



DXi-Series and vmPRO

## University of San Diego Masters VM Backup and Restores with Quantum

When a leading university saw virtual machine backups falling behind as data volumes exploded, it studied all the options and then turned to Quantum's DXi appliances and vmPRO software for a solution. Today, backup and recovery are getting straight A's at the University of San Diego, and the IT department expects to save an excess of \$1 million over three years.

The University of San Diego is a leading research and teaching academic institution that has often been in the forefront for adopting innovative technology. Its IT staff was an early supporter of virtualization, and today nearly 98% of its servers are virtual machines. When the staff saw that its legacy backup and disaster recovery (DR) system could no longer keep up, however, the team knew it had to look for a better solution.

### BACKUPS TAKING TOO LONG

"We got to a point where we simply couldn't get the backups done anymore," says Mike Somerville, Manager of Network Infrastructure Systems & Services at USD. "The full backup was still running when it was time to start the first incremental. In the short term, we chose a few data sets to back up less frequently, but we also started looking seriously for an alternative."

The IT staff was also seeing huge cost increases. The initial stage of the disk-to-disk backup was a layer of NAS filers which became much too expensive to maintain, and, explains Christopher Wessells, University Vice-Provost and CIO, "all the estimates for what we would have to pay in upcoming years were going through the roof."

The final major problem was improving restore and recovery operations, especially for VMs. When backup data had to be restored from tape, it could take hours or even days, and restoring VMs was always slow, even when the data was on disk.

"Even though we saved lots of money by virtualizing most of our servers," says Somerville, "every VM restore had to get un-packed by the backup app before we could do anything with it, and that took way too much time."

### SOLUTION RESEARCH LEADS TO DXi AND vmPRO

Integrator Partners Data Systems, who had worked with the University for more than a decade, helped search for an alternative, and assisted in narrowing the search to vendors with the right technology and ones that had proven success solving similar problems for other academic customers. Deduplication seemed like the right direction, but there was a large number of different alternatives and approaches that needed to be considered. And just as important was finding new software that could protect virtual machines and solve the slow restore problem.

"We analyzed software-based solutions and various kinds of appliances, and the clear conclusion from a scalability standpoint, a performance standpoint, and from a cost reduction standpoint was the Quantum solution," explains Wessells.

Ultimately the solution had two parts—a Quantum DXi® deduplication appliance and its vmPRO backup software for virtual servers. The DXi was chosen to help accelerate the backup and reduce the amount of disk space needed. The vmPRO software was chosen to simplify virtual machine backup and speed up recovery. Both, it was hoped, would reduce costs and overhead.

In addition to performance, two important DXi features were scalability and the flexibility to partition the disk backup system so that it could look like a tape library to some applications and a NAS share to others.

"Some of our systems were set up to write to tape, so having the VTL option was really important to us," reports Somerville, "because we wanted to leave as much of our backup process unchanged as possible."



"We analyzed software-based solutions and various kinds of appliances, and the clear conclusion from a scalability standpoint, a performance standpoint, and from a cost reduction standpoint was the Quantum solution."

**Christopher Wessells**  
University Vice-Provost and CIO,  
USD

### SOLUTION OVERVIEW

- Quantum DXi6700 deduplication appliance
- Quantum vmPRO™ data protection software for virtual machines

### KEY BENEFITS

- Accelerates virtual machine backup performance to meet target window
- Saves hours on each recovery, improving user productivity
- Reduces costs by storing 22TB of backup data on a single terabyte of disk space
- Costs less than competitive deduplication products
- Integrates virtual machine backup with vCenter to reduce administrative overhead
- Provides future-proofing with scalability and VTL/NAS interface options

USD eventually settled on a 32TB DXi appliance—enough to last two or three years at current growth rates—but it can scale to a full 80TB, providing future protection.

### BACKUP PERFORMANCE ISSUES SOLVED

The new system solved the backup window problem immediately.

