L2VPN Pseudowire Switching

This feature module explains how to configure L2VPN Pseudowire Switching, which extends layer 2 virtual private network (L2VPN) pseudowires across an interautonomous system (inter-AS) boundary or across two separate multiprotocol label switching (MPLS) networks.

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- Information About L2VPN Pseudowire Switching, page 2
- How to Configure L2VPN Pseudowire Switching, page 4
- How to Configure L2VPN Pseudowire Switching using the commands associated with the L2VPN Protocol-Based CLIs feature, page 6
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Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see Bug Search Tool and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table at the end of this module.

Use Cisco 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.

Restrictions for L2VPN Pseudowire Switching

- In Cisco IOS XE Release 2.4, Pseudowire Switching is supported on Ethernet over MPLS attachment circuits.
- L2VPN Pseudowire Switching is supported with AToM.
• Only static, on-box provisioning is supported.

• Sequencing numbers in AToM packets are not processed by L2VPN Pseudowire Switching. The feature blindly passes the sequencing data through the xconnect packet paths, a process that is called transparent sequencing. The endpoint PE-CE connections enforce the sequencing.

• You can ping the adjacent next-hop PE router. End-to-end LSP pings are not supported.

• Do not configure IP or Ethernet interworking on a router where L2VPN Pseudowire Switching is enabled. Instead, configure interworking on the routers at the edge PEs of the network.

• The control word negotiation results must match. If either segment does not negotiate the control word, the control word is disabled for both segments.

• AToM Graceful Restart is negotiated independently on each pseudowire segment. If there is a transient loss of the LDP session between two AToM PE routers, packets continue to flow.

• Per-pseudowire quality of service (QoS) is not supported. Traffic Engineering (TE) tunnel selection is supported.

• Attachment circuit interworking is not supported.

Information About L2VPN Pseudowire Switching

How L2VPN Pseudowire Switching Works

L2VPN Pseudowire Switching allows the user to extend L2VPN pseudowires across an inter-AS boundary or across two separate MPLS networks, as shown in the figures below. L2VPN Pseudowire Switching connects two or more contiguous pseudowire segments to form an end-to-end multihop pseudowire. This end-to-end pseudowire functions as a single point-to-point pseudowire.

As shown in the second figure below, L2VPN Pseudowire Switching enables you to keep the IP addresses of the edge PE routers private across inter-AS boundaries. You can use the IP address of the autonomous system boundary routers (ASBRs) and treat them as pseudowire aggregation (PE-agg) routers. The ASBRs join the pseudowires of the two domains.
L2VPN Pseudowire Switching also enables you to keep different administrative or provisioning domains to manage the end-to-end service. At the boundaries of these networks, PE-agg routers delineate the management responsibilities.

**Figure 1: L2VPN Pseudowire Switching in an Intra-AS Topology**

![Intra-AS Topology Diagram]

**Figure 2: L2VPN Pseudowire Switching in an Inter-AS Topology**

![Inter-AS Topology Diagram]

**How Packets Are Manipulated at the Aggregation Point**

Switching AToM packets between two AToM pseudowires is the same as switching any MPLS packet. The MPLS switching data path switches AToM packets between two AToM pseudowires. The following list explains exceptions:

- The outgoing virtual circuit (VC) label replaces the incoming VC label in the packet. New Internal Gateway Protocol (IGP) labels and Layer 2 encapsulation are added.
- The incoming VC label time-to-live (TTL) field is decremented by one and copied to the outgoing VC label TTL field.
- The incoming VC label EXP value is copied to the outgoing VC label EXP field.
- The outgoing VC label ‘Bottom of Stack’ S bit in the outgoing VC label is set to 1.
- AToM control word processing is not performed at the L2VPN Pseudowire Switching aggregation point. Sequence numbers are not validated. Use the Router Alert label for LSP Ping; do not require control word inspection to determine an LSP Ping packet.
How to Configure L2VPN Pseudowire Switching

Configuring

Use the following procedure to configure L2VPN Pseudowire Switching on each of the PE-agg routers.

**Before You Begin**

- This procedure assumes that you have configured basic AToM L2VPNs. This procedure does not explain how to configure basic AToM L2VPNs that transport Layer 2 packets over an MPLS backbone. For information on the basic configuration, see Any Transport over MPLS.
- For inter-Autonomous configurations, ASBRs require a labeled interface.

