WHeeLS

for the MIND

TIGERS EATING PENGUINS @TRINITY

At Melbourne University's Trinity College, a commitment to give students an alternative to Windows made Debian Linux appealing. Four years later, however, the students have spoken: Linux is out, Mac OS X is in, and things have never been running better.

AUC

Product

Round UP

Group presentations

Why should the lecturer be the only one who can share his ideas with the class? Linksys' WPG54G Wireless G Presentation Player hooks up directly to the classroom projector and lets anybody within range display the contents of their screen, up to 1024x768 resolution. Students with notebooks, for example, can share their projects in the classroom without having to leave their desks. The WPG54G can also project PowerPoint presentations stored on its 32MB of internal RAM, or on USB flash drives plugged into its USB slot.

Contact Linksys on www.linksys.com.au.

Ditch your old keyboard

At many university departments, the power of Apple tools like Final Cut Pro (FCP) is making certain systems more or less dedicated workstations for a specific application. If this is the case in your lab, consider a replacement keyboard including specific shortcuts and functions for the applications you use most. WorldTech Devices' range of wired USB and wireless keyboards addresses applications including FCP, Final Cut Express, Avid Xpress, and Adobe Photoshop. The FCP keyboard includes over 115 FCP commands. If you're handy with a screwdriver, WorldTech also offers coloured replacement keycaps that pop onto your existing keyboards.

Each keyboard costs around $US100. Contact WorldTech on www.worldtechdevices.com.

Get your GarageBand under control

While you're adding purpose-built input devices, why stop with the keyboard? Avid subsidiary M-Audio's iControl makes Apple GarageBand (version 2.0.1 or later) work more like a conventional recording panel by providing dedicated transport buttons and jog wheel controls. Record, playback, volume, pan, EQ or any other Audio Units plug-in can be controlled with the push of a button. Mute, solo and record-enable buttons are included for each track, as is a master volume fader. iControl runs off the USB bus and is automatically recognised by GarageBand.

Contact Electric Factory at www.elfa.com.au or (03) 9480 5988.

Mini-me for your mini

Mac minis squash a lot of functionality into a tiny box, but their limited space may confound higher-end users. Enter Micronet's MiniMate, which has packed in up to 400GB of additional storage – and thrown in 4 USB ports and 3 FireWire ports – into a case no bigger than your current mini. Plug it in, slip it underneath your Mac mini, and you've suddenly got a whole lot more room to grow.

MiniMate costs $342 (80GB), $403 (160GB), $505 (250GB), and $830 (400GB). Contact Micronet on www.micronet.com or order from BITS at (02) 9560 9991 or www.bits.com.au.

Paint like the masters

If you're looking to blend timeless artistic techniques with your modern digital creations, look into Xaos Tools Paint Alchemy. A set of plug-ins for Photoshop, Paint Alchemy includes 75 brushstrokes, 36 brush styles, and effects like Colored Pencil, Impressionist, and Pastel. There are precision controls for brush angle, density, colour, and other elements, as well as support for custom brushes and effects animation in Adobe Premiere or After Effects.

Paint Alchemy retails at $US199 (at press time, a sale had cut this to $US99) and is available online via www.xaostools.com.

Say it with flair

Tired of the same old fonts? Human Software Company's Textissimo 3, a Photoshop plug-in, offers more than 700 pre-built text effects ranging from the sublime to the ridiculous. Effects like Halo, Glow, and Ice can be blended into backgrounds, and include gradients, drop shadows, textures within the type, and so on. Combine multiple layers of effects, warp and flow text around contours, and more.

Download for $US99 from www.humansoftware.com.

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editorial

Interim Editor

Firstly, an introduction. I am Steve Johnston from Edith Cowan University in Perth, and I have the privilege of standing-in as editor for Wheels for the Mind until the position is filled early next year. My thanks go to Peter Sharpe for doing such an excellent job as editor since the publication began, and I'm sure you will join me in wishing Peter continued success in his new position as purchasing manager for the Victorian Police.

This Spring edition's theme pertains to the adoption of learning and content models to new technologies. For example, you will discover how platforms such as mobile phones and PDAs offer the itinerant student a unique learning environment with its own benefits and challenges. You will also read how UWA's iLecture — which now ships with integrated support for podcasting — offers a further opportunity for mobile learning as it penetrates deeper into Australian higher education.

With feedback from X-World III being overwhelmingly positive, we take some text bytes from participants across the nation, who share their feedback about the event – and tell how the knowledge, experience and networking opportunities provide tangible benefits back on campus.

Apple never ceases to amaze with bold and strategic innovation. Check out the reaction to the Intel announcement at the WWDC and the release of Mac OS X 10.4 — Tiger. And while we are on the subject of Tigers: discover why Melbourne's Trinity College went straight to the top of the operating system food chain after previous systems left them cold.

We also find out how the Apple Digital Campus Leadership Forum is rising to meet the challenge of educating the 'net-generation' that increasingly expect on-campus teaching and learning technologies to be wireless, ubiquitous and pervasive. As the editorship of 'Wheels' is in flux, this provides an excellent time to offer your feedback regarding WFTM, which may be adopted in future editions. I encourage you to send comments directly to me (at my email address below) with suggestions for improvements, ideas, innovations, things you love, things you hate, or any aspect of the publication. We will continue working to make it even more relevant and informative in 2006 and beyond.

Stephen Johnston
s.johnston@ecu.edu.au

X-World III:
LEARNING TO THE

> *X-World has grown by leaps and bounds to the point where X-World III, held at the University of Technology, Sydney in July, welcomed more than 150 people*

X-World just keeps getting bigger and better. Started two years ago as a formal Australian training program for Mac OS X administrators, X-World has grown by leaps and bounds to the point where X-World III, held at the University of Technology, Sydney in July, welcomed more than 150 people and offered a content program so varied that the reviews were nothing short of spectacular.

The three-day event included workshops on topics ranging from Unix tools, AppleScript and WebObjects to Tiger servers, machine imaging and PHP/Perl scripting. To ensure as broad a mix of attendees as possible, the AUC offered six subsidised trips to X-World, including airfare, accommodation, and discounted registration.

Feedback from the event has been overwhelmingly positive, and all signs are that X-World IV will be bigger and better than ever. When it came to helping Mac OS X labs run better, there was, simply, something for everyone. But don't let us tell you; listen instead to the people that were there.

DAVID YAMMOUNI,
IT CLIENT SERVICES OFFICER
FACULTY OF EDUCATION, MONASH UNIVERSITY

How many Macs are you managing: 100

How many X-Worlds have you now been to: 2

Highlight of X-World III: Joel Rennich keynote speech. He was very much switched on.

Your thoughts on the event: X-World is a great opportunity to meet with peers, and gather knowledge. Wherever I looked, there was stuff that's directly related to me – in particular, things like machine imaging, deployment of the Mac OS X operating system, and new and improved ways of print management. The really critical thing for us is that we don't spend days trying to find the answer to something that's already been solved.

SHERRY PROFERES,
DESKTOP SUPPORT SPECIALIST
UNIVERSITY OF ADELAIDE

How many Macs are you managing: 120

How many X-Worlds have you now been to: 3

Highlight of X-World III: There were quite a few workshops, we were able to do the workshops we wanted to do, and they were just about on the right level.

Your thoughts on the event: One of the good things about it is being able to network with people, and find people who are doing the same sorts of things you are so you don't have to keep reinventing the wheel. For example, Tiger just came out recently and I had to create an image fairly quickly on the fly – and ran into a couple of problems. I found from other people at X-World that they had had those problems, and we were able to get around the situation.

X TH DEGREE

By David Braue

DANIEL RODWELL,

Mac OS X Systems Administrator

Division of Information, Australian National University

How many Macs are you managing: 400 Macs, 12 xServes

How many X-Worlds have you now been to: 2

Highlight of X-World III: Presenting the Advanced Unix session

Your thoughts on the event: It was very good to meet informally and talk to a number of people about what they've done and what we've done on our systems here; we don't like to spend a lot on shrinkwrapped software, and we like to build our own solution because it does what we need. I like going along to X-World to see what other people are doing, and how they're approaching things. Sometimes you get good ideas, and other times you're just shocked by what other people are doing.

