Ditch your dialup

The broadband blitz has begun, with web vendors offering connection speeds up to 20 times faster than dialup. Up and down the UK PC users are pulling into the fast lane. As the country nears its millionth signup, Guy Dixon surveys the broadband landscape

I f you're reading this you will have turned your copy of *PC Advisor* upside down and may be wondering why, for the first time in the seven-year history of this magazine, there are two covers on one issue. Don't be concerned; there hasn't been a mistake at the printers. Your double-covered magazine is exactly as its creators intended. The reason for this publishing gimmick? Broadband internet access.

The recent explosion of interest in broadband and its provision as a mass-market proposition for the first time is a big story. It's up there with the arrival of the IBM PC in 1981, the marriage of Pentium and Windows 95 in the mid 1990s and the trailblazing impact of Freeserve in 1998. The widespread adoption of broadband across large swathes of the UK is not a question of if it will happen or when; it's more a question of how fast. Signups are already heading towards the million mark – that's somewhere well in excess of six percent of households connected to the internet.

Broadband the saviour

The arrival of broadband is set to provide a much needed laxative to computer use among UK home users and small businesses. While hardly a month goes by without PCs seeing an acceleration in speed, internet performance outside corporate networks has been hobbled by our dependence on a 56Kbps (kilobits per second) dialup standard. Broadband pricing, crucially, has also come down to reasonable levels.
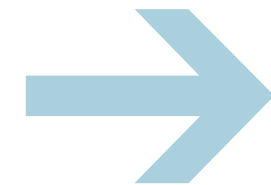
In the coming weeks you will see advertising flying at you from all directions as vendors vie for your broadband bucks. Shouting loudest is BT, following its Damascus-like conversion to broadband. The debt-ridden telco has received the go-ahead from regulators to sell its no-frills BT Broadband ADSL (asymmetric digital subscriber line) package alongside its phone services, giving it access to 19 million households.

The UK's two cable giants, NTL and Telewest, are also swimming in debt and see broadband as a much needed liferaft. Then there are the 200-plus ISPs all offering varying flavours of ADSL. Contention ratios, IP (internet protocol) and infinite email addresses, differing amounts of web space, minimum contracts and installation costs add to the confusion.
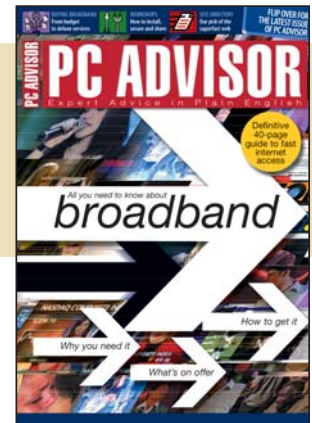
Time to take the plunge

That's where this issue of *PC Advisor* comes in. Over the coming pages we're going to cut through the noise. We'll take you through the more common types of broadband deals, complete with DIY workshops, and introduce you to fellow *PC Advisor* readers who have already taken the broadband plunge. We'll show you how to protect an always-on connection from unwanted attacks and, last but not least, we serve up the definitive directory to the best broadband booty around.

Just as you've turned your copy of *PC Advisor* upside down, it would be tempting to try and persuade you that broadband is about to do the same to your life. It won't, but it will change certain patterns in your life. Research from the US suggests broadband customers tend to spend twice as long online – internet use at home becomes a daily event, while watching videos online, downloading music, online photo processing and listening to live radio have become far more popular. Once you've moved to broadband, as the experience of our case studies testify, you won't go back. It's time to ditch your dialup.

Research from the US suggests broadband customers tend to spend twice as long online – internet use at home becomes a daily event, while watching videos online, downloading music, online photo processing and listening to live radio have become far more popular

index

News

→ # Price wars see subscription costs plummet

ISPs fight to offer the smallest monthly charges, but is it all good news for broadband users?

An ADSL (asymmetric digital subscriber line) price war has broken out with monthly charges dropping below the £20 mark. ET Global Solutions, for example, is advertising its home service for £18.95 inc VAT, as is rival ISP FairADSL. That's just £3 more than AOL charges for its flat-rate narrowband service. Other ISPs, such as V21, have also launched sub-£20 services. So low is the pricing that industry experts are questioning the viability of such a strategy.

When questioned about Pipex's £23.44 monthly charges, Angus Porter, MD of BT's Consumer Division, questions if anyone can make money out of broadband at the prices Pipex is charging.

ISPs purchase ADSL provision from BT Wholesale, paying £14.75 ex VAT per month for IP Stream Home. Then they've got staff

Industry experts believe the savings may come at the expense of support

wages, office space and support costs to consider. On top of which they have to pay for the link between the BT network and their own infrastructure – a 155Mbps (megabits per second) BT Central connection is standard, costing around £40,000 per year. Industry experts believe the savings may come at the expense of support.

Meanwhile, the arrival of ultra-budget ADSL services has been matched by price slashing on ADSL hardware. So-called 'wires only' users, who source the modem and microfilters, can now pick up PCI ADSL modems for as little as little as £30.

Self-install ADSL has only been around since the start of the year, at which time an ADSL modem could set you back £100. Recent scouring around by the *PC Advisor* editorial team turned up a Conexant PCI ADSL modem for £33.23 inc VAT and a Dynamode PCI ADSL model for £31.98 inc VAT.

Cable edges out ADSL

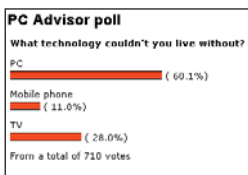PC Advisor poll favours cable – but only just

The majority of *PC Advisor* readers would opt for a cable broadband connection in preference to ADSL (asymmetric digital subscriber line), according to a recent poll on the *PC Advisor* website.

But it was a close run thing, with cable pipping ADSL to the post by attracting 51.8 percent of the 2,649 respondents. ADSL was just edged out, garnering 48.2 percent. These figures are also far lower than those generally bandied about by the UK's two remaining cable companies: Telewest and NTL. Telewest, for example, claims an 80/20 split in favour of cable in its franchise areas.

Cable remains well ahead of ADSL in terms of broadband take-up in the UK. According to July figures from Oftel (Office of Telecommunications), cable broadband stood at 419,000 compared with 280,000 for ADSL.

For home users on a domestic budget cable remains the best option if raw speed is the major concern. Only NTL and Telewest can offer 1Mbps (megabits per second) connection speeds at domestic price points. Setup costs also remain low for cable – usually £50 for an engineer-assisted installation. Future speed upgrades with the minimum of fuss are just round the corner, with 1.5Mbps, 2Mbps and even 3Mbps services in the offing.

While some have questioned the need or demand for such speeds, *PC Advisor* readers have indicated their thirst for faster broadband connections. In another recent online poll a third (33.1 percent) of respondents stated they would take the fastest service they could get when it comes to broadband for the home.

PC Advisor poll

What technology couldn't you live without?

PC (60.1%)
Mobile phone (11.0%)
TV (28.0%)
From a total of 710 votes

→ # No-frills BT

BT has unleashed the company's biggest efforts so far to capture the hearts and wallets of broadband Britain. BT Broadband is the telco's no-frills, connection-only service. If you want web space, umpteen email addresses, unique content creation and aggregation, it's best to go elsewhere.

The service is based on BT Wholesale's BT IP Stream Home. In other words, you get your bog standard maximum of 512Kbps (kilobits per second) downstream and 64Kbps to 256Kbps upstream, just as you would with ISPs purchasing broadband from BT IP Stream Home.

This autumn's widespread arrival of BT Broadband has put the cat among the pigeons and upset many rival ISPs. BT is deliberately pitching its new service as an ISP killer, attacking the notion that customers use their
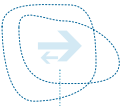
NTL to offer wholesale broadband

In a bid to chip away at its mountain of debt, NTL has unveiled plans to open its network to third-party ISPs, thereby challenging the current monopoly enjoyed by BT.

This autumn should see the UK's biggest cable company partnering up with the UK's biggest ISP, offering a Freeserve 512Kbps (kilobits per second) broadband cable service to six million households in NTL's franchise areas. Freeserve Broadband cable will be sold as part of a bundle with digital TV and telephony from NTL Home. The wholesale price charged by NTL was not disclosed, but other leading ISPs, such as AOL and Tiscali, will inevitably be considering a similar relationship as a means of breaking their broadband dependence on BT.

Freeserve will provide both billing and technical support to customers of the cable service. The product and technical specification will mirror NTL's existing residential broadband 512Kbps service.

Freeserve describes itself as "platform-agnostic" and will continue to sell its ADSL (asymmetric digital subscriber line) DIY kits through DSG (Dixons Stores Group) outlets. Pricing for the service has yet to be announced, with Freeserve merely saying it would be 'competitive'.

NTL is also hoping to vacuum up more broadband customers of its own, following last month's decision to offer standalone broadband on all three of its broadband packages. For the first time non-NTL TV and phone customers can enjoy the benefits of cable broadband – and without any price differential. So if you're in an NTL cable franchise that offers broadband, you can now get 512Kbps for £24.99 per month and 1Mbps for £49.99 per month, without having to ditch your Sky satellite dish.

We want broadband

BT Wholesale's broadband registration scheme has proved a huge hit, with nearly 50,000 people registering. The scheme allows users to indicate their interest in signing up for ADSL (asymmetric digital subscriber line) via a service provider of their choice, and figures at the time of going to press showed that 47,000 people have registered since the beginning of July.

"The launch of our broadband registration scheme in July gave people a direct influence on our rollout programme by registering demand against their local exchange," said Bruce Stanford, BT Wholesale's broadband director.

"We are looking forward to seeing the first exchanges reach their trigger levels so we can provide ADSL services where true demand has been identified through this scheme," added Stanford.

ADSL is available to about two thirds of the UK population, but the remaining third are still missing out on broadband due to their location — generally a remote, rural area. BT said it is pursuing "an alternative technical solution for areas where demand for broadband does not balance with the cost of upgrading the exchange". These include wireless and satellite services and private sector funding initiatives.

Demand levels have been set between 200 and 500 users, figures criticised by pressure group Broadband4Britain which claims they should be nearer 50. But BT insists that number is unachievable.

"The figures we have produced are equated to the cost of rollout, [Broadband4Britain's] figures are not based on cost," said David Orr, spokesman at BT.

Broadband positioned as ISP basher

service provider as anything other than a leg up to the internet and email.

Oftel's (Office of Telecommunications') decision to give BT the go-ahead to include broadband provision as part of BT Retail also gives the giant telco a phenomenal opportunity to sell ADSL (asymmetric digital subscriber line) directly to the 19 million households that use the company's phone services.

Customers can be charged on their telephone bill, bringing broadband and phone services under the same roof. The only Oftel caveat is that BT can't use billing data to develop targeted marketing campaigns.

Not one to look a gift horse in the mouth, BT is canvassing all 19 million households about their internet aspirations and habits in the UK's biggest ever survey.

Priced at £27 per month, BT Broadband isn't the cheapest service around, costing at least £7 per month more than the cheapest ISPs. But the no-frills ADSL provider is keen to point out that the monthly cost is £3 less than BT's original offering, BTopenworld, and claims to have invested heavily in technical support.

BT Broadband users are charged a connection fee of £60 and should be up and running within six days of placing their order. Customers are given the option of a DIY starter pack for £80 which provides an ADSL modem and microfilters, along similar lines to rival ISPs Freeserve and AOL.

BT is hoping for one million broadband customers by next summer, with half coming from BT Broadband. By 2004 BT is looking at two million broadband customers and around five million by 2006. If BT Broadband goes as well as BT Retail hopes, bosses have hinted that BTopenworld could ditch ADSL altogether and concentrate on content aggregation instead. Watch this space.

BT is deliberately pitching its new service as an ISP killer, attacking the notion that customers use their service provider as anything other than a leg up to the internet and email

| Captain Cable | Faster than a speeding locomotive! | ADSL Girl |
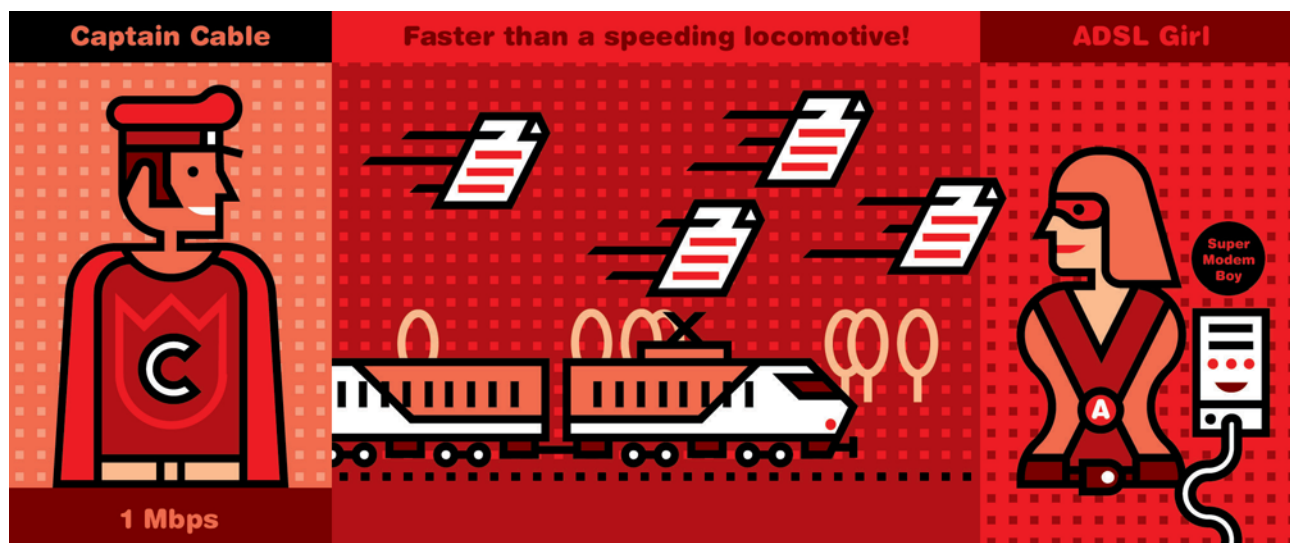
1 Mbps

What is broadband?

Cable and ADSL deals, with speeds of up to 1Mbps, dominate Broadband Britain.
Guy Dixon finds out what these speeds mean and how to go about getting them

The term broadband encompasses a wide variety of services linked by the common trait that they offer higher bandwidths than standard dialup modems. Here we are primarily concerned with the two most common options for home users and small businesses: ADSL (asymmetric digital subscriber line) and cable, offering speeds of up to 10 times (in the case of ADSL) or up to 20 times (in the case of cable) faster than traditional narrowband dialup.

If you're not in a cable or ADSL-enabled area, all is not lost. Broadband provision via satellite is gradually making an impact and an array of wireless solutions are on the horizon which may one day liberate the rural ghettos.

Broadband basics

The advantages of broadband have been discussed many times in the pages of *PC Advisor,* but it's worth restating them here. Firstly there's no need to dial up to establish a connection, which means no more tedious time spent waiting for your modem to hook up to the internet. It also doesn't tie up your phoneline, thereby allowing you to browse the web and talk at the same time.

Broadband services are unmetered, so there's no need to pay for time spent online – it's just one monthly charge, no matter how long you spend surfing. This advantage, it has to be said, isn't as great as it used to be, with the big three narrowband giants – Freeserve, BTopenworld and AOL – shifting most of their customers on to flat-rate billing services. But the point is still worth making.

Need for speed

The biggest broadband boon, however, is the massive boost in speed, which is generally up to 10 times faster than 56Kbps (kilobits per second) dialup modems. Indeed, cable services now offer 1Mbps (megabits per second) which are nearer 20 times the speed. You can also share these speed gains with friends, family and work colleagues across a fixed or wireless LAN (local area network) for less than £200.

Connection speeds are almost instantaneous. It has been estimated that regular dialup customers waste a day of their lives each year waiting for their narrowband modems to establish a handshake with their ISPs. So invest in broadband and spend a day reading *PC Advisor* instead. Reliability is also greater, with users less likely to suffer from dropped connections and network downtime.

Crucially, broadband pricing is also looking more reasonable than it did before the new year. Oftel (Office of Telecommunications) currently quotes UK residential broadband at £26 per month versus £27 for the US. Sweden is still the place to live, though, at just £21 per month.

To find out whether you live in a cable or ADSL area, use the *PC Advisor* online Broadband Checker at www.pcadvisor.co.uk /broadband

ADSL

Though less popular than cable, the most widely available type of broadband in the UK runs over a normal telephone line. It is available to more than two thirds of British households and three quarters of existing internet users, covering 1,115 exchanges. Data is sent via the same copper cables used for making a phone call but uses a different frequency to voice and dialup modem calls.

The wholesale provision of ADSL to UK homes is sold exclusively by BT to ISPs, along with subsidiaries within BT itself such as BT Retail and BTopenworld. LLU (local loop unbundling) allows other companies to compete with BT for the wholesale provision of ADSL by giving them access to the copper wire that runs from your local exchange to the phone. However, this has so far failed to make a significant impression. Companies have been unable to come up with a profitable business model that would allow them to recoup the considerable investment in installation equipment in the telephone exchanges.

