

## Shell Canada: Using IBM System i and Oracle JD Edwards EnterpriseOne for mission-critical business applications



As part of Royal Dutch Shell, a global group of energy and petrochemical companies, Shell Canada produces, markets and distributes natural gas, natural gas liquids, bitumen, sulphur and refined petroleum products across Canada. Shell is a major stakeholder in the development of Alberta's oil sands resources and has operations in each of the three main deposits. Shell Canada employs about 5,400 people and has about 1,800 Shell-branded retail stations in Canada.

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### Overview

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#### ■ **Challenge**

*Enabling enhanced innovation while reducing system delivery costs to replace a mainframe processing environment*

#### ■ **Solution**

*A comprehensive series of solutions leveraging IBM System i™ architecture to support four mission-critical business applications, including an ERP solution based on Oracle JD Edwards EnterpriseOne;*

*a corporate data warehouse; an online bulk fuel management system; and a high-volume transactional report and distribution repository*

#### ■ **Key Benefits**

*Advanced data-integration capabilities, significantly improved operational efficiency, optimized profitability and the flexibility to meet new business demands while accommodating rapid business change*

#### **System i: Supporting four leading business applications companywide**

In response to intense business pressures within the oil industry in the early 1990's, Shell Canada undertook a strategic initiative to acquire systems that would help it become more innovative while reducing system delivery costs. The ability to adapt nimbly, easily and cost-effectively to ever-changing market conditions—while remaining competitive—was a key priority for the company. Since 1995, it has been running IBM System i servers (then called iSeries®), which replaced a large mainframe processing environment.

Since that initial migration, Shell Canada has continued to consolidate processing to the System i—the single most pervasive platform across the company—while extending the scope of business functionality. System i servers now support four mission-critical business applications across Shell Canada, including:

- *An ERP solution based on JD Edwards Oracle EnterpriseOne*
- *A corporate data warehouse*
- *An online transaction processing (OLTP) system providing bulk fuel shipments from distribution floors out to retail stations*
- *A high-volume transactional report archival, viewing and distribution repository leveraging S4i Express*

#### **JD Edwards EnterpriseOne: Leveraging the best features of System i**

Shell Canada has a large deployment of an ERP solution based on IBM System i and JD Edwards EnterpriseOne. Formerly OneWorld Xe, EnterpriseOne is an integrated applications suite of comprehensive ERP software that combines business value, standards-based technology and deep industry experience. Shell Canada's ERP solution incorporates all aspects of its financial operations—from logistics, manufacturing and supply chain operations to equipment maintenance and human resources.

JD Edwards EnterpriseOne running on System i provides HTML browser-based access to users across Shell Canada. Supporting more than 4,000 named users and approximately 750 concurrent users, the ERP solution is deployed using IBM WebSphere® on System i.

"We initially made the transition from deploying backend financial systems in an effort to deliver cost-effective financials," says Kirk Chalk, Senior Staff Systems Architect, Shell Canada. "We then evolved that to the point where it touches almost every aspect of the business in terms of leading-edge Web-based applications, portal-based access and handheld devices. EnterpriseOne has helped deliver an incredible degree of data and process integration within Shell. And it has delivered both flexibility and extensibility regarding our reach into the business. It became less of a 'bread and butter' system and more of a strategic play to have ERP in place. The EnterpriseOne application leverages all the best features of System i."

Chalk says that the company is technically running a unified implementation, delivering three tiers of ERP from a single System i system, including:

- *The backend database using IBM DB2® Universal Database™*
- *EnterpriseOne business logic*
- *The end-user presentation, which is delivered through a combination of WebSphere and an Oracle EnterpriseOne HTML interface*

Notes Chalk, "IBM System i has the flexibility and scalability to deliver those three major processing components from a single system. That provides us with enormous value because we have superior reliability, much better operational efficiency, and certainly better cost control from a technical systems delivery perspective."

#### **Corporate data warehouse**

Shell Canada originally deployed its data warehouse as an IT initiative with a limited scope of functionality, driven by a business need to provide more sophisticated analysis for data residing primarily in the ERP and transactional databases. Over time, however, increasing business demand to provide consolidated views of data, which was dispersed among disparate sources mandated further evolution.

To address this, Shell moved away from a strictly transactional reporting model to deliver MIS/OLAP capabilities based on System i, DB2 and Business Objects, which is the Web-based interface over the System i data warehouse. The now mission-critical corporate data warehouse supports approximately 450 users and incorporates data from the transactional systems with change data capture (CDC) functionality delivered through DataMirror data replication software on System i, as well as data feeds from other systems within Shell. The data warehouse now delivers approximately 85 subject areas spanning the Shell organization with data being sourced from 26 different applications.

The data warehouse enables Shell Canada to access data from one location and analyze it across multiple business units. This helps the company leverage the data to extend application resources, enhance business operations and optimize profitability—while maintaining flexibility to meet changing business requirements.