KEN WHITEHEAD,

Electronics Service Engineer

Institute of Fundamental Sciences,

Massey University, New Zealand

How many Macs are you managing: 130

How many X-Worlds have you now been to: 3

Highlight of X-World III: The look at Automator. I've now got a few ideas about how that can work in with what we're doing with our administrative products.

Your thoughts on the event: I'm looking after microbiologists, geneticists, and other people with a very broad range of needs. I do different sets of sessions every time I go to X-World, even though some of them are not necessary for the things I'm trying to do. I feel that broadening my range of knowledge allows me to look at some of the problems I have here from a more creative perspective and solve them in a more creative manner.

RICHARD BEAGLEY,

Computer Technician

School of Art & Design, Auckland University of Technology

How many Macs are you managing: 290

How many X-Worlds have you now been to: 1

Highlight of X-World III: Edith Cowan University's Steven Doyle, talking about the helpdesk system he created using Apple Remote Desktop. He's been able to manage around 600 Macs with a staff of just five using this automated system. That pretty much spoke to our situation here.

Your thoughts on the event: I liked that there were lots of technicians at a lot of levels of responsibility from the different universities. The best thing I got out of it was sitting one on one or in small groups, sharing about how our school does stuff. There was just a lot of sharing back and forth of solutions, and it was a real eye-opener to see all the technicians doing what we're doing here but two or three levels above where we are. I'm normally just putting out fires, but with my eyes open to how those guys do it at other universities, I'm wanting to go to the stage of preventing the fires.

Make
THE MOST OF AUC

THE BENEFITS OF AUC MEMBERSHIP JUST KEEP GETTING BETTER AND BETTER. WHILE MOST AUC MEMBERS WOULD BE FAMILIAR WITH OUR CONFERENCE SCHOLARSHIP PROGRAMS AND EDUCATIONAL SEMINARS SUCH AS X-WORLD, NOT EVERYONE MAY KNOW ABOUT THE OTHER BENEFITS WE PROVIDE, INCLUDING SEVERAL PROGRAMS ENABLING ACCESS TO CUTTING-EDGE APPLE EQUIPMENT. SEVERAL OF THESE ARE DOCUMENTED HERE.
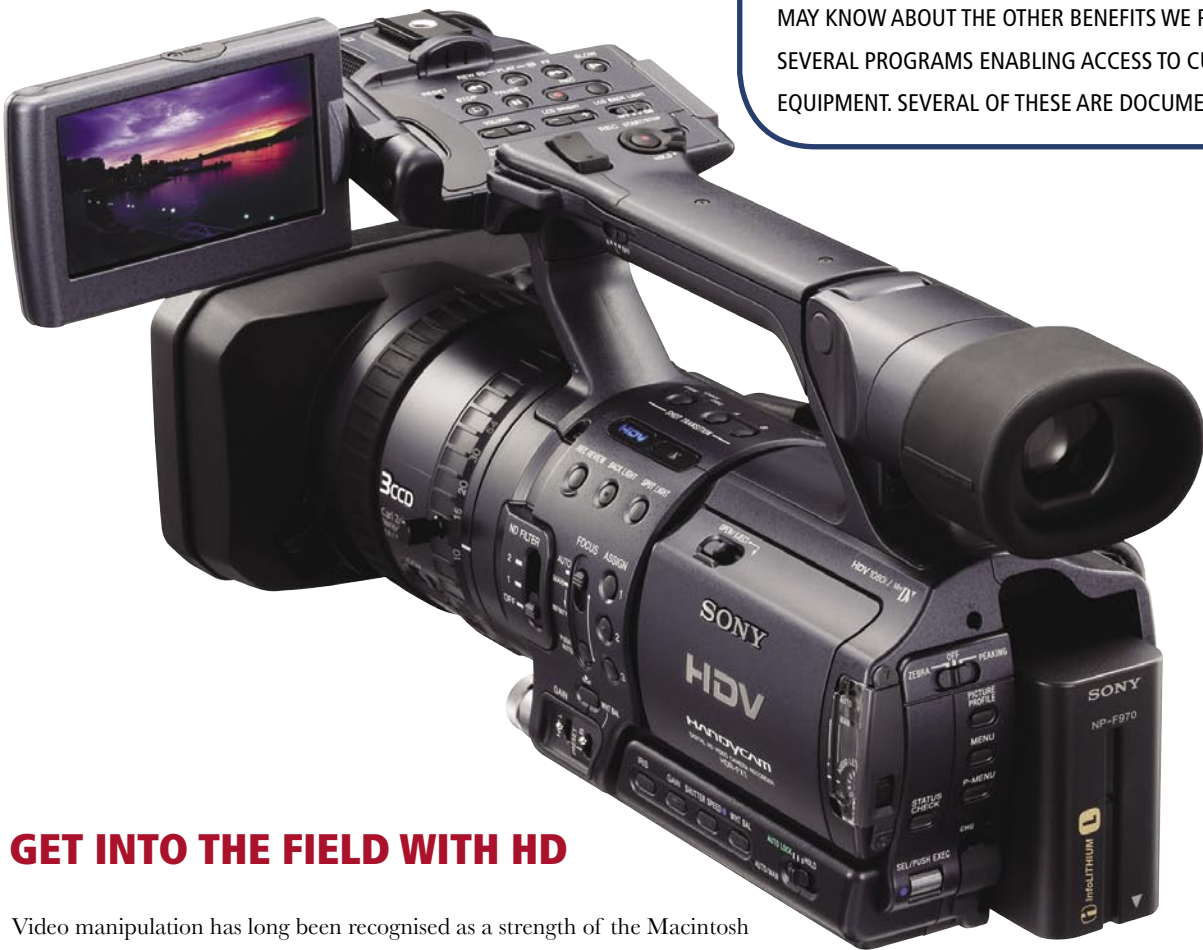
GET INTO THE FIELD WITH HD

Video manipulation has long been recognised as a strength of the Macintosh platform, particularly with the incorporation of HD-ready H.264 compression and support for HD editing across the Apple software product range. Equipment for HD video production is still relatively expensive, however, and this cost can be difficult for many departments to justify without clear knowledge about the new technology. To address this issue, the AUC has assembled an HD Editing Suite (HDES) that incorporates everything needed to produce and work with high-resolution HD video. Loaded into a travel-ready transport case are a 17" PowerBook (complete with Final Cut Express HD and iLife '05), a Sony HDRFX1E HD video camera with accessories, 3 x DV videotapes, 500GB LaCie external hard disk, and all relevant power adapters and cables.

The HDES is available to AUC member universities on a loan basis, for non-commercial use, for up to a month at a time. The suite is free, but universities must cover the transportation charges to get the bundle to their premises. Interested parties should request a loan application through their campus AUC representative, who should complete and fax a loan agreement (available online) to the AUC. See www.auc.edu.au/resources/hdes for more information.

TAKE TIGER FOR A PROWL

Interested in exploring the benefits of Apple technologies but don't have the time to fiddle with sourcing and installing them? The AUC Seeding Equipment program offers two out-of-the-box solutions that will get you up and running instantly.

Two discrete bundles are available under this program:

- For those interested in testing out Mac OS X 10.4 (Tiger), the Mac mini Server bundle includes one Mac mini (1.42GHz, 1GB RAM, 80GB hard disk), preloaded with a 10-user version of Tiger, as well as AC adapter and a DVI to VGA adapter.

  BYO keyboard, mouse and monitor.

- For those interested in testing out Apple multimedia technologies, the iMac G5 Express Editing Suite includes one iMac G5 (17" LCD, 2GHz CPU, 1GB RAM, 160GB HD, SuperDrive) running Mac OS X 10.4 (Tiger), iLife '05, iWork '05, Final Cut Express HD, Logic Express 7, keyboard, mouse and all associated cables.

