



# Mega media storage boxes

Need a centralised spot to store your movies, TV and music? Lindsay Handmer tests four and five-bay NAS boxes, with a particular eye for their media features.

**A**s NAS boxes take on more and more computer like functionality, the software and interface becomes increasingly important. A good NAS OS will constantly receive updates (much like your smartphone), adding in new functionality, fixing bugs and improving performance. For streaming media, it can also bring support for new codecs and playback devices in your network.

Pretty much every NAS on the market can stream media to your DLNA compatible device, such as smart

TVs, consoles and media players. A few of the higher end models also include HDMI outputs (plus remote controls) to play media directly on your TV. Even if you already have a media player, this can be a handy way to drive a second TV, or other setup such as a projector.

Some NAS models can also transcode media on the fly. This means that if you have a 1080p file, the resolution can be adjusted to fit devices such as phones and tablets. The advantages are lower bandwidth needed (very important if streaming via 3/4G) and no codec or resolution compatibility issues.

Most NAS devices currently on the market have more than enough grunt to send 1080P footage to a TV. But if you plan on streaming 4K, or want multiple HD streams running at once, a higher end model with more powerful CPU and extra RAM is worth the cost. Some models also allow you to add new features through USB, such as a Digital TV tuner.

Also consider the extra functionality apps provide – especially if you plan to frequently access and manage your NAS from a portable device.

**CRITICAL SPECS:** Bays 4 CPU Intel Celeron 2.41 GHz RAM 1GB DDR3 HDD Up to 24TB LAN Dual Gigabit USB 5x.



\$550 | WWW.ASUSTOR.COM

## ASUSTOR AS5004T

A NAS with the media centric features you need.

**P**owered by a higher end Intel Celeron dual core CPU running at 2.41GHz, the AS5004T has 1GB of DDR3 RAM and four hot swappable HDD bays. If you want more RAM, it's upgradeable to a lofty max of 8GB. The ASUSTOR can handle both 2.5-inch and 3.5-inch drives and has dual Gigabit Ethernet ports with link aggregation and failover support. It also has a massive 5 USB ports - 3 USB 3.0 (one of which supports one touch backup) as well as two USB 2.0 connections. On top of that the ASUSTOR also has dual eSATA ports – overkill yes, but nice to have for connecting up older external drives.

Setup was extremely painless and the NAS was on our network within minutes of dropping in drives. In testing the ASUSTOR actually managed the highest read speed, though was just edged out in write speeds.

The free AiMaster app is one of the better options out there to control your NAS and access files and media on portable devices. Unfortunately though ASUSTOR separates out a whole range of functionality, such as streaming music, into separate apps. While they all work well, having a single solution would be neater.

As expected, the AS5004T handles DLNA media streaming with aplomb. For further integration in your living room, the AS5004T has an HDMI 1.4a output, as well as S/PDIF audio. It's also got an IR receiver, letting you control it directly via the optional remote control.

### Verdict

High end features for a surprisingly affordable price tag.



**CRITICAL SPECS:** Bays 4 CPU Marvell Armada 370 1.2 GHz RAM 512MB DDR3 HDD Up to 16TB LAN Dual Gigabit USB 3x.



\$299 | WWW.DLINK.COM.AU

## D-Link Sharecenter DNS 340L

How does a more affordable option perform under pressure?

**U**nder the compact shell, the DNS 340L has a standard Marvell Armada 370 CPU running at 1.2 GHz, backed up by 512MB of RAM. It does have dual Gigabit Ethernet ports though, and three USB connections – but only the front one supports 3.0 speeds. With four top loading bays, the 340L supports up to 16TB of 3.5-inch drives, but there is no 2.5-inch love. You can run the usual RAID configurations – JBOD, 0, 1, 5 and 10.

Unlike our usual D-Link experience, the 340L was a little painful to get running. Frustratingly the web login just wouldn't load until we installed the included software from CD and ran the finder. While fiddly at first, once we were up and running, the interface was generally pretty good.

