Packet Network Slicing using Segment Routing

draft-peng-lsr-network-slicing-00
Problem Statement

- draft-ietf-teas-enhanced-vpn-01 specifies the layered architecture of enhanced VPN.
- Based the layered architecture of enhanced VPN, this document specifies the solution to create virtual networks in a packet network.
Introduction

• Explicit virtual network identification (Administrative Instance Identifier, \textit{AI I}) to meet the different service in entire network, which is not only in IGP domain but also in cross-domain Scenarios.

• \textit{AI I} is one of constraint criteria of the color template (draft-ietf-spring-segment-routing-policy), and color template with \textit{AI I} provides a more flexible control.

• Virtual network-based MP2P SR-BE for best-effort service and P2P SR-TE for traffic engineered service respectively.

• Uniform Color template (Centralized and distributed, intra and inter domain) for overlay service mapping to underlay resource.

• There is no modification to the forwarding table (dataplane).
The solution to create virtual networks in a packet network

Resource Allocation
Base on the link.

Flexible Service Overlay
All is one of constraint criteria in the color template .CSPF for SR-BE/TE with color including All and other constraint criteria to satisfied different service
Multi-Domain Deployment

Colored BGP-LU without SDN

Option B Inter-area

color 1000 is:
All 1
SPF

VPN lsp need <color=1000>

AS1

PE 1

SR-TE

ASBR 1

SR-BE

ASBR 2

PE 2

VPN lsp need <color=1001>

AS1

PE 1

SR-TE

ASBR 1

SR-BE

ASBR 2

PE 2

color 1001 is:
All 1
bandwidth 1G
delay 10ms
Multi-Domain Deployment Cont.

E2E SR-TE with SDN
Combined with SR Flex-algorithm

- Color template with AII could map to the FA-id for label stack optimization.
- When the algorithm value advertised is a Flex-Algorithm value, the Prefix SID is associated with paths calculated using that Flex-Algorithm in the associated topology AII specific.
Next Step

• Comments welcome.

Thanks!