

Advertisement of Remote Interface Identifiers for Layer 2 Bundle Members

draft-glctgp-lsr-l2-bundle-member-remote-id-00

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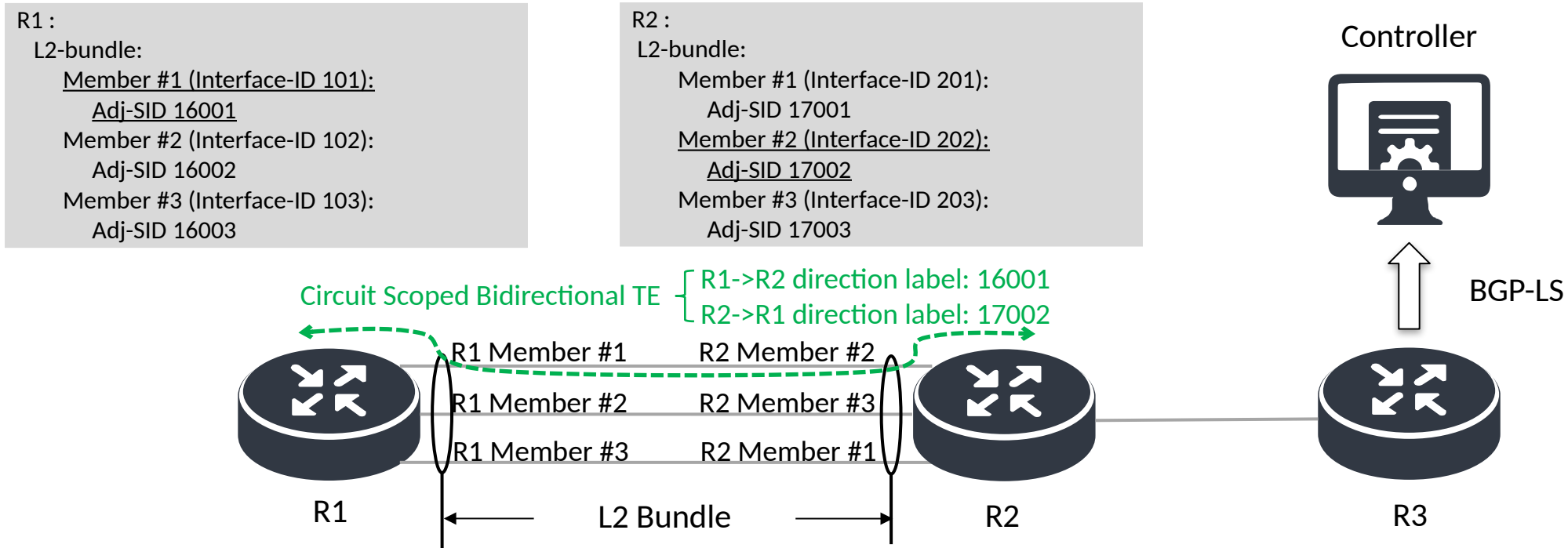
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Motivation

Network operator may want to control bidirectional traffic flows on the individual member links of the Layer 2 bundle for TE purposes.

