Passive Interface Attribute

Aijun Wang (China Telecom)
Zhibo Hu (Huawei)
IETF 107@Virtual Meeting, April 2020
What The Proposal Want To Solve?

- SDN Controller get the underlay topology information via BGP-LS:
  - BGP-LS report the links within one domain.
  - It can’t distinguish the border links from the internal links.
  - For inter-AS topology retrieval, [draft-ietf-idr-bgppls-inter-as-topology-ext] define “Stub Link NLRI” to report the border link via new NLRI.
  - Router within OSPF domain that runs BGP-LS(S2) can extract the border links, according to “type” indication stated in Router LSA(RFC2328), but ISIS has no such information.
  - The edge links (for example, to hosts) should be distinguished from the internal links for security reason.

SDN Controller

![Diagram of network topology with SDN Controller, BGP-LS, OSPF, and ISIS connected via S1, S2, B1, S3, S4, B2, B3, T1, T2, B4, T3, T4, and Hosts]
Proposal for the Solution.

- [RFC7794] defines the "IPv4/IPv6 Extended Reachability Attribute Flags" sub-TLV to advertise the additional flags associated with a given prefix advertisement.
- Currently, only X(Bit 0), R(Bit 1), N(Bit 2), E(Bit 3) flags are defined.

<table>
<thead>
<tr>
<th>Bit #</th>
<th>Name</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>External Prefix Flag (X-flag)</td>
<td>[RFC7794]</td>
</tr>
<tr>
<td>1</td>
<td>Re-advertisement Flag (R-flag)</td>
<td>[RFC7794]</td>
</tr>
<tr>
<td>2</td>
<td>Node Flag (N-flag)</td>
<td>[RFC7794]</td>
</tr>
<tr>
<td>3</td>
<td>E-bit (TEMPORARY - registered 2019-08-30, expires 2020-08-30)</td>
<td>[draft-ietf-isis-mpls-elc]</td>
</tr>
</tbody>
</table>

- We propose to add one flag, named “P” (for passive) or “S” (for stub) bit, to indicate the prefixes are coming from one passive/stub link.
- The receiving router (specially the router that run BGP-LS) can easily extract such links from the internal links, and populate them in the “Stub Link NLRI” that defined in [draft-ietf-idr-bgpls-inter-as-topology-ext]

![Figure 2: Prefix Attribute Flags](image)

**P-flag:** Passive Flag (Bit 4)
- Set for local interface that is configured as passive interface.
Other Proposal

- [RFC5029](#) defines the “Link-Attribute" sub-TLV to advertise the additional information about links characteristics.

- Currently, it defines 3bits, as illustrated in the following diagram:

<table>
<thead>
<tr>
<th>Value</th>
<th>Name</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x1</td>
<td>Local Protection Available</td>
<td>[RFC5029]</td>
</tr>
<tr>
<td>0x2</td>
<td>Link Excluded from Local Protection</td>
<td>[RFC5029]</td>
</tr>
<tr>
<td>0x4</td>
<td>Local Edge Enabled for Flooding (LEEF) (TEMPORARY - registered 2019-07-31, expires 2020-07-31)</td>
<td>[draft-ietf-ler-dynamic-flooding]</td>
</tr>
</tbody>
</table>

- Robert and Tony propose to add the needed information in above sub-TLV, but considering:
  - This Sub-TLV only be included in TLV22, 23, 25, 141, 222 and 223, which all require the existing of the IS neighbor.
  - There is no IS neighbor in the aimed scenario.

- We prefer to add the extra information in the prefix advertisement, that is, the prefix is from one passive/stub link
Further Plan

- Comments?
- Thanks all experts for past review (Acee, Les, Jeff etc).
- Co-Authors are welcome.
- Adopt as WG Document?

wangaj3@chinatelecom.cn
IETF107@Virtual Meeting