|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | |  | |  | |
| Microsoft Server Product Portfolio  Customer Solution Case Study | |
|  | |  | |
|  | \\SeattleFS\Projects\985-MS-CET\Work_Documents\Customer_Folder\Ontario Lottery Group\Logo\OLG.png | |  | | Server HeaderLottery Agency Saves Millions—and Years of Work—with Innovative BI Solution | |
|  | |  | |
| Overview  **Country or Region:** Canada  **Industry:** Media and entertainment—Gambling  Customer Profile  Ontario Lottery and Gaming (OLG) is a government agency in Toronto, Canada. It provides lottery games and gaming facilities that generate money used by the government.  Business Situation  OLG wanted a powerful, cost-effective technology solution that could provide greater insight into lottery data in order to combat fraud and provide better service to consumers.  Solution  OLG created a solution based on Microsoft SQL Server 2008 R2 Enterprise and HP hardware using guidance and best practices available in Microsoft SQL Server Fast Track Data Warehouse.  Benefits   * Can perform data analysis in minutes instead of a month * Saved several years and 85 percent of cost in development * Can provide better information to the public |  | |  | | “In the past, it was like information was stored in a vault and the keys were thrown away. SQL Server and HP technologies helped us create a solution that turns our data into a valued asset for us and our customers."  Fariba Anderson, Vice President of IT, Ontario Lottery and Gaming | |
|  | |  | | The Ontario Lottery and Gaming Corporation (OLG) developed a powerful analytic tool to provide instant access to billions of lottery transactions dating back to 1999. Dubbed the Data Analytic and Retrieval Technology (DART), OLG developed the solution in six months for about CAN$1.1 million (U.S.$1.15 million) with Microsoft and HP supporting technologies—a sharp contrast to the three-to-five years and more than $10 million needed with other BI solutions evaluated by OLG. Searches that used to take weeks can now be done in seconds. With the DART tool, OLG can identify play patterns to confirm legitimate winners and identify potentially fraudulent behavior and claims. DART builds on other OLG antifraud and player protection initiatives, delivering on the organization’s pledge to better inform and protect those who play its games and lotteries. | |
|  |  | |  | |  | |
| \\SeattleFS\Projects\985-MS-CET\Work_Documents\Customer_Folder\HP\Logos\New - July 2011\HPCircleLogo300dpi.jpg |  | |  | | C:\Users\bvanhouten\AppData\Roaming\Microsoft\Templates\CEP_Templates\\CEPFiles_logo_Microsoft.jpg | |
|  | |

Situation

Based in Toronto, Canada, the Ontario Lottery and Gaming Corporation (OLG) is not just a provider of entertainment and winnings to lottery customers. It’s also a big business. OLG is a provincial agency responsible for lottery games and gaming facilities. Since 1975, OLG lotteries, casinos, slots, and resort casinos have generated more than CAN$34 billion (U.S.$35.7 billion) for the benefit of the Province of Ontario. Gaming proceeds support Ontario's hospitals, amateur sport, recreational and cultural activities, communities, provincial priority programs such as healthcare and education, and local and provincial charities and nonprofit organizations.

|  |
| --- |
| “Every time we focused on a typical business intelligence solution used by the finance and retail industry, the cost would be anywhere from $10 million to $20 million.... That was simply out of the question for our organization.”  Fariba Anderson, Vice President of Lottery IT, Ontario Lottery and Gaming |

With such a high public profile, OLG has a lot at stake in the way it runs its operations. Among its most important tasks is ensuring that the right prize is paid to the right person while protecting lottery products against potential fraud.

It’s not an easy task. The OLG, as with any lottery operation, is driven and sustained by an immense amount of data going back decades, with information generated for every lottery ticket sold. With the onset of computerized gaming in the late 1970s and early 1980s, the OLG and other lottery organizations implemented security procedures that resulted in lottery data being segregated and encrypted. Security was so great that no one person or other system could access the information about a lottery transaction.

