

BGP Request for Advertising Candidate Path of SR TE Policy

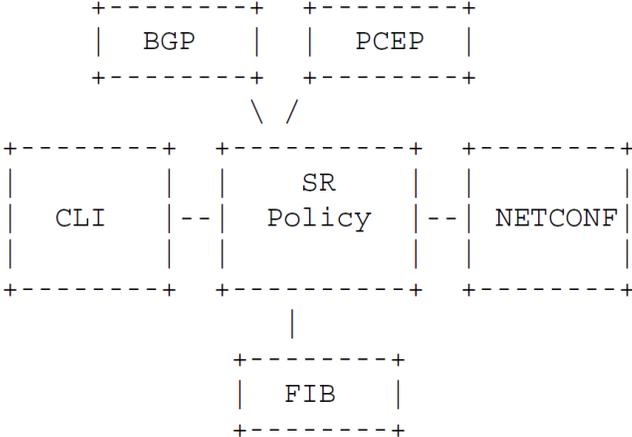
draft-li-idr-bgp-request-cp-sr-te-policy-00

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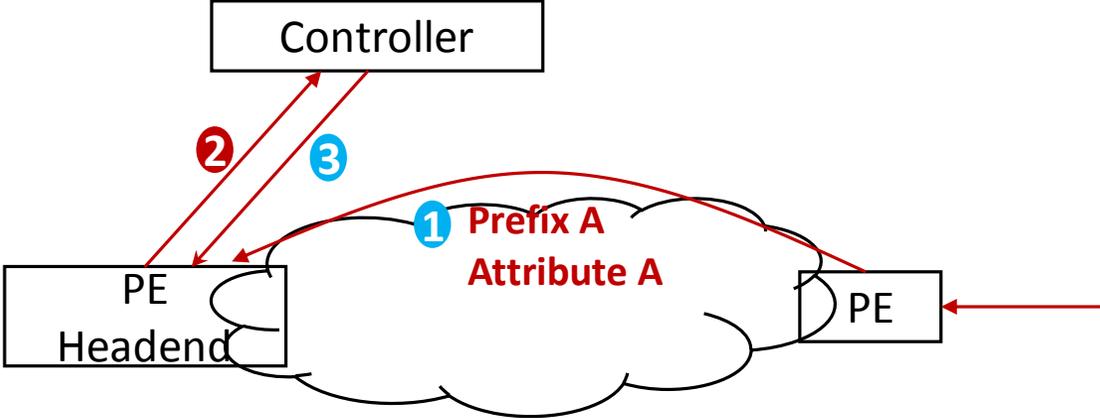
Motivation

- The headend of an SR Policy may be informed by various means including: Configuration, Netconf, PCEP or BGP.



SR Policy Headend Architecture
draft-filsfils-spring-sr-policy-considerations

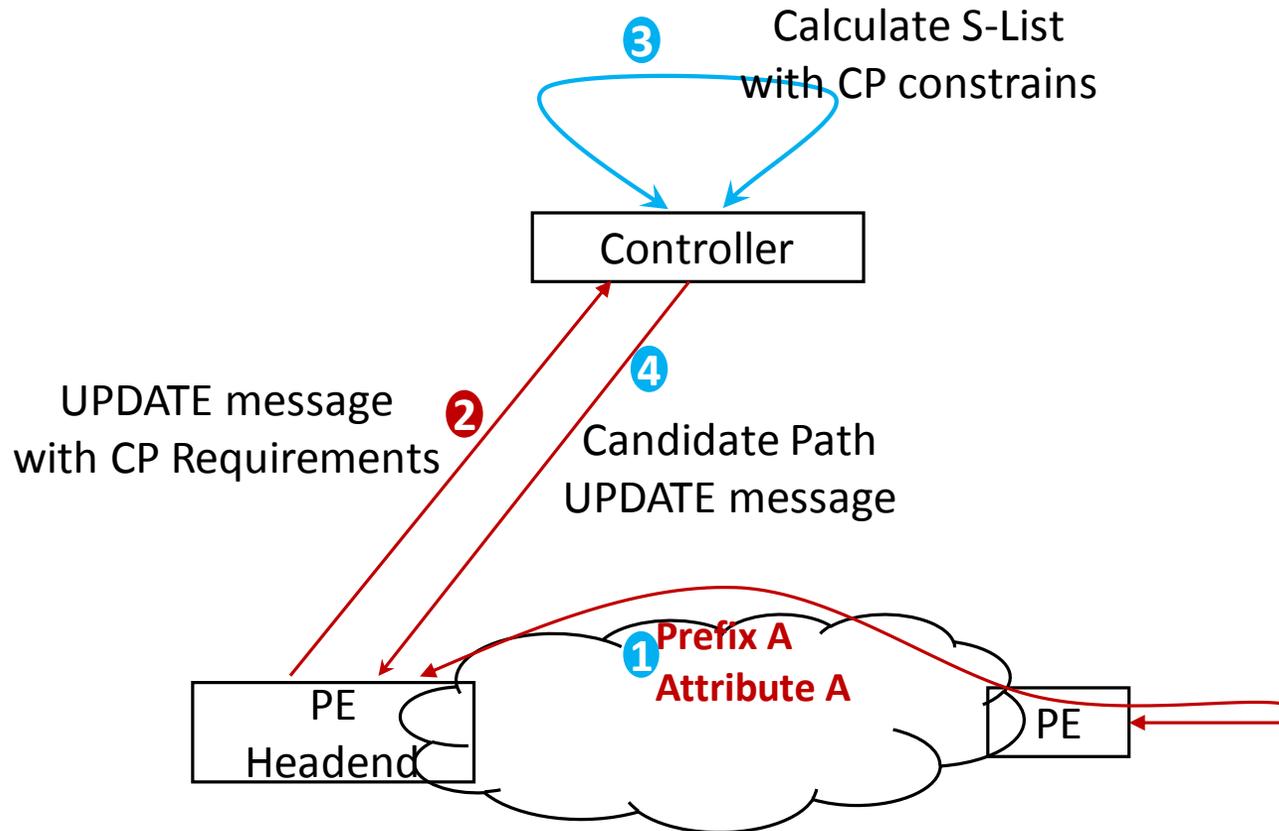
- In some situations headend may want to pull one or a set of candidate paths from PCE/Controller rather than get all information passively.



