Wheels for the MIND

AUC

Don't Let iCloud Rain on Your Parade

Getting a feel for Ndjébanna

From a ream to a tablet

WRAPPED WITH GOLD, UNWRAPPED WITH QUARTZ

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A magazine for academic staff, students and IT professionals

SUMMER 2011

PRODUCT ROUND-UP

WHAT'S NEW IN THE WORLD OF TECH

iPhone video, real sound

For all its good points, the iPhone's videos tend to suffer when you weigh up the quality of the sound it records. Enter Fostex's AR-4i, a stereo microphone adapter designed to dramatically boost the quality of your videos' sound. Slide your iPhone into the dock, and the stereo headphones will work their magic to pull great sound out of thin air. $199.

Contact **bit.ly/pf3SHt** or **www.majormusic.com.au**.

Like Photoshop, but cheaper

Long a favourite with Mac users that don't want to shell out for a full version of Adobe Photoshop, Pixelmator offers a broad range of similar tools and image editing capabilities at a fraction of the price. The new version 2.0 is a major update that adds features like content-aware fill, a healing tool, smudge tool, vector shapes, a sponge tool, full compatibility with OS X Lion, and much more.

See **www.pixelmator.com** or get it from the Mac App Store for $31.99.

Portable storage for your iThing

If you're finding the capacity of your iPhone, iPod touch or iPad somewhat limiting, this is the accessory for you. Sporting 16GB or 32GB of memory, the Kingston Wi-Drive connects to your device using Wi-Fi to provide heaps of extra storage space. Run the free Wi-Drive App to access your Wi-Drive, and share content between more than one device if you like.

A$149.99/NZ$199.50 for the 16GB version or A$198.99/NZ$265 for the 32GB version. See **www.kingston.com/anz** for more information.

Your own iTunes DJ

Got a party on the weekend? You may find yourself doing double duty if you show up with this in hand. Vestax Spin DJ is a USB MIDI controller that provides a pair of mixing 'turntables' that integrate with your iTunes collection and the included djay software to let you play around with your music in all sorts of ways. Drag and drop your songs, match beats, add loop effects and throw in your voice using the built-in microphone jack.

$399 from **store.apple.com.au** or visit **www.vestaxspin.com** for details.

Kick up the JAM

If guitars are your thing, you've probably thought about recording yourself. But if you haven't considered using your iPad running GarageBand or other audio app, think again. Plug your guitar, bass or anything else into the 1/4-inch Apogee JAM Guitar Input, and you're all set to record every lick or sound you can come up with. There's 24-bit analogue-to-digital conversion at 44.1kHz, gain dial for easy level adjustment, and support for Mac-based Core Audio applications and iOS devices via the dock connector port.

$119 from **store.apple.com.au** or **www.apogeedigital.com/products/jam.php**.

A new kind of Fusion

VMware's Fusion application has long provided a reliable way for Macs to run Windows and Windows applications. The latest version, Fusion 4, is optimised for OS X Lion and includes 90 new features including a 2.5x speed bump for 3D graphics, a redesigned user interface, multi-core support and more.

Buy and download for $49.75 from **www.vmware.com.au**.

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Wheels for the Mind is published by the Apple University Consortium, PO Box U194, Wollongong NSW 2500.
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EDITORIAL

Welcome everyone. Yes, I'm back in the Editor's role and will continue in this position for the foreseeable future. I must admit, it's great to be back and I'm delighted to present to you our final issue for 2011. A lot has happened since our last issue and I wanted to particularly make note of the passing of Steve Jobs.

I have never before felt such sadness about the death of such a public figure but Steve's passing truly left me shocked and saddened. I had never met the man, yet I (and I imagine millions of others around the world) felt an invisible connection to Steve through the remarkable products that he, and his company, brought to this planet.

He certainly made me a very happy person and I have no doubt that many others all over the globe feel the same. He was a true visionary, tough, sometimes ruthless but always believed he could make technology beautiful, functional and utterly desirable. He and his team created a company that has made its mark in every society, everywhere.

Whilst Steve will be sadly missed, I still have no doubt that Apple will continue to shine well into the future. We will continue to be amazed with the release of new stuff but most importantly, we will be challenged to think differently – and that, my friends, is what makes Apple unique.

Just this year alone we've seen iOS 5, Mac OS X Lion and the iPhone 4S. Already these things have taken the world by storm and that's not even mentioning all of Apple's desktop and notebook sales. So, fear not, I truly believe we've got many years of incredible Apple products ahead.

In this issue we hear from Glenn Auld and his great work in remote Aboriginal communities. He's working hard to preserve their languages and engage young children to learn these dying languages in exciting and innovative ways. We also catch up with Paul Bourke and see some of his latest works with Quartz Composer.

We continue to hear about really useful and powerful ways in which iPads are being deployed, especially in the reduction of printed materials for meetings. iTunes U is highlighted once again, and is proving to be another powerful marketing tool at Southern Cross University.

Carrie Clarke again challenges our thoughts around designing better learning and teaching spaces and we have our regular Joy of Tech comics and crossword.

As always, my thanks go to all who have helped make this magazine possible throughout the year and I look forward to continuing in the role as Publications Editor. I wish you all the very best for the holiday season and look forward to catching you in 2012.

David Yammouni
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publications@auc.edu.au

AUC Update

Vale Steve Jobs

The death of Steve Jobs on October 5 was an event felt far and wide, with tributes to Apple's co-founder pouring in from every corner of the globe.

To provide an outlet for those tributes, Apple set up an email address (rememberingsteve@apple.com) with an invitation for anyone who wanted to share their thoughts on how their lives had been touched by Steve's actions. Over a million people responded, and Apple has since collated their feedback into a dedicated Web site (**www.apple.com/stevejobs**) that's available for all to see.

Jobs was also remembered at an official Apple event at Apple's Cupertino, California campus on October 19, where CEO Tim Cook and board member Al Gore were joined by musicians Coldplay and Norah Jones to honour Jobs' memory. Video of the event is available at **http://bit.ly/q29tAD**.

CreateWorld 2011 and AUC General Meeting 2012

Two major events on the AUC calendar will round out 2011 and usher in 2012. By the time you read this article, CreateWorld 2011 will be happening/will have happened. As always, this year's conference is aimed at practitioners, academics, research teams, technical staff and students with sessions spanning new media work, performance, photography, cyber-arts, music, and more.

Panel sessions will include Place & Creativity and Creative Challenge while keynote speakers include UK-based photographer Tom Ang (**www.tomang.com**); NZ Maori digital innovator and 2010 North & South New Zealander of the Year Ian Taylor and UTS art professor and human-computer interaction developer Ernest Edmonds.

There will also be over two dozen presentations covering everything from live music performance and e-book creation to digitally-assisted teaching, gamification, and other fascinating projects from around the AUC membership. Watch the AUC website for information and feedback about the conference.

On 9 and 10 February, 2012, the AUC will be holding its General Meeting along with the AUCDF coordinators meeting. This will be held at the Hilton Surfers Paradise Hotel and all AUC delegates and AUCDF coordinators will have received registration information via Andrew Jeffrey (the AUC Executive Officer). If you haven't received the email from Andrew yet and you feel you should be there, please contact Andrew at ajeffrey@auc.edu.au.

Training plans for 2012

Kcdtsg, CC 3.0 BY-SA

You may be wrapping up 2011 and thinking mainly about your plans for hitting the beach, but we at the AUC are already looking further ahead to plan out an exciting range of training opportunities and events.

As in the past, we'll be offering student development opportunities through programs such as the AUC Student Developer Scholarships, as well as the opportunity to attend Apple's annual mid-year World Wide Developers Conference (WWDC).

We're already looking forward to the AUC's three key conferences – X World, /dev/world, and CreateWorld – and will be providing information about all three as we get closer to their dates.

And we'll also be repeating our broad range of technical training, including developer training and workshops in all sorts of languages and discounts on technical training. Topics for 2011 ranged from system administration to iPhone and iPad development, Mac OS X, Corona, Ruby, Unity, and more.

Feedback for this year's courses has been enthusiastically positive, and regular sellout crowds confirm the courses continue to be both relevant and engaging. We'll be aiming to do it all again in 2012; in the meantime, have a great summer and keep up with the latest on AUC technical training by visiting our Web site, **www.auc.edu.au**.

