

**TechNews** is a technology, news and analysis service aimed at anyone in the education sector keen to stay informed about technology developments, trends and issues. Please navigate the newsletter by clicking on items within the table of contents below.

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## Networking and Wireless

### Analysis: ZigBee

ZigBee is an emerging wireless network technology based on the IEEE 802.15.4 standard for low powered Personal Area Networks (PANs). It is aimed at control, monitoring, building automation, consumer electronics and sensor networks.

ZigBee has been developed as a global standard to meet the particular needs of a variety of applications. It has been designed to provide a reliable, inexpensive, low data-rate and low power, simple wireless network technology. ZigBee is intended to create self-configuring networks that organise themselves and are self-healing. ZigBee enabled devices become nodes in a mesh, star or cluster tree network. Up to 65356 nodes can be used in one network. A co-ordinator node manages and organises devices in the network. Other devices act as router nodes to extend coverage and relay data whilst the simplest reduced function devices connect via the routers.

The standard allows for the use of 3 frequencies: 2.4GHz (worldwide), 868MHz (Europe), 915MHz (USA) with maximum data rates of 250Kbps, 20Kbps and 40Kbps respectively. These low data rates make ZigBee unsuitable for heavy data transfer or video/audio, but it can handle messaging and control. However, these low data rates coupled with power management features (deep sleep mode and fast wake up) should allow battery powered ZigBee devices to run for months or even years. The range of ZigBee devices varies with the power available, but is typically between 30 and 100 metres.

The ZigBee Alliance is an industry association which is developing the network and application layers for ZigBee over the IEEE 802.15.4 physical and data layers. They are also overseeing compliance testing and certification of products in much the same way as the Wi-Fi Alliance does for 802.11/Wi-Fi equipment. In December 2004 the ZigBee Alliance published the ZigBee 1.0 specification and the first ZigBee compliant products are expected later this year.

ZigBee is initially targeting a narrow range of applications particularly suited to the technology in the fields of control and monitoring. These include: remote control (point to point), e.g. lighting, heating; consumer devices; sensor networks (environmental, security systems, fire prevention systems); building automation; industrial control; asset management and cable replacement (mice, keyboards, game controllers etc). Some mobile phone manufacturers are looking at integrating ZigBee wireless allowing mobile phones to be used to control a variety of devices. Beyond these initial uses it is envisaged that ZigBee could be useful in a wide variety of applications particularly when it is beneficial to have dynamic information about the state of something (e.g. temperature, open/closed, light/dark etc).

There is a certain amount of hype surrounding ZigBee at the moment and it is unclear whether ZigBee will move beyond industrial and building automation applications. Proponents of ZigBee believe that it could be added to the majority of electronic devices, creating a ubiquitous network technology. Although, not competing directly with other wireless standards, ZigBee may eventually replace Bluetooth for some applications due to the lower cost of its chips and its suitability for certain tasks. For example, Bluetooth devices can take 3 seconds to associate with each other whereas ZigBee devices can connect in 30ms.

Analysts are generally positive about ZigBee as it has been developed to meet specific needs and will not compete directly with other technologies. A study by ABI Research predicts sales of 1 million ZigBee devices this year rising to 80 million by the end of 2006. The study sees ZigBee initially being used for industrial control and monitoring systems (replacing proprietary technologies) before moving into the consumer market where the real potential for growth lies. However, ZigBee faces some challenges in interface design and in gaining market acceptance.

Organisations should be aware of ZigBee and its initial applications. If ZigBee becomes widely integrated in systems, network managers may find themselves becoming more involved in buildings management. However, it is not yet clear whether ZigBee will move beyond basic applications to become a more universal networking technology as envisaged by some of its advocates.

<http://www.zigbee.org/en/index.asp>

## Networking News

### WiMAX certification delayed

Certification of WiMAX equipment, which was expected in the first half of 2005, has been pushed back six months to July. This could mean that true WiMAX services may not be commercially available until next year. Several companies in the UK are beginning to roll out wireless broadband services using "WiMAX ready" equipment.

WiMAX is based on IEEE 802.16-2004, which was ratified in June 2004. It is a standard for fixed wireless broadband access with maximum data rates of 72Mbps and a range of up to 30 miles. A mobile version of the standard is in development (802.16e), but is not expected until 2006/7. A recent report from Frost and Sullivan suggests that WiMAX will be a strong competitor to DSL and cable broadband, but may need to overcome interference and Quality of Service issues.

[http://www.wimaxforum.org/news/press\\_releases/WiMAX\\_CetecomTestLab\\_FINAL\\_01.22.05.pdf](http://www.wimaxforum.org/news/press_releases/WiMAX_CetecomTestLab_FINAL_01.22.05.pdf)  
<http://www.frost.com/prod/servlet/frost-home.pag>

### Wireless network security still poor

A recent survey carried out by Newell and Budge has found that many UK organisations are still not adequately securing their wireless networks. The survey covered several major cities in the UK and Ireland. A wireless laptop and widely available scanning tools were used to carry out the research. It found that many companies were not taking basic security measures. 62% were not encrypting data, only 1% had disabled the broadcast of SSIDs and 21% were still using default settings on access points.

