

## November 2005

**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: Location based technologies

Networks are increasingly found everywhere. The whole world is ringed by satellites; cellular networks serve the majority of the population in developed countries and wireless networks of one standard or another can be found in most urban areas. Location based computing looks at applying these networks for more than just data transfer, but for applications that change their behaviour based on where you are.

There are many different standards and devices that can offer some kind of location-based or location-aware services and this article will explore some of the technologies and look at some existing case studies.

The most common form of location-based computing is the fast growing satellite navigation market. The most basic systems use reference timed pulses from a network of satellites to determine a user's position. Navigation systems combine this location awareness with a stored map and route-finding algorithms to provide directions to a programmed location.

Satellite navigation (SatNav) has its limitations and is more reliable in open areas where there is good line of sight to satellites. This makes it most suitable for use in vehicle navigation and in sailing where GPS has replaced more traditional methods. Many outdoor activities also benefit from GPS use. Units allow waypoints to be entered, so can be used as in conjunction with or as a replacement for traditional maps for walkers, cyclists and skiers. The GPS system is based on US military technology which, until 2000, had the accuracy deliberately reduced. New systems are being built by the Europeans and Chinese to avoid reliance on the US owned service. The European service, Galileo, will be a GPS-style service using 30 satellites. The foundations of the project are technical and political, as in addition to the use of more accurate technology, the service will remain in civilian control and not under the US military. Next-generation Enhanced-GPS services may also be able to use other satellite systems such as DBS (Satellite TV) signals in areas of low coverage.

The second most pervasive wireless network is the radio system used for mobile telephones. This network was not originally designed to offer location-based services, however services are starting to emerge. This cellular system, as its name suggests, is based on a network of short-range transmitters each defining its own cell. As a phone is moved it negotiates connection to an appropriate transmitter. When a device moves away from a transmitter it will detect the presence of other cells and alert this new cell to its presence so any calls can carry on seamlessly. It is therefore possible to judge the approximate location of a phone based on a triangulation of the cell it is connected to and any other cells that can detect it. The more transmitters a phone can detect, the more precisely its location can be determined. This approach is most accurate in built up areas where there are many cells to serve the large customer population.

The size of the mobile phone market (estimated at 800 million units worldwide in 2005 [http://today.reuters.co.uk/news/NewsArticle.aspx?type=technologyNews&storyID=2005-10-25T170656Z\\_01\\_MAR561418\\_RTRIDST\\_0\\_TECH-HANDSETS-DC.XML](http://today.reuters.co.uk/news/NewsArticle.aspx?type=technologyNews&storyID=2005-10-25T170656Z_01_MAR561418_RTRIDST_0_TECH-HANDSETS-DC.XML)) means that location based services using these devices have a potentially huge market. It is already possible in theory to use active location based techniques to send SMS messages to potential customers as people walk past businesses. Most UK mobile phone operators instead offer pull services where subscribers can use their handset for directions to local amenities such as stations, taxi-ranks and restaurants. In addition, some smartphones are now being fitted with GPS receivers.

Wi-Fi does not, as a standard, work as a location technology. However engineering solutions have been created that are able to offer this to a greater or lesser extent. Some systems, for example, apply this technique to make wireless networks more secure by only allowing connections from particular defined real world areas. (<http://www.pcworld.com/news/article/0,aid,123155,pg,1,00.asp>)

Finally it is possible to use RFID (Radio Frequency Identification) tags together with a network of sensors. For example when a tagged object, such as a smartcard or ID badge passes within the range of a sensor it is detected and returns a unique code. This can be used to track movement around a relatively discrete area such as a building. The disadvantage of this technique is the short range of the radio and the large number of sensors needed, but the system is low power and very discrete compared to a Wi-Fi device, cell phone or satellite receiver.

A range of devices can be used with location based services. Mobile phones have already been mentioned as the most numerous location-aware device in use. Handheld GPS receivers cost from £100 each for basic models and higher prices for smarter devices that can include overlay maps and link with PCs. Wi-Fi systems are built into many laptops and add-in cards are inexpensive.

Smartcards, using RFID chips still have a price premium, but are less expensive when bought in volume. They can be used to track pupils around a building through sensors in doorframes and as a replacement for a username and password for access to a computer system. These is a very simple example of location aware computing as the user can be identified and their profile loaded to a local PC without any interaction.

Education projects using location based technologies have to date mainly used GPS enabled PDAs. The Futurelab Savannah project (<http://www.nestafuturelab.org/showcase/savannah/savannah.htm>) used a combination of Wi-Fi and GPS technologies to build a virtual world over a school playing field. By moving around the field with PDAs the participants were presented with different challenges, resources and terrain. The results of the game depended on the player choice, relayed by wireless and location factors such as the number of players in the same area doing the same action – for example when a group of lions attempted to gang up on an elephant.

This project gave students tools to interact with each other and a virtual environment. The location-aware components of the project were used to help the students feel in control of their experience through moving around the environment and communicate the concept of the rich and varied savannah environment.

Futurelab's Mudlarking project (<http://www.nestafuturelab.org/showcase/mudlarking/mudlarking.htm>) looked at organising information on a geographical basis. Using location-based devices, participants were encouraged to explore an area of Deptford. A number of predefined information hotspots were created that became active when the participants approached and encouraged them to create their own information or record their own experiences which would be logged for future visitors. Location-oriented learning allows contextualisation and personalisation of learning, for example a mobile device could detect its location near a museum exhibit and display background information automatically.

This is a direct application of combining portable devices to determine location, with geographical information systems (GIS) databases to store and arrange information based on location. Other examples of GIS in education include InfoMapper (<http://www.infomapper.com/>) and projects using Urban Tapestries (<http://urbantapestries.net/pdfs/EvansAKMGeography.pdf>).

Mobile Bristol (<http://www.mobilebristol.com/flash.html>) is a programme of location based computing projects centred around Bristol using different networking technologies including Wi-Fi and mobile phones. The projects included developing tools for the rapid creation of Mediascapes – location based digital overlays – like Urban Tapestries. Urban Tapestries is a software platform that encourages public authoring of location based content for community related projects such as pollution mapping, social networking and activism.

Location based activities can be created without the need for specialist technology. Products like InfoMapper can be used to create applications and arrange information based on location.

The first possibility for location based technologies in education is simply using existing, commercial devices as part of structured plan. For example the geo-caching concept can be used to allow

students to carry out a treasure hunt around a museum or location information can be included in data logging tasks. In these examples the technology plays a passive role without any interaction.

The second is to use location based technology as a guide and also as a tool at different locations. This, like the Futurelab projects, would give the user different experiences and options based on their location. It might be part of a game, or allow the user to add content to a shared database.

Location based technologies are likely to be supported and used more widely over the next few years. They can offer innovative uses within education, contextualising learning and delivering content appropriate to the situation.

