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news

edited by Clive Akass

contents

NEWS

- 28** Intel jinx strikes again
- 29** Microsoft woes
- 30** New Athlon
- 36** Latest on toll-free web services
- 37** Free voice calls
- 39** Fractal magic
- 40** Transmeta notebooks emerge

ANALYSIS

- 48** Voice recognition update
- 50** ADSL snags
- 54** Tim Bajarin on mobiles
- 57** From Acorn to OK

Smart Psion radios could steal 3G mobile's thunder

Psion is redefining the portable radio in a move that mirrors the convergence of the PC and digital TV. It plans to pack Digital Audio Broadcasting (DAB) support into a handheld computer, opening up possibilities far beyond high-quality audio on your PDA.

The BBC has invested massively in DAB, a Europe-wide standard, and is already running test services. The technology was developed mainly to improve car-radio reception, avoiding the fading of analog signals and doing away with the need for retuning as you travel.

But what is good for car radios is also good for other

mobiles. The data content of a DAB channel is limited to 20 per cent, but that still leaves 300Kbits/sec. This compares with a theoretical 2Mbits/sec for UMTS, the third-generation (3G) mobile system.

In practice, UMTS data rates will perhaps be as low as 200Kbits/sec. 'The DAB signal is far more robust than UMTS and the infrastructure is far cheaper to roll out,' said Geoff Kell, commercial director of Psion Infomedia, a new division that is developing the technology.

DAB receivers have been prohibitively expensive – some early models cost more than £2,000. Psion Infomedia will launch a PC DAB card called Wavefinder later this year that will be 'significantly cheaper than anything else on the market.'

This will exploit the uses of DAB, such as the ability to supplement adverts with web links and order forms. 'You will, for instance, be able to

buy a piece of music directly after listening to it,' said Kell.

Exciting possibilities will arrive when DAB is married to next-generation handhelds using Symbian's new comms-friendly operating system. Kell says it will complement 3G data services, which could be used as a back channel for requesting information.

'When the last World Cup was on, someone was giving regular updates to mobile phones using SMS. It got so popular when England was playing it crashed every SMS server in the country. DAB is a far better way of doing this.'

It is hard to see how DAB will not cut into revenues of mobile operators who expect local information to be a big money spinner. There will be nothing to stop DAB local radio stations dumping similar data to handhelds in their area.

The BBC is already using DAB to broadcast the 30 top pages of BBC Online.

CLIVE AKASS

BT rings businesses first

Businesses are to get first use of BT's fast GPRS mobile and ADSL services – with home users not getting a look in until the year's end. BT fleshed out details of the rollouts as some of the new unmetered dialup services were overwhelmed by the demand for subscriptions and line time (see page 36).

There were mixed signals about packet-switched GPRS which will give mobile users a nominal 64Kbits/sec wireless link – a speed that in fact will be as low as 14Kbits/sec as users compete for bandwidth.

There were rumours that this would not appear until next year. But BT Cellnet is to provide corporate customers with handsets this month to

allow them to be integrated into enterprise systems.

The £99.99 business version of ADSL, will be available from about the time you read this. This gives 500Kbits/sec upstream and 250Kbits/sec down.

Services initially are still regarded as being on a trial basis – and from Gordon Laing's experience (see page 50), BT still seems to be going through a learning process.

Business subscribers will get a router with ports for four devices enabling instant access to a network. For £39.99 a month home and small-business users will get a USB link with a higher number of users per channel.

More details on page 51



Silicon Graphics International (SGI) showed its PIII-based 230 workstation at Linux Expo 2000. This graphics workstation offers high performance at PC prices by combining accelerated VPro graphics with standard components.

www.sgi.co.uk

Short stories

■ QUANTUM KEYS

A new quantum device can tell if information has been illicitly read in transit on optical fibre, researchers at Cambridge-based Toshiba Research believe. It uses semiconductor dots, nanometres across, set in a transistor lattice that can detect a single electron displaced by a photon impact.

Data in the emerging field of quantum communication is encoded at the single photon level. The quantum state of a photon cannot be measured without it changing; so any eavesdropping can be detected. The system would allow users to exchange encryption keys for secure communication.

JOHN LEYDEN, VNU.NET.COM

■ PRINTER GIVEAWAY

HP is giving away £170,000 worth of its multi-function LaserJet 1100A machines to anyone still using its original 16-year-old LaserJet, LaserJet Plus or LaserJet 500 Plus. It says this is to reward users' loyalty. However, production of cartridges for the old models will cease on 1 November.

To claim a new printer call 00 800 23 624 624 or email exchange_hotline@hp.com.

■ MACOS X DELAY

Apple has delayed the launch of MacOS X, its next-generation operating system, until January – although a public beta will be available this summer to allow developers to have applications ready when it ships.

The new OS will support Java 2, OpenGL and is integrated with Microsoft's Internet Explorer browser.

A new version of the QuickTime media player with cross-platform support for MPEG 1 and 2 decoding and encoding will debut this summer, chief executive Steve Jobs told the Apple Developers' Conference in San Jose.

Intel 820 jinx strikes again

Intel faces another expensive and embarrassing bug fix on boards that are using its problem-hit 820 chipset.

The launch of the 820 was delayed last year because of problems accessing expensive RAMBUS memory (RDRAM). The latest problem, according to Intel, stems from the Memory Translator

Hub (MTH), which was introduced to allow the 820 to access cheaper SDRAM memory.

The hitch came to light when a user discovered that the MTH was susceptible to system noise.

This can result in intermittent reboots or hangs, with the potential for loss or corruption of data. It

does not affect boards fitted with RDRAM.

The MTH is used on all 820 motherboards that support SDRAM, including Intel's own CC820.

Anyone with this board is being offered either a refund or a VC820 motherboard – complete with 128MB of PC700 or PC800 RAMBUS memory. If you have an 820 motherboard contact your supplier for details.

Intel says recall costs are impossible to calculate until it knows how many people will choose the replacement rather than the refund. Asus and Gigabyte say they will both follow Intel's lead.

