

Affordable high performance, reliability, and scalability with HP StorageWorks

University's architecture department solves I/O bottlenecks and significant management issues with HP StorageWorks Simple SAN solution



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—Senior systems manager, architecture department, major university

HP customer case study: significantly increased storage capacity with sufficient expansion capabilities

Industry: education

Objective

Consolidate and increase storage capacity; implement a future-proof infrastructure; eliminate I/O bottlenecks; and strengthen failover, disaster recovery, and backup capabilities

Approach

Complete HP StorageWorks Simple SAN solution, featuring HP 81Q and 82Q 8Gb/s HBAs, the 8 Gb/s HP StorageWorks 8/20q FC Switch, HP StorageWorks EVA4400, and an array of HP ProLiant DL385 Servers

IT improvements

- Significantly increased storage capacity with sufficient expansion capabilities
- Consolidated SAN
- Improved failover
- Ease of use and management

Business benefits

- 8Gb technology without additional costs compared to 4Gb connections
- Excellent price/performance and cost-efficiency
- Future-proof solution with high investment protection
- No additional license fees for feature expansion

The challenge

An expanding, nationally renowned architecture department at one of the Midwest's largest public universities serves more than 700 students, employs 50 faculty and approximately a dozen staff members, and is responsible for the support of more than 600 devices. As in many academic fields and professional vocations, architecture tools have been dramatically transformed by technological advances in the last few years. Computer-assisted design (CAD) and other modeling programs are hardly new, but recent improvements and breakthroughs have resulted in enormous growth in the physical size of digital documents and files.

“Five years ago, a large CAD file might be 50 MB,” the architecture department's senior systems manager said. “Now, students working on files upwards of 1 GB is not unusual. With 700 students in our school, storage and data transfer of these files is definitely a concern. Plus, our facilities are open 24 hours a day, seven days a week—and there are always students working here during those times. Our needs were growing at an exponential rate.”

An approaching storm before the calm

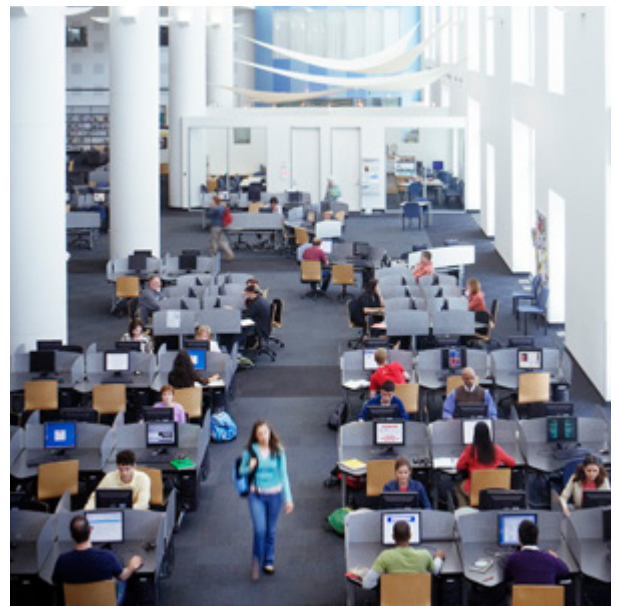
The need to accommodate more students and much larger data files—along with the challenge of managing the storage environment and supporting a variety of devices—was placing an increasing strain on the department’s aging technology infrastructure. Over time, the school’s storage environment had become a collection of disparate, hard-to-manage hardware. “It was pretty scattered,” the systems manager acknowledged. “Whenever we needed an improvement or upgrade, we would purchase what we needed at the time. It was pretty hit-and-miss. We had a lot of direct attached SCSIs, we didn’t play well with network attached storage (NAS), and what we had didn’t integrate very well with VMware. Management had become a nightmare. We had multiple versions of applications, multiple agreements for support, different levels of warranties. In terms of service-level agreements (SLAs), we didn’t support every device, and if they failed, they’d be down for a long time. Essentially, we had some pretty significant performance, reliability, scalability, and management issues. Also, we had a problem with I/O bottlenecks, which was frustrating our students and faculty.”

The department’s objectives: affordability, performance, scalability, ease of use

With the 2008–2009 school year approaching, the architecture school’s technology staff recognized the need for an affordable solution that provided:

- Expanded, consolidated storage
- Vast scalability
- Ease of use and management
- Affordability
- VMware compatibility
- Investment protection
- Compliance with department directives

The IT team had also learned the errors of making piecemeal hardware purchases that didn’t integrate well. “We wanted something that we could use for many years to come, and not have to worry about it being able to scale,” the manager said. “Longevity was important.”



The decision: HP StorageWorks Simple SAN Solution

Department staff discussed the challenges with Jerry Weaver, Matrix Integration’s public sector account manager for the area. This was not a cold call. Weaver had worked with the school on other projects. Plus, the school’s systems manager was aware of Matrix’s long involvement with HP, had already been leaning toward HP’s StorageWorks solutions, and had just upgraded the school’s networking environment with products from HP ProCurve Networking.

“As part of our due diligence, we looked at several options such as direct attached SCSI storage, iSCSI, and network-attached storage (NAS), but none of those played well with the speed and reliability of our SAN implementation,” the school official said. “One by one, we began to rule out those other technologies.”