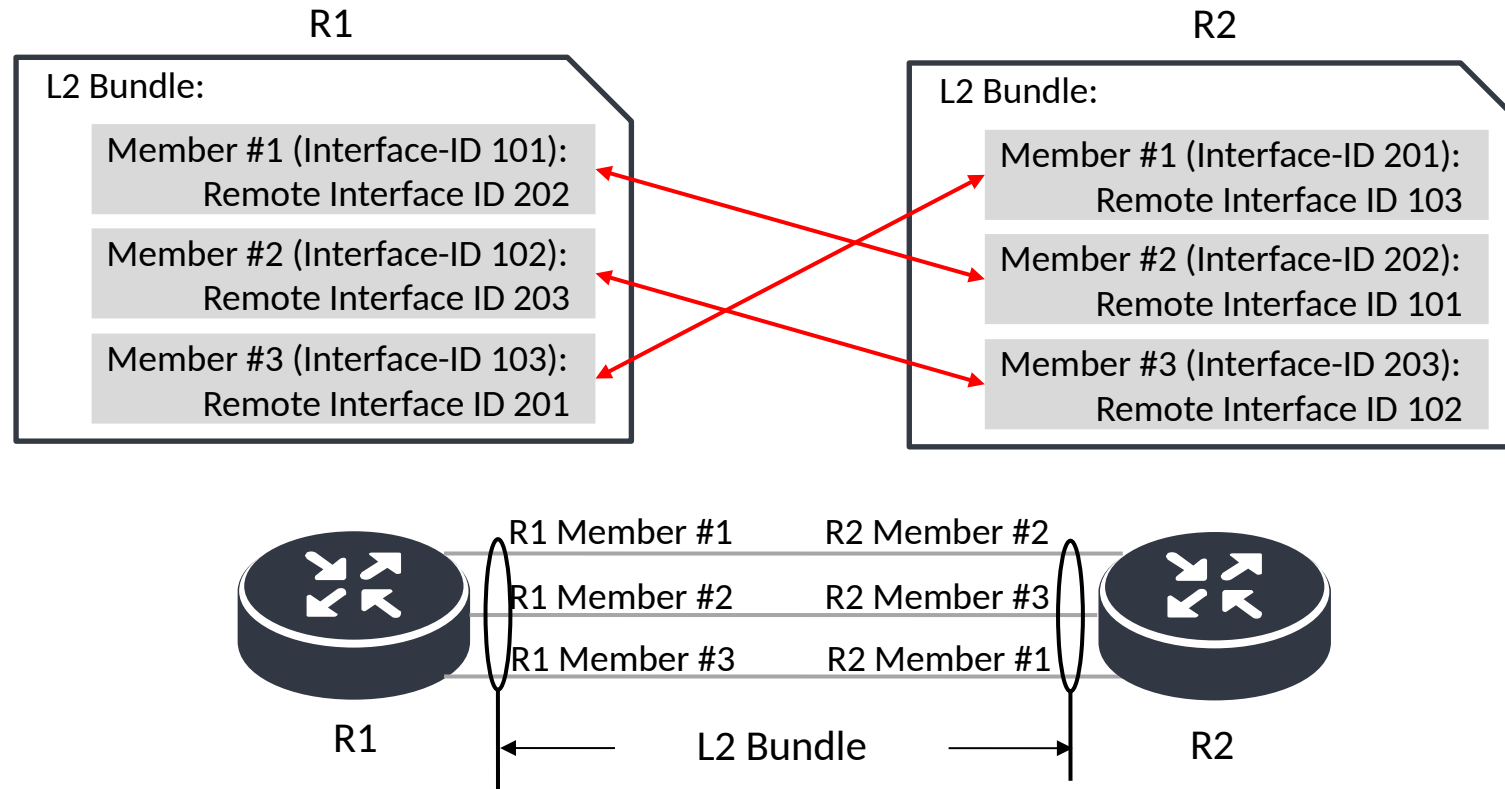
- The real-time bandwidth, delay, and link loss might be measured for each bundle member at both ends.
- Labels or SIDs might be allocated for each bundle member at both ends.

There would be requirements for the controller to figure out the connectivity relationships between bundle members.



Solution Overview

Advertising the remote interface identifier for each L2 bundle member:



OSPF Extension

A new L2 Bundle Member Interface Remote Identifier Sub-TLV is defined in both OSPFv2 and OSPFv3. It can be carried as a sub-TLV of the OSPF L2 Bundle Member Attributes TLV [RFC9356].

OSPFv2 Extended Link TLV, or OSPFv3 Router-Link TLV, for L3 Link:

L2 Bundle Member Attributes TLV:

L2 Bundle Member Descriptor of Member #1

L2 Bundle Member Interface Remote Identifier Sub-TLV (Optional)

L2 Bundle Member Attributes TLV:

L2 Bundle Member Descriptor of Member #2

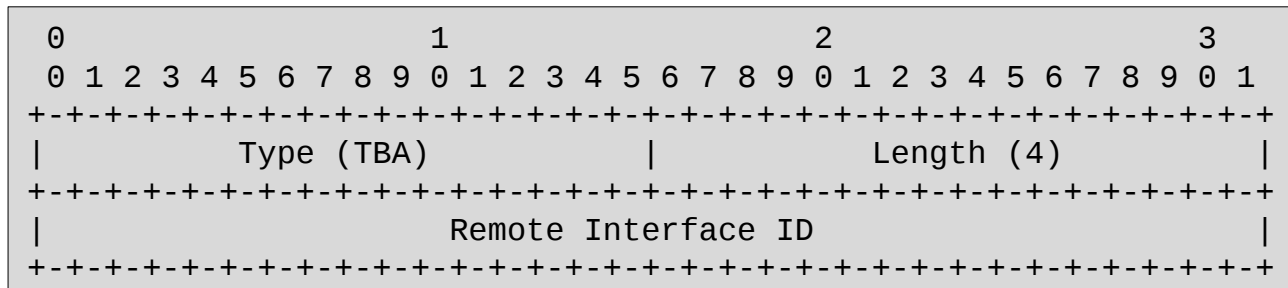
L2 Bundle Member Interface Remote Identifier Sub-TLV (Optional)

...

L2 Bundle Member Attributes TLV:

L2 Bundle Member Descriptor of Member #n

L2 Bundle Member Interface Remote Identifier Sub-TLV (Optional)



A remote interface ID with value of zero is not valid and MUST be ignored and handled as if the sub-TLV was not present.

IS-IS Extension

A new L2 Bundle Member Interface Remote Identifier Sub-TLV is defined in IS-IS. It can be carried as a sub-TLV of the IS-IS L2 Bundle Member Attributes TLV [RFC8668].

