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128
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AUGUST 2014 MACUSER.CO.UK @MACUSERMAGAZINE

MacUser



Redesigned OS X Yosemite,
integration between devices,
amazing new technologies
for iPhone and iPad apps,
and Dr Dre on the payroll...

can we finally stop saying
the Steve word?



The new face of Apple

將軍

TOTAL WAR
SHOGUN 2
COMING TO MAC



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TOTAL WAR

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Toy story

Professionals need tools that work. Amateurs are more flexible

BEFORE THERE WERE Macs – well, before I could afford one – there was the Atari ST. Nicknamed the 'Jackintosh' after Jack Tramiel, who'd overseen its creation after doing the same for the C64 at Commodore, it was an amazing machine that let you do a lot of the things you could have done with a Mac for a fraction of the price.

The ST was a toy computer that plugged into your TV. But it had an optional sharp little monochrome CRT that made it feel like a Mac. The catch was that the software was of a far lower standard. There was a DTP package, but it came with just a couple of fonts, bitmapped at fixed point sizes (not even the Mac had vectors yet). So my first task, in trying to run a student magazine on the ST, was to design my own typefaces, creating a full set of bitmaps for each size, dot by dot.

Commissioning someone else to do this would have been beyond the wildest limits of my means, but learning to do it myself was highly instructive. And I got it done, and I started producing magazines.

What I never did learn to do was write my own DTP app, and whoever had written this one might have skipped a couple of classes. It worked, up to a point. At that point it overflowed the ST's memory, corrupting the floppy disk file containing the entire edition of the magazine. This happened at least once per issue.

It was incredibly frustrating – but it got me started. Of course, when I went to work at a real publishing company, they weren't using Atari. Such flakiness would have been commercial suicide. They were using Macs (rather pioneeringly at the time) for the bits

that Macs were then capable of, and for the rest, it was bromides, scalpels and cow gum – because that wasn't innovative or instructional or fun, but it *worked*.

Then along came companies like Adobe and figured out how to make Macs do what professionals needed, properly. And that's when things got interesting. But without the ST, I might not have been there to see it.

I was reminded of this progression – mine and the DTP industry's – from amateur to pro when I went to the press launch for the new update to Adobe's Creative Cloud. Apps like InDesign are now so thoroughly honed to cater for what professionals need that it's genuinely hard to spot much they ought to do that they don't already. (They could, as I gently pointed out during the Q&A, promise not to break when Adobe's servers go down – nobody wants their Atari back – but let that lie.)

So as well as adding some carefully considered new features to the big apps, Adobe showed us some brand new little ones, exclusively for iOS. 'We want these to be tools, not toys,' they said. Professional, you see. But everyone knew it was really the other way round.

When you've spent years pushing the tools and your skills as far as they'll go, and then some, it's time to get the toys back out.

It's happening in creative software. It's happening in hardware like DSLR video. It's happening in iPhone photography and iPad music. Sometimes things will break and fail and waste weeks producing stuff that isn't good enough and make us feel like amateurs. But the more we play, the readier we'll be when things get interesting.



Adam Banks is Editor in Chief at MacUser.





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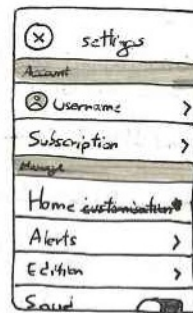
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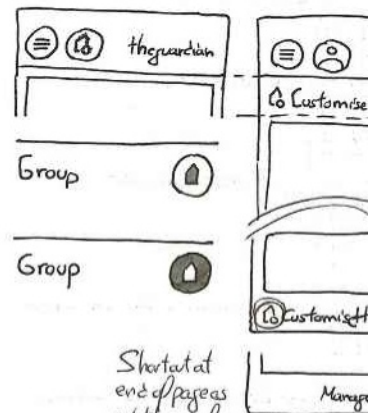
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PERSONALISATION

- ① Customisation mode accessible from settings LABEL "Home" "Home customisation" "Home personalisation" "Personalisation"



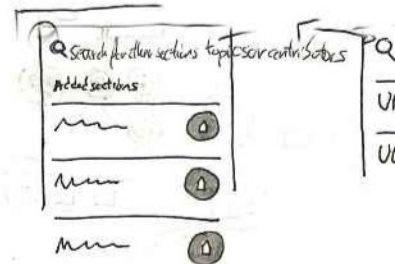
② Call to action placement



- ② Personalisation call-to-action
Doesn't give the right set of affordances before using, as it can be multiple things
not in home
in home
Perception Placement
Direct reference to where the selected section will go to highlight where it is

③ Search needs to be more prominent

- @Home
Bound element that although it is abstract it appears associated with Home
Pin to home explicitly but then the term's pin
Same icon, two styles (one for selected, one for unselected)
Customisation mode could use the same logic of the house



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IMAGE APPLE EVENT FOOTAGE • APPLE CEO TIM COOK DELIVERS HIS WWDC KEYNOTE, SAN FRANCISCO, 2 JUNE 2014



Making strides

Apple's CEO looked happy and confident

No hardware, but software progress wows developers

Tim Cook's Apple gets its second wind

Though awaited by tech pundits as a possible product launch venue, Apple's annual Worldwide Developers Conference is primarily a chance to connect with the makers of the apps that give users reasons to buy Macs, iPhones and iPads. And this year's keynote fit that mould better than any other since Steve Jobs announced the Mac's switch to Intel in 2005.

Disappointing the mainstream media, there were no peeks at new hardware. Instead, Craig Federighi, the personable senior vice president now responsible for both the desktop OS

X and mobile iOS operating systems, showed off hundreds of features to be added in the autumn, including a notably more flexible iCloud. These were available immediately to developers for beta testing, along with APIs and SDKs allowing third parties to leverage more built-in functions.

The two-hour presentation was crowned by the unveiling of Metal, a graphics framework that unleashes the power of Apple's mobile processor chips to enable games of console-level complexity, and Swift, a brand new programming language for OS X and iOS development.

Federighi's entirely unexpected announcement of Swift, which he described as 'Objective-C without the C', produced a collective 'Whoa!' from the 6,000-strong

[continued on p12]

**THE AUDIENCE
GAVE A 'WHOA!'
FOLLOWED BY
LOUD APPLAUSE**



Buzz

What the tech pundits said about Apple's WWDC announcements



'Such amazing apps' Dr Dre

Demonstrating the new ability of OS X to make phone calls via the user's iPhone, Federighi called Dre, whose Beats company Apple has acquired. 'I wanna thank you for creating such amazing apps,' Dre told the audience. 'By the way, what time should I show up at work?'

apple.com/apple-events/june-2014

'Excited' Ars Technica

'Response from developers has been largely positive: new features like [iOS 8] Extensions and iCloud Drive are addressing age-old complaints about everything from the way apps interact with one another to the way they're tested and distributed...'

'Extensions are a big change, but developers are excited about the ways the new features will aid in the process of development itself – in writing the code, testing the code, and then distributing the code to consumers.'

Andrew Cunningham, arstechnica.com

'Meet the new Apple' The Verge

'Watching CEO Tim Cook and his "Superman" companion Craig Federighi bound about onstage, trading jokes and launching into strangely lengthy and effective bits on topics like a near-miss naming of OS X "Weed", you might not recognise the company if not for all the Apple logos everywhere.'

'The tone was jovial, loose, and confident. One might even say playful...'

'Apple is executing on a plan, and it's giving it confidence and power...'

'It wasn't just the wholehearted embracing and praising of its developer community (though that most certainly happened in a big way). It was the core of Apple's new message: how can we help you?'

'But the big story – and the big picture – is that Apple seems to have come out of deep freeze. It feels light, like it's moving forward. Like the cobwebs have [been] brushed aside, and things are going to get fun again.'

Joshua Topolsky, theverge.com

[continued from p11] audience, followed by loud applause. Federighi, an accomplished presenter and arguably a more natural successor than Cook to Jobs' role of front-man, revelled in sharing what Apple had been quietly creating.

In addition to Swift and Metal, new programming tools include HealthKit, which collates medical and fitness data, and HomeKit, for home automation. There's more complete access to the cameras on iOS devices for third-party apps, and a new app, Test Flight, allows developers to beta-test apps with users on a large scale, even targeting those tests according to specific demographics.

Apple's unanticipated new approach is being seen as an opening up of its operating systems to developers. But no such transparency was

evident when Cook declined to be interviewed by the New York Times for a feature following WWDC, and the positive mood of that event had not filtered through to its writers. Snarkily expressing the gap between impressing developers with technical innovations and convincing users of their benefits, they reported that while 'developers stood and whooped', 'the rest of the world yawned'.

Collaboration with leaders in the medical industry had been stressed in the announcement of HealthKit, but after speaking to developers from healthcare research firm ORC, the article chose to quote 'Chad Zeluff, 27, who saw Mr. Jobs deliver the keynote in 2007' opining: 'Jobs is to Lennon what Cook is to Ringo.' Admittedly, it added, 'Ringo is still a Beatle.'

Apple's problem is that for some observers, nothing counts but hardware. Industry analyst Horace Dediu (asymco.com) was frustrated with investors like Dan Niles, who said the keynote offered 'nothing of any real meat'. For those who invested passion and intellect, not just money, 'WWDC had a great deal of meat': 'Indeed, for them, it was probably the most significant event Apple ever staged.'

Although Cook listed stratospheric sales figures for existing ranges, only new launches will satisfy the market. With senior VP Eddy Cue having referred to an unprecedented pipeline of upcoming products, the last few months of 2014 should confirm whether Apple can match groundbreaking software architecture with must-have new devices.



Hair Force won The upbeat Craig Federighi dominated the keynote

APPLE'S NEW APPROACH IS SEEN AS AN OPENING UP OF ITS OPERATING SYSTEMS



'True to the best' Matt Drance

'Apple has decided moving iOS forward is as much in developers' hands as it is in Apple's. Consider that all this is happening at a time when Apple has more money and is hiring more engineers than ever. If anything, Apple is more suited to shut the doors and go it alone. But that's not what's happening...

'The attitude behind WWDC 2014 was one of increased openness and increased confidence – an attitude that departed from the worst of the past while staying true to the best.'

appleoutsider.com



'Pulled me back in' Justin Williams

'My confidence in the iOS platform has been waning over the last 12 months. iOS 7 was a hard upgrade to swallow both in terms of the changes and the work it brought...

'And then in two hours, Apple shut me up. They pretty much offered a solution for every single thing I have bitched about over the past five years... And Swift, an entirely new programming language that will likely power the future of iOS and OS X development for years to come.'

carpeaqua.com



'Cement' Asymco

'The way to understand the show is to play it backwards. A new building material was introduced, along with the methods for using it and the tools for shaping it. We were introduced to some pre-formed kits that allow the materials to be combined for new uses such as hospitals and gyms...

'Then we were shown new ways that this cement was used to create new work environments. We had a preview of "show homes" beautifully architected and designed. And these homes were seamlessly connected through new transportation networks and allowed for easier commutes...

'Some saw banks, and some saw art galleries and some saw warehouses, but all who were there were seeing a new world, populated by many loyal citizens.'

Horace Dediu, asymco.com



'A huge surprise' The Next Web

'Swift is not only faster, but supports modern conventions such as closures, generics, type inference, multiple return types...

'Quentin Zervaas, who built a popular public transport app, believes that Swift "reinforces that Apple [is] serious about making their developer tools and development workflow easy to use, as well as looking for ways to squeeze extra performance from devices"'

'If Swift proves to be as revolutionary as Apple claims, expect a huge shift in the way iOS and Mac apps perform over the next year.'

Owen Williams, thenextweb.com

28
days

Apple and other big firms under EU tax probe threat

The European Commission has launched an investigation into the way EU countries treat companies like Apple, Fiat and Starbucks for tax purposes.

The Commission is concerned that deals struck by governments to encourage inward investment may include favourable tax treatment. Apple has three subsidiaries in Ireland and is known to pay little tax. 'Transfer pricing' allows companies to set prices for transactions between subsidiaries to minimise their overall tax burden.

'In the current context of tight public budgets, it is particularly important that large multinationals pay their fair share,' said Commission vice president in charge of competition policy Joaquín Almunia.

Apple has said it does not receive any special tax treatment from the Irish government, which has said it will defend its position.



Pot of gold
Apple stashes cash via Éire



IMAGE PETE RICHES/DEMOTIX/PRESS ASSOCIATION IMAGES

Taxi drivers say hire app is unfair and unsafe

Don't go there Around 12,000 cabs brought central London to a halt

Cabbies don't want Uber. Do passengers?

London taxi drivers staged a one-day demonstration in June to protest against the private hire car app Uber. An estimated 12,000 drivers caused grid-lock in the city during a go-slow which they said was designed to highlight the unlawfulness of Uber and similar services.

Uber's 'disruptive' model, which has faced challenges in the US, is seen as bypassing existing systems of licensing. The company works within London's minicab licensing system, but taxi drivers complain that by providing a metered service it encroaches on their business. Columnist Victoria Coren also suggested an online firm might not be responsive to users' concerns about personal safety.

UBER'S DISRUPTIVE MODEL IS SEEN AS BYPASSING TAXI LICENSING REGIMES

The protest, however, seemed to have backfired when Uber said it had seen an 850% increase in new users on the day of the demonstration.

The RMT union claimed Uber and other services like it were 'operating in a grey area,' saying tax drivers 'have to jump through hoops' but didn't feel 'people involved in these new apps are being subjected to the same regulations.'

But Uber stressed it had been audited as a private hire operator by TfL. It also announced that users would be able to book London taxis via the app.

Google Maps on iOS shows users how long a given route will take in an Uber car, and has a button to go directly to the Uber app to book the journey.

Protests were held in other cities, including Milan, Madrid, Berlin, and Paris. Launched five years ago, Uber now operates in 100 cities in 30 countries. Earlier this year it was valued at \$18bn.

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Tech firms fight US courts over foreign customer data

Apple has joined Cisco, AT&T and the Electronic Frontier Foundation (EFF) in appealing a decision forcing Microsoft to hand over data to US authorities. A US court ordered it to reveal the contents of a customer's email that was stored on servers in Dublin.

The companies say this is in contravention of the US Stored Communications Act and international treaties. They claim the reasoning means no customer data stored anywhere in the world would be safe from any government.

It also raises the prospect of a company breaching US law if it doesn't comply with an order, but breaching EU law if it does.

It's the latest of several battles between law enforcement authorities, which say it's necessary to access personal data to combat crime, and companies supporting consumers' right to a private life online.



IRL Is this Dublin data centre subject to US law?



iOS 8 will keep devices anonymous at hotspots

See you, see me Wifi tracking systems can plot users' movements

How your iPhone will beat wifi spy tracking

Apple, which has become increasingly sensitive to user privacy in the months since Edward Snowden's revelations of mass surveillance by the US NSA and the UK's GCHQ, is to introduce a feature in iOS 8 that prevents its devices from being tracked when their users connect to public wireless networks.

The operating system randomises the MAC address that the device gives out when trying to connect to a wifi router. Short for 'media access code', this hardware identifier is not inherently linked to a user's personal data but can be used by data gatherers to profile and track users, typically for marketing purposes. Every network-ready hardware

device has a factory-allocated MAC address, essentially a random number. Picking a different number each time will prevent hotspots building up a picture of the device's usage or movements.

One such system proved controversial when it was trialled in London last year. Recycling bins were fitted with devices that tracked MAC addresses. According to the website Quartz, which broke the story: 'The technology, developed by London-based Presence Aware, is supposed to help advertisers hone their marketing campaigns. Say a coffee chain wanted to win customers from a rival. If it had the same tracking devices in its stores, it could tell whether you're already loyal to the brand and tailor its ads on the recycling bins accordingly.'

That scheme was abandoned after suggestions that it might track users into toilets to identify their gender. But it was reported in June that Cincinnati

INSTEAD OF ITS OWN MAC ADDRESS IOS 8 GIVES OUT A RANDOM NUMBER

Domestic communications are foreign for the purposes of spying, says chief spook

Any online communication that involves the use of a data centre not located in the UK is regarded as fair game for mass surveillance by our security services, according to the country's most senior spy.

Charles Farr, director general of the Office for Security and Counter Terrorism, argued in a statement released by the Home Office that searches on Google, as well as posts on Twitter, Facebook and YouTube, could be treated as 'external communications' under the Regulation of Investigatory Powers Act (RIPA).

More controversially, Farr also regarded direct messages on Twitter and one-to-one messages on Facebook, which most people would view as being private, as external communications, meaning that authorities wouldn't be required to obtain an individual warrant in order to intercept them.

The statement was released in response to a legal challenge

brought before the Regulation of Investigatory Powers tribunal by Privacy International and Amnesty International against the UK government. The challenge was made after the Guardian reported that documents obtained by Edward Snowden showed that GCHQ, the UK's central surveillance agency, was tapping the fibre-optic cables that carry internet data to and from the UK.

Farr made it clear that the security services regarded the harvesting of data from data centres outside the UK as both legal under RIPA and essential to their counter-terrorism operations.

In an echo of concerns about the FISA system in the US, Eric King of Privacy International said: 'Intelligence agencies cannot be considered accountable to Parliament and to the public they serve when their actions are obfuscated through secret interpretations of byzantine laws.'

Airport is to become the first in the US to track passengers using MAC addresses. Quoted by libertarian news site The Blaze, Lockheed Martin, maker of the BlipTrack technology used, said it 'benefits both passengers and the airport team as it allows them to see, in real time, where potential queues and pressure points are.' Providers such as RetailNext and Navizon offer similar functionality to stores, businesses and campuses.

iOS 8 devices will still be 'seen' by wifi tracking solutions, but can't be tracked between wifi routers or matched against MAC address data collected by other means, which could potentially identify users. The omission of a meaningful MAC address will also give users more anonymity in their online activity via public hotspots, though other measures will also be required if they want to ensure they can't be tracked or identified.

By contrast, when users log on to the net at home using their own broadband router, their ISP knows exactly who they are. This information is retained for at least six months, and can be obtained by law enforcement agencies or even by organisations such as copyright owners through the courts.

But a ruling in April from the European Court of Justice rejected the legal basis for this retention, declaring that it interfered with the right to a private life. The implications are not yet clear.

IMAGE (STOCKPHOTO.COM/SOUTHERLYCOURSE) • INDIVIDUALS REPRESENTED IN STREET PHOTO ARE NOT CONNECTED TO STORY



Friendly fire GCHQ intercepts UK citizens' private messages without a warrant



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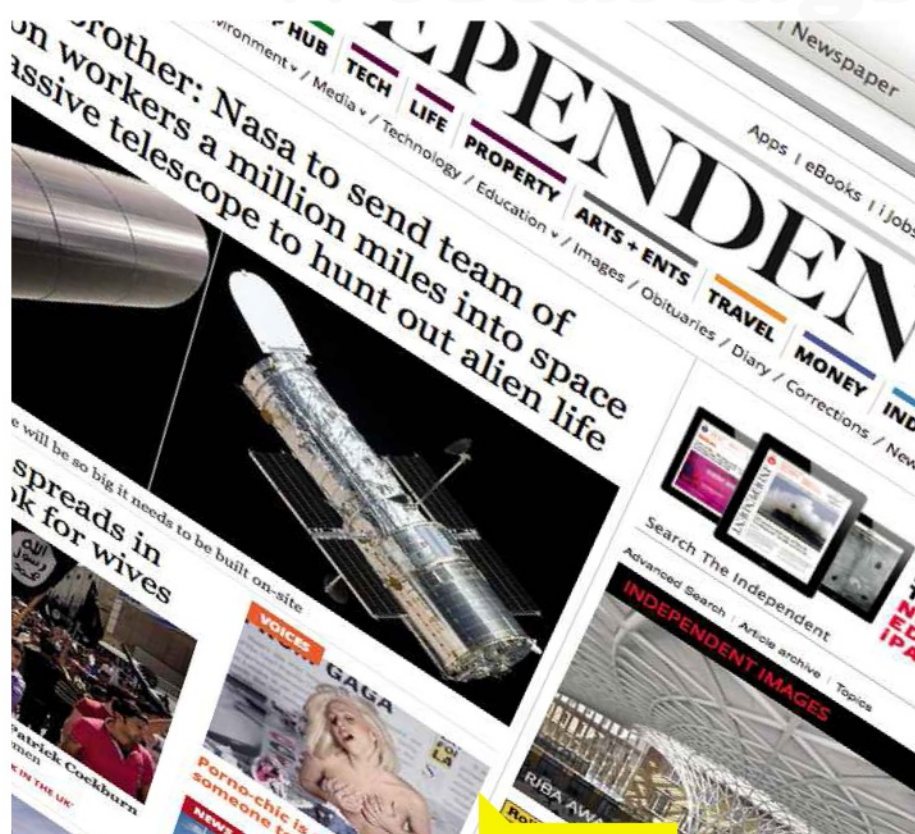


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New reading EU's legal interpretation protects page views

Phew! Browsing a page isn't copyright piracy

Europe finds web surfing legal after all

In a ruling that arguably should never have been needed, the European Court of Justice has confirmed that web users who land on a page can't be found to have infringed copyright in its contents simply by virtue of the fact that their web browser makes a copy of the page in order to display it on the screen.

The judgment took five years to reach thanks to a disagreement over the meaning of a clause in EU law known as the temporary copyright exception. The issue arose in a case between the Newspaper Licensing Authority (NLA), which licenses clippings services on behalf of publishers, and the PRCA, representing PR firms who pay for cuttings.

THE NLA SAID IT NEVER INTENDED TO CRIMINALISE INDIVIDUAL USERS

In 2011, the Court of Appeal in London managed to rule, struggling with the same case, that copyright applied to content copied to a user's cache for display. The Supreme Court overturned part of that ruling and said the NLA could not charge a licence to clients of cuttings agencies that worked only on the web. It sent the rest of the ruling to the ECJ.

Following the Supreme Court ruling last year, James McKenzie of cuttings agency Cutbot told MacUser that if the ECJ agreed it would protect the public and mean clients of media monitoring firms would no longer need to pay five-figure licence fees 'merely to visit public web pages'. The NLA said it was never interested in criminalising or pursuing individual users. But the case was seen as highlighting one of the absurd ways in which traditional media owners have tried to protect their monetisation of content at the expense of practicality.

Amazon steps up rivalry with phone and music service

Amazon has long been more than an online shop, and its latest announcements position it even more clearly as a competitor to Apple and Google.

Its first smartphone, the Fire Phone, occupies the same price bracket as the iPhone and offers unique '3D' effects that track the user's head using no less than four dedicated cameras, something that certainly differentiates it from Apple's 'less is more' approach. Other features include Firefly technology that identifies real-world objects and invites the user to buy them from Amazon.

But relatively few apps support the phone's proprietary version of Android.

Meanwhile, the Prime subscription service, originally offering little more than free delivery, is being expanded further into content, adding music streaming and downloads as well as videos for £79 per year.



Delivery man
CEO Jeff Bezos
brings it on

SUMMER SHOWCASE

THE BEST NEW TECH FOR YOUR HOME, HOLIDAYS AND
BEYOND – DIRECT TO YOUR DOOR FROM AMAZON



B&O PLAY £329
H6 HEADPHONES

Danish audio experts, Bang & Olufsen are renowned for both the look and performance of their products; the H6 is no exception. These stylish over-ear headphones are made from premium materials and deliver superb sound quality and comfort. Features include in-line remote/mic; the H6 comes in 3 colours.



STM £49.99
DUX FOR iPad

Tested to meet or exceed US Dept. of Defense Standard MIL-STD-810G protocols, the durable, water-resistant Dux case keeps your iPad safe almost anywhere! Dux also has a clear back, so you can insert personal images – or showcase an Apple engraving. Available for all iPad models in three colours: red, black and blue.



MOPHIE £129.99
SPACE PACK

The first iPhone battery case to also give your smartphone extra memory: giving you room for extra holiday pictures, videos, music and more. The Space Pack's extra storage capacity – 16GB and 32GB versions are available – can be easily managed via a companion app, while a flip of a switch recharges your iPhone's battery.



STM £64.99
SEQUEL BAG

STM's Sequel is the perfect bag to carry all your essentials. It includes a dedicated, protective laptop compartment plus a soft-lined tablet pocket. Its front zipped section is easily accessible: ideal for travel documents. Available in 2 sizes – to fit up to 13in and 15in laptops – and 3 colours: olive, graphite and red.



INCIPIO £49.99
FOCAL CAMERA CASE
 Transform iPhone 5/5s photography with the Incipio Focal case and inCAMERA app, which make it easy to get more from your Apple and the shots you take – all while also providing protection. Focal adds a dedicated shutter button plus a customisable button; the app makes editing and sharing snaps easy. Pick from 3 case colours.



PARROT £319.99
A.R. DRONE 2.0+GPS
 Parrot's A.R.Drone 2.0 is an advanced, ready-to-fly quadcopter, featuring an HD camera that can stream real-time images of its adventures to a smartphone or tablet. The new Parrot Flight Recorder – bundled with this edition – adds on-board GPS, which allows you to accurately plot and record your flights, including by autopilot!



BRAVEN £199.99
BRV-X SPEAKER
 The BRV-X is a rugged, water-resistant, wireless Bluetooth speaker with adaptive technology to optimise audio for outdoor and indoor use. From beach barbeque to bathroom, campsite to kitchen, it will power out your music – and power up your smartphone; its 12-hour battery doubles as a portable USB charger.

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New MacBook Airs bring slightly higher speeds, but you can't be sure what you'll get

Last issue we tested the revised 13in MacBook Air; the 11in turned up after we went to press. Aside from the obvious, there's barely any difference between the components in these machines. Both are based on a dual-core 1.4GHz Core i5. So we were unsurprised at the 11in's scores in Cinebench's software-based rendering tests: identical to the 13in at 1.13 for single-core, 2.53 for multi-core versus 2.58 (an insignificant variation).

The smaller screen has a resolution of 1366 × 768 pixels, making it a 16:9 widescreen display, like the iMacs, rather than 16:10, like other MacBooks. This amounts to 19% fewer pixels for the Intel HD Graphics 5000 processor to deal with than in the 13in Air, which gives the 11in a slight edge in some graphical tasks.

In Batman: Arkham City's built-in benchmark, the median frame rate of 31 frames per second was a 5fps improvement on the 13in, as was its peak frame rate of 42fps.

However, the GPU struggled with demanding scenes, dropping to a low of 17fps, 2fps better than the 13in. These aren't machines designed for hardcore gaming, but in day-to-day apps performance was fine.

We've highlighted that seemingly identical Macs can contain storage parts from different manufacturers, resulting in a performance lottery. With that in mind, the Toshiba SSD in our new 11in unit read data at speeds close to the SanDisk storage in last month's 13in Air: median results were 571MB/sec for sequential, vs 602 for the current 13in, and 173 for random,

vs 145. Last year's 11in had been outpaced by the 13in when writing, but this time our two 256GB drives were much closer: 468MB/sec sequential for the 11in, vs 487, and 270 random, vs 141 for the 13in. The exception was the *minimum* sequential write speed: no less than 39.9MB/sec for the 13in, while the 11in fell as low as 17.7.

The 11in has less battery space. Apple reckons it'll last nine hours of wireless web browsing, versus 12 for the 13in. But we found the 13in fell short, and the 11in also put itself to sleep early, after 8 hours 15 minutes. This no doubt reflects differences between Apple's test setup and ours, although we try to replicate its conditions based on the limited info given. 2013's 11in had a shorter quoted life but lasted 36 minutes longer for us.

WORDS ALAN STONEBRIDGE AND ADAM BANKS IMAGES APPLE



Tiny temper Despite variations, the Air is a speedy little Mac

[WHISPERS]

**Jony Ive speaks!**

Apple's design chief was interviewed by the New York Times for its WWDC article. Saint Jony could never bore us, but his seemingly scripted responses wouldn't have been out of place on Match of the Day. 'Innovation at Apple has always been a team game,' he revealed. And 'making isn't just this inevitable function tacked on at the end. I design and make. I can't separate those two.' As for his controversial move into software design: 'I provide some leadership and direction in terms of user interface – a subset of software.' There's more at bits.blogs.nytimes.com/2014/06/16/.

**Man vs apps**

With over a million apps now available for iOS devices (and nearly 12 on the Mac App Store), finding what you want is a growing challenge. Apple has been mind-numbingly slow to improve the way apps are organised and presented, but its latest cunning plan is human curation: employing actual people to find the best apps and arrange them in categories. A dozen categories are now covered, including Entertainment (meaning things like TV and radio apps), Kids, Music, Photo & Video and Productivity. In North America, every category has human curation – but the number of apps featured is still tiny compared to the whole catalogue. More thinks needed.

**iWatch in progress?**

It's more than a year since the rumours of an Apple smart watch became so insistent that MacUser felt the need to mock one up. There's been no official word on it since Tim Cook said he thought 'the wrist is interesting'. But now Reuters reports that Taiwan's Quanta manufacturing company is gearing up to produce the device for an autumn launch. The wire story quotes a source describing an almost square 2.5in screen in an arched case protruding from a wrist strap – which sounds rather like our effort, but at this point we expect more of a fitness band style than our more traditional original design. 'Watch' this space! (You're fired – Ed).

MARTIN HAEK/MACUSER

All in The iMac starts at £899

Cheaper iMac sneaks into store

There were no hardware announcements at WWDC this year, but a couple of weeks afterwards the online Apple Store went down, signalling the arrival of a new product. It turned out to be a lower-cost iMac, identical to the existing 21.5in model but with internal specifications closer to the MacBook Air range.

With only half the processor cores and clock speed of the previous entry-level iMac, the 1.4GHz dual-core i5 CPU could be challenged by ambitious desktop tasks, and the ageing Intel HD Graphics 5000 GPU will work a lot harder to drive the iMac's 1920 × 1080 full HD display than the 13in Air's 1440 × 900. We'll have test results for you next month, but at £899 including the big screen, it could still be a bargain.





Java talking An avatar used by the Eugene Goostman chatbot

[EXPLAINER]

The Turing test

I'm sorry, I still can't do that

Hello! It's very nice to talk to you.
What? This is the Explainer column.

Can you elaborate on that?

It's where we look in more detail at a topical issue in a Q&A format.

What does that suggest to you?

What does... hang on. You're not who you're pretending to be, are you?

Lol, it's me. I was just pretending to be a chatbot to wind you up.

So you failed a reverse Turing test.

Well, on purpose. It's not hard for a human to fake being a machine.

THE IDEA IS AN INTERESTING ONE: CAN A COMPUTER APPEAR HUMAN?

But only one machine has ever convinced people it was human!
Has it?

Yes, the supercomputer that finally beat the Turing test. I've been reading about it in all the papers.

Ah. Right. Here we go.

I sense a note of scepticism?

What actually happened in June was that a chatbot program called Eugene Goostman scored 33% in a test based on work by Alan Turing, the WWII Bletchley Park computer scientist who was granted a posthumous pardon by the Queen last year for his conviction under laws against homosexuality, which led to his suicide.

OK, that got heavier than I was expecting. But this test – the Eugene Goostman supercomputer

was the first to pass it, wasn't it? That's pretty exciting news.

Not exactly. First of all, there was no supercomputer – Eugene Goostman is just a bunch of code written by some Russian AI researchers that runs on ordinary PC hardware. The 'supercomputer' hype came from a press release issued by Reading University, whose Professor Kevin Warwick organised the contest at the Royal Society in London to mark the 60th anniversary of Turing's death.

Wait – I just Googled 'Professor Kevin Warwick + nonsense' and I seem to be getting an awful lot of results. Some of them unkind.

Prof Warwick is an established figure in artificial intelligence and cybernetics research, with academic accolades from around the world. Some of his methods, though, are regarded by others as perhaps overly attention-grabbing. In 1998, he implanted a chip in his left arm and announced that he was the world's first cyborg.

Wow! Can he go back in time and change the destiny of humanity?
No, but he can turn lights on and off.

Oh. OK, back to the Turing test.

Reading's School of Systems Engineering hosted the event in partnership with the EU's RoboLaw organisation, which funds...

...the future of law enforcement!

No, the regulation of emerging robotic technologies.

If I'm honest, so far this whole topic is one big disappointment.

Not entirely fair. The idea behind the Turing test is an interesting one. While there are all sorts of complex debates about how computers can truly be intelligent, whether that intelligence can or should work the same way as human intelligence, and when we would say that it did, Turing proposed a much more straightforward experiment: through words alone,

could a computer fool a human into thinking it was another human?

So it doesn't necessarily mean anything profound, but it would be cool if we had AI that was at least good enough to pass the test.

It *might* be cool. The problem is that, over decades of Turing test competitions such as the annual Loebner Prize, researchers have tended towards distracting the judges from the artificiality of the contestants' responses rather than making those responses genuinely more intelligent. Eugene Goostman is a case in point. By presenting him as a 13-year-old Ukrainian, his programmers explain away his stilted grammar, failure to grasp everyday concepts and ignorance of cultural references.

Hmm. So his conversation wasn't actually all that sparkling?

Transcripts have yet to be released, and at least three versions of Eugene Goostman previously available online have been taken down since the contest. Before that, several journalists managed to conduct their own chats: try Googling 'goostman conversation'. Let's just say it's pretty hard to see how 33% of the judges failed to spot that he wasn't real – unless of course they were deliberately going easy.

Only 33% of them believed it?

Yes, surpassing an arbitrary 30% threshold obtained by reversing a reference by Turing to a '70% chance of making the right identification'. But this was hardly a breakthrough: Goostman had scored 29% in a previous test, and other bots have seen even higher marks, though competitions vary in their methodology.

So what does it really mean for AI?

One of Eugene Goostman's creators, Vladimir Veselov, quoted by AI blogger Scott Aaronson, said the 'conditions of the [7 June] test made it simpler' and there was 'no scientific breakthrough but lots of media noise'.

Domain name rule change threatens owners' privacy

Nominet, the organisation responsible for registering .uk domain names, has indicated that it has made it more difficult for website owners to opt out of having their postal address made public. Owners' personal details may appear online without warning.

Currently, private individuals who register a domain name can choose not to have their postal address visible in 'whois' searches, while organisations and businesses must have it visible.

In a recent case reported by the Guardian, Nominet decided a personal website was 'trading' because it contained affiliate links to Amazon and displayed pay-per-click adverts. It then published the registrant's postal address. The organisation later recanted

following a complaint from the registrant, but said in a statement to the Guardian: 'We have always felt that when you [the user] traded with a website, you had a right to know who the proprietor is.'

What seems to have changed, however, is the definition of 'trading'. Nominet went on to explain that 'since these rules were drawn up, the nature of trading online has changed' and it would review its policy to ensure it was 'sensible.'

But affiliate links and pay-per-click advertising have been around almost as long as the web, and are commonplace on sites such as one-person blogs that would never have considered themselves to be 'trading'. Nominet's statement doesn't clarify why it has only just begun to question the anonymity of such sites' owners. The most intuitive definition of 'trading' would encompass only those sites that *themselves* offer products to and take money from consumers, rather than merely hosting links.

**NOMINET SAYS
'THE NATURE OF
TRADING ONLINE
HAS CHANGED'**



Who's that URL
Site owners could
lose their anonymity

IMAGE | STOCKPHOTO.COM/PRESSUREUSA

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Sounds of summer, vol 1

Just in time for the holidays, Braven's BRV-1 wireless speaker has been upgraded. No, fear not, speakers haven't started requiring software updates. The news here is that the rugged gizmo has gained an increased IP rating, from IPX5 to IPX7. That means not only can you spray it with 12.5 litres of water per minute from three metres, but, should you feel so inclined, you can also immerse it for half an hour under a metre of water – although sound quality will take a hit until you pull it out.

The camera-sized BRV-1 looks chunky, with its rubberised rear and perforated metal front, but it's light enough to throw in a beach bag without regrets. Set it down on its front and you'll find a large screw cap on the back, which keeps the water out of its two USB charging ports and stereo mini-jack when not in use. The cap isn't quite as rubbery, and bigger knurls might have made it easier to get back on.

Why two ports? Well, besides the micro USB from which you recharge the built-in battery from any standard USB power source using the supplied cable, Braven has brilliantly included a full-size USB power output. So if you arrive at your sunbed and find the speaker's charged but

your iPhone isn't, you can top up the latter from the former. Or if you can avoid doing so, the 3 watts per channel stereo speakers will keep going for a quoted 12 hours.

And they sound remarkable for such a tiny unit. Even the built-in chimes that confirm switching the device on and off are strikingly bassy. Connect your iPhone via Bluetooth and what comes out – when cranked up using the built-in buttons in addition to the on-screen volume control – is gratifyingly hefty. The whole unit resonates along with the speakers, but in a totally good way that makes you not want to put it down. If you have a soundboard to rest it on, such as a table, the effect is magnified. There's top-end here too, though: not audiophile shimmery strings, perhaps, but on Lana Del Rey's Videogames the harp is as punchy as the synth pads are rib-warmingly lush.

Non-Bluetooth sources are catered for by the supplied double-ended mini-jack cable, if you don't mind sacrificing some of the waterproofing. At around £130, the Braven may seem pricey for a small speaker, but really – would you rather shell out to carry more, or less?

Find out more at braven.com



Sounds of summer, vol 2

In design, 'retro' is, of course, the last refuge of the scoundrel. And yet there's something irresistibly charming about an object that simultaneously looks as though it belongs in your granny's kitchen, on the flight deck of United Planets Cruiser C57-D and over the wrist of the eponymous star at the 1962 Oscars.

The Hepburn, whose leatherette finish is available in a selection of modishly muted colours as well as little-black-dress black, is View Quest's entry in the not uncrowded category of DAB-radio-cum-Bluetooth-speaker. With a two-line LED to assist navigation, it fulfils both roles effectively; it took us a few goes to get the hang of Bluetooth pairing, but that's par for the course, and it does enable you to switch between multiple sources, essential for the multi-device home or office. A telescopic aerial on the back receives DAB/DAB+ and analogue FM broadcasts. The Hepburn is portable but not rechargeable; you'll need four D cells to free you from the supplied mains adaptor.

Naturally, once connected, whatever audio you're playing on your Mac, iPhone or iPad can be directed through the unit's twin two-inch full-range speakers. These perhaps lack the boomy gravitas the unit's size and styling might lead you to expect, but the sound is clear and listenable and goes pretty loud. You can also use View Quest's clunky but functional iOS app to switch inputs and select radio stations from your touchscreen.

This is not the best wireless speaker £150 would buy (psst: shop around and you'll find it as low as £120), but if you want a radio with Bluetooth, allow yourself to be seduced.

Find out more at viewquest.co.uk





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Kenny Hemphill

‘The excitement about Swift was obvious from the reaction of Cook’s audience, and from the response on Twitter from developers.’

TWO REMARKABLE THINGS happened during Tim Cook’s keynote speech at WWDC in June. First, the biggest news of the day was aimed exclusively at developers; second, that same news was a bona fide surprise.