At the time of writing, 128MB of PC800 RAMBUS memory cost £471 ex VAT from jungle.com.

For those who are not sure what chipset is inside their machine, Intel has released a program, available in Windows and command-line versions, to detect its presence.

Details of the bug, and an 810KB utility that will test which chipset your board uses, are available at www.intel.com/support/mth

It's not all over for the MTH, though – Intel is working on a version that does not suffer from the same problems, set to ship with 820 and 820E boards in the third quarter of this year.

JASON JENKINS



Magellan claims this £115 ex VAT Global Positioning Satellite (GPS) receiver is the first at its price to support the NMEA interface standard, allowing it to link into navigation software on a portable computer. You would buy a £26.95 ex VAT interface to make the connection. Next Destination 01722 410 800

Stac becomes Previo for flagship launch

Stac, whose disk-doubling software was famously 'pirated' by Microsoft, has changed its name to Previo to launch the latest version of its flagship eSupport Essentials.

The company won a £75m settlement after something remarkably similar to its Stacker software, which compressed and

decompressed data on the fly, turned up in Microsoft's DOS 6.0 operating system in 1993.

(Life has its little ironies: Microsoft threw a press party this month to highlight the problem of piracy).

Quite what was wrong with the name Stac is not clear. CEO John Ticer said:

'We felt the need to reinvent ourselves.'

In fact, eSupport does build on Stac's compression expertise. It backs up configuration details of a company's PCs, laptops and mobile so users can have their familiar working environment restored after a crash.

Cost of the Baby Bills

A delayed unveiling of the next-generation Microsoft services was the immediate effect of the long-expected court ruling that the company be split into two 'Baby Bills' – one developing operating systems and the other applications.

Appeals could drag on for two years and the consensus in the industry, beyond companies that have been gunning for Microsoft, seems to be that whatever the justice of the ruling it will do little for IT.

Rival software houses will welcome the fact that Microsoft has to make new OS versions available to all developers at the same time. Microsoft has been repeatedly accused of giving its own application coders an edge with early access and secret 'shortcuts'.

Some PC makers will welcome curbs on preferential pricing that puts small vendors at a disadvantage. Microsoft is also barred from

'discouraging' the use of other operating systems.

More controversially, vendors are free to set their stamp on pre-installed copies and Microsoft is barred from tying other products into the operating system. This begs the question of what an OS is: Microsoft is not alone in arguing that it should incorporate the browser.

If Explorer is separated from Windows, we could find ourselves having to pay for the browser in future.

Chief executive of Microsoft Steve Ballmer claimed the court ruling would prevent 'any enhancements to Windows in the Internet area for three years'.

When Microsoft does bundle extra software with Windows it has to provide an uninstall mechanism and adjust the product price to vendors who choose not to include it.

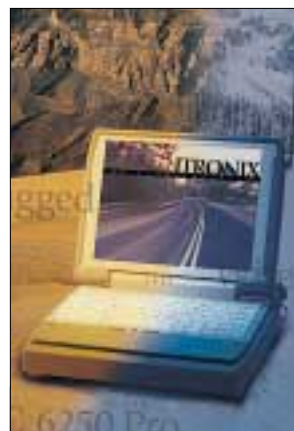
This seems to have been the reason Microsoft delayed unveiling its Next Generation

Windows Services (NGWS) that are intended to marry its web software to emerging access appliances. As we went to press the launch had been rescheduled for 22 June.

There are fears that there will be a brain drain from Microsoft as the uncertainty drags on and prices of shares, on which staff have options, stagnate.

Outside the company, the major fear is that the Windows standard will be diluted. Analyst Simon Moores, chairman of The Research Group, said Windows offers businesses a 'degree of comfort and consistency' available with no other operating system. 'It's expensive, and control of the standard has not always been wielded in the best interests of the customer. But still it has given us a platform on which we have seen the world change,' he said.

For more reaction to the case, point your browser at www.vnunet.com.



Itronix, which bought UK industrial notebook specialist Husky early this year, claims this rugged X-C 6250 Pro is the first of its kind to integrate GSM wireless connectivity. Prices range from £3,500

SURFERS SCARE BOSSES

More than three in four UK firms check what staff get up to on the Internet, a new study says. They fear that people who send insulting emails or download pornography could land them in court.

The study, by employment research specialist Industrial Relations Services (IRS), also found that companies are increasingly worried about the amount of time staff might waste by surfing the web.

A study by NetData reckoned that that such 'time wasting' could cost companies with 3,000 employees or more as much as £10m a year.

VNUNET.COM

New PowerVR chips into graphics battle

Imagination Technology (formerly VideoLogic) has tossed its hat into the graphics card ring once more. Hot on the heels of nVidia, ATi and 3dfx, Imagination has released details of the PowerVR 3 chip. PowerVR was seen as a competitor to 3dfx's Voodoo chipset back in 1996, but it failed to excite the public or press. PowerVR 2 was a similar disappointment on the PC, but was a lucrative success in the Sega Dreamcast console.

The new PowerVR 3 chip, christened Kyro, represents the first fruit of a joint venture between Imagination and STMicroelectronics (formerly SGS-Thomson Microelectronics). ST launched the chip at Computex in Taipei



Kyro chips will speed up performance

on 5 June and production boards should be available soon.

Kyro includes many of the latest features including hardware environment bump

mapping and full-scene anti-aliasing. Its most cunning feature is the ability to render only what is visible in a scene, speeding performance by ignoring detail that is hidden behind other objects. This also uses less memory bandwidth and means that SDR memory can be used instead of DDR, which helps to keep the

cost down.

How it works in practice remains to be seen. We will have a full review of a board in the next issue.

RIYAD EMERAN



Love affairs, insults, mucky pictures... there's so much time wasting for the boss to check up on, he can't get any work in

POSTCARDS FROM...



Clive Akass in Dresden, Germany

AMD will launch a new version of its 'Thunderbird' Athlon late this year (see story right) with up to 1MB of on-chip cache, the company said as its fab (pictured above) went into production for the first time.