JISC has published an excellent paper on this topic  
[http://www.jisc.ac.uk/uploaded\\_documents/jisctsw\\_05\\_01.pdf](http://www.jisc.ac.uk/uploaded_documents/jisctsw_05_01.pdf)

## Networking and wireless news

### 802.11e Wireless Prioritisation Standard

The 802.11e quality of service standard for Wi-Fi networks has been approved by the IEEE. This standard allows wireless data traffic to be separated out into different queues that in turn can be prioritised over the connection. This will potentially allow improved quality of service for time-critical applications such as voice and video traffic. The Wi-Fi Alliance industry consortium has already released a subset of this standard, WMM (Wi-Fi Multimedia) that has been adopted by some vendors.  
<http://www.wi-fiplanet.com/news/article.php/3556796>

### Wireless Standards Development

Twenty seven Wi-Fi equipment suppliers have come together to form an industry group to accelerate the development of the IEEE 802.11n standard for next generation wireless networking. In advance of a formal meeting of the IEEE in November they have already published draft specifications. The group boasts big names such as Apple, Cisco and Intel. However, Airgo, a key developer of MIMO technology intended to be used in 802.11n, views the EWC (Enhanced Wireless Consortium) as an unhelpful development that will only serve to delay the process by confusing the marketplace with its own standards in advance of those from IEEE. More will become clear in November when the IEEE meet. Until then equipment that claims to meet either specification should be treated with some scepticism. Airgo has announced that it has developed a new chip which has achieved 240Mbps (lab) and 120+Mbps (real world) performance. These are expected to appear in retail products by the end of 2005.

<http://www.enhancedwirelessconsortium.org/home/>  
<http://www.mobilepipeline.com/172301106>  
[http://www.theregister.co.uk/2005/09/14/airgo\\_unveils\\_gen3/](http://www.theregister.co.uk/2005/09/14/airgo_unveils_gen3/)

While future standards, such as 802.11n, are beginning to impact on the wireless networking market some companies are still improving the performance of existing older technologies. A recent announcement highlighted new high gain antennas that can be used with 802.11a and 802.11b equipment to reach up to 5km. These new antennas are designed to be connected to existing wireless equipment with a standard external antenna connection. This may be a cost-effective solution for some schools and colleges to connect sites together wirelessly, should the products be launched and approved for the UK.

<http://www.computerworld.com/networkingtopics/networking/lanwan/story/0,10801,105176,00.html?SKC=networking-105176>

### Ultrawideband (UWB) Update

Ofcom has recommended to the European Conference of Postal and Telecoms that Europe modify the US standard for UWB devices. The US makes different use of the spectrum than in Europe and an implementation of the same standard could impact on other wireless systems. The Ofcom solution, following suggestions from the WiMAX industry forum, is to insist that all UWB devices operate in the 3.1 to 4.2GHz spectrum unless they transmit below a power level of -85dBm/MHz. UWB is a high

speed wireless technology aimed at the home wireless market, for wireless LANs and links between consumer electronics such as DVD players and home entertainment systems.

<http://www.techworld.com/mobility/news/index.cfm?NewsID=4388&inkc=0>

#### **4G update**

4G mobile phone technology is not expected to be in widespread commercial use before 2010, but momentum is already building. Samsung already owns over 20 patents on 4G related technologies and is investigating a Korean wireless standard WiBro. WiBro is a mobile wireless broadband technology that is now being incorporated into 802.16e, the mobile version of WiMAX. Services are expected to be offered in South Korea in mid 2006 at \$30 per month for a 1 Mbps service. 3G development in Europe is still in the early adopter stage according to a report from the Yankee Group. Growth is still expected, but is reliant on more choice of handsets and lower service prices. O2 has launched a HSDPA/3.5G (see TechNews May 2005) enabled mobile phone network on the Isle of Man allowing much faster download speeds. HSDPA is expected to become more widely available from next year.

<http://www.4g.co.uk/>

<http://informationweek.com/story/showArticle.jhtml?articleID=171000605>

#### **BT Update**

BT has also created a new business unit, Openreach, to manage access to its telephone infrastructure and services. It is intended to be run separately from the rest of BT and to give BT and competitors equal access to the network. This move has been made after agreement with the regulator Ofcom and prevented the split up of the company that some critics had called for. BT has announced that the relaunch of its Fusion service will include 20 handsets. The original BT Fusion service was announced with a Bluetooth/Cellular handset that did not widely impress because of the short range and lack of choice. The new service uses industry standard Wi-Fi to give increased range and performance and the choice of handsets is expected to attract customers. The principle behind the Fusion service is a mixed-mode handset that will use wireless broadband when within range of its access point, then switch to using a cellular network when further away. It is designed to take advantage of the most cost-effective solution.

[http://digital-lifestyles.info/display\\_page.asp?section=business&id=2611](http://digital-lifestyles.info/display_page.asp?section=business&id=2611)

<http://www.pcadvisor.co.uk/index.cfm?go=news.view&news=5163>

#### **UK Home Broadband Developments**

Latest statistics available for the take-up of broadband in the UK show the percentage of broadband connections has risen from 54.3% in July 2005, to 55.7% in August 2005. In the 12 months prior to August 2005, the overall number of Internet subscriptions (dialup and broadband in the UK) rose by 4.7%. Several ADSL providers are now offering 8Mbps and 24Mbps services to consumers. However, only a minority of users living close to unbundled exchanges will be able to achieve the highest speeds. These ADSL based services are aimed at homes and small business and bandwidth is likely to be contended in the same way as current connections. This contrasts with the uncontended connections offered to schools through the DfES broadband programme.

<http://publictechnology.net/modules.php?op=modload&name=News&file=article&sid=3856>

#### **TV/Broadband Market Consolidation**

The drive towards broadcasting/telecommunications company convergence continues as new mergers and acquisitions are announced. Cable company Telewest has, in a long anticipated move, been bought by rival provider NTL. This move creates a large competitor for BT in the internet access market and BskyB in the television market. BT has announced that it is working with Microsoft to develop delivery of TV services over its new IP network, bringing it to the same position as NTL/Telewest as provider of multiple services to customers. BskyB has announced moves in this direction also, with the acquisition of Easynet.

This telco purchase means that the BskyB will be well positioned to deliver its programming through broadband and existing digital satellite links and offer existing customers broadband access from a single provider. BskyB has an advantage over other providers as many customers already have SKY+ PVR equipment which, as effectively a large hard disk storage device, will allow prepositioning and

storage of content irrespective of the delivery method. NTL/Telewest is expected to announce PVR devices soon, but BT has yet to announce any device or storage requirements for services. IPTV could offer a new route for educational content.

[http://www.easynet.net/pressoffice/pressoffice\\_sky.asp](http://www.easynet.net/pressoffice/pressoffice_sky.asp)

[http://www.telewest.co.uk/ntl\\_telewest\\_agreement.html](http://www.telewest.co.uk/ntl_telewest_agreement.html)

<http://www.microsoft.com/presspass/press/2005/jun05/06-28BTSelectionPR.mspx>

### **Microsoft Virtual Wi-Fi**

Microsoft Research has released the first version of a virtual Wi-Fi card. This is designed to allow a wireless system to connect discretely to multiple networks through a single physical device that is treated by the operating system as multiple cards. An early, limited release of the software is available for download though it is unclear about if or when this will form part of commercial, supported products. The potential uses for this software include simultaneous connections to public and private networks.

<http://research.microsoft.com/netres/projects/virtualwifi/software.htm>

### **VoIP News**

Voice over IP continues to excite investors and developers. Recent reports are upbeat on the growth of VoIP and its integration with Instant Messaging (IM) technologies, while security experts are expecting a growth in attacks based on these services. The Radicati Group suggests there will be integration between VoIP developments and the traditional text formats of the estimated 850million+ IM accounts registered on public and enterprise systems. The value of the hybrid and pure IP PBX market is expected to rise from \$1.5 billion in 2005, to \$9.9 billion in 2009 – when it is expected that 74% of corporate telephone lines will be IP. Security experts however warn that as companies make increasing use of IP services and publish information such as SIP numbers for direct IP communication there will be a growth in both denial of service and penetration attacks. Increasingly consumer VoIP products are being found in High Street shops, designed to offer easy interfaces to services such as Skype and to make use of the growth in home broadband links.