Apple’s announcement that it had developed its own object-oriented programming language was one *nobody* saw coming. None of the usual rumour sites had mentioned it; not a single analyst had briefed clients that it was even a remote possibility. Yet Swift had evidently been in development for years. You don’t just pull the programming language on which the future of two software platforms and every piece of hardware you make is going to depend from thin air in a few months.

Apple, it turns out, can still keep secrets.

The excitement about Swift was obvious from the reaction of Cook’s audience, and from the response on Twitter from developers. It became clearer still when the free iBooks user manual for Swift was downloaded hundreds of thousands of times in the days after its release.

It wasn’t just Swift that cheered developers. The introduction of HealthKit in iOS 8 will allow app makers to access data from, and supply data to, the operating system to make health and fitness apps more useful and easier to build. HomeKit promises to bring order to the home automation market. If Apple and its developers can crack that, it could be huge.

PhotoKit enables photo apps to access the Photo Library on an iOS device directly, without the need to first create a separate instance of an image. And they’ll be able to make filters and adjustments available directly within the Photos app. Apple has also opened up more manual controls for the camera, so third-party apps will, for example, be able to lock focus and exposure independently of one another.

Developers can now build widgets for Notification Center and extensions for iOS Safari, as well as access TouchID on the iPhone.

The new predictive keyboard in iOS 8 looks great, but for developers, the big news is they can build their own keyboard and make it available system-wide. Oh, and there’s CloudKit, which makes it much easier for developers to hook their apps into Apple’s iCloud.

No wonder one developer, Greg Pierce, was prompted to email Tim Cook and tell him the Keynote was a ‘home run’ for ‘indie developers like me’ and ‘how much better the mood is about the future with the attention paid directly to so many of the concerns we have been expressing’.

All the APIs and new programming languages in the world won’t help if Apple doesn’t get the commercial side of distributing apps right. But there was good news there, too. Developers can now beta test apps on a large scale, and target those tests according to specific demographics, thanks to Test Flight, an Apple program introduced with iOS 8. They’ll be able to offer discounts on purchases of multiple apps, and they can make preview videos of apps.

Perhaps the most important improvement, however, is to the App Store itself. Apple has promised that iOS 8 will bring faster, better searching, easier app discovery, a new ‘Editor’s Choice’ logo designed to highlight outstanding apps (nice idea!), and new tools to allow us to see what other users are searching for and buying. ‘We are really investing a ton in the App Store,’ said Cook. ‘About time, too,’ thought the rest of us.

Apple has talked a great deal in the past about the importance of its developer community, but it has seemed deaf to deep-rooted concerns among many of them. WWDC showed us that it has been listening, and more importantly that it’s been working hard to address those concerns. Happier developers means better apps – and that can only be good for all of us.

Kenny Hemphill is MacUser’s news editor. He’s been reporting on Apple since the acquisition of NeXT and Steve Jobs’ return to the company.





Daniel Benneworth-Gray

‘After the first few opening jokes, I missed quite a lot of what Federighi was saying because I got distracted by an important search for images of Yosemite Sam.’

WORK IS DONE for the day, or at the very least it's been tucked away and minimised, hibernating until tomorrow morning's burst of inspiration and caffeine. Firstborn is fed and going through the motions of his strict running up and down regimen. Desk is carefully arranged to tidy, right-angled correctness. Four fingers of Kit Kat are aligned just so beside a fresh cup of coffee (in standard-issue Pantone mug, naturally). And me, I'm nestled nicely into the comfiness of my chair, eyes staring into my iMac, fingers poised over my iPad. There's calm, there is readiness. Bring on the WWDC keynote.

This is my sport. I don't watch football or cricket or racing. I watch software update announcements. And it's not just the keynote itself – it's about the speculation beforehand, the knee-jerk tweets during and the blogged analysis afterwards. What will happen? Will one of my shiny things be made a bit shinier? Will another be made to look dull and awful by a new shiny thing? Will there be One More Thing?

So far, nothing is happening. And this nothing happening is being observed by an enormous audience of developers and tech journalists, all sitting staring at a big screen on a big stage. One might draw comparisons with a certain 1984 advert that depicted mindless drones doing pretty much the same thing, except this crowd is buzzing with gleeful anticipation. The energy is more One Direction than Orwell.

Of course, One Direction probably don't kick off their concerts with self-congratulatory videos of people saying how mind-blowingly awesome apps are. This doesn't bode well. What an exceedingly dull start to – OH MY GOD THAT KID TOTALLY HAS AN iOS-CONTROLLED ROBOT HAND.

Okay, that's got everyone's attention. Maybe tonight Apple will be launching a new range of cyborgs? Here comes Tim Cook (essentially Steve Jobs played by Paul O'Grady) to dazzle the crowd with the incredible,

the revolutionary, the game-changing... run-through of sales figures? We were promised so much more by the robot-handed boy – this is something of a come-down. He even blurts out the blindingly obvious 'We're shipping the best Macs in our history', as if the audience was completely unaware of the concept of progress.

Come on, Tim. I could be playing with my son right now, Tim. Show us something new, Tim.

Never fear, here comes the cavalry! Onto the stage bounds Apple SVP Craig Federighi, essentially a stock photo of a handsome businessman. And he's got the good stuff. He's got Yosemite. And very nice it is too. Even the most trivial of updates – a new Trashcan, dark mode, translucency all over the place – is met with rapturous applause.

I'll be perfectly honest with you: after the first few opening jokes, I missed quite a lot of what Federighi was saying because I got distracted by an important search for images of Yosemite Sam. Hearing about the new stuff is all very well, but it's vitally important that every nerdy little joke that pops into my head is sent tweet-wards. Nobody cares, of course, but I like to amuse myself with interjections among the dev-jargon and nerd-rage. I've barely glimpsed the best examples of Warner Bros' angry ginger varmint before 'Handoff' is mentioned and I'm sent on another errand to find a picture of Luke Skywalker with – yes – his hand off. Never mind tweet, I'm a hoot.

Should start paying attention again really – some of this Yosemite looks quite impressive. Just as it dawns on me that this Finder-centric update is a great big middle finger to Google (competing with Microsoft is so five years ago), the lady wife hollers from downstairs. Time for the boy's bath. Why can't Apple do a better job of scheduling its events around my timetable?

The Keynote is left to itself for a while. Time passes. Things happen. Where was I? What's [continued on p34]

[continued from p33] happened? This thing is in full flow now. Features are announced in quick succession, it's hard to keep up let alone catch up. Twitter is awash with WWDC fever, but there's so much reaction that it's tricky to pick out a decent summary of the last half hour. From what I can gather, somebody had a phone call with Dr Dre. A few weeks ago, this would've seemed quite odd. Right now, after the Beats acquisition and everything, it... it still seems quite odd. That's Dr Dre.

Hang on. Something else is happening on Twitter. Something else is being responded to with equal passion. As countless others like me across the globe watch and comment on events unfolding in San Francisco, another impassioned conversation crashes in. Breaking news: somebody got smushed in Westeros.

In the great overlap on the Apple/Game of Thrones Venn diagram of fandom, there is chaos. Spoilers and announcements crash into each other; nobody knows where to look. We want to know about *this* stuff now, but we don't want to know about *that* stuff just yet.

So I'll abandon the tweets and just stick with the video feed. But it's no use: they're down to the meat of the keynote, the developer tools. The further into this I go, the less I comprehend. I'm sure it's all very impressive, but without my codey friends at hand to interpret, it's all lost on me. Federighi's just put a slide up that appears to be utter gibberish: Tuples! Clear Mutability Syntax! Multiple Return Types! REPL! I really, really wish I'd been around for the Dre moment now.

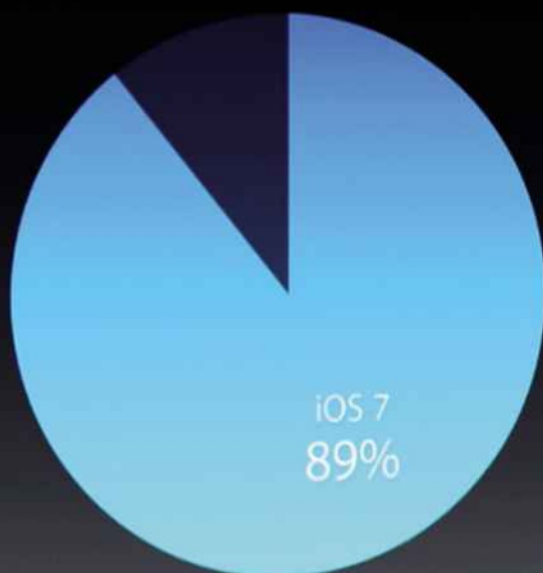
And then... it's over. There is no One More Thing, no robot hand for the rest of us. There is just a room full of excited developers rocking in their seats, desperately trying to download betas before the sandwiches go or their bladders give out.

My coffee is gone, my Kit Kat is de-fingered. My Mac and I will go to sleep soon and dream of translucency. Tomorrow we'll hit the tech blogs and find out what all of that was really about.

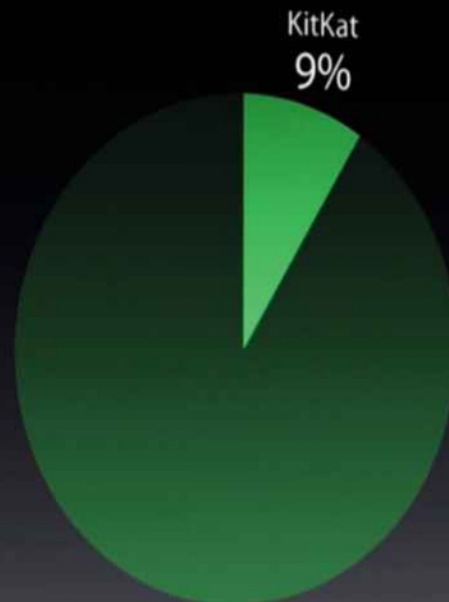
Daniel Benneworth-Gray is a designer and writer best known for his book covers. He blogs at danielgray.com. This column appears monthly.

Compare and contrast

What proportion of users are running the current version?



iOS



Android

Quoted by Tim Cook, WWDC, 2 June 2014



Howard Oakley

‘We could soon be using an “iMac Air” which consists of little more than a display and input devices and would be the logical companion to the new Mac Pro.’

WHEN I MENTIONED that I wrote for MacUser, most people used to find it curious, even a little eccentric, that I should use and develop software for the Mac, of all things. It was a bit like admitting that you are a Zen Buddhist (which I am not), or wearing sandals with a suit (which I do, often). Now almost everyone who I tell about MacUser launches into a soliloquy about how they haven't looked back since switching to a Mac at home or, for the most enlightened, at work. They still stare at the sandals, of course.

Although Apple's recent runaway success has been fuelled by i-series products including iPods, iPhones, iTunes and iPads, it has also become one of the most successful computer manufacturers. Macs have broken out of their design and publishing niche to occupy central positions in very many homes, schools and businesses. However, in contrast to the iPhone, with a new model every year, and the iPad, remodelled every eight months or so, Macs don't seem to have changed much for quite a few years.

Classic Macs had characteristic architectural features that were built around Motorola 68K processors, and were replaced by Power Macs after ten years. The PowerPC itself was overthrown by Intel x86 processors with their own supporting chipsets and buses in 2006, eight years ago. Only one model in the current Mac range, the 2013 Mac Pro, has undergone a significant redesign in the last six years, since the release of the MacBook Air.

Apple's Classic operating system family had a lifespan of 17 years, until OS X launched in March 2001, 13 years ago. We are now at least half way through OS X's likely lifespan, which means that Apple should already be well engaged in developing its successor.

So is Apple pressing ahead to develop OS XI and new hardware ranges, or is it going to leave its computers to wither on the vine?

One way of reading where Apple is heading is to study its technology acquisitions and partners. On the hardware side, its interests are strongest in 'system on a chip' (SOC) development, which has so far seen the greatest application in iPhones and iPads.

However, the SOC approach has merits for more general computer design, in shrinking the volume required by hardware even further. Coupled with solid-state disks and externalisation of mass storage to Thunderbolt 2 peripherals, we could soon be using an 'iMac Air' which consists of little more than a display and input devices and would be the logical companion to the new Mac Pro.

As the CPU manufacturers seem best able to give us more rather than faster cores, the OS XI kernel needs to be even better at distributing and handling multiple processes over those cores, and could change radically from the current ageing descendent of Mach, perhaps towards an L4 derivative, or even a third-generation microkernel.

Apps, too, must be more finely granular so that they can spread over the available cores and resources such as GPUs to get the greatest benefit. This won't be as radical a change as the switch from Classic to OS X, but sooner or later Apple will need to draw a line under OS X and bring a new OS to market.

It is helpful to Apple that press attention has been largely focused on its high-profile i-series activities, and rumoured consumer products such as watches and TVs. But if it wants to see continuing returns from its quietly successful and less-volatile computer products, Apple will have several hundred engineers pushing forward the specifications for the next generation. Now is the time to watch for clues to what it is up to.

Howard Oakley has used Macs in science and medicine, including software development, and written about it in MacUser, for more than 20 years. This column was submitted before the WWDC keynote on 2 June.



Nicole Kobie

‘Already, one in every five books sold in America is a Kindle ebook. Publishers can’t risk losing such a large slice of the market.’

LAST YEAR, IT was champagne and pats on the back for US regulators. And they did have a big win to celebrate, successfully slapping the wrists of Apple and the five biggest book publishers over ebook price fixing that went back as far as 2009. Despite the win, the ebook market remains a problem, as the investigation didn’t treat the root cause: Amazon and its bullying over pricing.

Indeed, court documents revealed Apple and the five major publishers had teamed up because they were worried about Amazon using its market force to push down ebook prices. As consumers, we didn’t complain about the plethora of cheap and easy reading material – but now the retail giant is giving us cause to worry.

The prime (sorry) example is the nasty turn taken by Amazon’s ongoing slap fight with publishing firm Hachette. The pair have long disagreed on how much of a cut each should get from ebook sales, and Amazon is now putting pressure on the publisher by stocking fewer copies of hard copy books, meaning they take weeks to deliver, and refusing to take pre-orders for upcoming books, including key titles such as JK Rowling’s latest detective novel.

Given the guaranteed sales that release is set to bring in, that may seem as though Amazon is cutting off its digital nose to spite its face. But it hurts Hachette even more: all pre-orders count towards first-day sales, helping to catapult a title to the top of the bestseller lists, which in turn helps boost sales.

Pricing is difficult to decide as markets shift to digital: Amazon wants more, but Hachette doesn’t want to let it eat any more of its piece of the pie. Neither standpoint is surprising, but it’s alarming to see Amazon make use of its market dominance to pressure the publisher.

Amazon actually advised its own customers to buy books from other retailers if the dispute made it too difficult to purchase. This doesn’t work, however, for anyone reading on a Kindle device, as the ebook reader

uses a proprietary file format. Amazon may direct readers to other stores, but ebook readers have no choice but to stick with Kindle or ditch that hardware and the investment they’ve made in books for it.

Not only are readers stuck between a rock and a hard place, but so too are publishers. Amazon doesn’t have a perfect monopoly of ebook sales, but in the US it commands 60% of the market, with the remainder split between Apple and Barnes & Noble. Already, one in every five books sold in America is a Kindle ebook. Publishers can’t risk losing such a large slice of the market.

Regulators recognised the dangers of Apple and the big five publishers teaming up to set prices two years ago, but they now need to look at what made them scared enough to take such action in the first place. Regulators can’t force a store to stock any single item, but they can ban dominant market players from abusing their position to take more total control of the market.

They need to rein in Amazon before other tech giants get the message that such behaviour is allowed. Indeed, Google is already following in Amazon’s footsteps: it’s reported to be banning from YouTube music labels that don’t sign on to its new streaming service. Tough negotiations are necessary to figure out the lay of the land in new digital economies, but such strong-arm tactics have gone too far when we can’t buy the books we want or listen to the tracks we love.

Of course, we can still buy content from other retailers, and that’s now a bit easier. Apple clearly learned its lesson from regulators last year, and this time around its reaction to Amazon’s bullying tactics has been to promote Hachette titles and offer consumers a discount.

If regulators won’t take action, it’s high time consumers do. Amazon has directed us to shop elsewhere – maybe we should listen to its advice.

Nicole Kobie has been a technology journalist for eight years, and is currently news and features editor for PC Pro (pcpro.co.uk).

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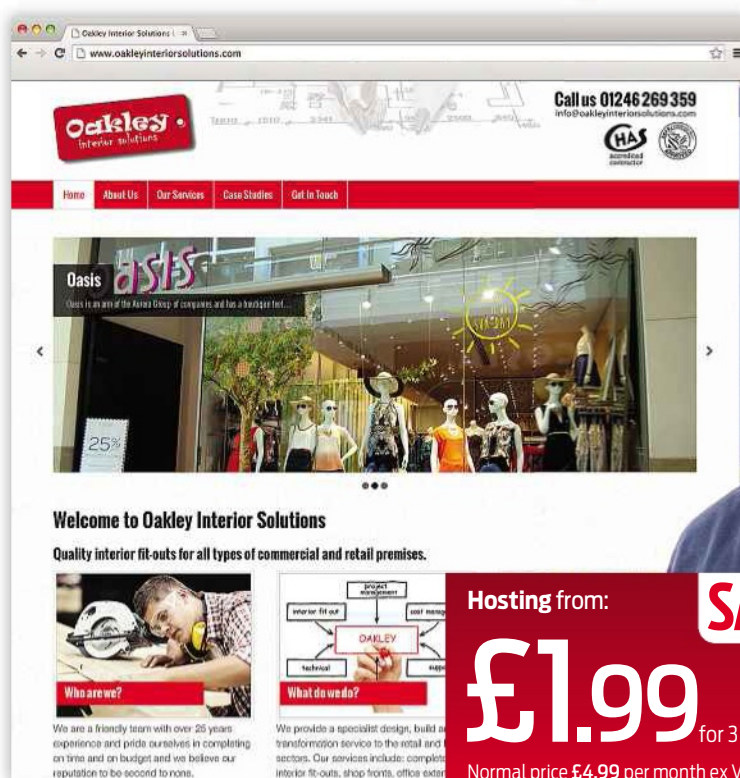
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With Apple holding off all of this year's big hardware launches until the autumn, June's **Worldwide Developers Conference** could have been a low-key event. But it wasn't.

The new features unveiled for both the Mac's **OS X Yosemite** and the iPhone's **iOS 8** operating systems (due in a few months' time) were so clever, we wished we'd thought of asking for them. And developers not only got more ways to hook into Apple's technologies to bring users even more functionality, they were introduced to a whole new programming language, **Swift**, in which to do it.

If you're thinking they weren't happy to have to learn a whole new programming language, you probably don't know any **developers**. Fortunately, we do. So we asked them what they thought of Apple's announcements. Read on and find out, alongside our quick guide to the best of what we saw for the first time at WWDC.

WORDS CRAIG GRANNELL AND ADAM BANKS IMAGES APPLE

What's new in OS X 10.10 Yosemite



↑ Federighi said the redesign process had started with simplifying the window controls. Gone, finally, are the gel-effect blobs that had lingered since Aqua. The new nearly-flat buttons have plainly drawn labels consistent with other items

The most obvious change in the next version of the Mac's operating system is that the user interface typography has switched to a completely new font, Neue Helvetica Light. It's not the first time the system typeface has changed: until System 7 it was Chicago, the original Macintosh bitmap font designed by Susan Kare; then it switched to the subtler Charcoal (though in Mac OS 8 and 9 the font was also user-switchable); and OS X's initial Aqua design adopted Lucida Grande, which has survived more than a decade.

This time the new look, which matches the mobile OS typography introduced in iOS 7, is less rather than more humanist, and the difference in tone is conspicuous – but our first impression is that it works. As in iOS 7, meticulous attention has been paid to horizontal and vertical spacing to give a self-effacingly harmonious setting in each context.

It's a long time since Chicago, but the Mac UI has never quite shaken the impression of being designed pixel by pixel for a bitmap display, albeit one whose nominal dot pitch has tightened year by year. Catching up with the Retina age, this release finally breaks that mould: the new screen furniture and type feels fully resolution-independent, as if it has a life independent of the screen, like a photo or a page layout, and could happily be output with half or quadruple the number of pixels as the need arose. Post-PC or not, it's a post-pixel era.

↓ When Apple introduced a translucent menu bar in OS X 10.5 Leopard, it was so unpopular that an update was released allowing it to be made opaque. Now it's back. Menus, which were previously slightly translucent, seem more so, and the title bars and sidebars of some windows, previously shaded opaquely in grey and pale blue, are see-through too. The effect seems pleasant enough, though we're not entirely convinced by software chief Craig Federighi's insistence that it conveys 'a sense of depth and place' and 'takes on the personality of your desktop'



Apple's masterstroke was not using WWDC as a platform for hardware launches, but focusing again on its community of software developers

'THE ATMOSPHERE AT WWDC 2014 was electric. Every conversation I had involved people gushing about new features. It's hard to imagine Apple having more stuff at WWDC than it did.'

This reaction from Giant Spacekat co-founder and head of development **Brianna Wu** might surprise anyone who'd bought into the mainstream media's line that Apple 'disappointed' its followers at WWDC by not unveiling a shiny new piece of hardware. But as anyone who really follows Apple knows, that was never the point. In fact, Apple's masterstroke this year was *not* using its developer conference as a platform for

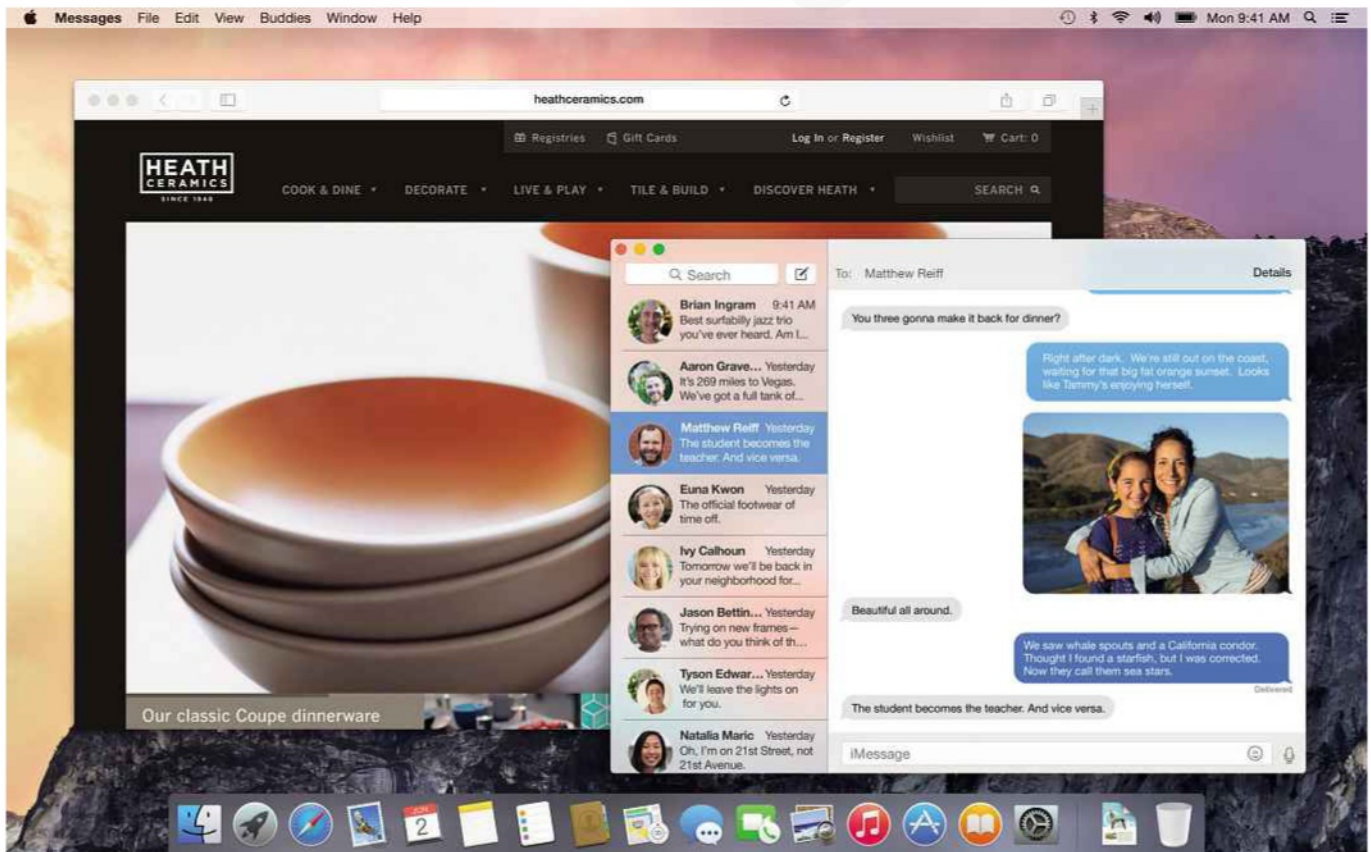
hardware launches – and instead getting back to focusing on its community of developers, whose software is a big part of making the hardware more useful to consumers than anyone else's.

'WWDC is about developers, so we can talk about the nitty-gritty of how you build stuff,' Brianna continues.

'And although most people [who aren't developers] aren't going to be excited about the tools we use to make amazing things,' adds Spacekat games designer **Carolyn VanEseltine**, 'they are going to be excited by the amazing things!' From that perspective, WWDC was, as anyone could see just watching

the live video stream of Tim Cook's two-hour keynote, a roaring success: a bullish, reinvigorated Apple revealing so many new features, many of them as unexpected as they were welcome, that developers hardly knew where to begin.

'To anyone with a real grasp of where digital technology is heading, Apple's announcements could hardly have been more significant,' Touch Press CTO **John Cromie** told MacUser. 'Apple's deadly serious about its devices being the hub of an individual's connected world – to friends, the cloud, and a rapidly emerging mesh of personal sensing and control.'



← This friendly-looking person (or two people?) is the new face of the Finder. Or it might be. The design at left, seen during the WWDC keynote, differs from the one in the Dock above. It's anybody's guess which one will end up in the final release, but all icons have a neater look, borrowing flatter, simpler designs from iOS 7 but retaining more shading and detail



← OS X's Notifications panel gains iOS's Today view, which is doubly significant because both OSes now permit third-party widgets to be added to it. Here the right-hand panel allows us to pick from the default Apple options, much like in Dashboard. In fact, this seems destined to replace Dashboard, which may be an optional install in Yosemite

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Thus we heard about Continuity, which enables seamless transitions for users between tasks on OS X and iOS; new APIs for boosting iOS gaming, and a sense of openness pervading the previously locked-down iOS and increasingly sandboxed OS X; and CloudKit, HealthKit and HomeKit cementing Apple's ambitious, boldly-conceived plans to be at the heart of an internet of experiences. Coming out with such a range of dramatic new technologies means, as Cromie puts it, 'any nagging sense that the Android or Windows ecosystems might overtake and surpass Apple's has evaporated'.

It's the developers whose skills will translate the potential of these innovations into real benefits for users – and Cromie is not alone among them in believing that WWDC 2014 may have been the most important event in recent memory for the future of the Mac, iOS and Apple.

Not that the ordinary user would have seen nothing of interest during the keynote. As Get Running developer **Benjohn Barnes** notes, many of OS X Yosemite's changes centred on 'features real people will find useful in their lives' rather than just 'stuff coders and technologists dream up'. He was especially

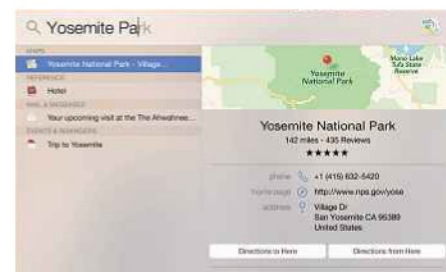
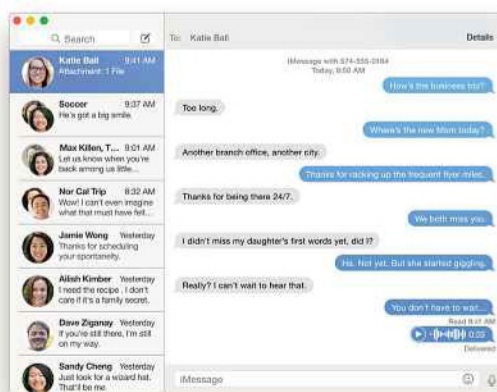
impressed by a revamped Spotlight and Apple's take on cross-device integration.

YOSEMITE'S NEW LOOK OS X's interface revamp was perhaps the most obvious change. Scrivener creator **Keith Blount** reckons it will pay dividends for developers and users alike. 'Apple's been experimenting with different UI elements for years, resulting in a mish-mash. With Yosemite, we're getting a fresh, more unified look. And under the hood, new features of this updated UI make it easier for programmers to provide a consistent user experience.' For example, dark-shaded components,

OS X 10.10 Yosemite (continued)



↑ Markup is an interesting new feature that was demoed in Mail but apparently will be available elsewhere too. Select an attachment and you can scribble on it with basic shape and text tools before forwarding it to someone. There are clever options here such as creating a bubble within which part of the image is zoomed to draw attention to it, and the ability to store signatures and paste them into forms so that you can quickly send them back completed



← The Messages app now lets you instantly record an audio 'soundbite' and send it to a chat recipient. If it catches on, this could be a whole new way to communicate. SMS text messages can now be relayed to your Mac, so it doesn't matter which device you're on; but you need an iPhone running iOS 8 for this to work

↑ Spotlight still has an icon at the top right of the screen, but can now be brought up as a floating bar. Results appear instantly as you type into the large text entry box and draw on sources including Wikipedia, the iTunes Store, Apple Maps and a unit conversion engine. Will it guess which you really want?

There was relief that Apple showed no signs of merging its operating systems, instead offering seamless integration between them

first introduced as long ago as OS X 10.4, lacked a standardised way to add light controls, but the refresh has made this straightforward, which will mean more consistency once apps are updated to take advantage.

But Blount is most heartened by the scope of the overhaul, taking it to indicate that 'OS X still has just as strong and exciting a future as iOS.'

There was palpable relief that Apple had taken this route and showed no signs of trying to merge its operating systems. Instead of a Windows-style 'one OS to rule them all', Apple has doubled down on a kind of seamless integration

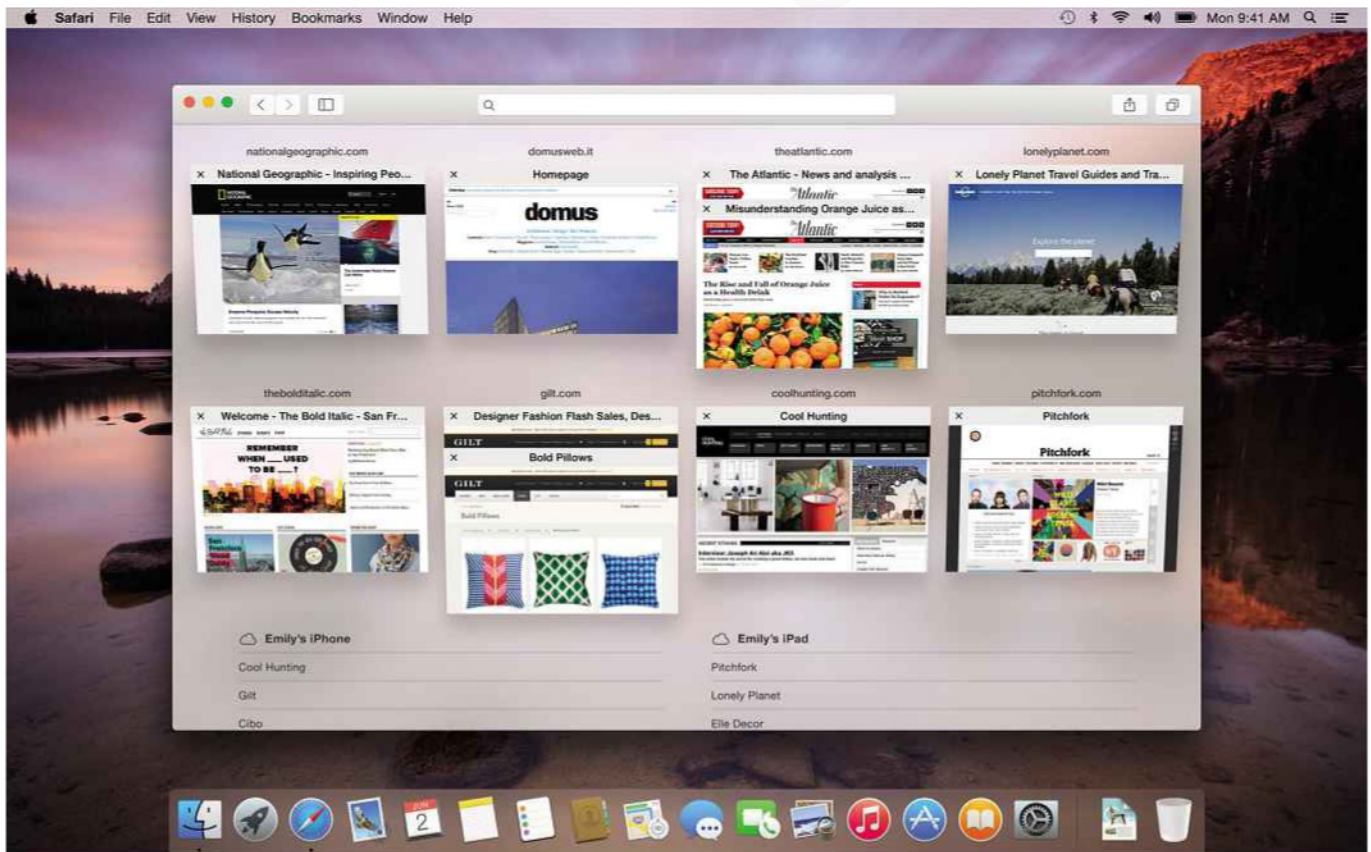
and connectivity between its distinct desktop and mobile OSes, which it calls Continuity. Devices will recognise when they're near each other, enabling you to take iPhone calls on your Mac, or create an instant personal wifi hotspot using your iPhone's connectivity.

BENEFITS OF HANDOFF

The biggest wow was reserved for Handoff, which seamlessly transfers in-progress documents between devices. These features will be supported by Apple's apps, but developers can also use them in their own. 'This does more than reduce transition time – it nearly nullifies

cognitive barriers between devices,' explains MegaBits developer **Patrick Perini**. Widespread adoption would mean working in your favourite iPad app on a train, knowing you can flick the work to your office Mac without breaking stride. 'With this, we've truly hit the post-PC world,' adds Perini.

PCalc creator **James Thomson** is also thrilled by Handoff, excited about being able to push his app's calculations, tape and memories between devices. 'PCalc is helped by shared code between versions, but the dev side of Handoff is straightforward. Previously, you had to write complex client/server networking,

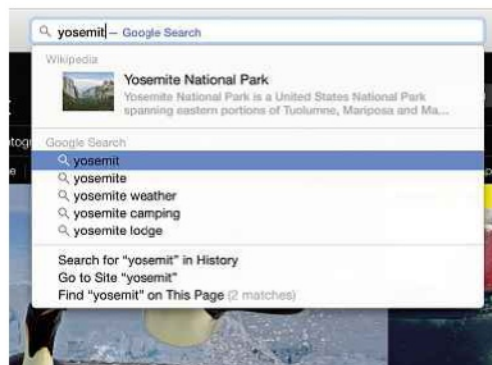


What else is new?

A 'dark mode' – where OS X's menus and other screen furniture appear in dark grey, as has been seen previously in apps such as Aperture – was announced, though it hasn't materialised yet in the beta. Senior vice president of software engineering Craig Federighi described this as a response to 'our pro users' who 'wanted to focus on the centre of the screen and not be distracted'.

In Mail, large attachments can be sent via Mail Drop to avoid any attachment size restrictions. This stores the attached files in the cloud; recipients using OS X or iOS see the attachment as normal, while others receive a download link in the email.

A new version of Photo for OS X will appear 'early next year'



↑ Safari gains a Tab view that stacks all the current tabs in each window for a quick overview. Other new features include a Private tab that keeps its browsing history secret while you use normal tabs for other purposes

← The unified search bar gets smarter, borrowing Spotlight's new abilities to search Wikipedia, news sites and more. But will URLs take even more of a back seat?

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device detection and more. Now, you just say 'Here's a task and associated information' and the OS does everything for you, passing it to the other app when the user decides.'

It's a great example of how Apple makes tools that make life easier for developers so they can make apps that make life easier for users.

Further leveraging the virtual space between devices, iCloud is getting a revamp with iCloud Drive and CloudKit. The former is essentially Apple's answer to Dropbox (and a belated replacement for MobileMe's iDisk), a cloud-based file system that frees documents from living

'inside' apps and makes them available to OS X and iOS alike via Apple's servers. App Accomplished author **Carl Brown** says this 'enables all kinds of productivity workflows that were impossible before'. As of iOS 8, you'll be able to move a single document effortlessly through various apps: 'For example, I could take a photo of a document, convert it to text with an OCR app, fix spelling errors in a text editor, redact it in a drawing app, and so on.' Such a sequence is currently nightmarish in iOS, resulting in multiple copies.

There are questions about whether iCloud Drive's scope will be sufficient to

make it useful to everyone, however. 'I can't see it making huge inroads without being totally cross-platform,' ponders teacher and writer **Giles Hill**, although he sees benefits in distribution, with apps easily picking up files from shared folders. 'It could also be a boon to primary schools, where children need to save docs with the fewest taps possible.'

Fraser Speirs, teacher and designer of the world's first 1:1 whole-school iPad deployment, is hesitant: 'The iOS model of "files are in the app that made them" has been a huge win for ease of use. I worry that Apple has reintroduced the ability to lose files to iOS.'

Cross-platform integration

'Continuity' is an umbrella term that was used by Federighi to refer to a range of features that seamlessly connect tasks between OS X and iOS devices. It also appears in the URL of an apple.com preview page explaining these features, but not in the copy, so it's unclear whether Apple will use the terminology for marketing or only internally.

