nimblestorage

Central Minnesota Jobs & Training Services Tackles Virtual Desktops — and Gets the Job Done

Single Nimble storage array supports scores of VDI users, slashes capital costs and user support requirements, boosts performance 10x, and reduces storage footprint 75 percent.

For Central Minnesota Jobs & Training Services, Inc. (CMJTS), which provides critical training and job placement services across 11 counties, network downtime is not an option. And yet for Tony Banken, Network Administrator, the "boot storms" created when many users on the system boot their computers in the morning caused virtual desktop sessions to freeze, bringing complaints and frustration. Also, the running of massive reports at various times during the day introduced additional latency to an already sluggish system.

Performance issues became acute with the growth of video chat, a tool that CMJTS employees use extensively to replace in-person meetings and to keep in touch. Video chat with Skype had become essentially nonfunctional, hobbled by video latencies of 30 seconds. Banken needed higher performance, not just for everyday workloads, but to handle sustained peaks of traffic. "Our storage system had IOPS (input/output operations per second) limitations," he said, "making it unsuitable for demanding applications." Exacerbating the problem, CMJTS's main storage server had reached its 4TB capacity, leaving no room for growth.

That's when Banken learned about the inline compression and snapshot functionality of Nimble flash-optimized storage arrays. There was no time for delays. "After a painless installation routine, I first observed the system's performance," he said. "The difference was like night and day."

The VDI Challenge

Banken sees virtual desktops as a means of simplifying provisioning of new users and reducing the cost and complexity of IT support. But the initial VDI users and a range of networked applications supported by the CMJTS's storage array, accounting for 70 virtual machines, had exhausted storage capacity.

Mitch Gram, vice president of professional services for Sovran, a Nimble sales partner, explained the problem: "In 2010, CMJTS migrated from a physical server to a private cloud infrastructure that included VDI. The staff of CMJTS was growing and expanding to more locations, causing the need to increase VDI deployments as well—and that move, naturally, would require greater storage capacity and higher IOPS. CMJTS's legacy SAN infrastructure could expand through additional nodes, but Sovran engineers determined that reaching the needed capacity and IOPS would require multiple nodes of the SAN."

The move to Nimble solved the problem, he added. "A single Nimble array was not only able to meet the higher IOPS requirements, but also to deliver the needed capacity increases, all at a lower cost to CMJTS. That move also meant that they could demote the legacy SAN to a data protection role."

On moving to the Nimble CS220 flash-optimized storage array, data compression alone provided a nearly instantaneous boost to capacity, as well as room to grow from the initial

Storage Profile: Central Minnesota Jobs & Training Services, Inc.

Challenges
- Storage capacity exhausted
- "Boot storms" caused VDI sessions to freeze
- Provisioning VDI for a single user took days
- Video chat was inoperable
- System latencies were unacceptable

Solution
- Deploy a Nimble CS220 flash-optimized storage array

Immediate Benefits
- 75 percent reduction in storage footprint, leaving ample room for growth
- Boot storms create no system latencies
- VDI provisioning reduced from days to under one hour
- Video chat performs flawlessly

Long-Term Objectives
- Roll out VDI across additional locations
- Expand Microsoft Exchange deployment at headquarters and DR site
- Deploy Microsoft SharePoint

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70 virtual machines deployed during the VDI trial period to many times that number as a result of the successful trial and the capacity of the Nimble array.

Nimble's native support for virtualization, combined with VMware's linked-clones feature, simplified the creation of a master desktop image and the quick creation of multiple clones to serve individual users. That process accelerated the move to Nimble, which initially hosted 29 virtual servers and dozens of VDI sessions and provided ample headroom to add new virtual desktops as required.

Today, Banken and his team can provision a new VDI user in one hour, as compared with the several-day regimen required when new users were set up on personal computers. "With Nimble, abetted by the linked-clones capability of VMware, VDI just works. Not only are new users productive in their first couple hours, but the implications are huge for management. While reducing support complexity and costs, it requires absolutely no travel to provision new users. It's truly no-risk VDI."