Something interesting happening within your university's teaching environment? We want to hear about it! Drop us a line at publications@auc.edu.au and we'll include the most interesting tidbits in the next issue.

Forward planning

By David Yammouni

On September 30 this year, the AUC once again held its Annual General Meeting.

The AUC AGM is a crucial event on the AUC calendar: it's where important decisions are made regarding budget, planning, and strategy for the future. It also serves as a forum for member institutions to voice their concerns, highlight their triumphs and share the challenges faced in an ever-changing technological landscape.

It's a great time for AUC representatives to reconnect and network both professionally and socially. Due to the sheer diversity of delegates, fertile discussions arise covering all aspects of Apple technology, from technical and support issues, right through to licensing and the incorporation of Apple tech into university life.

This year, there was an important focus on the Strategic Perspectives document, which was circulated ahead of the meeting and gives delegates the opportunity to provide feedback to the AUC Executive Committee. This proved invaluable and has helped shape a thorough document that will serve the AUC well for the next five years.

Of course, no AGM is complete without budget discussions, and this year was no exception. It is pleasing to see that the AUC finances are stabilising and we hope this trend continues for the future. This will assist the AUC Executive Committee to make better decisions about the types of programs it will offer for the future.

There were also discussions about the Apple Top 5 issues that affect Australasian universities. The big one was seen to be the release of Mac OS X Lion, its licensing model and its distribution via the Mac App Store. This appears to be causing issues for some of our institutions, and Apple is working towards a streamlined and better solution than what is currently available.

Finally, the meeting saw the election of new office bearers. A few new faces have appeared, and we're delighted to announce that Donna Ashelford, from the University of Queensland, has joined the AUC Executive Committee and Nick Falkner, from the University of Adelaide, has joined the AUCDF Committee. Welcome to both Donna and Nick and we wish them well.

All in all, it was another successful, productive AGM and congratulations to Tony Gray (Chair, AUC Executive Committee), all the Executive Committee, Daniel Saffioti (Chair, AUCDF Committee) and the AUCDF committee on steering the AUC through some challenging times. We look forward to a very bright and positive future.

Getting a feel for Ndjébanna

A long-running Monash University project to teach and preserve a range of indigenous languages is moving into the mobile era as early successes show that interactive electronic books are an invaluable way to engage children in their own languages.

The brainchild of Faculty of Education lecturer Dr Glenn Auld, the project began a decade ago as he worked with a local reseller to source old iMacs, add touch screens, then ship and install them in the remote Northern Territory community of Maningrida, around 500km to the east of Darwin.

The region is rich in linguistic variety, with Ndjébbana and around 15 other languages used amongst the local Kunibidji people. English is often a third or fourth language for children growing up in the area, so Monash University staff worked to engage them in their native language by develop talking books in Ndjébbana, which only has around 200 native speakers left in the world.

Presented on the touchscreen Macs, staff were delighted to see a strong level of engagement with the children, with software counting the number of touches on the screen over time and finding children were extremely interested in and engaged with the content.

"The iMac project gave us evidence-based practice that the kids wanted to read at home," says Auld. "One of the great things about using the computers was that we could include those who could speak the language but not necessarily read it. When we matched their spoken words up with printed words and put images underneath, we could go to all the people who could speak the language. There were a lot of parents and elders who were very happy seeing their language mediated on computers for the first time."

These metrics drove further projects over the years, with more computers being delivered into area community centres and homes. Over time, the project has evolved to address the pedagogical implications of the technology – in particular, how it can help teachers improve students' understanding by being able to smooth the transition to English-language teaching.

"When Kunibidji children come to school, it's still a strange transition coming to English," Auld explains. "With a bilingual program they can pick up their pen and go through the words; if they do this in English, they don't even know what the words mean and are supposed to write them. Our concern is how teachers can accommodate what children already know before they walk into school, and how technologies can support the core business of teaching the national curriculum."

In-school activities are increasingly being complemented with investigations into the role of mobility in further improving access to interactive materials. For example, the project team has recently turned its efforts towards mobile phones, which are becoming more and more popular within the community. A recent Monash survey found 54% of the region's residents own a mobile, but 95% can get access to one by borrowing one from another person.

"We're moving towards phone solutions now, because that's the technology people are buying without any government or community intervention," says Auld. "We're researching how children are learning around phones, and how the content matches what they're learning in school.

Because the remote region is serviced by only one mobile carrier – Telstra – the Monash team is considering ways it might be able to improve access to teaching materials by getting the company onboard. Better access to learning materials would, for example, allow them to access educational content that has proven to be more engaging in their native languages.

With so many computers and mobiles now in the field, content creation is now more critical to the program than the distribution of hardware itself. This change is driving a focus on development of online videos, for example, by pre-service teachers that do ten-week placements in Maningrida: "I'm looking at how we can use the engagement and enthusiasm of these people to make a stack of videos with those children that can go on their phones," Auld explains. "Once we've got that up and running, I think we should be able to get even more support."


iMac

TURNING QUAR

It may have been designed as a way of developing impressive user interfaces in Mac OS X, but Quartz Composer has proved to be a whole lot more for University of Western Australia (UWA) visual-arts researchers that have used it to develop a broad range of art installations at museums in Australia and Hong Kong.

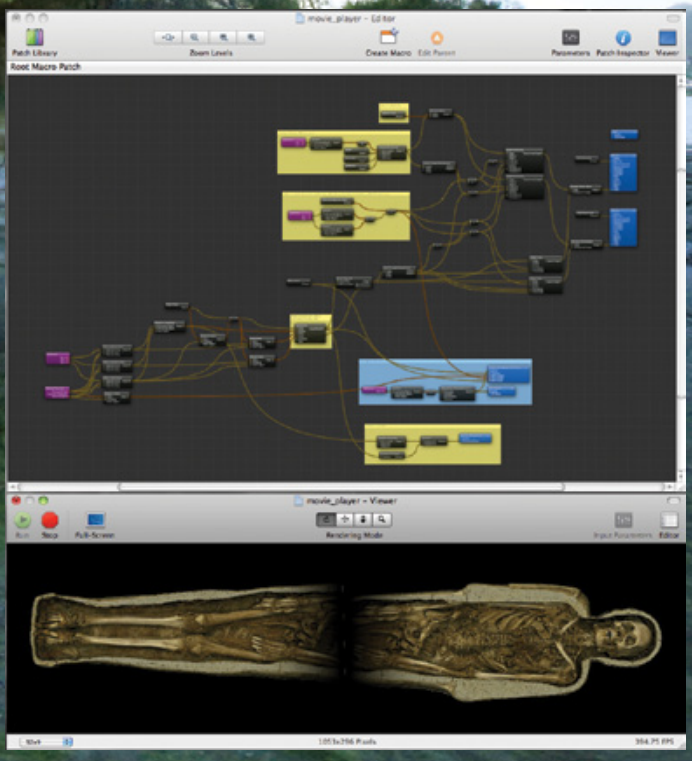
With its easy development interface, Quartz Composer has proved to be an excellent way to develop content for the iDome projection system, which Paul Bourke, research associate professor and director of the iVEC centre at UWA, has used to produce everything from immersive games and data-visualisation tools to hang-gliding simulators (see Wheels, Summer 2010).

"Quartz Composer was released for developers to prototype in Quartz before they implemented their stuff in code," says Bourke. "It was intended as a developer tool but few people in the developer community were using it; it turns out that the people in creative industries started using it more than developers, and it has taken off in a totally different area from what it was designed for: interactive audio-visual experiments and real-time art environments. I've used it dozens of times in recent years, and it's being used by digital display people and exhibition designers around the world."

In its latest incarnation, Bourke's iDome is supporting a range of Quartz Composer-developed visualisation projects that are currently being exhibited at the Hong Kong Central Library gallery and Hobart's Museum of Old and New Art (MONA).

The Hong Kong installation, called iJiao, was created by the Applied Laboratory for Interactive Visualization and Embodiment (ALiVE) at the City University of Hong Kong, then exhibited at the library in October. It features 360-degree video sequences from Taiping Quingjiao festivals, warped onto the iDome using pbmesh – a Quartz Composer extension written by Bourke and his team that automatically warps compositions to suit the novel geometry of the iDome, allowing for distortion-free projection using the system.

"It's a critical component for doing things inside a dome environment," Bourke explains. "Once you've got that component, you can start to worry about what you're going to present."



