

BGP Extension for SR-MPLS Entropy Label Position

draft-zhou-idr-bgp-srmpls-elp

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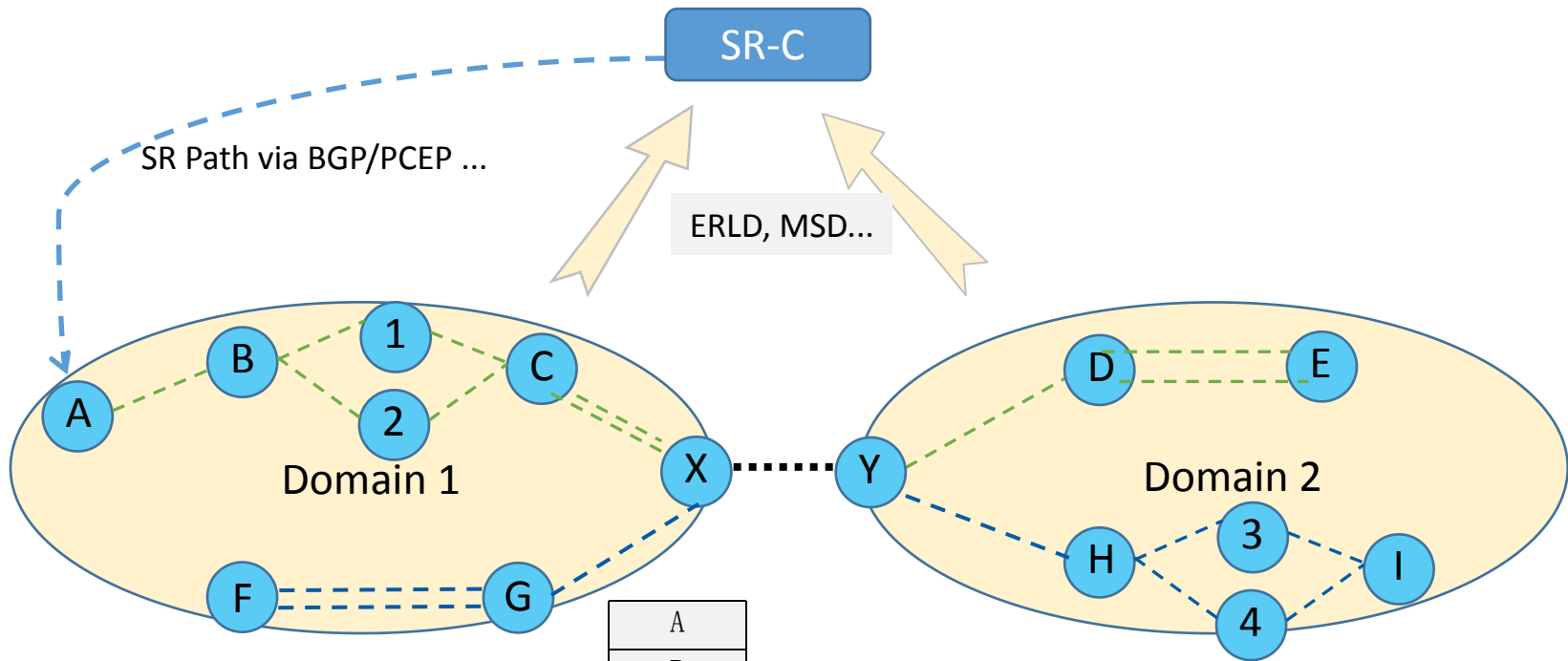
IETF#112

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Background and Motivation

- Entropy labels (ELs) [RFC6790] are used in the MPLS data plane to provide entropy for load-balancing.
- [RFC8662] proposes to use entropy labels for SR-MPLS networks.
- Multiple criteria may be considered when placing < ELI, EL > pairs:
 - ERLD: Entropy Readable Label Depth.
 - MSD: Maximum SID Depth.
 - Segment Type, Maximizing Number of LSRs That Will Load-Balance,
- An external controller can be used to program the label stack.

Background and Motivation



A
B
C
X
Y
D
E



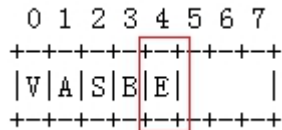
A
B
C
X
ELI
EL
Y
D
E
ELI
EL

Label Stack
with ELs

This document proposes extensions for BGP to indicate the entropy label position in the segment list when distribute SR Policy candidate paths via BGP.

BGP Extensions

➤ E-Flag in Segment Sub-TLV



- E-Flag: one bit. It indicates the presence of < ELI, EL> label pairs which are inserted after this segment. Applicable to Segment Types A, C, D, E, F, G and H.

```
SR Policy SAFI NLRI: <Distinguisher, Policy-Color, Endpoint>
Attributes:
  Tunnel Encaps Attribute (23)
    Tunnel Type: SR Policy
    ...
    Segment List
      Weight
      SegmentA
      SegmentB(E-Flag)
      SegmentC
      SegmentD(E-Flag)
      SegmentE
    ...
  ...
```

A
B
ELI
EL
C
D
ELI
EL
E

- The value of EL is supplemented by the ingress node according to load-balancing function of the appropriate keys extracted from a given packet.

Summary of Main Updates Since 110

Presented in IETF#110 and comments from the mailing list are appreciated from Jeff Tantsura and Robin Li.

- Why the controller would be useful to calculate ELP
 - inter-domain scenario, computing both SR path and the placement of entropy labels
- Clarification about the relationship with RFC8662
 - follows the considerations for ELP in RFC8662, the values of ELs are still calculated by ingress node as specified in RFC6980 and RFC8662. Other mechanisms are out of scope.
- More text about how the controller get the information needed(e.g, ERLD, MSD) to calculate the ELP leveraging the existing work.

Next Steps

- Ask for comments
- WG adoption ?

Thank You !