



Overview

This chapter describes the Cisco LRE CPE, a Long-Reach Ethernet (LRE) customer premises equipment (CPE) device and has these topics:

- Features
- Front-panel description
- Rear-panel description

Features

A Cisco LRE CPE device, hereafter referred to as the *CPE*, is based on very-high-data-rate digital subscriber line (VDSL) technology. The CPE connects a computer or laptop to a Catalyst LRE switch at distances of up to 4921 feet (1500 meters) by using LRE technology over ordinary telephone lines.



Note

A CPE connects a computer or LAN to an LRE switch that transmits a high-speed signal over a telephone data connection. A Cisco LRE CPE converts a VDSL-based signal on the telephone line to an Ethernet signal to the computer.

The Cisco 575 LRE CPE, Cisco 576 LRE 997 CPE, and the Cisco 585 LRE CPE have these features:

- IEEE 802.3 10BASE-T compliance
- On the 575 LRE CPE and 576 LRE 997 CPE, one autonegotiating 10/100BASE-T Ethernet port

- On the 585 LRE CPE, four autonegotiating 10/100BASE-T Ethernet ports
- Status LEDs showing Ethernet activity and LRE link status
- Data rates of up to 15 Mbps at distances of up to 4921 feet (1500 meters)



Note Data rates are reduced for longer distances. Data rates are configured through a Catalyst LRE switch. Refer to the switch hardware installation guide and the switch software configuration guide for your switch model for more information.

- An internal splitter that allows regular telephone services, such as voice or Integrated Services Digital Network (ISDN), to travel on the same lines as LRE traffic.

Certain Cisco LRE CPE devices are not supported by certain Catalyst 2950 LRE switches. In [Table 1-1](#), *Yes* means that the CPE is supported by the switch; *No* means that the CPE is not supported by the switch.

Table 1-1 LRE Switch and CPE Compatibility Matrix

LRE Devices	Catalyst 2950ST-8 LRE switch	Catalyst 2950ST-24 LRE switch	Catalyst 2950ST-24 LRE 997 switch
Cisco 575 LRE CPE	Yes	Yes	No
Cisco 576 LRE 997 CPE	No	No	Yes
Cisco 585 LRE CPE	Yes	Yes	No

Figure 1-1 shows the Cisco LRE CPE models.

Figure 1-1 Cisco LRE CPE models

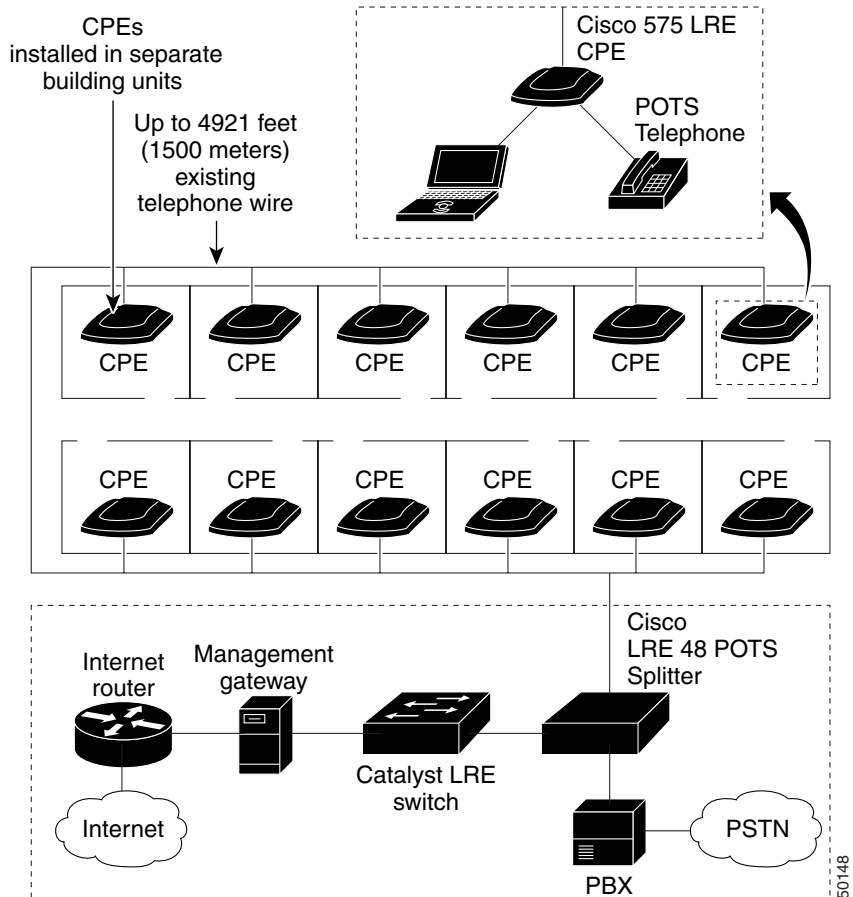
Version Number	Description	
575 LRE CPE	1 fixed autosensing 10/100 port	
576 LRE 997 CPE	1 fixed autosensing 10/100 port	
585 LRE CPE	4 fixed autosensing 10/100 ports	

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If additional telephone services such as voice or ISDN traffic will be carried on the same telephone lines, a *plain old telephone service* (POTS) splitter can be installed to separate LRE traffic from other telephone services. The splitter routes the high-frequency LRE data to the switch and the low-frequency telephone services to the private branch exchange (PBX) switch or public switched telephone network (PSTN).

