

SAVED FROM SERVER SPRAWL

DNA Services lab Orchid Cellmark reduces data center by 70% and improves application performance by 20% with virtualization solution from Dell



SOLUTIONS

- BACKUP/RECOVERY/ARCHIVING
- SERVER CONSOLIDATION
- VIRTUALIZATION
- POWER & COOLING

ORCHID CELLMARK

DNA testing trusted worldwide.

CUSTOMER PROFILE

COUNTRY: Princeton, NJ (USA)

INDUSTRY: Biotechnology

FOUNDED: 1999

NUMBER OF EMPLOYEES: 450

WEB ADDRESS:

www.orchidcellmark.com

CHALLENGE

Expanding data volumes led to space, power and cooling issues, which were pushing the company to consider building out data centers; while maintenance contracts for many of the servers in production were expiring.

SOLUTION

Orchid Cellmark implemented a server virtualization solution with Dell™ PowerEdge™ servers, Dell SANs, VMware® ESX and Vizioncore server virtualization and virtualization management software. This saved the company money, time and floor space while providing backup and disaster recovery protection.

BENEFITS

GET IT FASTER

- 6 weeks shaved off deployment cycle with Dell Global Infrastructure Consulting Services
- Recovery of servers in minutes vs. days

RUN IT BETTER

- 70% reduction of server footprint
- 100-fold faster backups
- Reduced errors due to enhanced virtual testing environment
- Ability to add memory, processing power, storage and RAM on the fly
- Capacity for 360 virtual servers (75% available growth)
- Tenfold greater server utilization (20% vs. 2-3% previously)
- 15-20% faster applications
- Projected 75% less staff time spent on backup and recovery
- Easier monitoring and management of systems
- Able to use SAS or SATA disk for performance or capacity

GROW IT SMARTER

- 2.4 year payback of investment
- \$29,000 annual savings in power
- More than 50% decrease in cooling requirements
- \$90,000 savings in renewal of maintenance contracts
- More than \$30,000 annual cost avoidance for new physical servers
- Potential six-figure cost avoidance by eliminating need for data center build-out



As DNA testing becomes mainstream, so does the need for increased data storage. Just ask the team at Orchid Cellmark. Based in Princeton, New Jersey, the 450-employee company is a leader in the DNA genetic testing field, specializing in paternity testing and forensic analysis.

“WHEN PRODUCTS ARE MARKETED AND SOLD, USUALLY YOU DON’T GET EVERYTHING YOU EXPECT. ON THIS VIRTUALIZATION PROJECT WITH DELL, WE GOT EVERYTHING WE THOUGHT WE WERE GOING TO GET AND MUCH MORE.”

Carlos Ramos, executive director, information technology and security, Orchid Cellmark

The company found that it was outgrowing its data centers and had to decide how to handle the burgeoning server farm. The data and applications on those servers are the company’s most valuable asset. The server infrastructure is critical, but increasing data volumes led to server sprawl at the company’s seven data centers in the U.S. and the U.K. In addition to this, service contracts were expiring on most of the servers.

“We had space, power and cooling issues that were pushing us to consider a lot of rebuilding that we didn’t want to do for logistical and financial reasons,” says Carlos Ramos, executive director of information technology and security for Orchid Cellmark. “Plus servers were accessed for hours during their back ups, and without the physical capacity, recovering a server would have taken days if a disaster struck, posing a threat to our business. And simple tasks such as allocating more memory were eating up too much of our time. We wanted to reduce the number of servers and save money, time and frustration.”

Facing challenges that many companies are dealing with today, Orchid Cellmark opted for an increasingly popular solution: server virtualization.

To reduce the number of physical servers, Sean Dineen, project manager at Orchid Cellmark, worked with Ramos to evaluate vendors that could provide the product and support needed to make a virtualization project practical and cost effective.

“We looked at Dell and HP servers and evaluated Dell/EMC SANs against LeftHand Networks and NetApp SANs, and found that we were most comfortable with Dell,” says Dineen.

“Our Dell Account Manager put together a very comprehensive package including installation service and sourcing from VMware and Vizioncore, two vendors with software that would allow us to virtualize our servers and manage them effectively.”

TAKING 57 SERVERS OFF THE FLOOR

Orchid Cellmark purchased Dell PowerEdge 2950 servers with Intel Xeon processors and Dell AX4-5 SANs for a virtualized server and storage solution that streamlined the IT infrastructure at seven locations. The purchase included VMware Infrastructure 3 and Vizioncore vEssentials server virtualization management software.

The Dell servers feature Intel Xeon processors, ensuring that processing power for the new environment would

not be a bottleneck. Additionally, standardization of the virtual environment on a common Xeon architecture enabled flexibility and simplification.

The team used those components to build a virtualized and redundant server and storage infrastructure that saved the company money, time and floor space while providing backup and disaster recovery protection.

“We went from 84 physical servers down to 27, hosting 80-90 virtual machines,” says Ramos. “That’s a considerable power, space and maintenance savings right there.”

HOW IT WORKS

HARDWARE

- Dell™ PowerEdge™ 2950 servers with Intel® Xeon® processors
- Dell AX4-5 iSCSI SANs

SOFTWARE

- VMware® Infrastructure 3
- EMC Navisphere Management Suite
- Vizioncore vEssentials

SERVICES

- Dell Global Infrastructure Consulting Services
- Dell ProSupport for IT

“THE DELL CONSULTANT SHAVED SIX WEEKS OFF THE DEPLOYMENT PROCESS. THE KNOWLEDGE HE TRANSFERRED TO THE CORE PROJECT TEAM WAS INVALUABLE, AND THEY PASSED IT ON TO THE TEAMS AT THE OTHER SITES AS WE ROLLED OUT.”

