

## CASE STUDY

# HARVEY MUDD

C O L L E G E

### ORGANIZATION:

Harvey Mudd College

### INDUSTRY:

Higher Education

### IT ENVIRONMENT:

16 Microsoft® and Linux servers,  
18TB storage moving to 30TB,  
10GbE network

### CHALLENGE:

Deliver a scalable storage solution that uses 10GbE and iSCSI as a viable alternative to FC SAN. Provide an open enterprise grade solution free from vendor lock-in.

### SOLUTION:

RELDATA Unified Storage System:  
RELDATA 9240 Controller, RELvos  
2.1 Software, 10GbE host connectivity,  
RELDATA SAS Disk.

### BENEFITS:

Flexible, unified NAS/SAN storage  
10GbE performance  
Fast, easy deployment  
No Vendor Lock-in  
Reduced Storage Costs

*"RELDATA's technology is consistent with our views on the likely future direction of IT strategy. The focus on connectivity, interoperability and open standards makes the RELDATA Unified Storage Solution a relatively safe, future-proof investment free from the hidden costs of vendor lock-in. RELDATA has delivered a genuinely innovative product at an extremely competitive price."*

### Andy Davenport

Harvey Mudd College, Systems and  
Networks Group Leader



Harvey Mudd College (HMC) has produced some of the luminaries of the IT industry, including Donald Chamberlin, co-creator of the SQL database query language and Jonathan Gay, the inventor of Flash. What sets this visionary Claremont College apart from its peers is that HMC is ranked highly as both a liberal arts college and as a college of engineering, science and mathematics. "Mudders" are actively encouraged to look outside their major of study to achieve a broader, more rounded education.

It is fitting that a college focused on creating versatile technology leaders whose all-round capabilities sacrifice nothing in specialist performance, should have chosen a RELDATA Unified Storage System.

### Background

The college's broad curriculum demands an equally versatile IT infrastructure. From running video streaming and online learning one minute to testing hardware built by the college's own engineering students the next, performance, flexibility and resilience are pushed to their extremes. Equally, openness, freedom from vendor lock-in and scalability are vital to contain costs in an organization with 735 of the nation's most megabyte hungry academics.

Although Harvey Mudd College had survived for years using direct attached storage within its servers, it was inevitable that the consolidation and scaling arguments in favor of a centralized SAN would eventually become overwhelming for an organization of its size. "For a long time, we were almost certainly an appropriate candidate for a medium-sized FC SAN (Fibre Channel Storage Area Network), but we were put off by the overall price and the per-gigabyte licensing policy of the large SAN vendors," explains Andy Davenport, Systems and Networks Group Leader at HMC.

The arrival of new technologies such as SAS invigorated the college's interest in a more comprehensive SAN solution, but having dismissed Fibre Channel as a trailing-edge solution, HMC needed an alternative host facing technology. For Davenport, 10Gb iSCSI seemed the obvious choice: "Everything favors iSCSI in the long run, we don't see any credible impediments even at the high end," he comments. "Machines always have the hardware for iSCSI, but need additional hardware to use FC. And with the emergence of 10Gb IP (Ethernet), we have enough headroom to scale."

With tight budgets, infallible in-house expertise and a very clear but challenging set of requirements, Harvey Mudd College set about looking for its new storage solution.

**RELDATA**  
REAL UNIFIED STORAGE

## Solution

HMC opted for a complete RELDATA Unified Storage System consisting of two RELDATA 9240 controllers running RELvos 2.1 software, 10Gb network connectivity and RELDATA SAS disk.

*"RELDATA was the first vendor capable of delivering exactly what we were looking for,"* says Davenport, explaining the choice. "It was also clear that RELDATA offers a value proposition which packages ease of management at a substantially lower price."

RELvos software provides real networked storage consolidation, delivering NAS (CIFS/NFS), IP SAN (iSCSI) and a comprehensive set of backup and replication features from one single high availability configuration. With blisteringly fast 10Gb Ethernet connectivity, the 9240 system delivers storage exactly as it is needed to all applications and users across the organization.