[http://www.newellandbudgesecurity.com/high\\_res/press\\_centre/press\\_releases/index.html](http://www.newellandbudgesecurity.com/high_res/press_centre/press_releases/index.html)

Becta Technical Paper: WLANs <http://www.becta.org.uk/technicalpapers>

### School abandons RFID tags for pupils over privacy fears

A school in California which made RFID (Radio Frequency Identification) enabled ID badges compulsory for students, has abandoned the scheme. The company providing the technology pulled out of the project following a campaign by parents over privacy and health concerns. Radio Frequency Identification (RFID) is a type of auto identification system and refers to technologies that use radio waves to identify objects or people. RFID tags are tiny microchips attached to antennae. The data on these chips can be read by a wireless reader and then passed back to computer systems. In the school system the RFID tags contained basic information about the pupils that could be read by wireless readers installed around the campus as students passed by. The school saw RFID tags as helping in attendance monitoring and improving security. Last year, a school in Osaka Japan introduced a similar system in order to track students. RFID tags have a number of applications. They are particularly being investigated by supermarkets to track items through the supply chain, but civil liberties campaigners are concerned about their use. The EU is working on guidelines for RFID use. <http://networks.silicon.com/lans/0,39024663,39127946,00.htm>

### Ofcom publishes latest broadband figures

Ofcom has published its latest figures on the communications market. The figures show that there are now 6 million broadband connections in the UK representing 38% of all internet connections. Broadband has overtaken unmetered dial-up, which now accounts for 25% of all connections. Ofcom also noted growth in higher speed broadband offerings (up to 8Mbps) and innovative services such as Voice over IP (VoIP). BT has responded to Ofcom's recent Strategic Review. It has offered to set up an independent Access Services division to ensure equal access by competitors to its infrastructure, including the forthcoming IP-based 21<sup>st</sup> Century Network (21CN). A recent report from Ovum suggests that the UK has the highest level of broadband availability (96% of households) among the G7 countries.

[http://www.ofcom.org.uk/research/industry\\_market\\_research/m\\_i\\_index/cm/jan2005\\_update/](http://www.ofcom.org.uk/research/industry_market_research/m_i_index/cm/jan2005_update/)

### Local loop unbundling fails to meet targets

The latest report from the Office of the Telecoms Adjudicator (OTA) shows that targets for Local Loop unbundling have not been met. LLU is the process in which internet service providers (ISPs) and

telecoms operators can provide services direct to customers using BT's copper wires from local exchanges. ISPs involved in LLU are beginning to offer innovative and faster services to customers. 31000 lines have now been unbundled, below the 50 000 target. Ofcom has recently set prices for LLU to encourage competition in the market.

<http://www.offta.org.uk/otaupdate20050207.pdf>

### **BT to trial ADSL2+ and increase broadband speeds for all users**

BT is to start trials of ADSL2+, a newer broadband standard, with speeds of up to 18Mbps. BT has also announced that it is to increase broadband data rates for domestic and business customers at no extra charge. Many customers will have their connections raised to 2Mbps where feasible. Some rival ISPs have already increased their data rates. BT is going to trial much faster ADSL services. Lines currently supporting 2Mbps will trial speeds of up to 8Mbps. Higher broadband speeds can enable innovative services. For example, a government backed scheme in Shoreditch is providing 5Mbps broadband through set top boxes. The service offers educational content, government and community services, digital TV, video on demand, internet and email.

<http://www.btplc.com/News/Articles/Showarticle.cfm?ArticleID=b6eb7528-dec8-472f-a061-fc6bf6060863>

<http://www.timesonline.co.uk/printFriendly/0%2C%2C1-2-1433216%2C00.html>

### **3G predictions**

A recent survey suggests that users perceive 3G services and mobile handsets as too complicated. 3G phones offer faster connections and new multimedia services such as video calling. The survey conducted by YouGov for Netonomy found that only 4% of respondents intended to upgrade to 3G. 41% were confident that they would be able to easily use 3G services, but 71% thought that mobile phones and services in general were becoming more complicated to use.

A study by ABI Research predicts that 3G data card modems for laptops will see significant growth over the next five years. However, a study by InStat/MDR predicts that by 2009 the majority of 3G modems in use will be integrated into mobile phones.

<http://www.netonomy.com/newsevents/pressreleases.html>

### **UK leads Europe on mobile data**

A new report on the global mobile operator market highlights the maturity of the UK in this area. The Netsize Guide 2005 highlights the UK as having one of the most developed mobile data markets in Europe. 50% of mobile phones in the UK are reported to be internet enabled. The study also reports that mobile phone penetration in the UK has passed 100%, with more mobile phones than people. Data services are increasingly important on mobile networks as revenue from voice declines.

<http://www.netsize.com/?id=6&sid=4&rid=23>

### **Study predicts SSL VPN to become de-facto standard for secure connections**

A new study by Forrester Research predicts that Secure Sockets Layer (SSL) Virtual Private Networks (VPNs) will become the main standard for providing secure connections over public networks, overtaking IPsec VPN by 2008. SSL VPNs can provide secure connections without the need for client software. It is particularly used to provide secure remote access to networks over the internet.

<http://www.forrester.com/Research/Document/Excerpt/0,7211,34908,00.html>

### **Security framework published**

The Networking Applications Consortium (NAC) will publish a new report called Enterprise Security Architecture: A Framework and Template for Policy-Driven Security, which it hopes will form the basis of a widespread industry standard. The document describes a complete security architecture from policies to technical and operational implementation. Much of it is based on security standards from the National Institute of Standards and Technology (NIST) and International Organisation for Standards (ISO). NAC is an industry consortium of major IT users.

