contents

Alarm sounds as broadband roll-out gathers speed

The roll-out of Britain's toll-free and broadband services began in earnest as the fastest-ever spreading virus (see below and p26) gave a timely warning of the Internet's security problems.

BT has split itself into four fancy new business units and announced charges for its ADSL services, starting at £39.99 a month for a single 512Kbits/sec line. A £150 start-up fee is waived if you register before 30 June.

These charges are likely to set a benchmark for other companies that, under the current system, are restricted to reselling BT capacity. They may undercut BT either by restricting bandwidth or

The Love Bug sparked more criticism of Microsoft (see below) as the company fought the threat of break-up with the offer of a deal under which it would change business practices that are said to include strong-arming rivals and forcing PC vendors to accept unfair deals.

Ironically, the anti-trust case looks increasingly dated, with Microsoft far from dominating emerging markets in web servers and handheld appliances. The launch of its new Pocket PC operating system, which is Windows CE version 3.0 in all but name, was low-key by Microsoft standards and the company could come up with only four licensees (see p27). Pictured above is Compaq's new slimline Aero 1550 handheld, one of two new Pocket PC models launched by the company.

increasing contention ratios (the number of people using a link) or both. But BT has admitted there is nothing to stop users sharing the band-width and cost of a nominally single-user line (see p39).

The company has agreed a deadline of July 2001 for unbundling the local loop – allowing other companies access to the final stretch of line from local exchanges, which would enable an open market in services like ADSL.

But BT is defying a call by the European Commission, and the threat of legal action from the US Government, to bring the date forward.

BT also launched an aggressive promotion of its new WAP services. The end of the £22.5b 3G cellular mobile auction presaged still more seismic changes to Britain's comms infra-structure (see p42).

Meanwhile, more companies have offered deals for toll-free 56K access, presenting a confusion of options for users (p34).

New comms special reports – pages 34, 37, 38, 39 and 42.

Virus offspring renew Love Bug threat

Anti-virus experts warned of copycat variants of the Love Bug worm that swept the world on 5 May causing billions of pounds worth of damage – and said it could have been far worse.

According to Paul Ducklin, head of research at anti-virus specialist Sophos, the Visual Basic Script (.vbs) attached to the worm could have overwritten vital application or system files. 'Anything a program can, it could do,' he said.

One of its tricks was to overwrite any JPEG, VBS or MP3 file; another was to point the host browser at a program which stole passwords, though the server where it was held was quickly

swamped. It also spread itself via chat channels and Outlook's address book.

Microsoft quickly posted patches for all versions of Outlook, making it impossible to launch an attached executable file by clicking an icon on the email. Instead you have to save it to disk before launching. 'It's not completely safe but it stops you launching on impulse,' said Ducklin.

Microsoft came under fire for allowing, as a default setting, HTML files to launch automatically in Outlook. As *PCW* warned early this year (see news February) this can allow embedded Love Bug-type scripts to execute without so much as a click.

Eddie Bleasdale, of Net Project, claimed that the Love Bug would never have happened with Linux. He went on to predict a variant that would combine the spreading power of an email virus with the ability of the CIH virus to overwrite the flash BIOS on some machines. 'That will be able to knock out the hardware in every computer in a company,' he said.

But Ducklin said the problem is as much cultural as technical. He has posted a list of precautions at www.sophos.com. A basic rule to adhere to is: 'Don't open attachments unless you are sure of the source.'

My Love Bug affair – p26

Clive Akass tells how he caught the killer from Manila and learned to love Bill Gates.

Say boo to the killjoys

You can see the temptation. You spend your days doing boring things no-one appreciates with Visual Basic scripts. You think 'If I do this, I could do this, and then that' ... and before long you have a program that will really make them sit up. It is not difficult.
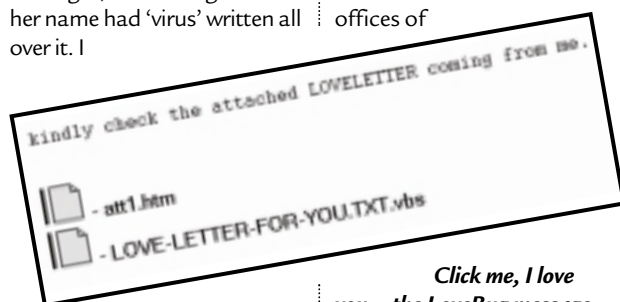
Now it is like having a rock in your hand, confronting a huge window. You have nothing against the window, but something in you wants to smash it. Except that the virus writer can take a shot not just at one window but at hundreds of millions of them across the world. What better chance is a poor kid from Manila ever going to get noticed?

The cleverest part was the marketing, which consisted only of a three-word email header: 'I love you'. A lot has been written about how this touched a basic yearning in computer users who are invariably loners with the social grace of a hedgehog with bad breath (this guff is written on computers but journalists get trapped in their own stereotypes).

In fact the message was hard to ignore, coming as it did from someone you knew. Can you be indifferent to the

Warning sign ... emails to nowhere

fact that your boss, your wife's sister, your husband's brother, the vicar, the milkman, or the man who fixed the drains, is suddenly declaring love for you? If nothing else, it spells trouble.

This is just what happened to millions of people across the world when the Love Bug struck. It was irresponsible, it

cost billions, and it was a pain in the backside, but you have to see the funny side.

I caught the LoveBug from a PR woman in Belgium after the briefest of encounters on a stand at CeBIT. With hindsight, the message sent in her name had 'virus' written all over it. I

should have spotted it, having written a story early this year warning of the danger.

But it was first thing in the morning and I get a lot of jokey email from PR people. Also, I had never seen a .vbs attachment and was curious to see what it could do. I was stupid, and we were very lucky not to have lost many vital files.

I knew straight away that I had a virus because I got a flood of messages from Outlook as it tried to email to everyone in my address book and found some lacked an address. I pressed ALT-CONTROL-DEL and stopped it before it got to the Cs; then I

used Notepad to view the .vbs file. It was bad news. I could see it had written to the Registry, registering my Home Page as a nasty-looking executable on a distant server.

