

## NEW COMMS

### BT prices ADSL out of homes

**T**he first UK pricing for an **ADSL (Asymmetric Digital Subscriber Line)** service has dashed hopes that the technology will give homes cheap bandwidth.

ADSL lets BT piggyback fast links relatively cheaply onto its existing lines using a high-frequency carrier signal. But net service provider I-way is asking £350 a month (£4,200 a year) for a trial "always-on" link provided by BT in North London, giving 2Mbit/sec downstream and 256Kbit/sec upstream.

I-way managing director Glen Rothwell points out that this is cheaper than a slow, leased, line (Cerberus charges £6,600 ex VAT a year for an 0171 64K link). He agreed BT prices were pitched to protect profits on fast corporate lines.

However, BT faces stiff competition from fast cable and satellite links which are rapidly coming online.

I-way 0118 958 0058

## INTERNET

# Shakeout time on web as Dixons offers free access

**S**ubscription-based web service providers face their biggest threat yet with a free-access scheme from Dixons. CDs with all the software (Windows 9x or NT only) needed for the scheme are freely available at any Dixons store.

**The Freeserve offer** includes perks like 5Mb of free web space, email addresses and information channels. The major snag is a £1 a minute charge for support, which is unlikely to deter experienced defectors from other ISPs.

The infrastructure for the scheme is provided by Energis and Planet Online. It will be financed by online shopping, sponsorship, advertising and a small cut of phone charges.

How Freeserve will handle mass use remains to be seen. But first reaction from PCW readers was favourable; they

reported easy access and few advertisements. It is not Britain's only free-access offer, but it is the first with such heavyweight backing.

Launched at much the same time was BT's long-flagged **Click+** offer of access at 1p a minute on top of line charges. Its one edge over Freeserve seems to be Win3.x support — although few PCs of that vintage boast the necessary 16Mb RAM.

Richard Woods, spokesman for backbone/service provider UUNet Worldcom, welcomed free services as certain to bring in new users: "Ultimately they'll bring more business to us."

**Another result is** likely to be a two-tier web in which users pay for better service. UUNet (ex-Pipex), which sells mainly to businesses, has just launched service-level



agreements guaranteeing access and speeds.

Richard Furniss, marketing manager at Scottish Telecom-owned Demon, said ISPs not aligned to a telco may feel the squeeze. He predicted that Freeserve will eventually be flooded with ads and e-trade offers. "The money has to come from somewhere. There is always a catch," he said.

Dixons [www.freeserve.net](http://www.freeserve.net);  
Click+ [www.clickplus.com](http://www.clickplus.com);  
Demon [www.demon.net](http://www.demon.net);  
Uunet [www.uk.uu.net](http://www.uk.uu.net)

## PROCESSORS

### Intel plans 1GHz for Y2K

**I**ntel plans a 32-bit processor running at 1GHz within two years. The chip, code-named Foster, will have a new micro-architecture and will be a successor to the PII.

The plan was revealed in an Intel "roadmap" outlining the future of IA-32 beyond the IA-64 Merced processor, also due out in 2000.

Foster, designed for use in workstations and servers, will likely run some 32-bit apps faster than Merced, giving Intel a fallback in case Merced flops.

A slightly less powerful 32-bit processor, codenamed

Willamette, will enter the US sub-\$3,000 desktop market.

**The new designs**, which will start appearing next year, seem to indicate that Intel is attempting to play down the importance of Merced.

Tanner, a PII using Katmai 3D technology, will be released early next year. This will be followed by Cascades, a 0.18 micron PII.

Merced's successor, McKinley, will appear at the end of 2001 with speeds of 900MHz, Intel says.

SUSAN PEDERSON

• There's more chip news on pages 28 and 31.

## INPUT

### Superpen types text

**T**his X-Files lookalike is BT's way of publicising a "space age pen" that is said to translate handwriting into typed text. The **Smart Quill** will also be an



organiser with a calendar, notebook, diary, calculator, and contacts database, and will be able to receive email and pager messages.

The pen will connect to a PC, printer or modem by insertion into a special

"inkwell". BT claims it will read what is "written" on any flat surface, or even in the air. No release date has yet been announced.

[www.innovate.bt.com/showcase/smartquill](http://www.innovate.bt.com/showcase/smartquill)

# BSkyB launch snubs PC users

**P**C users are being largely ignored during the first phase of the digital TV revolution (which, for once, is not too strong a word).

The potential for delivering multimedia streams to the UK's eight million-or-so PCs will remain unrealised, in the short term at least.

Terrestrial, satellite and cable companies are focusing on set-top boxes (STBs) and have the mindset of entertainment providers seeking a mass market — an attitude credited with preventing UK cable companies cashing in on the initial internet boom.

**The BSkyB digital** launch did at least prod these out of their customary torpor. NTL, one of Britain's Big Three, announced that it will be starting an interactive digital



## Adaptec hives off its DVB unit

**A**daptec has separated its satellite networking division into a new company called Broadlogic. The division develops DVB cards which can be used to access PC-friendly broadcasts from the likes of Eutelsat. The move follows a narrowing

of its product line after poor financial results.

Meanwhile, in the UK, Wavelength Electronics is selling a PCI DVB card from French vendor Comatlas. The CAS 2043A uses an NT 4.0-ready driver.



Adaptec 01276 854500;  
Wavelength 01843 602869

TV service next March using STBs equipped with cable modems passing 3Mbit/sec; a bandwidth that may be shared by up to 500 users.

NTL's Jonathan Thompson said he was not aware of any way in which the set-

top boxes can link to a PC. "It will be some months before we get around to thinking about standalone cable modems," he said.

NTL hopes also to get a deal

to provide phone-based interactivity for free-to-air terrestrial digital services.

Its sample web pages (pictured, left) show how inferior TV interactivity will be to PC-style web pages. Video can be used freely in broadcast material; otherwise, designs are simpler, with larger text for family viewing across a room.

TV companies will offer access to the wider web, but hope to retain surfers within a so-called "walled garden" of compelling content.

CLIVE AKASS

• See *Analysis Special*, pp50/51.

## Acorn PC rescue bid

**T**here were reports as we went to press that a rescuer might be at hand for the Acorn RISC PC.

**A leaked report** said that the company had been in talks with Applied Risc Technologies (ART), which was willing to take over its RISC operating system and its shelved Phoebe Risc PC. It said ART, run by former Acorn technical director Peter Bondar, aimed to base a new business "on the sale, design and production of

Risc-based personal computers and thin clients".

Acorn was not returning calls, but details of the deal were expected to emerge by the end of October.

Acorn announced in September that it was closing its workstations division to concentrate on thin-client and digital-television technologies.

Acorns are still widely used in schools and have a small but enthusiastic user base.

• See *Analysis*, p40.

## NCR introduces web via the oven door

**A** combined microwave oven and web browser

is under development at the London Knowledge Lab of US cash-machine firm, NCR.

The oven's usual viewing window is replaced by a screen which lets you cruise the net as your food cooks. NCR believes it will appeal to users who might be intimidated by a PC browser, but it has yet to overcome the small matter of how to prevent the microwave from cooking the browser.

## short stories

### WIN CE THINKS BIGGER

A new class of mobile, the size of a mini-notebook or the super-thin Sony Vaio 505 (see David Fearon's rave review on page 79), is likely to emerge with the release of Win CE Pro. The spec, based on Win CE 2.11, permits full-size VGA and SuperVGA screens. It has already been backed by most existing CE-handheld vendors. • See Tim Bajarin, p31



### 1999 — YEAR OF USB

The USB will have superseded the PC's traditional RS232 serial port by mid-1999, says Clive Hudson, new Euro-head of USB specialist Entrega. He is selling a range of sub-£100 hubs providing multiple USB ports as well as RS232 or parallel connections.

