

WIN! B&O BEOSOUND 8

A U S T R A L I A N

www.macworld.com.au

Macworld

▶ AUSTRALIA'S TOP-SELLING MAGAZINE FOR MAC, iPhone AND iPad

MAY 2011
\$7.95 inc GST \$N29.50 inc GST

DREAM MACHINE

We test the iPad 2

PLUS:
STORAGE WRAP-UP

GROUP TEST:
Wi-Fi ROUTERS
SAMSUNG NX100
BOSE MIE2i



Print Post Approval No. PP949181/00252 0 5
9 771329 948021



STORAGE STRATEGIES

You can never have too much storage space, whether it's under the house or in the shed, but what's the best way to expand your digital basement? ADAM TURNER has the answers

There's no denying it – storage is sexy. A well-endowed hard drive gives you bragging rights along with a certain sense of satisfaction. Plus there's a growing need for it. It seems our appetite for storage is insatiable thanks to a boom in digital photography, digital music and movie downloads.

Remember when a gigabyte was considered virtually limitless storage? Then the magical terabyte was more space than you'd ever need. An explosion in digital content means these days you'd struggle to squeeze your average digital library onto a single terabyte drive.

But storage isn't just a game of 'mine's bigger than yours'. That extra storage space can be a life saver should disaster strike, but only if you've got a decent backup regime in place. Such things take planning. Before you splash some cash on boosting your storage capacity you need to think about why you want it, which devices it needs to work with and how you want to access it.

Are you looking for somewhere to store your entertainment library? Perhaps a way to share that library around your home or across the web? Somewhere to keep copies of your precious family photos? Back up important documents in progress?

The answers will help determine which storage and backup options, or combination of solutions, are best for you.

WHAT'S THE DIFFERENCE?

Before you start, it's important to appreciate the difference between storage, backup and archiving.

Storage. Think of this as just a big empty space in which to keep all your cumbersome junk. Storage is like the shed where you dump the exercise bike, camping gear and the lawn mower – big stuff which you don't want to keep in the lounge room.

Backup. This is a temporary second copy of stuff which you'd rather not lose. Think of backup like a filing cabinet in the study where you keep photocopies of important documents such as your will and tax paperwork. You regularly replace these photocopied documents as the originals change, as it would be a hassle to lose them all and start again.

Archiving. Think of this as the wall safe behind the Dogs Playing Poker print in the den. This is where you keep stuff you never want to lose because it can't be replaced, such as family photos and grandmother's pearls.

Network Attached Storage

A Network Attached Storage, or NAS, drive is basically a hard drive that's accessible from any computer connected to your home network via cable or wireless. Whenever you're at home, your notebook can automatically back up files to the NAS drive.

A NAS can also double as general storage space, as it's a handy place to keep your music and video library so you can access it from a range of devices around your home or even when you're on the road.

If you're looking for a basic NAS drive consider a QNAP TS-112, Buffalo's LinkStation, Western Digital's My Book Live or Apple's Time Capsule. You could even hang a USB drive off an Airport Extreme or Airport Express.

Alternatively, D-Link's DNS-313 Sharecentre is a hard drive enclosure with an Ethernet port for connecting to your home network and a USB port for connecting to your computer.

The Clickfree C2N offers an interesting compromise – it's a USB drive which also supports up to 20 computers at once (Windows or Mac) via your home network. If you connect the Clickfree C2N to any of your computers, all of your computers can see it and back up to it over your home network.

If you're after a more advanced NAS with the extra RAID protection of redundant drives, consider a Netgear ReadyNAS, Iomega Storecentre, Seagate BlackArmor, Synology DiskStation, Thecus N3200 or Rocstor Guardian.

On the other side of the scale, you can even find tiny two-drive RAID's to take on the road such as OWC's Mercury Elite-AL Pro Dual Mini.

