Getting Started with the Internet

Each day, dozens of newspaper and magazine articles refer to the *Internet*. Television programs and commercials, local newscasts, and even billboards list Internet addresses. Businesses deliver news and training to their employees, service and information to their customers, and promotional materials to their markets all on the information superhighway.

Defining the Internet

In simple terms, the Internet is many computer networks linked together electronically. In 1969, the Pentagon's Advanced Research Projects Agency (ARPA) created a forerunner of the Internet, the ARPAnet, a network of four university computers designed to support military research. It soon expanded to include dozens of university and government agencies in order to facilitate communications between defense contractors and universities. It was designed to function reliably even in the event of a military attack.

In the 1980s, *local area networks* (LANs) became the standard in electronic office communication. These networks interconnect the computers in an office so that files, printers, and other resources can be shared within the organization. In the mid-1980s, the National Science Foundation (NSF) used ARPAnet technology to build its own network, NSFNET, in order to make its five regional supercomputers available for research to computer science students and scientists at major American universities. The LANs at the universities were connected by high speed telephone lines to the regional supercomputers, allowing each computer to communicate with the others by passing messages between them. As the network grew, U.S. government employees and contractors, international researchers and educators, and finally commercial sites were granted access to the network.

The Internet network communicates using a common *protocol*. This protocol, *TCP/IP* (Transmission Control Protocol/Internet Protocol) enables different types of computers running different types of operating systems—Windows, Macintosh, UNIX, and more—to communicate smoothly with one another, as shown in Figure 1-1.

To send your data, TCP/IP breaks the data into small units called *packets*. Each packet contains the destination address and is sent through a device called a *router* to its destination. Packets from the same message can take different routes along the Internet. When the packets reach their destination, TCP/IP reassembles them into the original information.