*Using Quartz Composer animations projected onto a complex optical installation, Paul Bourke and Peter Morse were able to develop a digital version of the Pausiris mummy (**paulbourke.net/exhibition/MONA/**) that lets visitors virtually 'see' inside the wrapped body.*

TZ INTO GOLD

Bourke has also used Quartz Composer for the MONA exhibition, which allows visitors to look inside a sarcophagus to see CAT scan images showing the layers of a mummified body. The installation features high-definition graphics and integration with museum control systems, all co-ordinated by a back-end Mac that delivers the installation's experience for visitors.

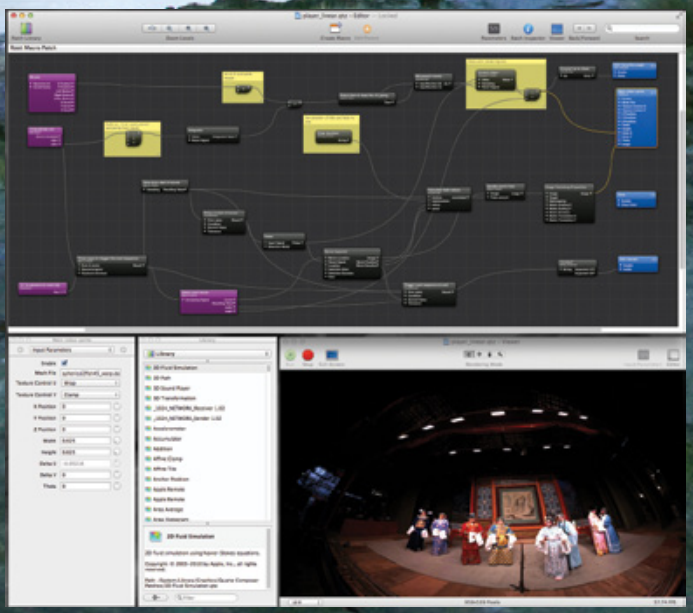
One of Quartz Composer's greatest attributes is its ability to hide technical complexity behind an interface that artists can quickly grasp and productively use for projects that bring together a broad range of different media. Call it a mash-up or something totally new, but Quartz's interface is proving to be a full-fledged toolbox for the next generation of digital artists.

"One of the nice things about Quartz Composer is that you don't have to be a programmer," says Bourke. "It's a GUI where you put in patches, wire them up and form a flow of how the interaction works. You can generate extremely sophisticated apps dealing with movies, sound, images, text, RSS feeds and more – and do it without writing a single line of programming code. Once you've got that component, you can start to worry about what you're going to present."

As well as working with budding artists to transfer their art into immersive Quartz exhibitions, Bourke has engaged with online communities dedicated to extending the platform in other ways. For example, close linkages with MAX/MSP audio-manipulation software (**cycling74.com/whatismax/**) offer granular control over audio environments, complementing Quartz Composer's graphical and media-manipulation nous.

And **Kineme.net**, an enthusiast site dedicated to Quartz Composer, offers a range of plugins, patches and other hacks that artists can tap into when building their creations. Crowdsourcing through **Kineme.net** often delivers new functionality much faster than even Apple can: for example, a popular plugin allows interaction with Microsoft's Kinect motion-sensing device.

"One of the best things about Quartz Composer is that it's not a closed box," says Bourke. "You can provide patches that weren't written by Apple, and use those inside your creation. Once a patch has been written to support a particular activity, it's up to the imagination of the artist or creator to make it do what they want it to do."



iJiao, which ran at the Hong Kong Central Library in October, projects 360-degree video of a traditional dance onto the immersive iDome environment.

Apple Update

iPhone 4S

It had a hotly anticipated launch followed immediately by the tragic death of Steve Jobs, but the iPhone 4S didn't disappoint as more than 4 million buyers queued up in the first weekend of its availability to experience Apple's latest flagship smartphone.

That's more than twice the 1.7 million units of the iPhone 4 and four times the 1 million iPhone 3GSes sold over the first weekend of their respective availability, reflecting the continuing popularity of the iPhone and the recognised appeal of the new device.

Packed from head to toe with improvements, the iPhone 4S incorporates the same dual-core A5 processor used in the iPad 2, providing class-leading performance and up to seven times the graphics performance of the iPhone 4.

There's a new 8 megapixel larger-aperture f/2.4 camera that works better in low light and is capable of recording video in full 1080p resolution; a Notification Center for consolidating alerts from a range of programs; iMessage, a messaging application that automatically routes messages between iOS devices as cheaply as possible; the iCloud cloud-storage service; built-in Twitter integration; and over 200 other new features thanks to the incorporation of the iOS 5 operating system.

Perhaps the headline feature, however, is Siri, a voice-driven personal assistant that understands a broad range of spoken commands and can be used to control iPhone functions as well as to control Web information searches. Siri combines spoken words with information on the current location of the user to deliver context-sensitive search results including deep factual integration with the Wolfram Alpha search engine. Extensive semantic pairing allows Siri to understand casually formed questions such as "Will I need an umbrella this weekend?", which will bring up a weather forecast.

Pricing includes $799 (16GB), $899 (32GB) and $999 (64GB). Learn all about the iPhone 4S at **www.apple.com.au/iphone**.

Put your GarageBand in the hand

If you're the kind of musician who's always having ideas and wants to turn them into songs on the spot, you may be particularly excited by Apple's release of GarageBand for the iPhone and iPod touch.

The new application is an upgrade to GarageBand for the iPad, which was released earlier this year and has proved extremely popular. By extending it to the iPhone and iPod touch, it's possible to record song ideas and mix up to eight tracks of music on the spot, wherever you are.

Tap into GarageBand's collection of Touch instruments, which let you play keyboard, guitar, drum, and bass in a variety of styles. Smart instruments also let you use a broad range of custom chords to play along with your favourite songs. Add a microphone interface to the mix, and you can record directly from an electric guitar or external microphone – or just use the internal microphone to record your singing.

GarageBand 1.1 for iPad, iPhone and iPod touch costs $5.49 from the iTunes Store, or as a free update for existing GarageBand for iPad users.

The new iOS

Launched alongside the iPhone 4S was iOS 5, the latest version of Apple's mobile operating system, which brings over 200 new features to iPhone, iPad, iPod touch and iPod nano users.

New features include iMessage, which automatically routes voice, text and video messages between users via SMS, MMS or the Internet; Notification Centre, which groups application messages in a single screen available with a single swipe at any time; and iCloud, Apple's online cloud storage service that allows for easy storage, synchronisation between devices and access to content including music, contacts, email, appointments, reminders, and more.

The public face of iOS 5 is Siri, Apple's voice recognition-based personal assistant, which understands a broad range of spoken-word queries and ties them into system functions to make a whole range of iPhone functions easier to understand. Ask Siri to set alarms, write messages, make calls, play music, get directions, schedule meetings, do maths calculations, search the Web, and much more. The voice-recognition engine is also available as an alternative input method in any iPhone app that uses a keyboard, allowing for hands-free typing of messages and documents.

iOS 5 also incorporates a range of other features to make users' online lives easier and more productive than ever. Built-in Twitter support makes it easy to post pictures and messages from a range of apps, while an improved Photos app lets you crop, rotate, enhance and remove red-eye from your images and supports use of the volume-up button as an alternative shutter button. The Photo Stream service copies photos taken on your iPhone into iCloud, where it's automatically synced to other iCloud-linked iPads, iPod touches, Macs or PCs as well as Apple TVs.

iPods get a makeover

While the launch of the iPhone 4S got the most attention, Apple also took the opportunity to refresh its iPod lineup, with updated iPod nano and iPod touch models offering lower prices, new colours and new features.

The new iPod touch is based on iOS 5 and brings with it the features of the new operating system, ranging from iMessage messaging and support for Game Center and Notifications to built-in support for iCloud and features like Photo Stream and Documents in the Cloud.

iPod nano features include a redesigned user interface, 16 new digital clock faces, and fitness features that include the ability to listen to FM radio, and track your runs and walks without any extra equipment required. The nano offers motivational voice prompts to encourage you during your run, and lets you upload workout details to the Nike+ Web site.