You've obviously got a wide range of options to choose from, so consider the kinds of advanced features you're after. Some let you run a BitTorrent client, which is handy for downloading files while your computers are asleep.

Meanwhile DLNA server options make it easy to stream content from the NAS to a wide variety of devices around the home, such as a QNAP NMP-1000 or PlayStation 3 plugged into your television.

Many NAS drives can act as an iTunes server for streaming content from a computer, but keep in mind the Apple TV refuses to play content from an iTunes-enabled NAS.

The Apple TV only plays files from a computer running iTunes or from an iOS device using Home Sharing (unless you

hack the Apple TV to add extra features – see wiki.awkwardtv.org).

You can sync your music and video collection to the original Apple TV's hard drive, for playback while your computer is shut down, but such functionality has been lost with the new hard drive-less Apple TV.

Some NAS drives are also compatible with Apple's Time Machine feature, letting you backup Macs over the network. The problem is there's no way to limit the space used by Time Machine so it eventually consumes the entire drive.

Unlike Apple's Time Capsule, many third-party NAS drives can be partitioned, letting you allocate some space to Time Machine and still have space reserved for other files.

Another option is to make your computer's hard drive visible to other devices on your home network. This can make a viable alternative to a dedicated NAS if you leave your computer running 24/7.

The advantage of this is you can run a BitTorrent client along with a wide range of media serving software such as iTunes, Orb (www.orb.net.au) and Air Video (www.inmethod.com). The last two can be also be used to stream content over the internet.

Clockwise from right:
This is a RAID. OWC's Mercury Elite-AL Pro Dual Mini is a tiny RAID that contains two 2.5in hard drives for up to 2TB of storage.
Go with the flow. The QNAP NMP-1000 is a DLNA server which makes it easy to stream your media from a NAS to a wide variety of devices around the home.
Peace of mind. Advanced NASes such as the Seagate BlackArmor give the extra RAID protection of redundant drives.



INTERNAL DRIVES

If you're just looking for extra storage – more space to keep big stuff – then upgrading your computer's hard drive might be the simplest solution.

If it's a Mac Pro you might even want to drop in a second hard drive, from the likes of Western Digital, Seagate, Samsung or Hitachi. If you'll be working with multimedia, opt for a faster 7200RPM drive rather than 5400RPM.

You can even think about replacing your Mac's optical drive with a second hard drive, using a kit like the Data Doubler from Other World Computing (OWC). See eshop.macsales.com.

The new solid state drives (SSDs), as found in the new MacBook Airs, are faster than traditional disk drives but more expensive, so they're perhaps more practical when used as a small drive to hold your operating system rather than a hefty drive to boost your storage capacity.

USB DRIVES

An external USB drive or stick is another way to boost your storage capacity, and it's less hassle than popping the bonnet on your Mac to mess about inside.

Tiny USB sticks were once just for shuffling around Word files, but these days you can pick up an 8GB stick for under \$20. They come in all shapes and sizes to meet your needs.

You've got the standard sticks such as a Lexar JumpDrive or a SanDisk Cruzer, which easily slip in your bag or your pocket. You'll also find tiny USB sticks which only extend a few millimetres from your computer, such as the Lexar Echo ZE, which are perfect for leaving permanently attached to your desktop or notebook.

Many USB mobile broadband sticks and Wi-Fi hotspots feature a microSD slot, letting them double as a storage device while you're on the road.

There is also a wide range of USB sticks designed to fit on your key ring, including the Australian-made Flashkey which



above: **Under the hood.** Internal hard drives are constantly being reinvented – the Momentus Thin from Seagate is just 7mm thick.

actually looks like a key. Obviously the No.1 requirement is that such a device has to stay securely on your keys – a test that many USB key chains fail. Some USB sticks feature a hole through the top corner that attaches to a tiny lobster-claw clasp such as you'd find on a bracelet. This seems to work well as long as the clasp is positioned so it doesn't get squashed among your keys and accidentally forced open.