Entrega 0118 951 9549



### WRITE YOUR OWN FONT

French vendor Mediatic is looking for a UK distributor for a package which allows you to create a font from your own handwriting.

Mediatic 0171 706 2043



All I get is a message reading "Cannot contact the microwave server"

## short stories



**DOSSERS FEAR Y2K**  
Thousands of firms still use DOS accounts packages, claims Pegasus Software. It believes Y2K fears will persuade many to upgrade to its new Capital Gold 2 for firms turning over between £35,000 and £5m. Product manager David Gordon said: "Many will be upgrading hardware to get rid of Y2K bugs so they may as well move on to Windows." Gold was written "from the ground up" as a 32-bit Y2K-savvy product offering easy migration from Windows and DOS packages. *Pegasus 01536 495000*

**ISDN VIA USB**  
Exterior ISDN adapters can overload serial ports. But the Drak Tec Vigor 128 connects via the faster USB. PC and Apple iMac models cost £149 and £154 (ex VAT) respectively. *Action UK (dealer) 01276 855770*

## OPERATING SYSTEMS

# Linux gets a triple boost

**N**etscape and Intel have bought a stake in Linux specialist Red Hat Software in a major boost to the open-source operating system developed by Linus Torvalds.

**Oracle also jumped** on the bandwagon with a Linux version of its database and application server. It also announced that it intends to licence and support the OS.

Perhaps as important were reports that IBM, which is to stop making Cyrix-designed x86 chips (see p31), will take up the slack in its fabs by using designs from Torvalds' new employer Transmeta. There was speculation that Transmeta will develop Linux-optimised RISC chips.

**Links with Intel** should help Red Hat optimise Linux for the 64-bit Merced chip, now delayed until 2000. The new investments could also help make Red Hat's Linux 5.1 the standard "flavour".

Linux source code is free, but companies like Red Hat and Caldera sell and support commercial "distributions". Apps written for one will not always run on another. Intel vice president, Sean Maloney,

## New kernel will be 'stable soon'

**L**inus Torvalds conceded at ISPcon that Linux is not ready for some high-end applications. He said the kernel's next version will offer better multiprocessor support and will be "stable" in a month or two.

He said Linux, which runs on Alpha and SuperSparc

chips, has a head start in moving to 64-bit Intels. "We have solved all the problems already...few operating systems can say that."

Torvalds predicted that more apps will be ported to Linux. "In three to five years we will have all the office suites and all the games."

said Intel's support for NT would be unaffected. "It's a heterogeneous world," he said. "We have to be agnostic because there's going to be a wide range of operating systems for a long time."

Maloney also said Intel is "looking forward to working with other distributions." But **Netscape's** John Paul said his company would certify its products only for Red Hat's. Other distributors would have to do their own testing, which could put them at a disadvantage.

Netscape said its Linux-based server products will not come with source code. But co-founder Marc Andreessen

has been a vocal supporter of open source code which Netscape will use for its next Communicator browser.

Oracle marketing senior vp Mark Jarvis claimed: "Microsoft is quaking in its boots about Linux."

• Digital Networks UK is selling a 300MHz K2-based Red Hat Linux workstation with 64Mb of RAM, 6.8Gb hard disk and 32X CD drive for £688 (ex VAT).

FROM REPORTS BY DOMINIQUE DECKMYN AND MIKE MAGEE

Digital Networks 0161 339 8555; <http://dnuk.com>. Red Hat [www.redhat.com](http://www.redhat.com)

## Indian summers

### POINT OF VIEW

**I**t took a three-week break in India for me to realise the extent to which cybercafés have become the new post offices, used by foreigners and natives alike as the quickest way to send letters.

Cybercafés are at the high end of the market, as this shot (right) of Delhi's funky Pahar Ganj bazaar shows. Back streets in the capital exhibit grassroots parallels to Britain's comms revolution: we sprout firms reselling phone and web capacity; there, someone's entire livelihood may depend on selling STD calls or web time on a single phone or PC in a shack of an office. This is a big deal in a country where, until recently,

few enjoyed the rapid comms and varied information sources we take for granted.

Don't let the quaint signs, the rickshaw and the rickety buildings deceive you. India invented modern maths — at least, it invented the zero, which amounts to the same thing. There are a lot of good programmers there, many of them down south in Bangalore, India's answer to Silicon Valley. They speak good English (often as a first language)



and, with the help of excellent communications, they are winning a lot of work from Western programmers.

Clive Akass



sees the comms revolution, India style



## STORAGE

# Tiny IBM disks show new uses for CF slots

**D**etails have emerged about IBM's 170Mb and 340Mb microdrives, which are about the size of a book of matches. They use the new Compact Flash II (CF II) slot which is challenging the larger PCMCIA slot as a way of adding peripherals to mobile devices.

**Future capacities** could reach 1Gb or more, IBM says. The drives are expected to be used mainly for digital cameras and handhelds but they cannot be used on most current models, which use the CF I slot (*see box, below*).

Solid-state RAM is preferable to the microdrive in terms of ruggedness and battery drain. But it is far more expensive. Peak Development quoted £172 for a 48Mb CF module, currently the biggest capacity.

**SanDisk, developer** of the CF II specification, says bulk prices could drop to as low as \$100 for up to 80Mb by mid-1999, when IBM plans "limited availability" of the microdrive. It quoted US reports that prices would start at \$170 for the IBM.

**Mitsubishi and Hitachi** have jointly developed a



256Mbit flash memory chip that lets CF modules hold up to 192Mb. PC Card versions will hold up to 640Mb.

Current drain of the chips is quoted as 1 microamp on standby, and 20milliamp (ma) on read/writes at 3.3v. IBM was coy about the microdrive's drain, other than it is less than 500ma, the relatively hefty maximum for CF II devices.

But Sony's Mavica digital camera, which uses a floppy for storage, shows that battery life need not be an issue when a disk is used intermittently.

More details at [www.storage.ibm.com](http://www.storage.ibm.com) and [www.sandisk.com](http://www.sandisk.com)  
Peak Development 01489 796979

## CF II ... no flash in the pan?

**T**he original 3.3mm-deep CF I slot was designed purely for solid state flash RAM modules measuring 42.6mm x 36.4mm — about half the size of a PCMCIA card.

CF I devices can be used in CF II slots; but the reverse is not true because CF II

devices are deeper (5mm) and have extra pins which enable the slots to be used for hard drives, ethernet cards and modems — much the same kind of devices that go into PCMCIA slots.

An adapter will allow CF II devices to be used in PCMCIA slots.

## Faster PCI

**F**aster and smaller versions of the PCI bus are in the pipeline. A proposed Mini PCI will cram it on to a small (699 x 457 x 56mm) daughter-card to help vendors integrate network cards, modems and other devices into small products such as notebooks.

A PCI Special Interest Group (SIG) workgroup is also examining a proposal called PCI-X, jointly developed by Compaq, Hewlett-Packard and IBM, which defines a 64-bit bus running at up to 133MHz.

Both proposals have to go through a lengthy review procedure and are unlikely to be accepted until next year.

For more information see [www.pcisig.com](http://www.pcisig.com)



## Virtual tour takes in old school ties

This is your reporter's old school, cruelly morphed into a shopping centre in Bedford. We print it less to point out the window (*behind*) in which his backside was often thrashed, than to show how comprehensive is the "virtual tour" on a new CD called Eye2Eye Britain. It provides a map on which each of 3,000 marked towns and other sites calls up one or more captioned pictures. It is a simple idea, well implemented, with scope for expansion into an impressive resource. At £49.95 it will probably find a market more in schools and libraries than among private buyers.

