news

Reprieve for Windows 98

Windows 9x has been reprieved, Microsoft has confirmed. The operating system was to have been phased out in favour of Windows NT, giving one code set for both business and home PCs.

Reconciling their needs has proved more difficult than Microsoft expected. One advantage of a single core OS, which remains a goal, is that peripherals would need only one set of drivers.

Microsoft says it will issue service packs and updates to Win 98 for the foreseeable future.

A consumer NT is unlikely to ship until well after the launch of Windows 2000, successor to NT 4.0, which seems to have slipped well into next year.

VNU NEWSWIRE

Cable vies with ADSL as web runs fast and free

Fast, relatively low-cost web links for UK users moved tantalisingly closer last month as cable companies announced plans to compete with BT's ADSL.

One slight dampener came from BT, which has extended its ADSL trials in London to 'overcome a few problems which had arisen.'

But interactive marketing manager Rebecca Webster said she still expected a rollout to start late this year.

NTL, one of Britain's big three cable companies, says it will begin rolling out a data service for cable modems in a couple of months.

Charges have yet to be announced but sums of £30 to £40 a month have been talked of for both cable and ADSL. This pricing is likely to fall — perhaps to nothing.

A company called Edge Technology is offering ADSL anywhere in the country now for £500 a month, but that is with

guaranteed quality of service.

See my news analysis for more on this and also on how cable and ADSL compare: NTL offers 256Kb/sec each way, ADSL gives 2Mbit/sec downstream and 256Kb up; but these figures are deceptive.

NTL is using 3Com modems, which users will have to buy, and its net service will be hosted by Virgin, which is also trialling ADSL. The other two cable companies have similar plans to NTL's but are being less forthcoming.

Meanwhile BT became the latest company to offer free access following the runaway success of Dixon's Freeserve, which claims to have topped a million users since it started late last year. Tesco is also launching a similar scheme.

Ironically BT is one of several companies which complained to telecoms watchdog Oftel about the free services.

Oftel is investigating but denied a report that free web access is under threat. Access is partly financed by a cut the provider is taking on the call charge by acting as a reseller for BT. An Oftel spokeswoman said the dispute is about the size of this cut and does not put the service at risk.

Oftel is also looking at BT's ownership of the local loop, the final link to homes, which could become an issue as ADSL use spreads. BT gets to far more homes than cable.

CLIVE AKASS

New Nokia handheld

Nokia has launched a new version of its groundbreaking Communicator, which combines the functions of a phone and personal organiser. The new 9110 boasts a MultiMedia Card slot for extra storage, a backlit screen, and improved user interface. A new PC suite facilitates the synchronisation of data with that held on a PC. Users will be able to send pictures wirelessly by linking to a digital camera via and infra-red port.

The 9110 uses an AMD 486 chip and the GEOS operating system. Prices were unavailable as we went to press. *www.nokia.com*

III is a crowd as Intel and AMD launch new chips

Intel finally launched its PIII last month amid massive advertising. But even at this top end of the market it is facing increasing competition, *writes Ajith Ram*.

Evidence is surfacing that it is not as powerful as assumed. Some developers optimising their games for PIII report a modest 20 to 25 percent boost compared to Intel claims of up to 200 percent.

Internet reports suggest that AMD's cheaper K6-III, due to launch this month, might equal or exceed PIII performance. If true, a K6-III with a decent graphics card could be a tempting alternative.

Mike Magee writes: The fact that AMD used the Roman K6-III to match the new Pentium is likely to infuriate Intel, which somehow persuaded AMD not to call the K6-2, the K6-II, like the rival PII.

The new chips sparked an expected round of price cuts on other chips, with Celeron prices falling up to 24 percent and commensurate cuts from AMD.

● Intel's forthcoming 64-bit Merced, aka IA64, will be 20 times faster than the Pentium Pro and three times faster on 3D graphics than the Xeon, says an Intel document. It is due to ship next year.

Enter the throwaway PC

A new highly-integrated chipset could lead to the throwaway PC — one which you upgrade by swapping in a new system box.

The Apollo MVP4 chipset from VIA Technologies heralds a new wave of PC design in which functions, such as graphics and sound, which now sit on expansion cards or the motherboard will be packed into the core logic chips.

This will limit upgrade options but there is huge interest in no-fuss machines which allow minimum user intervention.

VIA is keen to promote the chipset for use in laptops. It integrates 3D graphics with simultaneous CRT and DFP support, TV out and video capture; other features include AC-97 audio, soft modem, UDMA/66 and support for four USB ports.

The design looks forward to the Device Bay architecture, which turns the PC into a stack of modules linked by USB and 1394 buses. You upgrade simply by adding or swapping a module; emerging low-cost designs mean this can include the system box.

Next in Via's pipeline are the Apollo Pro133 chipset, with support for AGP 4x and the emerging 133MHz front side bus, and the VIAFire VT 6305 which integrates 1394, Device Bay and LAN support.

Marketing director Dean Hays said further integration of core logic with the CPU is possible but will not be pushed without the support of main processor manufacturers.

VIA was the first company to acquire a development license for producing core logic chipsets on Intel's Slot 1 platform.   **IAN ROBSON**

Via www.via.com.tw

Revolution in the Palm of your hand

Two more Palm handhelds have been launched by 3Com, *writes Paul Smith*. The £280 Palm IIIx looks like the Palm III but has a crisper screen, 4Mb of RAM and a faster processor. The sleek £350 Palm V (pictured) is likely to make more of an impression. It's about half as thick as other Palms and weighs less than 4oz complete with an anodised aluminium case. It has the same features as the IIIx but only 2Mb of RAM (the same as the standard Palm III). But, unlike other Palms, it uses rechargeable lithium-ion batteries. The software is essentially unimproved. Britain is unlikely to see the recently announced Palm VII, with integrated wireless data comms, for some time. There are also no plans to follow the Windows CE PalmPC route of colour screens. See next month's PCW for a full review of the Palm V.

Lotus notices Linux

The long-awaited Release 5 of Lotus Notes and Domino was due to ship as we hit the streets.

It was expected to launch in time for January's annual Lotusphere conference but was delayed.

Lotus president Jeff Papows surprised the conference by announcing that he would ship a Linux version of Notes, though the operating system would not come for free.

The announcement rever-ses an earlier decision. 'I've change my mind,' he said.

Linus Torvalds, creator of Linux, has just signed off the latest release 2.2.0 which supports a variety of processors.

The OS has got further support, with Silicon Graphics and Hewlett-Packard saying they plan to offer it on their servers.
● The new Notes — page 40

Lotus www.lotus.com

Watch out scruffs, the army's here!

Long-haired scruffs of programmers at ICL could be in for a dose of spit and polish

The services company is reported to be recruiting ex-soldiers to make up for a skills shortage.

ICL apparently believes officers used to leadership and discipline will make good project leaders.

Ironically the army has been trying to recruit young PC buffs as soldiers.

Nice report Colonel. But don't you think it is a teensy bit tactless to keep referring to the client as the enemy?

Y2K bug affects most new PCs

Nearly 98 percent of new PCs are still not fully 2000 ready, says Y2K specialist Fernlink. They have what is called the latency bug, of no importance to most users but potentially disastrous to some, managing director Ralph Terrill said.