Immediate Performance Boost

While noticing immediate performance improvements with the move to Nimble, Banken said the impact became obvious when he observed performance during a view session. "Everything began performing much faster than with our previous system. The difference was like night and day, not only in performance, but in how easy it was to deploy Nimble within our virtualized infrastructure. We have seen peak IOPS of 20,000 and occasional bursts to 30,000."

The performance improvements are especially noteworthy, says Banken, as he considers his regimen for taking storage snapshots. "As we grow the number of snapshots during the day to reduce risks of a system outage, we can't afford to let those snapshots take a toll on performance. And I can report that I see no performance hits, and, best of all, neither do users."

Moreover, video chat, which was nonfunctional on his former storage server, today is just one more system process. "After the move, I was surprised to find that Skype sessions operate as if each user were running the application on a high-powered laptop computer and had no bandwidth constraints." CMJTS employees rely on video chat to simulate in-person meetings across offices.

Banken also reports that, with the move to Nimble, he intends to bump up his use of storage snapshots from one to 30 or more a day. "Nimble snapshots," he said, "place no perceptible burden on performance." And with much more frequent snapshots, he noted, recovery from an outage would become more of a routine process, with much less data to recover.

Crashes are inevitable, he added, given the regular updates required for existing applications on the system. "We were undergoing an automatic update of Microsoft .NET from version 3.5 to version 4. That pretty much brought down our Trend Micro server. Fortunately, we had created a Nimble snapshot, ensuring minimal system downtime and little loss of productivity."

Banken cautions IT staffers that, when evaluating system performance, they need to factor in the impact of reboots. "That's part of the overall equation. That's why I was pleased— and rather amazed—to see that rebooting our SQL-based accounting server, which once took five to ten minutes, today can take seconds with Nimble."

Compression Keeps Storage in Line

"We had maxed out our storage on our former 4 TB array," said Banken. But he reports that thin provisioning and inline data compression on the move to the Nimble array reduced storage by approximately 70 to 75 percent. "After inline compression, we're sitting at just over 1 TB, or one-quarter of our original storage, and that's after provisioning

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new users and processes. We're extremely happy, and we have a lot of resource space that can be put to good use."

"The compression has been remarkable—and especially on VDIs, where today we are seeing compression of between 60 and 80 percent. That feature alone has allowed us to expand to other projects as we move into the future. Now, we have literally four times the space, and our expansion options are seemingly limitless."

User Interface

Banken gains additional assurance from his use of Nimble's graphical operations console. "It's essentially a dashboard of everything critical to understanding system usage, instantaneous and historical performance, and the like. It's like it watches itself."

He also appreciates the alerts provided by the Nimble console. "The only alert that I have seen was upon initial installation. We had not set up the mail server correctly, and it was alerting us that it was unable to send messages out. We fixed that quickly. That's the kind of backup I need."

He added that the operations console allows his team to observe system performance during upgrades to the Nimble array. Upgrades run as a background process and incur no system downtime or performance penalties, he reports. "Upgrades are all part of a day's work. In our business there's no good time to shut systems down, and I'm pleased that downtime no longer has to be a consideration."

Next Steps

Initial success with VDI has put plans in motion to roll out the technology to other offices. With the additional capacity made available by the move to Nimble, the expansion will enable the single Nimble CS220 to support new users across physical locations, said Banken.

He also plans an expansion from one to four Microsoft Exchange servers, "front end and back end, both here at headquarters and at our DR site." His team will also be rolling out Microsoft SharePoint, in an expansion to begin over the coming year.

For now, Banken is content that storage-related risks are essentially a thing of the past. "We've taken control of VDI, conquered the challenges of boot storms, and made video chat work for us rather than against us. Today, we have ample storage for growth and can now plan for things to come."

The mission of Central Minnesota Jobs and Training Services, Inc. (CMJTS) is to strengthen communities through leadership in workforce excellence.

CMJTS is a nonprofit employment and training agency and a partner in the Minnesota WorkForce Center System. Its objective is to match job seekers, youth, businesses, and those seeking training with the resources available to them. CMJTS is a partner of Workforce Service Area 5, which serves 11 counties in Central Minnesota.

CMJTS is also a member of the Minnesota Workforce Council Association (MWCA). MWCA's mission is to provide Minnesota with a workforce and economic development system that is business-driven, fiscally responsible and, most importantly, that produces results.