

# BGP SR Policy Extensions for Network Resource Partition (NRP)

draft-dong-idr-sr-policy-nrp-04

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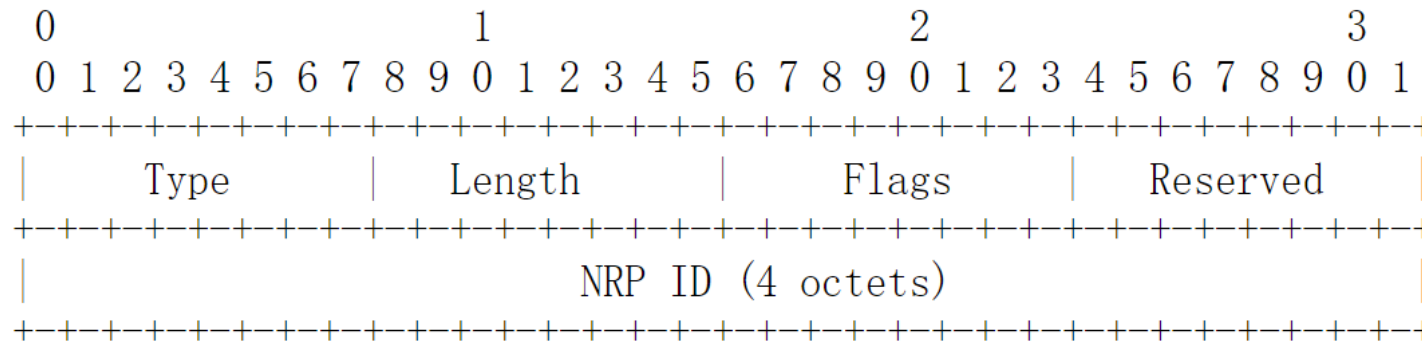
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# Background

- Network Resource Partition (NRP) is a collection of network resources allocated in the underlay network
  - “IETF network slice” services can be mapped to an NRP to obtain the required service performance
- SR Policy is a set of candidate paths, each consisting of one or more segment lists and the associated information
  - Packet steered to an SR policy is augmented with a Segment List in the packet header
- An SR Policy may be associated with a particular NRP in the network
  - The association between the SR policy and NRP needs to be specified
  - Packet steered to the SR policy can be augmented with both the SID list and the NRP identifier
- This document defines extensions to BGP SR policy to indicate the NRP which the SR Policy is associated with

# BGP SR Policy Extensions for NRP

- A new sub-TLV called “NRP sub-TLV” is defined in the BGP Tunnel Encapsulation Attribute
  - Can be carried in the BGP Tunnel Encapsulation Attribute with the tunnel type set to SR Policy



- Type: 123 (assigned by IANA)
- Length: 6
- Flags: None is defined. SHOULD be set to 0 on transmission and MUST be ignored on receipt
- Reserved: SHOULD be set to zero on transmission and MUST be ignored on receipt
- NRP-ID: A 32-bit domain significant identifier which is used to identify a NRP. Value 0 and 0xFFFFFFFF are reserved.

# Updated BGP SR Policy Encoding

- The encoding of BGP SR Policy with NRP sub-TLV is as below:

SR Policy SAFI NLRI: <Distinguisher, Policy-Color, Endpoint>

Attributes:

Tunnel Encaps Attribute

Tunnel Type: SR Policy

Binding SID

Preference

Priority

Policy Name

Explicit NULL Label Policy (ENLP)

**NRP**

Segment List

Weight

Segment

Segment

...

...

# Procedures

- The originating node of SR Policy SHOULD include the NRP sub-TLV in the BGP Tunnel Encapsulation Attribute of the BGP SR Policy to specify the associated NRP
  - The setting of other fields and attributes in BGP SR Policy are not changed
- When an SR Policy ingress node receives an SR Policy candidate path which is acceptable and usable, it SHOULD encapsulate the NRP ID in the header of packets which are steered to the SR Policy
  - The NRP encapsulation for SRv6 Policy is defined in draft-ietf-6man-enhanced-vpn-vtn-id

# Operational Considerations

- With the proposed mechanism, it allows different candidate paths in one SR policy to be associated with different NRPs, while in normal scenarios it is considered that the association between SR Policy and NRP is consistent
- Thus in normal cases all the candidate paths of one SR policy SHOULD be associated with the same NRP

# Scalability Considerations

- The mechanism specified in this document adds additional information to SR Policy candidate paths
- As the number of NRP increases, the number of SR Policies candidate paths may also increase
- When BGP is used for distributing SR Policy candidate paths, the amount of information exchanged between the controller and the headend SR nodes may increase accordingly
- Since the SR Policy candidate paths distributed in BGP are only installed by the corresponding headend nodes, the impact to the BGP control plane is considered acceptable

# Next Steps

- Document has finished WG adoption call in IDR
  - Waiting for the announcement of the result
- TEAS Chairs indicated this may be related to the scalability discussion in TEAS WG
- IDR Chairs suggested to present it in TEAS session for feedback
- Comments and feedbacks are welcome



Thank You