The iPod touch is now available in black and white, and costs $219 (8GB), $329 (32GB), or $439 (64GB) from **store.apple.com.au**. The iPod nano comes in a range of colours and costs $149 (8GB) or $169 (16GB).

www.apple.com.au/ipod

Don't forget Apple's education pricing

Apple Australia offers educational pricing for university students on all its iMacs and MacBooks. For example, MacBooks drop by $60; the Mac Mini, by $60; iMacs by $70; MacBook Pro by $100; MacBook Air by $60; and Mac Pro by $250.

Discounts are available to university and TAFE students, teachers, administrators, and staff members as well as parents of current, accepted or applied university students. There's a limit of one discounted desktop and/or notebook per academic year. See **http://store.apple.com/au/browse/home/education_routing** for details.

The 2011 instance of AUC's annual developer conference, /dev/world, was held in late September at Rydges Bell City, in Preston (just north of the Melbourne city centre).

The conference kicked off on Monday the 26th with three workshops: an Introduction to iOS Development by Louis Cremen; an in-depth look at Blocks, Grand Central Dispatch and OpenCL hosted by Josh Deprez; and a session on building Native Web Apps, by Tristan McNab. Attendance was good, with 53 delegates listening and learning throughout the course of the day.

The main conference opened on Tuesday with an outstanding keynote by Josh Anon (**joshanon.com**), a nature photographer, software developer and camera and staging artist with Pixar Animation Studios. Josh took us on an intriguing journey about story telling, starting with man's earliest need to tell stories by painting on cave walls, moving on to how stories were recorded in Greek and Roman architecture, and finishing up with modern day iPhone apps. In particular, he looked at how the essence of telling a good story is just as important today as it ever was, and can improve the user's understanding and appreciation of your application.

The Wednesday keynote speaker was Russell Ivanovic, founder of **www.shiftyjelly.com** – an Adelaide-based software house making a name for themselves in both iOS and Android development and perhaps best known for the superb Pocket Weather AU app for iPhone and iPad. Russell spoke about the process of creating great apps, and he had plenty of good advice for young developers – in particular about engaging with your users.

/dev/world also featured 23 stream sessions covering Mac and iOS development techniques, Web technologies, and development journeys. Our session speakers hailed from across the broad spectrum of our membership, including administrative and academic staff, and students. The now standard (albeit crazy) quiz night was held as part of the conference dinner, and the conference wound up on Wednesday afternoon with a session of lightning talks.

The AUC is all about community and shared outcomes. Many of our session presenters were recipients of AUC WWDC scholarships, and giving a talk at /dev/world is one very positive way to share the benefit of that scholarship with the local AUC community. Many of the stream sessions were recorded, and should be available on the AUC web site as this issue goes to print.

Special thanks for such a successful event go to Josh and Russell for their engaging keynotes, Mark Aufflick for his contributions, Paris Buttfield-Addison for creating our first-ever conference app, and Tim Nugent, Chris Neugebauer and Josh Deprez for organising the quiz night.

Judging by the feedback from delegates, this year's event was a huge success, and you can be sure we'll see you again next year when /dev/world turns five.

FROM A REAM TO A TABLET

If you've ever been part of a board, you already know how ponderous it can be keeping up with the volume of required documents – typically delivered as a thick pile of photocopies that must be read, processed, annotated, and referred to during the proceedings.

Little wonder that one of the first uses envisioned for the Apple iPad was as a digital assistant for use during meetings. Digitise those documents rather than mail them out weeks before a meeting, the logic went, and you could avoid all kinds of bother for already time-pressured committee members.

The Griffith University Council has this year found out first-hand how efficient the process can be, having commenced a program that has put iPad 2s into the hands of around 20 core council members for use before, during and after the meetings they hold five times every academic year.

In the past, each member of the Council would receive about a ream of printed documents to review in preparation for the meeting. "The manual system was very cumbersome," says Greg Broe, team leader for IT support at Griffith. "It got to the point where the Council members were saying 'there must be something better than this'. They needed their information presented in a format that was much lighter than they were currently getting – which was a thick A4-bound folder."

While it was clear that a tablet solution would be the most convenient replacement for the printed documents, it was initially unclear which device would offer the best user experience and capabilities. IT support staff evaluated a range of available tablet options before deciding the iPad offered the best combination of form factor, usability and features.

The 7-inch screens of some other devices were too small, Broe explains, while others lacked the right combination of applications and many lacked robust enough batteries to last through the often day-long meetings. Ultimately, the team settled on the iPad as the best device for the task: its thin design meant it was easily carried, while its strong connectivity ensured it could access the Microsoft SharePoint document and collaboration server that had been set up to house the documents.

"The iPad was the most functional device for our clients, who aren't necessarily IT-literate or large technology users," Broe says. "We selected a product that had a direct link back to our corporate environment."

GoodWare's GoodReader document viewing application was chosen as the tool for viewing and annotating the documents, supporting normal authentication routines and enabling smooth and automatic synchronisation of documents back to the SharePoint server.

"GoodReader covers everything they would normally have done with the paper documents," Broe says. "There were other nice readers but all the members really needed was to highlight and make some notes. Over time, there may be some maturity in the users as they look at the new things it can do – but the base level entry product was more than adequate."

Dataviz Documents To Go was also added to the iPads, allowing the council members full editing capabilities should they so desire. Paired with 3G connectivity, the council members gained the ability to review, annotate and retrieve current versions of any documents they needed – within an instant.

Given the broad dispersal of council members – many members come from interstate and one member is based in China – this capability has proved invaluable. "In the past, we had to split up the documents and email them in bits and pieces to get through email quota restrictions," Broe explains. "Now, the back-end process is purely to collate the documents, convert them to PDF and load them in the one location. Then the client is just notified that the new documents are available."

Broe, too, has ditched paper and now uses his iPad for every aspect of the many meetings he attends. Using Documents To Go and the standard iPad note taker, he has a number of notes associated with a particular meeting; the newest are always available, and he creates new notes during meetings that are later turned into actionable and editable documents.

"Apart from the benefit of not having to carry the amount of paperwork that was required, it's now simpler to review and search the information," he explains. "With this approach, I've got the core of anything I need to work on, already written. I'm more productive because I don't have to transcribe from paper."

iTunes U shines at Southern Cross

Apple's iTunes U content minisites have become increasingly popular as marketing tools amongst universities in Australia and New Zealand. At Southern Cross University (SCU) on the mid and north coast of NSW, however, their early success with iTunes U has fostered a re-examination of the university's online strategy to explore ways in which it can best support a growing online presence.

Since it was established several years ago, SCU's iTunes U site has proved to be a popular conduit for a range of promotional videos about life and learning at the university. Its site includes content on everything from marine science and SCU research to lectures in law and justice, tourism and hospitality, and more. There's also been a focus on projects and exhibitions by visual arts, media, and contemporary music students – as well as special content produced from university-supported special events such as the Byron Bay Writer's Festival.

With over 14,000 subscribers to its iTunes U feeds, SCU has seen the content delivery system become a valuable tool in its overall marketing efforts. It's getting thousands of visitors per month from as far afield as the US, China and Europe – but as new Web content producer Owen Jones says, that success is only the beginning.

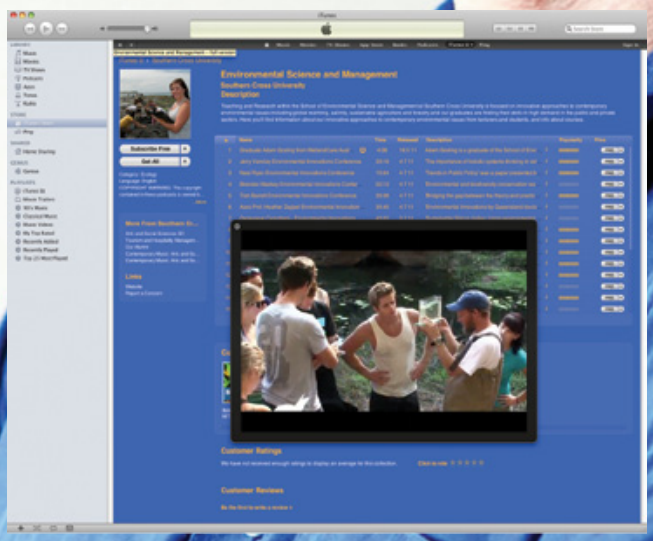
"We're currently caught up in a Web site redesign and that's a key part of it," he explains. "We'll be managing different social and media channels through the Web site, and trying to be a bit more strategic about promoting the Web site through iTunes U, Twitter, Facebook, and so on. We're refining our strategy to be more agile."

