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All change as the web goes fast, mobile and toll-free

This is an inflection, said the BT man, using the term made fashionable by Intel chief Andy Groves to describe times when everything is trundling along more or less predictably in one way and then lurches round and bumbles along in quite another.

Kent Thexton, head of BT Cellnet's new mobile Internet unit, was referring to his company's rollout of wireless services. These will begin with slow WAP now, followed by 64Kbits/sec GPRS this summer, and a trial on the Isle of Man of a 2Mbits/sec UMTS service that should be available nationwide within a

couple of years. But he might have been talking about the whole industry.

Unmetered access, getting close to an always-on link, is coming in amid a welter of confusing offers.

So is ADSL. BT announced that it has set up 400 exchanges for the fast-access technology and is wiring up 100 more. Service providers that will sell ADSL links are still arguing with BT about pricing, but 21 trials are under way.

And the cable industry, already offering among the most tempting unmetered access deals, is at last getting its broadband act together.

Seismic change also hit the software industry with the anti-trust ruling against Microsoft. There was talk as we went to press that Bill Gates would do a deal on penalties – otherwise the major impact will not be felt for some time.

See Tim Bjarin, page 26

Telewest announced a rollout of £50-a-month 512Kbits/sec cable modem services; late this year it will offer deals bundling 512Kbits/sec wireless links providing web access around your home.

Curiously Telewest has picked DECT, designed for voice links, for this. Technical director Peter Hall says this will enable the same links to be used for wireless phones, though he will continue to look at other options. (At CeBIT, by coincidence or not, NatSemi showed several Webpads that used DECT links for mobile web access.)

NTL says it is beginning to roll out a £40-a-month cable modem service. But it has been saying that for months, so believe it when you see it.

Some changes may not come as fast as many would like. Unmetered access could delay broadband take-up, keeping prices high. And AOL UK's Matt Peacock said the ADSL timetable has already slipped and services may not arrive until autumn at soonest.

New WAP services – p27
Fast home networks – p36
Unmetered special report – pp38/39

Price 'not an issue' for BT users

Users are not concerned about pricing, says BT's director of strategy and development Andy Green.

'What they do want is value. If they click on their phone to book a train ticket they are not concerned that it has cost them 20p,' he said at the launch of BT Cellnet's WAP services.

Unconcerned users could end up paying more than £100 a month to stay linked, wired and unwired, with the pricing currently being cited. ADSL or cable will cost you between £40 and £50 a month – in addition to your standard voice line charges, which will add at least £15.

Telewest reckons it gets an average £35 a month per

customer for phone and cable TV services; with broadband access this would go up to £85.

On top of that are mobile charges. Always-on GPRS is likely to cost more than current wireless services despite using efficient packet switching. BT is keeping quiet about prices but there will be both standing and per-megabyte charges. Suggested ball-park figures have been between £10 and £50 for the standing charge alone.

What BT's Green did not explain is how his price-indifferent users are going to have any money left to spend on the ecommerce this technology is supposed to be enabling.



Broadband links may boost the use of 3D on websites, with it the demand for this ModelMaker scanner, which pumps 3D models of real-life objects into CAD packages. It's one of a range from Coventry-based 3D Scanners and costs up to £1m.

Gates plans next move

It was no big surprise that the Justice Department and Microsoft could not find a way to settle their case during the talks outside of court.

Microsoft was willing to go some extra miles but the Justice Department and the 19 States involved appear to have been at odds on how to settle. I have gone on record as saying Microsoft would lose the original suit and win on appeal – or so reduce the penalty as to have essentially won.

The next step will be a long and grinding appeals process. Most unfortunate for Microsoft will be the onslaught of civil cases resting on the initial court battle.

Ironically, a long appeals process is better for Microsoft than for the Government. The next President may be more favourable and time will allow Microsoft to diversify further and depend less on products that today come under current Justice Department scrutiny.

The original complaint that Microsoft refused to include the Netscape browser with Windows is no longer pertinent. The browser wars are over and Microsoft won. The Justice Department could force Microsoft to open Windows more to third-party products, but none present the threat that Netscape did during the web's formative years.

Microsoft has bought valuable time to use its cash to get into information appliances, telecoms, television and cable. Nobody owns these segments yet, so they are areas that the Justice Department with its anti-trust suits cannot go.

Tim Bajarin
letter from *Silicon Valley*



Netscape gets new look

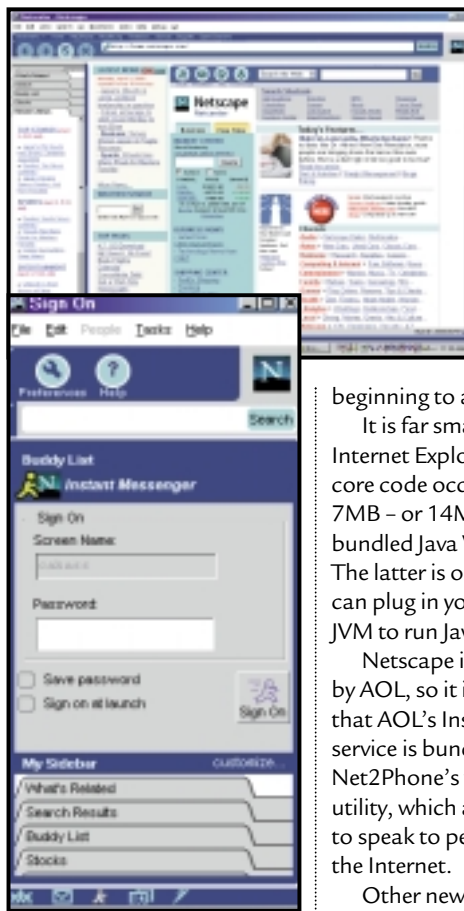
Netscape has finally released a new version of its browser, developed in part by open-source developers under the Mozilla programme.

Mozilla was launched in the hope of aping the success of open-source Linux. But, although crucial parts of the new browser were developed in this way, much of the development was done in-house by a team of 200.

The new Netscape 6 (the word Navigator has been dropped) is available at www.netscape.com in what is known as 'preview release 1'. Final code is not expected until late this year – getting on for three years since the Mozilla project was launched.

