

Applicability of BGP-LS with Multi-Topology (MT) for Segment Routing based Network Resource Partitions (NRPs)

draft-ietf-idr-bgpls-sr-vtn-mt-07

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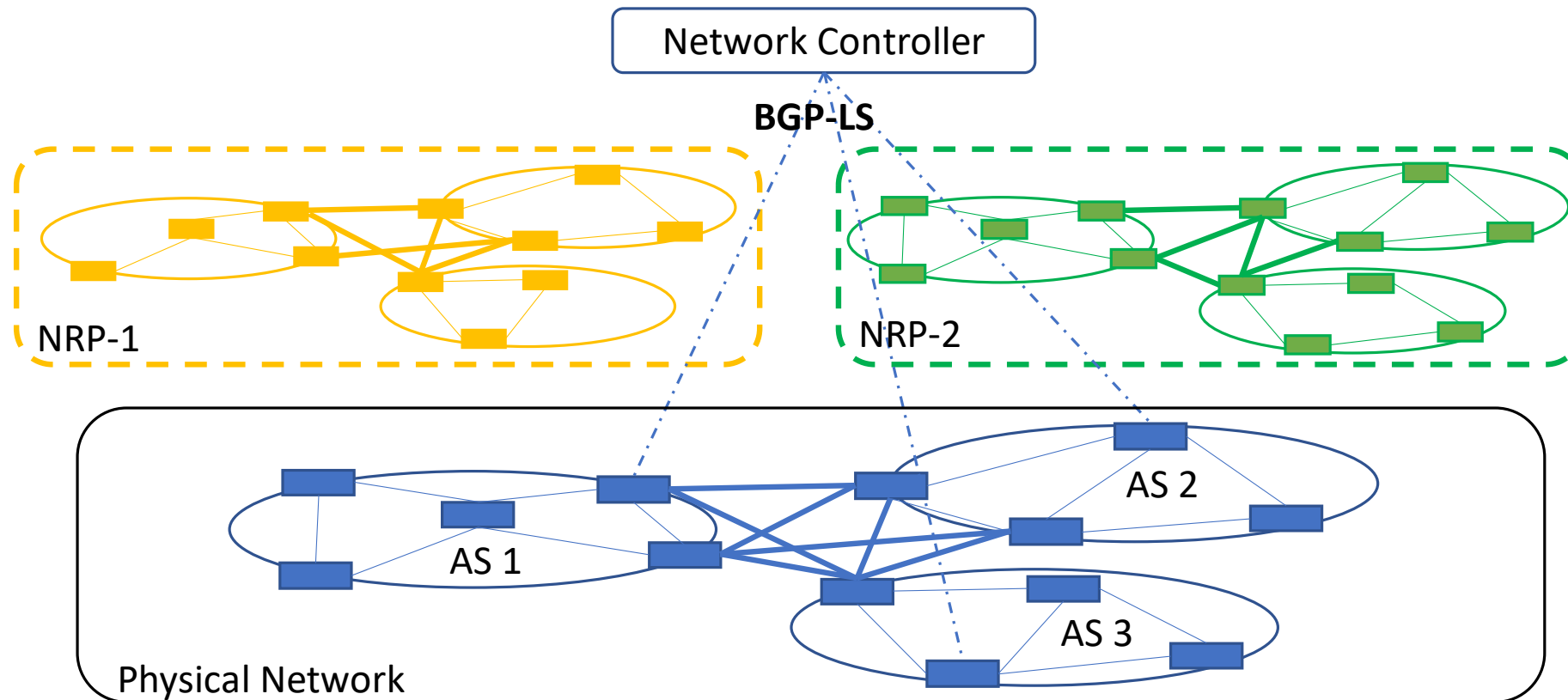
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Background

- An NRP consists of a set of dedicated or shared network resources, and is associated with a (filtered) topology
 - Introduced in RFC 9543, can be used to support one or a group of network slice services
- The mechanism and procedure of building SR based NRP are described in *draft-ietf-spring-sr-for-enhanced-vpn*
 - Based on resource-aware segments as defined in *draft-ietf-spring-resource-aware-segments*
- The IGP mechanisms for SR based NRP are discussed in LSR WG
 - An Multi-Topology based approach is described in *draft-ietf-lsr-isis-sr-vtn-mt*
- This documents describes the MT based BGP-LS mechanisms for SR based NRP
 - Aligns with the approach of MT based SR NRP in IGP
 - Distributes the NRP topology and resource attributes to network controller
 - The inter-domain topology and TE attributes of NRP are also considered
- This is a informational document, as no new BGP extension is introduced

Scope of this Document

- BGP-LS is used to distribute following NRP-specific information to network controller:
 - Intra-domain NRP topology
 - Inter-domain NRP topology
 - Resource-aware segments and associated TE attributes of the NRP



Proposed Mechanism

- MT-ID is reused as the control plane identifier of NRP
 - It is assumed each NRP is associated with a unique logical topology in each domain
- Intra-Domain NRP Topology Advertisement
 - Use MT-ID TLV in BGP-LS Link NLRI, Prefix NLRI to advertise the per-NRP topology information
 - Topology-specific SR SIDs are advertised for the NRP using BGP-LS SR/SRv6 extensions
- Inter-Domain NRP Topology Advertisement
 - Use MT-ID TLV with BGP-LS EPE to advertise the per-NRP inter-domain connectivity and the topology-specific Peer-Adj-SIDs, Peer-node-SIDs and Peer-set-SIDs.
 - MT-ID needs to be unified planed to ensure the consistency both in each domain and on the inter-domain links
- NRP topology specific TE attributes Advertisement
 - Topology-specific TE attributes are used to specify the resources allocated to each NRP
 - The Maximum Link Bandwidth sub-TLV is used to advertise the sub-set of link bandwidth allocated to the NRP identified by an MT-ID

Updates in Recent Revisions

- Updated the terminology and descriptions about NRP to align with RFC 9543, draft-ietf-teas-enhanced-vpn, draft-ietf-spring-sr-for-enhanced-vpn and draft-ietf-lsr-isis-sr-vtn-mt
- Updated the scalability considerations
- Addressed the review comments from Adrian and Sue
- Addressed the review comments received recently from Jeff
 - Updated the text about MT-ID TLV according to RFC 9552
 - Clarified the description about the case where consistent MT-ID allocation in different domains cannot be achieved
- Editorial changes

Next Steps

- The latest version addresses all the review comments
- draft-ietf-lsr-isis-sr-vtn-mt has passed WG last call in LSR WG
- The authors believe this document is ready for WG LC in IDR WG

Thank You