Having joined the team at SCU earlier this year, Jones has been charged with revamping the university's Web presence and is considering ways to leverage off the success of iTunes U – which has confirmed there is an audience for interesting video content about the university.

"We definitely want to do more profiling pieces in the future," he explains, "and success stories from alumni and students in various disciplines. We also want to focus on capturing more fun student events and things that might set us apart from other universities to international students."

In recent months, Jones has experimented with also adding some content to YouTube – which allows easy embedding of videos in other Web sites and promises good exposure when videos pop up as results to Web searches – while continuing to capitalise upon the many aspects of iTunes U and its links to the extensive iTunes ecosystem.

"We're moving to be more proactive," Jones says. "If you're not keeping fresh content on the site, traffic can wane; when you put fresh stuff up, there is a spike in both views and subscriptions. We're monitoring what is happening, and we're working on all sides to outrank the other noise out there."



Owen Jones

LEARNING SPACE DESIGN

Space (both physical and virtual) can have a significant impact on teaching and learning. New learning environments are about more than student comfort, preference or luxury; they play an important role in supporting learning. A well-designed space can engage students in a way that will promote deep and sustained learning.

Many of the time-honoured approaches to education are now outmoded. The traditional classroom has been around since the industrial revolution, more than 200 years ago. There is a strong demand for schools and universities to come up with new and creative ways of thinking about designing learning environments.

Think different.

You may have noticed more new and different looking spaces appearing on your campus over the last few years. There are three key trends driving this change and challenging the traditional model of what a learning environment should look like: changes in our students, technology and our understanding of learning.

Today's students have different expectations and attitudes to those of the past; there have been huge changes in the last 10 years alone. In addition, there is a gap between the way students use technology in their everyday lives, and the way universities are using technology for teaching and learning.

A common approach to designing learning spaces today is to provide as much flexibility as possible, to integrate previously discreet functions and support multiple purposes in the future. In order to effectively future-proof a space, it may be handy to consider some emerging trends.

Technology advances have enabled great connectivity, mobility, personalisation and interaction opportunities. Learning is now integrated into everyday life: work, life, recreation, commuting and education are no longer discreet activities. Some workplaces are embracing activity-based working, where staff are given a laptop, a locker and freedom to work in their choice of many different environments depending on their preferences and what work they are doing. We are moving towards a time where anyone can learn anything, in any place, at any level, from any source.

Services.

Apple is well known for its dedication to the user experience, which is largely achieved through delivering complete end-to-end solutions. Instead of just focusing on the product itself, Apple considers the whole experience, including the software, content, service, sale, support and more. The success of Apple retail stores demonstrates that close integration of space and services can promote loyalty, community and productivity.

Similarly, when a university designs a new learning space, it should consider how the space will integrate any service that might be offered – classes, tutorials, workshops, research, meetings, consultation, support, events and more. For a complete experience, it could also consider integration of activities that occur before and after visiting the space – like booking a room, checking a timetable or advertising an event. Well- integrated services will deliver a great user experience and help link the space with learning outcomes.

Pedagogy.

As most of the services offered in a university environment will have a pedagogic focus, new spaces should aim to accommodate both current and evolving pedagogical approaches. Learner-centric education is growing in popularity as it supports a diverse range of learning styles and rates. This appears to be working well for today's students, who prefer active, participatory and experiential learning that is relevant to real life.

In order to make better use of student and instructor time, some schools and universities have started using a flipped classroom model, where students watch recorded lectures in their own time, then use class time to discuss and collaborate in small groups. Due to its importance, a lot of research is being done to better understand how learning occurs in various environments, including collaboration between schools, universities, and Apple. This is forming an important body of knowledge that will help universities design exciting new learning spaces in the future.

Technology.

It is important for schools and universities to think creatively and holistically about technology, but it can be quite challenging to get right – and not just implement new technology for the sake of it.

Walter Isaacson touched on this in his biography of Steve Jobs, who discussed education with Bill Gates earlier this year. They agreed that computers have surprisingly had little impact on schools (compared to other industries) and Gates suggested that this may change with new pedagogical approaches like more personalised lessons and motivational feedback.

Universities are making progress in this area, as technology departments are working more closely with academics to develop effective blended learning strategies and evaluating how to make the most of emerging technologies. Technologies that may play an important role in future learning spaces include virtualisation and cloud services (access university software and personal data anywhere), collaborative tools (group work pods), live video streaming (deliver content to many locations), instant feedback and social networking tools (to engage with students in real time), iOS devices (learn anywhere), flexible AV systems (less fixed equipment in rooms) as well as digital signage and iPad kiosks (digital environments to complement physical environment).

If technology is reliable, well maintained and thoughtfully integrated, it will have a good chance of being successful. If teachers and students discover ways of using new technology to achieve things they could not do without it, then it has been truly effective in transforming and redefining.

"Play is the highest form of research"
– Albert Einstein

The design of the Apple Store encourages collaborative learning and a shared sense of purpose and enthusiasm.

Psychology.

The networks of corridors and pathways that link learning spaces on campus can play a role of their own. Understanding that chance encounters and random discussions can lead to creative ideas, Steve Jobs had the Pixar building designed to encourage mingling in central areas. In the same way, the flow of connecting spaces on campus can provide opportunities for spontaneous meetings and socialising as well as areas for breakout sessions and quiet study.

Spaces can convey strong unspoken messages, and have an underlying psychological effect that should not be underestimated. A traditional lecture theatre presents a strong hierarchy of space: the lecturer standing at the big lectern in the front of the room is in control and students are expected to sit down, tune in and be quiet. No matter how interactive the lecturer is, the underlying tone can be difficult to change.

The design, shape, flow and layout of a space can either constrain or enhance learning behaviour and expectations. Good application of environmental psychology will consider student and instructor needs and desires, and can lead to a design which will foster comfort, motivation, inspiration and even a sense of hope. The culture promoted within a space can also affect the way people behave: a culture that trusts students – for example, by allowing eating, drinking, and talking – and supports innovation can help empower students to express themselves and develop creativity.

Apple has been involved in improving education and learning spaces for many years. Apple offers educators not only great products, apps and support, but a range of services including planning, implementation, professional development and digital content.

They have collaborated with schools and universities on numerous research initiatives such as the Apple Classrooms of Tomorrow, which began in 1985, followed by Apple Classrooms of Tomorrow - Today in 2008, which provides some valuable design principles and online resources at **ali.apple.com/acot2/**. Furthermore, the Apple Distinguished Educators program ensures that Apple are aware of the realities of integrating technology into new learning environments in order to develop more innovative solutions in the future.

Learning space designs and recommendations are continuously evolving. It is important to learn from each project in order to make improvements in future designs, challenge assumptions and stay relevant - especially as trends like widespread distance learning and learning on demand begin to emerge. With good design and the innovative use of space, technology and new teaching methods, we can help students develop great life, learning and technology skills that will help them succeed in the workforce of the future.

Just about any space is potentially a learning space, however the learning spaces we normally encounter on campus fall into one of three categories (adapted from David Thornburg's Campfires in Cyberspace).

Formal learning spaces (storytelling at the campfire)

Space: Lecture theatres, traditional classroom layouts, computer labs, single focal point in room

Services: Lectures, classes, presentations, events

Pedagogy: Scheduled classes using traditional teaching methods, linear transfer of knowledge from one person to many

Technology: Interactive whiteboards, iTunes U, Video streaming, iChat, learning management systems, virtualisation, AV systems

Informal learning spaces (discussions at the watering hole)

Space: Seminar rooms with flexible furniture that can be easily reconfigured into many layouts, meeting pods, common-use spaces, computer labs, cafes, break-out spaces outdoors

Services: Tutorials, group work, student presentations, meetings, workshops, playground, studios

Pedagogy: Highly interactive sessions (sometimes spontaneous) that use a range of teaching and learning styles, students teach each other

Technology: Collaboration tools, FaceTime, iMessage, wikis, social networking, cloud sharing services

Individual learning spaces (personal reflection in the cave)

Space: Libraries, common-use spaces, individual pods, lounges, quiet zones, cafes, outdoors

Services: Self-directed learning, study, individual assignments, reading, research

Pedagogy: Independent reflection, exploration and processing of information, seeking deeper understanding and discoveries, personalised, content consumption and creation

Technology: iPhone, iPad, MacBook Air, iCloud, iBooks, Blogs, iTunes, Apps

Statistics in your pocket

By Brian Roberson, Charles Sturt University

Accurate statistics about the makeup of a university's student body can be notoriously difficult to find, and even harder to find when they're useful. Given that those statistics lie at the heart of decision-making in every part of any university, many departments' strategic planning is affected when they're not available.

