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How Does the Internet Work?

Connecting to the Internet

If you have access to a telephone line, a modem and a computer, you can connect to the Internet. There are four basic ways to connect to the Internet; make a direct connection over dedicated communications lines; use your computer to connect to a university or hospital computer system that has Internet access; buy time and connections from a commercial Internet service provider; or use an indirect service provider. The next section will describe the various options for connecting to the Internet, including the advantages and disadvantages of each. Then, we'll give some guidelines to help you select the connection that is appropriate for you.

Types of Internet Connections

Direct Connection to the Internet

A direct or dedicated connection wires your computer directly to the Internet through a dedicated machine called a router or gateway. The connection is made over a special kind of telephone line. The gateway makes you an “official” Internet computer that must remain on-line all the time. This type of direct connection is very expensive to install and maintain. For this reason, it is usually used only by large companies or institutions rather than by individuals or small businesses.

Connecting Through Another’s Gateway

Another way to connect to the Internet is to use a gateway that another company or institution has established. In this case, a company or university or hospital that has an Internet gateway allows you to connect to the Internet using their
system. The connection is usually made through a modem or remote terminal. This type of access is often available to students through the computing services department of their university. Many hospitals and health services organizations also allow staff access to the Internet through the institution’s facilities. This is a good way to begin to learn about the Internet resources that are available, before deciding that you want your own access. The only disadvantage is that the institution may not offer full Internet access, but only e-mail and newsgroup facilities. In order to use an institution’s access, you will need a login id and password (see Chapter 3). The information services or computer services department is the place to start inquiring about getting access and authorization to the institution’s services. For the individual, this is the best type of access to have if full Internet access is available. Someone other than you maintains the computer system, and the Internet connection and, most importantly, pays for the connection. If you have this type of access, celebrate your good fortune!

Connecting Through a Commercial Service Provider

Connecting to the Internet through a service provider is much the same process as using another’s gateway. The service provider builds and maintains the gateway and sells Internet connection access to individuals and small companies. Service providers usually charge a flat fee for membership, usually so many dollars per month for so many hours of Internet access per month. Some providers also charge based on the amount of extra time you spend connected to the Net or on the amount and size of e-mail messages that you send. There are also different types of services available through commercial service providers.

Service providers may provide you with a SLIP (Serial Line Internet Protocol) or PPP (Point to Point Protocol) connection. With this type of connection, you dial in to the service provider’s computer and connect through the gateway. Your computer, as long as it stays connected, becomes an “official” part of the Internet. With a SLIP or PPP connection, you have full Internet access, up to the power and storage capacity of your own computer. The major disadvantage of using a SLIP or PPP connection is the amount of technical computer expertise that is usually required to install and maintain this type of connection on your computer. Unless you are a computer wizard, this is most likely something that the novice Internet user will want to avoid.

Another service that is available through commercial service providers is called a terminal emulation connection. With this type of service, the provider gives you a simple dial-up program that you can easily install on your computer. When you start up the program, it connects you with the service provider’s computer. The service provider’s computer then makes the Internet connection. What you see on your screen from then on is only the image of what is really on the service provider’s computer. The service provider’s computer “paints” your screen to look like its screen. All the “computing” is being done on the service provider’s machine and only “reflected” onto your screen. You use your com-