  Interested parties should contact their campus AUC representative, who can download a Seeding Equipment Loan Agreement from www.auc.edu.au/resources/seeding.
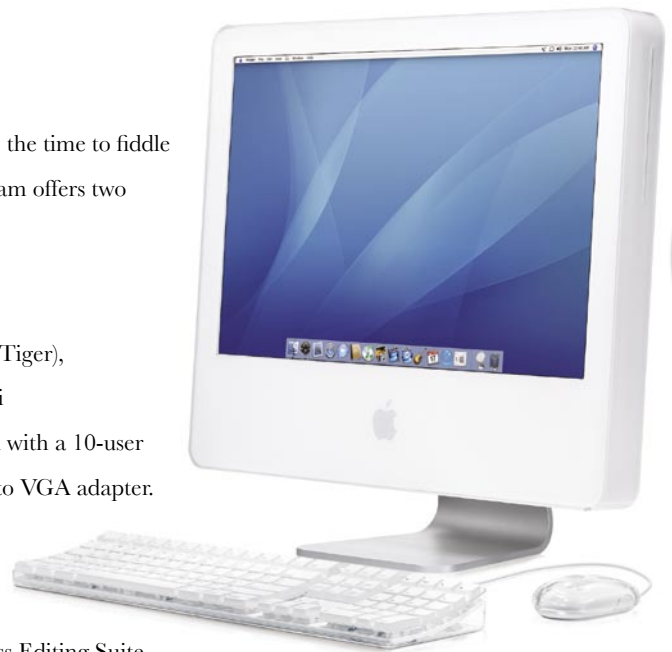
CLASSROOM IN A BOX

Providing effective training requires access to the right equipment, at the right time. However, commandeering more than a dozen or so computers and associated gear together for training sessions can cause problems when those systems are in heavy use elsewhere. For this reason, the AUC offers its Classroom in a Box (CIAB) bundle.

CIAB includes 15 PowerBook G4s (15" LCD, 1.25GHz CPU, 768MB RAM, 80GB HD, SuperDrive, Bluetooth, AirPort Extreme) as well as an Airport Extreme base station with modem, two eight-point power boards, and all relevant cables and adapters. Preloaded software includes Mac OS X 10.3.3, iLife '04, the Xcode 1.1.1 development environment, X11 for Mac OS X, and Graphic Converter 5.

The systems are loaded into two large air and water-tight cases, and are available on a loan basis to any AUC member university willing to cover courier costs. Interested parties should request a loan application through their campus AUC representative.

CIAB availability and loan agreement forms can be downloaded from www.auc.edu.au/resources/ciab.

WWDC:

Apple's Worldwide Developers Conference (WWDC) is always watched with interest and heavily attended, but this year's event proved even more interesting than usual with a shock announcement tempering subsequent activities and discussions among the more than 3800 attendees.

Held at San Francisco's Moscone Center in June, WWDC 2005 included all of the broad range of content for which the event has become known. The five-day event included more than 140 technical sessions, including a range of content tracks focused on maximising the value of the newly released Mac OS X 10.4 ("Tiger") and new features such as the Dashboard, Spotlight, Automator, and more.

Such sessions are the kind of thing that has kept people like Greg Preston, of ICT Services within the University of Canberra, coming back time and again, with or without scholarship support from the AUC. This year's event, Preston's 13th time to WWDC, proved as useful and interesting as ever.

"With most conferences, one session in three is worth attending," Preston says. "The nice thing – and the problem – with WWDC is that generally about 100 percent of the sessions are worth attending."

Importantly for many developers, WWDC also included the rare opportunity to talk face-to-face with many of the developers responsible for Tiger's creation. This access is invaluable for attendees who are seeking to make the most of the new technologies in the operating system; a range of hands-on workshops guided them through processes such as building new Dashboard Widgets, writing a Spotlight plug-in, and implementing Sync Services in applications.

One of the biggest changes in WWDC 2005's structure was the introduction of an Enterprise IT track focused on helping developers, system administrators and IT managers in large enterprises make the most of Tiger. Hands-on labs highlighted new tools, optimisation and migration techniques, while Apple Engineering sessions showed how Apple builds on its own technologies including Spotlight, Core Image, Xgrid, Core Data and Quartz Composer.

The Enterprise IT track was a major drawcard for Stuart Thornton, IT co-ordinator Brunswick within RMIT University's Portfolio of Design and Social Context. There, Thornton's team work with more than 200 Mac systems out of a total population of 350 systems on the Brunswick campus; overall, the unit has more than 1000 Macs out of 3000 computers.

"We're always behind the eight ball trying to get the Macs to talk to our corporate systems," says Thornton, whose trip this year was his first time at the event. While he would have liked to see more information about Mac OS X – NetWare integration – an issue that's more relevant for Australian than American universities – Thornton says the atmosphere, and the value of the event, were well worth the trip.

"At WWDC, it was very rewarding in the fact that I was able to physically meet other people that were experiencing the same issues," he explains, adding that his favourite experiences included a keynote from AFP548.com's Joel Rennich and a meeting with Australian phreaker Cap'n Crunch. "There is

SURPRISE
welcome
AS ALWAYS

By David Braue
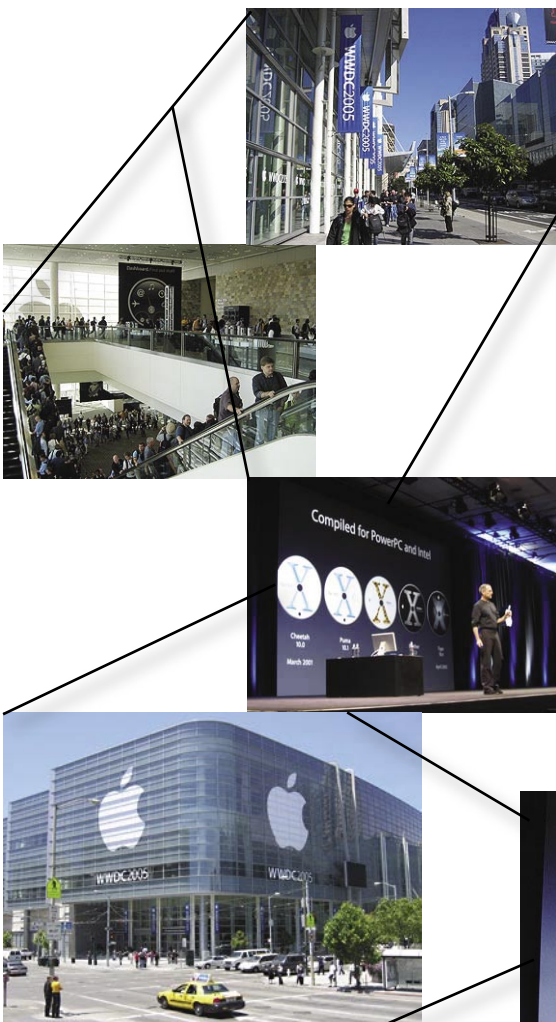
nothing better," Thornton says, "than to go to the beer bash at the Apple campus, drink beer and talk about computers with your peers around the world."

BIGGER, BETTER, AND FASTER TOO

Apart from the usual meetings of minds between WWDC attendees, this year's event was particularly notable in that it was the place where Steve Jobs confirmed that, starting in 2006, Apple will stop using IBM PowerPC processors and instead shift to higher-volume processors from Intel, which will feature in all Apple computers by the end of 2007.

This represents a sea change for Apple, which has tied Mac OS X and previous versions of its operating system to core features within the PowerPC chips. However, Apple's roadmap called for long-term increases in price/performance that only Intel's roadmap could meet; for this reason, Apple is making the shift and is working hard to help developers do the same, with minimal interruption.

Unsurprisingly, the Intel announcement raised all kinds of reactions amongst attendees. Jobs' keynote speech included good details about how developers will be able to adapt their code to the new environment, and was backed by demonstrations of prototype Intel-based Macs running Mac OS X. Tools such as the Developer Transition Kit will ease the process, as will an ongoing stream of compilers, updated libraries, and support tools from both Intel and Apple.

The noise over the Intel announcement drowned out some of Apple's other WWDC announcements. These included the announcement that the company had shipped its 2 millionth copy of Tiger, making it the company's fastest selling operating system ever. At that point, third-party developers had released over 550 Automator actions, 40 Spotlight plug-ins, and 400 Dashboard Widgets (this number passed 1000 less than two months later and continues to grow).

