# BGP Extensions of SR Policy for Path Protection

draft-lp-idr-sr-path-protection

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# Backgroud and Motivation

- Candidate Path for Path Protection:
  - An SR Policy allows for multiple candidate paths.
  - An single active candidate path is provisioned in the forwarding plane and used for traffic steering.
  - Another candidate path MAY be designated as the backup. Configuration or local policy may be needed on the headend node.
  - Provide protection only when all the segment lists in the active CP are invalid.

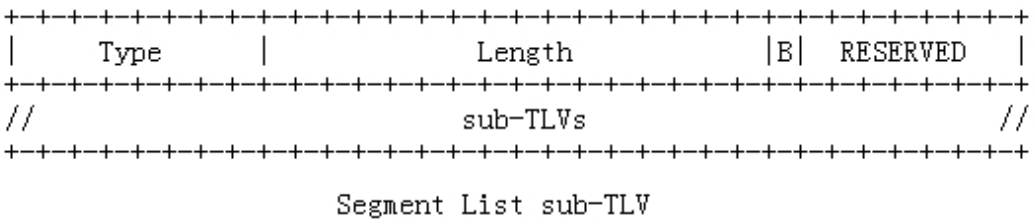
- Segment lists for path protection:
  - Scenarios like load balancing.
  - Flexible protection relationship between segment lists.
  - *[draft-ietf-pce-multipath]* proposes extensions to PCEP to provide backup segment lists for path protection.

```
SR Policy
 CP1
        List1 W1
        List2 W2
        List3(L1 backup) W1
        List4(L2 backup) W2
 CP2
        List5
        List6(L5 backup)
```

This document proposes extensions of BGP to provide path protection using segment list(s) when delivering SR policy.

# BGP Extensions for SR Policy

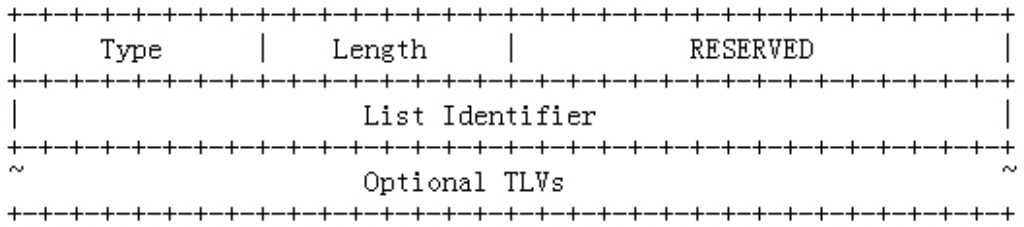
- B-Flag in Segment List Sub-TLV




Segment List sub-TLV

- B-Flag(Backup Flag): one bit. It indicates the segment list acts as a pure backup path in the candidate path.

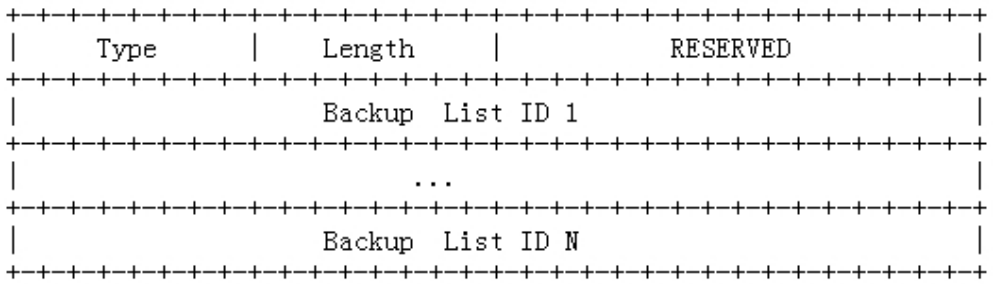
- List Identifier Sub-TLV




List Identifier Sub-TLV

- List Identifier: Identifier of the corresponding segment list

- List Protection Sub-TLV

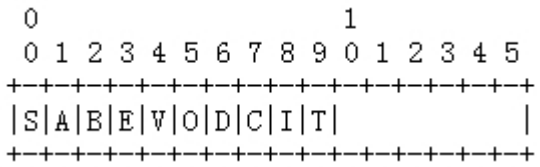



List protection Sub-TLV

```
SR Policy SAFI NLRI:
Attributes:
 Tunnel Encaps Attribute (23)
   Tunnel Type: SR Policy
       Binding SID
       SRv6 Binding SID
       Preference
       Priority
       Policy Name
       Policy Candidate Path Name
       Explicit NULL Label Policy (ENLP)
       Segment List
           List Identifier
             List Protection Info
           Weight
           Segment
           Segment
           ...
       Segment List
           ...
       ...
```

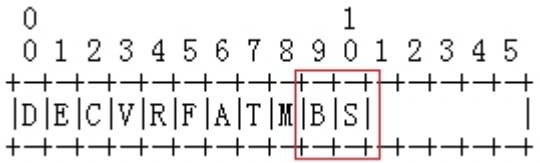
# BGP-LS Extensions for Segment List States

- *[draft-ietf-idr-te-lsp-distribution]* describes a mechanism to collect the Traffic Engineering and Policy information that is locally available in a node and advertise it into BGP Link State (BGP-LS) updates.
- Flags in SR Candidate Path (CP) State TLV




- S-Flag : Indicates the CP is in administrative shut state
- B-Flag : Indicates the CP is the backup path

- New Flags in SR Segment List TLV




- S-Flag : Indicates the segment list is in administrative shut state
- B-Flag : Indicates the segment list is the backup path

# History of the Draft

- Presented in IDR in IETF#109
  - comments from Ketan Talaulikar and John Scudder: first in Spring WG before bringing up protocol mechanisms for adoption
- Presented in SPRING in IETF#111

# Next Steps

- Request feedbacks and comments
- WG Apotion?

Thank You !