CLIVE AKASS

Eye2Eye 01223 293886

## short stories



### EASY DVD

Sony claims inexperienced users can get its £212 (ex VAT) DVD pack up and running within ten minutes. The internal DD1220E drive reads at 5X speed, giving a claimed transfer rate of 6925Kb/sec. The drive can also read CD-ROM, CD-R and CD-RW disks.

[www.sony-cp.com](http://www.sony-cp.com)



### RUGGED LASER

This LS-1200 laser scanner is likely to make a splash with anyone who needs to read bar codes in harsh conditions. The device, from rugged notebook specialist Husky, has already been adopted by Rover to track production.

Husky 01203 604040;  
[www.wphusky.com](http://www.wphusky.com)

### PRO MOUSE

Microsoft has launched a new £44.99 Pro version of its IntelliMouse. It claims ergonomic improvements with the ability to scroll in any Windows 9.x application.

Microsoft 0345 002000



### KEY MOVE

Mitsumi is offering a Euro key for its keyboards. Just send an international reply coupon to Mitsumi Hotline, Schumannstr.18 d, 52146 Würselen, Germany.

## PC prices reach TV level

**A** US company called emachines (*sic*) has set a new **low price point** for a well-specified PC — just \$499 (£311), less than the cost of a mid-range television.

Some UK vendors might match this price for a basic PC, but from emachines, £311 buys you a 266MHz Cyrix M2-based mini-tower with L2 cache, 32Mb of DRAM, five expansion slots, a 2.1Gb hard drive, a 24X CD-ROM, a 56K modem, a 3D video graphics card, two USB ports, a game port and a 14in monitor. A similar 300MHz Celeron-based model with 3.2Gb drive costs \$599, including monitor.

**By December**, emachines plans to produce a version of the Cyrix-based sealed box with no expansion slots, but with a 3X DVD drive and IBM DVD MPEG decoder with

S-Video and a rear antenna, all for \$499 including a monitor.

Also planned is a \$599 eStation, which copies the revolutionary look of Apple's all-in-one iMac but is a PC. Company officials admit that they will make little on the cheapest models, but say they expect to sell more of the \$599 systems which do offer good profit margins.

**The Cyrix M2**, known as a PC-on-a-chip, costs less than \$99 apiece in bulk; but even so, many in the industry were surprised that emachines could sell its products so cheaply. Yet the company claims that this year's production run has already sold out.

TIM BAJARIN

emachines  
www.emachinesinc.com

### PROCESSORS

## IBM drops 6x86s

**N**ational Semiconductor (NatSemi) has paid IBM Microelectronics \$55m to stop making 6x86 Intel clone chips. The money ends a manufacturing deal with Cyrix (now owned by NatSemi).

Under the terms of the deal, **Cyrix** designed the chips and sold half the production run; the rest were branded by IBM. But there had been constant friction between the two companies. IBM was accused of undercutting Cyrix, and even hinted at one point that its version was better than the Cyrix one.

Odder still, IBM used rival AMD chips (albeit manufactured by IBM) rather than its own-brand 6x86 chips in its cheaper Aptiva PCs, which have helped 6x86 clones gain credibility among PC buyers.

**NatSemi** will ramp up production of the Cyrix chips at its own Portland, Oregon, chip fabrication plant. IBM



▲ CYRIX-BADGED  
6x86 CHIPS

is expected to license chip designs from elsewhere, possibly including one for a "system of chips" designed for cheap home personal computers.

• *Drew Cullen (VNU Newswire) writes:* Clone chips were given a further boost with news that Sony is to use AMD's 350MHz K6-2 in a new line of consumer PCs called Vaio Compo. And sources close to the company said AMD will launch a 400MHz version of its K6-2 in November.

ADDITIONAL REPORTING BY  
MIKE MAGEE

## Bigger Win CE handhelds

**M**icrosoft ended months of speculation on 8th October by unveiling its Jupiter reference design for business-orientated handhelds. Jupiter, now renamed **Handheld PC Professional**, was supposed to use Windows CE 3.0, but this is still six months away so Microsoft has used CE 2.2, with crucial support for 256-colour 640x480 VGA screens and better battery management. Microsoft is pushing the idea that staff who might not qualify for a fully-powered Windows 98 portable could still benefit from a 2lb, sub-\$1,000 portable with a 12-hour battery life, email and full internet access.

Jupiter machines will be available from as many as nine vendors including IBM, Compaq, Hewlett-Packard and LG Electronics. The most interesting design will come from Vadem and Sharp. Called the TriPad, it can be used as a standard laptop, a reading device or a pen-driven tablet. IBM, Compaq and HP are mapping a form factor similar to that of the Sony Vaio 505 mini-notebook, with a 10.4in screen.

**Here's my take** on this year's Microsoft analyst conference. The company seems to have bought in to the idea that the computer is the network. The move is on to architect applications for the network, which means Office will migrate to some form of Java implementation for delivery across the network as components. These will be designed specifically for Windows, but they still mark a new age in PC software. Microsoft is quickly hiring staff and training them to help customers with back-end customisation. This will change the company's place in the market dramatically over time, and will pit it against some of its system-integration and software partners.

When I first visited Microsoft, in the early eighties, it had 29 staff and you could walk into Bill Gates' office to chew the fat at any time. Now Microsoft is worth more than General Electric and is transforming itself into a network provider — and seems on track to own that space as well.

**Tim Bajarin**   
letter from **Silicon Valley**

## NEW PUSH FOR JAVA

# With Lotus, life is eSuite



Lotus is hoping that its recently launched version of eSuite for the PC will give the Java productivity suite a much-needed shot in the arm. Release 1.5 of the PC version of eSuite, which was in the shops in October, incorporates a Java development kit called DevPack, and WorkPlace, a set of office applications. These applications include a word processor, project scheduler, spreadsheet, calendar, address book and email and are all 100 percent pure Java.

Lotus says that it has focused on faster performance for version 1.5 of eSuite, which was a bugbear for version 1.0 of the product. Code execution takes place at the client side, making the applications at least 10 percent

faster than before — although customers using IE4 are reporting speed improvements of up to 40 percent.

Early versions of eSuite were aimed at the thin-client NC market and sales proved sluggish. Lotus eSuite product manager, Tom Crawford, says that the PC version will open up new doors. "We all know that the market hasn't taken off on NCs," he said. "But we haven't changed our strategy. We planned to deliver a PC product all along." UK prices for eSuite 1.5 have not yet been released.

Lotus 01784 455445  
[www.e-suite.lotus.com](http://www.e-suite.lotus.com)

▲ THE NEW eSUITE  
 PROMISES FASTER  
 PERFORMANCE

## IBM hits home with its new Aptiva range

IBM has refreshed its **high-end home PC range** with the release of the Aptiva S49.



The S49 has a 450MHz PII processor, 16.8Gb hard drive, DVD-4 ROM drive and a 56K modem. The package also includes a 19in monitor, a ScrollPoint mouse, Infinity speakers and the IBM Rapid Access Keyboard for quick access to the web. Prices start at £2,499 including VAT, although you can choose a 15in TFT monitor instead for £2,699.

IBM 0870 601 0136  
[www.ibm.com/pc/uk/aptiva.html](http://www.ibm.com/pc/uk/aptiva.html)

## NSI contract extended

The US government extended the **Network Solutions (NSI) contract** in October, allowing the company to continue administering domain names for another two years.

Under the plan, NSI will continue to register addresses

with the suffixes .com, .net and .org until September 2000, but must develop software to allow other companies to register those addresses by June 1999. It must also start transferring technical control of the domain system to an international non-profit organisation by March, as well as working to the regulations set out by this company.

In June of this year the

Clinton administration announced plans to hand management of the domain name address system from NSI to a global body by September. However, as it is still considering several proposals from industry groups on how to form the new organisation, the government has extended NSI's contract to enable a smoother changeover.