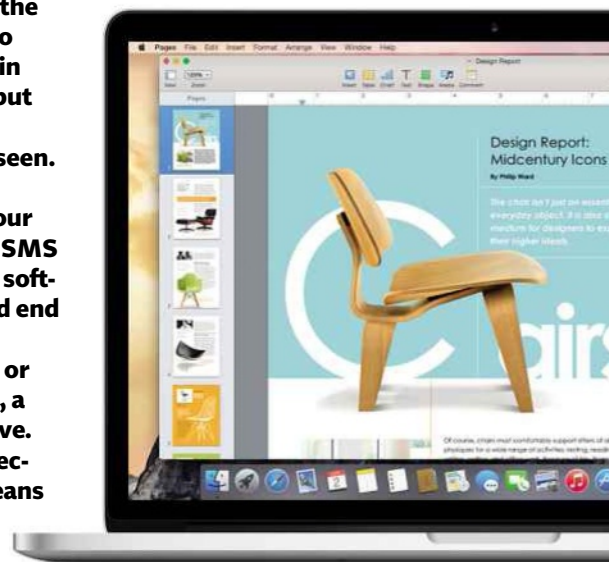
Perhaps the most significant example for the future is Handoff, which tracks on each of your devices what documents and Safari windows you have open on the others. Turn to another device and an icon in the bottom corner of the screen (within the Dock in OS X) invites you to continue exactly where you left off. This depends on apps working in exactly the same way across platforms, as Apple's iWork modules but few others do. But developers are free to take advantage. How this will scale when you have a zillion items open at once remains to be seen.

Of more immediate appeal is the ability to take iPhone calls on your Mac or iPad, or dial out from them over the cell network via your iPhone. As demonstrated, this works without any effort. Similarly, SMS texts can be sent and received on any of your devices, with Apple's software relaying everything invisibly through your iPhone. This should end the frustration of conversations split between SMS and iMessage. You can also connect to your iPhone as a wifi router from your Mac or iPad with no setup (if your iPhone tariff permits Personal Hotspot), a nice example of making an existing but fiddly feature more attractive.

Many of these functions appear to rely on a Bluetooth LE connection between devices. This isn't supported by older models, and means you need to have all the kit in your vicinity; you can't make phone calls via the cloud using the iPhone you've left at work, say.



↑ Remarkably, with OS X 10.10 Yosemite and iOS 8 you can pick up phone calls to your iPhone on your Mac and dial calls from your Mac via your iPhone. The two need only be within the quoted 100m+ range of Bluetooth LE; you don't have to interact with the iPhone physically, since the call is routed through the Mac's microphone and speaker and controlled from the OS X screen



CloudKit allows custom sharing functionality to be included in an app without the developer needing to buy into a server platform

CloudKit, like other Apple technologies labelled 'Kit', is a framework on which developers can build a certain type of functionality. In this case it leverages iCloud in a different way: 'It allows custom sharing functionality to be included in an app without needing a server platform [from a third-party] vendor,' explains mobile development expert Brown.

He notes that user-to-user sharing has become popular in apps: Snapchat messages, Spotify playlists, Google Drive collaborative document editing, Fitbit leaderboards. 'With CloudKit, if you can live with its restrictions – iOS/Mac-only,

no server code, no web page access – Apple's platform will host the sharing parts of your app, probably for free.'

Realmac Software product manager **Nik Fletcher** reckons this represents a 'radical rethink for iCloud, providing just the transport and server-side storage for data instead of being a single magic sync bullet', and is particularly interested to see that Apple itself is using it: 'CloudKit powers iCloud Drive and the new iCloud Photos feature. By "dogfooding" the service itself, unlike previous sync options – the troubled iCloud and Core Data integration – [it shows that] developers can place more faith in the

continued evolution and robustness of the CloudKit APIs.'

EXTENSIONS SUPPORT Another rethink from Apple – or, to be charitable, an evolution – is app extensions, notably in iOS. Along with custom keyboards, a feature much requested by users, Code Line founder **Matheau Dakoske** believes app extensions signal a shift towards openness and interoperability in Apple platforms previously locked-down and closed, not only to users but to developers. 'For example, devs now have access to Notification Center's Today view, where they can



↑ AirDrop, which transfers files directly between devices via Bluetooth, now works between OS X and iOS, making it simpler to throw documents to your own or someone else's iPhone or iPad from your Mac, or accept a file from someone who's passing with their iOS device



Can I get it?

Both OS X 10.10 and iOS 8 are due sometime in the autumn as free upgrades. There'll be a public beta programme for OS X only during the summer. Yosemite is likely to run on any Mac that supports Mavericks: see apple.com/osx/how-to-upgrade. For iOS 8 hardware support, see apple.com/ios/ios8

iCloud Drive

Steve Jobs reportedly told the founder of Dropbox that he'd created a feature not a product, and if he wouldn't sell out, Apple would crush him. Three years later, Dropbox is valued at around \$10bn at the last count and Apple has only just got round to adding features that compete with it. iCloud Drive now gives you a window in OS X's Finder, matched by a panel in iOS 8, that lists any files you care to store there, which is then available to all apps on all your devices. Previously, iOS apps could only access 'their' documents and access to iCloud was restrictive even from OS X. Third-party apps can use this too, and it's even accessible from Windows 7 or 8 – but not from Android devices.

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provide user-configurable content. And "share extensions" make sharing to your favourite web services simple, regardless of the app you're using. These enhancements will enable developers to focus on providing functionality for the entire OS rather than one app at a time.'

This also pleases Realmac's Fletcher: 'Extensions take iOS device personalisation to a new level. Instead of only supporting services that Apple has baked into the OS, you can share and do things based on what you install. One of the biggest feature requests for our Clear app is seeing reminders in Today view, which we can now explore offering.'

Touch Press's John Cromie, too, is enthusiastic: 'The fact that an app can now reach out of its sandbox and – in a highly controlled way – utilise an extension from another app will lead to innovation in how apps work together. No longer will devs just conceive of apps with a single purpose in mind: they'll think about exposing features in a way that tempts other devs to use them, thereby amplifying demand.'

For educationalist Speirs, this one change to iOS ends conversations that used to finish, 'Oh, but you can't do that on iOS.' He notes how iOS workflows until now could be slick and smooth if

developers had built your desired workflow, but hacky or a roadblock otherwise. 'For the first time, devs will be able to create almost any kind of workflow they care to, and for education this is huge.'

'Too often, devs anticipate the needs of general purpose users but miss what's required in education: flexibility. Now, instead of having to live within the pre-built workflows devs can build today, teachers and students will be able to mix capabilities of apps together to achieve great results.' IT managers in enterprise will no doubt have similar feelings.

Other iOS updates also hint at an Apple more open to developer freedom.

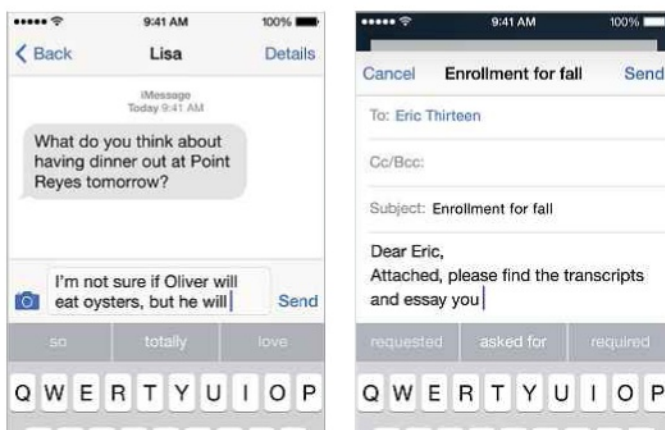
What's new in iOS 8

After the cataclysm of iOS 7, no shocks were expected in the next version, particularly since a number of UI issues in the first iteration have been fixed in updates. But as with OS X, there's actually a lot of significant new stuff in this year's release. Notably, this includes features often requested but until now resisted by Apple, particularly in the area of developer access to the operating system itself.

It's fundamental to iOS, as a 'walled garden' within which users never have to worry about dodgy apps or viruses, that apps are restricted in their interactions with the operating system and, importantly, with each other.

But this means apps can't build on services provided by Apple or other third-party developers, and it's become clear that this imposes a ceiling on how cleverly iOS software can serve users' needs. We're now seeing Apple finding ways to allow more joined-up thinking without compromising security.

One simple example is custom keyboards. Alternative typing systems such as Swype, highly popular on Android, have been prohibited on iOS. Now we can expect a deluge. But there are much broader possibilities too.



Alternative keyboards for iOS 8 (below) will have to wait for developers and, of course, the final release, but in the meantime Apple has built in its own new trick: predictive text. Yes, yes, we all had this on our Nokia 1610s when Steve Jobs was still at NeXT and dinosaurs roamed the Earth, but it's a lot smarter now. Not only will iOS 8 learn the words you commonly use, but it recognises context: so it'll suggest different vocabulary for a message to your boss than to your partner, and spot key words in incoming messages and offer them back to speed up your reply (left)



Apple's new programming language, Swift, and the tools surrounding it remove a layer of difficulty and guesswork from creating apps

Touch ID, the fingerprint recognition service currently exclusive to the iPhone 5s but inevitably coming to future devices, will be available to third-party developers, benefiting apps that rely on passwords and, according to Brown, providing confidence that could see iPhones used for tasks such as unlocking doors or starting cars. And HealthKit 'de-silos' the user's medical and fitness data within iOS, which excites Whole Punk Creators developer **Bob Warwick**: 'It's all about getting data out of individual apps and into the OS in general. This could usher in a slew of health apps, because you'll be able to try new apps

and concepts without significant overhead. You won't have to keep re-entering data, or use apps for months to get enough data to work with. There'll be little cost to switching. It's very exciting.'

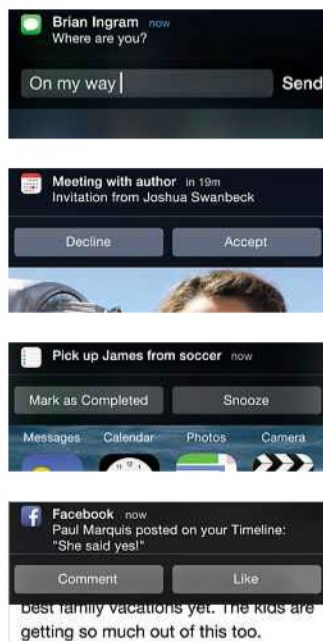
THE SWIFT LANGUAGE Apple's new programming language, Swift, was the biggest surprise of WWDC. Designed to be friendly and fast, it's a bold bet on the future of the company's platforms.

Broadly, developers are positive about it. Programmer **Eric Shapiro** says Objective-C, used for current OS X and iOS apps, is 'showing its age' and Swift provides 'features devs have requested'.

Paul Solt, an iPhone app expert, concurs: 'It's a modern language that takes the strengths of newer languages and has the power of the iOS SDK behind it.'

Illuminated Bits founder **Ish** is most excited by Swift's approachable nature: 'I taught my teenage daughters, with no programming experience, to write and understand some Swift in 45 minutes.' The effect on education and apps could be huge, thinks Perini: 'Tools and documentation available on day one made Swift one of the fastest-adopted programming languages to date. An impatient novice can quickly get accustomed to the tools. That and the endless

↓ Notifications, which appear at the top of the lock screen to let you know about incoming messages and events while you're not using your device, are now interactive. Instead of swiping an email notification, say, to open the email, then deciding whether to reply to it, mark it as read, delete it or whatever, you can take actions straight away. When a text comes in, you can tap it and reply in a box that pops up below. If an invitation is received, you can tap to decline or accept, and so on. This facility is also open to third-party apps; Facebook was shown as an example, so presumably they're on board, and other relevant apps will no doubt follow. This kind of feature can potentially save a lot of faffing around and distraction



Also coming...

As in OS X, Spotlight is smarter in iOS 8, and Messages gets customisable group chats and instant audio/video bites. Siri converts voice to text as you speak rather than having to wait, and can be activated hands-free by calling 'Hey Siri!'; it also uses Shazam to name tunes for you. iBooks is built-in, the Photos app has been redone with new editing tools, and the App Store can show video previews



← HomeKit facilitates apps that control things like lights and thermostats from your iPhone. Expect launches later this year

← Family Sharing is Apple's attempt to fill one of the most glaringly absent gaps in iOS: provision for family members to share each others' content without all having to be on the same iTunes account. How well it's going to work remains to be seen. The key limitation is that although your maximum of six family members can have individual accounts, they must all be linked to the same credit card. As long as that's the case, apps, music, films and books you've bought once can be used on all your devices. You can also pool your family photos and share a single calendar without hassle, and (if you choose to permit it) track each others' locations

↑ AirPlay is a great way of showing video from your iPhone or iPad on an HDTV or projector via an Apple TV, which has just had its price cut to a no-brainer £79. It should also be brilliant for games that use the TV for gameplay and the device as a controller, of which there are several, but wifi lag tends to spoil the experience. Now iOS 8 brings peer-to-peer AirPlay, so your device and Apple TV can form their own network rather than going via the nearest router. Not only does that mean you can use an Apple TV where there's no established wireless network, but it should also get closer to eliminating any lag. The same feature hasn't been announced for OS X, curiously

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expanse of Apple products and frameworks creates the perfect environment for the next generation of developers.'

Solt highlights Apple's Playgrounds, akin to 'scratchpads on which you can test code and see live results that aren't just textual'. Such visualisations 'remove a layer of difficulty and guesswork from programming, because you don't have to imagine and track everything in your head'. This is key because 'many who give up on app development get stuck on one thing, even if the fix is simple, because it seems insurmountable'.

Ish adds that Swift doesn't allow developers to make certain mistakes that

Our thanks to the developers

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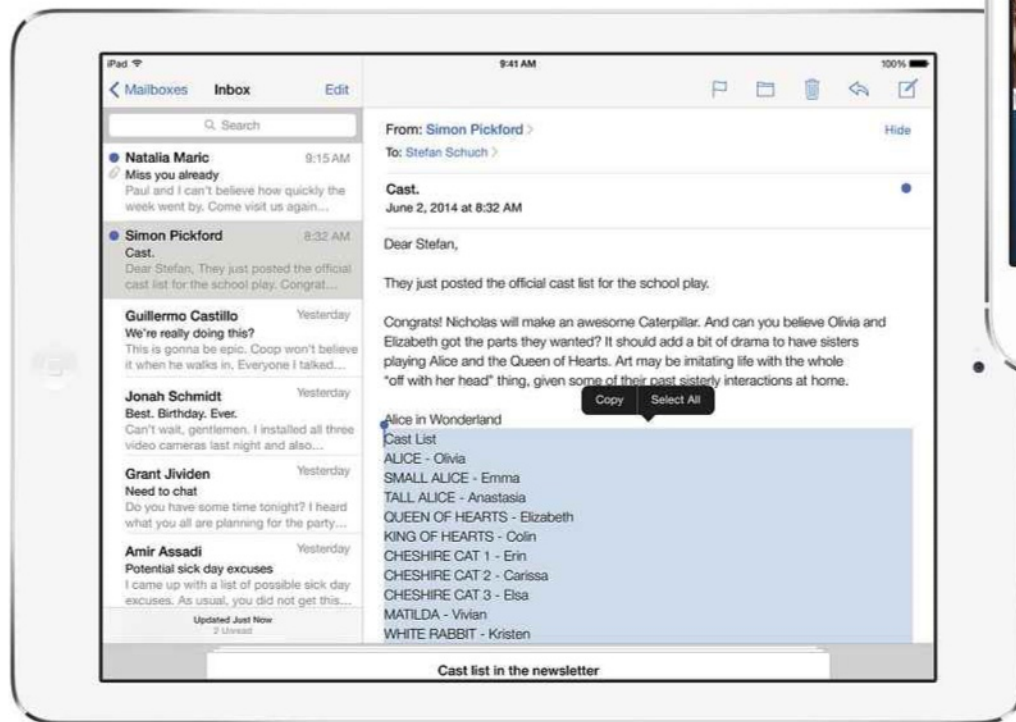
Brianna Wu
evolution60.com

What's new in iOS 8 (continued)

↓ A perennial annoyance in iOS's 'one thing at a time' interface is when you start composing something like an email, then realise you need to copy something out of another item that's in the same app. Since there's no concept in iOS of switching windows *within* an app, you have to stop what you're doing, for

example by closing the email and saving it as a draft, then go back to it. In iOS 8 Mail we're seeing the first tentative solution: you can drag a message that you're in the process of writing down to the bottom of the screen (its title remains visible, as seen below) to get at other messages, then tap it to get it back.

What's more intriguing is the support that's been spotted, and even unofficially demonstrated by developers, in the iOS 8 beta for an interface that presents two different app views side by side. This would suit a device with a larger screen, such as the rumoured iPad Pro, but could even work on existing models.



↑ The app switcher display that appears when you double-tap the Home button gains a row of contact icons at the top, giving you quick access to your favourite people and those you've contacted recently. It makes the multitasking screen feel cluttered, but could prove handy

Metal is a tool that will let games on your iPad look more like games on your console, solving the limitations developers currently run into

were possible in Objective-C, and this results in 'safer, more secure, stabler code, fewer crashes and happier customers'. Furthermore, as a powerful modern language, 'Swift enables you to solve problems and create engaging apps faster than before, with fewer lines of code, using more elegant solutions.'

There have been grumbles – bugs and performance issues certainly exist in Swift at the moment – but Spacekat's VanEseline dismisses these as 'growing pains' and believes Apple will iterate now that 'Swift is out into the world, with people using it differently from how Apple might have expected'.

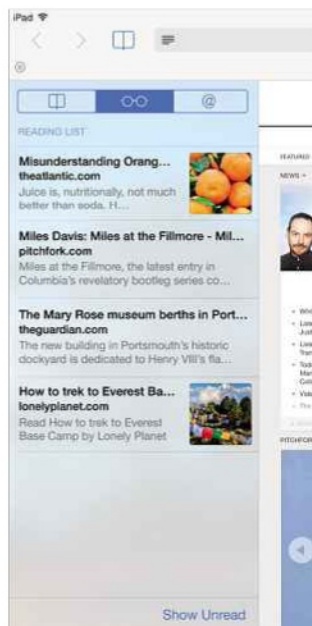
And Solt reckons anyone suggesting it won't gain traction is deluded: 'Apple is backing Swift. It will become the way to make apps. It paves the way for Apple hardware over the next ten years.'

GAMING GRAPHICS

Game development was a major topic of WWDC, reflecting its increasing importance to Apple. The keynote included the debut of Metal, a graphics technology created to enable console-quality games on iOS, along with SceneKit and improvements to SpriteKit which, respectively, aid developers in creating 3D and 2D games. 'Metal is a tool that will let games on

your iPad look closer to games on your console, solving problems like limitations we run into with particle effects and transparency,' explains Giant Spacekat's Wu, noting that 'metal' is game dev lingo for writing at the chip level to get the maximum performance. She believes Apple's tech has the potential to reposition iOS gaming: 'We'll see more console games ported to iOS, specifically, because you'll no longer have to heavily rejig effects, characters and level loads.' She also thinks Metal will put further distance between iOS and Android, leveraging Apple's control over its hardware platform, because 'you can't go into all

↓ Not only does the iPad version of Safari gain a Tab view display similar to that in OS X Yosemite, it gets a sidebar reminiscent of the desktop version too, where you can access your bookmarks, Reading List and shared tabs. (The iPhone keeps its slightly odd vertical carousel for tab flipping.) Apple has also stressed big performance improvements in iOS 8's JavaScript processing, and told developers in a WWDC session that, for the first time, web views in third-party apps would see the benefit, via the WebKit API, as well as Safari itself



↑ iCloud Photo Library, access from the revamped Photos app, is an evolution of the awkward Photo Stream. Previously, the last 1,000 photos you took on any device linked to your Apple ID were available to all the devices. This was handy, but since you didn't know which pics were dropping off as you took more, it wasn't a backup or central repository. At least photos didn't count against your iCloud storage allocation, which by default is just 5GB.

In future, *all* the photos you take will be in the cloud, always. Full high-res versions are kept on Apple's servers and suitable lower-res proxies synced to each device. That's nice, but this does count against your iCloud limit – and 5GB will fill up inexorably. Extra space is getting cheaper, but will still cost 99¢ (probably 79p) per month for 20GB or \$3.99 (£2.99) for 200GB, with 1TB the highest capacity. Flickr, incidentally, gives every user 1TB free.

If you don't have enough space for all your pics, which ones won't be stored? Will backups take precedence or photos? It all seems like a recipe for hassle and confusion



← HealthKit is a new framework that keeps medical and fitness data generated by apps and accessories in one place, where apps can access it if you let them. Health is an app that presents this data visually for you. This has a lot of potential. Apple is also very keen on systems that integrate your data with a health-care provider, so if your blood pressure or diabetic glucose reading is too high, your doctor is notified automatically. You might think that sounds great, or a privacy-invading, insurance-compromising nanny-app nightmare

WWDC 14

those separate Android device chips and code them to work the same way'.

Wu is less impressed with SceneKit, saying that, as someone who works all day in 3D, it's clear Apple's technology isn't nearly in the same league as Unreal or Unity, third-party engines commonly used to create iOS games.

However, she recalls how some pioneering iOS devs have had to build proprietary engines for relatively simple games: 'That's non-trivial. A game like Fieldrunners wouldn't need Unreal Engine, but Apple did not have the 3D tools those kinds of titles needed. So it's exciting that you'll be able to write a

mobile game and not have to write your own freaking engine to get there!'

Solt is more enthusiastic about SpriteKit and SceneKit, especially from the perspective of newcomers: 'The technologies make it easier to start with games. I remember struggling to learn OpenGL to create my first game. I failed – it was awful, so complex, and so much code for a "simple" game. SpiteKit makes 2D games much easier to create and introduces per-pixel collision physics for accuracy, and SceneKit helps you get started in 3D.'

Shapiro notes that one downside of Apple's new technology is that it's

Apple-only: 'If developers want to write cross-platform games, they will probably have to stick with third-party cross-platform SDKs.'


But there's no shortage already of developers choosing to create first or exclusively for iOS. And the iOS 8 updates are so impressive, Wu now thinks any game developer not considering Apple's tools and ecosystem is 'nuts, because the best is yet to come'. In a wider sense, she couldn't be more positive about Apple's future. 'It's a really exciting time to be an Apple developer, and I could not be more excited about where the platforms are going.'



PRAKTIK

How it's done.

WORDS CRAIG GRANNELL IMAGE MARLIES WESSELS/GAME OVEN

A woman with short dark hair is smiling and looking up at a hand holding an iPhone in the foreground. The background is blurred, suggesting an outdoor setting. The text is overlaid on the right side of the image.

Dance, my minions

Bounden is an app that began life when developers at Game Oven watched people play their earlier title, Friendstrap, where two people cling to an iPhone. They'd each try to wrestle the other off, and the result looked like dancing.

Well, it makes for a nice story, anyway. The devs even roped in the Dutch National Ballet to help work out how to get users dancing.

In practice, Bounden is very tricky to master. The interface isn't always clear, and the moves can be complex. It requires dedication. Tellingly, the dancers in the videos at gameovenstudios.com don't seem to pay much attention to the

screen. With two non-dancers, the result can be more akin to Twister.

But Game Oven are all about exploring people's relationships. Designer Adriaan de Jongh told MacUser the 'secret intention with Bounden is to get you all entangled with someone else', and 'trying to figure out how to beat the choreography together is a personal, intimate process'.

And in fact a few minutes of giggling, frustration, swaying and repeatedly nearly dropping an iPhone can be an oddly moving experience. At £2.49 from the App Store, it's worth a go for close friends and brave workmates.

[INTERVIEW]

JAMES TONKIN
FILMMAKER

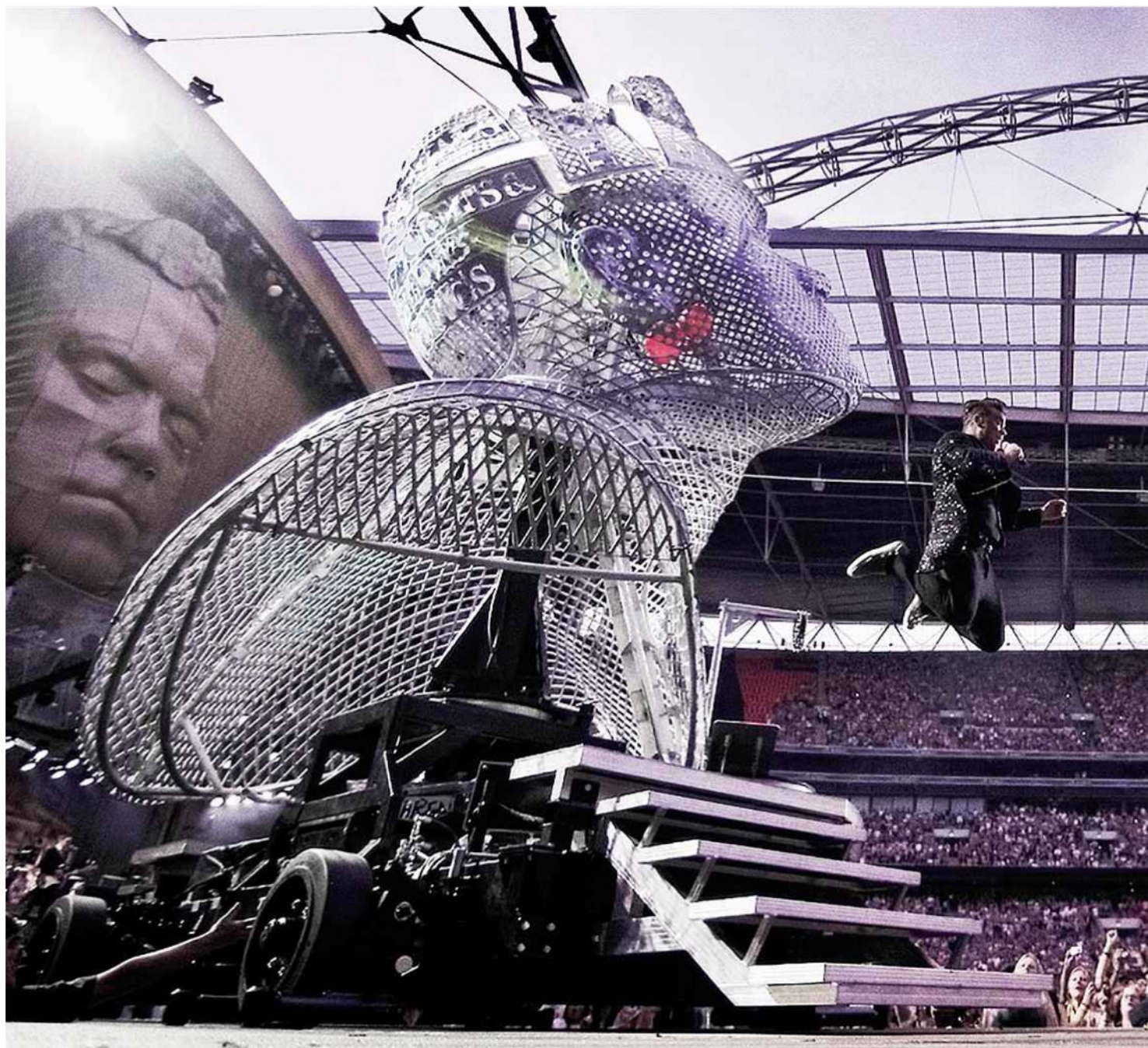


IMAGE HANGMAN STUDIOS - ROBBIE WILLIAMS 'TAKE THE CROWN' STADIUM TOUR, 2013



‘What happens is I go off on tour with seven cameras. It’s sort of ridiculous, but unfortunately there’s not one camera that does everything.’



MACUSER It seems like video has got a lot cheaper to get into, and there's an increasing variety of tools you can use for pro work. Has that been your experience?

JAMES TONKIN Yes, that sounds spot-on. I started using Macs when I was at university, for music, and then migrated towards video editing at the end of my degree. I shot a film on 16mm and Mini DV CAM in 1999-2000, and got into desktop editing in its infancy with the very first version of Final Cut.

Learning how to use that really helped to start me off as an editor, because I then got involved in a project called 1 Giant Leap – I seemed to be one of the very few people they knew who knew Final Cut at the time. I built up a studio with them to work on their project, and after that I got an offer from IE Music to set up and run Hangman for them, which I did until 2009 and then took it on as my own business.

That first version of Final Cut was really groundbreaking, wasn't it?

Oh yes. Final Cut has been what we've hung our facility around, and the other Apple apps – we run Logic next door – with Apple hardware at the base of it. Macs have been at the heart of everything we've done, because they just work, and I'm not interested in tinkering around with stuff, I want to get on with doing the creative bit.

When I set up Hangman in 2001, most people were recommending Avid as the serious cutting tool, but I didn't know if I wanted to spend £100,000 on an Avid setup when I could just buy the fastest Macs at the time and run Final Cut.

And we've stuck with that. This year, just before we went on tour, I bought a new Mac Pro again, and with the latest version of Final Cut that's another fantastic combination of hardware and software.

So you've made the leap from Final Cut Pro Studio to Final Cut Pro X?

Yeah. Like a lot of people, I was questioning what we should do, because the first version of FCP X that came out I opened it, then I closed it. And I thought, it's not ready right now, we can't migrate this into our setup; it didn't support anything we were using. So I tried Premiere and cut various projects in that.

But then I got an editor, Matt Cronin, who works for me all the time and bullied him into learning [FCP X], and he went through the teething process of adopting the Magnetic Timeline, and we believe ultimately it's the tool for us. The new Mac Pro is the thing that's really made it. It was working so much better on our Retina MacBooks than on the old 12-core Mac Pro – I couldn't understand what was going on. It's really optimised for the new-generation hardware.

Going on tour with the Rolling Stones, we had to work so quickly in delivering media, and we were shooting a lot of RED 5K footage, that I knew we were going to hit a wall with laptops. So we engineered a portable setup, basically a Mac Pro, Promise Pegasus RAID, 15in flat screen, that all folds away into carry-on luggage. Otherwise it would have been a big flight-case system carried around by roadies – we wouldn't have had it in our hotel room with us. It's done 20,000 miles in the last few weeks.

In terms of cameras, we're going through another revolution now. I noticed you were using the Blackmagic Production Camera 4K. How have you been finding that?

I have a very good relationship with Blackmagic. I worked with them early on, beta testing their hardware, and I've owned and used every one of their cameras.

They seem to be good at working with people in the industry, understanding what they want. Unlike

Apple, which sometimes seems to have no dialogue with anybody...

Yes, and I've faced that myself for years, talking with people from Apple. Blackmagic is very different, and companies like RED as well, which have a very public dialogue with customers, to the extent that you have the CEO replying to people online.

I have a good relationship with Sony as well, but the difference is that with Blackmagic being such a small company by comparison, you feel when you work with them you're giving feedback to the person who's going to go away and design or implement that part of the product.

The images from that [BMPC 4K] camera are so beautiful. I shot with DSLRs for a long time – we were quick to adopt Canon 5D Mark IIs [for video] when they came out – because I could see the benefit of these large-sensor cameras. But pushing them to their limits, including multicam live concert work, I got to the point where we were hitting a wall with the file [compression]. We always post-produce everything, we grade our own work, and everything was falling down when it came to the codecs. I used Sony cameras for a period, and I still



IMAGES HANGMAN STUDIOS

Previous spread

Robbie Williams' 'Take the Crown' 2013 stadium tour shot in 5K on RED EPIC

Left 'VS' shoot for Sony on a pre-release FS700 with Carl Zeiss lenses

Below 'Reflections', filmed in Dubai for Blackmagic on the Blackmagic Cinema Camera in DNG Raw



do, but I started using the Blackmagic [Cinema Camera 2.5K] as soon as it came out because the image was so good. And then I was really excited to have a 4K camera with a full [Super] 35mm sensor in it, just because I want my lenses to do what they do with my other cameras.

We took it on tour, and delivery is 2K because they really didn't want 4K in post, but using that 35mm sensor with the global shutter it's a really nice camera.

With the Sony a7S arriving, we've got two extremes now: an affordable 4K camera that's amazing in low light, and an affordable 4K camera that shoots really beautiful pictures but is rubbish in low light. Do you find that's an issue?

I'm excited about the a7S for the tour work I've got coming up, when I have to be there with a camera in my hand almost 24 hours a day, ready to take stills or video at any point. We were out on tour with the Stones earlier



this year across Asia, and now we're working with them in Europe; we go out as almost a newsgathering team. So a camera like the a7S is built for me – it's one little package which I'll just constantly have on me.

Like the a7R, it's got a great viewfinder so you can use it outdoors, it's got a replaceable battery, and the low-light sensitivity looks astounding.

For the Blackmagic 4K, 800 ISO is its maximum, and I'm not going to be able to take it and use it in every situation. I'm sure it won't be long before they bring out another sensor that has better low-light capability. We've already seen firmware updates for the existing cameras.

I'm really manufacturer-agnostic; it just depends on what the camera can do. So what happens is I go off on tour with seven cameras. It's sort of ridiculous, but unfortunately there's not one camera that does everything.

Well, now Blackmagic is doing a camera without a camera [the URSA HDMI].

They're very radical. They're like a young Apple, I think. They'll just look at the market and do something bold – and disruptive in terms of price as well. If it wasn't for companies like

that, I don't think we'd have half of the exciting creative tools in our hands that we do now.

[Blackmagic's] DaVinci Resolve is what we grade everything in – I think it's my favourite piece of software. They constantly redesign it, and I'm still getting free upgrades to the version I bought three years ago, even though it's becoming an even bigger finishing/editing machine. I'm not sure if they're going after an NLE market but it's a very serious finishing tool. And it's all about not being afraid to take your edit [from Final Cut] into another app – they've made the roundtripping and the codec support so much better.

We had it running in a hotel room purely as a DiTing station, transcoding RED footage across two or three laptops, an iMac and a RED ROCKET, just because it's such a flexible application. If you use Resolve Lite, you've got a free transcoding tool.

I suppose coming from doing 5K, the 4K bitrates wouldn't faze you, but a lot of people are concerned about the amount of storage...

For our concert work last year with Robbie Williams, we were delivering stills at the same time – I was pulling

stills directly from the footage. The only camera I could have done that with would have been a RED EPIC. So we made the decision at that point to buy an EPIC, and I looked at the hardware we were going to need to support that. Basically it boils down to disk space, and we upgraded our SAN to deal with that, and we're archiving onto LTO tapes.

This year we've found, with Thunderbolt 2 and the Pegasus RAID R6 we're using with the Mac Pro, it's just so, so quick, it doesn't even pause to think with 5K footage. So I've been totally unfazed because of that.

Premiere and Final Cut Pro X are both pretty good for multicam now, aren't they?

I haven't used the multicam in Premiere, but we always used it in Final Cut Pro Studio, and they've gone one step beyond in the new version. We've been throwing 4K GoPro and 4K Blackmagic footage into mixed timelines and it just edits it.

With all this relatively cheap kit now, we've got amateurs using the same tools as professionals. It's about the quality of your work, not what you can afford.



Left

A quick shot from a Sony FS100 while walking the streets during filming in Chicago for Coldplay Live 2012, the Mylo Xyloto tour

Below Another Dubai shot from 'Reflections', pushing the dynamic range of the Blackmagic camera and DNG format

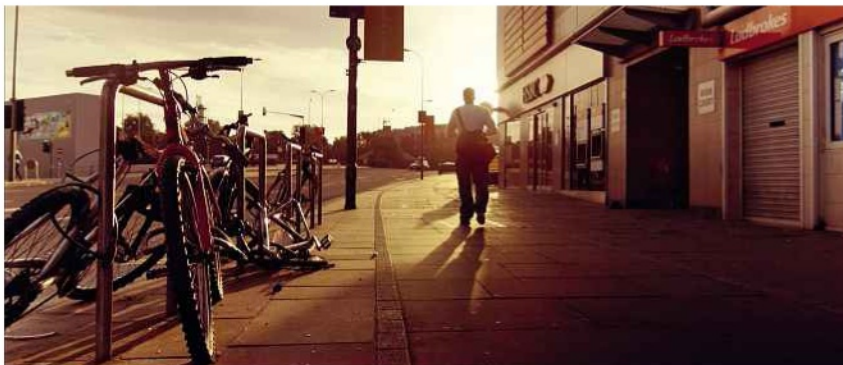
Below left

An early morning shot in west London from the Blackmagic Cinema Camera 2.5K

Bottom From a commercial we shot in an amazing penthouse location in Beijing, 2010, using the Canon 7D



IMAGES HANGMAN STUDIOS



That's what I've found so liberating and exciting about this industry, and the way the industry is developing. It started like that for me in post-production and desktop editing, and it's moved further towards that in terms of finishing and grading.

At the point where Blackmagic bought [DaVinci and its software] Resolve, they turned a £250,000 grading facility into something mere mortals could use in their bedrooms. It means that when I sit down to grade something, there's nothing to stop me producing the same quality of work any studio is producing, other than my own skill set.

Now the same thing is happening with cameras. To have something the size of the Blackmagic Pocket Camera – albeit it's got a 16mm sensor, but with the right glass on it and the right approach to filming, you can easily produce things which look completely cinematic, like a feature film. You don't have to be saying 'Ah, well, if we had enough budget for an [ARRI] ALEXA...' There's no excuse any more. That's the bottom line, basically.

Hangman is a pioneering audiovisual production and postproduction company based in Shepherd's Bush. See more work by James and his colleagues at hangmanstudios.com.



[BY DESIGN]

Libratone



‘We wanted to design a product that related more to interiors than electronics. We also wanted something that just looks and feels good. Wool was the perfect answer.’

In just five years, Libratone has established itself as a well-known manufacturer of beautifully designed and engineered audio products. Soft woollen sleeves in a range of colours give its wireless speakers a distinctly different feel to the hard metal and plastic finishes that dominate the market. And they sound good too.

We asked creative consultant Kristian Kroyer how the company, founded in Denmark, had developed the brand that's now conquering Europe and North America.

MACUSER How did Libratone come into existence, and how do you marry the technicalities of audio manufacturing with aesthetics?

KRISTIAN KROYER Libratone started out in 2009 to go all-in with wireless speakers when the first affordable wireless technologies became available. We wanted to design up-to-date alternatives to big black hifi boxes that hadn't changed for decades.

I left my job at a design agency to join three very passionate founders, who were determined – against all odds – to develop the world's first truly high-quality wireless speaker.

As creative consultant, my job has been to build the brand and the product family, including all the different experiences around it: packaging, user manuals, the website and so on.

Libratone is the result of a very tight integration of design and engineering, and we see acoustic constraints as seeds for creativity and distinctive designs solutions. The core across the family is our 360° FullRoom technology, which spreads sound in all directions and delivers the same perfect audio experience no matter where you are in the room.

One of Libratone's hallmarks is a distinctive fabric finish that gives its products a tactile quality, more like a craft industry than a tech industry product. How did this originate and what were you trying

to express with it? How and where is the material actually made?

We wanted to stand out from our competitors and the industry in general. We wanted to put a warm, friendly touch to consumer electronics and to design a product that related more to interiors than electronics. We also wanted something that just looks and feels good. Wool was the perfect answer.

After intense research and lab tests, we found an Italian manufacturer near Florence who had a product that almost met our aesthetic wishes and acoustic requirements. It wasn't all the way there, but then we sat down with the manufacturer and developed the perfect material for our needs.