The 'latency' is a delay in updating the BIOS date. This is done only on boot-up or on a call to the BIOS, which gets the information from the PC's built-in digital clock.

The BIOS stores the vital century digits at address 32H. A problem arises if a program reads the date directly, bypassing the BIOS and thus not prompting an update.

This happens mostly in custom-written software. 'But mission-critical software is often bespoke and it runs on machines which are likely to be on all the time,' Terrill said.

Many buyers of his hardware solution are military.
● Greenwich Mean Time has launched a five-user small-business edition of its Y2K bug-buster, Check 2000.
GMT 01329 825468; www.gmt-2000.com; Fernlink 01202 522324

Red faces over $6.3b profit

Microsoft, embroiled in an increasingly embarrassing antitrust trial, tactlessly reported 40 percent profit on an income of nearly $5 billion in just the last three months of last year.

It made $1.98billion, an increase of 70 percent on the previous year, on revenues of $4.94 billion — up 38 percent. Revenue for the whole year, up to December 31, was $16.6 billion, of which $6.36 billion or 38 percent was declared profit. Microsoft says the real profit, taking into account the cost of staff stock options, was $5.375 billion.

Chief economic defence witness Richard Schmalensee, dean of MIT's Sloan School of Management, was forced to defend the figures at the DoJ hearing where Microsoft is accused of illegally protecting an operating-systems monopoly and using it to muscle in to the internet browser market. Government lawyer David Boies asked if a string of profits as large as Microsoft's could indicate a monopoly. 'A valuable piece of intellectual property can indeed yield a long string of profits,' replied Schmalensee.

If Microsoft really had the monopoly claimed by the government, it would be charging up to $2,000 for Windows. 'It's absolutely at odds with common sense that a monopolist would settle for $50,' Schmalensee said.

ADDITIONAL REPORTING, DOMINIQUE DECKMYN
● *Microsoft the minnow?*

Not just a pretty picture

This gouache by Robert Pell of Brackley, Northants, was part of a web exhibition by local dealer Right Angle, which has been selling antique prints, drawings and watercolours since last year.
http://users.powernet.co.uk/pictures

Gamblers anonymous

Three years ago I did a story about a company called Comstrad occupying what looked like an entire floor in St James, one of London's nobbiest areas, flogging for no less than £3,300 a program that purported to pick winners.

You can judge the standard of the program from the fact that at one point users were expected to add some figures up themselves. Its main purpose seemed to be to lend a certain high-tech lustre to a cover-your-losses betting system of a type occasionally offered for sale in the seedier sections of the small ads.

I was, to be honest, slightly nervous about the mocking piece that I wrote. St James is just down the road from PCW Towers. The day the edition hit the streets I got an angry call from a man with an Australian accent who said: 'You have just cost me £6,000. I've had two cancellations this morning and that effing magazine of yours is only just out.'

Don't speak too soon, I told him. You can't overestimate people's gullibility. If a hundred thousand people read that article, you can bet your boots that at least one in a thousand will be fool enough to think you are offering a good thing. You could make a lot of money.

I have no idea who the man was. But last month the *Financial Times* reported that one Kevin John Robinson, who ran Comstrad, had been banned from being a company director for 13 years.

Comstrad was wound up in October 1996 with debts of £457,233, not counting claims from customers, after the High Court decided that it had been conducting a serious fraud. The report said Comstrad had screwed £4.5m from at least 2,000 punters.

What baffled me was why Comstrad didn't do the thing properly. If software can give an edge on the stock market, it may do so on the horses. Even if it can't, gambling is such a huge industry that you could make an honest margin on a program that seriously tried.

This month a man called Larry Weltman came to see me. He is executive vice president of a company called Gaming Lottery Corporation (GLC) which is running an online casino on the Caribbean island of St Kitts (*see page 36*).

I stress that I am not suggesting he is fraudulent. I know little of him or GLC, which appears to be a substantial enterprise. I do, however, have a view on the judgement of people who are willing to pass money to a company which is practically beyond legal recourse.

One thing Weltman said struck me. He told me: 'We want regulation.'

The fact is that if you get a gaming licence, there is no point in going beyond the law. The force is with you. You have a licence to print money.

Clive Akass **muses on just** *how daft people can get*

Vendors bet each way on Jini

Sun finally launched its **Jini global connectivity technology** last month just a few days after what looked like a spoiler announcement from Microsoft of a 'Universal Plug and Play' (UP&P) spec.

Java-based Jini would allow devices to be plugged in to a network and work just as you plug a toaster into the mains and expect it to go.

The device announces what it is and services it can offer to other devices on the network. It could be used in conjunction with technology such as Bluetooth for wireless nets.

Microsoft announced its UP&P initiative in January but gave few details other than that it would use XML, the mark-up language which is designed for machine-to-machine communication.

Guy Martin (*left*), Sun technical manager for Northern Europe, said: 'UP&P is still just an announcement, not a technology. Jini is ready for use now.'

Several leading vendors have declared an interest in Jini but many are also looking at UP&P. Microsoft says it will show a reference implementation in April, and that devices will be ready this year.

Sun is also working with Philips on how to incorporate Jini into the Home Audio Visual Interoperability standard (HAVi) (*see below*).

...as Philips plugs home networking

Philips is exploiting its experience of both PC peripherals and consumer devices to produce a range of solutions to **link your PC to your TV**. Ambi is a wireless system that allows two users to use the PC at once. It uses a PC Card attached to a transmitter, and the receiver at the TV end can be 150 feet away, not line of sight. The claimed data transfer rate with compression is 120Mbit/sec.

You can still keep your PC in the back bedroom, but use the TV to run applications and surf the net. The PC is effectively split in half and can run different applications on the TV to those being used on the PC.

Philips also announced the emerging HAVi standard which will let you create a home network for appliances such as TV, video, hi-fi and PC. Based on IEEE 1394, HAVi should make it easier to get your appliances to work together and to control them using a common interface. For more on HAVi, see next month's *Futures*.

Philips also announced a new Nino, a palm-sized PC with a colour screen running WinCE, very much like the HP Jornada 420 reviewed this month (*Reviews, p82*).   **ADELE DYER**

Another way to share

Sharedware has another idea on how you can get **two PCs for the price of one and a bit**. It has just shipped a PCI-based version of its ISA-based Savage Office, which allows you to create two PCs out of one. You stick the card in the PC and plug in a second mouse, keyboard and monitor — or TV — and effectively you have two PCs. You can run separate applications on each, or a game for two players. The Savage card, which packs both a sound and a 2D/3D graphics card, costs £199.75 including VAT. The ISA pack now costs £152.75 inc VAT. *Sharedware www.sharedware.com; 01274 401010*

The company which developed the software many notebooks use to hot-swap PCMCIA cards is offering a kit which allows desktops and mobiles to share peripherals.

Agaté's DN-Boy consists of a PCMCIA card, a box for a standard hard disk, and another which fits into a PC drive bay and offers an IDE connection. You use the card

...and one for laptops

to connect the disk to a notebook, and the IDE box to connect to a PC.

The main market will be people who use the same data on their laptop or PC. Future versions will support Zip, tape and CD drives. The DN-Boy will sell here for about £80. *www.agatech.com*

PROCESSORS

Intel backs down over surfer ID

Intel has backtracked over a **new ID code in processors** which sparked a boycott call from privacy groups. The code on the latest PIII chips can facilitate online purchases by providing a check on a credit card number. It is also an aid to network management.

