V-locity®

I/O Reduction Software

Overview

V-locity® (version 7) is I/O reduction software that guarantees to solve the toughest application performance problems on I/O intensive systems like MS-SQL or your money back for 90-days, no questions asked. Download a free trial to prove it.

V-locity eliminates the two big I/O inefficiencies in virtual environments that generate a minimum of 30-40% of I/O traffic that is nothing but mere noise dampening performance and unnecessarily chewing up precious storage IOPS (see 2-min Video: Condusiv I/O Reduction Software Overview).

Not only can organizations expect an immediate boost and reclaim 30-40% of their storage IOPS, but many offload upwards of 50% of I/O traffic from storage for big performance gains in the 2X-10X range by simply allocating a little extra memory on key systems to better leverage V-locity for an even bigger benefit on MS-SQL workloads, Oracle, ERP, VDI, EHR (MEDITECH), Business Intelligence (BI) apps, CRM, Exchange, SharePoint, file servers, backup, and more.

Solve I/O Inefficiencies that Rob Performance

V-locity is a "Set It and Forget It"® software utility, a thin file system driver, that installs on Windows VMs or physical servers (no reboot required) and performs optimizations inline automatically while running transparently in the background with near-zero overhead to the server. What little CPU cycles are needed run at lowest priority so as not to interfere with server operations in the event that CPU cycles are needed by other applications or processes.

V-locity's patented write optimization engine (IntelliWrite®) eliminates the severe inefficiencies in the hand-off of data between the Windows OS and underlying storage that generates excessively small, fractured, random writes and reads that dampen performance with a "death by a thousand cuts" scenario. By providing Windows with the intelligence to write large, clean contiguous files in real-time, maximum payload is carried with every I/O operation to boost storage performance while reducing write amplification issues to SSDs for extended life. Read more about IntelliWrite under "Key Features."

V-locity further reduces I/O to storage with its second patented engine (IntelliMemory®) – a DRAM read caching engine that establishes a tier-0 cache strategy to serve hot reads from idle, available DRAM that is otherwise unused. Like IntelliWrite, this engine operates automatically and dynamically in the background, which means no tuning is required. Nothing has to be allocated for cache since V-locity dynamically adjusts moment-by-moment to only what is otherwise unused, so there is never an issue of memory contention. Systems commonly serve 50% of their read traffic from DRAM with just 4GB of available memory. If a system is memory constrained at any moment then V-locity's caching engine backs off entirely. Read more about IntelliMemory under "Key Features."

Whereas organizations typically react to performance challenges by throwing expensive new hardware at the problem, it should be the option of last resort. Overbuying and overprovisioning for more IOPS and/ or throughput might mask the underlying problem for a while, but it certainly does not solve root cause performance issues. The quickest, most inexpensive, and least disruptive approach to more performance is by simply evaluating V-locity I/O reduction software on troublesome systems and watch sluggish performance disappear. No changes to the hardware infrastructure are required other than the possibility of more DRAM to key systems that might be memory constrained.

DATASHEET

Key Features: Patented Write and Read Optimization

IntelliWrite®: V-locity's Write I/O Optimization Technology
IntelliWrite prevents excessively small, fractured I/O characteristics in real-time by providing file size intelligence to Windows to help it choose the best allocation at the logical disk layer when writing files. This intelligence ensures large, clean contiguous writes and reads in which maximum payload is carried with every I/O operation to and from the OS to underlying storage. Without IntelliWrite, the Windows OS only ever opts for the next available address at the logical disk layer, which is rarely, if ever, the right size. This inefficiency causes many more I/O operations to occur from underlying storage for any given file that should be optimally written and read with a single I/O operation. Since V-locity reduces the IOPS requirement for any given workload, there are even fewer I/O operations being mixed and randomized at the hypervisor, which combats the ill-effects of the "I/O blender" effect.

IntelliMemory®: V-locity's Read I/O Optimization Engine
IntelliMemory is a server-side DRAM read caching engine that leverages idle, available DRAM to target I/O that penalizes storage performance the most—small, random I/O. IntelliMemory's behavioral analytics engine makes the best use of DRAM for caching by collecting usage data and I/O characteristics across a wide range of data points. By servicing I/O at the top of the technology stack from the fastest storage media possible, organizations reduce latency and further reduce the amount of I/O to storage, complementing the I/O reduction benefits from IntelliWrite.

Administrators who are concerned with allocating precious DRAM for caching purposes need not be concerned. IntelliMemory is a dynamic cache that only leverages available DRAM and throttles according to the need of the application, so there is never an issue of resource contention or memory starvation. Whereas organizations typically serve 50% of reads from a mere 4GB of available DRAM per server, the amount cached will depend on the amount of unused memory V-locity can use. V-locity maintains a 1.5GB buffer between what is available and what is used for cache, so if an application or process eats into the buffer, V-locity releases appropriate memory to maintain the buffer so there is never a latency issue in returning memory. V-locity can leverage up to 128GB per system for the fastest results possible.
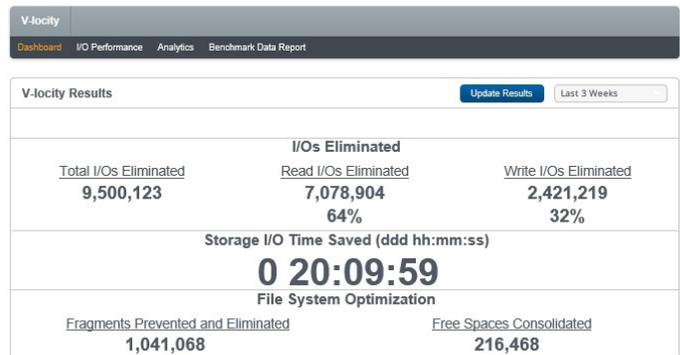
Since V-locity performs all optimizations at the OS level, V-locity is both hypervisor and storage agnostic. V-locity is compatible with any system that is compatible with Windows and improves the efficiency of all VMware ESX/ESXi, Hyper-V, and Xen platforms supported by SAN/NAS storage, Hyperconverged storage, local storage, or cloud storage like Azure or AWS.