Also announced at WWDC was the fact that Apple had delivered a preview release of QuickTime 7 Player and QuickTime 7 Pro for Windows, offering full use of the HD-ready H.264 video standard. This release further strengthens Apple's credentials in HD video and lays the foundation for cross-platform, next-generation multimedia.

WWDC 2005 attendees trickled out of the event after five days of learning, sharing, and discussing their plans for the future. As in the past, it was held to be rewarding for all – particularly in terms of contact with the actual people that build the operating system, which is one of the reasons Preston has kept coming back to WWDC for so long.

"Generally, if I'm doing something that's fairly hard and pushing what's available in the user space, I can generally go to the conference and find the right people to talk to," he says. "I can say 'how does this work' or 'what's the best way to use it', and one answer in that category is worth a hell of a lot of time fighting the thing at home."

CONFERENCE OFFERS
SAGE *advice*

Good system administration is an art whose product is required by everyone, but whose complexity is appreciated by few. For those charged with keeping Australia's information systems running smoothly, then, the annual SAGE-AU (System Administrators Guild of Australia) conference is essential attendance.

Recognising the importance of developing, sharing and continually improving system administration best practice, the AUC this year offered a number of scholarships to SAGE-AU, intended for system administrators at AUC member universities.

Response was good, and eleven applicants were ultimately awarded scholarships to attend the event, which was held from September 5 to 9 at the Rendezvous Observation City Hotel in Perth. These included Sam Costello and Chris Petrov of UNSW; Mark Dorset, Danielle Pullin and David Witteveen of Melbourne University; Tristan Gulyas, Michael Oldfield and Torsten Seeman of Monash University; Tobias Port of University of Western Australia; Andrew Sharpe of James Cook University; and Stuart Thornton of RMIT University.

AUC support was invaluable for helping JCU's Andrew Sharpe, Australian Partnership for Advanced Computing project officer, whose job involves everything from cluster administration to help desk support. "I saw the SAGE conference as a good way to get those 'core' skills required to perform well in the systems administration roles of my job," says Sharpe, for whom this conference was his first SAGE event.

However, he continues, "[without AUC support] budget constraints would almost definitely have made it impossible for me to attend. It has been a great experience, with participants a warm, friendly bunch. The most important thing I've taken from the conference is the knowledge that I can't think of everything, all the time. Asking for input from others is the key to keeping oneself fresh, and performing at one's best for extended periods."

Mark Dorset, whose involvement in Trinity College's recent move from Linux to Mac OS X systems is documented in this issue, also received a SAGE-AU scholarship. "The conference is great value," he reports.

"The sessions I've done aren't technology specific, but more about teaching better practice and finding better ways to manage systems. Andrew Cowie's was one of the big inspirations for us to start documenting our procedures at Trinity, and his tutorial had a lot of really helpful information. With probably 200 administrators in any city block, the biggest drawback to SAGE-AU is that more people don't know about it. It should be a lot busier than it is." -- DB

OF MICE and then.
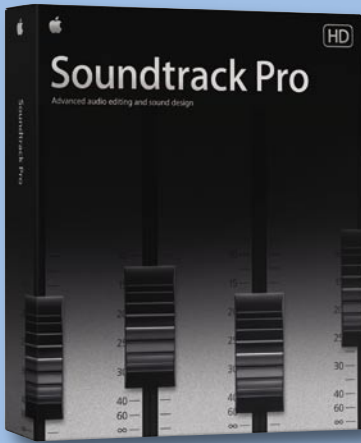
The sound of highlights

Shake can take the shakes out of your video compositing, but those concerned about audio need something just as powerful to build and edit the soundtrack. Enter Soundtrack Pro, a professional-level audio package that includes a broad range of features to fix, enhance and construct audio for standalone use or incorporation into finished videos.

Designed from the ground up for flexibility, Soundtrack Pro includes a capable waveform editor and Intelligent Fix-and-Find features, which churn through audio files to automatically find and repair problems such as background noise, pops, clicks, and hum. Full multitrack editing is supported by Action Layers and Action Lists, which track every change that's made and let users undo, redo, change and re-order those changes to produce different results.

Effects are a big deal for many audio technicians, and there is no lack of options in Soundtrack Pro. The package ships with over 1000 audio effects, including more than 50 professional plug-ins (Space Designer, Match EQ, Linear Phase EQ and more) from Apple's Logic Pro 7 software. More than 5000 audio loops allow easy creation of looping audio and insertion of sound effects including crashes, explosions and more subtle environmental effects.

An integrated mixer enables control over the production process using familiar controls, while support for Mackie Control surface protocol allows sound editors to use hardware faders and knobs for even better control while mixing. And when your mix is finished, Soundtrack Pro is tightly integrated with Apple Final Cut Studio, allowing the seamless combination of SD and HD video with your finished audio creation. Soundtrack Pro also supports Mac OS X Automator scripts, which allow its features to be called directly from Final Cut Pro 5 at any time.

iBook: Raising the bar, again

While the professionals in the team are busy concocting their audio-visual spectaculars, sometimes the rest of us just need a reliable, cost-effective notebook on which to get our work done. Apple iBooks have been hugely popular in educational settings for years, and the latest lineup of notebooks – announced in July – once again proves that you don't have to break the bank to get a powerful, capable notebook for everyday use.

As you'd expect, the updated iBooks are faster than their predecessors, with 1.42GHz Power PC G4 processors and 512MB of RAM. There's also wireless networking through built-in AirPort Extreme and high-speed Bluetooth 2.0 support, 32MB ATI Radeon 9550 video, and the option of a SuperDrive for burning DVDs and CDs.

What you might not expect are the small touches that further improve the usability of these workhorse notebooks. For example, the new models bring down features from Apple's higher-end notebooks such as the scrolling TrackPad, Sudden Motion Sensor and even the Bluetooth wireless, which has become critical as notebooks continue becoming the primary computer of all kinds of computer users. There's also the usual assortment of other ports and software, including Mac OS X 10.4 (Tiger) and iLife '05. In other words, there's everything most of us need to support our digital selves – at prices that won't break the bank.
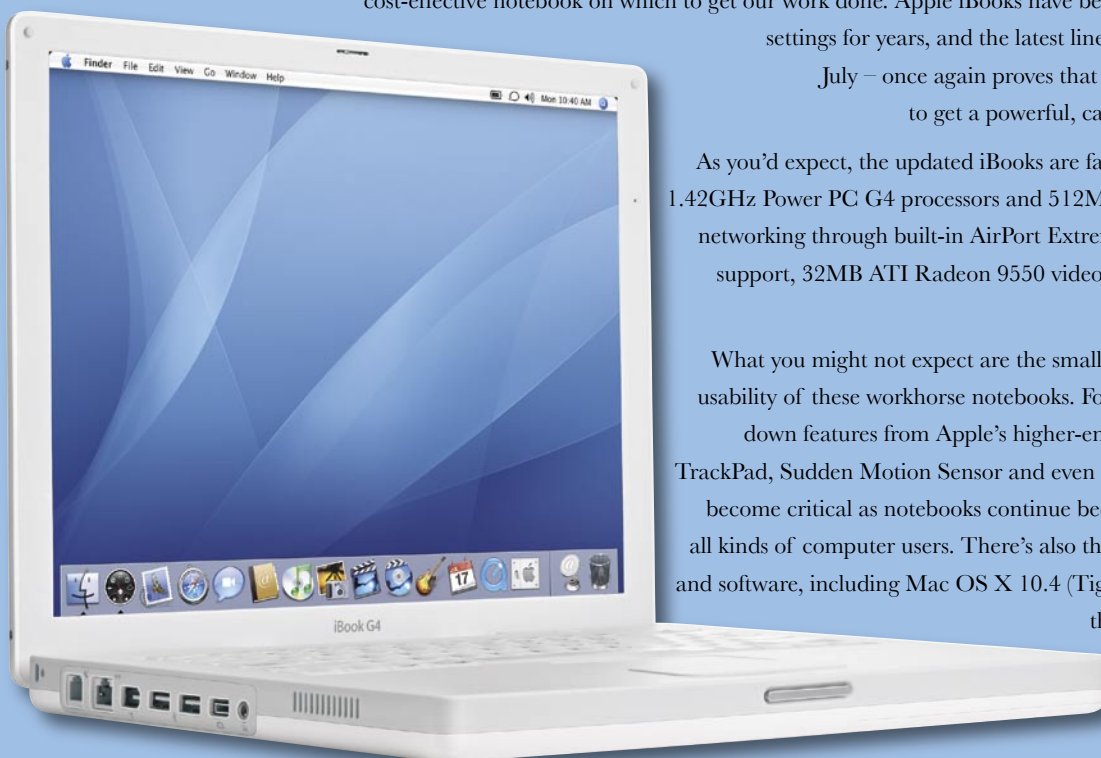
Shake, rattle & roll
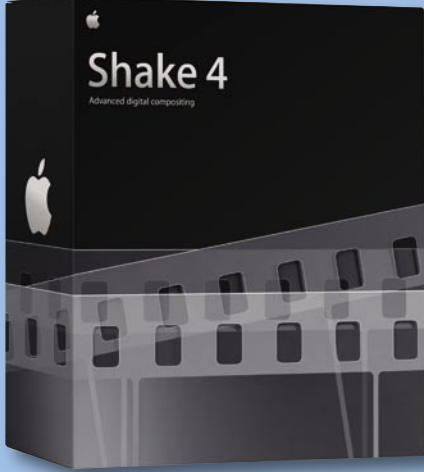
With the release of Shake 4, Apple has provided a major upgrade to its popular compositing platform that, true to Apple's recent push to link its software innovations, has been tightly integrated with Final Cut Pro 5.