The code is hardwired into the chip but can be switched off by software. You then have to reboot to get it back on again. 'We didn't want hackers to be able to switch the chip on using software,' said Intel marketing director, Gordon Graylish.

Now Intel has agreed that by default chips will be switched off by software during startup; later boards may offer a BIOS option. A spokesman said: 'This move is intended to address any public concerns.'

The Electronic Privacy Information Centre in Washington, and Privacy International in the UK, claimed the code would be used to track people's surfing activities.

Policy director David Banisar said that the boycott call would stay despite the Intel turnaround because the onus was still on the user to be aware of the issue.

An Intel spokesman said the company had no records linking the code to the purchaser of the chip and accused the groups of over-reacting. 'If a credit card is stolen, the thief would not be able to buy goods with that card from any other PC.'

The facility is to be added to other chips later this year.

ADDITIONAL REPORTING
JO PETTITT

Lost and found

A new security system provides protection against absent-mindedness as well as thievery. The Gemini Alarm has two parts: a transmitter which sits with your laptop, and a receiver which you carry with your keys. This starts beeping if it is parted from the transmitter. The same system is being adopted to warn of straying children.

SURVEYS

Compaq slated again on notebooks

The quality of Compaq notebooks has again been slated, for the second time in two years. A survey by US-based Technology Business Research (TBR) said Compaq improved on price/performance and delivery time last year but still under-performed on quality and long-term reliability.

Toshiba also scored badly for repair time, support response and price/performance. IBM, Dell, Compaq and Toshiba all showed weaknesses in the timely delivery of notebooks, according to TBR.

The TBR survey of 300 IT managers in top companies ranked customer satisfaction in three sectors: notebooks, desktops and Intel servers. Dell ranked top in all and IBM ranked highly on servers.

Compaq failed to comment on the report. In mid-1997 a Compaq laptop was placed on the Gartner Group's influential Problem Watch report, causing major ructions in the company.

Compaq was placed last in a table of customer satisfaction compiled by another research company, Sherwood.
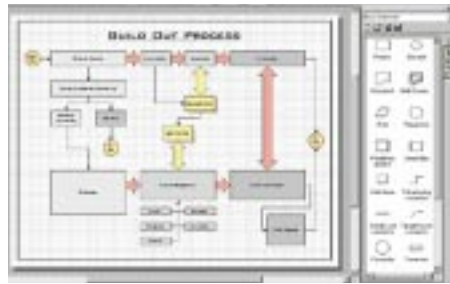
AutoDesk hopes to draw in mid-market

AutoDesk has released a **major revamp of its flagship product, AutoCad**. New features include facilities for web publishing. Following the fashion for naming new software releases after the millennium, it is called AutoCad 2000. The previous edition was AutoCAD 14.

AutoDesk got into CAD so early it established a *de facto* standard. But like other such pioneers, it has been hampered by its legacy. The full product is expensive and needs skill to use, and there has been much competition for cheaper, easier, simpler products.

Visio brought out a sub-$500 AutoCad clone called IntelliCad, though Autodesk challenges the degree to which its files are compatible.

Regional sales chief, Tim Taylor, is anxious to dispel the idea of Autodesk as a one-product company. 'We have products across the whole spectrum of design, media and GIS [Geographic Information System] markets.' He points out that AutoDesk already has cheaper products including AutoCad Lite, and it will shortly be launching in Europe a diagramming package called Actrix *(pictured above)* which will compete with Visio's low-end drawing packages. Currently it is available in the US.

▲ EUROPEAN LAUNCH IS DUE FOR AUTODESK'S LOW-END DRAWING PACKAGE, ACTRIX

www.autodesk.com

AT&T deal to boost communications research

AT&T has bought the Olivetti & Oracle Research Lab** for £30m. Research into networking, multimedia and mobile communications systems will be its prime focus and it will be renamed AT&T Laboratories.

The lab's founder, Professor Andy Hopper, will continue to direct the work of its 50 full-time research staff, collaborating with the University of Cambridge.

As part of the deal, AT&T is to contribute £1.2m towards a new Laboratory of Communications Engineering (LCE). 'There is a tremendous synergy and meeting of minds between research in Cambridge and AT&T Labs in the US,' said Prof Hopper. 'Over the past five years we have been responsible for over £100m of inward investment into research at the lab, the University and three successful spin-out companies. With AT&T's backing we expect this figure to accelerate.'

Some 2,000 AT&T technologists worldwide are developing an advanced broadband net-based global communications network. The company is also researching systems which 'understand' and respond to spoken language.

David Nagel, AT&T's chief technology officer, said Cambridge expertise would help create the next generation of personal communications technologies and services for businesses and consumers throughout the world.

☞ **UUNET, the service provider** owned by MCI WorldCom, is another big player making multi-million pound investments into UK regions. It is installing a 4Mbps internet hub in Northern Ireland which in time will be upgraded to 16Mbps. The new hub will be hosted by Supplier Index, a specialist in e-commerce and electronic data management.

☞ **Cambridge Consultants Ltd** (CCL) is collaborating with mobile specialist STNC to develop a range of digital telephony products capable of accessing intranets and making voice calls. They will focus on how to display graphical information on small, cordless devices.

CCL announced a low-cost zero-blindslot design for use in DECT (Digital European Cordless Telephony) applications, different from much of the existing DECT equipment which uses single blindslot radio.

CCL spokesman Andrew Watts explained that while traditionally cheap, the latter only makes use of half the traffic capacity allowed for by DECT standards. Its own design can be manufactured for less than $10. The new circuit, which can be integrated by customers into their own products, will be available in May.

CCL, Muscat and Cambridge bioinformatics firm, Synomics, have signed an agreement to co-operate in the provision of advanced IT to facilitate commercial drug research by exploiting in-house knowledge.

☞ **Muscat is launching** Empower, a new product line, to provide an enterprise-wide system for retrieving knowledge based on the company's Linguistic Inference technology.

Empower uses language 'constructs', as opposed to translating language into mathematical patterns, which allow searches on a simple definition of the knowledge area required. Muscat chief executive Chris Nowell says it is designed not just to find a match to a search, but 'to work with the user to understand the information and accurately match their interests.' A demonstration of Muscat Empower can be found on the company's web site.

www.uk.uu.net, www.stnc.com, www.camcon.com, www.muscat.com

Caroline Swift continues her reports from *Silicon Fen*

Offshore casinos beyond UK jurisdiction

A new **online gambling casino** offering jackpots of up to $1m raises questions about how to regulate gambling on the internet.

GalaxiWorld, which offers 30 casino-style games, is based on the Caribbean island of St Kitts where it is subject to neither British nor US gaming laws. It is owned by the Gaming Lottery Corporation (GLC), which is NASDAQ listed, and claims to have taken $7.3m in January, its second month of operation.

Executive VP Larry Weltman, who was in London last month, said GLC had put $25m into developing the site,

which had been set up in St Kitts only because the island had put into place the necessary regulatory structure. Weltman claimed: 'We want regulation, but no other country has it in place.'

