

## **IDC Insight: Disk Defragmentation and Optimization and Their Increasing Importance (Frederick W. Broussard, August 2003, IDC #29945)**

*Defragmentation and  
defragmentation tools are  
underestimated in their importance  
to the enterprise.*

This document outlines major points from an IDC Insight written in August of 2003, authored by analyst Frederick W. Broussard, entitled "Disk Defragmentation and Optimization and Their Increasing Importance."

All statements below are excerpts taken directly from the Insight paper. The complete paper, including typical examples with hard data, may be purchased from IDC.

### **IDC Opinion**

Defragmentation and defragmentation tools are underestimated in their importance to the enterprise. Without regular defragmentation and optimization runs on disks, IT administrators and end users face the following:

- Fragmentation occurs not only in the files and data on a drive but also in the file system. Defragmentation technology produces comparable performance gains to costly system upgrades.
- There would be significant performance degradation as a result of increased fragmentation on hard disks that back up enterprise and end-user data.
- Disk defragmentation grows increasingly important as disks grow larger in size and performance requirements increase. With defragmentation software, enterprises can realize considerable reductions in IT total cost of ownership (TCO) by using a reliable, networkable defragmenter as opposed to a manual utility.

### **Situation Overview**

PerfectDisk® comes with the Perfect Management™ feature, PerfectDisk's integration with Microsoft's® Active Directory®.

This would help organizations that are deploying Active Directory, allowing PerfectDisk to be managed using Group Policy to defragment end-user machines automatically based on an administrator-set schedule. Raxco positions itself as a vendor that provides enterprise defragmentation capability that is fast, thorough, and easily managed.

## **The Windows Built-In Defragmenter**

The built-in defragmentation tool is available in Microsoft Windows® operating environments running the FAT, FAT32, and NTFS file systems. This defragmentation tool has limited functionality, as follows:

- It requires 15% free space.
- It can only run one partition, and only on one disk, and more than one pass.
- It cannot be run on an automatic scheduling feature.
- It cannot be scripted.
- It can run only on local volumes, and it can run only one volume at a time.

## **Analysis**

Because of the increasing size of hard drives available for laptop and desktop machines as well as the larger and larger disk space supporting corporate storage requirements, it will be necessary to support gigabytes and terabytes of data.

Therefore, as hard drives are put through their paces in supporting data storage, it becomes more important to ensure that the disks are always in a good position to do that. Defragmenting hard disks are part of that requirement.

## **How Performance Suffers Due to Fragmentation**

*Although many companies acknowledge that file fragmentation is a fact of life on most modern distributed systems, few are aware of just how much it is costing the bottom line ...*

Although many companies acknowledge that file fragmentation is a fact of life on most modern distributed systems, few are aware of just how much it is costing the bottom line in terms of lost performance and, as a result, unnecessary hardware upgrades.

Excessive disk fragmentation can create substantial performance degradation on both servers and workstations across a site. Some companies, unaware of the impact, are

*...an enterprise can decrease IT total cost of ownership (TCO) by instituting defragmentation across the network...*

likely to resolve such a performance impact with more expensive acquisitions of higher-performance hardware.

However, it is just a matter of time before fragmentation impacts the new machines because this process only masks the performance problem temporarily. Therefore, an enterprise can decrease IT total cost of ownership (TCO) by instituting defragmentation across the network, rather than relying exclusively on more costly hardware upgrades to increase system performance.

### **The Hidden Benefit of Defragmentation – Forestalling Unnecessary Hardware Upgrades**

With fragmentation exerting such a severe toll on system performance, it's quite likely that many organizations have initiated hardware upgrades unnecessarily. By using a defragmentation utility, it is possible to achieve performance gains that meet or exceed many hardware upgrades. From a cost standpoint alone, this is an attractive proposition.

Is there an alternative to installing defragmentation software? Yes, though it is a poor investment of time and resources. The user or system administrator would have to dump the entire contents of each disk onto a backup tape or spare disk and then reload the contents onto the disks.

Although this does result in contiguous files, it is a time-consuming method. The cost of an administrator's time alone would make this approach unfeasible, not to mention the time during which users would be denied access to the system. Further, it is only a short-term fix, as disks will again become fragmented within a relatively short period.

### **Network Defragmentation**

Unlike manual defragmenters, network defragmentation software provides automatic scheduling, network deployment and controls, and multiple-partition defragmentation. All of these features greatly reduce overall TCO.

Instead of system administrators having to visit individual workstations, the entire network can be defragmented from a central console and scheduled to run automatically. The savings are dramatic.

## **Cost Savings Summary of Network Versus Manual Defragmentation**

Based on the preceding cost comparisons, network defragmentation clearly provides cost savings of several magnitudes when compared with manual, built-in defragmentation. These savings apply to both small businesses and global enterprises.

Even though the actual numbers may vary from customer to customer, when one considers the significant impact on TCO, it is difficult to find any argument to position the decentralized defragmentation process over automated, network defragmentation.

## **Essential Guidance**

IT managers should strongly consider regularly scheduled defragmentation for their enterprise.

Copyright 2004, Raxco Software, Inc. All rights reserved.

PerfectDisk is a registered trademark of Raxco Software, Inc. Perfect Management is a trademark of Raxco Software, Inc. Microsoft, Windows, and Active Directory are trademarks or registered trademarks of Microsoft Corporation. All other trademarks or trade names are the property of their respective owners.