BGP-SPF Flooding Reduction

draft-chen-lsvr-flood-reduction-01

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Overview

Thanks people below for their comments and suggestions

- Acee Lindem
- Keyur Patel
- Donald E. Eastlake

Updates to Previous Version
- Simplify it by removing RR groups
- Some Editorial Changes

Revised Flooding Procedure in RR Model

- ✓ BGP SPF speaker/node sends its Link NLRI to some such as one of RRs.
- ✓ After receiving it, the RR sends the NLRI to the other BGP SPF speakers.

For example,

A sends its link state to one RR RR1, not to RR2.

After receiving the link state from A, RR1 sends it to B and C.

> After receiving Link NLRI for A → B from A, RR1 sends it to B and C

> A sends Link NLRI for A → B to RR1 when A discovers that link A → B is up. A does not send it to RR2.

RR1   RR2

Legend:
- ———— Peer Session
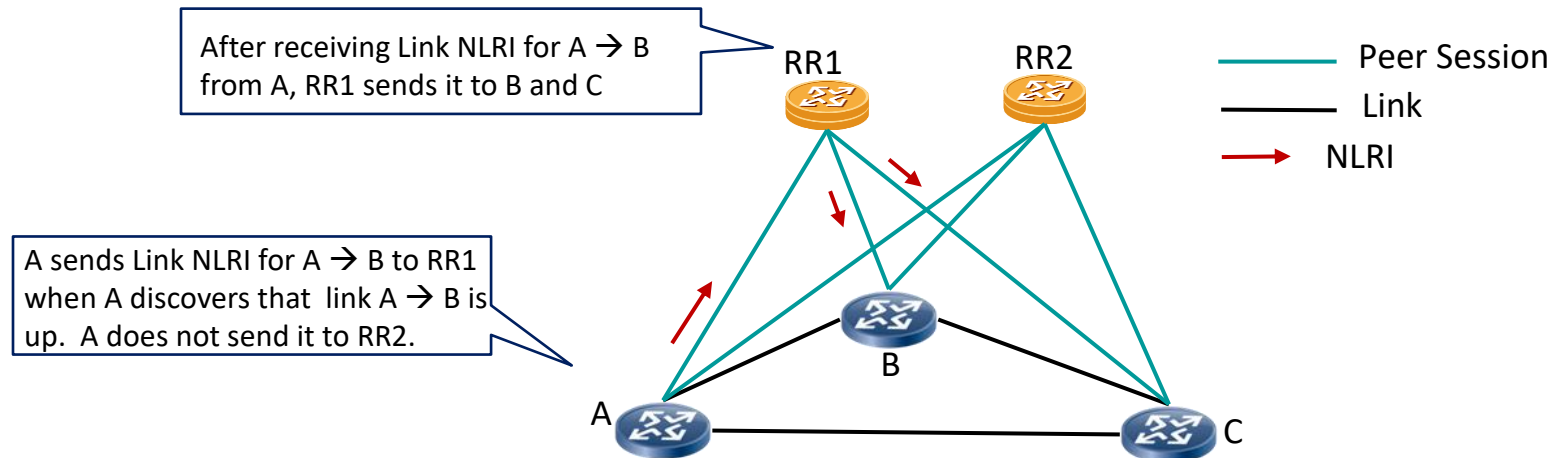- ———— Link
- ——→ NLRI

B

A   C

Figure 2. BGP-SPF Domain with two RRs

B and C receives only one copy of the same NLRI

Comparing to normal flooding in RR model, revised flooding reduced the amount of flooding by half.

Revised Flooding Procedure in Node Connections Model

Similar to the one in ietf-lsr-dynamic-flooding:

✓ Each node has a flooding topology (FT).

- In an option, FT is computed in a distributed mode, where every BGP SPF speaker computes a FT for the network using a same algorithm.
- In another, FT is computed in a centralized mode, where one BGP SPF speaker elected as a leader computes a FT and advertises FT to every BGP SPF speaker. For a new FT computed, only changes are advertised.

✓ Each node sends link NLRI to its peers on FT (i.e., are connected by the links on the FT).
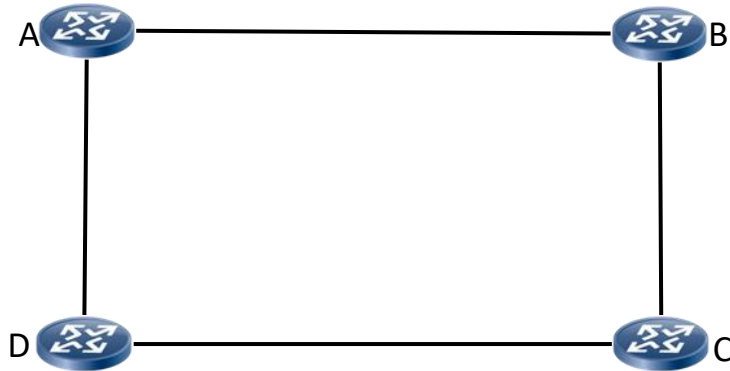

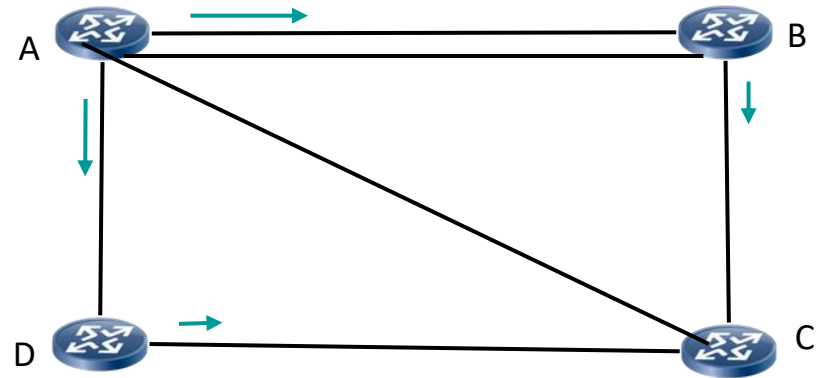Figure 2a. A Flooding Topology

Figure 3a. Advertise NLRI Using Flooding Topology

For example, Figure 3a shows a flooding flow of a link NLRI.

A sends the NLRI to its peers B and D. B and D are peers of node A and on the FT. A does not send the NLRI to its peer C since C is not connected to A on the FT.

After receiving it from A, B sends it to C; D sends it to C.

The number of NLRIs flooded in revised flooding is much less than that in normal flooding.

Next Step

Comments

Adoption