Case Study Forum

HP MSA1000 Meets Growing Network Storage Demands of St. Mary's School; Delivers an ROI of 2689%

IN BRIEF

• **Goal:** For the St. Mary's school to install an affordable network storage system that can keep up with skyrocketing educational needs without adding to the IT staff.

• **Solution:** HP StorageWorks Modular Smart Array 1000 (MSA1000) SAN storage system.

• **Results:** A projected, cumulative five-year net benefit of $258,942, an ROI of 2689%, and a payback period of 13 months. A storage infrastructure that allows St. Mary's to easily and inexpensively incorporate cutting-edge technology into its everyday curriculum. Greater availability of network storage to students and staff, and a reduction in costs associated with managing storage.

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St. Mary's, a private non-denominational Christian school in Orange County, California, could not keep up with the growing network storage needs of its students and staff. Technology had increasingly become a central part of its curriculum, incorporating the use of digital cameras, video-creation and editing, and other storage-intensive technologies. But storage was decentralized, costly to maintain, hard for students and staff to navigate and use, at times unavailable, and difficult to manage. The school's network storage could not keep pace with the students' educational needs. St. Mary's turned to HP for a solution, and purchased an HP StorageWorks Modular Smart Array 1000 (MSA1000) SAN storage system. The solution will yield a projected, cumulative five-year net benefit of $258,942, and an ROI of 2689%. It has a payback period of 13 months. The school has been able to continue to incorporate cutting-edge technology into its curriculum by increasing storage, maintain 100 percent storage availability, reduce its number of servers, and reduce costs associated with storage management.

Benefits

Objective	Benefits Achieved
Provide enough network storage for students and staff in a technology-rich educational environment	Students now have two gigabytes of personal storage each on the network, and more can be easily and inexpensively added.
Increase network storage availability	Before the installation of the MSA1000, network storage was difficult to navigate, and was at times unavailable. The servers crashed from ten to twelve times a year. With the HP solution, storage is in a central, easy-to-access location, and has not had a single outage.
Make the network easier to manage and maintain	The ease of managing the HP solution has allowed St. Mary's to manage greater storage with existing staff, saving an estimated cumulative $230,000 over five years.
Easily add new storage when required	The centralized, modular architecture of the HP solution allows St. Mary's to add new storage on an as-needed basis. Initial deployment of the MSA1000 took less than three hours, thanks to the MSA1000 SAN Kit St. Mary's used.
Reduce the number of servers	Because of the greater efficiency of centralized data storage via the SAN, the number of servers has been reduced from eight to six.

About St. Mary's School

St. Mary's is a private, non-denominational Christian school located on a six-acre campus in the heart of Aliso Viejo, a community in South Orange County, California. It serves preschool through the eighth grade, and has more than 800 students enrolled.

The school is located in a 32,000-square-foot building complex that includes a library and Media Center. It also has a state-of-the art gymnasium; a performing arts stage with professional sound system for theatrical productions, musicals and concerts; and an art lab.

The school integrates technology into its everyday curriculum and includes a full computer lab with more than 150 computers for student use, and a portable, wireless computer lab that houses 26 student laptops. It also offers Microsoft certification for students.

The Challenge: Meet Increasing Network Storage Demands at Reasonable Cost

St. Mary's has long used the latest technology as part of the school's learning environment. It has a local area network with multiple servers, as well as wireless hot spots, and over a hundred computers for students and staff. Additionally, both students and staff have computers that they use at home, and they will often take work back and forth between home and the school campus.

Several years ago, the storage needs of the school began to escalate rapidly. Students started using digital cameras as part of their coursework, for example in the field studies program where they traveled to Williamsburg, Virginia; Milan; Rome; and other locations. They took photos onsite, and used those photographs in the research papers and reports required for their classes. All coursework, including photographs, are stored on the local area network.

In addition, students had begun creating coursework presentations in PowerPoint rather than on traditional trifold boards – and soon afterwards, students created presentations using digital video tools rather than PowerPoint.

The result was a drastic increase in data storage requirements. The school, however, did not have a strategic plan in place for meeting those storage needs. It did not have centralized storage, and continued to add to its decentralized storage on an ad hoc basis, by buying new servers. Storage was spread out among eight separate servers, each of which had under 30 gigabytes of capacity.

This led to significant problems. Because storage was located on different servers, it became very difficult for students and staff to know where their personal folders were located on the network. They had to memorize server names, and navigate an often-confusing network and folder configuration.

