

Internet Terms and Definitions

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⊗ Computers that run the 'Net'

When people think about the Internet they usually envision huge computer systems that take up entire rooms. The truth is, most "servers" are the same physical size as your personal computer. The main difference is what is inside the machine: faster processors, more memory, more disk space, and very flexible networking abilities. Most servers run an operating system called **UNIX**. UNIX is a very mature and weathered operating system that is only recently being noticed by mainstream users now that the Internet has become so popular.

What makes the UNIX operating system architecture so well suited to serving internet services is its superior multi-user capabilities? Your personal computer is just that, for use by one person: you. UNIX is what we call a preemptive multi-tasking operating system. This means the computer can easily share its resources amongst many different requestors and prioritize these requests to ensure the highest overall performance. For instance, if one user requests a very computing intensive task, like a database search, the operating system will ensure that more important services, like accepting new connections from other users, are always given priority. The database search is "preempted" by the higher priority new connection request.

UNIX also has sophisticated multi-threading capabilities. If a program is multi-threaded it will allow many simultaneous tasks to be done at the same time. A good example is your home e-mail application. While you download your new mail from your mail server, can you open one of your mailboxes and start browsing other messages? If not, your mail program is not multi-threaded. It can only do once task at a time.

⊗ **How Servers access the 'Net'**

Servers access the Internet through means that you are already familiar with, regular telephone lines. The main difference is in the type of telephone line the Server uses. Most professional Servers use what is called a T1 line. This is a very high-speed telephone line that can receive and send information very quickly. With this speed, comes an amazing price tag of around \$1,500 a month. That is why we have providers that can share the expense over communities of subscribers like you and I.

Now even though the physical telephone line connecting to the computer looks familiar, the method that it uses to connect to the computer is a little more complex than your average modem. Usually this connection involves a customized configuration based on what your provider needs. This information is not vital at this time.

Once the Server is connected to the Internet via a T1 line that is provided by the local telephone company, the Server is on the net. It can make requests, provide data, and offer all kinds of Internet services as they are developed.

⊗ **How you access the 'Net'**

There are many methods for you to access your service provider. Most providers furnish local telephone numbers that you can call to log onto the Internet. If you are using a local telephone number with you modem, you are most likely calling another modem at the provider's site. The provider's modem is usually configured to assign you a unique address upon accepting your call. This unique address is called your IP address. This IP address becomes your virtual identification number on the Internet. Anytime you access any service on another Internet computer, it receives a copy of your IP address for its records. Don't worry, this doesn't tell it who you are necessarily. It just lets it know, in general, which provider you came from. If you are working for a company and accessing services through a direct connection, this might include your name as well.

⊗ **ISDN Modems**

In addition to modem access, there are special modems called ISDN modems. This stands for **I**ntegrated **S**ervices **D**igital **N**etwork. You can usually find these for sale in computer catalogs. ISDN modems require a special connection service from your local telephone company. The whole set up averages about \$500. It includes the purchase of the modem and sign up for a year or two of service. In addition, there is a monthly charge of about \$35. To put this into perspective, ISDN modems are what several companies use to access the Internet. You are charged by how much data you access. ISDN modems usually have an access rate of about 56 to 128 kbps (kilobytes per second), that's about two to four times as fast as a 28.8-baud modem and about four to eight times the speed of a 14.4-baud modem.

ISDN modems use something called channels to establish connections with the Internet. This is the same as your normal modems, but there is something advanced about how the ISDN modems use channels. Now don't think that channels are something complex. They are actually very simple. There are two main channels. Channel **A**, and channel **B**. Both channels can access 56 kbps individually. When you are using an ISDN modem, you have the option to turn on the second channel, B in this case. These will double your access rate to 128 kbps. This is very quick, and saves a lot of time. It will cost the same per kilobyte, but obviously you'll be more apt to access more information at this rate, so your overall bill might increase considerably.

ISDN lines (what we call the connection from the local phone company) also have one interesting and very powerful feature. Remember the two channels, A and B? Well you can access the Internet on channel A, while having a conversation on channel B using a normal telephone. This can be very cost efficient if you're thinking about putting in a separate line for your business. You can get a connection to the Internet and a second phone line all at the same time.

⊗ **Broadband Solutions**

A growing alternative to the slower modem solutions, are solutions that are referred to as broadband. These are methods of connecting to the Internet that don't cost an arm and a leg and they keep your computer connected permanently and at MUCH higher speeds.

⊗ **ADSL / DSL**

One of the first affordable broadband solutions for your home is ADSL aka DSL. This is a network box that uses your normal phone line and connects your computer to the Internet permanently. What this means

is that you never have to wait for the computer to dial a service and connect. The trick with ADSL is that the downloads (which is what you do 95% of the time) are VERY fast, but the uploads aren't quite as fast. An example would be downloading at 180k/second when a 56k modem downloads at 6k/second. You can see that there is a large difference between the two solutions. Again, depending on the service your upload rates will be limited to 15k/second. ADSL can be purchased through your local phone company at about \$39 a month.

⊗ Cable Modem

The cable companies are also getting into the Internet business and doing a great job at it. Using your cable television wire as a backbone, the cable company can place a box in your residence that will allow for high-speed downloads and not so bad uploads. Download rates can be as high as 250k/second with a 120k/second uploads. The only catch is that you share your line with all your neighbors. If your neighborhood has several people using cable modem, you could notice a significant loss in download and upload times. Cable modems can be purchased through your local cable company for about \$39 a month.

⊗ Direct Connect

You can also access the net via your work place, if your company has what is called a "direct" connect to the Internet. This could simply be an ISDN modem hooked up to the network somewhere or, if you're real lucky, you might even have a T1 line connection. This is extremely fast and is usually reserved for large companies.