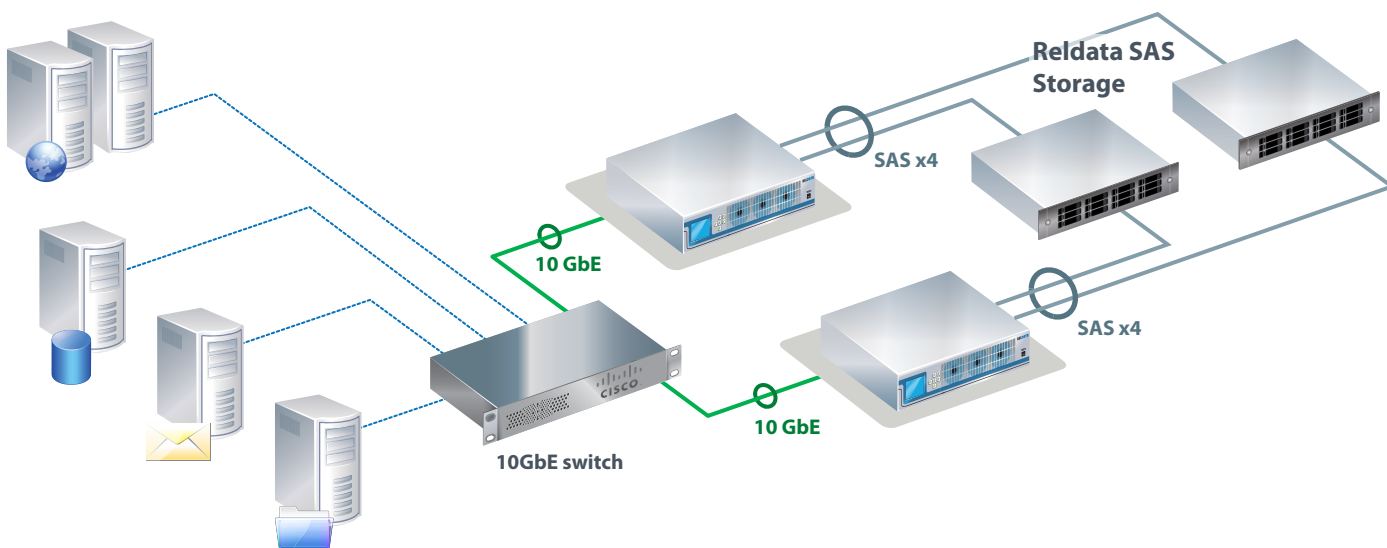
The college was also attracted to the openness of the system. Even as part of a complete solution, the RELDATA controllers offer open back-end connectivity to third party disks. This provides complete freedom from vendor lock-in for future capacity upgrades, as well as the opportunity to redeploy existing storage investments as part of a new system.

The two RELDATA 9240 controllers are set up in an active/active failover configuration. Each device offers 10Gb Ethernet connectivity for delivering block and file storage to host servers and the broader college network.

At the back end, each controller provides dual, dual-port SAS connectivity (also compatible with SCSI, iSCSI, and SATA storage resources). The college currently uses a mixture of RELDATA SAS arrays together with a variety of third party arrays, and even uses cheaper JBODs (Just a Bunch of Disks) in conjunction with the 9240's built-in software RAID functionality. All storage is virtualized into a single pool from which administrators can then carve out and resize virtual storage volumes or LUNs as required.

## Result

The RELDATA 9240 Unified Storage System has provided Harvey Mudd College with a single feature-rich storage system capable of satisfying its demanding technology requirements. "One of the things that has impressed me most about the system is that RELDATA really does deliver a fully comprehensive feature set without extra cost add-ons," comments Davenport. "The combined 9240/RELvos product has a lot of features, but thanks to the logical layout of the management interface, we were able to complete the installation without on-site support from RELDATA, even though it was enthusiastically offered."



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RELDATA Inc.  
e-Mail: [sales@reldata.com](mailto:sales@reldata.com)  
Phone: +1 (973) 644 2770

[www.reldata.com](http://www.reldata.com)