The D-Link NAS supports DLNA and iTunes media streaming, as well as automatic backups.

The mydlink Access app is quite good, and covers the basics such as NAS management and remote file access. You can also access your data directly through the web interface. The D-Link can handle your file serving, torrent downloading and IP surveillance cam recording needs. In our testing the fan never even spooled up, so the NAS was totally silent.

Thanks to the lower end CPU and lesser RAM, the D-Link is one of the slower devices we tested. Of course it's also one of the cheapest, so offers decent bang for buck and realistically is fast enough for any normal media streaming you might want to do.

### Verdict

A cheap but cheerful option for the less demanding user.



NAS RESULTS											
NAS	READ MB/S	WRITE MB/S	CPU	RAM	HDD BAYS	ETH-ERNET PORTS	USB PORTS	STORAGE SIZE	HDDS	HDD INCL.	EXTRAS
ASUSTOR AS5004T	108.4	109.2	INTEL CELERON 2.41 GHZ DUAL CORE	1GB DDR3	4	2	5	16TB	2.5", 3.5"	NO	2X ESATA, HDMI
NETGEAR READYNAS	90.41	80.83	MARVELL ARMADA 370 1.2 GHZ	512MB	4	2	3	16TB	2.5", 3.5"	NO	ESATA
QNAP TS-451 4G	99.26	107.6	INTEL CELERON 2.41 GHZ DUAL CORE	4GB DDR3	4	2	4	24TB	2.5", 3.5"	NO	HDMI
SYNOLOGY DS415PLAY	106.2	108.4	INTEL ATOM CE5335 1.6 GHZ DUAL CORE	1GB DDR3	4	1	5	32TB	2.5", 3.5"	NO	
THECUS N5810PRO	105.4	110.9	INTEL CELERON J1900 2.42 GHZ QUAD CORE	4GB DDR3	5	5	5	30TB	2.5", 3.5"	NO	HDMI
WD MY CLOUD EX4	91.14	90.74	MARVELL 1.6 GHZ	512MB	4	2	2	16TB	3.5"	UP TO 24TB	
D-LINK DNS 340L	46.98	79.37	MARVELL ARMADA 370 1.2 GHZ	512MB DDR3	4	2	3	16TB	3.5"	NO	
SEAGATE 4 BAY NAS PRO	98.95	107.2	INTEL DUAL CORE 1.7 GHZ	2GB DDR3	4	2	3	20TB	2.5", 3.5"	UP TO 20TB	
WD MY CLOUD EX4100	106.9	110.8	MARVELL ARMADA 388 2GHZ DUAL CORE	2GB DDR3	4	2	3	24TB	2.5", 3.5"	UP TO 24TB	
NOONTEC F4 NAS	43.31	69.8	MARVELL 1.6 GHZ	512MB DDR3	4	1	1	16TB	3.5"	NO	ESATA

**CRITICAL SPECS:** Bays 4 CPU Armada 370 1.2GHz RAM 512MB DDR3 HDD Up to 16TB LAN 2x Gigabit USB 3x.



\$250 | WWW.NETGEAR.COM

## Netgear ReadyNAS RN10400

Can a more affordable NAS keep up?

Shipping diskless, the RN10400 can handle 3.5-inch or 2.5-inch drives in the hot swappable bays, for a total capacity up to 16TB. Inside it runs a Marvell Armada 370 1.2GHz CPU matched up with 512MB of RAM. While the data speeds were not top shelf, it's important to remember that the ReadyNAS is the most affordable 4 bay options we tested.

Setup is easy enough (though only 3.5-inch drives are tool-less) and the management software is straightforward to use. The ReadyNAS was a little reluctant to get itself onto our network at first, but showed up with minor fiddling.

