Path Segment used in SR and MPLS Interworking

draft-xiong-mpls-path-segment-sr-mpls-interworking-00.txt

Quan Xiong(ZTE)
Greg Mirsky(ZTE)
Weiqiang Cheng(China Mobile)

IETF MPLS, July 2019, Montreal
Path Segment

- Path Segment defined in [ietf-spring-mpls-path-segment] has been proposed and adopted in Spring WG
  - Path Segment (Path ID/PSID) is introduced for SR path identification
    - Performance measurement
    - Bidirectional path correlation
    - End-to-end Path Protection
  - Path Segment MAY be used to correlate the inter-domain paths or unidirectional paths to provide end-to-end bidirectional VPN service in SR and MPLS interworking scenario.
    - Bidirectional Path Correlation
    - Inter-domain Path Correlation

Figure 1: Label Stack with Path Segment
SR and MPLS Interworking with Path Segment

Super Controller

SR Domain Controller

MPLS Domain Controller

SR Domain Controller

SR

MPLS

SR

Access Network

Aggregation Network

Core Network

1

2

3

4

5

6

7

A

B

C

D

E

X

Y

Z

11

12

13

14

9

10

SR SID List

MPLS-TE Tunnel

SR SID List

E2E Bidirectional VPN Service

Path Segment-1(1->9)

Path Segment-1'(9->1)

Path Segment-2(1->9)

Path Segment-2'(9->1)

Path Segment-3(1->9)

Path Segment-3'(9->1)

Node 1 (1 and 1') and 9 (3 and 3')---Path Bidirectional correlation

Node A (1 and 2)/X (2' and 1'), Z (2 and 3) and Y (3' and 2')---Path Inter-domain correlation
Interworking Consideration

• **SR Interworking with MPLS**
  - The end-to-end bidirectional VPN service can be achieved by interworking between the SR and MPLS networks with path segment correlation.
    - Stitching Model or Nesting Model
    - Border Node or Border Link
    - Sub-path OAM or End-to-End OAM

✓ **Stitching Model**
  - Domains are isolated and the edge nodes will correlate the paths with Path Segment to achieve paths stitching and bind the unidirectional paths for end-to-end bidirectional service.

✓ **Nesting Model**
  - Global segments listed at the ingress node and the unidirectional end-to-end paths can be identified by Path Segment and correlate to achieve end-to-end bidirectional service.
Next Step

• Solutions for SR and MPLS Interworking.

• Comments and discussions are very welcome!
Thank you!