He said punters first buy their stake in e-cash from a company called G.Cash. Its web site gives its address as a P.O. box in Gibraltar.

Asked how punters can be sure they will get their money, Weltman said $5m had been put into a special account to guarantee winnings.

Gambling is one of the fastest growing net activities,

says web specialist David Flint, of Glasgow law firm MacRoberts. He points out that there is no way of knowing if punters really are winning on a remote site and 'there is little point going to your local trading standards office if you have trouble getting your money.'
• *See Point of View, p30*

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www.galaxiworld.com

Objets d'web

An 18th-century Queen Anne bookcase is one of the few exhibits actually on view at auctioneer Sotheby's new web site at www.sothebys.com.

There are hints on how to collect and details of the latest auction, but online catalogues are strictly text-only. As yet, it has no online auctions.

Brides-web revisited

Weddings are big business and already the subject of a number of publications. Naturally, there are also web sites dedicated to the subject. A new one, at www.confetti.co.uk, covers everything, from tips for the bride and groom, how to turn down an invitation to be bridesmaid, and travel arrangements

for the honeymoon. You can register free and set up your own password-protected area where you can post gift lists and even your own wedding photos. The site points out that the average wedding costs £14,000 including cucumber sandwiches, so you are going to need anything which will keep costs down.

The smart money is on the cards

PC-based e-cash will give way to a **smart-card money system**, according to e-banking specialist JCP. It points out that Digicash, one of the main e-cash companies, went into Chapter 11 protection late last year and rival Cybercash is losing money.

Marketing director Chris Philips says other systems, such as Digital's Millicent, are unlikely to flourish because they offer nothing that seems like proper 'money': it cannot be spent in the pub or shops. Moreover, most of these systems are PC based, whereas much e-commerce is likely to be transacted via appliances such as Java stations. But current credit-card charges are too high to support micropayments, which are necessary for e-trade to prosper at high-street levels.

These charges are unlikely to fall, so smart-card based cash remains the most likely option. The cards, which are expected to be introduced by London Transport soon, can support several methods of payment. 'People are used to using credit and debit cards, so smart cards don't seem to be very different,' said Philips.
● Traditional retailers risk losing market share by underestimating the impact of the web, writes *Newswire*'s Angela Soane. IDC analyst Liz Frankle says many appreciate the huge increase in users. 'Online users have become a nation within a nation,' she said. 'Merchants can no longer ignore the impact.'

JCP 0171 689 6890, www.jcp.co.uk

net briefing

IAN ROBSON SPECIAL REPORT ON MP3

MP3 rocks the music industry boat

It's only rock 'n roll — and it's coming off the web in small files that are causing a big stir.

MP3, a way of storing music in small files that can easily be downloaded from the web, is causing turmoil in the music industry and seems destined to enter the consumer mainstream.

Older formats used about 10Mb to store one minute of quality music: MP3 provides near-CD quality at just 1Mb per minute. Currently, files can be played only on a personal MP3 system like the Diamond Rio (*see opposite page*) or on a PC using Microsoft's Windows Media Player or one of many other MP3 players.

These include Nitrane, MPG123, Audio Enlightenment, X-Audio, WinAmp (MacAmp on the Mac), Wplay, Sonique, and K-Jofol. Apple's QuickTime does not currently support MP3.

MP3 encoders include L3ENC, .mp3producer, AudioActive Producer, Blade, 8Hz, Plugger, Audiograbber, and (for Mac and PC) Audio Catalyst.

The well-received Xing Encoder, with Variable Bit Rate (VBR), is said to convert CD tracks in less time than it takes to play them. It can be configured to encode while you listen.

Internet music label Goodnoise, and Adaptec, developer of the widely-used EZ CD Creator package, are co-developing software that would store up to 150 MP3 files on a recordable CD. It would allow CD players in homes and cars to play MP3 files using converter software.

Analysts believe Adaptec and Goodnoise will have problems getting their software accepted by heavyweights like Sony, given the feeling in the industry. The two companies are undeterred, however, and claim to have had numerous enquiries from hardware makers.

MP3, which is actually audio layer 3 of the MPEG 1 video encoding standard, works by eliminating frequencies we can't hear. It has been criticised for a certain blurring of the remaining frequencies and a poor implementation of stereo. These and other criticisms are addressed in MPEG-2 Advanced Audio Coding (AAC), principally developed by the people who invented MP3.

AAC is not backwards compatible and is sometimes called MP4 (*see box, below*). It is said to pack better-quality sound than MP3 into files 30 percent smaller; however, files can take four times as long to encode.

AAC is well prepared for future audio and video developments but is currently stifled by a lack of licensed development programs.

Another option is TwinVQ, referred to as VQF after its file extension. This requires more power to play and encode but results in smaller files than MP3 with similar quality. Players include K-Jofol, and WinAmp with the VQF plug-in.

Perceptive Audio Coding (PAC), developed by Bell Labs/Lucent, offers real-time encoding at extremely high quality. Celestialtech's Audiolib 1.0 is currently the only encoder/player.

Will the real MP4 please stand up?

Public Enemy débuted on the web a song from their yet-to-be-released latest album in what was billed as MP4 format, leading to reports that this was the first public airing of the successor to MP3.

In fact, the file was created by Global Music Outlet (GMO) which packed its a2b format (*see main story, opposite*) into an executable file which is not compatible with MPEG audio.

However, requiring no additional software and unusable with any audio application, it does afford a certain level of security.

The official MP4 standard (actually audio layer 4 of the MPEG 1 standard) is expected to be published by the International Standards Organisation this month [March].

Wired reported that GMO has filed for and received a trademark on MP4, but this could not be confirmed at press time.

MP3.com, reputedly the second most popular music web site, owns the MP4 domain name and hopes for an early resolution of the confusion.

IAN ROBSON SPECIAL REPORT ON MP3

Sour notes as new format finds its feet

Never mind the quality, is there a future? The MP3 question still to be answered.

The music business is deeply divided over MP3. A measure of the problem is the fact that the entire Beatles back-catalogue has been packed onto one MP3 CD which sells in Russia for just $2.50.

Most supporters in the industry believe MP3 can help create a viable online music business provided there are incentives to make people buy rather than steal. Pro-MP3 performers argue that it gets people listening to their music and a percentage of these will buy it on CD. Record companies aren't so sure. Capitol forced The Beastie Boys to replace MP3 downloadables on their Grand Royal web site with inferior Real Audio files. Public Enemy (*see opposite*) split with their label over a similar incident when they previewed tracks from their new album over the internet.

'This is the new music business' [Alan McGee, Creation Records]

Creation Records boss Alan McGee, he who released Oasis upon us, is convinced that the web will become an industry asset and his site at www.creation.co.uk offers MP3 files.

He insists that people will still want to buy records and dismisses the argument that buying music via the web is still too hard for most people. 'This is the new music business,' he says.

On the other hand, nearly 400 musicians signed a petition handed to the European Parliament in January by French composer Jean-Michel Jarre urging more copyright protection in the light of digital advances. In December, the Recording Industry Association of America (RIAA) and five of the world's largest recording companies launched the Secure Digital Music Initiative (SDMI) to create an umbrella standard for secure digital music. Nullsoft will soon offer a

▲ **MCGEE BELIEVES THAT THE INTERNET WILL BECOME A MUSIC INDUSTRY ASSET AND OFFERS MP3 FILES ON HIS SITE**

new version of WinAmp that will support a payment system called Mjuice developed by Audio Explosion. Both companies are keen to show their support of the SDMI and any imminent standard developed to protect artists. WinAmp has 10 million users and a million copies are downloaded each month.

