[OPC Application Case Studies - 02]

OPC connects large SCADA Gas Transmission System to Customer Systems

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[APPLICATION]

SCADA for Gas Transmission System

[DESCRIPTION OF THE APPLCATION]

TGS (a joint venture between Enron-USA and Perez Companc-Argentina) is the largest Natural Gas Transmission Company in Argentina. It was formed as a result of the privatization of Gas del Estado (former Estate Company). This integrated flow of data, which begins with an Internet-based purchase order and goes all the way through production, offers many new possibilities.

The new SCADA system, based on OPC technology, allows monitoring and controlling of more than 200 EFM measurement points (Electronic Flow Measurement for Custody Transfer) installed in approximately 7000 Km of pipelines. The SCADA system also supervises 28 compressor stations with 450,000 installed horsepower. The SCADA system two redundant MOBDUS ENRON OPC Servers with 16,000 tags of real time data. The system includes OPC Alarm Servers and OPC Historical Data Access Servers working on an MS Windows NT platform. The Main Control Center has a Contingency Site with similar features and data replication.

There are twenty HMI workstations distributed in the LAN and WAN operating as OPC Clients. The HMI have access to real time data, alarms and historical data that are mainly used by Gas Control and Measurement Areas. The OPC Servers also collect and automatically transfer the EFM data from the field devices to an SQL database.

An OPC Client MODBUS Slave allows real time information exchange through a standard protocol with SCADA Systems of our Customers (Gas Distributors and Producers). Applications

developed in Visual Basic have access to data in real time from the different OPC Servers (for example - Linepack Calculation and Gas Balance).

[EXPLANATION OF WHY OPC WAS CHOSEN]

It was necessary to replace our previous QNX-based SCADA system, an aging, legacy system. Our principal criteria for the system were that it be based on Microsoft WINDOWS NT so that it could be integrated with the rest of the enterprise system. We believe that OPC is a first successful standard that makes interoperability between SCADA Systems possible.

[SUMMARY OF HOW OPC WAS INSTALLED & THE BENEFITS RECEIVED AS A RESULT]

It was necessary to replace an operating SCADA System that had multiple interfaces with other systems (Measurement System, Nomination, Scheduling, Allocation and Control System, and Distributors and Producers SCADA systems). All of our existing field equipment operated in a MODBUS ENRON protocol.

The OPC SERVER was considered a key piece of the implementation. VFlops of Argentina wrote an OPC SERVER for MODBUS ENRON protocol. The Server was used to collect EFM historical records (Daily and Hourly records), Events and Alarms from the field devices and interface to an SQL Database. The OPC Server was configured through tables available in the SQL Server. This made it possible to normalize the EFM data collected from RTUs or Flow Computers of different manufacturers and models.

We have adopted several Windows NT-based standards - OPC, VBA, SQL SERVER, Active X, etc. We use ICONICS GENESIS 32 components, like GraphWorx, AlarmWorx, TrendWorx and DataWorx, which are also based on the OPC interface standard. The use of standards has reduced the total time for implementation because it was not necessary to design complex interfaces between different systems.

We are now considering expanding the project to include modeling and simulation software, giving special emphasis to the use of interfaces OPC between SCADA and MODEL, thus reducing implementation time and costs.

Source: OPC Foundation

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