Benefit Validation

V-locity's dashboard is fully transparent as to the value provided to any one VM or group of VMs (or physical servers) by displaying the total I/Os eliminated from storage, the percentage of read and write traffic offloaded from storage, and, most importantly, how much time that saves any one system or group of systems. Administrators can easily see the I/O capacity handed back to their storage subsystem from eliminating inefficiencies, see how much I/O processing time has been saved, and quickly identify key systems that would benefit greatly from V-locity's caching engine by adding a little more memory.

V-locity lists systems in green, yellow, red according to the amount of available memory that can be leveraged for cache. By surveying workload intensity and read/write percentages, administrators can quickly scan through hundreds of systems to identify the servers that would benefit from additional memory.

Median results from a typical system with at least 4GB of available DRAM

V-locity Management Console: Seamless Deployment and Management

V-locity comes bundled with the V-locity Management Console (VMC), enabling seamless deployment and centralized management of V-locity.

- Fast, non-disruptive deployment of V-locity even in the most complex environments. No reboots required.
- Easy license and asset management across a wide range of environments and locations
- Support for various license models (perpetual, enterprise site licenses, or subscription-based)
- Ongoing performance validation

VMC leverages I/O performance monitoring to give administrators visibility into key I/O metrics to explain workload behavior across different applications—greatly reducing the burden of troubleshooting and tuning for performance.

Configuration Management
V-locity provides central command and control to install, configure, and manage V-locity products for mid-size to largescale deployments. Administrators can choose presets or configure read and write I/O optimization and create admin defined exclusions if necessary. Admins can also configure reporting and alerts by recent activity or workload, schedule ad-hoc reporting and receive email alerts by VM or groups of VMs (or physical servers).

Performance Management
V-locity reports on I/O performance from VM to storage and back and provides "time saved" benefits to validate ROI. With this level of visibility, V-locity enables administrators to quickly validate application performance; identify and solve I/O performance problems; ensure that applications, servers, and storage are running at peak performance; proactively manage application SLAs with email alerts set to customized performance thresholds; and access reports on an ongoing basis to measure the value of V-locity.

A TOOLKIT OF
Performance Acceleration Technologies

V-locity contains a toolkit of technologies to accelerate your applications from VM or physical server to storage:

IntelliWrite®
A patented write optimization technology that automatically prevents excessively small, fractured, random writes and reads that harms performance due to the severe inefficiency in the native hand-off of data between the Windows OS and underlying storage.

IntelliMemory®
A patented read I/O optimization technology that intelligently caches hot read requests from server memory that is otherwise idle and unused.

Benefit Dashboard
The "time saved" dashboard demonstrates the value of V-locity by showing the amount of I/O traffic offloaded from storage, the percentage of read and write traffic offloaded, and the resulting time saved to any one system or group of systems.

InvisiTasking®
A patented intelligent monitoring technology that allows all the V-locity "background" operations within the server to run with zero resource impact on current production by only leveraging CPU cycles and memory that is otherwise idle. Should other processes demand those resources, Invisitasking ensures they are released without latency so there is never an issue of resource contention.

CogniSAN™ and V-Aware®
These technologies are extensions to InvisiTasking that ensure optimizations occur using only available resources. As a result, V-locity avoids creating additional I/O that might interfere with workloads on the storage media being executed by other systems. This is Ideal for SANs or hypervisor-managed storage, where multiple VMs have the VDDs on the same physical disk or drive.

V-locity Benefits

- Guarantees to solve the toughest application performance problems
- Latency and throughput dramatically improved
- True "Set It and Forget It" management
- Compatible with all SAN/NAS and hyperconverged systems
- Deploys to hundreds or thousands of servers with just a few clicks – no reboot required
- "Time saved" reporting dashboard to validate benefits
- Enterprise-wide visibility into I/O performance health from the operating system to storage

Supported Platforms and Configurations

V-locity installs on all Windows virtual machines and supports Windows 7, Windows 8/8.1, Windows 10, Windows Server 2008 R2, Windows Server 2012/R2, Windows Server 2016

Supported Clustered Configurations for Virtual Environments:
Active/Passive Hypervisors, Active/Passive VMs

Supported Clustered Configurations for Physical Environments:
Active/Passive

Required Cache Size: 3GB of physical memory per VM or physical server

Recommended Minimum Cache Size: 4GB of physical memory per VM

or physical server

Maximum Cache Size: 128GB per VM or physical server

Management Console

V-locity Management Console UI supports IE 11

VMC master node installs on physical servers and VMs and supports Windows Server 2016, Windows Server 2012 64 bit, Windows Server 2008 R2, 64 bit

About Condusiv

Condusiv Technologies is the world leader in software-only storage performance solutions for virtual and physical server environments, enabling systems to process more data in less time for faster application performance.

More Information

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