Location, location, location

The beauty of ADSL is that it can potentially be delivered to anyone living within 5.5km of an ADSL-equipped exchange. The down side is that BT will only make the necessary investment if it believes there is sufficient demand in the area for it to be profitable. BT is currently reviewing a further 900 telephone exchanges which, together with the 1,115 exchanges already ADSL-enabled, serve more than 80 percent of Britain's homes. If, however, you fall into the remaining 20 percent, you will need to look at other means of getting a broadband connection, such as satellite (see page 40).

To put this into some kind of regional perspective, refer to the map shown right. If you live in Wales, for example, you have a problem as less than a third of homes (31 percent) fall within an ADSL-enabled area. The Scots fare little better, with just 36 percent of homes capable of getting a conventional ADSL home service. In the North East of England, by contrast, some 69.9 percent of households can get broadband via their copper wires, while the South East, inevitably, romps home in first place with nearly three quarters of all homes living within the necessary 5.5km of an ADSL-enabled exchange.

To ascertain whether demand is high enough to make a profitable return on these 900 exchanges, BT has set up a process that allows
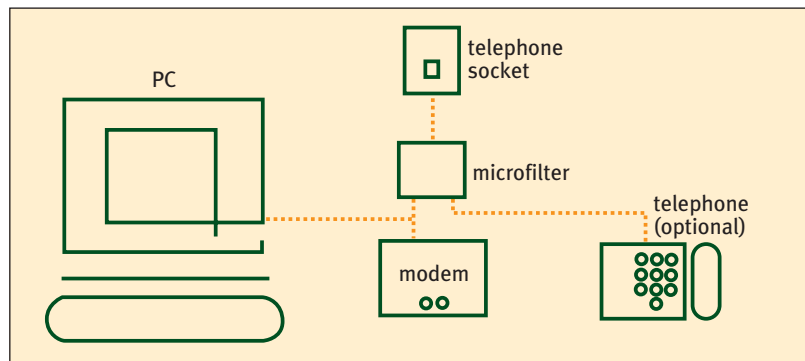
anybody wanting to sign up for ADSL broadband to register through one of its 200 or so BT Wholesale partners. These can, in turn, feed numbers into a central database to pull together total demand for each exchange. A full list of ADSL service providers is available at www.bt.com/broadband.
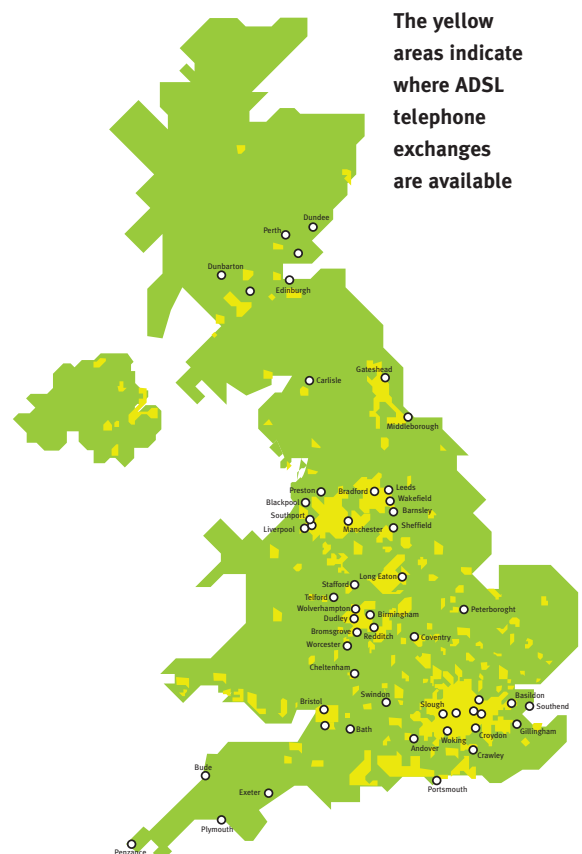
As well as being able to check if your exchange has been enabled for ADSL, potential customers can use the website so see if a trigger level has been set and the level of demand currently registered against that exchange. More cynical commentators have dismissed the scheme as a smokescreen behind which BT can hide from the responsibility of rolling out further ADSL exchanges.

Costs uncovered

ADSL can potentially deliver download speeds of up to 8Mbps over existing copper wires. At present, though, the maximum you can get is 2Mbps, which is aimed at medium-sized businesses and priced accordingly. BTopenworld, for example, charges £149.99 per month for 2Mbps Business 2000 Plus, while installation costs are £260. Demon, on the other hand, wants £270 per month and charges a one-off £250 installation fee.

That leaves home and small business users with the increasingly popular 512Kbps service, which BT Wholesale supplies to BT Broadband, BTopenworld and the 200-plus ISPs – such as Freeserve, AOL, Pipex and Tiscali. With the exception of no-frills BT Broadband, ISPs then

A microfilter allows you to make and receive calls while simultaneously surfing the internet

The yellow areas indicate where ADSL telephone exchanges are available

Are you enabled? Here's how to tell...

IS YOUR HOME ENABLED?

To find out if you live in a broadband area, use the online *PC Advisor* Broadband Checker at www.pcadvisor.co.uk/broadband. This handy tool will show whether you are in a cable broadband or ADSL-enabled area. Simply type in your postcode.

IS YOUR PC OR NOTEBOOK ENABLED?

Most ISPs quote the following minimum specifications:

- 233MHz Pentium II or above
- Windows 98 or later (XP or 2000 OS)
- 32MB of RAM (64MB preferred)
- 20MB hard disk space
- USB port or an ethernet card, together with an ethernet cable to link the computer to the cable network
- CD drive

While such a spec is fine for browsing the web, if you'll be downloading hefty video or audio files we'd recommend a spec similar to machines in our Power PC or Power notebook charts (page 100 and 124 respectively).

bundle traditional add-ons in the form of web space, email addresses, specialist content and, most crucially, customer service. ISPs then price their ADSL services accordingly. This can differ by more than £15 per month for a subscription and more than £100 for installation costs. Special offers waiving installation charges are therefore worth looking out for.

BT's basic consumer service sold to its ISP partners is called IP Stream Home and offers a maximum downstream and upstream speed of 512Kbps and 256Kbps respectively. The contention ratio (the maximum number of other households that share your gateway at any one time) is 50 to one, so whichever ISP you choose you're unlikely to be offered a lower contention. However, ISPs can decide whether to offer fixed or randomly allocated IP (internet protocol) addresses, so if you want to host your own website it's worth checking with your provider.

Installation

The upfront costs for installing ADSL are generally much more than for cable – around £100 for an ADSL modem, about £10 for a microfilter and approximately a £70 charge for line activation. Again, it's worth stressing that special offers are plentiful and can end up saving you a tidy sum.

There are three basic ADSL installation options. Firstly you can opt for a BT engineer to visit your house, install a BT ADSL faceplate on the master socket and undertake a line test. The engineer will leave an ADSL modem – usually the Alcatel USB SpeedTouch or Westel USB model, while you enjoy a cup of tea. Unsurprisingly you will have to pay good money for the privilege. Until recently it was thought that

this service would be killed off by the burgeoning number of DIY kits and the prohibitive costs (usually £210 ex VAT). But it appears to have gained a new lease of life. BT Wholesale has now decided not to withdraw the service until autumn 2003.

Alternatively you can opt for the increasingly popular DIY kit option, bought through an associated ISP. With Freeserve, for example, you can go into selected branches of Dixons, PC World, Currys and The Link and buy your £84.99 DIY pack, having established that you're near enough to an enabled exchange using the instore postcode checker. Read how *PC Advisor* reader Chris Jeffries got on with his Freeserve ADSL DIY pack by turning to page 20.

As with AOL and BT Broadband, you can also order DIY packs via Freeserve's website (www.freeserve.com). The packages come with hand-holding walkthroughs, an approved ADSL modem and a couple of microfilters. This removes the need for a faceplate on the master socket and allows simultaneous voice and data use of the phoneline.

To avoid any interruptions to your phone service a filter is required for every telephone, answerphone or fax machine that plug into a socket. Opting for a DIY pack with a well-known ISP means that support staff should be able to iron out gremlins quickly, if you run into difficulty.

The following DIY ADSL installation is a common scenario:

1 Customer orders ADSL service via an internet service provider website or over the phone.
2 The order is placed with BT.
3 Order is accepted by BT or...
4 ...order might be rejected by BT because the customer is too far from the local exchange. If the order is rejected the ISP then informs the customer by email.
5 BT informs ISP when customer's line has been enabled.
6 DIY kit is then sent to the customer with instructions.
7 Customer sets up the service.

Finally there are 'wires only' deals where you buy the modem of your choice, along with a couple of microfilters, and install everything yourself. To find out how *PC Advisor* reader Ray Cutts got on with his 'wires only' installation, turn to page 25. Even with the latter option the process is no more difficult than back in the dark days of the 1990s, when you hooked up your dialup modem and installed your ISP's software.

A word about speed

Top speeds quoted by ISPs are often theoretical; most will claim to offer 512Kbps upstream and 256Kbps downstream. These, however, are maximum speeds and will be experienced in 'bursts'. The service rate adapts when the line is not able to sustain the full downstream 256Kbps data rate, which depends on the length of line between your premises and the exchange. As with cable broadband, the actual download speed will vary according to network congestion and the speed of servers hosting websites.
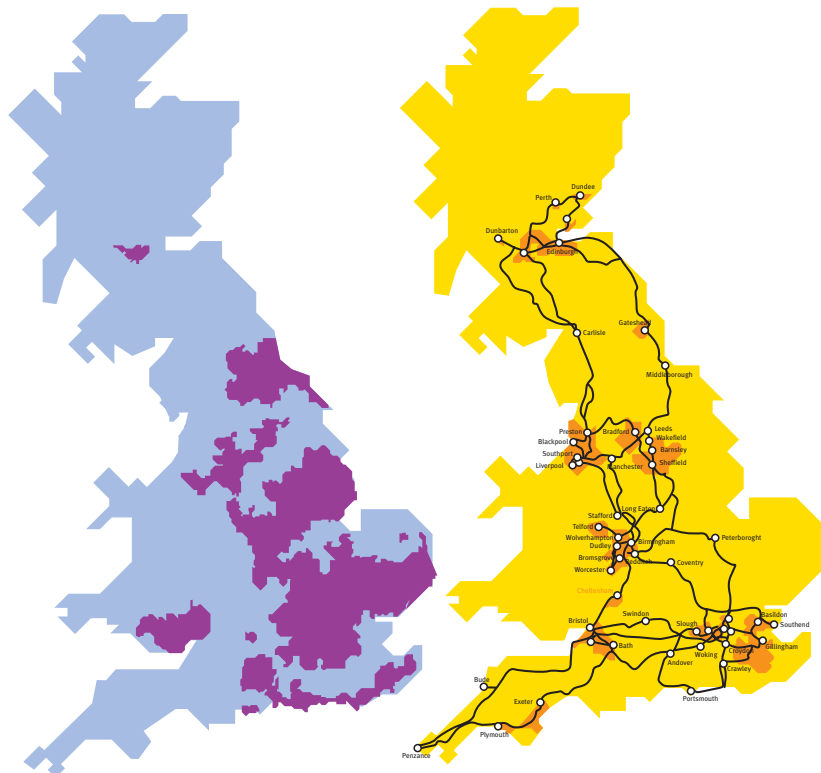
CABLE

If you live in an area covered by one of the UK's two cable companies – NTL and Telewest – you should definitely consider one of their broadband services, even if your house is close enough to an ADSL-enabled exchange. Both companies are still recovering from badly injured ligaments following the breakneck pace of their acquisition sprees. Like BT, both companies are riddled with debt and see broadband as a means of salvation.

In contrast to ADSL, cable modems don't use a phoneline but run over the cable provider's existing infrastructure. Like ADSL, this means you can use your internet connection and the phone at the same time with the additional bonus of being able to watch cable TV as well.

For home usage, cable has the edge over ADSL in terms of speed. While business users of ADSL can achieve speeds of up to 2Mbps, they are currently restricted by BT Wholesale's service to 512Kbps for domestic consumption – at least for those of us with domestic budgets. Cable customers for both NTL and Telewest, however, can now get 1Mbps.

According to July 02 figures from Oftel, cable broadband is well ahead of ADSL takeup in the UK – 419,000 vs 280,000 users respectively. In terms of coverage, at the time of going to press, Telewest makes broadband cable available to 95 percent of its customers, with NTL trailing at around 70 percent. (Refer to the two maps shown above.)

To receive a cable-based broadband service a fibre optic cable must run past your home. Neither company is likely to extend its franchise area any time soon, so if you're not cabled up now you won't be for the foreseeable future – unless you move home, of course.

Cable customers can also benefit from the fact they are buying their service from a company that is both a carrier of broadband and supplier of ISP services. They don't get the same passing of the buck that has been known to happen between BT and its ISP partners. When technical difficulties arise for ISPs offering ADSL services, it is often BT that is to blame. However, because the ISP's support team is in the frontline, it is the service provider that gets it in the neck. The customer, meanwhile, is left between a rock and a hard place.

AOL user and *PC Advisor* reader Andy Crowe found himself in exactly this position (read Andy's

Cable broadband is available through NTL (left) and Telewest (right). Telewest can supply broadband to 95 percent of homes within its franchises, while NTL trails at 70 percent
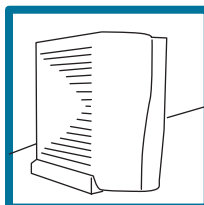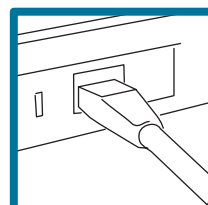

Cable modem installation
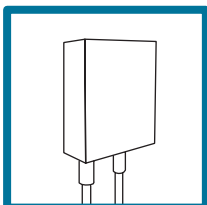
1 Call or register via the website for a Telewest or NTL broadband connection. Arrange for an engineer to come round
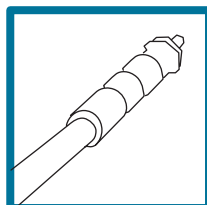
2 An engineer will then connect your home to the cable company's fibre optic network that runs along the street

3 Your computer will be connected to the cable network through a cable modem

4 If you haven't got one of the newer set-top boxes, the network cable attaches to your PC via a NIC (network interface card). You can get one of these cards from NTL or Telewest

5 The engineer installs the relevant ISP software to complete the process

Top 10 broadband buying tips

1 **What is the minimum contract period on offer?** Prices may have come down, but costs will still mount up if you decide you want to cancel a couple of months down the line and you've tied yourself into a 12-month contract. Periods vary from ISP to ISP with cancellation periods varying from a month to a year.

2 **How much speed do you need?** A 512Kbps (kilobits per second) service will probably do the job – especially after languishing on a dialup. However, if you will be downloading a lot of video and music files and have a choice of ADSL (asymmetric digital subscriber line) or cable, you might want to opt for one of the 1Mbps (megabits per second) services offered by the two main cable companies, NTL and Telewest.

3 **Do you really need the extra frills offered by the likes of Freeserve, BTopenworld and AOL? How important is all that web space?** Are the extra email addresses, holiday special offers, cut-price toasters and never-ending web listings necessary? Is raw connection speed your primary motive for moving up to broadband?

4 **Are your children going to be using your chosen broadband service?** If so, you may want to opt for a service provider with a proven history of built-in parental controls to prevent your precious offspring straying into the internet's danger zones.

5 **Are you already paying for an extra phoneline on top of an unmetered dialup service?** If so, the cost of moving up to a broadband connection could be negligible.

6 **What kind of support does your prospective broadband ISP offer?** Don't be fobbed off with the old 'Contact us 24 hours a day, seven days a week'. Read the small print to find out exactly how this support is implemented and enquire about the current length of phone queue delays. What hours do the faults personnel work? Are they available outside of Monday to Friday, 9am to 5pm? How much do the support lines cost – are the phone charges national rate, local rate or genuine freephone?

7 **Does the ISP offer a fixed IP (internet protocol) address?** If you are likely to be running any kind of server – web, FTP (file transfer protocol) or mail server – over your ADSL connection, you need to have a fixed IP.

8 **Are the prices quoted inclusive or exclusive of VAT?** Pipex has been criticised by its rivals for advertising its wares exclusive of VAT, making them appear tastier than they really are.

9 **What are the installation costs and connection fees?** Again, the charges are up to the ISP and, as the burgeoning players jockey for your custom, it's worth looking out for special deals. Do you want an engineer to come round and sort the whole thing out for you? If so, be prepared to pay good money for the privilege. Are you happier with the much cheaper option of a DIY kit, which you can order through an associated ISP. That way the support staff should be more familiar with common problems should things go wrong. Or are you happy with a so-called 'wires-only' solution, which means you buy the modem of your choice complete with microfilters and sort the installation completely off your own back?

10 **Is your PC or notebook up to scratch?** Common minimum specifications quoted by most ISPs are: 233MHz Pentium II or above; Windows 98 or later (XP or 2000); 32MB of RAM (64MB preferred); 20MB hard disk space; USB port; and CD drive. While such a specification is fine for moving around the internet, if you are going to be downloading hefty video or audio files and then intend to doctor them further, we'd recommend a much higher specification such as that given in our Power PC and Power notebook chart (see page 100 and 124).

story on page 22). If NTL or Telewest get it wrong, it's abundantly clear who is to blame.

The right choice

In many ways cable is a more natural fit for broadband. It's not dissimilar to ethernet and, as such, transmits data more easily than BT's copper wires. There's also no major installation work required. Both NTL and Telewest have franchises in different parts of the UK and so aren't in competition with each other. Indeed, they have even been known to participate in joint marketing campaigns and pass on sales leads to one another. If it's top speeds you're after, and you have a choice of cable or ADSL, it's a no-brainer: only cable can offer downstream speeds of 1Mbps into the home for a price that won't force you to take out an extra mortgage.

