

An Insider's View of PG&E's IT Transformation

By Toby Tyler, Pacific Gas and Electric Co.

Pacific Gas and Electric Company (PG&E), headquartered in San Francisco, is one of the largest combination natural gas and electric utilities in the United States. Approximately 20,000 employees carry out our primary business—the transmission and delivery of energy. Founded in 1905, PG&E serves 15 million people throughout a 70,000-square-mile service area in northern and central California. Yet even a company like PG&E with more than a century of tradition is not afraid to transform and change.

The utilities industry is evolving, and PG&E realizes that we need to focus on the environment and provide better, faster, more cost-effective service to satisfy our customers. Technology plays a key role in our business processes as we look to create a more cohesive IT strategy that will help us achieve our goal of becoming the leading utility in the United States.

Although PG&E has always had a core IT organization, if it did not respond fast enough, other departments would build their own solutions. At the same time, many of our business processes and systems were aging, which created challenges in meeting our goal to provide superior customer service.

Our company needed to find a way to quickly become a more agile, aggressive organization with a focused business and technology strategy. Making this leap required a core network infrastructure that was flexible and intelligent, and delivered better customer satisfaction while helping reduce costs.

Enhancing Mobility and Collaboration with Networking

PG&E took its first steps toward modernizing the organization by launching an enhancement to our IT operations, which focused on rebuilding core business processes to improve mobility, collaboration, and the supply chain and customer service.

To begin our IT transformation, we established Resource Management Centers (RMCs). These state-of-the-art offices bring together multiple work functions, such as forecasting, planning, designing, estimating, scheduling and dispatching work—all using the latest technology. Voice over Internet Protocol (VoIP) technology at the RMCs integrates phones and computers allowing employees to access directories and company information using the displays on their phones. In addition, the core data network foundation for our RMCs incorporates several other technologies such as teleconferencing and wireless connectivity that we can use as a launch point to extend technology out to our other established offices.

We are also utilizing networking technology to make significant improvements to our core business processes. Key applications like asset management, work management and our geographic information system were standardized and consolidated. These changes will allow our employees to efficiently schedule resources and deliver materials where they are needed and when they are needed to better serve our customers.

Another major technology initiative is our SmartMeter program which will automate PG&E's meter reading system. Over the next five years, PG&E will upgrade approximately 10 million meters and build a network that will collect meter data once a day for gas customers and every

hour for electric customers. This represents a significant change from the current manual meter reading process, which collects meter information once a month. With the SmartMeter program in place, detailed energy usage data will be available to both PG&E and our customers, who can access this data online, offering greater insight into how and when our customers use energy.

The SmartMeter program leverages two technologies to collect data—a radio frequency system for gas meters, and a powerline carrier system for electric meters. Gas meters are retrofitted with modules that send customer usage information via a radio frequency signal to data collector units mounted on streetlight poles and other elevated structures. These collector units gather the meter data and transmit it to PG&E over a wide area network. Electric meters have a module that collects and sends data over powerlines to substation communication equipment where it is collected and sent via wide area network back to PG&E.

With the SmartMeter system PG&E can pinpoint outages more quickly, expedite power restoration, and offer a range of new rate plans for customers. Customers will have the option to join and benefit from rate plans designed to lower peak energy demand. Lower peak demand means power plants run less often, thereby helping PG&E reduce energy procurement costs and greenhouse gas emissions.

A More Mobile, Efficient Workforce

The new, consolidated network infrastructure promises to unlock major benefits by making our business processes more streamlined and efficient. A single Internet protocol (IP) network will be established for several call centers that support both customers and employees. Moving all of our call center operations to a single IP-based system is easier to maintain, lets us work together more effectively, and gives us the flexibility to route calls between different groups.

The advanced voice technology that we are implementing at our RMCs also enables better communication and new time-saving features, at a fraction of the cost of traditional phone systems. For example, when employees travel from one RMC to another, they can carry their IP phone—and their phone number—with them.

The new core network installed at our data centers to support the RMCs also plays an important role in enhancing employee mobility in the field. PG&E is migrating to standardized handheld devices and laptops to give field crews and account representatives access to the IP network when they are mobile. Many of our engineers in the field need access to drawings. Making paper-based materials available to engineers in the field electronically can help make these resources available to employees anytime, anywhere.

In addition, our SmartMeter program will automate manual processes and move them to the network, enabling us to reduce costs while improving customer service. PG&E will be able to read meters remotely and more accurately, locate and restore power outages more quickly, and make more informed decisions about our customers' power usage and demand. As PG&E moves more of its business processes to a flexible, intelligent IP network, we are building a foundation for a successful future, setting the stage for new customer services and applications as they are needed.

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