Advertising SR-MPLS Adj SID Algorithm Information in BGP

draft-peng-idr-segment-routing-te-policy-attr

Yao Liu, ZTE  
Shaofu Peng, ZTE  
Gyan Mishra, Verizon

IDR WG        IETF 119     Mar 2024
Quick Recap

- Currently, draft-ietf-idr-bgp-sr-segtypes-ext when delivering SR Policy via BGP, SR algorithm can be optionally specified in Segment Sub-TLVs for:
  - SR-MPLS Prefix SID
  - SRv6 Prefix SID
  - SRv6 Adjacency SID

- The algorithm can be also included as part of an Adj-SID advertisement for SR-MPLS in IGP [draft-ietf-lsr-algorithm-related-adjacency-sid].
  - This document defines new Segment Types to provide optional algorithm for SR-MPLS Adjacency-SIDs when delivering SR Policy via BGP.
  - It didn’t pass the WG adoption call because there has not been enough interest on the list.
Main Updates & Discussions

Thank Ketan Talaulikar, Nat Kao, Zhenqiang Li and Gyan Mishra for their helpful comments and suggestions!

Updates

• Gyan Mishra has joined as a co-author.
• References to other documents have been corrected.

Discussions

• Are the remote node address and interface ID required for segment type L(IPv4 unnumbered link) ?
• Not necessary.
  - an IPv4 unnumbered link has to be a point to point link
  - to keep aligned with segment types in SR Policy architecture[RFC9256] and draft-ietf-idr-bgp-sr-segtypes-ext
SR-MPLS Adjacency with Optional Algorithm

New Segment sub-TLVs = Existing sub-TLVs + Algorithm

- Type L: IPv4 Prefix with Local Interface ID with optional SR Algorithm for SR-MPLS

```
<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Length</td>
<td>Flags</td>
<td>SR Algorithm</td>
</tr>
<tr>
<td>Local Interface ID (4 octets)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IPv4 Node Address (4 octets)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR-MPLS SID (optional, 4 octets)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

- Type M: IPv4 Addresses for link endpoints as Local, Remote pair with optional SR Algorithm for SR-MPLS

```
<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Length</td>
<td>Flags</td>
<td>SR Algorithm</td>
</tr>
<tr>
<td>Local IPv4 Address (4 octets)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote IPv4 Address (4 octets)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR-MPLS SID (optional, 4 octets)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```
**SR-MPLS Adjacency with Optional Algorithm**

- **Type N:** IPv6 Node Addresses and Interface ID for link endpoints as Local, Remote pair, with optional SR Algorithm for SR-MPLS

```
+---------+---------+---------+---------+
| Type    | Length  | Flags   | SR Algorithm |
+---------+---------+---------+---------+
| Local Interface ID (4 octets) |
+-------------------------------+
| IPv6 Local Node Address (16 octets) |
+-------------------------------+
| Remote Interface ID (4 octets) |
+-------------------------------+
| IPv6 Remote Node Address (16 octets) |
+-------------------------------+
| SR-MPLS SID (optional, 4 octets) |
+-------------------------------+
```

- **Type O:** IPv6 Addresses for link endpoints as Local, Remote pair, with optional SR Algorithm for SR-MPLS

```
+---------+---------+---------+---------+
| Type    | Length  | Flags   | SR Algorithm |
+---------+---------+---------+---------+
| Local IPv6 Address (16 octets) |
+-------------------------------+
| Remote IPv6 Address (16 octets) |
+-------------------------------+
| SR-MPLS SID (optional, 4 octets) |
+-------------------------------+
```
Next Steps

- Request for more interest, review and comments
- 2nd WG Adoption
Thank You!