The two cable companies both offer reasonable 512Kbps deals. NTL, for example, has a 512Kbps package for £24.99 per month to existing TV and phone customers and, as of this month, to NTL first-timers as well. The same goes for its 1Mbps service, launched in March 02, for £49.99 per month. Telewest has a 512Kbps offering priced at £24.99 per month for TV and phone customers and launched its £34.99 1Mbps service back in June 02. For more detail on installation and other costs, check the *PC Advisor* broadband chart on page 14.
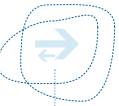
Faster speeds also beckon. In the US, 1.5Mbps connections are already the norm and speeds of 3Mbps aren't uncommon. As cable broadband usage in the UK grows, companies could ramp up the speed at the flick of a switch. The technical disadvantages in comparison to ADSL are upload speeds for the 512Kbps services, which are capped at 128Kbps. Users of the 1Mbps services, on the other hand, can get a maximum upstream speed of 256Kbps. Also, you can't get a fixed IP address, so there'll be no web hosting for you.

Installation

Upfront installation costs tend to be lower for cable than they are for ADSL. Generally customers rent the hardware (included in the monthly payment) and pay £50 for an engineer-fitted installation. If they need a cable modem this is included as a leased item and part of the overall package.

Increasingly both Telewest and NTL digital TV subscribers will have a built-in cable modem in their set-top boxes. If you're not a subscriber, or have an older set-top box, you have no choice but to opt for a separate piece of hardware. In both cases you will need a NIC (network interface card) to connect your PC to the modem or set-top box.

Glossary

- **access** To make a connection to the internet. If you access the web from home, this will usually be done via an ISP.

- **ADSL (asymmetric digital subscriber line)** Provides high-speed internet access using an ordinary telephone line. The most common form features downstream speeds of up to 512Kbps (kilobits per second) and upstream speeds of up to 256Kbps. ADSL technology allows you to make ordinary voice calls over the phoneline while you are connected to the internet.

- **always on** A permanent network connection, such as broadband.

- **bandwidth** The amount of data your internet connection can cope with – the greater the bandwidth the faster the network. Audio and video files require a lot more bandwidth than a text-based email message

- **broadband** This refers to an always-on internet connection into the home, offering speeds of between 10 and 20 times faster than traditional 56Kbps dialup modems.

- **cable modem** The UK's two cable companies, Telewest and NTL, provide internet access as well as telephone and television services. If you don't have a modern set-top box with a built-in cable modem, you'll need to obtain a separate cable modem for your computer in order to get a broadband connection.

- **contention ratio** Broadband users – both ADSL and cable – compete for a share of the available bandwidth with other users. With ADSL each BT gateway (a term given to exchange hardware that handles the ADSL connections) has a limited amount of available bandwidth. Those people who are connected at the same time on the same gateway are said to be 'in contention'. A contention ratio of 50:1 means you share the available bandwidth with up to 49 other users.

- **IP (internet protocol) address** Every PC connected to the internet has an IP address – a code with four strings – and each time you log on to the web you are given one. Static IP addresses remain the same every time you log on or off. This is useful if you need to connect through a firewall or into a company's VPN (virtual private network). With dynamic or randomly allocated IP addresses, you get a different number code each time you log on.

- **microfilters** These plug into the phone socket and ensure that ADSL signals do not interfere with ordinary voice signals, allowing the user to make voice calls and access the internet at the same time.

- **narrowband** This refers to a traditional dialup connection, where your modem calls your ISP before establishing a 'handshake'. Maximum speeds are up to 56Kbps. Analysts believe the ubiquity of narrowband connections will ensure its survival for many years to come.

- **personal firewall** Software that can protect your PC from unwanted attacks.

- **registration scheme** If you don't live in an ADSL-enabled area, BT Wholesale has set up a registration scheme allowing consumers to register their interest. Once the number of registrations reach a predetermined 'trigger' level for your telephone exchange, you will have the opportunity to place a formal order with your internet service provider. Subject to the usual surveys and investigations, broadband services are then made available.

To find out which broadband packages are available in your area, use our Broadband Checker at www.pcadvisor.co.uk/broadband

ADSL	Monthly fee inc VAT	Activation/installation fee (inc VAT unless otherwise stated)	Hardware costs	Static/dynamic IP (internet protocol)
AOL (self-install DIY pack)	£34.99	£85 installation pack	included in setup fee	dynamic
Breathpro (self-install, wires-only pack)	£25.99	£65 activation	choose your own	static
BTopenworld Home 500 (engineer installed)	£29.99	£250	included in setup fee	dynamic
BTopenworld Home 500 Plug & Go (self-install, wires-only pack)	£29.99	£65 ex VAT	£85 installation pack	dynamic
Demon Express (engineer installed)	£28.99	£210 installation	included in setup fee	static
Demon Express Solo (self-install, wires-only pack)	£24.99	£50 connection fee	choose your own	static
Eclipse ADSL 500 Lite (self-install, wires-only pack)	£22.75	£50	microfilters can be purchased from your ISP for £12 each	either
Freedom2Surf ADSL Pure IP Home (self-install, wires-only pack)	£22.50	£59.99 ex VAT	optional £85 ex VAT installation pack	static
Freeserve Home Time (self-install DIY pack)	£29.99	free	optional £84.99 installation pack	dynamic
OneTel Unplugged 500 (self-install DIY pack)	£27.99	£60 connection	OneTel modem £99, microfilter £8.50	static
OneTel Hard wired 500 (engineer installed)	£27.99	£265	included in setup fee	static
Pipex Xtreme Solo (self-install, wires-only pack)	£23.44	£58.75	choose your own	dynamic
Force9/PlusNet ADSL Home (engineer installed)	£22.99	£246.75	BT comes to your home – the modem provided is leased	static
Force9/PlusNet ADSL Home Surf (self-install)	£20.99	activation fee £58.75 (annual contract) £70.50 (monthly contract)	choose your own	static
Force9/PlusNet ADSL Home Self Install	£22.99	activation fee £58.75 (annual contract) £70.50 (monthly contract)	choose your own	static
Tiscali Broadband (self-install DIY pack)	£27.99	£149.99	included in setup fee	dynamic
V21 Home ADSL Annual (self-install DIY pack)	£19.99	£55	have to buy V21 ADSL modem	dynamic
V21 Home ADSL Annual (self-install DIY pack)	£19.99	£55	have to buy V21 ADSL modem	static at £1.99 per month
V21 Home ADSL Monthly (self-install DIY pack)	£24.99	£55	choose your own	dynamic
V21 Home ADSL Monthly (self-install DIY pack)	£24.99	£55	choose your own	static at £1.99 per month
Zen Internet Home 500 (self-install, wires-only pack)	£25.52	£50	choose your own	static
Claradsl Solo Self-Install	£29.99	£50 ex VAT	choose your own	dynamic (though static can be purchased at £25)
Nildram Home 500 Lite (self-install, wires-only pack)	£22.99	£58.75	choose your own	dynamic
Nildram Home 500A (self-install, wires-only pack)	£29.99	£58.75	choose your own	static
Nildram Home 500 (self-install, wires-only pack)	£35.99	£58.75	choose your own	static
ET Global Solutions Home 40:1 Service (self-install DIY pack)	£22.45	£60	optional DIY pack at £75 or choose your own	dynamic (static optional at extra cost of £5)
ET Global Solutions Home 40:1 Service (self-install DIY pack)	£22.45	£60	optional DIY pack at £75 or choose your own	static at £5 extra per month
ET Global Solutions Home 50:1 Service (self-install DIY pack)	£18.95	£60	optional DIY pack at £75 or choose your own	dynamic (static optional at extra cost of £5)
ET Global Solutions Home 50:1 Service (self-install, wires-only pack)	£18.95	£60	optional DIY pack at £75 or choose your own	static at £5 extra per month
BT Broadband (self-install DIY pack)	£27	£60	choose your own or £80 offer for modem and microfilters	dynamic
FairADSL (self-install, wires-only pack)	£18.99	£58	choose your own or £99 offer for modem and microfilter	dynamic

Wires-only: customer sources own hardware (microfilter and modem)
Self-install DIY: customer supplied with ISP package

CABLE				
NTL broadband 512Kbps	£24.99	free until end of year, £50 for existing customers thereafter	included	dynamic
NTL broadband 512Kbps	£24.99	free until end of year, £75 for new customers thereafter	included	dynamic
NTL broadband 1Mbps	£49.99	free until end of year, £50 for existing customers thereafter	included	dynamic
NTL broadband 1Mbps	£49.99	free until end of year, £75 for new customers thereafter	included	dynamic
Telewest BlueYonder 512Kbps broadband	£25 (must subscribe to TV/phone)	£50	included	dynamic
Telewest BlueYonder 512Kbps broadband	£29.99 (no TV/phone subscription required)	£50	included	dynamic
Telewest BlueYonder 1Mb service	£39.99 (no TV/phone subscription required)	£50	included	dynamic
Telewest BlueYonder 1Mb service	£35 (must subscribe to TV/phone)	£50	included	dynamic

All details are correct at the time of going to press. The publisher cannot accept any responsibility for the accuracy contained in the editorial.

Support costs	Minimum contract	Total cost for year (plus hardware costs)	Telephone	Website
free 8am-midnight Mon-Sun	12 months	£504.88	0800 376 5432	www.aol.co.uk/broadband
local rate 24/7	1 month	£376.88	0845 140 6100	www.breathepro.com/info/index_adsl.html
local rate	12 months	£609.88	0845 600 7030	www.btopenworld.com/broadband
local rate	12 months	£509.88	0845 600 7030	www.btopenworld.com/broadband
local rate 24/7	12 months	£557.88	0845 272 0040	www.demon.net/adsl
free	12 months	£349.88	0845 272 0040	www.demon.net/adsl
standard call rate	1 month	£323	01392 333 300	www.eclipse.net.uk/adsl
standard call rate	1 month	£329.99	01727 811 530	www.freedom2surf.com/adsl
national rate 24/7	12 months	£359.88	0870 010 2462	www.freeserve.com/time/broadbandaccess
national rate 8am-8pm	12 months	£335.88	0870 055 9100	www.onetel.co.uk/xhtml/ie/broadband
national rate 8am-8pm	12 months	£600.88	0870 055 9100	www.onetel.co.uk/xhtml/ie/broadband
national rate 9am-8pm	not fixed, but £50 charge if cancelling within first 12 months	£281.28	0870 2424220	www.xtreme.pipex.net/adsl/sales/solutions
local rate 24/7	annual	£522.63	0845 140 0250	www.f9.net.uk/broadband
local rate 24/7	annual or monthly	£310.63 annual/ £322.38 monthly	0845 140 0250	www.f9.net.uk/broadband
local rate 24/7	annual or monthly	£334.63 annual/ £346.38 monthly	0845 140 0250	www.f9.net.uk/broadband
free 8am-midnight	12 months	£485.87	0800 542 7898	www.tiscali.co.uk/products/broadband
£1 per minute – 10 hours a day, 7 days a week	12 months	£294.88	09067 365 521	www.v21.co.uk
£1 per minute – 10 hours a day, 7 days a week	12 months	£319.68	09067 365 521	www.v21.co.uk
£1 per minute – 10 hours a day, 7 days a week	monthly	£354.88	09067 365 521	www.v21.co.uk
£1 per minute – 10 hours a day, 7 days a week	monthly	£378.76	09067 365 521	www.v21.co.uk
local rate 9am-5pm	1 month	£356.24	0870 600 0973	www.zenadsl.com
local rate 24/7	6 months	£409.88	0845 355 1000	www.claranet.co.uk/businessaccess/adsl
national rate 24/7	12 months	£334.63	0870 094 6000	www.getadsl.co.uk
national rate 24/7	12 months	£418.63	0870 094 6000	www.getadsl.co.uk
national rate 24/7	3 months	£490.63	0870 094 6000	www.getadsl.co.uk
email support	3 months (with 1 month notice required thereafter)	£329.40	support@etglobalsolutions.com	www.etglobalsolutions.com/home/index_adsl.htm
email support	3 months (with 1 month notice required thereafter)	£389.40	support@etglobalsolutions.com	www.etglobalsolutions.com/home/index_adsl.htm
email support	3 months (with 1 month notice required thereafter)	£287.40	support@etglobalsolutions.com	www.etglobalsolutions.com/home/index_adsl.htm
email support	3 months (with 1 month notice required thereafter)	£347.40	support@etglobalsolutions.com	www.etglobalsolutions.com/home/index_adsl.htm
free 24/7	12 months	£384	0800 800 060	www.bt.com/btbroadband
email support	3 months (but £50 fee if you cancel within the first 12 months)	£285.88 (or £226.68 if you pay for the year in advance)	support@fairadsl.co.uk	www.fairadsl.co.uk
local rate 24/7	12 months	£349.88	0845 650 0121	www.ntl.com/broadband
local rate 24/7	12 months	£374.88	0845 650 0121	www.ntl.com/broadband
local rate 24/7	12 months	£649.88	0845 650 0121	www.ntl.com/broadband
local rate 24/7	12 months	£674.88	0845 650 0121	www.ntl.com/broadband
free 24/7	12 months	£350	0800 694 9694	www.telewest.co.uk/athome/blueyonderbroadband.html
free 24/7	12 months	£409.88	0800 694 9694	www.telewest.co.uk/athome/blueyonderbroadband.html
free 24/7	12 months	£529.88	0800 694 9694	www.telewest.co.uk/athome/blueyonderbroadband.html
free 24/7	12 months	£470	0800 694 9694	www.telewest.co.uk/athome/blueyonderbroadband.html
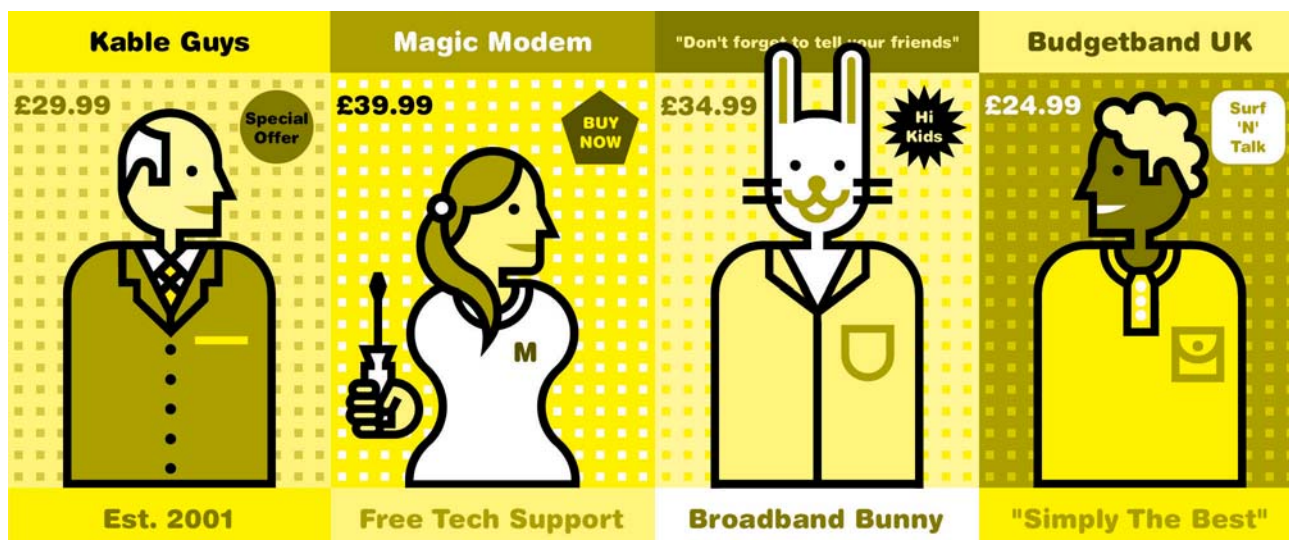
Broadband flavours

Broadband for the masses has arrived and vendors are queuing up to win your custom.
But with so many deals on offer, where do you start? Guy Dixon offers some pointers

While customers of cable operators NTL and Telewest have seen their broadband speeds double with the arrival of 1Mbps (megabits per second) connections, for the 200-plus ISPs that buy their ADSL (asymmetric digital subscriber line) wholesale from BT such acceleration is not an option at the moment. BT only offers one version of broadband for home users. Running at 512Kbps (kilobits per second) this means that whichever ADSL ISP you opt for it is going to offer similar speeds. In fact, performance is more likely to depend on the amount of broadband usage at your local exchange rather than the 'quality' of your service provider.

But moving up to broadband involves a lot more than gaining a 10-fold increase in speed. There are installation and activation costs, differing minimum contract periods,

exclusive content offers and parental controls to consider. The importance in the quality and cost of support can't be underestimated. Then there's the obvious issue of price, which ranges from under £20 per month up to nearly £35 per month.

For more detailed information about a wide variety of broadband suppliers, check the *PC Advisor* broadband buying tables on page 14. To give you a taste of what's out there, we've got varying flavours of ADSL and cable broadband for your delectation.

