SRv6 Service Benchmarking Guideline

draft-geng-bmwg-srv6-service-guideline

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Background: Benchmarking Methodology for Segment Routing

- draft-vfv-bmwg-sr-bench-meth has defined the SRv6 behavior in data plane
- Segment Routing specific report parameters are defined, for example:
  - Number of Segments considered in the SID list.
  - Behavior (H.Encaps, etc.) and Flavor (PSP, USP, USD) used for SRv6 tests (according to [RFC8986]).
Background: Benchmarking Methodology for EVPN

- draft-ietf-bmwg-evpntest has defined EVPN capability benchmarking
- EVPN specific report parameters are defined, for example:
  - Data Plane MAC Learning
  - Control Plane MAC Learning
  - MAC Aging
  - Control and Data Plane MAC Learning
  - High Availability
Motivation: Introducing SRv6 Service Benchmarking

- Based on the existing work, we are trying to propose the benchmarking of SRv6 service capability, which means different types of services could be transported through SRv6 network.

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SRv6 Best Effort Service
- Internet Service
  - Global IPv4 over SRv6 network
  - Global IPv6 over SRv6 network
  - Layer 3 Service over SRv6
  - IPv4 VPN over SRv6 network
  - IPv6 VPN over SRv6 network
  - Ethernet VPN (EVPN) over SRv6
  - Layer2/Layer3 VPN over SRv6
  - VPWS VPN over SRv6

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SRv6 Network

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SRv6 Traffic Engineering Service
- Internet Service
  - Global IPv4 over SRv6 network
  - Global IPv6 over SRv6 network
  - Layer 3 Service over SRv6
  - IPv4 VPN over SRv6 network
  - IPv6 VPN over SRv6 network
  - Ethernet VPN (EVPN) over SRv6
  - Layer2/Layer3 VPN over SRv6
  - VPWS VPN over SRv6

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SRv6 Policy without Compression
- Internet Service
  - Global IPv4 over SRv6 network
  - Global IPv6 over SRv6 network
  - Layer 3 Service over SRv6
  - IPv4 VPN over SRv6 network
  - IPv6 VPN over SRv6 network
  - Ethernet VPN (EVPN) over SRv6
  - Layer2/Layer3 VPN over SRv6
  - VPWS VPN over SRv6

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RFC 9252: BGP Overlay Services Based on Segment Routing over IPv6 (SRv6)
Proposal: Take “SRv6 Best Effort Service” Test Case as An Example

Objective: Test SRv6 Best Effort Service capability

Procedure:
- Build the test network according to the topology with basic IGP/BGP configuration ready.
- Transport global IPv4 over SRv6 network, and there is expected result 1.
- Transport global IPv6 over SRv6 network, and there is expected result 2.
- Deploy IPv4 L3VPN over SRv6-BE path, the tester generates traffic, and there is expected result 3.
- Deploy IPv4 L3VPN over SRv6-BE path, the tester generates traffic, and there is expected result 4.
- Deploy EVPNv4 over SRv6-BE path, the tester generates traffic, and there is expected result 5.
- Deploy EVPNv6 over SRv6-BE path, the tester generates traffic, and there is expected result 6.
- Deploy EVPN VPWS over SRv6-BE path, the tester generates traffic, and there is expected result 7.

Expected Results:
- The device supports global IPv4 over SRv6 network, and the traffic is forwarded normally without packet loss.
- The device supports global IPv6 over SRv6 network, and the traffic is forwarded normally without packet loss.
- The device supports IPv4 L3VPN over SRv6-BE path, and the traffic is forwarded normally without packet loss.
- The device supports IPv6 L3VPN over SRv6-BE path, and the traffic is forwarded normally without packet loss.
- The device supports EVPNv4 over SRv6-BE path, and the traffic is forwarded normally without packet loss.
- The device supports EVPNv6 over SRv6-BE path, and the traffic is forwarded normally without packet loss.
- The device supports EVPN VPWS over SRv6-BE path, and the traffic is forwarded normally without packet loss.
Proposal: Other SRv6 Service related Features are Included

- SRv6 OAM — SRv6 Reliability — SRv6 Service Performance are also covered

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**SRv6 OAM**
- SRv6 SID PING
- SRv6 SID Trace

**SRv6 Reliability**
- SRv6 BE Reliability
  - Link Failure Protection
  - Node Failure Protection
  - Egress Node Failure Protection
- SRv6 TE Reliability
  - Link Failure
  - Node Failure
  - Egress Node Failure Protection

**SRv6 Service Performance**
- SRv6 SRH Layer Number
- SRv6 Forwarding Performance
- SRv6 Tunnel Number
Next Steps

• We would like to seek feedback and comments from WG

• Comments and collaborations are welcome.
Thanks