Passive Interface Attribute
draft-wang-lsr-passive-interface-attribute-00

Abstract

   This document describes the mechanism that can be used to
   differentiate the passive interfaces from the normal interfaces
   within ISIS domain.

Status of This Memo

   This Internet-Draft is submitted in full conformance with the
   provisions of BCP 78 and BCP 79.

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   material or to cite them other than as "work in progress."

   This Internet-Draft will expire on July 13, 2020.

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1. Introduction

   Passive interfaces are used commonly within operator or enterprise
   networks, especially at the boundary of different IGP domains. Using
   passive interface can keep the address that associated with it is
   reachable within the domain it belongs to but no other link
   information is leaked to the other side in another domain.

   For operator which runs different IGP domains that interconnect with
   each other, there is desire that to get the inter-as topology
   information as that described in
   [I-D.ietf-idr-bgpls-inter-as-topology-ext]. If the router that run
   BGP-LS within one IGP domain can distinguish the passive
   interfaces(also the links between two boundary) from the other normal
   interfaces, then it is easy for them to report these link in the
   "Stub Link NLRI" via the BGP-LS.

   OSPF has the mechanism as described in [RFC2328] to label the passive
   interface, but ISIS protocol has no such attribute to label the
   passive interface.

   This document introduces the mechanism that can be used in such
   situation, to label the passive interface via the newly defined
   passive interface attribute.

2. Conventions used in this document

   The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT",
   "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this
   document are to be interpreted as described in [RFC2119] .

[3](). Scenario Description

Figure1 illustrates the topology scenario when ISIS/OSPF is running
in different domain. B1, B3 are border routers within IGP domain A,
B2, B4 are border routers within domain B. S1-S4 are the internal
routers within domain A, T1-T4 are the internal routers within domain
B. The two domain are interconnected via the links between B1/B2 and
B3/B4.

Passive interfaces are enabled in the links between B1/B2 and B3/B4
respectively. For domain B, the T1 router that runs OSPF can extract
the passives links from the normal links and report it to IP SDN
controller via the BGP-LS protocol. But for domain A, the S2 router
that runs ISIS can only judge the passive interfaces from other
characteristics, such as no IGP neighbor on this link. Such
judgement can extract these passive links but it is not exactly,
because it covers also the situation when there is some issues to
establish the ISIS adjacency but not the passive interface.

The passive interfaces are also often used in the edge router which
connects the server, for example in the router S1/S4 and T2/T4 in
Figure 1. Knowing these interfaces are correctly configured will
also benefit the management of these interfaces.

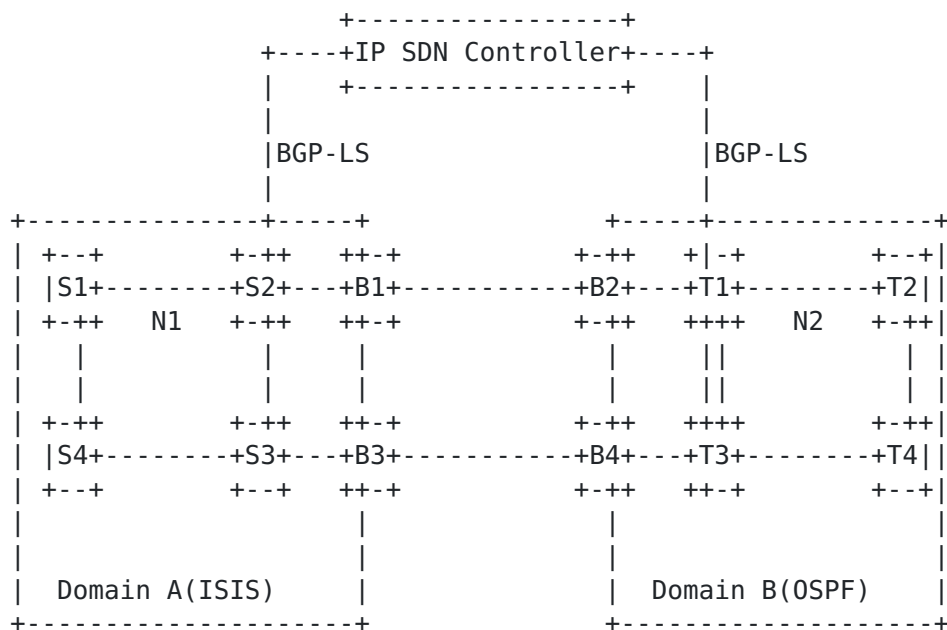The method to label these passive interface explicitly is necessary
then.

```
                        +----------------+
                  +-----+IP SDN Controller+----+
                  |     +----------------+     |
                  |                            |
                  |BGP-LS                      |BGP-LS
                  |                            |
      +---------------+-----+          +-----+--------------+
      | +--+        +-++  ++-+         +-++  +|-+        +--+|
      | |S1+--------+S2+---+B1+----------+B2+---+T1+--------+T2||
      | +-++   N1   +-++  ++-+         +-++  ++++   N2   +-++|
      |  |          |    |             |    ||          | |
      |  |          |    |             |    ||          | |
      | +-++        +-++  ++-+         +-++  ++++        +-++|
      | |S4+--------+S3+---+B3+----------+B4+---+T3+--------+T4||
      | +--+        +--+  ++-+         +-++  ++-+        +--+|
      |             |     |             |    |             |
      |             |     |             |    |             |
      |   Domain A(ISIS)  |             |  Domain B(OSPF)  |
      +-------------------+             +------------------+
```

Figure 1: Inter-AS Domain Scenarios

4. Passive Interface Attribute

[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, here we propose another bit(Bit 4 is desired) to be assigned by the IANA for the passive interface attribute, as illustrated in the following Figure2:

```
     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.
```

When the interfaces on one router be configured as the passive interface, the P-flag bit will be set in the "IPv4/IPv6 Extended Reachability Attribute Flags" sub-TLV. This sub-TLV will be included in the TLV 135, TLV 235, TLV 236 and TLV 237 as necessary and be flooded within the ISIS domain.

The router receives such advertisement can then easily distinguish the passive interfaces from the normal interface, and report them to the SDN controller if it run the BGP-LS protocol.

5. Security Considerations

Security concerns for ISIS are addressed in [RFC5304] and[RFC5310]

Advertisement of the additional information defined in this document introduces no new security concerns.

6. IANA Considerations

IANA is requested to allocate the P-bit (bit position 4 is desired) from the "Bit Values for Prefix Attribute Flags Sub-TLV" registry.

7. Acknowledgement

Thanks Shunwan Zhang, Les Ginsberg and Robert Raszuk for their suggestions and comments on this idea.

8. References

8.1. Normative References

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8.2. Informative References

[I-D.ietf-idr-bgpls-inter-as-topology-ext]
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           "BGP-LS Extension for Inter-AS Topology Retrieval", draft-
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