<http://www.netapps.org/techpubs-esaexecsumm.htm>

<http://www.techworld.com/opsys/news/index.cfm?NewsID=2841&email>

## Multimedia

### Analysis: Digital Preservation

Modern digital technologies have made creating, storing and sharing vast amounts of data easier than ever before. It is estimated that worldwide in 2002 five exabytes of data was created and stored on print, film, magnetic (mainly hard disks) or optical formats. 92% of this data was stored on magnetic disks. Digital data is prone to be changed, deleted or poorly archived, making it more vulnerable than traditional media. Half of all photographs taken are now digital and the vast majority are not printed. The average life of a web page is estimated at 44 days. The amount of digitally stored data is likely to continue to increase and newer applications such as digital video will only add to this.

Organisations have become proficient at physically storing data and backing it up for disaster recovery, but few have long term digital preservation strategies. Preserving data for the long term is important on several levels: for better management and strategic planning; to meet legal/audit responsibilities; and for long term cultural, historical and intellectual benefit. It is a global problem that faces individuals, governments, business and academic institutions.

Preserving digital data poses several challenges and requires a pro-active strategy. This contrasts with traditional media such as paper documents and photographs that are often preserved without any particular intervention. Data stored on digital media is not robust and is subject to hardware failure and damage due to humidity, dust and high temperatures. CD-Rs for example can become unreadable within 2 years. These problems can be overcome by regularly copying to fresh media and backing up. Although this has a cost implication, it decreases over time as the cost/capacity ratio of storage improves. More crucially, data is usually tied to particular hardware, file formats and software. The rate of technology change can mean data becomes unreadable in as little as five years. This is particularly true for proprietary formats and is one of the reasons governments and organisations are increasingly supporting open standards.

The ultimate aim of digital preservation is to allow an authentic version of the data to be read and used in the future. However, preserving data usually means changing it in some way. The two key elements are: preserving the bits that make up an object (document, photo etc) and making that data readable. It is not necessarily a matter of preserving the actual object, but the ability to recreate that object.

The solutions to this problem need to be practical and sustainable. For example keeping legacy hardware and software in order to access old data is not a long term solution. It is important to note that digital preservation solutions are not static, but change over time with the technology. There are a wide range of solutions in place ranging from those that simply preserve the original data ( e.g. emulation, virtual machines, programmable chips); to those that change the data to make it readable on modern technology (e.g. version migration, standard formats, XML); and finally those that aim to make the data independent of hardware and software (e.g. persistent archives).

Although the ability to manage and preserve data has not advanced as quickly as the ability to create it, Governments, libraries and academic organisations have recognised the importance of digital preservation and have implemented multi-million pound preservation projects (e.g. Library of Congress; Digital Preservation Coalition). There are also several projects to archive the World Wide Web (e.g. British Library). The Open Archival Information System (OAIS) is one of the key international standards that set out a framework for archiving digital content: OAIS also highlights the fact that deciding what data to keep is as important as the technical ability to preserve it.

The use of digital data has afforded many benefits, including ease of manipulation, sharing, search and retrieval, collaboration, and duplication. However, preserving the growing and fast changing data stored on diverse and fragile storage media is an issue that poses many challenges and concerns us all.

<http://ssdoo.gsfc.nasa.gov/nost/wwwclassic/documents/pdf/CCSDS-650.0-B-1.pdf>

<http://www.dpconline.org/graphics/index.html>.



[http://www.jisc.ac.uk/index.cfm?name=programme\\_preservation](http://www.jisc.ac.uk/index.cfm?name=programme_preservation)  
<http://www.digitalpreservation.gov/>

## Multimedia News

### Holographic storage advances

The idea of holographic storage has been around for some years, but has never left research labs. However, recently several announcements and demonstrations suggest that holographic optical discs may reach the market over the next 2 years. Optware has announced that it will produce products using its Holographic Versatile Disc (HVD) later this year. Optware has also set up the HVD Alliance to promote HVD and try to establish it as an ISO standard. HVD will have capacities between 100GB and 1TB with transfer speeds of up to 1Gbps. InPhase also expects to produce a new 200GB version of its Tapestry holographic technology in 2006. They will initially be aimed at large scale archiving and back-up applications. These technologies currently remain unproven and even if successful they are not expected to be widely commercialised until 2007.

<http://www.inphase-technologies.com/>  
[http://www.optware.co.jp/english/index\\_what.htm](http://www.optware.co.jp/english/index_what.htm)

### Media centre PCs not ready for mainstream

A recent report from Gartner casts doubt on the future success of media centre PCs. Gartner analysts believe that media centre PCs are currently too expensive, not reliable enough, difficult to use and without aesthetic appeal. Computer manufacturers are increasingly looking to put their products at the heart of the “digital living room” to act as multimedia servers. Media centre PCs include TV receivers, Personal Video Recorder (PVR) functionality, and are intended to be used to stream digital content to devices around the home.

<http://www.theinquirer.net/?article=21269>

### Digital switchover developments

The UK communications regulator Ofcom has published an update on how to achieve the switch over from analogue to digital television transmissions. Currently the target for switchover is the end of 2012. Ofcom has suggested a gradual region by region switch off starting in 2008 with the ITV regions Wales, West Country and Border. The Government is expected to decide later this year whether to adopt this plan. Digital terrestrial is only available in 73% of the country and will be difficult to extend without switching off analogue transmitters first. The digital switchover is expected to free up frequencies, provide more choice and interactive services including helping meet e-government targets, especially for those without PCs/internet access. Figures from Ofcom show that as of September 2004 56% of households had digital TV

<http://www.ofcom.org.uk/research/dsoind/smup/>

### Dolby 5.1 for digital video cameras

The first consumer digital camcorder able to record in Dolby 5.1 surround sound was demonstrated at the recent Consumer Electronics Show in Las Vegas. Dolby Digital 5.1 Creator has been integrated into a Sony DVD HandyCam (DCR-DVD403). The camera uses the Dolby encoder with multi-channel microphones to allow users to record in surround sound. The soundtrack takes up less space than conventional PCM stereo. Consumer level camcorders are increasingly adding advanced features such as 3 CCD image sensors, optical image stabilisation, progressive scan and high-definition.

