Advanced Control Systems Delivers Cloud-based Wireless Water and Wastewater Monitoring and Control

SITUATION

Supporting the Northwest directly since 1992, Advanced Control Systems (ACS) has developed customized monitoring and control solutions for the past 20 years that have been resold and deployed across the world. ACS is focused on delivering Supervisory Control and Data Acquisition (SCADA) control systems for industrial, infrastructure, or facility-based processes. Today, ACS’s solutions are deployed across a number of unique markets, including water, wastewater, manufacturing, agriculture, and government.

CHALLENGE

Situated in the Northwest, ACS faces a number of challenges that range from the economics of supporting a diverse customer base (i.e. private home owner associations to large municipalities)
Case Study / M2M-IoT

to developing meaningful and engaged SCADA systems within rural areas. In the case of water management, administrators traditionally monitor the quality and levels of water in wells and reservoirs through time-consuming travel to remote areas, onsite surveillance, and manual processes. The power of introducing wireless connectivity can be summarized in the short example below.

On the outskirts of Eastern Oregon, ACS worked with and supported the management of a rural-based dam that fed more than 286,000 acres of agricultural land. The dam originally relied on a manual process that required an individual to live near the dam, check the meters throughout the day, manually execute the release valve and activate the hydraulic gates, monitor the flow and confirm actions via costly long distance telephone calls. These labor-intensive tasks were expensive and inefficient. This example is simply one of many that illustrate the challenges, high costs, and archaic approaches that have been necessary to implement to manage some of the nation’s core infrastructure.

SOLUTION

The example in Eastern Oregon is unique as it parallels the evolution of ACS’s offering and shift towards enabling remote managed SCADA systems. During a service call a few years ago, an ACS representative noticed that the area received a weak cell phone signal. Understanding the flexibility that would be gained by integrating mobile connectivity to a SCADA system, ACS began to integrate various technologies that would enable the remote management of the dam directly from the district supervisor. Today, ACS provides a secure, cloud-based environment that integrates various industrial control systems directly into the hands of decision makers via handheld devices. The solution is based on the Cradlepoint COR IBR600 Router. With an embedded modem, the COR IBR600 provides ACS with the ability to support the most rural areas by working with the carrier that provides the most support. As a primary connection, Cradlepoint COR IBR600 also supports traditional wired data networks like DSL or cable for maximum network flexibility. This open architecture enables ACS with the ability to ensure maximum uptime with business continuity features like failover and failback standard. When configured, the router detects network failures and seamlessly switches over to another active connected data source to ensure that their actions are implemented.

“CRADLEPOINT’S M2M WIRELESS ROUTER EMPOWERS ACS WITH THE ABILITY TO CONTROL AND MONITOR BOTH PRIVATE AND PUBLIC WATER SYSTEMS FROM A MANUAL AND RADIO-BASED CONTROL SYSTEM TO RELIABLE MOBILE BROADBAND CONNECTIVITY. THE INTRODUCTION OF RUGGED WIRELESS CONNECTIVITY PROVIDES GREATER SUPPORT WITHIN RURAL AREAS PREVIOUSLY UNSERVICEABLE DUE TO TRAVEL COST.”

— CURT LANDRETH, PRESIDENT, ADVANCED CONTROL SYSTEMS

The Cradlepoint COR IBR600 is ruggedized to withstand elements. This continues to be demonstrated as the Eastern Oregon application is attached to a nearby telephone pole to secure the
strongest signal providing district administrators the ability to remotely manage, monitor, and engage the water levels and dam function. Today that Cradlepoint enabled SCADA solution has withstood the elements in an area where temperatures can range from -20 °F in the winter to over 100 °F in the summer.

From a maintenance and management standpoint, ACS is evaluating Cradlepoint’s cloud management platform as its solutions are deployed and adopted across the nation. The introduction of Cradlepoint’s Enterprise Cloud Manager would enable ACS to remotely configure and manage each location. This eliminates the expense of having to send a truck for onsite IT support in the event a unit goes down and/or is not responding.

**SUMMARY**

ACS continues to push the envelope for how private and public institutions look to monitor and manage their core infrastructure. The introduction of reliable wireless broadband connections is transforming an industry that relied on manual and expensive solutions. ACS’s introduction of wireless is changing the industry, allowing it to expand its business and provide automated and reliable solutions for new applications.

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**ABOUT CRADLEPOINT**

Secure, powerful, and easily configurable, Cradlepoint network solutions create instant networks anywhere there is a mobile broadband data signal using 3G/4G/LTE connectivity. Its comprehensive features – from remote management capabilities through Enterprise Cloud Manager, to failover support, to leading levels of security – enable it to be used in the most critical of situations when connectivity is required.

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