IBM touts SSD data management software for its servers, arrays

It's now offering solid-state drives on its Power6 server line

By Lucas Mearian
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Computerworld - IBM is now providing management software across all of its servers and storage arrays that identifies the most highly accessed data and migrates it to solid-state disk (SSD) drives to improve application performance.

The company also announced today that it is offering SSDs in its Power6 iSeries server line. IBM already offers SSDs from STEC Inc. as an option in its x-Series blade server line and DS8000 enterprise-class storage arrays.

Clod Barrera, chief technical strategist for IBM Systems Storage, said that by using SSDs to store highly accessed data, such as that which resides in relational databases and Web applications, application performance can be improved eight-fold. "We asked ourselves, isn't there a sweet spot or a place where we can move the indices plus hot tables for better performance, and the answer is yes," Barrera said. "By moving only a fraction of the data, response time was [eight times] better than the hard disk drive-only base line."

Based on IBM's testing, the new SSD offerings, combined with the Smart Data Placement tools, can reduce the physical footprint of the storage needed by about 80% and energy consumption by up to 90%. That's because SSDs use less power, and less frequently used data can be moved off primary servers and storage.

For example, a bank running a DS8000 storage array in support of DB2 for zOS and SAP, can improve business performance by more than 30% and reduce the physical storage footprint by 60%. That would reduce the bank's energy consumption by more than 70%, IBM state in a statement.

Jim Handy, an analyst with Objective Analysis in Los Gatos, Calif., said special management software for SSDs is not unique, but it's pretty rare.

"I have heard from SSD makers that the addition of an SSD to a system can bring about an immediate improvement, but this improvement pales in comparison to the improvements possible through the use of an SSD with well-tuned software," he said. "Not everyone has the programming manpower to hand-tune their software, and products like IBM's provides an off-the shelf means of attaining a boost in line with the improvement afforded by hand-tuned software."

Many enterprises are interested in SSDs because they can be a cheap alternative to other "contorted ways" of getting fast storage, Handy said.

High-performance storage arrays use 15,000 RPM Fibre Channel hard disk drives to get data throughput up compared with standard 5,400 to 7,200 RPM SATA drives. In addition, advanced storage arrays often 'short stroke' a number of Fibre Channel enterprise-class hard disk drives by using only the outer tracks of the platter where the data pours off the disk faster.

The downside to short-stroking is that is forces administrators to multiply the number of power-hungry enterprise hard disk drives needed to get the same amount of storage as a single enterprise solid state disk would give you, Handy noted.

"When these applications replace ten short-stroked enterprise hard disk drives with a single enterprise SSD, they save power, space, and often a little money (ten enterprise HDDs at ~$650 each vs. one enterprise SSD at $5,000)," he said, adding that reliability tends to improve as well, which affords further cost savings that are more difficult to quantify.

IBM said its Smart Data Placement software includes nine tools that will work with the SSDs now available on all of its hardware, from servers to storage arrays. The software comes in different variations, some of them new, some that are upgrades to existing offerings.

The Smart Data Placement tools enable users to migrate, monitor and dynamically place data on SSDs, Barrera said. They are available immediately and come free with each server or with the company's storage systems management software.

"Think of it as a two-step process," Barrera said. "There's a process of measurement -- tools tell you what's happening and what benefit there'll be from data being on SSD. And then there's separate tools to migrate that data."

For example, in conjunction with SSDs in Power iSeries servers, IBM said it will now also offer the "IBM i: ASP Balancer," which will allow system administrators to monitor data, migrate data and properly place it on the SSDs to achieve the best performance in a tiered-storage environment. While the ASP Balancer is not new, the code is now upgraded to deliver data monitoring and migration capabilities for SSDs.

The SSD Data Balancer tools allow a system administrator to move "hot" data that's frequently accessed to SSDs, while "cold" data goes to traditional hard drives. That approach recognizes that most customers will have a hybrid environment using both SSDs and traditional disks.

In another example, IBM's Data Facility Storage Management Subsystem (DFSMS) provides for targeted data placement on SSDs in an IBM zSeries server and DS8000 storage array.

"The most significant part of this...is [that] we're the first vendor to offer the software tools to maximize SSDs," Barrera said. "This is viewed as key."