Another approach is taken in a new format called a2b, a version of MPEG-2 AAC (*see opposite*) which uses public key cryptology to enable files to be played readily only by the purchaser.

Last summer's inaugural MP3 summit was a turning point, with many software and hardware products being shown for the first time. Legal and financial issues will be the hot topics at this year's summit in San Diego on 15th-16th June.

Although sites such as www.mp3.com offer MP3 music for free, normal copyright rules apply and the music is supposed to be for personal use only. Performers do not always have the right to distribute their work if the copyright covers the recording as well as the composition. There were similar fears about home-taping of music, and these turned out not to be justified. But it remains an open question whether the improved quality of MP3 really indicates a brighter future for music.

Diamond geezers champion MP3

Diamond Multimedia, one of the first to truly champion MP3, pursued the mass consumer market with its Rio PMP300 portable music player, currently capable of 60 minutes of MP3 audio playback.

The Recording Industry Association of America (RIAA) (*see above*) claims the Rio violates America's 1992 Audio Home Recording Act.

Diamond counterclaims violations of antitrust laws but it has voluntarily prevented 'serial copying' from the Rio, so that it cannot be used to pass pirated music on to other devices.

Hilary Rosen, president of the RIAA, told the *Wall Street Journal*: 'Diamond is ... jumping the gun to exploit the pirate market instead of waiting and working toward the legitimate market.'

Diamond, which faces punitive

damages claims, has elected for jury trial. No date has been set.

Germany-based Pontis has launched Mplayer3, which takes two memory cards of up to 128Mb providing up to four hours of music with none of the degradation associated with tapes.

Korean companies have bundled MP3 into organisers (not yet available in Europe). Varo Vision's ClikMan also allows digital voice recording and uses Iomega's Clik! drive taking coin-sized 40Mb disks.

DigitalWay's Mpio acts as a telephone and a digital camera, and Koreu Media's Mp-Cap lets you view lyrics to MP3 songs, doubling as a mini-karaoke machine.

For serious audiophiles, Amac's HanSori offers audio frequency controls, mega bass support and FM/AM radio. It has yet to ship.

Lotus blossoms out

James Lovell, the astronaut, *was telling of the Apollo 13 moon mission which went wrong. It was an old man's story, honed by years of repetition, and he told it well. 'I put my thumb up, like this,' he said, looking along his outstretched arm. 'Just like Tom Hanks did in the movie — I told him about it — I put my thumb up and it covered the world. Everything down there. All those people. Covered with my thumb. I did not expect it to affect me but it did.' He nearly had me in tears, as I am a sucker for this Final Frontier stuff. And I wasn't the only one. There was frequent applause as he told how mission control and the three stranded astronauts got their crippled craft safely to earth. 'It was teamwork,' he concluded. 'And you know... if we'd had Lotus Notes to help us work together, I reckon we'd have got down a lot quicker.'*

Lotus is feeling a little hurt and rejected in a Microsoft-dominated world, and is paying a fortune to get noticed. Buying the endorsement of one of America's greatest living heroes (you have to die to get that kind of respect in Britain) is part of a £120m marketing campaign extolling the 'superhuman' qualities of the latest release of Lotus Notes.

Notes is a collaborative working environment with facilities for messaging and what Lotus now calls 'knowledge management'. Lotus claims Notes has 34 million users and the number is rising. It is one of the few major office products holding its own against the Microsoft tide.

The new Release 5 (which we will review next month) is a mega-revamp on the scale of Windows 95 over Windows 3.x. Reactions to the beta version (at www.lotus.com) have been favourable. Also like Windows 95, its launch has been delayed — at last count until about the time this issue of *PCW* hits the shelves. Like Windows 98, it incorporates a browser.

Lotus, like Microsoft, was caught off-balance by the web explosion. The increasing popularity of intranets using web protocols to navigate internal networks made Notes look dated overnight. One Lotus executive described this as 'a near death experience'.

Lotus' response was Domino, a version of its server software which allows information held by Notes to be accessed by a browser. It was something of a work-around: web access bolted on to an alien architecture.

Release 5.0 with the Domino R5 server has been rebuilt from the ground up, around web protocols. You can access all functions via a browser by downloading Java applets, whereas you would normally use a dedicated R5 client holding all the necessary software locally. There is also support for access by information appliances running Windows CE and (using Psion software) Epoc32. Search facilities have been boosted to cover multiple information sources, including the web, and a Headliner function posts regular updates from monitored databases and sites.

A last minute addition called SameTime brings a kind of 'virtual presence' to Notes. It lists everyone available on the network and lets you 'converse' with them in real time as well as synchronously via email. This makes the network similar to a room full of people, some with their backs to you and others smiling a welcome.

There is something slightly chilling about all this as linked computers map,

Clive Akass reports from the Lotusphere conference, Florida

▲ FROM THE TOP: NOTES' NEW WELCOME SCREEN, NEW CALENDAR SCREEN, AND DOMINO'S ADMINISTRATION SCREEN

mediate and extend complex human interactions. But there is little or nothing in Notes that cannot be done with the judicious use of rival applications. Lotus rightly points out that it is the integration of these facilities that makes Notes special.

There is another reason. Consider Microsoft's latest figures [*p30*]: $6.36bn profit on a revenue of $16.6bn last year, a margin of nearly 40 percent. IBM made much the same, $6.3bn, but on a revenue of $81.7bn. I repeat: *$81.7 billion*, nearly five times that of Microsoft. This huge turnover gives IBM massive global clout, and software can help boost its relatively modest 7.7 percent profits. IBM owns Lotus and will be pushing Notes hard to its corporate clients, so Microsoft will have to fight hard to hold its corner in lucrative office software.

What's new in Domino R5?

☞ **New client features** include: an enhanced navigation bar, bookmarks and tabs facilitate information tracking, a group calendar, and document libraries with workflow that integrates with Lotus SmartSuite and Microsoft Office. Lotus also claims to have boosted SmartSuite's compatibility with Office.

☞ **The R5 server** supports databases of up to 64Gb and six times more

simultaneous users than Notes 4.6x. Administration, searching and security have been improved.

☞ **Domino R5** also works with Domino.doc, Lotus' popular bolt-on document management system.

☞ **A bundled utility** called FastSite, which can convert batches of standard documents for web viewing, is available separately and can be downloaded from www.lotus.com.

Two-page special report by Clive Akass on

Thoroughly modern modems

Mid-band means much more than a faster version of what we have — this thing will change lives.

First, the bad news. ADSL and cable modems will not provide an instant end to the 'world wide wait'. Any connection is only as fast as the slowest point in the link, and web hold-ups are as likely to be caused by an overloaded server as by a poor line. Faster access is already exposing deficiencies in the web infrastructure and the situation is likely to get worse before it gets better.