However, this security architecture had unintended consequences, says Fariba Anderson, Vice President of Lottery IT for Ontario Lottery and Gaming. “What happens when you encrypt and segregate data about your business and make it literally impossible for any type of analytics? You don’t have the business insight based on data about your business,” says Anderson.

And that’s a problem—one that came to a head in the past few years at OLG following several highly publicized incidents where lottery winners were defrauded of their legitimate winnings. In the past, it could take months for one or more OLG employees to research all the information related to a possible case of fraud. The manually intensive procedures typically involved many data queries, cutting and pasting the results into spreadsheets, and applying the results to analytical models.

Virtually all lottery organizations have experienced a similar problem at some point. Anderson and her colleagues at OLG decided to find a way to resolve it, in spite of some significant technical challenges. “We faced several issues when evaluating our options,” she says. “First, we had to overcome the notion in our industry that business intelligence—creating the ability to look into the data—can potentially lead to compromising the security of the data. Then, how do we efficiently sort through and analyze the immense volume of data to attain relevant business intelligence?”

When evaluating options for a new business intelligence (BI) solution, Anderson and her colleagues were hampered by two big issues: cost and the lack of vendor knowledge about the lottery industry.

She says, “Every time we focused on a typical business intelligence solution used by the finance and retail industry, the cost would be anywhere from $10 million to $20 million—which seems to be the standard price tag for enterprise BI solutions. And the timeline needed for implementation would be three-to-five years. That was simply out of the question for our organization. We don’t have that kind of IT budget and could not wait that long for a solution.”

OLG was frustrated by the default approach that BI solution vendors always presented. “They all would try to sell us their BI system by using examples of how it works in other industries,” Anderson says. “What they didn’t get is that the lottery industry is unique, with specific business scenarios and challenges.”

|  |
| --- |
| “We needed a powerful, flexible system … to quickly and easily process the nearly 4 terabytes of data that we have, which represents 12 years of historical lottery sales transactions and prizes.”  Fariba Anderson, Vice President of Lottery IT, Ontario Lottery and Gaming |

What OLG needed was a solution that was cost-effective, met the organization’s business needs, and could be deployed quickly without the need for years of IT time. “When looking at technology solutions, we had several considerations, including our budget and timelines, the need to manage a lot of data, and deploying technology that could simplify the data analytic process,” Anderson says. “We needed a powerful, flexible system. Any new computer system would have to quickly and easily process the nearly 4 terabytes of data that we have, which represents 12 years of historical lottery sales transactions and prizes, plus new transactional records going forward.”

Solution

The IT team at OLG developed a solution that provided speed and flexibility while being cost-effective, using a data environment designed around Microsoft SQL Server 2008 R2 Enterprise data management software and server hardware from HP. The innovative solution is called the Data Analytic and Retrieval Technology (DART) system, which helps OLG rapidly sort through massive amounts of data while enhancing the range of lottery information available to the public. It holds the historical records of all lottery transactions since 1999—approximately 12 billion transactions with an associated 44 billion rows of data—and is now used to record an average of 1.2 billion transactions that take place annually.

A key factor that influenced the OLG decision was Microsoft SQL Server Fast Track Data Warehouse, a flexible set of reference architectures that help organizations customize data warehouse solutions based on their own specific IT and business requirements. SQL Server Fast Track Data Warehouse includes information background and planning tools, detailed references for configuring hardware, and prescriptive guidance for optimizing and maintaining the resulting data warehouse solution. With Fast Track Data Warehouse, OLG had access to design help and best practices that its engineers could use to develop the right technology mix for DART.

Working with representatives from Microsoft and HP, OLG began designing the DART system in late 2009 using SQL Server 2008. It deployed the final solution in July 2010 using SQL Server 2008 R2 Enterprise. OLG created its own application for DART using proprietary algorithms that can rapidly discern patterns within each lottery ticket and ticket transaction.