The wool that goes into our production process actually comes from happy sheep grazing peacefully on beautiful poppy fields around Prato, the second largest city in Tuscany. They've been handling wool here since the 12th century, and now it's



IMAGE LIBRATONE LIVE



Europe's most important textile and fashion centre. Bigagli, the company we work with, was established in 1973 and has become a leader in the production of felts. So we were able to work with them to develop a felt with specific acoustic filtering properties and softness.

To make sheep's wool suitable as speaker sleeve material, it's first dyed, picked, cleaned and scoured. Then the 'locks' go to a drum carding machine that brushes the washed wool fibers and gets rid of the tangles. Carding can also create blends of colors by mixing the different coloured fibers.

The carding machine has a big roller with smaller ones surrounding it. All of them are covered in small teeth, and as the wool goes through the rollers, the teeth get closer together. Thin layers of carded wool fibres are layered 20 times to give the desired thickness. These layers are mechanically bonded to produce a thick, strong roll of fibres in interlocking directions. The final result is

a material that works like a perfect acoustic filter.

It's a truism that consumer technology products get cheaper over time, but the desktop/bookshelf speaker market has shown the opposite trend. Consumers are happy to pay 2-3 times what we used to think of as the top end of the market. Why do you think audio has become so much more important to people and the focus of so much design innovation?

I think users want quality, and I'm very happy about that. The docking speaker category more or less started out as low-end audio, but people now want better – and with audio there's almost no upper limit.

The technology and software that goes into the Libratone speakers was originally developed for £15,000+ speakers, and we tried to make it as accessible as possible. Compared to traditional hifi, the premium desktop/bookshelf speaker category is still a

low-price segment. Wireless speakers are a very competitive space, and without good design and innovation you're doomed as a brand. You need to deliver the full package.

The customers really benefit from this competition. There's no business case in selling crap!

Your Pinterest ([pinterest.com/libratone](https://www.pinterest.com/libratone)) has lots of beautiful pictures of your speakers in architectural settings. Presumably part of your design process is thinking about how each product will fit into a home or office. Do you have a particular kind of person or setting in mind? What kind of broad design trends do you see Libratone following, or leading?

We don't design for a specific audience or decoration style. We do what we think is cool, and architecture is a strong inspiration. Both my designer in crime, Carsten Eriksen, and I were educated at a school of architecture, so it's in our blood.



IMAGE LIBRATONE LOOP



We use colours and materials that relate to architecture and homes. The speakers stands out and blend in at the same time.

Regarding trends, our aim is to put a warm and friendly face to consumer electronics. We were the first to add a colour palette and to move away from the traditional speaker textile. This has set a trend that's being followed by others, skipping the sorry glossy black plastic that belongs to the past.

It's almost a cliché to say so, but Apple is continuously raising the bar and leading the way in design and materials. This also means customers expect more from the products they buy in terms of design. For a product designer, it's a dream scenario.

You also repost a variety of creative videos – we've just been watching 'Making Music With A Bike'. So you're obviously seeking out a wide range of inspiration. Is that something you find important?

Without inspiration, you die as a creative. We don't mind sharing! It's about showing who we are and how we think. We have strong Scandinavian roots, and it's about putting the user in the centre of what we do and keeping it simple. But it's also about being true to what we believe in. Expressing personality in a bold but friendly way is part of our brand, so we want to express our own values and opinions.

Last, and very importantly, it's about making long-lasting products.

Libratone has said it wants to target women, a demographic often poorly served by tech product design. What kinds of qualities do you see emerging when you think of product design from a more female perspective?

It's not about making it pink. It's all about focus on simplicity and functionality and not unnecessary special features that nobody uses or needs. Internally we call it 'unisex design', and in our opinion everybody benefits.

We're always interested in combining graphic and industrial design, so your collaborations with cartoon artists Lizzy Courage and Stine Spedsbjerg intrigued us...

Personally, I think these special editions are some of the most interesting things we've done. There's no big strategy behind them – and definitely not a financial one. It's something we did for fun and to set ourselves apart from the electronics industry. Adding personality and artistic value to a mass-produced product makes it more valuable and interesting.

There was no direction from our side – we just gave the artists some speakers and a rough deadline. We can't claim any credit! These are not commercial products: the 'World of Comics' series by Lizzy Courage was given away to blogs for competitions, and Stine Spedsbjerg's 'Fairytale Edition' speakers were auctioned on eBay, with proceeds going to UNICEF.

Find out more about Libratone, its wireless speakers and Italian sheep at libratone.com.

[CASE STUDY]

The Guardian app

The lefty British broadsheet has blossomed into a Pulitzer-winning force in international journalism – and now it has a brand new digital version. Steve Caplin spoke to its creators

On 29 May, the Guardian launched the third version of its mobile app. It's arguably the most radical newspaper app yet, dispensing with any attempted simulation of a traditional print experience. Instead, it offers its readers a fluid, responsive layout that works on both iPhone and iPad, as well as Android devices.

A story's relative importance is shown by its size within a grid; blocks of colour suggest not the section, but the tone of the item. As you scroll, images fade smoothly into view. The customisable front page can include as many sections as you want, and everything within one tap away from the front page is automatically downloaded for offline browsing.

It's an approach that's not only fresh but based on

some real thinking about how readers use news. And the response from users has been striking. The new app's reviews on the iOS App Store are split between one- and five-star ratings, with almost nothing in between.

We asked Guardian design director Alex Breuer, who oversaw the creation of the app, what seemed to be

polarising reactions. 'I think it's challenging perceptions of what a newspaper app is. Our competitors have tended to go for a backward-looking interface which says this is still a newspaper, this still gives you articles: a headline, an introduction, a picture and some text. What we've evolved is something that's geared towards a

Cut to fit The app's selection of news items is governed by editorial input

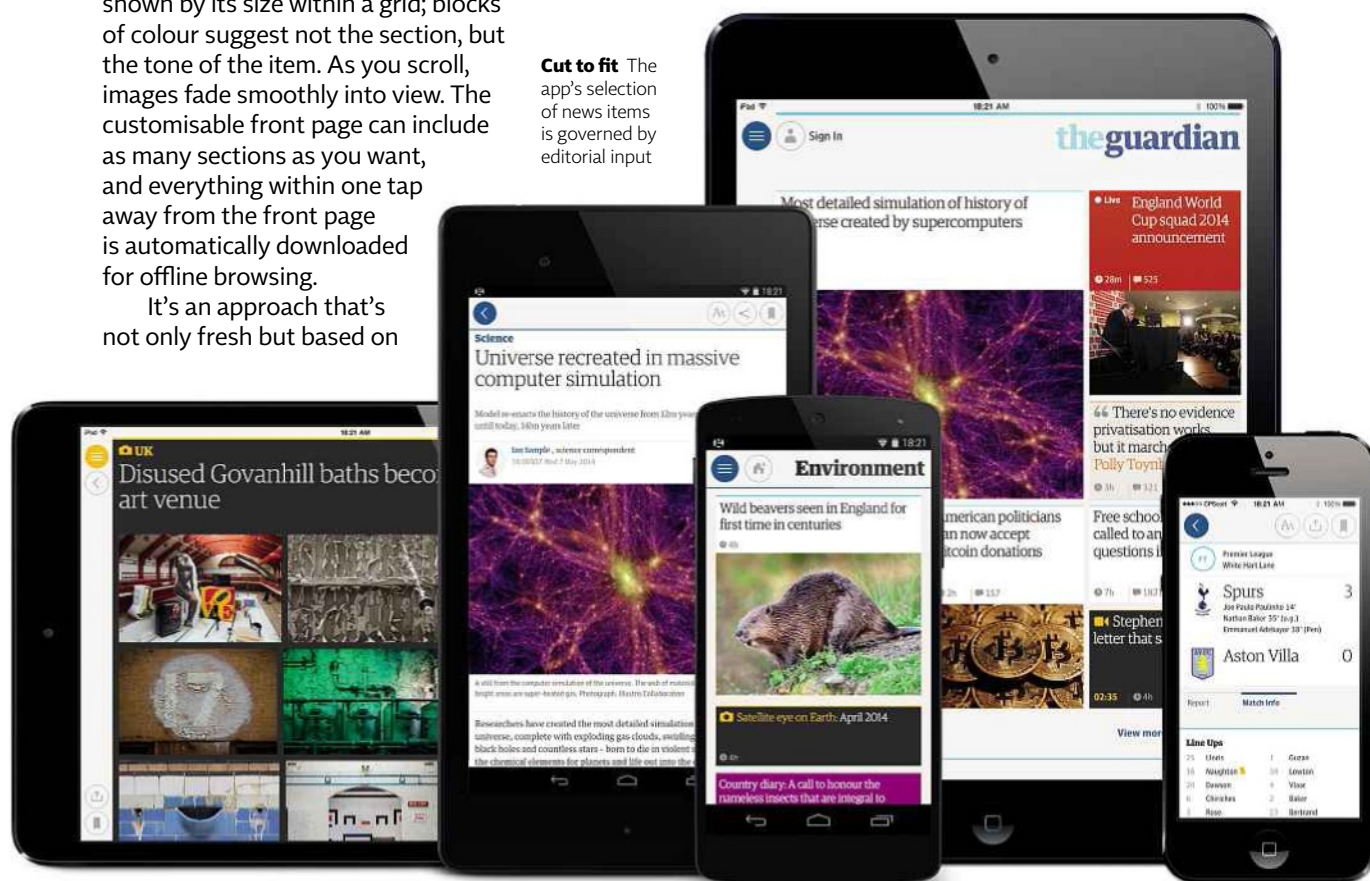


IMAGE THE GUARDIAN



Think... Alex Breuer (far left) and Odhran McConnell had new ways of looking at content in mind when they designed the new smartphone and tablet app

new content strategy. We're looking at more interactive forms of storytelling: more graphics, more video. It's no longer just about a list of words.'

Disconcerted users are the rule rather than the exception in news apps: read the App Store reviews for the Independent, the Times and the Telegraph and you'll see almost entirely disparaging comments. Are new media people pushing their readers in directions they don't want to go? Alex certainly doesn't think that's true of his audience.

'A certain proportion of the readership associates the Guardian with print journalism. But a month or so ago we had a hundred million unique browsers, which is far greater number of unique readers than our newspaper has ever reached. Our audience is a digital audience. We're a deliverer of not just news but travel content, entertainment, live sport...'

THE GUARDIAN HAS long been at the forefront of design, from the radical David Hillman redesign of the 1980s to the recent adoption of the Berliner format, which also introduced a slab serif body and headline font at a time when Egyptian faces had been out of favour for decades in print and were barely seen in digital.

'The font has a character that differentiates us from our competitors and reflects the unique personality of the Guardian brand. When I began evolving a cohesive visual

design language, not just digitally but throughout the brand, I thought: should we discard Egyptian?

'I quickly came to the conclusion that it wasn't what we needed to focus on. It was more about the forms and styles. We had to be conscious of what was going on in web and app design in general. Changing the interaction and colour language required more focus.'

A large number of icons were created for the redesign, matching the flavour of the house typeface. Rather than being called as graphic elements, they were themselves built into a custom font. What was the thinking behind this?

'It felt like one of those nice top levels of delight within the app, to assess the icon set we needed and get our own drawn in sympathy with the character and form of Guardian Egyptian. It's very small things, like little cuts and tapering of the arrows.'

By loading the icons as part of a font, the app could save the overhead of loading individual graphics on demand. As Guardian development manager Odhran McConnell told us: 'A font is loaded at the start of the app, so you don't have to think about it any more – you just call it by character reference. It just works.'

Odhran's team of nine – six developers and three QA – spent a year creating the new app. This spanned the move from iOS 6 to iOS 7 as well as OS X's move to Mavericks and

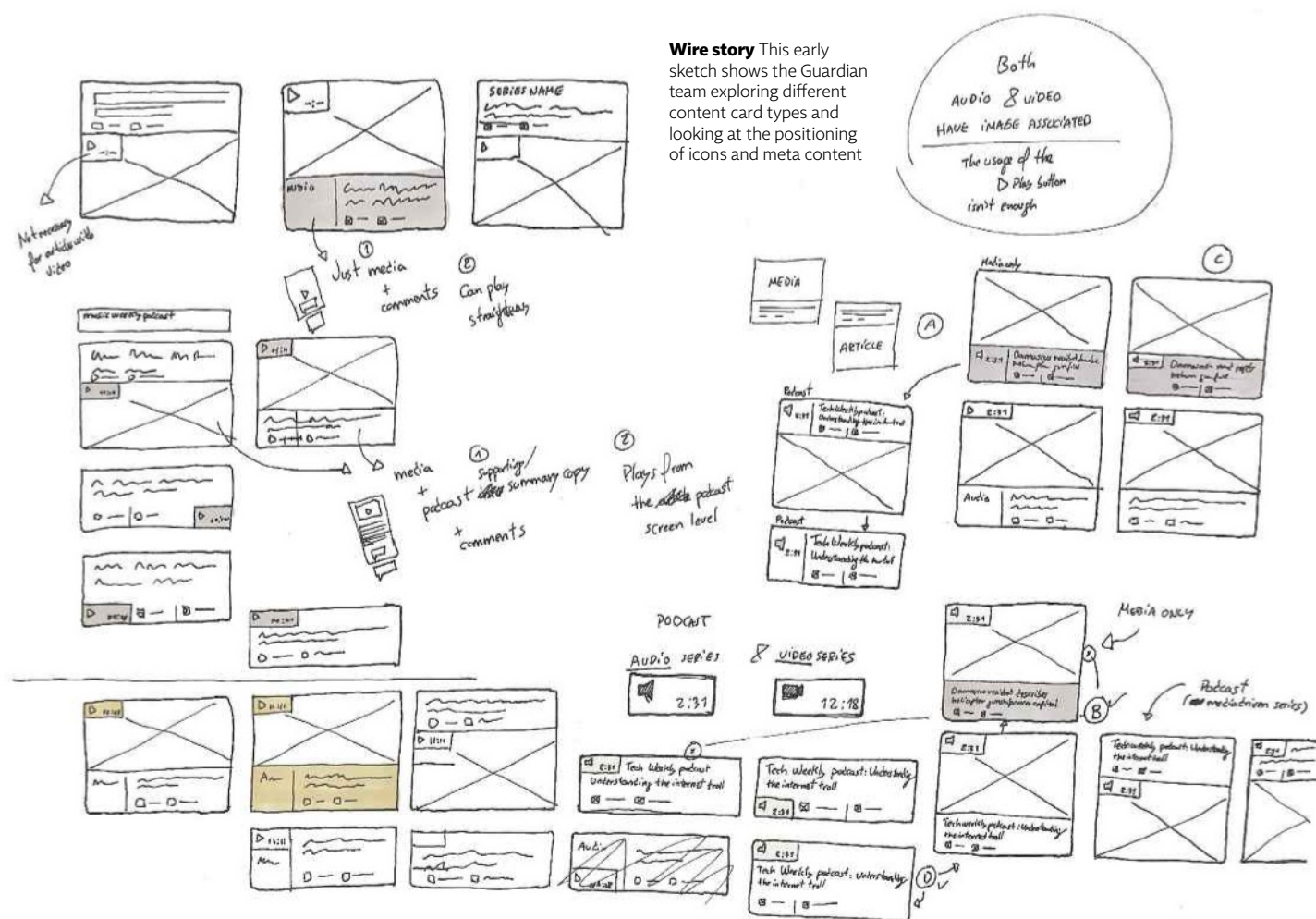
the attendant changes in Xcode, the Apple developer environment. How has that shaped the process?

'We knew iOS7 was on the way,' says Odhran, 'so we made a conscious decision to take advantage of all its new features. From a coding point of view, it meant we were able to produce something much more stable – we've been able to reduce the number of user crashes by 75%. Now, people will only get weird exceptions when they drop out of signal range or in very odd circumstances.'

Version 2 of the Guardian app was an entirely separate product, so users could choose whether to install it or stick with the original. This third iteration is a mandatory update. Users with older iOS devices can stick with the old app, however, 'and all our servers provide back end support for it,' confirms Odhran.

iOS and Android versions were released simultaneously. Were they developed in tandem? 'Both teams worked together, but worked autonomously. The Android team chose to stick with their code base and to develop on top of it, refactoring as appropriate, which is the way as developers we prefer to go about it.'

'But because there've been so many changes in the way you develop for iOS, it became clear that the old code base wasn't good enough. In order to take advantage of the changes Apple built into Objective-C, we chose to rewrite.'



Wire story This early sketch shows the Guardian team exploring different content card types and looking at the positioning of icons and meta content

Since the launch of the app, Apple has announced a completely new programming language, Swift, that it intends as a replacement for Objective-C. That must have come as something of a bombshell to someone in Odhran's position.

'The team was pretty much split down the middle. I was in the group that said yes, it's a new toy, let's go for it. Others said actually, we prefer to stay with what we know. [But] Apple is promoting Swift in a big way.'

FROM THE USER'S point of view, the iOS and Android versions are 'virtually identical', says Alex. 'When I arrived here we had a website, a mobile website, an iPad app, an iPhone app and an Android app, all done at different times, across different platforms, and they all looked and felt different.'

'One of the things I was passionate about was to have a consistent visual language. We have many users who may have an Android phone and

an Apple tablet, and who will access the paper through a desktop browser as well. At the core of what we do is our journalism, and I wanted there to be a design consistency across all those platforms. We have a consistent grid, a typographic language, and a new colour language.'

The new use of coloured blocks to highlight headlines and features 'talks about tone of content, rather than sections within the building, to help the user understand and navigate content,' Alex explains. 'People don't consume the Guardian in a strict hierarchical way. Using the colours to highlight a tonal change between, say, an analysis piece, a liveblog, a news piece or a feature seemed much more important than telling them whether the story is about culture or sport.'

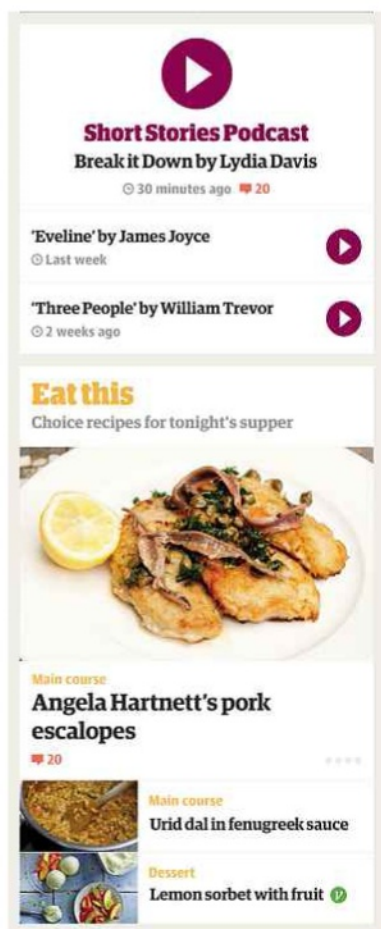
'There are five kinds of content: news, live content, features, comment and multimedia. We found with the website that people were clicking on a liveblog thinking it was going to be an article. We thought, how can we

help people to understand the different tones of voice? So in a comment piece, we have a quote to start with, and a byline picture. People recognise that's someone expressing their opinion. Blue colours are about trust and integrity; purples are used for features, because that's about creativity.'

THE GUARDIAN HAS a variety of strategies to gauge and respond to comments and criticisms, modifying the app in updates to broaden its appeal.

'We developed the app with an extensive beta programme – we have a UX lab in-house – and we've shared the design and evolution every step of the way with a collection of trusted users,' explains Alex. Is there a risk that those trusted users are well-versed in the Guardian design language, while others aren't?

'On Android in particular, we've been developing our relationship with users who don't like the app. Reviews on the App Store are very raw, very emotional, which is great because



Early doors The designers started with bolder headline type (above), but found this wasn't as legible at small sizes. Prototypes for the app's card system explored presenting various types of related content (left) and bringing different styling to features and multimedia (far left)

it shows people really care – but we have to evaluate whether [what they suggest] will substantially improve the experience for the majority of users. Apple themselves are famous for ignoring edge cases: if it's not for you, then it's not for you. If you ask people what they want, they'll say something just a little bit better than what they've got already.'

The app works in both landscape and portrait on the iPad, but only portrait on the iPhone. 'We scale from one-column layout to four on a tablet,' explains Odhran, 'but on a phone, landscape just doesn't feel right.' Some stories are a single column wide, some are two or more. Is this automated? Who decides on the relative importance of each story?

'That's one of the exciting things: we've built a whole new set of tools for the journalists and editors,' reveals Alex. 'Rather than just feeding everything into a CMS, there's a range of editing decisions, such as rating a story relative to another or boosting

the pictorial presentation of a story. This feeds into the responsive system and empowers the authorial voice of the Guardian across the interface.'

'The templates really come to life on tablets, where you can see different layout patterns that are led by editors' thinking, rather than by pure design or technical execution.'

THE NEW APP is much more graphically intensive. Will this affect users accessing it over a cell connection? 'There are differences depending on whether a user has wifi or 3G,' says Odhran. 'By default, we can turn on images optimised for Retina display to download over wifi, and can load more galleries. There are various tweaks that all make a difference. On 3G the new app has only a slightly bigger data usage.'

So what comes next? 'Support for iOS 8. We'll be making sure we get the most out of that. There are a lot of features we didn't get to put in, so we'll be working through the backlog

of those as well. The thing about app development is that it's an iterative process. We have plenty of ideas in the background – it's a question of getting them in in the right order.'

'There are a number of challenges around personalisation,' adds Alex. 'You can pin your favourite sections to the front page, but we can make that more intuitive. There are some subtleties around the hierarchy and ordering of the home screen that we should have addressed, but we knew we could learn and adapt.'

'We're really happy with the app, partly because we know how much more we can do with it. Over the coming months you'll really see that interface coming to life. The core brief was for a live news app, but there's a huge amount of additional content, and bringing that to life is going to be a big focus of the work.'

The Guardian app is free from the App Store. Subscriptions, which remove ads and offer premium content including crosswords, are available as in-app purchases from £2.49 per month.



Tangled up in blue

Last month Google changed its logo. It was a small change – so small as to be virtually unnoticed by its millions of visitors: the 'g' was moved one pixel to the right, and the 'l' was moved one pixel to the right and one pixel down. It's a change that many would regard as nitpicking, and you'll be hard pressed to spot the difference **1**.

However, nitpicking is a vice that Google has always turned into a virtue. One of the best examples was in 2009, when then product manager Marissa Mayer decided to experiment with the precise colour of blue used in the advertising links on Gmail. She produced samples of the pages using 41 different shades of blue and ran extensive consumer testing to see which one produced the highest volume of clicks. The winning colour, naturally, became the new official Google blue.

Absurd attention to detail? Well, the process was enough to drive Google's visual design leader, Douglas Bowman, to leave the company. 'Yes, it's true that a team at Google couldn't decide between two blues, so they're testing 41 shades between each blue to see which one performs better,' he said in his resignation blog. 'I can't operate in an environment like that. I've grown tired of debating such minuscule design decisions.'

And yet here's the punchline: the change of colour netted Google an extra \$200 million a year in advertising revenue. Or so we're told.



**STEVE
CAPLIN**
GRAPHIC
DETAIL

So what's the big deal with blue? For one thing, it's a controversial colour. Because blue isn't just blue, of course, it's a whole array of colours. And many of them have names: Spanish blue (RGB makeup 0,112,184) is on the green end of the spectrum, whereas Egyptian blue (16,52,166) is much more purple – and they also differ from Ultramarine (63,0,255), Navy (0,0,128), Midnight (25,25,112)... the list is almost endless.

Artists have long associated blue with the Virgin Mary, who has been depicted wearing this colour since the earliest times, as in this Fra Angelico painting from 1430 **2**. The invention of new blues dictated the direction of art: Prussian blue, the first synthetic pigment, appeared in 1707, and it was a century before the appearance of Cobalt blue in 1802, which became a favourite of Van Gogh. It took another 58 years before artists could readily get their hands on Cerulean blue, famed for its ability to render blue skies.

Between 1901 and 1904 Pablo Picasso painted almost exclusively in shades of blue **3**. And in 1962, Yves Klein was so proud of his discovery of a startling blue pigment that he named it International Klein Blue, and painted entire canvases using just this colour **4**. (He went on to persuade women to take their clothes off, daub themselves in the colour and roll around naked on blank canvases, but that's another story.)

Google
Google

1



2

3



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12

Wilko Exterior Gloss Cambridge Blue .75L



10

Wilko Exterior Gloss High Performance Paint Oxford Blue 750ml



11



13

And if the exact colours don't show up well on these pages, it's because blue is notoriously difficult to reproduce in print.

When it comes to food, blue is a notoriously off-putting colour. You'll rarely see food packaging in blue, because it's the colour of mould. Blue foods tend to be poisonous, blueberries being one of the few notable exceptions.

Blue may be the colour of mould, but it's also the colour of the antidote to mould. It has antiseptic, sanitary connotations, and is often used as the packaging for cleaning products, from bleach **5** to dishwasher powder **6** to lavatory cleaners **7**.

When creating a corporate identity, blue is the colour of technology. It's no coincidence that many of the world's leading computer companies use blue for their logos **8**, including Hewlett-Packard, LaCie, Intel, D-Link and Dell.

Blue is the colour of authority. It's the dominant colour of just about every national government website, be it UK **9**, American, French or whatever. Politicians prefer blue suits, as the colour makes them look sober, professional and in control. Politically, the Tory blue is calming, restrained and clearly conservative, while the Labour red speaks of blood, fire and revolution.

It's perhaps a coincidence that the UK's two oldest universities, Oxford and Cambridge, should both choose blue as their corporate colour. They

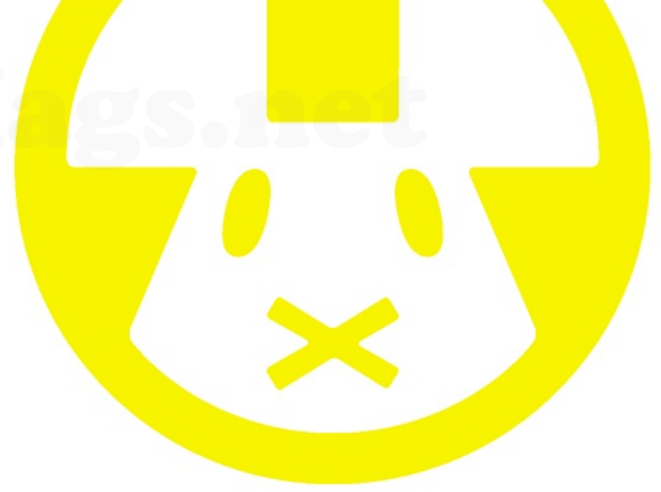
are distinguished, however, between a light blue for Cambridge, and a dark blue for Oxford, the difference clearly seen in these Wilkinson paint swatches **10**, **11**.

Choosing exactly the right shade of blue is a difficult matter, as the Google example shows: the wrong shade could knock millions off the value of a company. That may be an extreme example, but it's certainly the case that blue, more than almost any other colour, encompasses a huge range of shades. Deep blues represent propriety, steadfastness, solidity. If you're designing a business card for a financial adviser, a dark blue would be the perfect choice. Dark blue is the colour of the most expensive streets on the Monopoly board.

Bright blues, bordering on pure cyan, suggest fun and levity. It's not a colour you can depend on, so it's rarely used by companies that depend on probity, with the notable exception of Barclays Bank, which has used the colour for many years **12**. However, even Barclays recognises that the colour does it a disservice: it still uses it in most of its corporate materials, but will tone down its impact by surrounding it with a much darker, more sober shade **13**.

Blue isn't just blue, it's a whole range of colours, and they all mean different things. In the end, then, perhaps Google's obsessive debating wasn't so silly after all.

Steve Caplin is a designer and illustrator working for a range of national newspapers. His best-selling book *How to Cheat in Photoshop* is published by Focal Press. This column appears monthly.



You get the picture – don't take it too literally

We see and use icons on a regular basis; symbols saying anything from 'recyclable' to 'no entry', 'train station' to 'print'. Many icons we see regularly are understood more through prior knowledge than through them being clear representations of what they're for. Sometimes the symbol is even based on something that's out-moded or obsolete. Probably the best example is the Save icon: it's been pretty much the same since the dawn of personal computing: a floppy disk. But when did you last use a floppy disk? As a graphic representing a real-world action, it's nonsense.

Sometimes it's argued that this floppy icon is an idiom rather than a metaphor, so the quaintness of the obsolete reference isn't important. I disagree, in that it's more than a little metaphoric, but this distinction is a good one to keep in mind.

One alternative often suggested is a hard disk icon, but I don't think that's such a great idea. Not only is it trading one somewhat clunky metaphor for another, but a hard disk drive is a pretty generic thing to try to represent. On top of that, these days we may be saving to SSDs, networked drives, memory sticks or cloud storage. As a reference, it's no better than the classic floppy disk.

Maybe trying to create a visual description of the action of saving is part of the problem? Going for memorable rather than literal meaning was the idea behind the biohazard symbol. This was made



**KEITH
MARTIN**
DESIGN
COUNSEL

PORTRAIT: ALYS TOMLINSON, ALYSTOMLINSON.CO.UK

in 1966 by the Dow Chemical Company. Charles Baldwin, part of the design team, said they specifically 'wanted something that was memorable but meaningless, so we could educate people as to what it means'. In that respect, it's a definite success, as it's understood around the world as something to be avoided. But the Save icon is intended to be part of a family of symbols, not something on its own. There should be a consistent graphic language used in these icons to help them work consistently and effectively. Should we then create equally 'meaningless but memorable' symbols for Open, Print, and so on? No, that would be taking things to an illogical extreme.

The old-fashioned Save icon has vexed designers for many years. An idea suggested by OceanCohen (bit.ly/oceancohensave) looked at representing data, flow and medium in a consistent visual manner. The results feel in need of slight refinement, but there's something very interesting in this careful abstraction of concepts.

In 1995, Alan Cooper wrote *The Myth of Metaphor* (bit.ly/mythofmetaphor), which was a great dissection of the difference between idiom and metaphor in interface design. He predicted that the future of interface design would be based on idiom, relying on our ability to associate meaning with symbols. An important part of his conclusion is that there is 'an infinity of idioms waiting to

1 Literal thinking

The Save icon is classic skeuomorphism: when was the last time you even saw a floppy disk?

2 Line art

Pre-System 7 Control Panel – not a drop shadow in sight!

3 Go with the flow

OceanCohen's visual representation of data, flow and medium is an interesting abstraction

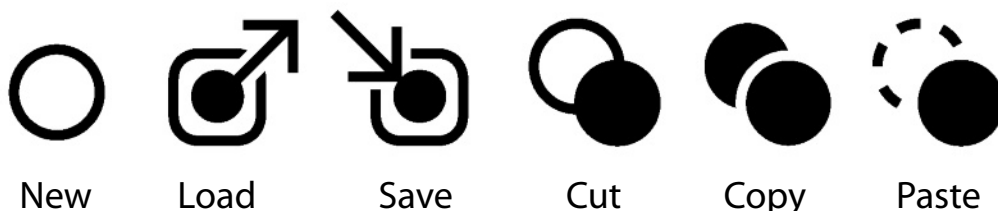
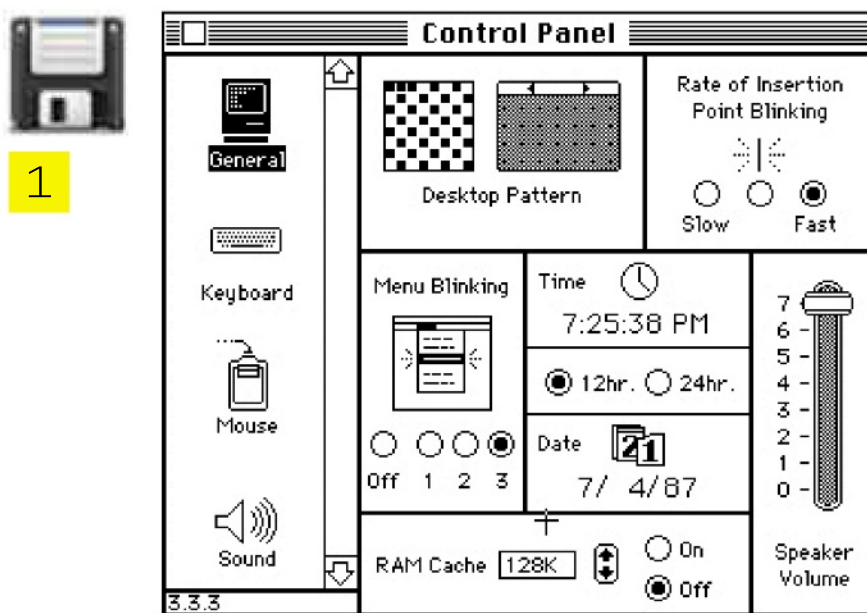
4 Instant impact

Abandoning the literal approach to icon design, the biohazard symbol was designed in 1966 to be specifically memorable but in itself meaningless

5 Full circle

iOS 7, like its ancient pre-System 7 ancestor, has icons with clean outlines, but their consistency in approach makes them easy to understand

Keith Martin is MacUser's technical editor. An Apple user since the beginning, his background is in graphic and interactive design. This column appears monthly.



be invented, rather than a limited set of metaphors waiting to be discovered'. He could almost have been looking ahead more than 15 years to the eventual rejection of skeuomorphic design, as championed by iOS 7 and Windows 8.

Indeed, it's iOS that now presents us with some interesting new takes on the traditional icons, although the Save button is, oddly, done as the word 'Save' rather than as a graphic (perhaps because auto-saving is now the norm). The visual style of icon introduced with iOS 7 is based on clean outline strokes of unvarying width, abstracted to an impressive degree, but with a consistency of approach that – usually – makes it easy to understand what each one is, or at least what class of functionality it has.

The iOS Share icon, for example, is an arrow pointing up out of a box outline. Apple's developer documentation says this opens 'an action sheet that lists system-provided and app-specific services that act on the specified content'. In layman's terms, it exports a copy somewhere. The semiotics of the various symbols isn't entirely consistent – for example, the icon for showing downloads is the same as the one for sharing, but with the arrow pointing downwards, even though it *lists* rather than *does* – but it is related, and we quickly learn to associate the particular meaning with the symbol. Just as Alan Cooper said we would.

The evolution of these software feature icons may also see the whole idea of explicit saving fade into insignificance. People are getting used to autosaving behaviour, and iCloud's method of working means that we're thinking less and less about where a document actually is. That's clearly where iOS 8 will take us, so Save and Save As are taking something of a back seat, even as the old floppy disk artwork is finally shaken off.

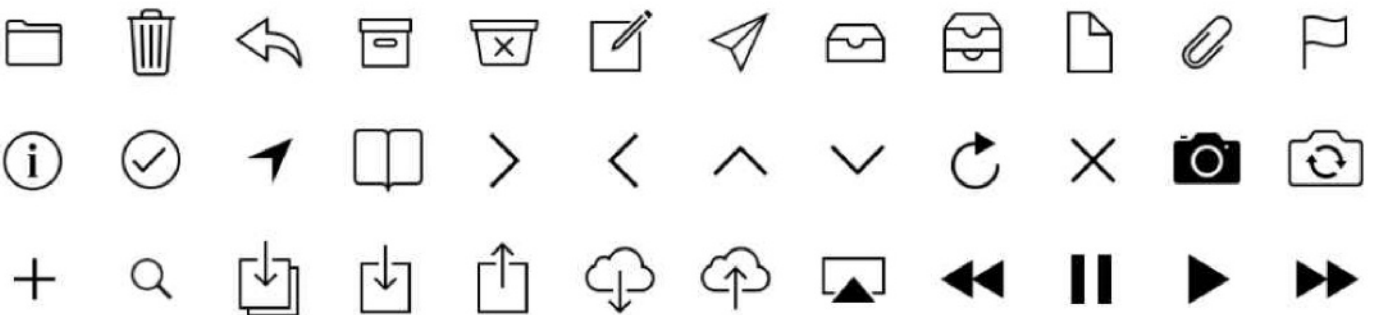
The evolution of all this will keep marching on, and Apple makes this pretty clear in its developer documentation. Along with detailed information about the meanings and uses of the various standard OS-supplied icons, it adds: 'As with all standard buttons and icons, it's essential that you base your usage of an icon on its semantic meaning, not its appearance. This will help your app's UI make sense even if the icon associated with a specific meaning changes its appearance.'

So, in a sense, the precise iconography of our software and operating systems is just the current fashion trend, this season's must-have look. We've recently stepped away from a trend towards increasingly realistic imagery and taken up a stripped-back, flatter and (in the icons at least) monochrome symbolic line-art style instead. Which is, curiously, much like things were before System 7 appeared in 1991. Well, they say fashion goes in roughly 20-year cycles, don't they?



IMAGE ISTOCKPHOTO.COM/ZMEEL

4



5



TECH NIK

[PRIMER]

Abandoned by broadband

A failed internet connection can spell disaster, so what can you do?

Internet connections are getting more reliable, but there's always the rogue worker who cuts through fibre-optic cables with a drill, the winter storm that brings down overhead cables or remote hardware failure. However it might happen, a little bit of forethought and planning can save you from the cost and frustration of complete blackout.

The most important information that you must keep to hand is how to contact your ISP in the event of a service interruption. Keep that updated from their support pages. If those only provide online methods of reporting the fault, search those pages until you find a phone number. If you're dependent on an internet connection and outage will cost you money or cause serious problems, you must plan an independent secondary connection that you can fall back on. For low data volumes, this could readily be a reliable 3G

cellular phone service, perhaps using a 'mifi' point to support a Mac or two and iOS devices. For heavier use, a second full broadband connection is invaluable, and need not be too expensive: a small business package might be sufficient.

You can run two or more modem-routers on the same network by assigning them different IP addresses, such as 192.168.1.253 and .252, and configuring each networked device to use one of those as its router. However, you must set them up so that only one device provides DHCP, or mayhem will result, with different devices being assigned the same IP address by a different DHCP server. Make each modem-router setup a separate location, and switching from your primary to secondary connections will take but a few seconds.

ISPs sport detailed service status reports that are often misleading or out of date. If no fault appears listed for your area, don't assume that it's your modem-router or local network that has gone down, but check your end carefully to rule those out. Remote line checks can fix issues quickly, but may be surprisingly

[continued on p78]

IMAGE: STOCKPHOTO.COM/PEOPLEIMAGES





Ping and traceroute

The most useful tools for diagnosing internet connection problems were built into the old Network Utility, oddly dropped from Mavericks. Locate your old Mountain Lion version (1.6) on a Time Machine backup, in the / Applications/Utilities folder, and copy it across to your current Applications folder.