Slated to launch at much the same time is a mobile Athlon codenamed Corvette; the 64bit Sledgehammer will ship next year.

There could be some confusion over the latest Athlon, with its 384KB on-chip cache (including Level 1) because it comes in both Slot A and Socket A versions. The former, which will quickly be phased out, will be sold exclusively to PC makers that want to use up stocks of Slot A motherboards.

But only a yellow sign saying 'with performance-enhancing cache memory' will distinguish it from an old, cheaper Slot A Athlon. Prices of the new version range from £200 for a 750MHz to £618 for a 1GHz.

The new Duron chips (see p77), which will compete with Celerons in the budget market, will cost £70 for a 600MHz, £96 for a 650MHz, and £120 for a 700MHz.

The new fab could avoid supply problems that AMD has suffered in the past. Manager Jim Doran says it is already producing 'hundreds of thousands' of chips and will be shipping millions by the end of the year.

He claimed that it would go a long way towards meeting AMD's aim of being able to supply 30 per cent of world demand.

Riyad Emeran reports on AMD and VIA launches, from Computex in Taipei.

Thunderbird chips are go...

The first manufacturer to ship a production AMD Athlon board last year proved that it's still at the cutting edge when it comes to AMD's latest technology. Gracing the MSI stand at Computex was an AMD Athlon Thunderbird running with a clock frequency of 1GHz.

The previous 1GHz Athlons were Slot A based and only sported 1/3 speed Level 2 cache. This meant that the Athlon's cache was only running at 333MHz compared to 1,000MHz on the Intel Pentium III Coppermine CPUs.

The balance, however, has now been redressed with this

socket-based Thunderbird Athlon boasting 256KB of full-speed Level 2 cache, just like the Coppermine PIII.

MSI was showing off the new super-chip in its K7T Pro motherboard, based on the VIA KT133 chipset. This board supports 133MHz SDRAM, which addresses the 100MHz memory limit problem suffered by the first-generation Athlons. Whether this latest chip from AMD will



outperform the 1GHz PIII remains to be seen, but it does prove that the race for the fastest x86 CPU is far from over.

...as K6-2 gets mobile

Proving that it can compete with Intel in the mobile as well as the desktop market, AMD showed its new notebook processor. The latest incarnation of the K6-2+ features AMD's PowerNow! technology.

Like Intel's SpeedStep technology, PowerNow! uses voltage and CPU frequency variance to extend the battery life of a mobile computer. Unlike SpeedStep, however, PowerNow! is not an on or

off solution. The CPU voltage varies from 1.4v up to 2v depending on the system load at the time.

If the notebook is almost idle, the CPU will run at 200MHz with a corresponding voltage of 1.4v. But if an intensive application is fired up, the voltage will jump to 2v and the CPU frequency will rise to 500MHz.

The PowerNow! functions can be active whether or not the notebook is running

on battery power. If, however, you don't want the auto-sensing speed changes, you can force the chip to run in 'maximum battery life' or 'maximum performance' modes.

The model we saw was a 500MHz chip, but there are already faster CPUs available. But whether Intel should start worrying depends on how quickly AMD can produce the parts in volume.

Notebooks use Crusoe – p40.

VIA Cyrix III aimed at budget PCs

Taiwan chipmaker VIA launched a range of Cyrix III processors running at between 533MHz and 667MHz. The chips, costing £47-£100, are targeted at the budget PC market.

VIA has been taking some of Intel's market recently because its chipsets support fast SDRAM at a time when

rivals from the US giant were hit by problems with expensive Rambus memory.

Most analysts believe that VIA has a long way to go before it can challenge Intel on processors and its edge on chipsets will erode with the imminent release of Intel's 815 chipset which supports a 133MHz bus.

VIA bought the Cyrix name and technology from National Semiconductor last year, but the new chip is said to be based on designs it bought from IDT. VIA also has a controlling interest in graphics specialist S3 and is expected to launch a processor with on-chip graphics.

www.via.com

Short stories



EYE OF THE BEHOLDER

The computer has finally become a fashion accessory. This outfit from Californian firm Charmed is one of several prototype wearable computing devices set to appear on the market later this year. It was unveiled at the recent Internet World 2000 in London.

STAYING CONNECTED

A new dialup utility claims to make easy work of connecting to the Internet and prevents you from being cut off during idle time. Other features include speed and time monitoring and automatic reconnects. But what really makes this software so different is that it's Russian. HiDialer 2000 costs around £15. A trial version can be downloaded from www.kgsoft.com.

TAPPING INTO WIN2K

Patches for Windows 9x and NT 4.x will enable companies to exploit Windows 2000's improved desktop management features without needing to install the new operating systems on workstations. The extensions, which are due to ship from 17 February next year, will allow desktop PCs to search for user profiles, printers and other objects via Windows 2000's Active Directory.

Toll-free access in turmoil

Teething troubles have continued to hit unmetered Internet links – though many users are said to be delighted with the service. (See our parent site at www.vnunet.com for the latest on the deals.)

Most problems stemmed from overwhelming demand from users and prospective subscribers. Complaints were mostly about timeouts, sign-up delays and engaged tones.

Users were warned to read the small print on their service agreements. Tiny Online cuts out after an hour, for instance, and LineOne after two hours, regardless of whether or not the line is in use. However, users can reconnect immediately – if they can get through.

Other operators have a 'no activity' timeout – as short as 10 minutes in the case of VirginNet's unmetered trial. Some software will simulate activity to deter this (see short stories left).

BT Internet, which unveiled a three-tier business version of its Surftime offer, has a 'fair use' clause enabling it to cut off users who are deemed to be hogging bandwidth. Grant Broster, head of BT Internet for business, said: 'This is a grey area. Obviously we want to provide as good a service as possible for our users.'

BT is one of the providers that allows unmetered ISDN access. Currently this is only via one 64Kbits/sec ISDN channel but Broster says work is under way to allow users to aggregate two channels.