A major reason for the delay was the fact that the Netscape code released to open-source developers on 31 March 1998, was in a mess. The delay cost Netscape dear, because it lost the browser battle to Microsoft, despite massive goodwill among users – a defeat, courts have ruled, also caused by unfair Microsoft tactics (see Tim Bajarin, left).

At the heart of the new browser is an HTML engine called Gecko, which in the



next preview release will be able to take on different 'skins' to allow you to choose an individual look and feel.

It also supports XUL (eXtensible User-interface Language), an XML variant

that can be used to define a graphical interface. This will enable Netscape 6 to be ported easily to the diverse web access devices now

beginning to appear.

It is far smaller than Internet Explorer, with the core code occupying some 7MB – or 14MB with the bundled Java Virtual machine. The latter is optional, as you can plug in your favourite JVM to run Java apps.

Netscape is now owned by AOL, so it is no surprise that AOL's Instant Messaging service is bundled. So too is Net2Phone's voice-over-IP utility, which allows you to speak to people over the Internet.

Other new features include an intelligent search facility based on Apple's Sherlock engine. But the most obvious change in the interface is a customisable tabbed sidebar allowing instant access to information you most need.

Apache dominates web-server market

Open-source code is more than holding its own against Microsoft in at least one crucial area – web servers.

An astounding 1.4 million new sites using the open-source Apache software sprang up in March, increasing its market share by two per cent to 60.05 per cent. It is now used by nearly 7.9 million sites, according to a survey of 13 million sites by UK-based Netcraft.

The increase coincides with an alpha release of

Apache 2.0, which introduces support for performance-boosting threads.

Microsoft web server software is way behind with 21 per cent – a one per cent fall in market share, although user numbers rose by nearly 300,000 in February. Netscape products trailed at around seven per cent.

At the same time the number of sites running Windows 2000, with the latest release of IIS 5.0, doubled to 40,000.

But many use Apache

running under Linux, making the site completely open-source. Mike Pettejohn, director of Netcraft, said: 'Most Apache servers run on Unix. Linux is the most popular, followed by Sun Microsystems' Solaris. Apache is the leading Unix server and Linux is becoming the most popular operating system on the Internet.'

www.netcraft.com/survey/

- The next Apachecon conference is to be held in London on 23-25 October.
- See also *Hands On Workshop*.

BT buys out old hat WAP

BT Cellnet claimed in March to have bought nearly the entire world stock of WAP phones – and admitted they would be out of date within a few weeks. It predicted that in the three months up to July it would sell half a million of the £99.99 inc VAT phones to people wishing to access BT's new pre-paid WAP service.

But within the same period it expects to launch next-generation GPRS services with data rates of up to 64Kbits/sec. The company says it hopes the WAP phones will be upgradeable.

WAP calls will be charged at a flat rate of 10p a minute at all times, and voice calls will cost 30p a minute at peak times and 5p a minute off-peak. The pre-pay phone will come with 200 minutes of free calls – 400 if you sign up before July.

WAP phones have been in short supply so far because vendors were reluctant to ship them until services are available. These services are now being put in place: BT Cellnet has signed up a number of content providers, including EMI.dotmusic BSKyB, and the *Financial Times*.

It believes a big sales driver will be email access – Freeserve's two million subscribers will be given access as well as BT's own email customers.

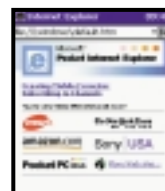
Michele Mackenzie, co-author of an Ovum report, called *WAP Market Strategies*, said: 'Operators are doing the right thing in providing simple services, testing the market. But in order to keep interest in these services later on, they are going to have to provide more compelling applications.'

www.ovum.co.uk
<http://theshop.btccllnet.net>

short stories

CE LIVES ON IN RELEASE

Microsoft has released its Pocket PC operating system, which it still seems to be calling Windows CE, despite saying it would drop the name.



CE 3.0 will ship on new colour palmtops from Compaq, HP and Casio (see review p109). MS does a Symbian – p28

3COM ENDS MODEM LINK

3Com is following Motorola's lead in getting out of dial-up modems. It is selling its modem and PC Card business as part of a restructuring that will also see it leaving high-end networking to focus on the home, small business, and service-provider markets.

Unmetered access (see p38) is likely to prolong the life of dial-up modems but with standards being more settled, especially across Europe, their function has increasingly been built into PCs and notebooks.

TDK has stopped putting modem chips into PC Cards, allowing it to offer combined GSM and 10/100 LAN cards at £85 ex VAT. European product manager Darren Watkins reckons seven in 10 notebooks now pack a built-in modem.

Sugar's return may be bittersweet

Alan Sugar, the man who kick-started PC use in Britain, has made a typically eccentric first assault on the Internet market with a cut-price email phone.

He claims that his e-m@iler is being sold at below cost price and it certainly looks good value: a neatly designed answerphone and emailer that can also send faxes, it comes complete with a pullout keyboard and a slot-in self-synchronising personal organiser – all for just £79.99.

The device, targeted at users who don't want a fully-fledged computer, could be a winner after getting a full-page rave review in the *Daily Mirror*. Sugar is banking on getting some of his money back through advertising downloaded at night.

He said at the launch: 'It



evidently believing that potential buyers will see the snags. The machine does not include a browser (unlike BT's otherwise less impressive rival model) and Sugar will charge 12p a time, in addition to line charges, to access email.

The phone uses the Caller Line Identification (CLI) signal to register when new email has arrived.

So people could pay 12p-plus to pick up an individual piece of spam – and even technophobes might start asking why they should pay for a service they can get free elsewhere.

Amstrad has yet to repeat the successes of its glory days, when it was the first UK company to sell a PC (albeit non-standard) at a mass-market price – its £300 word processor was a massive seller despite using technology that was antique even for its day.

costs 30p per address to send a piece of junk mail. If I charge half price, 15p a head, for two million customers... It's a case of "You're in the money, sunshine".

But shares in Sugar's company Amstrad fell after the launch, with investors



She got one email from her son in Australia – and then spent £730 ploughing through junk mail in the hope of finding another

Phone number CDs hit shops

Rival CDs providing searchable official lists of UK phone numbers are on sale following a ruling last year that BT should make the information openly available.

BT has long claimed ownership of the telephone numbers and at one point was trying to charge in the region of £2,000 for similar discs, with comparably huge update fees.