ADSL vs cable

We're focusing first on ADSL packages not because we believe them to be technically superior or better value for money, but because of the vast amount of current marketing activity surrounding ADSL. In the majority of cases, cable remains an increasingly compelling option for broadband enthusiasts. NTL, for example, no longer insists that its broadband customers take its TV and phone services. As of September, if you're in an NTL franchise area that offers broadband, you can buy the company's 512Kbps and 1Mbps services on the same terms as its TV and phone customers.

Cable remains a technologically superior way of delivering broadband to the home and the two companies that supply these services can double maximum access speeds at the flick of a switch – as long as they don't disappear under their mountains of debt.

Sub-£25 ADSL brigade

The hundreds of ISPs currently selling ADSL have yet to work out how they are going to make money as resellers of broadband services. At the moment it's all about growing market share, a trend akin to 1999 when everyone appeared to be setting up free subscription services. To offer cheaper prices, ADSL ISPs have to make up the difference from their own purses. After giving BT Wholesale its cut – £17.33 inc VAT per month – ISPs offering sub-£20 ADSL services haven't got much room to play with. Hence the varying prices for installation, connection, amounts of web space offered, support costs and charges.

The established narrowband giants, such as Freeserve and AOL, can afford to take a softly, softly approach. Having profitably moved the bulk of their customers over to flat-rate, unmetered narrowband in the past 18 months, they will hold off on an all-out broadband assault until it suits them to do so. With BT Wholesale hinting that it may make further cuts in the new year, the narrowband giants can afford to let lesser-known ISPs mop up the early adopters before moving their own userbase over to broadband.

Getting cheap and cheerful

It is these lesser-known ISPs who are making much of the early running on price as they try to grab as many first takers as possible. Pinning their future on ADSL broadband, no-name ISPs will be hoping that their respective bank managers will remain sympathetic as they attempt to 'extract more value' from their customers by selling them further, more profitable services. So if you're wondering why ISPs you've never heard of, such as FairADSL, Nildram, Zen Internet, ET Global Solutions and V21, are offering broadband at prices far less than companies many times their size, you now have your answer.

One of the first ISPs to get near the £20 per month mark was Force9 (www.force9.net). The ISP was also rare in offering a 30-day cancellation fee. Vince Marsters' experience with Force9 (see right) proves that budget options don't always end in tears.

Case study

Name: Vince Marsters
ISP: Force9
Went broadband: June 02

Field engineer Vince Marsters decided on broadband because he needed considerably more speed for his work. As part of his job, he frequently downloads drivers – software used to install computer hardware – over the internet. Using a dialup connection, this process often took him half an hour or more but with broadband he knew that he could download his drivers in a matter of seconds.

Vince chose to upgrade to the broadband service of his original dialup ISP, Force9. "I considered Pipex with their free modem offer but as an existing Force9 customer I felt it better to stick with what I knew," said Marsters.

He was impressed by the 30-day trial period, in which he could cancel if he wasn't satisfied, and also the idea to spread payment for the activation fee over the first 12 months. Added extras, which were included in the package such as Fax2email, CGi (a web scripting language) and the large amount of free web space available, also persuaded him to sign up to the service.

One satisfied customer

It took six days to activate and Vince has been very satisfied, not only with broadband but also with his Force9 connection. "It's so nice being able to download almost anything without having to first think about how long it will take to download and if I need the phone in the meantime," he says. "My computer hasn't been switched off since activation and I doubt it will be anytime soon," Vince added.

"Since making my choice, I have seen a lot of Pipex users with problems, so I'm very glad I made this choice. It might have cost me more [activation fee and hardware estimated at about £130 total extra] but the service I am getting is worth it," Vince enthused.

Vince says he has only once encountered a problem with his broadband connection when he couldn't verify his password in order to connect to the internet. When he phoned the technical support line he was told he might have to wait an hour before someone would respond to his call. In the end, however, the call was answered within five minutes and his connection was restored one hour later.

Vince is pleased with the standard of Force9 service and says improvements to it are already under way with more staff being trained to deal with online and phone complaints. Broadband has meant that he can do things a lot quicker than he otherwise would have done but in the future he's looking forward to an even faster connection.

BT Broadband

BT Broadband is BT's no-frills, connection-only service. If you want web space, umpteen email addresses and unique content creation and aggregation, it's best to go elsewhere. BT Broadband is based on BT Wholesale's BT IP Stream Home & Central Plus products. In other words, you get a bog standard maximum speed of 512Kbps downstream and 64-256Kbps upstream, just as you would with ISPs buying broadband from BT IP Stream Home.

This autumn's widespread arrival of BT Broadband has put the cat among the pigeons and has seen many ISPs reaching for their beta blockers. Rumours of court action and conversations behind closed doors between rival ISPs have long been circulating.

Harsh reality

There are two reasons for their nervy disposition. Firstly BT Broadband's message undermines the raison d'etre of the traditional ISP. ISPs love to talk about their 'community', their 'compelling content' and advocate that the internet is a unique medium on which they have made their indelible mark. They talk of visitor 'loyalty' and 'stickiness' (sites at which users browse for long periods of time).

In reality, however, most people use their ISP as a leg up to the internet and email. Then they go to a dozen or so bookmarked sites or use a search engine such as Google to trace a specific subject matter. The acres of web space, collated news and weather feeds (often to be found elsewhere) and unused email addresses mean users end up paying their ISP for services they never use. The arrival of BT Broadband makes this fact even more apparent.

Secondly, Oftel's (Office of Telecommunications') decision to give BT the go-ahead to include broadband provision as part of BT Retail gives the giant telco a phenomenal opportunity to sell ADSL directly to the 19 million households that use the company's phone services. Customers can be charged on their telephone bill, bringing broadband and phone services under the same roof. The only
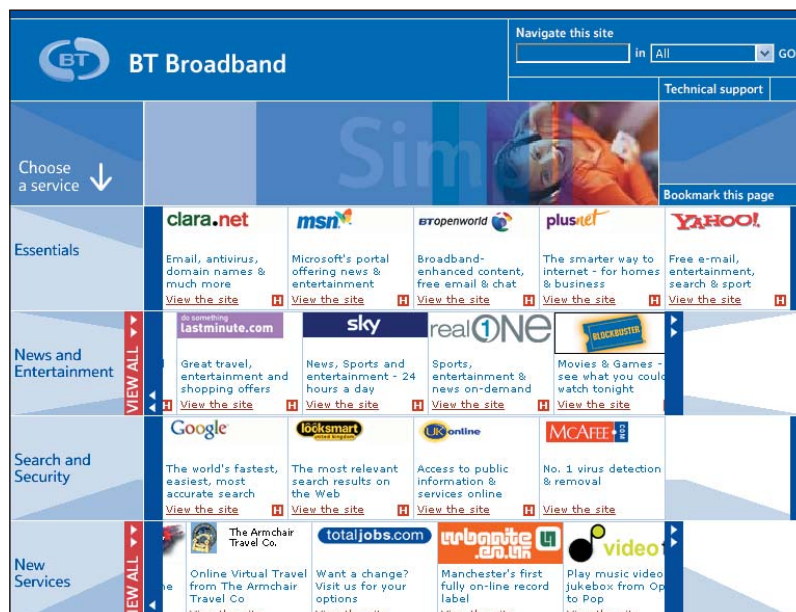
Oftel caveat is that they can't use billing data to develop targeted marketing campaigns. Not one to look a gift horse in the mouth, BT is canvassing all 19 million households about their web aspirations and habits in the UK's biggest ever survey.

Costly service

Priced at £27 per month, at least £7 per month more than the cheapest ISPs, BT Broadband isn't going to win any value-for-money awards. But marketing folk for the no-frills ADSL provider are keen to point out that the cost comes in at £3 per month less than BT's original broadband offering from BTopenworld. Customers can also be fairly confident that the company will still be around this time next year.
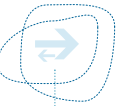
BT Broadband users are charged a connection fee of £60 and should be up and running within six days of placing their order. Be warned, however: there is a minimum 12-month contract. Customers are given the option of a DIY starter pack for £80 which provides an ADSL modem and microfilters, along similar lines to rival ISPs Freeserve and AOL.

There is no doubting the company's conversion to the broadband cause and no one could accuse them of lacking ambition. BT is hoping for one million broadband customers by next summer, with

BT Broadband uses its launch page to advertise third-party content providers' wares
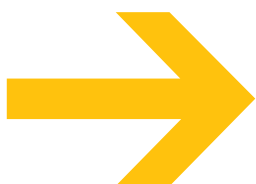
> Most people use their ISP as a leg up to the internet and email. Then they go to a dozen or so bookmarked sites or use a search engine to trace a specific subject matter. The acres of web space, collated news and weather feeds and unused email addresses mean users end up paying their ISP for services they never use. The arrival of BT Broadband makes this fact even more apparent

half of those coming from BT Broadband. The other half a million will come from BTopenworld. By 2004 BT is hoping for two million customers and around five million by 2006. If BT Broadband goes as well as BT Retail hopes, bosses have hinted that BTopenworld could ditch ADSL altogether and concentrate on content aggregation instead.

The initial aim is to tap into users who have signed up to flat-rate narrowband access – usually £14.99 or £15.99 per month – and have opted for an additional line in order to stop friends, relations and customers cursing them when they can't get through on the phone. In place of aggregated and unique content offered by most of the leading ISPs, BT Broadband has opted for the virtual mall approach in the form of a launch page. Comprising four channels, content providers are invited to advertise their wares.

The top channel allows users to claim their free email address, with Yahoo, MSN, ClaraNet and BTopenworld punting for your business. A second channel is devoted to news and entertainment, while the third focuses on search and security products. The fourth channel highlights other recent partners who wish to showcase their broadband content.

In its terms and conditions BT Broadband makes it clear that it has geared its network to accommodate up to 1GB worth of downloading per day per customer. This is the clearest sign yet that broadband providers may have to move intensive users on to more expensive, heavy-duty products.

For BT Broadband to get it right it will have to support its mass rollout with technical support and

Case study

Name: Ron Hollis
ISP: BTopenworld
Went broadband: May 02

Ron Hollis decided to go for a broadband connection when the price of his dialup narrowband ISP, BT Anytime, crept up. He stayed with BT as he likes the idea of having "everything under one roof".

From start to finish the service took two weeks to get up and running and has produced excellent results. Ron says he could never go back to dialup. He's also been very satisfied with the support he's received. "The service has been first class and I have only used tech support once – charged at local rate. After waiting about 15 minutes for the call to be answered, my problem was sorted and the chap on the phone was good."

Ron thinks BTopenworld is a little expensive at £29.99 a month but has found the speed suits his needs and relishes the fact that his connection isn't terminated after two hours, which happened with BT Anytime.

improve on the patchy service performance of its sister brand, BTopenworld. A mass market product will require mass market service standards, with customers expecting the same kind of support they get with their telephones.

 BTopenworld

The biggest threat to BTopenworld's provision of ADSL to home users may, ironically, prove to be the success of its sister service, BT Broadband. Bosses at BT Retail aren't exactly brimming with compliments when it comes to the BT ADSL

BT Broadband has geared its network to accommodate up to 1GB worth of downloading per day per customer – the clearest sign yet that broadband providers may have to move intensive users on to more expensive products

Case study

Name: Chris Jeffries
ISP: Freeserve
Went broadband: May 2002

To begin with Chris Jeffries was satisfied with his dialup connection. But as he became more interested in what the internet had to offer he decided to switch to broadband – a 56Kbps (kilobits per second) modem connection was simply not fast enough to view and listen to streaming media at the same time.

Although his dialup connection had initially been good value, over time he found that his use of the web spilt over from off-peak times to peak periods, which increased his phone bill. "We also found ourselves downloading large files such as a demo of an upcoming computer game," he says. "The hours it took were just stupid – there was so much waiting." Chris was also grateful that he could make and receive phone calls at the same time as using the internet without having another phoneline installed.

Weighing up the ISPs

Chris considered a number of providers before settling on Freeserve, which had also provided his dialup connection. BTopenworld's advertising campaign persuaded him to find out more, but he was put off by the price. "At £29.99 a month plus the installation charges BT was a big no-no." With the exception of NTL, there wasn't anything new or different that attracted him to any other ISP and Chris didn't want to choose NTL because of some bad customer service stories he had read.

"We were already using [Freeserve's] dialup package so it was just a matter of transferring over to broadband. You also kept your email address"

Chris Jeffries,
PC Advisor reader

"We went for Freeserve because of the reduced price special offer. We were already using their dialup package so it was just a matter of transferring over to broadband. You also kept your email address. If we had gone to BT we would have needed a new one."

It took 13 days from making his order to going live. (It could have been sooner but he never received an email confirming his broadband had gone live). "On the 13th day we had a call – 20 minutes later we were connected."

Chris describes broadband as breathtaking, from watching music videos and movie trailers to faster play on the multiplayer games. He is also able to listen to US radio stations, watch news channels from around the world and download files in seconds rather than minutes. "I can do two things at once, view all my websites and at the same time listen to music."

He has only been disconnected once and is very pleased with the performance of his ISP and the speed of the connection. "Prices have to come down still," he says. "And I wish they could change the colour of that green modem. But if anyone says the internet has nothing to offer, tell them to get broadband."

experience; Angus Porter, MD of BT Consumer, described BT's performance thus far as "crap".

At £29.99 per month, BTopenworld's Plug & Go self install service is pretty much run of the mill. The DIY kit will set you back £85 and activation costs a further £65. With more than 1.5 million narrowband customers BTopenworld could, if it wanted to, get a lot more aggressive – so far it's been more focused on shifting customers on to unmetered, flat-rate, narrowband access.

As with BT Broadband, BTopenworld's Home 500 Plug & Go requires users to sign up for a minimum of 12 months. If you need technical support over the phone, you'll be charged at a local rate.

Freeserve

Freeserve kick-started the UK home internet revolution back in 1998 when it introduced the free subscription internet model – ISPs took a cut of the phone charges paid by the user when dialling up, but no monthly charge was made to the customer. Back in the heady days of the late 1990s Freeserve was a subsidiary of electronics retailer Dixons. Freeserve's retail distribution, in the form of PC World, Dixons, Currys and The Link, worked a treat as hundreds of thousands of punters stumbled across the internet, spontaneously pocketing their free CD-ROMs.

Freeserve hits back

Freeserve is still the UK's biggest ISP, claiming 2.4 million active accounts. Even though Wannadoo now owns Freeserve, the original free subscription ISP is hoping that its high street retail connection will reap it rich rewards once again.

Since April customers have been able to buy the £84.99 Broadband Installation Kit from DSG (Dixons Stores Groups) retail outlets, with modem,
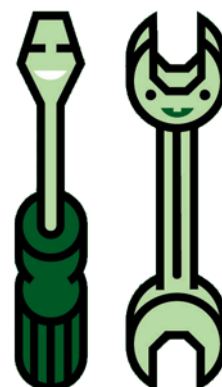
microfilters and instruction manual in the same box – along the same lines as other DIY ADSL ISPs. Users load the software, plug the supplied DSL (digital subscriber line) filters into their phone sockets and connect the supplied modem to their PCs. The monthly fee is £29.99 and Freeserve is currently waiving the connection charges.

OneTel recently joined Freeserve as the only company offering a retail ADSL broadband package, though BT Broadband has hinted it is interested in doing something similar. As such, it can appeal to the impulse customer.

The same broadband installation kit can also be bought online at www.freeserve.com/time/broadbandaccess. Freeserve is quoting 10 working days from placing the order to broadband connection.

The minimum contract period is 12 months and Freeserve will hit you for national rates on its live support line if you run into trouble. Alternatively, there is a customer helpline with simple prerecorded answers for the most common email and connection-related problems. Lines are open 24 hours a day, seven days a week and calls are charged at local rates.

Freeserve is unique in offering a retail ADSL broadband package, though BT Broadband has hinted it is interested in doing something similar. As such, it can appeal to the impulse customer
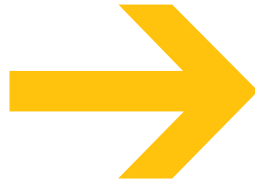
AOL

AOL is dipping its enormous toe in the broadband waters, having expended most of its marketing efforts shifting the majority of its 1.7 million customers (AOL calls them members) over to flat-rate, unmetered narrowband access in the past 12 months. Narrowband will remain the company's core product for some time.

The world's biggest entertainment company is taking its first tentative steps into the world of broadband with a premium £34.99 per month package (plus £85 for the DIY Easy-Install pack). Upfront costs aren't as hefty as with other ISPs,

Competition

WIN! AOL *Broadband* FREE for a year

AOL UK is offering you the chance to win an AOL *Broadband* subscription FREE for a year. With this fantastic offer, you can enjoy all the excitement of AOL and the Internet at up to 10 times faster[†] than 'dial-up' Internet access. What's more, you will be able to sign on in seconds and use your phone while you're online.

With AOL *Broadband* you will benefit from amazing broadband content, so you can really make the most of your high-speed connection. Be the first to see sneak previews of blockbuster movies like *Lord of the Rings* or, if music is more your thing, listen to radio stations from around the world. Getting your hands on MP3s is easy, too, with the super-fast download speeds. There's also news, sport and weather from CNN and the BBC.

AOL *Broadband* couldn't be easier to set up and use. AOL will send you a pack which contains everything you need to install AOL *Broadband* on your PC and, of course, there's a dedicated broadband freephone support line as well as fantastic online help, available seven days a week, in case you get stuck.

AOL *Broadband* also gives families peace of mind with its built-in industry-leading Parental Controls, which help keep kids safe online so that they can enjoy our high-speed service too.