LibertySurf, the new name of another toll-free pioneer, X-Stream, was so overwhelmed by subscribers that it was forced to suspend sign-ups. The biggest strain was on its free helpline, one of its major selling points.

'People were ringing up with queries that had nothing to do with the service,' said a spokeswoman. She said more people were being hired to cope with the demand but she could not say when sign-ups would resume.

LineOne also received



Broster: 'Fair use' clause enables BT to cut off users

complaints about poor service, though a spokesman denied that it had stopped taking new subscribers. 'We had some problems but now if you look at the discussion groups our users are very happy with the service,' he said.

Frustrated customers complained of waiting weeks to get linked to NTL's unmetered service, which is free to users in its franchise area and requires others to spend £10 on voice phone service. Some users have claimed that priority was being given to these paying customers.

NTL stopped advertising the service but denied that this was under pressure from the Advertising Standards Authority (ASA). 'We have spoken to the ASA in recent weeks and I believe it is quite happy that we warned customers that they face long delays,' said a spokeswoman.

Oddly, AltaVista, which set the toll-free bandwagon rolling in March by announcing plans for a service, was one of the slowest to come up with a firm offer: a £59 inc VAT sign-up fee, with no monthly charge or minimum spend regardless of which telephone operator you use.

Additional reporting vnunet.com

Prices set to fall following Of tel ruling

Unmetered prices should get cheaper following a decision by watchdog Of tel forcing BT to offer unmetered bandwidth to rivals.

Current services are based on a wholesale time-based version of BT Surftime rates, which BT offered earlier this year after complaints were made to Of tel. However, MCI WorldCom, which owns UK infrastructure provider UUNet, complained that

this was still anti-competitive. Of tel ruled in MCI's favour.

To comply fully BT will have to allow rivals to put boxes in local exchanges, because of the way billing is spread across the network. The telco has until the end of the year to make the changes.

In the meantime it must charge providers around £425 a month for 64Kbits/sec unmetered – the level of service will depend on

how many people service providers think should share this bandwidth.

But WorldCom's regional affairs director, Richard O'Brien, said: 'We have won a significant victory for users.'

However, Kyle Lamb, of the Campaign for Unmetered Telecommunications, predicted that BT would try to delay implementation. 'They are already trying to wriggle out of it,' he said.

Instant messaging services are flooding onto the market in anticipation of massive uptake.

Free phone calls will change lives

Vendors are rushing out products to cash in on an expected boom in instant messaging services and web telephony, which in theory allows you to call free to anywhere in the world.

The boom, triggered by unmetered and always-on data connections, will eventually have a profound effect on the revenue streams of telcos like BT. The prospect of the boom lay behind AOL's battle to prevent its instant messaging service from working with rivals from Microsoft, Yahoo and others.

Most of these services offer, or will offer, voice and video links as well as text-based chat. They differ from email in offering realtime communication, enabling you interact with a group of friends almost as if you are in the same room. They are likely to have considerable social effects as bandwidths increase, transforming in particular the lives of people isolated by age or illness.

Voice-over-IP, by which speech is packetised and sent like any other web data, is much used to carry voice

traffic on corporate data networks. Across the wider web, conversations currently sound like mission control talking to the moon, with long pauses and broken voices.

This is because IP4.0, the current version of the protocol, was not designed for time-critical data. IP6.0, which should be in widespread use within a couple of years, copes better by setting priority levels for packet deliveries.

Four new products, all claiming improved voice quality over the web, were launched in May by vendors anxious to jump on the bandwagon before it gathers pace.

Affinity Internet Holdings, which claims more users in the UK than AOL through client services like Tiny, Breathe.com and Arsenal, jointly launched US-based Visitalk's messaging client.



Instant messaging could bring family and friends closer together

This allows video, voice and text calls anywhere in the world and will shortly allow PC-to-phone connections to some destinations. It also supports videoconferencing and whiteboarding, allowing remote users to share a virtual drawing board.

It claims to be the first to offer a global directory, allowing you to contact anyone in much the same way as you look up someone in a phone directory. You can

download a client from www.visitalk.com.

Another service, PC2Call, allows global calls from a PC to a phone at greatly reduced rates to people who register at its site (www.pc2call.com) – you don't need to download a special client. Managing director Hervé Mary claims the quality is as good as that on a mobile phone. Calls in Britain are free as an introductory offer.

Soon after came Go2Call (www.go2call.co.uk), which offers a thin client providing free PC-to-PC calls between the US, Ireland, and the UK. Already established with similar services is Net2Phone (www.net2phone.com).

HearMe launched with a slightly different approach. You can download its client at www.hearme.com for PC-to-PC connections and PC-to-phone services will follow. You can also license the technology to allow conversations with, or among, website visitors. This can be used for conference calls, support desks, tutorials, call centres or (may the saints preserve us) Karaoke-style singalongs.

GRAPHICS

What's in an image?

Fractal compression, invented by US-based Englishman Michael Barnsley, has always seemed to occupy some shadowland of its own between pure mathematics and magic. It exploits the fact that life itself is fractal, which is to say that shapes repeat themselves at different orders of magnitude – and fractals, though infinitely complex in appearance, have very simple mathematical descriptions.

Images are analysed for their fractal components and stored as a set of coefficients to simple fractal equations. These numbers, unlike bitmaps, bear no obvious relation to the source image. Yet when the equations they represent are iterated – that is when the result is repeatedly fed back as a starting value – they can recreate the image.

Barnsley's company Iterated Systems sold a number of products based on the fractal .fif image format but it never gained wide acceptance, perhaps because compression required so much processing power. But the technology is now being applied in new ways.

An odd feature of fractal decompression is that you can keep iterating the equations



Fractals... repeating patterns at different scales

until you get definitions far beyond those of the source image: you can put in detail that isn't there. This isn't as outrageous as it sounds: our brains do it all the time. If we see green on a tree we register leaves even if we can't see them: because we know what one leaf looks like we know roughly what they all look like. Fractal enhancement is said to be much better than standard techniques of inter-polating extra pixels based on the values of their neighbours.