[http://security.itworld.com/4338/050919voipsecurity/page\\_1.html](http://security.itworld.com/4338/050919voipsecurity/page_1.html)

[http://www.radicati.com/uploaded\\_files/news/VoIP\\_PR.pdf](http://www.radicati.com/uploaded_files/news/VoIP_PR.pdf)

### **New IP Networks for CERN and the Highways Agency**

CERN has announced the first phase of its 10Gbps next-generation network. This is designed to support its connections to international sites participating in particle physics experiments. The network plans also include a 10Gbps campus network and form the foundation of a 2.4Tbps grid computing farm.

In the UK, the Highways Agency is developing a single IP-based solution to link its distributed network of 14,000 motorway information displays and CCTV cameras. It hopes that moving to this integrated standards based solution it will simplify administration and improve the accuracy of information passed to motorists around the clock. Currently the agency operates 28 separate networks. The project will take 10 years to complete and cost £490m.

<http://www.force10networks.com/news/pressreleases/2005/pr-2005-09-19.asp>

[http://home.businesswire.com/portal/site/google/index.jsp?ndmViewId=news\\_view&newsId=20050919005066&newsLang=en](http://home.businesswire.com/portal/site/google/index.jsp?ndmViewId=news_view&newsId=20050919005066&newsLang=en)

<http://www.computing.co.uk/computing/news/2142594/ip-network-plan-link-uk-roads>

### **Multimedia**

#### **Analysis: Blu-ray/HD-DVD**

The current global DVD market is worth upwards of £30bn annually (in 2004 200 million DVDs were sold in the UK), but already the current standards are showing their limitations for both video and data applications. This article looks at the contenders for the next-generation DVD market and some of the implications for users.

The leap to DVD provided a significant increase in quality and capacity compared to VHS/CD. It was launched in 1996 with a capacity of 4.7GB of data, around seven times as much as a CD-ROM. The

system uses a red laser to read data from the disc. The DVD-Video standard used for movies is based on a screen resolution of 720x480 (NTSC) or 720x576 (PAL). One of the main drivers for the move to next generation optical storage is high definition television (HDTV). HDTV works at up to four times the resolution of NTSC/PAL and therefore needs higher capacity media and faster read/write speeds than DVD can provide. From a data storage perspective in 1996 4.7GB was a massive amount, however as hard drives commonly break the 250GB barrier it looks less impressive. Finally there is a demand from games and other content, where high capacity single disks are important to deliver rich media.

The technology has moved on, from red lasers to blue which decreases the wavelength of the laser beam and in turn allows a smaller area of focus. Focusing the laser onto a much smaller area than with DVD allows the pit density to be increased and more data to be stored in the same area. However, in a repeat of the original video and DVD debate there are a number of rival systems in preparation, with no compatibility between the two, or backward compatibility with the red laser DVD or CD standard.

There are three standards competing to define the de-facto next generation DVD – consortia headed by Sony/Philips and Toshiba/NEC and a Chinese specification.

The Sony/Philips proposal is called Blu-ray Disc (BD). Each layer on a BD will store 23.5, 25 or 27GB of data. The specification supports multiple layers and a 100GB prototype has already been announced by TDK. Originally BD required a caddy or cartridge, but this has been changed to a hardened coating to address consumer expectations of discs that look like traditional CDs and DVDs. BD has a data transfer rate of 36Mbps compared to DVD's 9.8Mbps. The specification allows for MPEG2 compression as well as more advanced codecs such as MPEG4 AVC (<http://www.blu-ray.com/>)

HD DVD (High Density Digital Versatile Disc) is the Toshiba backed proposal. It will be available in 15GB (single layer), 30GB (double layer) and possibly 45GB (triple layer) versions. HD DVD is designed to be as similar to DVD/CD as possible and shares significant parts of the manufacturing process. This is the major advantage of this format and will allow easy adoption of volume production. (<http://www.hddvdprg.com/>)

Finally a Chinese government research group is planning its own next generation DVD format. This is designed to free Chinese manufacturers from the licensing fees they expect to pay for HD DVD or BD systems. It is unclear whether this will have any effect on the format battle in the rest of the world. (<http://www.eet.com/news/latest/showArticle.jhtml?articleID=171203906>)

The new formats will require additional red lasers incorporated in systems to allow backward compatibility but it is unlikely that any home systems will ship without this feature. Both camps are proposing the supply of double sided discs with DVD on one side and the new formats on the other. This would allow consumers to continue buying DVDs whilst future proofing their collections for a time when prices of blue laser devices fall.

The key factor for both competing camps is the wider backing from the consumer electronics, computing and movie industry. The challenge is to carve sufficient market share as two competing formats are unlikely to succeed in the medium to long term. All sides recognise the damage caused by competing formats and remember the VHS/Betamax competition of the 1980s. There has been discussion on compromises that would allow a single next generation disc. However, these talks have stalled and it now looks likely that both technologies will be launched allowing the market to determine which is ultimately successful.

BD is currently backed by over 140 companies though some have not pledged exclusive support and will release on both formats. The BD Board of Directors includes Apple Computer Corp.; Dell, Inc.; Hewlett Packard Company; Hitachi, Ltd.; LG Electronics Inc.; Mitsubishi Electric Corporation; Panasonic (Matsushita Electric); Pioneer Corporation; Royal Philips Electronics; Samsung Electronics Co., Ltd.; Sharp Corporation; Sony Corporation; TDK Corporation; Thomson; Twentieth Century Fox; and Walt Disney Pictures and Television.

HD DVD has a similar number of backers and notable supporters include Microsoft, Intel, Hitachi, Canon and Universal Pictures. HD DVD is also the approved format of the DVD Forum, the industry body that has been behind widespread adoption and promotion of many of the DVD standards. While a number of Hollywood studios have agreed to support HD DVD only one major studio is planning to do so exclusively. This is likely to be a key factor in determining the eventual "winner".

Sony's forthcoming Playstation 3 is seen as a potentially key driver for Bluray. The next generation games console market is likely to be the single biggest factor for early adoption of these formats in homes. The PS3 is due for launch in 2006. Its main competitor, the Xbox 360, will ship before Christmas and be based on a standard DVD-ROM drive, though future revisions might incorporate next generation (most likely HD DVD) drives. Microsoft and Intel signed up support for HD DVD with a press release that questioned the suitability of BD for multimedia applications and secure content delivery. This was however quickly rebuffed by HP and Dell.

HD DVD products were expected before the end of 2005, but delays until spring 2006 have been announced. This puts HD DVD to the same timescale as the first BD product – the PS3. It is unclear how many other BD products will be available at this time and the first devices are expected to be expensive. Plans for dual format equipment has already been announced and this may reduce consumer fears about buying into the "wrong" technology.

Education is unlikely to be affected by the initial stages of the battle between the competing formats, but should see the drives beginning to appear in some PCs/notebooks next year. It will be worth waiting for the technologies to mature and for one format to achieve mainstream adoption. The higher capacities of the new discs could be useful for data back up and archiving. As high definition video becomes more mainstream Bluray/HD-DVD could become as ubiquitous as the DVD. However, in a recent interview Bill Gates said: "Understand that this is the last physical format there will ever be. Everything's going to be streamed directly or on a hard disk. So, in this way, it's even unclear how much this one counts."

