BGP SR Policy Extension for template


K. Zhang (Huawei Technologies)
J. Dong (Huawei Technologies)
• BGP can be used to propagate the SR Policy candidate paths to the headend nodes in the network

• The BGP SR Policy encoding structure is as follows:

  SR Policy SAFI NLRI: <Distinguisher, Policy-Color, Endpoint>

  Attributes:
  Tunnel Encaps Attribute (23)
  Tunnel Type: SR Policy
  Binding SID
  SRv6 Binding SID
  Preference
  Priority
  Policy Name
  Policy Candidate Path Name
  Segment List
  Weight
  Segment
  ...
  ...

• The basic attributes of the candidate path are defined in draft-ietf-idr-segment-routing-te-policy
Motivation & Problem Statement

In application, the head-end routers may need to enable many features on the candidate path.

Reasons to introduce template:

• Some features are only meaningful to controller and head-end nodes, BGP protocol no need to know them, use template can shield information that BGP no need to know

• Features may change frequently, template can be used to avoid BGP protocol changes too frequently

• Different sr policies with the same feature can use the same template, thus can simplify configuration and improve maintainability
Template process

Template:
- A group of features for sr policy candidate path
- Use an identifier which is meaningful to the head-end node of SR Policy
- template can be configured with template ID and template contents
- BGP protocol carries the template ID in SR Policy candidate path attributes
- SR Policy head-end nodes find the contents of template using template ID and setup path with the features defined in the template

**Controller**

**BGP Protocol**

SR Policy
Endpoint 1.1.1.1 color 100(green)
Candidate Path
Preference 100
template 1
Segment List1

SR Policy
Endpoint 1.1.1.1 color 200(green)
Candidate Path
Preference 200
template 2
Segment List2

**Template 1**
- backup hot-standby enable
- traffic-statistics enable
- bfd seamless enable
- bfd min-tx-interval 10

**Template 2**
- traffic-statistics enable
- bfd seamless enable
- bfd min-tx-interval 20
BGP SR Policy Extension

SR Policy SAFI NLRI: <Distinguisher, Policy-Color, Endpoint>

Attributes:

- Tunnel Encaps Attribute (23)
- Tunnel Type: SR Policy
- Binding SID
- SRv6 Binding SID
- Preference
- Priority
- Policy Name
- Policy Candidate Path Name
- Explicit NULL Label Policy (ENLP)

**Template ID**

- Segment List
- Weight
- Segment
- Segment

... ...

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![Diagram of Template ID Sub-TLV](image)

Figure 1: Template ID Sub-TLV

Where:

**Type**: Template ID, 1 octet, TBD.
**Length**: 6.
**Flags**: 1 octet of flags. None are defined at this stage.

**Template ID**: a 4-octet value.
Next Step

- Welcome questions and comments

Thank you!