

How does it work?

The Internet is a massive world-wide collection of computers (all types, big and small), connected together in a huge network. Any type of computer can be connected to the network, as long as it speaks the universal Internet language, TCP/IP. Using a computer you can become a temporary part of this network by signing up with an Internet service provider (ISP). An ISP is a company that has fast, direct Net connections, and which can act as a gateway for you. In return for a monthly or sometimes yearly fee, the service provider enables you to use a modem attached to your computer to dial up over the phone line and connect to its computers, which in turn connect you to the Internet. As a result, you can access the World Wide Web, send messages to newsgroups and get an e-mail address that enables you to exchange e-mail with other users.

Modems explained

There used to be a time when buying a modem was fraught with worry and technical difficulty, not to mention the appalling stigma of being branded a nerd because you wanted a strange box o' tricks that nobody understood how to use. Now, though, modems are the epitome of respectability, so much so that it's hard to buy a new PC without a modem already fitted. And the latest models have streamlined curves that make you feel oh-so-good about parting with a hundred quid to get your hands on one of the beasties.

What a modem does is enable your PC to exchange data with other computers whether it's your mate's down the road or a machine on the Internet - over the phone line. But as we all know, the data your PC produces is digital bits and bytes, and only analogue signals can be transmitted over the phone line. This means that for the data to get out of your machine and on to the Internet (or off the Net and into your PC) it needs to be converted from digital to analogue and then back again. And that's what a modem does - it modulates the out-going digital signals produced by your PC, turning them into analogue ones, then demodulates the incoming analogue signals to turn them back into a digital one. Modulate, demodulate, modem. See? Nothing to be afraid of, was there? Now you know (roughly) how a modem works, you can promptly forget all about it. They plug in, they work, they let you get stuck into the Internet, play multiplayer games on systems like Wireplay and - best of all - run up a phone bill the size of Oliver Reed's drinks tab. BT's new digital phone service Home Highway has muddied the waters somewhat because it means you need an ISDN adaptor instead of a modem. More of that later.

Buying a modem

Choosing a modem is nowhere near as tricky as it used to be. Nowadays there's a handful of big brand names producing top-notch kit that's supported by all the software under the sun. The prices of modems produced by big companies such as Pace, 3Com and Diamond are getting lower all the time, so the amount of cash you might save by choosing a little-known, little-supported make will be far outweighed by the hassle and heartbreak you endure when you realise that it didn't come with decent instructions, it doesn't have the right driver software and it won't work with any of your games. Sob, eh?

There are still a few decisions to make when you get to your local Modem-U-Like store, though. First up - do you really want a modem? If you're going to be using Home

Highway, you don't - you need an ISDN card or adaptor instead. Most models cost around £200, though manufacturers are starting to produce models specifically for the home market for around £75.

If Home Highway isn't for you, you need to ask yourself how fast you want your new modem to be. Why, as fast as possible, of course, and for once in the PC hardware world, that's not a pipe-dream realised only by the privileged (and very rich) few. The fastest modems on the market for home users promise download speeds of up to 56Kbps (Kilobits per second), and these models will set you back between £75 and £130. The only other viable alternative is a slower 33.6Kbps model, but while you'll save as much as £30 on the purchase price, you'll lose just as much in time and money because it'll take so much longer to download information from the Internet. So, unless you're so strapped for cash that you can't scrape together £75 in a month of Sundays of nicking from the collection plate, choose a 56Kbps model and have done with it.

Did you notice the "up to" in there? We have to say "up to" because that's the speed achieved by these modems under impossible-to-achieve-in-the-real-world laboratory conditions. In reality when line noise, signal quality and the phase of the lunar cycle all take their toll, the maximum realistic download speed you can expect to achieve is 41-44Kbps. Oh, and the other thing is that because of the smart-arse way they work, 56Kbps modems can only download data at the faster speed- they still have to upload at the slower but respectable speed of 33.6Kbps.

And there's a catch - not a very big one, but one you should be aware of just in case you snag your cardigan on it. Ready? Here it is originally there were two types of 56K modem and, although they used the same basic technology, they weren't compatible. Like an unhappily married couple that's too poor to get a divorce, they simply won't talk to each other, no matter how much you plead or how bad things get.