[http://www.dolby.com/about/news\\_events/press\\_releases/co\\_pr\\_0501\\_ICES\\_5\\_1CreatorCamcorder.html](http://www.dolby.com/about/news_events/press_releases/co_pr_0501_ICES_5_1CreatorCamcorder.html)

### Video on demand growth

The UK is leading Europe on digital television and video on demand (VoD) services. Although “near video on demand” services have been around for some years, true video on demand is now beginning to take off. The cable companies NTL and Telewest have announced plans to launch VoD services this year. Several companies such as Homechoice are offering VoD over broadband in certain regions. BT has plans to offer a combined Freeview digital TV and broadband VoD service. The expansion of local loop unbundling (LLU) that allows internet service providers to install their own

equipment in local telephone exchanges, is increasing the availability of innovative services like VoD delivered over broadband. The BBC is planning an interactive media player (IMP) to allow users to download previously broadcast programmes over the internet.

[http://www.theregister.co.uk/2005/01/18/ntl\\_telewest\\_vod/](http://www.theregister.co.uk/2005/01/18/ntl_telewest_vod/)

### **Mobile TV reports**

Philips has announced that it expects the majority of its television chips to be used in mobile devices rather than traditional televisions in the future. There is currently some momentum behind TV on mobiles (see TechNews analysis Autumn 04) with several trials taking place. Philips expects half of all mobile phones to be able to receive TV by 2013. A recent report by analysts Gartner did not expect live TV on mobiles in Europe until 2007 and reports that large handsets with poor battery life could put off users. There also remain doubts over whether users will take to watching TV in public on small screens.

[http://www.theregister.co.uk/2005/01/28/mobile\\_tv\\_prediction/](http://www.theregister.co.uk/2005/01/28/mobile_tv_prediction/)

### **Flexible 5" TFT-LCD display developed**

Samsung have developed what is currently the world's largest plastic TFT-LCD display. The 5" display uses a flexible plastic substrate rather than the traditional glass. The company hopes to commercialise the display in 2007. Several companies are working on flexible displays and some prototypes have been shown. Many are based on emerging technologies such as Organic Light Emitting Diodes (see TechNews Jan 05). Flexible displays could be rolled up and carried in a pen-style device; displays could be shaped to fit the contours of products or a building allowing almost any surface to become an electronic display.

<http://www.monitor4u.com/english/news/cont.asp?idx=1010&contdiv=New%20Tech>

### **Slimmer CRTs and SED displays**

Flat panel displays (FPDs) using TFT-LCD or plasma technologies are increasingly popular. However, they remain more expensive than traditional CRT (cathode ray tube) displays which still offer the best image quality. CRT televisions are still expected to outsell flat panels by three to one in 2007 (Meko). Several manufacturers including LG, Samsung and RCA have developed thinner CRT televisions which are about 2/3 the depth of traditional models. This should enable manufacturers to offer large screen, thinner displays at considerably lower prices than FPDs. The new sets are expected to be launched later in the year.

A joint venture between Canon and Toshiba is developing a new display technology called SED (Surface conduction Electron emitter Display). SEDs work in a similar way to traditional CRT displays in that electron beams stimulate screen phosphors. SED flat panels are power efficient, require no backlight and should produce bright, high quality images. The companies intend to begin producing 50" displays in 2005 and to start mass production in 2007

[http://www.samsung.com/PressCenter/PressRelease/PressRelease.asp?seq=20050105\\_0000089663](http://www.samsung.com/PressCenter/PressRelease/PressRelease.asp?seq=20050105_0000089663)

[http://www.canon.com/technology/detail/device/sed\\_display/](http://www.canon.com/technology/detail/device/sed_display/)

### **Human Eye key to better mobile displays**

Researchers are taking advantage of the properties of human sight to improve the quality of mobile displays. A process known as sub-pixel rendering uses the fact that the human eye is more sensitive to red and green than to blue. Standard displays use clusters of red, green and blue sub pixels laid out in grids, whereas the "Pentile Matrix" system uses red green blue and white sub pixels controlled by sophisticated algorithms. The human eye perceives the image to be higher resolution and brighter than standard equivalents. The system also uses less power than traditional displays. Several manufacturers are considering the system for mobile devices.

<http://www.clairvoyante.com/pentileOverview.htm>

<http://www.eetimes.com/showArticle.jhtml;jsessionId=W0BE25SUYRBPAQSNDBCKH0CJUMEKJV N?articleID=59301669>

### **Researchers develop smells for PCs/TVs**

Researchers at Huelva University in Spain have developed an XML language (XML Smell) to describe smells and fragrances that could be used to send "smells" over the internet. The idea is to create a small device to attach to PCs that can mix fragrances based on the XML instructions adding an extra element to websites, email, TV programs etc. Last year Thomson introduced immersive tours of Egypt in one of its shops that included the smells and sounds of the sights shown.