I swapped this back to my own home page and decided to leave the machine as it was until I knew what the other registry entries did – otherwise

I might have had trouble when I rebooted. Then I switched to my backup machine and began to assess the damage. My first call was to Systems but they already knew about the virus: others in the building had been hit. So had the offices of

Click me, I love you... the LoveBug message

just about everyone who called that morning. This virus was a very fast traveller.

Still not grasping just how badly the web had been hit, and feeling like a disgraced lover confessing to having passed on an unspeakable disease, I decided to send warning emails to everyone in my address book.

One recipient replied to thank me for saving him just in time, but of course all those emails were adding to the congestion on the web.
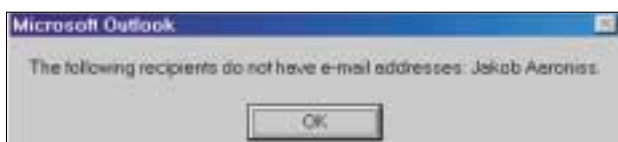
The bug caused a lot of disruption but little hard damage at *PCW* Towers; it overwrote our JPEG image files, but we had copies of most of them in other formats and our systems are backed up – we do practise some of what we preach.

And I found myself getting irritated with people using this as another stick with which to hit Microsoft. Maybe it's the weather; maybe it's the hypocrisy of some of the sharks trying to drag it down; maybe it's the relentlessness of attacks on a company which, like the US itself,

can be seen as both good and bad. Okay, I'll talk to my doctor about it, but I'm even beginning to warm to Bill Gates.

Sure the Love Bug would not have happened with Unix or Linux; it would not happen with Windows either if, like them, it were nailed to the floor. The weaknesses in Windows stem paradoxically from its strengths: its ubiquity, which makes it a sitting target; its powerful, easy-to-use scripting languages; and the multimedia support than can turn emails into a performance art. Microsoft has made no secret of the fact that there is a trade-off between power and security: if you want secure email, refuse anything but plain text; if you want the fun, you have to take the risk of allowing powerful code into your machine.

Microsoft *should* do more sandbagging, but so should we. We are grown ups and can lock our own doors. We have to learn to live with the fact that the Internet will never be completely secure. We can do that without spoiling everything that makes computing a pleasure. What we should not do is to let the love bug turn into a killjoy.
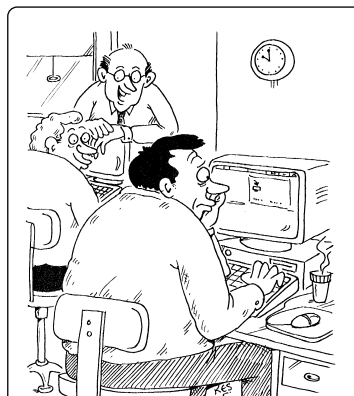

He's feeling unwanted – no-one sent him the Love Bug

Uphill struggle begins

Microsoft has launched a new version of its Windows CE operating system in what could be its final bid to break into the handheld market.

Previous versions flopped so badly that Microsoft has dropping the name CE in favour of 'Pocket PC' for handhelds. The company is insisting that vendors inscribe their models with the words 'Windows-powered Pocket PC' – a phrase that could arguably contravene the Trade Descriptions Act by giving the impression that a device is runs Windows applications.

In fact, the bundled pocket Outlook, Word and Excel are only file compatible with their desktop equivalents, putting them on much the same footing as rival handheld software.

The result is that handhelds are one area where Microsoft has to compete on a level playing field. Company officials admit privately that there is a considerable 'anything but Microsoft' factor among both manufacturers and buyers.

Sony announced, almost simultaneously with the Pocket PC launch, that it was licensing Symbian's rival Epoc-based platform for its mobiles. And Microsoft managed to line up only four vendors offering Pocket PC devices – HP, Casio, Compaq and Symbol (see the Handheld Rivals box opposite).

But Microsoft is famously good at learning from its mistakes – Windows itself only became successful in its third incarnation – and Pocket PC does seem to be a big improvement over CE.

Features include a Media Player (see screenshot above), which will play downloaded MP3 files and type-enhancing ClearType technology for reading electronic books. A pocket Internet Explorer allows you to view standard web pages either by zooming or scrolling.

Crucially, developers for the platform can use familiar tools like Visual Basic and Visual C++, and Microsoft has made the development kit available free of charge at www.microsoft.com/windows/embedded.

But the company faces an uphill struggle: Palm has an 80 per cent market share in the US and a 40 per cent one in Europe, while Psion's Epoc (now owned by Symbian) has 28 per cent in Europe to CE's 27 per cent.

Symbian, an alliance of Psion and cellphone makers, has yet to achieve a market presence. What it does have is an operating system built from scratch for next-generation connectivity, from Bluetooth to GPRS and UTMS. These features are to be added to Pocket PC later this year while models from Palm and its licensee Hand-spring will need add-on modules for these facilities.

But fast-changing cellular technology is set to transform the use and design of handhelds; with Bluetooth wireless hands-free sets they could largely supersede the mobile phone as we know it. So the market battle between the three rival mobile platforms may not begin in earnest until this technology begins to on-stream next year.

Handheld rivals

The Cassiopeia E115 comes with 32MB of RAM, a 131MHz NEC VR-4121 processor, 240 x 320 full-colour touch screen. Casio is also offering two ruggedised industrial versions, the EG-80 and the EG-800. Price: £499.99 inc VAT.
www.casio.com

This iPAQ PocketPC is one of two models from Compaq – the second, the Aero 1550 is pictured on page 25. The iPAQ uses a 206MHz StrongARM processor, 32MB of RAM and 16MB of ROM and it uses the USB port for PC links. No UK price is available until it ships in June. US price is $499 (£312, or £366 inc VAT).
www.compaq.com

Hewlett-Packard's £477 inc VAT Jornada 545 is reviewed on page 92. Its sibling, the 548, offers twice as much RAM with 32MB. Both have a 320 x 240 full-colour display and a Compact Flash 1 slot.
www.hp.com/jornada

Symbol PPT 2700 is aimed at the industrial market and has a barcode scanner and a wireless LAN module. It uses an NEC VR-4121 processor and 16MB of RAM, and can be adapted for wireless technologies like GSM. Price: £849 inc VAT. Symbol 0118 945 7000

Windows gets a Millennium make-over

The last-ever incarnation of Windows 9x is scheduled to ship to PC vendors on 9 June, ready for its launch later this year.

