



L2CP Tunneling MEF

This chapter introduces you to L2 Control Protocols (L2CP) tunneling to help initiate control packets from a local customer-edge (CE) device to a remote CE device.

Table 1: Feature History Table

Feature Name	Release Information	Feature Description
L2CP Tunneling	Release 7.4.1	<p>This feature is now supported on routers that have Cisco NC57 line cards installed and operates in native and compatibility modes.</p> <p>L2 Control Protocols (L2CP) tunneling helps initiate control packets from a local customer-edge (CE) device to a remote CE device.</p>

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L2CP Tunneling

The router supports the following tunnel protocols:

- Link Layer Discovery Protocol (LLDP)
- Link Aggregation Control Protocol (LACP)
- Operation, Administration, Management (OAM)
- Ethernet Local Management Interface (ELMI)
- Cisco Discovery Protocol (CDP)

Some of the L2 transport interfaces are:

- VPWS L2 transport main
- VPWS L2 subinterface
- L2 transport main bridge port

- L2 subinterface bridge port
- VPWS L2 bundle main port
- VPWS L2 bundle subinterface
- L2 bundle main bridge port

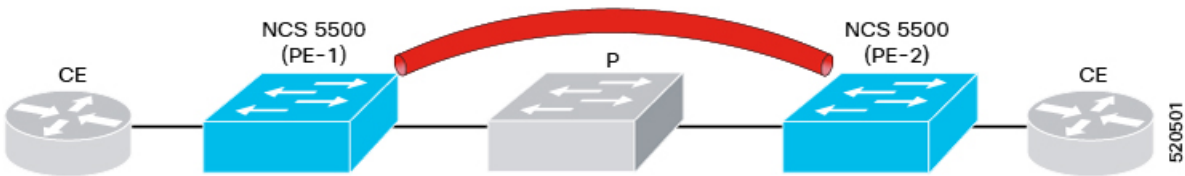
On a subinterface, when control packets such as LLDP and LACP are tunneled, the system tunnels the same control packets to the main interface.

The LACP packet for VPLS (also known as ELAN service) either gets peered or dropped.

The router tunnels Layer 2 packets between PEs.

The following figure depicts Layer 2 protocol tunneling.

Figure 1: L2CP Tunneling



L2CP packets are tunneled from NNI to NNI (depicted in red pipe). The Layer 2 traffic is sent through the Cisco NCS 5500 Series Routers, and these routers switch the traffic from end to end.

Restrictions

- VPLS service does not support LACP tunneling.
- VPWS and EVPN-VPWS services support LACP tunneling.

L2CP Protocol Support on Cisco NCS 5500 Series Router

The router supports Layer 2 peering functionalities on a per Ethernet Flow Point (EFP) basis. It supports maximum packet rate of 10 packets per second (per interface) for a protocol, and 100 packets per second for all protocols (on all interfaces).

You do not need to configure L2CP tunneling explicitly. L2CP packets are tunneled over Layer 2 tunnel by default.

The following table lists the options that are supported on the router and displays the supported defaults and configuration options for the router.



Note LLDP will not detect neighboring devices if the main interface has a sub-interface configured with **encapsulation untagged** or **encapsulation default**.

Protocol	Packet Type	Action
CDP	Untagged	Peer

Protocol	Packet Type	Action
LACP	Untagged	Peer
LLDP	Untagged	Peer else Tunneled
STP	Untagged	Peer
VTP	Untagged	Peer
OAM	Untagged	Peer
BPDU	Untagged	Tunneled
UDLD	Untagged	Tunneled
CDP	Tagged	Tunneled
LACP	Tagged	Tunneled
LLDP	Tagged	Tunneled
STP	Tagged	Tunneled
VTP	Tagged	Tunneled
BPDU	Tagged	Tunneled
OAM	Tagged	Tunneled
ELMI	Tagged	Tunneled
UDLD	Tagged	Tunneled

The following table lists the supported options on the router and displays the supported defaults and configuration options for the Cisco NCS 5700 Series Line Cards.

Protocol	Services and Action on Cisco NCS 5700 Series Line Cards							
	EPL1	EPL2	ELAN	E-Tree	EVPL1	EVLAN	EVTREE	Enable on Interface
STP	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Not supported
RSTP	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Not supported
LACP /LAMP	Tunnel	Tunnel	Discard	Discard	Discard	Discard	Discard	Punt
LOAM	Tunnel	Tunnel	Tunnel	Tunnel	NA	NA	NA	Drop
E-LMI	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Punt
LLDP	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Punt

Protocol	Services and Action on Cisco NCS 5700 Series Line Cards							
	EPL1	EPL2	ELAN	E-Tree	EVPL1	EVLAN	EVTREE	Enable on Interface
PTP	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Punt
ESMC /SynCE	Tunnel	Tunnel	Tunnel	Tunnel	NA	NA	NA	Not supported
CDP	Tunnel	Tunnel	Tunnel	Tunnel	NA	NA	NA	Punt
MACSEC	Tunnel	Tunnel	Tunnel	Tunnel	Not supported	Not supported	Not supported	Punt-not supported
UDLD	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Punt



Note L2CP protocols over BVI is not supported.

Cisco NC57 Compatibility Mode: L2CP Tunneling

Table 2: Feature History Table

Feature Name	Release Information	Feature Description
Cisco NC57 Compatibility Mode: L2CP Tunneling	Release 7.5.1	<p>This feature is now supported on routers that have Cisco NC57 line cards installed and operate in compatibility mode.</p> <p>L2 Control Protocols (L2CP) tunneling helps initiate control packets from a local customer-edge (CE) device to a remote CE device.</p>

L2CP Support Matrix for Cisco NC57 Compatibility Mode

Table 3:

Services	EDPL1	EDPL2	ELAN	E-Tree	EVPL1	EVLAN	EVTREE	Enable on Interface	EPLAN/ EVPLAN+ BVI data points
STP	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Not supported	Discard

Services	EDPL1	EDPL2	ELAN	E-Tree	EVPL1	EVLAN	EVTREE	Enable on Interface	EPLAN/ EVPLAN+ BVI data points
RSTP	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Not supported	Discard
MSTP	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Not supported	Discard
PVRST	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Discard
Pause	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Discard
LACP/ LAMP	Tunnel	Tunnel	Discard	Discard	Discard	Discard	Discard	Punt	Discard Only physical
LOAM	Tunnel	Tunnel	Tunnel	Tunnel	NA	NA	NA	Punt	Discard Only physical
E-LMI	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Punt	Discard Only physical E-LMI is not supported on subinterface.
LLDP	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Punt	Discard
PTP	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Punt	Discard
ESMC/ SynCE	Tunnel	Tunnel	Tunnel	Tunnel	NA	NA	NA	Punt	Discard
CDP	Tunnel	Tunnel	Tunnel	Tunnel	NA	NA	NA	Punt	Discard
MACSEC	Tunnel	Tunnel	Tunnel	Tunnel	Not Supported	Not Supported	Not Supported	Not Supported	Discard
UDLD	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Tunnel	Punt	Discard

