

Get more media storage

In the age of digital media, one thing you can seemingly never have enough of is storage. This month, we've tested 12 networked storage devices that'll let you access and share your files from almost any device. **LINDSAY HANDMER**

THOUGH NETWORK ATTACHED storage — or NAS — will be something of a scary and foreign concept to many people, a new breed of simplified home-focused NAS products are starting to change that. These latest models are designed to be incredibly easy to set up and use, and many ship with hard drives already installed. With many,

all you have to do is plug them into your network and run the included setup software, meaning you can have a huge amount of shared storage accessible in a number of minutes.

NAS boxes now also cater extensively to media playback and let you access and interact with your media in totally new ways. You can stream video to everything from your smart TV, your gaming console or even your tablet or phone. NAS devices can also feed your music to all your devices and some can even send photo slideshows to Wi-Fi enabled digital picture frames. If you want true video playback flexibility, more powerful NAS boxes can even transcode media on-the-fly, letting you play even the most oddball media files on devices that would normally complain about not having

the right video and audio codecs. Some NAS models are even crossing lines by adding in HDMI ports, which means they can do double duty and act as both a NAS box and a media player in one.

With a lot of media content now served over Wi-Fi to our portable devices, the transfer speeds of these home-focused

NAS boxes are perhaps not quite as

important as they are in business environments

— you're likely to be constrained by wireless speeds, after all. While units with a less powerful CPU typically offer slower file transfer speeds, they also offer reduced power consumption, which can add up to a decent saving on your power bill, given that these

devices are designed to run 24/7. Lower-power single-bay NAS devices are also often fanless, which helps reduce the noise they make, and this also means the NAS won't suck up dust and clog up, potentially improving longevity.

Pretty much all models now let you set up remote internet access to their contents and even have smartphone/tablet apps that let you use your NAS as your own 'personal cloud' storage service.

Make your own

If you don't want to shell out for a NAS, you can actually very easily build your own. An old PC or laptop with a couple of spare hard drives can be turned into a powerful and capable NAS with some free software. One of the most popular programs is FreeNAS www.freenas.org.

How we tested

We tested our NAS devices with a D-Link DSL-2890AL Dual Band Wireless AC1750 Modem Router. The NAS devices were plugged in via Gigabit Ethernet and media was streamed to a Western Digital WDTV Live media player via Wi-Fi, as well as to a Google Nexus 5 smartphone. NAS devices were tested with the preinstalled drives, though if none were included then dual 2TB WD Enterprise storage drives were used, with the NAS device's default RAID configuration. Synthetic benchmark speeds were tested with LAN Speed Test. We also tested real-world read and write speeds with a single 5GB .ISO file, as well as a 5GB folder (comprised of a variety of files, programs and media) to represent a typical backup. We tested Android apps with a Google Nexus 5, while iOS apps were tested with a current model Apple iPad.



SINGLE-DRIVE NAS BOXES WD My Cloud 3TB

Simple and cheap yet powerful and feature packed.



PRICE: \$269

WEB: www.wdc.com

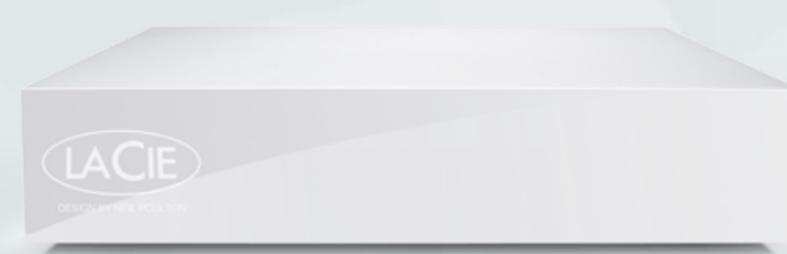
CRITICAL SPECS: 3TB drive included, single-bay, ARM Cortex A9 CPU, 512MB RAM, USB 3.0

The WD My Cloud is an all in one NAS device designed for versatile yet easy to use home storage. It uses a single bay and as tested, ships with a 3TB HDD. With a fanless design, it's very quiet in use. Managing the NAS is as easy as opening it under network, where it automatically loads a web configuration interface. More in depth setup is done via the simple to use WD Link software. The Arm Cortex A9 CPU in the WD NAS is surprisingly quick and the MyCloud easily topped the board in its class for read speeds.

The MyCloud has a focus on making your files and media accessible anywhere, and operates much like your own local Dropbox storage. It can also stream your content to any UPnP or DLNA compatible media device, such as the WD TV Live, Smart TV or gaming consoles. It's also got an iTunes server for easy access to your music. For auto backups, the MyCloud is compatible with Mac Time Machine or SmartWare on PC.