## **Multimedia news**

### **BBC Jam name announcement**

The BBC Digital Curriculum, due to be launched in 2006, has been officially named as BBC Jam. The BBC and Microsoft, its technology partner, hope to make the content available to schools via a direct link to the National Education Network, enabling high speed access to schools with broadband links. [http://www.bbc.co.uk/pressoffice/pressreleases/stories/2005/09\\_september/29/jam.shtml](http://www.bbc.co.uk/pressoffice/pressreleases/stories/2005/09_september/29/jam.shtml)

### **Digital photography jamming Technology Developed**

The increasing growth of digital cameras, combined with their integration with PDAs and phones has encouraged research into ways of preventing their use in sensitive areas. As an alternative to the low-tech "No Photography" signs or confiscating devices, a couple of approaches have been tried. One relies on the camera containing a Bluetooth chip that understands and obeys a "No Photography" message while another uses an optical system to detect the highly-reflective surface of camera lenses. One prototype detects lenses using infrared beams, then targets them with a bright light beam that throws the balance and contrast of the picture, rendering the results useless.

[http://news.com.com/Crave+privacy+New+tech+knocks+out+digital+cameras/2100-1008\\_3-5869832.html](http://news.com.com/Crave+privacy+New+tech+knocks+out+digital+cameras/2100-1008_3-5869832.html)

### **Problems with Sony CCDs**

Nikon, Canon, Olympus, Ricoh and Sony have all issued advisory notices relating to problems with some models of compact digital cameras. The effected cameras all use the same Sony CCD which causes missing or distorted images. For a full list of affected cameras see the appropriate manufacturer's website. Further developments in digital camera sensors continue. A US manufacturer has announced new CMOS chips for cameraphones that work at 3.1 or 5 megapixels and are much



higher quality than the current devices. In the high end digital photography arena Kodak has announced high-end 39 and 31.6 megapixel medium format-sized CCDs.

<http://www.dpreview.com/news/0510/archive.asp>

[http://www.tomshardware.com/hardnews/20050913\\_211825.html](http://www.tomshardware.com/hardnews/20050913_211825.html)

[http://www.dpreview.com/news/0510/05102101kodak\\_3936mpccd.asp](http://www.dpreview.com/news/0510/05102101kodak_3936mpccd.asp)

### **Analogue TV to be switched off by 2012**

The UK government has confirmed the date by which the terrestrial analogue TV signal will be switched off. The changeover will begin with viewers on the English-Scottish borders in 2008 and be nationwide by 2012. As the market for integrated or set-top digital TV receivers increases, the government expects that by 2012 comparatively few people will be disenfranchised by this move. Money will be allocated from the BBC licence fee to provide free equipment to poor or vulnerable groups such as the elderly so they are not left without access to programmes.

<http://www.digitalspy.co.uk/article/ds24443.html>

### **Blinkx Seeks IPTV Spark With Video Blog, Search Service**

Searching on the internet and local computers continues to remain a key area. Following attention on blogs and podcasts, the major players are putting more emphasis on cataloguing and tagging video. Blinkx and Google both offer services that allow uploading and cataloguing of video material. The Blinkx system, slightly more advanced than the Google Video beta, encourages users to upload their own material, creates searchable transcripts of audio and can convert video to Flash for maximum compatibility. This ability to extract both video and content makes video far more searchable than relying on metadata searches. As consumers have more access to rich media through broadband links this market is expected to grow rapidly. Schools already have access to some of these video storage and organisation features through dedicated sites like Making the News

[http://kmi4schools.e2bn.net/uk\\_mtn/](http://kmi4schools.e2bn.net/uk_mtn/).

<http://www.technewsworld.com/story/46512.html>

### **Video on iPod**

Apple have announced the latest model in the iPod range. The iPod Video is designed to revolutionise the storage and replay of video clips and TV programmes in a similar way to the original iPod helped define the market for mp3 music. Already some US TV companies have announced that episodes of series and music videos are available for download at about £1.50 each, through the iTunes video store. Some owners of the iPod Nano have threatened legal action against Apple over the propensity of the covers on these devices to become scratched and damaged. Apple has claimed that a small batch of players had manufacturing defects but the product is generally sound.

<http://www.apple.com/itunes/videos/>

[http://www.cnn.com/2005/TECH/ptech/10/24/apple.nano.reut/?section=cnn\\_topstories](http://www.cnn.com/2005/TECH/ptech/10/24/apple.nano.reut/?section=cnn_topstories)

### **Calls for consumer digital rights legislation**

There have been increasing calls for user's rights to be protected in law from Digital Rights Management (DRM) controls. Consumers' organisations such as the European consumers' organisation (BEUC) and the National Consumer Council have criticised the restrictive licences attached to downloadable media content. The BEUC is calling for the following rights: Right to choice, knowledge and cultural diversity; Right to the principle of 'technical neutrality' - defend and maintain consumer rights in the digital environment; Right to benefit from technological innovations without abusive restrictions; Right to interoperability of Right to the protection of privacy ;Right not to be criminalised;

<http://www.ncc.org.uk/intellectualproperty/beuc.htm>

[http://www.theregister.co.uk/2005/11/10/digital\\_rights\\_online/](http://www.theregister.co.uk/2005/11/10/digital_rights_online/)

### **Display technology rivalry at CEATEC**

Three rival technologies for large screen displays fought for space at the Combined Exhibition of Advanced Technologies (CEATEC) show in Tokyo. These different technologies are competing for a place in the modern home, where bulky CRT displays are being replaced. The two main current technologies are Plasma Display Panel (PDP) and Liquid Crystal Display (LCD). There are

differences in how the pictures are created and in costs with LCDs becoming very expensive when larger than about 36". Canon and Toshiba are preparing to launch a third format, called Surface-conduction Electron-emitter Display (SED). This is expected to combine the weight and size advantage of LCDs with the superior responsiveness, contrast and picture quality of CRT displays. The first commercial productions using this technology are expected in 2006. The massive potential market for these displays means that the consumer is likely to benefit from increased choice and pressure from prices. Some are also designed to work with computers, so offer large screen display possibilities for entertainment and computing.

<http://www.flattvpeople.com/tutorials/lcd-vs-plasma.asp>

<http://www.canon.com/technology/display/>

### **Microsoft and Real settle lawsuit**

Microsoft and Real have settled a long standing dispute over the alleged anti-competitive inclusion of Windows Media Player with the Windows operating system. Microsoft has agreed to pay \$460million in cash and effectively buy \$301million worth of services from Real. The end of the lawsuit means both companies will be able to look to their main competitor in the personal audio market – Apple.

Apple has grabbed a massive market share of the legal download market using iTunes and is expected to be the target of both companies' products in the future. Apple is thought to have around 80% of the UK legal download business.

[http://news.zdnet.com/2100-9595\\_22-5893069.html](http://news.zdnet.com/2100-9595_22-5893069.html)

<http://blogs.zdnet.com/ip-telephony/?p=697>

### **IMDB turns 15**

The Internet Movie Database (IMDB) has celebrated its 15th birthday. This massive online resource of film and television information was first inspired by discussions and lists collected through the Usenet group 'rec.arts.movies'. Although incorporated in 1995 it is the forerunner of the Wikipedia concept encouraging visitors to form an extended community, update missing information and contribute to the site's development and accuracy. The majority of information is freely accessible on the internet, but there is now a premium subscription service aimed at movie insiders.