VNU NEWSWIRE

## Fujitsu's space saving exercise

Fujitsu has broken a few space and design barriers with the launch of the Intecra PC. The **all-in-one system** takes up only one third of the room required by a conventional PC and monitor, and comes with a 13.8in LCD flat screen that can be rotated through 90 degrees. It uses only 30 percent of the power consumption of a regular PC. The Intecra has a 266MHz PII processor, a 2.0Gb hard disk, and costs £1,049 (inc VAT).

Fujitsu 01344 475 555  
[www.fujitsu-computers.com](http://www.fujitsu-computers.com)



## Moving pictures



A new product from Tiny Computers can help **bring your emails to life**. VideoMail allows users to send each other videos using a USB camera and a simple piece of software. VideoMail is available free on Tiny's Home Entertainment PCs and the Super Power 350 Plus, or with any of its other PCs for £99 ex VAT.

Tiny 0800 821 333 [www.tiny.com](http://www.tiny.com)



## ISDN

### Sounds good

This £149 (ex VAT) Power 1000 kit gives PCs, video or TVs Dolby Pro Logic surround sound at up to 160W per channel. It includes an amplifier, subwoofer, two satellites, one central and two frontal loudspeakers, and a remote control kit.

Teac 01923 225235



### CAMBRIDGE CLAIMS CHEAPER ISDN

A new German-made **ISDN switchboard system** designed for small firms is up to £400 cheaper than similarly-specified boxes, claims vendor, Cambridge ISDN.

The basic £599 (ex VAT) Agfeo AS40 PBX supports two ISDN lines (up to four simultaneous calls) and three extensions, plus features like music on hold, call transfer, three-party conference calls and caller line identity. It comes with Windows-based Computer Telephony Integration (CTI) software which, for example, enables you to call from any Windows application by clicking an on-screen button or by pressing a hotkey.

The box contains four expansion slots, each of which can take either



◀ **SMALL FIRMS CAN NOW PURCHASE A WELL-FEATURED ISDN SWITCHBOARD FOR LESS MONEY**

an extra twin ISDN card (£249 ex VAT) or a £149 (ex VAT) card, allowing four extra extensions. Eight-extension cards will be available shortly.

**Cambridge ISDN** claims similar systems have previously cost more than £1,000.

Cambridge ISDN 01223 495929;  
[www.Cambridge-isdn.com](http://www.Cambridge-isdn.com)

## Flute and fibre plans for cheaper comms

Internet millionaire Peter Dawe says communication costs within Europe are a "rip-off"; a situation he plans to change with Flute, a firm he set up with former Pipex general manager, Richard Nuttall.

Dawe, who made some £30m selling his Unipalm-Pipex stake in 1995, plans to extend his English Channel cable network with a 24-pair cable ring linking Britain, Belgium and the Netherlands. The plans are to lay the fibre next spring and be operational by summer. He also plans links to Germany, Denmark, Sweden, Norway and Scotland. Dawe asks: "Why does it cost more to call Europe across 300 miles of North Sea than to call the US, across 3,000 miles of water?"

**Flute, unlike other** cross-channel systems, will offer customers dark fibre for rent; a strategy used successfully in the US long-distance market. Dawe explains: "We are building fibre as if it were a shopping mall — a capital project in which you don't operate the shops but, once developed and built, is an asset. In our case, [the project] is cable, which has a guaranteed rental income for its whole life."

He claims Flute is "coming in at one sixth of existing prices". Of course, there is the mere matter of the £20m investment the company needs. But Dawe believes profit guaranteed on the first cable will pay for a second by 2001.

[www.flute.ltd.uk](http://www.flute.ltd.uk)

• **Radiant Networks** is developing technology to deliver multimedia wireless services to a mass market at rates of up to 25Mbit/sec. Its "mesh network" was conceived, developed and funded by Cambridge-based comms consultancy, Plextek.

Technical director Tim Jackson [tj@radiantnetworks.co.uk](mailto:tj@radiantnetworks.co.uk) also sees the novel, low-cost system delivering video telephony, email and interactive TV, with first products developed over the next two years. The company is raising £14m for R&D funding through a share placing. The new mesh system overcomes "line of sight" problems of cellular networks, says Jackson. It uses subscriber units rather than a base

station to exchange data with other nodes, routing signals around obstacles like buildings.

A demonstration network is running in Great Chesterford, Radiant's home town. Managing the new spin-off are md Will Gibson, who developed datacoms business Transmit International, and Alan Bates, a previous chief executive of Bell Cablemedia.

• **Adaptive Broadband**, which uses technology pioneered over five years at the Olivetti & Oracle Research Laboratory, has been acquired for up to \$17m (depending on performance) by US supplier, California Microwave. The technology enables unprecedented data rates over point-to-multipoint radio links: currently 25Mbit/sec in the 5.8GHz unlicensed frequency band. Prototypes are being evaluated for countries with poor land lines, and pilot deployments are expected in the Spring.

[www.adaptivebroadband.com](http://www.adaptivebroadband.com)

Caroline Swift



continues her reports from **Silicon Fen**

## short stories

### PAPERLESS OFFICE

Email may have helped to cut down on the deluge of paper pouring across the average desk, but the office will never truly become paperless, a survey has found. While 90 percent of IT managers interviewed by document management company AFP Technology said that electronic document filing was more efficient, only three percent thought paper would disappear entirely.

### IT CHARGES TOO HIGH

UK businesses are paying way over the odds for their ISDN connections, according to a survey by consultants Phillips Tarifica. The survey found that connection and rental charges for BT's basic ISDN package were as much as six times more expensive than in Europe. This financial disadvantage means that Britain could fail to adopt new technologies such as videoconferencing, the survey warned.

### 24 AUCTION

One of the oldest forms of business is taking the plunge online at [www.24auction.net](http://www.24auction.net). Its backers say that 24Auction is the first European-wide internet auction service. The service, which will initially concentrate on the business market only, hopes to eventually attract mainstream retailers wanting to cut out the middleman (saving money in the process), as well as consumers looking for a bargain. For more information on how to get your products on the electronic block, ring 0171 917 6047.



## ELECTRONIC BANKING

# Citibank offers net banking

Another bank has pushed ahead with an **online banking service** only weeks after a top management consultancy warned of the dangers of banks' goldrush approach to the internet. The Citibank Internet Banking service, which was launched in September, gives users direct access to a complete range of bank facilities. They pay no setup or transaction charges, and they also get a year's free access to the internet from Virgin Net.

**Customers can access** the service from any PC with internet access and pay their bills online, set up standing orders or transfer money to other bank accounts in the UK or Citibank accounts across Europe. Citibank says that because it doesn't have a history of high-street branches, it is ideally placed to offer this kind of direct service. Barclays, Nationwide, Lloyds, First Direct and the Bank of Scotland have all come out with similar services over the past year.

**The consultancy firm** Ernst & Young warned banks against rushing to invest in a medium without knowing



▲ MONEY MAKES THE WORLD GO ROUND

what they want to get out of it. In a survey of retail banks, it found that banks are worried about losing their customers to companies without a financial background, such as supermarkets and even software companies. Just over one-third of European banks thought that investing in internet services would help them to keep their customers. However, most of them acknowledged that they could not yet cope with customer questions by email,

with over half of them taking at least a day to reply. Citibank Internet Banking uses 128-bit secure encryption. Account information can also be downloaded into personal finance packages, such as Quicken or Microsoft Money. For more information and a demo of the service, ring Citibank (freephone) on 0800 008100.

