

Node Functions

There are distinct roles that nodes can serve in a network.

Servers

Any node that shares resources and responds to requests can be called a server. All computers generally function as servers in some way. However, when we use the word “server,” we’re typically talking about a computer that has been designed to provide services to other devices. They’re usually kept in locked rooms away from the users.

Servers supply central resources. These resources can include applications, files or printers and other hardware. A server can be dedicated to one specific function, or it can serve general needs. And multiple servers of more than one type can exist on the same network.

Because other devices depend on the services of the server, servers usually have redundant (duplicate) hardware components. That way, even if something breaks, the server can continue to run. They also usually have special operating systems. The most common server operating systems in use today are Microsoft Windows Server ® and Linux.

Clients

A client is a network computer that uses the resources of servers. The client computer can also perform its own tasks and processing. All computers generally function as clients at some point. However, when we use the word “client,” we’re typically talking about a computer that has been designed to be used by end users. Clients are often called desktops or workstations. They usually run operating systems that are more responsive to users. Client also implies the computer is used in a business. The most popular client operating systems are Microsoft Windows ® and certain distributions of Linux.

Suppose you have a printer attached by a cable to your computer. If you allow someone else in your home to print to that printer, technically you’re the server. The other computer is the client. But usually, these words describe business environments where the two devices are specially configured for what they do most of the time.

Peer Computers

A peer is a computer that acts as both a server and a client to other computers on a network. Peer computing is most often used in smaller networks that don’t have a dedicated server. Although, peers can belong to networks with servers.

Peer computers run client operating systems. The key difference between clients and peers is whether they have a security relationship with the server. If users that have an account on the server can log in on the workstation, it’s a client. If the user needs to have an account on the workstation, then it’s a peer.

In the above scenario, where you shared your printer with a family member, your computer is functioning as a peer.

Host Computers

A host computer is a central computer system that performs storage and processing for other devices. On a host-based network, the host computer does all computing. It then returns the data to the end user’s terminal. Host computers are often referred to as mainframes.

In the early days of networking, all computers were hosts. The hosts were then joined together in the early research networks that became the Internet. As the TCP/IP protocol became popular, and personal computers joined the networks, the term host became generalized. Now “host” is used to describe to any node on a TCP/IP network.

Terminals

A terminal is a specialized device on a host-based network. Users enter data into the terminal. The terminal sends the data to a host for processing. The host sends the results back to the terminal. Terminals are often called “dumb terminals.” Unlike clients, they have no processor or memory of their own. They’re usually just a keyboard and a monitor. Standard client computers that need to interact with host computers can run software called a terminal emulator so that they appear as terminals to the host.