L2 Bundle Member Attributes TLV:

Parent L3 Neighbor Descriptor

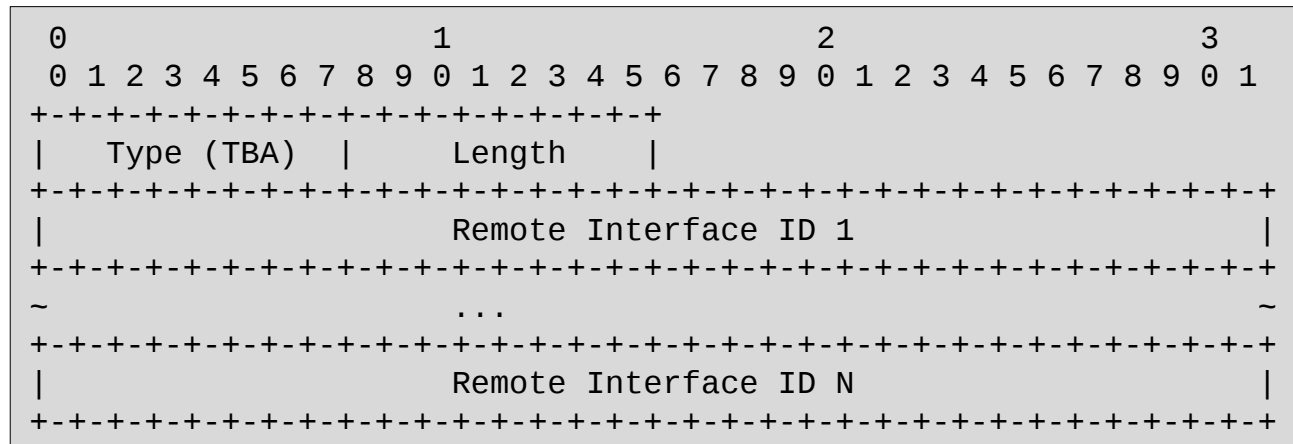
Length of L2 Bundle Attribute Descriptor

Number of L2 Bundle Member Descriptors

L2 Bundle Member Link Local Identifiers of Member #1,#2,...,#n

Sub-TLV(s)

L2 Bundle Member Interface Remote Identifier Sub-TLV (Optional) for Member #1,#2,...,#n



There MUST be one Remote Interface ID for each of the L2 Bundle Members advertised under the associated L2 Bundle Member Attribute Descriptor. A remote interface ID with value of zero MUST be ignored and handled as if the value was unknown.

BGP-LS Extension

A new L2 Bundle Member Interface Remote Identifier Sub-TLV is defined in BGP-LS. It can be carried as a sub-TLV of the BGP-LS L2 Bundle Member Attributes TLV [RFC9085].

NLRI for L3 Link R1->R2

Attributes:

L2 Bundle Member Attributes TLV:

L2 Bundle Member Descriptor of Member #1

L2 Bundle Member Interface Remote Identifier Sub-TLV (Optional)

L2 Bundle Member Attributes TLV:

L2 Bundle Member Descriptor of Member #2

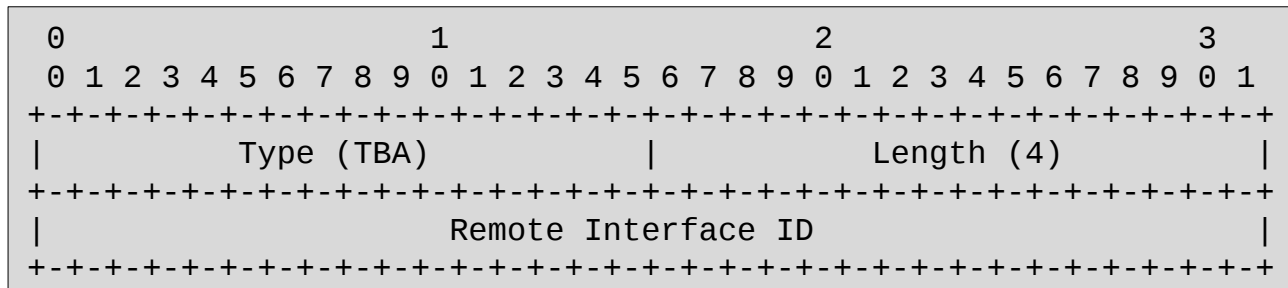
L2 Bundle Member Interface Remote Identifier Sub-TLV (Optional)

...

L2 Bundle Member Attributes TLV:

L2 Bundle Member Descriptor of Member #n

L2 Bundle Member Interface Remote Identifier Sub-TLV (Optional)



A remote interface ID with value of zero is not valid and MUST be ignored and handled as if the sub-TLV was not present.

Acquirement of Remote Interface Identifier

IGPs have no direct way to exchange L2 bundle member link identifiers since the Layer 3 protocol is not operating directly on the bundle members.

Some L2 protocols may be used to get the remote interface identifiers for bundle members:

- Discovered via [IEEE802.1AX] when used to form the LAG bundle.
- Run LLDP [802.1AB] on the bundle members to exchange interface identifiers.

How the remote interface identifier is obtained is out of the scope of this draft.

Next Steps

- Any questions or comments are Welcomed.

Thanks