This provoked, in this magazine and others, angry claims of monopoly abuse, and a German company resorted to scanning printed directories and offering 'pirate' CD directories for £20.

This blow for freedom was marred by the provision of 'back searches', allowing an address to be traced from a telephone number – something still barred in the latest CDs.

Early last year BT was told to open its OSIS directory database to the web (see www.bt.com/phonenetuk/) and allow licensees access at a reasonable price.

Now British and International Directories Direct (BIDD) is offering BT's official directory on disc for £42.30 inc VAT and rival UK Info for £49.99 inc VAT. Both use the OSIS database, but UK Info uses extra information and a £230 professional version includes, among other features, geographical information. www.bidd.co.uk

Lightning Linux

IBM is building a Linux-based supercomputer it claims will be the world's twenty-fourth fastest machine. The cluster of 256 rack-mounted, dual-processor IBM Netfinity servers, capable of executing 375 billion floating-point operations per second (flops), will go live at the University of New Mexico this summer.

Microsoft lifts X-box lid

Microsoft has unveiled details of the games console it will launch around autumn next year to rival Sony's PlayStation 2 and the Nintendo Dolphin. The X-box, being developed by a new Microsoft division, will have no keyboard, as its primary focus will be games.

Inside will be a customised 600MHz PIII processor, 64MB of DDR memory, a 64-voice sound controller and a custom nVidia NV25 graphics chip running at 300MHz and including support for anti-aliasing.

There will be a single, unified memory architecture, so games developers will be left to partition the memory load.

A four-speed DVD player will be used for both movie playback and to load software. There will be four game controller ports, a USB and a 10/100 Ethernet port. A V.90 modem is optional – the theory being that it will be obsolete in countries with broadband access.

That can be connected via the USB or the Ethernet port, which will also allow local X-boxes to be linked for multiplay games.

Critics say the inclusion of



X marks the spot. Intimidating graphical power from the X-box

an 8GB hard disk makes the X-box little more than a cut-down PC. But Microsoft claims the box will bring a new generation of 'organic games' to the market – by which it means that people will be able to update their software. Sports gamers will be able to update statistics for example, and there will also be potential for new levels and characters.

The box will also be able to remember what you did in previous games – so if you're

driving around the same track you were last night, for example, you'll see the skid marks you created. An 8MB memory card will allow you to transfer data between X-boxes.

The operating system will be based on the Windows 2000 kernel, but you shouldn't know it is there – there won't be a Start menu. Games will be written using the DirectX programming interface, which will lower costs but does not mean that PC games will run.

JASON JENKINS

Gates unveils rival for Symbian devices

A version of a wireless information device (WID), like those under development by the Symbian consortium, has been demonstrated by Microsoft. And it has formed an agreement with BT and AT&T to develop software for mobile phones in a clear bid to outflank Symbian.

CEO of Microsoft Bill Gates unveiled the voice-activated Mipad (Multimodal Interactive Notepad) prototype WID at his company's Latin America

Enterprise Solutions conference. He said it will integrate all the functions of wireless Windows CE applications, such as email, calendar and contacts, but he did not reveal any hardware or shipping details.

Rob Enderle, an analyst at researcher Giga Information Group, said: 'This is the best attempt to come up with the things CE didn't include initially. It's a more complete device.'

Mipad includes a full Exchange client, an improved

pocket Word and a revamped CE that is much closer to how the operating system should have been when it first shipped, Enderle said.

'The market has changed a lot since then. Microsoft has to make up for the fact that it didn't do it right the first time,' he added.

Symbian, backed by Psion and leading cellphone makers, is developing platforms for mobiles driven by keyboard, pen or voice. First products are expected next year.

PROCESSORS

Chip giants' budget buys

Intel and AMD are resetting their sights at budget buyers after racing neck-and-neck to be the first to market with a 1GHz processor.

AMD is rolling out cheaper versions of its Athlon processor that will eventually supersede the K6-2 and be priced and clocked roughly on a par with Intel's Celerons.

A US site reported that the chips, codenamed Spitfires, will clock between 550MHz

and 700MHz, with prices ranging from £48 to £66.

Intel was expected to roll out a series of Celerons by the end of April clocking between 566MHz and 667MHz – and for the first time supporting the PIII's SSE multimedia extensions. A 700MHz version is due to ship by July.

This middle market is becoming increasingly important to the chip manufacturers, as buyers are

no longer going automatically for the fastest PCs. They have sussed that slower, far cheaper models are more than fast enough for current office software and all but the most demanding of games.

At the lower end, cheap all-in-one chips from the likes of NatSemi could usher in PC-based notepad devices at giveaway prices – they may eventually be bundled with web-access services.

short stories

► L&H BUYS TOP SPOT

Lernout & Hauspie has become the undisputed market leader in speech-recognition products, by buying up its rival Dragon Systems, publisher of Naturally Speaking. The deal – worth £387m – will give L&H 85 per cent of the US market alone.

► A LOAD OF SUCKERS?

The first company to sign up for Trust-on-line, which claims to offer a safe environment for net shopping, was Vacuum Cleaners Direct. See www.vacuumcleanersdirect.co.uk and www.trust-on-line.co.uk.

► JUST THE TICKET

First Call has opened an interactive box office at www.firstcalltickets.com where you can buy tickets to shows, concerts, sports and other major events.

► SUCCESS FOR CEBIT

More than 750,000 people attended CeBIT in February – 52,000 more than last year. This makes it the biggest computer show in the world. Fall Comdex in Las Vegas last year attracted 200,000 visitors.

