

Applying BGP-LS Segment Routing over IPv6(SRv6) Extensions to BGP-LS-SPF

draft-li-lsvr-bgp-spf-srv6-04

Li Zhang, Jie Dong @Huawei, Keyur Patel @Arrcus, Inc.

LSVR WG IETF 125 Mar 2026

Overview

- **SRv6 Node Attribute TLVs:** SRv6 Capabilities TLV, Node MSD TLV, SR Algorithm TLV
- **SRv6 Link Attribute TLVs:** SRv6 End.X SID TLV, L2 Bundle Member Attributes TLV, SRv6 Link MSD TLV
- **SRv6 Prefix Attribute TLVs:** SRv6 Locator TLV
- **SRv6 SID NLRI:** SRv6 SID Information TLV
- **SRv6 SID Attribute TLVs:** SRv6 Endpoint Behavior TLV, SRv6 SID Structure TLV
- **Endpoint Behaviors:** End (PSP, USP, USD), End.X (PSP, USP, USD)

Updates in Version 04

- Added a new section 3 on SRv6 SIDs and Reachability.
- Some editorial changes.

SRv6 SIDs and Reachability

- Locator is a covering prefix for all SIDs provisioned on a specific router.
- **Forwarding entries for the locators advertised in Prefix NLRI MUST be installed in the forwarding plane** of receiving SRv6-capable routers when the associated algorithm is supported by the receiving BGP-LS-SPF router.
- **SRv6 SIDs received from other nodes are not directly routable and MUST NOT be installed in the forwarding plane.**
Reachability to SRv6 SIDs depends upon the existence of a covering locator.

3. SRv6 SIDs and Reachability

An SRv6 SID is 128 bits and consists of locator, function, and argument parts as described in [RFC8986].

An BGP-LS-SPF router is provisioned with algorithm-specific locators for each algorithm supported by that router. Each locator is a covering prefix for all SIDs provisioned on that router that have the matching algorithm.

Locators MUST be advertised as BGP-LS-SPF Prefix NLRI objects along with the SRv6 Locator TLVs (see Section 5.1) in its BGP-LS-SPF Attribute. Forwarding entries for the locators advertised in the BGP-LS-SPF Prefix NLRI MUST be installed in the forwarding plane of receiving SRv6-capable routers when the associated algorithm is supported by the receiving BGP-LS-SPF router. The processing of the prefix of the Locator, the calculation of its reachability, and the installation in the forwarding plane follows the process of BGP-LS-SPF [RFC9815].

SRv6 SIDs are advertised as SRv6 SID Information TLVs (see Section 6.1) in the SRv6 SID NLRI, except for SRv6 SIDs that are associated with a specific neighbor/link and are therefore advertised as SRv6 End.X SID TLV (see Section 4.1).

SRv6 SIDs received from other nodes are not directly routable and MUST NOT be installed in the forwarding plane. Reachability to SRv6 SIDs depends upon the existence of a covering locator.

Adherence to the rules defined in this section will ensure that SRv6 SIDs associated with a supported algorithm will be forwarded correctly, while SRv6 SIDs associated with an unsupported algorithm will be dropped. NOTE: The drop behavior depends on the absence of a default/summary route covering a given locator.

Next Steps

- ❑ Welcome for comments and suggestions!
- ❑ WG adoption?

Thank You