Brief process with Candidate Paths request

- PCEP: Request and Reply messages defined in [RFC5440] to match this requirement.
- BGP: This document want to define.

Process and scope of this document overview



- Step1. The headend decide to get a new candidate path from controller based on some trigger event (e.g receive a customer route (VPN route) with special color or special BGP attribute). This trigger mechanism is **out of scope of this document**.
- Step2. The headend create a BGP UPDATE message (**defined in this document**) with constrains of TE, such as affinity, metric, SRLG, and so on.
- Step3. The controller will calculate one or a set of segment list based on the payload of BGP request message from headend. How to calculate the path is **out of scope of this document**.
- Step4. The controller advertise SR Policy with candidate path to headend. How to advertise the policy is **out of scope of this document** and defined in [I-D.ietf-idr-segment-routing-te-policy]

Messages and Sub-TLV

BGP UPDATE message for CP request

SR Policy SAFI NLRI: <Distinguisher, Policy-Color, Endpoint>

Attributes:

Tunnel Encaps Attribute (23)

Tunnel Type: SR Policy

<Sub-TLVs>

draft-ietf-idr-segment-routing-te-policy-07

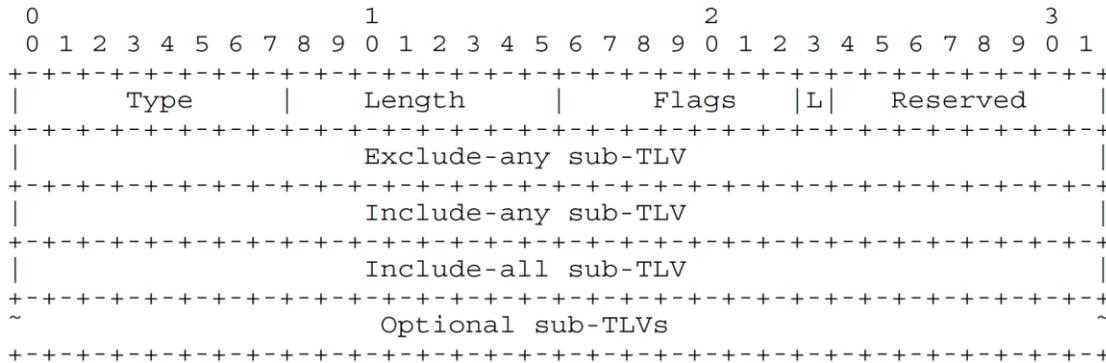
- NLRI Length, Policy Color, Endpoint field remains unchanged
- Distinguisher field will be set to **FF:FF:FF:FF** to signal the request to controller.

New Sub-TLV for CP constrains

1. LSPA Sub-TLV
2. SVEC Sub-TLV
3. Metric Sub-TLV
4. Include Route Sub-TLV
5. Load-Balancing

Messages and Sub-TLV

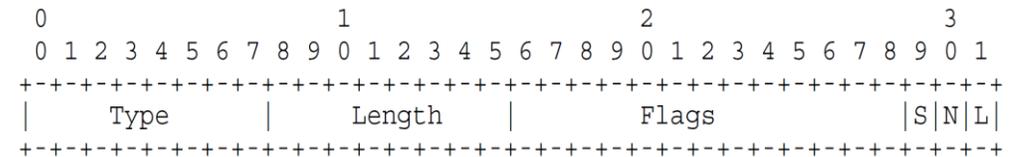
LSPA (LSP Attributes) Sub-TLV



Specifies various TE LSP attributes to be taken for path computation

* [RFC5440] and [RFC3209]