“Before, we couldn’t get our backups done in time, and now we’re back to backing up everything every week—and we have plenty of headroom to let us handle more data when it increases,” says Somerville. “I think we have gained two full days of available backup window.”

The deduplication rates have also been impressive; the current ratio is a full 22 to 1, so that 14TB of DXi space is all that’s needed to store 300TB of backup data.

### BETTER BACKUP FOR VMs

The vmPRO software choice provided dramatic improvements in virtual machine backup. Quantum’s vmPRO is an agentless backup system that integrates with vCenter, using virtual appliances to create fast backup images of virtual machines in native format. With vmPRO, virtual machines are backed up to the DXi at high speed, deduplication dramatically reduces the need for disk space, and, because the virtual machine copies are stored in native format, recovery is immediate.

“The vmPRO solution for us has been absolutely amazing,” Somerville reports. “We installed it, and it really just worked out of the box. We were actually doing a test between our current backup software and this new system when a restore request came in, so we used both. The vmPRO unit was immediately available. The other one was still churning two hours later.”

### LOWER COSTS FRIENDLY ON BUDGET

Because budget constraints were an important issue, the cost reduction from the DXi/vmPRO solution was important. In addition, Quantum was willing to help with trial products so that the USD staff could prove the solution worked before they bought it.

“Not only is the DXi less expensive than buying enterprise disk; it’s much less expensive than the competitive products that quite frankly aren’t as good,” says Somerville. “It’s even much less expensive than deduping in software.”

The savings have been dramatic.

“Primary enterprise storage costs us about \$2,500 per terabyte, so our 22-to-1 dedupe ratio results in a savings of \$52,000 in direct costs,” Wessells explains. “We estimate a cost reduction in excess of one million dollars over a three-year period.”

“To my IT colleagues when I talk about Quantum, I say absolutely put it in your data center,” says Somerville. “The price point is fantastic. You’re going to be able to grow with this product for a long time, and having vmPRO software to back up your virtual machines is fantastic.”

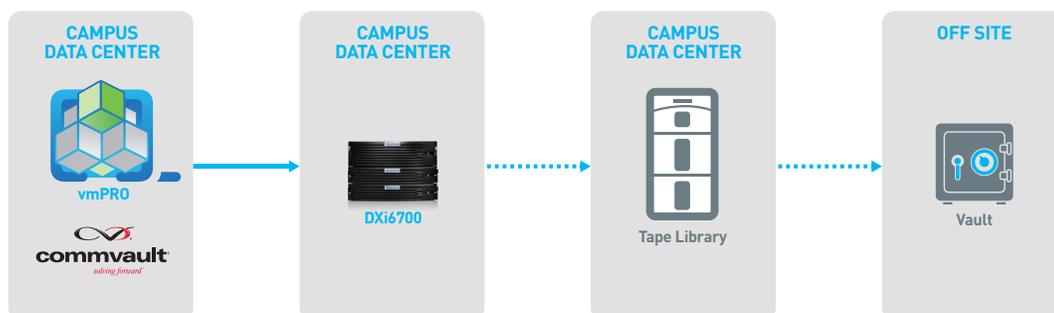
“The vmPRO solution for us has been absolutely amazing. We installed it, and it really just worked out of the box. We were actually doing a test between our current backup software and this new system when a restore request came in, so we used both. The vmPRO unit was immediately available. The other one was still churning two hours later.”

### Mike Somerville

Manager of Network Infrastructure Systems & Services, USD

### ABOUT THE UNIVERSITY OF SAN DIEGO

Founded in 1949 in the heart of San Diego, USD has grown to become a premier institution dedicated to providing academic excellence, Catholic intellectual and social traditions, and a top-notch liberal arts education for scholars of all faiths. With an enrollment of nearly 8500, USD is a leading residential academic institution committed to the intellectual, spiritual, and overall development of its student body.



To contact your local sales office, please visit [www.quantum.com](http://www.quantum.com)

**Quantum**  
BE CERTAIN