On top of all that, your subscription includes access to AOL's dial-up network, so you can log on to AOL when you're away from home at no additional charge.

How to enter
For your chance to win AOL *Broadband* FREE for a year, just send your answer to the question below on a postcard to: PC Advisor competition, AOL (UK) Limited, 80 Hammersmith Road, London W14 8UD. Please include your name, address and a daytime telephone number.

When do you get freephone and online support with AOL *Broadband?*
A: five days per week
B: never
C: seven days per week

If you're not with AOL yet, then use the AOL CD on the front cover of PC Advisor to get your 120-hour completely free* trial with AOL. During that time, you can sign up for AOL *Broadband*.

*Your 120-hour free trial, requires credit card details and must be used within your first month online. Subsequent charges apply after your first month online. Offer may vary. Call free on 0800 376 5432 or see online for further information.

†In comparison to a standard 56K dial-up modem.

Case study

Name: Andy Crowe

ISP: AOL

Went broadband: August 02

Reader Andy Crowe experienced classic 'piggy in the middle syndrome' that has been known to crop up when BT Wholesale and its ISP partners argue about where fault should lie.

He ordered AOL Broadband from the company's website on 30 June – initial tests indicated that he was eligible for the service as he was within the 5.5km of his local exchange. Andy received an email from AOL 10 days later, confirming that his line had been activated and that his DIY modem kit (at the introductory price of £25) was on its way and to allow nine to 12 working days for delivery. A week later his heart sank when a second email arrived from AOL indicating that BT had cancelled his order, with no reason given. He contacted AOL only to be told that he needed to speak to BT.

On contacting BT customer services Andy was told that BT don't cancel orders and that he should speak to AOL. He was soon going round in circles: an AOL supervisor contacted the ADSL (asymmetric digital subscriber line) team, who contacted BT, who said that the original order must have been cancelled because of 'noise on the line'. Andy was advised to contact BT once more.

The following day BT customer services denied the problem was anything to do with them and that Andy should contact AOL – 36 hours and six phone calls later he eventually got a call from a BT manager who indicated that tests were being undertaken and that an engineer would do a physical test to check for noise on the line.

Freedom of speech

Following a test by a BT engineer on 20 July Andy was told that work on his line would be completed a week later. He finally received his AOL DIY kit at the beginning of August and soon had his ADSL connection up and running nearly five weeks after making his original order.

Despite his difficulties, he describes the AOL support team as "helpful, courteous and prompt" which "acts as a counterbalance" to the difficulties he encountered. AOL also credited his account with one month's free subscription to compensate for Andy's troubles.

So why did Andy want to upgrade in the first place? Well, his main reason was quicker download speeds for software updates and licensed music. He was also attracted by the ability to be online and use the telephone simultaneously and plumped for ADSL when he compared the cost of his 56Kbps (kilobits per second) service in addition to the cost of installing an extra line solely for telephone use. "In this way the marginal cost of the package did not seem too steep," he says.

Andy opted for AOL because he was already an AOL narrowband customer and was attracted by the low initial startup costs (there was an introductory offer of £25 for the DIY kit). AOL's content, however, he describes as "immaterial".

Andy concedes that at £34.99 per month the service appears steep in comparison to other providers'. But, for Andy, access to freephone support makes it worth every penny. "I have been caught out before by BT and spent £15 trying to resolve a problem when fault lay at their end – hence my original move to AOL. If a problem emerges at least I can hassle AOL for free."

Andy concedes that [AOL's] service appears steep in comparison to other service providers'. But, for Andy, access to freephone support makes it worth every penny

as AOL waives the activation it is charged by BT Wholesale. At £34.99 AOL Broadband is more than £15 per month more expensive than ADSL offerings from other ISPs. But the company is unashamedly pitching its service as the Rolls Royce of the broadband ISPs.

Let AOL entertain you

With access to the world's biggest mine of entertainment property rights, AOL has got more to shout about than most when it comes to content.

Film clips, trailers and special sneak previews from Warner Brothers and Turner Classic Movies, full-length cartoons and interactive games featuring characters like Tom and Jerry and Johnny Bravo, broadband content from the BBC (also available to Freeserve, Blueyonder, AOL, NTL, BT Broadband, BTopenworld, and OneTel) and online karaoke comprise its ADSL starting line-up.

We'd like to point out here that video content over a home ADSL connection can't really be described as FMV (full motion video). Speeds of up to 512Kbps is a great leap forward over dialup, but
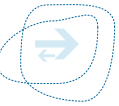
a trailer of *Harry Potter and The Philosopher's Stone* looked distinctly jerky to *PC Advisor* when it was played on a full screen. Sure, this is no different to any other ISP that is simply tapping into BT Wholesale, but VOD (video on demand) simply isn't going to cut it at current ADSL downstream speeds into the home.

Punters are more likely to go with AOL Broadband for its tradition of providing a safe family environment. As you would expect it comes with built-in parental controls, along with unlimited freephone customer support.

AOL customers who sign up for AOL Broadband are also able to use AOL's flat-rate dialup network – useful for members who may want to access emails when they are not at their home PCs. Like most broadband ISPs, it requires you to commit for a year. AOL Broadband is only open to existing members, although you can sign up for a free trial of AOL's dialup service and apply for broadband immediately.

However, at the time of going to press there were a couple of warning clouds on the horizon. Currently, unlike its rivals, AOL doesn't pay VAT, though it may well have to do so as of next year because of a new EU directive. The company is also fending off accusations of Enronesque creative accounting and is formally under investigation by the US DoJ (Department of Justice) and the SEC (Securities and Exchange Commission).

Pipex

Pipex has made a lot of the early running in the race to capture the custom of ADSL early adopters. It's been aggressive on pricing and promotions and offers a contract cancellation policy of 30 days.

At £23.44 inc VAT per month, Pipex Xtreme Solo offers a full ISP package at over £3 less per month than connection-only BT Broadband. Its pricing has raised a few eyebrows. BT Consumer's Porter questions if anyone can make money out of their broadband service at the prices Pipex is charging.

Pipex has excelled at playing David to BT's Goliath, generating metres of column inches after accusing rival broadband providers of "blatantly overcharging". "The bottom line is that if you are paying more than £25 inc VAT per month for Broadband, you are simply paying too much," says Pipex managing director, David Rickards.

Its commitment to waive the BT line activation fee (around £60) for the first 40,000 customers (now achieved) has undoubtedly helped it gain market share over the spring and summer months. New subscribers now have to pay the £58.75 inc VAT activation fee and have the option of buying microfilters at £9.99 a pop and a BT-approved Alcatel modem for £129.19.

However, the service hasn't been without its problems. Hundreds of users have been dogged by technical difficulties, which lead to a huge influx of inbound calls to the Pipex technical support desk, many of which the company was unable to process.

Pipex has taken on an extra 30 support staff to deal with demand, bringing the support team to a total of 90 people.

> Pipex's commitment to waive the BT line activation fee for the first 40,000 customers has undoubtedly helped it gain market share over the spring and summer months

Any Pipex users experiencing problems can contact the company through our ConsumerWatch forum at www.pcadvisor.co.uk/consumerwatch. From here, we continue to monitor the company's record on customer support.

CABLE

In total around 60 percent of UK homes can access broadband via cable modem for services supplied exclusively by the UK's two cable giants, Telewest and NTL. The two companies can't really be said to compete with one another as they operate in different franchise areas, prompting long-term speculation from analysts that they may merge.

This will only happen once, or if, both companies clear their phenomenal debt burdens, which have been run up due to a breathtaking spending spree in order to fund the acquisition of dozens of smaller cable players in the late 1990s. NTL and Telewest have debts of £12bn and £5.3bn respectively.
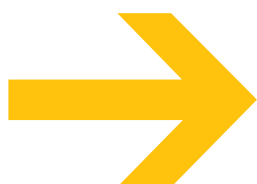
In total around 60 percent of UK homes can access broadband via cable modem for services supplied exclusively by the UK's two cable giants, Telewest and NTL. The two companies can't really be said to compete with one another as they operate in different franchise areas

As you can see, NTL has suffered most. But some commentators have suggested the company will be out of the US Chapter 11 process by the time this magazine hits the newsstand. This is the US equivalent of receivership, where the company in question is protected from its creditors by the courts in order to give it time to trade its way out of trouble.

Meanwhile, behind all the doom-mongering media coverage, both companies have been busy digging themselves out of their debt-ridden holes. Their troubles, it appears, haven't turned customers away. Both NTL and Telewest have been buoyed by the uptake of their broadband services and have focused on rolling out broadband availability to the majority of their customers with a view to making more money out of their existing customer base.
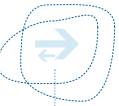
Telewest's legacy is healthier in this respect with 93 percent of its customers now capable of getting broadband. It is approaching full house with this autumn's rollout of broadband to its Eurobell customers in the South West (around five percent of its franchise population).

NTL

NTL, with its more disparate (and ambitious) acquisition heritage, has faced more of an uphill battle upgrading its motley collection of franchises. But it's moving quickly and, according to Bill Goodland, NTL's internet director, around 83

Case study

Name: Ray Cutts
ISP: Pipex
Went broadband: May 02

> "Broadband is like what colour television is to a monochrome set. Once you've made the change there's no going back. Those who cannot yet get broadband in their part of the country have my sincere sympathies"
>
> Ray Cutts,
> *PC Advisor* reader

Ray Cutts was having problems with his BT Anytime 56Kbps (kilobits per second) dialup connection. During the day the connection was reasonable. However, once 4pm struck Ray faced severe connection problems and spasmodic cutoffs. The final straw came when BT decided to put up its prices.

Look! Just wires

This prompted Ray to take the plunge and change to broadband. "I shortlisted three internet service providers but decided on Pipex because of their reasonable monthly charge, coupled with the fact this ISP has been established since 1991 and has a good track record," he comments.

To save money, Ray opted for a 'wires-only' deal, which meant he had to source and install his own hardware. After surfing the internet (before 4pm, obviously) he found and purchased an Alcatel SpeedTouch USB modem

for £50 (including delivery) and picked up the necessary microfilters from Hull-based manufacturer, Solwise.

Two days after signing up Ray received his logon details through the post, but it took a total of 10 days to get connected. "The performance has been extremely good, with consistent speeds and no connection problems," he says. He advises would-be Pipex users to check the ISP's service status web pages, which alert the user in advance of any impending maintenance work.

Help is at hand

Ray hasn't encountered any real issues with his broadband connection apart from a problem with his Alcatel modem the first time he tried to use the service. The problem was solved after he posted a query in the *PC Advisor* Helproom forum (www.pcadvisor.co.uk/helproom), having failed to get through to technical support at Pipex. Since then his connection has been relatively trouble-free.

"My internet experience has been transformed out of all recognition," raves Ray. "I can surf speedily without worrying about two-hour cutoffs – or 10 minute ones, as occasionally was the case previously. Web pages fly up on screen and download speeds are fantastic. Broadband is like what colour television is to a monochrome set. Once you've made the change there's no going back. Those who cannot yet get broadband in their part of the country have my sincere sympathies."

The speed of Ray's connection is, as you can gather, quite adequate for his needs. "I managed a 201MB zipped file download in 55 minutes which leaves dialup in the Stone Age. My earnest wish is that it is made available to all who want it as quickly as possible."
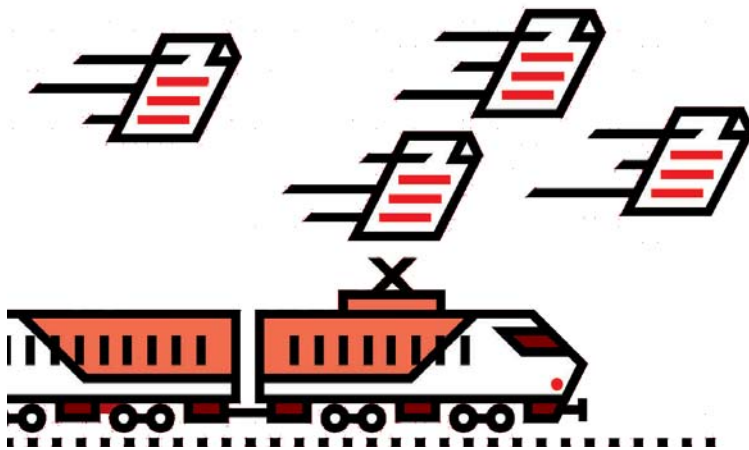
Case study

Lee already used NTL to supply his TV and phone, so he jumped at the chance to get broadband when NTL started offering it in his area

Name: Lee Daynes
ISP: NTL
Went broadband: June 02

When Lee Daynes received a phone bill detailing nearly £30 of internet calls, he decided it would make financial sense to switch over to broadband. Lee already used NTL to supply his TV and phone, so he jumped at the chance to get broadband when NTL started offering it in his area.

Three days after calling NTL he was up and running with the company's 512Kbps (kilobits per second) service. "The performance is really good, with consistent download speeds," he says. "It has just made my internet experience much better – I've even started listening to radio while online. I would never have even attempted that while I was on dialup." Lee is also very pleased with the speed and quality of broadband as a gaming platform.

Faulty equipment

Although Lee says he is very happy with NTL's service, he did experience some teething problems. "The service was patchy for the first few days – I couldn't sign up because the sign-up server in my area was faulty." But Lee says the technical support, which is charged at local rate, is quite good although he was astonished when an NTL customer adviser didn't seem to be up to speed with the names of cables.

"I wanted to know what cable I needed to connect up to my set-top box so I asked if it was a 'patch cable'. He said no so I asked him what cable I needed. He said it was a 'straight-through' cable and was a little surprised when I told him they were the same thing."

Despite a few hitches, signing up to broadband has been well worth it for Lee. "I have to recommend it to everyone, it makes life so much easier. I would never go back to dialup after using broadband."

percent of customers in NTL franchises will have the potential to access broadband by the end of the year. Westminster and Derby are the latest additions.

NTL expands its waistline

Last month the company started offering standalone broadband on both of its broadband packages to non-NTL TV and phone customers for the first time – and without any price difference. So if someone's happily using Sky and has a BT phoneline, they can now become an NTL broadband customer without paying a price premium.

NTL includes a £14.99 128Kbps product in its portfolio, which it very cheekily groups under its broadband services. If you accept 128Kbps as a type of broadband then technically speaking NTL is the UK's biggest broadband provider in the UK. That gives it around 300,000 (as of the end of July) broadband customers, with around 7,000 new users flowing in every week.
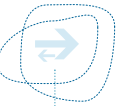
In the medium term NTL is hoping to move its 128Kbps customers up the bandwidth food chain to its faster and more expensive packages. Once customers have got a speed habit, the argument goes, they'll never be able to kick the addiction.

NTL's mainstream 512Kbps package launched back in January 2001 and costs £24.99 per month. Top of the range is its 1Mbps product, unveiled in March 02 with a hefty price tag of £49.99 per month. As with Telewest, installation costs are cheap when compared with ADSL at £50 a pop for an engineer installation.

There are two ways of getting broadband from NTL – either via a standalone modem or by taking a line from the back of a latest generation digital TV set-top box (which has a cable modem built in).

Around half of NTL's TV customers have broadband capable set-top boxes. They have the option of ordering a self-install package, which arrives through the post, or they can have an engineer to carry out the installation. As with Telewest, a NIC (network interface card) which, as the name suggests, acts as an interface between the set-top box or modem will cost you an extra £25. In all cases NTL will tie you into a 12-month minimum contract.

Telewest

Telewest Broadband is available to 4.9 million homes – around 93 percent of all households in Telewest franchise areas. The company reckons it has more 512Kbps broadband internet customers than any other provider in the UK, capturing over 80 percent of the broadband market within its franchise areas. As of the end of July Telewest had 192,000 broadband customers in total.

The company says it's winning around 1,000 new broadband customers per day and saw over 10,000 512Kbps customers upgrade to its 1Mb service within a few weeks of the June launch. In fact, 15,000 new customers had signed up for its 1Mbps service seven weeks after its launch.

Telewest likes to point out that, at £35 per month, the cost of its 1Mbps service is the same as AOL's ADSL offering – except you get twice the speed with Telewest. If you want Telewest Broadband without the delights of commercial TV or its phone services, however, you'll have to fork out an extra £4.99 per month (£39.99 for the 1Mbps).

The company's original 512Kbps broadband package will continue to be Telewest's lead product. Installation costs are £50 and you can buy a NIC for £25. TV and phone customers are charged £24.99 per month – if you want the service without TV and phone it'll cost £29.99 per month.

Telewest likes to point out that the cost of its 1Mbps service is the same as AOL's ADSL offering – except you get twice the speed with Telewest

Like NTL, Telewest is focused on pointing out cable's superiority over ADSL, rather than slinging mud at its cable cousin. The company also provides freephone broadband technical support, 24 hours a day, seven days a week.

Telewest is gradually moving its 512Kbps customers up to 1Mbps via the company's website – the activation process currently takes 24 hours, but should soon be instantaneous.

Last month saw Telewest teaming up with high street chain Gamestation across the UK. The video games retailer provides Telewest with a presence in all its 58 stores, where customers can get broadband internet access 'off the peg'. Pocket-sized packs are on offer that include installation by a technician and contain a CD-ROM with tips, demonstrations and information about high-speed internet content.