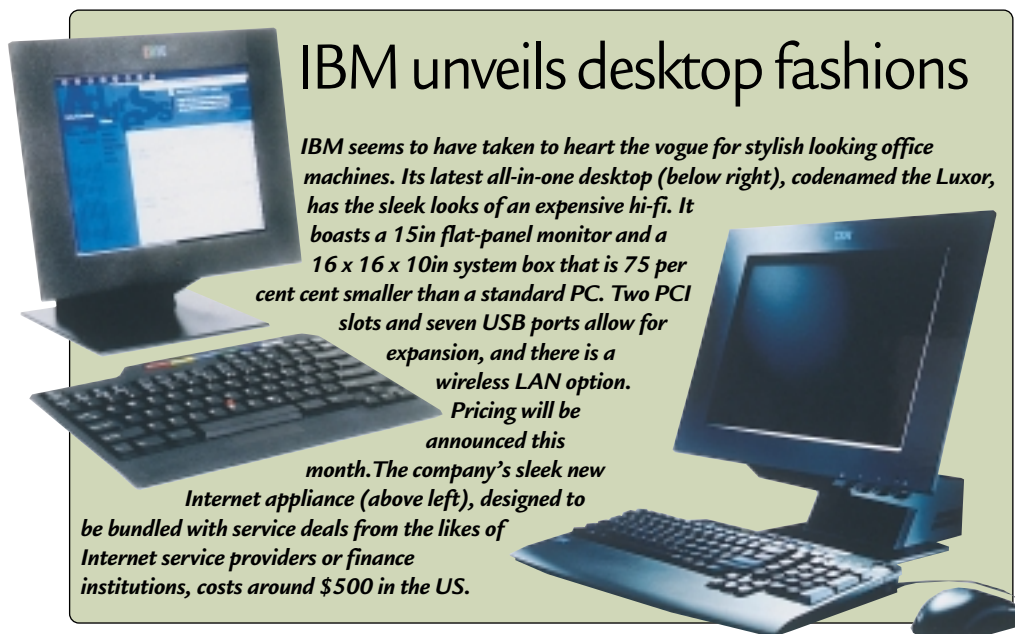
► EUROPEAN PHONE BILL

European phone users are being overcharged as much as 4.5bn euros (£2.8bn) per year for calls made from fixed lines to mobile phones, a new study claims. And the overcharging is likely to get worse rather than better because there is no competition in the area, according to the report by consultant analysts for the European Competitive Telecoms Association.

VNUNET.COM

► CONTINENTAL DRIFT

The Consumers Association has set up a website offering cars at continental prices. See www.carbusters.com for more details.



IBM unveils desktop fashions

IBM seems to have taken to heart the vogue for stylish looking office machines. Its latest all-in-one desktop (below right), codenamed the Luxor, has the sleek looks of an expensive hi-fi. It boasts a 15in flat-panel monitor and a 16 x 16 x 10in system box that is 75 per cent smaller than a standard PC. Two PCI slots and seven USB ports allow for expansion, and there is a wireless LAN option. Pricing will be announced this month. The company's sleek new Internet appliance (above left), designed to be bundled with service deals from the likes of Internet service providers or finance institutions, costs around \$500 in the US.

STORAGE

Hard disks drive up storage rates

Seagate's technologists have packed 45 billion bits into one square inch of disk space – a world record, the company says. It means a 3.5in disk could store 60GB.

However, hard-disk capacities are soaring even without the new technology. Maxtor launched a four-platter 60GB Diamond Max drive last month, only to be capped by IBM with its five-platter 75GB Deskstar 75GXP drive.

The areal density of the IBM drive is 11.2Gbits/square inch – the same drive using

Seagate's claimed record areal density would pack around 300GB.

But, not to be outdone, IBM says a breakthrough by its scientists will increase current capacities 100-fold. It has created a class of magnetic materials that could lead to terabyte (a billion Gbytes) hard disks.

An IBM spokesperson said: 'The process represents a new approach, with three-dimensional structures building themselves on a molecular scale from a chemical solution.'

But there is no saying when this technology will lead to actual products. 'There are technical hurdles to overcome,' the spokesperson said.

Holographic drives using removable 125GB disks could also be on sale within two years. This speculation followed a breakthrough at Bell Labs, the research arm of Lucent, which was announced by its partner company Imation at CeBIT. www.seagate.com
www.maxtor.com
www.storage.ibm.com

HOME NETWORKS

Wireless speeds up as cost falls

Low-cost kits that can deliver data wirelessly round the home or office at five times the speed of most local networks, are expected to be available within a couple of years. They are seen as the easiest way to distribute data from emerging broadband links.

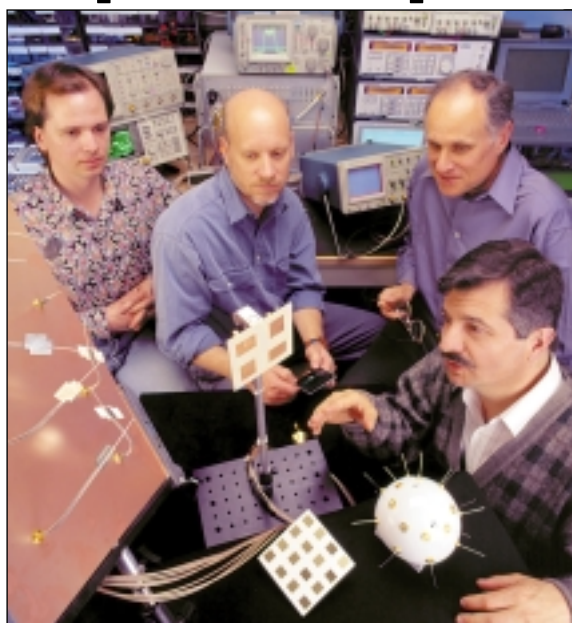
Today's wireless nets, operating at around 2.4GHz, are fine for distributing data from audio modems; and the latest 11Mbps/sec 802.11b devices cope comfortably with a 2Mbps/sec ADSL link.

But home networks will soon have to deliver TV, video-on-demand, voice calls, and standard web data all at once as computing, telephony and home entertainment devices converge.

The Home Audio/Video Interoperability (HAVi) group, backed by leading computer and consumer electronics firms including Philips and Sony, has drawn up a standard for linking home digital devices using hard-wired 1394 that can carry 400Mbps/sec and higher.

For the wireless market the group is looking at a developing a European standard called Hiperlan/2, which looks like going head to head with the yet-to-be-finalised IEEE 802.11a. Both will offer about 54Mbps/sec at around 5GHz.

Overheads like error



Wireless bit rate capacity could be increased 20-fold using technology called Blast, being demonstrated (left) at Lucent's Bell Labs. Wireless bit rates are usually lower than one per frequency cycle (1bit/Hz); Blast has run at 20bits/Hz, which would boost Hiperlan/2 to 1Gbit/sec.