To ensure that departments were working from a single source of information, the Charles Sturt University (CSU) Office of Planning and Audit had traditionally collated these numbers for reporting to the federal Government. It would also print the numbers as a pocket statistics guide that was printed on hard cardboard and distributed to all staff via internal mail every year.

Sensing an opportunity to reduce printing costs, Richard Newell, a systems officer within the Office of Planning and Audit, recently set about looking for a better solution.

With a passion for Apple technologies – and an equal passion for ensuring access to information is as easy as possible – Richard recently embarked on a development project that would allow staff within his department, and from the broader university community, to review student and staff numbers, financial information, course completion figures, teaching load, and other statistics across the University quickly and easily.

An iPhone app was a logical step that would make the statistics accessible to anybody: whether it be a head of school, wanting to know the overall number of staff at CSU, to a manager in the Library, anyone can download the app onto their iPhone and view the latest official information anytime, anywhere.

Richard developed the application in a short space of time and claims it was much easier than he expected. He has made it available for free from the App Store (**bit.ly/rDQwwH**), and it has proven a popular download for staff at CSU.

Interesting statistics to remind them of the demographic makeup of CSU student population are now just a tap away. By simply clicking on headcount, staff can easily see our domestic student headcount for 2010 as compared to 2009, see the breakup between male and female, review the number of students who attend on campus or by distance mode, and more. All of this business intelligence assists in planning for the future.

2011: A year in motion

By David Yammouni

How can one sum up this year in the world of Apple? Well, for me, I knew that if one more person asked me "When is the iPhone 5 coming out?", I would end up building a model out of plasticine and stapling it to their forehead!

It never ceases to amaze me how many rumour sites, 'people in the know', 'sources close to Apple', Apple resellers and people with way too much time on their hands, make these outlandish predictions. And nine times out of ten, they are way, way off the mark!

So, what has Apple achieved this year? I believe that they have continued to innovate, evolve and excite their faithful followers with stuff that makes their lives more entertaining, interesting, easier but most of all, different. We have watched, with great interest, the development of Mac OS X into Lion, bringing with it many new features and offering for the first time, the opportunity to download the entire system upgrade over the internet – no physical media required.

Strangely, the impact with this evolutionary method of deployment has generally been positive. I believe this is a testament to the maturity of Mac OS X, a maturity that has been formed over many years of development from people both within and external to Apple. It has been a shared effort, with everyone focussing towards the same outcome and we now have a relatively stable base from which Apple can launch future OS upgrades and functionality.

The same can also be said about iOS 5. Apple have finally 'cut the cord' and allowed owners of iDevices capable of running the new system to truly be fully self-contained. Add to that the ability to now update your iOS 5 device over the air and you have an independent device that can sustain itself without the need to be tethered to a computer. This, in my opinion, is only the beginning of a new paradigm for the mobile and computing industry – a way of thinking and working that gives more freedom to the end user.

Hardware wise, we've seen speed bumps and even more efficient re-designs like the Mac Mini and the MacBook Air take the world by storm. I'm seeing more and more MacBook Airs on campus and they are now becoming more affordable and powerful with every revision. And don't forget the iPhone 4S with its 'Siri-ous' side. In fact, new news stories have been popping up all over the intertubes about people's obsessions with Siri and what it can (and can't) do.

Although, at the end of the day, all of this technology means little if it isn't being adopted and used by lots of people. As I've said many times before, I never cease to be amazed by the sheer amount of talented individuals within the AUC community who take all this wonderful Apple hardware and software and make truly remarkable products for us to consume.

We've seen our current students and staff create software that is functional, appealing and pushes the boundaries of what their development canvasses have to offer. We've watched our alumni create industries developing and supporting the Apple ecosystem with great success and for the AUC, this is the best possible outcome.

We have been blessed by the wealth of Apple development knowledge and expertise amongst our membership both past and present. This fertile landscape has fostered some excellent talent, with internships and offers from large corporates to offer our former students and staff. This is what the AUC is about: developing people, and Apple, in conjunction with the AUC has provided a rich canvas which these talented people can express themselves.

It is exciting to think of what lies ahead. Even though the passing of Steve Jobs has left a hole in many hearts, I truly believe that Apple has an increasingly bright future and I cannot wait to see what comes from our colleagues at Cupertino. I have no doubt that it will continue to excite, innovate and completely blow our minds in a way that only Apple can.

Don't Let iCloud Rain on Your Parade

Figure 1: Careful attention to iCloud settings will save you from getting that syncing feeling when your mobile bill arrives.

Until recently, the Achilles heel of iOS was that you effectively needed to own a computer in order to own and use an iOS device. While you could forgo syncing and backups, and make all your purchases on the device itself, the wheels start falling off if you lose it and have to set up a new one as a replacement.

Unfortunately, it's hard to make people understand the risks involved in not backing up their data until it's too late. But for those who understand the importance of backups, periodic syncing to iTunes has been the preferred way to ensure your digital life can be easily restored should your beloved iPhone take a graceful dive from your shirt pocket into the loo!

Cutting the Cord.

When partnered with iOS 5, Apple's new iCloud service – first announced in June at this years WWDC – allows iOS users to finally "cut the cord".

It's a compelling promise: no more need to connect your iPod to your desktop. Finally, your Gran can have an iPad without also needing a computer to complicate her life. If iPads are to live up to their full promise and bring entertainment, education and connectivity to a non-computer owning populace, then having to periodically tie them to a computer is counter-productive.

But there are some catches with iCloud that haven't been widely discussed, and it's worth taking them into account when considering the iCloud proposition. But before that, let's take a look at what iCloud brings to the party.

Everything But the Kitchen Syncs.

iCloud is, for the most part, a transparent syncing service. **Figure 1** and **Figure 2** show the iCloud preference settings for an iPad (iOS 5) and a Mac (10.7.2).

For the iPad, you can optionally sync changes to contacts, calendars, reminders, browser bookmarks, notes and 'Documents & Data'. For example, with syncing turned on, making a change to a contact on your iPad will push the change up to the iCloud service, which will then push it down to all of your other iCloud-enabled devices that have contact syncing enabled.

Similarly on the Mac, if you have calendar syncing enabled and add an event to a calendar (in iCal), that change is pushed up to iCloud, which in turn pushes it down to your other iCloud-enabled devices that have calendar syncing turned on. Mail isn't synced per-se – but you can access your free iCloud mail on any device that has Mail turned on in the iCloud preference pane.

Making changes to calendars, contacts, reminders, bookmarks and notes isn't likely to result in the generation of large amounts of internet traffic, but the items to watch in the iCloud preferences are Photo Stream, Documents & Data, and (on iOS devices) Storage & Backup. Each of these services has the potential to consume significant quantities of internet traffic, and if you're on an internet service with a low quota (such as 5 gigabytes/month), you need to be careful. Let's look at each of these services, and see what they involve.

Photo Stream.

Photo Stream in an interesting feature of iCloud that sits slightly aside of the standard "syncing" model. The concept is simple: take a photo on one device, and it gets pushed to iCloud and added to the photo stream. It is then pushed to all of your other devices that have Photo Stream turned on.

One of the downsides of Photo Stream is that it's essentially a push-only service. Photos in the stream can't be removed or edited – but they do expire over time. iCloud stores up to 1000 images in the Photo Stream for up to 30 days.

On iOS devices, Photo Stream shows up as a separate pane in the Photos application. Individual photos can be saved to the camera roll, so they are not lost when they expire from the stream. On the Mac, either iPhoto or Aperture (but not both) can be configured to enable Photo Stream, which shows up as a special album. Here, you can copy photos from the Photo Stream into a standard album so that they're saved forever, and you drag any photos into the Photo Stream album to push them out to other devices.

