

Drexel University's IT infrastructure supports an extended community of over 60,000 end-users, so it must perform at maximum efficiency. When IT managers needed to replace aging storage systems, they chose all-flash arrays from Pure Storage, which provide consistently high performance, unmatched reliability, and effortless management.

**BUSINESS TRANSFORMATION**

End-users throughout the university community have fast, reliable access to vital applications and data, while system administrators can manage their IT infrastructure effortlessly, and with certainty about the cost and simplicity of future upgrades and expansion.

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Paul Keenan,
executive director, systems and security

DREXEL UNIVERSITY GIVES TOP HONORS TO HIGH-PERFORMANCE SOLUTIONS FROM PURE STORAGE

Drexel University in Philadelphia is a large, diverse and lively urban environment, and the community of end-users served by its IT systems is a reflection of that diversity. The university’s central IT department supports more than 5,000 faculty and staff, some 26,000 students, and thousands of affiliated end-users such as alumni and non-employee associates. The College of Medicine, which has its own IT infrastructure, serves another 5,600 end-users.

Both IT departments have virtualized their server environments — totaling about 1,300 servers between them — and the college of medicine also has VDI. Between the two departments, some 3 petabytes of data are stored, representing a broad array of applications. This includes Oracle and SQL Server back-end databases as well as videos of lectures used for on-line learning, applications for student testing, and banks of file servers containing over 100 TB of unstructured data consisting of images and office documents. In addition, the university supports the DrexelOne portal (based on Ellucian Luminis® to provide a common information gateway for students, faculty and staff) as well as data-intensive applications including Banner and Blackboard Learn.

In late 2015, administrators at both the central IT department and at the college of medicine separately concluded that replacement of their data-storage systems was a high priority.

AGING LEGACY STORAGE HAMPERED APPLICATION PERFORMANCE

“We were not unhappy with our existing storage system, but since it was installed in 2010, it was nearing its end of life” based on the business model traditionally followed by storage vendors, said Paul Keenan, executive director of systems and security for the central IT operation.

At about the same time, Rob Kaniewski, director of technical services for the College of Medicine, had a different challenge relating to storage. “We were hitting high utilization on a consistent basis with all our virtual desktops, and the controllers were approaching six years in age,” he noted. “We were receiving complaints about performance. We had to do something.”

COMPANY:

Drexel University
drexel.edu

USE CASE:

- VSI – VMware® vSphere®
- VDI – VMware Horizon
- Database – Oracle®, Microsoft® SQL Server

CHALLENGES:

- Underperforming storage infrastructure was causing slow performance of VDI.
- Aging storage systems were due for replacement, raising the specter of forklift upgrades.
- Small IT staffs were taxed by complex storage-management demands.

IT TRANSFORMATION:

- Consistently sub-millisecond latencies mean VDI users no longer suffer from delays in accessing data and applications.
- Evergreen Storage program delivers long-term certainty for budget planning and eliminates the need for forklift upgrades.
- Effortless storage management sharply reduces demands on IT staff.

“What really sold me was the Evergreen Storage model.”

Paul Keenan,
executive director, systems and security

Keenan and Kaniewski decided to jointly evaluate storage options. “We were impressed by the performance and features offered by the Pure Storage all-flash arrays,” Keenan recalled, “but what really sold me was the Pure Evergreen™ Storage model.”

The Pure Evergreen Storage program allows customers to deploy storage once, then expand and upgrade it as needed for a decade or more. Components can be mixed and matched — all online and without performance disruption — to keep storage dense, efficient and modern.

“Having been in this business a while, I’ve gone through several storage migrations. They’re always unpleasant, and they consume a lot of staff time,” Keenan said. “The Evergreen model of getting new controllers every three years, had great appeal because it seamlessly integrates new technologies, letting us expand capabilities along with capacity.”

He added, “I’ve always thought forklift upgrades were a pain point; I just didn’t know there was an alternative, until we found Pure Storage.”

PERFORMANCE PROBLEMS DISAPPEAR, STORAGE MANAGEMENT SIMPLIFIED

To test the claims of Pure Storage, Keenan oversaw a proof-of-concept trial in which a VMware test environment was moved onto the Pure array. “We saw good de-duplication numbers, and the performance was unbelievable,” he noted. “Latency on all workloads was under one millisecond. There were no issues at all; everything was as promised.”

The only issue, he noted, was whether a Pure Storage array would also work for the college of medicine, where Kaniewski was looking not only for improved performance and reliability, but also needed strong encryption features to protect patient information.

“Pure Storage had the encryption-at-rest features we required,” Kaniewski said. “Pure also provides de-duplication and compression across the entire SAN, not just individual volumes, a big step up from the arrays that we wanted to replace.”

Once the evaluation team was satisfied that Pure Storage was also the right fit for the college of medicine, Drexel ordered two Pure Storage FlashArray//M70 models and one //M50 model for central IT, the college of medicine, and a disaster-recovery site that replicates data from the two primary IT environments.

Both IT departments embarked on a phased migration of their data and applications onto the Pure Storage arrays. “We did the migration by Storage vMotion. It happened much faster than I had expected, or had experienced before,” Keenan observed. “The Pure Storage array handled multiple concurrent vMotions effortlessly.”

Once production applications were running on Pure Storage, the IT administrators saw noticeable performance improvements. “VMware no longer encounters latency problems, which had been a big problem” with the previous storage system, Keenan noted. “I’m seeing 0.3 to 0.5 milliseconds latency, on average, across all workloads.”

The consistently high performance delivered by Pure Storage “removes the array as a likely suspect when someone reports an app performance issue,” he added. “With steady sub-millisecond performance, we can focus on other parts of the technology stack, letting us solve problems more quickly.”

“All the performance problems — and the complaints from end-users — have now stopped. Everything is running much faster than in the past.”

Rob Kaniewski,
director of technical services

Kaniewski reported a similar experience. “We immediately saw performance improvements on the back end. With our previous system, we were constantly getting disk latency alerts. Our VDI had noticeable latency at times, to the point that we would have to cancel snapshots in order to make the system responsive. All the performance problems — and the complaints from end-users — have now stopped. Everything is running much faster than in the past.”

SIMPLIFIED MANAGEMENT PLEASES STAFF

Both IT managers also reported high satisfaction with the effortless management of Pure Storage.

“Neither of us have a dedicated storage admin, so we needed an environment that didn’t take a lot of time to configure or manage,” Keenan said. “With Pure Storage, there has been no learning curve. I was able to set it up without help.”

Kaniewski agreed. “Compared to our previous system, Pure Storage is a lot more straightforward and easy to use. Our engineers say Pure is a major improvement over what we had previously.”

Of his previous storage system, he added, “upgrades and reboots always took a half-hour to an hour to get things back up and running so vSphere could see all the storage volumes. That was annoying and a waste of time. With Pure Storage, upgrades are totally nondisruptive.

“Recently, we had an unexpected power outage in our data center that took everything down,” he continued. “After power was restored, the Pure Storage array came up without any interaction, and VMware saw all the volumes immediately, compared to spending an hour with our previous system getting everything back on-line. That’s a great improvement from our perspective.”

Keenan also said he appreciates the non-disruptive software upgrades on Pure Storage arrays. “They are seamless. In contrast to what you would experience with a spinning-disk system, upgrades are now a non-event.”



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