<http://www.imdb.com/>

## **Hardware**

### **Analysis: PDA/Smartphone convergence**

In recent years the PDA and mobile phone markets have been increasingly converging with smartphones providing PDA like functionality and PDAs adding telephony. There have been many predictions of the demise of the PDA. However, the addition of wireless connectivity and GPS navigation has made the devices more attractive and provided for innovative educational uses: see article above on location based technologies and TechNews September 05 for use of PDAs for Augmented reality.

Smartphones combine voice and data connectivity over mobile phone networks with PDA features such as Personal Information Management (PIM: calendar, contacts). They use increasingly powerful processors and can run mobile applications. These converged devices remain relatively expensive and are generally being used by early adopters and business users who value the ability to only have to carry one device. Analysts believe that most consumers are not willing to pay large premiums for these features and that mobile phone purchase decisions are based on standard phone functions, design, size, battery life and entertainment features (cameras, music players, games). Adding advanced applications and connectivity to mobile phones inevitably results in a compromise between size, features and price. Small screens and cramped keypads are the main limitations of these devices.

The PDA began life as an electronic notebook, with basic note-taking, calendar and address book functions. Early models, such as the Apple Newton, enjoyed limited market success but the market really started to grow with the launch of the Palm Pilot in the mid-90s. The Pilot has been through a number of incarnations and licensees with Handspring and Sony producing handheld computers

based on its operating system. Palm has recently begun to offer devices running the Windows Mobile OS.

The market for PDAs is founded on "personal" rather than "corporate" ownership and it is this personal ownership of the device that provides the most value. However, there have been documented cases where sensitive information is transferred to unprotected personal PDAs. This obviously impacts on an organisation's security policy. It is also increasingly important to think about security software for handheld devices. A survey by the Protect Data Group found that 25% of users had lost PDAs and that 50% did not protect their data.

The faster cellular networks offered by GPRS, 3G and the eventual development of 3.5G do influence the nature of devices. Higher bandwidth opportunities encourage users to demand better quality graphics and experiences more like those of a PC. This has led to devices with improved screen technology and devices can commonly offer 320x480 pixel screens in 65,000 colours with some devices now delivering 640x480 resolution.

A number of companies make PDAs and smartphones. The PDA market is dominated by the traditional computer hardware manufacturers (for example HP, Dell, Fujitsu Siemens) and some sector specific producers (for example Palm). Smartphones are offered by major mobile phone manufacturers (for example Nokia, Samsung, Sony Ericsson).

The major operating systems used on these devices are Symbian OS (used by many smartphone manufacturers with different user interfaces such as Nokia's Series 60); embedded Linux; Palm OS and Windows Mobile. The operating system is the main differential between devices as it dictates third-party software support. Windows Mobile has, after poor initial success, achieved a dominant market position for PDAs. This was highlighted most effectively when new Palm devices were announced that used Windows Mobile rather than their own Palm OS. Symbian has about 60% of the smartphone market thanks to licensing by many handset manufacturers but Windows Mobile is expected to increase its share. (<http://linuxdevices.com/news/NS4058662049.html>)

PDAs have more of a small-tablet look and few have any physical keys. Phone interfaces work as applications alongside other software. VoIP systems, such as Skype are already available for PDAs. This means that any connected handheld can run this "phone application" without needing to be designed specifically as such. (<http://www.skype.com/products/skype/pocketpc/>). Smartphones will continue to gain improved screens, but these are likely to remain comparatively small to allow for a physical keypad. Some phones, such as the Sony Ericsson P900 have a removable keypad but this approach has not been widely adopted. The latest devices based around HTC's Universal (eg JasJar, MDA IV) have a convertible Tablet PC like form factor, run on Windows Mobile 5 with 3G/Wi-Fi connectivity and integrated camera. Some PDAs have incorporated hard drives (Palm Lifedrive, Sony PDAs in Japan) and Samsung and Nokia have similarly equipped mobile phones.

Primary network connectivity for PDAs is still Bluetooth or Wi-Fi. Smartphones are at home on the cellular networks. This reflects both the design priorities and the sales channels. Currently cellular providers are focussed on selling smartphones which bundle the device and network access together. Few PDAs are packaged in this way.

One threat to the PDA market is the ultraportable PC. While PDAs offer PC-style applications similarities are only in look and feel rather than underlying code. The OQO Model 1 and cut down laptops such as the Libretto offer a full "handtop" PC. Microsoft has announced its plans for Ultra Mobile 2007 devices, which will be about the size of a paperback book. Intel is supporting this initiative and working on extending the battery life of such devices with low power chips. This could have a major effect on the PDA, Tablet PC and notebook markets. [http://www.brighthand.com/article/Gates\\_Unveils\\_Ultra\\_Mobile\\_2007](http://www.brighthand.com/article/Gates_Unveils_Ultra_Mobile_2007)

Although the mobile phone has not been traditionally welcomed in classrooms, a number of projects have been run looking at the use of PDAs in schools. One of the most successful of these is the Learning2Go project in Wolverhampton. Some projects have concentrated on using lower cost devices and general productivity software for note taking and diary management, but the

Wolverhampton idea was to develop a mobile content access device. The project uses more expensive devices and optimised them to offer access to the same online content as is used in the classroom. This placed great emphasis on screen quality. Formal evaluation of the project has yet to be published, but headlines so far are very positive. The trial was run in one school but the authority has set up an e-learning foundation and hopes to equip every pupil in the city with a device.

The noted benefits include helping pupils organise their work, improved flexibility and motivation to use the resources at their disposal in support of learning. Students gain ownership over the device and in a sense over their own learning. Use of devices like this could help address personalised learning agendas. Although PDAs/Smartphones are not a replacement for PCs they can provide personal support for learning, provide innovative uses and 1:1 access.

The availability of fast wireless connections is increasing with 3G, Wi-Fi, and eventually wireless broadband offering different speeds and coverage. Users will want devices that can access all the networks and switch transparently between them to take advantage of the best available bandwidth. Although it appears that standalone PDAs are in decline, a new breed of connected PDAs should complement smartphones and reduce the distinctions between the two.

There is an active handheld learning community in the UK at <http://www.handheldlearning.co.uk/>

## Hardware news

### Fuel Cell developments

The CEATEC (Combined Exhibition of Advanced Technologies) Japan 2005 exhibition included a number of companies demonstrating their latest advances in Direct Methanol Fuel Cells (DMFCs). These devices, designed to address the commonly articulated demand for better battery performance from electronic equipment, hope to replace the traditional battery with a chemical fuel cell. Toshiba and NEC have put back the launch of fuel cell-based laptops until 2007, which is when regulations about the carriage of methanol on aeroplanes are due for review. Current prototypes are still quite large, approximately 10cm by 10cm by 2cm and offer up to five hours of power to a cellphone. By the time these devices reach market in two years they are likely to be more compact and effective (see TechNews January 05). Samsung has already developed a fuel cell that it claims offers twice the life of its competitors in a smaller package.

[http://www.infoworld.com/article/05/10/07/HNfuelcellprogress\\_1.html?wireless](http://www.infoworld.com/article/05/10/07/HNfuelcellprogress_1.html?wireless)  
<http://news.bbc.co.uk/1/hi/sci/tech/4338016.stm>

### PC sales growth positive

Despite hints of a global economic downturn the PC market continues to show impressive growth. Suppliers such as Apple and Dell show growth of nearly 50% and 20% respectively. Analysts suggest that this is due to a combination of new, lower price points for computers as well as increased replacement of older PCs. Dell remains the world's largest PC manufacturer with 18% of the market, HP 16% and Lenovo (IBM) 13%.