<http://www.el-mundo.es/universidad/2004/12/15/campus/1103124479.html>

### **Hardware**

#### **Analysis: WEEE Directive**

The Waste Electrical and Electronic Equipment (WEEE) Directive was agreed by the EU in February 2003. It aims to reduce the impact of electrical waste on the environment. It sets out how WEEE is to be collected and treated. It also imposes targets for recycling and reuse to limit the amount of electrical equipment being dumped. It applies to a wide range of electrical goods including IT equipment. Essentially the directive makes manufacturers responsible for financing the collection and disposal of waste from their own products. However, the WEEE directive will have an impact on all organisations.

The Directive was supposed to be passed into UK law by August 2004, but as with the majority of EU countries, implementation has been delayed. The Directive is due to finally come into force on August 13 2005. The DTI is overseeing the WEEE process and has held consultations on how to implement the directive in the UK. However, the final UK regulations have not been agreed and there is a chance that the WEEE directive may be delayed further beyond the August deadline.

The Directive puts the onus on manufacturers to provide for the financing of collection, recovery and recycling of business WEEE from products sold after 13 August 2005, unless they enter into separate arrangements with customers. They will be responsible for WEEE generated from equipment sold before 13 August 2005 (historic WEEE) if providing new equipment on a like for like basis. Businesses and organisations (including schools) will be responsible for correct disposal of historic WEEE that is not being directly replaced. Both manufacturers and organisations will have to provide documented proof of the proper disposal of WEEE. Consumers are exempt from the WEEE directive but they should be provided with free take back facilities.

The benefits of the WEEE Directive will be largely environmental. It should reduce landfill waste and pollution in addition to saving energy and resources. It is estimated that there are 315 million obsolete PCs worldwide. 4% of EU waste currently comes from WEEE and this figure is increasing. 90% of WEEE in the UK is simply dumped. It may also have some benefits in terms of social inclusion, as more WEEE is likely to be reused. Various charities that refurbish computers and make them available to lower income groups, schools, the unemployed and developing countries may benefit from the directive. The targets for the end of 2006 are for 75% of IT/telecoms WEEE to be recovered and 65% to be recycled or reused.

Restrictions on use of Hazardous Substances (RoHS) is another directive related to WEEE and due to come into force in July 2006. It limits the use of potentially harmful and polluting substances such as lead and cadmium in the manufacture of electrical and electronic devices. Organisations should ensure that all purchases bear the CE mark that signifies compliance with all EU regulations.

It is likely that the WEEE directive will make IT equipment more expensive, as manufacturers offset some of the costs involved. There will also be increased management costs. Some analysts estimate that the WEEE directive could add 5% to IT budgets.

Schools and organisations need to consider the implications of the Directive on procurement planning and asset management. Any additional costs need to be considered in IT plans and factored into the purchase price of new equipment. Schools need to ensure when purchasing what the arrangements for disposal of equipment are, and what if any cost is involved. It is useful to identify an individual



within an organisation with responsibility for ensuring compliance with the WEEE directive and obtaining relevant proof of correct disposal. A thorough audit of all equipment and an asset tagging scheme can be useful in identifying and tracking potential WEEE. Disposal and recycling should be the last options with reuse by the organisation or sending equipment to charities/resellers the preferred course of action.

However, under Data Protection legislation the organisation is responsible for ensuring that all personal data is wiped from hard drives of discarded PCs. A recent study by Glamorgan university found that a high number of scrapped PCs contain sensitive data. Many charities/resellers that refurbish PCs will include data destruction as part of the service and will also provide the documentation needed to show proper disposal.

<http://www.dti.gov.uk/sustainability/weee/>

For advice on disposing of equipment see:

[http://ipas.ngfl.gov.uk/downloads/docs/procurement/PG37\\_1-1\\_Disposal\\_of\\_ICT.doc](http://ipas.ngfl.gov.uk/downloads/docs/procurement/PG37_1-1_Disposal_of_ICT.doc)

## Hardware News

### Notebook growth continues to outstrip desktops

According to recent figures from research company iSuppli, sales of notebook computers are growing at more than twice the rate of desktops. Sales in 2004 were up 22.1% compared to 2003. Notebooks now account for 24% of the market. Analysts expect this trend to continue as notebooks are adopted by more users due to lower prices, better performance and the flexibility they offer. IDC expects notebooks to account for 40% of the market by 2007.

[http://www.tomshardware.com/hardnews/20050209\\_132528.html](http://www.tomshardware.com/hardnews/20050209_132528.html)

### PDA decline continues

Recent market data from analysts shows that sales of traditional Personal Digital Assistants are continuing to decline. IDC reports sales of PDAs down 13% in 2004 at 9.2 million units. However, sales of connected devices such as "smartphones" or converged devices (PDAs incorporating phone functions) have increased. It is still not clear which type of device will dominate and all these devices remain relatively expensive business oriented machines. Underlining the convergence of mobile phones and PDAs, Microsoft is to gradually phase out its Pocket PC and Smartphone brands to be replaced with Windows Mobile. HP has announced that it is to introduce an iPaq smartphone. InStat/MDR expects smartphone shipments to grow by 44% over the next five years.

<http://www.computerweekly.com/Article134606.htm>

### Intel launch next generation Centrino notebook platform, AMD to follow

Intel has launched its new Centrino platform, combining Pentium M (Dothan) processors, a new chipset, faster front side bus and optional support for tri-band Wi-Fi. The new "sonoma" chipset supports DDR 2 memory, PCI-Express, Serial ATA and hi-definition audio. AMD has developed a new energy efficient 64-bit mobile processor called Turion, which it hopes will compete with Centrino. Intel currently dominates the notebook market. Intel has also launched new 600 series Pentium 4 desktop processors, which have 2MB secondary cache and are 64-bit enabled (see TechNews January 05).

