INT3S PARTNERS WITH RED HAT TO TURN ON THE POWER FOR TORONTO HYDRO WITH JBOSS ENTERPRISE SOA PLATFORM

FAST FACTS

Customer	Toronto Hydro Corporation
Advanced Business Partner	Int3s Corp.
Industries	Utilities: Electric Power: Smart Meter Program
Geography	Toronto, Canada
Business Challenge	To build a service-oriented architecture (SOA) as the foundation for future-looking strategic initiatives designed to support enablement of smart metering and smart grid integration, reduce operational costs, promote energy conservation, and improve IT productivity
Solution	Deployed JBoss Enterprise SOA and Red Hat Enterprise Linux as the platform for innovative Smart Meter program and has successfully completed the initial phases of its program to create a customer-focused cost and energy-saving initiative
Software	JBoss Enterprise SOA Platform (including JBoss ESB), SAP ERP, Oracle Financials, Red Hat Enterprise Linux
Benefits	Leveraging Int3s expertise in SOA and Red Hat / JBoss open source Enterprise Framework, Toronto Hydro was able to successfully complete the initial phases of its groundbreaking Smart Meter program and plan other customer-focused cost- and energy-saving initiatives going forward.

toronto hydro corporation

BACKGROUND

Toronto Hydro is the largest municipal electric distribution utility in Canada and operates two wholly owned affiliates with a combined workforce of over 1,400 people. It serves 697,000 residential and commercial customers across the greater Toronto Area, representing 18.5% of electricity consumers in the province of Ontario.

Toronto Hydro's technology strategy required experienced resources to supplement internal staff in delivering complex custom development projects and they partnered with Int3s, a Red Hat Advanced Business Partner, to help implement JBoss Enterprise SOA platform, including JBoss ESB.

Int3s designs, develops, and implements IT solutions for energy and utility, financial, and telecommunications organizations. By automating key business processes, Int3s is able to cost-effectively improve the overall business performance of its clients. A Red Hat Advanced Business Partner, Int3s has two distinct practices: one dedicated to service-oriented architecture (SOA) development and implementation, and one focused on business intelligence (BI) solutions. In both of its lines of business, Int3s is committed to using open source products for strategic client initiatives.

"Toronto Hydro's technology strategy required resources to supplement internal staff in delivering complex development projects. The JBoss Enterprise SOA Platform is a comprehensive toolset that comes with everything we need to facilitate the integration of disparate systems and data. It was the perfect solution to meet our needs – and we trust Red Hat to meet our future ones.."

– Nicholas Yee, Chief Technology Officer, Int3s

BUSINESS CHALLENGE

In late 2006, the Vice President of IT & Chief Information Officer of Toronto Hydro-Electric System, Eduardo E. Bresani, called in Nicholas Yee, the Chief Technology Officer of Int3s, to help him with an ambitious new five-year strategic initiative. His goal was to implement a service-oriented architecture (SOA) to replace his organization's traditional IT infrastructure.

"The new CIO was focused on modernizing the technology infrastructure, and developing a plan to build next-generation systems that would enable the firm to be more agile and efficient," said Yee.

"One of the most attractive features of an SOA is that it allows companies to build composite services in which business processes can be extended over a number of different applications. Using an SOA to integrate a number of disparate systems was one of the primary goals of the new CIO," said Yee.

A key business driver for the change was the firm's availability of IT resources. "Toronto Hydro continuing issue was that system integration and support activities were using more and more resources over time," said Yee. "The CIO wanted to free up his personnel to focus on more strategic and value-added matters."

A key business driver for the change was the firm's availability of IT resources. Specifically, building point-to-point interfaces between all the various systems Toronto Hydro had put into place over the years – legacy as well as client-server and Web-based systems – was proving too costly and complex.

"All the custom coding was proving very expensive to develop and maintain," said Yee.

The new SOA implementation was part of Toronto Hydro's ground-breaking "Smart Meter" initiative. The initiative had three primary business goals: to help the firm be more customer-focused; to provide its residential and business customers with tools to do a better job of conserving energy while managing their own electricity costs; and to meet regulatory mandates to use less energy, especially during periods of peak usage.

In the case of Toronto Hydro's Smart Meter program as mandated by the province of Ontario, the intention was to program variable pricing into the system based on the time of day that electricity was consumed (Time-Of-Use billing). The goal was to price electricity higher during peak times to encourage people and businesses to conserve energy during periods of high demand.

SOLUTION

Toronto Hydro and Int3s selected JBoss Enterprise Middleware for the Smart Meter program due to the size and stability of the technology and the toolsets that JBoss provided, including JBoss Hibernate, Rules, and jBPM Frameworks, to simplify the migration from Mule to the JBoss platform.