I got transient download speeds of up to 320Kbps from the open web on my nominal 2Mbit pilot link from Virgin Net — about the maximum data rate I get on my Eutelsat/ Easynet satellite link, which is rated at about a fifth of the speed. In both cases the usual download data rate hovers around 80Kbps, faster than a 56K modem but nothing like the rated speed of the links. Prices of systems which guarantee bandwidth (*see panel, below*) are likely to fall but the principle of paying more for quality of service will surely persist.

Nevertheless, the new relatively cheap **mid-band services** (data rates between 64Kbit and 2Mbps) will transform the use of the internet. There are several reasons for this:

☞ **Local cacheing.** Popular content is stashed on a local server which can deliver at the maximum speed, which is how acceptable video can be delivered.

☞ **Commercial benefits.** Cacheing servers are in effect local portals and promise a near-captive market. Infrastructure owners like them because they cut line use. The trick is to work out what to cache where in order to minimise loads.

☞ **Fast upstream.** The A in ADSL stands for asymmetric: sending data is slower, 'only' 256Kbps, although still nominally four times faster than a single ISDN line. Again, speeds are limited by the slowest link but applications such as videophones and remote surveillance are viable.

☞ **Multiple streams.** The fact that you can drag only two bits a minute from that server in Timbuktoo doesn't prevent you having other windows open. You can listen to music, check out BBC Online or play a video game with your friend down the road, complete with a voice-over-IP speech link, while you're waiting.

☞ **Always-on.** This feature makes the new links far more than a faster version of what we have already. Much web activity that at present is little more than a technology demonstration, particularly for the UK, suddenly becomes viable. Free local calls have meant US users have long been able to afford to stay online to listen to music, download a magazine or watch a video clip. Always-on will bring the same convenience and more to UK users — provided vendors do not impose per-megabyte charges, which seems unlikely.

Always-on also facilitates teleworking, as your home PC can join your office network. It makes sense of what Microsoft tried to do with Windows 98, setting it up as a window on the web with channels of data. But so much becomes possible that all current interfaces seem inadequate, and this is likely to become a lively area of development.
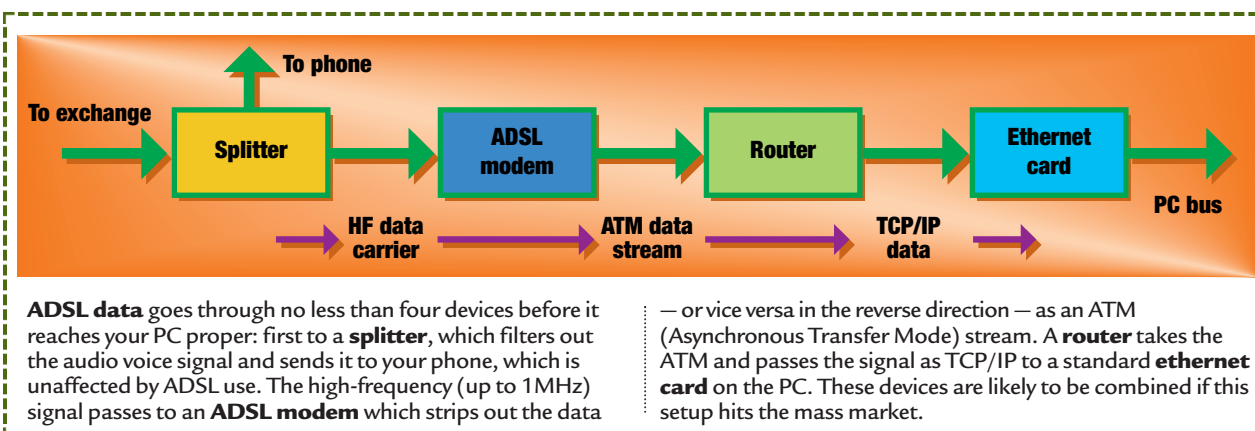
Data will arrive like electricity, taken for granted and spreading the use of home networks way beyond Geeksville. You will access your email or read an online magazine over breakfast, or look up a recipe from the kitchen.

Home web sites also become viable, although business sites will need servers which can cope with the high traffic. Security is a thorny issue: your host PC is open to the outside world and you will need your own private firewall.

The phrase used most often about the web is chicken and egg: you won't get the punters until you get the content, and vice versa. Free web provision and digital TV, with its net-linked set-top boxes, will help square this circle. So will fast links, although prices will have to fall before they become a mass medium. But fall they will. Advertisers will finance content and engender e-trade which is likely eventually to make a basic, fast link free — to the extent, that is, that the use of our roads is free. The highway analogy may be old but it is almost exact.

We are on the brink of great changes: arguably, the advent of ADSL and cable modems is second only to the birth of the browser as the most important event in IT since the launch of the IBM PC.

...the most important event in IT since the launch of the IBM PC

ADSL data goes through no less than four devices before it reaches your PC proper: first to a **splitter**, which filters out the audio voice signal and sends it to your phone, which is unaffected by ADSL use. The high-frequency (up to 1MHz) signal passes to an **ADSL modem** which strips out the data — or vice versa in the reverse direction — as an ATM (Asynchronous Transfer Mode) stream. A **router** takes the ATM and passes the signal as TCP/IP to a standard **ethernet card** on the PC. These devices are likely to be combined if this setup hits the mass market.

Cable lengths

If you think ADSL looks good, take a look at cable modems...

NTL, TELEWEST AND CABLE & WIRELESS
between them own just about all Britain's cable networks. All have plans to deploy cable modems; NTL is further ahead (at least, it's talking the loudest).

KINGSTON COMMUNICATIONS
has just announced that it is launching an ADSL service in Hull, the one area where BT never owned a phone monopoly.

Piloting ADSL in London are:

BT INTERACTIVE
which has been experimenting with services that exploit the new bandwidth to the full. It is charging trialists £30 a month.

VIDEO NETWORKS
has been running a pilot video-on-demand scheme in Hull for two years, with other services such as interactive shopping. It is also looking to provide content for cable services.

I-WAY
is targeting its trials and charges (£300 a month) at businesses rather than homes.

VIRGIN NET
has a foot in both ADSL and cable — it will provide content. NTL's cable marketing director, Alex Dale, expects content initially to be similar to today's but with richer graphics.

Analysts are divided about whether ADSL or cable will win the most users. In the short term, people will probably go for whichever one reaches their area first.

BT's links spread widest. At first sight ADSL has the edge on speed, offering 2Mbps downstream and 256Kbps up, no matter how many people are online. BT may yet go for a cheaper system called DSL Lite, which dispenses with a home splitter. DSL Lite modems could be bought and installed by users, just like today's audio modems.

DSL Lite would be slower — less than 1.5Mbps — although still nominally faster than the 256Kbps NTL *(see 'Who's Who', left)* cites for its cable service. But NTL, in an industry addicted to hype, is being unusually modest: 256Kbits in either direction is the *minimum* speed you can expect.

Cable works like a local network: you share the bandwidth with whoever is on your loop. With no-one else on-line, a theoretical 27Mbps can be delivered. The bottleneck then is in your PC: as with ADSL, the data is piped to an ethernet card which can handle only about 3Mbps. Eventually though, combined cable modem and ethernet cards sitting direct on the PC's data bus could speed this up.