Shoppers can check their postcodes against a reference list on the back of the pack before a sales advisor confirms availability. A £25 fee is then paid instore, which covers the installation booked via a freephone number.
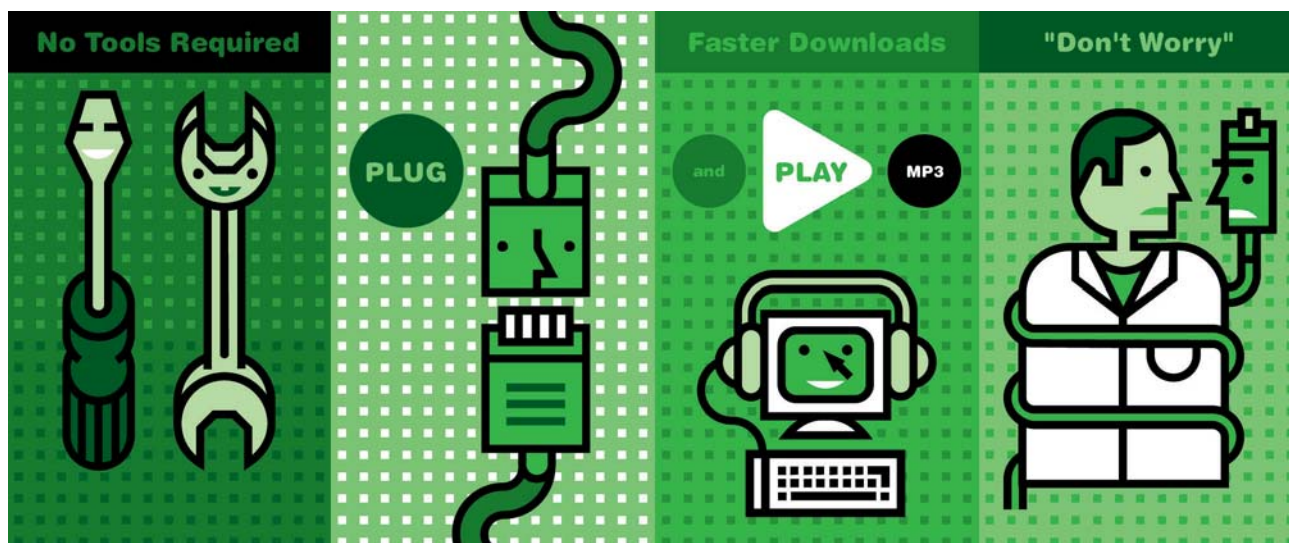
No Tools Required   PLUG   **Faster Downloads**   **"Don't Worry"**   and   PLAY   MP3

Hassle-free high-speed internet

Setting up a DIY broadband connection isn't as hard as you think. Emma Northam and Rosemary Haworth show you how and troubleshoot some common problems

Broadband has recently come down in price sufficiently to raise most people's interest. By now chances are high that BT has got round to upgrading your local phone exchange (check this against your postcode on the *PC Advisor* Broadband Checker at www.pcadvisor.co.uk/broadband), so at last you can find out what you've been missing. With a do-it-yourself installation you can all but halve the cost of getting high-speed internet access since you buy the hardware as a self-contained kit for around £85, but don't need to fork out for someone else to set up the service on your behalf.

Having read our advice in the preceding pages regarding the different broadband ISP providers and having chosen an ADSL (asymmetric digital subscriber line) subscription, it's time to contact the provider in question – www.aol.co.uk/broadband, www.freeserve.com/broadband or www.btopenworld.com – and order your DIY setup kit. While you're there, double-check your PC hardware is up to the task. Freeserve users can also buy off-the-shelf kits from outlets such as Dixons.

You can upgrade from an existing dialup account, but you'll still need to get new hardware in order to do so. These DIY packages contain all you need: a USB modem, filters (so you can make and receive phone calls while you surf) and setup CDs for both the modem and broadband ISP service.

From ordering your installation kit to actually being to able to use it requires at least 10 days
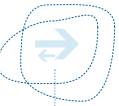
patience as the ISP needs time to get your phoneline ready. You'll be notified that your phoneline has passed a check for ADSL and given an 'activation' date – via email if you have an existing account – as well as any important information such as allocated password and a username. Even if you're upgrading from a dialup account, part of your username may be changed.

Upgrade or start afresh?

Irrespective of whether you're setting up a brand new connection or upgrading from an existing dialup account, the installation procedure, hardware and software requirements are the same. Only costs vary depending on your chosen ISP. Here, we've set up a fresh BTopenworld account on a Windows XP-based desktop PC and upgraded from a 56Kbps (kilobits per second) Freeserve dialup account on a notebook running Windows 98. Both kits provide broadband connectivity for a single machine.

We found no difference between the ease of installation for the notebook or desktop PC and, aside from needing to ensure we had administrative rights when using XP, setup for both the Freeserve and BTopenworld packages was as simple as the respective ISP's promised. In fact, the only difficulties we encountered were related to the telephone exchange which wasn't quite as ADSL-enabled as BT claimed.

Installing the ADSL filter

Whichever self-install kit you're using, you'll need to alter your phone setup so that each and every socket has an ADSL (asymmetric digital subscriber line) filter attached. Two come supplied with your broadband setup pack; more can be bought from www.netlynk.co.uk/btfilters or from electrical stores.

1 Disconnect the phone jack from the wall or extension socket and insert the tail of the ADSL filter instead. Insert the original cable into the socket marked Phone on the filter. Splitter sockets can also be used. Again, insert the jack into the Phone socket on the filter

2 Insert the turquoise data cable into the DSL (digital subscriber line) socket of the filter, then insert the other end into the free slot where the modem cable splits halfway down

Upgrading from a dialup account

Using Freeserve's off-the-peg broadband kit it proved simple to upgrade an existing no-ties 56Kbps (kilobits per second) account on a Windows 98 laptop. Freeserve asks you to install its software first whereas BTopenworld prompts for this after the hardware has been set up. If the CD doesn't autostart, click on My Computer and then the CD icon. You're offered the option of reading (or hearing) more about broadband. Click Next to proceed when you're ready.

1 If you're using an older version of Internet Explorer than 6.0, you can update Freeserve Broadband with the newer version by clicking this option when prompted. IE6 has better security features than previous versions of the web browser and, since an always-on internet connection is more susceptible to breaches, we recommend doing so

2 The Alcatel SpeedTouch USB modem drivers will now be installed. We're using Windows 98 so no additional drivers should need to be downloaded. Just hit Next or Yes when prompted to complete this step. Select the destination folder for the modem software (the Program Files folder is the default; browse to store them elsewhere). Click Finish and then continue the IE6 browser installation. Restart once this is completed

Installing the USB modem

BTopenworld Home 500 asks you to install the USB modem before you set up the internet service provider software. If you're using Windows XP, ensure you're logged on as an administrator before proceeding. Do this by going to Start, Control Panel, User Accounts. The modem setup procedure is the same as that described for Freeserve users.

1 Attach the SpeedTouch modem's USB connector to your PC using a free port on your PC or notebook. Both the ADSL and USB lights should now be steady green

2 Having got the modem installed and attached, BTopenworld users need to install the ISP software using the CD-ROM supplied. The Installation Wizard will perform a perfunctory check on your PC's hardware to ensure it's up to the job. Click through the wizard's screens as prompted to complete the software setup. We recommend you choose the option to install the firewall software, unless you've invested in a separate security package

Common problems

If, having followed the instructions provided by your ISP and checked the setup process against the step-by-step description in this workshop, you find you can't get online with your broadband connection, it's natural to reach for the phone to try and get some technical help. Before you do so, however, check whether any of the following applies to you. It might save you valuable time and money and will ensure you can provide a fuller picture of your connection status should you need to talk to customer support.

• Am I an administrator?

Windows XP users need to ensure that they are logged on as the system administrator or have full administrator access rights before beginning the broadband setup process. Check that you are logged on correctly by going to Start, Control Panel, User Accounts. If Computer Administrator isn't listed under your username, click on your username and choose Change the account type from Limited to Computer Administrator.

• Do I need a new username?

If you're upgrading from a dialup account to ADSL with your existing ISP you might need a name change. Despite receiving an email from Freeserve stating that we would not need a new username to log on to our broadband account, we found attempting to do so resulted in an 'Invalid username or password' error message. Technical support eventually told us that the username suffix '@bb.freeserve.co.uk' was needed.
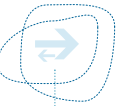
• Why can't I make a connection?

Has the activation date arrived? This is the day on which your broadband service is due to start – you'll usually be notified of this date via email. Did you follow the setup instructions correctly, remembering to install the modem software before attaching the modem to the PC? Have all phone extensions been fitted with an ADSL filter? Do you have a house alarm with a telephone link? Remember that this will need a filter, too. Extra filters can be bought from www.netlynk.co.uk/btfilters for around £9.99.

We spent many frustrating hours checking and rechecking our BT Home 500 hardware and software setup, but each connection attempt resulted in the SpeedTouch modem being unable to connect to the remote computer (the ISP's server). Technical support suggested downloading an updated Windows XP driver from the Alcatel website – apparently a common reason for XP users not being able to establish a connection.

• Why is the modem light flashing?

There are two green lights on the SpeedTouch modem supplied with both Freeserve and BTopenworld's self-install kits. If the USB light isn't on, the modem isn't properly connected to your PC.

Welcome to broadband

Connecting to the internet and accessing email using a broadband connection is very quick. Once you've logged on for the first time, to get online you just hit the Alcatel modem icon or your ISP or browser icon and your connection should become active immediately. Depending on web traffic, it may take a few seconds for your home page to load, but ADSL is as much as 10 times faster than a standard 56Kbps (kilobits per second) analog dialup connection so you shouldn't have to wait long.

1 Launch the ISP browser or double-click on the green modem icon to bring up the connection dialog box. Enter the username and password supplied by the service provider and hit Enter or the Connect button. Freeserve upgraders will find their username has a new suffix – for example, @smith.fsnet.co.uk will change to smith.fsnet.co.uk @bb.freeserve.co.uk. BTopenworld users get the somewhat less complex '@btopenworld.com' suffix

2 Once at your new homepage, you can start to enjoy the full wonders of the web. Click on a few graphics-heavy sites you've visited in the past and found a real drag and you'll be pleasantly surprised at the difference. Alternatively, try some of the recommended sites for broadband users, which are listed on page 44. As more and more people sign up, specific broadband provision will increase significantly as we all clamour for the latest video news, worldwide sports reports and multimedia downloads, and compete in online games forums

Though a broadband connection lets your surf the web without tying up your phoneline, sharing a line may cause interference

If the ADSL modem flashes and/or has an intermittent red light, check the specific error message that appears when you try to connect. It may be that the modem hardware hasn't been correctly installed. Checking this and then rebooting sometimes solves the problem. The Read Me files supplied on your ISP setup CD contain further troubleshooting advice.

The ADSL light may also flash if the activation date for your broadband connection hasn't yet arrived or the local exchange hasn't been properly upgraded. Escalating the service call (after BT had confirmed the line was ADSL-ready) and getting a phone engineer to change the card at the exchange solved our problem.

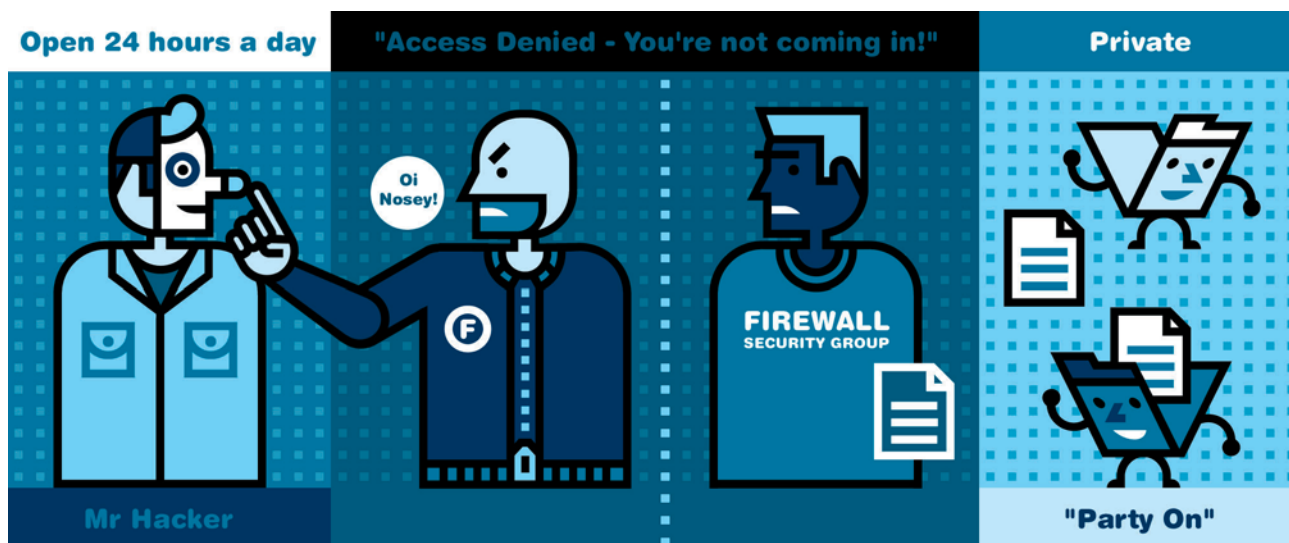**• There's interference when I try to make voice calls. What's the problem?**
Annoyingly, though a broadband connection lets you surf the internet without tying up your main phoneline, sharing a line for voice and data connections may cause interference and make it hard to conduct conversations. This problem may be eased by cutting down the distance from the

main BT junction box to the ADSL modem – particularly lengthy cables or running the connection via a series of line splitters and extensions don't help.

Get BT to check the line again. The engineer will be able to determine whether the interference is happening at your end (though they're not there to check you've set up your ADSL connection correctly) or whether there's a problem at the local BT exchange. If the ADSL-enabled exchange gets the all-clear, swapping the phone filters for new ones can reportedly help.

• What's my line?
We can't hope to address every possible connection problem here, but your ISP's technical support service should be able to solve any problems not described in the largely comprehensive user guides supplied on the setup CD. Alternatively, visit the *PC Advisor* Helproom at www.pcadvisor.co.uk/helproom. And, once you've got a fast, reliable line, we think you'll find it opens up many new possibilities for both business communications and ways to spend your leisure hours.

Open 24 hours a day | "Access Denied - You're not coming in!" | Private

Mr Hacker

Oi Nosey!

FIREWALL
SECURITY GROUP

"Party On"

Installing a firewall

You lock your car to prevent opportunistic thieves, so what about your broadband connection? Peter Thomas talks us through the online equivalent of fitting deadlocks

Without adequate security, an always-on broadband connection is the computing equivalent of leaving your car running with the doors unlocked and the keys in the ignition. If you don't have a static IP (internet protocol) address, you'll be allocated a different IP address – that is, the unique 'location' of your PC on the web – each time you connect, but if you are in the habit of leaving the connection running all day you'll present what amounts to a fixed IP address to the world at large. As a result you'll be far more likely to attract the attention of a passing hacker looking for an open door and he/she will find it much easier to gain access to your machine.

Let's look at how this can happen and then we'll find ways of protecting your computer from the online equivalent of opportunistic burglary.

It's a dangerous world

Whatever you might read, and whatever Microsoft might want you to believe, Windows is far from secure. A computer that's connected to the internet and is running Windows is vulnerable to attack in many ways. That's the price we pay for running operating systems that are very complex on the inside so they'll appear less complicated onscreen.

Most inbound 'attacks' from the internet are simple port scans, often from your ISP, but sometimes from a hacker attempting to find vulnerable computers.

Ports are effectively open doors to the workings of your computer and a hacker with access to an open port can wreak havoc in the shape of Trojans, backdoor programs and configuration errors – such as enabling file sharing

without restrictions. These can open vulnerabilities and give hackers the ability to copy and delete files or take over your computer and use it as a platform for launching attacks on commercial servers.

There are many websites crammed full of hacking tools that can and are used by bored online vandals, otherwise known as script kiddies. If a script kiddie finds your computer once it will be easy for them to find it again. So, what can you do to make your computer safe?

Defence is the key

Let's get one thing straight from the outset: the only way to make your computer 100 percent hacker-proof is to turn it off or disconnect it from the internet. The real issue here is how to deter opportunistic attack.

Unfortunately you can't look to your service provider for help with protection. BTopenworld's website makes no attempt to include information about personal firewalls in its broadband package, limiting any warning to a small disclaimer tucked away in the dim recesses of the BT website.

Depressed? There's no need to be. Installing adequate defences – in the shape of a firewall – is not that difficult. A couple of years ago, if you had asked a home computer user what a firewall was you might have received a blank look. Nowadays pretty much everyone has heard the word, but there is still a good deal of confusion over what a firewall is and does.