A major feature of Shake 4 is its multi-plane compositing engine, which uses OpenGL accelerated 3D to provide 3D compositing in the same manner as existing 2D compositing. When working with 3D planes, video creators can create, position, rotate and animate unlimited layers and cameras to give unique perspectives on the action.

Shake 4 includes a host of features for improving image quality and compensating for those small imperfections that can disrupt the flow of the video. Advanced optical flow technology uses pixel-by-pixel analysis to smoothly retime and automatically stabilise videos. Camera jitter can be automatically removed from static shots, and uneven pans can be automatically corrected without having to set tracking points.

Loads of other improvements are scattered throughout the package: Truelight monitor calibration, for example, improves the consistency of colours between screen and film, while support for rendering clusters allows compute-intensive jobs to be distributed across many Apple Xserve G5 servers or Power Mac G5 desktop computers. Shake 4 can also be launched directly from Final Cut Pro 5, with an XML-based interchange format allowing translation of timeline formats, cuts and layers into a Shake process tree.

Building a better mouse

Despite all the potential issues that play in the ever-present debate of Wintel versus Apple computers, one of the places where people get the most emotional is in the seemingly inconsequential issue of the mouse.

Windows users have long had two-button mice, with newer rodents packing six or more buttons, scroll wheels and more features that make them a nightmare for the dexterity challenged. Apple has long favoured simplicity over chaos, and its faithfulness to the single-button mouse has long been a symbol of this philosophy.

Modern times require modern approaches to technology, however, and Apple has found a way to put a foot in both camps with the simple but sophisticated design of the newly launched Mighty Mouse. At first glance, this wonder of engineering looks much like Apple's previous mice: move it around and press it down to click. It's when you plug it in and start using it, however, that the differences become apparent.

Among these differences: Apple has hidden four separate programmable buttons on this device – one on each side, and two on the top in typical left-click, right-click format. In a concession to the recent wheel-mouse fad, there is also a track ball on top of the mouse. Use it to scroll around the screen, or press it to activate the two programmable side buttons.

Compatible with USB 1.1 and 2.0 ports, Mighty Mouse works with both Mac OS X and Windows systems (who can use but not program the buttons) – giving even that operating system's longtime dual-button advocates a chance to see the design that has kept Apple standing out from the (rat) pack.

TIGERS

The release and rapid evolution of Mac OS X, compared with the notoriously slow cycle time for Debian Linux, meant the feature gap between the two platforms was rapidly widening.

Many idealogues have argued for the merits of Linux as a desktop platform, but the University of Melbourne's Trinity College has been forced to look past ideology. After years of struggling to convince students of the merits of Debian Linux desktops, in July the college restocked its empty Linux computer laboratories with Apple iMacs that are proving both easier to manage, and far more popular with students.

The decision to adopt Linux desktops was made back in 2001, after years of frustration trying to manage labs full of Windows PCs led IT heads Tim Bell and Mark Dorset to look for an alternative. Lecturers, moving towards standards-based programming, were keen for an alternative to Windows

so they could distance themselves from the technological idiosyncrasies of that platform.

At that point, the college had been successfully running Debian Linux servers for four years and had the confidence that the new platform would provide a stable and cost-effective alternative. Small form-factor HP ePCs were purchased, stripped of their hard drives, and set up in a network-based configuration that gave students access to free applications like the AbiWord word processor.

That model was "quite successful," says Bell, in that it was robust and proved much easier to manage than the Windows desktops. However, over the years it became clear that while Linux may have been more

Trinity College's Mark Dorset (standing left) and Tim Bell moved to Mac OS X after a lukewarm response to Linux destops.

EATING PENGUINS
@TRINITY

manageable in the laboratory environment, it was gradually falling behind. The release and rapid evolution of Mac OS X, compared with the notoriously slow cycle time for Debian Linux, meant the feature gap between the two platforms was rapidly widening.

Worse still, the college's 650 students – most of whom are overseas students attending Trinity for its year-long high school to university bridging courses -- were finding Linux less than palatable as a desktop platform.

"From a teaching perspective, I'd have to say that Linux was more successful for programming than as a general purpose lab," Bell says. "Students came in and would say 'what the hell is this? I've never seen this before, and you expect me to type up my assignments using these computers?'"

"That was one of the areas where perhaps it wasn't so successful," he concedes. "These students need to do well at Trinity to get into university, and asking them to engage at this level – even though it's going to broaden their mind when it comes to their understanding of computers – may be a bit much when all they want to do is sit down and type in their latest essay assignment."

Over time, the Linux systems drifted towards irrelevance. Although the Linux computer lab was open late at night and on weekends, Trinity students were shunning it for a second laboratory that included 30 eMac G3s – even though that laboratory wasn't open for anywhere near as many hours. That left students competing with each other for the eMacs while the Linux lab was "a ghost town," says Dorset.

The new laboratory was completed in July, and since then has seen usage pick up dramatically as students warm to Mac OS X 10.4's improved interface and ease of use.

Dorset and Bell have also warmed to the Mac OS X desktops, which are managed using the open-source radmind application packager (http://eq.rsug.itd.umich.edu/software/radmind/). Radmind keeps a close watch over changes to system configuration as a new application is installed; once the installation is finished, the software prepares installation scripts that allow the applications to be directly loaded and unloaded with a single click.

Such capabilities have made it extremely easy to add, repair and remove software from the Mac OS X desktops, reducing the administrative burden faced by college IT staff. More than 20 different modules, each containing a key application, are regularly used to keep the systems running as smoothly as possible.

Another key management tool is a custom-built application that logs all student access to the network by machine, user ID, time and date of access, and so on. Automated analysis of this data shows which machines are being used less than others or not at all – a condition that usually means that a network disconnection or some application crash has made the lab PC unusable. Since students tend to ignore faulty PCs but rarely tell anyone, it could otherwise be weeks before the problem was noticed and remedied.

In a concession to practicality, the systems are loaded with Microsoft Office, but Dorset has made an effort to maintain Trinity's think-different approach by adding a raft of free applications to every computer. For example, each system is loaded with the latest version of The GIMP image editor, to which students are referred for graphical manipulation unless they have specific needs that can only be met using Adobe Photoshop.

"I'm not saying GIMP will destroy Photoshop's market around the world, but for most of us, most of the time, it can do

what we need easily," says Dorset. "We point users to it and tell them to get in touch if they're finding it unworkable. It just can't be that every time someone makes a request for multiple hundred-dollar software, we just say 'OK'; we're not made of money, and it's part of our responsibility to make sure we spend what money we do have available, wisely."