Blast exploits signal scattering. The transmitter and receiver use multiple aerials at slightly different orientations, each carrying a different data stream at an identical frequency; the more aerials, the higher the bit rate. Differential scattering means each stream is received slightly differently by each aerial and can be separated out by high-speed processing.

correction and security reduce cited data rates of all these rival technologies; the effective speed of Hiperlan/2 will be 25-32Mbps/sec, which is still around three times that of a 10Mbps/sec office network.

One complication is that more bandwidth is available in Europe: 455MHz (5.15-5.35GHz and 5.470-5.725GHz) as opposed to 300MHz in the US (5.15-5.35GHz and 5.725-5.825GHz) and just 100MHz (5.15-5.25GHz) in Japan.

The European spectrum is split into 19 channels, each with 52 sub-carriers; a data stream is split between several channels and transmitted in

parallel by the Orthogonal Frequency Division Multiplexing (OFDM) process.

Quality of service is written into the specification so time-sensitive multimedia data streams can grab the bandwidth they need. A voice channel has also been written into Hiperlan/2, which could give it an edge over 802.11a, said Glenn Collinson of Cambridge Silicon Radio (CSR), which expects to produce a generic OFDM chip this year that can be used for either standard.

CSR plans to develop what it calls the first true single-chip Bluetooth implementation.

'By using CMOS, the standard cheap semi-

conductor process, we significantly reduce the cost of the [Bluetooth] radio,' said Collinson. 'The same trend is happening up to the higher frequencies. At some point you will be able to use the standard chip technologies to do the 5GHz as well.'

This means Hiperlan chips should be cheaper than today's 802.11b devices, which at around £100 a node are too pricey for a mass market. In theory CSR's OFDM chip could support Hiperlan and 802.11a in the same device; in practice, dual-mode devices are likely to be slow in coming.

John Reynolds, 3Com's UK networking systems product manager, said his company was likely to go with 802.11a 'because it is an American standard and we are an American company'.

Collinson said: 'Who will win the standards battle is not clear yet. What is clear is that there is a big market for wideband, 50Mbps/sec short-range wireless data.'

www.cambridgesiliconradio.com/
www.3com.co.uk
www.havi.org
www.hiperlan2.com

What does it mean? Wireless terms explained

● **Bluetooth**, which is about to hit the market, can deliver 0.7Mbps/sec over a maximum 10 metres. But it is a wire substitute rather than a networking technology.

● **IEEE 802.11b**, basically wireless Ethernet, is just becoming mainstream. It offers data rates of

11Mbps/sec – 10 times the speed of first-generation 802.11. The next standard, confusingly called **802.11a**, will be 10 times faster still (see text).

● **DECT** (Digital Enhanced Cordless Telephones), is used in home hands-free voice phones but is also used for data – see page 25.

● **HomeRF** uses the Shared Wireless Access Protocol (SWAP) developed by the industry's HomeRF working group. It combines the DECT and 802.11 standards in a bid to provide a common wireless link for voice and data at a maximum 2Mbps/sec.

A dearth of deals surrounding unmetered access has left consumers confused. Clive Akass explains.

Unmetered and indecipherable

The price war over unmetered access has prompted a mass of confusing offers. The chart below shows the state of play for some of the main players as we went to press. Some of these prices amount to bids in a complex bargaining process and they could change quickly, so check our website – or those in the chart – to find the latest figures.

The good news is that unmetered access, the next best thing to an always-on service, has gone mainstream. The web, off-peak at least, will be like TV or radio – something you use as long as you like without thinking

about the cost. This makes viable all kinds of services, like Internet radio or concerts, which currently are little more than technology demonstrations because few in the UK have been able to afford the line charges.

There will be teething problems. Some companies will impose timeouts, at least temporarily, if their lines get overloaded. This happened a few months back with Screaming.net, one of the first to offer toll-free access. Telewest suspended sign-ups and refunded fees in March after its £10-a-month flat fee service was swamped.

It's best to read the small

print before you make your choice of service. Your best option may depend as much on what voice calls you make as on how much you surf. There is little point moving to 'free' unmetered access if it entails your bill for voice calls soaring; conversely you may be able to save on voice calls by, say, paying £10 a month to Telewest. And with companies such as BT Internet, you may be able to get unmetered ISDN access.

The Big Two cable companies Telewest and NTL are mavericks because, in their franchise areas, they do not depend on BT lines to reach your home. This means

they are not tied to BT prices and both are trying to tempt more phone users by offering cheap voice calls.

Cable operators have been very slow to jump on the web bandwagon but they do seem to be getting their act together (see page 25). Their broadband access is still too costly for most people but prices will fall and cable offers far more flexibility and headroom than plain old telephone (POT) lines.

Sadly, cable reaches only a minority of UK homes (the most profitable, as BT points out sourly) and, of course, the Big Two's cheap unmetered services are not broadband –

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**	Expected May/June	Nothing announced
AOL www.aol.co.uk	£9.99 a month; line charges 1p per minute	None**	N/A	Any	Now	Trialling ADSL
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	ADSL trial has ended, no plans announced
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 plus phone line charges	None**	N/A	Any	Now	Trialling ADSL
Freeserve www.freeserve.net	£6.99 a month via BT's SurfTime	Evenings and weekends	None	BT	June	Trialling £49.99 a month for 512Kbits/sec
	For Energis users	None	£10	Energis	May	
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	17 April	Cable modem £40 a month; trialling ADSL
Screaming.net www.screaming.net	None	Evenings and weekends	None	Localtel	Now	
Telewest Surf unlimited www.xxxx.net	£10 a month	Unlimited	£10 Telewest's	Must switch to Cable Internet	March	Cable modem £50 a month; trialling ADSL
Virgin www.virgin.net	Line charges	None**	N/A	N/A	N/A	Has trialled ADSL
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 will vary with ISP

they use POT lines that were run in with the cable.

Most service providers will be offering unmetered access of some kind, but prices will be contingent on what BT

RailTrack, hiring lines out to operators.

In the meantime, as AOL UK's director of corporate communications Matt Peacock put it: 'For 85 per

cent of the population BT controls the gateway to the Internet.'

regulatory objections because it cut out rivals like Energis and did not allow operators to buy capacity in bulk.

