

Fort Hill Natural Gas Authority, South Carolina
CIS with Wheels: Using Mobile CIS Solutions to Improve Efficiency and Customer Service

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Until recently, when Mike Durham, servicer 1 with Fort Hill Natural Gas Authority, started his day, service orders were printed out and dispatched to him, along with the utility's other field personnel. As he finished the most recent round of service orders, he headed back to his office in Easley, South Carolina, to file paperwork and pick up orders that may have come in while he was away from his radio or out of cell phone range. On average, Durham says, he made three to four trips a day back and forth between his service territory and dispatch. And although he was only covering 14 to 20 miles with each trip, some of Durham's coworkers were driving 60 miles or more.

Each day, he says, 15 employees covering the utility's three-county service area and 37,500 customers, traveled back and forth from the office to the field, and during the fall and winter, the frequency and duration of the trips were even greater.

As service requests were worked and paperwork taken back to the office, someone entered service order updates in the gas utility's customer information system (CIS) when time permitted. In the meantime, if customers called to check the status of an order, the customer service representatives often didn't have access to the information they needed to adequately respond to their information requests.

Bottom line—time spent behind the wheel and in the office meant customers were waiting for service and for answers to their questions. "And, they weren't waiting patiently either," Durham says. "We have a great reputation for providing good service, but we can't rest on our laurels. We have to keep moving forward and do anything and everything we can to continue to improve. I've been here for 20 years. I worked here when we went from handwritten orders to computers, and there are definitely large benefits to be gained from migrating to newer, faster, better technology."

Moving Beyond Its Legacy

Like many businesses today, Fort Hill Natural Gas found itself in the unenviable position of trying to provide best-in-class service with technology that had served the company well for many years but could no longer meet the needs of today's evolving business and regulatory challenges.

The ability to make changes to the customer information system is critical to any utility because the business processes its supports or enables are dependent on the underlying functionality of the core software. As the business environment changes, these systems must have the capacity to reflect – and respond to -- these changes.

At Fort Hill Natural Gas, as with countless utilities, it had become too cost prohibitive to continue to enhance the CIS system that had been deployed in 1995. "Although our legacy system served the authority well for many years," says Keith Burgess, MIS manager for the utility, "growth and changes in the industry require new technology designed to streamline business processes, support Web applications, enable mobile

computing and time-of-use billing and improve both efficiency and the timeliness and quality of customer service.”

With the legacy software, simple requests such as creating a new report, rate analyses, adding new services and getting data from the system in new ways required costly and time-consuming programming changes and updates to thousands of lines of code.

According to Durham and Burgess, what the utility needed was a way to streamline and automate processes around workflow and inventory management, billing, metering and more effective customer communication. Furthermore, they needed a way to extend efficiency and service enhancements to personnel in the field. The key obstacle facing them as they started looking at potential options was the lack of a solution that met the utility’s specific criteria with a return-on-investment that was cost justifiable.

Jumping in Feet First

Almost two years ago, the gas authority was given the opportunity to replace its legacy CIS system and participate in an aggressive software development initiative sponsored by enterprise solution provider Innoprise Software, Inc. As part of the initiative, various organizations representing several utilities and city/county government agencies worked together, day in and day out, for 18 months to develop a new-to-the-world customer information system in return for a deep discount on the price of the resulting software.

Called the Joint Application Development Program, or JAD, dozens of participants like Fort Hill Natural Gas devoted both time and personnel resources in support of an intensive development effort to create a tailored, component-based software solution based on the latest developments in new technologies such as a J2EE service-oriented architectural backbone and a multi-tiered Internet-native platform.

According to Burgess, the authority decided to participate in the software development initiative because it represented an opportunity to help design a custom-tailored CIS solution that not only improved and automated operations within its offices, but extended those efficiency and service enhancements to the field.

Building the CIS

Based on the rapid timeline of the development project, the JAD development team implement software development infrastructure that would support rapid development of component-based software under a discipline documentation process utilizing the Rational Unified Process (RUP). Fort Hill and other members of the team were directly involved in every step of the development process, participating in the product specification definition, through ongoing testing and implementation. “Our goal was to create a solution that focused on the common work flow processes across all of our organizations while also providing the flexibility to continually tailor the software for the unique business processes and operational procedures of each entity,” Burgess explained.

The JAD team provided detailed input to the software company so that a vision document could be created, followed by development of detailed use case models and functional specifications. During the programming phase that followed, the code being created was accessible by the JAD team members for constant, iterative testing and review, followed by numerous revisions and additional tests before the software was actually released in May of 2004.

“We see two key benefits from our decision to participate in this endeavor,” commented Burgess. “One is that we were able to get industry-leading software at a fraction of the cost we would otherwise have expected to pay. Another is that because we were involved from the ground up, we were able to get exactly what we needed to better serve our customers. One of the beauties of the new technology is that it’s so flexible that we can continue to modify and enhance it with minimal cost and effort. We can customize it to meet the precise functions we perform, no matter how dramatically they change over time.”

The new CIS not only provides a single, consistent view of all customer information, whether from a local database or remote system anywhere in the enterprise, but the technology is much more suited for today’s enterprise management needs in part because of the convergence of Web service standards, and also because of the lower total cost of ownership that results from this new architecture.

The J2EE architecture offers powerful cross-functional capabilities that enable a wide variety of applications across the full spectrum of customer interaction to access the same data set using numerous available touch points, including the Internet, the telephone or traditional over-the-counter service. Customer management, billing, work management, marketing and other customer-oriented business processes are therefore unified, customer intelligence is enhanced and integration with other applications is simplified. The benefits for the customer include improved customer response times, faster customization, simplified and less expensive maintenance and lower integration costs.