The aim is to install Windows Millennium Edition on PCs being sold for next Christmas, although it will be available as an upgrade to 9x users before then.

Features of the new operating system include rapid booting, better support for home networking and new imaging features.

The Millennium Edition will also include the Windows 2000 feature preventing the overwriting of key system files – an addition that will be welcomed by many users following the latest virus scare.

But the real change will come next year with the release of Whistler, which will see the generation that began with Windows 95 merge into Windows 2000.

Whistler will be compon-entised, allowing cut-down versions to be installed on mobiles as task-specific devices – even very small ones that might be expected to use Windows CE.

The Millennium Edition will initially be released in four versions: for home users, office users, severs and data centres. But there will be a single set of drivers, helping both developers and users.

The first beta version of Whistler is expected to be available this summer.

Vendors hot on cool chips

National Semiconductor has announced an x86 chip with a claimed 'typical' power consumption of less than 1w, rivalling the Crusoe chips announced by Transmeta in January.

The Geode GX1, which uses NatSemi's 0.18micron process, is the latest sign that chipmakers are beginning to compete on power consumption as well as processing speed, as they focus on mobile applications.

The advantages of frugal chips extend beyond prolonging battery life. They run cooler at any given clock speed, easing device construction and avoiding the need for noisy fans.

The GX1's peak power consumption can be as high as 2.4w, still lower than mainstream notebook chips from Intel or AMD. The GX1 is aimed at webpad devices of a design NatSemi has licensed to several manufacturers. It has VGA and PCI controllers but partners the CS5530 I/O

chip (pictured), so it is not quite a system on a chip.

Transmeta's Crusoe chips, whose developers include Linux guru Linus Torvalds, are said to consume as little as 10milliwatts running an undemanding application; peak consumption is about 2w. However, they require more peripheral chips than NatSemi's and they have yet to appear on the market.

In April the company received £50m in funding from Compaq, Sony, Gateway and AOL.

Meanwhile Intel was preparing to launch a 700MHz mobile PIII using power-saving Speedstep technology which was said to be able to clock down to as low as 100MHz to preserve batteries.

AMD has also launched new mobile versions of its K6-2 and K6-3 chips running at 450MHz, 475MHz and 500MHz using its PowerNow battery-saving technology. These consume at least 3w but are faster than NatSemi's Geodes.

Gateway to free PCs?

Virgin Entertainment is to distribute Geode-based webpads to 10,000 US customers in a move which could herald the advent of free web-access appliances.

PC vendor Gateway, which is also a service provider, plans to be selling similar access appliances by the end of the year and hinted that these may eventually be free. Mike Maloney, vice-president of its consumer division, said: 'With prices falling as they are, the natural conclusion would be for them to be given away.'

Gateway has formed a couple of joint projects with BT. It is bundling BT Cellnet access and an Internet-enabled Nokia 7110 phone with its 550MHz

Performance WAP PC. And, in a recognition of the convergence between comms and computing, it is to install sales units in 85 of BT's high-street shops over the coming year. This will leave it well placed to bundle devices with web service provision.

The Virgin US scheme shows one possible business model. Customers there will be expected to provide personal information and agree to take targeted advertising; the giveaway machines will be primed for linking to sponsor sites.

Another US firm, EISA.com, plans to offer an Internet-enabled DVD player for just £62 to subscribers to its £15-a-month access service.
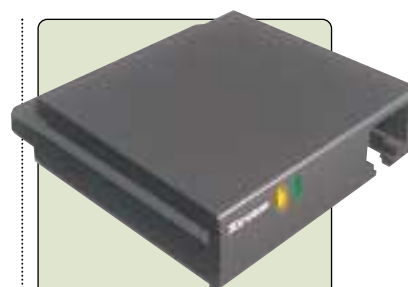
*Xircom's SpringPort
Ethernet module was one
of several add-ons for
Handspring's Palm-
compatible Visor handheld
which launched in Britain
for £199 with a PC-
synchronisation cradle or
£144 without.*

*Other modules that
fit the Visor's Springboard
slot include a GPS
positioner, a choice of
modems, a keyboard and a
digital camera.*

The past month's activities have muddied the waters still further. Clive Akass investigates.

Unmetered confusion deepens

Confusion over unmetered access offers increased over the past month as more service providers got in on the act to offer deals. But AltaVista, which started the bandwagon rolling had yet to announce a launch date for its unmetered service as we went to press.

A spokesman said: 'It will be soon but, unlike some other service providers we want to make sure we get it exactly right first.'

Rival search portal Excite offered a very similar deal, with a £50 setup fee that it said would be refunded in gift vouchers for spending online.

Charlie Whelan, managing director of The Free Internet group that is partnering Excite in the venture, said the £50 deal worked out at 14p a day for the year – less than the cost of a newspaper. 'We believe that this is an absolutely unbeatable offer.'

World Online offered unlimited access for a £20 start-up for users prepared to switch to its telecom service. The offer extends, without the start-up fee, to Bun.com, Strayduck, Telinco and Screaming.net subscribers that are all now owned by World Online – as is their telco Localtel.

Tiny, which claims to be Britain's largest PC vendor, offered two deals: £29.99 a month unlimited access, or £6.99 off-peak. Both are contingent on users signing up to Cable & Wireless for their phone line, and the cheaper option obliges you to spend £10 a month on voice calls.

Tiny will be bundling the offer with new machines and it is open to existing customers.

Virgin Net offered 10,000 subscribers unlimited access for £15 a month 'with no hidden costs', but you can sign up now at its website for a national rollout in July.