BT then trumpeted the apparently cheaper SurfTime offers shown in the chart (remember these deals are resold to users by service providers, including BT's own BTInternet). There were no hidden costs, boasted BT.

This was a porkie. Days later BT was forced to admit that SurfTime prices were only for the local loop, and did not take into account charges for the link from the local exchange to the service provider. This, according to Peacock, averages at least £4 per user per month. So BT's 'new' offer began to

look much like its old one.

'We were and we still are very cross about this,' said Peacock. 'But the weight of consumer demand is so great now that BT has to give more ground than it has. We believe there are still significant competition and regulatory issues.'



Cable companies are at last jumping on the web bandwagon. Telewest issued this picture to publicise its Biz-Explore initiative to get businesses onto the Internet. All very laudable... except that you would be hard put to find a crofter within a day's donkey ride of a cable or ADSL link

charges them. And everyone concerned has their eyes on next July, when BT is due to open its 'local loop' to competition. Rivals will then be able to install equipment in exchanges and sell services, particularly ADSL, to subscribers; BT's position will be rather like that of

cent of the population BT controls the gateway to the Internet.'

The opening salvo in the latest price war came just before Christmas, when BT announced it would sell unmetered access to service providers for £35 a month. This offer quickly fell under

VOX POP

views from ISPs

'We were the first ISP to raise the unmetered issue.'



We are trying to bring about the conditions where all consumers have the choice. We

haven't yet seen anything coming into the market that delivers that. We will not hang around. Watch this space.'

Virgin was set to pilot unmetered services, with no setup fees, in April.



'It's now up to BT to reduce its flat rate price for access, to simplify

the options available to providers. Without this, the industry runs the risk of an endless round of marketing gimmicks.'

Demon has no immediate plans to offer its users unmetered access. 'We have



a different user base that is more interested

in the quality of service they get. That is why they stay with us.'

A fold-out keyboard is a big step towards Tim Bajarín's ideal portable email machine.

Keyboard to Palm success

When this decade dawned, I had great aspirations of being able to slow down. I planned to spend more time at home and maybe take a real vacation or two. But Silicon Valley is hopping and, to my surprise, I have been on the road twice as much as I was this time last year. In the past six weeks, I have been to Europe twice and criss-crossed the US four times – I seem to be suffering from perpetual jet lag.

The good news, however, is that I get to test mobile gadgets in various challenging travel conditions. All this travel has convinced me, once again, that lighter is better, a mantra I have been pushing for years. I have also been searching diligently for my ideal email machine, a light system that allows me to receive information as well as to send email from just about anywhere.

I had hoped that the new ultra-light portables would fit this bill, but the lack of nationwide wireless limits their use.

(Metricom's Ricochet modem provides wireless access to the web in Silicon Valley, Seattle and Washington DC, and it may spread nationwide in a year or two).

The Palm VII handheld has come close to meeting my ideal, with its ability to get the information I want and deliver it to me. I use the RIM Blackberry two-way pager as well, but its small keyboard and screen are not optimal – especially for creating serious email messages rather than short responses. The Palm VII is very readable and, except for its virtual keyboard, it would be a great email system as well.

Now, with a full-size foldable keyboard from Think Outside, my Palm VII has taken on a whole new dimension. I use the Palm VII in handheld mode most of the time to get information on demand, and drop it into the folding keyboard when I want to do some serious email. The combination is a real revelation to me.

For years, I had thought that my email machine would be clamshell. I had hoped to try Psion's NetBook, but could never get my hands on one. This, at least on paper, could be the closest thing to my original email machine concept once wireless connections were in place. However, I find it amazing what this folding keyboard does to the Palms. It was available for the Palm III/VII and Palm V devices, but it gives the Palm VII especially a greater reason to exist.

I could use the Graffiti handwriting system or the virtual keyboard to send faxes, pages and email, but this is slow and cumbersome. A full-sized keyboard turns my Palm VII into a wireless workhorse. Of course, this is not the only reason for the Palm or other handheld platforms with wireless connections to exist. Various services and applications give them significant personalised abilities as well.

One particular program that was recently launched comes from Yodlee. The company's next-generation e-Personalization Platform aggregates personal account information from over a thousand leading websites and delivers it – summarised and formatted – to various mobile and wireless devices, including the

new web-enabled phones.

Yodlee2go combines the rich array of content available with the convenience of wireless phones and PDAs.

Using Yodlee2go I can now have my bank account information sent to my Palm Pilot at appointed times so I will always know the state of my bank balance. Or I can ask my credit card company to send me daily information about the purchases I have made recently and always know how much credit I have on my charge cards.

This level of personalisation extends the idea of what kind of information I can get anytime and anywhere on handheld platforms and has forced me to look at these devices in a new light.

Coupled with this folding keyboard, these next-generation wireless PDAs appear to be poised to become the real mobile companions that we take with us everywhere we go to stay in touch and remain productive all the time.

I still have hopes that some day I can get a lightweight portable email machine with a larger colour screen, 20 hours of battery life and a full-sized keyboard with wireless web connections. But my Palm VII and its folding keyboard will serve me well in the meantime.



I too have been using the Palm interface, writes Clive Akass, though in my case it has been on one of Handspring's Visor handhelds which are set to launch in the UK in the next month or so. They are designed by the same people who did the original Palm and include their own Springboard slot – and can also take a fold-up keyboard. I'm trying to see just how fast I can get with the Graffiti script and I'll let you know how I get on. UK prices are not yet known, but US ones are competitive: from \$149 for the cradle-less Visor Solo to \$249 for the 8MB De Luxe with USB cradle (see the review in our May issue, p197).

Trillions of net addresses – per head

BT and Microsoft have launched a trial in Britain of the next-generation Internet Protocol, which will provide a virtually infinite number of web addresses.

The current IP version 4 (IPv4) allows only four billion addresses, which means the web will run out in the next decade or so. A way round this is to use Network Address Translation (NAT), by which whole networks hide behind a single IP address; this has the benefit of protecting individual PCs from intruders, but the system is becoming increasingly cumbersome.

And there is an exploding demand from mobile operators. The GSM Association has requested 32 million IP addresses be set aside for the faster-than-expected rollout of GPRS (see page 27) from this summer.

The world population passed six billion last year and we could soon be seeing several addressable devices per home. But these will not be enough to overload IPv6, which uses 128bit addressing – enough to provide 3.4 billion, billion, billion addresses *per person* in a population of 10 billion.