---

**Note**

In this configuration, you are limited to two `neighbor` commands after entering the `l2 vfi` command.

> 

**SUMMARY STEPS**

1. `enable`
2. `configure terminal`
3. `l2 vfi name point-to-point`
4. `neighbor ip-address vcid encapsulation mpls | pw-class pw-class-name`
5. `exit`
6. `exit`
7. `show mpls l2transport vc [vcid [vc-id | [vc-id-min vc-id-max]] [interface name[local-circuit-id]] [destination ip-address | name] [detail]`
8. `show vfi [vfi-name]`
9. `ping [protocol] [tag] {host-name|system-address}`

**DETAILED STEPS**

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><code>enable</code></td>
<td>Enables privileged EXEC mode.</td>
</tr>
<tr>
<td></td>
<td><code>Example:</code></td>
<td></td>
</tr>
<tr>
<td></td>
<td><code>Router&gt; enable</code></td>
<td></td>
</tr>
</tbody>
</table>

- Enter your password if prompted.
<table>
<thead>
<tr>
<th>Step 2</th>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><code>configure terminal</code></td>
<td>Enters global configuration mode.</td>
</tr>
</tbody>
</table>

Example:
```
Router# configure terminal
```

<table>
<thead>
<tr>
<th>Step 3</th>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><code>l2 vfi name point-to-point</code></td>
<td>Creates a point-to-point Layer 2 virtual forwarding interface (VFI) and enters VFI configuration mode.</td>
</tr>
</tbody>
</table>

Example:
```
Router(config)# l2 vfi atomtunnel point-to-point
```

<table>
<thead>
<tr>
<th>Step 4</th>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>`neighbor ip-address vcid encapsulation mpls</td>
<td>pw-class pw-class-name`</td>
</tr>
</tbody>
</table>

Note: Only two `neighbor` commands are allowed for each `l2 vfi point-to-point` command.

Example:
```
Router(config-vfi)# neighbor 10.0.0.1 100 pw-class mpls
```

<table>
<thead>
<tr>
<th>Step 5</th>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><code>exit</code></td>
<td>Exits VFI configuration mode.</td>
</tr>
</tbody>
</table>

Example:
```
Router(config-vfi)# exit
```

<table>
<thead>
<tr>
<th>Step 6</th>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><code>exit</code></td>
<td>Exits global configuration mode.</td>
</tr>
</tbody>
</table>

Example:
```
Router(config)# exit
```

<table>
<thead>
<tr>
<th>Step 7</th>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>`show mpls l2transport vc [vcid [vc-id</td>
<td>vc-id-min vc-id-max]] [interface name[local-circuit-id]] [destination ip-address</td>
</tr>
</tbody>
</table>

Example:
```
Router# show mpls l2transport vc
```

<table>
<thead>
<tr>
<th>Step 8</th>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><code>show vfi [vfi-name]</code></td>
<td>Verifies that a point-to-point VFI has been established.</td>
</tr>
</tbody>
</table>

Example:
```
Router# show vfi atomtunnel
```

<table>
<thead>
<tr>
<th>Step 9</th>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><code>ping [protocol] [tag] {host-name} system-address</code></td>
<td>When issued from the CE routers, this command verifies end-to-end connectivity.</td>
</tr>
</tbody>
</table>

Example:
```
Router# ping 10.1.1.1
```

---

**L2VPN Pseudowire Switching**

**Configuring**

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**MPLS Layer 2 VPNs Configuration Guide, Cisco IOS XE Release 3S**
How to Configure L2VPN Pseudowire Switching using the commands associated with the L2VPN Protocol-Based CLIs feature

Perform this task to configure L2VPN Pseudowire Switching on each of the PE-agg routers. In this configuration, you are limited to two neighbor commands after entering the l2vpn xconnect command.