Stephen Temple, director of traffic development at NTL, sees no problem in these rates overloading the backbone. 'We are constantly upgrading our national fibre capacity,' he said. One way of doing this, called 'wave division multiplexing', uses channels of different frequencies, much like ADSL. Temple points out that, unlike in the US, cable companies are also phone companies. 'We could also offer ADSL...in fact we can do it more easily than BT, which
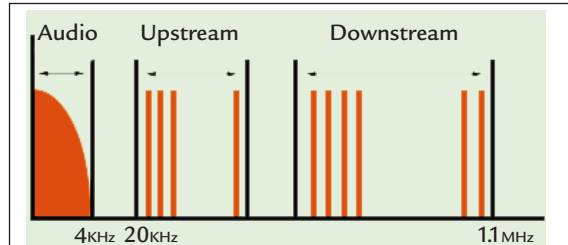
This is how ADSL assigns the frequencies up to 1.1MHz which are usable on a copper wire. Those below 20kHz are reserved for audio, and the faster downstream signal gets the bulk of the rest. ADSL uses complex signal processing to beat line noise. The band is split into 256 4kHz channels. Noise on each channel is sensed on-the-fly and dictates how much it can carry. The theoretical maximum is 15Mbps.

has only one copper pair [of wires] going to each home. We have two. BT has to use a splitter to separate the signals. We wouldn't need to because we could use the second line.'

In about one month's time, NTL will announce when and where it will roll out its service. The most it will say about charges is that they will be flat rate and that users will have to buy their own modem — initially, until standards mature, only from 3Com.

Cable looks more versatile than ADSL. 'On our coaxial cables we have an enormous range of frequencies broken up into 8Mb channels,' Temple says. 'A lot of those are already supporting our 40 analogue TV channels. Another lot, 15 or 18, will be carrying digital TV later this year. And we have one or two frequencies for cable modems.'

Compare that to Video Networks, which is pumping video to homes at ADSL's top-rate 2Mbps, using a combination of MPEG1 and 2 compression. Marketing director Mark Springett indignantly denies that this affects quality, which he says is indistinguishable from the TV. And remember, he is providing video to order, not to schedule.

NTL sees modems and TV as serving different markets — what Temple calls the living room and the study. But as interactivity increases and inefficient analogue TV fades away, it is hard to see things staying that simple. We have not begun to explore the synergy between all those channels when you hook them up to computers. And if that stirs your imagination, consider that a Sun white paper predicts home links of more than 70Mbps within 20 years.

Quality-assured links

At least one company is offering a premium ADSL service nationwide, now. Exactly how is not clear, as Edge Technologies will not yet say who will provide its local links, but its plans show the way ADSL may go. Its charges are on a par with those of leased lines,

starting at a hefty £500 or so a month. But by a mix of ATM and ADSL trickery it can offer different levels of service, including guaranteed end-to-end bandwidth. And it uses a single PCI interface card *(right)* from Oxford-based Xstreamis, which can
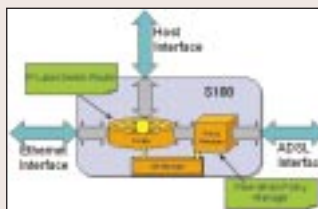
dictate, on-the-fly, the service level for a particular packet: email, for instance, does not need a continuous stream.

Merger mania: the view from 3Dfx

The merger of 3Dfx Interactive and STB Systems (*see last month's News*) is only one of the latest moves in a consolidation of the PC graphics industry. Just a few years ago there were more than 30 chipset designers and twice as many board manufacturers. Today, there are fewer than five major chipset manufacturers and the trend, as with 3Dfx, is for these to merge with board makers.

To discuss the ramifications of this, **PCW's AJITH RAM** met up with Greg Ballard *(pictured, right)*, CEO of 3Dfx. Bespectacled and with a thick shock of grey hair, Ballard looks anything but the CEO of a company revered by inveterate PC gamers around the world.

☞ *What was the reasoning behind your merger with STB?*
The main reason was to become a complete graphics solution provider for the high-volume OEM market. It also helps us to focus our development efforts. Our competitors, like nVidia, have to cater to a variety of board manufacturers such as Creative Labs and Diamond Multimedia.

☞ *But until this merger 3Dfx, too, had to provide the same kind of support to several vendors. Is this a big disadvantage?*
Supporting a varied customer base places a great deal of strain on in-house resources. The needs of OEMs differ greatly. In a crowded market, everyone tries to distinguish themselves through changes to the board design or drivers.

This often leads to unpredictable problems which need to be solved quickly. With this merger, all our engineering and driver development efforts can be focused on refining one product.

☞ *The OEM market [that is, selling components for new machines] is a high-volume segment. To compete with the main players in this market you need to be able to produce your hardware in huge numbers. Do you think STB's manufacturing facilities can cope with the demand?*
We are confident that we will be able to satisfy demand. Currently we are in discussion with some manufacturers, such as Guillemot, for additional support but this is mainly for Europe. In the US, the niche workstation market will be catered for by Quantum which will continue to use our chipsets.

☞ *More than 50 percent of your Voodoo2 sales last year went to Creative Labs and Diamond Multimedia. With the merger,*

they will no longer be supporting you. Don't you think this will adversely affect sales of your upcoming Voodoo3 cards?
We are convinced that most people bought Voodoo2 boards due to 3Dfx's reputation for quality and performance.

▼ THE VOODOO3 CHIP FROM 3DFX, WHICH, SAYS BALLARD, OFFERS THE 'BEST PERFORMANCE' FOR THE PRICE

Therefore, sales of Voodoo3 will continue to be equally strong.

☞ *This reputation for quality has taken a hit recently. Voodoo3 will not support features like 32-bit rendering and stencil buffer, which are provided by your rivals. Don't you think you have some catching up to do?*
We believe that the Voodoo3 offers the best performance at a price which others will find hard to match. These features will be supported in our next-generation chipsets when we are certain that there is no performance hit.

Savage chip for quad-speed bus

A new graphics chipset, Savage 4, has been launched by S3 to support Intel's soon-to-be-released quad-speed 4X AGP bus. It is based on the Savage 3D architecture and is compatible with the AGP 2X standard. It is also the first chipset with four texturing pipelines. Unlike competing chipsets such as TNT and Voodoo2, Savage 4 can perform multitexturing and trilinear filtering simultaneously without affecting performance. S3 also announced losses of more than $70m for last year, attributed to the poor sales of Savage 3D. S3 claims that major PC makers have shown tremendous interest in Savage 4.

'Screen rivals paper'

IBM researchers claim to have developed a screen of such fine definition that it is indistinguishable from a printed page. The prototype has a pixel density of 200 to the inch, which is up to four times that of a cathode-ray tube.

The first production models of the active-matrix displays are likely to cost more than £3,000 and will be sold into niche markets such as CAD. But prices will fall with volume production, says IBM.

Jini uncorked

Tim Bajarin checks out what new technologies are being conjured up at Showcase 99.

Headliners at analyst David Coursey's Showcase 99 show of new products were **Sun** executives Bill Joy and John Gage who are in charge of **Java and the plug'n'play networking technology, Jini**. Their talk was, in effect, a preview of the 25th January launch of Jini, previously known only as a specification.

