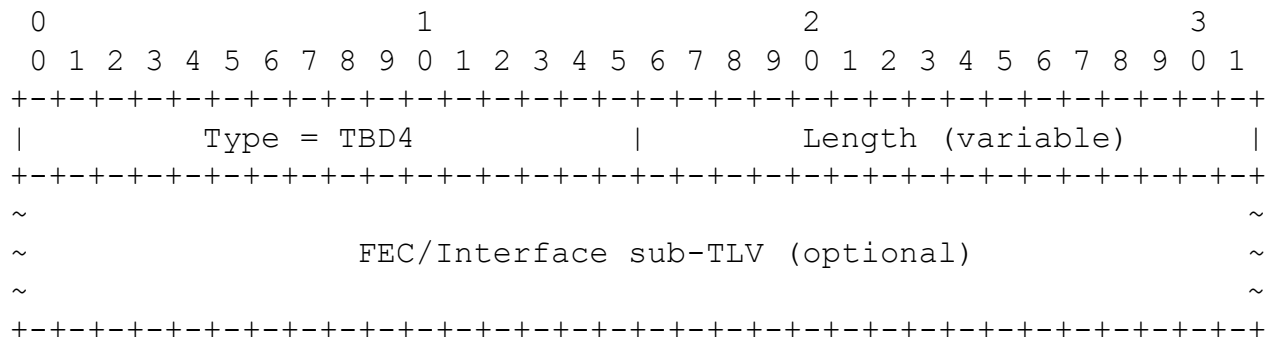
Service Label sub-TLV



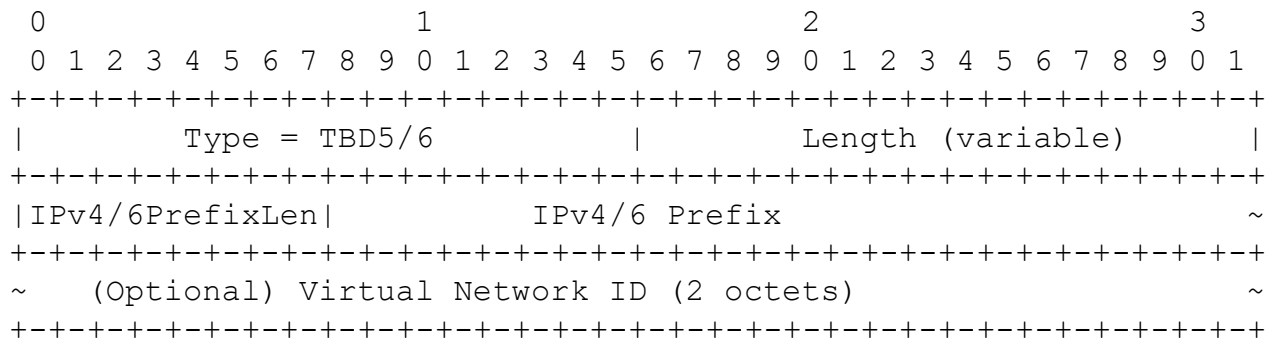
Service ID sub-TLV

Traffic-Description Sub-TLV (1)

Describes traffic to be imported into a backup SR tunnel.

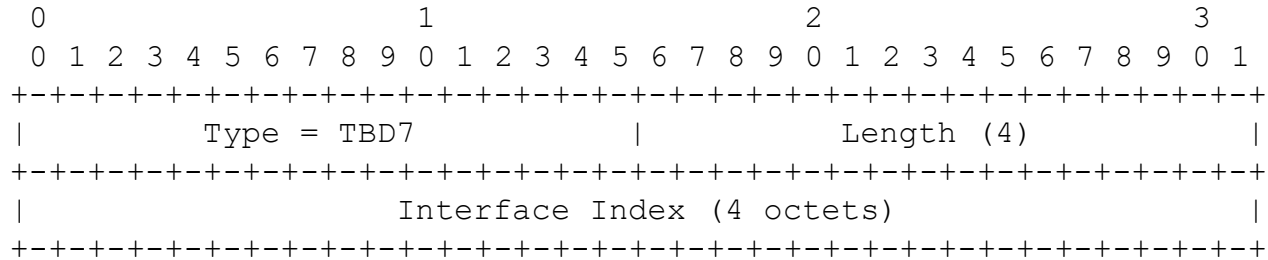


Traffic-Description sub-TLV

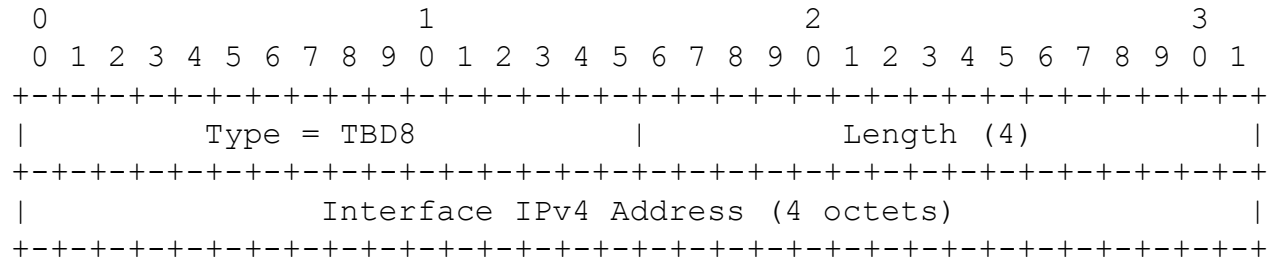


IPv4/6 FEC sub-TLV

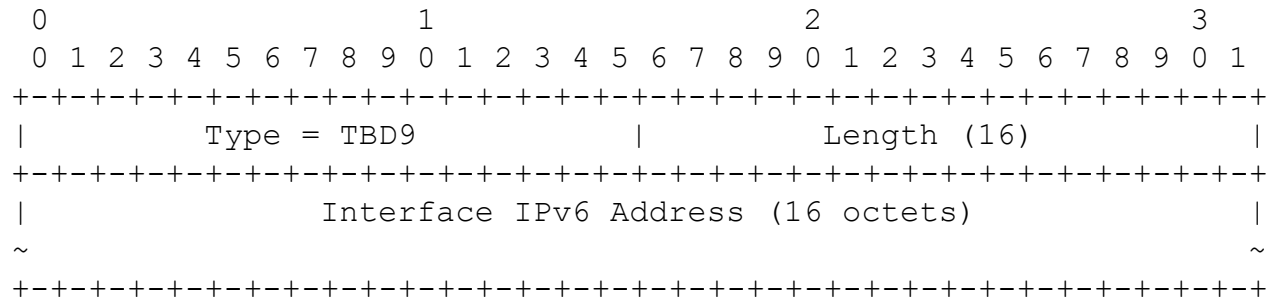
Traffic-Description Sub-TLV (2)



Interface Index sub-TLV



Interface IPv4 Address sub-TLV



Interface IPv6 Address sub-TLV

Next Step

Comments