[http://www.cnet.com/4520-6022\\_1-5621629-1.html](http://www.cnet.com/4520-6022_1-5621629-1.html)

### Report says plastics to transform electronics

A recent report from research company NanoMarkets predicts that plastic electronics using conductive polymers and flexible substrates will transform the electronics industry. Flexible displays that can be printed using inkjet technology are expected to be one of the key applications for the technology. Other applications may include RFID tags, solar panels, processors, memory and sensors. Advantages over traditional CMOS technology include lower cost, lower power consumption and flexibility.

<http://www.nanomarkets.net/press-release2-10-05.htm>

### **Mobile Phone developments**

Samsung has incorporated a motion sensor into a mobile phone allowing users to control phone functions play games and dial numbers through movement. Vodafone Japan will shortly introduce a motion sensor equipped handset from Sharp. Toshiba has developed "ubiquitous Viewer", software that allows mobile phones to remotely control a Windows PC. According to figures from Strategy Analytics worldwide sales of mobile phones reached 684 million in 2004, up from 517 million in 2003.

[http://www.samsung.com/PressCenter/PressRelease/PressRelease.asp?seq=20050112\\_000009423](http://www.samsung.com/PressCenter/PressRelease/PressRelease.asp?seq=20050112_000009423)

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### **USB Flash Drive Authentication Standard**

The IEEE is developing a new standard for authenticating plug-in storage devices such as USB Flash drives. The IEEE P1667 standard should be published in July 2006. Convenient, high capacity storage such as USB flash drives is increasingly popular, but can pose a security risk to data and systems. Microsoft is to make controlling and managing such devices easier in the next version of Windows (Longhorn) expected in 2006. Windows XP Service Pack 2 currently makes it possible to block the ability to write to USB devices.

<http://standards.ieee.org/>

### **Mini Hard drives development**

According to a recent report from Trendfocus, mini-hard drives for portable devices are seeing strong growth that will continue at 50% per year to 2008. Recently hard drive equipped mobile phones and PDAs have been launched. Hard disks are being added to an increasing number of portable devices and improvements in size and capacity continues. Toshiba have launched 0.85" mini hard drives that are intended for use in mobile devices such as PDAs and mobile phones. Initially the drives will be 2 GB, but larger capacities are planned. Hitachi has also developed a 1" mini hard drive with 8-10 GB capacity. Although shrinking hard drives inherently reduces the capacity of drives, hard disks continue to have a much better price/capacity ratio than solid state flash drives. However, improvements in flash drive technology, which follow a similar price/performance curve as microprocessors, should enable them to compete at the low end (below 2GB).

<http://www.storagepipeline.com/news/60300048>

[http://www.theregister.co.uk/2005/02/09/toshiba\\_sandisk\\_8gb\\_flash/](http://www.theregister.co.uk/2005/02/09/toshiba_sandisk_8gb_flash/)

### **Tablet PC "bug" discovered**

Microsoft has confirmed that a Tablet PC "bug" reported on the Tablet PC Talk website does exist and that a fix will be made available. The flaw affects the tabtip.exe digitiser process that increasingly uses up memory eventually crashing the system. Users are advised to reboot machines daily in order to avoid the problem.

[http://www.theregister.co.uk/2005/02/04/reboot\\_tablet\\_xp/](http://www.theregister.co.uk/2005/02/04/reboot_tablet_xp/)

<http://kctofel.blogspot.com/2005/02/tablet-pc-memory-leak.html>

### **XDR Rambus**

PC memory company Rambus has developed a new high performance memory module called XDR (eXtreme Data Rate) DRAM. Samsung has started production of the memory chips that will be used with the new multicore Cell processor developed by IBM, Sony and Toshiba. It could eventually challenge DDR in high end PCs if manufacturers choose to support it. However, Rambus previously failed to establish itself in the PC market, losing out to DDR Ram despite its higher speed and performance.

[http://www.tomshardware.com/hardnews/20050125\\_170734.html](http://www.tomshardware.com/hardnews/20050125_170734.html)

[http://www.samsung.com/PressCenter/PressRelease/PressRelease.asp?seq=20050125\\_000009661](http://www.samsung.com/PressCenter/PressRelease/PressRelease.asp?seq=20050125_000009661)

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### **\$100 dollar laptop for schools in developing countries**

The chairman of MIT labs Nicholas Negroponte is planning a "cut down" laptop aimed at developing countries that could cost as little as \$100. He hopes to have the project running by the end of next year. The project aims to offer one to one access to computers that can also be taken home by

students. Last year AMD announced that they are developing an inexpensive computer terminal for developing countries.

<http://news.bbc.co.uk/1/hi/technology/4243733.stm>

<http://www.amd.com/us-e>

<http://web.media.mit.edu/~nicholas/>

## Software and Internet

### Analysis: Spyware

Spyware is a growing problem that can pose a significant threat to IT systems and data. Originally seen as an issue mainly facing home users, more recently, it is being taken seriously by business and organisations. The spyware threat was a major topic at the recent RSA computer security conference in San Francisco. Major computer security companies are also beginning to integrate anti-spyware solutions into their products. Spyware is a generic term that covers a range of problems and as such it has been difficult to define. Adware, for example, is not technically spyware. Generally, spyware is considered to be software that is installed or acts without the user's knowledge or permission, particularly if it transmits data to third parties.