The Jini concept is pretty hot. You plug a device into a network and it works, just as you would expect a TV to work when you plug it in. Each Jini device has a tiny bit of Java code which registers with the network the services it can provide. For example, a Jini appliance can be plugged into the network at any point and be used for file sharing and image downloads, as well as activating printer commands or simple appliance commands such as on and off.

Microsoft is not sitting back and letting Sun get all the glory, though. It has its own product called Universal Plug-and-Play (UP&P).

Either company will need a lot of support from third-party hardware and software vendors if it is to be successful with the technology. There is one important change in Sun's business model: Java is given away free, whereas a branding fee will be charged for each Jini device or appliance.

Joy showed off a PalmPilot, a web phone and a digital camera, all using Jini to work with a network. He also let slip that Sony will be showing off a Jini product. The bottom line is that Sun is finally ready to explain, in real-world terms, how it fits into the digital age.

Another speech of note was that given by **Corel** CEO Michael Cowpland, about Linux. He showed the **new Linux version of Office Suite 2000** and I was surprised at how fast it runs. More importantly, it has full compatibility with Microsoft's Office 98, and eventually Office 2000, because Corel took great pains to make sure it had the hooks and filters to bring this off.

I was very impressed with Cowpland's personal commitment to Linux. He believes it could eventually have a major impact. Although I don't share that view, it's good to see major companies push Linux as an alternative to Windows.

In fact, **Microsoft was demonstrating Office 2000** at the show, touting it as its most powerful suite to date. But the biggest buzz came from the news that Windows 2000 will not go to public beta until the end of April. That caused many to speculate that Windows 2000 would not get to market by autumn as Microsoft had recently suggested — or even until the year 2000. Of course, Microsoft officials denied this, but given their track record, the cynicism is probably deserved.

Casting the net at 99

There were a couple of web-based products I saw at Showcase 99, which I really liked. Many companies have created web-based calendars, but check out the new one from **Jump** at www.jump.com. This is certainly the best design of a web calendar I have seen so far, and a lot of people can learn about easy-to-use web design from this site.

Another internet-based product that was quite interesting comes from **Visiq**. You can find the company at www.visiq.com and it provides a serious online training program for teaching a whole host of high-tech subjects which appeal to corporate users. Visiq calls it 'smart learning' and this site, too, is very well designed. I have played with various web-based training programs but this site is one of the best.

Another web-based product which caught my eye comes from **Wood River Media.** It has created a unique and comprehensive visual image site called www.picturesnow.com (*shown, right*). This is the world's largest free visual image site and is being referred to by some as 'Yahoo! for pictures'. The use of an 'Intelligent Image Browser' makes an image-search fun and entertaining. Instead of wading through thumbnails one at a time, the viewer sees three or four subject-appropriate images at a glance. If you have a web site for your business, check this site out. It's a great resource.

Showcase is rapidly becoming a 'must-attend' show for those who want to stay on top of the hottest technologies before they hit the street.

City limits expanded in latest 3000 version

Good news for fans of SimCity and Worms: new versions of each of these games will be hitting the shops soon.

SimCity 3000 has advanced immensely. As well as being able to construct an entire city and manage everything from budgets to bulldozers, taxes to tornadoes, players can also build real landmarks such as the Empire State Building, the White House and Big Ben.

Worms: Armageddon will see Worms as we know them going out with a bang! This award-winning game has been enhanced with new weapons such as an electron bomb, a flame thrower and a skunk. There are also much improved multi- and single-player gaming modes.

Codemasters will soon be bringing the WBO featherweight champion, Prince Naseem Hamed, to the PC. In **Prince Naseem Boxing**, players control Naseem and 15 other world-class boxers. The Prince's character has been modelled from 800 polygons and every move has been hand-animated to reproduce his dynamic boxing style. Expected release date is Spring 1999.

Interactive Magic has released details of its new 3D game, an all-action first-person shooter called **Mortyr**. It begins in the latter stages of World War II, but this is a version of the war where Germany wins a decisive victory over the allies. Mortyr is graphically rich and sets a new level of combat realism, maintaining its tense and vicious plot until the bitter end. The player controls a character called Jurgen Mortyr who has to prevent the entire world from falling into a Nazi-dominated future. Mortyr is out at the end of March, priced at £39.99.

Scots triumph

Scotland beat England and Wales in a Settlers III international battle in London last month. It was organised by BT Wireplay, which offers a variety of games at www.wireplay.com, and Blue Byte software <www.bluebyte.com/uk/index.htm>.

Top 10 products

			Last month
Peripherals			
1	Dynamode 56K PCI Modem	DYNA	2
2	3COM 56K V90 Voice/FX Ext	3COM	6
3	SoundBlaster PC128 PCI	Creative	12
4	SoundBlaster Live! Value PCI	Creative	8
5	DSC-F1 digital camera	Sony	5
6	Typhoon Gold Wave 3D ISA	Typhoon	-
7	SoundBlaster Live PCI	Creative	17
8	Astra 1220S flatbed scanner	Umax	21
9	3COM 56K Message Modem	3COM	-
10	P75 to P200MMX	Evergreen	19
Windows software			
1	Free Access Starter Kit	SWWH	1
2	SoftNet Gold Starter Pack	SWWH	-
3	Windows 98 U/G CD	Microsoft	5
4	Comptons Complete Ref.	Learning	18
5	Partition Magic 4.0 U/G	POW	6
6	Office Pro 97 + Books U/G	Microsoft	7
7	Norton Anti-Virus v5 STD	Symantec	14
8	Office 97 STD version V/Comp	Microsoft	8
9	Norton Systemworks v1	Symantec	9
10	Encarta Ref Suite 99	Microsoft	2
DOS software			
1	Turbo Pascal v7 DOS Educ	Inprise	1
2	Turbo Pascal v7	Inprise	3
3	NetWare v5 Server + 5 UR	Novell	-
4	Oracle 7 Workgrp Svr + 5UR	Novell	-
5	NetWare 4.2 Svr + 5CLT	Novell	-
6	SuperCalc V5.5 for DOS	CA	-
7	Norton Commander v5	Symantec	-
8	NetWare 4.2 50 User	Novell	-
9	IBM PC DOS v7	IBM	4
10	DOS 2 Win95 U/G with IE4	Microsoft	-
CD-ROMs			
1	South Park Desktop Themes	Telstar	1
2	Simpsons: Cartoon Studio	Fox Int.	4
3	Simpsons: Virtual Springfield	Fox Int.	2
4	Dancing Baby Screensaver	Jellyfish	5
5	James Cameron's Titanic Exp.	Fox Int.	6
6	Star Wars: Behind The Magic	Lucas Arts	2
7	Dancing Baby CD Player	Jellyfish	7
8	Dance Ejay	Fast Trak	10
9	Rave Ejay	Fast Trak	-
10	Hip Hop Ejay	Fast Trak	-
Games			
1	Worms: Armageddon	Hasbro	-
2	Baldur's Gate	Interplay	-
3	Worms	[sold out]	
4	Starcraft: Brood Wars	Havas Int.	-
5	Simpsons: Virtual Springfield	Fox Int.	6
6	Half Life	Sierra	4
7	Grand Theft Auto	Take 2	-
8	Cannon Fodder	[sold out]	
9	Biggest Names Best Games	E.A	-
10	Warcraft	[sold out]	

Games and CD-ROM figures supplied by HMV. Others from Software Warehouse.