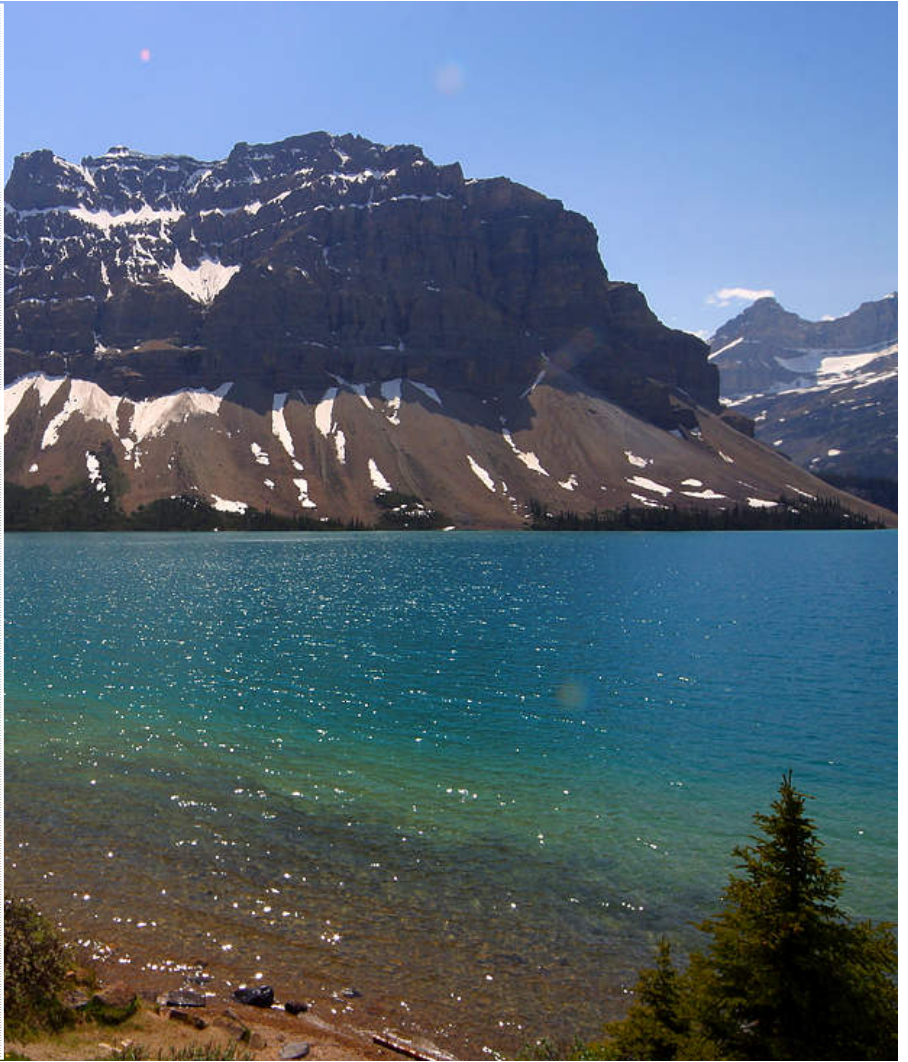


Disk

Management

Case Study



S4i Systems, Inc.
616 South El Camino Real
Suite M
San Clemente, CA 92672
949/366.5234 ph
800/231.5280 ph
949/366.5338 fax
www.s4isystems.com

This lights out data center is one of the largest iSeries shops in North America. Four large iSeries systems run JD Edwards applications, among others in a fully automated environment. Rather than using manual techniques to uncover the cause of problematic DASD utilization, Shell Canada uses DASD-Plus Alert to instantly nail problems as they emerge.

Shell Canada: DASD-Spikes in a JDE Shop

The scenario

Shell Canada Ltd. is one of the largest iSeries shops in North America. The company operates a lights-out data center in Calgary, Alberta, consisting of four large iSeries systems running J.D. Edwards applications, among others. As a fully automated data center, Shell Canada is very attuned to the efficiency of its infrastructure, and keeps an especially close eye on its 7TB of iSeries DASD. However, when the IT staff started noticing spikes in DASD usage, they rightly became concerned.

The company, a subsidiary of Royal Dutch Shell, is conservative in its approach to maintaining a water-tight systems infrastructure, even by conservative AS/400 standards. Shell Canada had configured its iSeries servers to alert the IT staff, via the paging module of Bytware's MessengerPlus, whenever disk utilization exceeded 70 percent. Typically, however, disk utilization resided quite comfortably around the 50 percent mark, said Kirk Chalk, a Shell Canada senior staff systems analyst.

“We’re fairly sophisticated in our storage management strategy, using S4i DASD-Plus for routine clean up and to forecast future requirements. DASD-Plus Alert is a tool that saves time and money, plus gives us better control.”