All told, Trinity now has around 100 Macs around the college – both in the labs, and on the desks of staff where the old eMac G3s have been shifted to replace even older Windows systems. And while Bell and Dorset are still fans of Linux as a back-end server platform, they recognise that the choice to standardise on Mac OS X desktops has been both necessary and beneficial to the students.

"With Mac OS X, we could make this change without completely throwing away the philosophy that we had in mind when we put the Linux lab in," says Bell. "That was, to give them something a bit different, manageable and secure, that can be updated, and something they'll be able to use for productive purposes. It is definitely being viewed as a success and has been well embraced by the students."

The Digital Ceiling

THE LONELINESS OF THE MOBILE LEARNER

By Roland Sussex, School of Languages and Comparative Cultural Studies, The University of Queensland

Highly networked countries are going to force another rethink in the way we conceptualise and deliver on-line learning.

South Korea, which currently leads the international league in high speed networking, already has a growing industry in online learning on handheld PDAs (Personal Digital Assistants), which are now being combined with mobile phones, email and Internet access. When a phone call arrives on your mobile in Seoul, Korea Telecom may well send you a greeting in English. And if you have signed up for this service, it may also send you some exercises to improve your English: a listening test, a spelling exercise.

English is a huge industry in Korea. Korean educational, business, government and social organisations are committing enormous resources to improving the opportunities for Koreans to learn English. You can practise all kinds of language skills, including speaking and interactive conversation, on mobile devices. Your learning connexion point now travels literally wherever you go: a moment of leisure is a moment which could be spent in learning, anywhere, any time.

And such learning, thanks to handhelds, can take place on the fly – in a bus queue, on the bus itself, while power-walking – as well as in more relaxed contexts like a coffee break, or time at your desk to study. The privacy provided by the PDA's screen and input devices, and by its audio capacity, makes everything but speaking practice a personal and discreet activity.

Learning in this ultra-mobile mode introduces a new dimension to distance learning. Laptops liberated us from dependency on power points. Innovations like Bluetooth are liberating us from dependency on wired connexions to the Internet. Wireless PDAs take this a step further in making our communicating-learning devices even more portable, and now even more powerful. Bandwidth is growing so fast that wireless PDAs can now rival some of the slower wired networks:
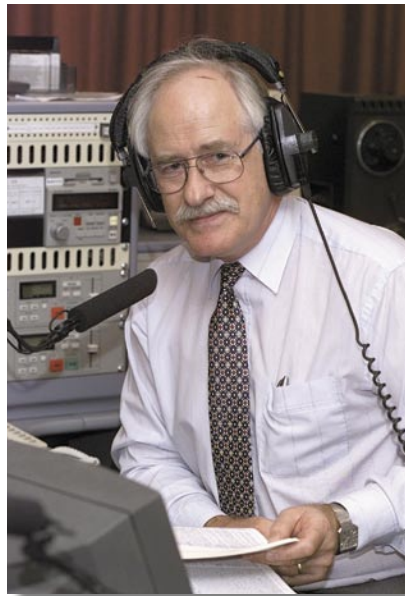
CDMA2000 1xEV-DO delivers data at a speed of 2.4Mbps.

But what of the quality of learning? And what of the concept of appropriate mobile learning pedagogy? Will such learning be useful? Will it persist? How will it relate to more conventional modes of learning?

These questions are starting to be asked, but only slowly and at some distance behind the cutting edge of the hardware and wireless-ware.

PDAs have a small screen, so even with high resolution it is not possible to cram as much information into a presentation screen as on a laptop or VDU. This throws more emphasis on hierarchical structuring of screens of material. But then you need navigational tools and maps. There is already some evidence that four levels is as much as can be reasonably handled by a learner.

Remember that we are now talking about learners in potentially unfavourable learning environments, where there is movement, noise, distraction and discontinuity of attention. Learning units have to be fragmented, reduced to a size which allows the learner to tackle them in these anytime-anyplace conditions. That means breaking down tasks into small chunks. That is often feasible. But how to combine the chunks in pedagogically beneficent ways is not so obvious. And evaluating how well one has learnt something, or undertaking follow-up tasks to anchor that learning securely in place? All this requires us to rethink the nature of computer-assisted learning (CAL).

Wireless PDAs are now indeed CAL devices. Their CPU and memory capacity is now sufficient to sustain serious learning. They have on-board dictionaries and thesauruses. They are multimedia devices, and interactive ones to boot. Their obvious limitations are typically at the physical interface with humans. The size of the screen limits the amount and complexity of what can be displayed. The size of the human finger limits the layout and speed of the input device. There is no room here for a full-sized QWERTY keyboard.

Voice recognition will go a long way solving that, with dictation software translating speech into written form. There will need to be some way of ensuring that it is only the user's voice that is transcribed – you don't want a screaming child's vocalisations from the next seat in the bus to be part of your English pronunciation test – but that is the kind of technical challenge that the industry loves, and will surely surmount.

We will then really be carrying a portable learning resource, and perhaps a portable teacher, around in our pockets, or perhaps on our lapels.

PODCASTING to the world

The sheer size of the Internet means that when an idea catches on, it doesn't take long to explode. Without a doubt, podcasting has followed this growth curve as the technology is explored by everybody from worldwide media concerns down to one-man pirate radio stations.

Podcasting allows anyone on the Internet to publish regular audio files that can be set by users to automatically download when they're available. Using a tool such as iTunes 4.9, which has explicit support for podcasting, content is loaded onto users' iPods and available for regular updates. The feature has been extremely popular, with more than 1 million podcasting subscriptions processed in the first two days after the launch of the new iTunes.

Pundits have wasted no time jumping on the bandwagon, calling podcasting the death of radio and foreshadowing an era where listeners can finally get the audio content they want, when they want it. This may be a bit extreme, but there is no question that podcasting is quickly catching on within many different types of communities across university campuses.

Podcasting makes perfect sense as an add-on to the iLecture recording system (see next page), allowing students to subscribe to get new lectures automatically downloaded. "As soon as we became aware of what podcasting was, we got very excited," says Mike Fardon, Academic Director of the Multimedia Centre within the University of Western Australia's School of Communication Studies, "It was only a week's turnaround from the point where we decided to integrate podcasting to the point where we had it working in iLecture."

Niche applications stand to get the most benefit from podcasting,

however, particularly when it's used as a teaching tool. Podcasting's one-to-one nature makes it easy to develop communities of interest in which students can easily distribute audio files to their classmates as part of their assessment. At UWA, for example, honours Communication Studies students are recording interviews and then using podcasting to distribute them for peer review.

Equally important, podcasting is finally giving a global voice to myriad individual researchers and interest groups at university campuses across the world. The University of Wisconsin-Madison, for example, offers specialty environmental programming, developed by students and staff at that university's Sea Grant Institute and Gaylord Nelson Institute for Environmental Studies, through its Earthwatch Radio podcast. Bath Chinese Broadcasting's podcast, on the other hand, aims to promote Chinese culture and music to the UK's Bath University community.

