



# SUNCOR

## SCALING UP OIL SANDS RECOVERY

### Highlights

**Company**  
Suncor

**Industry**  
Petroleum

#### Key Business Challenge

Implement scalable, high-availability IT environment to support \$2 billion oil sands facility expansion

#### Applications/Solutions

- Oracle Financials
- NovaManage engineering document management framework
- PSDI Maximo for plant maintenance and materials management
- JeTech time collection and contractor management
- IBM ADSM automated backup for distributed environment
- Veritas file system
- Oracle 7.3.1 and 8.01 databases

#### Products

- Two mirrored Sun Enterprise™ 4500 10-way high-availability servers
- Sun Enterprise™ 3500 4-way and Sun's Ultra™ 2 high-availability servers for testbed
- Sun StorEdge™ A5000 storage (800 gigabytes, mirrored)
- Sun's Solaris™ 2.6 Operating Environment

#### Key Business Results

- Sun high-availability environment has delivered near-100% uptime
- Sun service has consistently delivered next-day service to remote location
- Suncor gains IT environment to support planned growth

*"We work hard to keep our operating costs down and to make the most of every business opportunity. Having an IT environment that we can count on helps make that happen."*

*Doug Pelton  
Director of Information Technology  
Suncor Energy*

The volatility in oil and gas prices has forced the petroleum industry to concentrate even more on increasing reliability and efficiency. "Production costs per barrel is one of our main drivers," according to Doug Pelton, director of information technology at Suncor Energy, a \$3.5 billion world leader in oil recovery, refining and marketing based in Calgary, Alberta.

As part of the quest for efficiency, Suncor's Fort McMurray, Alberta-based oil sands operation has embarked on the Millennium Project, a \$2 billion effort to increase production to 220,000 barrels daily by 2002.

To support Millennium, Suncor required an open, scalable, and reliable computing environment to handle the growth. Because of the remote location—about five hours north of Edmonton, Suncor required a platform that was extremely reliable and a provider that delivered top-notch service. Suncor looked to Sun to provide a high-availability environment to propel the Fort McMurray operation into the next century.

### Priming for Success

Survival in the petroleum industry is challenging, with the price of oil having sunk at one point below that of bottled water. The result is that survivors must become masters at efficiency. "We answer to many stakeholders," said Pelton, listing shareholders, government regulatory agencies, the environmental community, and of course, its customers.

With prices in the late 1990s the lowest in 20 years, after inflation, enterprises such as Suncor Energy have learned to stretch the dollars that they earn on each barrel. "Harder times have driven us to become a much better company," according to Pelton.

Over the past decade, the company recovered from a period of stagnancy with a series of restructurings that have placed it in several upstream and downstream sectors. In addition to the Ft. McMurray-based oil sands operation, the company's largest business unit, Suncor is active in oil and gas exploration in Western Canada, refining and marketing in Ontario, and recently began marketing natural gas directly to Ontario homeowners. Suncor is also involved in a project to determine the feasibility of extracting oil from Australia's vast oil shale deposits.

A key component of Suncor's strategy to stay at the top of the market is to take advantage of economies of scale. However, when Suncor began the Millennium Project, it realized that its existing mainframe architecture would quickly run out of gas. "We were growing beyond the capacity of our legacy applications, and there were Year 2000 issues," said Patrick Woo, IS manager.

"We needed an environment that could adapt quickly because our business is changing so rapidly," said Paul Moore, manager of application services. A major driver is the need to partner with third parties that deliver critical services that are helping Suncor expand its northern Alberta oil sands operation. "With Millennium, we will be spending hundreds of millions on engineering alone. We have had to form alliances with engineering and construction firms to deliver the project safely, on time and on budget," said Pelton. In many cases, the partnerships are based, not just on fee-based service, but equal sharing of risks and rewards. The less expensive the deliverable, the more that everybody wins.

An open environment was therefore critical to allow Suncor to operate these partnerships. For instance, the document management system would have to be accessible to engineering and construction firms, both on-site and at offices in Calgary and Edmonton.

Furthermore, given the site's remote location in northern Alberta, over 200 miles north of Edmonton and its importance to the bottom line, reliability was critical. The Ft. McMurray site could not afford to have its IT systems go down, nor could plant staff wait for help to arrive from Edmonton.

## Identifying the Solutions


For the facility's expansion, implementing an engineering records management system was mission-critical. Because the processes for mining, extracting, upgrading and blending products are extremely complex, the system would have to handle large quantities of highly complicated engineering. The project needed an effective management system to ensure success.

The search for best practices revealed that there was no package available that could handle the degree of complexity in the engineering plans. Instead, Suncor chose the NovaManage framework, which allowed it to build its own management system from a series of workflow engine components.

Having chosen the solutions, Suncor focused its attention on hardware infrastructure. They sent requests for proposals to all major platform providers. According to Pelton, the key criteria included cost, the ability of the provider to deliver service along with the quality of technical support, the provider's vision, and the quality of its third-party software vendor relationships.

And then, there was high-availability. "This was a drop dead issue," stated Pelton. "We wanted much more than just load-sharing across CPUs. We needed to get fault-tolerance, and get as close as possible to 100% up time."

Suncor chose a high-availability configuration of two, 8-way Sun Enterprise 4500 servers, that were operated fully mirrored to deliver fault-tolerance. Each server carried three gigabytes of memory and was backed with Sun StorEdge A5000 fibre channel storage containing dual 500-gigabytes of disk media in fully mirrored configuration. Additionally, a test-bed environment containing two mirrored Sun Enterprise 3500 server 6-way machines was included.



Sun emerged the choice, not only because of its excellent price/performance, but because Sun was willing to deliver advanced technologies such as Fiber channel drives at the same cost that other vendors were offering for older systems, such as SSA drives. "Sun provided a viable upgrade path," noted Woo, who added, "We estimated that when the system went fully live, it would easily be processing over 20,000 I/O per second."

Sun's third party support was also outstanding, according to Moore. The Sun Enterprise server and Solaris 2.6 Operating Environment fully supported each of the primary applications, including the NovaManage engineering document management framework, PSDI Maximo plant maintenance and materials management system, and the JeTech time collection and contractor management. When identifying platforms, Suncor also learned that the Sun Enterprise servers delivered high benchmarks for Oracle, the database chosen to run its mission-critical systems. As icing on the cake, Suncor was impressed by the fact that Sun's Solaris Operating Environment also delivered excellent support for its existing IBM-based ADSM automated file backup and MagStar robotic media management systems.

### **Getting Results**

"We were very impressed by Sun's readiness and willingness to get our business. We had support, all the way to the top levels," said Pelton. Sun's cooperation helped Suncor deliver the project a month ahead of schedule and under budget.

The system, which has been operational for over eight months, has already passed the acid test. "Availability has worked as advertised," said Woo. "We've had a number of failover situations, some of them because we were still in learning mode, and some of them operational. Our downtime has been very minor." Suncor has been highly impressed with Sun's service, which is critical given its remote location. "Sun's service has been very proactive. Their response for parts has been consistently excellent, and when we needed them, they have always come on site within 24 hours," noted Woo.

And with the Sun Enterprise server and Solaris Operating Environment, Suncor has an open scalable platform that will provide the headroom to grow its business and expand its business relationships. "We work hard to keep our operating costs down and to make the most of every business opportunity," said Pelton, adding, "Having an IT environment that we can count on helps make that happen."

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