The RN10400 has the typical dual Gigabit Ethernet ports, as well as two USB 3.0 ports, and a USB 2.0 connection that supports one touch backup. You also get an eSATA port, which can be handy for connecting any older external drives kicking about. The free

mobile app is reasonable and gives fairly comprehensive access to your files and media when on the go.

The ReadyNAS has a big honking steel carry handle around the back, which makes it really easy to carry if you plan on moving the unit around a lot.

The RN10400 can run the Plex media server, which gives a bit more flexibility for streaming. It can also handle iTunes and DLNA. You can also run automatic backups with the Windows app, or Time Machine for iOS. The NAS also supports the usual Bittorrent downloads, IP camera recording and hosting software such as WordPress.

### Verdict

Excellent bang for buck considering the bargain price.



**CRITICAL SPECS:** Bays 4 CPU Marvell 1.6GHz RAM 512MB DDR3 HDD Up to 16TB LAN Single Gigabit USB 1x.



\$369 | WWW.NOONTEC.COM.AU

## Noontec F4NAS

A stylish chunk of aluminium with a small footprint.

An unfamiliar name to many, the F4NAS squeezes decent specs into a very compact little device. It uses a common Marvell 1.6GHz CPU, 1GB of RAM and has four 3.5-inch drive bays. You can install a total of 16TB in RAID 0/1/5/6/10/JBOD, but no adaptor is included for 2.5-inch drives. It's worth noting that the aluminium drive bay holders look and feel great, but can be a little stiff and notchy to install.

The F4NAS only has a single Gigabit Ethernet port, but it is complemented by eSATA. Disappointingly there is only a single USB connection, and worse, it's only 2.0 speed.

Getting the NAS onto the network was easy enough using the Noontec software and while the layout is a little clunky, it gets the job done.

There is supposed to be an app for Android and iOS, but we couldn't actually find it online. It is possible to

access the NAS remotely through a web browser though.

Access speeds are reasonable, but outclassed by the cheaper competition.

The F4NAS supports the usual print and FTP server and can handle torrent downloads. It's ready for streaming too, with DLNA support. External storage can be added via eSATA or USB. T

In normal operation the NAS is fairly quiet thanks to a single large rear fan, but gets a little noisier under load. If you happen to move your NAS around a lot, the F4NAS has a very useful handle on top.

### Verdict

Considering the price, the F4NAS lacks some core functionality such as USB 3.0.



**CRITICAL SPECS:** Bays 4 CPU Celeron 2.41GHz RAM 4GB DDR3 HDD Up to 24TB LAN Dual Gigabit USB 2x 2.0, 2x 3.0.



\$720 | WWW.QNAP.COM

## QNAP TS-451 4G

Is it worth paying extra for performance?

Powered by a 2.41GHz Celeron CPU, the TS-451 also has a massive 4GB of RAM that is further upgradable to 8GB. You get dual USB 3.0 (one front, one back), two USB 2.0 ports and dual Gigabit Ethernet. The four drives bays easily slot in and out and can handle both 2.5-inch and 3.5-inch HDDs. Setup was fast and painless, and the management interface is well laid out with good access to core functionality.

The TS-451 has a large rear mounted fan, but was virtually silent in operation. Access speeds are excellent and the NAS has full backup functionality. The QNAP apps give simple Dropbox like file syncing between devices. The TS-451 will also function as a file downloader, printer server and can connect to Wi-Fi or record digital TV via a USB device.

For those after extra security, the NAS supports AES-256 bit volume

encryption and supports IP camera recording.

The TS-451 is DLNA ready, but also has an HDMI port and can play back 1080P with 7.1 surround sound. If you stream media to a lot of different devices, the TS-451 can also handle on the fly transcoding. This is handy for playing back video on portable devices and lets you minimise bandwidth use and avoid issues with codec compatibility. You can also set the NAS to transcode 4K media, though not on the fly. The QNAP lets you use your mobile as a remote, but also has an optional IR controller.

### Verdict

Pricey, but with great features and performance.