Another option is the credit card-sized Freecom USB card, which fits nicely in a wallet and features a pop-out USB connector. And, if you're worried about security, take a look at the encrypted Kingston DataTraveler stick.

EXTERNAL DRIVES

When it comes to capacity, external disk drives offer more bang for your buck than a USB stick. You've got a range of connectors to choose from such as USB, FireWire and the new Thunderbolt, as found on the latest range of MacBook Pros (see Page 22).

above: **Little beauty.** Some USB sticks, such as the Lexar Echo ZE, only extend a few millimetres from your computer.



Razor

So slim we only need this much space for the ad



World's Slimmest LED monitor – 12.9mm



above: **Hello 2111.** Verbatim's Gold Archival Grade DVDs are designed to last 'up to 100 years when properly stored'.

Fast USB 3.0 external drives (which Apple only supports at 2.0 speeds) are hitting the shelves, as are Thunderbolt-compatible external solid-state drives. For now USB 2.0 probably offers the best value for money, or perhaps eSATA (which you can use on a Mac Pro via an adaptor) if you need faster transfer speeds such as for recording high-definition digital television.

If you're looking for storage on the run, consider a Seagate GoFlex Ultra-portable, Western Digital Passport Essentials or OWC

below: **Up to date.** LaCie's Little Big Disk features the new Thunderbolt transfer technology found on the latest range of MacBook Pros.



Mercury On-The-Go Pro – you'll find 500GB drives for under \$100.

Digital photographers might be interested in an image tank such as Vsonic's VP8870, which lets you back up images from a CompactFlash, Memory Stick, SD or MMC card. You can then use the Vsonic as an image viewer, or connect it to your Mac via USB to copy off the photos.

If you're looking for extra desktop storage you might want to consider Western Digital's My Book for Mac or MyBook Studio LX, Seagate's GoFlex Desk, Roestor's Eagleroc (see main image on Page 30) or LaCie's Thunderbolt-enabled Little Big Disk. Another option is a drive enclosure, from the likes of Shintaro, which lets you slip in any drive and choose from a combination of connections.

At the other end of the scale you've got a hefty desktop Drobo or Roestor Arcticroc, which spread your data across several drives.

As you look into high-end storage you'll come across many such RAID devices – Redundant Array of Independent Disks. It's a method of combining drives to boost performance and/or protect against drive failure, depending on how it's configured.

You can create a RAID within a computer or an external storage device. See Page 32 for more RAID information.

BACKUP STRATEGIES

Talk of RAID's reminds us that there are two kinds of hard drives: dead ones, and those which are going to die. The bigger they are, the harder they fall.

For this reason, it's not necessarily a good idea to cram your entire digital life into one massive drive if you don't have a robust backup system in place. You need to develop a multi-faceted backup system which allows for fire, theft, hard drive failure and those times you hit delete without thinking.

Getting back to our home storage analogy, we're now talking about the filing cabinet where we keep copies of important documents and works in progress.



above: **High capacity.** The made-for-Mac Western Digital MyBook Studio LX is an external hard drive available in capacities up to 3TB.

The simplest backup strategy is just to copy everything to an external drive sitting on your desk. Now's the time to think about 'incremental' backups – a fast way to back up just new and changed files rather than every file.

There's a wide range of backup software designed to run incremental backups to USB devices. Apple's Snow Leopard has a built-in backup feature, called Time Machine, but third-party options are ChronoSync (US\$40, www.econotechnologies.com) or Synk (US\$40, decimus.net/Synk).

These applications let you create a list of folders and files you want to protect and schedule regular backups. Some backup software can also be set to keep the last few versions of changed files, which is handy for documents such as school assignments if you want to revert to a previous copy.

Of course backups become more awkward with notebooks, as they don't tend to stay in one spot. You need to remember to attach your USB drive and run the backup. This is where you should consider backing up wirelessly, either to a hard drive attached to your home network – such as a NAS drive – or to an online storage service (see opposite).

