CHAPTER 16

Pseudowire Emulation Edge to Edge

This chapter describes the level of support that Cisco ANA provides for Pseudowire Emulation Edge to Edge (PWE3), as follows:

Technology Description

PWE3

PWE3 provides methods for carrying networking services (such as ATM, Ethernet, TDM, and SONET/SDH) over a packet-switched network (PSN) as outlined in RFC 3985. It is a point-to-point connection between pairs of PE routers. It emulates services like Ethernet over an underlying core MPLS network through encapsulation into a common MPLS format, thus allowing carriers to converge their services with an MPLS network.

TDM PW

TDM Pseudowire is a widely used method for carrying Time Division Multiplexed E1, T1, E3, or T3 circuits across PSNs. It enables:

- Enterprises to run voice, video, and legacy data over the PSN
- Service providers to provide revenue-generating legacy voice and data services over the PSN
- Data carriers to offer PSN-based leased and private lines

ATM PW

ATM Pseudowire (RFC 4816) is a transparent cell transport service that allows migration of ATM services to a PSN without having to provision the ATM subscriber or CE devices. ATM CEs view the ATM transparent cell transport service as if they were directly connected via a TDM leased line. This service is used as an internal function in an ATM service provider's network as a way to connect existing ATM switches via a higher-speed PSN, or to provide ATM backhaul services for remote access to existing ATM networks.

PW-to-TE Tunnel Mapping

PW-to-TE Tunnel Mapping (RFC 5602) permits operation of pseudowire services across MPLS PSNs by mapping pseudowires to MPLS TE tunnels.

Information Model Objects (IMOs)

This section describes the following IMO:

- PTP Layer 2 MPLS Tunnel Interface (IPTPLayer2MplsTunnel)

PTP Layer 2 MPLS Tunnel Interface

The network/data link layer PTP Layer 2 MPLS Tunnel Interface object is bound by its Containing Termination Points attribute to a data link layer interface object. It is accessed primarily by Label Switching Entity.

Table 16-1 PTP Layer 2 MPLS Tunnel Interface (IPTPLayer2MplsTunnel)

Attribute Name	Attribute Description	Scheme	Polling Interval
Local and Remote Router Addresses	Local and remote router IP addresses	IPCore	Configuration
Local and Remote Virtual Connection Labels	Local and remote virtual connection labels	IPCore	Configuration
Tunnel Identification	Tunnel identifier	IPCore	Configuration
Tunnel Status	Tunnel status (*Unknown, Up, Down*)	IPCore	Configuration
Local and Remote Tunnel Interface	Local and remote tunnel interface Object Identifier	IPCore	Configuration
IANA Type	Internet Assigned Numbers Authority (IANA) type of the sublayer	N/A	N/A
Containing Termination Points	Underlying termination points (connection or physical)	IPCore	N/A
Contained Connection Termination Points	Bound connection termination points (Tunnel Container)	IPCore	N/A
Pseudowire Type	The MPLS pseudowire type (for example, *Ethernet*, *SAToP*, and so on)	IPCore	Configuration
Preferred Path Tunnel	The Object Identifier of the preferred path	IPCore	Configuration

Table 16-1 PTP Layer 2 MPLS Tunnel Interface (IPTPLayer2MplsTunnel) (continued)

Attribute Name	Attribute Description	Scheme	Polling Interval
Local MTU	The local MTU	IPCore	Configuration
Remote MTU	The remote MTU	IPCore	Configuration
Peer Status	Status of the signaling peer	IPCore	Configuration
Signaling Protocol	The signaling protocol	IPCore	Configuration
VFI Name	The name of the VFI	IPCore	Configuration

Vendor-Specific Inventory and IMOs

There are no vendor-specific inventory or IMOs for this technology.

Network Topology

Cisco ANA discovers PWE3 Network layer topology by searching for matches between the local and remote router IP addresses in any one-hop-away remote side's PTP Layer 2 MPLS Tunnel Interface. In particular, it compares the local and remote router IP addresses and runnel identifications.

Service Alarms

The following alarm is supported for this technology:

- Layer 2 Tunnel Down/Layer 2 Tunnel Up

For detailed information about alarms and correlation, see the *Cisco Active Network Abstraction 3.7 User Guide*.