The storage was also not reliable. It would crash from 10 to 12 times a year, and sometimes would crash at the point when students most needed it — when they were editing video presentations for their final exams. At times, files were lost and could not be recovered. Additionally, because there was not enough storage capacity for students and staff, student work had to be continually archived onto CDs, DVDs and memory sticks, and when students wanted the work, those physical discs had to be manually retrieved.

Finally, there was no easy way to grow storage capacity. The only option was for the school to keep adding new servers, which made the network even more difficult and confusing to navigate, causing more bottlenecks, leading to more crashes, and requiring increasing amounts of time to manage.

What St. Mary's Wanted in a Storage Solution

"We needed a centralized storage system that would make it easy for us to expand. Our storage needs were growing by half a terabyte a year, and we had no way to keep up with it — we just kept layering servers on top of servers, and it had become an untenable situation."
MICHAEL MAGALDI
DIRECTOR OF TECHNOLOGY
ST. MARY'S

St. Mary's was looking for a storage solution that would accomplish the following goals:

- **Meet the school's growing network storage demands.** The need for extra storage was growing at an exponential rate, and the problem could no longer be solved on an ad hoc basis. St. Mary's needed to deploy a long-range solution that would allow it to add increasing amounts of storage well into the foreseeable future.

- **Centralize storage.** Adding storage on a server-by-server basis was not a practical solution. The network had become too complicated, and it was extremely difficult for students and staff to navigate to their own folders with a decentralized solution.

- **Improve availability.** The existing server-by-server storage solution was unreliable, and tended to crash at the times when it was most needed — at the end of the term, when many students were simultaneously working on final projects. St. Mary's needed a solution that would be always available, particularly during the times of greatest storage demands.

- **Manage growing storage without adding to staff.** St. Mary's is a small school, and does not have a large IT staff – in fact, Michael Magaldi, Director of Technology, handled the entire department alone, including storage management. Any storage solution had to be able to be managed without adding to staff, and even as the storage grew, no new staff would be able to be added.

- **Allow the school to attract new students, and keep existing ones.** Many parents in Orange County, where St. Mary's is located, work in the technology or medical fields, and have high expectations that technology will be incorporated into the curriculum of their children, and that the technology will perform properly. St. Mary's, as a private school, relies on tuitions, and unless it could continue to offer cutting-edge technology in its daily curriculum, it faced the prospect of losing existing students, and not attracting new ones.

St. Mary's Chooses the HP Solution

St. Mary's chose an StorageWorks MSA1000 SAN system because the solution offered the most easily managed, affordable, high-performance storage system it could find.

The staff had no previous experience with SANs, but the entire installation, from the time the box was opened until the storage was formatted, segmented, and up and available on the network, took less than three hours thanks to the MSA1000 SAN Kit purchased by St. Mary's.

The Bottom Line for St. Mary's

A detailed analysis of the implementation shows that St. Mary's will gain a projected cumulative five-year net benefit from the project of $258,942. The project will have an ROI of 2689% and a payback period of 13 months.
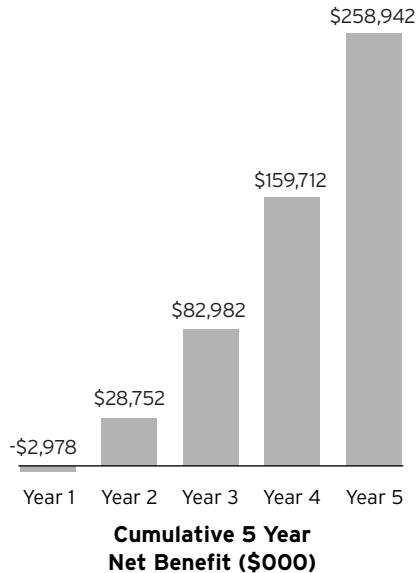
The benefit is made up of savings in IT staff support, a reduction in downtime, and avoiding purchasing additional decentralized, server-based storage.

St. Mary's will save a projected, cumulative $230,000 over five years in IT staff support because the HP SAN solution can be managed without adding to staff, even as storage grows at an estimated half a terabyte per year. If it had continued with its existing server-based storage solution, it would have to have had two extra people devoted solely to managing storage by the fifth year of the MSA1000 project.