Sean Dineen, project manager, Orchid Cellmark

SHAVING SIX WEEKS OFF THE DEPLOYMENT PROCESS

To go live with its fully consolidated and virtualized environment took approximately three months, with the help of a consultant from Dell who virtualized the servers at the first site and developed a virtualization “how-to” manual for the internal team. “The Dell consultant shaved six weeks off the deployment process,” says Dineen. “The knowledge he transferred to the core project team was invaluable, and they passed it on to the teams at the other sites as we rolled out.”

Dell also provided consultants to set up the Dell AX4-5 SANs at each site. “The Dell deployment fully met our expectations and ensured a standardized foundation for our rollout,” says Dineen.

The AX4-5 ISCSI SANs allowed for the use of the existing switch infrastructure and provided the high availability and scalability Orchid required. Dell SAN project managers coordinated requirements and scheduled installations while design architects answered open questions and walked the Orchid team through the options for an ideal configuration. On-site technicians then installed the equipment and built each SAN as specified, labeling all connections and fully documenting the environment as delivered. “Using Dell services for this deployment was a smart choice, helping us to deploy rapidly and with the peace of mind that we were optimally configured out of the gate,” says Ramos.

Orchid purchased Dell ProSupport for IT with 24x7, 4-hour service on all Dell equipment purchased as part of this project. Additionally, although the Dell AX4-5 systems shipped standard with EMC Navisphere Express, Orchid decided to upgrade to the full version of Navisphere Management Suite, which includes “call-home” functionality. “We have this technology in place for other elements of our infrastructure, and its benefits are enormous for ensuring a quick response and minimal downtime,” says Ramos. “Dell SAN technicians are alerted in tandem with Orchid’s internal team whenever a system experiences a bad disk, power or general system alert. Their service has been exceptional.”

SAVING \$29,000 A YEAR ON POWER

The company met its goals of reducing power and cooling costs and server footprint and avoided the need to build out its data centers. Downsizing the server footprint by 70 percent, Orchid Cellmark lowered its power bill by more than \$29,000 annually and avoided a six-figure cost to expand data centers. Cooling requirements have decreased by more than 50 percent. Power requirements and UPS load have decreased, and on-battery run times have increased by 12 to 67 percent based on location. In addition, the solution saved the cost of maintenance contracts for the 57 servers that came off the floor, a savings of \$90,000.

BACKUPS MORE THAN 100 TIMES FASTER

With VMware Consolidated Backup (VCB) the team takes backup snapshots

that minimize production downtime. “With the VCB product, we take a snapshot and then release the server back into production, whereas before we were constantly hitting the server until the backup was done,” says Ramos. “Now it’s just one minute to do a snapshot.”

Disaster recovery is almost instantaneous. Thanks to Vizioncore vReplicator, which replicates servers across Dell AX4-5 SANs, the team has redundant ESX servers and fully replicated storage. They can also recover a virtual server with all its data at any site in a matter of minutes.

With physical servers, recovering a server could have taken days, starting with the building of a replacement server. “We’re not concerned with logistics surrounding replacement hardware at our sites anymore, as the capacity already exists,” says Dineen.

NEW SERVERS WITHOUT THE \$10,000 PRICE TAG

Setting up a new virtual server takes 15 minutes compared to the weeks it took to requisition and deploy a physical server. A physical server costs \$10,000, and adding a virtual server to an existing host costs no more than its software licensing, saving the company more than \$30,000 annually.

This has had a dramatic impact on the ability of the IT team to test applications and enhancements prior to production. “We have the ability to create a virtual lab almost instantaneously, without affecting the

performance of our systems,” says Ramos. “We can do our testing on it and then delete it. We used to have problems because we didn’t really have dedicated servers for testing and had to juggle time on available systems. Now we have a readily available and easy to administer environment for testing.”

THE VALUE OF FLEXIBILITY—PRICELESS

Of all the benefits that have resulted from the virtualization project, the one that Ramos values the most is flexibility.

“The ability to adjust on the fly to new demands makes us more agile and more responsive,” he says. “Now we can allocate memory, more processing power, storage or RAM with a few clicks. Previously, any of these tasks could have taken a week or more to do the rebuild and migration. Now they can be done in minutes.”

The ability to take snapshots with VCB also provides tremendous flexibility for anyone who is working with virtual systems. “If we need to do something on a system, we first take a snapshot,” says Ramos. “If things go wrong, we just go back to that snapshot and roll back within minutes. This is like having an ‘undo’ button on a server, as opposed to having to go through and manually undo everything we did and restore the server. We use this at least a couple of times a month.”

PAYBACK IN 2.4 YEARS

With VMware load balancing, Orchid Cellmark’s applications are running 15 to 20 percent faster. That’s a benefit that Ramos wasn’t necessarily looking for, but there are many benefits that the project has delivered that weren’t planned.

For instance, enormous headroom remains. Server utilization with the current application load is only averaging 20 percent—better than the 2 to 3 percent that the company was utilizing on most of its dedicated physical servers. The team estimates it can grow to 360 virtual servers from the 80-90 it has now.

Based on savings on maintenance contracts, power and cooling and the ability to add new servers without additional hardware expense and administration, Ramos and Dineen calculate that the Dell project will reach payback in 2.4 years from the go-live date. All the other benefits are a welcome bonus.

“Of all the different projects I’ve ever had in my career, I think this project with Dell has been the most satisfying,” says Ramos. “When products are marketed and sold, usually you don’t get everything you expect. On this virtualization project with Dell, we got everything we thought we were going to get and much more.”

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