Oaks Christian School Upgrades to Cisco Servers, Citrix Virtual Desktops, and Nimble Storage Arrays

Nimble Storage solution increases performance by 3X, reduces computing costs, and improves access to applications for campus-based and online students, faculty, and staff.

Oaks Christian School

Oaks Christian School (OCS) is an independent, college preparatory school for 6th to 12th grade students. The educational experience at OCS develops each student's mind, body, and spirit to his or her fullest potential through challenging course work, competitive athletic teams, artistic and creative expression, and spiritual training by the finest teachers and coaches in the nation.

Oaks Christian first opened its doors in Fall of 2000 in Westlake Village, California with almost 200 students. The school has grown significantly in size over the past 13 years, now educating nearly 1,500 on-campus and 40 on-line students. "Keeping up with latest advancements in technology enables us to continually provide excellent IT services to all of our students, faculty, and administrators," stated Darrell Parker, director of Information Systems at Oaks Christian School.

Refreshing the Existing IT Environment

The OCS IT team needed a technology refresh in 2008. Many of the school's computers, including a large collection of its Dell Optiplex desktops, were nearing the end of warranty. OCS enlisted the help of James Oberhaus, Solutions Architect with IT service provider CPI Solutions, to conduct an ROI analysis to examine the feasibility of replacing the majority of the school's physical computers with virtual desktops.

After seeing the results of the CPI study, the OCS IT team made the decision to virtualize the existing desktop environment with Citrix. They are reusing 80 of the older Dell desktops in the library as dumb terminals, which are used as clients for VDI. "OCS started with thin clients when the school first opened in 2000, then upgraded to desktops, and finally to the virtualized Citrix environment," explained Oberhaus. "Citrix provided the ideal way for OCS to expand the life of its existing hardware and still offer the most up-to-date software to its users. The Citrix virtual desktop environment also eliminates the need to manage the desktop operating systems and upgrades, freeing the school's IT staff for more strategic projects."

Transitioning to Cisco UCS

OCS upgraded its IT infrastructure once again in 2012, replacing some of its Dell Enterprise servers with Cisco UCS B200 M3 blade servers. The school purchased a combination of Cisco Catalyst 6506 core switches, Cisco UCS 6248 Fabric Interconnect, and Cisco UCS 2208 Fabric Extender to connect the UCS servers. The Cisco UCS servers are now being used to run the Citrix XenDesktop, XenApp, Microsoft Exchange, Active Directory, MS SQL, file and print services, as well as the Cisco Unified Communications (UC) application.

Storage Profile

Customer Challenges

- Aging server and storage environment needed a refresh
- Storage platform was experiencing troublesome latencies
- Wanted to improve access to applications for growing student population

Solution

- Nimble Storage CS240G array
- Cisco UCS B-Series blade servers
- Cisco Catalyst 6506 core switches
- Cisco UCS 6248 Fabric Interconnect
- Cisco UCS 2208 Fabric Extender
- Citrix XenDesktop

Business Benefits

- Increased storage performance by 3x
- Provided high performance storage at 20 percent of the price of flash-only alternatives
- Decreased boot times by 33 percent
- Simplified data recovery through the use of snapshots
- Provided easier remote access to all campus applications and services

"We were able to get the high-performance Nimble Storage arrays for just one-fifth of the price of all of the alternatives."

Darrell Parker
Director of Information Systems
Oaks Christian School

"Our IT environment now consists of a mix of physical and virtual environments," explained Darrell Parker, director of Information Systems for Oaks Christian School. "We have already deployed 200 virtual desktops connected to the school's provisioning servers. 100 of the VDIs are used by students, 60 for teachers, and 40 for the school admins. Most of our VDIs are used after-hours by students who need network access to campus resources to finish their homework or do research. The teachers use them to create lesson plans or grade assignments from home."

OCS is using Citrix Provisioning Services (PVS) for provisioning virtual desktops. Using PVS has helped the OCS IT team simplify how they provision desktops for multiple different end-users. "All of our teachers and students are using roaming profiles, and staff use folder redirection through GPO," explained Sean Gordon, systems engineer for OCS's Citrix environment.

Upgrading to Nimble Storage

In tandem with the Cisco server upgrade, OCS also upgraded its storage environment. The school's older arrays were starting to experience storage latencies and nearing the end of warranty. The OCS IT team decided it was time to look for a better storage option that would match the power and performance of the school's new Cisco UCS environment.

"We started gathering information by talking to several Nimble Storage customers," stated Parker. "All of the reviews were all extremely positive. Everyone told us the same story—that Nimble Storage provided the fastest write speeds, stellar read performance, and the ability to easily scale out when needed—all in one device. Plus, Nimble was one of the few storage platforms we could find that was compatible with the both the Cisco UCS and Unified Communications solution."

In addition to the superior performance, the price points of the other storage options were astronomical compared to Nimble, according to Parker. "We were able to get the high-performance Nimble Storage arrays for just one-fifth of the price of all of the alternatives! With the flash vendors, you start out by purchasing their solid-state storage, but then you have to add in all of the separate components needed to develop a cost-effective hybrid storage solution. It rapidly becomes very complicated and convoluted. In contrast, Nimble Storage offers a converged solution that delivers all of the performance we need, at a price we love, and all contained in one box. Life is already too complex. We don't need to add any more complexity to our IT environment—and pay more money for the 'privilege'!"