### **Mission-critical bulk fuel management**

The third noteworthy mission-critical application residing on the System i is an online transaction processing (OLTP) system providing bulk fuel shipments from distribution floors out to retail stations across Canada. Shell Canada migrated this system directly from its System z™ mainframe using IBM VisualAge®—a high-productivity application development tool for workstation applications in a client/server environment. The OLTP system was a direct port from DB2 on the mainframe to DB2 on the System i, bringing over a mission-critical application called BOSS (billing, ordering, shipping and scheduling).

### **Reducing costs and enhancing efficiencies with high-volume report repository**

As part of its corporate data-management paradigm, the company is using S4i Express imaging and document management software from S4i Systems, Inc., which develops leading disk, imaging and electronic document management solutions for the IBM System i. This high-volume solution enables Shell Canada to archive, view and distribute documents and images (from 15,000 to 20,000 per day) generated from the company's System i-based transactional and ERP systems.

The Express system manages report data generated from other System i-based applications, UNIX servers and scanned image feeds from external service providers. Critical documents are stored in DB2 Universal Database and then automatically distributed to internal and external destinations.

The fully automated report and archival repository sends thousands or hundreds of thousands of invoices and statements electronically, all without manual intervention—helping Shell Canada increase operational efficiencies while reducing costs.

### **Extending the reach of System i with customized applications**

The other significant class of system at Shell is its application development within the JD Edwards EnterpriseOne development framework, producing customized applications to extend ERP functionality. The company has developed approximately 80 additional subsystems and more than 350 interfaces for the ERP environment using the EnterpriseOne tools on System i, and has a staff of developers trained on both System i and EnterpriseOne.

Says Chalk: “The value proposition for Shell resides in leveraging the tremendous flexibility of the System i platform and its ability to support diverse applications in conjunction with the comprehensive nature of the Oracle EnterpriseOne ERP deployment.”

### **System i: Enhancing the ability to meet new business demands**

The company ran hundreds of customized applications on its mainframe environment before migrating to an IBM System i platform. “By measure of compute power and data volume our System i complex is significantly larger than our mainframe ever was,” says Chalk. “However, we’re using about two-thirds less support staff while delivering much

higher flexibility. The system i platform has dramatically increased our ability to meet new business demands and accommodate rapid business change. This value is inestimable.”

Another benefit is significantly improved time to market. The company recently embarked on a major business initiative internally, requiring it to set up a new and complex System i system production environment in very short timeframe. Says Chalk, “We were able to accomplish this objective, and our business community was extremely happy with the results. The key to this success was not just flexibility, but also speed of delivery and scalability on the System i platform. We’ve proven over and over that you can ramp up and deliver very quickly on short-term business needs.”

### **Collaborating to deliver tape automation capabilities**

Shell Canada recently finished implementing a significant tape automation technology upgrade based on the IBM System Storage™ TS3500 Tape Library—formerly named IBM TotalStorage® 3584—and the IBM System Storage TS1120 Tape Drive. Two different IBM divisions, IBM Storage Systems (IBM Tucson) and IBM System i (IBM Rochester), came together with the Shell team to deliver enhanced value for the tape automation upgrade through advanced configuration planning and performance tuning for Shell Canada's sophisticated IBM Backup Recovery and Media Services (BRMS) environment.

“The deployment of this technology upgrade into our extensive portfolio of tape automation operations was a fairly complex upgrade,” says Chalk. “The collaboration of these two teams in conjunction with the local IBM service/support organization was outstanding and a key factor in the overall success of the implementation.”

The company has already realized significant benefits of the implementation, including:

- *Significantly improved backup performance and disaster recovery capabilities*
- *Enhanced ability to manage extremely large data volumes*
- *Reduced backup processing time on the system by 75 percent – from 12 hours to 3 hours*
- *Decreased system recovery time for disaster recovery by two-thirds*
- *Reduced operational costs with fully automated operational activities*
- *Enhanced data protection, helping to meet corporate and government auditability and accountability standards*

Shell Canada executes full system backups on every system each night, seven days per week, and “the improvements in the processing performance were so dramatic,” says Chalk, “that we actually had business managers coming down to comment on it, which is rare. We were also extremely impressed with the seamless delivery across two divisions of IBM.”

## Looking to the future

Shell Canada plans on leveraging new technology for tape encryption and WORM (write once, read many) functionalities; this will provide the company with shared preservation of original data images for auditing purposes. With the completion of the tape automation upgrade project Shell is now focused on implementation of an IBM external SAN (storage area network) solution featuring the IBM System Storage DS8300 – part of the DS8000™ series. Doing so will allow Shell Canada to further leverage improved scalability, availability and reliability on its data delivery, and establish a architectural basis for high availability (HA) operations.

Since first implementing System i nearly 12 years ago, Shell Canada has experienced major technological transitions in hardware, operating systems and applications delivered by IBM. “A unique feature of System i is the fact that we were able to make those technology transitions and deliver more capacity and scalability to the business seamlessly, without business interruptions,” says Chalk. “And the relationship between IBM, Oracle and Shell has been mutually beneficial to all parties.”

## For more information

To learn more about IBM System i solutions and services, contact your IBM sales representative or visit:

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