Kirk Chalk, Senior Systems Analyst, Shell Canada

Creeping DASD

But sometimes, especially around the end of the month when people were running lots of reports against the OneWorld and WorldSoftware databases (Shell Canada runs them in co-existence mode), the disk utilization on some of the iSeries would get out of hand. For example, on one 12-way iSeries server equipped with almost 3 TB of DASD, there was once only about 180 GB of unused space, a 96-percent utilization figure. This is not a healthy situation, even if you have oodles of storage, as Shell Canada does.

Crouching client

It didn't take a lot of time for Chalk to figure out why this was happening. The way that DB2 is architected, Chalk explains, the database will perform a number of table joins and build indexes to satisfy user requests for information. Some of these requests can result in large, temporary objects being built and stored in the database, some as large 5 GB to 30 GB for a database as big as Shell Canada's.



S4i Systems, Inc.
616 South El Camino Real
Suite M
San Clemente, CA 92672
949/366.5234 ph
800/231.5280 ph
949/366.5338 fax
www.s4isystems.com

Also, the proliferation of nontraditional applications such as WebSphere, which Shell is introducing to provide a Web interface for their JDE OneWorld implementation, was increasing the utilization of OS/400 IFS for production storage. The least offensive culprit in the escalation of DASD usage at Shell Canada were outfiles created by batch programs, he said.

Knowing where the problem is generally originating is one thing, but having the information to actually tackle the problem in an efficient manner was entirely another.

“We had a number of incidents occurring where we’d get tremendous spikes,” Chalk said. “We’re fairly sophisticated in our storage management strategy, using S4i DASD-Plus for routine clean up and to forecast future requirements. But we didn’t have a way to get a handle on dynamic spikes for database queries.” OS/400 shops are fairly limited in the solutions available that address this specific problem. The operating system can be configured to sound an alert when a certain percentage of disk utilization is reached in an auxiliary storage pool. But that doesn’t provide the operators with the detailed information they need to act on it and prevent damage.

A very “PEXing” situation

OS/400 also ships with a free facility called Performance Explorer, or PEX, that can provide a more in-depth view of how the disk is being used and who is responsible for using it. However, when time is limited, PEX can be difficult to use effectively because it generates a mass of information through which the operator must sift in order to find the offending job that is gobbling up the DASD and the user who created it. You don’t want to be dallying around when the iSeries is teetering under an extremely high disk utilization load. You want to get right to the problem.

Where did all the DASD go?

The lack of a real-time spike-detection utility concerned Chalk, who has experience with other large systems such as IBM mainframes, from which Chalk helped Shell Canada migrate several years ago to the AS/400s. “There’s no facility in the OS/400 that gives you a snapshot of the delta in storage over a defined interval,” he said. “Where did I lose 100 GBs in the last hour? There’s no easy way to find out on these machines.”

Dynamic DASD spike detection

DASD-Plus Alert takes the disk utilization results returned by the PEX tool and compiles them into a format that’s easier to read and use. With DASD-Plus Alert running, systems administrators can quickly find out which jobs are consuming disk, what objects are associated with those jobs, and who created the job—all the things that an administrator needs to know when he has to manually go in and stop the process... and do it fast. Shell Canada implemented DASD-Plus Alert so that, when an anomalous disk situation is detected, it sends a message to the MessengerPlus system, which pages the Shell Canada IT staffer on call.



S4i Systems, Inc.
616 South El Camino Real
Suite M
San Clemente, CA 92672
949/366.5234 ph
800/231.5280 ph
949/366.5338 fax
www.s4isystems.com

Nail them in their tracks

As Shell Canada begins to move away from an RPG-centric approach to its applications and toward a DB2-centric approach, it will likely have more disk usage spikes to deal with. Chalk says that the way in which RPG allocated disk resources is much more predictable than DB2. But now that he's armed with the DASD-Plus Alert, he's not so worried. "If you're within a few megabytes from losing the box, it's really a terrible situation," Chalk said. "There are a few ways to hunt and peck to find it out, but now we can nail them in their tracks."

The rest of the DASD management story

In conjunction with DASD-Plus Alert, Shell Canada uses S4i DASD-Plus for routine iSeries DASD housekeeping and to forecast future DASD requirements. DASD-Plus Alert provides the additional capability of dynamically monitoring DASD spikes on a real-time basis.

Free support-assisted in-house evaluation

Give us a call to arrange an in-house evaluation of either or both of our iSeries DASD management solutions, or visit us on the web at <http://www.s4isystems.com>



S4i Systems, Inc.
616 South El Camino Real
Suite M
San Clemente, CA 92672
949/366.5234 ph
800/231.5280 ph
949/366.5338 fax
www.s4isystems.com