AltraMira has licensed the idea for a series of Adobe Photoshop image enhancement plug-ins. Iterated Systems has just launched into the UK a new enterprise-scale image management system called MediaBin, used by, among others, Ford. This uses standard formats rather than fractal files for storage because, said marketing vice-president Burton Smith, 'we decided our customers did not want to cope with yet another file type'. At around £35,000,

you wouldn't buy it for your home PC. But you may find yourself using one of its party tricks: a search engine that can find images by appearance as well as keywords.

If you want a picture of a cow, all you need to do is show it what a cow looks like. You can also find a picture that looks something like what you want and say 'find others like this'.

Iterated Systems has teamed up with Wham Tech to bring these facilities to the web in what is being called a next-generation Visual Search Engine, which will cache non-pornographic images from sites across the world. It is expected to be up and running by 2002.

Smith says it could also be used for tasks such as porn-filtering – though it would be hard to distinguish between smut and, say, medical illustrations. But you get this with text too, as AOL found when it banned the word 'breast' and was flooded with complaints from women wishing to discuss breast cancer.

CLIVE AKASS

www.wholeimage.net
www.mediabin.com
 Iterated Systems UK
 01344 761000

Short stories



PC CARDS DROP IN PRICE

Demand for some multi-function PC Cards has fallen because many notebooks now have an inbuilt modem. This 10/100Mbps/sec network interface card, for CardBus slots, costs just £42 ex VAT. Buffalo 01753 677545

ONLINE TAX DRIVE

Small business are to be encouraged to file their VAT and PAYE returns on the Internet. HM Customs & Excise will launch an e-filing campaign this September highlighting the benefits of sending returns electronically when the scheme launches next April. Small businesses that file their tax electronically will get a £50 discount for each return. They may also get more time to pay.

OS/2 DEATH

IBM's OS/2 operating system looks set to go the way of all flesh from next year. The company says no more client fixes will be released from 31 January and for servers from 31 May. Updates for Workspace On Demand will cease on 31 January 2002. Support will continue in what IBM called a 'special-bid, fee-based' basis.

BORLAND DEAL OFF

Corel's proposed £668.75m purchase of software tools specialist Inprise/Borland has been cancelled 'by mutual agreement'.

Crusoe laptops on show

As we went to press, a number of notebooks using upstart Transmeta's Crusoe battery-saving chips were expected to be on show at New York's giant PC Expo.

They will include machines from IBM, Compaq and Gateway. Transmeta, which employs Linux guru Linus Torvalds, launched two Crusoe chips in January. The chips use a Very Long Instruction Word (VLIW) architecture requiring far fewer chips than standard processors and thus drawing much less power (see PCW, April, News, p38).

But their performance is lower at any given clock rate because of the need to translate standard PC

instructions. However, the company argues that this does not matter, as processing speeds currently exceed the needs of most users.

Crusoes draw between a few milliwatts to 2w, which compares with a minimum 6w for a mobile Intel or AMD chip. National Semiconductor claims to have made an x86 chip 'typically' drawing around 1w.

Gateway, which will use Crusoes in a webpad device, and AOL are among a group of investors that have injected £55m into Transmeta.

Some of the models on show at PC Expo will be prototypes and some will

be in production, said Transmeta. First International Computer, which will show an Aqua Webpad, based on a Crusoe 3200, says it will enter volume production by November.

IBM is manufacturing Crusoes and will show a Crusoe-based Thinkpad 'as a technology demonstration', but is considering putting one on the market late this year, a spokeswoman said.

Brian Hurst, director of worldwide sales for Transmeta, said that three new Crusoes will be released shortly: the 3300 and the 3400, both aimed at the appliance market, and the 5600 for use in notebooks.

Spyglass gives Mosaic mobile look

Net oldies will remember Mosaic as the first widely accepted graphical browser that transformed the Internet from a private domain for propellor heads into a mass medium. It was perhaps the most influential piece of software since the first spreadsheet.

Netscape, which gave jobs to most of Mosaic's student designers, was forced to drop



the name Mosaic for its commercial browser.

Spyglass licensed it and used the name for a series of embedded browsers. Pictured is its latest incarnation, Spyglassmobile, which was shown off at Internet World. Next to it is the same information as it

appears in a WAP browser. www.spyglassmobile.com

Surf the web prior to take-off

Finally there's a reason to visit Ottawa, in Canada. Laptop users visiting the airport can rent or buy a PC Card that lets them access the web while they wait – at 2Mbps/sec.

The Nokia Wireless network card works anywhere in the airport – I tested it in the 'bathroom', although I did get some funny looks. The £7.50 rental fee is good for the entire time you're in the airport.

The system comes from a company called Skylink, which demonstrated it using a video stream from Bloomberg TV and the quality is amazing. Apparently, the link is ADSL from the access point.

You can also buy the card for around £150 and then you only pay £17 for 300 minutes online. Ottawa has the only fully working system, but at several airports in the US, including Chicago, the

system itself is working, although the billing software doesn't yet. So free Internet access is yours for the taking for the time being.

Skylink plans to expand into hotels and railway stations too. But it has yet to find a way round the scarcity of mains power points at airports, which means laptop users might have to drain their batteries.

JONATHAN SAVILL

www.skylink.ca

SPEECH RECOGNITION

Speech devices strike a chord

Two of the world's leading speech-recognition engines are to be merged following Lernout and Hauspie's takeover of its arch-rival Dragon Systems, provided shareholders agree to the deal, which would make the company global market leader.

In the short term L&H's Voice Xpress and Dragon Naturally Speaking products will be sold and supported separately, L&H president Gaston Bastiaens told journalists at his Ypres, Belgium, headquarters. 'Eventually we hope to combine the best in both engines,' he said.

He claimed the latest Voice Xpress, version 5.0, is up to 30 per cent more accurate than its predecessor thanks largely to a hesitation filter which recognises and cuts out your 'ums and ahs'. A UK version is due to ship about the time you read this.