The MyCloud has a USB 3.0 port that can be used to expand the capacity with an external HDD, read your flash drive, copy pictures off a camera — however there is no print server.

If you need more or less than 2TB of space, you can also get a 2TB or 4TB for \$199 and \$349 respectively.



Lacie CloudBox 2TB

Your very own box in the cloud.



PRICE: \$175

WEB: www.lacie.com

CRITICAL SPECS: 2TB drive included, single-bay, 1GHz CPU, 256MB RAM, no USB

We tested the 2TB Lacie CloudBox — don't bother with the 1TB version, it's not worth the meagre savings while the 3TB is around \$60 more. The Lacie is little more than a 3.5-inch external drive sized slab of white plastic with a few vent holes and a network port — though no USB connection. The CloudBox is well equipped to handle your media — it can stream media to your TV, PC, console or tablet and is iTunes and Windows Media server certified. It also supports UPnP and DLNA and we had no problems streaming media to our test devices. You can get cloud access through any browser or your mobile phone or tablet. The CloudBox can also run as a torrent server and handle FTP and HTTP as well as do automatic backups. Let down by the lack of USB and not exactly blazingly fast, the CloudBox is still a simple and fairly affordable option.

Seagate Central 2TB

Basic yet stylish simplicity.



PRICE: \$200

WEB: www.seagate.com

CRITICAL SPECS: 2TB drive included, single-bay, 700MHz CPU, 256MB RAM, USB 2.0

The small and sleek Seagate Central is designed as an affordable one stop shop for all your home NAS needs. Available in 2TB (as tested), 3TB and 4TB models, it's got more than enough space for all your media and backups. The Central supports DLNA media streaming and after a little bit of fiddling, it worked without hassle. It also supports Apple Airplay and can integrate via a Samsung Smart TV app. The Central can also back up your PC or Mac, as well as your Facebook account. You can access the Central via Android or iOS app, but both are fairly slow

and buggy. Web access gives you anywhere in the world cloud storage and the interface is pretty good. The Central has a fairly low end processor, but still manages respectable access speeds. While not as cheap as some of the competition, the Seagate Central has a decent set of features and good media support.

DUAL-DRIVE NAS BOXES ASUSTOR AS-202TE

The ultimate collection of home cinema NAS features.



PRICE: \$300

WEB: www.asustor.com

CRITICAL SPECS: BYO hard drives, dual bay, 1.2GHz Atom CPU, 1GB RAM, USB 3.0

Considering the entertainment focus, the ASUSTOR is rather plain and businesslike from the outside. It comes unpopulated, but can handle dual drives in RAID 1, 0 and JBOD. Setup is easy and transfer speeds excellent thanks to the powerful Intel Atom CPU and 1GB of RAM. Where the ASUSTOR really shines is in the media features. While it can stream media via DLNA and UPnP, it's also got an HDMI port. Using the excellent open source XBMC media centre software, the AS-202TE can output 1080p video directly to your TV. It also has an optional remote control (\$35) that makes the NAS a very capable stand alone media player. It can also stream your music and supports web music player SoundsGood. Like any good media NAS, it can download your torrents in the background.

The ASUSTOR has also got oodles of connectivity, with two USB 2.0 ports and two USB 3.0 ports. It can handle your external HDDs, USB sticks and run as a print server. It's also got a 3.5mm audio output jack, for connecting older audio systems. The ASUSTOR NAS can also share your files as a personal cloud, with access via web browser or Apple or Android apps.

The 202TE is pricier than it's less fully featured brethren, but if you want direct media playback functionality, it's definitely a good buy.



Synology DS214play

An unrivalled collection of media centric features.



PRICE: \$450

WEB: www.synology.com

CRITICAL SPECS: BYO hard drives, dual bay, 1.6GHz EvantSport CPU, 1GB RAM, USB 3.0

Shipping without drives, the DS214 can support up to 8TB in RAID 0, 1 and JBOD. The drives are tool-less and hot swappable and setting up the NAS with the included wizard is quick and easy. Unlike Marvel or Atom powered machines, the DS214 has a dual core Intel EvantSport CPU. While this means the DS214 is one of the fastest NAS devices we tested, it actually has a more important trick up its sleeve. The EvantSport processor means that real time 1080p transcoding is possible. While this is not a big issue if you use DLNA streaming to devices with good codec support, being able to transcode video on the fly lets you stream to a much wider variety of devices. With a compatible USB Digital TV receiver, the Synology NAS can also record your favourite programs or stream it directly to your PC, smartphone or tablet.

Synology has a range of extremely well put together smartphone apps to let you access, manage and share your files on the go for





Windows Phone users, as well as Android and iOS. The DS214 has an SD card reader, dual USB 3.0 ports (with one touch backup) as well as a rarer eSATA connection. The DS214s only downside is the high price, but if you need its unique feature set it's still an outstanding buy.

