

## TEST CENTER

### STORAGE

# Impressive Array of IP Storage Features

Scalable and easy to use, PeerStorage Array 100E is a winner

MANY STORAGE vendors, including Cisco, EMC, Microsoft, and Network Appliance, have adopted the iSCSI protocol in their IP storage solutions, often as a complement to the established FC (Fibre Channel) transport.

Support for IP-based storage from large vendors is important, but so are the contributions from companies such as Intransa ([infoworld.com/528](http://infoworld.com/528)) as well as LeftHand Networks ([infoworld.com/504](http://infoworld.com/504)), whose products have mostly removed the SAN price sting, opening those solutions to more customers.

EqualLogic, another newcomer, recently joined the ranks of IP-storage suppliers with its PeerStorage Array 100E, pledging easy-to-manage, scalable, and affordable SANs based on the iSCSI protocol.

Judging from my tests, EqualLogic has delivered on that promise. Its storage enclosure performed quickly and reliably, and setting up collaboration with a twin unit was easy and rewarding, promising painless expandability down the road.

With an entry-level price of \$28,000 for an array with 840GB capacity, purchasing PeerStorage doesn't require a large initial investment, which may make networked storage more attractive.

EqualLogic sent me two arrays, each hosting 14 Hitachi Deskstar 185GB ATA drives and two control modules in a 3U box. Each control module, essentially a server on a hot-pluggable card, hosts the OS. The EqualLogic management software provides 1GB of battery-protected cache, SATA (serial ATA) controllers, and three GbE NICs with copper and optionally fibre ports.

You can order the array with just one control module. However, the solution is faster with two, thanks to the onboard cache that doubles to 2GB, and it's more resilient because each controller will automatically compensate for a failing one. During

my tests, removing one of the controllers did not compromise volume access from my servers, and when I reinserted it, the array immediately returned to normal working conditions.

A second controller makes the array more expensive, but it's highly recommended because of the added performance and safety. It also complements the standard redundant power supply and cooling fans.

Each PeerStorage array can be optimized for capacity or performance. You may choose between RAID 10 and RAID 50. Either way, two drives for each array are spares by default, which should give adequate protection from disk failures. In fact, when I removed a drive to simulate a fault, the arrays promptly replaced it with a spare, preserving data content and access while rebuilding the RAID configuration with the new drive.

Setting up the first array using the PeerStorage CLI (command line interface) over a serial connection was easy. Then, I just pointed my browser to the storage group IP address to access the Java-based management GUI.

At first, the GUI seems starkly simplistic, but that apparent plainness hides a host of powerful capabilities, such as drilling down to assess the health of the hardware components for each array, setting automated warnings to notify malfunctions, and monitoring network ports and disk performance via online charts.



In addition, the GUI facilitates basic daily administrative tasks, such as carving volumes, scheduling automated snapshots, and controlling users and access rights to volumes. Speaking of automation, the EqualLogic CLI is not just for initial setup; it gives access to the same management tools via commands that administrators can easily group into scripts to simplify repetitive tasks.

The PeerStorage administrative features are important and well-designed. The performance monitoring capabilities are critical, simplifying the task of diagnosing responsiveness problems.

Security is a clear concern in IP SANs. To make volume access more controllable, EqualLogic offers CHAP (Challenge Authentication Protocol) and allows the user to define a CHAP server and to restrict volume access according to IP address or user name. Implementation is optional but the ability to enforce secure access to volumes is there if you need it.

EqualLogic volumes are standard iSCSI targets, which made gaining access from my Linux and Windows servers simple after downloading the free iSCSI drivers from Microsoft and Red Hat. A hacker could do the same, of course, but the additional security and enforceable restrictions make break-ins less likely.

Creating snapshots also ranks high among my favorite EqualLogic administrative tools. Making a single occurrence on the spot or defining a complex schedule is equally easy thanks to an online wizard.

Administrators will love the wizard that automatically suggests the space each snapshot will occupy, an estimate they can adjust for accuracy. Appropriately, that estimate will count as used space, which helps prevent over-allocating storage and avoid disastrous space shortages.

I added a second PeerStorage Array after I had defined several volumes and their automated snapshots. Nevertheless, adding in that twin unit was painless and did not compromise my existing configuration.

In fact, after connecting via serial cable to the new unit, the CLI management software proposed to set the initial configuration for the array, then offered the choice of creating a new storage group or connecting to an existing one.

I was then able to choose whether to create a new storage pool or to add more storage to my old pool. I chose the second option, which triggered the management software to configure the new unit similarly to the other in the group. Immediately, the new array appeared in the GUI and was ready to use, while the management software automatically began redistributing the existing volumes across the two arrays, which improved both volumes' access performance and resilience.

According to the unit's specs, a single group can incorporate up to 32 PeerStorage Arrays, which constitutes a gigantic storage pool that the array's self-management capability make simple and inexpensive to administer.

After working with the EqualLogic PeerStorage Array 100E, I can make this recommendation: Buy one. If your company is struggling to administer space inside your servers, a PeerStorage Array can transform that activity from hopeless chaos to professional management that flexibly scales storage as your company's requirements grow.

— Mario Apicella

### PeerStorage Array 100E

EqualLogic [equallogic.com](http://equallogic.com)

**EXCELLENT**
**8.8**

Management (20%)	9
Performance (20%)	8
Reliability (20%)	9
Scalability (20%)	9
Interoperability (10%)	9
Value (10%)	9

**COST:** As tested, \$38,500 per array. Starts at \$28,250 for a single controller with seven 120MB disks

**PLATFORMS:** Linux, Sun Solaris, Windows

**BOTTOM LINE:** With a competitive price and comprehensive features, this solution satisfies diverse needs. It sets a record for expandability by scaling from a single array to a cluster of 32. Based on iSCSI, it serves block storage to various clients via standard GbE NICs or controllers with TCP offload engines.



For more information about PeerStorage solutions by EqualLogic, Inc. visit [www.peerstorage.com](http://www.peerstorage.com) or call 888.579.9762 x292