Other advantages of IPv6

include improved security and better provision for setting different levels of service – packets can be labelled according to their priority.

Microsoft is providing 'tunnel broker' software (at www.research.microsoft.com/msripv6) that will allow 'islands' of Win2K servers using IPv6 to communicate across a sea of IPv4. It is free to anyone interested in taking part in the trial.

Andrew Scott, who heads an IPv6 group at Lancaster

University (www.cs-ipv6.lancs.ac.uk), says most major operating systems have at least beta support for IPv6 and most routers can be upgraded to support it. The new protocol has been designed so that it can be phased in – IPv4 addresses can be converted to IPv6 using a simple prefix.

'If you have an area that is only IPv4, you have to carry the IPv6 information within IPv4 packets,' Scott said.

So will the IPv6 islands

eventually expand to take over the Internet? 'That depends on how rapidly people see the business case,' said Scott. 'Clearly there is a significant growing demand for address space.'

He believes a big driving factor will be the increasing use of mobiles, for which IPv6 offers improved support. He added: 'People have been adapting IPv4 for years and it now often seems to be more sticking plaster than protocol.'

Microsoft frees up dictionary

Microsoft has opened its Encarta World English Dictionary to free online access – just weeks after the 20-volume *Oxford English Dictionary* (OED) hit the web. But access to the OED costs £350 plus VAT a year, or £500 to educational and commercial networks.

For years, the OED, like the *Encyclopedia Britannica* (EB), was only accessible to most people in public libraries. The EB site was



overwhelmed by demand when it switched to free online access, subsidised by adverts.

The Encarta World English Dictionary includes

audio pronunciations as well as definitions and essays.

<http://encarta.msn.com>

www.oed.com

www.britannica.com

short stories



STICKY PAPER FOR SALE

Now here's a gripping story: a company called Abel Magnetics is selling magnetic paper that can be used in any colour inkjet and will stick to any magnetic metal surface. Good for invites, flyers and the like.

Five-sheet A4 packs will be in PC World and other stores soon for under £10, or you can buy cheaper direct from Abel at www.magnetic-paper.com.

DISNEY PLAYS IT SAFE

Disney Online has launched a 'Safe Surfing' site for kids at www.disney.co.uk/safesurfing.

FLOWER POWER

A portal has been set up at www.floristpages.co.uk for those who need to send flowers quickly. The site will locate the nearest florist to where you want the flowers sent and allow you to order online or by phone. You can also access the site using WAP phones.

VoiceXML joins the chorus

A proposed VoiceXML standard is the latest in a series of new applications of XML, which is set to supersede HTML as the web's common language.

The standard will facilitate the design of systems that allow users to interrogate databases and other information sources by voice. It provides a standard programming interface for designers of voice-driven devices and voice response systems.

It will also enable customers to access company intranets, integrated call-centre databases and online information and services

using their own voice over the telephone.

Version 1.0 of the new standard has been completed by the VoiceXML Forum, whose 79 members include AT&T, IBM, Lucent and Motorola. It is being submitted to the W3C (World Wide Web Consortium) for formal ratification. 'We hope to work closely with them to move it along as quickly as possible,' said a spokesperson for the forum.

The W3C recently announced XHTML, a redefinition of HTML 4.0 as an XML application. This is seen as a transition to full-blown HTML.

Major device makers announced at CeBIT that they are working on an XML application called SyncML, which will allow any savvy appliance to exchange and synchronise data such as appointments and contacts. This will do away with the need for conversion utilities custom-written for specific combinations of devices.

Netscape uses yet another XML application in its latest release of Navigator (see page 26). Called XUL, the company says it will help developers tailor the browser for different devices.

ADDITIONAL REPORTING
BY VNUNET.COM

Be's freebie offering attracts 100,000 early takers

Be has posted a free version of BeOS 5.0, the latest iteration of its multimedia-optimised operating system. A full Pro Edition will follow.

Be claims that more than 100,000 users had pre-registered for the free version before it was posted on its website on 28 March.

It has ported its operating system to web-access devices (such as the one pictured)

in a bid to boost user interest.

IDC analyst Kirsten Ludvigsen said the company

faces an uphill struggle in its battle to promote Be because digital multimedia remains a niche market.

She said: '100,000 potential users is not a lot for a free download when you compare it to the million or so registered in the first three months for Sun's Star Office suite. But if they are happy with a niche market then the figures are pretty good.'

<http://free.be.com>



A web-access device using BeOS

A service that checks your PC's health may hint at a future for support centres, says Clive Akass.

Taking your PC to the doctor

A well-known photographer rang recently with a problem. He needed to use Photoshop urgently but his PC seemed to have gone awry. Could I please help? I rushed there to discover that nothing had gone wrong at all. The window he had been working on was hidden under another – one click and it was back.

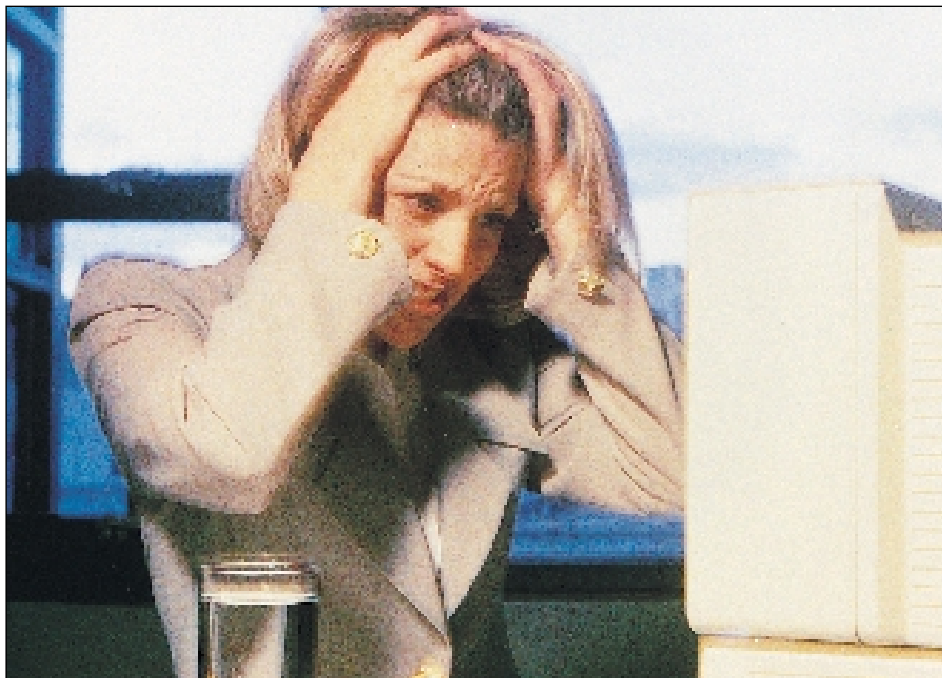
Here was an intelligent, highly successful man flummoxed by one of the basics of Windows. But that's the way of computing: you can be held up for hours or even days trying to do something that turns out to be glaringly simple – once you know how.