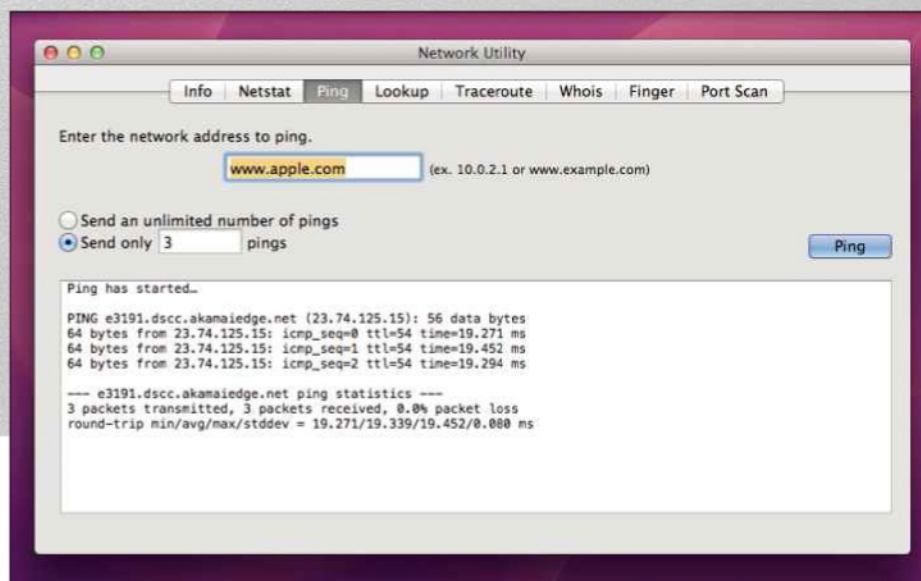
The Ping pane is an important test: set this to ping a server such as apple.com or one of its related IP addresses of 92.123.184.211, and you should see three prompt replies. If the IP address works

↑ Testing testing
Establishing whether your Mac can ping a remote server such as apple.com is a fundamental step in testing your internet connection

but the domain name doesn't, you have a problem with DNS resolution. If both work fine, but other services such as HTTP don't, suspect your ISP is throttling certain network traffic only, because of server failure or misconfiguration.

Traceroute is valuable for explaining slow ping responses, as it shows the intermediate servers between you and a remote system.

This can, say, discover switching problems in your ISP's hardware, if your packets are sent round many intermediates before reaching another country. There are also fancy graphical versions such as WhatRoute that help visualise where the delays are. Avoid unnecessary tests and never use PortScan unless the operator of the system you're scanning has given you permission.



[continued from p76] slow and uncommunicative. Be prepared for spurious errors, perhaps being diverted to a website that claims that you have been disconnected because your account is in arrears. However, it's wise to ensure that there's no truth in that suggestion!

Basic steps to verify that the fault lies in your connection and not your Mac, modem-router or local network begin with you restarting your modem-router and Mac. If this doesn't restore normal service, try connecting with another device, such as your laptop or iPad. Connect your Mac directly to the modem-router using a trusted Ethernet cable, and check the connections between the modem-router and service socket. Replace any broadband filters along that path and prune all devices other than your modem-router. If it's connected to the line that provides voice

phone services, check that they're working correctly; if the whole line is dead, report that as the top priority.

Sometimes only certain services, such as outgoing email or HTTP/HTTPS connections, are lost. Once you've restarted your modem-router and Mac, check that the faulty services aren't being blocked by a firewall or other configurable filter within your local network.

Painfully slow connections to your ISP's servers that fail altogether when you try to go further are a good indication that your ISP has either inadvertently limited your service, or its servers and connections are at fault. There's then little more that you can do other than wait for it to fix the problem. Provided that you've planned for that contingency, that wait should be but an inconvenience, not a disaster.

Q&A

THEY CAN HELP Apple's technical support system, Knowledge Base, is always available online. At support.apple.com, search for answers on any Mac or iOS topic. If you need help with a product, enter its serial number at selfsolve.apple.com and Apple will show your support, warranty and repair options. (There's a link here to where to find the serial number.) Or try getsupport.apple.com for quick guidance. For user manuals, see support.apple.com/manuals.

WE CAN HELP If you have a Mac or iOS problem, write to Howard Oakley at help@macuser.co.uk. Explain the issue, giving details of hardware and software. Or tweet @macusermagazine with a question and we'll tell you the answer if we know it.

YOU CAN HELP Some problems are rare, but few are unique. At discussions.apple.com you can ask questions, search posted answers, and help out other users with your own solutions.

Spyder-ban

Q When I installed a Spyder screen calibration system on my iMac, it couldn't see its WD My Book Studio II RAID drive, even after reinstalling the WD software. What happened?
Robert Goodlad

A This is probably a clash between the kernel extension software to support the Spyder and that for the RAID drive. Restart with the Shift key held down to disable non-Apple extensions, then remove the files IOFireWireWDHID.kext and CNQL1208_ClassicNotSeize.kext from /System/Library/Extensions. Restart with the Shift key held again to force the rebuilding of caches, reinstall the Spyder software and restart. If Disk Utility can't see the RAID, try installing the latest version of its software. If that still doesn't work, contact WD support. Sometimes hardware fails coincidentally at the same time that you install new software, and it's possible that your RAID drive has done just that. If the supplier can't fix the problem, you may have to choose which device you want to work with.

Hot desking

Q I'll soon be working as a designer at multiple locations, and am looking to buy a refurbished MacBook Pro or Air to run Adobe Photoshop and InDesign via my CC subscription. What would you suggest? *Steve Flight*

A Adobe lets you use your single CC licence on both a desktop and laptop Mac, so your plan shouldn't increase the CC cost. First, ask whether you need a laptop at all or whether you could lug a refurbished 21.5in iMac, which would give you more storage and better graphics (1920 × 1080) for similar outlay. If you must have a laptop, you'll need 4GB of RAM at least. Sadly, most graphics cards steal up to 1GB from that when running at the native resolution of 1440 × 900 (13in). An 11in MacBook Air would only give 1366 × 768, and still steal from main memory. An adaptor for the Thunderbolt digital video output would let you use an external display. At this end of the price range, you'll probably only get 256GB of flash storage, but an iMac could have a

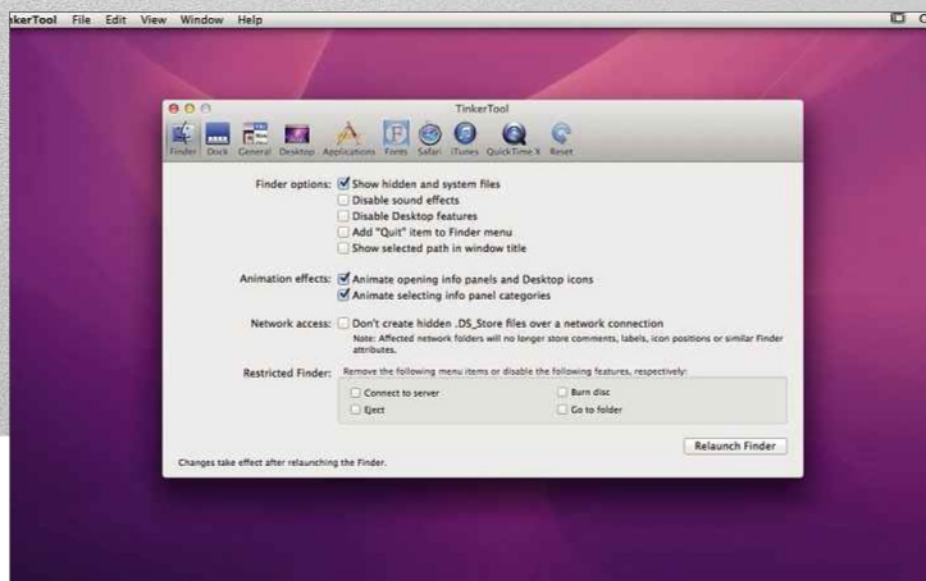


↑ **Don't be weak** Password Assistant, opened through the often overlooked Keychain Access utility, can help you generate random or custom passwords that are suitably robust

Password protocol

Q I want to use Keychain to store passwords, but can't see how to change existing passwords to those generated by Keychain. Is this the right way to go and how can I change an online password in this way? *Roger Winterton*

A You already use several keychains on your Mac, and you'll find that many passwords are being stored there. Safari integrates fully with this, and if you open Safari's Preferences and click on the Passwords tool, you'll see web entries in your keychain, also accessible using Keychain Access. The latest change to Mavericks and iCloud also allows you to store items in an iCloud keychain, which can be used by every device that can access your iCloud account. This can save you having to synchronise passwords across Mac and iOS devices. If you want to use Password Assistant to generate secure passwords, open Keychain Access and click on the key icon. Once you've chosen the robust password, connect to the web service, enter your personal settings, and there change the password. Log out of that site, open the site setting in your keychain, make the password visible and change it to your new password.



← In the bin

Unless you fancy working in Terminal, TinkerTool can make your hidden Trash folder visible so that you can correct its disk permissions

Empty threat

Q When I drop something into the Trash, I'm asked for my password; when I authenticate with it, the item is instantly deleted. How can I restore normal function? *Steve Randall*

A Moving some items from /Library and /Applications can require authentication, but files in your Documents folder shouldn't. Sometimes changes like this result from third-party software. Assuming it's just a permissions problem, and repairing permissions doesn't help, you can correct this. Select your named Home folder and check permissions using the Finder's Get Info command. This should be set to your user name as owner (Me) with read + write, staff as the group and read only, and everyone read only. Then, using TinkerTool, make all files and folders visible, and restart the Finder. Find the folder named .Trash as the top level of your Home folder, and see it's owned by you and that you have read + write permissions to it. If correct, return Finder visibility to normal and restart.

Did you know?

One good way of creating robust passwords that you can also remember is to take a favourite unusual word, such as 'prognosticate'. Mutilate it by substituting digits, capitals and non-alphanumeric characters, so it might become '6rognost!c8'.

Ad nauseum

Q Further to my desire to block popups in my browser, I've seen a solution in Apple Support discussions that uses an AppleScript to modify the 'hosts' file to block the addresses. Is that effective? *Martin Bee*

A That solution saves you from adding manually several well-known popup advertising servers to the network 'hosts' configuration, by running a short AppleScript to send the commands to the command shell. Yes, it does work, but Apple deprecates modifications to the 'hosts' file, as there are smarter ways to do that using firewalls, and one day the file may be ignored. Popup servers also get wise to the block and may use different servers to circumvent your block, forcing you to play cat and mouse.

Memory block

Q Memory use in Activity Monitor is always in the yellow, and my Mac keeps grinding to a halt. Can you see anything in my logs to account for this? *Mike Bird*

A The most important figures are page ins and outs: OS X manages memory very efficiently and may seem to be using it close to the maximum at times; it should do so! Your logs contain traces of Intego NetBarrier X5 (X8 is current), and you should rely on your modem-router's firewall rather than a local software add-in if possible. Your Mac is running postfix, which is a mail server and should be unnecessary. CleanMyMac is another utility that could be stealing lots of CPU time and memory.

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WorldMags.net





[iWORK PRO]

ePubs made easy

iWork for iCloud has transformed Pages into an ePub authoring app

Thanks to the near-ubiquity of iPhones, iPads and other digital reading devices, ePub is beginning to nip at the coat tails of PDF as a legitimate online format, particularly when it comes to larger documents. I've noticed a marked growth in its popularity for lengthy reports and papers on corporate websites.

For that section of Mac-based website managers who already prepare such reports in Pages, that's great news. They know that it's almost as easy to produce a good-looking ePub as a PDF.

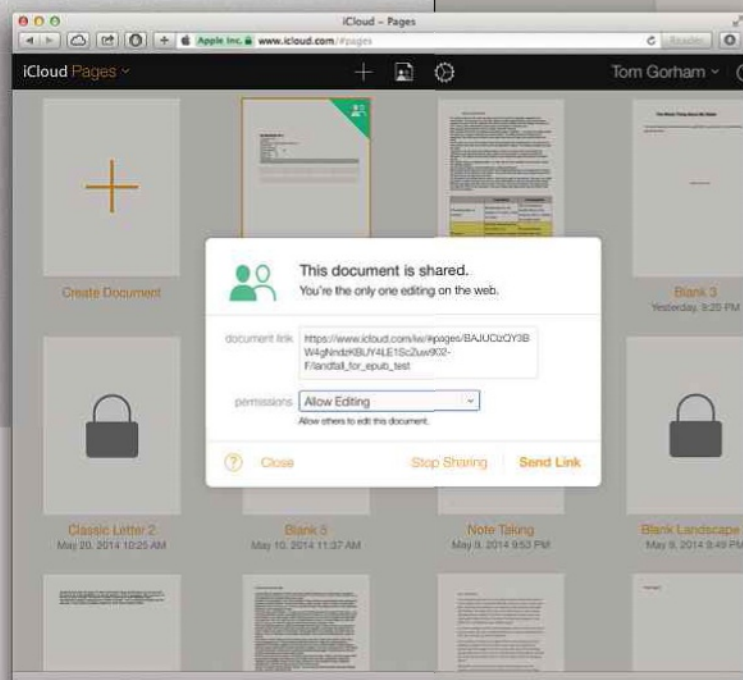
But it has to be acknowledged that Mac users with a copy of Pages within a corporate environment qualify as a niche within a niche. I'm willing to argue until a state of apoplexy is reached about how Pages trumps Word in many areas, but when it comes to enterprise, Microsoft's Office is still the only show in town.

↑ Working together

One of Pages for iCloud's advantages is the ability to collaborate with dozens of colleagues simultaneously

→ PDFs R us

The ability to export files to PDF means that anyone with an Apple ID can create PDFs online



For those looking to create their own eBooks in such an environment, that introduces hurdles. For Windows users, the best options are third-party plug-ins for Word or apps such as the capable and free Calibre (calibre-ebook.com).

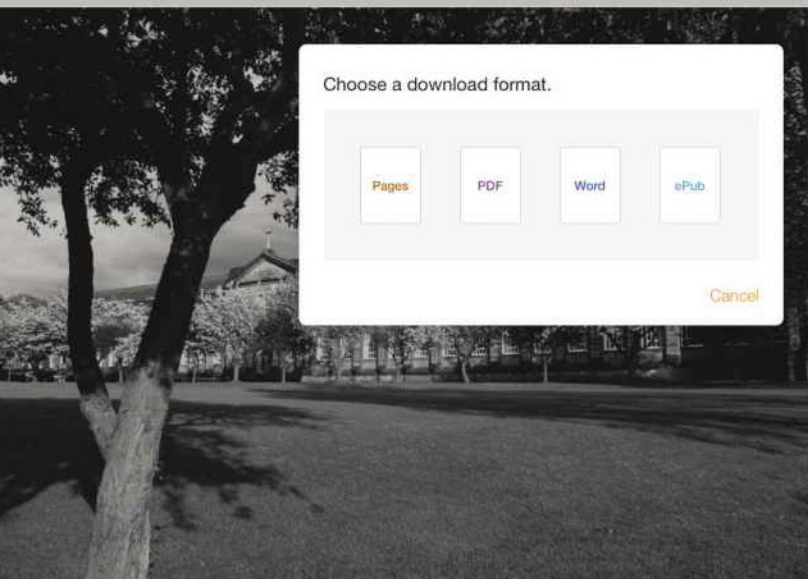
However, in corporate environments, there may be restrictions on the software that can be installed on a PC. In such cases, your choice would naturally turn to online converters such as 2epub (2epub.com). But these can be restrictive – for example, 2epub doesn't let you work with files larger than 25MB, although in compensation, it does convert to a wide variety of ebook formats.

So among other changes (see box, overleaf), what intrigued me most among the improvements to the latest beta of iWork for iCloud was the one that allows you to export directly to ePub. It's now possible to generate a good-looking ebook from a Windows PC running software no more complex than Word. Effectively, it turns Pages into an online ePub authoring app anyone can use.

Why use Pages for iCloud over the alternatives? One reason is that it can work with much

Seeds of Rebellion

All too soon, my years of childhood innocence ended. Three years after moving into our new house, I succeeded at my second attempt in being accepted by George Watson's College, one of the city's best private schools. A stupendous neoclassical pile with a separate, equally palatial junior school, it had four boarding houses, a stadium for rugby and athletics, tennis courts, an indoor swimming pool, a gym and about a dozen rugby and cricket pitches.



Initially I was placed in one of the three top classes, but still heavily under the influence of the *William* books, I had come to believe school existed exclusively for my entertainment, and masters were there solely to be made fun of. Soon, in imitation of *Bill and Ben*, *the Flowerpot Men* – a popular children's television programme at the time. I was clowning about with two new

bigger files than just about any other web-based app I've seen. It hasn't baulked when I've uploaded graphics-heavy 100MB files and, although I haven't tested it to extremes, this latest version claims to be able to handle even bigger files up to 1GB. The only problem here is the upload time. It takes around a quarter of an hour to upload my bigger files to iCloud on my admittedly mercurial broadband connection; I shudder to think how long it would take with documents several times larger. (If you're also concerned that syncing massive Pages documents to iOS devices over a mobile connection might quickly eat up your data plan, be reassured that iOS won't automatically sync such large files unless you tap its icon in the app's file browser window in the Pages iOS app.)

Another advantage of Pages as an online ePub creator is the tools it brings with it. By that I don't mean the direct editing of the document before conversion – though this itself is an advantage – but the ease with which you can collaborate online with others. Gone are the days when the net result of online collaboration on a Pages

document featured colleagues gazing helplessly at a document they were unable to edit. Now you can share editing duties with up to 100 people simultaneously.

So what's the best way to publish an ePub from a PC running Word? One option might be to upload the original file to iCloud, which would convert it to a Pages format, then prepare it for ePub export as you would any other Pages document, by adding appropriate styles to its chapter headings and body text. However, in practice it's neater to do all the styling in Word and just use iWork for iCloud as a basic export tool.

Irrespective of whether the document starts its life in Pages or Word, styles hold the key to successful ePub creation. Applying appropriate styles to the content of a file allows its text to be seamlessly converted into chapters, headings and body text in the ePub.

To prepare an otherwise unstyled document in Word, keep things simple and apply its default styles. Style the document's title with Word's built-in Title style and the subtitle [continued on p84]



Tom Gorham has worked with Macs since 1991. Although his background is in print and web publishing, he's a devotee of any software that makes life easier.

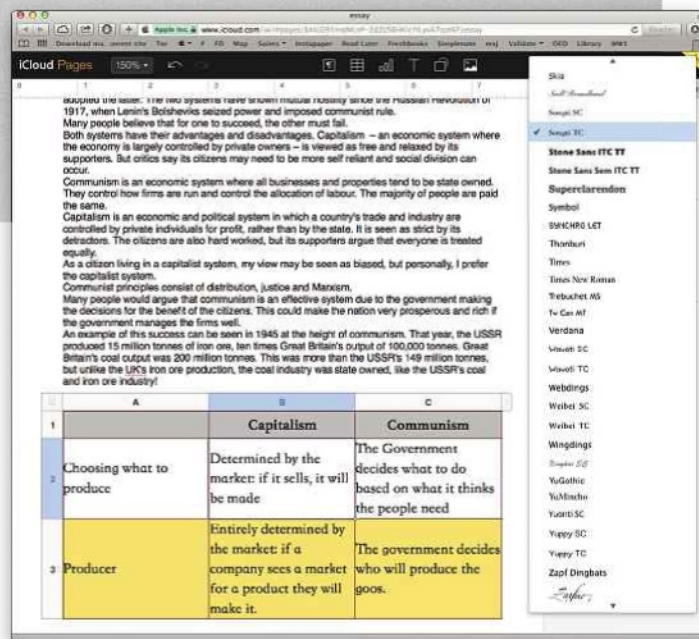


And there's more...

Another touted improvement to Pages for iCloud is printing from the Tools menu. In fact, this uses a clever workaround: it generates and opens a PDF that you can print. One arguably more significant improvement is that you can now insert, edit and format inline tables. The options aren't as rich as in the desktop app – there's no conditional highlighting, for example – but the ability to drag to resize cell boundaries in the browser window is pretty impressive.

↓ World-beta

Inline table editing and a huge choice of fonts: the latest update to the iWork online beta is a significant improvement



with the Subtitle style. For text you want to have as a chapter heading – and therefore appear in the ePub's table of contents, choose one of the available header styles. Apply the standard Body style to the body text of the document.

A tip to do this quickly in Word 2010 is to style all text with similar formatting at a stroke by selecting an example of the formatted text from the Editing submenu on the Home tab, choosing 'Select All Text with Similar Formatting', then applying a style to all this text. Other than that, you just need to ensure that all images are inline, rather than floating above the text, and if you want a document cover, make sure that the first page comprises an image.

That's all you need to do to create a workman-like file for conversion to ePub. You can upload the Word document to iCloud.com by dragging it over Pages' file window in your browser.

Pages for iCloud should be able to import and convert the file without a quibble, and Word's styles will be preserved. To export it, choose the Settings menu at the top of the browser window

and select 'Download a copy'. Choose 'ePub' from the list of export options and the exported file will begin downloading. (You could choose 'Send a Copy' if you wanted to email the converted ePub, but until changes to iCloud happen later in the year, you can only send documents smaller than 20MB using this method.)

As part of the export, Pages automatically generates a table of contents for your ebook, converting headings styles into separate chapters. One thing you yet can't do in Pages for iCloud is adjust the headings that automatically appear in the table of contents. In the desktop app, you could add items to the table of contents by opening the Document inspector and under the TOC (Table of Contents) tab, selecting the paragraph styles you want to appear and click Update.

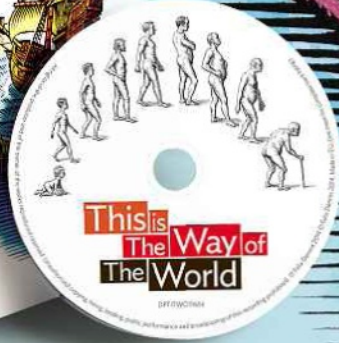
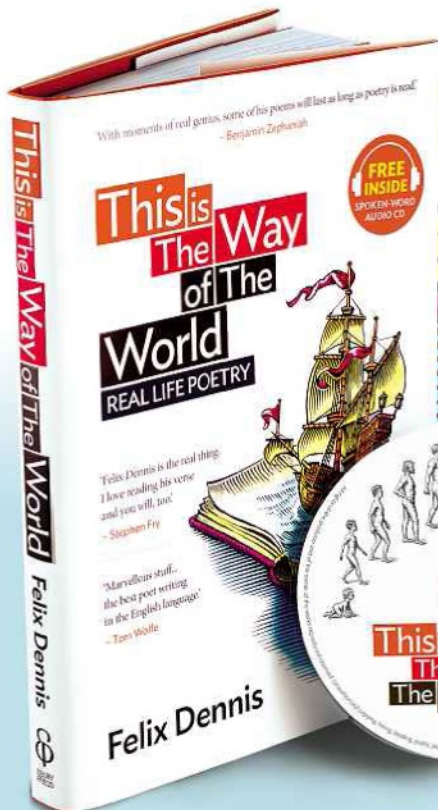
The final step in preparing the ePub is to preview it. On the desktop, an app such as iBooks can do this, but if you're relying on online services, try an online previewer such as MagicScroll (magicscroll.net) or ePubReader (epubread.com) to check that everything is order before publishing.

'With moments of real genius, some of his poems will last as long as poetry is read.'

– Benjamin Zephaniah

This is The Way of The World Felix Dennis

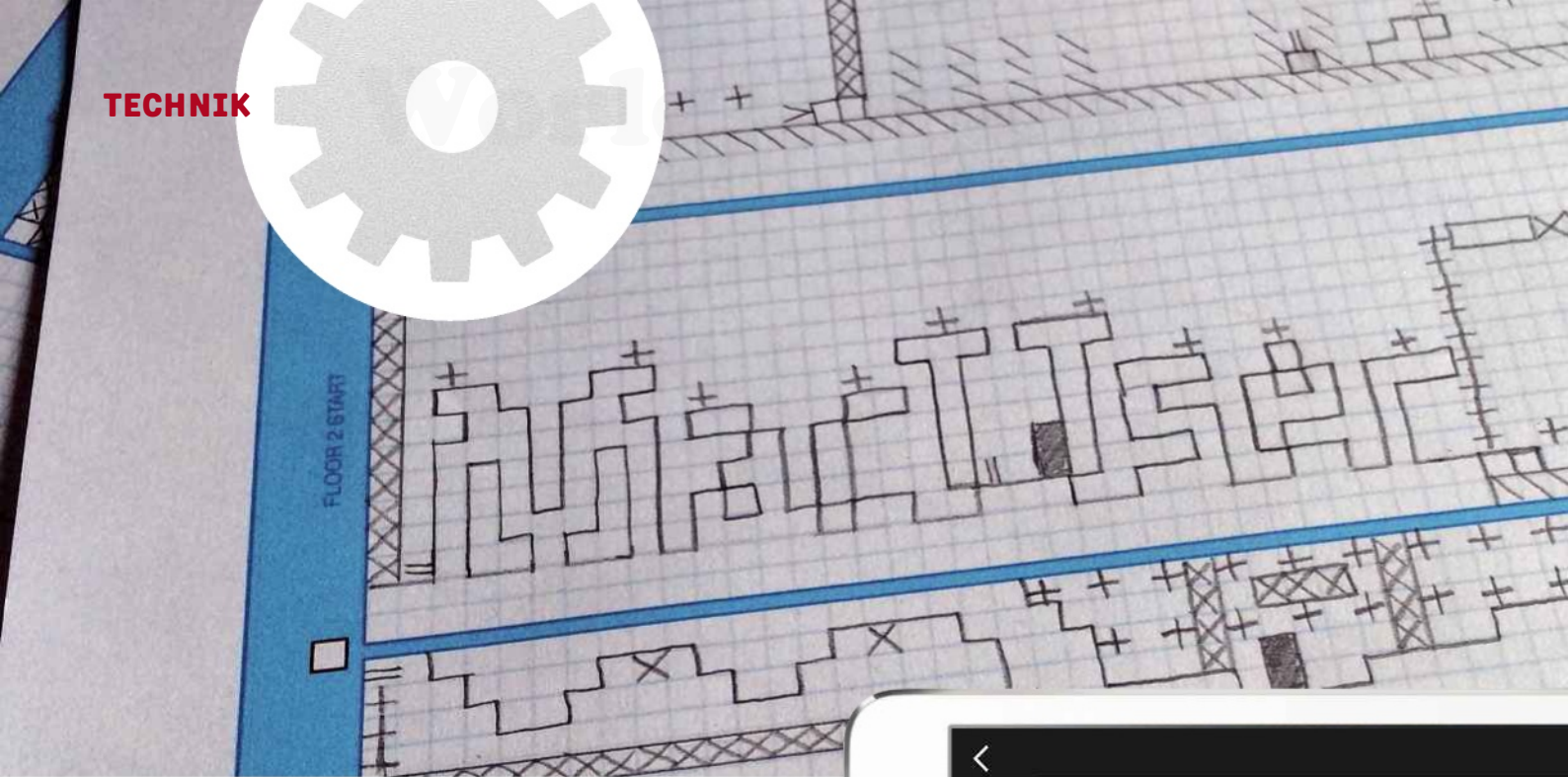
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A collection of 'real life' poems by Felix Dennis, one of Britain's best-loved poets, charting life's course from infant to endings with illustrations by Bill Sanderson.

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[TRY THIS]

→ Draw this way

What's imported should closely resemble your paper version. Just how closely is the question

→ Jumping Jack Flash

The resulting game is more reminiscent of Miniclip.com than the Steam catalogue, but some of the example files are quite playable



Pixel Press Floors

Draw a game on paper, then play it for real on your iPad. In theory...

What kind of game? Wait: floors, platforms, got it. How does it work?

It's an almost magical process suitable for kids and adults alike. You print a PDF from the developer's website, scribble down specified glyphs – squares, crosses and so on – that represent components (platforms, ladders, fiery pits of doom), scan it in using your iPad's camera, and boom! You get an instant platform game.

Amazing! Wait, why are you wearing that sceptical hat and crossing your fingers behind your back?

Because at the moment, Pixel Press Floors is more like Pixel Press Flaws.

We used a biro on our first attempt, and the app really didn't like that at all. On our second go, we unearthed a 2B pencil and a metal ruler from The Dark Days Before Digital, and with rather meticulous line-drawing, things went a bit more smoothly. At least, the app more or less understood about 80% of what we'd doodled.

That leaves 20% broken. So was it game over at that point? Was your dream app in another castle?

Great job on the videogame references – the mid-1980s will be thrilled. But no, we still had another coin. Pixel Press Floors handily provides a

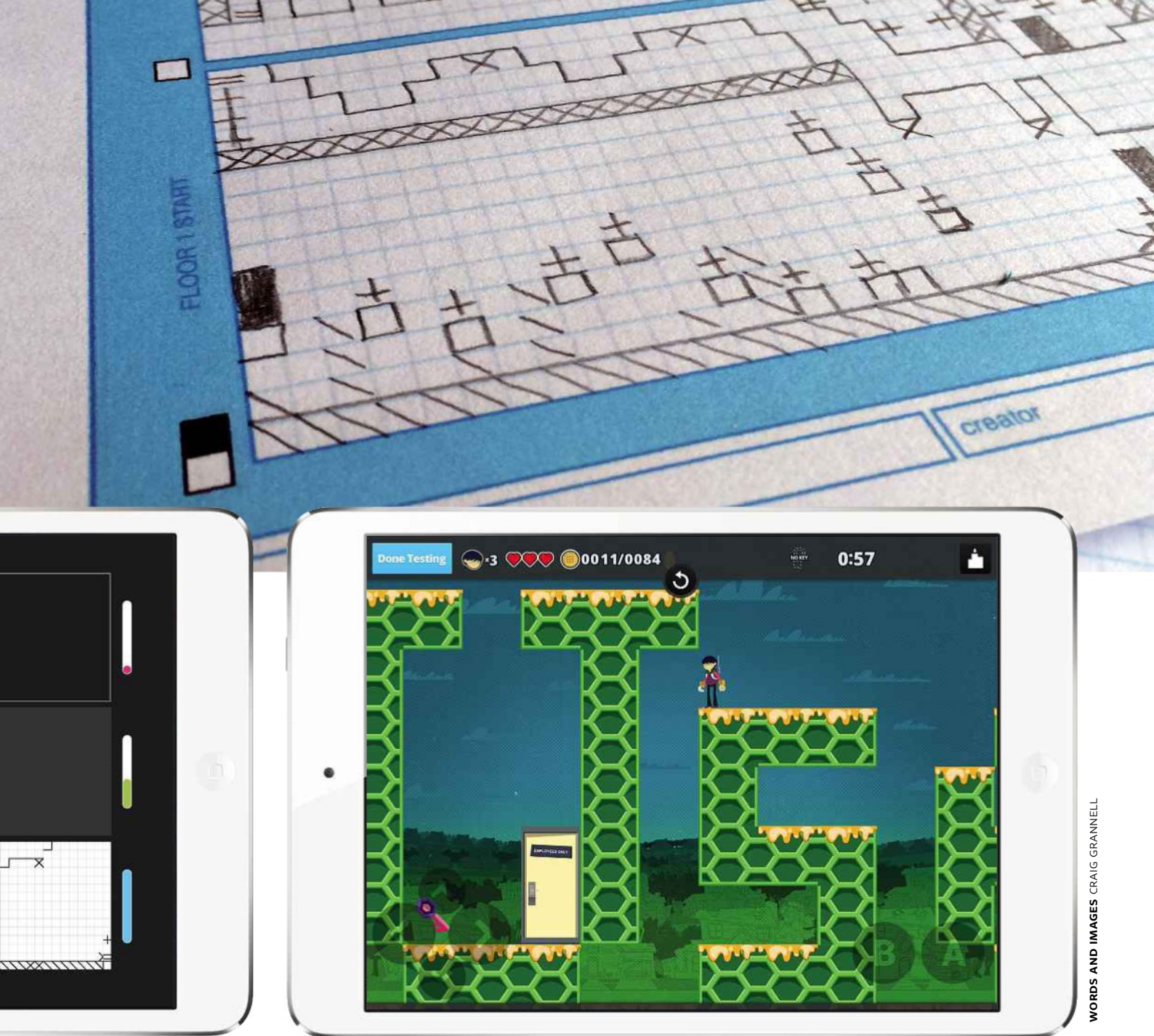
built-in editor, which you can use to fiddle with your levels, amend mistakes, decide on a 'theme', and then play-test your game.

In fact, you could start from scratch in the app rather than faffing about with paper, but then you'd be missing out on the magic of your scribbles turn into a real game, albeit a slightly borked one. And you know, paper's just more fun!

You're very old, aren't you?

Hardly. Hey, remember Jeff Minter before he grew the beard?

Riiight. So when you've finished



WORDS AND IMAGES CRAIG GRANNELL

fiddling around with it, what's the game actually like to play?

You mean assuming you have any skills whatsoever in the area of game level design, and don't end up, regardless of technical hitches, simply creating the Worst Platform Game Ever?

Yes. Assuming that.

Well...

This doesn't sound promising.

The thing is, we like the idea behind Pixel Press Floors a lot, and we strongly recommend checking it out, because it is a lot of fun making you own levels. But let's just say Nintendo

won't be quaking in its boots just yet. The engine behind the entire app is a bit dodgy, with a definite whiff of Flash game about the physics. And if you die, you're sent all the way back to the start of the level every time.

Seriously?

It's a pity, because the Arcade section of the app, to which you can upload your work, does highlight what's possible with the system, and there are some decent creations lurking within. Two reasonably priced in-app purchases enable you to add enemies (69p) and power-ups (£1.49), giving extra scope to your games.

Is it really worth the fuss if the games don't work very well?

Actually, yes. Download, design, scan, tweak, play, grumble, then give Pixel Press Technology some polite and constructive feedback regarding how to improve things. These guys have promised follow-ups that will let you build racing games and Zelda-style systems with quests and puzzles, so the last thing we want is for them to stop now. Even if we have just been forced to start this level yet again when we were one coin from victory...

Floors is free to download from the App Store. Find out more at projectpixelpress.com/floors

[HOW TO]

Your tablet could be a useful DSLR companion, explains Dave Stevenson

The iPad for photography



Most people have just about got over the assumption that iPads are only for play, not work. Its popularity with pilots, doctors, musicians, architects and field scientists makes that prejudice hard to sustain. Even more mundane tasks are fully catered for by Apple's iWork suite and Microsoft's Office 365. But if there's one area where the big touchscreen device's utility is both patently obvious and still arguably unrealised, it's photography.

Just compare the numbers: the cheapest Apple laptop, the 11in MacBook Air, costs £749. The iPad Air starts at £399. And economy is by no means the only benefit. The MacBook weighs twice as much as the iPad, and it's thicker, wider and deeper. In a camera bag jam-packed with kit, every millimetre and gram is important. What probably isn't very important is having a full-size physical keyboard. Of course, the

Air is a full-blown computer with a desktop operating system. But the latest iPads, with their multi-core A7 'system on a chip', hardly lack processing power.

True, the basic iPad Air has only 16GB of internal storage. How much you'll need depends on your pattern of use. Its maximum matches the MacBook Air's minimum of 128GB (and the iPad is still £110 cheaper), but beyond that, there's a problem with adding external storage. Buy any USB 3 hard disk and you can plug it straight into a MacBook for high-speed access. Not so with an iPad. Its lack of a USB port also makes importing pictures a bit more fiddly – although, as we'll see, these problems are far from insurmountable.

Connecting your camera

While we can be smug about most things, there's little more annoying for an Apple user than listening to

an Android aficionado carp on about removable batteries, file managers and SD card slots.

But Apple's rigid control over hardware and software specifications pays off in ease of use, seamless compatibility, apps that actually work properly on your screen size, and the ability to upgrade your device to the latest operating system without demur, so let's bypass the carping and look at the add-ons we'll need to convert an everyday iPad into a photo workstation.

Attaching a memory card or a camera full of pictures to an iPad requires an adaptor. For the SD cards used by almost all current cameras, you'll need Apple's Lightning to SD Card Camera Reader (£25), the successor to the iPad Camera Connection Kit (also £25), which remains available for older devices with the 30-pin Dock. Either connects to your iPad's sole port and allows you to slot in an



↓ Wireless is more

Drives like the LaCie Fuel address the iPad's awkward lack of USB

SD card. You can then import files in JPEG or raw format (with a caveat, which we'll come to) to your iPad's internal storage.

If you prefer to connect your camera directly, that requires a different adaptor, included with the Camera Connection Kit but a separate £25 purchase for current devices: the Lightning to USB Camera Adapter. This provides a USB port to which you can connect your camera's USB cable. It's not the same as having an all-purpose USB port: you can't connect a hard disk, or any storage device that draws a significant amount of power. Nor does Apple's iOS operating system support any functions other than transferring pictures (though some third-party apps may). But it'll work with any camera and many USB sticks thanks to its support for generic USB file transfer protocols, including Mass Transfer and Picture Transfer Protocol (PTP).

There are any number of unauthorised low-cost clones of these adaptors available from Far Eastern manufacturers, but if you want reliability, Apple's somewhat inflated prices are probably worth paying.

One reason why Apple doesn't build more wired ports into its devices is that it believes wireless connections are more convenient. In fact, it was the first company to build wifi into laptops as standard, back in 1999. Camera makers have taken a little longer to get on board, but many of today's mid-range models now offer wireless, including Sony's increasingly impressive range of mirrorless system cameras. Unfortunately, high-end

DSLRs still don't have integrated wifi, preferring to offer professional users a three-figure upgrade path.

With wifi, the iPad workflow is relatively simple. The camera creates its own wireless network, and you connect your iPad to this just as you'd connect to a wifi hotspot. (Like other wifi networks, the camera will be remembered by your device and it'll connect automatically when in range, unless you override this manually.)

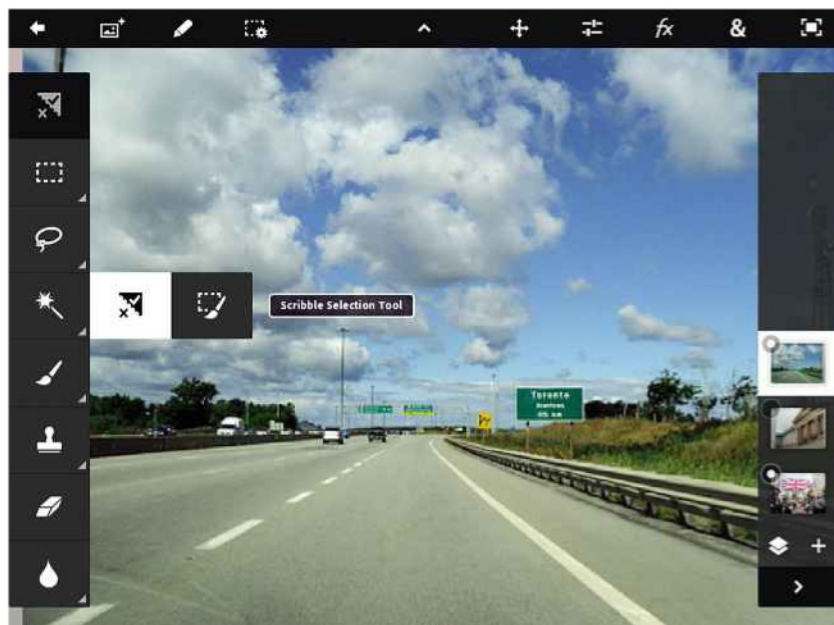
Once you're connected, a free app provided by your camera maker will allow you to browse images on the camera and transfer them to the iPad's internal storage, from where they're available to other apps via the iOS Camera Roll.