SVEC (Synchronization VECTOR) Sub-TLV



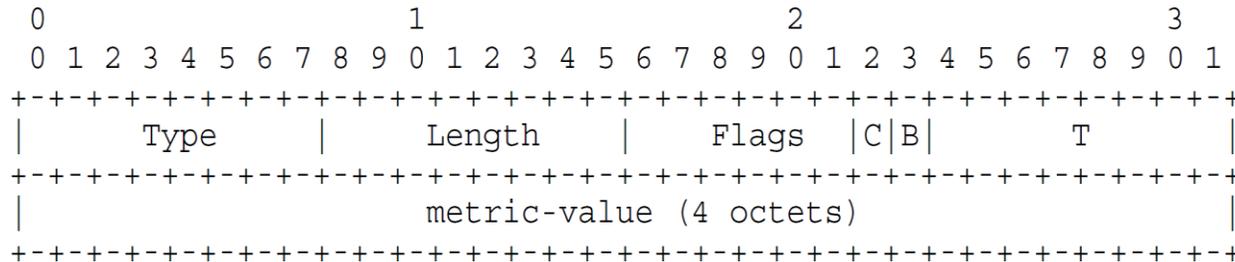
Allows headend to request the synchronization of a set of segment list of one CP computation requests.

- L (Link diverse)
- N (Node diverse)
- S (SRLG diverse)

* RFC5440

Messages and Sub-TLV

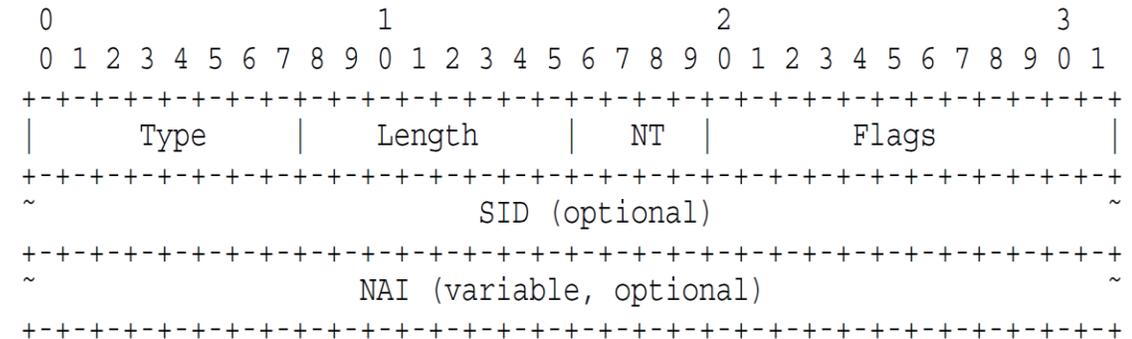
Metric Sub-TLV



- T=1: IGP metric
- T=2: TE metric
- T=3: Hop Counts
- T=11: Maximum SID Depth of the requested path

* RFC5440 and *ietf-pce-segment-routing*

Include Route Sub-TLV

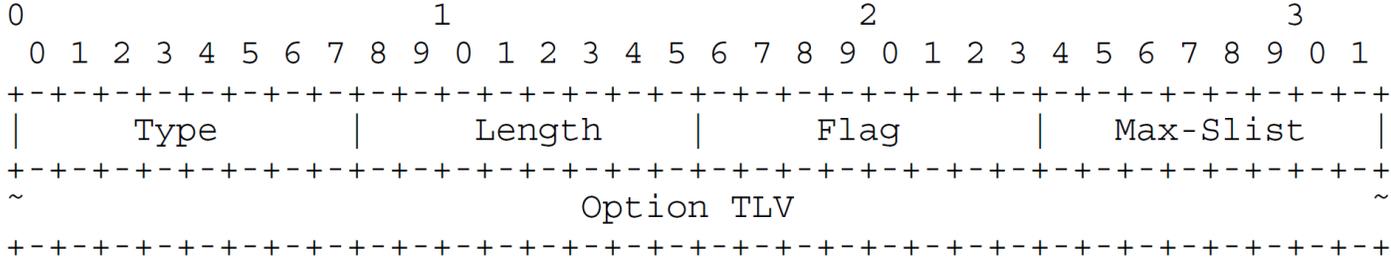


Include Route Sub-TLV can be used to specify that the computed candidate path MUST traverse a set of specified network elements.

- *SID and NAI are the same as SR-ERO defined in ietf-pce-segment-routing*
- * RFC5440, RFC3209, *ietf-pce-segment-routing*

Messages and Sub-TLV

Load-Balancing Sub-TLV



The Load-Balancing Sub-TLV defined how many segment lists should be included in one candidate path.

** Option TLV: No Option TLV currently defined. If bandwidth can be reserved in SR-Policy candidate path or different load-balancing principle between segment lists for diferent weight here can define additional TLVs.*

Next Steps

- Solicit comments
- Revise the draft accordingly

Discussion