There is, judging from the number of people who call me, a huge need for this kind of elementary help. It was in this light that I decided to try a new £39.99 service called PC Health Check, which is available at PC World stores.

I took along a fairly typical problem machine: a three-year-old 166MHz Pentium MMX-driven Packard Bell with a 2GB hard disk running Windows 95 in 16MB of RAM. It had, like many older PCs, slowed to a crawl.

Technician Nabs Halai tested for viruses and Y2K compliance, finding no problems, and he quickly spotted a major reason for the slowdown: just 3MB free on the hard disk, nowhere near enough for the Windows swap file.

He freed up some space, advised me to defrag the disk, and recommended a 32MB RAM upgrade, a relatively expensive £69.99 because of the age of the machine (and because I didn't have the time to shop around). And he pointed out that upgrading the processor and hard drive would not be cost-effective.



A few yards away was a new Patriot model priced at £399. It boasted a 366MHz Cyrix processor, 32MB of RAM, a 4.3MB hard disk, a 40-speed CD drive, a 56K modem and a 14in monitor. Would it not be better for many people with old PCs to forget the upgrade and go for that?

'A lot of people want to stick with their old machine. They are used to it, all their stuff is on it, and it is doing all they need,' said Halai. During the Y2K panic, it seems, many were putting £20 Y2K-compliance boards into old 486 PCs rather than buying a new machine.

Little is to be gained at PC World by buying piecemeal. You would only save about £20 on the Patriot bundle by using your old monitor instead of taking the new one. The store is unlikely to point out that you can buy, through adverts in this magazine, system boxes of a similar spec for less than £200 – but, to be fair, finding and configuring them would be beyond the

Crash horror... every PC user has felt it. This picture was taken to publicise GoBack (£59.99 inc VAT and postage, from www.centerprise.co.uk) which restores PCs to their last healthy state after duff installs and other disasters. But how many users have even the minimum skills needed to get help from software?

ability or inclination of those people resorting to the Health Check.

So is the scheme worth it? Not for most PCW readers, who won't need to be told they should tidy up a hard disk or add more memory. Even for the PC users that don't have that kind of knowledge, the half-hour check seemed overpriced.

I was surprised to find that I had been charged £15 for having the memory fitted, giving a total bill of around £125 (though I did not actually pay for the test check). I would certainly have felt cheated if I had been advised to buy a new machine rather than an upgrade – why pay PC World to tell me how to spend my money at the store? Sales staff usually do that for free.

But value, like beauty, is in

the eye of the beholder. A computer novice might consider the £125 well spent – especially in London, where you can pay £50 to get a plumber to your door. The advice given was sensible, and the freed-up disk space and extra 32MB of RAM certainly speeded up the machine.

Would I have balked at paying £125 for a check-up and a change of bits and bobs on my car? Probably not, if afterwards it showed a similar improvement in performance. The parallel is likely to become still more apt as the industry focus shifts from products to services. Private users need just as much support as those in companies with dedicated IT departments. We could be moving to a time where IT service and advice centres are as common as garages.

Ensure your CV is up to the test

The truth will out. Beware of what skills you boast in that impressive CV pasted on a recruitment website, because you may be caught out by web-based neuropsychological tests. Cambridge start-up Human.IT aims to go live early this summer with its profiling tool, believed to be a world first, which uses four cognitive tests to build a picture of a prospective candidate.

The tests are not of the multi-chore questionnaire type. A job seeker would take a cognitive profile after filling in an online application form. The tests involve the manipulation of shapes and patterns, which overcome ethnic, language and educational bias.

'We can identify the cognitive strengths of individuals – such as attention, learning, memory, planning and mental flexibility,' said marketing director Robert Corden.

'It is still early days but we believe we will be able to identify profiles of people – not for intelligence or IQ, but for such things as spatial memory, which have relevance to different types of



UK-based Marconi, a world leader in smart broadband optical networks, has given £40m to fund a new communications research centre at Cambridge University. The funding includes £18m for the university's research programme, £12m for a Marconi embedded research lab and £10m to build the new research centre. Among the Cambridge scientists who spearheaded the project are (from the left) professor Frank Kelly and professor Ian Leslie, pictured with the vice-chancellor professor Sir Alec Broers.

Leslie said the new centre would enable research into large scale networks and their interaction with society.

jobs. We are identifying core cognitive abilities... and in the longer term will also be able to assess biological differences,' said Corden.

Chief executive Paul Fray, who read psychology at Cambridge and carried out research in the US and

Cambridge, is regarded as a world expert in computerised neuropsychological testing. He is excited by the interest in his work and the possibilities that are constantly arising:

'This really is a technology that can change lives for the better. Human.IT has been created to help turn the information revolution into a human revolution. We will give people knowledge about what it means to be human.'

'Using neuropsychology is unusual in today's human resources environment,' said Corden. 'A web-enabling tool like this doesn't yet exist. There has been very little computerisation in terms of psychological testing and even less web-enabling.'

Much of the research that underlies the Human.IT development, stems from work at Cambridge University some 15 years ago. 'We are taking new steps,' said Corden. 'We are taking it and applying it in the commercial world instead of only in research and academia and we are putting it on the web.'

Future applications will include healthcare screening and medical-legal work such as brain-damage assessments for law suits. Human.IT is also working with a major European recruitment group. www.human.it

Caroline Swift



reports from Silicon Fen