**Cumulative 5 Year
Net Benefit ($000)**

$258,942

$159,712

$82,982

$28,752

-$2,978

Year 1 Year 2 Year 3 Year 4 Year 5

St. Mary's bottom line for the project: A projected, cumulative five-year net benefit of $258,942, an ROI of 2689%, and a payback period of 13 months. Because of the increased storage, the school has been able to incorporate cutting-edge technology into its everyday curriculum, attracting new students and retaining existing ones.

With the SAN solution, no new staff was needed. Additionally, the school will save on emergency IT costs because it will not have to pay for expensive outside support services in the case of its storage crashing.

The solution has been able to easily handle the most data-intensive applications, such as 200 videos being edited and rendered back to the server simultaneously. No longer are CDs, DVDs, and memory sticks required for archiving.
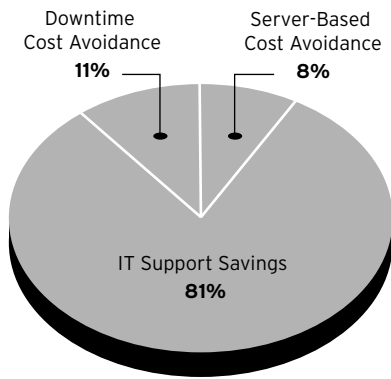
The school will also save money because, with the SAN solution, there will be no downtime. Some parents had begun to complain about the problem of storage crashes, and over the course of five years, several may have chosen to have their children enroll in a different educational institution if these technology issues continued.

The school will also gain financial benefits because it will not have to invest in extra servers to provide storage. It would have had to purchase two or three extra servers without a SAN-based solution. In fact, the SAN-based solution allowed the school to cut the number of its servers from eight to six, further saving on support and maintenance contracts.

Even more important than the financial benefits is the improved educational experience St. Mary's can offer its students. Students and staff now have reliable storage available one hundred percent of the time. Additionally, their storage is easily available to them, in a simple folder structure, instead of them having to navigate a difficult-to-remember network topology.

Additionally, the school will be able to provide students and staff with as much storage as they need. Each student now has a giga-byte of personal storage space, and that number will be increased to two gigabytes. It can be easily and inexpensively added to, which is important because an increasing reliance on technology at St. Mary's will likely lead to even greater storage demands.

Downtime Cost Avoidance 11%
Server-Based Cost Avoidance 8%
IT Support Savings 81%

Cumulative 5 Year Net Benefit = $258,942

The following chart provides a detailed, five-year analysis.

ROI	2689%						
Payback Period (in months)	13						
Cumulative Net Value	$258,942						

Project Costs	Start Up	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Storage Solution	$10,000	$0	$3,750	$3,750	$3,750	$3,750	$15,000
TOTAL PROJECT COSTS	$10,000	$0	$3,750	$3,750	$3,750	$3,750	$15,000

Benefits	Year 1	Year 2	Year 3	Year 4	Year 5	Total
IT Support Savings	$5,000	$22,500	$45,000	$67,500	$90,000	$230,000
Downtime Cost Avoidance	$0	$7,925	$7,925	$7,925	$7,925	$31,700
Server-Based Storage Cost Avoidance	$2,022	$5,055	$5,055	$5,055	$5,055	$22,242
TOTAL BENEFITS	$7,022	$35,480	$57,980	$80,480	$102,980	$283,942

Financial Analysis	Start Up	Year 1	Year 2	Year 3	Year 4	Year 5
Net Value	-$10,000	$7,022	$31,730	$54,230	$76,730	$99,230
Cumulative Net Value	-$10,000	-$2,978	$28,752	$82,982	$159,712	$258,942
Net Present Value	$205,324					
Payback Period (in months)	13					
ROI	2689%					

"The SAN has worked flawlessly. By making it easy to provide as much storage as students and staff want, whenever they want it, we don't have to focus on hardware and can concentrate on providing the best educational experience possible."

MICHAEL MAGALDI
DIRECTOR OF TECHNOLOGY
ST. MARY'S

St. Mary's Looks to the Future

With the storage problem solved, the staff at St. Mary's can concentrate on expanding educational opportunities. The IT staff has been able to stop working in crisis mode, and can focus on higher-level issues, such as making network storage as easily accessible to students and staff as possible.

St. Mary's is considering purchasing extra servers, including Web and video servers, and because of its experience with the HP SAN, will most likely purchase HP hardware, even though previously the school had purchased servers from another vendor.