**CRITICAL SPECS:** Bays 4 CPU Intel 1.7GHz RAM 2GB DDR3 HDD Up to 30TB LAN Dual Gigabit USB 3x.



\$800 | WWW.SEAGATE.COM

## Seagate 4 Bay NAS Pro

Are the features worth the extra price?

Aimed at higher end users, the 4 Bay NAS Pro has an Intel Dual Core CPU running at 1.7GHz, as well as a large 2GB of DDR3 RAM. It has dual Gigabit Ethernet ports (that support failover and link aggregation), as well as two USB 3.0 (with one touch backup) and one USB 2.0 connection.

You can get the Seagate as a diskless NAS, or equipped with up to 30TB across four drives. The bays are hot swappable and support both 2.5-inch and 3.5-inch drives. It also supports the usual array of RAID options – JBOD, 0, 1, 5, 6 and 10.

The NAS Pro was really simple to set up, and was one of the quickest NAS boxes to get onto the network. We got a very slightly slower read speed than expected, but overall the read and writes are excellent.

The Seagate NAS OS 4 is very easy to use, and the extra S drive software is one of the better ways of sharing files between your

NAS, desktop and mobile devices. The NAS Pro is ready for your media as well, and supports UPnP and DLNA media streaming, as well as an iTunes server.

To stop people walking off with your data, it has a Kensington lock port and supports 256 bit AES encryption. You can also view and record IP security cameras and schedule backups.

Thanks to a large, slow spinning fan, the Seagate NAS is fairly quiet, even under load.

### Verdict

Well equipped, but doesn't offer stand out value.



**CRITICAL SPECS:** Bays 4 CPU Intel Atom Dual Core 1.6GHz RAM 1GB DDR3 HDD Up to 32TB LAN Single Gigabit USB 5x.



\$605 | WWW.SYNOLOGY.COM

## Synology DS415play

Media lovers rejoice!

Unlike other NAS devices that try to please everyone, the DS415play is totally aimed at those who want to stream content. A larger 4 bay version of the excellent DS214play, the Synology NAS can store up to a massive 32TB of media collection. Inside is a Dual Core Intel Atom CE5335 CPU that buzzes along at 1.6GHz, as well as 1GB of DDR3 RAM.

The Synology NAS feels a little plasticity at first, but once you get the slightly bendy tool-less drive bays locked away, the overall build quality is quite good. The front has a single USB 2.0 port, while you get another two round the back, as well as dual USB 3.0 connections. Unlike some of the competition, it only has a single LAN port, but for typical use this is no real loss.

The DS415play also has an array of solid Synology apps to make it easy to access your media on portable devices.

Importantly, the Synology NAS can transcode 1080p video on the fly. Not just to one device either – separate users can be transcoding media at the same time. This is particularly handy if you like to stream content to a range of portable devices but don't want to mess around with codec support, or need to use wireless bandwidth efficiently. Whether or not it's a feature needed for your media setup, it would have been nice to see an HDMI port on the DS415play for direct playback.

### Verdict

Strong performance and functionality without going over the top in price.



**CRITICAL SPECS:** Bays 5 CPU Intel Celeron J1900 2.42GHz RAM 4GB DDR3 HDD Up to 30TB LAN 5x Gigabit USB 5x.



\$1,200 | WWW.THECUS.COM

## Thecus N5810PRO

High-end features for a price.

Powered by an Intel Celeron J1900 CPU at 2.42GHz and featuring a massive 4GB of RAM (expandable to 8GB), the Thecus N5810PRO pushes the boundaries of performance. It can handle both 2.4- and 3.5-inch drives across 5 lockable bays. If that wasn't enough, it's also got 5 Gigabit LAN ports, which all include link aggregation and up to 500MB/s speeds. You also get 5 USB ports (3x USB 3.0) for extra connectivity.

Setup was as simple as installing drives and firing it up. The Thecus OS5 operating system has excellent depth of control, whilst remaining intuitive to navigate. You can also control some functionality via the front face buttons and LCD panel.