QNAP TS-269L

A compact yet powerful package.



PRICE: \$499
WEB: www.qnap.com

CRITICAL SPECS: BYO hard drives, dual bay, 1.86GHz Atom CPU, 1GB RAM, USB 3.0

Like most of the high end two bay media NAS devices, the TS-269L ships without drives, though can handle up to 8TB. The powerful Intel Atom CPU gives the QNAP excellent read and write speeds. The QNAP connects directly to your TV via HDMI and uses an easy to navigate XMBC home media center. No remote is included; instead you use your smartphone with the Qremote app. It can also stream media via DLNA and UPnP to any networked media player. The QNAP can run as a squeezebox server, or stream to your smartphone or tablet. You can get on the go access to your files via any web browser, or install the Android and iOS apps. You can



expand the RAM up to 3GB. It has dual USB 3.0 ports, 3 USB ports, eSATA and can run as a print server. While an excellent NAS, the price is likely to be off putting for all but power users.

D-Link DNS-327L

Easy set up, bring your own drives.



PRICE: \$150
WEB: www.dlink.com.au

CRITICAL SPECS: BYO hard drives, dual bay, 1.2GHz CPU, 512MB RAM, USB 3.0

The D-Link DNS-327L is only sold without drives, though can handle up to 8TB across two drives in RAID 0, 1 or JBOD. Setup was as easy as screwing on the included handles, dropping in the HDDs and running through the included setup wizard. The 327L does have a small fan, but is nevertheless fairly quiet in operation. While not the very fastest NAS, the D-link clocks some good transfer speeds. It's a solid media streaming box, with DLNA and UPnP support, a built in torrent server and iTunes compatibility. It also has an excellent app for remote smartphone access, as well as a fairly comprehensive browser interface. Round the back it sports a single USB 3.0 port that can handle external HDDs, one touch flash drive backups and USB printers. A solid, easy to use NAS, the DNS-327L is a good choice if you want to buy your own HDDs.



Netgear ReadyNAS 102

Solid and dependable.



PRICE: \$180
WEB: www.netgear.com.au

CRITICAL SPECS: BYO hard drives, dual bay, 1.6GHz Marvell CPU, 512MB RAM, USB 3.0

Shipping without any hard drives, the ReadyNAS 102 has two bays that can support up to 8TB of RAID 0, 1 and JBOD. The drive bays are tool less, setup is dead simple using the Netgear wizard and the unit is very quiet in use. The ReadyNAS can handle all your media streaming needs thanks to its DLNA compatibility, as well as stream music via iTunes server.

It's got two USB 3.0 and one USB 2.0 port which can handle external HDDs as well as run as a print server. You can get remote access to your files via a browser, and via the somewhat finicky smartphone app. The 102 also has a built in virus checker and is compatible with Apple Time Machine backup. If you want the exact same NAS, but with more bays, Netgear also sell the 4 drive RN104 model for around \$290.

Shuttle KD20

Ready and raring to handle your media.



PRICE: \$175
WEB: au.shuttle.com
CRITICAL SPECS: Unpopulated, dual-bay, 750MHz CPU, 256MB RAM, USB 3.0

The affordable KD20 is designed for those who want simplified data backup as well as media centric streaming options. The 2 bay NAS does not come with drives, but can support up to 8TB in RAID 1, 0 and JBOD. It does have a fan to keep the drives cool but is still fairly quiet. Setup with the included wizard was quick and easy. The KD20 supports DLNA media serving to compatible devices such as an Xbox or Playstation, as well as iTunes server. Shuttle has also produced both an Android and iOS app for the KD20

that give quite good access to your files when on the go. Unlike most basic NAS options, you get two USB 2.0 ports plus a card reader and importantly if you like high access speeds, USB 3.0 connection on the front. These let you add in extra drives, backup flash sticks and even run a print server.

NAS PERFORMANCE 5GB .ISO (WRITE)

WD My Cloud	30.5 MB/s
Lacie Cloud Box	29.7 MB/s
Buffalo LS420D	33.9 MB/s
Lenovo ix2	26.3 MB/s
Shuttle KD20	27.9 MB/s
D-Link DNS-327L	28.4 MB/s
ASUSTOR AS-202TE	32.8 MB/s
Noontec F2-NAS	26.7 MB/s
Netgear ReadyNAS 102	28.3 MB/s
Synology DS214play	33.8 MB/s
QNAP TS-269L	31.5 MB/s
Seagate Central	24.6 MB/s

5GB .ISO (READ)