And NTL extended its completely free (to its cable subscribers) unmetered service to TV viewers who lack a PC – though they will need to pay £10 a month rental on a modem-equipped set-top box

The best deal for you will depend on how much you use the net and how much you spend on voice calls. But other factors will be impossible to assess until the services get into full swing: will advertising levels be intrusive, and will service providers have enough modems and bandwidth for the increased demand? Even the service providers can only guess at the answers.

Provider	Charges (inc VAT)	Free time	Min voice spend/month	Telco	Available	Broadband
AltaVista www.altavista.co.uk	£30-£50 setup fee then £10 annually	Unlimited	None**	None**	Soon	Nothing announced
Breathe www.breathe.net	£50 startup	Unlimited	None	Any	April	
BT Internet www.btinternet.com	£9.99 a month	Evenings and weekends	None	BT	Now	£39.99 a month home ADSL, £99.99 multi-user business
BT SurfTime residential 1	15.25 a month*	Evenings and weekends	None	BT to any linked ISP	June	
BT SurfTime residential 2	£29.25 a month*	Unlimited	None	BT to any linked ISP	June	
BT SurfTime business	£29.74 a month*	Unlimited	None	BT to any linked ISP	June	
Callnet 0800 www.callnet.net	£19.99 for Callnet dialler, but £20 of free calls	Unlimited	None	Callnet Telecom for web; BT, Kingston or Localtel for voice	Now	
Demon www.demon.net	£11.75 a month	None**	N/A	Any	Now	Trialling ADSL
Excite www.excite.co.uk	£50 startup then £20 a year	Unlimited	None	Any	Now	
Freeserve www.freeserve.net	£6.99 a month for Energis users	Off peak None	None £10	BT Energis	June May	Trialling ADSL
Lineone/Quip www.lineone.net	£20 for Quip dialler	Unlimited	£5	Users keep existing telco and dialler routes calls via Quip	March	
NTL ntlworld www.ntl.co.uk	None in franchise area; £10 startup elsewhere	Unlimited	£10 outside franchise	NTL	Now	Cable modem £40 a month; trialling ADSL
Telewest Surfunlimited www.telewest.com	£10 a month	Unlimited	£10 Telewest's	Must switch to Cable Internet	Now	Cable modem £50 a month; trialling ADSL
Tiny www.tiny.co.uk	£6.99/ £25.99	Off-peak/ Unlimited	£10/ None	C&W	9 May	
Virgin www.virgin.net	£15 a month	Unlimited	None	Any	July††	Has trialled ADSL
World Online †	£20 start-up, £14.99 monthly line rental	Unlimited	None	Localtel (calls 10 per cent less than BT)	Now	
X-stream www.x-stream.co.uk	None	Unlimited, but ad window permanent	None**	Any	Now	

* Plus approx £4 for backbone link ** BT SurfTime access possible. Deals vary with ISP †And others – see story above ††Now for current subscribers

Broadband for a tenner

Satellites could become the poor man's broadband under price deals being worked out as we went to press.

Eutelsat and Eurosky both plan £10-a-month services with download speeds of up to 2Mbits/sec – upstream rates depend on your local link. Combined with one of the new unmetered access offers, they could provide an always-on broadband link at less than half the price of ADSL or cable.

A previous service set up by Eutelsat (control room pictured) and service provider Easynet has hit trouble because of a dispute over terms.

But Eutelsat launched an independent multimedia service on the grounds that it was being held back by telco partners such as BT.

Eurosky uses the same Astra satellite as BSkyB and can be accessed by a standard analog satellite dish. Eutelsat, which has its own satellite, needs either one of these fitted with a dual-LNB, or a completely new dish. But next year Eutelsat will launch another satellite which will allow its services to be accessed by a dish designed for digital TV services.

Both services need a land link for upstream data, but downstream is beamed by satellite. The one snag of the system is its latency, which can disrupt fast interactivity.

For those who live outside the footprint of ADSL or cable it could offer the only broadband service for years. But in the longer term satellites could have a much bigger role in complementing land-line and mobile services because they remain the most efficient way to broadcast material.

Several developers are already working on gateways that distribute signals from a number of sources round the home like data mains. Web congestion could be eased by broadcasting widely-used information.

Current services require a PC Card or USB box. The one used by Eurosky costs £240 inc VAT, or £311 if you want to receive TV channels as well.

The biggest users of satellites to date have been companies that need to broadcast a lot of data to widely dispersed offices. But this could change rapidly if a critical mass of home users is achieved.
www.eurosky.net
www.eutelsat.com

Blue Jini

Sun's ad hoc networking technology, Jini, will be demonstrated working with Bluetooth at a Java developers' conference in July.

Bluetooth is designed for short-range connections and will need some form of networking to reach its full potential. Jini, which is still under development, allows devices to link into networks and share resources easily. George Paolini, vice-president of Sun's Java community development programme, told a recent analysts' conference that the two technologies are a perfect match.

Microsoft has a rival XML-based architecture called Universal Plug and Play (UP&P).

Weca winners

Fifteen 11Mbits/sec IEEE 802.11wireless networking products have been given a Wireless Ethernet Compatibility Alliance (Weca) seal of approval, designed to ensure compatibility between devices.

The products from seven companies, including 3Com, Cisco and Compaq will carry the alliance's Wi-Fi logo.
VNUNET.COM

NEW COMMS SPECIAL

Analysts whop WAP 'gold-rush'

Hype about mobile data services is creating false expectations, according to a group of UK analysts. They accuse the industry of promoting 'rather weak' second-generation (2G) services with a vision of what will become possible only with 3G.

The analysts warn that the bandwidth of so-called 2.5G services – packet-switched GPRS, which BT Cellnet is set to roll out in Britain this summer, and CDMAOne in the US – will in practice be more like 14.4Kbits/sec, the speed of a 1994 dialup modem, than the touted 64Kbits/sec. 'You will be able to buy theatre tickets and place bets over the Internet from a 2.5G cellular phone but a video-conference with your Aunt Mabel in Sydney [will be] impossible,' they say in an Ovum white paper entitled *Mobile IP*.

