

EVPN VPWS over SR-TE Preferred Path

The Ethernet VPN Virtual Private Wire Service (EVPN VPWS) functionality implements the signaling and encapsulation techniques for establishing an EVPN instance between a pair of PEs. This enhancement extends EVPN VPWS to support the specification of an SR-TE policy using the **preferred path** feature.

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Feature information for EVPN VPWS over SR-TE preferred path

The following 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.

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

Table 1: Feature Information for EVPN VPWS over SR-TE Preferred Path

Feature Name	Releases	Feature Information
EVPN VPWS over SR-TE Preferred Path	Cisco IOS XE Cupertino 17.15.4a	This feature was introduced.

Restrictions for EVPN VPWS over SR-TE preferred path

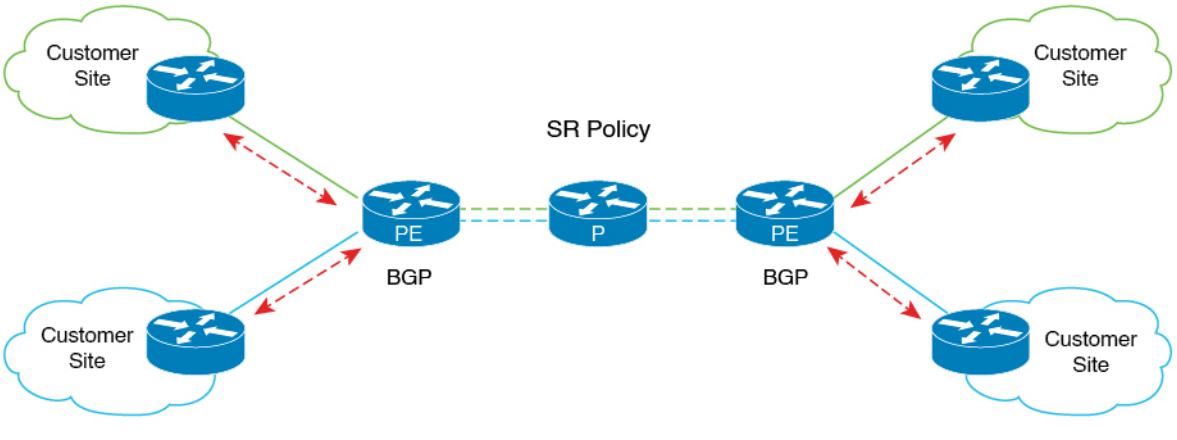
- SR On-Demand Next Hop (ODN) policy is not supported; only SR static policy is supported.
- SR Per-Flow Policy (PFP) is not supported; only SR Per-Destination Policy (PDP) is supported.
- Interior Gateway Protocol (IGP) is Intermediate System-to-Intermediate system (IS-IS).

Information about EVPN VPWS over SR-TE preferred path

The EVPN VPWS functionality implements the signaling and encapsulation techniques for establishing an EVPN instance between a pair of PEs. This enhancement enables EVPN VPWS to support the specification of an SR-TE policy using the **preferred path** feature. This feature includes the **fallback disable** option, which disables the default behavior of falling back on an alternate path if the preferred path is down.

The following figure illustrates the architecture:

Figure 1: EVPN VPWS over SR-TE Architecture



How to Configure EVPN VPWS over SR-TE preferred path

The following sections provide information about the tasks involved in configuring EVPN VPWS over the SR-TE preferred path.

Configuring EVPN VPWS over SR-TE preferred path

The following example shows how to enable EVPN VPWS over the configured SR-TE preferred path:

```
l2vpn evpn instance 100 point-to-point
rd 100:100
route-target export 100:100
route-target import 100:100
!
vpws context vc100
 preferred-path segment-routing traffic-eng policy p-100
 service target 100 source 100
interface GigabitEthernet0/0/3
service instance 100 ethernet
encapsulation dot1q 100
```

Configuring EVPN VPWS over SR-TE preferred path with fallback disable

The **fallback disable** command prevents a device from using the default path if the preferred path SR policy goes down.

```
l2vpn evpn instance 100 point-to-point
rd 100:100
route-target export 100:100
route-target import 100:100
vpws context vc100
service target 100 source 100
member GigabitEthernet0/0/3 service-instance 100
preferred-path segment-routing traffic-eng policy p-100 disable-fallback
```

Removing fallback disable from EVPN VPWS over SR-TE preferred path

The following example shows how to remove the fallback disable option in EVPN VPWS over SR-TE preferred path:

```
l2vpn evpn instance 100 point-to-point
vpws context vc100
 preferred-path segment-routing traffic-eng policy p-100
```

Disabling EVPN VPWS over SR-TE preferred path configuration

The following example shows how to disable the EVPN VPWS over SR-TE preferred path configuration:

```
l2vpn evpn instance 100 point-to-point
vpws context vc100
no  preferred-path segment-routing traffic-eng policy p-100 disable-fallback
```

Verifying EVPN VPWS over SR-TE preferred path

The following sample outputs show how to to verify the EVPN VPWS over SR-TE preferred path and fallback disable configurations.