SUSAN PEDERSON

Alternatively, visit the Citibank web site at [www.citibank.co.uk](http://www.citibank.co.uk)

## HUMOUR

# Comic capers



**H**elp Beano wrap up its sixtieth birthday celebrations in style by

visiting its web site. You'll have the chance to guess the name of Dennis the Menace's new baby sister, sing along with the Bash Street School Birthday Choir or try to solve some puzzles. There's also a quiz hosted by Roger the Dodger and a selection of birthday cards, presided over by Minnie the Minx.



◀ OH BABY: IS SHE AS BAD AS DENNIS?

Have a chuckle and a chortle at [www.beano.co.uk](http://www.beano.co.uk)



## Great oaks from little Acorns? No.

No more Acorn brand PCs as the company **concentrates on other areas**. Ian Burley reports.

**T**he Acorn brand name appeared to be on its death bed as we went to press. Acorn plc, one of the last bastions of home-grown PC technology, remains in business but is closing its Workstations division to concentrate on developing digital TV and thin-client technologies to sell to third-party manufacturers.

**It is rumoured** that the Acorn name will be abandoned in favour of a new brand which will exorcise any link with the past and the company's conservative image as a schools computer maker. Many of Britain's IT professionals cut their teeth on Acorn computers, which were often technically ahead of commercially more successful US models. Acorn still commands a sizeable, if declining, following in schools, various vertical commercial markets, and enthusiasts who hate Wintel PCs.

**The new direction** was announced before the annual Acorn World jamboree, with the Workstation division preparing production of a technically interesting new computer, codenamed Phoebe. Some 75 marketing and admin staff were made redundant.

Stan Boland, Acorn's new CEO, said in a statement: "Today's announcement marks a significant watershed in Acorn's history. While we are sad to be announcing the redundancies, we are making these important changes to Acorn's market position and business shape to recognise that the future of this company lies as a leading player in digital TV system components and in partnership with other technology companies." Another statement indicated that unsuccessful attempts had been made to find a buyer for the Workstations division. Reports indicate that computer games magnate Stephen Streater, of Eidos fame, had co-incidentally made a £0.5m bid, including a retained shareholding for Acorn, for the rights to Acorn's PC range. But the offer came just as Boland was authorising the death of the Workstations division. As we closed for press, various parties interested in reviving Acorn PCs were due



▲ A NEW DIRECTION FOR ACORN PLC MAY SEE AN END TO THE ACORN BRAND NAME

to make formal representations to

Acorn to acquire the Workstations business under the leadership of former Acorn director, Peter Bondar. He told *PCW* that he feels there is a reasonably good chance that something can be salvaged, but even then, the Acorn name may not be used by any new company which could be formed.

**Acorn has** outlived some illustrious competitors and the Acorn brand's time looks like it's up. But the technology may survive to fight another day.

### TIMELINE

## Acorn plc: the company that took computers to school

**1979** Ex-Sinclair employees, Chris Curry and Hermann Hauser, form Acorn Computers in Cambridge, selling an 8-bit 6502-based hex-input kit computer, the System One.

**1980** The 6502-based Atom launched, with optional colour.

**1982** BBC Micro launched. Over ten years, more than a million were produced. Guaranteed Acorn's long-term survival through dominance in the schools market.

**1983** The £199 Electron, a slower version of the BBC Micro, is introduced using a highly integrated custom chip. More than 100,000 made, but one in three were never sold.

**1984** Acorn designs its own 32-bit RISC processor, the ARM (Acorn RISC Machine). Radical ABC business machine launched, but with few sales, was eventually cancelled.

**1985** Acorn nearly goes bust. Becomes Olivetti subsidiary.

**1987** ARM-based Archimedes desktop launched, with primitive half-finished BBC-like OS. Some 250,000 derivatives made over eight years. Ambitious ARX Unix-like OS project cancelled after missed deadlines.

**1988** Modest co-operative (not pre-emptive) multitasking windowing RISC OS introduced.

**1991** Acorn A4 notebook, based on Archimedes A5000.

ARM RISC technology spun off as independent Advanced RISC Machines Ltd (ARM) with backing from Apple which later used ARMs in its Newton PDAs. Acorn and Apple each have 43 percent share.

**1994** Radical dual slot-in processor "pizza box" modular Risc PC with 30MHz ARM610 processor and optional Intel-compatible second processor for PC compatibility. 50,000 produced to date.

**1995** Oracle "discovers" that Acorn can make its Network Computer (NC) a reality.

**1996** Acorn and Apple form Xemplar to fight growing PC competition in the schools market. Risc PC gets Digital-made 200MHz StrongARM upgrade.

**1997** Online Media division, focusing on networked interactive multimedia TV boxes, is closed. Oracle abandons its NC relationship with Acorn. Turnover falls dramatically.

**1998** ARM Ltd floats; a stock market high values ARM at \$1bn. Acorn retains a quarter share.

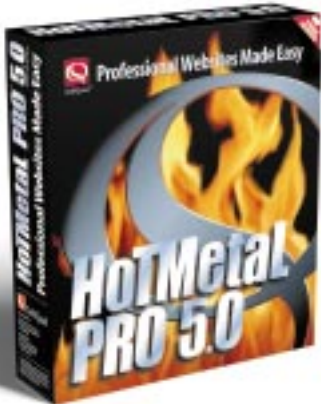
**1998** Risc PC replacement, codenamed Phoebe, shelved just weeks before first production run.

## short stories

### ► HOTMETAL PRO 5.0

The latest version of SoftQuad's popular HTML authoring package is now on the shelves. HoTMetal PRO 5.0 has expanded source code editing facilities, as well as the Site Maker wizard for new users. It costs £99 (ex VAT), although anyone with an existing version can pick it up for £49.

For more information, call 0181 387 4110 or see [www.softquad.co.uk](http://www.softquad.co.uk)



### ► JET SET ON THE NET

CommUnity is now offering its Jet Set "international roaming software" to anybody with internet access. Jet Set enables users to log on to their email using a local call to one of 3,050 POPs rather than having to make an international call.

For information and prices, ring 01865 856000 or see [www.jetset-roam.net](http://www.jetset-roam.net).

## TRAVEL

# Online travel is flying high

**L**eisure travel booking is booming on the internet, thanks to consumer acceptance and aggressive marketing campaigns by travel companies and hotels.

**Forrester Research** is predicting that, by 2003, the internet booking explosion will produce US\$65.5m-worth of travel reservations. The rise in direct booking will force the rest of the travel industry onto the internet, commented James McQuivey, an analyst for Forrester.

**Online consumers** are becoming increasingly at ease with making travel and holiday reservations through the internet. By the end of 1997, 27 percent of all

households in the United States had purchased airline tickets online. Forrester believes that the European travel market is now set to follow in the footsteps of the United States. Europeans are more accustomed to booking vacations in packages, which will provide travel companies with even greater opportunities to attract people online with special offers and so on, said McQuivey.

**Forrester thinks** that one-stop shops, packaging everything from air flights and hotel reservations, to car hire and theatre tickets, will attract more people online because of two key factors:

choice and convenience. As demand increases, travel companies are already shifting strategies from providing information to enabling direct booking. The cut-price airline, EasyJet, switched to an online booking option this year and said it has been well received by customers. Go, British Airways' budget service, ran a promotion in October offering flights to any destination for £100 return, if they were booked online.

**In addition to** creating a new revenue stream, online booking helps firms to reduce administration costs and, in some cases, cut out the middlemen.

## Net gains for Amnesty charity

**A** leading human rights charity is looking to the internet to help give its fundraising and campaigning a boost. **Amnesty International** unveiled its own **branded internet service** at the end of September, which includes internet and email access, 5Mb of web space and local call rates. The service, which is being provided by UUNET Pipex, costs users £11.66 a month. For each new

account that is signed up, Amnesty receives £15 from @ffinity access, the internet marketing company which negotiated the deal with UUNET. It also receives a further £1 per month from the subscription fee. Amnesty also hopes the service will encourage more of its members to use email



for its Urgent Action Appeals.