The paper questions the importance of Wireless Application Protocol (WAP), part of which they say will become 'virtually redundant' with fast 3G services. Critics who say WAP is potentially

little better than using the fixed web's TCP/IP stack are 'easy to believe'.

Mobile IP also calls for a higher priority to be given to setting IP standards that let people stay connected while roaming across Europe. The complex arrangements involved in this are dominated by two major consortia, iPass and GRIC, which have considerable market power. 'Roaming needs to be open to all [service providers] on fair terms,' the paper says.

Europe is also in danger of becoming smug about

Ericsson picture promoting mobile e-commerce ... will the reality live up to the hype?

beating the US in establishing a homogeneous cellular network, claim the analysts.

CDMA, widely deployed in the US, is far more easily upgraded to 3G, and Europe's 3G adoption will be patchy for some time. 'If it is not integrated with IP roaming technology then the overall mobility solution in Europe could be worse than in the US.'

A second Ovum paper, *Mobile ecommerce: market strategies*, questions whether

there is a big demand for mobile eshopping. Co-author Duncan Brown said suppliers are pushing the idea because they sense a chance to make money – though there is little, if any, to be made in the short term.

'Business users rather than the mass market will be the first serious adopters, but even they won't pay a premium for existing services that are easier and cheaper to access using the phone or PC.'

The WAP market has all the frenzy, uncertainty and lack of preparedness of a gold-rush, Brown said. He advises traders thinking of going mobile to capitalise on the strengths of mobiles: convenience, local relevance, and personalisation.

WAP hype had led many to believe that mobile shopping will be a reality within the year. But Brown said: 'The industry has not even agreed a framework for trusted and secure payments yet, let alone standardised its technology. It is just not going to happen until these big questions are answered.' Details at www.ovum.com.

POINT OF VIEW

Hemingway never had these problems!

Moving to Paris to become a freelance writer fills your head with romantic ideas of the Sartre, Hemingway, and Orwell. Unlike them, I needed to get online and obtain a proper email address. Hotmail has its uses but it also has many shortcomings, not the least of which is the inability to work offline.

France Telecom is still state-owned and, despite some deregulation, it dominates the French telecoms market and charges some of the highest rates in Europe, so you want to

spend as little time online as possible.

Toll-free surfing has yet to hit France but, as in Britain, there are plenty of fee-free service providers. So which one to choose? I opted for the curiously named Waika9, part of 9Telecom, one of France Telecom's few rivals, because it got most stars in a French IT magazine's review of the ISP.

France has embraced the new economy but, being more bureaucratic than Britain, not without the requisite paperwork. As far as I can tell no ISP in France

allows you to register online. You fill in a form online and two days later a letter arrives with a CD complete with a French version of IE 5.0, a user name and password – and then you have to go through the registration process again.

Even then, I could not raise a connection. *Zut alors*! A previous dialup configuration was preventing me getting through. So what could I do? Phone the technical support

line? Not with my French at the level of a three-year-old's. I spent five days trying to reconfigure my system before bowing to the inevitable and re-installing Windows and trying again with a clean system.

That worked like a dream. Now I can go back to my romantic dreams safe in the knowledge that my dialup connection can keep my freelance writing flowing when that great novel doesn't quite work out.

Paul Fisher   *gets online in Paris*

Share, share, even BT says it's fair

Users will be able to share a BT home ADSL connection to cut costs, even though multi-user business links cost twice as much.

Some BT Openworld executives appeared ambivalent when questioned about whether the company would, or could, stop a basic ADSL link being networked. Any block, technical or legal, they said, would be likely to infuriate both users and the industry.

It would prevent the use of web-pads, which allow untethered access via a wireless network. And it would dampen an expected boom in home networking, wired or unwired, as broadband links become widespread and users find they want to spread access around their homes.

BT Openworld's new retail broadband director Marc Deschamps said he believes BT could tell whether a line is being shared, but the company is only likely to take action if it felt the sharing was 'abused'.

The snag of line-sharing is that it can distort the 'contention ratio', in other words, the number of users sharing a channel or port,

which is about eight-to-one on the local link and about 50-to-one further upstream, he said. Service levels are worked out on the load statistics of one user per line.

But his technical manager, Bob Foster, said he would be happy to see people networking links. 'Of course they would have to share the bandwidth between them, and they would not have such a good service,' he said. 'But the more people who get to use the service the better.'

Four people sharing the cost of a £40-a-month

Foster: the more the merrier

512/256Kbits/sec line would, in theory, still have a far better

service than they would get if each paid £10 a month for an unmetered 56K link. Their maximum data rate would still be 512Kbits/sec, while their minimum data rate would be of the order of 56K, and they would not need to dial up.

Foster admitted there is nothing to stop blocks of flats, or even neighbours, sharing lines. But he pointed out that multi-user business lines, which start at £99 a month ex VAT, include service-level guarantees.

CLIVE AKASS

The choice is yours when it comes to firewalls

Security is set to become a growing concern with the new always-on links which can give intruders the run of your hard disk.

Trial ADSL systems that used Network Address Translation (NAT) – which meant they did not have a fixed Internet address and

could not be used as web servers – were tricky to hack.

But BT has dropped NAT for its commercial ADSL systems to enable your PC to act as a web server as well. You might think there is no point to this since BT will offer 20MB of space on its server, which would be faster and offer virtually unlimited access, but you would be far freer in what you could do on your home machine.

ADSL machines will be vulnerable to hackers and

BT is not bundling any form of firewall. 'It will be up to users to choose their own,' said Internet applications technical manager Bob Foster.

Several hardware and software firewall products aimed at home and small-office broadband users are available, *see Roger Gann's Hands On columns for May and June.* The WatchGuard Firebox Solo (pictured), designed for small offices, is sold by Wick Hill.
www.wickhill.com

NEW COMMS SPECIAL

Motorway madness

The earliest 72-mile stretch of the M1, opened in 1959, was the first arterial road in Britain built from scratch to cope with the modern motorised world. It transformed travel between London and Birmingham, but once you got to the cities you were back on the upgraded cart-tracks that passed for roads.

