

SR Policy Group

draft-cheng-spring-sr-policy-group-00

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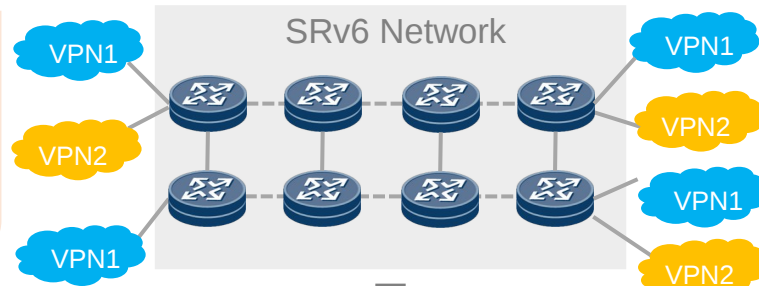
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IETF-115

Requirement & Application Scenarios

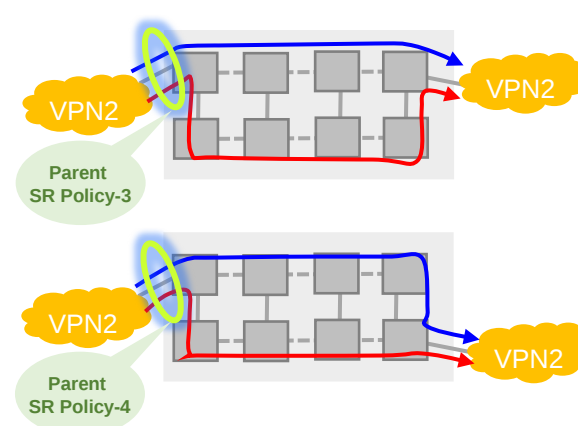
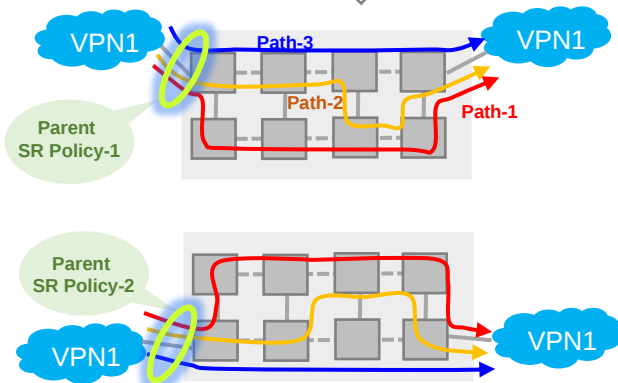
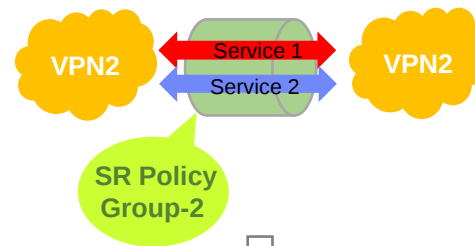
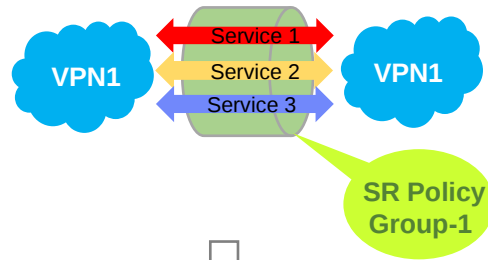
VPN 1

- Voice service of VIP users
Low delay forwarding
- Other services of VIP users
Priority forwarding
- Services of ordinary users



VPN 2

- Voice service
Low delay forwarding
- Non voice services



● Requirements

In the multi service scenario of a single user (such as VPN tenant), different service flows of the same user have different requirements on the forwarding quality of the network.

Different traffic is expected to be forwarded through different paths and use different network resources.

● **The forwarding model between different source nodes and different destination nodes is the same.**

The service forwarding requirements of the same VPN user are similar.

Similar service forwarding policies need to be distributed to each head node.

● **Multiple paths exist between the same two nodes.**

Flow with different characteristics to the same destination endpoint have different forwarding quality requirements.

Based on the Parent SR policy, the service packet is colored and steered into different SR policy paths.

Terminology

- **SR Policy** defined in [RFC9256]

An SR Policy is an instantiation of an ordered list of segments on a node for implementing a source routing policy for the steering of traffic for a specific purpose (e.g., for a specific SLA) from that node.

- **Parent SR Policy** defined in [RFC9256] and discussed in [draft-jiang-spring-parent-sr-policy-use-cases]

A Parent SR Policy represents a composite candidate path, which is a group of SR policies that meet different service objectives and have the same destination endpoint address.

- **SR policy group**

An SR policy Group is an instantiation of a set of Parent SR Policies to different destination endpoints with the same service forwarding model.

- ✓ Represents a set of paths with different forwarding requirements.
- ✓ Composed by different parent SR policies which have the same color but different destination endpoints.
- ✓ Establishes the mapping relationship between the flow characteristics and the Color value of the SR Policy.
- ✓ Guides the flows with different SLA requirements to the SR Policy with different Colors.