With the iPhone 4's 5 megapixel camera, a standard JPEG image can take around 2-3 megabytes of storage. Imagine you're at a party with friends and take 40 or so pictures. With Photo Stream turned on, each of those images is uploaded to iCloud as you take them – if 3G networking is available and you have a data plan. And if that plan allows you 500MB of data every month, those 40 images have just consumed around one fifth of your quota.

Figure 2: iCloud may run across all your devices, but make sure you cater to machines with less capacity as well as those with lots.

Documents & Data.

Documents in the Cloud (as it is labelled in Apple's marketing materials) is a nascent but (for the moment) slightly clunky way to share documents for editing and viewing in Pages, Numbers and Keynote between iOS devices and Macs – clunky from the Mac's perspective because here the syncing isn't automatic (yet, at least).

Instead, you must download your iCloud documents via a web browser if you want to edit them on your Mac, and then upload them via the web browser if you want to then view or further edit them on an iOS device. Unless you're editing large (or lots) of iWork documents, and syncing them across many iOS devices, it's unlikely that, for the moment at least, "Documents & Data" syncing is going to consume a sizable portion of your bandwidth.

Storage & Backup.

This iCloud feature (for iOS devices only) allows you to activate device backup to your iCloud account. For cord-cutters, this appears to be a compelling component of the iCloud proposition. Everything is stored safely in the cloud, ready to be restored to a new device when the current one has to be replaced, or needs to be reset.

The catch with this option is that it can be very hard to know just how much Internet traffic it is going to generate.

iOS backups are complex things; they aren't simply a copy of everything on your device. Think about it – if you had a nearly full 32GB iPhone, and a backup consisted of everything on the device, a single backup would take close to 32GB of storage on your computer. But if you look deep inside your computer's file system to the place where your device backups are stored, you might find that a backup only takes 300MB. This is because the backups don't include your iTunes music, your apps, your books, or your music and videos. All of these things are already stored in your iTunes library, and can be copied from there back to the device if you need to restore or replace it. Backups only need to store the settings and data for your applications, and global settings for the device (such as email account details and your general device preferences).

It's very hard to predict how big a backup will be. It will depend on the number of applications you have installed, what data they store, and how often you use them. It's a fairly safe bet that only changed data is added to a backup; there's little point in recopying data that hasn't changed (such as for an App that you haven't launched in weeks).

The time it will take to complete a backup to iCloud will be considerably longer than the time it would take to back it up to a computer. That comes down to the speed of USB (typically 20-30 MB/second) compared to the speed of Internet uploads (typically 100KB/second, assuming you're on a good ADSL 2 circuit); your iOS device can get data to your computer roughly 200 times faster than it can get it to iCloud. For incremental backups, where only megabytes of data are being uploaded, that's probably not a big deal. For initial backups, or even incremental backups with significant amounts of data, that could amount to an hour – or more on slower ADSL connections.

Restoring.

Restoring an iOS device from an iCloud backup adds another issue for consideration. Let's consider again that nearly full 32GB iPhone with lots of purchased iTunes music, apps, video, and iBooks – and more particularly, let's consider that you've lost it, and need to replace it with a new device, which you're going to initialise from the backup of the old device.

Although the iCloud backup itself is "relatively" small (it may only be 1GB of the 32GB available) all of the iTunes content will also need to be restored. That's another 31GB to download. That's a sizeable chunk of Internet traffic, and for many users that's still more than their monthly download limit. According to a report released by Market Clarity[†], in 2010 over 66% of broadband users in Australia were still on plans with a monthly limit of 20 gigabytes or less. Moreover, that 31GB would take over 8 hours on a typical ADSL2 speed of 8Mbps.

Had the restore been managed from a local computer instead of iCloud, it would have required pretty much zero Internet traffic, and a few hours to copy the data over USB.

Cut the Cord Carefully!

So, it would seem that while iCloud brings plenty of convenience, it's a service that should be used carefully – at least until higher speed Internet with significantly larger plan allowances is readily available.

Certainly use iCloud for syncing contacts, calendars, bookmarks, and, with care, photos. But if you have a computer already handling your iTunes syncing, don't be too quick to replace it with iCloud just yet!

[†] Broadband Download Behaviour in Australia: The Disconnect Between Allowance and Usage. 2011. Market Clarity Pty Ltd. **www.marketclarity.com.au**.