Spyware can range in scale from relatively benign cookies, through annoying pop-up adverts, to more serious problems such as premium rate diallers, system monitors and key loggers. The police are now warning that spyware is overtaking "phishing" in attacks on online bank accounts. A recent case in the UK involved spyware downloading pornographic images onto a school computer bringing staff under suspicion: [http://www.theregister.co.uk/2005/02/08/computer\\_forensics\\_disklabs/](http://www.theregister.co.uk/2005/02/08/computer_forensics_disklabs/)

Microsoft estimates that up to 50% of Windows problems are caused by spyware and Dell has reported between 10-20% of support calls are as a result of spyware. Figures on the extent of the problem vary. Some surveys estimate that 90% of PCs are infected with spyware. Analysts IDC put the figure at around 67%. Some of the difficulty arises in what is counted as spyware. Most users do not consider basic cookies (as opposed to adware tracking cookies) a major threat, for example, but they can be included as spyware by some scanners. More serious spyware only represents 1% of infections. However a recent survey by Earthlink found that computers infected by system monitors rose by 230% in the last quarter of 2004.

Spyware can cause a range of problems and symptoms. It can use up computer and network resources, cause pop-up adverts, redirect websites or web searches, cause conflicts and system corruption. It can pose a serious threat to privacy, transmitting data about computer usage to third parties. This is often used to provide targeted advertising, but ID theft, stealing of passwords and bank account information also occurs. Spyware is also used to introduce Trojans that can allow malicious attackers to take control of a PC and use it as part of a "botnet" to deliver spam, launch denial of service attacks or other criminal activities. These more serious types of spyware often have no obvious symptoms leaving users unaware that they are infected.

Spyware is introduced to systems in various ways. It is often unwittingly downloaded with freeware or shareware applications. Peer to peer file sharing applications and some browser tool bars are particularly known for including spyware. Often the End User Licence Agreement (EULA) will include some reference to the "spyware", but most users find these hard to understand if they read them at all. Spyware can also be downloaded from email or websites when clicking on certain links or pop-up messages. However, a computer can also become infected just by visiting certain websites. These "drive by" attacks often use Java or Active X controls to infect computers.

IDC predicts corporate spending as a result of spyware will increase 2500% by 2008. Despite increased awareness, Equation Research recently found that only 10% of companies surveyed had implemented anti-spyware measures. A range of free anti-spyware programs have been available for some time, but major security companies such as McAfee, Symantec and Computer Associates have only recently launched enterprise class products. Many products offer real time protection against spyware in addition to scanning tools based on spyware signatures. However, spyware writers are

becoming increasingly sophisticated. For example a type of system monitor called a kernel rootkit cannot be detected by traditional spyware scanners.

In the USA some states have moved to ban spyware and federal legislation is also in progress. The EU is considering adding stronger provisions to the current EU directive on Privacy and Electronic Communications (2003). In the UK the Computer Misuse Act (CMA) covers most of the more harmful spyware, but not adware. However, the complexity and difficulty of enforcing legislation, particularly given the international nature of the internet limits the impact of legal measures.

Organisations need to recognise that spyware poses a threat to their systems and treat it as seriously as viruses. It can compromise data and privacy, increase calls on technical support, and slow down networks and internet connections. Having a clear anti-spyware policy and educating users not to download or install software is vital. A variety of other measures are also advisable. These include ensuring all machines are patched, using firewalls, having up to date anti-virus and anti-spyware software, employing email gateways and configuring browser security settings appropriately (disable scripting).

<http://www.benedelman.org/>  
<http://www.spywareinfo.com/>

## Software News

### Microsoft to restrict updates to authenticated users

Microsoft has begun to roll out a programme known as Windows Genuine Advantage that requires users to authenticate their copy of Windows online before being able to download updates and security patches. Verification is already mandatory for users in China, Norway and the Czech Republic and the scheme is expected to be extended worldwide by the middle of the year. However, updates and patches will still be available to all users via Automatic Updates. The company is offering discounts and free downloads as an incentive to use the system intended to combat software piracy.

[http://news.com.com/2100-1016\\_3-5550205.html](http://news.com.com/2100-1016_3-5550205.html)  
<http://www.microsoft.com/genuine/default.aspx?displaylang=en>

### Open Source makes further gains in Europe, UK behind

Vienna has announced that it is to migrate many local government desktops to open source software including the Linux operating system and Open Office. The move follows several other high-profile open source announcements such as Munich City's switching of 14000 desktops to open source software. Open Source software (OSS) is increasingly being considered by governments, schools and business due to potential cost savings and support for open standards. A recent Office for Government Commerce (OGC) report was largely positive about the use of open source software (OSS) in the public sector. However, preliminary results from a survey carried out by the Maastricht Economic Research Institute on Innovation and Technology (MERIT) found that UK local authorities were behind their EU counterparts in the adoption of OSS. 34% of UK local authorities have adopted some form of OSS compared to 71% in France, 68% in Germany and 55% in the Netherlands.

<http://www.wien.gv.at/ma14/pdf/oss-en.pdf>

### Skilled internet users more at risk on internet

A new study from the London School of Economics *UK Children Go Online* (UKCGO), reports that skilled internet users are more at risk from inappropriate material than beginners. Skilled users take advantage of the benefits the internet can provide, but this increases the risk. The report says parents and schools need to provide more advice and support on internet use. The report found that one in three pupils between 9 and 19 had not received advice on internet use, although the vast majority had.