Closer afield, Macquarie University's Ian Finnan is one of many in the university community using podcasting to promote his individual interests. Finnan's podcasts (see www.ianfinnan.net) feature interviews with leaders of Student Life, the university ministry of Christian organisation Campus Crusade for Christ Australia.
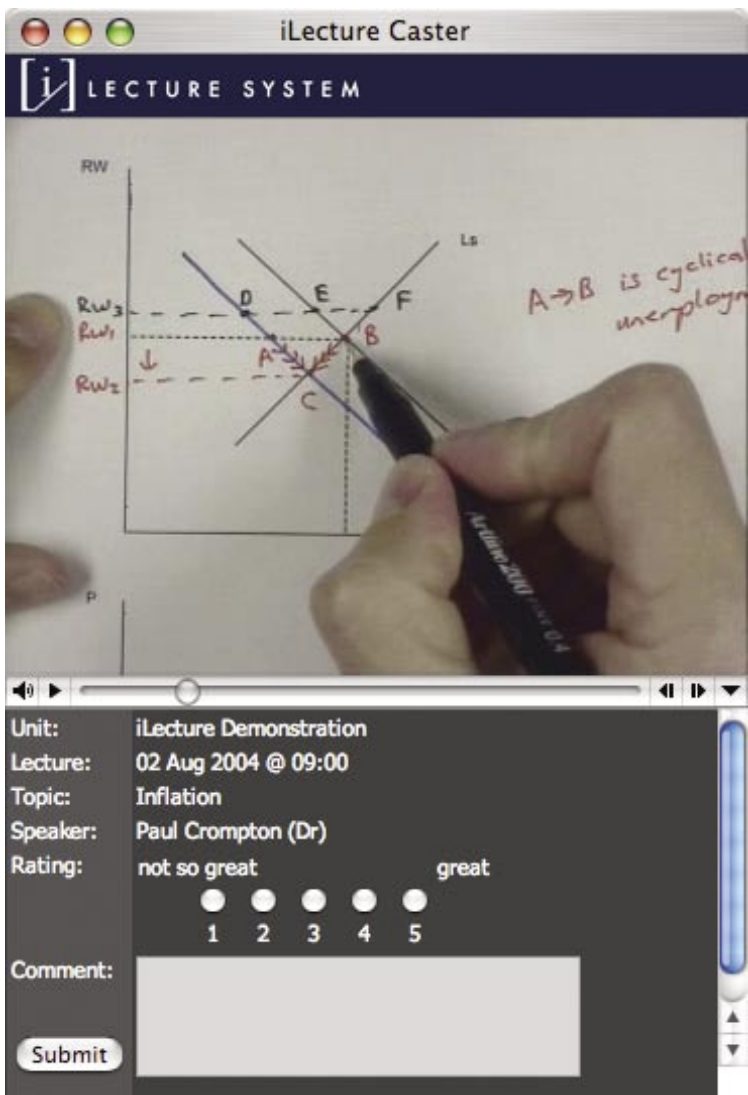
Such narrowly focused programming would struggle to be heard over conventional radio, but becomes instantly accessible via podcasting. Whether it kills radio or not remains to be seen, but there is no denying the significant weight that is accumulating behind the podcasting wave.

By David Braue

iLecture
putting runs on the board

It may have started out small, but a team at the University of Western Australia (UWA) is rapidly turning its iLecture lecture recording solution into an international success after strong uptake in Australasian universities and a deal with a major US university that's opening doors for the system in that country.

iLecture is a turnkey system for automatically recording university lectures from a variety of locations, then converting the lectures into an easily distributable format and archiving the content for the long term. Built around Mac OS X technology including a central XServe, it uses several computers to separately handle tasks including the user interface, recording, and digitisation of lectures. A MySQL database, OmniPilot Lasso Professional Server middleware, and numerous custom applications keep the components working in concert.

Ease of use has always been a major part of the system: the Web interface means lecturers can log on and schedule one-off or regular recordings of their lectures in particular rooms, and the system will automatically record and process the lecture without any further intervention. Lectures are made available to students and staff online for a set period of time before being archived.

iLecture supports myriad audio compression formats, but currently uses the Windows Media format as its primary choice.

It can also produce QuickTime video that combines the audio with video feeds of lecture materials such as PowerPoint presentations and document scanners – an option currently used in around 15% of UWA's lectures and 40% of all iLecture use nationwide. Another enhancement, an iLecture Editor developed with the assistance of AUC Apple University Development Fund support several years ago, allows the markup of recorded audio with other forms of content.

Student surveys have shown strong interest in the improved lecture accessibility that iLecture provides. Indeed, 25% of respondents indicating they preferred listening to iLectures than actually going to lectures (fully 43% of those still attend their lectures, however).

"There are two motivations for using the system," says Mike Fardon, academic director of the Multimedia Centre within UWA's School of Communication Studies and one of the system's creators.

"The first is to provide students with flexibility and access to their learning, particularly where they face issues such as being located away from the campus, family commitments, timetable clashes or disabilities. The second area of motivation is around enhancing the learning opportunities that students have: given that the majority of students accessing iLectures are still attending the lectures, their motivation is about revision and improving their learning."

At its native UWA, iLecture is now recording around 360 lectures per week across a range of disciplines, with the system installed in 41 lecture theatres; fully 85% of lecture-based courses are recorded by an iLecture cluster that now includes 10 Apple XServes. At the beginning of this academic year, UWA secured the system's long-term future within the institution by adopting a campus-wide licensing model in which the university, rather than individual departments, carry the cost of lecture recording.

Nine other Australian institutions – including Murdoch, Melbourne, Macquarie, UNSW, Deakin, Newcastle, Curtin, and Wollongong universities as well as the University of Tasmania – are currently utilising iLecture, with two more considering it. Fardon's team are also conducting trials with the University of Auckland, and the system was used in an

Apple-sponsored exercise to record keynote sessions at the 2005 Educause Australasia conference held in Auckland in April this year.

Perhaps the biggest opportunity for iLecture, however, came when Fardon's team heard about the innovative plan to give more than 1600 iPods to incoming students at Duke University, in the US state of North Carolina, in September 2004. That program has continued, with 26 French, German, creative writing and other courses now utilising the iPods within their curricula.

With iPods becoming standard-issue student gear, Fardon immediately recognised the potential fit between the Duke program and iLecture. In March this year, Duke's Center for Instructional Technology began a trial that saw three lecture theatres wired for recording by iLecture.

"We're providing something that really adds value to the digital initiatives Duke are undertaking, and they provide us with a base in the US from which to show off what iLecture does," Fardon says.

Strong feedback from Duke users would strengthen iLecture's profile at Duke and give the UWA team much-needed clout in the American education market, which has over 3000 universities alone as possible customers. There, iLecture will face off against competitors like Tegrity and Sonic Foundry's MediaSite – but Fardon is


University of Western Australia's Mike Fardon

confident that iLecture is more than up to the challenge.

The core development team continues to enhance iLecture, with version 3.1 (released in June) adding features such as full support for podcasting. Using this version, students can subscribe to a particular course's lectures and automatically receive new recordings as they're produced. The feature has already won strong support, with more than half of Melbourne University lecturers taking the podcasting option when it was offered for the first time this semester.

Future enhancements will look at better ways of indexing content including better construction of metadata and, possibly, methods such as speech to text. Because the development team is based locally and working so closely with its customers, the system will continue to be enhanced around their needs. "Current expectations are that around the end of 2006, we'll have around 40 percent of Australian universities using iLecture," Fardon says.

For more information about iLecture, visit http://ilectures.uwa.edu.au/.
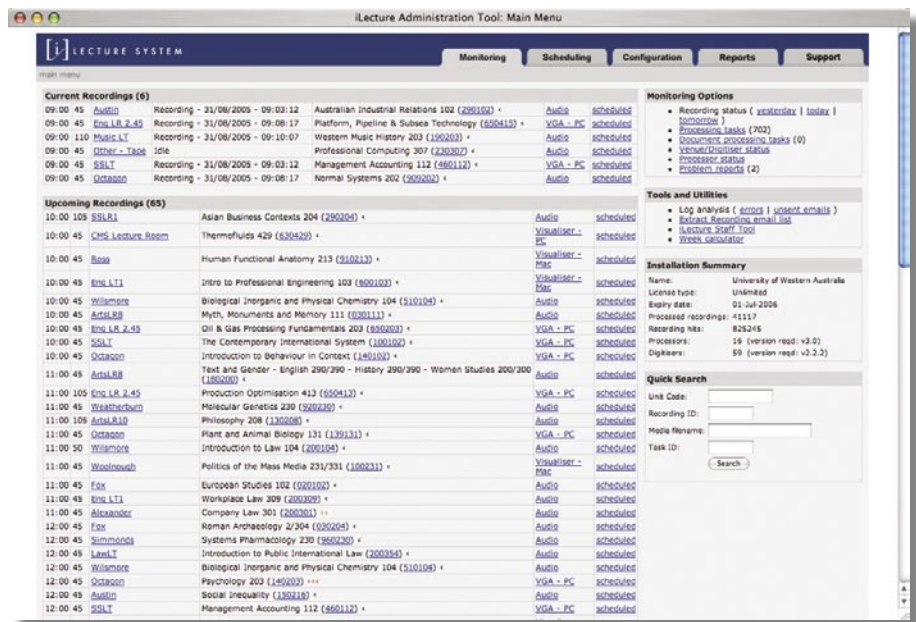
Are you a digital immigrant, a digital native or are you 'just digital?'. The answer to that question lies solely in the last two digits of your date of birth.
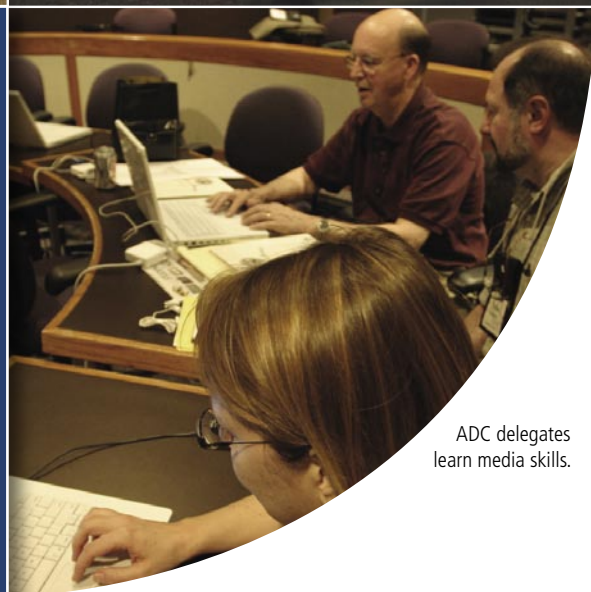
Students must be able to learn and express themselves in the same media: John Couch, Vice President for Apple Education.