Forty years later we have an electronic equivalent: an information superhighway with off-ramps that put you on the local loop, the rutted dirt track home. The difference is that roads are seen as a communal responsibility whose primary purpose is to facilitate transport for the common good.

Imagine the outrage if the Government had said in 1959 to the few companies large enough to upgrade the rest of the road system that they should first bid for the privilege, in sums so large as to risk bankruptcy, and that none of the money raised would be pledged to the roads and that users would be charged at a level that recouped the cost of both the auction and the building.

People would have said the auction money constituted a hidden tax on road use, that the system was elitist in barring the poorest from the roads, that it could make transport so expensive as to cripple the economy and that there was a risk that so few people would use the roads that the builders could go bust.

This is pretty well what is being said about the auction for a major slice of Britain's electronic roads programme, set up by a government ostensibly pledged to provide Internet access for all. Five companies, including BT, will have to pay £22.5b between them – more than the gross domestic product of many

The early M1... like today's Internet backbone it led to traffic jams on byroads

countries – for the right to build 3G wireless services which will probably cost at least as much again to put in place.

Meanwhile BT, once part of the publicly-owned Post Office, has split itself into four trendy business units, and priced its fixed ADSL broadband links beyond the reach of all but the most prosperous homes.

In two recent major BT launches, of ADSL and Cellnet's new WAP services, all the talk was about the money to be made. Fair enough, you might say, considering that the prospect of profit is what drives the rollouts, but there seems at least a possibility that things could go horribly wrong.

Losers in the auction are likely to boost bit-rates of rival GPRS technology to compete with the expensive new 3G systems. More spectrum may be allocated for cellular use, reducing the value of existing licences. And analysts at Ovum (see page 38) are not alone in suspecting that hype over WAP could turn people off cellular technology until it

becomes very much more mature.

Then there are the charges. BT's technical guru Bob Foster, talked blithely of a plumber in the near future using fixed broadband and 3G wireless links to order parts and download a video of installation instructions. What he did not say was how much it would cost.

Look at today's prices: £12 a month voice-phone standing charges, maybe an extra £20 for calls, £40 for the broadband link, say £40 for the 3G standing charge plus £20 for per-megabyte costs, around £20 for cable or satellite TV, roughly £10 for a TV licence. Rounding up those figures, that plumber could easily be paying £150 a month, which could buy a fair class of car.

Foster's colleagues cite market research showing that a lot of people will be willing to pay that kind of money. I doubt it, in the short term. We are still stuck with chicken-and-egg: you won't get a mass market until prices fall; and prices won't fall until you get a mass market.

Britain's national interest

lies, as with physical roads, not in how much can be squeezed from the user, but in how we can best provide an infrastructure people can afford to use. The market will find an answer eventually, when advertising and transaction revenues become significant, but the higher the threshold costs for users, the longer it will take.

If this were the only consideration, that £22.5b should certainly have gone on lowering the threshold. That would be hard to sell to an electorate with other proper priorities, and it may be right not to rush into what is going to be a cataclysmic change.

But if those profits are slow in coming people might start looking at another historical precedent. There was a time at the height of the Victorian railway boom when it seemed that you had only to lay down track to make money. Some investors discovered too late that you also needed passengers. We are still using the railways, but a lot of people went bust building them.

CLIVE AKASS

PHOTO: P A NEWS
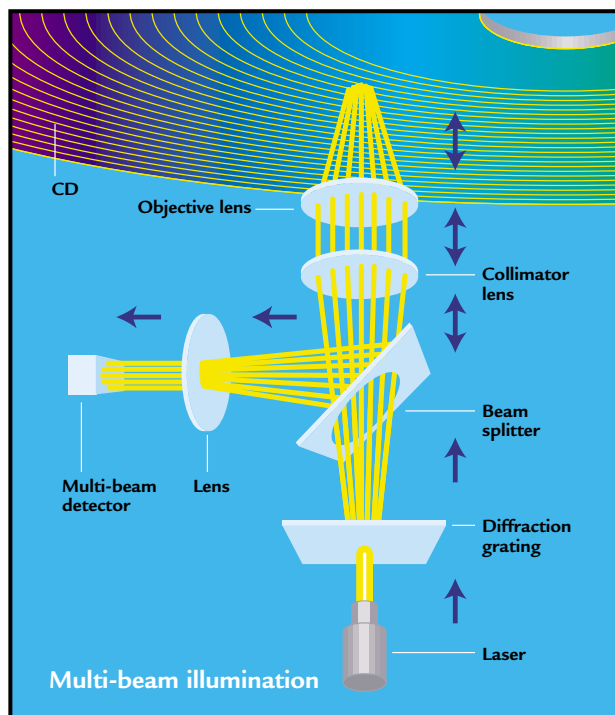
STORAGE

Zen boosts CD speeds

CD-ROM drives that are claimed to be as fast as many hard disks are on sale in the UK. Their multibeam technology is also being used to speed up DVD drives and CD writers.

Data transfer rates are boosted because seven tracks (or seven sections of the CD's single spiral track) are read at once. One track is overlapped with the next read section and data from the other six is error-corrected and collated by a custom parallel processor from developer Zen Research.

The technology can be used with either Constant Linear Velocity (CLV) drives, where the spin rate varies to give a constant read speed, or the more common Constant Angular Velocity (CAV) drives that have a constant spin rate.

CAV technology places less stress on the disc motor, which can therefore run faster, but data transfer rate falls off considerably as the head reaches the slower inner region. Vendors have come under considerable criticism for labelling drives by the outer transfer rate – a 32-speed CD drive will have an average speed of 14-17-speed.

Zen prefers its multibeam heads to be used on CLV drives where its fast read rates can compensate for the slower motor – and transfer

Multi-beam illumination

CD · Objective lens · Collimator lens · Beam splitter · Diffraction grating · Laser · Multi-beam detector · Lens

rates are similar right across the disc. For this reason it calls the technology TrueX.

Consumer electronics firm Kenwood, which set up a computer division two years ago, already sells TrueX drives in the US, and a retail version of its 72-speed TrueX drive is on sale now; Zen says at least two other manufacturers are licensing the technology.