OFFSITE COPIES

You're still in trouble in the event of fire, flood or a major power spike which fries all your electrical gear. It's still vital to keep an offsite copy of your really important files.

A simple option is to burn them to optical disc (CD, DVD or Blu-ray) and store them elsewhere, perhaps a friend's house or the bottom drawer at work.

Getting back to our home storage analogy, burning files to disc is a handy archiving option for irreplaceable stuff that you want to keep in the safe such as family photos. Discs aren't as practical as a filing cabinet for regular backups of ever-changing important documents.

Don't be fooled into a false sense of security, as optical discs don't last forever – though Verbatim's Gold Archival Grade DVDs are designed to last 'up to 100 years when properly stored'. That's assuming we even have DVD readers in the 22nd century.

If you really want documents and images to last you should consider going old-school and printing them on paper. Choosing the right inks and paper will help extend their lifespan. Make sure you keep copies offsite, in a cool, dry place.

CONCLUSION

It's clear by now that there's no one-size-fits-all approach to storage, backup and archiving. Considering the expense of online backup services, in both storage and bandwidth, the best solution for you will probably be a combination of local, offsite and online storage.

Perhaps you could back up financial records, work reports, school assignments and other important documents online, as they're small files which change regularly. It might be more economical to automatically copy your photo, music and movie collection to a NAS drive and then regularly burn new content to disc and store it offsite. Printing important photos, to keep offsite, might be a sensible extra precaution.

A hefty home network drive can also act as media library for streaming content around your home. You might also want an external drive hanging off your computer, as a storage bucket or for holding backups.

Meanwhile it's always handy to have a few USB sticks in your bag for shuffling files and emergency backups, as well as a USB stick sitting in your wallet or hanging off your keys.

Remember, in the event of a fire or flood you could lose all your computers, USB drives and NAS drives along with your CD and DVD collection worth thousands of dollars (which your home insurance policy may not fully cover).

If you've ripped your music and movies to your Mac and/or NAS, it might be worth making a backup copy to store offsite. ☞

Cloud storage

Online services are well worth considering as a backup option. Google Docs and Apple's iDisk (part of the MobileMe online suite, me.com) both offer basic online storage.

You can look at third-party plugins such as Memeo Connect (US\$9/year, www.memeo.com) and Syncplicity (US\$15/month, www.syncplicity.com) for Google Docs. Apple offers the Backup application for iDisk (look for the MobileMeBackupv3.2.dmg file in your iDisk's Software folder), plus you can access it with any WebDAV client.

These options tend to lack the advanced features of dedicated online storage services such as Jungle Disk (US\$2/month, www.junotedisk.com), Mozy (US\$5.99/month, mozy.com), Carbonite (\$71.99/year, www.carbonite.com.au), DropBox (free up to 2GB, www.dropbox.com) and CrashPlan (free, or \$24.99/year, www.crashplan.com).

You can install software on your computer which automatically copies important files to a secure folder on the internet. They also run incremental backups, to reduce the amount of bandwidth you chew through.

Remember some ISPs count your uploads towards your monthly data limit. Take extra care if you're running online backups over a mobile network.

Most online backup services offer a few gigabytes of storage for free, which might be fine for backing up office files but probably won't cut it if you're backing up photos and videos. You can purchase extra storage space, usually at a fixed rate, such as 50GB for \$10 a month.

Which service you choose will be determined by features and by how you want to access it. Can you easily search through your backups and pluck out the file you want, or do you have to wait for a request to be processed? If you're doing a full restore, can the files be sent to you on disc rather than downloading them again?

Can the service run on any operating system? Can you access your online storage remotely from any browser? How about access from smartphones and tablets?

It's worth asking such questions before signing up and going through the slow process of your hefty first backup.



Razor

So slim we only
need this much
space for the ad



World's Slimmest
LED monitor – 12.9mm