



## Cisco 6400 Product Overview

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The Cisco 6400 carrier-class broadband aggregator, referred to as the Cisco 6400, is a broadband concentrator that supports end-to-end asynchronous transfer mode (ATM) transmission services, Point-to-Point Protocol (PPP) termination services, and tunneling services.

The Cisco 6400 combines Cisco IOS ATM switching and routing capabilities in a modular and redundant manner to optimize and manage the aggregation of traffic from a variety of network access technologies.

## Application Environment of the Cisco 6400

The Cisco 6400 is designed primarily for use in a telephone company central office (CO) transmission environment. Therefore, the Cisco 6400 meets Telcordia Network Equipment Building Systems (NEBS) and European Telecommunications Standards Institute (ETSI) requirements with regard to the following equipment specifications:

- Physical size
- Safety
- Electrical characteristics
- Temperature
- Humidity
- Shock and earthquake resistance

A Cisco 6400 can be installed (co-located) in the CO in the same rack as the transmission equipment. Alternatively, a Cisco 6400 can be remotely located to concentrate traffic from multiple locations, thus avoiding rack space limitations that might exist in the CO environment.

## Major Components of the Cisco 6400

**Figure 1-1** shows a Cisco 6400 that has been populated with a full complement of circuit boards and components. A Cisco 6400 system can contain the following:

- Two node switch processor cards (NSPs)—Can be installed in either or both of two dedicated slots (0A and 0B) in the middle of the Cisco 6400 chassis. One NSP is required for system operation; a second NSP provides fault tolerance.
- Node route processor cards (NRPs)—Can be installed in any one or all of the eight chassis slots numbered 1 to 8.

- Node line cards (NLCs)—Can be installed in any one or all of the eight chassis slots numbered 1 to 8. One full-height NLC or one or two half-height NLCs can be installed in each slot, for a maximum of 16 NLCs per system.
- Power entry modules (PEMs)—Can be installed in either or both of two dedicated bays in the left side of the Cisco 6400. One PEM is required for system operation; a second PEM provides power redundancy.
- Blower module—Installed in a dedicated bay at the top front of the Cisco 6400.
- Air filter assembly—Installed in a dedicated bay at the bottom front of the Cisco 6400.