Sulking in the bedroom is 3Com/US Robotics' x2 format which is supported by 3Com and, well, nobody else at all. That's not as bad as it sounds, though, because 3Com is, by a long way, the single biggest producer of modems in the world - its Sportster brand is particularly popular. Having a fag in the garden is the k56flex format developed by Lucent and Rockwell, and used in modems from Pace, Motorola and Hayes - everyone else in the world, basically.

Both formats deliver roughly the same performance, so in speed terms it doesn't really matter which you choose. What does matter is that you choose a 56K modem that matches the 56K modem format supported by your chosen Internet service provider. It's a bit of a chicken-and-egger, but if you don't have either a 56Kbps modem or a service provider, toss a coin, or just go for the cheapest. Or the one that offers the best after-sales support. Or the longest lead. Or the prettiest plug.

Now, though, a standard protocol for 56K has been thrashed out to enable modem to speak unto modem, no matter who made it. The new V.90 standard means that you'll be able to buy a 56Kbps modem without fearing for its compatibility. Most x2 and k56flex modems can be upgraded to V.90, but make sure your service provider supports V.90 before you take the plunge.

Choosing an ISP

There are more than 100 Internet service providers (ISPs) to choose between, from local one-man-band outfits to global services run by the likes of BT (hissing all round). It's probably best not to opt for a small, local ISP. Internet access is a cut-throat

business, and the pundits are saying that the small guys are going to have their work cut out to avoid going under. You're also more likely to get better software, better services, better technical support and faster connections from a large service provider. The major ISPs, such as Pipex Dial, BT Internet and Demon, have massive connections to the Net, which means they can support a very large number of simultaneous users without grinding to a halt. Smaller ISPs might be cheaper, but they actually have to lease space from the big providers themselves, and don't have nearly as much capacity to share around. This means they're more likely to have problems during busy periods, and they'll almost certainly have fewer modems, meaning more engaged signals when you dial in at peak times a low user-to-modem ratio is vital. The large service providers can also afford to maintain bigger, faster computers to handle e-mail, Usenet discussion groups and so on, while smaller firms might have problems in this area.

Finally, there's support. A good ISP will supply you with all the necessary software to get on-line, including a Web browser, e-mail package and newsgroup program. This software should be easy to set up and use, backed up by 24-hour helplines if you have a problem. Again, some of the smaller ISPs just can't afford this sort of overhead; set-up software might be scarce or non-existent, and there's unlikely to be any sort of dedicated support line. And if an ISP doesn't offer Net access on a local phone number, forget it.

In addition to this, a decent ISP might offer free Web space, five e-mail addresses and other goodies like automatic filtering of junk e-mail. On the whole, then, you get what you pay for.

Ah, but do you? There are now several service providers that deliver Internet access with no monthly charge. Chief among these is Dixon's Freeserve, which provides all the bells and whistles of a paid-for ISP but without the cost. The main drawback is the technical support line which costs more than a standard call, but if you don't have to call it, you don't have to pay.

Online Services

The other option is to join an on-line service such as AOL, LineOne, the Microsoft Network (MSN) or CompuServe. As a member of such a service, you get access to the Net and also to content especially created by the service - sometimes viewed using special software. Like the Web, on-line services provide pages about films, TV, computers, graphics, and just about anything you can think of. The difference is that, because you're paying extra for the privilege, the stuff is more organised and easier to find than on the Web. On-line services often feature chats with top celebs of the music and film world, as well as dedicated support sites from major software houses.

Sounds good? Well, yes, up to a point - it's a very friendly way to be introduced to the Net. However, on-line services aren't nearly as inviting as they were a few years ago, before the Web really caught on. Back then, they could offer plenty of stuff that wasn't available elsewhere. These days, with much of the same sort of content freely available on the Web, it's more difficult to justify paying extra to use an on-line service as opposed to a plain Internet service provider. That's why these services have moved so rapidly to be more open and Web-based, instead of being entirely closed systems. If you're a completely callow beginner and don't fancy braving the terrors of the Net all at once, an on-line service is a good starting point. It can hold your hand while you take your first steps on the Web. You can always change to a plain vanilla ISP at a later

point, when you're feeling more confident.

TOP TIP

Don't waste time and money downloading software from the Net - install it from the CD-ROM.

TOP TIP

Avoid nasty surprises - make sure you know what your service provider charges, if anything, for technical support.