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ENBRIDGE GAS DISTRIBUTION Compresses System Refresh from 4 Weeks to 7 Days

New Automation Software Improves Customer Data Availability, Validation, and Testing

by **Lauren Bonneau**, Managing Editor

With almost two million industrial, commercial, and residential customers, Enbridge Gas Distribution maintains a vast pool of customer data. And that pool continues to get deeper and wider as the company's Customer Information System (CIS) application grows by 10 to 12 gigabytes per business day. This increased amount of data flow was having an impact on the company's core data system.

"Our database is growing at a fairly significant rate, and it was taking longer and longer to actually move or 'refresh' the data," says Hugh MacMillan, Manager of IT Technical Services at Enbridge. "It was clear we were going to reach a point where it would be almost impossible for us to perform a system refresh. And if we didn't refresh our pre-production environment, our data would get stale for testing."

The accuracy and availability of data in the CIS application is crucial to the success of the business. The system includes billing information, such as premise and gas meter information, name, location, and address. While Enbridge outsources its customer care and billing functions, the IT department is tasked with maintaining the CIS system. Enbridge employees in sales, operations, and finance also frequently use the CIS application to access and review customer information.

The application utilizes the SAP ERP and SAP Customer Relationship Management (SAP CRM) systems for its customer and billing data. To keep data relevant, the IT department is regularly required to refresh the data in the company's pre-production environment, which is where final testing and user acceptance testing is done for all changes that go to production. As part of the refresh process, IT must move the data from the production system to this pre-production environment — during which time the updated data would be unavailable to CIS developers and testers for up to four weeks at a time.

The business was understandably uncomfortable with having the CIS pre-production environment out of commission for so long, and the lengthy process left the IT department and business users waiting to perform testing and complete other projects. "With projects changing and going as fast as they are, we can't be behind the business needs," says Liliana Wilson, Database Architect at Enbridge. "And without a pre-production environment available for people to test and to sign off, enhancements and other required changes can get delayed — which can affect our customers."

At a Glance

Enbridge Gas Distribution

Head office: Toronto, Ontario, Canada

Industry: Gas distribution

Revenue: Approximately $2.8 billion

Employees: Approximately 1,800

Company details:

- Canada's largest natural gas utility
- Serves 1.95 million customers in communities across Ontario (added about 37,000 customers in 2010)
- Operating for 160+ years

SAP solutions:

- SAP ERP (including the industry solution for utilities)
- SAP CRM
- SAP NetWeaver PI
- SAP NetWeaver BW

The Road to a Faster System Refresh

As any SAP administrator could attest, a production to pre-production refresh is a lengthy and tedious process involving a sequence of manual, repetitive steps.

"To complete the refresh, you have to do a lot of manual intervention," says Wilson. "And by that, I mean 50, 60, or 70 individual steps per SAP system." With three SAP system modules and a ton of interoperability amongst them, a refresh at Enbridge could involve hundreds of steps.

To fulfill the business need for a quicker system refresh, the IT team at Enbridge dissected the problem and searched for a solution that would speed up the process. The first step was to evaluate vendors who offered runbook automation — i.e., defining and managing workflows that support systems and processes. Enbridge selected Cisco Tidal Intelligent Automation for SAP, which provides this workflow capability and additionally handles a lot of the SAP activities required for the post-processing aspects of the refresh. (For more on why Enbridge chose Cisco, see the sidebar at the end of the article.)

With Cisco Tidal Intelligent Automation for SAP, application users can create workflows from scratch to fit their own environment. This flexibility was attractive to Enbridge because of the complicated nature of its processes. "The workflow you build is a set of detailed steps that logically follow each other, and you can insert an approval process in between the steps," says Wilson. "Once you build it, you can rerun this workflow an endless number of times and it will always perform the same way. You take out human errors like typos and mistakes like that."

Building a workflow that automates the repetitive steps for performing a system refresh means a faster refresh and a

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less error-prone process, which leads to more accurate system testing. And the compressed refresh time means the system data is more available, which positively affects everyone in the business, all the way up to the customer.

Learning to Build Workflows

According to Wilson, each workflow takes about five days to build. "It's very, very logical, but you have to take your time and have a clear picture of where you want to arrive," she says. "Luckily, we had documentation about system refreshes so we had a good place to start. Then, as we built the workflow, we challenged and questioned every single step and action. We reviewed and validated our process so that the resulting workflow could be used over and over again."

The team engaged Cisco consulting services to help build the custom workflows and transfer knowledge to the Enbridge team. "They were very knowledgeable and willing to help and stretch the software to its limits to accommodate our needs," says Wilson. "At the end of it, we really know the product and are in a place where we can confidently build our own workflows."

Wilson especially appreciated the support Enbridge received throughout the project. She kept track of any questions that arose during the workflow building and sent Cisco support a wish list of how she thought the product should look or behave differently. "After just a week, I received a request to schedule a conference call with some of the product managers — during which we went through the list step by step, bullet by bullet, so they could understand everything that was there," she says. "They were very receptive to any suggestions and took all of my comments very seriously. And one week later, they came back with dates for all of my wish list. That was phenomenal. I was very impressed."