The N5810PRO includes a built in mini UPS that gives the system time to write any data and shut down safely in the event of a power outage. It also moves the PSU inside the NAS, getting rid of the power brick completely.

The N5810PRO has an HDMI output for directly playing back media, plus a 3.5mm audio line out jack. It also supports the usual DLNA media streaming, as well as the TV on the Go content platform. The NAS also handles the usual array of backups, IP camera recording, virus checking and encryption.

While the most expensive NAS in our roundup, the Thecus also has the fastest write speed, albeit by a very very small margin. It's also got the most features, though unless you plan on using them, it's possibly overkill for home use.

### Verdict

Despite features not found anywhere else, it's still an expensive option.



**CRITICAL SPECS:** Bays 4 CPU Marvell 2GHz RAM 512MB DDR3 HDD Up to 16TB LAN Dual Gigabit USB 3x.



\$500 | WWW.WDC.COM

## WD My Cloud EX4 Personal

Positioned above the budget options, but not yet high-end.

Rather than going all out like the more expensive EX4100 Expert, the Personal WD NAS has pretty modest specs. Powered by a 2.0GHz Marvell CPU and only 512MB of RAM, the efficient WD OS means the EX4 still gets quite good read and write speeds.

The EX4 has 4 hot swappable, tool and tray-less bays that support 3.5-inch drives in RAID 0, 1, 5, 10 and JBOD. While you can get it as a diskless model, the EX4 is also available ready to go in sizes up to 16GB.

Round the back the EX4 sports dual gigabit Ethernet ports (with link aggregation and failover support), as well as two USB 3.0 connections. You even get a double up on power inputs for extra redundancy. The NAS can be set to handle HTTP, FTP and P2P downloads, perform automatic backups and sync data with your existing cloud storage. You can also

encrypt the drives, run a print server or record from IP security cameras.

The free WD My Cloud mobile app is excellent and makes it simple to stream media, access files and control NAS settings. There is also a desktop app, which gives better functionality than just a web interface. You can stream media to the usual DLNA and iTunes compatible devices. You can also run other apps, such as WordPress or SqueezeCenter.

Sure, the EX4 is not the fastest, or quite the cheapest NAS. But considering the excellent apps and features, it does offer some very compelling bang for buck.

### Verdict

A great budget option with some of the best apps available.



**CRITICAL SPECS:** Bays 4 CPU Armada 388 2GHz RAM 2GB DDR3 HDD Up to 24TB LAN Dual Gigabit USB 3x USB 3.0.



\$699 | WWW.WDC.COM

## WD My Cloud EX4100

A higher-end NAS aimed at those who need the best.

A step above the EX4 Personal NAS, the 4100 knocks thing up a notch. It's powered by the excellent Marvell Armada 388 CPU, which has dual cores and runs at 1.6GHz. It's also got 2GB of RAM and comes in a diskless, or ready populated model up to 24TB.

Setup is as simple as running the web based interface and selecting a few options. It's well laid out and easy to delve into some of the deeper functionality without a guide. The drives are hot swappable to make it easy to add or remove storage. The WD apps are excellent, and ensure reliable access to your content from portable devices. As expected, the EX4100 can also stream media to DLNA compatible devices. The NAS will also run programs such as WordPress and phpBB.

The WD promises up to 116MB/s read and write, and the real world figures don't fall much below that. It's not

a huge jump over the EX4 personal (considering the price), but if you demand the very fastest speeds then it could be worth the extra cash. The NAS also has features such as dual power inputs for reliability. The WD supports AES-256 bit encryption for security and handles automatic backups, but doesn't have a built in virus checker. You can run the usual FTP file and print servers, download via P2P or set up a JBOD/0/1/5/10 RAID array. Under load the EX4100 can be a little noisy, and when full of drives significant mechanical noise escapes.

### Verdict

Strong performance, but a big price bump over the personal edition.