Dragon uses purely statistical methods for its recognition, whereas Xpress tries to take account of

meaning and context, but neither is good enough yet to see off the keyboard. Nor, come to that, are rival products like IBM's ViaVoice and Philips' FreeSpeech.

But many people, particularly poor typists and the disabled, take to them and, given specialist dictionaries, they are said to sell well to the likes of lawyers and radiologists whose work has traditionally involved a lot of dictation. L&H has also just bought Dictaphone in a bid to tie up this market.

Most of its revenues still come from niche applications such as voice-response systems where speech recognition is a lot more effective because it needs only a limited vocabulary – it does not take much to distinguish, say, a yes from a no. Rivals in this field include UK-based Vocalis (see box).

This work also uses L&H's RealSpeak text-to-speech translation product which can be used to read out email and news reports – it is the voice behind Press

Association's Ananova virtual newsreader at www.ananova.com.

Eerily, the technology can use any voice as its model so you could set up a website or voice-response system talking with the voice of a 'virtual you'.

Closely related is L&H's work in machine translation, for which it sees a huge market, particularly in the Far East, as web usage increases globally. Websites can be enabled for on-the-fly translations which are good enough to catch the gist of the source content. You can also email material to L&H for

translation by native speakers.

Florita Mendez, president of globalisation and Internet translation, says this is particularly important for business letters where translation may need to be cultural as well as linguistic: 'What may sound right in English may sound extremely rude in Chinese.'

Multinational companies with scattered staff speaking many languages can license translation services and constitute one of L&H's big markets. Mendez says machine translation can be very effective for tasks like multi-lingual manuals because they can be written from scratch to facilitate it.

Handhelds using compact speech recognition and translation engines are expected to evolve from talking dictionaries to handheld translators but, judging from some of the output of current speech recognition products, you can expect some surreal, even dangerous, conversations.

CLIVE AKASS

Vocal talents

Cambridge-based Vocalis' SpeechMail is used by service providers to access email via a telephone. Its sister product, SpeechHTML, provides similar facilities for web pages, allowing companies to offer voice portals. Demos are available at www.vocalis.com.

Voice-driven handheld set to launch this year

L&H has been showing off its prototype voice-driven personal digital assistant called the Nak, versions of which could be on sale by the end of the year. It is about the size of a mobile phone, with a directional microphone at the bottom and a pen screen, which can be slotted out of sight when not in use (see picture). L&H said it expects most interaction with it will be by voice rather than by pen.

Nak, driven by a 207MHz Intel StrongARM processor, uses L&H's latest Voice Xpress version 5.0 speech



recognition software with its RealSpeak text-to-voice converter. E-mails can be accessed through verbal commands, with RealSpeak reading the messages aloud. Voice Xpress translates dictated replies into text for sending.

Nak also uses what is being termed 'ambient intelligence', a store of information about the user which it can draw upon when fetching information. For example, if you ask it to find out what the traffic is like and you have told it that you live in Edinburgh, it will find the appropriate

local information for you.

The demonstration was impressive. However, the big question is whether the expectant silence that accompanied it affected the results. It's hard to imagine that street noise, or even general office noise won't make voice interaction difficult, or impossible.

L&H says its directional microphone eliminates virtually all background noise. But whether or not this is too good to be true will only be confirmed when Nak models are released by licensees of the design.

SCOTT MONTGOMERY

TEETHING TROUBLE

The new fast link is great – but don't bet the farm on it yet, warns Gordon Laing.

My ADSL hell – a cautionary tale

Demon Internet has been running a trial of its forthcoming IPStream S2000 ADSL service since March, and claims it's well on its way to connecting 500 selected trialists. I was one of the 'lucky' 500, but only received the call that BT was ready to plumb in the hardware during the last week of May.

On the Thursday I was informed that my line was fine and I should expect the engineers to come over the following Tuesday morning. Sadly, on Saturday afternoon, my phone line went dead. I'd heard of some ADSL trialists temporarily losing their landlines and so assumed it was related. Unfortunately, for landline problems I had to go through the standard residential BT complaints line at the weekend, which duly logged the call, but wouldn't elaborate beyond the fact that an engineer was on the job.

As Saturday turned into Sunday, then Monday, I really began to realise how much I depended on my phone line. Not just for voice calls, but all data services too, as I work from home. Losing my landline meant losing my ability to electronically receive or deliver work, resulting in several unscheduled trips into town with floppy disks.

Tuesday morning arrived with my ADSL engineers, who were unaware of my landline problems. Fortunately, mid-installation of no fewer than three ADSL boxes, another BT engineer got my landline working again. ADSL was another story: hours of tweaking and head scratching later, we called it a day.

Wednesday morning, still no ADSL, with BT claiming it was a problem with Alcatel's software or cards at the exchange. As if in sympathy, my landline again gave up the



On a clear night you can see Mars ... ADSL may have its teething problems, but try browsing hi-res images such as this one, of the Mars' polar ice cap, on an old steam dial-up modem. It is one of 25,000 taken by the Mars Global Surveyor that have just been posted at the Malin Space Science Systems site at www.msss.com

ghost, but popped back on again later that afternoon.

By Sunday, I still had no ADSL, nor any explanation of what had gone wrong. However, as a reassuring sign that someone was trying different settings out at the exchange, my phone line again went dead. As luck would have it, this weekend was a bank holiday, with the old BT residential complaints line advising that delays may be experienced.

It took until the following Tuesday for an engineer to come round and check out the problem and by this time, I was desperately cashing in any PR favours. My line was tested and verified up to the exchange, but there was still no dial tone or ADSL.

That evening, still with a dead landline, I noticed a set of lights flicker into life on my ADSL router. I fired up my web browser and bingo, it was working. Not only that, but it was quick. After several hundred emails, a Los Angeles radio station and much downloading, I noticed it was well past my bedtime.

Wednesday morning and in exquisite irony, my ADSL

connection died mere seconds before a BT engineer triumphantly called to tell me he'd fixed my landline. Half an hour later, the lights flickered into life again, and for the first time in 10 days, both my landline and ADSL were working simultaneously.