For information on the new service, call 0800 328 1756 or go to [www.amnesty.org.uk](http://www.amnesty.org.uk).



## Choose charity cards online, for Christmas

**T**he Charity Christmas Card Council (4C) has made its **executive range** catalogue available over the net at [www.charitycards.org](http://www.charitycards.org). The

catalogue, which features around 170 different card designs, has started to receive interest from around the world. Visitors can search the catalogue

either by the type of charity or type of design, and 4C hopes to develop an online ordering and payment scheme by the end of next summer.

## Compaq risks

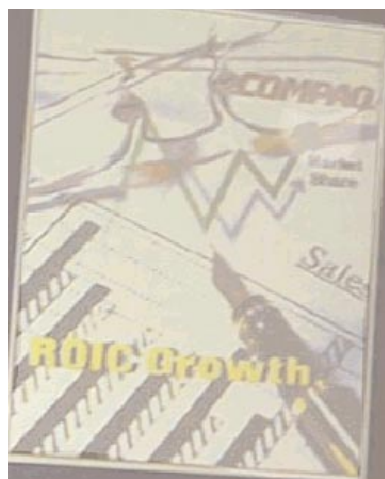
Tim Bajarín reports on the stakes for Compaq after one of the **biggest mergers** in history.

Compaq held its first analyst's summit last year at a time when it was trying to integrate newly bought Tandem into the company. It hit 1998 running with the proposed acquisition of Digital, which would make the integrating process even more difficult. But you have to hand it to Eckhard Pfeiffer, Compaq's president and CEO, for taking on the task and making it happen. Sure, there were some significant layoffs and the integration may not always have been smooth. Yet you still have to marvel at the new, combined Compaq, with its ability to provide world-class services and products across the entire business and consumer spectrum.

I spent some time with Pfeiffer at his second analyst's summit in Florida last month, and quizzed him about Compaq's strategy on the 64-bit Alpha chip it inherited from Digital. Pfeiffer said Compaq is very committed to 64-bit computing, but had shed the loss-making manufactures of Alphas, which will now be made by Samsung and others. Compaq has only to pay for Alpha's R&D, which is now properly budgeted and manageable.

Pfeiffer is making the Alpha the cornerstone of his high-end 64-bit NT Server strategy, particularly because he does not expect Intel's IA 64 to be available before mid 2000 — and demand for 64-bit servers that can run Unix and NT won't wait that long. Pfeiffer believes that Alphas are well positioned to meet these IT needs in the short term; Sun and HP are competitors in the 64-bit Unix area, but Compaq has the edge with NT.

Pfeiffer believes Alphas will outperform Intel's IA 64 over the next five to six years, because they are already so far ahead. He stressed that Digital's world-class service organisation allows Compaq to take IBM head on; he claims already to be beating IBM on major accounts. It seems the Tandem and Digital brands will be absorbed into the overall Compaq line over the next year. The road map is still unclear, but Compaq plans to merge Digital models into a single Compaq brand this year. Compaq has also set up what it calls an



▲ COMPAQ'S CEO  
ECKHARD PFEIFFER,  
THE MAN BEHIND  
THE COMPANY'S  
SUCCESS IN THE  
HIGHLY COMPETITIVE  
PC MARKET

customers the choice of buying PCs off the shelf or to their own specifications either from dealers or over the web. Compaq recently launched 800 kiosks for in-store customisation in the US, and plans to have 2,000 operational by mid 1999. It kicked IBM out of some 2,500 Radio Shack stores that now exclusively carry Compaqs.

Rod Schrock, head of Compaq's consumer division, outlined Compaq's desire to lead the market in home networking. Compaq helped found the Home Phoneline Networking Association (HomePNA) to create a standard for delivering home networking through phone lines. It invested in Tut Systems, which is delivering a key component of the HomePNA standard.

A key interest of analysts was how the Asian financial crisis would affect Compaq. Pfeiffer and other officials believe strong branding and distribution will keep Compaq's 1999 Asia sales flat, while others dip. But Pfeiffer believes that this is a good time actually to expand Compaq's investments in this region, especially China and Japan, and

Optimized  
Distribution  
Model  
(ODM), giving

**The other area  
Compaq hopes  
to exploit is the  
Y2K problem**

has decided to increase Compaq's development budgets for all of Asia. He sees the crisis bottoming out at some point, when the demand for computers and related services will take off again.

The other area Compaq hopes to exploit is the Y2K problem. This might drain IT budgets to the extent of stalling purchases of new equipment, but Compaq is partnering with various consultants and software vendors to provide services that help correct the bug.

I left Florida rather impressed by the new Compaq. I was one of the first analysts brought to Compaq in 1984 to see its first computers; there were only

four analysts at this first informal meeting with founder Rod Canion and chairman Ben Rosen. But in my wildest dreams, I could never have envisioned the Compaq we have

today. With the acquisition of Tandem and DEC, Compaq is a completely different company. Some problems remain in the integration of the companies, but Pfeiffer and his management have a clear understanding of how to correct them. Compaq looks set to be the number one PC company for a long time to come.

TIM BAJARIN



## short stories

### ► PRESARIO PREZZIES

Buyers of a PC from the new Compaq Presario range will get a free bundle of goodies from AOL. It includes one month's free AOL membership and 99 free hours online. The new Presario features the Easy Access Internet Keyboard which gets you online at the touch of a button.

More information: call 0845 2704000, [www.compaq.co.uk](http://www.compaq.co.uk).

### ► PATENTLY SIMPLE

Got an invention to share? Now you can pick up your patent application form over the internet. Unfortunately, though, you'll still have to pay for postage; existing law doesn't allow applications to be submitted electronically.

[www.patent.gov.uk](http://www.patent.gov.uk)

## UPGRADE

# US O.K. but disc delay for UK

**A**OL in the United States has cracked open the champagne for its latest upgrade, except European subscribers will have to wait until the new year before they can get the software on disc.

**AOL is pulling out** all the stops to launch version 4.0 into the market in the US, including an online sweepstake and the mailing of a million free AOL 4.0 CD-ROMs every week. AOL UK refused to comment on preparations for 4.0's rollout here, but confirmed it would be available for download at the end of November and on disc from January 1999. "It's a relatively large file, so the majority of our



subscribers will probably wait until we mail out 4.0 on disc in January or at the beginning of February," a company spokesperson said. "The European version of 4.0 is launching later than the US, basically because the software has to be adapted for localised services and this takes time." Version 4.0 requires 16Mb RAM and 30Mb of hard-disk space. Downloads can take from one to two hours.

**AOL remains a** proprietary online service, but version 4.0 further integrates the service with the internet, which is something

its subscribers have been demanding. Analysts estimate that one in five internet surfers are AOL account holders and that the majority spend 20 percent of their time on the internet.

**The new user** interface includes more tips on using email and exploring the internet than did previous versions. By adding a tool bar, subscribers can set up click access to their favourite internet sites. Photo images can be embedded directly into email.

Although 4.0 includes the core of Microsoft Explorer 4.0, subscribers can run other browsers, including Netscape Navigator, over the AOL internet connection.

## Yell Top 10 web sites



It is said that pets can start to look like their owners. But if so, why is the biggest, burliest guy often seen with the daintiest slip of a greyhound? You can find out more about these lovely dogs at the Official British Greyhound Racing Board at [www.thedogs.co.uk](http://www.thedogs.co.uk). Learn how to choose a puppy or place a bet, then check out the race results. You can also find out how to help greyhounds that have been abandoned.