One of Toronto Hydro's most important applications uses the JBoss SOA platform as a mashup framework to allow customers to view their consumption data on the Web.

"We didn't want to be dependent on proprietary products for our SOA framework. What JBoss gives me is a solution that works with other products as long as they meet open source standards," said Eduardo Bresani, Chief Information Officer, Toronto Hydro.

The second reason Toronto Hydro went with JBoss was the flexibility of the subscription model. "JBoss doesn't charge for the product itself, but for the support – and we valued the enterprise level support that JBoss provides," said Bresani.

Moving to an SOA was an essential first step in implementing Toronto Hydro's Smart Meter initiative, as multiple diverse systems and data sets needed to be integrated to collect, process, and disseminate all the relevant customer and operational information. "Building custom APIs between each of the many systems involved simply wasn't an option," said Yee.

From the very beginning of the project, open source was the answer. "With open source, we could avoid vendor lock-in, and standardize everything related to business logic, business processes, and data models," said Yee.

In a previous solution, Yee had led the team that developed the Rosetta Enterprise Service Bus (ESB), which was acquired by Red Hat's Middleware Business Unit in 2006 and incorporated into the JBoss Enterprise SOA Platform. After running an evaluation program with the Mule ESB, the JBoss SOA Platform was selected and implemented as part of the Early Adopter Program in early 2008.

Although Toronto Hydro is not the largest utility in North America, it currently has the largest production deployment of smart meters on the continent which stands at over 600,000. The firm is also reaffirming its leadership position by rolling out its Time-Of-Use billing initiative that will bill customers higher rates at peak times, and lower rates at off-peak times.

"From a strategic point of view, Toronto Hydro's commitment to open source made it an imperative to look at the size and stability of the technology vendor we chose for the long-term," said Yee, "Based on our technical evaluations, we realized it was a much better fit to align ourselves with JBoss."

In addition to other functional advantages, there were the toolsets that JBoss provided, including JBoss Hibernate, Rules, and jBPM Frameworks.

"These were all powerful tools that made migration from Mule over to the JBoss platform a very straightforward process," said Yee.

Since the initial smart meter implementation, Int3s has expanded the use of the JBoss SOA Platform at Toronto Hydro in multiple projects including the development of an ETL (Extract, Transform and Load) framework for a new Enterprise Data Warehouse and integration to Google's PowerMeter project. The SOA Platform has also simplified large system implementations such as Oracle's Customer Information System and the International Financial Reporting Standards (IFRS) using SAP.

"We've succeeded because of the innovation of the Red Hat products, and the expertise of Int3s integrating systems. Together they allowed us to leverage the power of JBoss and really make the technology work for us,"

Eduardo E. Bresani

CIO, Toronto Hydro-Electric System

BENEFITS

The support provided by Red Hat has been superb. "As an Advanced Business Partner, we've had terrific access to some of the best development professionals at JBoss," said Yee. "Not only were they very responsive when we called, but they asked us to help prioritize what functionality should be incorporated in future releases of the platform, ensuring that JBoss will continue to meet our evolving needs."

From a global perspective, utilities have moved from focusing on simply "keeping the lights on" to better matching supply to demand. "Ultimately, it comes down to developing new applications that can be integrated with existing systems, and consolidating the huge amounts of complex data that comes from the household as well as the utility company," said Yee. "Although we're still in the infancy of that effort at Toronto Hydro, the JBoss Enterprise SOA Platform will enable us to do that."

"JBoss technology comes with everything we need to build a solid SOA for facilitating easy integration of disparate systems and data. It was the perfect solution to meet our current needs – and we trust Red Hat to meet our future ones," said Yee.

Toronto Hydro is also very pleased with the relationship its firm has forged with Red Hat. Other Red Hat utilities clients can now leverage the experience Int3s gained during its work with Toronto Hydro. "It's a win-win situation for us both," said Yee.

"Our relationship with Red Hat has been very good, everything has always gone very smoothly. In meetings with Red Hat at the headquarters in Raleigh, Bresani discussed the innovative deployment with executives. Bresani recalls the meetings, "We discussed how we were using the products and how we could work together closely to make their products more successful. The meeting gave me confidence that we'd made the right choice of technology and vendor."

"We've succeeded because of the combination of the leadership of Toronto Hydro, the innovation of the Red Hat products, and the expertise of Int3s integrating systems. Together they allowed us to leverage the power of JBoss and really make the technology work for us," said Bresani.

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