MacMillan agrees that Cisco was a big help to Enbridge, but emphasizes that the whole exercise involved more than simply deploying a piece of software. "This project involved not just the acquisition and configuration of a workflow product, but also some interesting things that we had to do around our database cloning methodology." (See the sidebar to the right for more information about Enbridge's homegrown solution for database cloning.)

"There was a lot of really good creativity shown by a lot of people," he says. "It was a joint effort between software consultants and employees that worked out, in my opinion, quite well."

Implicit and Explicit Business Benefits

Enbridge has seen and expects to continue to see a host of both implicit and explicit benefits since implementing the software. Most directly, the business was able to reduce the refresh time of the SAP production data from a month down to about a week, with further improvements in the works. "Usually, these types of process improvements are in the three-to-four to two-to-three week range, but to decrease by that kind of a factor in terms of this one particular process is pretty staggering," says MacMillan.

The explicit benefit is more accurate testing. Fresher data means fewer potential testing errors or invalid results due to unforeseen data scenarios or stale data. And instead of letting testing work accumulate before cramming it into a short window of time, Enbridge now has regular testing and enhancement cycles.

The implicit benefit is that the pre-production system will be more available. "Because there's going to be less downtime, the scheduling of releases will go more smoothly, and there's more availability to get more enhancements and defects fixed going forward," says MacMillan.

From a technology point of view, the main benefit of building a workflow that automates a painful process is simple reusability. "After you've taken the time to think about your processes and put them into this kind of automation software once, you can be done with it," says Wilson. "Replacing repetitive, manual, boring, nobody-wants-to-do-them tasks with a product that does it reliably for you all the time is invaluable."

Capabilities Beyond System Refreshing

While reducing system refresh time was the key driver for adopting the Cisco product, Enbridge ended up using it for much more. "Once we looked at what the software could

Duplicating the Data

Duplicating system data is a key step in refreshing an SAP system. The business must rely on back-up or cloned data until the database is completely restored, and the data is not available to system users. Given the size of Enbridge's SAP systems — 6TB for SAP ERP, 3TB for SAP CRM, and 6TB for SAP NetWeaver BW — restoring a system after a backup could take anywhere from 12 to 20 hours, which could translate into an equivalent system outage of 15 to 20 hours. Also, the refresh is performed over the network to an offsite location, which excludes the options for fast data cloning methods such as mirroring.

"There was nothing we could do about the time it takes to restore, but what we could do is not equate that restore time to an outage time," says Wilson. Her SAP Basis team, along with the department's UNIX team, put their heads together and came up with a creative homegrown solution for cloning the database offline to reduce the outage, coupled with the Cisco Tidal Intelligent Automation application for SAP for the pre- and post-processing.

"We configured the restore software so that it restores to a location different from what the users are accessing, and then we do a quick switch when everything is ready so the outage is now as short as five minutes," says Wilson. "There's a very minimal interruption to the users and they always have what they need."

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do and saw how versatile it was, we realized we could build other workflows for other repetitive activities," Wilson says. "It was a great surprise — a bit like when you buy a Swiss Army knife because you need a knife, but then you find out it has a fork and a screwdriver too."

For example, Enbridge recently upgraded all 23 databases in its SAP landscape, and used the Cisco software to validate the data after each upgrade. "There's a checklist you have to fill in, and we had to perform this test every single time," Wilson says. "Using the automation software, we built a health check workflow that includes an HTML report stating who performed the health check, when, and how. So we can always go back in this report later on for auditing purposes to see a record of what was completed."

Enbridge plans to expand use of the software in the future. For instance, Enbridge intends to extend it to a business partner that provides application management of Enbridge's SAP systems. "While this group has not yet taken advantage of the software, the last step in this whole chain of health checks and data validation is to decrease their manual effort by automating their health check scenarios and scripts as well." This expansion would further reduce the overall refresh time down to three or four days — quite a difference from the three or four weeks prior to undertaking the reduction effort. ■

BUSINESS BENEFITS OF CISCO TIDAL INTELLIGENT AUTOMATION FOR SAP

Cisco is a worldwide leader in networking that transforms how people connect, communicate, and collaborate. Businesses of all sizes, governments, service providers, and consumers leverage the value of the network using Cisco hardware, software, and services to improve collaboration, simplify operations, increase customer satisfaction, and improve competitive advantage.

Enbridge Gas Distribution was looking to speed its system refresh process and selected the Cisco Tidal Intelligent Automation for SAP application. A manual system refresh process can be costly to an enterprise and unnerving for administration staffs. This automation solution helps simplify this process by making it more consistent and less error-prone, and it provides significant benefits to SAP users, such as:

- Automates system refresh procedures for SAP systems, using tools and procedures based on best practice
- Minimizes risk by reducing manual errors through consistent execution of system refresh procedures
- Reduces cost by decreasing the time and effort required to conduct system refresh procedures

With a reliable automation solution, IT can gain greater control over system refresh procedures and conduct full refreshes more frequently with greater confidence that vital production data will not be adversely affected. An automated and accelerated process enables organizations' development, training, sandbox, and quality assurance systems to have high-quality data quickly and accurately to ensure business continuity.

For more information about this solution or any other Cisco product or service, please visit **www.cisco.com**.

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