Before implementing the new CIS, Burgess says, the authority dealt with many of the daily situations created by legacy systems. Service orders passed from desk to desk often getting lost under piles of paperwork. It took hours of database queries and time-consuming cut and paste to meet the ever changing regulatory reporting requirements. Customer information remained fragmented requiring different account numbers and a scroll through of several screens to get a complete view of monthly transactions.

“The new solutions are all about openness, and that’s going to allow us to operate in ways that are consistent with the demands of today’s competitive environment,” Burgess says. “With such an open architecture, we can unify customer and financial data and business processes across all departments, divisions and systems,” Burgess explains. “For the first time, this gives us a single, consistent view of data down to the transaction level. That kind of detailed view of our operations now allows us to expand our services and look for new revenue streams.”

For example, Burgess says, the authority launched an appliance installation department about two years ago as one of the ancillary services it offers to customers. Growth was steady but somewhat stymied by the authority’s legacy CIS system, which made it difficult or impossible to manage financing terms on individual customer accounts, set up separate collection processes, prioritize accounts receivable and reflect charges for ancillary services on a customer’s gas bill.

By replacing its legacy CIS system, the authority now has a range of capabilities designed to support and grow its appliance installation revenue stream. “We get calls

daily requesting financing for appliances,” he says. “With this new capability, we can easily double our sales. That’s a tremendous value to us and our customers.”

Extending Efficiency Benefits to the Field

With market demands to increase field productivity and provide better customer service while keeping operating costs at a minimum, Fort Hill determined that it could further streamline business processes by providing field personnel with a wireless solution to service order management.

As a result, the utility has deployed a unique system based on inexpensive, hand-held PDAs that not only enables them to download service orders from the CIS, schedule the work day relative to the workload, update the CIS in real-time with service order status information, query the CIS for additional information, and transmit service order completion information wirelessly from the field to the CIS. It also allows them to operate and communicate in real-time when connections are available, and automatically switch to a synchronization or queuing mode when disconnected, without disrupting the end-user or requiring special action. The resulting solution allows service personnel to remain in the field to manage service orders without returning to the office, resulting in major time savings, improved productivity in service request handling and enhanced levels of customer satisfaction.

According to Gregg Waring, the authority’s service department supervisor, the mobile solution has provided the authority with wireless peer-to-peer communication for real-time data exchange between the corporate CIS and service personnel in the field as well as among any connected devices on the authority’s network, ranging from cell phones and wireless PDAs to PCs and servers. One of the key benefits of this virtual network is that it enables service personnel to stay in the field serving customers instead of repeatedly returning to dispatch throughout the day to pick up or close out orders.

Through PDAs, service personnel can now directly access service orders and customer account information, including previous orders, directions to a hard-to-find meter, warnings about dogs or other security systems and more, Waring says. They can also close out orders and report meter damage or make other notes that feed automatically into the CIS at headquarters.

Mobile service order management, e-mail messages, and automated meter reading applications operate and communicate in real-time when connections are available. When those connections aren’t available, which can happen frequently in some of the authority’s more rural territories, Waring explains, the system automatically switches to a synchronization or queuing mode without disrupting the field personnel, requiring special action or resulting in lost data. The technology is communication network independent, allowing Fort Hill to use its preferred wireless carrier.

“Reliable wireless connectivity can be a problem in our outlying service areas, so the ability to automatically synchronize service order updates ensures that our service personnel are out in the field, increasing productivity and customer service—something they really can’t do in the office,” he says.

And because orders are now being managed in real-time, the authority’s customer service representatives can give customers an up-to-date and detailed status report on their service requests.

Other benefits, Waring says, involve supervisory and regulatory reporting issues. In the past, service personnel tracked the time it took to complete orders with handwritten notes scrawled in the margins as they handed them to an administrative assistant at dispatch for closing. Typically, he says, the only orders that received such special treatment involved leaks. At least annually, the Public Service Commission of South Carolina reviews this type of leak-detection data to ensure that leak reports are acted upon quickly and thoroughly.

With the new CIS and its mobile component, every service order gets a time-and-date stamp, letting management and interested regulatory agencies know exactly how long it takes to respond to and complete customer requests. This information can be used to redistribute the workload, develop training programs, produce daily operations reports, and assist with meeting the reporting requirements of various state and federal regulatory agencies.

Data from the field is automatically captured through the PDAs and fed into the CIS database at headquarters. According to Waring and Burgess, once the information is in the CIS database, the information can then be downloaded into a Microsoft® Word document or Excel spreadsheet within minutes.

According to Burgess, the ability to support and use a wide range of mobile devices means the authority can dodge some significant start-up costs. For example, instead of purchasing 15 mobile digital computers (MDCs) or “rugged laptops,” which are more commonly used for mobile CIS applications and typically cost about \$4,200 each, the authority purchased 15 Samson Pocket PC I700 PDAs at \$400 each.

Including the software development, software licenses, the PDAs and other hardware, Burgess says delivering mobile capabilities to its service personnel in the field has cost about \$50,000 to \$60,000. In terms of on-going costs, he says, the authority expects to pay \$30 to \$50 a month per PDA in wireless connection fees.

Into the Future

Looking ahead Burgess says the authority plans to extend use of the technology to departments throughout the utility, including meter reading and engineering and construction. “We’re just getting started with this,” he says. “We expect to get a lot of mileage out of the new technology we’ve created, not only because it gives us a complete, real-time view of our operations, but also because it gives us the tools we need to meet the changing needs of our customers and to continually improve on what’s already a very good thing.”