1. Electronic Share Information [www.esi.co.uk](http://www.esi.co.uk)
2. Emu Net [www.euro-emu.co.uk](http://www.euro-emu.co.uk)
3. Frequency [www.frequency.co.uk](http://www.frequency.co.uk)
4. Health Gate [www.healthgate.co.uk](http://www.healthgate.co.uk)
5. Hypertribes [www.hypertribes.org.uk](http://www.hypertribes.org.uk)
6. The Official British Greyhound Racing Board [www.thedogs.co.uk](http://www.thedogs.co.uk)
7. Q Web [www.qonline.co.uk](http://www.qonline.co.uk)
8. Scalextric [www.scalextric.co.uk](http://www.scalextric.co.uk)
9. Soccernet [www.soccernet.com](http://www.soccernet.com)
10. TFI Friday [www.tfidfri.com](http://www.tfidfri.com)



## Intrepid Explorer catches up

**M**icrosoft is winning the web browser war, according to a new study by IDC, which shows that Netscape's Navigator no longer has the lion's share of the market. Last autumn, Navigator held over 50 percent of the installed base but by mid-1998, that was down to 40 percent while Internet

Explorer's share went up from 22.8 to 27.5 percent. Some analysts say that Netscape is not overly concerned, arguing that the move to internet portals is more significant. A portal combines search, contents and directories, offering more potential as a lucrative e-commerce site.

**Still looking for the perfect Christmas gift?** You may find it at [www.officiallondontheatre.co.uk](http://www.officiallondontheatre.co.uk) where there are theatre listings as well as information on how to get Theatre Tokens valid at over 180 venues across the country, including London's West End. And, you can place your order by email. For more information, call 0171 240 8800.

## The digital dilemma

Can Digital TV match the **same high standards of DVD**, or will it have to settle for second place?

**D**igital TV's ad campaigns assure us of superb picture quality because it uses 0s and 1s instead of wavy lines, but we decided to dig a little deeper. Between four and eight digital TV channels can be squeezed into the same space as one current analogue UHF TV channel using MPEG-2 video compression. Since DVD movies also employ MPEG-2, will digital TV boast the same high quality?

**Premium DVD** movie titles currently take some time to encode, with settings often being adjusted and optimised scene by scene. Digital broadcasters don't have this luxury, and have to squirt their video through real-time MPEG-2 encoders.

DVD employs a variable rate averaging around 4Mbps but capable of peaking anywhere up to 10Mbps, while digital TV is likely to be fixed around 5Mbps per channel — at the BBC

anyway. Other providers may use rates on non-premium channels of nearer 2 or 3Mbps, although dynamic reallocation of resources could aid complex video: note that most set-top boxes can decode up to 16Mbps.

**In terms of sound**, most DVD movies boast 5.1 digital surround, usually employing AC-3 compression under the guise of Dolby Digital. Unfortunately for all the home cinema enthusiasts, digital broadcasters seem content with plain old stereo, similar to NICAM, limiting us to analogue ProLogic surround sound at best.

We could of course have better-looking pictures and 5.1 sound today, but it's a question of using higher bit rates, and broadcasters outside the BBC believe we'd prefer quantity over quality. Encoders will improve in time,

but it seems that the viewers who'll most benefit from Digital TV in terms of picture quality are those in areas of poor analogue reception. Channel 5 viewers, take note.

**Personally speaking**, I'd sacrifice the convenience of near video on demand, where the same Hollywood blockbuster starts on, say, four channels

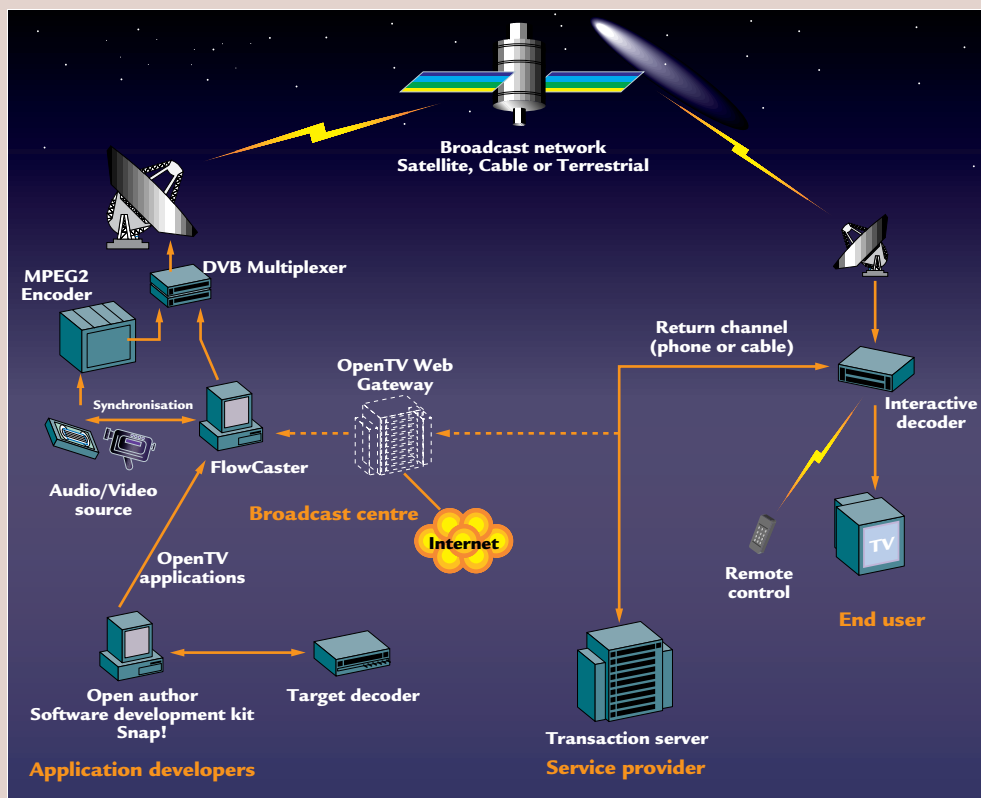
**Broadcasters outside the BBC believe we'd prefer quantity over quality**

at 30-minute intervals, for the hassle of getting home on time to watch a single channel with four times the digital resources. But then, I was the bloke who bought Betamax, Laserdisc and DAT.

GORDON LAING

This is a sketch of the OpenTV system being used by BSkyB. It is independent of the broadcasting medium and can be used on cable systems. The web gateway, flow-master, decoder and development kit are all OpenTV applications. The set-top box will have enough memory to allow simple games to be downloaded and played. At least one model has a 1394 port, but OpenTV's Regis Saint Girons said little can be done with it as yet. He admits some free channels may suffer from poor-quality images. OpenTV's software, as one industry insider drily observed, is the very reverse of its name, being very much a proprietary system.

### OpenTV: digital broadcasting as seen by BSkyB



# Competitors jostle for position

The race is on to **supply the consumer** with the Digital TV software standard.

The software side of digital television, which hit a mass market with the October launch of BSkyB's service, is at a stage similar to that of personal computers before the market coalesced around DOS and Windows. The signals are all based on Digital Video Broadcasting (DVB) standards, but rival operating systems are favoured by different operators. Satellite-based BSkyB has gone for OpenTV's FX system, from a company founded jointly by Sun and Thomson Multimedia. This is used by several European and US companies and is proprietary, which means set-top boxes (STBs) can be made only under licence. Many critics have argued that Sky owner, Rupert Murdoch, did this deliberately to lock users into his system.

**Interactivity comes** in two forms: via a slow modem phone link (*see diagram, opposite*) or directly with the STB which will be able to cache a limited amount of information for viewing when the user requests it. My bet is that this cache will not be enough, so that these STBs will soon start sprouting mass storage. But Regis Saint Girons, OpenTV's general manager for Europe, says the satellite link itself can act as a "virtual cache" by repeatedly broadcasting information such as weather reports, rich-format teletext and even games for accessing as needed.