iLife and iWork enthusiasts gathered for a hands-on workshop at ADC.

Arming ourselves for the digital campus

By Stephen Johnston, Technical Support Manager, Edith Cowan University

ADC delegates learn media skills.

As a digital immigrant, you will have come from the analogue world and remember when life was people, paper and pyramid based. As a digital native, you will have noticed how digital technologies have increased in profile in the workplace or classroom, changed working practices, afforded efficiencies (or pseudo-efficiencies), and required continual re-training across corporate staffing structures.

The point: you will have noticed.

To someone who is 'just digital', the ubiquitous presence of connected technologies will be the very air that you breathe and you will not be able to conceive of a time when it wasn't just so. The word 'digital' will be as redundant to you (and you may not care to know the meaning of it) as the word 'compact' was when referring to the compact audio cassette. You use technology as a social tool for forming peer communities and, more importantly, you will have automatically raised the point of entry into your social and professional world to those who can meet you (or exceed you) on your own terms.

Nowhere is this more evident than in higher education, where three generational differences in techno-cultures are engaging in a dialogue that seems to be driven more by a grass-roots movement than ever before.

These issues were tackled head on at Apple Digital Campus – Leadership Forum (ADC), a three day workshop hosted in April

this year by the University of Missouri in the US. There, participants were joined by peers from charter institutions including Duke University, Ohio State, Penn State and Stanford University, who met to see and hear how pervasive technology is transforming teaching and learning in the hands of their students.

In her keynote presentation Educating the Net Generation, Diana G. Oblinger, vice-president of Educause, observed that "We are dealing with a generation of students where computers have always fitted into their backpacks, photographs have always been developed in less than an hour, petrol has always been unleaded and Bert and Ernie are old enough to be their parents."

Our host for the Forum, the Missouri School of Journalism (MOJO) -- the largest journalism school in the world -- and Apple Educators have been grappling with this seismic shift in higher education against a sea-change of young people away from conventional sources of news and media and, as a corollary, education.

Talking to an enthralled and packed audience in the Clinton Club room at the Mizzou Arena, Oblinger cited estimates by Prensky that by the age of twenty-one, the average American today will have spent 10,000 hours playing video games, processed 200,000 emails, watched 20,000 hours of TV, spent 10,000 hours on a cellphone -- but only 5,000 hours would have been spent reading.

The pre-conference hands-on workshop at Gannett Hall, which

involved making a short on-campus documentary with music using iLife05, gave delegates a practical introduction to the sorts of technologies that have radically changed the behaviours and expectations of students who assume the same systemic integration on campus. Participants included deans, provosts, CIOs, department chairs, curriculum directors, faculty members and two fortunate AUC sponsored attendees: myself and Dr. Dianne Chambers, Assistant Dean (IT) at the University of Melbourne.

In his highly visual presentation Framework for the Apple Digital Campus, John Couch, vice president for Apple Education, extended and deepened the theme of systemic integration by presenting a single slide which defined the learning infrastructure in terms of iLife and iWork and the subtle blending of the two. "Students have to be provided with the same media to express themselves in as they have been learning in, from acquisition to production to output," he observed.

Educators continually struggle to decide how much change in the classroom is enough – an issue that was addressed by Cole Camplese, Director of Information Sciences and Technology at Pennsylvania State University, during his presentation Tools that Change Learning—Putting it All Together.

Noting the trend to use enterprise level learning management systems like Blackboard, ANGEL and WebCT to support every resident course, Camplese warned against assuming drop-boxes, discussion boards, eQuizzing and so on were enough to replace the traditional classroom. "That all adds up to a traditional course these days," he said. "But guess what, folks: they [the students] tell us that they are not impressed!"

Rather, Camplese said, students are looking to new technologies to build online communities. Readership of blogs in the US is up 58% this year, he pointed out, and his own class surveys found that 57% agreed and 3% strongly agreed that a class blog was an appropriate medium for participating in class related assignments. "Bloggs and RSS enclosures," he said, "form a powerful content delivery system with the RSS enclosure model being the start of an always-on educational delivery channel."

Many universities believe they have entered a post-infrastructure age that grew out of the necessity of making business processes more efficient. However, the stakes have just been raised and goalposts moved by the student body's demands and expectations that social and educational technology infrastructure will be available anytime, anywhere -- and that on campus, without exception, the point of access will be wireless, ubiquitous and pervasive.

Professor Carl Berger, director of advanced academic technologies at the University of Michigan, summed it up well during a plenary session on SAKAI, the open-source collaborations and learning environment software (named after TV's The Iron Chef, Hiroyuki Sakai). On how to best deliver content to students, Berger said, "It's not WYSIWYG anymore; it's WINWINIT—What I Need, When I Need It."

Over the course of the conference, these threads were echoed or challenged in varied and different ways through presentations such as Assessment and Evaluation in a Pervasive Environment: Real

Research and Practical Tools by Yvonne Belanger, programme evaluator, Centre for Instructional Technology, Duke University and The Critical Role of Faculty by Brian Brooks, associate dean, Missouri School of Journalism. The role of iPods and iTunes in higher education was explored by a large panel including Kevin Witte and Kirk Griffin of Duke University.

However, like all things in life, education has to fit into a bigger frame of reality. In her ADC presentation, Linda Roberts, former director of the US Department of Education's Office of Educational Technology and former advisor to president Clinton, looked at how pervasive technologies have to compete against real world competition when seeking funding.

"How will universities operate in pervasive and ubiquitous technology environments?" she asked. "How will policy makers know if investments in technology are making a difference to the students, especially as universities move from state supported to state assisted funding models? Can you really demonstrate students learning, understanding and skills are extended by your investment?"

iLife-iWork Authoring: Apple tools cover the spectrum of media needs: John Couch, vice president for Apple Education.

"The jury is out on whether smart classrooms work," Roberts continued. "Are students smarter when they are in or out of them?—and how do you measure that? Is there an 'amplification of the intellect' and can these technologies show that we are on the frontiers of new knowledge?"

Aiming to turn the issues raised at ADC into a continuous discussion, Apple have set up an online resource called The Apple Digital Campus Exchange which aims to offer a peer network for sharing Apple solutions in the education space. You can find it, and an archive of this forum, at www.apple.com/education/hed/adc/.

Twenty-eight hours at 35,000 feet, on the journey back to Perth, gave me lots of time to reflect. Nursing my fourth double Scotch (strictly for medicinal purposes, you understand), I reflected on a question that was posed to us for discussion but kept echoing in my head: "Where are all the digital philosophers?"

I then realised the truth: I not only knew where they were, but had just spent three days with them there at the ADC.

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