With the computing power in SQL Server 2008 R2 and the HP server hardware, OLG users can sift through billions of records in a matter of minutes. Employees can find data that is unique to individual tickets as well as patterns related to the sale and purchase of tickets, including retailer activities and consumer buying patterns. In keeping with the privacy mandates of the Ontario government and security procedures established by OLG, most lottery transactions are anonymous except when consumers claim their prizes.

Along with internal tasks such as checking the validity of ticket claims, OLG is using DART to make more lottery information available to the public. This serves a dual purpose: providing better customer service and creating more barriers to potential fraud. For example, the OLG website posts lists of popular lottery numbers and where winning tickets are sold. It also provides a report that lists unclaimed tickets with prize amounts greater than $10,000.

|  |
| --- |
| “With DART and the SQL Server and HP technologies behind it, one person can push a button and in a few minutes or less get the same information that could take up to a month to get in the past."  Fariba Anderson, Vice President of Lottery IT, Ontario Lottery and Gaming |

The information supplied for each of these unclaimed tickets, however, represents only a small portion of the data gleaned through the DART system. It’s just enough information to jog the memory of a lottery ticket owner, but it also demonstrates to someone intent on filing a fraudulent winnings claim that the lottery has a lot of information that can be used to validate a ticket.

The SQL Server software used in DART runs on three HP ProLiant DL980 G7 server computers equipped with 64 2.0-gigahertz processing cores, 512 gigabytes (GB) of RAM, and 174 300-GB internal drives. Using SQL Server 2008 R2 database backup compression technology, OLG performs routine database backups that take less than an hour to complete. Restore time for a full backup takes less than 20 minutes.

Benefits

Using Microsoft SQL Server 200 R2 and HP hardware, OLG has developed one of the lottery industry’s most powerful and innovative solutions, with a sophisticated system that helps the organization fight fraud while providing better customer service. The system is extraordinarily fast, delivering information about transaction activities in a matter of minutes. With SQL Server Fast Track Data Warehouse, OLG cut years off its development cycle. In addition, the organization found ways of sharing DART features on its website to give customers information about the lottery that is both informative and useful.

Can Perform Data Analysis in Minutes Instead of a Month

The biggest barrier to effectively combating fraud—the time involved in investigating possible fraudulent activity—has been eliminated with the DART system. Recalling the cumbersome processes of the past, Anderson says that a fraud investigation used to involve anywhere from five to ten employees working on a case for many months.

“With DART and the SQL Server and HP technologies behind it, one person can push a button and in a few minutes or less get the same information that could take up to a month to get in the past,” Anderson says. “We’ve also used the technology for innovative analytics such as Retailer Profile, which helps us determine within minutes the behaviors of lottery retailers before and right after a ticket is sold. We can use the Retailer Profile on tickets going back to 1999 in order to identify suspicious patterns of activity.”

One of the most notable successes for DART arrived less than three months after deployment. OLG tapped into the system to gather information that the agency provided to the Ontario Provincial Police, who in turn charged a former lottery retailer and two relatives with wrongly getting OLG to pay out a $12.3 million prize in 2003. Information from DART was used to create a “profile” of the ticket, with information that contradicted details provided by the suspects, who were arrested. This same “profile” was used to positively identify the rightful owners of the winning ticket—seven years after the original purchase. Ticket profiling is another innovative analytic feature of DART that helps OLG examine details about a customer’s purchase patterns for a lottery transaction—without knowing the identity of the actual individual. This feature is used by OLG to analyze the purchase pattern when a customer presents a claim for any prize of more than $1,000.

|  |
| --- |
| “With DART we have been able to add valuable features to the OLG website, like information related to unclaimed tickets and statistics on winning numbers. It helps us inform and serve our customers more effectively."  Rick Guzzo, Data Analysis Team Manager, Ontario Lottery and Gaming |

Saved Several Years and 60–85 Percent of Cost in Development

OLG found a cost-effective way to create a custom solution quickly and efficiently around SQL Server technology, HP hardware, and best practices and methodologies provided by Fast Track Data Warehouse guidance. The compelling factor for the OLG decision was the substantially lower cost and time involving in using the Microsoft and HP technologies.

