Traffic Steering by Dropping Invalid Paths

If the SR-TE policy has no valid paths defined, the paths are dropped, and the traffic that is being steered through the policy falls back to the default (unconstrained IGP) forwarding path. Also, when an SR-TE policy carrying best-effort traffic fails, the traffic is re-routed and which in turn impacts the SLA(service level agreements) for premium traffic.

To solve the issue of SR-TE policy failing, the traffic in the data plane is dropped but kept in the control plane. Therefore, other segment routing policies, which could be potentially be carrying premium traffic, are not impacted.

Feature Information for Traffic Steering by Dropping Invalid Paths

Thefollowing table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

UseCisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Table 1: Feature Information for Performance Measurement for Traffic Engineering

Feature Name	Releases	Featuure Information
Traffic Steering By Dropping Invalid Paths	Cisco IOS XE Bengaluru 17.5	If the SR-TE policy fails, the traffic in the data plane is dropped but kept in the control plane. Therefore, other segment routing policies, potentially carrying premium traffic, are not impacted.

Overview

If the SR-TE policy has no valid paths defined, the paths are dropped, and the traffic that is being steered through the policy falls back to the default (unconstrained IGP) forwarding path. Also, when an SR-TE policy carrying best-effort traffic fails, the traffic is re-routed and which in turn impacts the SLA(service level agreements) for premium traffic.

To solve the issue of SR-TE policy failing, the traffic in the data plane is dropped but kept in the control plane. Therefore, other segment routing policies, which could be potentially be carrying premium traffic, are not impacted

This feature can be configured by using the **path-invalidation drop** command.

Before You Begin

This feature should not be enabled if you have already configured segment routing BFD or performance liveness monitoring. If this feature is enabled, segment routing BFD or performance liveness notification is ignored. In such a scenario, no logging or syslog notification is generated for segment routing BFD or performance liveness events.

Note that if the SR-TE policy is in Down state and this feature is configured, the state of the SR-TE policy is not affected.

Benefits

- Configuring this feature ensures that other segment routing policies that are configured to route premium traffic are not impacted thereby ensuring that SLA guidelines are not affected.

Restrictions

- This feature cannot be enabled in combination with segment routing BFD or performance monitoring liveness check.

How to Configure Traffic Steering by Dropping Invalid Paths

Configuring for a PCC Profile

This configuration results in a PCE-initiated policy having the path-invalidation functionality enabled for a policy instantiated with a profile ID matching the configured value:

```
segment-routing traffic-eng
  pcc
   profile <number >
    steering
     path-invalidation drop
```

Configuring for Static Policies

This configuration results in a configuring path validation drop for a segment routing static policy:

```
segment-routing traffic-eng
  policy <name>
   steering
    path-invalidation drop
```

Configuring for On-Demand Next Hop for SR-TE Policies

This configuration results in a configuring path validation drop for an on-demand segment routing policy for a specific color:

```
segment-routing traffic-eng
  on-demand color <>
   steering
    path-invalidation drop
```

Show Commands

Use the **show segment-routing traffic-eng policy name** command to view path invalidation event types and invalidation drop status.

```
device#show segment-routing traffic-eng policy name foo detail
  Name: foo (Color: 10 End-point: 192.168.0.8)
    Owners : CLI
    Status:
      Admin: up, Operational: up for 00:00:08 (since 09-17 10:19:54.536)
    Candidate-paths:
      Preference 100 (CLI):
        Dynamic (active)
          Status: Invalidation drop
          Metric Type: TE
    Attributes:
      Binding SID: 20
        Allocation mode: dynamic
        State: Programmed
      Autoroute:
        Include all
    Tunnel ID: 65536 (Interface Handle: 0x9)
    Per owner configs:
      CLI
        Binding SID: dynamic
    Stats:
      5 minute output rate 0 bits/sec, 0 packets/sec
      Packets: 0   Bytes: 0

    Event history:
      Timestamp            Client              Event type              Context: Value
      ---------            ------              ----------              -------: -----
      09-17 10:19:54.536   CLI                Policy created           Name: CLI
      09-17 10:19:54.537   CLI                Path Invalidation        Drop: Configured
      09-17 10:19:58.744   CLI                Set colour               Colour: 10
      09-17 10:19:58.744   CLI               Set end point           End-point: 192.168.0.8

      09-17 10:19:58.752   CLI                Set dynamic              Path option: dynamic

      09-17 10:19:58.753   CLI                BSID allocated           FWD: label 20
      09-17 10:19:58.755   FH Resolution      Policy state UP         Status: PATH RESOLVED
```

```
CP: 100
     09-17 10:19:58.760   FH Resolution      REOPT triggered          Status: REOPTIMIZED
CP: 100
     09-17 10:19:58.780   CLI                Path Invalidation        Drop: Unconfigured
     09-17 10:19:59.537   CLI                Path Invalidation        Drop: Set
     09-17 10:20:00.853   FH Resolution      Path Invalidation        Status: Drop
     09-17 10:20:01.853   FH Resolution      Path Invalidation        Status: No Drop
     09-17 10:20:02.853   FH Resolution      Path Invalidation        Status: Drop
```