For limitations and restrictions on when you use a POTS splitter with the Catalyst 2950 LRE switches and Cisco LRE CPE devices, see the [“Connecting to a Telephone” section on page 2-24](#).

In a typical installation, a CPE is installed in each room of a multidwelling tenant building. The CPE data rates and profile settings are controlled by a Catalyst 2950 LRE switch. [Figure 1-2](#) shows a typical LRE installation.

Figure 1-2 Typical LRE Installation

For installations where telephone services will be routed to a PBX switch, you can install a Cisco LRE POTS Splitter (PS-1M-LRE-48). For more information about this POTS splitter, refer to the *Installation and Warranty Notes for the Cisco LRE 48 POTS Splitter*.

If the building does not use a PBX and telephone services are sent directly to an outside PSTN, you must provide a homologated POTS splitter. For more information about homologated POTS splitters, contact your Cisco sales representative.

For more information about installing a Catalyst LRE switch, refer to the switch hardware installation guide.

Front-Panel Description

Each Cisco LRE CPE has a READY LED and a POWER LED. The Cisco 575 LRE CPE and Cisco 576 LRE 997 CPE also have an ACT LED and an ETH LED. The Cisco 585 LRE CPE also has four LEDs, labeled ETH1 through ETH4.

[Figure 1-3](#) to [Figure 1-5](#) show the front panels of the CPEs. [Table 1-2](#) and [Table 1-3](#) list the front-panel LEDs and their meanings.

Figure 1-3 Front Panel of the Cisco 575 LRE CPE

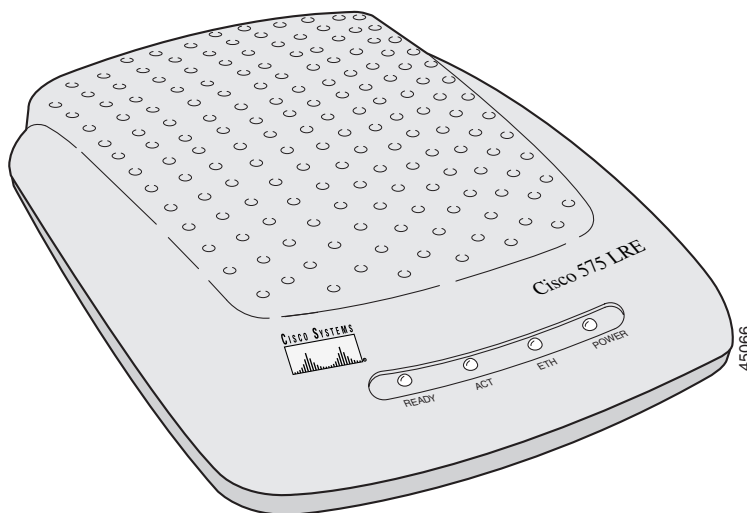


Figure 1-4 Front Panel of the Cisco 576 LRE 997 CPE

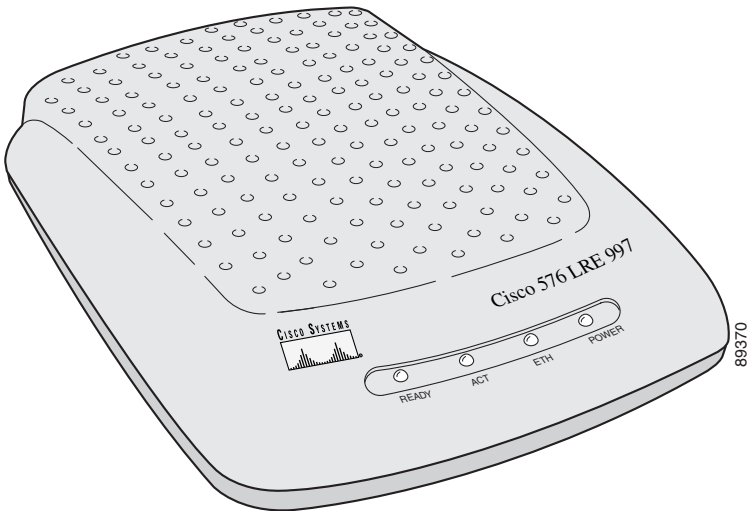
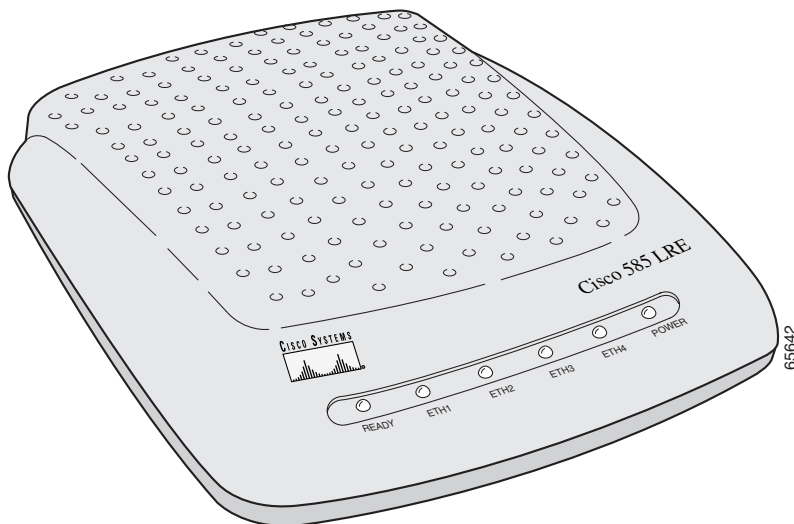