“We budgeted $3 million for the solution, but wound up spending $1.1 million with the combined Microsoft and HP solution,” says Anderson. “That’s about 60 to 85 percent less than if we had gone for a more traditional BI solution. With Microsoft and HP, we got powerful performance at a substantially lower cost and met our time-to-market requirements.”

Anderson’s development team credit Fast Track Data Warehouse for saving time. “SQL Server Fast Track Data Warehouse literally took years off the development time for the project,” says Les Norbo, Solution Development Analyst, with Ontario Lottery and Gaming. “With Fast Track Data Warehouse, Microsoft and HP did not say to us, ‘Here’s how someone else in some other industry did it.’ Instead, they showed us how we could build our own business intelligence solution using a particular topology to meet our business requirements.”

Fast Track Data Warehouse not only delivered on those specifications but also made it possible for OLG to start design work in December 2009 and deploy the solution the following July.

“The value of SQL Server Fast Track Data Warehouse is that it’s not a sales document—it’s knowledge transfer that let us do in six months what would have taken years with another solution,” Anderson says. “It is designed for software engineers, providing a very deep level of technology and expertise that our technicians could apply to the context of the lottery industry. SQL Server Fast Track Data Warehouse was a key part of our decision to work with Microsoft and HP in creating this solution.”

Can Provide Better Information to the Public

By using DART, OLG is now able to fulfill its commitment to pay the right prize to the right person at all times and bolster the organization’s public image.

“With DART we have been able to add valuable features to the OLG website, like information related to unclaimed tickets and statistics on winning numbers. It helps us inform and serve our customers more effectively,” says Rick Guzzo, Data Analysis Team Manager for Ontario Lottery and Gaming. “There’s additional value as well in the positive press we’ve received when we’ve been able to address cases of fraud.”

Anderson concurs, adding that the technology helps tap into the power of the organization’s data. ”In the past, it was like the information was stored in a vault and the keys were thrown away. SQL Server and HP technologies helped us create a solution that turns our data into a valued asset for us and for our customers.”

Microsoft Server Product Portfolio

|  |  |
| --- | --- |
|  | |
| Software and Services   * Microsoft Server Product Portfolio * Microsoft SQL Server 2008 R2 Enterprise * Solutions * Microsoft SQL Server Fast Track Data Warehouse | Hardware   * HP ProLiant DL980 G7 server computer   Partners   * HP |

|  |  |
| --- | --- |
| This case study is for informational purposes only. MICROSOFT MAKES NO WARRANTIES, EXPRESS OR IMPLIED, IN THIS SUMMARY.  Document published August 2011 |  |

For More Information

For more information about Microsoft products and services, call the Microsoft Sales Information Center at (800) 426-9400. In Canada, call the Microsoft Canada Information Centre at (877) 568-2495. Customers in the United States and Canada who are deaf or hard-of-hearing can reach Microsoft text telephone (TTY/TDD) services at (800) 892-5234. Outside the 50 United States and Canada, please contact your local Microsoft subsidiary. To access information using the World Wide Web, go to:

[www.microsoft.com](http://www.microsoft.com)

For more information about HP products and services, call (800) 752-0900 or visit the website at:   
[www.hp.com](http://www.hp.com)

For more information about Ontario Lottery and Gaming Corporation products and services, call

(800) 387-0098 or visit the website at:   
[www.olg.ca](http://www.olg.ca/)

For more information about the Microsoft server product portfolio, go to:

[www.microsoft.com/servers](http://www.microsoft.com/servers)