Community Services Organization Reduces I/O to Storage by 50% with V-locity I/O Reduction Software

As Victor Community Support Services readied themselves for a virtual desktop deployment, they needed to optimize their infrastructure performance to avoid unnecessary slowdowns that would impact user productivity. Little did they know, V-locity would optimize their environment so significantly that they were able to reduce the I/O requirement from virtual server to storage by nearly 50% on their heaviest workloads.

CHALLENGES

- Slow-running applications on SQL were causing user productivity issues
- Infrastructure performance needed to be optimized before implementing VDI
- Windows write inefficiencies across 100+ VMs penalized storage performance

V-LOCITY BENEFITS

- 50-300% faster application performance — no additional hardware
- Latency and throughput dramatically improved
- True "set and forget" management
- Compatible with all SAN/NAS systems
- Before-and-after performance reporting to validate performance gains
- Enterprise-wide visibility into I/O performance, from VM to storage

THE CUSTOMER

Victor Community Support Services (VCSS) is a community-focused agency which delivers mental health and family support services in the homes, schools and communities in which people live. VCSS delivers programs ranging from prevention and early intervention programs to highly intensive home-based services designed to prevent residential and other institutional placements. VCSS is focused on empowering people of all ages to build upon their strengths and capacities to address the problems and needs they have within their lives.

THE CHALLENGE

With a growing organization accessing a number of workload-heavy applications, VCSS needed to ensure that its systems and storage were operating at optimum performance. Financial applications that sat on MS-SQL (Great Plains and Paper Save) were their biggest I/O consumers, driving up IOPS during peak times of the day while its other 100+ VMs (virtual machines) hit the same storage device supporting a plethora of applications including email, file services, print services, telephone services, and more. Additionally, its electronic health record application, Tier, was increasingly eating up more and more IOPS, making the organization's aging Dell EqualLogic storage system fight to keep up.

"Our environment was stressed to the max. There was no way we could support any more growth initiatives, let alone the looming VDI project to transition all of our employees to a virtual desktop platform," said Jamie Rabenstein, Information Technology Manager at Victor Community Support Services.

THE SOLUTION

Rabenstein was eager to try Condusiv's V-locity I/O reduction software to optimize his environment for more performance from VM to storage, so he

> "Once we installed V-locity, we monitored our IOPS and saw a near 50% decrease in I/O from VM to storage."

JAMIE RABENSTEIN
INFORMATION TECHNOLOGY MANAGER AT VICTOR COMMUNITY SUPPORT SERVICES

ENVIRONMENT

- Applications — SQL-based applications including Great Plains, Paper Save and the EHR Tier
- Servers — 100+ virtual servers and hundreds of virtual desktops
- Operating System — Windows 2012R2 and Windows 7 for VDI
- Hypervisor — VMware vSphere 5.5
- Storage — Nimble Storage
- Network — 10GbE; Brocade switches

V-LOCITY FEATURES

IntelliWrite® I/O reduction technology automatically prevents split I/Os from being generated when a file is typically broken into pieces before write and sequentializes otherwise random I/O generated by the "I/O blender" effect.

IntelliMemory® intelligent caching technology caches active data from read requests using available server memory.

Benefit Analyzer™ embedded benchmark provides before/after performance comparisons, enabling IT to easily quantify the benefits of V-locity in their environment.

Condusiv Technologies
7590 N. Glenoaks Blvd., Burbank, CA 91504
800-829-6468 // **www.condusiv.com**

Condusiv Technologies Europe
Goldvale House, 27-41 Church Street West,
Woking, Surrey, GU21 6DH
+44 (0) 1483.377.200 // **www.condusiv.co.uk**

could make better use of his existing hardware and get the most out of any new storage hardware purchase.

"Everyone knows Windows is terribly inefficient when it comes to writing files, which also affects every subsequent read," said Rabenstein. "Someone might not be too alarmed about that problem in a physical environment when it's just one application on one physical server, but in a virtual environment where there are hundreds of VMs hitting the same storage device, it robs an enormous amount of performance. This compounds even worse when you add VDI to the mix and there are hundreds more virtual desktops hitting the same storage subsystem with I/O characteristics that are smaller, more fractured and more random than they should be. I knew we needed V-locity to solve the Windows I/O tax and lessen the effects of randomization from the "I/O blender" effect, but I was also interested to see what additional performance gains we would see with their DRAM read caching engine that leverages the available DRAM we already have. We knew we'd see good gains, but we didn't expect gains like this."

RESULTS

"Once we installed V-locity, we monitored our IOPS and saw a near 50% decrease in I/O from VM to storage according to our daily averages and peaks," said Rabenstein. "Even when we added what equates to three times the workload with our new VDI implementation, the IOPS demand from storage didn't increase three-fold because of what V-locity is doing to reduce write I/O and read I/O at the VM layer. It's been truly impressive. We call it the 'V-locity effect.'"

Before rolling out its virtual desktop deployment, VCSS replaced their SAN with a Nimble Hybrid Storage System to further ensure IOPS wouldn't become a choke point for users and continued growth. This has improved I/O performance even further with truly consistent performance and data delivery.

"With V-locity and Nimble Storage together, it's like having lightning performance at both ends of the spectrum," commented Rabenstein. "The combined solution delivers multiple layers of speed for both read and write operations. First, V-locity ensures contiguous writes and subsequent reads with minimal I/O operations no matter where the data needs to be satisfied from, whether flash or disk. Second, if any data is requested, it might already be in available DRAM due to V-locity. If it's not, Nimble might have it in its flash tier. But even if Nimble has to go to all the way down to spinning disk as last resort to get the data, V-locity ensures minimum disk latency as the data is retrieved with the fewest number of I/O requests possible."

"Our financial team used to spend 30 minutes running a report in Great Plains sitting on SQL," said Rabenstein. "The very next time they ran it after implementing V-locity, it only took 10 minutes. Every time after that, it has only taken 3 minutes due to V-locity's self-learning algorithms. It's been a lifesaver for them."

"Now we roll out the V-locity red carpet for all of our systems," added Rabenstein. "To not do that would be too painful for me to imagine. It truly can milk the hardware for everything it has. Anyone that needs low latency and high throughput loads should be using it."