Now one week later, both landline and ADSL are still working well. In fact, they're working beautifully. I'm not surprised to discover that ADSL has changed the way I work and I could not return to a conventional dial-up account. Rather worryingly though, at the time of writing, no-one at BT or Demon could explain why I experienced these problems. I understood my trial ADSL service could be

variable, but you'd hope most of the bugs would be ironed out by now. With ADSL about to go live mere weeks after my line went inexplicably dead for the best part of 10 days, I'm not convinced it's ready. Hopefully, my experiences will have provided good technical feedback.

BT conducts tests on lines before installation, but clearly its survey didn't reveal my problems. BT also claims its ADSL 'support and service will be managed all day, every day, by a state-of-the-art Operational Support System'. I hope they'll handle dead landlines, too, as pre-launch I had to go through the BT residential complaints procedure where results took three days and few people had heard of ADSL – 'no, you mean ISDN' – I was told on several occasions.

The moral of this story? When it works, ADSL is wonderful, but then there's not much traffic yet to slow the service down. And there's the issue of dead phone lines. No-one seems to have any idea why my problems occurred, but I'd advise anyone who relies on their phone line to fit a spare, or give ADSL a few months to settle down first. I've certainly got mixed feelings about ADSL: I adore the service but I don't appreciate 10 days of being incommunicado.

Cable on a delayed roll

NTL has extended its £40-a-month cable modem service from Hants, Nottingham, Teesside, Cambridge and South Wales into Glasgow, Belfast, Herts and Beds. Access speeds are a nominal 512Kbits/sec downstream and 128Kbits/sec upstream. Initial user reaction is positive, judging from newsgroup discussions, although, like ADSL, the service has yet to approach congestion levels. NTL denies people have complained about delays in the rollout which was announced more than a year ago. But at least one PCW reader has had a letter apologising for the delay.

PHOTOGRAPH NASA/JPL/MSSS

FUTURE

BT Internet's Robert Salvoni tells Clive Akass about prices and strategy.

The unlit path to home hubs

Trailing across Britain are bundles of 'unlit' fibre – bandwidth by the terabyte, waiting for the broadband goldrush. How much and how quickly it gets used will depend on price as much as technology – and prices of ADSL, BT's broadband offering, are not low.

Dialup users, puttering along at 50Kbits/sec maximum, could be forgiven for feeling like motorists forced to pack the byways because they can't afford motorway tolls. So are we crawling in order to boost telco profits?

Robert Salvoni, head of broadband strategy for BT's Internet and ebusiness divisions, says BT Internet will lose on its £39.99-a-month home ADSL service. But this is not calculated on the cost of provision: BT Internet is an independent service provider, buying capacity from BT at prices agreed with the regulator Ofcom.

Prices will come down, promises Salvoni, though he will not go as far as former BT interactive-services chief John Swingewood, who predicted

a couple of years back that ADSL will be free, its costs covered completely by transaction and advertising fees. Salvoni says you pay one way or another and that a 'free' service, loaded down with adverts, is not necessarily the best option.

A common misconception is that ADSL bandwidth is guaranteed. In fact, this is true only to the local exchange, which still gives ADSL an edge over rival cable modems that have to share capacity with others. (Though cable, with its multiple channels, has a lot more headroom: on present reckoning, ADSL variants could push data rates to a maximum of 'only' 8Mbits/sec. Yet, according to predictions made within BT itself, home links could be up to 10 times faster than that in a few years.)

Beyond the exchange



Robert Salvoni has a job worth smiling about

ADSL has a contention ratio of 50 users to one channel on business lines and 80 to one on home lines. Salvoni, in his Thameside office, points to charts showing how these figures maintain data rates on 'typical' line use, which is highly efficient thanks to the data packetisation.

He agrees readily that traffic patterns are likely to change drastically as people find new ways to use the links. This is where all that unused fibre comes in. 'We will monitor usage very carefully and switch in more capacity as and when it is needed.'

The shake-up of BT into business units does seem to have shaken the old lady out of her torpor. Salvoni and his colleagues throw ideas around like Silicon Valley entrepreneurs – complete with the jargon.

'We are very committed to multiple access,' he told us, meaning that BT Internet would be accessible by TV, WAP (wireless application protocol) phones, dialup, webpads – even cable, where appropriate. There will be deals bundling fast mobile and fixed broadband access.

The company is also exploring the possibilities of exploiting satellites in conjunction with ADSL and other fixed links, relieving line congestion by skycasting some data. This in turn could lead to 'home hubs', taking data from multiple sources and distributing it to a variety of devices.

Salvoni knows he is at the forefront of momentous changes and he clearly relishes the fact. 'This is the best job in the world,' he said. 'I would not swap it for any other.'

As the mcommerce buzz heats up, Tim Bajarin shows the way to Silicon Valley's inner sanctum.

Upwardly mobile markets

Developers and vendors are drooling over the possibilities of buying and selling via mobile devices as mcommerce becomes the latest buzzword to hit Silicon Valley. WAP phones and wireless-enabled handhelds are relatively new in the US putting it some way behind Japan where DoCoMo has sold six million Internet-enabled I-Mode phones.

Microsoft and AOL are both optimising versions of their online services for mobiles. But leading the charge is Palm Computing, whose Palm VII handheld has been on sale for a year complete with a dedicated wireless service. Adoption, outside specialist markets, was slow at first because few were willing to pay around £31 a month for 50KB of mainstream information. But it has really taken off now Palm is charging approx £28 per month a user can get unlimited data.

Palm says stock quotes and news remain the main attractions but stock buying, through Fidelity, is on the rise; so is booking flights through



Mobile accessories are another big emerging market. This £39.95 PDA survival kit includes screen overlays, cleaning kit and styli that fit onto pens. Available from Fellowes 01302 885331

Travelocity. I have sat in an airport and with one stroke of a stylus on my Palm VII caused books to be sent to my home from Amazon.com's headquarters thousands of miles away. I still marvel at its apparent magic even though I understand how it is done.