Identification of SR Policy Group

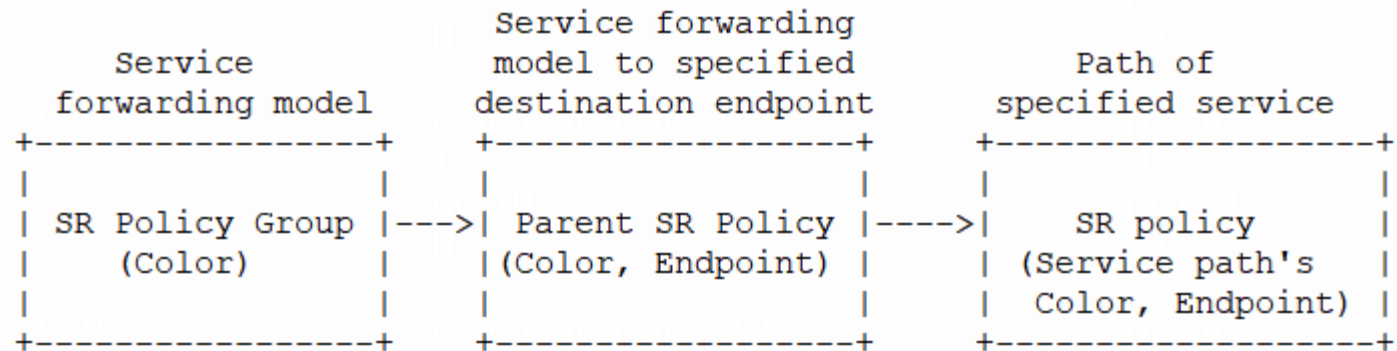
An SR Policy Group MUST be identified through a **Color** attribute.

- The Color attribute is an unsigned non-zero 32-bit integer value.
- The Color attribute corresponds to the Color attribute of the BGP route published by the endpoint.
- Different service qualities use different Color values.

In the Policy Group, establish the mapping relationship between the flow characteristics and the Color value of the SR Policy path, and guide the service flows with different SLA requirements to the SR Policy path with different Colors.

Composition of SR Policy Group

An SR Policy Group is associated with one or more constituent Parent SR Policies.



- A SR Policy Group contains one or more Parent SR policies.
- The Colors of SR Policy group and its each Parent SR Policy **MUST be identical**.
- The Colors of SR Policy group and its each SR Policy of echo constituent Parent SR Policies **MUST be different**.
- The destination endpoint addresses of the Parent SR policy in the SR policy group can be the same or different.
- There can only be one Parent SR Policy with the same source end and the same destination end in the SR Policy group.

Traffic Steering of SR Policy Group

- **Egress node**

Publish a BGP route with the Color extended community attribute.

- **Ingress node**

- Search for an SR Policy Group with Color matching the Color extended community attribute in the BGP route.
- Search for a Parent SR Policy in the SR Policy Group with endpoint address matching the Next Hop in the BGP route, and recurse the BGP route to the parent SR policy.
- Match flow characteristics and color packets with an internal per-packet forwarding-class variable.

According to the forwarding-class variable the ingress node selects a matching SR policy in the Parent SR policy.

Information Model

SR Policy Group PG-1 <Color = 1>

Parent SR Policy PP-1<Color = 1, Endpoint = E1>

Service Service-1 mapping-to color 100

Service Service-2 mapping-to color 200

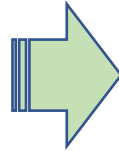
Service Service-3 mapping-to color 300

Parent SR Policy PP-2<Color = 1, Endpoint = E2>

Service Service-1 mapping-to color 100

Service Service-2 mapping-to color 200

Service Service-3 mapping-to color 300



// H2 -> E2

SR Policy POL2-21 <Headend = H2, Color = 100, Endpoint = E2>

SR Policy POL2-22 <Headend = H2, Color = 200, Endpoint = E2>

SR Policy POL2-23 <Headend = H2, Color = 300, Endpoint = E2>

// H2 -> E1

SR Policy POL1-21 <Headend = H2, Color = 100, Endpoint = E1>

SR Policy POL1-22 <Headend = H2, Color = 200, Endpoint = E1>

SR Policy POL1-23 <Headend = H2, Color = 300, Endpoint = E1>

// H1 -> E2

SR Policy POL2-11 <Headend = H1, Color = 100, Endpoint = E2>

SR Policy POL2-12 <Headend = H1, Color = 200, Endpoint = E2>

SR Policy POL2-13 <Headend = H1, Color = 300, Endpoint = E2>

// H1 -> E1

SR Policy POL1-11 <Headend = H1, Color = 100, Endpoint = E1>

Candidate Path CP1 <Protocol-Origin = 20, Originator = 64511:192.0.2.1, Discriminator = 1>

Preference 200

Priority 10

Segment List 1 <SID11...SID1i>

SR Policy POL1-12 <Headend = H1, Color = 200, Endpoint = E1>

Candidate Path CP1 <Protocol-Origin = 20, Originator = 64511:192.0.2.1, Discriminator = 2>

Preference 200

Priority 10

Segment List 1 <SID21...SID2i>

SR Policy POL1-13 <Headend = H1, Color = 300, Endpoint = E1>

Candidate Path CP1 <Protocol-Origin = 20, Originator = 64511:192.0.2.1, Discriminator = 3>

Preference 200

Priority 10

Segment List 1 <SID31...SID3i>

Next Steps

- Any questions or comments are Welcomed
- Seeking for feedback