If your camera doesn't have wifi, there are ways to add it. Wifi-enabled SD cards, of which Eyefi is the established leading brand, remarkably pack all the electronics required to host a wifi network inside [continued on p86]



← Adapt and survive

The Lightning to SD Card Camera Reader provides your iPad with a memory card slot from which to import your pictures



↑ Lab processing

Photoshop Touch offers a broad range of image editing tools – in fact, more than most photographers need

→ In the stream

Adobe Lightroom Mobile is good for those who use the Mac app (don't we all?) but currently unfinished

[continued from p85] the postage-stamp casing of a standard memory card. For file transfer, this works the same way as a camera with integrated wifi. You don't even have to take the card out of the camera to connect to it from your iPad.

You won't get the other functions available with wifi cameras, however, such as live preview and focus control from your iPad. And bear in mind that the cost of wifi is multiplied every time you buy another memory card. A relatively modest 16GB capacity costs around £90 for Eyefi or half that for an alternative brand. For comparison, a similar generic SD card without wifi is under a tenner.

Wireless image transfer has side benefits, too. For one thing, it potentially offers on-the-fly backup: your wifi-enabled camera can send newly captured images in real time to a dormant iPad, which stores them as they're created. Having everything

you've shot instantly available on the iPad's relatively big screen is also a sure way to impress a client, when you hand across the iPad with the day's shoot ready to view.

Wifi also has its drawbacks, though, the principal one being the poor speed of data transfer. We have yet to see an app from a camera manufacturer that sets a particularly high bar in terms of usability or performance. Even compact cameras, shooting relatively tiny compressed JPEGs, deliver up their work very slowly. The 12.1 megapixel Canon Ixus 255 IS, for example, sent image files to our iPad at a rate of one every eight seconds. (This is another good



← Wireless transmission

Wifi-equipped SD cards, pioneered by Eyefi, make it easy to transfer pictures from any camera to your iPad

reason to opt, if possible, for real-time transfer as you shoot, so you're not faced with a whole batch to upload later.)

New DSLRs routinely shoot 30MB RAW images, so anyone shooting large numbers of pictures stands to spend a lot of time – and battery power, in the field – watching progress bars inching forwards on their iPad.

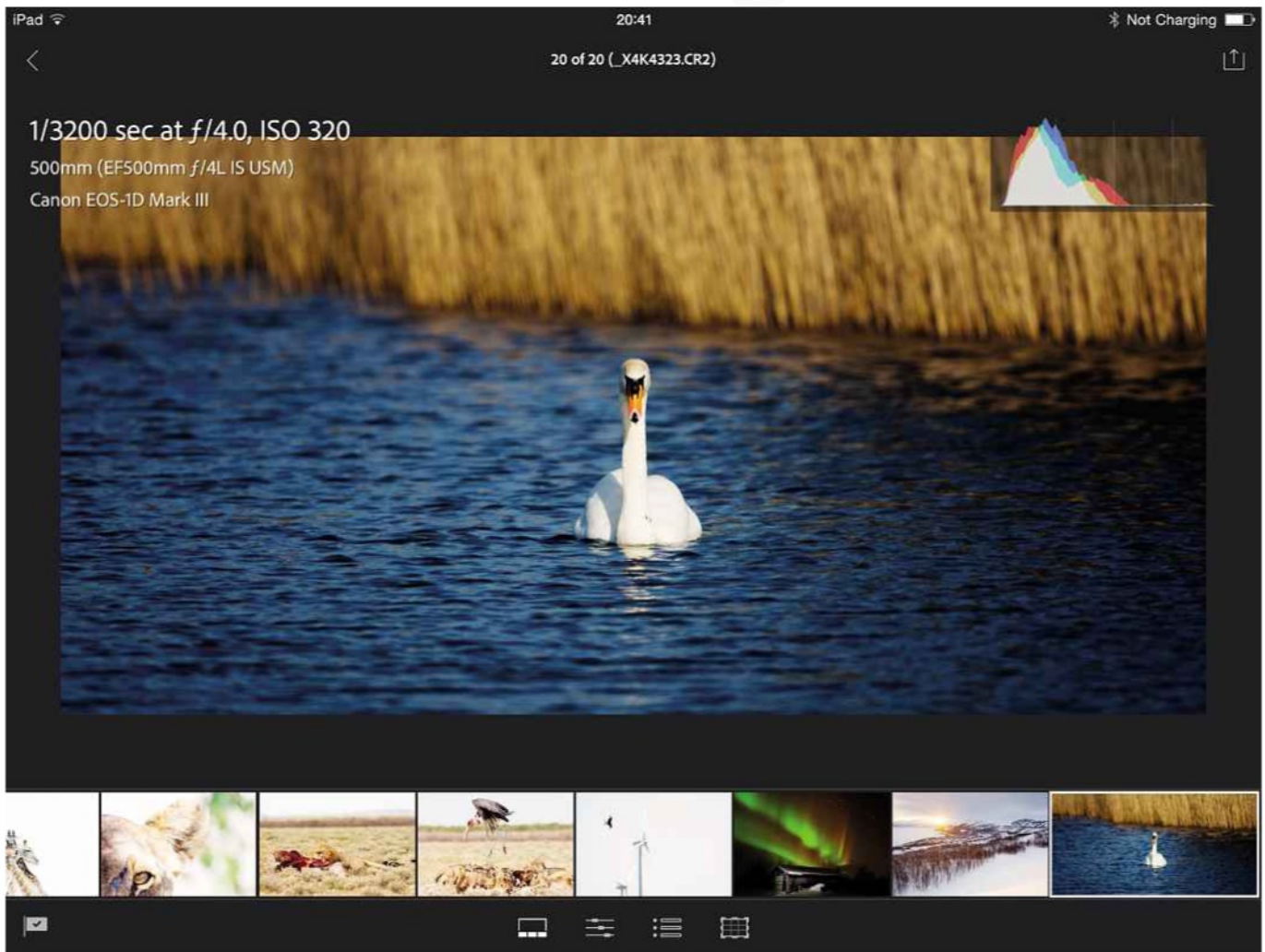
Saving pictures externally

So much for 'media ingestion', as we pros call getting photos off your camera. But what happens when your iPad fills up and you need to get them off again? It's here that the lack of a hard disk port really makes itself felt. But once again, wireless could be the answer. Last issue (p40, MacUser, July 2014, £2.70 from bit.ly/macuser3007) we looked at drives that provide flash memory – technically similar to the storage in your iPad or an SD card – via wifi.

With capacities comparable to iPads, though, a drive like this might just put off the problem for slightly longer. For larger volumes, consider the LaCie Fuel wireless hard disk (lacie.com/uk), at £140 for 1TB or £170 for 2TB. This works in a similar way: the drive creates a wireless network, and a companion iOS app allows you to copy files to and from it. Seagate's similarly priced Wireless Plus drives are another option, though lacking the Fuel's charm.

However, wireless transfer is still relatively slow. Copying 50GB of images from a day's shooting will take an age, so you'll need to allow time for your transfers, ideally leaving them to complete at the end of your day.

Bear in mind that other apps can't see what's on these external drives, so pictures you want to view or edit on the iPad screen must be on the device's internal storage.



Apps for snaps

If the iPad's connectivity is a mixed bag for photo management purposes, what makes it all worth the effort is its high-quality screen and the vast range of software available to run on it that lets you view, organise, edit and share your pictures. With enough processing power for quite ambitious functionality, the iPad has plenty of apps available for photographers, both from the big software companies and from thousands of independent developers.

Every iPad comes with Apple's Photos app pre-installed. This lets you browse your Camera Roll – the central repository of image files on your device – chronologically, automatically arranging photos by time and location (assuming this information is provided in the image file).

You can also create your own albums within the Photos app and add images to them, and basic

editing operations can be applied to a selected photo.

For more advanced options, another Apple app, iPhoto, is free to download from the App Store to any new iPad. The first advantage of this is that, unlike Photos, it can read raw image files. At least, it can display the JPEG preview embedded in these files, enabling a speedy preview; it doesn't enable you to process the raw data itself, and if you make any edits, the changed version is based on the JPEG, not the raw image. If you're not shooting raw, iPhoto is worth a try.

Most photographers, however, will want a more capable third-party app. We'll look next at some of the best. One point to bear in mind is that iOS protects the image files in your Camera Roll, so if you use an app to edit them – even just by adding meta-data such as a caption and keywords – those changes can only be preserved by storing a new copy

Adobe Lightroom Mobile

Free (activated by Creative Cloud subscription)

This is the iPad photography app of choice, and one we waited a while for. It's immensely promising, but feels very much like what it is: version 1.

Nobody would base their photography activities solely on the iPad, and Lightroom Mobile is designed to work in conjunction with the Mac version, which is available as part of a full Creative Cloud subscription or along with Photoshop for £8.78 per month. Choose a collection of images in the desktop version of Lightroom, and they're synced to the iPad version. Any images you edit on either platform are synced to the other.

Cleverly, Lightroom Mobile lets you edit raw images without making your iPad store and process those huge files. When you sync a camera raw image from your Mac, Lightroom creates a 'smart preview' of it, and this compressed, [continued on p88]



What colour would you call that?

iPad screens make finished photos look spectacular thanks to their Retina resolution, high brightness and excellent colour saturation. But what we need in professional imaging is accuracy, not flatness. Making a shot look artificially punchy means approving or adjusting its tone will result in an image that's actually too flat. And any colour cast in the display, which might have little impact for general purposes, will mislead the photographer's eye.

Apple doesn't make any particular claims for the iPad's colour accuracy, but Anandtech's testing reveals that the iPad Air slightly exceeds the sRGB

colour gamut, making it good enough for photo editing, although purists would prefer that it covered more of the larger Adobe RGB colour space supported by the likes of EIZO's ColorEdge monitors. The iPad mini falls a little short of sRGB, and its quality overall is noticeably lower, though decent.

So your iPad can display plenty of colours. The next question is how closely those colours reflect the values in your image files and thus, given correct calibration through your workflow, what you'll ultimately get in your or your client's final output. Sadly, unlike OS X, iOS doesn't

currently support colour calibration, so you can't correct your screen globally. However, there are apps that can work with a colour calibration device so images displayed *within that app* are accurate.

Examples include the £66 Spyder4 Express and £122 Spyder4 Pro, from spyder.datacolor.com, and the £81 ColorMunki Smile and £119 ColorMunki Display, from xrite.com. Each has its own free app.

There's no obvious reason why apps such as Lightroom Mobile couldn't work with these calibrators or the profiles they generate, but so far they don't. Apple should really build this into iOS.



[continued from p87] reduced-resolution file is what finds its way over the internet to your iPad. You can then edit it as a proxy, with changes synced to the 'real' image on your Mac.

As our review explained (p94, MacUser, June 2014, £2.70 from bit.ly/macuser3006), the big problem with Lightroom Mobile is that not everything is transmitted. When you sync images to the iPad, this includes edits, but not user presets for use in the Develop module. And you can't caption or keyword an image in Lightroom Mobile – just the sort of thing it would be handy for. Adobe says this is 'a priority on the roadmap'. Flags (for picked and rejected images) and ratings are synced.

In isolation, Lightroom's editing tools are a little underwhelming: there's little here that isn't in other free apps, and it's a shame there's no tone curve adjustment. However, the ability to edit and have those changes

syncd back to full-fat raw files is a unique advantage. For Creative Cloud subscribers, Lightroom Mobile is a free download that shouldn't be sniffed at; it just hasn't hit its stride.

Adobe Photoshop Express

Free plus in-app purchases, eg Camera Kit £2.99

Arriving in 2011, this app wasn't quite the Photoshop we were looking for. Its emphasis is largely on one-tap presets, though there are also sliders for sharpening, exposure and 'temperature' (white balance). It's usable within its limitations, but the lack of connection to a desktop app means this is only for users who are happy to import, edit and export within the app. There's no keywording or captioning, and several tools cost extra.

Adobe Photoshop Touch

£2.99 from the App Store

If Express is a mobile Photoshop Elements, Photoshop Touch is the

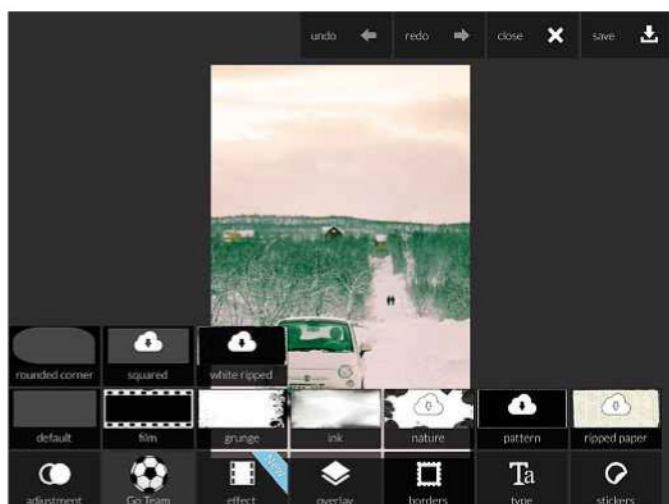
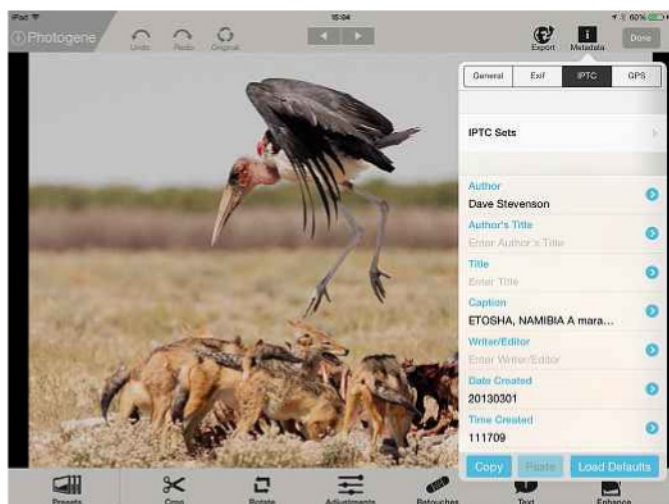
full-fat version. A mid-range up-front price buys you a powerful tool set including per-pixel tools like brush, clone stamp and eraser. There's also support for layers and a decent range of adjustable filters. The scribble selection tool, which allows you to mark up areas of an image for deletion by scribbling with a finger, is a neat trick, while the virtual mouse pointer offers a little more precision.

For photographers, Photoshop Touch still falls between two stools. It's far more powerful than most other image editing apps, and capable of reasonably good results, but as with the desktop app, for snappers rather than digital artists there's much here that looks like overkill.

Photogene

£1.99 plus in-app purchases eg Frames Bundle 69p

Photogene takes a slightly circuitous route around iOS's insistence on saving metadata with a file only when



It's in our DNA

The main purpose of Photogene is to add keywords, captions and other metadata to photos, storing them either in newly exported images or as XMP sidecar files that can be matched back up with the images on the desktop

Room fresher

Photosmith is an unofficial companion app to Lightroom for Mac that currently offers a more complete solution than Adobe's own

Show me now

Autodesk's Pixlr Express is free and provides a good range of non-destructive edits to get pictures into shape when time is of the essence

you create a new file by exporting it. Imported images can have IPTC data including keywords, captions, location and so on added. You can also create IPTC sets; for example, if you were on a shoot in Turkey, you could create an IPTC set including specific location information for each photo you add. This data can either be added to images as they're exported, or it can be exported as XMP sidecar files and sent via email, Dropbox or FTP to be re-associated with your RAW files further down the line.

Photosmith

£13.99 from the App Store

On the face of it, Photosmith is a relatively expensive app that doesn't do much. There are no editing tools, and it's only for users who already have Lightroom. A plug-in for the desktop version of Lightroom allows Photosmith to appear as a publish service; collections created

here can then be synced to the iPad version of the software over wifi. Photosmith worked very effectively with our MacBook Pro providing an ad hoc wireless network: unlike with Lightroom Mobile, you aren't dependent on both fast wifi and a quick connection to the internet for syncing. Syncing 67 RAW files to an iPad took just 20 seconds, although we had occasional problems trying to sync large sets (several hundred images). Once synced, you can add, individually or in batches, captions and keywords to images, as well as applying Lightroom-standard flags, colour-coding and star ratings.

Tap the Sync button again and everything flies back to Lightroom on your Mac. This will be something of a holy grail for many photographers: import pics to Lightroom, fire them across to Photosmith on the iPad, then get the duller bits of workflow – picking, rejecting and tagging – out

of the way without needing to use a bigger, heavier, battery-limited laptop. For professional photographers, this could easily be worth every penny.

Autodesk Pixlr Express

Free from the App Store (no in-app purchases)

Most professional shoots require a dedicated colour-managed editing process, but there's often something to be said for single-tap edits to quickly prepare client-ready, if not print-ready, previews. Of the various free options for the iPad, Pixlr Express, from no less than Autodesk, gives photographers wanting a quick hit a range of reasonably powerful tools, all packaged together in a tidy, text-heavy app that makes finding precisely what you're after straightforward. A neat blend of quick fixes, one-touch filters and overlays makes this an easy, non-destructive way to edit images, even if it doesn't fit terribly neatly within existing workflows.

The perfect time to try the five-star TV Bed

Get high-tech home entertainment in your bedroom with the most sophisticated TV Bed on the market – and find out how you can get an **exclusive 25% off** with our MacUser reader offer.



The world's number one TV Bed

Having a television in your bedroom is nothing new, but having a high-quality set built into your bed takes this everyday luxury to a new level.

No longer does a TV have to take up space on a chest of drawers or balance on a chair. With a TV Bed, you simply click a button and the television set glides up from the footboard of your bed, quiet and sleek.

Fully cabled, the TV Bed enables you to watch digital TV and DVDs, and link easily to the internet so you can watch what you like, when you like, with who you like.

Stylish bed, stylish bedroom

As the television set rises, the power is switched on automatically. In its viewing position, the TV sits flush with the rest of the bed's footboard on its own platform, at a comfortable angle whether you're sitting or lying in bed. Once you're finished, one button-touch lets the TV glide back down, automatically switching off the power.

Whether the TV is in use or stored away, the top of the footboard is flat, so there are no ugly gaps. The TV Bed also holds the patent for the slimmest footboard (just 140mm at its deepest point) so unlike other products on the market, your bed looks elegant and sleek, just like the rest of the room. Easy-to-use cable management within the frame also ensures no messy wires are showing.

There are four different models of TV Bed so you can find one to suit your style, including The Belmond's steel four-poster design. Simple and elegant, all four designs are available in a range of modern colours and a leather-hide finish.

A personal touch

Standard bed sizes from doubles to emperor beds are all included in the TV Bed range, and you can choose from a series of premium mattresses to suit your needs. Matching bedside drawers are also available.

For the truly personal touch, you can order a bespoke size or finish for your TV Bed and mattress. The hand-crafted, UK-based production process allows for all kinds of made-to-order options – you can even order a colour, finish or cover for your bed to match your existing bedroom's décor.

Quality in the detail

Everything about the TV Bed is designed for you to get the best TV and the best bed.

Every TV Bed is built with the latest Samsung 32in LED television, for lasting high performance. When you order, you have the option to upgrade the television to the latest 32in Samsung Smart TV with Wi-Fi.

The television cabling is safely housed within the bed's frame and designed so it's easy to switch from watching TV to DVDs to playing games or even using the internet. The TV Bed has all you need to keep you



in touch with the latest home entertainment, day and night.

A cut above the rest

Since the TV Bed Company was founded in 2003, many other companies have started to produce similar products. However, the original TV Bed remains the best-selling range on the market, and for good reason.

Based just north of London, the company makes its beds by hand in the UK, sourcing components from the best suppliers at home and abroad. For example, the motor is German engineered and the hatch hinges are precision-made in Austria to ensure the best glide-up, glide-down performance every time you want to watch TV. Along with high-quality wooden frames and upholstery accredited by the UK Leather Association Federation, it's details like these which have set the TV Bed apart from the rest of the market.



David Ludlow says 5/5 stars for the TV Bed

David Ludlow at expertreviews.co.uk tested the Azure model in the TV Bed range, assessing it for its entertainment performance but also reviewing it as a key item of home furniture.

"Great looking and incredibly well made, the Azure ships with a high-quality TV for a great price."

There couldn't be a better time to discover the luxury, ease and everyday pleasure of having a well made, hand-crafted TV Bed in your home.

- ▶ As a MacUser reader you can now get **25% off the full price** of your own TV Bed.
- ▶ Prices start at **£1,999**, with **FREE delivery and installation anywhere in the UK.**
- ▶ To find out more simply go to www.tvbed.com and quote **MUA959** when you order or call **01707 277777.**

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PRODUKT



No fear or favour

All reviews and ratings are the result of hands-on testing. (When we preview an upcoming or untested product, we'll say so.) Our testers are daily pro users and experienced journalists. We don't tell them what to say. They just tell you what they think

Believe the mice

MacUser's mouse ratings have been respected for more than 25 years. **Five** mice means a product is as good as we think it feasibly could be. **Four** mouse products are excellent and recommended. **Three** mice indicates a competent but average product. Different products suit different users... but if you see **two** mice or fewer, think twice

Game of thrones

Our rosettes are awarded to the products we'd buy ourselves, whether because they're the best, the most progressive in their approach, or the most cost-effective. Look out for the 'E' or 'V' symbol in the margin of a review

Rules OK Adobe's iPad stylus and ruler are now on sale in the US as Ink and Slide

Huge
Creative
Cloud
update!

PREVIEW

Adobe CC 2014

When Adobe controversially switched from shipping boxed products to selling subscriptions, it said that instead of working up to one big upgrade every year or so, it would be able to offer continuous improvement, trickling out fixes and features for each app whenever they were ready. And we said: great, but how are you going to market that? One big upgrade gets everyone's attention. Nobody honks for a trickle.

Well, they may have listened. It's not officially a version upgrade (but it's like a version upgrade); it doesn't have a number (although

it's referred to as '2014'); but a thing has happened to all of the Creative Cloud apps at the same time, and that thing looks very much like a new release.

The updated code arrived just too late for us to assemble our creative crew and get a full review into this issue, but we braved the 32nd floor of London's Centre Point ('in the cloud', you see) for a sneak preview of the whole shebang from Adobe Evangelist double-act Rufus Deuchler and Michaël Chaize.

And, give or take some re-announced features that had actually percolated through earlier

– which we in no way begrudge – there really is the kind of wholesale enhancement here that we'd once upon a time have associated with a new version of Creative Suite.

We'll get into the detail next issue, but what's notable overall is that Adobe is thinking beyond tweaking features. Creative Cloud as a concept promised to link all of our tools together and bring them to us wherever we need them. And, as Rufus put it, 'All that we said we would be doing is now happening.' To this end, Adobe is introducing the idea of a 'persistent creative profile' [continued on p96]



How much is it?

A full individual Creative Cloud subscription costs £46.88 per month for unlimited use of all Adobe CC apps, Typekit desktop and web fonts (subject to licence terms) and 20GB of cloud storage. The Photography bundle, now extended to a permanent option after being introduced as a temporary offer, costs £8.78 per month for Photoshop, Lightroom and mobile apps. These prices are paid annually. See creative.adobe.com/plans for details of these and other plans.

Adobe CC 2014

Drawn out Line is one of several apps compatible with the new Ink and Slide

Game on Besides custom blurs, Photoshop gains new ways to arrange and export objects and layers for interactive design

Mix and match Adobe Mix for iOS uses online processing to offer compositing tools that 'actually do stuff'

[continued from p94] that follows you around, between apps and platforms, giving you access to the same colour swatches, resources and so on whichever Adobe tool you fire up. Of course, this depends on accessing your data from the cloud, and there's an ever-increasing emphasis on that.

While the core of CC remains the heavyweight desktop software, Adobe has dabbled in a number of mobile apps, and now there are more. Sketch and Line, aimed at freehand drawing and drafting respectively, both work (though not exclusively) with Ink and Slide, Adobe's first hardware, prototyped last year as Project Mighty. Ink is a pressure-sensitive iPad stylus based on Adonit's new Pixelpoint technology, while Slide is a ruler-like accessory that triggers on-screen drawing aids.

Another iOS app (Adobe is now focusing solely on iOS, having identified that few creative users are on Android), Mix, offers photo

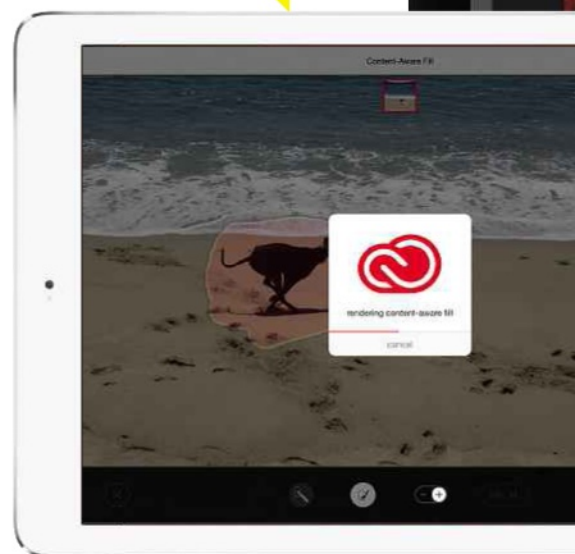
compositing on the iPad. But some of its functions, borrowed from Photoshop, are simply too processor-intensive to do on mobile hardware – or so Adobe says; we can't help feeling Apple's A7 chip ought to cope. Anyway, to get around this, the app processes these filters remotely, on Adobe's servers – much like the way when you speak to Siri, it uses your iPhone's internet connection to upload the voice data and get a vaguely smart response back.

The catch of course is that if you have no internet connection, this won't work – and offering more features dependent on the cloud seems ironic when Adobe has yet to properly explain a server outage that brought apps and services down for a day in May.

But it's an interesting approach to offering more functionality on the move, and ideas like 'smart previews', where lower-resolution proxies of your photos are downloaded to your

iPad for editing and changes synced back to the full-resolution files, show practical thinking about what Adobe calls 'workflow efficiencies'.

Back in the big apps, there's something for everyone. Photoshop gains a raft of realistic focus and motion blur effects plus new type and layout





IMAGES DENNIS PHOTO STUDIO (2), ADOBE, STEVE CAPLIN

tools. InDesign can now generate fixed-layout eBooks, opening up the iBookstore to publishers as well as Newsstand. Illustrator gets editable Live Shapes and pen tool aids.

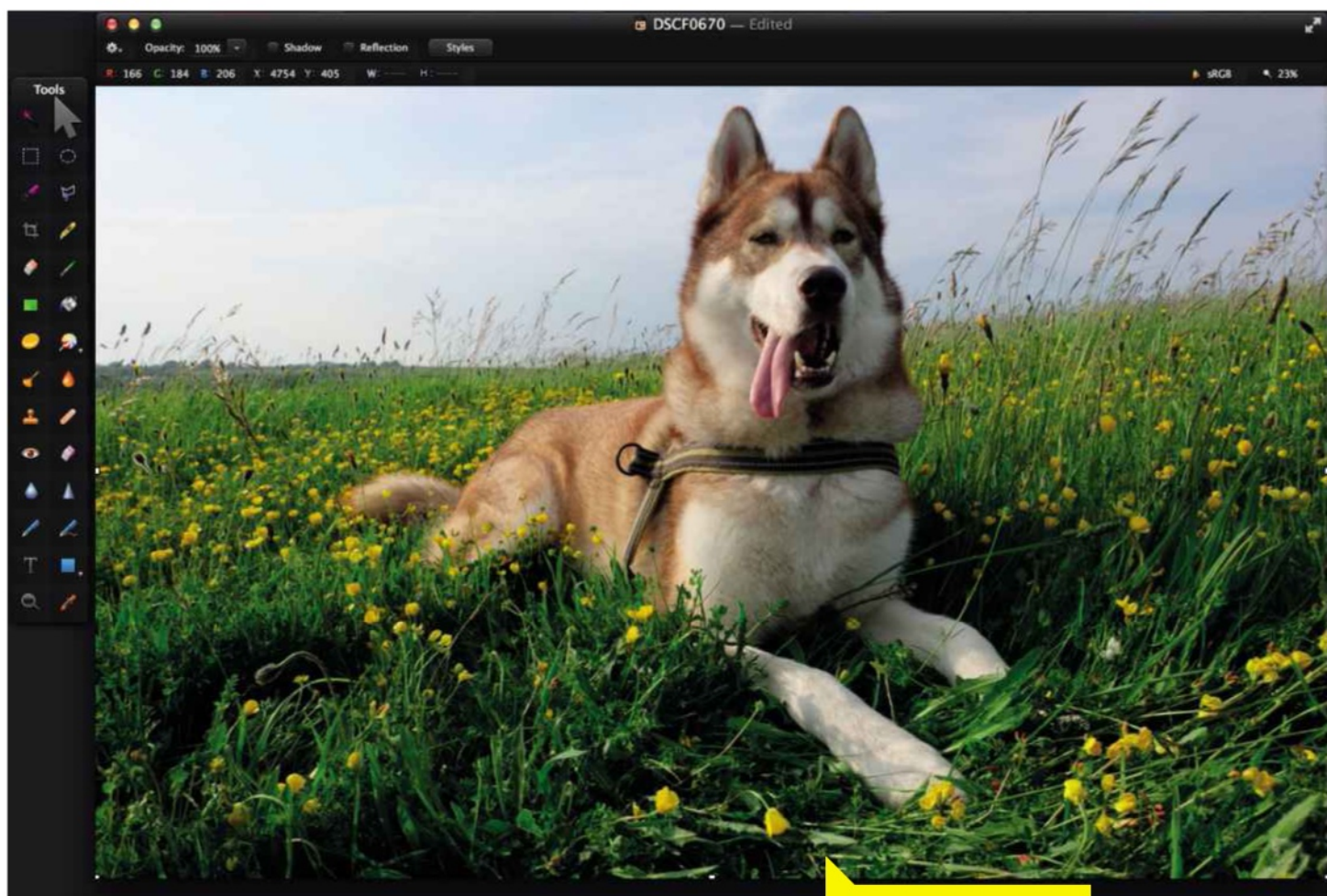
Muse is an intriguing web design app that's been bubbling under in CC and may be about to make its mark. Built with Adobe's

AIR runtime, it's now been converted to a native 64-bit Mac app, making it much more responsive and visually refined.

We'd seen the new masking and tracking features and improved integration in Premiere and After Effects earlier in the year, but they're very welcome, as is the improved

support for Mac graphics cards. Flash Pro now supports WebGL, Edge Animate offers native HTML5 video, and Dreamweaver has enhanced live view facilities.

We'll reserve judgement until next month, but it's clear, as with Apple, that Adobe's developers have not been resting on their laurels.



Paws for effect The Effects Browser offers many effects and adjusts that can improve a photo with a couple of clicks

Pixelmator Team Pixelmator 3.2



OS X



Best Value

Pixelmator is the affordable photo editing software that should be shipped with OS X. Its huge collection of tools makes it very easy to edit photos quickly.

The two primary toolbars in Pixelmator are the tools on the left and the Effects Browser on the right. All of the panes and palettes can be positioned freely around the screen to fit your workspace, and Pixelmator works in full-screen mode so you can edit without distractions in the background.

The Effects Browser is easy to navigate using the thumbnails alongside each effect. In a similar way to how iPhoto runs through the photos in an album when you hover and pan over an album thumbnail, hovering and panning

over an Effects Browser thumbnail shows the range of outputs available when using that effect.

The tools are similar to those you'd find in any other photo editing software, and they can be customised to show your favourite tools in your preferred order of display from the options in the Preferences menu.

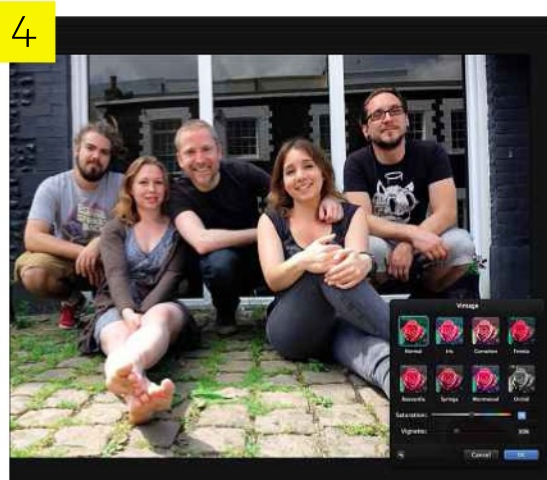
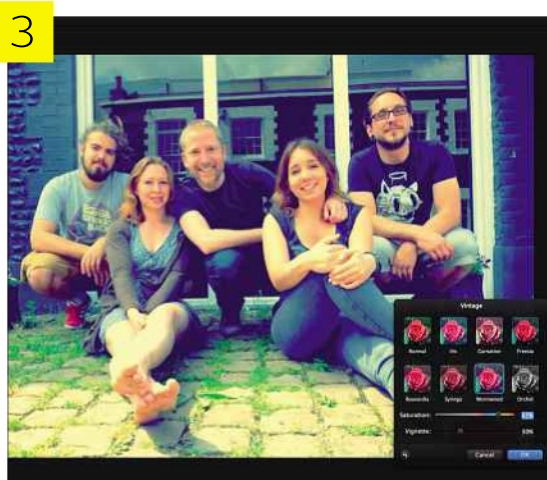
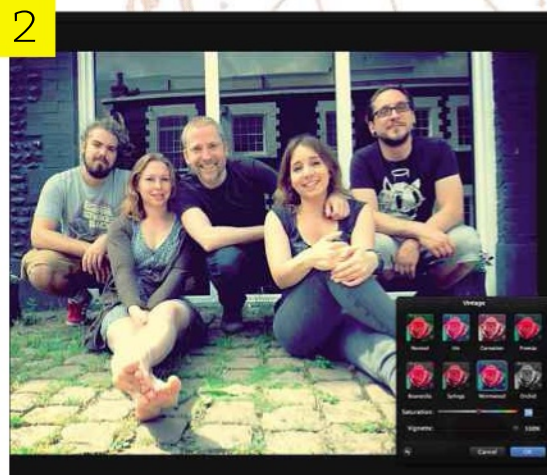
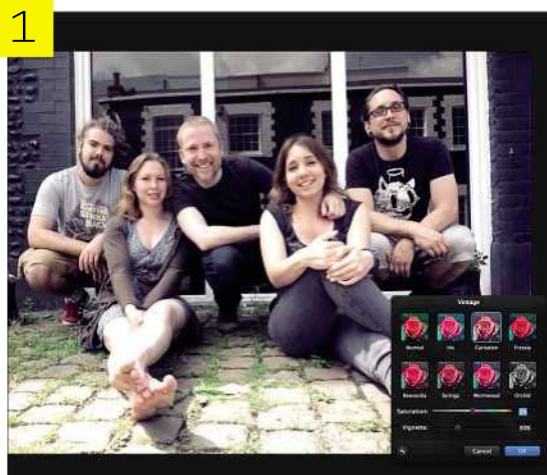
When a tool is enabled, its options are displayed along the top pane of the photo. This is useful for understanding which photo is being edited when you have multiple photos open in the app.

However, when editing small photos, options on the right side of the toolbar are often hidden until you expand the window manually. This is annoying when a button

on the right side of the toolbar completes the tool's action, such as the Crop/Cancel buttons on the Crop tool and the Export for Web button on the Slice tool.

The Layers palette is similar to those in other graphic editing apps, and enables you to create complex layered edits. Many behaviours of Pixelmator will be familiar to anyone who uses other OS X apps, but some of the Command-key shortcuts are different. For example, F, usually the Find shortcut in OS X, transforms a selection, while O (zero), which is normally used to view an image at actual size, makes the photo zoom to fit.

If you produce a lot of images for the web, Pixelmator has a great Export for Web feature under the



Slide tool. It doesn't provide the advanced configuration options of Photoshop's Save for Web tool, but it's more than enough for making a photo the right size for uploading to the web.

Pixelmator is a brilliant app for casual photographers looking to enhance their photos before printing or sharing online. Its simple tools and smart defaults will help beginners get great results, but also offer a fast and affordable workflow for more advanced users.

LAURA KALBAG



Image editing app for Mac
See pixelmator.com

£20.99 from the Mac App Store

Needs OS X 10.9.1 or later, 64-bit processor

1 VINTAGE FILTER The Vintage filter is accessed through the Stylize section of the Effects Browser. Vintage gives you tasteful Instagram-like filters, each named after plants. Choose the Carnation filter for a classic feel

3 SATURATION Unlike Instagram, there's fine-grained control over how much of a filter is applied to the photo. Use the Saturation slider to adjust the strength of the filtered colour. High saturation on the Wormwood filter gives a photo a 1970s vibe

2 WORMWOOD Select Wormwood for a bleached-out retro feel. Each filter adds a very different colour, but each can bring more warmth and life to your photos. We often use a layer with a vintage filter over the original layer, displayed at 50% for a subtle filtered feel

4 VIGNETTES Use the Vignette slider to adjust the size of the dark border to focus on the centre of the photo or mimic old photography processes. Pixelmator gives you beautiful defaults – the sliders won't go to the extremes – so it's very hard to make your photos look ugly

d3i Stache



OS X

Safari's bookmark management is poor, so there's a clear opportunity for a third-party app to improve on it. Stache wants to be that app: the place where you store, organise and view your web bookmarks, on your Mac and your iPhone or iPad.

It works a bit like Evernote: you install an extension for Safari or Chrome and every time you want to add a page to Stache, you click the button. The page is then saved as a web archive document and synced via iCloud with your other devices. To add pages on an iPhone or iPad, you can either drag a bookmarklet to Safari's Favourites bar on your Mac (and access that by tapping the address bar in iOS Safari) if you sync bookmarks via iCloud, or manually create a bookmarklet in iOS Safari.

In the app itself, bookmarks are displayed as thumbnails of the page and you can view them using Quick Look by tapping the space-

bar. An optional Inspector sidebar allows you to see the page title and description, and add tags. And there's a search bar to allow you to search the bookmarks you've stored. Double-click a bookmark and the page opens in your default browser. Alternatively, you can export it as a Jpeg or web archive.

Unfortunately, that's as far as Stache goes. You can add tags to bookmarks, but you can't do anything useful with the tags. There's no way to file bookmarked pages in folders, either. Both tag management and the ability to create collections and folders are on the developer's to-do list, and are due to be added in an update, but without them, Stache feels incomplete.