- The following is a sample output showing the EVPN VPWS configuration over an SR-TE preferred path:

```
device# show l2vpn evpn vpws VC ID 100 detail
EVPN name: vc100, state: up, type: point-to-point
 EVPN ID: 100
 VPWS Service Instance ID: Source 1, Target 2
 Labels: Local 17, Remote 17
 Next Hop Address: 6.6.6.6
 Associated member interface Gi0/0/3 up, Gi0/0/3:3000 status is up
 Output interface: Tu65536, imposed label stack {16016 17}
 Preferred path:   active
 Default path: ready

device# show l2vpn evpn vpws vc preferred-path
Tunnel            EVPN ID     Source       Target       Name         Status
```

```
-------------       ------      --------     --------     --------     ----------
Tunnel65536         100         1            2            vc100          up
```

- The following is a sample output showing the EVPN VPWS configuration over an SR-TE preferred path, with fallback disabled:

```
device# show l2vpn evpn vpws VC ID 100 detail
EVPN name: vc100, state: up, type: point-to-point
 EVPN ID: 100
 VPWS Service Instance ID: Source 1, Target 2
 Labels: Local 17, Remote 17
 Next Hop Address: 6.6.6.6
 Associated member interface Gi0/0/3 up, Gi0/0/3:3000 status is up
 Output interface: Tu65536, imposed label stack {16016 17}
 Preferred path:   active
 Default path:     disabled
Dataplane:
SSM segment/switch IDs: 25037/12290 (used), PWID: 1
Rx Counters
1241 input transit packets, 463266 bytes
0 drops
Tx Counters
828 output transit packets, 402840 bytes
0 drops
24 VC FSM state transitions, Last 10 shown
DpUp: Act -> Est, Mon Sep 06 23:32:43.809 (2w2d ago)
RemDn: Est -> RemWait, Mon Sep 06 23:32:43.809 (2w2d ago)
RemUp: RemWait -> Act, Mon Sep 06 23:32:43.816 (2w2d ago)
DpUp: Act -> Est, Mon Sep 06 23:32:43.816 (2w2d ago)
DpDn: Est -> Act, Mon Sep 06 23:35:57.944 (2w2d ago)
DpUp: Act -> Est, Mon Sep 06 23:43:50.071 (2w2d ago)
DpDn: Est -> Act, Mon Sep 06 23:46:15.361 (2w2d ago)
DpUp: Act -> Est, Mon Sep 06 23:54:11.508 (2w2d ago)
DpDn: Est -> Act, Tue Sep 07 00:00:11.248 (2w2d ago)
DpUp: Act -> Est, Tue Sep 07 00:06:27.355 (2w2d ago)
```

- The following is a sample output showing the EVPN VPWS configuration over an SR-TE preferred path, with fallback disable option removed:

```
device# show l2vpn evpn vpws VC ID 100 detail
EVPN name: vc100, state: up, type: point-to-point
 EVPN ID: 100
 VPWS Service Instance ID: Source 1, Target 2
 Labels: Local 17, Remote 17
 Next Hop Address: 6.6.6.6
 Associated member interface Gi0/0/3 up, Gi0/0/3:3000 status is up
 Output interface: Tu65536, imposed label stack {16016 17}
 Preferred path:   active
 Default path:     ready
```

- The following is a sample output showing the EVPN VPWS configuration over an SR-TE preferred path disabled:

```
device# show l2vpn evpn vpws VC ID 100 detail
EVPN name: vc100, state: up, type: point-to-point
 EVPN ID: 100
 VPWS Service Instance ID: Source 1, Target 2
 Labels: Local 17, Remote 17
 Next Hop Address: 6.6.6.6
```

```
Associated member interface Gi0/0/3 up, Gi0/0/3:3000  status is up
Output interface: Gi0/0/0, imposed label stack {16 16}
Preferred path: not configured
Default path:     active
```