<http://www.techweb.com/wire/hardware/172301781.jsessionid=UJKY1USYFKMBWQSNDBCKKH0CJUMKJVN>

### E-Waste poisons Indian workers

The rapid growth of the PC market is threatening the lives of some slum residents in India. The country imports massive numbers of new and near-end-of-life PCs that end up in landfill sites where they are often scavenged for valuable parts and metals. However, this informal recycling economy poisons those who try to extract the valuable metals from toxic compounds. The average computer monitor can contain as much as eight pounds of lead and uses plastics treated with toxic fire retardant chemicals. In the developed world there is widespread legislation about safe disposal and recycling, but this has not yet been considered in India. The European Waste Electrical and Electronic Equipment (WEEE) Directive is due for implementation in the UK by the end of 2006. This will require separate handling and disposal of potentially hazardous electronics related waste, placing responsibility on retailers and manufacturers. RoHS (Restriction of Hazardous Substances) directive should reduce the amount of harmful substances in new computer equipment.

[http://news.bbc.co.uk/1/hi/programmes/click\\_online/4341494.stm](http://news.bbc.co.uk/1/hi/programmes/click_online/4341494.stm)

### **Low cost computing for the Developing world**

Computing in the developing world was in the spotlight recently with a number of products and initiatives announced that are aimed at this new, low cost market. The MIT Media Lab has announced a design for a \$100 laptop computer with a basic Office-type suite and internet connectivity, plus a wind-up charger for times when no electricity is available. AMD has a more traditional, mains powered internet appliance expected to sell for \$200. It is aimed more at places where there is electricity, but limited demand for full specification PCs. Nokia is close to launching an internet tablet which uses Wi-Fi or connects to a mobile phone for browsing and basic PC functions in a portable, compact form. Many of these devices are targeted at the developing world rather than the more PC-oriented nations and research suggests this market should be addressed specifically by mobile phone manufacturers with low-cost handsets. In the developing world cellular telephony use is growing rapidly, because rolling out radio is cheaper than fixed lines.

<http://laptop.media.mit.edu/>

<http://news.bbc.co.uk/1/hi/technology/4290528.stm>

<http://europe.nokia.com/nokia/0,1522,,00.html?orig=/770>

### **Vein patterns to replace fingerprints**

As the debate in the UK over biometric ID cards and passports continues, researchers in Japan have found a more effective alternative to the use of fingerprints. By combining infra-red LEDs, CCDs and computer algorithms, Hitachi has developed a system of reading patterns of finger-veins. This is considered more accurate than the use of fingerprints and as an internal rather than external approach is less easy to compromise. Some manual workers also find themselves with distorted or even blank fingerprints, but would not be excluded from this system. Banks and the Post Office in Japan are expected to implement systems based on this technology soon.

[http://www.tgdaily.com/2005/10/06/hitachi\\_finger\\_vein\\_sensors/](http://www.tgdaily.com/2005/10/06/hitachi_finger_vein_sensors/)

### **Flash memory advance and applications**

Research into portable flash memory for cameras and solid-state devices such as low power consumption laptops continues. Samsung Electronics, who earlier this year announced 16GB solid state drives that use 95% less power than normal hard drives, have now developed chips that could potentially result in 32GB Flash drives. Samsung dominate the flash memory market with a 25% market share and have applied some of this technology to a new mobile phone which is fitted with a 3GB memory capacity for storing digital music and other files. This device runs a Microsoft operating system and is an example of the converged device/smartphone that is expected to dominate the mobile phone market over the next few years. Nokia is also introducing hard drive equipped models.

<http://www.technewsworld.com/story/46756.html>

### **Intel developments**

Intel has announced two new technology developments. First it launched a "Robson Cache" which uses flash memory as part of the boot up routine for a PC. This increases speed and reduces power consumption. Intel claims this is stable technology that can be generally adopted when manufacturers wish. A laptop with completely flash memory has been suggested by some manufacturers and the first products should appear in the next 12 months. In 1989, with the 486, Intel broke the 1 million transistor chip barrier, but now the "Montecito" Itanium 2 chip has over 1 billion transistors on a single die. Intel has announced that it is reworking its chip strategy to move to application/market focus rather than concentrating solely on higher chip speeds.

<http://www.itworld.com/Comp/2076/051017intelpowerup/index.html>

<http://itw.itworld.com/GoNow/a14724a136638a296047229a9>

### **Trusted Computing comes to Mobile Phones**

The Trusted Computing Group, promoters of hardware based authentication and security services, have released details of their plans to extend their work to cover mobile phones. In the PC sector their work, with industry leaders such as Microsoft and Intel, is concerned with security and identification. The work of the mobile phone working group is concerned with uniquely identifying devices for micro

payments and disabling them if stolen. The first public release of the specification is expected in 2006. Privacy activists have long distrusted the work of the TCG and fear that more personalisation makes tracking individual's movements even easier.

<http://www.techworld.com/mobility/news/index.cfm?NewsID=4479&inkc=0>

### **New Fastest Supercomputer**

IBM has unveiled a new 65,536-processor machine that can sustain 280.6 trillion calculations per second (teraflops). This system is part of the 45-megawatt power draw from its home at the US Lawrence Livermore National Laboratory. The supercomputer is likely to be used for a variety of highly intensive computing tasks such as modelling nuclear explosions. Approximately half of the processor load is devoted to problem solving and the other half to managing the networking between the processors. The comparatively small market for extremely high powered computers like this is being commoditised by IBM and other vendors who rent capacity out to smaller companies on-demand. This is a return to the mainframe computing model and is made possible by users who have occasional need for computer modelling or simulations.

[http://news.com.com/Blue+GeneL+tops+its+own+supercomputer+record/2100-1006\\_3-5918025.html?tag=nefd.lede](http://news.com.com/Blue+GeneL+tops+its+own+supercomputer+record/2100-1006_3-5918025.html?tag=nefd.lede)

<http://www.csmonitor.com/2005/1018/p02s01-sten.html> is another possibility

### **DARPA Grand Challenge results**

The second DARPA Grand Challenge, to build self-guided robot vehicles able to follow a 132 mile course across the Mojave Desert was won this year by the robotic Volkswagen Touareg of the Stanford Racing Team. Last year's race finished very differently when none of the entrants managed to travel more than 7.36 miles along the course. This race was organised by DARPA, the US Military research body as part of its programme to reach a target of one third of all military vehicles to be unmanned by 2015. Techniques such as obstacle detection and route finding have great potential applications in both unmanned vehicles and in safety features for traditional vehicles. The results of this competition are expected to impact on real-time computing, image processing and portable/vehicle computing in the future. These pre-programmed vehicles are the logical descendants of the Turtle robots used to teach logo in schools, but have come on a long way since these humble origins.

<http://www.grandchallenge.org/>

### **Software and internet**

#### **Analysis: Podcasting**

Podcasting is a process of delivering audio and more recently video content via the internet. This is not a new concept in itself, but the differences between podcasting and traditional media downloads are to do with the process of accessing and listening to material and to a certain extent the style of the content.

Podcast content is seldom a single, discrete download. Instead it is normally some kind of regular programming, such as a weekly radio show; or an ongoing project such as an audio or video blog that is made up of individual articles of content within a consistent context. The term podcast comes from a combination of "iPod" and "broadcasting". The Apple iPod popularised the portable digital audio player, but podcasts are not normally restricted to a particular make or model of player and can also be listened to on a standard computer.