If you swap between Chrome and Safari on your Mac, Stache is a neat way to keep all your bookmarks in one place. Without the ability to properly sort and organise bookmarks, however, Stache

doesn't offer enough to justify its £4.99 price tag. You can't even view a bookmarked page in the app (Quick Look aside) – you have to open it in a browser. In a world where apps like Evernote allow you to grab web pages in a variety of formats, view them, sync them and annotate them, all for free, charging even a nominal fee for Stache in its current form is questionable (albeit that Evernote stores your data on its servers, which doesn't appeal to everyone). The iOS integration is useful, but you'll need to fork out for both the Mac and iOS versions to use it.

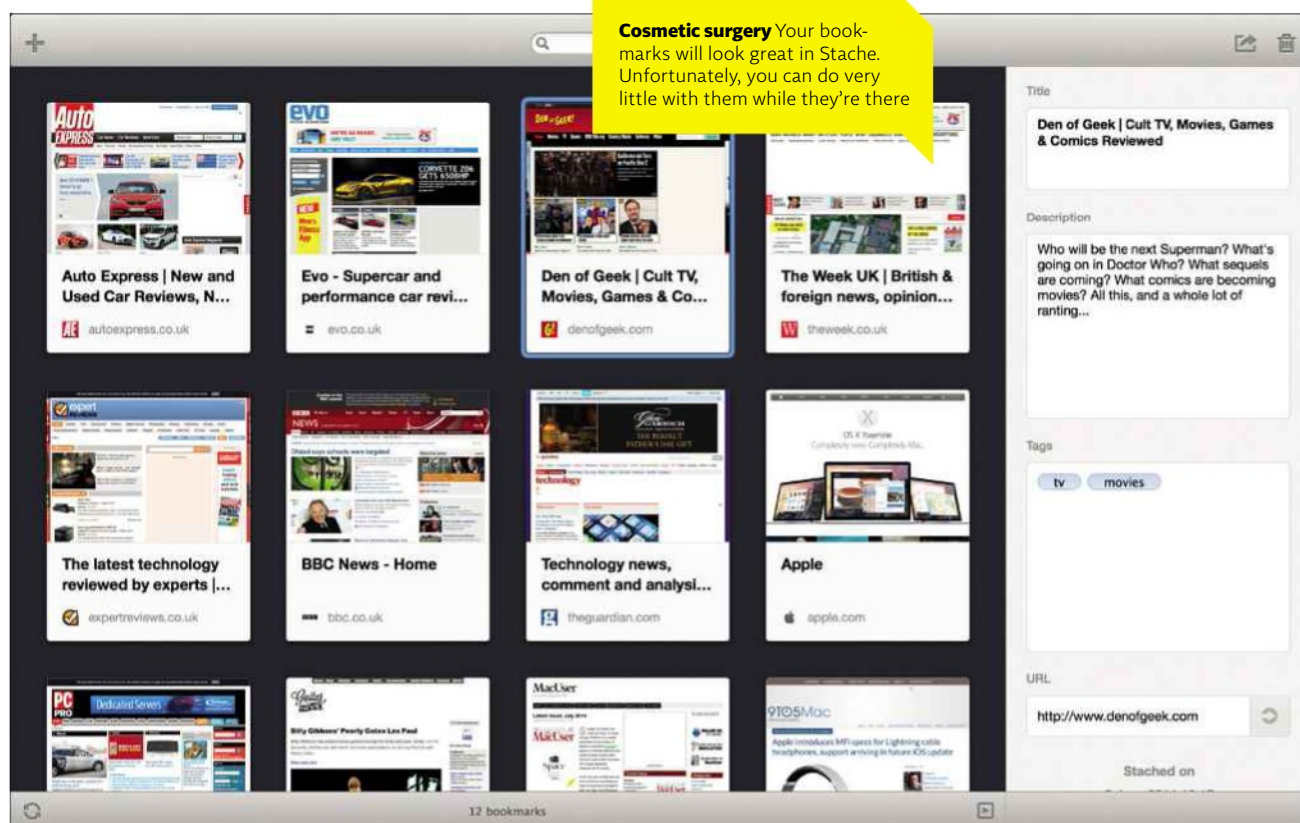
There's potential for a very good app here, but it has yet to be realised. KENNY HEMPHILL

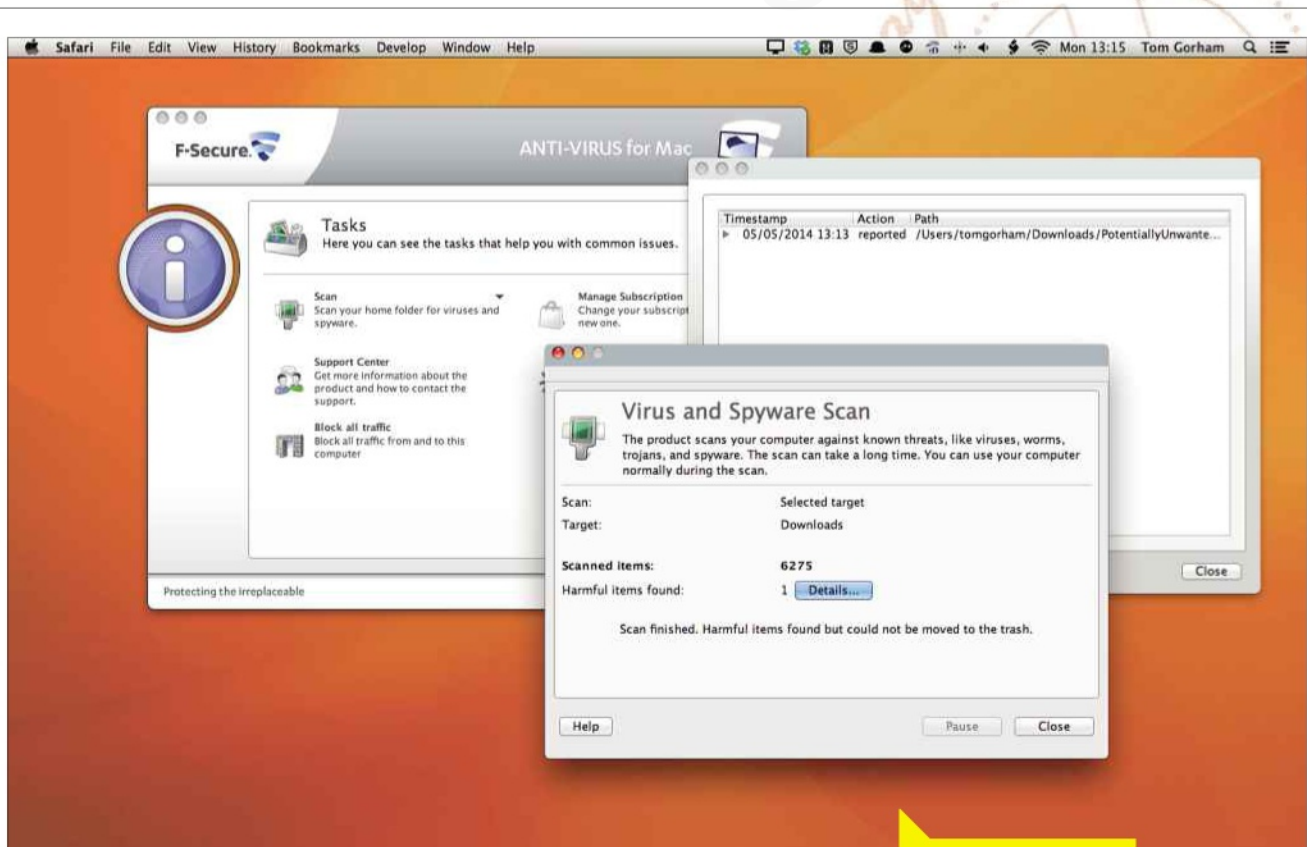


Bookmark management app for Mac
See getstache.com

£4.99 from the Mac App Store

Needs OS X 10.9 or later, 64-bit processor





Gotta catch 'em all
From the app's window, you can perform scanning of target folders

F-Secure Anti-Virus for Mac



Internet Security developer F-Secure garnered positive headlines for its openness in explaining how its internet security products stored information. It won't, however, receive similar plaudits about this lightweight, but inflexible Mac antivirus app.

Not that it's complicated to use. Once installed, it automatically offers background protection against malware. Unlike many antivirus apps, though, there's no option to temporarily disable this: the only way to turn it off is to uninstall the app. Fortunately, we didn't notice significant processor use in background mode.

From the app's small window – it's a pity you can't control scans from the app's Finder menu – you can check protection status, view statistics and perform tasks such as on-demand scanning of your Home folder or any other chosen folder. Scanning is slow and we

were frustrated by single-folder only scanning. You can't build up a list of multiple folders to scan, nor select folders to avoid. You can't schedule a scan, either.

There are fleeting positives. Unlike some budget antivirus apps, F-Secure Anti-Virus comes with a two-way firewall, which can block both incoming and outgoing internet traffic. But its approach is too polarised: you either block all traffic or none. You'd be as well switching your router on and off.

The obvious critical measure of any antivirus app is how well it deals with malware. Even here, there's disappointment. F-Secure itself admits that Anti-Virus for Mac has 'limited detection capability' for Windows malware, and this was borne out by our testing. While it proved adept at spotting directly downloaded malware we tested it against, it was less successful with a web-based 'drive-by

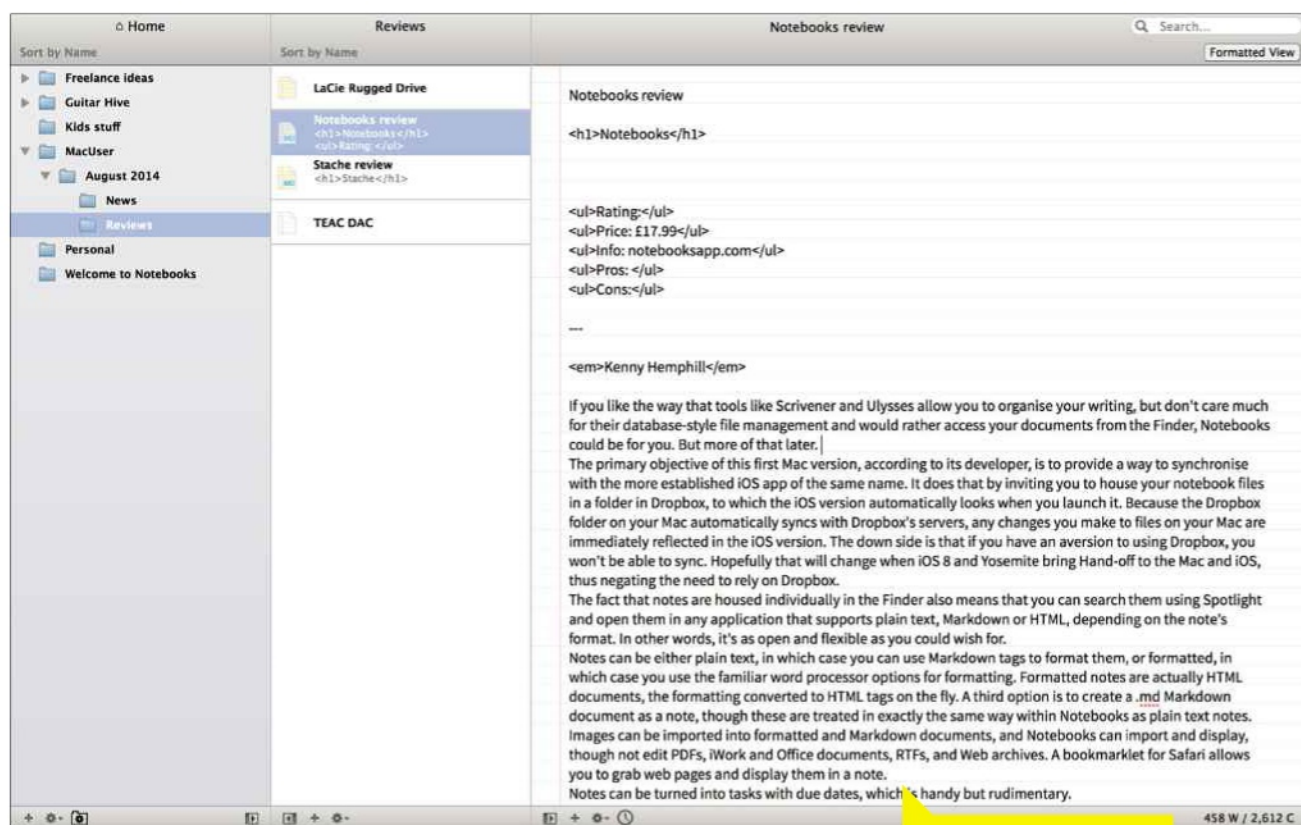
download' malware test or spotting potential phishing pages. The free Sophos Antivirus for Mac (sophos.com) gave better results.

When the app does spot malware, inflexibility again rears its head. F-Secure Anti-Virus doesn't offer a quarantine manager area where you can choose what to do with a potentially infected file. Instead, it automatically moves it to the Trash, although on one occasion, the app unhelpfully reported that a harmful file was found but could not be moved.

Given the crowded internet security market – and that there are better products available free of charge – we can't recommend F-Secure Anti-Virus. TOM GORHAM



Antivirus software for Mac
£20 a year for one Mac from f-secure.com
Three Macs £30
Needs OS X 10.6 or later



Nest building Each nested Notebook is a Finder folder; Notes are stored as individual documents within them

Alfons Schmid Notebooks



OS X

If you like the way tools like Scrivener and Ulysses allow you to organise your writing, but don't care much for their database-style file management and would rather access your documents from the Finder, Notebooks could be for you. But more of that later.

The primary objective of this first Mac version is to provide a way to synchronise with the more established iOS app of the same name. It does that by inviting you to house your Notebook files in a folder in Dropbox, to which the iOS version automatically looks when you launch it. Because the Dropbox folder on your Mac automatically syncs with Dropbox's servers, any changes you make to files on your Mac are immediately reflected in the iOS version. The downside is that if you have an aversion to using Dropbox, you won't be able to sync. Hopefully, that will change when iOS 8 and

Yosemite bring Handoff to the Mac and iOS, negating the need to rely on Dropbox.

As notes are housed individually in the Finder, you can search them using Spotlight and open them in any application that supports plain text, Markdown or HTML, depending on the note's format. In other words, it's as open and flexible as you could wish for.

Notes can be either plain text, in which case you can use Markdown tags to format them, or formatted, in which case you use the familiar word processor options for formatting. Formatted notes are actually HTML documents, the formatting converting to HTML tags on the fly. A third option is to create a .md Markdown document as a note.

Images can be imported into formatted and Markdown documents, and Notebooks can import and display – but not edit – PDFs,

iWork and Office documents, RTFs and web archives. A bookmarklet for Safari allows you to grab web pages and display them in a note.

Notes can be turned into tasks with due dates, which is handy.

If you're a Notebooks user in iOS, you'll be pleased that you can now sync with the Mac version, although there's no support for protected items from iOS, which display unprotected on the Mac.

If you don't use Notebooks in iOS, there's promise here, particularly if you prefer to organise and structure notebooks manually. However, there's not enough here yet, in our view, to justify the price tag. KENNY HEMPHILL



Virtual notebook app for Mac
See notebooksapp.com
£17.99 from amazon.co.uk
Needs OS X 10.7.3 or later • 64-bit processor

Nevercenter Leafnote



OS X

Literature and Latte's Scrivener (literatureandlatte.com) has high-end multi-part document authoring pretty much to itself at the moment. Beloved of jobbing authors, it allows you to break down a large project into discrete files, which you can reorganise at will by dragging them up and down the sidebar document tree.

Ulysses III (ulyssesapp.com) does the same at the consumer level – albeit, oddly, at a higher price. Now Leafnote is targeting less demanding users, with a 'minimal' interface, multi-part editing and a low price: it undercuts Scrivener by £14 and Ulysses by almost twice that.

In some respects, though, it's a bit too no-frills for our liking. As with iA Writer, there's no way to change the default font; but where Writer gets away with this by dynamically resizing the characters as you shrink and grow the

window, Leafnote doesn't. The resulting text, for this reviewer at least, was too small for comfort.

It doesn't limit the length of each line, either, so making the window full screen for a true distraction-free experience extended each line to 365 characters on our 27in display. That's far too many for comfortable reading, and made full-screen working impractical.

You can use regular keyboard shortcuts to embolden, italicise and underline your text, and you can align to the left, right or centre, but there's no Markdown support, so that's it as far as formatting goes. The built in templates are pre-built document trees that you can use as a shell for your own multi-part projects.

You can export to .odf (Open Document Format), Plain Text and RTF, and import the first two of those but not RTF. Complex formatting is stripped out of imported

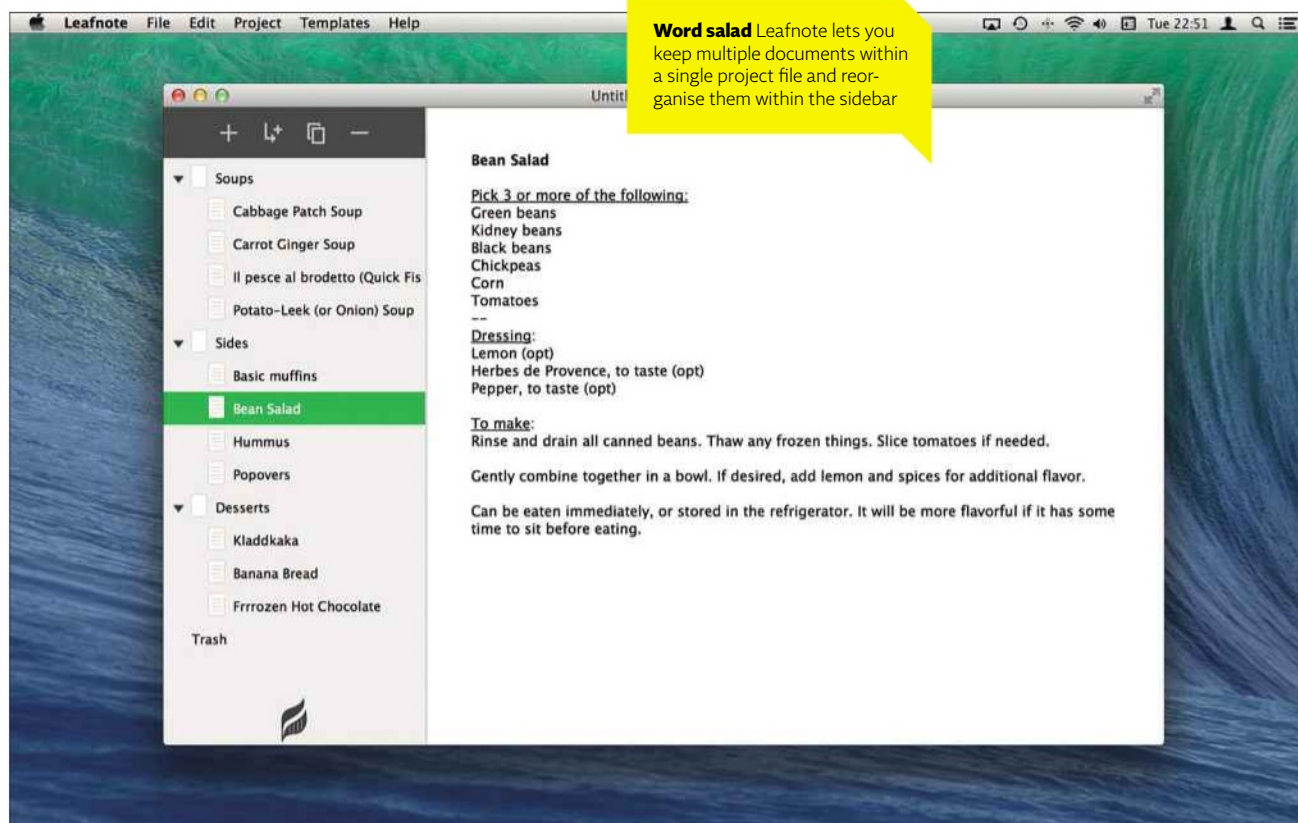
files, so you can concentrate on the meat of the file rather than how it looks.

Leafnote's developers tell us they're 'probably' going to implement spell check, word count, RTF import and an option to change the font size in a future update. Adding those and a tweak to reduce the length of each line when setting the window to full screen would double our current rating.

As it stands, though, Leafnote is just too sparse; we prefer Ulysses or Scrivener for multi-part document writing. They're not so self-effacing, and more expensive, but the payback is a more capable work environment. NIK RAWLINSON



Text editor for Mac
See nevercenter.com/leafnote
£6.99 from Mac App Store
Needs OS X 10.6.6 or later • 64-bit processor



Flexibits Fantastical



iOS

iOS 7's Calendar app is far better on iPad than iPhone, but still doesn't provide a complete view of your schedule. That's because it neglects to consider timed reminders as equal to events in your itinerary. Fantastical consolidates them, saving you having to jump back and forth between two apps.

Instead of making you switch between day, week, month and year views, Fantastical splits the screen into three. A scrollable ticker at the top roughly indicates the time and duration of events using coloured bars. Below that is a combined list of events and reminders on the left, and a month view on the right.

Coloured dots on the latter make it easy to distinguish what kinds of tasks you have set up each day. A thermal view, akin to the one in Calendar on the Mac, would have been better as an way to gauge busyness based on event durations rather than crudely

observing their quantity. As it stands, you tap a date to check its contents in detail on the left.

Tapping a date in the ticker or month view focuses the other two views on it. Swiping down from the ticker expands it to fill more of the screen with a week view, which shows event names and timings. Swiping down again fills the screen with this view. This and the ticker show the number of reminders for a day, but so small in the ticker that it's easily overlooked. It's more visible in week view, and more useful, because tapping it displays a panel of only that day's reminders.

New calendars can be created within Fantastical, but not Reminders lists – you'll need to use Apple's app to do that. Creating an event or a reminder displays a bar into which you type a plain English description. As you create an event, the app shows what information it's extracting to build the item. It copes well with simple descrip-

tions, but complex ones can confuse it; tap Details to fall back on mundane but reliable form entry.

Fantastical's search offers good precision. It can inspect all event details or just titles, locations or invitees. If you split things across many calendars and lists, it's disappointing that you can't save filters to switch between different combinations, as you can in Pocket Informant.

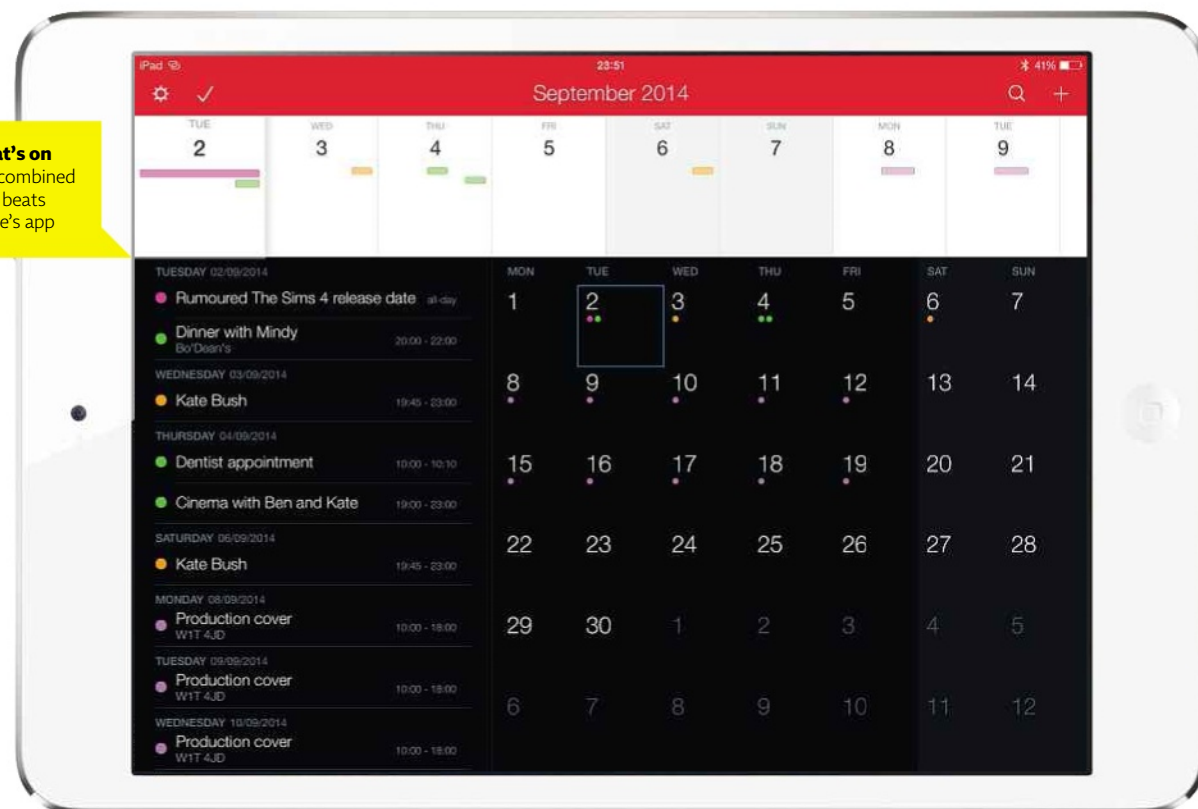
Fantastical's consolidated itinerary is reason enough to drop Apple's apps for it, but while it's well-presented, it lacks some powerful features of its rivals. Still, it's a good replacement for iOS 7's built-in Calendar if you have a leaner set of calendars and reminders to manage. ALAN STONEBRIDGE



Calendar app for iOS
See flexibits.com

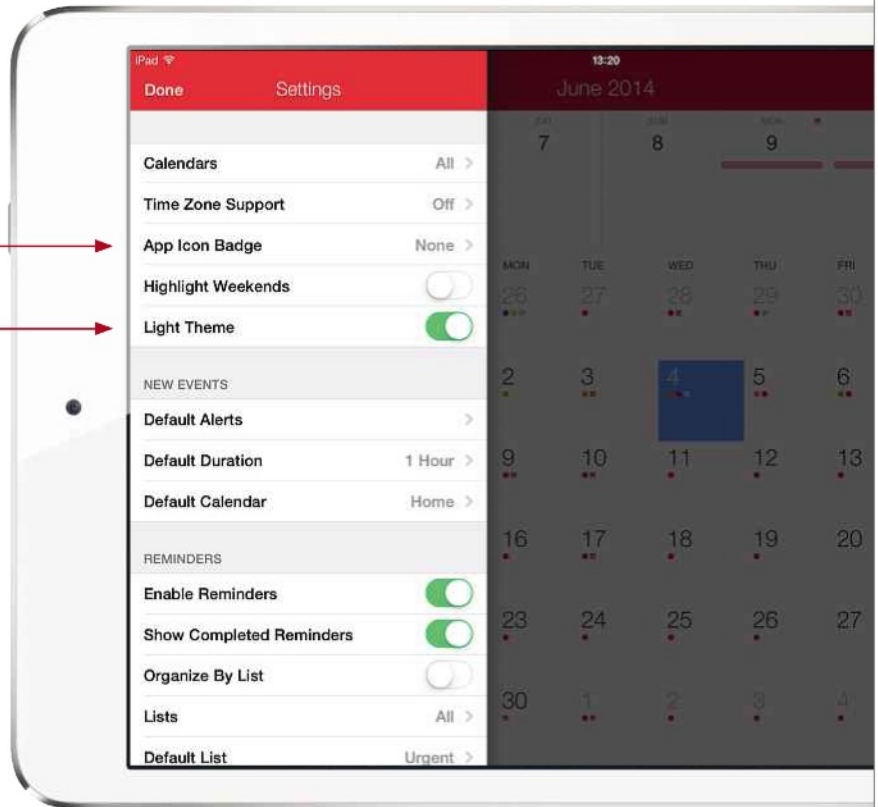
£10.49 from the App Store
Requires iOS 7 or later

What's on
The combined
view beats
Apple's app



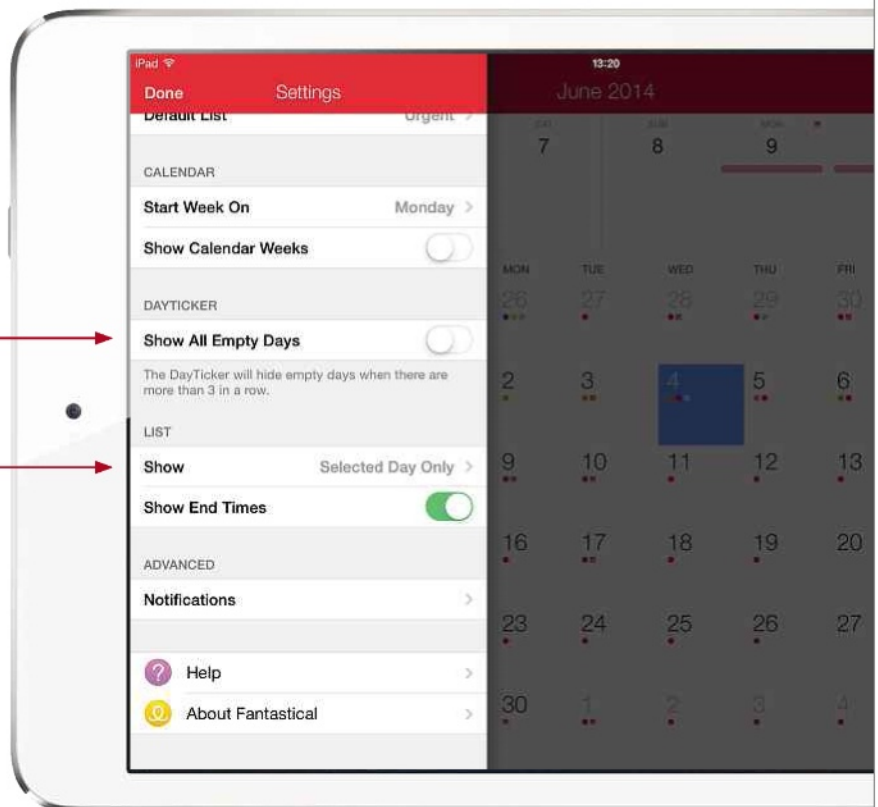
The app's Notifications badge can show how many events remain today, or the number of incomplete or overdue reminders. Alternatively, it can show the current date, but we found this confusing and preferred to keep Calendar alongside purely for its live-updating icon

Fantastical's light theme is, like many iOS 7 apps, overbearingly white. However, its dark theme, which displays a black background behind the two lower views, is just as harsh on the eyes. Sadly, no subtler themes are available



Days on which you have no events can be hidden from the ticker when three occur in a row. Weekends can be marked in a subtly different hue in both the ticker and the month view

Although the three views are synchronised when you tap a date, the list at the bottom left can get crowded with events and reminders. List > Show > Selected Day Only changes it to show only items from the current day to regain clarity





Pro
video
and stills
for under
£1,500

Panasonic Lumix DMC-GH4



OS X



iOS

Best
Value

Almost by accident, the video camera market has changed beyond recognition. Camcorders are alive and well, but many of the filmmakers doing the most interesting work aren't using them. Since the launch of the Canon 5D MkII in 2008, they've discovered DSLRs, which offer the large sensors and removable lenses only found on the most stratospherically priced video cameras.

On the downside, they were conceived as stills cameras, and it shows. But Panasonic has caught on. Its GH2 mirrorless interchangeable lens camera has been one of the most popular choices for DSLR-class videographers, and now the GH4 overtly targets the video market, with stills as a bonus.

The headline feature is 4K resolution, both at 3840 × 2160 UHD, designed for 4K broadcast TV, and 4096 × 2160 Cinema 4K, widely used in cinemas. The first affordable 4K camera for filmmakers was Blackmagic's Production Camera (see *MacUser*, April 2014, p100); at nearly twice the price of the GH4, that isn't a stills camera and supports only UHD.

The GH4 can't match Blackmagic's high-quality video codecs, which apply little (using Apple's ProRes 422 HQ format) or no (using Adobe's CinemaDNG Raw) compression. But in reality, this may be a good thing. With the Blackmagic, you get 4K footage in 10-bit colour at a minimum of

880Mbit/sec: that's over 6.5GB of data per minute. The GH4 offers a choice of 4K or 1080p at 100Mbit/sec – far more manageable, and still superior to previous DSLRs, at least without third-party hacks.

THE GH4 CAN also shoot 10-bit 4:2:2, which is significantly better for colour grading and effects, but can't save it to the removable SD cards that it uses for internal storage (the Blackmagic uses larger, higher-capacity SSDs). You'll need an external recorder such as an Atomos Ninja for 4:2:2 1080p, and full-quality 4K output requires both a high-end external recorder and Panasonic's cumbersome DMW-YAGH bolt-on interface unit, tripling the price of the GH4.

Bear in mind, however, that the upcoming Sony a7S, another mirrorless 4K-video-plus-stills camera, can't record 4K internally at all.

What you can do with the GH4 is record 8-bit 4K, then convert to 1080p in your editing app. Not only do you get visibly improved sharpness (at 4K, the GH4 maps the sensor's pixels 1:1 to the captured video, preserving razor-sharp edges), but the 4K colour data gives you what early adopters are saying is similar grading headroom to ProRes HQ at 1080p.

Dynamic range is another big factor in video quality, especially if you want a film-like look. Most stills cameras' video modes deliver less dynamic range than

the sensor is capable of, and that's true of the GH4 when using its Standard colour profile. But switching to Cinelike D reveals more details in shadows and highlights. Colours look flat at first, but the footage is ideal for grading in software such as Final Cut Pro or Adobe SpeedGrade (or indeed Blackmagic's DaVinci Resolve; the capable Lite version is free).

Although the GH4 offers neither the Blackmagic's uncompressed recording nor the a7S's sensitivity, we found noise and compression artefacts quite unintrusive. At ISO 3200 there was a fizz in shadows, but our footage was still perfectly usable, particularly after converting 4K to 1080p. 1080p output showed lower noise.

Compare this to the Blackmagic 4K, which has a native ISO of 800 and exhibits ugly noise patterns when shadows are forced up further in post (although firmware updates may improve this).

Since 4K is captured internally at the same 100Mbit/sec bitrate as 1080p, it's inevitable that compression artefacts will be more prevalent. They were certainly visible when we looked for them in fast-moving scenes, but still quite subtle. The alternative 200Mbit/sec option, available for the full range of 24, 25, 30, 50 and 60fps frame rates at 1080p only, employs All-Intra encoding, where each frame is described from scratch, like a separate still. [continued on p108]



CMOS def The GH4's sensor is larger than Super 16, though smaller than the Blackmagic 4K's Super 35 or a full-frame DSLR

[continued from p106] At the other end of the quality scale, a variable bitrate option unlocks frame rates up to 96fps. That means you can shoot true quarter-speed slow motion at 1080p, a feature unavailable on any comparable camera.

Wooing serious filmmakers, Panasonic backs up this performance with comprehensive shooting controls. There are zebra patterns and focus peaking outlines to help set exposure and focus (via the electronic viewfinder or articulated touchscreen), and luminance level and master pedestal controls can ensure output complies with video standards. While photographers adjust shutter speed in fractions of a second to control exposure, videographers set it in degrees to get the look they want; the GH4 supports this. You can record SMPTE, EBU and ARIB colour bars and embed SMPTE timecode, with Rec Run and Free Run modes for sync.

There are 3.5mm minijacks for microphone in and headphone

out, as well as the not very sturdy Micro HDMI socket for uncompressed video output. DC input requires the £1,800 YAGH, which also brings XLR audio inputs and SDI output, or a cheaper dedicated AC adaptor which doesn't yet seem to have arrived in the UK.

Battery life is quoted as 500 shots, which isn't great, but it lasted an impressive 202 minutes of 4K video capture. The usual tariff nonsense means the maximum clip length for EU models is 30 minutes, so you may prefer to order from a US supplier such as bhphotovideo.com, who'll handle the import taxes for you; the total price is essentially identical.

AS A STILLS camera, the GH4 isn't much changed from the GH3. Ergonomics and controls are hard to fault, with plenty of dials and switches. The articulated 3in OLED now offers a million pixels, and the enlarged EVF 2.36 million.

Autofocus is fast, reliable and sophisticated, with the ability to track moving subjects, vary the size of the spot focus area and so on. It's easier on the touchscreen than with buttons via the EVF.

Continuous performance is faster, at 10.5fps for up to 170 JPEGs or 41 raw shots in our tests. We got 7.1fps with continuous autofocus, and 0.3 seconds between shots in normal use. Along with the 1/8000 sec maximum shutter speed, this makes the GH4 a possibility for sport and wildlife photographers. The latter will appreciate the ability to disable the mechanical shutter for completely silent shooting, although this betrays rolling shutter skew on moving objects (as with video).

The GH4's stills quality can't match more expensive full-frame SLRs, and it's slightly behind the best APS-C cameras, such as the Nikon D7100 and Canon EOS 70D. The 16 megapixel sensor falls short

of the Canon's 20 and the Nikon's 24, and is noisier beyond ISO 1600.

But the Micro Four Thirds format has its advantages: focus isn't as critical as with full frame, and almost any lens can be used. There's no optical stabilisation in the body, so Panasonic's range of OIS lenses, including the flexible if slow 14-140mm at under £500, will be of interest, though the only really fast option is the very expensive 42.5mm f/1.2. The unstabilised Leica-branded 25mm 1.4 (equivalent to 50mm on full frame) is a good everyday prime.

For video, fast manual lenses such as SLR Magic HyperPrimes and Samyang's VDSLR series are available for MFT, while Nikon-mount lenses can be used with the legendary Metabones Speed Booster for a near full-frame effect.

The GH4 offers comprehensive wifi remote control from an iOS app, including live preview and playback (at VGA resolution), autofocus selection and exposure settings, live aperture control while recording video, and even the ability to zoom using Panasonic's two powered telephoto lenses.

This is now the obvious choice for anyone serious about video production on a limited budget. Image quality can't quite match Blackmagic's (even with the cheap Pocket Camera at 1080p), but the GH4 is vastly more flexible, and with the right settings and judicious grading your results should leave little to be desired. The a7S will be far better in low light, but with its lack of internal 4K recording it's not a direct rival. Perhaps Sony or Canon will come up with one soon; but for now, the GH4 is where it's at. LABS TEAM



Mirrorless 16MP camera with 4K video
See panasonic.co.uk
£1,299 from jessops.com (body only)
Micro Four Thirds lens mount

Rig love Just add gear for the full pro experience

IMAGE ZACUTO.COM



Dell UltraSharp U2414H



OS X



Best
Value

We really like Dell's UltraSharp displays, so we were keen to test the U2414H, with its smart design, a colour-calibrated sRGB mode and a host of features – all for only £200.

The most striking change from previous models concerns the bezel. Dell has banished the thick picture-frame surround, so the U2414's matte, anti-glare finish now stretches almost all the way to the monitor's edges. This is perfect for multi-monitor setups, where the smallest possible gap between displays is called for.