Before You Begin

- This task assumes that you have configured basic AToM L2VPNs. This task does not explain how to configure basic AToM L2VPNs that transport Layer 2 packets over an MPLS backbone. For information on the basic configuration, see the "Any Transport over MPLS" section.
- For interautonomous configurations, autonomous system boundary routers (ASBRs) require a labeled interface.
**SUMMARY STEPS**

1. `enable`
2. `configure terminal`
3. `interface pseudowire number`
4. `encapsulation mpls`
5. `neighbor peer-address vcid-value`
6. `exit`
7. `interface pseudowire number`
8. `encapsulation mpls`
9. `neighbor peer-address vcid-value`
10. `exit`
11. `l2vpn xconnect context context-name`
12. `member pseudowire interface-number`
13. `member ip-address vcid encapsulation mpls`
14. `member pseudowire interface-number`
15. `member ip-address vcid encapsulation mpls`
16. `exit`
17. `exit`
18. `show l2vpn atom vc [vcid [vc-id | vc-id-min vc-id-max]] [interface type number [local-circuit-id]] [destination ip-address | name] [detail]`
19. `ping [protocol] [tag] {hostname|system-address}`

**DETAILED STEPS**

<table>
<thead>
<tr>
<th>Step</th>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| Step 1 | enable | Enables privileged EXEC mode.  
  * Enter your password if prompted. |
<p>|      | Example: | Device&gt; enable |
| Step 2 | configure terminal | Enters global configuration mode. |
|      | Example: | Device# configure terminal |
| Step 3 | interface pseudowire number | Specifies the pseudowire interface and enters interface configuration mode. |
|      | Example: | Router(config)# interface pseudowire 100 |</p>
<table>
<thead>
<tr>
<th>Step</th>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| 4    | encapsulation mpls | Specifies that Multiprotocol Label Switching (MPLS) is used as the data encapsulation method.  
Example:  
```
Router(config-if)# encapsulation mpls
``` |
| 5    | neighbor peer-address vc-id-value | Specifies the peer IP address and virtual circuit (VC) ID value of the Layer 2 VPN (L2VPN) pseudowire.  
Example:  
```
Router(config-if)# neighbor 10.0.0.1 123
``` |
| 6    | exit | Exits interface configuration mode.  
Example:  
```
Router(config-if)# exit
``` |
| 7    | interface pseudowire number | Specifies the pseudowire interface and enters interface configuration mode.  
Example:  
```
Router(config)# interface pseudowire 200
``` |
| 8    | encapsulation mpls | Specifies that Multiprotocol Label Switching (MPLS) is used as the data encapsulation method.  
Example:  
```
Router(config-if)# encapsulation mpls
``` |
| 9    | neighbor peer-address vc-id-value | Specifies the peer IP address and virtual circuit (VC) ID value of the Layer 2 VPN (L2VPN) pseudowire.  
Example:  
```
Router(config-if)# neighbor 10.0.0.2 124
``` |
| 10   | exit | Exits interface configuration mode.  
Example:  
```
Router(config-if)# exit
``` |
| 11   | l2vpn xconnect context context-name | Creates a Layer 2 VPN (L2VPN) cross connect context and enters xconnect configuration mode.  
Example:  
```
Device(config)# l2vpn xconnect context con1
``` |
<table>
<thead>
<tr>
<th>Step</th>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>member pseudowire interface-number</td>
<td>Specifies a member pseudowire to form a Layer 2 VPN (L2VPN) cross connect.</td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Router(config-xconnect)# member pseudowire 100</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>member ip-address vcid encapsulation mpls</td>
<td>Specifies the devices that form a point-to-point Layer 2 VPN (L2VPN) virtual forwarding interface (VFI) connection.</td>
</tr>
<tr>
<td></td>
<td>Note: Only two member commands are allowed for each l2vpn xconnect context command.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Device(config-xconnect)# member 10.0.0.1 123 encapsulation mpls</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>member pseudowire interface-number</td>
<td>Specifies a member pseudowire to form a Layer 2 VPN (L2VPN) cross connect.</td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Router(config-xconnect)# member pseudowire 200</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>member ip-address vcid encapsulation mpls</td>
<td>Specifies the devices that form a point-to-point Layer 2 VPN (L2VPN) virtual forwarding interface (VFI) connection.</td>
</tr>
<tr>
<td></td>
<td>Note: Only two member commands are allowed for each l2vpn xconnect context command.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Device(config-xconnect)# member 10.0.0.2 124 encapsulation mpls</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>exit</td>
<td>Exits Xconnect configuration mode.</td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Device(config-xconnect)# exit</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>exit</td>
<td>Exits global configuration mode.</td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Device(config)# exit</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>show l2vpn atom vc [vcid [vc-id</td>
<td>vc-id-min vc-id-max]] [interface type number [local-circuit-id]] [destination ip-address</td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Device# show l2vpn atom vc</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>ping [protocol] [tag] [hostname</td>
<td>system-address]</td>
</tr>
<tr>
<td></td>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Device# ping 10.1.1.1</td>
<td></td>
</tr>
</tbody>
</table>
Configuring

Use the following procedure to configure L2VPN Pseudowire Switching on each of the PE-agg routers.