"As a value-added service provider, I can honestly say that Nimble Storage is one of the best additions to CPI's portfolio of products," noted Oberhaus. "It makes everything so easy—not only for partners like us, but for our customers as well. Take for example, line item quotes. With others storage providers, you're talking 20 to 40 line items on each quote. Then you have to look at the quote carefully to make sure it lists all of the hardware components and configurations you need, then the software packages, and finally the list of necessary support items. The last quote I saw from Nimble listed just three line items—system, support, and installation. Everything is included, at no extra cost. Nimble arrays have been a great addition to our solution portfolio. We always know that Nimble is going to be a great fit for our customers."

The Journey to VDI with Cisco, Citrix, and Nimble Storage

A majority of the school's IT workloads are now running on the combined Nimble Storage and Cisco platform. In addition to the virtual workloads, OCS also uses the CS-Series array to support several dozen physical servers. "We use the Nimble arrays as shared storage for all of our virtual infrastructure on the Cisco UCS systems," explained Ryan Aquino, senior systems engineer at OCS. "Nimble also serves our XenServer cluster that runs the Citrix VDI and our file services."

"The IOPS for the Nimble is three times better that our previous storage SAN. We have also noticed faster boot times for all of our critical servers, and our students and faculty have experienced a 33 percent improvement in login times for their productivity and school applications."

KC Wagenseller
System Engineer
Oaks Christian School

Increasing Storage Performance

Parker has noticed a huge improvement in storage performance after moving to the Nimble arrays. “The IOPS for the Nimble is three times better that our previous storage SAN. We have also noticed faster boot times for all of our critical servers, and our students and faculty have experienced a 33% improvement in login times for their productivity and school applications,” stated KC Wagenseller, system engineer at OCS.

The Nimble Storage arrays are performing so well, the OCS IT team has decided to move another one of the school’s most critical servers over to the Nimble and the Cisco UCS. “Our accounting, fundraising, and SIS software will also be running on the Cisco UCS in Nimble environment in the next few months,” reported Parker.

Achieving Significant Savings from Compression

OCS is also using the new Nimble InfoSight portal to monitor all of the school’s storage arrays. The Nimble cloud-based monitoring solution leverages data sciences to streamline all activities across the storage lifecycle. InfoSight provides all of the information needed to increase operational efficiency, freeing the firm’s IT staff from mundane day-to-day storage administration and enabling them to focus on higher value tasks.

4.7 TiB **65% Space Savings**

Space Used on a Nimble Storage Hybrid Array

12.07 TiB

Equivalent Space Required on a Traditional Disk Array

By using InfoSight’s executive dashboard, Parker was easily able to evaluate the performance gains of the school’s Nimble arrays. “The InfoSight portal shows that compared to a traditional storage array, we are seeing about a 7.94TB savings in storage footprint. We achieved this reduction from compression, and Citrix PVS provisioning.”

Relying on Snapshots and Easy Restores

Nimble Storage provides OCS with the ability to take instant snapshots of its file servers and virtual machines. All snapshots are automatically retained for two weeks on the Nimble Storage arrays. Weekly tape backups are used for offsite storage. In total, OCS backs up 3TB of data each week, running combination of partial backups as well as weekly differentials.

“We use the Nimble snapshots for a quick backup. Single file recovery has been very easy. If a file is deleted, we can simply go in and mount the snapshot, grab the file we need, and then unmount that snapshot after we are done. With our previous platform, we would have to go into the snapshot volume collections, and then delete all of the existing snapshots in order for the volume to perform well. Even if we set the policy for regular snapshot deletions, it didn’t always work. With Nimble, it’s an automatic, seamless process. We don’t have to go and check Nimble every day just to make sure that all snapshots are being deleted.”

World-Class Support

Although OCS hasn’t experienced any hardware issues with its Nimble Storage arrays, they did have some power and Internet interruptions unrelated to the Nimble infrastructure.”Even though the problem was just a power outage and our infrastructure was fine, we received an email from the Nimble support team very quickly. When they couldn’t get a heartbeat from our arrays, they wanted to make sure everything was OK. Nimble’s proactive support is amazing.”

“We love working with Nimble,” replied Parker.” CPI and Nimble Storage technical team are always willing to come on-site and assist me with anything I need, whenever I ask. They are continuously monitoring our environment as well as our alerts. Our support rep will always reach out to me or my IT team if he notices that anything is slightly less than perfect in our environment.”

Concluding Thoughts

Parker and his team are now expanding the school's IT services to provide even more support to the new on-line school. "We are seeing a rapid increase in the number of students interested in our on-line school," noted Parker. "The Cisco servers, Citrix VDI, and Nimble Storage platform will serve as the foundation for this fast growing branch of our school."

"Nimble is by far the best storage platform I have ever used," concluded Parker. "We now have the scalability and the performance that we need, and are able to deliver our services much faster than we could with our previous storage solution and standard servers. Nimble Storage has become the backbone of our IT infrastructure."

"Nimble Storage has become the backbone of our IT infrastructure."

nimblestorage

2340 Zanker Road, San Jose, CA 95134
Phone: 1-877-364-6253, 1-408-432-9600
Email: info@nimblestorage.com
www.nimblestorage.com