Chapter 1

Understanding Silicon Graphics' Networking Products

This chapter provides information about the standard hardware and software networking products provided with Silicon Graphics systems. It explains the physical connection of an IRIS system to an Ethernet and serial network and describes network hardware options and interface names for network devices. This chapter describes the standard networking files, directories, and daemons, and provides an overview of the network startup and shutdown processes. It also supplies a brief description of Silicon Graphics' optional networking products.

Topics covered in the remaining chapters of this guide require an understanding of the fundamentals of network theory and operation. If you need information on networking fundamentals, refer to the bibliography in the introduction to this guide for additional reading. Topics in this chapter include:

- An overview of networking hardware. See "Networking Hardware" on page 1.
- An overview of networking software. See "Networking Software" on page 4.
- A list of optional networking software products. See "Optional Networking Products" on page 5.

Networking Hardware

The networking hardware that comes standard on every Silicon Graphics system is an Ethernet controller and two serial ports. (Some hardware products may have more ports than this, including an ISDN port.) The Ethernet controller may be an entire board or an integrated chip. Controllers interface between the networking software and the network medium.

To connect your Ethernet controller to a network, you must have this hardware:

- an Attachment Unit Interface (AUI) cable, also referred to as a dropline or even simply as a cable
- a transceiver

- access to an active Ethernet cable

Figure 1-1 shows how systems (termed "stations" on the network) might be connected to an Ethernet network.

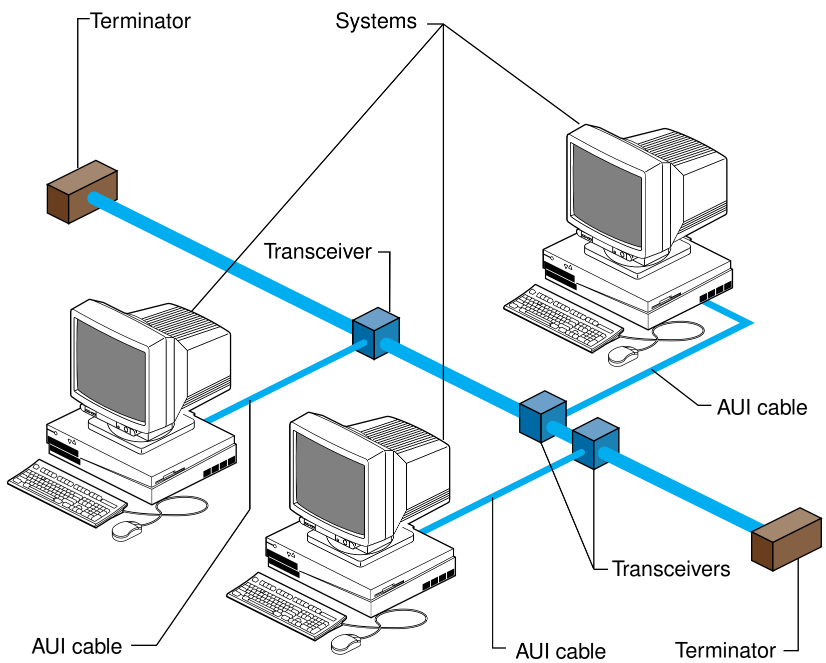

Figure 1-1 Ethernet Network Attachment

The serial ports on an IRIS system allow it to connect to serial networks. Serial-line networks are systems connected by serial lines and modems. You do not need special hardware installed in your computer to connect to a serial network.

Figure 1-2 shows systems connected to a serial network using modems.

