

Increasing Efficiency in the IT Environment

Executive Summary

The necessity of Diskeeper Corporation products for today's data storage operations

The efficient use of I/O resources directly affects performance and operating costs throughout a system, network, Virtual and Cloud environment. Despite advances in hardware speed and storage technology, file and free space fragmentation has become more of an issue, not less of one. Fragmentation creates profound performance waste at the O/S level and is the primary cause of I/O bottlenecks, system timeouts, freezes, slows and crashes. This is true at all system levels: laptops, desktops, servers and SAN-attached virtual servers. This is not simply theoretical; it is tested and proven both in the lab under controlled conditions and in real-world enterprise corporate use.

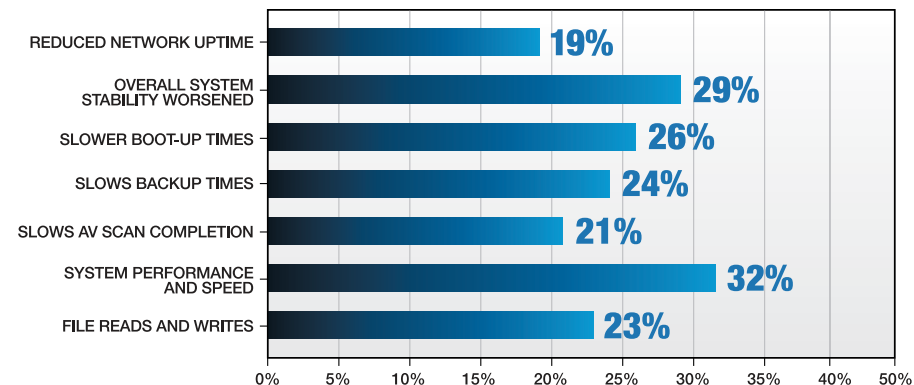
The Diskeeper Corporation flagship product Diskeeper® 2011 data performance technology and V-locity® virtual platform disk optimizer improve performance so significantly that no study of site efficiency is complete without considering their impact.

The problem

Due to accelerated virtual fragmentation at the Windows host and guest levels, I/O bandwidth rapidly bottlenecks.

- Multiple VMs, all attached and competing for resources from the same physical hardware and storage devices significantly magnify the negative effects of fragmentation and increase I/O traffic.
- The sharp increase in unnecessary I/Os creates bottlenecks.
- Performance and reliability continue to deteriorate until systems must be taken offline for handling or replacement.

Performance degradation without Diskeeper

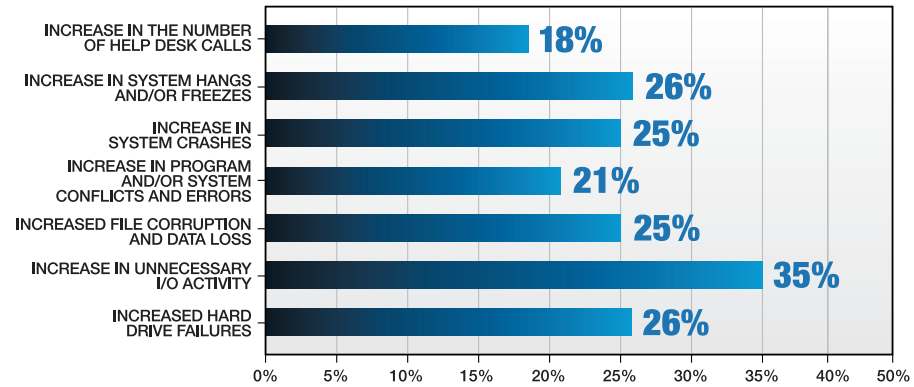


Source: Windows IT Pro

IMPORTANT NOTE: This chart reflects average loss of system efficiency. However, continuing to operate without Diskeeper installed will significantly worsen these statistics.

"I think the big improvement is the stability of the systems and not having unexplained system hangs. Team members report less issues and faster boot cycles.... I have used Diskeeper for years and believe the benefits are measureable."
– Shell

Reliability degradation without Diskeeper



Source: Windows IT Pro

IMPORTANT NOTE: This chart reflects average loss of system potential. However, continuing to operate without Diskeeper installed will significantly worsen these statistics.

"We have seen a 45–50% performance enhancement in read access and a 60–65% in write access.... After installing Diskeeper, backup times were reduced by several hours, and user 'slowness' complaints went away."
– American Imaging Management

Break the cycle of inefficiency

With exclusive IntelliWrite® technology, V-locity prevents most fragmentation from ever occurring, providing unmatched file write performance. Using InvisiTasking® technology, V-locity is the first-ever virtual disk optimizer designed to invisibly handle fragmentation on all Windows server and client operating systems running on Microsoft's Hyper-V and VMware's ESX Server platforms. By detecting and synchronizing resources usage amongst guest virtual systems, V-locity automates disk I/O performance across your entire virtual infrastructure – no need to stagger or throttle defragmentation schedules. All that is required is to install V-locity, and the software goes to work, automatically maximizing virtual system performance. Just "Set It and Forget It®".

Virtual platform performance: the Diskeeper products solution

- Prevent most fragmentation – and the additional I/Os it takes to write and read fragments – with IntelliWrite® technology.
- Manage system resources across the platform without creating resource conflicts or access latency using InvisiTasking® technology.
- Auto-configure based on virtual disk type.
- Eliminate "bloated disk space" with virtual disk compaction for dynamic/thin disks.