**OnDigital, which uses** earth-bound transmitters, employs the open MHEG-5 standard which was designed for set-top boxes as a way of overcoming some of the limitations of HTML. The open API means any manufacturer can make the boxes, but OnDigital's implementation comes from Canal Plus, which developed a European rival to OpenTV's FX called Media Highway. OnDigital will offer no interactivity except email.

Cable operator Cable & Wireless will use a US system called MCNS, apparently because the DVB return channel standard (DVB-RC) is yet to be set in stone. The good news is that this



▲ OPENTV'S REGIS SAINT GIRONS

provides for a 10Mbps cable modem, although the bandwidth will have to be shared by others on your cable loop.

**Rival cable operator NTL**, which is also pitching to add interactivity to terrestrial broadcasts (*see page 27*), claims to be committed to open systems. It is using PowerTV's operating system, which is based around web standards like HTML and Java. Ominously, its back-end software comes from Microsoft in the form of the first major deployment of Commercial Internet

## *The satellite link can act as a 'virtual cache' by repeatedly broadcasting information*

System 2.0. NTL's Jonathan Thompson said he was satisfied that this would not impose any Microsoft-specific software on the user device.

For the moment, each service will need its own set-top box. "To be honest, there has been a mad scramble to get the system working," said Peter Marshall, technical director of the Digital TV Group, the industry body. "Some of the questions about combined boxes have

been passed over for the moment." The current confusion stems partly from a decision by the DVB group not to set standards for STB software. This is now seen as a mistake. "The Great White Hope is that there now seems to be a common agreement to move ultimately to a common standard, DVB Java, which is being developed by the DVB group." This is part of the work on what is called the MultiMedia Home Platform, which looks forward to a time when home devices are connected together.

**DVB Java** "allows existing boxes to be maintained with the level of performance that they have, and for new and better things to be introduced," Marshall says.

In practice, current STBs are likely to become dated because their price level has not allowed for easy upgrades. Marshall says PC Cards capable of accessing various digital channels will come in perhaps in two or three years, but are unlikely to start as cheap as today's analogue cards.

**Joker in the digital TV pack** is Eutelsat, which is the only company actively encouraging access by PCs, with the potential of relatively small-scale business and entertainment use. Both Marshall and Saint Girons agreed that it offers an alternative business model to that of huge companies

churning out content to mass audiences. Marshall said:

"It is very hard to predict how it will work out, but there are some fundamentals. One is that if you want to convey pictures and sound to a lot of people, TV broadcasting is the obvious

way. Internet push is not. At the other extreme, a satellite is not an efficient way to push one piece of information to an individual. There is some middle ground between the two extremes which is where Eutelsat could come in."

He was sure of one thing though: the launch of BSkyB was "the start of a revolution of which there is a lot more to come."

CLIVE AKASS



## Top 10 products Last month

### Peripherals

1	Astra 610P	Umax	1
2	Astra 1220P Scanner	Umax	3
3	56KV90 Voice/FX EXT	3Com	4
4	P75 TO P200MMX Evergreen	Evergreen	5
5	Natural Keyboard Elite	Microsoft	-
6	SoundBlaster Live PCI	Creative	-
7	ScanJet 5100C	HP	-
8	Evergreen 486/586 proc UG	Evergreen	-
9	Astra 1220S Flatbed	UMAX	-
10	Heatsink+Fan large		-

### Windows software

1	Windows 98 UG CD	Microsoft	1
2	Masterclips 150,000 Clipa	IMSI	2
3	OfficePro+Bookshelf U/G	Microsoft	3
4	Office 97 STD C/VUP UG CD	Microsoft	5
5	PaintShop Pro V5 FPCD	Digwork	7
6	Home Essentials 98 C/U	Microsoft	10
7	Windows Plus! 98	Microsoft	12
8	Back Office SVR CAL V4	Microsoft	17
9	PC Anywhere V8 CD FP	Symantec	18
10	Via Voice 98 Exec Edition	IBM	19

### DOS software

1	Turbo Pascal v7.0	Borland	2
2	Turbo Pascal v7 DOS Educ	Borland	3
3	DOS v6.22 Upgrade	Microsoft	4
4	FSFX Upgde For MS Flight Sim		-
5	Mail PC Remote 3.2	Microsoft	5
6	Intranetware 10 user Addition	Novell	11
7	System Commander V3.0	POW	-
8	Novell 3.2.5 User	Novell	-
9	DOS 2 Win 95 UG with Int	Microsoft	-
10	DataEase v5.12	DataEase	-

### CD-ROMs

1	Dance Ejay	Fast Trak	2
2	Rave Ejay	Fast Trak	6
3	Titanic: Interactive Journey	Europress	3
4	X Files: Unrestricted Access	EA	1
5	Encyclopedia Britannica	Acclaim	4
6	Babylon 5: Ultimate Reference	Cendant	-
7	Windows 98	Microsoft	7
8	Mavis Beacon Teaches Typing	Mindscape	5
9	Davi Music 98	Davilex	8
10	Money 98	Microsoft	-

### Games

1	Cannon Fodder	Sold Out	2
2	Championship Manager 2	Eidos	8
3	Titanic: Adventure Out of Time	Europress	6
4	Commandos: Behind Enemy Lines	Eidos	4
5	Theme Hospital: Classic	Bullfrog	-
6	Carmageddon: Replay	SCI	7
7	Premier Manager 97/98	Gremlin	3
8	Lula The Sexy Empire	Take 2	-
9	Special Ops	Take 2	-
10	Urban Assault	Microsoft	-

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

# Small Soldiers: coming to a PC screen near you



▲ **SQUARE JAWS A GO-GO! MAJOR CHIP HAZARD, LEADER OF THE CRACK COMMANDO TEAM, SURVEYS THE SCENE. WATCH OUT GORGONITES!**

**H**asbro Interactive and DreamWorks Interactive are teaming up to launch two new games based on the action adventure movie, *Small Soldiers*. The first game, **Small Soldiers**, is a real-time strategy affair where players have to defend their homes, schools and local shops from pint-sized armies. Named after the lab in the movie, **The Globotech Design Lab** gives kids the chance to design, build and battle their very own Gorgonite and Commando action figures. Both titles are out now.

The latest in a long line of game developers to expand its formats to DVD is Blue Byte, which will be porting its successful *Settlers* series to the new format in early 1999. **Settlers 3** will be out on the PC at the end of this year.

Codemasters keeps coming up with the goods: **TOCA 2 Touring Cars**, **Prince Naseem Boxing** and **No Fear Downhill Mountain Biking** are all on their way. *TOCA 2*'s content centres on the complete 1998 British Touring Car Championship season. Out in November, it will feature all the real cars, teams, tracks and drivers.

The release dates for the other two games aren't known yet — we'll just have to be patient.

There'll be no more games from Europress: its recent venture into the leisure scene with titles such as **Titanic**:

**Adventure Out of Time** and **Championship Rally** had disastrous effects on the company's profit margins. To survive, it had to axe a third of its staff, pull out of the games market and sell off a slice of its equity.

**Lose Your Marbles**, a new game from SegaSoft, has apparently taken America by storm. Your aim is simply to get rid of all your marbles before your opponent does. Not quite *Kerplunk*, then. *Screenplay* will have a review soon.

Rumour has it that the British Board of Film Classification (BBFC) could deliberately delay the sequel to the violent car game **Carmageddon**. The BBFC is presently holding the title and has given the game developer SCI no feedback whatsoever about its reasons. Meanies.

ETELKA CLARK

Games featured in *Screenplay*: Colin McRae Rally, *The Rocky Horror Show*, *Creatures 2*, *MotoCross Madness*, *Apollo 18* and *Emergency*.