



[Print Page](#)
[Close Page](#)

AberdeenGroup

Impact

December 7, 1998

Solid Data Systems: Turbocharging Disk Storage System Performance

A dreaded "I/O bottleneck" can threaten promised application benefits, such as increased productivity or lower costs. Solid state disk systems - now financially feasible for Windows NT and Unix environments - may offer a way out from under unacceptable disk storage system performance. And, with its Excellerator family of solid state disk systems, Solid Data Systems is turbocharging storage performance, reducing or eliminating I/O bottlenecks.

When Success Can Lead to Failure

A successful new mission-critical application - such as an ERP system or a data warehouse - may lead to an unanticipated rapid rise in the number of users and in the demand for storage. Further, the resulting, unexpected sudden drop in performance due to I/O waits can threaten an application's continued success. Yet traditional client/server hardware upgrade configurations - both servers and storage - may be costly or simply technically infeasible.

Get 'Em While They're Hot

Sitting between a server and a storage system - redundant array of independent disks (RAID) storage system or even just a bunch of disks (JBOD) system - an Excellerator [solid state disk](#) (SSD) system from Solid Data Systems may be the answer. An Excellerator system (as with any SSD) works on the principle that no more than 10 percent of an application's data, such as transaction logs, temporary files, and index files, may make up more than half of the I/O activity. Storing these "hot files" on an SSD system lets an Excellerator substitute dramatically faster electronic DRAM access for much slower access due to mechanical movement on magnetic disk drives.

With the dramatic decline in DRAM prices over the last several years, SSD systems have become feasible - although not inexpensive - for the client/server world of Windows NT and Unix.

Protecting DRAMs

In contrast to stand-alone SSDs, an Excellerator SSD system makes up for the inherent volatility of DRAMs. To compensate, an Excellerator rack-mountable system contains a redundant power supply and an onboard internal backup drive. These components - along with built-in parity protection on the memory - deliver the high level of integrity that IS requires in

the event of either a power failure or single-bit errors on a memory chip.

Why Wait?

Sorting out the tangled web of potential causes for poor application performance may be difficult for a system administrator. With its I/O Dynamics proprietary software package, Solid Data Systems can help an IS organization determine those cases where an I/O wait problem is the culprit - and, if not, tell IS that an SSD system is not the answer. If an SSD system is necessary, I/O Dynamics can also determine the size of the Excellerator SSD system that is required to meet specific needs.

No Thanks for the Memory

Although main memory DRAMs could substitute for a SSD system, an Excellerator SSD system is more flexible than main memory for administration and control - for the purpose of managing storage - and is nonvolatile, unlike main memory. Moreover, beyond a certain limit, hardware suppliers might not offer main memory; but an Excellerator SSD system does not suffer from this limitation.

No Need to Cache in Your Chips

Another alternative, cache memory in a storage controller, is a well-tested method of speeding disk performance. But controller cache is statistically fast, using well-honed algorithms for determining which files to keep in cache, while an SSD system is *predictably* fast, using well-researched historical usage patterns to predict which files to keep in SSD. Since the two usage patterns are not necessarily synonymous, disk caching and SSD can act as complements. Each IS organization has to determine the proper mix.

Company, Platforms, and Pricing

Database Excelleration Systems (DES) renamed itself Solid Data Systems in September 1998 to reflect its focus on solid state storage systems.

Both of the company's two offerings - the Excellerator line, which uses a Fast/Wide SCSI interface, and the Excellerator Ultra line, which uses a standard Ultra SCSI interface - easily integrate with any system as if it were simply another disk drive. An Excellerator SSD system runs on the major Windows NT and Unix platforms.

Pricing depends significantly on memory requirements. For example, on the street, a 1.07-GB Excellerator 800 Ultra costs \$30,300 (about \$28 per MB), whereas a 17.38-GB Excellerator 1000 Ultra version costs \$226,080 (about \$13 per MB).

Aberdeen Conclusions

Even though not inexpensive, an Excellerator SSD system represents only a fraction of what other technical alternatives to fix I/O bottleneck problems can cost - and much less than suffering a loss of labor productivity, a revenue loss, or even having to walk away from a large sunk-cost IT investment. For an IS organization, an Excellerator SSD system may be one way to pull another performance rabbit out of its hat, to the delight of cost-conscious management.

- David Hill

AberdeenGroup, Inc.

Telephone: 617.723.7890

*One Boston Place
Boston, Massachusetts
02108 USA*

*Fax: 617.723.7897
www.aberdeen.com*

For further information on AberdeenGroup's products and services
please contact us at info@aberdeen.com

**This Document is for Electronic Distribution Only
-- REPRODUCTION PROHIBITED --**

Copyright © 1998 Aberdeen Group, Inc., Boston, Massachusetts

The trademarks and registered trademarks of the corporations mentioned in this publication are the property of their respective holders. Unless otherwise noted, the entire contents of this publication are copyrighted by Aberdeen Group, Inc. and may not be reproduced, stored in a retrieval system, or transmitted in any form or by any means without prior written consent of the publisher.

Page Printed: <http://soliddata.com/products/technology/aberdeen.html>

[Important Notices](#) and [Privacy Statement](#) © 2009 Solid Data Systems. All rights reserved.