"We are really satisfied with the improvements delivered by Diskeeper which totally answered all our needs...performance has improved, backup and data access times have been considerably reduced. We win both in terms of time and money."
– HSBC

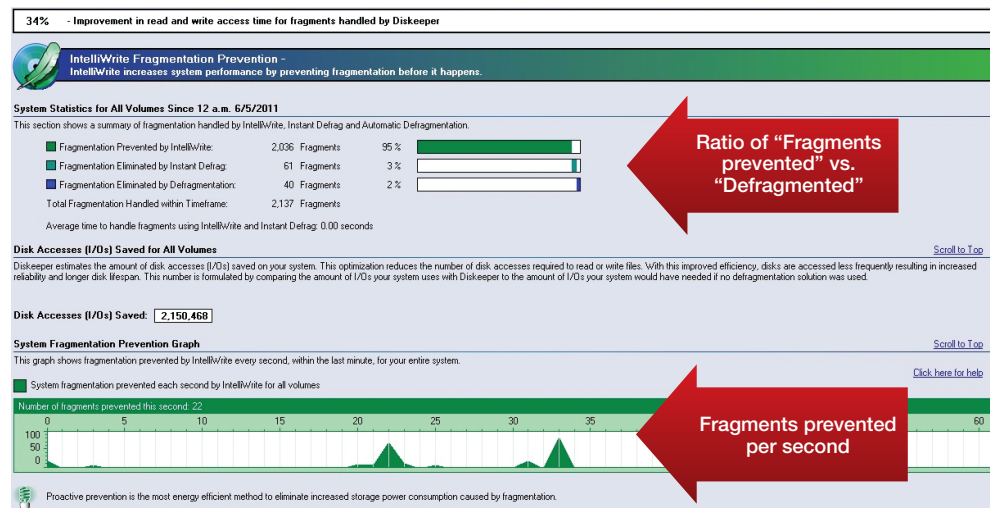
V-LOCITY® performance testing

Activity	Fragmented (seconds)	Defragmented (seconds)	Performance Gain %
Anti-Virus Scan	108.25	69.5	35.8%
File Copy (5GB)	132	52.75	60.0%
Opening larger Office files (100 pages Word and/or sheet Excel 2007 size, about 5MB)	16.75	11	34.3%
Bidirectional flows with the Exchange server, server side	16.75	10.75	35.8%
Bidirectional flows with the Exchange server, client side	20.5	11.75	42.7%
"Bulk" insert into an SQL database of 100,000 random value line	53	33.25	37.3%
Within a complex SQL request	54.38	42.75	21.4%

"Our backup times have been cut by about 75%.... Diskeeper works smoothly and all servers are now reporting quicker boot times and better response times. Everyone in the company has benefited from the Diskeeper deployment! Time is money. As Diskeeper has saved us time, it has saved us money – thus instant ROI."
– AO Smith

Preventing and eliminating fragmentation with IntelliWrite® technology and Instant Defrag

IntelliWrite, coupled with Instant Defrag™ technology, delivers the optimum solution to increased efficiency. Intelliwrite prevents an average of 90% of fragmentation from ever occurring and Instant Defrag eliminates the rest so that systems are kept at peak efficiency all the time.



"Diskeeper has stretched the longevity of our systems' hard drives beyond the normal MTBF (Mean time between failures) helping keep systems running at five nines, meaning the system uptime is 99.999%."
– MB Financial Bank

InvisiTasking® technology: optimize invisibly

InvisiTasking allows for all Diskeeper and V-Locity actions to occur in real-time in the background with zero resource impact or conflict with ongoing operations.

"We have been very pleased with our decision to deploy Diskeeper companywide. After the Diskeeper deployment, our Service Desk received a number of calls from users asking why their systems were so much faster. These are the types of calls we love to take! Our experience with Diskeeper has been overwhelmingly positive."

– General Mills

Cost benefits to an enterprise

V-locity achieves specific performance results that affect the economic efficiencies of a site. As a result, cost savings are easy to identify.

Testing done showed not only an extremely fast ROI but significant savings with an increase in productivity and a lowering of expense.

The findings showed a 6.5 Month ROI and a direct savings benefit.

V-locity Driven Savings On 1,000 Workstations	\$68,766
V-locity Driven Savings Per Workstation	\$68.77

Source: Part 2. Virtualization and Fragmentation. Best practices for optimizing virtual disks. – Topix

Diskeeper Corporation – partnered with Microsoft and VMware

Because V-locity is so critical to virtual platform performance optimization, we maintain close partnerships with both Microsoft and VMware. The following quotes reflect the commitment we've made to both companies to support and help optimize their technology:

"Disk fragmentation can be worse in virtualized environments because physical drives serve multiple OSes and applications. Partners such as Diskeeper Corporation are broadening the portfolio of products that customers need as they deploy Microsoft virtualization solutions in the enterprise." – Dai Vu, Director Virtualization Products, Microsoft Corporation

The VMware and Diskeeper Corporation alliance statement

"For peak performance of Guest OSes running Windows, deploy a virtual platform optimizer as Best Practice maintenance. Per VMware KB article, Defragmenting a Disk:

"Defragmenting a disk is required to address problems encountered with an operating system as a result of file system fragmentation. Fragmentation problems result in slow operating system performance.

"Diskeeper Corporation worked closely with VMware to offer V-locity, a fully certified VMware-ready solution for the enterprise." – VMware partner website

V-locity virtual platform optimizer provides an automatic solution to ensure that you are getting the most performance and economy possible from your virtualization investment.

**CONTACT YOUR CORPORATE REPRESENTATIVE NOW
(800) 829-6468 or visit www.diskeeper.com**