Condusiv Technologies

V-locity® I/O Reduction Software

Eliminate Downtime Risks & Boost Application Performance

Overview

V-locity is MEDITECH® approved software which prevents NTFS fragmentation from occurring in real-time which boosts application performance and protects against unscheduled downtime.

V-locity's patented software:

- Eliminates the excessively small writes and reads that are robbing performance delivering more payload per I/O
- Boosts performance even further by caching hot reads from available DRAM
- Remediates the FAL growth issues that occurs within the MEDITECH application due to extensive file fragmentation.

Why Use V-locity?

1. **Eliminates extended unscheduled downtime risk** by resolving excessive NTFS fragmentation in real-time that would otherwise cause the NTFS File Attribute List (FAL) to reach its size limit and crash systems
2. **Boosts application performance an average of 30-50% or more** (often far more) by ensuring large, clean contiguous writes that carry maximum payload and also by caching hot reads from idle, available memory
3. **Provides the industry's only capability** to defrag the FAL without causing it to grow in size. Traditional defragmentation processes have the adverse effect on the FAL by growing its size
4. **Remediates FAL issues offline in minutes instead of hours or days** for hospitals that already have FAL size issues by using V-locity's industry-only tool
5. **Handles volumes with extreme free space fragmentation** to help prevent data fragmentation from occurring that causes the FAL size growth.

MEDITECH's Requirement

The MEDITECH EMR application can experience extensive fragmentation that lends itself to two problems (1) Sluggish EMR performance (2) risk of application failure or critical downtime as soon as the FAL reaches its size limit, a Windows File system limitation. As such, MEDITECH requires users to have a fragmentation remediation plan.

MEDITECH endorses V-locity for this process for "...their ability to reduce disk fragmentation and eliminate File Attribute List (FAL) saturation. Because of their design and feature set, we have also observed they accelerate application performance in a measurable way," said Mike Belkner, Associate VP, Technology, MEDITECH.

Primary Barriers to Performance

"Garbage I/Os" robbing 30-40% of performance. Windows suffers from severe inefficiencies in the hand-off of data between the OS and underlying storage, which generates a chaotic mess of small random I/O operations by breaking a single file into several pieces upon write. As each piece requires additional I/O operations from the storage layer, the net result is an I/O penalty incurred for every write and subsequent read from underlying flash, hybrid, or disk storage. This problem not only dampens performance but also creates downtime risk in a MEDITECH environment by causing the FAL to reach its size limit and crash.

Slow reads from storage. There is an enormous amount of common data in motion from server to storage during any given 24-hour period of time. Since most hot data being read is common data, it makes no sense for this data to unnecessarily traverse the full technology stack every time it is read.

V-locity Solves Performance Barriers

V-locity's patented IntelliWrite® engine solves problems in real-time by ensuring large, clean contiguous writes, so maximum payload is carried with every I/O operation. V-locity's MediWrite engine for MEDITECH stems FAL growth to prevent unscheduled downtime.

V-locity's patented IntelliMemory® read caching engine keeps the hottest data in DRAM that is otherwise idle and available. 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. Many systems serve 50% of read traffic from DRAM if there is just 4GB of available memory that can be leveraged for cache. If a system is memory constrained, V-locity's caching engine backs off entirely.

Technical Specs

Supports Windows 7, Windows 8/8.1, Windows 10, Windows Server 2008 R2, Windows Server 2012/R2, Windows Server 2016
Supported Clustered Configurations: Active/Passive Hypervisors, Active/Passive VMs
Required Memory: 3GB of physical memory per VM (4GB+ recommended)

CHRISTUS Health Doubles Electronic Health Record Performance

"Facing a $2 million storage purchase to solve our performance issues didn't sit well with any of us. We heard what V-locity I/O reduction software had done to help other MEDITECH hospitals, so we were eager to try it for ourselves. After deploying V-locity and conducting a before/after performance analysis, we found that V-locity doubled the speed of our patient records. V-locity provided enough speed to meet our application SLAs, so there was no longer a need to make a $2 million storage purchase for increased performance." Tom Swearingen, Infrastructure Services.

How to Test and Validate V-locity

1) **Install the 30-day trial software on all the VMs on the same host, no reboot required.** A Condusiv SE can assist with deploying the centralized management console to push to as many VMs or physical servers as desired in 20-min or less. Wait 24 hours for algorithms to adjust then watch performance problems disappear. Add extra memory to key systems that may not have enough free memory to fully utilize the tier-0 cache.

2) **After at least 5 days in production, pull up the "time saved" benefits dashboard** to see how much read and write traffic has been offloaded from storage and how much time has been saved by eliminating inefficiencies. A Condusiv SE can assist with the dashboard review. If less than 50% of I/O is being offloaded from storage, simply add a little more memory to key systems with the most workload and watch that number rise.

Hancock Regional Hospital More Than Tripled Patient Record Performance

"I started looking at the SAN, then heard about the problem of excessive split I/Os generated by the Windows® OS, which is magnified in I/O intensive applications like MEDITECH. I was coming in early every month to reboot everything, just to gain more speed during end-of-month reporting. This isn't a workable long-term solution, particularly for our users, who were experiencing the worst of it.

"Compiling a list of 16 patients took 13 seconds. With V-locity it now takes only five seconds to load 19. That's a major improvement when you're talking about a busy day in the ER.

"Across all 60 servers, we're seeing an average increase in IOPS of 225% and response time improvement of 67%." Ryan Barker, Technology Specialist

Next Steps

1. Download and run the software: Condusiv.com/try
2. Contact Condusiv for questions or pricing