



CASE STUDY

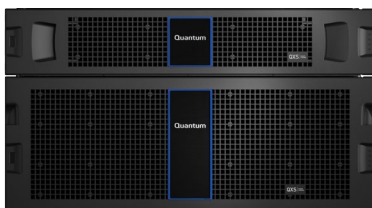
Oxford Martin School Upgrades Storage Infrastructure with Quantum QXS Arrays

When the Oxford Martin School at the University of Oxford decided to move to a centralized storage environment, it looked at all of the options, and selected VMware and Quantum QXS™ hybrid storage arrays. The new solution boosted performance, reduced administrative overhead, saved money, and provided a path to integrating solid-state drives (SSDs) into the storage mix in the future.



FEATURED PRODUCTS

QXS Hybrid Storage



“We believe that the QXS arrays will give us the performance advantages of solid-state drives while keeping costs low. We already have the migration software [Q-Tier] in place.”

Andrew Foulsham

IT manager, Oxford Martin School



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SOLUTION OVERVIEW

- Quantum QXS™-4 Series hybrid arrays in a centralized, fully virtualized, SAN environment.

KEY BENEFITS

- Support for adding an SSD layer with real-time automated tiering provides hybrid storage capability that offers flash performance at a fraction of the cost.
- Centralized storage solution makes scaling easy, reduces administrative time needed for management, and lowers overall costs.
- High-performance SAN environment increases performance and shortens project timelines.
- System improves availability of storage and server resources, and increases overall reliability.
- Redundant design and responsive support organization ensures researchers have continuous access to resources.

At the age of 900 and counting, Oxford University is not only the oldest university in the English-speaking world, but also one of the most influential. Its students and faculty members have led the search for knowledge and understanding across the entire range of arts and sciences for centuries, and prepared generations of statespeople to govern. To date, more than 50 Nobel Laureates and 50 world leaders have been directly associated with the university.

Organizationally, Oxford University is made up of a group of independently governed colleges—today numbering 38. One of the ways that the institution has remained relevant over such long stretches of time is by periodically adding new colleges to focus on particular sets of contemporaneous needs.

The most recent addition to the Oxford community is the Oxford Martin School, founded in 2005 by Dr. James Martin, one of the seminal thinkers of the 20th century on

a wide variety of topics and the author of a record 104 textbooks, most on the topics of computer science and associated technologies with an emphasis on their impact on human society. The Oxford Martin School was formed to provide a unique academic environment to fund projects that combine research teams from different disciplines to address the most significant global problems facing the world’s future. Today, approximately 250 researchers from Oxford University and other collaborating institutions are engaged in more than 20 active programs that range from innovations in food sciences and healthcare to methods for geo-engineering and ways to advance human rights.

FLEXIBLE IT NEEDED FOR INNOVATIVE RESEARCH

Supporting an innovative, collaborative research team requires a dynamic and flexible approach to IT. “Above all, we need to remain flexible and adaptive to the sometimes rapidly changing needs of the research teams,” explains Andrew

Foulsham, IT manager at Oxford Martin School, “and we need to be certain that we keep the teams’ data safe and continuously available.”

The initial storage system for the school was designed around storage arrays directly attached to a series of physical servers. Management of the storage was time-consuming and complex because each storage device and server was managed separately, and it was sometimes difficult to grow capacity and maintain efficiencies. “It was very easy to have pools of storage associated with a particular server that were underutilized, effectively wasting our resources,” Foulsham notes. And even though the team backed up all the data regularly, it was sometimes difficult to maintain availability of the data sets. “If a server needed maintenance or repair, access to the data could be delayed, and we would no longer be serving our customers effectively.”

MOVING TO SHARED STORAGE AND A VIRTUALIZED ENVIRONMENT

The team decided in early 2016 to move to a consolidated system that would leverage shared storage and an all-virtualized server environment. “We knew that centralized storage over a SAN could increase access speeds for research teams, would make it easier to scale when we needed more capacity, and would also make it much easier for us to manage a pool of available storage,” explains Foulsham. “Virtualization would make it much easier and faster for us to create new applications and shares as our research teams launched new projects, changed ones underway, or moved to different locations. Also very important for an institution dedicated to making the future better, it would consume significantly less power and cooling resources.”