Before You Begin

- This procedure assumes that you have configured basic AToM L2VPNs. This procedure does not explain how to configure basic AToM L2VPNs that transport Layer 2 packets over an MPLS backbone. For information on the basic configuration, see Any Transport over MPLS.
- For inter-Autonomous configurations, ASBRs require a labeled interface.

Note

In this configuration, you are limited to two `neighbor` commands after entering the `l2 vfi` command.

SUMMARY STEPS

1. `enable`
2. `configure terminal`
3. `l2 vfi name point-to-point`
4. `neighbor ip-address vcid encapsulation mpls | pw-class pw-class-name`
5. `exit`
6. `exit`
7. `show mpls l2transport vc [vcid [vc-id | [vc-id-min vc-id-max]] [interface name[local-circuit-id]] [destination ip-address | name] [detail]`  
8. `show vfi [vfi-name]`
9. `ping [protocol] [tag] {host-name|system-address}`

DETAILED STEPS

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
</tr>
<tr>
<td><code>enable</code></td>
<td>Enables privileged EXEC mode.</td>
</tr>
<tr>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td><code>Router&gt; enable</code></td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
</tr>
<tr>
<td><code>configure terminal</code></td>
<td>Enters global configuration mode.</td>
</tr>
<tr>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td><code>Router# configure terminal</code></td>
<td></td>
</tr>
<tr>
<td>Step</td>
<td>Command or Action</td>
</tr>
<tr>
<td>------</td>
<td>------------------</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td>l2 vfi name point-to-point</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>Router(config)# l2 vfi atomtunnel point-to-point</td>
</tr>
<tr>
<td><strong>Step 4</strong></td>
<td>neighbor ip-address vcid encapsulation mpls</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>Router(config-vfi)# neighbor 10.0.0.1 100 pw-class mpls</td>
</tr>
<tr>
<td><strong>Note</strong></td>
<td>Only two neighbor commands are allowed for each l2 vfi point-to-point command.</td>
</tr>
<tr>
<td><strong>Step 5</strong></td>
<td>exit</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>Router(config-vfi)# exit</td>
</tr>
<tr>
<td><strong>Step 6</strong></td>
<td>exit</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>Router(config)# exit</td>
</tr>
<tr>
<td><strong>Step 7</strong></td>
<td>show mpls l2transport vc [vcid [vc-id</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>Router# show mpls l2transport vc</td>
</tr>
<tr>
<td><strong>Step 8</strong></td>
<td>show vfi [vfi-name]</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>Router# show vfi atomtunnel</td>
</tr>
<tr>
<td><strong>Step 9</strong></td>
<td>ping [protocol] [tag] {host-name</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>Router# ping 10.1.1.1</td>
</tr>
</tbody>
</table>
Examples

The following example displays the output of the `show mpls l2transport vc` command:

Router# show mpls l2transport vc
Local intf  Local circuit  Dest address  VC ID Status
------------- -------------------------- --------------- ----- ----
MPLS PW 10.0.1.1:100 10.0.1.1 100 UP
MPLS PW 10.0.1.1:100 10.0.1.1 100 UP

The following example displays the output of the `show vfi` command:

Router# show vfi
VFI name: test, type: point-to-point
Neighbors connected via pseudowires:
   Router ID  Pseudowire ID
   10.0.1.1 100
   10.0.1.1 100
Configuration Examples for L2VPN Pseudowire Switching

L2VPN Pseudowire Switching in an Inter-AS Configuration Example

Two separate autonomous systems are able to pass L2VPN packets, because the two PE-agg routers have been configured with L2VPN Pseudowire Switching. This example configuration is shown in the figure below.

