Construction Company Deploys V-locity I/O Reduction Software to Improve Speed on Citrix and SQL Applications

Condusiv Technologies

A Teichert & Son, Inc. knew they needed to optimize their infrastructure performance as their user base and workloads increased with the growth and expansion of their company. Having already been a Diskeeper customer, they turned to V-locity® I/O reduction software during the virtualization of their environment and were pleased to find that they no longer needed to implement any of the other solutions they were looking at to optimize performance.

THE CUSTOMER

A Teichert & Son, Inc., based in Sacramento, California, is a family-owned business in existence for over 130 years. Teichert started as a construction company and has grown into a diverse mix of businesses including Teichert Construction, Teichert Materials, and Teichert Pipelines to name just a few. The company strives to be a resource for the community and has started the Teichert Foundation to follow through on a commitment to build and preserve a healthy, prosperous region. Teichert has the highest expectations for growth into the next century through their commitment to their family of employees, high quality work, customer satisfaction, and community giving.

THE CHALLENGE

As an ever-expanding company, Teichert's technology team is continuously vigilant about maintaining the highest levels of performance for their users. The department spends valuable time and money fine-tuning their IT stack to obtain optimal efficiency. However, performance on their Citrix and SQL servers running critical point of sale, financial and inventory management applications was beginning to suffer due to the growth of data, increased number of users and being virtualized.

As users of these applications complained about the slowness of the live-order entry system, queries taking too long, and poor system performance in general, Steve Lomax, Teichert's Senior Windows Systems Administrator, looked at a variety of solutions. "We do a lot of fine-tuning, but sometimes, if there's an issue, it's hard to put a finger on where the problem lies in order to troubleshoot," says Steve. He continues, "We looked at all kinds of solutions to improve general performance issues but didn't want to be stuck with hardware that might not be necessary".

V-locity seemed like a natural solution to try out, as Steve explains: "As a long-time user of Diskeeper, when V-locity came into the picture, it really changed the conversation as we were virtualizing at the same time. We are getting to improve performance right at the server level, even before data can hit the host let alone the network or the SAN. This is as close to the application layer as you can get."

Steve went on to say, "We were surprised to learn that Condusiv had advanced their software to such a degree that they were now proactively optimizing writes in-line, cutting out a ton of write I/O that was previously hammering our SAN. We upgraded from a NetApp tiered storage solution with a mixture of SSD/SAS/SATA drives to a hybrid-flash Tintri T850 and experienced the same results from V-locity regardless of the brand or type of storage we had underlying our data center. There wasn't any after-the-write clean up going on anymore because V-locity and Diskeeper both just got the job done before writes even had a chance to break down. Then we looked at what the caching piece could do, and it was a no-brainer given what the combined engines did for us."

> "We are no longer chasing after fine-tuning for performance. V-locity has taken a huge portion of that off our plate."
> Steve Lomax, Sr. Windows Systems Administrator, Teichert

CHALLENGES

- User complaints related to slow performance
- Productivity issues connected with slow running applications
- Expensive upgrades not an option

V-LOCITY BENEFITS

- 50% or greater application performance improvement—with no additional hardware
- Latency and throughput dramatically improved
- True "Set It and Forget It" management
- Compatible with all SAN/NAS systems
- Easily deploy to the largest virtual, physical or cloud environments in just five clicks
- Before-and-after performance reporting to validate performance gains
- Enterprise-wide visibility into I/O performance, from VM to storage

CASE STUDY

ENVIRONMENT

- Key applications – Citrix, SQL, direct app servers
- Servers – Cisco UCS, Dell
- Operating System – 2008r2 - 2016
- Hypervisor – VMware
- Storage – Tintri T850 Hybrid-flash storage
- Network – 10GbE

V-LOCITY FEATURES

IntelliWrite® 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 only idle, available server memory.

"Time Saved" Benefits Dashboard shows ongoing benefit of the software by revealing the amount of I/O offloaded from storage and how much time that saves.

Benefit Analyzer™ embedded benchmark tool provides before/after performance comparisons prior to installing V-locity and after.

Set-It-and-Forget-It® functionality ensures V-locity is completely non-disruptive as it operates quietly in the background optimizing the I/O stream in real-time and doesn't even need a reboot to install or upgrade.

THE SOLUTION

V-locity is "set and forget" software that runs transparently in the background, automatically offloading I/O from underlying storage, then streamlining the I/O traffic that remains. All of this is done with near-zero overhead to the CPU.

First, V-locity eliminates excessively small, fractured writes and reads, and displaces them with large, clean contiguous writes so more payload is carried with every I/O operation. Second, the software establishes a tier-0 caching strategy by using idle, available DRAM to serve hot reads. Nothing has to be allocated for cache since V-locity dynamically adjusts to only utilize what is otherwise unused. With as little as 2GB of available memory, many customers serve as much as 50% of their read traffic directly from DRAM at the speed of memory. That means all that I/O activity is handled server-side and isn't competing for valuable I/O bandwidth at the slower storage level. As a result, most customers experience at least 50% faster application performance, typically double.

THE RESULT

Since deploying V-locity, Teichert has seen major improvement across the board with particularly good gains on their Citrix servers, especially after fine-tuning memory allocations on their SQL databases.

When examining the workload and throughput improvements on the 30 busiest servers, 41% of all write I/O traffic was prevented from occurring. For every 100,000 I/O's it used to take to write data, it was now only taking 59,000 I/O's on average, a huge drop in demand on storage. Reads were down even more, with 59% of all read traffic either being completely prevented or being served from DRAM right at the VM.

Deploying V-locity to all of Teichert's systems, and keeping current with version upgrades, has eliminated the need for them to spend more money on additional hardware and other 3rd party performance acceleration solutions. Steve says, "We were looking at other solutions that could give us a performance boost, you know…things that pool memory at the host or required an expensive all-flash card to be added to the host. We were able to skip all that because V-locity solved it with a simple install right into the VM and that's it. You're done. I would recommend V-locity to anyone that doesn't want to be stuck with unnecessary hardware costs and needs a solution to add an extra layer of enhanced performance."

The greatest benefit of all though, as Steve explains, is that "Many people at Teichert have been positively impacted by the performance gains that V-locity has provided. We've seen at least a 50-60% drop in performance-related issues but that's being very conservative." Steve goes on to explain, "General frustration is gone, users are more productive and efficient, customers don't have to wait long periods of time to process orders, and the IT department is freed up to focus on more important initiatives relating to the company's mission and core values."

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