Energy distribution monitoring and metering
over wireless GSM/3G network

Name of company: Latvian Gas (a Gazprom joint–company)

Field of industry: Oil and Gas, gas distribution

Location: Riga region, Latvia

Name and description of project: Gas distribution network monitoring and metering.

Application / process

The gas distribution network management system for Latvian Gas gas distribution stations. Transferring of information GSM/3G SMS communication (Short Messages) upon remote monitoring.
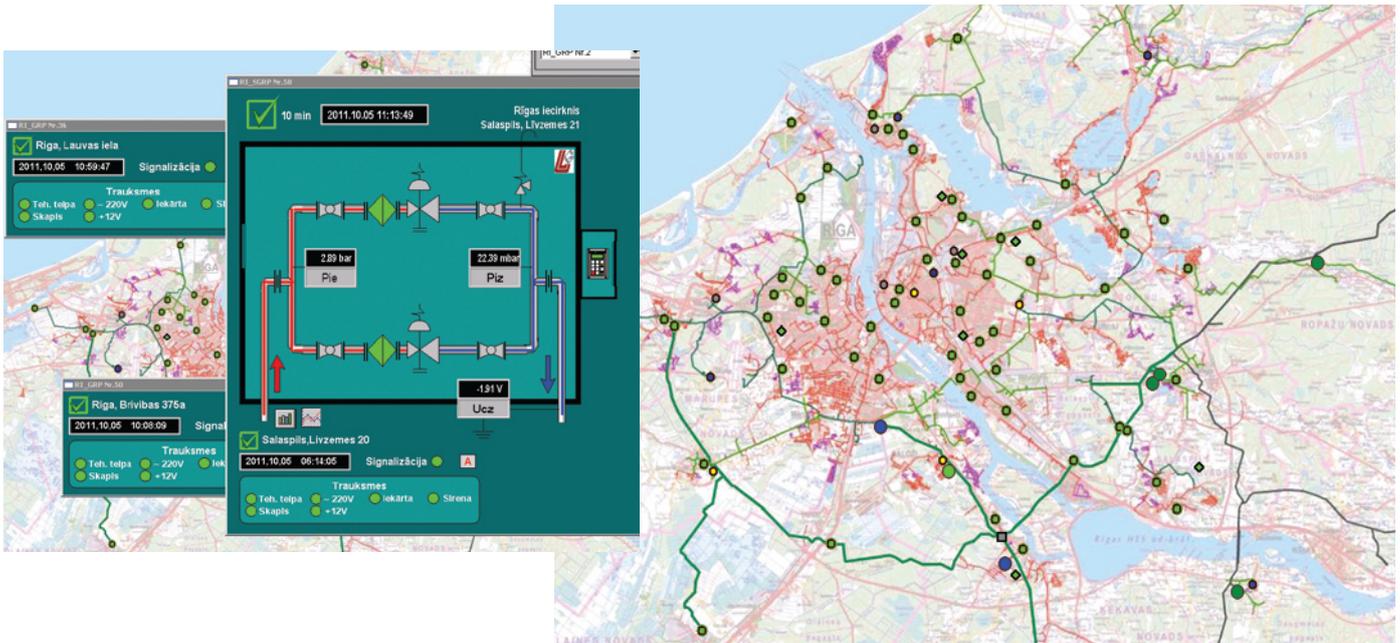
Targets for the new system

To develop a system for remote gas distribution station monitoring and to connect the various objects with different devices into one remotely monitored and reported system.

System concept

Gas network includes meters and controllers incl. standard GPRS/GSM modems. All the operational information is sent to central office to Wonderware based system. Additionally many objects, are equipped also with other monitoring devices, which send information of monitoring values to supervizing organizations. Additionally to standard SCADA functions, company management wanted to know what happens on network objects which are equipped with monitoring devices only. For that was chosen Wonderware Russia (Klinkmann) GSM-Control solution which interfaces with Wonderware SCADA. The GSM-Control software works as a gateway between GSM environment at one side (interfacing with GSM

GSM/3G mobile network software modules

Wonderware Russia (Klinkmann) supplies a suite of software modules for mobile network communication:

- GSM-Control, SMS text message communication

- GPRS real time communication

- 3G real time communication

environment by sending/receiving SMS text messages) and MS Windows environment interface at another side, enabling the received SMS data is acquired by Wonderware software application, running on the application server PCs.

Wonderware SCADA application animates the received data in separate station windows. The overall state of the distribution stations is shown on a geographical map, where every objects is presented by an icon. The color of the icon shows the state of the station. The alarms are published in the overall Wonderware alarming system, where authorized operators manage events and alarms. Simultaneously, received messages and actions of the operators are archived in databases and can anytime be obtained and displayed from there. The Wonderware application is developed in the way to make adding of new stations in it easy as possible.

Working method and experiences in the project

The project was specified and developed together with Latvian Gas specialists, all persons involved in project development were trained by Wonderware Russia (Klinkmann) technical support persons. Required changes and corrections were made during project development and testing time, partly at the Latvian Gas office. The previous experience in cooperation with Latvian Gas expedited the development at a considerable degree.

Business and operational advantages

Latvian Gas managers and engineers of different level, obtain a clear centralized picture of the distribution and metering network. This means reliable and fast metering and considerable shortening of the response time to different situations in the stations. Archived data allows scrupulous backward analysis of events and personal's actions. Exclusive using of Wonderware concepts and products makes the monitoring system easy to develop, uniform and easy to exploit also for future needs.

The solution utilizes the most widely used GSM services incl. SMS text message communication. The monitoring system allows network monitoring totally remotely over standard mobile network with secured/redundant operator services. This system not only gives commercial effects but considerably increases the security in any potentially unstable environments.