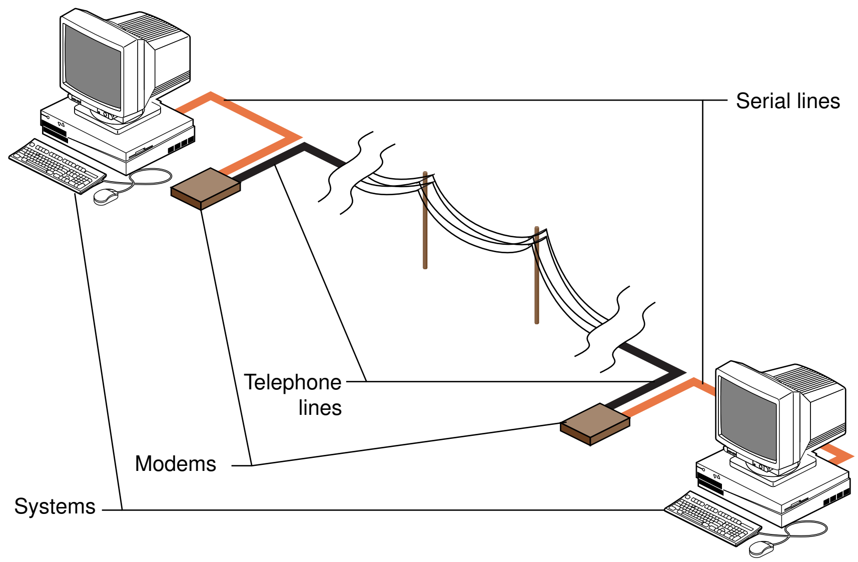

Figure 1-2 Serial Line Network

Networking Hardware Options

In addition to Ethernet and serial-line hardware, other types of controllers can be installed in Silicon Graphics systems as options. Some optional hardware products are user installable, while others require installation by a System Support Engineer certified by Silicon Graphics.

Optional networking products available from Silicon Graphics provide support for other types of networks, including FDDI, token ring, X.25, and SNA. See your sales representative for information on the networking options available for your system.

Controller Interface Names

The network controller is the physical board or chip. The interface is software's interpreter and handler of the controller. The interface name is the name most evident to the user. For example, network management tools refer to the interface name when providing information about the physical controller.

To configure a controller, each network controller on a system must have a valid interface name. A single system may have multiple controllers; each controller must have a unique interface name. Several different types of controllers are available. Each type has its own special interface name. Most network software supports a maximum of four network interfaces by default.

You can get a list of the interfaces installed on a system using the *hinv* command:

```
% hinv -c network
Integral ISDN: Basic Rate Interface unit 0, revision 1.0
Integral Ethernet: ec0, version 1
```

The interface name for the Ethernet controller in this example is "ec0."

Networking Software

The standard networking software shipped with all IRIS systems adheres to the Internet Model standards and protocols. It is derived from the networking software in the 4.3BSD UNIX® release from the University of California at Berkeley and the RPC® (remote procedure call) system from Sun Microsystems. The IRIX operating system implements the Internet Protocol suite and UNIX domain sockets using the 4.3BSD UNIX socket mechanism. The system also supports access to the underlying network media by means of raw sockets.

All standard networking software is supplied on the Execution Only Environment media (eoe1, eoe2, and netls_eoe). See Table 1-1 for a list of standard networking software for IRIS systems. See Table 1-2 for a list of the optional networking products for IRIS systems.

Table 1-1 Standard Networking Software

Standard Networking Software	Description
TCP/IP	Transmission Control Protocol/Internet Protocol support
UUCP	UNIX to UNIX Copy Programs
sendmail	Electronic mail support
SLIP	Serial Line Internet Protocol

Table 1-1 (continued) Standard Networking Software

Standard Networking Software	Description
PPP	Point to Point Protocol
BIND	Berkeley Internet Name Domain
NETLS	Network License Server
NCS	Network Computing System (supports NETLS only)
RPC	Remote Procedure Call support

Optional Networking Products

Silicon Graphics supplies a variety of optional networking software to provide interconnectivity between various vendors and mediums. Table 1-2 lists some of these products. See your sales representative for detailed product information.

Table 1-2 Optional Networking Products

Optional Networking Software	Product Description
NFS™	Includes software for Network File System (NFS); Network Information System (NIS, formerly YP); and diskless system support.
4DDN™	Enables IRIS systems to function as a Phase IV DECnet end node.
4DLT™	Provides DECnet terminal service. (LAT)
Network License Server Developers Option	Consists of the License Server Lock (LSLOCK) and the Network License Server (LSSERVER). The LSLOCK allows software developers to license software products, and LSSERVER is used to administer products licensed with LSLOCK.
NetVisualyzer™	Offers a set of graphical traffic monitoring, diagnostic, planning, and performance analysis tools that provide network information and statistics in a visually intuitive form.

Table 1-2 (continued) Optional Networking Products

Optional Networking Software	Product Description
FDDI Visualyzer™	Provides a graphical interface to the FDDI environment.
IRIS NetWorker™	Application that automatically backs up systems over the network. Keeps online indices of all backed up files.
4D TCP 3270	Enables IRIS systems to emulate an IBM® 3270™ type terminal and open multiple sessions on an IBM mainframe.
IRIS 5080 Emulator	Provides IBM 5080™ and 3270 terminal emulation. Delivers direct access to models, applications, and data residing on an IBM mainframe using the IRIS system.
4D Coax Connectivity	The 4D CUT 3270 and 4D DFT 3270 coax products provide your system with a cost-effective way to emulate an IBM 3270 type terminal.
4D SNA Connectivity	Allows access to the IBM SNA environment. Provides access to mainframe applications, utilizes multiple windows and file transfer programs.