Guided by Weaver’s input, and the Matrix Integration team of storage experts, the architecture department selected the HP StorageWorks Simple SAN Solution, featuring HP 81Q and 82Q 8Gb/s Host Bus Adapters (HBAs), the 8 Gb/s HP StorageWorks 8/20q Fibre Channel Switch, the HP StorageWorks Enterprise Virtual Array 4400, and an array of HP ProLiant DL 385 Servers. “Frankly, the HP StorageWorks Simple SAN Solution was at the top of my list from the start because of ease of use and how well it integrated with our VMware deployment,” the systems manager said. “Affordability was also a major factor; it fit right into our budget. Plus, their 8Gb products had just come out, and that was very appealing. We figured that would fit in very well with our ProCurve upgrade because our network throughput had a 10Gb backbone.”

Deploying the HP StorageWorks Simple SAN solution

The architecture school chose the HP StorageWorks Simple SAN portfolio because it was easy to deploy and manage while delivering high performance, scalability, and affordability.

- **Easy to deploy:** The school saved significant time and reduced services costs with HP StorageWorks' simple, wizard-based installation. And even though its technology staff had considerable SAN expertise, such experience isn't required. "The setup was very straightforward," the systems manager said. "Our HP representative was out here just two days. The first day, we configured everything, and the second day was just a basic follow-up, to make sure we understood the rollout and how everything would be implemented. It was a lot faster than I ever anticipated."

A large part of the school's strategy was to enable shared-user storage space through consolidation, leveraging the virtualization capabilities of VMware. "We had a lot of ESX storage tied into this project, and we did some redundant fabric work—which can be tricky. Matrix Integration helped with the configuration of that, which was very impressive. The amount of time we saved was remarkable."

- **Manageability:** The HP StorageWorks Simple SAN solution single graphic user interface can provision storage, zone switches, and tune performance from a single application for HP StorageWorks MSA and EVA storage arrays. "Ease of use and management can't be overstated, especially when you're facing time and staff constraints," the systems manager said. "The interface is awesome. Because of the nature of our requirements, we're constantly having to redistribute disk space and add EVA drives, and this solution makes it a breeze."
- **High performance:** "We were facing a huge onslaught of very large files, and we knew our bandwidth needs would grow exponentially," he continued. With the HP StorageWorks Simple SAN Solution offering an 8Gb Fibre Channel SAN

infrastructure, "transfer speeds were something we absolutely had to look at. The 8Gb capability also fit with our virtualization initiatives." Additionally, the portfolio includes a variety of enterprise-class software features such as zoning, provisioning, change tracking, topology, and event notification.

- **Scalability:** With the HP StorageWorks solution in place, the school found that adding drives or servers to VMware clusters is fast and easy. "It's just a matter of plugging it in," the school official said. The solution also offers "pay-as-you-grow" port licensing without disruption, along with the ability to add switches and HBAs to accommodate new storage and servers. Not surprisingly, the return-on-investment (ROI) and total-cost-of-ownership (TCO) benefits have also proved to be advantageous. "We had spent thousands of dollars on one-off products to upgrade, with just marginal results in performance," the systems manager said. "Those days are gone for good."

The school also uses Ghost to clone PCs by taking the master image on a workstation and cloning it to the disk space on a SAN. "We can deploy the image so rapidly now. Before this, we had been peaking out on the number of servers we could deploy, but the only limitation now is the hardware on the end node," the manager explained, adding that he remains amazed at the speed of the deployment. "It used to take us upwards of six hours to deploy a cluster of 40 servers. With this new technology, we can do it in two hours—and even less with a vLAN infrastructure. Believe me, that's a great benefit to our students."

- **Affordability:** Offering 8Gb performance capabilities at the price of previous-generation switches, combined with its time-saving manageability and scalability, the HP StorageWorks Simple SAN Solution fit perfectly into the public university's budget. "We didn't even blink when we looked at the acquisition costs," the manager said.

Customer solution at a glance

Primary hardware

- HP StorageWorks 81Q and 82Q 8 Gb/s HBAs
- HP StorageWorks 8/20q 8Gb FC Switch
- HP StorageWorks EVA4400
- HP ProLiant DL385 Servers

Primary software

- HP StorageWorks Simple SAN Connection Manager

The HP StorageWorks Simple SAN Solution: success moving forward

The university's architecture school had a brief window of opportunity to implement the HP StorageWorks Simple SAN Solution before the 2008–2009 school year began. Its performance, scalability, reliability, manageability, and affordability made the purchasing decision simple, and its ease of deployment enabled the technology staff to be up and running "just in time" for the Fall 2008 semester. "We wouldn't have met the student move-in date if it weren't so easy to install and deploy," the systems manager said. "We got 15 servers running in the first week of implementation over the summer, and we've been adding them ever since."

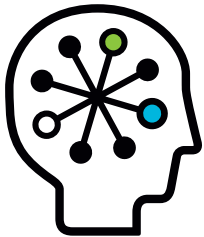
Additionally, downtime is greatly reduced. "With this solution, you can take a server offline, and with the SAN being so fast, you can restore an image almost instantly. You can't even tell the server has been down," the systems manager concluded. "The failover has been really impressive. Disaster recovery and archival backup capabilities are a big part of the university's critical server compliance mandates, and this solution puts us ahead of the curve there."

About Matrix Integration

Matrix Integration, an HP Certified Education Partner/Elite Business Partner, has provided technology solutions to businesses and institutions nationally for more than 30 years. The company's headquarters are located in Jasper, Indiana, and it maintains offices in Kentucky, Ohio, and Illinois. Matrix's offerings span IT infrastructure, security, storage, virtualization and consolidation, networking services, telephony, printing and imaging, and most importantly, extensive service after the sale. A balance of trusted business advisers, engineers, network designers, service technicians, and administrative personnel gives Matrix an edge in creating and implementing data and voice solutions from conception to complete integration. Please visit: www.matrixintegration.com

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