Figure 1-1 Front View of the Cisco 6400

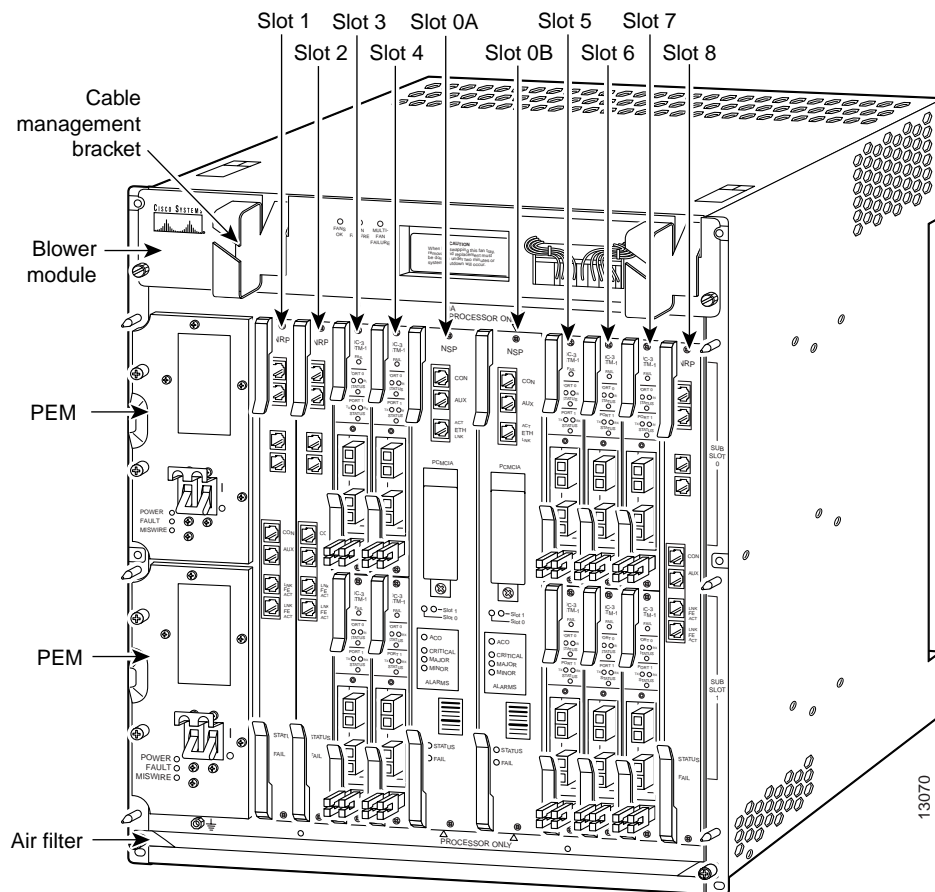
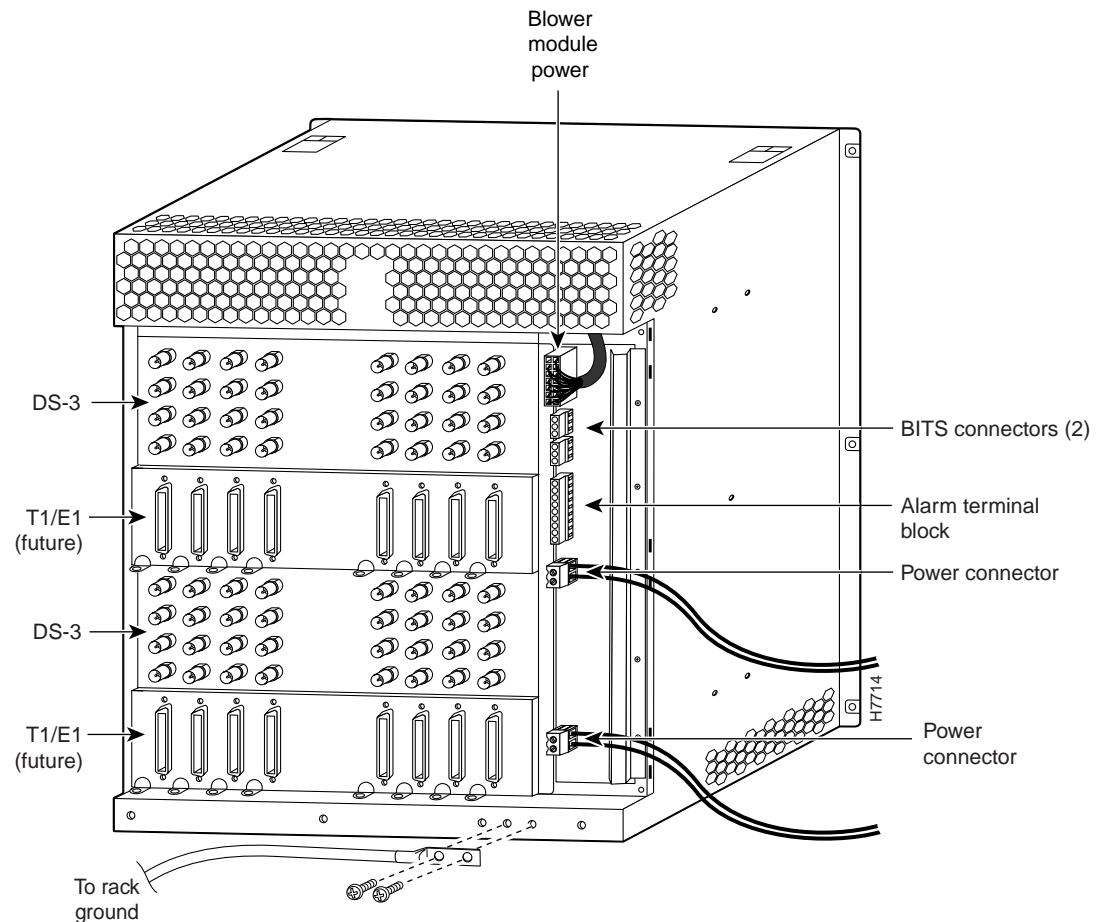


Figure 1-2 shows a rear view of the Cisco 6400 chassis.

Figure 1-2 Rear View of the Cisco 6400 Using DC PEMs



The rear of the Cisco 6400 chassis incorporates the following connection facilities:

- Blower module power connector.
- Thirty-two pairs of DS3 coaxial connectors—One receive (RX) port and one transmit (TX) port per DS3 pair.
- Sixteen high-density T1/E1 connectors (not currently supported).
- Two building integrated timing supply (BITS) connectors—The bottom connector services the NSP-S3B in slot 0A of the Cisco 6400 chassis, and the top connector services the NSP-S3B in slot 0B of the Cisco 6400 chassis. (See Figure 1-2.)
- An alarm terminal block—Provides connectors for an external alarm monitoring system that can be used to sense three alarm conditions in the Cisco 6400 chassis:
  - Minor
  - Major
  - Critical
- Each alarm connector incorporates a normally closed (NC) contact, a common (COM) contact, and a normally open (NO) contact.

- Two power terminal blocks—One connector that is associated with the upper PEM bay (DC PWR 0) in the Cisco 6400 chassis, and one connector that is associated with the lower PEM bay (DC PWR 1) in the Cisco 6400 chassis. (See [Figure 1-2](#).)
- System grounding connector—The second and third holes from the right at the bottom of the Cisco 6400 chassis are threaded to enable the attachment of a system grounding cable. (See [Figure 1-2](#).)