SEARCH LEADS TO QUANTUM QXS ARRAYS

The team needed help deciding on the best approach, so it brought on an experienced storage integrator, Park Place Technologies. “We had worked with Park Place Technologies before,” says Foulsham, “and we knew they

would be brutally honest about vendor claims and make getting us a system that would work over the long haul their top priority.” After looking at options from a wide range of vendors, the team chose VMware for its virtual hypervisor and Quantum’s QXS-4 Series hybrid storage arrays as its shared storage. QXS storage arrays offer a choice of easily scalable RAID arrays that support a full range of performance and capacity points at competitive prices.

“Park Place Technologies had direct experience with both VMware and QXS hybrid storage arrays, and knew that they would supply what we needed for both our research work and communication projects, such as our websites,” says Foulsham.

FASTER PERFORMANCE, LOWER COSTS

The new installation virtualized roughly a dozen servers, all of them used to support the local storage resources for the research teams. The servers were connected to 24 TB usable storage of QXS RAID storage arrays. “The difference for us with the new system has been substantial,” says Foulsham. “It is much easier to set up new shares for projects, and to make them available both for teams here in Oxford and those that are geographically distributed. And availability is better because we can instantly set up a new instance of a virtual server whenever we need to.”

The new system also offers much faster performance. “On the very first day that one of our web developers used the system, he noticed that it had what he called ‘insanely faster performance,’ and we have seen substantial gains across other applications as well.” With shared SAN-based storage, scaling the system will be much easier for the team, and it is spending much less time on the day-to-day management of the storage and server infrastructure. “The new system also provides substantial savings for the school,” Foulsham adds. “We project that we will save tens of thousands of pounds for Oxford Martin over the next few years.”

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Andrew Foulsham,
IT manager,
Oxford Martin School

ABOUT THE OXFORD MARTIN SCHOOL

The Oxford Martin School’s community of more than 200 researchers, from Oxford University and beyond, are working to address the most pressing global challenges and opportunities of the 21st century. Each of the school’s projects brings together academics from more than one field to create the collaboration needed for studying and tackling complex global issues, including climate change, disease, and inequality, and each is designed to have an impact beyond far beyond academia. The Oxford Martin School supports novel, high-risk, and multidisciplinary projects that may not fit within conventional funding channels because it believes that breaking boundaries can produce results that could dramatically improve the well-being of this and future generations.



SUPERIOR RELIABILITY AND PATH TO SSDs IN THE FUTURE

One of the major reasons for the upgrade was to improve overall system reliability, and the results have been all that the team had hoped for. "In the nine months since we launched the system, we have not had a moment of downtime, and the service from Park Place Technologies has been exemplary," says Foulsham. "Early on, we had a controller failure in the arrays, but never missed a beat. The system was built with redundancy, so it kept on working throughout the event, and the next morning the replacement module was installed without any interruption of service."

The choice of QXS hybrid storage arrays has also given the IT team the option of easily adding SSDs to its storage mix in the future. "Ultimately, we want to take advantage of the performance, reliability, and lower-power usage of flash," says Foulsham. "But when we looked at the cost of using it for all the storage,

it was simply too high for us to even consider." QXS hybrid storage provides a very attractive path forward with its automatic real-time tiering technology. By adding a layer of SSDs (flash) to the conventional spinning disk and using Quantum Q-Tier™ software to track access patterns, the most active files are automatically moved to the flash layer. "We believe that the QXS arrays will give us the performance advantages of solid-state drives while keeping costs low. We already have the migration software [Q-Tier] in place."

ABOUT PARK PLACE TECHNOLOGIES

Since 1991, Park Place Technologies has provided an alternative to post-warranty storage, server, and networking hardware maintenance for IT data centers. Supporting more than 10,000 organizations in over 100 countries, Park Place Technologies offers an exceptional customer experience, superior service delivery, and an operational advantage for businesses ranging from government, higher education, and healthcare institutions to cloud service providers, SMB, and Fortune 500 companies.

ABOUT QUANTUM

Quantum is a leading expert in scale-out tiered storage, archive, and data protection, providing solutions for capturing, sharing, and preserving digital assets over the entire data lifecycle. From small businesses to major enterprises, more than 100,000 customers have trusted Quantum to address their most demanding data workflow challenges. Quantum's end-to-end, tiered storage foundation enables customers to maximize the value of their data by making it accessible whenever and wherever needed, retaining it indefinitely and reducing total cost and complexity. See how at www.quantum.com/customerstories.

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