RT-RK
COMPUTER BASED SYSTEMS

White paper

Gas pipeline monitoring and control

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Customer

Customer is the leading Serbian gas supplying and transportation company.

Project overview

The goal of the project was to replace out of date telemetry units in remote controlling and measuring system of gas pipeline. Existing SCADA software should remain unchanged. Existing customer's controlling and measuring devices (pressure, temperature and flow meters, valves, etc.) should be reused in new environment. The targets of replacing were remote telemetry units (RTU) at about thirty measurements locations.

The customer requirement was to keep existing system running during the RTU replacement.

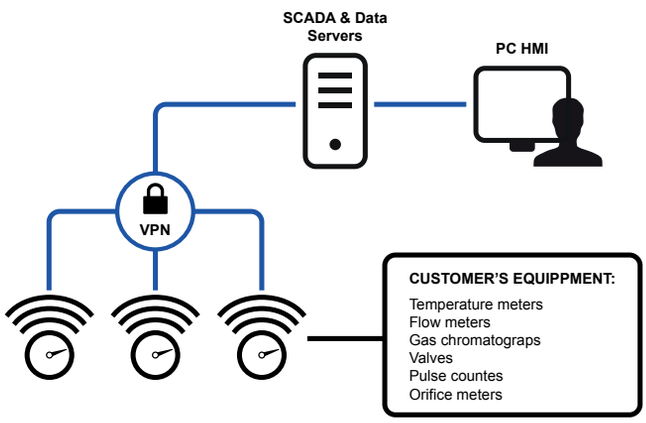
To achieve stated goal RT-RK had to build RTU hardware and software which is compatible with existing SCADA software at the one end, and existing measurement interfaces on the other end. Decision was to develop a PC based RTU which will relay on commercially available and reliable industrial PC's and appropriate acquisition devices.

Main project tasks were to:

- Design and build system, compatible with existing equipment and SCADA system.
- Install developed hardware and software on every remote measurement station with minimal influence to rest of the system.

The new RTU is supporting standard industrial communication protocols and implements flow and gas quality calculations according to AGA and ISO recommendation.

Developed RTU is capable to work independently of the state of SCADA link, performing all measurements and calculations necessary to keep observed process in state set by SCADA software. All data processing is done locally on dedicated industrial PC and processed state is delivered to SCADA on demand. Basic processing covers measuring, state checking and generating appropriate alarms and warnings. Complex data processing, like flow calculations, are also performed locally based on parameterized algorithms embedded in RTU. RTU writes process activity log which is uploaded to FTP server.



SCADA system

Communication with SCADA is established over costumer's VPN. Secondary communication line management system is developed and integrated into existing solution.

RTU software supports MODBUS slave protocol as extension, providing further integration in various SCADA systems.

RTU is designed to have a battery backed up power supply which provides 12 hour of autonomy.

Replacing RTU, with necessary steps to run station, was taking approximately 3-4 days per location.

Benefits

The project covered development from the concept until the installation and starting RTU. The customer was informed about project status via regular meeting and appropriate reports. Week activity plan were regularly aligned with customer. The solution fulfills customer requirements in terms of functionality, reliability and performances.

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