Open Up Your 'Closed' SCADA System

Fayetteville, North Carolina SCADA HMI Replacement

The Fayetteville Public Works Commission (FPWC) manages the City's water/wastewater treatment and distribution systems, including 77 sewage lift stations. These lift stations are monitored using DataFlow Systems (DFS) telemetry. The originally installed HMI utilized a proprietary protocol and radio to com-municate with the RTUs and utilized two Linux chassis-mounted computers which provided operator interface to users via a web browser.

Like many organizations with "closed" SCADA systems, FPWC management was concerned about the cost of system expansion due to the proprietary nature of the existing system. A better solution would be to adopt an open architecture approach, allowing the organization to select new RTU hardware using a competitive bidding process. Additionally, all data from the existing proprietary and conventional/open SCADA systems could be combined into a single database. This would allow simplified and more comprehensive reports and operator interfaces. Given these potential benefits, management decided to look for a new HMI solution, preferably without incurring the unnecessary expense of replacing existing telemetry devices.

The Commission turned to Trihedral Engineering Ltd. and its VTScada™ HMI software, in part because of its long history of replacing legacy HMIs, including numerous TACII and HyperTAC II systems. Developed specifically for telemetry applications, VTScada includes over 100 direct drivers including a DFS RTU driver, a full complement of reports and a built-in Alarm Dialer. Additionally, VTScada offers redundancy and an easy-to-use toolset for application development.

Trihedral's engineers developed an automated database conversion tool, resulting in an error-free conversion without loss of configuration information. A week was spent enhancing the existing VTScada driver to include UDP communications and a second week spent commissioning the system. The Linux computers were replaced with standard workstations running Windows XP and VTScada. This allowed VTScada to communicate directly, via Ethernet, with the existing base station radio (CTU). Since the completion of this project, FPWC has installed a secondary/open radio system that has enabled the use of open/lower cost RTUs while still utilizing the existing DFS RTUs.

Additional implemented features include the VTScada Internet Server option, which permits a group of concurrent Internet Client licenses to be shared by Commission personnel. A training course, held specifically for Commission personnel, provided operations staff with an excellent working knowledge of the VTScada installation. Users with appropriate security privileges have the ability to administrate their own SCADA system and have worked with Trihedral's Technical Support team to configure new telemetry devices.

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