



Utilities

Water

iSMART; Integrated Surveillance,
Monitoring, Automation and
Remote Telemetry

Client State Water

Location Regional New South Wales

Value \$3.2 Million

Duration May 2009 – mid 2011

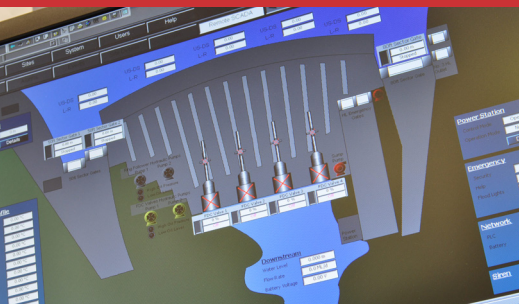
Project Overview

As primary contractor, SAGE was engaged to select, develop, design and construct a fully integrated SCADA system to support all aspects of State Water's delivery and management systems which control assets spanning 250,000 square kms.

The iSMART SCADA System will support the day-to-day operations of weir, regulator and storage water delivery management systems, providing the infrastructure to support the surveillance, operation and monitoring of assets, along with the collection and sharing of data and information from the Remote Interfaces on sites, to the Data Warehouse level.

Capabilities Demonstrated

- Functional specification and design
- Controls and communication design
- AutoCAD drawings
- Finalisation and State Water approval of PIPP and Project Management Plan
- SCADA programming
- Factory Acceptance Testing (FAT)
- Installation and commissioning



- Site Acceptance Testing (SAT) – two stages: Instrument Qualification (IQ) and Operational Qualification(OQ)
- Documentation
- Training
- 24/7 service support

"We are confident in SAGE's ability to deliver this important infrastructure project for State Water"

Andrew Lavelle, Project Manager State Water

Project Design

The iSMART SCADA system used the latest technology communication and SCADA systems. The communications system selected was the Telstra Next G wide area network. This system supports Ethernet protocols along with Virtual Private Network (VPN)technologies to provide a fast and secure network. The availability of NextG in remote areas and the small form factor of the modems and antenna systems required, also added to the flexibility of the system. The DNP3 protocol was selected for its low bandwidth capabilities and provided both polled and exception based data transfer.

The SCADA system used was the ClearSCADA software package. ClearSCADA is an online SCADA system that was configured to provide triple server redundancy. Two servers were located in a data centre and the third was located in the country operations centre. SCADA clients were located at the control centre and also as mobile laptops. The ClearSCADA system automatically updates all servers and clients online when an authorised change is implemented on the system. This means that all connected SCADA computers will always have the latest changes to the system and provide a very low maintenance profile.

The SCADA system communicates with Kingfisher RTUs using the DNP3 protocol. The Kingfisher RTU acts as a data concentrator and communications interface to the various types of equipment at the dams and regulators. The RTU provides interfacing to existing Introl RTUs, SquareD PLCs, Modicon Premium PLCs, Campbell Scientific data loggers and others. Most of this equipment was well beyond manufactures support schemes and specialty protocols were written to communicate with this equipment. SAGE's capability in this area allowed State Water to implement the SCADA system according to schedule.

The SCADA system also provided a data warehouse on the business network for the business to analyse trends and maintenance schedules. The data warehouse server is also updated in real time

The last feature provided was web based SCADA clients on the business network. These web clients provide a monitoring interface without control.

