

Qnap TS-433eU

Minimal upgrade potential, but this affordable NAS delivers plenty of features in a remarkably small chassis

SCORE ★★★★★

PRICE Diskless, £528 exc VAT from ukstore.qnap.com

Qnap's TS-433eU will appeal to small offices with limited space as it's probably the smallest rack-mount NAS appliance on the market. Presented in a chassis that's a mere 292mm deep, it can be easily fitted in a small wall box, a standard two-post rack cabinet or even placed unobtrusively on a desk.

The appliance offers four hot-swap LFF/SFF drive bays at the front and is powered by a 2GHz quad-core Arm Cortex-A55 CPU. It comes with 4GB of DDR4 RAM, but this is soldered on the motherboard and cannot be upgraded.

Networking comes courtesy of dual 2.5GbE multi-gigabit ports, and two USB-A 3.2 Gen 1 ports can be used to expand storage outside the box with Qnap's equally short four-bay TR-004U disk shelves. No expansion slots are provided so 10GbE is off the menu and, unlike some of Qnap's other short-depth appliances, the TS-433eU doesn't have internal M.2 SSD slots.

The appliance is clothed in a solid steel chassis and uses equally sturdy metal carriers. For testing, we fitted three 12TB Seagate IronWolf NAS drives; Qnap doesn't enforce the

same drive compatibility restrictions as Synology so you can use pretty much any storage device you want. We also noted that the appliance's three 40mm cooling fans were extremely quiet.

The modest memory capacity limits the TS-433eU to running Qnap's QTS operating system as its QuTS hero OS requires a minimum of 16GB to get the best from it. This is no bad thing for small businesses as QTS is more nimble, requires far less memory and offers an equally impressive range of features.

Installation was swift, with the QFinder Pro Windows app quickly discovering the appliance and directing us to its web interface, where a quick start wizard installed the latest QTS version. On completion, we used the Storage & Snapshots app to create a large 22TB RAID5 array.

QTS offers plenty of business apps, although some aren't available for ARM-based CPUs such as the Virtualization Station, Hyper Data Protector and Browser Station. You won't be able to use Qnap's new NetBak PC Agent, either, as although it offers block-based backups for Windows workstations and servers, it requires the Hyper Data Protector app to be installed.

Backup features are still in abundance, however, with QTS supporting on-demand and scheduled snapshots for NAS shares

ABOVE The miniature TS-433eU offers four hot-swap LFF/SFF drive bays

"The TS-433eU offers space-poor SMBs an entry-level network storage solution at a sensible price"

BELOW Along with an unusual file activity monitor, QTS offers backup and snapshot data protection

and iSCSI LUNs, with the Snapshot Replica service offering scheduled block-level replications to a local storage pool or remote Qnap NAS. The Hybrid Backup Sync 3 app protects appliance data and helps create a 3-2-1 backup strategy in as few as four clicks, and you can still use Qnap's older free NetBak Replicator Windows agent, which manages simple file-based workstation and server backups to the appliance.

To test 2.5GbE performance, we hooked the appliance up to the lab's Zyxel XS1930-12HP 10GbE multi-gigabit switch. A NAS share mapped

to a Dell server connected over 10GbE returned Iometer sequential read and write rates of 2.1Gbits/sec and 1.9Gbits/sec respectively.

Real-world speeds were in the same

ballpark, with drag-and-drop copies of a large 25GB file between the appliance and server delivering sustained read and write averages of 2Gbits/sec and 1.7Gbits/sec. Securing a 22.4GB folder with 10,500 small files to the share mustered a tidy 1Gbits/sec throughput.

IP SAN performance was very similar to NAS speeds, with a 1TB iSCSI target returning Iometer read and write rates of 2.1Gbits/sec and 1.8Gbits/sec. Ramping up to a dual 2.5GbE MPIO link to the target proved to be challenging, with read and write speeds only increasing to 3Gbits/sec and 2.7Gbits/sec, while CPU utilisation peaked at 90%.

It has limited upgrade potential, but the TS-433eU offers space-poor SMBs an entry-level storage solution at a sensible price. Performance over 2.5GbE is good enough for light to medium workloads, the QTS software provides plenty of data protection apps, and the appliance's low-profile chassis is small enough to neatly tuck away in a wall cabinet.

DAVE MITCHELL

SPECIFICATIONS

1U rack-mount chassis • 4-core 2GHz Arm Cortex-A55 CPU • 4GB DDR4 (max 4GB) • 4x LFF/SFF hot-swap drive bays • 2x 2.5GbE • 2x USB-A 3.2 Gen 1 • Internal 60W PSU • 430 x 292 x 43mm (WDH) • 2yr hardware warranty. **Options:** RAIL-S01 kit, £67, TR-004U disk shelf, £388 (both exc VAT)