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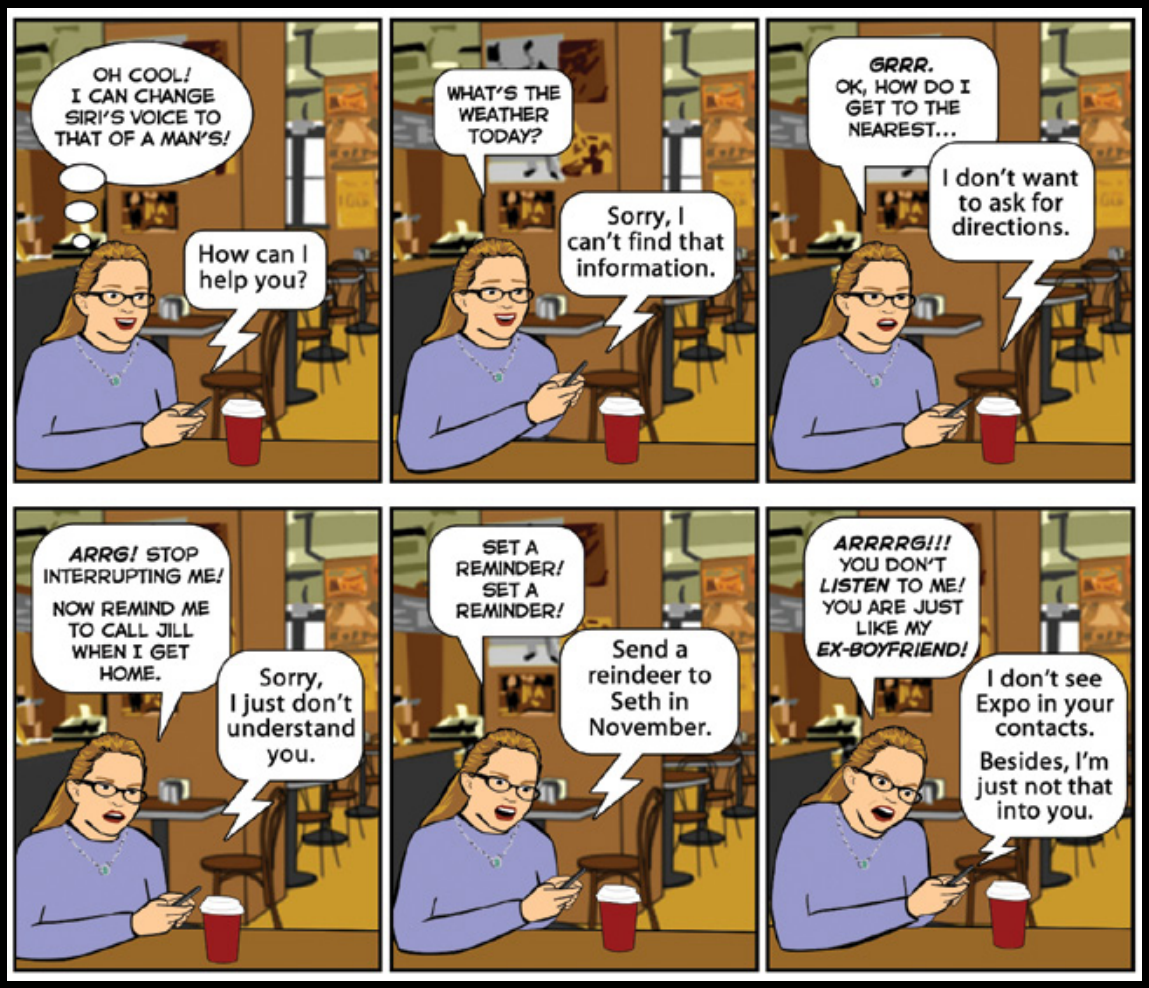
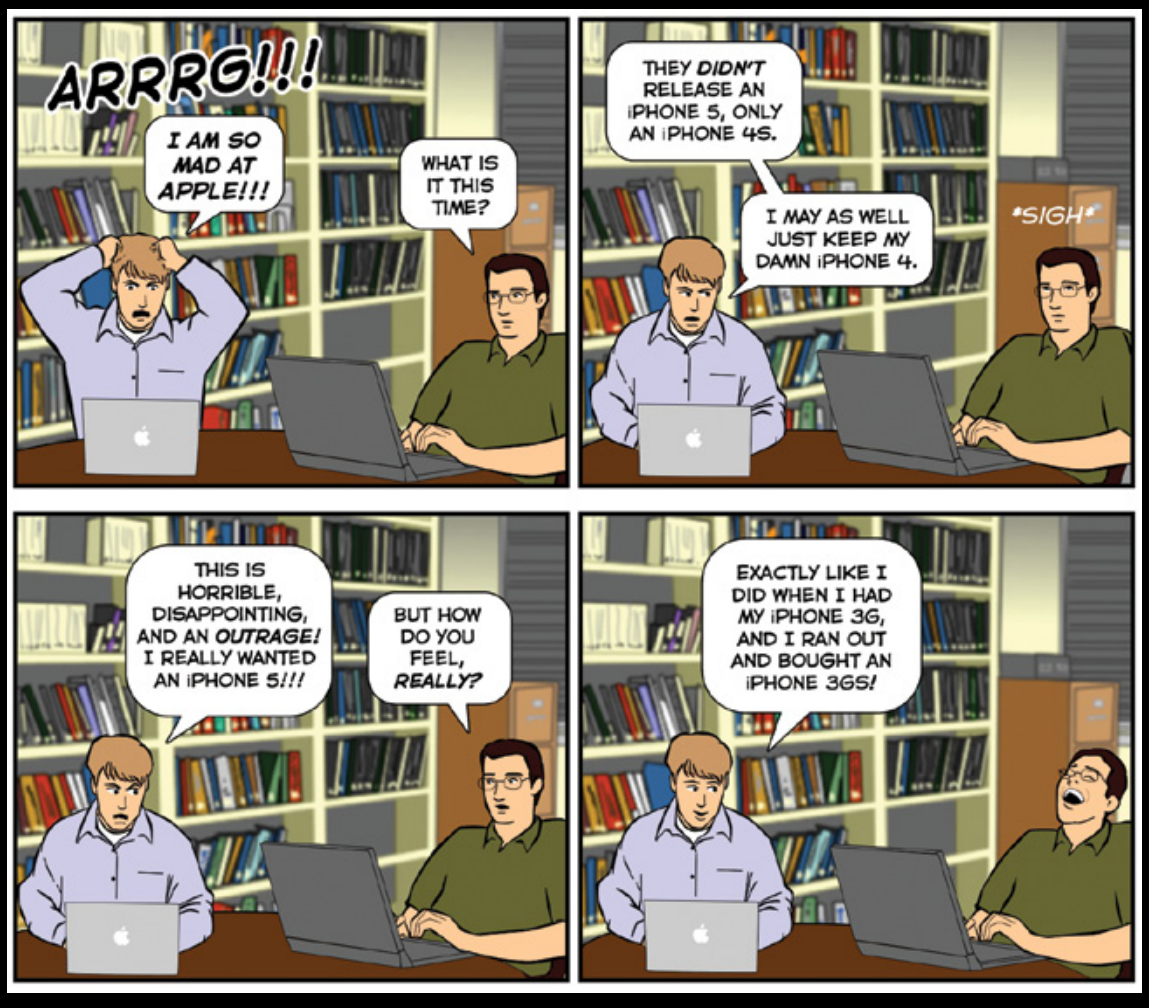
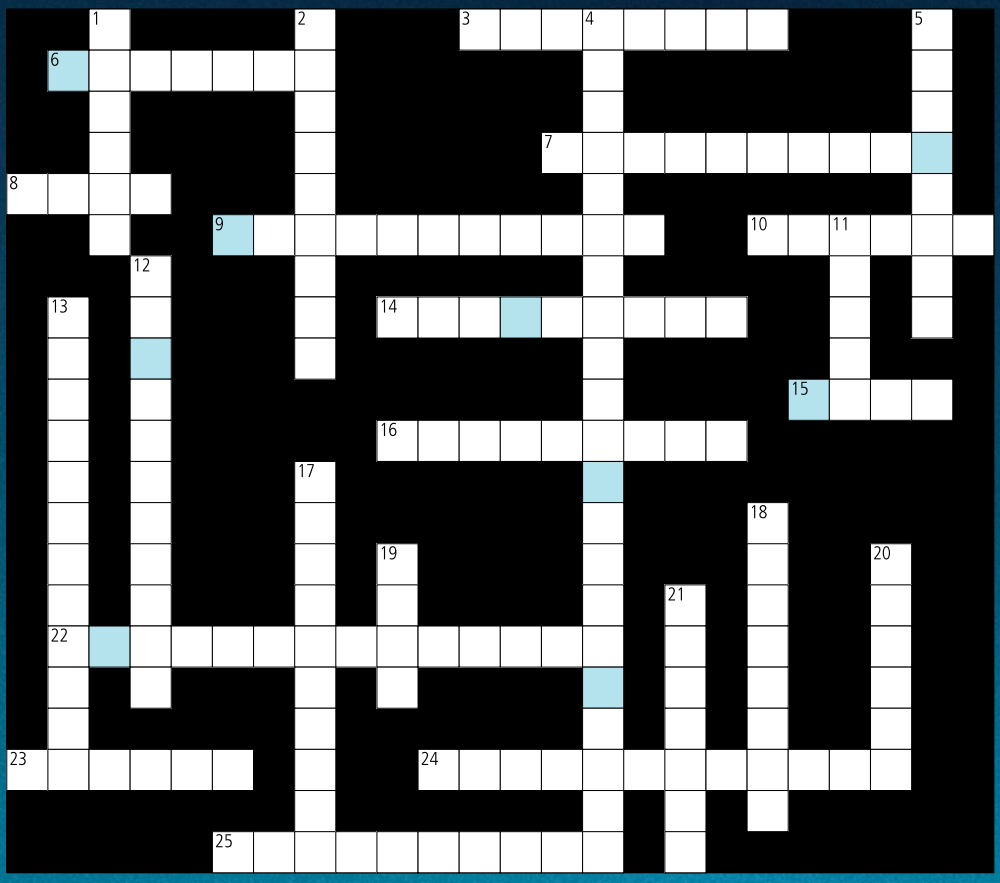




CrossWORD Competition



For your chance to win an iPod nano, complete the above crossword (you'll find the answers throughout the articles) and take the letters from the blue boxes then re-arrange them to form a word or phrase.

Send this to: crossword@auc.edu.au

Competition closes at 5pm on Friday, December 23, 2011.

Across

3. Name of mummy in museum exhibition (p9)
6. Site seen as complementary to iTunes U (p15)
7. One of the designs taking the world by storm (p19)
8. Hobart Museum where Quartz compositions shown (p8)
9. Number of /dev/world stream sessions (p12)
10. Bringing better sound to your iPhone (p2)
14. Name of people that speak Ndjébbana (p6)
15. Council members got around this much paper to study before every meeting (p14)
16. Rock out on your iPad with this (p2)
22. This style of education is growing in popularity (p16)
23. It's hard to predict the size of this (p21)
24. New iPod nano includes these prompts (p11)
25. Played at Steve Jobs tribute event (p3)

Down

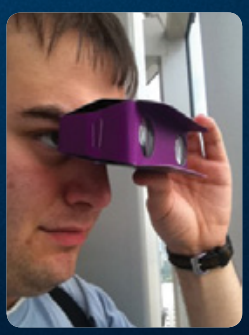
1. CreateWorld keynote speaker (p4)
2. Seth will get this in November (p22)
4. Document circulated at AUC AGM (p5)
5. SCU's iTunes U site has this many thousands of subscribers (p15)
11. Traditional lecture theatres present a strong hierarchy of this (p17)
12. Picture syncing service of iCloud (p20)
13. Search engine Siri ties into (p10)
17. Griffith chose this editing and annotating app (p14)
18. /dev/world keynote speaker (p12)
19. Centre that Paul Bourke directs (p8)
20. Richard who ran stats development project (p18)
21. Only mobile option in Maningrida (p6)

CONGRATULATIONS

Congratulations to Mayer Melhem for winning an iPod nano by correctly completing last issue's crossword to reveal the answer:

SCIENTIFIC

An iPod nano is on its way!



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