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Advertisement of SR Policy Administrative Flags using BGP Link-State
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Abstract

This document defines the extension of BGP Link-State to advertise the administrative state of the candidate path or segment list, facilitating the operation and maintenance of the SR Policy.

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1. Introduction

Segment routing (SR) [RFC8402] is a source routing paradigm that explicitly indicates the forwarding path for packets at the ingress node. The ingress node steers packets into a specific path according to the Segment Routing Policy (SR Policy) as defined in [RFC9256]. An SR Policy may have multiple candidate paths that are provisioned or signaled [RFC9830] [RFC8664] from one of more sources.

[I-D.lin-idr-sr-policy-admin-flags] proposes an extension to the BGP SR Policy that sets the management state of the candidate path or the segment list, facilitating the operation and maintenance of the SR Policy.

This document defines extensions to BGP-LS to advertise defines the extension of BGP Link-State to advertise the administrative state of the candidate path or segment list.

2. Terminology

The definitions of the basic terms are identical to those found in Segment Routing Policy Architecture [RFC9256].

3. Extension of SR Candidate Path State

As defined in [RFC9857], the SR Candidate Path State TLV provides the operational status and attributes of the SR Policy at the candidate path level.

New bits in Flags field of the SR Candidate Path State TLV are defined:

- BI-Flag (Bit TBD): Indicates the CP is configured as "backup ineligible".
- IS-Flag(Bit TBD): Indicates the CP is configured as "Ignore service route's Prefix SID". It allows traffic to a BGP service route to be steered over an SR policy without imposing the service route's prefix label or SRv6 Service SID.
- N-Flag(Bit TBD): Indicates the endpoint node SID is included in installing SID list(s) of the Candidate Path (CP) when set.
- PE-Flag (Bit TBD): Indicates that the CP is set to 'candidate path eligible' as defined in [I-D.karboubi-spring-sr-policy-eligibility].

4. Extension of SR Segment List TLV

As defined in [RFC9857],The SR Segment List TLV is used to report a single SID-List of a candidate path. Multiple instances of this TLV may be used to report multiple SID-Lists of a candidate path.

A New bit in Flags field of the SR Segment List TLV is defined:

- S-Flag(Bit TBD): Indicates the SR Segment is in an administrative shut state when set and not in administrative shut state when clear.
- PE-Flag(Bit TBD): When set, indicates the Segment List is in an eligible state (capable of forwarding traffic). When cleared, indicates the Segment List is ineligible (cannot forward traffic).

5. Operations

The document does not bring new operation beyond the description of operations defined in Section 6 of [RFC9857]. The existing operations defined in [RFC9857] can apply to this document directly.

6. IANA Considerations

TBD

7. Security Considerations

Procedures and protocol extensions defined in this document do not affect the BGP security model.

8. References

8.1. Normative References

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8.2. Informative References

TBD

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