There are basically two kinds of firewall in common use: hardware, mainly used by network administrators to protect company networks, intranets and web servers; and software,
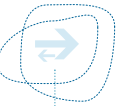
## Zone Labs ZoneAlarm: installing and customising your firewall

1 In return for providing free software Zone Labs asks that you provide some basic information about yourself. Go ahead and fill it in – the company will stick to its promise to keep your details private
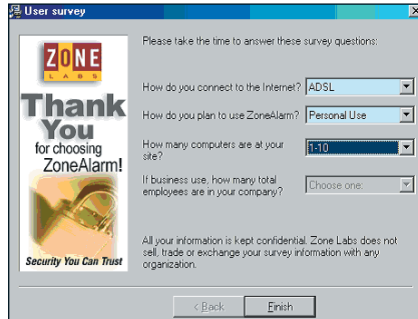
2 ZoneAlarm keeps a log of all incoming alerts and will pop up a small Alert window each time something attempts to access your computer from the internet. The large red Stop button immediately closes all means of access from the web in an emergency
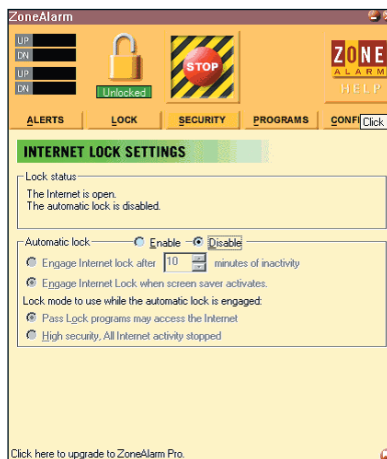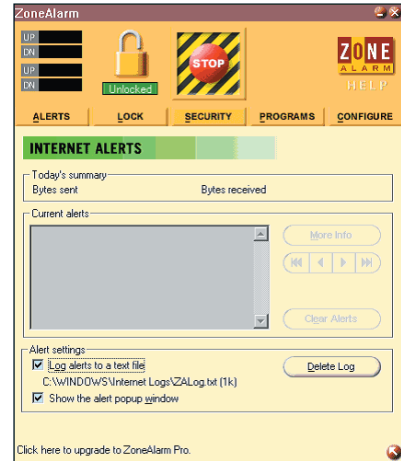
3 ZoneAlarm can engage an internet lock when your computer is idle for a specified period. This will either stop all unauthorised access to or from the web or it will block all access completely, depending on which setting you opt for. In an emergency you can apply the internet lock manually and all traffic in and out of your computer will be terminated immediately
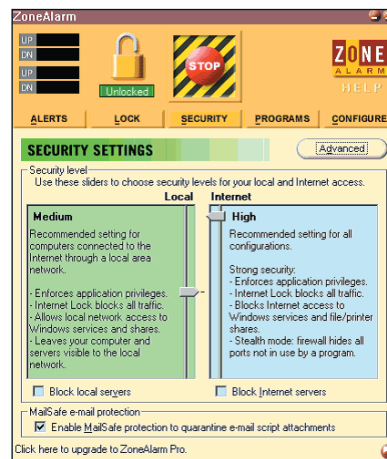
4 This dialog box enables you to select the level of security you want ZoneAlarm to observe. Note that the High setting includes a Stealth mode, which ensures that any open ports on your PC appear closed to an intruder. In the case of a computer connected to a home network, the Medium setting under the Local heading allows all systems on the network to see each other and to exchange files as required
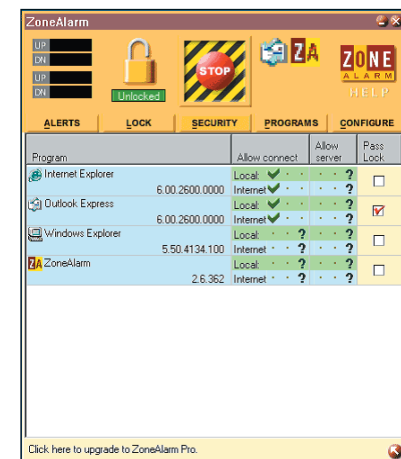
5 This is where you tell ZoneAlarm which settings to apply to all programs that attempt to access the web. You'll be asked to confirm authorisation the first time each program establishes a connection with an external website. You can decide on a one-way connection or let your PC act as a server to send and receive files – the Windows update facility, for example, needs a two-way data flow. In some cases you may want a particular application to be granted access even if the internet lock is on – for example, in Outlook Express. ZoneAlarm makes provision for this

commonly installed by home computer users on standalone machines. Both do the same job: monitor inbound or outbound traffic, identify it if possible, and allow it to pass or block it, depending on the configuration set by the user or network administrator. Think of a firewall as a gatekeeper – anything attempting to pass through the gate is challenged and, depending on the answer, the firewall will leave the gate closed or open it.

Nobody who regularly accesses the internet, either with a conventional dialup modem or with a broadband connection, should do so without running a personal firewall. If you don't have adequate defences then you're inviting trouble.

## Agnitum Outpost: upgrading from a dialup account
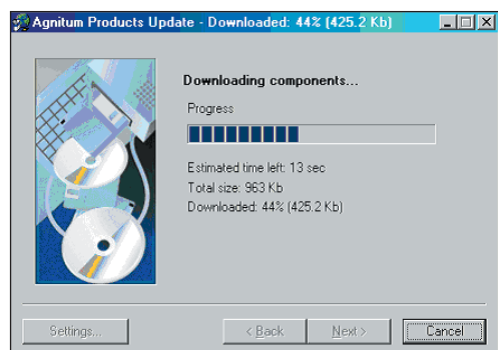
1 Outpost has a familiar Windows look. As soon as you install the software it connects to Agnitum's website in order to check for a newer version. Any updates are then downloaded and installed automatically
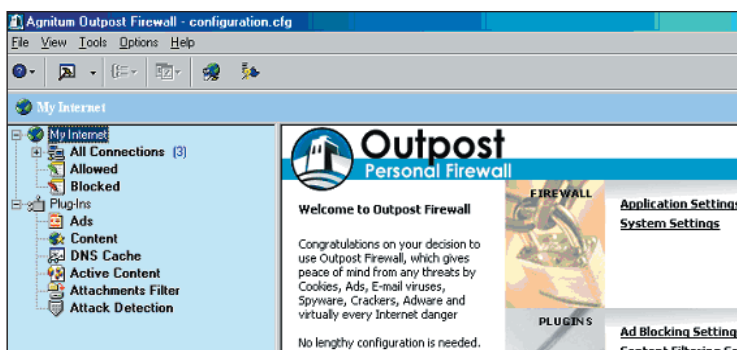
2 Outpost's comprehensive interface is easy to configure – you can configure the firewall to your heart's content by simply clicking on any of the icons in the lefthand pane. It's unusual to find this level of user configuration in a free application. Using the same interface you can write and install plug-ins to extend Outpost's capabilities. Outpost also has a parental control facility, whereby you can block access to web pages containing key word strings or block specified sites. Another unique feature is Outpost's ability to detect and stop email attachments that may contain a virus
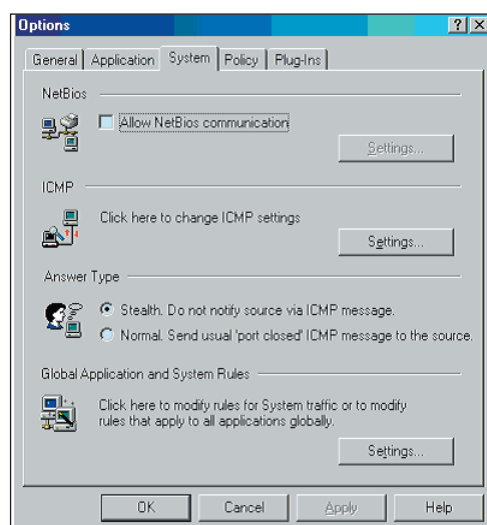
3 Outpost's Options box lets you set up your user preferences easily. The ICMP Settings prevent a hacker from 'pinging' your system. In Stealth mode your PC will be invisible to others on the web. Tick the Allow NetBios communication box if your PC is on a LAN (local area network) or home network
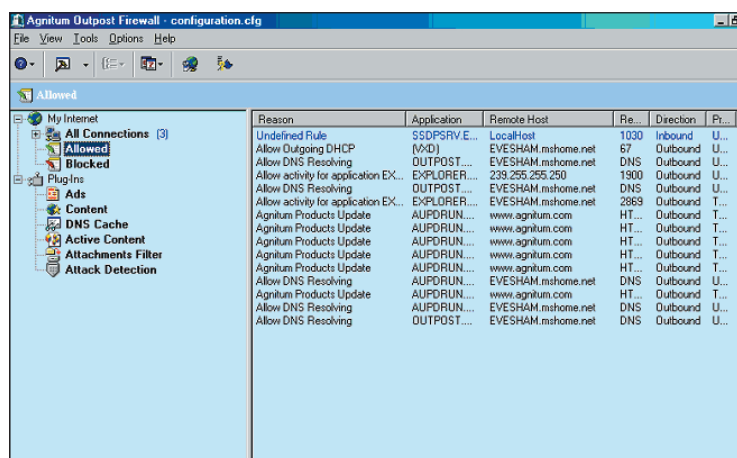
4 Outpost maintains a log of all attempts by both allowed and blocked applications to access resources outside your computer and displays them in an Explorer-style window. Any attempted attacks are similarly logged and Outpost displays the date, time and type of attack, plus the IP (internet protocol) address of the attacking system and the number of the port which was scanned

As discussed earlier, the broadband user is at greater risk than the average 56Kbps (kilobits per second) modem user as they have an always-on connection.

Let's get personal

Two of the most commonly used personal firewalls are ZoneAlarm (www.zonelabs.com) and Outpost (www.agnitum.com). There are other products available from the likes of Norton and McAfee, but we think that either ZoneAlarm or Outpost will provide all the protection you're likely to need under normal circumstances – they're also free.

Both firewalls are available in Pro versions (check the relevant website for details). And there's also a free version of ZoneAlarm included on this month's cover disc.

Radio broadband

The advent of broadband technology has brought a whole new dimension to listening to your favourite radio station online. Brad Jackson shows you how to tune into the whole world

BBQ Radio.com lists over 1,000 broadband-ready radio stations

Most national stations, and an increasing number of local stations, are feeding their output to the web for the listening pleasure of anyone with a broadband internet connection and the right software. Not only can you now tune in to your favourite UK stations, but you can check the traffic reports in downtown Adelaide, find out who won the local election in Arkansas or discover what music they are currently listening to in Moscow.

In the past, you needed an expensive shortwave radio, a huge aerial and a lot of luck to find the far-off fodder. Now, however, all you need is a home computer and a broadband connection.

Software players

The two main applications for internet radio listening are RealOne Player and Windows Media Player. Since no one can choose between these two programs as the world leader, many radio stations have opted to support both file formats. However, for the hardened radio listener, it is worth downloading and installing both of these apps for the odd occasion where this is not the case.

Live stream or on demand?

There are two types of radio listening. First up is live stream – that is, you hear what is being transmitted via conventional radio at the moment it goes out. Then there's prerecorded programmes that are available for on-demand listening. For example, a station such as Voice Of Russia, which only has two hours of English programming per day, offers these shows as two 7Mb (megabit) blocks of data. A local English station would be more likely to have a live stream, perhaps recording its more popular programmes for on-demand listening.

How to find interesting stations

A great place to start for those with an interest in international affairs or specific countries is the World Radio Network at www.wrn.org. This is an organisation that carries transmissions from countries such as Israel, Russia, America and Australia, to name but a few.

The broadband revolution is improving the internet radio scene, using expanding bandwidth to enhance the sound quality. Music stations are benefitting most, as they wave goodbye to tinny, mono signals and say hello to digital-quality stereo. A great place to locate broadband-ready stations is www.bbqradio.com. This site has an excellent search facility and its own embedded player.

Virtual Tuner (www.virtualtuner.com) actually allows the user to search for stations at selectable bandwidths. You do have to register to access this feature, but it's free and takes very little time.

Search using RealOne Player

To access the Search functions on the RealOne Player, click Radio and, in the resulting window, you'll see various options from which to choose. If you are looking for a certain kind of station – for example, news or jazz – click the relevant link to be taken to the results for that genre. RealOne lists a choice of featured stations on the left of the radio window and clicking one of these might produce interesting results.

Finally, you can find specific stations by typing in what you are looking for in the Search box and clicking Go. For example, typing Sydney in this box gives a choice of four stations in the Sydney area of Australia – one being a live feed from an air traffic control radio at Bankstown Airport!

Enhanced listening

You can increase your online radio listening pleasure in a variety of ways, depending on your needs and budget. For example, a simple pair of headphones can enable you to turn up the volume without disturbing any nearby relatives or colleagues, while a decent sound card hooked up to a quality set of hi-fi speakers can make music come alive.

A cheap way of getting more volume is to send the output from your sound card to the line input of your existing hi-fi system or amplifier via an audio cable. The cable can be obtained cheaply from any high street electronics outlet.

Internet radio players

www.real.com
www.microsoft.com

Radio stations

www.wrn.org
www.virtualtuner.com
www.bbqradio.com
www.internetradioindex.com
www.windowsmedia.com/radiotuner
www.classicfm.com
www.bbc.co.uk/radio

Remote chance of broadband

What are the chances of getting broadband if you live outside the areas covered by ADSL and cable? Remote, says Ursula Seymour, but don't give up hope

If you want broadband and live in a remote location, be prepared to pay a high price for it or move – so says Tony Legg, managing director of internet service provider Mitoo. You might think he is being pessimistic, but the options are limited if you can't get hooked up to ADSL (asymmetric digital subscriber line) or cable.

Satellite is often bandied around as the answer to broadband provision in hard-to-reach areas. Yes, it does work where other solutions can't, but it has drawbacks – not least a high price.

Look to the skies

Satellite internet works by using a satellite dish for two-way (upload and download) data communications. Download speeds for consumer and small business services tend to be 512Kbps (kilobits per second) – much the same as what's on offer from cable and ADSL services. Upload speed, however, is slower – services can offer anything from a third to a tenth of the download speeds for data uploading (refer to the comparison table on page 42).

To receive satellite broadband users have to install a dish and modem, plus cables to link the two. Most packages allow you to either rent or buy this equipment as it can be expensive. The only other requirement is a clear view of the sky to provide a line of sight between your dish and the geostationary satellite.

But there are limitations to satellite broadband – there just aren't enough satellites to go round. Back in the good old days of the internet boom, companies promised to throw hardware into space like pennies into a fountain. Then the bubble burst, the pennies ran out and the satellites stayed defiantly on the launchpad.
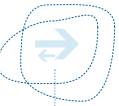
Satellite broadband suppliers, such as BT, buy uplink capacity from the satellite owners, which can be anyone from the European Space Agency to private corporations. The suppliers then share out this capacity between users. Buying capacity from satellite owners is expensive – keeping a piece of complex communications equipment orbiting the earth isn't cheap, particularly as much of the kit has seen better days.

You do the maths

A 2Mb (megabit) uplink costs the broadband supplier approximately £30,000 a year. Divide this among 32 users to provide them each with 64Kbps upload speeds and you have to charge £1,000 a year each just to cover costs, which works out at about £80 a month.

So, in order for satellite broadband to be a profitable business for the providers, companies either have to charge a relatively high price for the service or divide capacity among a greater number of users, thus slowing the service down to the snail's pace of dialup.

Case study

Satellite broadband in the Shetlands

Tony Goff and his wife live on the island of Yell in the Shetlands, perhaps one of the remotest areas of the British Isles. Tony works compiling family trees and producing craft items, while his wife is a part-time teacher and designer. All of these roles require frequent access to the internet, which is why the Goffs began looking at faster alternatives to dialup.

Given their location the usual routes to broadband were closed to them, as neither cable nor ADSL (asymmetric digital subscriber line) are available in the Shetlands. There have been discussions about installing a fibre optic cable to provide high-speed internet access, but these have been shelved due to lack of funding. So the Goffs looked into the only other broadband option available – satellite. "There isn't any other way to access broadband," explains Tony.

Wish granted

The Goffs were fortunate enough to qualify for a grant from the Highlands & Islands Enterprise council, which covered most of the cost of the equipment required – a satellite dish and modem. The coupled opted for BTopenworld's Business Satellite 500/1 service, as it offered the best value at the time.

The initial installation costs – around £800 – were paid by the grant, leaving the Goffs paying £60 per month for the service. In order to justify this expense they have set up a mini internet cafe next to their workshop, which provides web access and email services from 9am-9pm.

"We wished to offer the services of an internet micro-cafe to the many visitors who come to Shetland every year, so that they can check their email and access the internet at a fast speed. We can also provide them with freshly roasted coffee and biscuits. The aim is to provide a further way of attracting people to come to our workshop facility," Tony explains.

The cafe has been up and running since June when the connection was installed. The Goffs were impressed by the speed at which BT got the system installed, as they only applied for their grant back in May.

Protect yourself

But Tony does have some words of warning for those thinking of following the same route: "It is imperative that anyone who is considering a broadband solution is adequately protected with a good firewall package."

Tony has installed Visnetic firewall software to overcome this problem and protect his computers. However, he did point out that he had to find this product for himself as BT doesn't offer any assistance in setting up a firewall.

Another problem Tony solved was making it possible to share BT's 500/1 package between two computers, one of which is an iMac. BT aims 500/1 at single users working on a PC, but Tony has worked out how to share his connection between the PC and iMac using WinGate proxy software.

The Goffs are happy with the speed of their satellite broadband service: "Download speeds certainly seem 10 times faster than dialup." These speeds have helped Tony when he searches online databases for genealogical information and downloads large files from the web.

While the Goffs are locked into a contract with BT for a year, Tony is talking to Tiscali, which has plans to set up a satellite broadband service in September, to find out if it can offer him a better deal.

Contacts
- Bayanne Consultancy www.bayanne.co.uk
- BTopenworld www.btopenworld.com/satellite
- WinGate www.deerfield.com/products/wingate
- Visnetic www.deerfield.com/products/visnetic_firewall
- Tiscali www.tiscali.co.uk

Some providers have attempted to tackle this problem by offering cheaper services only available during off-peak hours. However, these packages can become over-subscribed by punters eager to take advantage of cheap satellite, causing data transfer speeds to fall dramatically.