The only retrograde step is taken by the panel resolution. Compared with its predecessor, the excellent UltraSharp U2412M, the U2414H's Full HD, 1920 × 1080 panel has lost 120 pixels of vertical resolution. This is disappointing, as we prefer the spacious feel of a 1920 × 1200 monitor.

Image quality remains competitive. At factory default set-

tings, the U2414H is set to 75% brightness, which we measured at a bright 256cd/m²; crank it to maximum and the W-LED backlight reaches 323cd/m². The contrast ratio of 853:1 is excellent, and colour fidelity is good, with average and maximum Delta E scores of 2.7 and 6.4 respectively.

Select the U2414H's factory-calibrated sRGB profile and colour accuracy gets even better. The contrast ratio dips to 660:1, but the average Delta E improves to 2.1, and the maximum deviation drops to 4.3. The IPS panel is evenly lit, too: we measured no more than a 10% variation in brightness across the whole panel. The display's only weakness is a tendency to crush the darkest greys into black, but this could be a peculiarity of our test sample – no two panels are 100% identical and some will fare better in the factory calibration process than others.

At the back, Dell has packed in plenty of connectivity. As well as a full-size DisplayPort input with pass-through for another screen, there's mini-DisplayPort and twin HDMI inputs. There's also a four-port USB 3 hub built in, with one port at the centre of the monitor's back panel for easier access.

The Dell UltraSharp U2414H is a great monitor for sensible money. Ultimately, we prefer the larger resolution of its predecessor, the UltraSharp U2412M, which is still on sale, but it's a close-run thing. If Full HD resolution suits your needs, the UltraSharp U2414H's generous feature set, great build and fine image quality are a steal at this price. LABS TEAM



24in HD monitor
See dell.co.uk
£200 from ebuyer.com
1920 × 1080 • Height adjustment 130mm

Narrow margin The anti-glare panel stretches almost all the way to the edge, great for multi-monitor setups



Blue Microphones Spark Digital



OS X



iOS

Editor's
Choice

Blue Microphones has been making mics for the Mac and for iOS for some time, but the new Spark Digital works with both platforms. An increasingly common feature of mics and audio interfaces, this is possible largely due to the rock-solid Apple CoreAudio frameworks at the heart of both operating systems, which means no drivers are required.

This model comes with either a USB cable to connect to your Mac, or a Lightning or 30-pin cable to connect to an iOS device, so you'll need to choose which bundle you want. If you have both types of device – say, an older iPhone and newer iPad – you can choose to add the second type of cable for £17 (sold at US\$28), though most users will be fine with one. All three varieties of cable are several feet in length so you can get some distance when recording, and have a built-in headphone mini jack port.

This is handy because it allows zero latency monitoring, which isn't possible on most iOS devices and makes for much easier instrument and vocal recording. It's also better than having a headphone output built into the mic body as some do, as those can be fragile and prone to movement.

The build quality of the mic is robust. The stand and shockmount have some plastic components, but once the mic is screwed into its stand, it's protected from bumps and vibrations and can be angled for voice recording. You can buy a different shockmount that allows it to be attached to a mic stand for studio recording applications such as drums or pianos.

It uses a studio-grade condenser capsule and has a Focus Control switch that lets you choose a more general or more focused recording style by changing the input driver of the capsule.

We tested it with some voiceover as well as acoustic guitar recording, and the results were excellent. It pops up as an audio device for sound in and out on the Mac, and on iOS it springs to life when a compatible app is launched. Recording into Cubasis and GarageBand worked fine, and the level dial and level meter made everything easy to control. Direct monitoring is really useful, as is the ability to mute the mic.

It may be pricier than some iOS mics, and styled to love or hate, but this is a great performer that works as well on iOS as Mac. Those who are serious about recording will appreciate its pro feel and sound. **HOLLIN JONES**



Digital microphone for Mac and iOS devices
£200 from bluemic.com
Requires OS X 10.4.11 or later and USB 2 port
(for Mac use) or iOS 6 or later





TEAC HA-P50

Hifi, lo-tech You attach the HA-P50 to your iOS device with a pair of, er, rubber bands



OS X



iOS

However good the headphones you use to listen to your iPhone are, the input they receive is limited by Apple's digital-to-analogue conversion hardware. The solution is to take a digital signal from your iPhone, iPod or iPod touch, and do the conversion in another device. TEAC's HA-P50 does just that, and also acts as a headphone amp, boosting the signal before passing it to a standard 3.5mm jack into which you plug your headphones.

Audio fidelity is improved compared with listening directly from your iPhone's headphone jack. The downside is that you have another box to carry around and an extra cable to connect.

The box itself is compact, and TEAC supplies a couple of thick rubber bands so you can fasten it to your iPhone; the whole lot is no bigger than a Sony Walkman from the late 1980s. The chassis is metal and will take plenty of knocks, and

the volume control is well-protected by a couple of fins on the outer edges of the case.

Beside the volume control is a high/low gain switch, so you can match the amp's output to your headphones, so your iPhone can now comfortably drive high-impedance headphones. Our only issue is that the switch is fiddly and difficult to move. That's also the case with the selector on the back, which lets you choose between mobile device, computer and optical audio inputs.

Also on the back is a 5V DC input, and the HA-P50 comes with a cable that lets you hook that up to a USB power source in order to charge its battery. Save for the two fiddly switches, it's a very well-designed piece of hardware.

You could use it on its own, playing music from the iOS Music app. But if you're the kind of person who would spend £300 on

a headphone amp, you're probably the kind of person for whom 16-bit MP3 or AAC files just don't cut it, so TEAC has its own free app that also plays high-resolution formats such as FLAC at 24-bit/96kHz.

There's a noticeable difference in listening to music with the HA-P50 connected. Even the regular 16-bit AAC files on our iPhone had greater presence and impact. The same was true when we connected the DAC to our MacBook.

Whether that's enough to persuade you to part with £300 is another matter. If you spend a lot of your life listening to music with headphones on, however, you might think it a very worthwhile investment. KENNY HEMPILL



Portable headphone amplifier
See teac-audio.eu
£299 from petertyson.co.uk
USB-rechargeable lithium-ion battery



*Still
the Mac
pro's default
rugged
storage*

Inside job Cord
stowage makes
sense for a
portable drive



LaCie Rugged 500GB SSD hard drive



OS X

LaCie's orange-bumpered Rugged hard drive has been around for more than a decade. In that time, storage technology and capacity have improved, but a thick rubber bumper is still the best way to protect a hard drive from a fall.

We say hard drive, but while the Rugged is available with a hard disk, up to 2TB, the model we tested had a 500GB SSD (whether SSDs actually need the shock protection is a different story).

On the outside, the rubber bumper incorporates a 30cm Thunderbolt cable, and there's also a USB 3 port. The captive cable saves you the considerable cost of adding one and having to remember to pack it on your travels, but then again, if the cable fails, the whole chassis, or at least the bumper, will need to be replaced.

The combination of Thunderbolt and SSD is lightning-fast. LaCie claims transfer rates of up

to 389MB/sec, and we were able to replicate that in our tests. In QuickBench, files of over 2MB in size were read and written at speeds between 361 and 392MB/sec. For files of less than 1MB, the speed dropped by about half. To put that into perspective, we re-tested the G-Tech G-Drive mobile, which also has a Thunderbolt connection but uses a 1TB hard drive. That managed 299MB/sec for files of 2-10MB/sec, but bigger files copied at half that rate, and smaller ones read and wrote randomly at around a tenth of the speed. This particular LaCie Rugged is blazingly quick.

Performance aside, there are some nice touches. The USB port and housing for the Thunderbolt plug are enclosed in a removable rubber cap, eliminating dust. And there's a spare cap in the box.

Our only complaint is that when you plug in the drive for the

first time, you're pushed to install LaCie's proprietary software. On doing that, it turns out that all it does is allow you to format the drive, which you could do in Disk Utility, and register it with LaCie. There's also an option to install Intego Backup Assistant, which does little that Time Machine doesn't, and a tool for encrypting files and folders. Try and install the latter, and you're told you must first download and install MacFUSE. Not very satisfactory.

Ignore all that, and the Rugged drive is a terrific performer that provides the perfect combination of robust data safety and performance – and at a very reasonable price to boot. KENNY HEMPHILL



Rugged portable hard drive
£399 from lacie.com
Needs Thunderbolt or USB 3 port
Other models available up to 2TB

Onkyo ES-CTI300



OS X



iOS

Editor's
Choice

When Onkyo launched its first headphone range last year, our only regret was that it didn't offer a set with an inline remote control and microphone for iPhone users. It's now remedied that with the ES-CTI300, a pair of cans that are so comfortable it doesn't take long to forget you're wearing them.

That comfort is in no small part due to the fact that they sit over the ear rather than on it, and that the padding on the leatherette-covered memory foam ear cups and head band is very generous. Everything about these phones screams quality, from the gold-plated MMCX connectors on the detachable cable to the finely etched spiral on the back of the aluminium driver housing.

Those drivers are 40mm titanium and designed to let the music speak for itself, without artificially boosting the bass. The result is a neutral output that manages to

avoid being sterile while picking out fine details like the scratch of a pick on a guitar string or the breath between lines in a vocal. There's plenty of bass where it's needed, but it doesn't swamp the treble and mid ranges.

The beginning of AC/DC's *You Shook Me All Night Long*, for example, picked out the driving excitement of the bass drum along with the detail in the hi-hat and the crunching chords in the riff. And the intro to Public Enemy's *Harder Than You Think*, with its acres of complex detail, was as faultlessly delivered as the thumping bass and brass that followed.

A free app, HF Player, launched to accompany the ES-CTI300, allows you to play tracks from your music library and add EQ either by selecting from presets created by Onkyo's musician partners, or dragging your finger on-screen to adjust the frequency curve.

We weren't so keen on the positioning of the inline remote, high up on the right-hand cable. We'd have preferred it lower so we could see the controls when using them. That, however, is a very minor gripe, and it doesn't take long to get used to using the remote by touch alone.

At £200, these aren't inexpensive, but to our mind, particularly when compared with much of the competition, they more than merit the price tag. Detachable cables, comfort and brilliant audio fidelity mean that if you're shopping for a pair of premium headphones for an iPhone, iPad or iPod touch, the Onkyo ES-CTI300 should be at the top of your list. KENNY HEMPHILL



Over-ear headphones with inline mic/remote
See onkyo.com

£200 from superfi.co.uk

Titanium drivers, iOS-certified copper cable



Class act There's quality from the gold plate to the tan leatherette





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ABSOLUTION
ELITE EDITION

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HOW MANY LIVES **WILL YOU TAKE** TO SAVE ONE?



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Brother MFC-1810



OS X



iOS



Editor's
Choice

Brother's MFC-1810 is a budget all-in-one device based on the entry-level HL-1110 mono laser printer. Like the HL-1110, this is a no-frills product with only a single paper input tray, no automatic duplex printing and no network support. It does, however, provide useful features such as a built-in fax machine and a ten-page automatic document feeder (ADF).

It doesn't feel cheap, but its low cost means there are inevitable compromises. The hinges for the scanner lid are sturdy, but they don't extend upwards to let the lid close flat on thicker originals. The 150-page paper input tray has no cover, so dust could build up on the top sheet. More significantly, the printer's paper guides adjust only between A4 and Letter widths, ruling out alternative paper sizes. The short paper output tray is completed by a two-part paper stop that folds into place, but you

need to lift the scanner bed out of the way to get it up or down.

We found the MFC-1810 swift, reaching 17.4 pages per minute (ppm) when printing text and 16.2ppm in our more demanding mixed graphics test. Print quality on text was good, but graphics didn't fare so well. There was some banding, despite well-judged exposure, and some fairly crude halftoning patterns in lighter areas. Photos had the same issues, but generally looked better.

The scanner was slightly slow at low resolutions, taking 17 seconds to produce a preview or 18 seconds to scan an A4 page at 150 or 300 dots per inch (dpi). It was better at higher resolutions, though, with a 1200dpi photo scan taking just 28 seconds. The results were more than good enough for everyday office work and archiving. Our only criticism was that colours were a touch oversaturated and by

default, photocopies came out a touch too dark.

Running costs aren't this all-in-one's forte: each page will cost 2.7p even if you never have to replace the drum, while inclusive running costs are 3.2p per page.

With a decent set of features and swift, reasonably good results, this is an impressive MFP for anyone looking to set up a home office on a tight budget. It's unfortunate that its print costs are relatively high. If you expect high volumes, consider spending more on a better printer with lower costs, such as the Kyocera FS-C2026MFP+ or an inkjet alternative like the Epson WorkForce WF-3540DTWF. LABS TEAM



Mono laser all-in-one
See brother.co.uk
£118 from printerbase.co.uk
Needs OS X 10.6.8 or later



Give and take
The Brother is cheap to buy, pricey to run

Yakuto Table Tennis Touch



iOS

There's more than a hint of the Sega classic Virtua Tennis about Table Tennis Touch. You enter the sport as a newbie, pitting your skills against a range of opponents and honing your ball-thwacking to perfection in a series of training-oriented mini-games.

The title's perspective is much the same as Konami's Ping Pong, which made its debut way back in 1985. You view the table from behind, two floating rackets facing off against each other. Unlike the ageing arcade game, though, Table Tennis Touch is thoroughly modern in its visuals and controls.

Respectively, these elements are gorgeous and... variable. The environments are beautifully

rendered, and the swipecy action is initially a blast as you smack balls spat out by serving robot Wiff Waff at materialising bowling pins. As you work your way through the various championships, though, the limitations become apparent.

There's some nuance in what you can do with the ball, but the best technique is often enticing the computer AI towards the net and then smashing the ball at the opposite far corner, along with adding some spin. Later on, though, the computer's floating bat appears to acquire super-human powers, making progress extremely tough. Similarly, the arcade challenges become insanely hard to complete.

The game tempts you with 69p 'boost' in-app purchases that temporarily turn your screen's edge green and give you HULK FOREHANDSMASH powers, but this feels a wee bit like cheating. Nonetheless, for the price, this is a fast-paced title that works nicely on the iPad. But it never quite breaks away from being a glossy version of Pong— and one that gives you blisters from repeatedly and furiously pressing and swiping a piece of glass. CRAIG GRANNELL



Table tennis game for iOS
See tabletennistouch.com
£2.49 from App Store
Needs iOS 6 or later



High score

Respect! 49,698
points of respect,
to be precise

Body swerve Two
ghosts face off in
an oddly reflective
venue. Spooky



We could be heroes There are over 100 characters to unlock, many of which sound just like you remember them

Feral Interactive LEGO Marvel Super Heroes



Throw together a bunch of super-villains in a plot to conquer the Earth using 'cosmic bricks' and the result is a LEGO game that showcases a diversity of Marvel's best characters. Spider-man, Wolverine, Black Widow and dozens more are playable. It's a joy to try out different abilities, to watch the transformation of regular-sized Bruce Banner into the Hulk, and to see Captain Fantastic flex his body and morph into all sorts of puzzle-defeating objects.

Manhattan serves as the hub of the game. Missions take place inside and on the streets. You can take a skydive from S.H.I.E.L.D.'s Helicarrier into the city, and fly around the Big Apple as Iron Man.

It's a little disappointing to notice smaller scenery drawing in greater detail as you approach it, but there's good reason to explore the city, as some of the build-ings allow you to undertake side

missions. This game certainly isn't short on content.

Rarely does a character assigned to a mission feel under-utilised, although some of their abilities are easily forgotten about. That happened to us in a puzzle that gave a false clue about a pressure-sensitive floor. Swinging across as Spider-man wasn't the solution. Although the real clue was right in front of us, it took a while to recall an ability we'd barely used until that point.

LEGO games aren't overly strict about the accuracy of jumping between platforms. At worst, you'll fall into a pit and respawn nearby. The game is generally forgiving of mistakes, but we encountered one pit and one trap that demonstrated the poorness of the respawning algorithm, placing us in inescapable danger and causing us to die a few more times before we were safe.

Voice acting is mostly top-notch, with characters sounding close to their film counterparts. The LEGO series' irreverent humour melds well with the wise-cracks you'd expect from Marvel characters, making this much funnier than LEGO's other tie-ins. Stan Lee even makes cameos, in which you rescue him from predicaments. Despite some annoyances, this is a charming instalment, and even the portrayal of characters with whom you might be less familiar is appealing.

If the LEGO formula is looking tired, the saving grace here is the characters and humour, which encourage playing through to see all the gags. ALAN STONEBRIDGE



Adventure game for Mac
See feralinteractive.com
£20.99 from Mac App Store (includes DLC)
Needs 10.8.5 or later





What the blazes? A man pours petrol over you. Another man smokes a cigar. Uh-oh (MW2)

Activision *Call of Duty: Modern Warfare 2 and 3*



OS X

It's been five years since Call of Duty: Modern Warfare 2 came out for consoles, and three since its sequel, Modern Warfare 3. Aspyr may be a little late in bringing this pair of Activision games to the Mac, but it's made the gratifying choice of releasing both titles simultaneously, along with all their extra downloadable content.

If CoD is your bag, you've probably heard about these games before, so we won't spare you spoilers; skip to p121 for our verdict if you'd rather know nothing.

MW2 picks up from where Modern Warfare left off, as the evil Russian sociopath Makarov once again wreaks havoc and destruction. Sergeant Soap (an indestructible Scot) and Captain Price (think Arthur Smith with a semi-automatic) also make welcome reappearances.

You play a variety of characters as the action switches from location to location, following several threads at once. And it quickly becomes clear why: several of your personas are killed in action

along the way. Not the usual soft kill, where you spring back to life a couple of minutes earlier in the timeline, but shocking and wholly unexpected permanent terminations, including one where your battered, wounded body is doused in petrol before a renegade general casually flicks his lit cigar at you.

MW2 introduces a few new modes of transport, from a fast-paced downhill snowmobile escape to a thrilling speedboat chase while dodging strafing helicopters and enemy gunboats. You get to drive a jeep up the ramp of a moving plane and to blast enemy combatants from a remote drone screen.

This game also has the controversial scene in which you masquerade as one of Makarov's henchmen as he and his crew saunter through a crowded Russian airport, slaughtering unarmed civilians. It's a shocking scenario even for hardened Call of Duty players.

As it turns out, Makarov knows you're an American plant, and this has been his plan all along: the Americans get blamed for the



Inside job Strolling through an airport slaughtering civilians isn't for the faint-hearted (MW2)

massacre, the Russians retaliate, and that leads to a vast conflict that places you in the ruins of a devastated Washington.

The realism in MW2 is impressive, with both civilians and soldiers behaving and looking like real people. You can interact with much of the surroundings, from shooting up computer screens to blasting caged chickens in the market, if that takes your fancy. And the moment when you have to retrieve a dagger from where it's lodged in order to hurl it at the chief baddie is truly startling.

Modern Warfare 3 (MW3) takes up seconds after MW2 left off, and is essentially more of the same, but this time the whole world is involved. Set-piece sequences include a shootout on a truck chasing a train through the



London Underground, ending up beneath Big Ben; a catastrophic battle in Paris, where you're almost hit by a collapsing Eiffel Tower; and plenty of pulse-racing sequences, including a free-fall shootout in the Russian presidential plane.

The action again jumps from character to character, and from fighting on the ground to firing missiles from a helicopter. MW3 has its share of startling moments, too, such as when you suddenly find yourself as an American dad filming his family's trip to London – and it doesn't end well.

It's possible to complete each campaign in a single concentrated day's fighting, but that's not the end of the story. Extra missions test your ability and staying power by re-imagining scenarios from the campaign with different objectives. For those with a taste for endless warfare there's always multiplayer mode, in which you can battle real virtual soldiers from around the globe to your heart's content.

Though their age is in your hardware's favour, MW2 and 3 have hefty computing requirements, so do check the minimum



Tube strike A shoot-out in the London Underground is particularly impressive (MW3)

President's residence

Among the many spectacular locations is the bombed-out White House (MW2)

London calling

No, you don't get to shoot the British bobby (MW3)



specs before you buy. What's not mentioned is that you absolutely need a two-button mouse – some manoeuvres can't be performed without right-clicking.

All this realism does make the gameplay conventions seem all the more absurd: you can't open a closed door or jump over a police No Entry sign, and crouching out of sight will heal all wounds in seconds. But these are perhaps inevitable to keep the action flowing.

In other respects, no suspension of disbelief is required. The

landscapes are highly detailed, with dozens of enemies and civilians on view at once; in MW3, the vast devastated arenas feature whole ruined cities, and buildings that explode and crash to the ground as you pass through them.

There's maybe slightly too much reliance on following the man in front of you, who leads you through each mission. It's necessary, as otherwise you'd be wandering aimlessly, but with no solo missions, you do feel occasionally as if you're simply following a

predetermined track. If you're only going to buy one of these games, we'd recommend MW2: it's half the price and has the better emotional engagement.

Though it's a while since their original release, MW2 and 3 are the most exciting first-person shooters yet to hit the Mac. STEVE CAPLIN



First-person shooters
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Meet VIS

We talk to Visual Information Services, which specialises in Mac repairs and parts

VISUAL INFORMATION SERVICES (VIS) is an independent Apple parts supplier and Apple computer repairs specialist based near Reading in Berkshire. The company has been repairing and supplying parts for Apple computers for maintenance companies, businesses, educational establishments and end users since 1992.

VIS claims it's the UK's largest independent supplier of Mac computer parts and prides itself in trying to supply any part for an Apple computer. Its warehouse has thousands of parts in stock ready to be despatched for next-day delivery in the UK, or to be sent throughout the rest of the world. VIS has also set up an e-commerce website where customers can buy parts.

It offers an exchange service on serviceable items such as power supplies and logic boards, whereby it will send out a replacement in advance of the faulty part being returned. This is a popular service

with maintenance companies, educational establishments and others who require the shortest down time possible.

At its workshop, VIS specialises in the repair of Apple computers and iPods, but it will also perform upgrades and sort out any software issues. Rates are competitive and VIS aims to turn jobs around as quickly as possible. However, although keeping prices low is important, VIS director Andy Waterson explains that quality and customer service are also top priorities. He says VIS always strives to keep standards high.

The engineers at VIS have more than 20 years' experience in repairing Apple computers. Waterson says the VIS team are always ready to help, giving advice over the telephone or in a face-to-face meeting. Indeed, he believes that it's this service to its customers that's responsible for VIS' loyal customer base, who, he claims, are happy to recommend it.



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Vector Drawing App for Mac



IMAGE NICK TARRY

Mac rescue iMac G4

I bought this iMac G4 second-hand in 2005, when it was three years old. It's a Flat Panel G4-800, with a SuperDrive, a 60GB hard drive and a PowerPC processor. It had previously been used in an office, and came with what I then considered a capacious 768MB of RAM – quite an upgrade from its original 256MB. At that time, it was possible to install fairly-recent programs on it, and it ran Photoshop, iTunes, Word and PowerPoint quite happily. My children used it a lot for playing CD-ROM games. I remember *The Cat in the Hat* was a big favourite, along with *Marble Blast*, *The Sims* and *Tomb Raider*. It's incredible now to think that such a low-spec machine could do all that.

As the years rolled by, my kids started to complain that the G4 was slow, especially with audio and video. It couldn't keep up with the online content that broadband made available. Then Adobe dropped a bomb by withdrawing Flash support for OS X 10.4 Tiger, the last version this machine will run. It looked like the iMac was doomed. But as usual with Macs, the solution was just an internet search away. I found a

replacement plug-in that would allow video to play, albeit jerkily. And the DVD drive still works, too!

During its life, the iMac G4 has belonged to every member of the family, in descending order of age, and now resides in my son Miles's room. Like all nine-year-olds, he's Minecraft-crazy, which has presented a multitude of new problems. To get Minecraft to run you need Java 1.6 at a minimum, officially not possible with OS X 10.4. But again, Google was my friend. With some fiddling about, I managed to rustle up an ancient beta for Java 1.6 and Tiger. There never was a final release, but it works fine. Miles says the MagicLauncher version of Minecraft will play on the G4 now – very slowly.

Loath to give up such a good-looking room ornament, we're now in the process of rigging up the G4 as a Minecraft server, which my son and his friends will connect to from other computers around the house (and the world). After a session involving JavaScript and Terminal, we got the server working. Now we just need to work out how to connect to it. With luck, there'll be another lease of life for this 12-year-old Mac. NICK TARRY

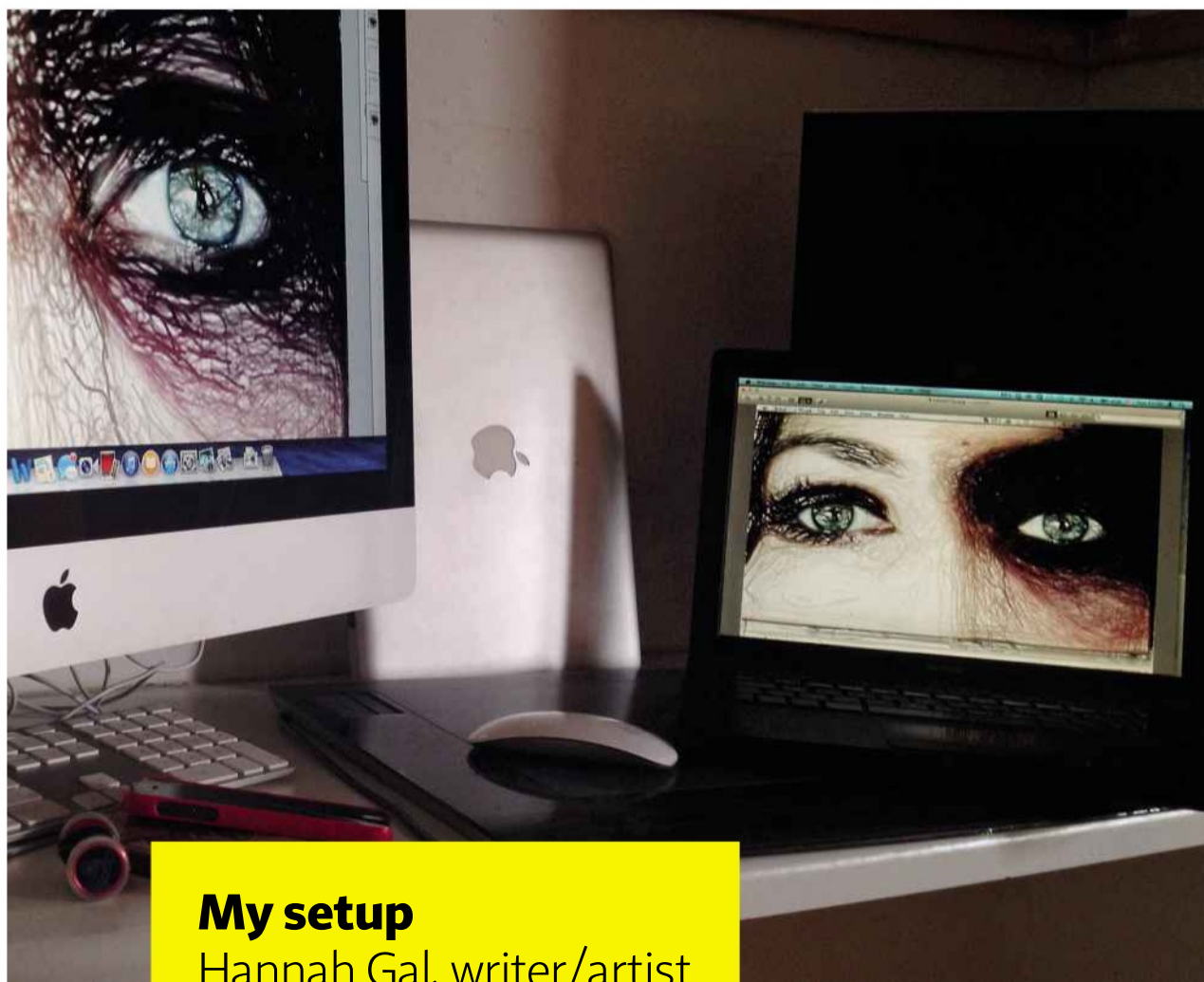


IMAGE HANNAH GAL

My setup

Hannah Gal, writer/artist

I'd been using Macs for a few years when, in 2000, Adobe commissioned my first short film, *Breathe*. I collaborated with a talented editor from Hangman Studios, but halfway through our next film, *Hollow Men*, he was unexpectedly snapped up by Robbie Williams to work on one of his projects. What was going to be two weeks out turned into five, and I soon realised the only way to get the job done was to master Final Cut Pro myself. To this day, I thank Robbie Williams for forcing the edit on me.

Besides video, my Apple setup supports my animation, photography and writing. I do a great deal of work on the move. I often edit photography on location, as soon as I transfer shots to my laptop from my camera or iPhone, with iPhoto and Lightroom at the heart of things. I produce and deliver photography for image providers and am always conscious of freeing storage space for the next batch. The iPhone has become central to this operation, with providers' own apps such as Stockimo enabling on-the-spot delivery. I use a multitude of photo and video apps and always carry my amazing Ollo lenses with me.

I also trim video footage on location, a habit acquired when shooting my documentary *My Friend The End* (on three iPhones) and battling with storage issues throughout. I carry a MacBook Pro 13-inch Core i5 with SSD and transfer files as soon as a shoot is done or whenever there's a break.

For animation and serious editing, I turn to my late 2009 iMac, with a quad-core i5 and home-made Fusion drive. Depending on the type of film I'm working on, I might have a second monitor connected, but I don't always feel the need for it.

One item I use for every creative job is my Wacom A4 tablet. I'm so used to it and it's so well customised to my needs that it comes more naturally than a mouse. I find Photoshop, Painter and some animation impossible without the pen.

For writing, I turn to my much-loved late 2006 MacBook. Unlike the rest of my equipment it came second-hand, and I've grown quite attached to it. I carry it everywhere, even though it means taking a charger too, since its battery is getting quite erratic.

Find out more about Hannah's work at hannahgal.co.uk.



Woofers and tweeters

Thoughts from the interweb

Judged by its cover

↑ JJBowle @PT_JJBowle

@macusermagazine
Clearing out 10 years' worth of mags & found this filth on the front cover from June 2003 :)

David Glen Walker
@davidglenwalker

@PT_JJBowle @macusermagazine
Where was that in the best covers of the year?

MacUser @macusermagazine

@davidglenwalker
@PT_JJBowle Not sure if we should have entered it for best front or best rear.

Prints charmless

Michael Simmons
To mailbox@macuser.co.uk

I found your review of the Canon MX925 (p109, MacUser, May 2014, £2.70 from bit.ly/macuser3005) overly complimentary. I have had a Canon MX922, which appears to have all the same features, for a few months now and have consistently had problems.

When printing duplex (both sides of the paper), it consistently cuts the bottom line of text in half, with the top half on the bottom of the front page and the bottom half of the last text line on the top of the back page. When copying, it cuts-off (does not copy) part of the left and top edges of print if

they're close to those margins. A new driver version recently came out, but did not fix either of these problems. I've had a few discussions with Canon's customer support and they didn't know how to fix either of these problems.

While all of these problems continuously happen, the test print pages always print OK.

Thanks very much for the info. This really highlights the age-old problem of reviews: an expert who's testing something for an afternoon can spot a lot of problems, but some just won't arise.

That goes double for printers, which are full of mechanical parts. Unfortunately, we can't try every function and permutation within the review cycle. Of course it's unlikely that every printer of this model has glaring problems, or Canon would have picked it up. It's more likely you have a miscalibrated unit or your particular settings are triggering a problem. But it sounds as if Canon's support staff could be more helpful.

We do appreciate your writing in. If several people draw attention to the same product, we'll know there may be an issue.

Hot ticket

Tim Chater @timchater

@macusermagazine Re iOS 8 device compatibility, is Apple including the 3rd gen iPad when it says 'with Retina display'?

MacUser @macusermagazine

@timchater Yes. Only catch is that when running iOS 8 games the iPad 3's surface temperature will exceed 200°C. Kidding! May not be kidding.

Say what now?

MacUser @macusermagazine

Federighi showing off some new console-quality games with 'up to 10x the kind of performance' seen previously. He says 'ten ex' :/ #wwdc

Keith Martin @thatkeith



@macusermagazine Maybe that's his 'jag-wire'?

To the letter

Moose Allain @MooseAllain



Typography is character forming.

Pete Law @TheRealPeteLaw



@MooseAllain Lettering is character forming.

Typography is the art or procedure of arranging type or processing data and printing from it.

MacUser @macusermagazine



@TheRealPeteLaw @MooseAllain Nonsense. Lettering is glyph-forming.

Moose Allain @MooseAllain



@macusermagazine @TheRealPeteLaw That's a glyph-affirming tweet :-)

Doing an iRossiter

Anna Debenham
@anna_debenham



The problem with smart watches: 'OOH, A TWEET' *rotates arm, pours beer down self*.

Keith Martin @thatkeith



@anna_debenham Old problem. But now you don't need to be near me to do it to me!

While you were in...

MacUser @macusermagazine



Amazing sort-of-3D product-recognising cash-sucking smartphone Amazon is launching. Brrr.

Hollin Jones @CaptHollister



@macusermagazine If you miss a call, will it leave a note saying it tried but no-one was home?

Coming soon?

Peter Cohen @flargh



Even at £20 less, I'd be reluctant to get a third-gen Apple TV at this point – A5 processor is just too long in the tooth.

Numbers game

MacUser @macusermagazine



New £899 21.5in iMac has same CPU/GPU as £899 11in MacBook Air, but hard disk instead of SSD, so it'll feel slower.

MacUser @macusermagazine



£899 iMac's 500GB HD can be swapped for 256GB SSD for £200. But no CPU, GPU or RAM upgrades. Much faster £1049 model is the one to pick.

Limp Biz Kit

Joshua Ellis @jzellis



Startups are exactly like bands in the 90s: a lot of people want to be in them to be rich and famous despite having no talent.

Neelie says

Neelie Kroes @NeelieKroesEU



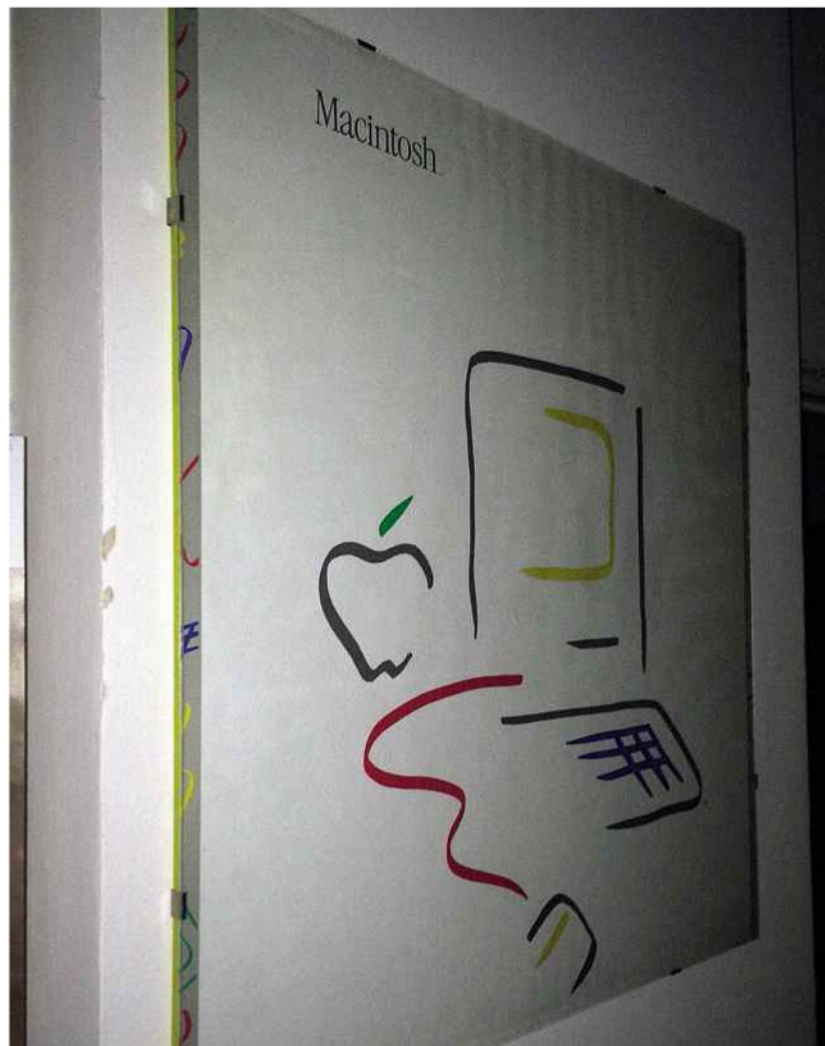
You know those annoying 'pre-ticked boxes' on shopping/travel websites? They're banned in #EU from today [13/6]

Insider art

↓ **Macintosh** @piratxmac



@macusermagazine :)





Apple moment iBook with AirPort

By the summer of 1999, Steve Jobs, re-installed as Apple CEO, had taken a chainsaw to the company's product lines. Gone were the QuickTake camera, the LaserWriter, the StyleWriter and the Newton MessagePad. Licensed Mac clones and low-cost Performas were no more.

What was left could be neatly compartmentalised into a two-by-two matrix: a pro desktop, the Power Mac; a consumer desktop, the iMac; and a pro notebook, the PowerBook. All that remained was something to fill the fourth box, and by the time Jobs took the stage in New York to make his keynote speech, MacUser and the rest of the audience pretty much knew what to expect. We'd even hired a local photographer for the day to take pictures of the new low-cost portable after wrestling it from an Apple employee for a few minutes.

Or we thought we knew. What Jobs unveiled shook up the market for portable computers every bit as much as the iMac had the desktop sector. Derided later as the 'toilet seat', the iBook was truly revolutionary. A polycarbonate and rubberised shell was only the start. It had a handle. A handle! People had been making computers designed to be carried around for years, but it took Apple to build in a handle. There was a charger with an integrated cable tidy. The iBook itself had an LED which pulsed gently when it was asleep. And it didn't have a latch on the lid.

For all those innovations, however, it was Jobs' 'one more thing' that day which really got the audience excited. Surfing between Apple's website, CNN and Disney, he casually picked up the iBook and walked across the stage with it. Then, from

nowhere, he produced a hula hoop and waved it around the iBook to demonstrate what everyone watching had slowly realised: the iBook had built-in wireless networking. A first.

Apple called its version of 802.11b AirPort, and launched an accompanying silver dome, the AirPort BaseStation, as an access point for wireless devices to connect to a wired network and the Internet.

Within months, network hardware makers were launching PC cards to add wifi to lesser laptops, and soon printers and other peripherals were shipping with it. But in the summer of 1999, none of us knew how important wifi would become in our lives. Much like a year earlier when Apple had put USB on the iMac, it took a leap of faith to kick-start the industry and bring in a new age of surfing the web from our sofas. KENNY HEMPHILL



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