

Chapter 1

Protocol Translator Product Overview

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This chapter provides an overview of the Cisco Systems protocol translator product line. You will find the following information in this chapter:

- Protocol translator capabilities
- Protocols and media supported
- Configuration options

Capabilities of the Protocol Translator

Complex internetworks have grown past the point where they can depend on equipment from a single vendor. Virtually all organizations connecting local area networks (LANs) and creating wide area networks (WANs) today have major commitments to hardware and software from many different vendors. Therefore, current and future internetworking requires products that support multiprotocol, multimedia, and multivendor networks.

Cisco Systems protocol translators are high-performance application-level gateways that can provide connectivity among systems running differing protocols over a variety of communication media.

As part of their software capability, Cisco protocol translators provide distributed network management facilities to assist in performance monitoring, runtime error logging, and the Simple Network Management Protocol (SNMP). These features allow the network manager to examine and adjust the protocol translators for optimum performance.

Full network access control helps the network manager ensure effective system use. Remote configuration is also available through Telnet and MOP connections to virtual ports on the terminal servers.

Security features allow restrictions to resources on the network. The network manager can specify access lists to establish which users have access to which computers. A user-name-and-password-pair authentication scheme is also supported.

Supported Transmission Protocols and Services

Cisco Systems protocol translators provide a flexible set of capabilities providing connection service using different media and between different hosts and resources running different protocols. The following descriptions summarize the protocols and connection services supported by the Cisco Systems protocol translators.

- TCP/IP protocols, the most widely implemented protocol suite on networks of all media types. TCP/IP is today's standard for internetworking, and is supported by most computer vendors, including all UNIX-based workstation manufacturers.
- DEC Local Area Transport (LAT) protocol, Digital Equipment's proprietary terminal connection protocol used with DEC minicomputers. Cisco products support bridging of LAT (router/bridges) and protocol translation of LAT (protocol translators) to X.25, Telnet, or TN3270.
- X.25 PAD protocols, which permit cost-effective, as-needed use of major public networks in the United States and Europe. Cisco Systems protocol translators support both the X.25 protocol and the X.3/X.28/X.29 specifications.
- IBM 3278 terminal emulation, providing TN3270-based connectivity to IBM hosts over serial lines.
- Network Computing Devices Inc. XRemote terminal facility, allowing for remote X Window operation using their NCD terminal.

Media Support

In addition to support of Ethernet (IEEE 802.3), Cisco protocol translators support synchronous serial circuits at many speeds. Cisco's protocol translator serial interfaces are capable of transmitting and receiving data at up to four megabits per second, and supports connectivity to WAN services such as SMDS, Frame Relay, and X.25.

For customer convenience, Cisco Systems markets a broad line of media adapters, including RS-232, V.35, X.21, and RS-449.

Configuration Options

Part of the power and flexibility of Cisco Systems' product components is derived from their physical configuration options. Customers can choose from single-board systems, or card-based chassis configurations that offer processor, back panel connector mountings, and communications interfaces best suited to their network.

Cisco's Protocol Translator Models

The following protocol translator models are available from Cisco Systems:

- The CPT™ model is built on the C chassis, a compact two-slot chassis. Connection options include one Ethernet and one or two synchronous serial connectors. This model is best suited as a central-site protocol translator.
- The MPT™ model is built on the M chassis, a mid-sized four-slot chassis. Connection options include Ethernet, synchronous serial, and Token Ring connectors. The MPT provides a flexible and cost-effective approach to connectivity for the medium-sized business environment.
- The IGS/R™ and IGS/TR™ models are single-board routers with two network interfaces—either Ethernet and synchronous serial, or Token Ring and synchronous serial. Protocol translation is provided as a software option, thereby supporting concurrent routing, bridging, and protocol translation capability. The IGS is designed for remote offices, or to interconnect PC LANs.

Microprocessors

Cisco Systems uses either the MC68020 or MC68030 microprocessor for high-speed operation in their protocol translator products. All Cisco System microprocessors contain onboard RAM, system ROM holding all operating system, bootstrap, and diagnostic software, and hardware and software support for a control console.

Cisco Systems also offers optional nonvolatile memory that retains configuration information despite power losses or system reboots. With the nonvolatile memory option, the terminal and network servers need not rely on other network servers for configuration and boot service information.

