

How does remote access work?

From a remote location, you use a computer and a **modem** to dial into your office network. At the office network, the connection is completed by another modem in a device called the **remote access server**. The remote access server verifies that you are entitled to enter the network. The phone line can then operate as if it were a physical (hard-wired) link between the office and your remote location. You can send e-mail, use applications, transfer files, or do any other work - just as if the remote computer was actually on the office network.

You also can provide remote access for a smaller office by installing an **access router**, which has one or more modems integrated into it. An access router is a basic remote access solution for small businesses that requires only one or two simultaneous dial-in lines to the office. The remote worker dials into the office and the integrated modem of the router answers the call, verifies the user and allows them access to resources on the local area network (LAN). It can even connect the remote user to the Internet.

How fast is the connection?

FAST: Modem speeds are rated at the amount of data they can transmit each second. For example, a 56 kilobits per second (Kbps) analogue modem passes up to 56,000 bits (56K) of information per second. For today's business applications, we recommend at least a 56 Kbps modem.

FASTER: Another option is **ISDN** (Integrated Services Digital Network). ISDN delivers up to 128 Kbps performance, which is twice as fast as 56 Kbps modems. You'll access data and applications much faster. To obtain ISDN speed, both the business office and the remote location need ISDN modems and special ISDN lines installed by your local telephone company. First, make sure your phone company offers ISDN service in your area.

FASTEST: The fastest option is **DSL** (Digital Subscriber Line). DSL is next generation technology that transmits voice, video and data over ordinary copper telephone lines at megabit speeds. DSL provides dedicated bandwidth that can be up to 143 times faster than 56Kbps modems, 62 times faster than ISDN and up to 4 times faster than T1 lines, which are deployed by many larger companies. DSL uses your existing phone line but doesn't tie it up - you can access the Internet while using the same line for telephone conversations or faxes. In addition, your office is always connected. This means the link is available immediately, so there is no need to dial up to make the connection.

DSL comes in different varieties, each with its own performance capabilities. To use DSL, first check if your local phone or Internet service providers offer DSL service in your area. You will need DSL **routers** or modems on both the office and remote sides of the connections.

Because the connection is always "open," consider installing a firewall (see below) at your office to guard against unauthorised users accessing your network. Also ask your DSL provider for software that enables the remote side of the connection to securely "tunnel" into the office network. These virtual "tunnels" are known as "virtual private networks," or VPNs.

What kind of security is available?

If your business transfers proprietary, sensitive or valuable information over public networks, you should install a **firewall**. This is a device that prevents unauthorised access to your network. It connects between the modem on your network and the network itself, serving as a security guard to keep out unwanted traffic and users.

What if I only want to send and retrieve business e-mail?

The simplest and least expensive solution is to outsource your e-mail services to an Internet service provider (ISP). Once a business account is established, you and your employees will be able to access your e-mail messages around the clock. All you will need is a modem and e-mail software such as Microsoft Outlook Express or a standard Web browser.

How many outside lines do I need to support remote access?

For analogue 56K or ISDN services, this depends on the number of employees you have, how often they need remote access to the company network and the kinds of applications they will access.

Generally, a single phone line can support ten remote users, assuming they dial in at different times of the day and connect for short periods of time. If employees need more frequent and longer access to the network, such as telecommuters who work at home, a single phone line may be needed for every four remote users.

If your office needs multiple users to dial-in simultaneously, use a remote access server that supports four or more dial-in lines at the same time.

A single DSL connection, however, is enough to support most small businesses.

What if I need more than one dial-up line?

Install an access router or LAN modem with integrated modems. An access router with integrated dual modems, for example, will enable two remote employees to access your network at the same time. Additionally, if such a device is used at both ends of a connection, you can trunk, or combine, both modems to send a single file at near ISDN speeds. This is a good solution for high-speed connectivity if ISDN or DSL services are not available in your area. Another option is to choose a remote access server that supports multiple dial-in lines. If you need four or more dial-up lines, consider installing an all-in-one remote access server that supports multiple dial-in lines (ISDN and/or analogue). This solution integrates the remote access server functionality and provides additional security.

How do I connect two offices?

Use a remote access server or a LAN modem with multiple modems, which enable remote employees and a second office to access your business network. If you need a constant connection between the sites, consider a wide area network (WAN) with a full-time DSL connection. To learn about WAN strategies and solutions, go to [Your Wide-Area Network: Connecting to Customers, Partners & Sites](#).

Can I access my office phone system remotely?

Yes, if your office uses a VoIP (Voice over Internet Protocol) phone system, you can use the Internet, not the public telephone system, to connect a remote phone to the office system. This offers many very tangible benefits. Unlike conventional business phone systems, you can access far more than the receptionist and your voicemail messages. A remote user will have seamless access to all the features of the office phone system, such as call forward and voice conferencing, just as if the remote phone were physically connected to the office system. Additionally, telephony over the Internet can be done at the cost of a local call. VoIP phones are easy to install; remote users can simply plug their phones into their local computer systems, removing installation costs altogether.

The key to VoIP telephone solutions is that they use the cabling of computer networks (like the Internet) to transmit phone calls. For this reason, they rely on the existing wiring of Ethernet local area networks (LANs), which is why the technology is known as LAN *telephony*. You plug the phones into the LAN at your office, eliminating the cost and hassles of installing and maintaining separate cabling for your telephones.

What do I need to access my office phone system?

First, you need to install a LAN telephony system at your office. Then you need DSL routers or modems at the office and at any remote sites, like your home, where you need to access business telephone services. You must have DSL to remotely access a LAN telephony system.

Can I install these solutions myself?

Yes, with the exception of your office's LAN telephony phone system. Make sure you buy products that feature installation guides, or wizards, to help with proper set-up and operation. A LAN telephony solution should be installed by an accredited reseller. Once this is done, phones at remote sites can be installed easily by users.