Vendors predict mobile transactions worth billions of dollars worldwide and they want a piece of the action. But the profit is not necessarily in the devices themselves but rather the services they deliver. Competition for users willing to pay monthly subscriptions or per-minute usage will be stiff.

So service providers will be forced to subsidise some customers in order to get to the Holy Grail of an mcommerce customer base. In this model companies like AOL and Microsoft will get subscription fees as well as a percentage of every transaction made over their mobile services.

Palm has the current lead among handheld users with its dedicated Palm VII service but a new company called Omnisky has launched a competing service that should give it a run for its money. This competition should drive down subscription prices.

In the WAP phone arena, Nokia, Ericsson and Motorola are teaming up with the likes of Nextel, Bell South and many other local cellphone carriers to create services and commerce links.

Research in Motion (RIM) has just introduced a larger version of its popular Blackberry two-way paging device that packs wireless Internet link. Services will be limited to messaging and email at first, but a browser providing access to web information and mcommerce is coming soon.

Similar facilities will be available this year for new pagers and services from Motorola and Bell South. And this is just the beginning. I expect many more vendors and service providers to get creative with the possibilities of mobile devices.

Further adventures in venture capital

I have received a number of letters and emails over the past 12 months asking me to share some of the inner workings of Silicon Valley, particularly on issues of how venture capitalists (VCs) decide what companies to back and how deals are put together.

As you perhaps know VCs have put billions of dollars into Internet start-ups over the past three years. They are much more cautious these days, given the market

downturn, but the basic principles of what they look for in a company are still sound.

Although I have spent many hours dealing with VCs and start-ups and understand how the deals get done I could not do justice to the topic in this space even if I wrote about it for months on end.

But Randall E Stross' *eBoys: The First Inside Account of Venture Capitalists At Work* gives a marvellous account

of how the world of venture capital works, particularly in the wake of the current Internet boom. It covers the true story of the men who backed eBay, WebVan and other billion-dollar start-ups.

Stross was given unlimited access to the guys who run Benchmark Capital and has written the first inside account of VCs at work. This is a great read for anybody who is even remotely interested in how

Silicon Valley money works and high-stake deals are put together. If you are thinking of courting venture capitalists to start a business of any type, this is a must read and one that gives a very concise understanding about the art of deal making, Silicon Valley style.

● *eBoys: The First Inside Account of Venture Capitalists At Work* (ISBN: 0812930959) \$18.17 (approx £11.35) from Amazon.com

From Acorn grows one to watch

Element-14 has been picked as one of the 'Year 2000 Ten to Watch' companies by *Red Herring*, the bible of US hi-tech investors – just nine months after rising from the remnants of pioneer UK computing group Acorn.

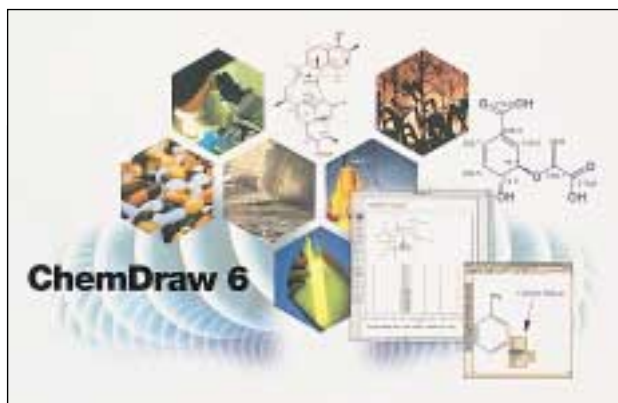
The descendant of the company that manufactured the BBC Micro, on which many IT engineers cut their teeth, is targeting the emerging broadband market with designs for digital, analog and mixed signal processors, as well as software, tools and reference designs.

Backed by US venture funding, it already has 63 staff, including 56 engineers, in three centres in Europe.

Chief executive Stan Boland is bullish about its prospects: 'We're widely regarded as Europe's hottest silicon start-up,' he said in California, where he picked up the *Red Herring* award.

'Our first chips will make it possible for telecommunications equipment vendors to break the mould in standards-based DSL equipment, enabling the broadband internet explosion to be realised.'

Element-14 has onboard architects of the Acorn



Element-14 is, of course, named after silicon, which is number 14 in the periodic table. If you want to visualise that, or any other molecular structures, you can do so with ChemDraw from CambridgeSoft. The latest Ultra Version 6 includes features for handling stereoscopic chemistry. It costs £975 ex VAT and is available from Adept Scientific on 01463 480 000.

www.adeptstore.co.uk

Group's original RISC chip, and intellectual property and tools they helped create.

Boland has quite a pedigree of his own. He took over as Acorn's CEO two years ago after helping to spin off chip developer ARM, whose success he intends to emulate. He is pinning his hopes on the explosion of the digital-signal-processor (DSP) market which is expected to grow to 1.3 billion by 2002.

Despite competition from the likes of Texas Instruments,

Boland believes he is onto a winner, making chips that will maximise the line density on telco networks. RISC technology 'will allow machines to run at lower voltage and support more channels on a single chip than those of competitors,' he claimed. 'It will be the world's most powerful processor for this application.'

Element-14 is setting up a DSL engineering design

facility in Belgium and scooped up the leading design team 'who designed the last five generations of Alcatel's DSL chips'.

The company's 21-strong silicon design team – built around a former ST Microelectronics team – is based in Bristol. In the next few months Boland plans to open a US office. Last July in the first round of funding the company raised £8.1m from US tier-one companies; a second round is expected to bring in another £6.25m to finance continued product development and the initial design stage of the company.

First working models are four months away with the Firepath processor, or Santorini digital IC, initially operating at 500MHz; first products will be sampled late in the fourth quarter.

Boland views the future's high-speed Internet usage as an unbounded opportunity for Element-14. 'We are right at the genesis of delivering bandwidth into people's homes,' he said.

www.e-14.com

Caroline Swift



reports from Silicon Fen