[http://www.lse.ac.uk/collections/pressAndInformationOffice/newsAndEvents/archives/2005/Children\\_Online.htm](http://www.lse.ac.uk/collections/pressAndInformationOffice/newsAndEvents/archives/2005/Children_Online.htm)

### **EU targets internet safety**

The EU is launching a new scheme called Safer Internet Plus to provide teachers and parents with tools to help improve internet safety. The four year programme will commence in March and build on previous projects to increase awareness, provide training, set standards, fund filtering technology and provide illegal content hotlines.

<http://europa.eu.int/rapid/pressReleasesAction.do?reference=IP/04/1456&format=HTML&aged=0&language=EN&guiLanguage=en>  
<http://www.publictechnology.net/modules.php?op=modload&name=News&file=article&sid=2424>

### **Microsoft releases Anti-Spyware Beta**

Microsoft has released a beta version of an anti-spyware program that can be downloaded for free from the Microsoft website. Spyware is a growing problem and is increasingly becoming a threat to security (see Analysis above). However, a Trojan called BankAsh-A, which logs the passwords of users visiting online banking websites and transmits them back to third parties, has targeted MS Antispyware by attempting to disable it. Other free anti-spyware programs such as Adaware and Spybot Search and Destroy are available in addition to a number of commercial products. Microsoft is also expected to release anti-virus and security software before the end of the year.

<http://www.microsoft.com/downloads/details.aspx?FamilyID=321cd7a2-6a57-4c57-a8bd-dbf62eda9671&displaylang=en>

### **EU e-twinning project launched**

The EU has launched a new initiative called e-twinning that aims to help schools in different countries cooperate on e-learning projects. The e-twinning portal allows schools to find partners across Europe and receive advice and support. It encourages schools to set up long term partnerships to "take advantage of Information and Communication Technology (ICT) tools to work together in order to harvest pedagogical, social and cultural benefits. It provides an opportunity to motivate young people to learn about each other, their school culture, and family while practising their ICT skills at the same time." <http://www.etwinning.net/ww/en/pub/etwinning/index.htm>

### **Microsoft to release next Windows Beta shortly**

Microsoft has announced that it expects to launch a Beta version of its next Windows operating system, codenamed Longhorn, in the first half of 2005. The expected release date of Longhorn has been pushed back several times. The full commercial version is now expected in the second half of 2006. Originally Longhorn was to include three major components: WinFS a new file system; Avalon, a new graphics subsystem; and Indigo, a web services architecture. The latter two will now be made available as a separate download for Windows users whereas WinFS has been postponed.

[http://news.com.com/Microsoft+Longhorn+beta+will+arrive+by+June/2100-1012\\_3-5566423.html?tag=nefd.lede](http://news.com.com/Microsoft+Longhorn+beta+will+arrive+by+June/2100-1012_3-5566423.html?tag=nefd.lede)

### **Alternative browser use continues to increase**

The use of alternative browsers to Internet Explorer (IE) continues to increase according to the latest figures from WebSideStory. IE's market share fell to 90.3% in January, down from over 95% in June 2004. Firefox have seen steady gains now accounting for 5% of browser use. Other browsers such as Opera and Safari make up 2.1%. The move to alternative browsers has been prompted by concerns over security and lack of new features in IE (see TechNews Autumn 04). Some surveys suggest that 25% of visitors to IT related websites are using Firefox. However, several security flaws have been found in Firefox and other browsers recently. Microsoft is expected to remain dominant, especially in organisations where applications and services have been designed to run on IE.

<http://www.techweb.com/wire/software/57702548>  
<http://www.websidestory.com/>  
<http://www.theinquirer.net/?article=21166>

### **Internet Explorer 7 announced**

Microsoft has announced that it will release a beta of the next version of Internet Explorer (IE) this summer. Previously, Microsoft has maintained that future browser updates would be tied to the release of new operating systems. IE 7 will only be made available to users of XP Service Pack 2, but



no dates for the final release have been given. IE 7 is expected to concentrate on security improvements. Some analysts see the move as a counter to the success of alternative browsers, such as Firefox, and increasing concerns over the security of IE.

[http://news.com.com/Reversal+Next+IE+divorced+from+new+Windows/2100-1032\\_3-5577263.html?tag=nl](http://news.com.com/Reversal+Next+IE+divorced+from+new+Windows/2100-1032_3-5577263.html?tag=nl)

### **Internet Search developments**

Internet search has become a key area recently with several major companies and smaller start-ups looking to challenge Google's dominance. Search companies are differentiating themselves by providing new functionality such as personalised/contextual search, integrated desktop/web search, local search and video/TV search. Microsoft has launched its own search engine and Yahoo is offering contextual search that returns results based on the content of the web page a user is looking at. The company has also followed Google and MSN in introducing a desktop search engine to index and make searchable content on user's hard disks. Some recent surveys suggest that Google's lead has decreased.

[http://news.com.com/Yahoo+launches+contextual+search/2100-1038\\_3-5561712.html?tag=nefd.top](http://news.com.com/Yahoo+launches+contextual+search/2100-1038_3-5561712.html?tag=nefd.top)  
[http://news.com.com/Google+rolls+out+TV+search+prototype/2100-1032\\_3-5548834.html?tag=nefd.top](http://news.com.com/Google+rolls+out+TV+search+prototype/2100-1032_3-5548834.html?tag=nefd.top)

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