TrueX drives can pump out data fast enough for high-quality video without the need for disc caching, said Zen president Emil Jachman.

He predicts the technology will confirm the CD as the standard form of removable storage for PCs.

The multibeam algorithms also help locate the head over the required data, reducing random access times. The current average 50ms is still slower than a hard disk.

The new Kenwood drive has a claimed transfer rate of 10.8MBytes/sec, which is faster in theory than hard disks in most PCs.
AGP Distribution
01794 528000

e-Space revisits policy-based compression

On-the-fly data compression to save hard-disk space could be making a comeback – even though storage costs are plummeting, a US company believes. SolutionSoft is launching e-Space, which it says can pack up to 70 per cent more data onto a hard disk.

Stac had a huge hit 10 years ago with Stacker, software that effectively doubled hard-disk space at a

time when capacities were low and prices were high. It later successfully sued Microsoft for subsuming similar technology into DOS.

e-Space differs in that compression is policy based, so it compresses only files that have not been used for a month, leaving recent files uncompressed. SolutionSoft president Paul Wang says this makes the process faster and more resilient as compression

is by file rather than by disk, so any data corruption will have limited effect.

However e-Space will cost around £190 per workstation – for which you can buy a sizeable hard disk. Wang claims e-Space is still cost-effective if you take into account the cost of installing and maintaining the disk – and e-Space bundles storage management features.
www.ideal.co.uk (distributor)

IE5.5 in standards row

Microsoft has been accused of pushing people to use the latest version of Internet Explorer in a replay of the kind of tactics that got it into deep trouble with anti-monopoly authorities.

The Web Standards Project, an international pressure group of developers, says the new IE 5.5 for Windows fails to support key web standards, such as Document Object Model 1 (DOM1) and parts of Cascading Style Sheets 1 (CSS1).

Some Explorer features will only work under Windows because they use proprietary Microsoft technology. The WSP says this 'may lure some developers deeper into functionality that is supported on only one browser and one operating system – Microsoft's'.

However, standards compliance is also an issue for Netscape 6.0, the latest version of the browser Microsoft was accused of bullying into the sidelines. Nearly a decade after the launch of the web there is still no single platform for developers to write to.

A Microsoft statement described IE 5.5 as 'the most standards-compliant' browser available and said 'assertions' made by its critics were wrong. The statement did not specify the assertions it was denying.

However, IE product unit manager, Mark Wallent, said the standards issue is not clear cut. Web authors who wanted their work accessible from every possible system were limited to HTML 3.2, with no CSS and limited scripting.

Equally, current browsers had to be backward compatible. 'We're not comfortable in making a trade-off in which we sacrifice compatibility for the sake of supporting a standard. When we can do both, we do. When we can't, it's a much harder choice,' said Wallent.

An example was CSS1's white-space property, which could cause problems 'with HTML compatibility and parsing rules'.

Wallent said designers for company intranets, which generally have standards of their own, are more concerned with getting innovative features. He admitted that Microsoft did not get off to an auspicious start with its CSS1 support in IE 3.2 but support had been boosted in IE 5.5 to 80 per cent. (see also Reviews p118).

It's show time

When you are put through PowerPoint purgatory as often as **PCW** *reporters, you appreciate a presenter with style. This new PC remote control uses radio, so you can walk around waving your arms as you navigate those gripping slides of sales in Outer Mongolia, untroubled by the need to find an infra-red line of sight. For further special effects, the £159 IntraLink RemoteRF has a built-in laser pointer. And, once you have persuaded the boss to buy one, you can even use it to play Doom from your bed. EmphTek 01258 840939*

Mstream hits

A new distributed denial of service (DDoS) tool could be more devastating than those that paralysed major US sites in February, a security expert has warned. The tools send a series of messages from infected hosts to overwhelm a target server.

The latest, Mstream, is believed to be in the early stages of development, but despite numerous bugs it is powerful enough to disable a website with only a handful of agents, said Dave Dittrich of the University of Washington.

A Canadian teenager, known as Mafiaboy, has been arrested in connection with an attack on CNN's website.

VNUNET.COM

FAST attacks

US software vendors could switch off vital software used by British firms they believe are contravening licence agreements, warned the anti-piracy Federation Against Software Theft (FAST).

The move, sanctioned by the US Uniform Computer Information Transactions Act, could affect any countries that receive US software.

VNUNET.COM

Intel is changing direction and looking beyond the PC for new markets, says Tim Bajarin

A future-perfect strategy

Intel is at an interesting crossroads at the moment. Although PC sales will continue to grow at an average 20 per cent a year, the market is changing dramatically due to the advent of a whole new range of mobile appliances. This explains the increased interest in Intel's twice-yearly conference for financial analysts.

Intel's chief executive Craig Barrett has made an important positioning statement. He pointed out that 'the Internet runs on silicon' and said the plan was to see it run on Intel products. In other words, Intel is no longer aiming its business at just PCs. It is setting its sights on networking components, information appliances and even online services.

In fact, Intel is setting up a major server farm in Oregon that will be able to host thousands of IT and ecommerce sites, including non-US ones. From the comments made by Barrett and other Intel executives, it is clear that Intel has to be looked at as more then a semiconductor company; it is preparing to apply its market clout to other areas.

One strategy for entering new markets will be chip integration. Intel is focusing R&D on various products that combine two or more chips. For example, rather than sell a microprocessor designed strictly for cell phones, Intel will push integrated packages that include a processor, flash memory and a digital signal processor.

