Passive Interface Attribute

## [draft-wang-lsr-passive-interface-attribute]

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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-bgpls-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.
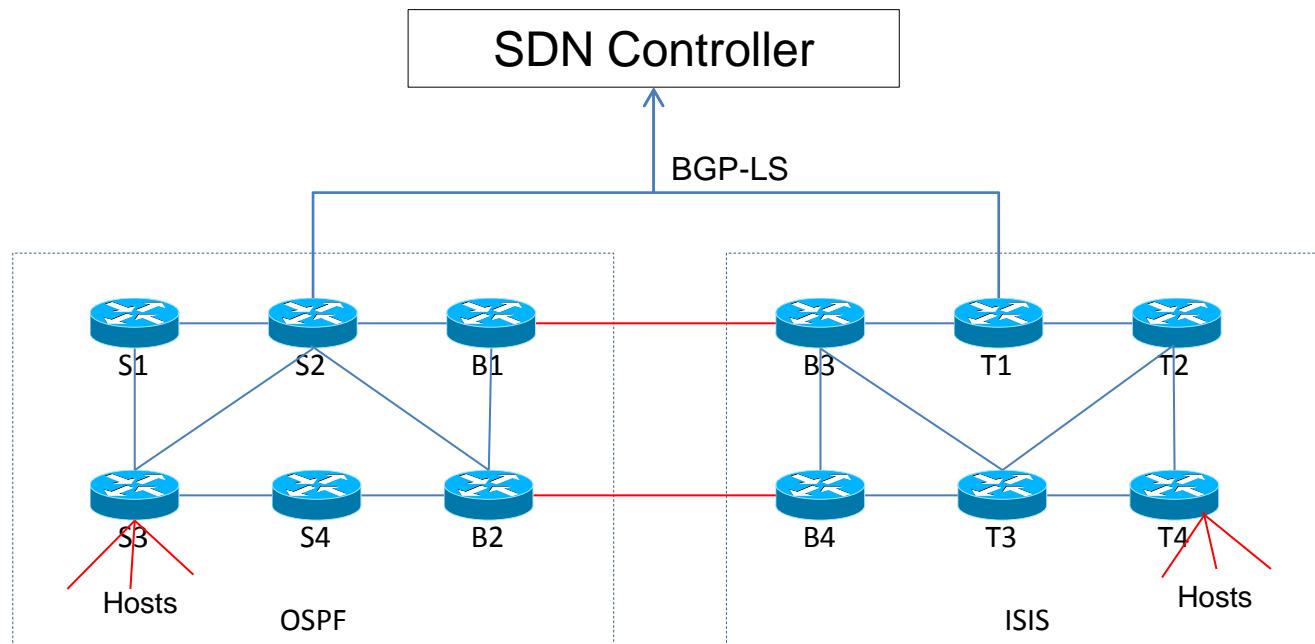
Proposal for the Solution.

- [RFC7794] defines the "IPv4/IPv6 Extended Reachability Attribute Flags" sub-TLV to advertise the additional flags associated with a given prefix advertisement.

- Current ly, only X(Bit 0), R(Bit 1), N(Bit 2), E(Bit 3) flags are defined.

Bit # ☒	Name ☒	Reference ☒
0	External Prefix Flag (X-flag)	[RFC7794]
1	Re-advertisement Flag (R-flag)	[RFC7794]
2	Node Flag (N-flag)	[RFC7794]
3	E-bit (TEMPORARY - registered 2019-08-30, expires 2020-08-30)	[draft-ietf-isis-mpls-elc]

- 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]
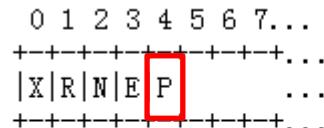
```
  0 1 2 3 4 5 6 7...
 +-+-+-+-+-+-+-+-+...
 |X|R|N|E|P|      ...
 +-+-+-+-+-+-+-+-+...
      Figure 2: Prefix Attribute Flags
P-flag: Passive Flag(Bit 4)
       Set for local interface that is configured as passive interface.
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Other Proposal

- [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:

Value	Name	Reference
0x1	Local Protection Available	[RFC5029]
0x2	Link Excluded from Local Protection	[RFC5029]
0x4	Local Edge Enabled for Flooding (LEEF) (TEMPORARY - registered 2019-07-31, expires 2020-07-31)	[draft-ietf-lsr-dynamic-flooding]

- 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?

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