Getting Real-Time Information to the Enterprise to pave the way forward

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For generations utility operations engineers saw and manipulated real-time data from the transmission and distribution grids while other utility departments saw only summaries at best. Top management often relied on 30-60-90-day old information to make informed decisions. In today's high-speed world of digital integration and intense pressure on utilities struggling to keep the lights on, dealing with cyber threats, global warming pressures, and a host of other issues, that no longer works.

Modern asset management and planning systems, meter and customer systems, financial and risk management systems have the capability of tracking facilities performance in the field and informing even the C-level of the utility when changes need to be made or other actions taken. C-level personnel look at digital dashboards displaying key performance indicators from across utility enterprises to guide them in making the instant decisions often required.

PG&E

The traditional disconnect between operations/engineering and the "back office" is breaking down as new political, legislative, economic and social trends and crises have to be dealt with in real time, with real-time information. Fortunately, the systems to bridge this last traditional silo at utilities already exists and is being installed at many utilities as they gear up to operate the Intelligent Utility Enterprises and Smart Grids of the future.

Pacific Gas & Electric Co. (PG&E) has moved in two directions simultaneously to meet these diverse needs. In the interest of cyber security and to provide compliance with North American Electric Reliability Corp. (NERC) Critical Infrastructure Protection (CIP) standards, PG&E has isolated its operations/engineering systems from its enterprise network, according to Randall (Randy) Smith, information systems and technical support, SCADA. This would seem to be going in the opposite direction from providing more real-time data to the enterprise. However, PG&E also has installed an **RTscada** "Casual User Server," from DC Systems, Pleasanton, CA, on the enterprise side (corporate wide- area network) of this separation to provide the vital information needed for critical decision-making.

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"We've had the (Casual User) servers for about a year," Smith says. "Because we have secured the data network for operations, our planners and other people (such as business executives) can't get into that network. We don't allow them. The Casual User Server provides a central location for them to monitor the system, get alarms and see problems with relays, etc. This allows them to monitor the system in near real-time for purposes other than pure operational control.

"This provides a bridge," Smith continues. "Not anyone can look at it, but the necessary people can. Eventually, they will be able to see how much solar power we're getting into the system, or other aspects of how things are working as we build out a smart grid."

PG&E's enterprise-side portal to operations consists of six servers that store all real-time data from the operations network. Those who have the appropriate clearances can view those data in real-time or near-real-time. Security is provided by standard IT practices and procedures.

The DC Systems **RTscada** Casual User Server provides secure, managed access to operational data via the centralized servers. Configured to support multiple client connections via Microsoft Terminal Services, no special software is required on the client computers. Users connect to the central server using Microsoft Remote Desktop, using their standard corporate LAN ID. Logon security is controlled by the corporate active directory. Once connected, users have access to a set of specially designed programs that provide operational data via a Graphical User Interface, Alarm Display, and Device Manager. User data access is controlled by the system administrator on the casual user server.

Each user may be granted access to individual remote sites such as substations or other scada-monitored locations. In addition, each user can be granted full control or read-only access to the operational data. Casual users also can be restricted to accessing only a portion of the available real-time data. User activity is monitored via the terminal services session manager. After a selectable period of inactivity, users are automatically logged off, freeing up resources for active users.

The GUI program provides display and interaction with data from substations and field devices, such as relays, capacitor controls and line reclosers. This provides planners and engineers, and others with needed access, with the ability to look at transformer and line loads, and engineers to change capacitor settings and remotely program field devices. Users can navigate through hierarchical views, display multiple windows, and print screen shots on the user's local printer.

While many utilities are still struggling with the traditional cultural divide between operations/engineering and the "business side" of their enterprises, for the most part external pressures are breaking down these divides. As the barriers come down, the technology to both protect the operational network and provide real-time field information to the enterprise already exists. PG&E is an example of a major utility that already has mastered the technique.

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The DC Systems **RTscada** Casual User Server is a member of the **RTEIS** Enterprise Information System. The **RTEIS** is a secure gatekeeper between a real-time operational data network and a corporate network that allows for communication between the two. The data acquired from diverse field devices and locations is available to both corporate (casual) users and enterprise applications such as EMS, DMS, OMS, corporate data warehouse, and maintenance.

RTEIS has the ability to manage relay data and event files, making them available on a central server. It also provides a secure platform for remote relay access using NERC CIP standards.

The data, both real-time and historical, can be presented through a GUI, reports, and alarms. **RTEIS** uses Microsoft Terminal Services and integrates with the corporate Active Directory for enhanced security and manageability.