Dialup for cheaper services

The most expensive way to provide satellite broadband is two-way, where data is both downloaded and uploaded via the satellite. However, BT is currently testing a cheaper, one-way service, which uses conventional dialup for the upload. The trial, which began on 1 May 02, allows users to download data at rates of 256Kbps, while upload speeds remain at the dialup rate of 56Kbps. There is an option to increase download speeds up to 4Mbps (megabits per second), but users would have to pay more for the extra capacity. BT is working with six ISPs to offer the trial package, including PlusNet (www.plus.net), Eclipse (www.eclipse.net.uk) and izR (www.izrsolutions.com).

Wholesale pricing for the service is £360 for the initial installation, plus £10 per month rental.

This works out a lot cheaper than other satellite offerings. David Orr, head of media relations for BT Wholesale, said that the company anticipated demand from "isolated small businesses and the farming community" as well as consumers. But, as yet, this is only a six-month trial and Orr could give no indication of when it would roll out nationwide.

What a dish

A problem with satellite in any of its formats is the necessity to install a dish to receive the data signals, which can be a headache if it requires planning permission. One *PC Advisor* reader came up against such a difficulty when he tried to have satellite broadband installed at his farm. "I already have a Sky dish and Eutelsat dish on my property [so] I will have to apply for planning permission. The question of radio emissions could also be an issue," explains Rupert Johnson.

Satellite could prove to be the answer for those who have the money to pay for it and live in a suitable property, but the substantial costs involved will put many consumers and small businesses off. So are there any other options?

The answer is yes and no. There are other technologies and schemes that aim to bring broadband to a wider and more remote audience, but none is offered nationwide and for a low cost.

BT has another trial under way in Wales, which uses Radiant Networks' mesh radio technology to deliver broadband. Mesh radio works by installing a small antenna in each house or business, which transmits data on to neighbouring users to form a network or mesh. This obviates the need for a large mast or antennae to broadcast data to each customer. The trial covers an 80km² area to the north west of Cardiff and delivers two-way data transfer speeds of up to 5Mbps. The service is currently free, but Orr says BT has not ruled out charging for it before the end of the trial in December.

Satellite services comparison table

Supplier	Contact	Website	Cheapest package	Service aimed at
Aramiska	0808 100 3555	www.aramiska.co.uk	Arc 1	small business users (monthly transfer allowance 1GB)
Bridge	08707 801 080	www.bridgebroadband.co.uk	Silver	small business users
BT	0800 671 155	www.btopenworld.com/satellite	Business Satellite 500/1	business users
FirstNet	0113 292 7700	www.firstnet.net.uk	Beam Satellite Broadband	small business users
IPviasat	no number	www.ipviasat.net	IPviasat Home Internet	home (restricted service: 8am Monday to Friday and 24 hours, Saturday and Sunday)
Sat-Net	01443 406 918	www.computingeurope.com/sat-net	Beam Single User	home users

The following table is an example of the kind of satellite packages on offer. All details are correct at the time of going to press.

Mesh radio solutions are ideal for locations where traditional broadband isn't economically viable and the landscape doesn't suit standard radio signals – for example, hilly areas. But the bandwidth it can provide is dependent on many factors, not the least of which is the number of people who have the antennae installed.

Another option for those in rural communities is to seek subsidies to pay for the cost of upgrading an exchange. Orr says that enabling an exchange for DSL (digital subscriber line) technology costs in the region of £250,000 to £500,000, so BT, or indeed any operator, is unlikely to pay to upgrade unless there is sufficient demand to meet the costs.

Broadband for everyone?

Orr points to BT's Actnow project in Cornwall (www.actnowcornwall.co.uk) as an example of how money from local groups and the EU can help pay for upgrading exchanges to provide broadband to surrounding communities. Orr believes that "unless you have an element of subsidy in rural and semi-rural areas, DSL won't happen."

"BT is committed to the spread of broadband technology, but it has to be done on the basis of good business sense," explains Orr. This means that some remote locations may never be enabled for DSL. The company has launched a registration scheme that enables users to show where demand is highest and thus influence BT's choice of the next exchanges to be upgraded.

But the scheme has been criticised. Pressure group Broadband4Britain said the required user numbers quoted by BT to make upgrading an exchange economically viable were too high. The mechanism for registering demand was also proved ineffective as it required users to notify their ISPs, rather than BT. ISPs have been slow to relay this information. Orr says BT is fixing the problem, which he put down to rushing out the scheme too early.

Other options for the disenfranchised include wireless broadband, where an antenna is installed on your property and you need line of sight to a base station which transmits data. To our knowledge, though, there are no operators offering this to UK consumers, only high-priced business operators.

Increasingly mythical 3G (third generation) mobile phone technology is another possibility, which would allow broadband connections via mobile phone masts and would provide genuine, always-on, roaming broadband access. But again this is still pie in the sky, as mobile operators struggle with the costs of implementing it.

An off-the-wall – or under-the-pavement – solution has been offered by Urband (www.urband.com) which has fed fibre optic cables through Thames Water's pipe network to offer broadband to London firms. Again, though, this isn't much help to those in remote places.

After exploring all the options, it appears that Mitoo's Legg's bleak statement regarding broadband isn't that far from the truth – remote users will either have to pay or persuade someone to subsidise them.

> "BT is committed to the spread of broadband technology as far as possible, but it has to be done on the basis of good business sense"
>
> David Orr, head of media relations, BT Wholesale

Installation fee	Connection fee	Monthly fee	Download speed	Upload speed
£400	£100	£199	256Kbps	64Kbps
included in monthly fee	included in monthly fee	£169	640Kbps	128Kbps
included in monthly fee	included in monthly fee	£86.30 (rental over 3 years – other price plans are offered)	500Kbps	150Kbps
£159.99	£249	£199.99	512Kbps	110Kbps
£214	none	£19.98	512Kbps	56Kbps
£149.99	£249.99	£109.99	512Kbps	153Kbps

Broadband directory

You've taken the plunge and are happily enjoying the ultra-fast surfing speeds that broadband gives you. But which sites should you visit? Read on for *PC Advisor's* definitive directory

Travel

http://travel.discovery.com
An interactive guide to the world's best beaches and 360-degree photographs of dream locations such as the Taj Mahal in India, the Sphinx in Egypt and Sydney Harbour.

www.travelago.com
Prerecorded video footage from some of the most exclusive destinations and holiday resorts on the planet. Take a helicopter flight over St Lucia or visit an ancient Mayan city in Mexico. Like what you see? You can also arrange flights, accommodation and activities through the site.

www.earthviewer.com
An online 3D map of the world that is so detailed it's possible to spot individual people and cars. A free 14-day trial of the software must be downloaded, but you can then spin the globe and choose an area to zoom in on. The most detailed maps are of North America, Afghanistan and Japan, but there is a small section of London. Unfortunately, once the trial period expires, the 3D software costs $599 to use.

www.earthcam.com
This thrilling site gives you access to thousands of live webcams around the world from Honolulu beach to Welwyn Garden City.

www.shellgeostar.com
Never get lost again thanks to one of the best online travel planners around, which includes European roads and easy-to-follow directions.

Shopping

www.shoppingchanneluk.com
If you haven't had enough of shopping channels on the television, then this site is a must. With hundreds of product demonstration videos, Shopping Channel UK is the perfect place to find fascinating items such as the Garlic Genius and Mr Sticky Lint Remover.

www.harrods.com
Look like a regular next time you're in the world's most famous shop by memorising the interactive store guide. Alternatively, you could just use the online shopping facility.

www.allders.com
Easy to navigate with big, clear pictures of all the available products – very useful when buying a new washing machine, toaster or stereo online.

www.firebox.com
You could spend hours at this site which offers great gadgets and plenty of boys toys, such as a radio-controlled car only slightly larger then a 50p coin. Micromachines anyone?

www.surpriseyourwoman.com
Fancy a Naughty Weekend Bath Kit? Alternatively, try www.surpriseyourmother.com, www.surpriseyourfather.com or even www.surpriseyourman.com. Just don't get them mixed up…

News

www.sky.com/skynews/home
Apart from all of Sky News' daily reports, this in-depth site also features connections to its digital radio network and live webcams from around the UK.

www.bbc.co.uk/news
The BBC's news site has always been one of the most informative on the web – you can even download video and audio news reports that interest you.

www.npr.org
National Public Radio is a non-profit-making organisation that combines the resources of 680 radio stations to provide a searchable database of news from across Europe, Asia, Australia, Africa and the US.

www.itn.co.uk and www.itnarchive.com
Apart from live news, ITN has an archive site with more than 250,000 hours of news and features dating back to 1955. It's time to relive the Gordon Honeycomb years.

www.ananova.com
The ultimate news-as-entertainment site. Animated news presenter with green hair reads the headlines on demand.

Music

www.btopenworld.com/classical
A must for classical music lovers. Although BT charges £8 per month for access to the site, this fee pays for unlimited streaming access to more than 6,000 pieces of music from the most popular composers and musicians. Subscribers can also download up to 10 tracks a month.

www.unpluggedtv.com
Rock music site with animated tongue-in-cheek documentaries and a rock quiz to boot. Animated presenters with confused accents á la Channel 4's *Eurotrash*. Beware: explicit language.
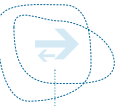
www.hob.com
House of Blues archive of concerts by blues, dance, hip-hop, jazz, rock, soul and reggae artists. Big names include the Jeff Healey Band, Suzanne Vega and even Huey Lewis & The News. Requires registration, but this provides free access.

www.real.com
You'll need the RealOne player or Windows Media Player (preferably both) to view most

live online video streams, so the Real home page is a great starting point.

www.playlouder.com
A hi-tech alternative music site with streaming music, videos, webcasts and artist interviews.

Children & education
www.disney.com
Interactive cartoons, otherwise known as webtoons, where you decide what a character does are just one of the reasons why this is one of the oldest and best sites on the web. In the Book of Pooh, you decide who should be invited to dinner – Tigger, Rabbit or Piglet. Then try and find Pooh's friends by following a trail of letters. It's brilliant and the kids will enjoy it too!

www.wonka.co.uk
Control Charlie as he tours Wonka's chocolate factory. Explore the building, moving from room to room looking for secret passages and picking up interesting objects. At certain points you come across computer terminals where you can take a break and play simple but addictive games.

www.tinyplanets.com
Bing and Bong are a duo comprising a deformed sheep and small bald cat; they take children on a learning adventure that covers technology, nature, colours and light. The music is as anodyne as a mid-90's GameBoy.

www.nick.co.uk
Nickelodeon does not have any of its TV shows online, but

there's a host of other goodies. An area called 'Because we can' is where Nickelodeon viewers get a chance to demonstrate their party tricks – like Raymond and his musical armpits.

www.noggin.com
Noggin is an educational website from the people that brought us Sesame Street and Nick Jr. Another collection of interactive games and puzzles, Noggin is for a slightly younger audience than Nickelodeon's.

Film & TV
http://wwitv.com/portal.htm
You could easily spend days here watching hundreds of live TV channels from all over the world. The site is free to use and doesn't require registration. Where else can you see the test-card on Bulgaria's national channel or tune into Russian-dubbed British comedies from the 70s? But for a real laugh try one of the 11 Japanese stations – the adverts are unbelievable.

www.liketelevision.com
A US-based subscription site offering full-length streaming movies, television shows and cartoons. Although half the programmes are dire – for example, *Barbie's Little Theatre* – there are some great comedy classics from the *Keystone Cops,* Charlie Chaplin and Buster Keaton. Subscription costs $50 a year or $5 per month.

www.atomfilms.com
Free access to a large number of independent short films and animations. Not exactly

Hollywood, but that's a good thing… isn't it?

www.brilliantdigital.com
Offers 3D animated adventures from *Xena Warrior Princess* and *Ace Ventura*. Requires registration and downloading of Brilliant Digital's 3D viewer. However, the graphics alone make this process well worth the effort. The cartoons are entertaining too.

www.threestooges.com
At least five full-length episodes of *The Three Stooges* along with news, photos and biographies.

Games
www.tucows.com
Simple site for downloading games and plenty of other software at incredible speed.

www.happypuppy.com
It's all fun and laughs at HappyPuppy, with games news, downloads and loads of Java, Shockwave and browser-based games. Watch out for an excellent version of Galaxians.

www.bullseyesgames.com
If you want to go back in time to play classics like Asteroids or Breakout then this site deserves a place among your bookmarks. Registration is required, but it is quick, easy and painless.

www.newgrounds.com
No registration is required to play this collection of brutal and tasteless games, which include fighting your own war against terrorism and killing cutesy pop

stars including the one-and-only Britney Spears. Don't tell us you've never thought about it…

www.jolt.co.uk
If you're fed up with playing against your computer, sign up to one of the largest online gaming networks in Europe and play against the razor-sharp reactions of Europe's bored teenagers.
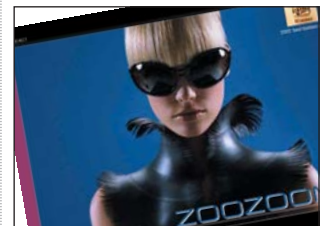
Extra
www.siteforsites.com
Quite rightly revered as the best broadband search engine around, it won't take you two secs to find the site you're after.

www.zoozoom.com
This fashion and art website has downloads of fantastic full-page photographs so you can jazz up your desktop in no time.

**www.real.com/games/webgames**
Plenty of online games for the RealOne player.

www.surprise.com
Need to buy someone a gift but have no idea what to get? Get yourself to this site pronto.

www.reelfresh.tv
Extreme sports video clips from around the world that load very quickly, even for broadband, and include surfers, bikers and skiers from unusual camera angles.

www.apple.com/quicktime
New movie trailers and music videos – many of them exclusively available here. Requires QuickTime plug-in, which can be downloaded for free.
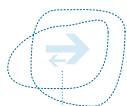
Winners and losers

The battle for broadband Britain has begun and, as with all crusades, there will be victors and there will be the vanquished. Andrew Charlesworth searches for ISP survivors

Broadband is booming. In Britain's densely populated conurbations, fast internet access is a reality and will soon be the norm not the exception.

If the broadband revolution follows other computer trends, then it will be like a wave rushing up the beach. Lots of noise, lots of froth – just like we saw with 'free' internet access in 2000 – followed by a fairly rapid contraction where the driftwood and floundering crustaceans get left high and dry.

With any boom there are winners and losers, but as a broadband customer how do you avoid being left behind in the spume for the seagulls to pick over?
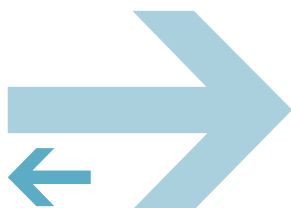
BT is the key

BT and the two dominant cable companies, Telewest and NTL, own the infrastructure – that is, the telecommunications cables which connect your house to the rest of the world. Anyone supplying you with broadband access must therefore strike a deal with one of these carriers.

BT has the biggest share of the broadband infrastructure, but also has debts totalling more than some African nations'. Nevertheless, the company strongly believes that broadband is the core to its future. If BT goes out of business, tear out this page and throw it away, because everything else we've said here is rubbish.

BT is a public company; it has to pay shareholders a dividend. It won't even think about upgrading exchanges in unprofitable areas. So you'll be a winner if you live close to an exchange in a densely populated urban area. If you live in a rural area where even mobile phone companies find it difficult to justify building a mast, the uncomfortable truth is that you will be dialling up for internet access for some years to come.

The UK government isn't going to invest in infrastructure – it will leave that up to private companies.

> BT has the biggest share of the broadband infrastructure, but also has debts totalling more than than some African nations'. Nevertheless, the company strongly believes that broadband is the core to its future

With cable you have the choice of NTL – likely to emerge from bankruptcy protection anytime soon – and Telewest drowning in more than £5bn debt. Medium term the smart money is on a merger with NTL in the UK, tying up the cable loose ends.

Don't look back in anger

Remember what happened with free web access? One minute there were hundreds of ISPs then the wave ebbed and they died one by one, hoovered up by bigger players. Alternatively, they turned out the lights and left their subscribers stranded.

Think very carefully before you sign up for a year with a cheap broadband ISP no one's ever heard of. They have to pay one of the carriers for using the infrastructure, so what corners are they cutting to make their service cheaper? And how many corners can you cut before a four-square business goes pear-shaped?

One likely winner of any shakeout will be AOL. Yes, it's expensive, but AOL justifies this with 'premium content' from the Time/Warner group. If it can successfully dodge accusations of creative accounting, AOL's walled garden approach to the untamed internet presents a friendly safe face for family-oriented consumers.

AOL might say content is king, but Freeserve, the UK's biggest indigenous ISP, says distribution rules: its erstwhile parent, DSG (Dixons Stores Group), is currently retailing Freeserve's DIY broadband kit. We'll bet money on Freeserve being bigger and uglier in a year's time.

Hacked off

Once you have fast access you'll want to download a personal firewall. In the US where broadband is more prolific, firewall downloads outstrip porn for popularity. Always-on equals always-open and this means an open invite for malicious hackers.

Remember portals? Those were the jumping-off sites you frequented before you had 150 URLs in your Favorites list. Portals will make a brief comeback as newly signed customers search for broadband content. But once they have chosen the best sites, portals will wither once more.

And a final word of advice: don't throw away the modem; keep it as backup.