At its simplest a Podcast is a media file. These can theoretically be of any length or format, but tend to be short, punchy and use a popular file format such as mp3. The real podcast element is introduced with the management of the subscription model. Each media file is referenced from within a feed, normally using the RSS or Atom standard. This feed is an XML file that can be processed automatically by podcasting or aggregation software.

The aggregation software can manage a number of different feeds, check for updates and automatically download or copy content to a portable digital audio player or computer. This automated

model means that a subscription is as easy as entering a web address into this software. The aggregation software checks this location for changes on a regular basis and if a new programme or file has been added it performs a download.

Podcasts can be accessed through a number of devices. Podcasting software is available for Windows, MacOS and Linux systems. The media files can be played on many portable players such as those from Apple or Creative, or using a desktop or laptop computer. There is nothing clever about the media file itself; instead the main benefit of podcasting is in the subscription model. For example some software will manage subscriptions, download files and copy them to a portable device automatically.

The minimum requirements to create a podcast are an mp3 file containing the actual audio content, an XML file containing information about the podcast and some webspace to store both the files. A simple tutorial on creating a podcast manually is available at <http://radio.about.com/od/podcastin1/a/aa030805a.htm>. Software such as FeedforAll (<http://www.feedforall.com/podcasting-tutorial.htm>), EasyPodCast (<http://www.easypodcast.com/>) and PodProducer (<http://www.podproducer.net/>) automate the process of creating the XML file. WorldVibrations (<http://www.worldvibrations.com/>) has announced a hardware device designed specifically to interface broadcasts with podcasts making publishing on multiple formats easier.

Three factors have contributed to the success of podcasting. First is the widespread growth in the use of XML based syndication. This has allowed users to create flexible, personalised services using a choice of aggregators. If users had to visit each site and check manually for updates then it is unlikely the current volume of podcasts would exist. In addition to management of subscriptions the use of RSS encourages easy discovery of podcasts and sharing using directory sites such as Feedzie (<http://www.feedzie.com/>) and Podcast.net (<http://www.podcast.net/>).

Second is the close relationship between some approaches to podcasting and audio blogging. As the blogging phenomena develops and includes new technology such as audio and video, podcasting software manages access from users to the content. Audioblog (<http://www.audioblog.com/>) is a service dedicated to the hosting of audio and video blogs and automatically creates podcast-compatible XML for each post.

Finally and perhaps most important is the massive and growing market for portable digital audio players. The quest for content to load onto these devices led to the first podcast developments and is now responsible for many mainstream radio stations such as the BBC making content available for listeners on a recorded rather than live basis (<http://www.bbc.co.uk/radio/downloadtrial/>). Technology research firm IDC is predicting that the portable digital audio player market will grow from 26.4 million units shipped worldwide in 2004 to nearly 124 million units in 2009. ([http://www.podcastingnews.com/archives/2005/10/the\\_future\\_of\\_m.html](http://www.podcastingnews.com/archives/2005/10/the_future_of_m.html))

As discussed, the process of creating a podcast is so simple that it is open to non-technical individuals at zero or low cost. Much of the software required is free and web hosting is a commodity product. This has democratised broadcasting. However, many podcasts do ignore copyright restrictions and it is common to find illegal redistribution of digital music inside a channel.

Many public broadcasters offer content via podcasting but the commercial sector has been slower to respond. The actual content available changes regularly so the use of a podcasting directory such as iPodder (<http://www.ipodder.org/>) has become necessary to locate potential subscriptions. iTunes now offers indexing of podcasts and search engines such as Odeo (<http://odeo.com/>) are developing smarter searches of the content as well as tags of podcasts.

Finally the education sector in the UK already has a number of podcasters. There is a directory at <http://www.ipodcast.org.uk/> and one example is Musselburgh Grammar School in East Lothian (<http://mgsonline.blogs.com/mgspodcast/>), which produces podcasts aimed at providing information and entertainment to the school and the wider community. NAACE, the professional association for staff promoting ICT in schools also offers a podcast in conjunction with its member's newsletter (<http://www.naace.org/searchView.asp?menuItem=1&resourceId=1340>).

These show some of the potential applications across the sector. Musselburgh demonstrates the use of technology to raise community awareness in a general sense but the ease of podcasting means that it is a low-cost distribution channel for other groups. Other professional associations or communities might find podcasting a way of reaching their members, for example updating teachers of a particular subject. Successful podcasts have a clearly defined audience, are exciting and engaging, are updated regularly and are succinct so they can be listened to during snatched moments in a lunch break or on the bus.

The production of a podcast can be an engaging experience for pupils, building on new media literacy. This can work to encourage students to share content and ideas in different ways and may have a positive benefit for those who find traditional study or homework difficult.

There are risks associated with podcasts. Firstly as with all the content of the internet there is no quality control so care should be taken when acting on the basis of uncorroborated information and secondly the use of mp3s makes unauthorised redistribution of licensed commercial music all too easy. Schools are especially vulnerable if they are seen as promoting illegal music sharing even through a student podcasting project.

Podcasting software and concepts are evolving. Apple's iTunes and recent release of a video iPod are accelerating multimedia developments. It has been possible since earlier this year to create "enhanced" podcasts for iTunes and certain Apple players that can combine an image slideshow with an audio file. The iPod video has extended the potential market for Vodcasts (slang for Video on demand cast and obviously based on podcast).

This will potentially be linked with the output of trials to allow replaying of broadcast television. The BBC are trialling their IMP (Integrated Media Player) and ITV have announced a service based on the Narrowstep platform (<http://www.vnunet.com/vnunet/news/2144221/itv-jumps-web-tv-bandwagon>). These are both good candidates for the vodcasting approach in the future.

The outlook for technologies that are centred on the user being able to choose the content they pull down has never been better. There are stable, popular technologies enabling distribution of all kinds of media content and the challenge is finding the topics that appeal to the potentially global audience.

## **Software and internet news**

### **Schools look forward to single sign on**

Becta has today launched a new report recommending Shibboleth as the mechanism for secure access to online content for the schools sector, to support the further development of the National Education Network (NEN). Shibboleth is an authentication system based on open source software developed by the Internet2 community, with assistance from the National Science Foundation. It is essentially a transport mechanism built on top of an institution's existing infrastructure that allows organisations to exchange information about their users in a secure and privacy-preserving manner. It is envisaged that the NEN will provide every teacher and learner with access to a consistent set of resources, services and applications, improving the availability and use of high-quality educational content. Authentication, hosting and content delivery services are central to this. Shibboleth will enable parents and pupils to have secure access to internet resources from anywhere and at anytime; allow personalisation to occur in a privacy preserving manner; provide significant benefits to both educational institutions and service providers, thus allowing easier access to a wide range of content. It will successfully meet best value requirements since it is open source, based on open standards and able to build upon an existing infrastructure.

[http://www.becta.org.uk/corporate/press\\_out.cfm?id=4934](http://www.becta.org.uk/corporate/press_out.cfm?id=4934)

<http://www.egovmonitor.com/go?186c>



### **Yahoo and Microsoft announce Instant Messenger link**

Yahoo and Microsoft have announced they are linking together their public Instant Messaging products. Users of Yahoo Messenger and MSN Messenger will be able to communicate with text and voice chat from Q2 2006. Yahoo has about 95 million users and MSN about 180 million. Microsoft is rumoured to be negotiating a similar deal with Time Warner for access to the AIM network. Multi-messenger clients, such as Trillian, have been available for some time, but rather than link different systems together they provide a single interface. Instant Messaging continues to see growth in the corporate sector, where closed user communities offer the benefits without exposing systems to risk. Education has been slow to adopt this technology and Instant Messaging protocols are commonly blocked by firewalls. Some individual projects have used closed Instant Messaging systems but these are exceptional rather than routine.