It is also trying to extend use of its core chips by encouraging communications equipment makers to adopt Pentium III or Celeron chips rather than task-specific network chips. The company
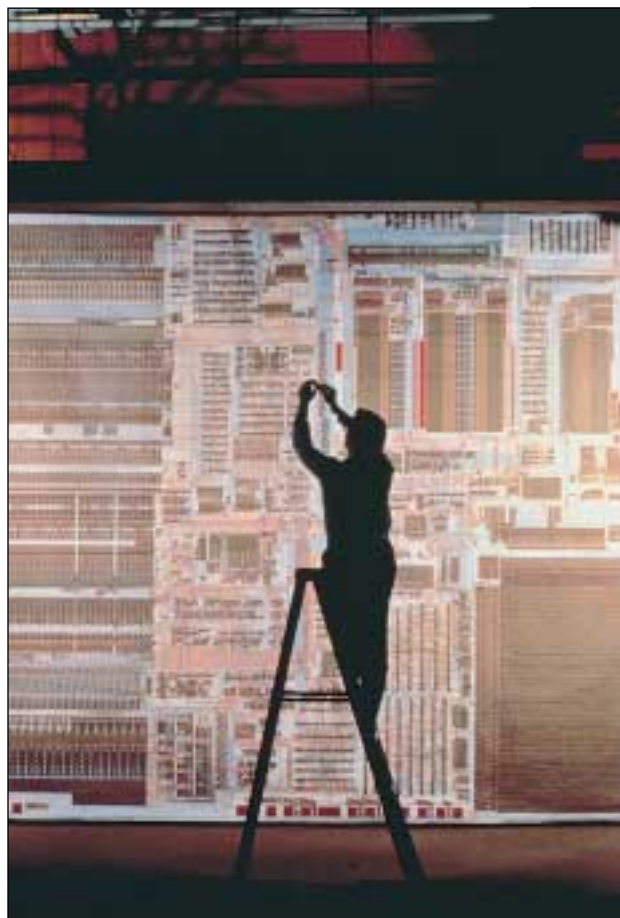
Taking steps to the future... Intel is concentrating research on highly integrated chips with low power drain to take on NatSemi and Transmeta in the appliance market

has actually been moving in this direction for some time. 'The more total building blocks a company has, the more it can integrate a total solution,' said Ron Smith, vice-president of the wireless communications computing group.

Intel has set up a £62m investment fund to build up companies, including those outside the US, that use its products.

Intel officials also spoke about their processor road map for the remainder of the year. Willamette, the upcoming successor to the Pentium III, will begin to ship in volume this year at speeds of 1.4 GHz or faster. The Pentium III, however, will not advance beyond 1GHz.

Timna, the codename for the newest Celeron with a

built-in graphics chip, will ship in volume by autumn and a mobile 600MHz Pentium III consuming less that 1w will ship this summer. This appears to be aimed at competing with the low-power Crusoe chip coming from Transmeta, which employs Linux creator Linus Torvalds.

Intel hopes its reputation for quality and support will persuade manufacturers of notebooks and mobile webpads to use the Pentium III instead of Crusoes.

The new Intel chips will also go up against National Semiconductor's Geodes, highly-integrated x86 chips that are used in about 70 per cent of webpad-style devices either on the market or in the works.

Another important chip

coming out later this year is the second-generation StrongARM processor, which will showcase the work of Intel's wireless group. These chips are designed to go into cell phones, pagers and other wireless devices.

In the area of new business products, Intel executives said they plan to build special-function server appliances that perform traffic management as well as voice-data servers. This new strategy clearly pits Intel against many of its current competitors, as well as new companies taking aim at information appliances and networking and communications systems.

With this dramatic shift in company direction well under way, the question is whether Intel can be successful with this new strategy. Trying to be all things to all people is always a risky proposal. And, in order to carry out these goals and still keep up its image as a company with world-class quality control and customer support, it will have to hire hundreds of new workers with new skill sets in a labour market that is already very tight.

But it is run by some of the smartest people I have ever known and if any company can make this transition well, it will probably be Intel. I expect Intel to continue to be one of the most profitable companies in our industry and would not be surprised if it ends up with the lion's share of these new markets.

3G puts vendors under pressure

The £22.5bn 3G auction is likely to put a rocket behind the rollout of new UMTS infrastructure as shareholders demand quick returns. It is also putting pressure on suppliers to come up with future-proof technology.

Graham Maile, director of comms specialist Plextek, speaks of a serious rethink as the high cost of 3G licences impacts industry strategy.

Maile, chairman of the 3G advisory group UKTAG, said first-wave vendors such as Ericsson, Motorola, Nokia and Lucent will be looking for serious orders in the next year or two – two to three years earlier than expected.

US and Japanese firms that had underestimated the significance of European 2G standards were part of a second wave. They had thought the Japanese market would take off first, but now see Britain and Germany as more of a focus for sales.

An alliance between Alcatel and Fujitsu to develop 3G systems, announced within days of the auction, illustrated the determination of such companies not to be marginalised.

'Apart from Motorola and

3G auction could speed up deployment of cellular infrastructure.

PICTURE: NOKIA

Nortel, and to some extent Lucent, North American companies have missed out on the GSM market and are determined to be part of the 3G action,' said Maile.

Unsuccessful high-street bidders, such as Virgin, EMI and Tesco, will become virtual mobile operators by buying airtime wholesale, said Maile. 'Companies such as Tesco or Virgin could create services geared around their brand.'

So whither WAP, GPRS and Enhanced Data rates for GSM (EDGE), the GSM upgrade? The roadmap was GPRS this year, EDGE in 2001 and UMTS starting in 2002; Maile said the rollout may be limited by a shortage of handsets, which can be difficult to produce in high volumes, and UMTS licensees

are no longer under the same pressure to provide GPRS services. He said the dual-mode terminals will allow some operators in Europe to use GPRS in large-cell, low-density areas and 3G in high-demand urban areas.

'Telcos are not going to sit on their licences. The pressure is on suppliers to provide technology that is totally flexible and perhaps reprogrammable.'

Plextek's own spin-off, Radiant, is trialling its broadband wireless systems operating at up to 28GHz. It uses a mesh architecture with relay nodes instead of conventional base stations, providing a greater coverage at lower cost, said Maile.

Ali Pourtaheri, chief executive of cellular specialist UbiNetics, also believes the auction will speed up deployment, and that other European countries will hold a similar sell-off. Germany's forthcoming UMTS auction is expected to raise £31.2bn.

But he warned: 'There is a risk that higher roaming costs could endanger the take-up of subscriptions.'

Caroline Swift **reports from *Silicon Fen***