*Figure 3: L2VPN Pseudowire Switching in an Inter-Autonomous System*
CE1

version 12.0
service timestamps debug uptime
service timestamps log uptime
service password-encryption
!
hostname [ce1]
!
boot-start-marker
boot-end-marker
!
enable secret 5
$1$o9N6$L5sxHuTn0vjCY0nW8hQX.
!
ip subnet-zero
ip cef
no ip domain-lookup
!
interface FastEthernet0/0/0
ip address 10.0.0.1 255.255.255.252
no ip directed-broadcast
!
ip classless
!
control-plane
!
line con 0
exec-timeout 0 0
line aux 0
line vty 0 4
login
!
no cns aaa enable
end

CE2

version 12.0
service timestamps debug uptime
service timestamps log uptime
service password-encryption
!
hostname [ce2]
!
boot-start-marker
boot-end-marker
!
enable secret 5
$1$YHo6$LQ4z5PdrFS9dnL75Xvvm1
!
ip subnet-zero
ip cef
no ip domain-lookup
!
interface FastEthernet0/0/0
ip address 10.0.0.2 255.255.255.252
no ip directed-broadcast
!
ip classless
!
control-plane
!
line con 0
exec-timeout 0 0
line aux 0
line vty 0 4
login
!
no cns aaa enable
end
Additional References

Related Documents

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<th>Related Topic</th>
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<td>Cisco IOS commands</td>
<td>Cisco IOS Master Command List, All Releases</td>
</tr>
<tr>
<td>MPLS commands</td>
<td>Cisco IOS Multiprotocol Label Switching Command Reference</td>
</tr>
<tr>
<td>L2VPN pseudowire redundancy</td>
<td>“L2VPN Pseudowire Redundancy” feature module in the MPLS Layer 2 VPNs Configuration Guide.</td>
</tr>
<tr>
<td>H-VPLS</td>
<td>“Configuring VPLS” in the &quot;Configuring Multiprotocol Label Switching on the Optical Services Modules&quot; chapter in the Optical Services Modules Installation and Configuration Notes, 12.2SR document.</td>
</tr>
</tbody>
</table>

Standards

<table>
<thead>
<tr>
<th>Standard</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www3.ietf.org/proceedings/06mar/IDs/draft-ietf-l2vpn-vpls-ldp-08.txt">http://www3.ietf.org/proceedings/06mar/IDs/draft-ietf-l2vpn-vpls-ldp-08.txt</a></td>
<td>Virtual Private LAN Services over MPLS</td>
</tr>
<tr>
<td>draft-ietf-pwe3-vccv-10.txt</td>
<td>Pseudo Wire Virtual Circuit Connectivity Verification (VCCV)</td>
</tr>
<tr>
<td>draft-ietf-pwe3-oam-msg-map-03.txt</td>
<td>Pseudo Wire (PW) OAM Message Mapping</td>
</tr>
</tbody>
</table>
MIBs

<table>
<thead>
<tr>
<th>MIB</th>
<th>MIBs Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pseudowire Emulation Edge-to-Edge MIBs for Ethernet, Frame Relay, and ATM Services</td>
<td>To locate and download MIBs for selected platforms, Cisco software releases, and feature sets, use Cisco MIB Locator found at the following URL: <a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a></td>
</tr>
</tbody>
</table>

Technical Assistance

<table>
<thead>
<tr>
<th>Description</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.</td>
<td><a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a></td>
</tr>
</tbody>
</table>

Feature Information for L2VPN Pseudowire Switching

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 Cisco 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 L2VPN Pseudowire Switching

<table>
<thead>
<tr>
<th>Feature Name</th>
<th>Releases</th>
<th>Feature Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>L2VPN Pseudowire Switching</td>
<td>Cisco IOS XE Release 2.4</td>
<td>The L2VPN Pseudowire Switching feature extends layer 2 virtual private network (L2VPN) pseudowires across an interautonomous system (inter-AS) boundary or across two separate multiprotocol label switching (MPLS) networks.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In Cisco IOS XE Release 2.4, The L2VPN Pseudowire Switching feature is supported with Ethernet over MPLS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The following commands were introduced or modified: <code>l2 vfi point-to-point, neighbor</code>(L2VPN Pseudowire Switching), <code>show vfi</code>.</td>
</tr>
</tbody>
</table>