

Using Flex-Algorithm for SR based NRP

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Background Recap

- Network Resource Partition (NRP) is a collection of network resources allocated on a set of links in the underlay network
 - The NRP concept is introduced in RFC 9543 (IETF Network Slice Framework)
 - An NRP can be used to support enhanced VPN or network slice services
- Resource-aware SR SIDs represent subsets of resources allocated on network segments for packet processing
 - Can be used to build SR based NRPs with the required topology and network resource attributes
- In some network scenarios, the number of required NRPs is relatively small
 - Each NRP can be associated with a unique Flex-Algorithm for constraint-path computation
- This document proposes a mechanism to advertise information of SR based NRPs using IGP Flex-Algo and IGP L2 bundle
 - Flex-Algorithm is used to specify the topology constraints of the NRP
 - IGP L2 bundle is used to specify the set of link resources and attributes associated with the NRP

Proposed Mechanisms

- Advertisement of NRP Topology Attributes
 - Each NRP is associated with a unique Flex-Algo
 - The Flex-Algo ID can be used to identify an NRP in control plane
 - The topology of an NRP can be described using the associated Flex-Algo
 - SR-MPLS or SRv6 resource-aware SIDs associated with the Flex-Algo can be used for NRP-specific traffic forwarding
- Advertisement of NRP Resource Attributes
 - The NRP resource attributes can be used by network controller or ingress nodes for SR-TE path computation in an NRP
 - The partition of link resources can be seen as virtual or physical member links of a layer-3 link
 - IGP L2 bundle is used to advertise the link resource related attributes of NRPs
 - Correlation of an NRP (Flex-Algo) with the bundle member links is achieved using Admin Group (color)
 - A new “E” flag in L2 bundle TLV is used to indicate that the member links are exclusively used for traffic of the corresponding NRP

Updates Since Last Presentation

- According to the consensus in TEAS WG, the term VTN has been replaced by NRP to align with the network slice framework and enhanced VPN framework documents
- Clarifies the scenarios where the proposed approach applies
- Further clarifies the usage of the “E” Flag
- Refines the scalability considerations
- Some editorial changes

Next Steps

- The content of this document has been stable
- Authors would like to ask for WG adoption of this document

Thank You