Table 1-2 Cisco 575 LRE CPE and Cisco 576 LRE 997 CPE Front-Panel LEDs

LED	LED Color	Meaning
READY	Green	CPE link to LRE switch present
ACT	Flashing green	Ethernet activity
ETH	Green	Ethernet link present
POWER	Green	Power indicator

Figure 1-5 Front Panel of the Cisco 585 LRE CPE**Table 1-3 Cisco 585 LRE CPE Front-Panel LEDs**

LED	LED Color	Meaning
READY	Green	CPE link to LRE switch present
ETH1	Green	Ethernet link to Ethernet port 1 present
	Flashing green	Ethernet activity on Ethernet port 1
ETH2	Green	Ethernet link to Ethernet port 2 present
	Flashing green	Ethernet activity on Ethernet port 2
ETH3	Green	Ethernet link to Ethernet port 3 present
	Flashing green	Ethernet activity on Ethernet port 3
ETH4	Green	Ethernet link to Ethernet port 4 present
	Flashing green	Ethernet activity on Ethernet port 4
POWER	Green	Power indicator

Rear-Panel Description

The LRE CPE rear panels have a power connector, two RJ-11 connectors, and, depending on the model, either one or four RJ-45 Ethernet connectors.

Figure 1-6 and Figure 1-7 show the rear panels of the CPEs. Table 1-4 and Table 1-5 list the rear-panel connectors and their descriptions.

Figure 1-6 Rear Panel of the Cisco 575 LRE CPE and Cisco 576 LRE 997 CPE

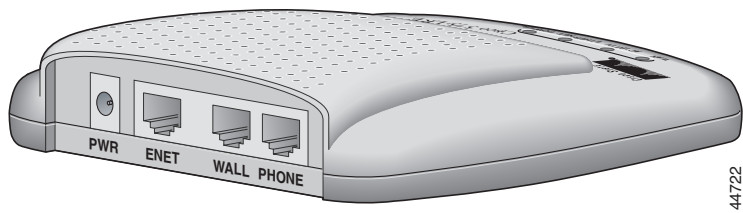
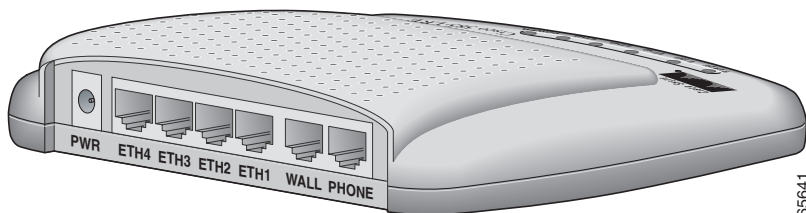


Table 1-4 Cisco 575 LRE CPE and Cisco 576 LRE 997 CPE Rear-Panel Connectors

Connector Label	Connector Description
PWR	Power connector
ENET	RJ-45 connector for the Ethernet port
WALL	RJ-11 connector for the telephone wall jack
PHONE	RJ-11 connector for a telephone

Figure 1-7 Rear Panel of the Cisco 585 LRE CPE**Table 1-5 Cisco 585 LRE CPE Rear-Panel Connectors**

PWR	Power connector
ETH4	RJ-45 connector for the Ethernet port 4
ETH3	RJ-45 connector for the Ethernet port 3
ETH2	RJ-45 connector for the Ethernet port 2
ETH1	RJ-45 connector for the Ethernet port 1
WALL	RJ-11 connector for the telephone wall jack
PHONE	RJ-11 connector for a telephone