[http://news.yahoo.com/s/nm/20051012/wr\\_nm/microsoft\\_yahoo\\_dc](http://news.yahoo.com/s/nm/20051012/wr_nm/microsoft_yahoo_dc)

### **Star Office 8 supports OpenDocument Format**

Star Office 8 has been released by Sun Microsystems. This latest release includes a number of features aimed at increasing compatibility with Microsoft Office to enable collaboration and encourage users to migrate with confidence. These features include macro converters and file import/export routines. This joins OpenOffice (the open source version of Star Office) in using the OpenDocument format (ODF) as its native file format. Open document formats are increasingly forming the basis of procurements in the US, Europe and wider. This is likely to increase when, as is expected, the ODF is ratified as an ISO standard. Open Office version 2.0 was released in the end of October 2005. Microsoft retains around 95% of the general office application market, but in the enterprise sector OpenOffice and Star Office have about 14% share.

<http://www.sun.com/software/star/staroffice/index.jsp>

<http://xml.coverpages.org/OpenDocumentV10-Standard.html>

<http://www.openoffice.org/>

### **Microsoft enter Corporate Security software market**

Microsoft has formally announced the development of its Client Protection software suite. This product is aimed at providing an integrated package for business users against spyware and viruses. This launch is expected to have a significant impact on the security software market currently dominated by suppliers such as Symantec, McAfee and Trend Micro. There will be a consumer version Windows OneCare launched next year using a subscription model. The related Windows AntiSpyware has been available in beta since the start of this year and will be formally launched as a free product in 2006.

<http://www.microsoft.com/windows/serversystem/solutions/security/clientprotection/default.mspx>

<http://www.microsoft.com/athome/security/spyware/software/default.mspx>

<http://www.microsoft.com/windows/onecare/default.mspx>

### **E-learning Announcements**

BT is looking to make savings on its £50m annual training budget through an investment in e-learning. A new management system will deliver material to 100,000 users over the company intranet and, if successful, will demonstrate the scalability of such systems and flexibility to rationalise disparate systems together. Learning platforms continue to be a key area of educational ICT. Scotland recently announced a £37.5 million, five year contract with RM to provide a national education intranet including a Learning Platform.

<http://www.rm.com/investors/NewsDetail.asp?cref=IN500558>

<http://uk.news.yahoo.com/28092005/175/bt-ready-develop-elearning-platform.html>

### **Microsoft has joined Yahoo in Open Content Alliance**

Yahoo and Microsoft have come together with other companies, libraries and archives to form the Open Content Alliance (OCA). This has the ambitious aim of collecting digital versions of books, academic papers, video and audio. The difference between this group and the Google Print Library Project is the approach to copyright. The OCA operates an opt-in approach; while Google is operating an opt-out. Some of the most strident critics of Google's library project are endorsing the Open Content Alliance. Yahoo will power the search engine on the OCA website and information should

also be indexed by other engines, such as Google. The European Union, through its i2010 strategy, has announced a similar project. i2010 Digital Libraries aims to make materials covering books, film, photographs, manuscripts, speeches and music from European Libraries and Archives online.

<http://www.opencontentalliance.org/>

[http://europa.eu.int/information\\_society/activities/digital\\_libraries/doc/en\\_comm\\_digital\\_libraries.pdf](http://europa.eu.int/information_society/activities/digital_libraries/doc/en_comm_digital_libraries.pdf)

### **Common Census – Using the Google Maps API**

The Common Census project is a new site looking at the relationship between social and physical geography. It maps the spheres of influence of different organisations such as football teams and gives results very different to the political makeup. This project only covers a small number of issues in the US, but demonstrates an application of the Google Maps service. The Google Maps API has been opened for programmers to exploit, and there are many example scripts and a directory of sites using the service at the Unofficial Google Maps Directory (<http://www.gmdir.com/>)

Some governments, including South Korea, have complained to Google that the maps it gives away, free, are too accurate and might be used by invading forces or terrorists.

<http://maps.google.com/>

<http://www.wired.com/news/business/0,1367,69211,00.html>

<http://www.commoncensus.org/>

### **Microsoft Updates and new versions**

Further details are emerging about the next version of the Microsoft Office suite. Office 12 will have a redesigned user interface, built in support for creating (but not viewing) Adobe's PDF format and an XML file format used by default. Beta versions of Office 12 are expected in early 2006. Microsoft has also announced there is going to be a Service Pack 3 for Windows XP. This is likely to ship after the final release of Windows Vista at the end of 2006.

<http://www.microsoft.com/office/preview/default.msp>

<http://www.pcworld.com/resource/article/0,aid,122903,pg,1,RSS,RSS,00.asp>

### **Security Roundup**

The UK government has launched a new kite mark for security products. Products that are awarded this certification are approved as meeting standards and as such are appropriate for use on public networks. <http://www.egovmonitor.com/go?183d>

An industry group has developed a common rating structure to help administrators prioritise service patches based on potential impact of vulnerabilities. This system, called CVSS (Common Vulnerability Scoring System) is backed by major IT players such as Cisco and IBM, but not yet Microsoft.

[http://www.cbronline.com/article\\_news.asp?guid=89BEF98C-FD7C-4317-94CD-2CE4B66280D1](http://www.cbronline.com/article_news.asp?guid=89BEF98C-FD7C-4317-94CD-2CE4B66280D1)

Following widespread adoption in corporate environments and some banks in Europe, Lloyds TSB has become the first UK bank to trial hardware-based, two stage authentication with its online banking customers. Around 30,000 customers will be issued with a hardware key-fob that generates one-time six digit numerical codes that are combined with a username and password for logins to online banking. This is similar in principle to the systems such as SecurID from RSA Security that use two-stage authentication for remote access to VPN solutions.

[http://www.channelregister.co.uk/2005/10/18/lloyds\\_tsb\\_password\\_generators/](http://www.channelregister.co.uk/2005/10/18/lloyds_tsb_password_generators/)

### **Richard Stallman interviewed on GPL 3**

Richard Stallman (founder of GNU and the Free Software Foundation) has spoken about some of the issues for the next version of the GPL (General Public License). The points he focussed on included licensing for derivatives of open source software, software patents and the openness of derived code to developers. Products he mentioned included Apache, which allows commercial derivatives and Google which uses open source in its operations.

<http://www.techworld.com/news/index.cfm?RSS&NewsID=4467>

### **Opera removes ads and charges**

In face of growing competition in the web browser market, Opera has announced a change in its commercial model. Previously the free version of the browser was supported by adverts, or users could choose to pay a fee to have an ad-free version. Now the free version has removed ads as

Opera has ambitions to grow its market share and has sufficient revenue from partnership arrangements. Opera still charges for premium support and its software for mobile devices. This brings Opera into line with other web browsers such as Internet Explorer and Firefox that have been free downloads. Figures for October 2005 give Internet Explorer nearly 75% of the market and Firefox 19%. Opera had less than 1.5% of the market.

<http://www.cooltechzone.com/index.php?option=content&task=view&id=1801>

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