WD My Cloud	65.2 MB/s
Lacie Cloud Box	59.7 MB/s
Buffalo LS420D	55.2 MB/s
Lenovo ix2	56.5 MB/s
Shuttle KD20	57.2 MB/s
D-Link DNS-327L	57.1 MB/s
ASUSTOR AS-202TE	58.8 MB/s
Noontec F2-NAS	55.3 MB/s
Netgear ReadyNAS 102	52.7 MB/s
Synology DS214play	59.0 MB/s
QNAP TS-269L	56.9 MB/s
Seagate Central	49.2 MB/s

5GB MIXED FILES (WRITE)

WD My Cloud	20.8 MB/s
Lacie Cloud Box	18.7 MB/s
Buffalo LS420D	21.7 MB/s
Lenovo ix2	17.5 MB/s
Shuttle KD20	18.4 MB/s
D-Link DNS-327L	19.6 MB/s
ASUSTOR AS-202TE	22.8 MB/s
Noontec F2-NAS	18.1 MB/s
Netgear ReadyNAS 102	19.6 MB/s
Synology DS214play	23.1 MB/s
QNAP TS-269L	21.4 MB/s
Seagate Central	17.3 MB/s

5GB MIXED FILES (READ)

WD My Cloud	20.8 MB/s
Lacie Cloud Box	18.7 MB/s
Buffalo LS420D	21.7 MB/s
Lenovo ix2	17.5 MB/s
Shuttle KD20	18.4 MB/s
D-Link DNS-327L	19.6 MB/s
ASUSTOR AS-202TE	22.8 MB/s
Noontec F2-NAS	18.1 MB/s
Netgear ReadyNAS 102	19.6 MB/s
Synology DS214play	23.1 MB/s
QNAP TS-269L	21.4 MB/s
Seagate Central	18.1 MB/s

Buffalo LS420D

Are the extra features worth the extra cost?



PRICE: \$350
WEB: www.buffalotech.com

CRITICAL SPECS: 2TB, dual bay, 1.2GHz CPU, 512MB RAM, USB 2.0

Our LS420D came populated with two 1TB HDDs, though you can also get it with up to 8TB of storage (though no diskless option). It runs RAID 0, 1 or JBOD and the hard drives are easily accessible and swappable without tools. It's got a DNLA media server that happily streamed video files to our WDTV. It also supports music playback via iTunes server and can automatically back up your data.

It's also got a USB print server, can read an external HDD (USB 2.0 only) and supports BitTorrent downloads. Read speeds are on par with other NAS devices, but the Buffalo managed an impressive 49Mbps write speed. You also get cloud access via a browser or directly on your iOS or Android device thanks to the fairly solid WebAccess app.

While the LSD420D offers good performance has a few extra features compared to lesser NAS devices, it's also one of the more expensive models.

Lenovo ix2

Dual drive bays to double your fun.



PRICE: \$250
WEB: www.lenovo.com

CRITICAL SPECS: 2TB, dual-bay 1.6GHz CPU, 256MB RAM, USB 2.0

Unlike some smaller NAS devices, the Lenovo ix2 is a more upmarket model with two drives bays that can run RAID 1, 0 and



JBOD. It's got an extra USB 2.0 port to handle your external HDD and can handle up to four IP cameras.

We tested the 2TB model, though you can get up to 6TB for a hefty price. Considering the diskless version is around \$170, it makes sense to buy your own drives if you have high end storage needs. The ix2 is a capable media server and can stream video to your

consoles or any device that supports UPnP and DLNA

It can double as a torrent server and has built in cloud support. We had a few teething issues getting our media flowing and unfortunately the Android and iOS apps come across a little half baked.

Noontec F2-NAS

Fiddly but affordable.



PRICE: \$170
WEB: www.noontec.com.au

CRITICAL SPECS: BYO hard drives, dual bay, 1.6GHz Marvell CPU, 512MB RAM, USB 3.0

The dual bay NAS does not come with any HDDs, but setup is a little different to most. You actually select the RAID type (0, 1 and BIG) with a selector on the back. From there setup is a little fiddly but eventually we got the F2-NAS onto our network. Performance was not stand out, but it got the job done. It can handle UPnP and DLNA media streaming, download your torrents or give you cloud access through a browser or smartphone app.

Weirdly the F2-NAS doesn't have a standard USB 3.0 port — instead it's B Male plug. The NAS includes a suitable cable but this does not let you plug in external drives — instead you can plug the entire NAS into a computer and access it like a USB external HDD. Combined with the carry handle, this makes the NAS an interesting, if not entirely useful but easily accessible storage device.



What's JBOD?
Multi-drive NAS boxes often let you specify how you want the drives set up, which includes the rather odd-sounding JBOD option. This actually means 'just a bunch of disks' and refers to drives that are not working together at all — each is just its own drive. Otherwise, you have 'redundant array of independent disks' (RAID) — drives working together in a variety of forms.