The term SCADA (Supervisory Control and Data Acquisition) typically refers to systems where a central computer communicates to multiple devices over a network. Typically, these devices include RTU’s (Remote Terminal Units) or PLC’s using RTUs over common industrial network protocols such as Modbus Plus, DH+, Profinet and Ethernet. The SCADA host performs Centralized Alarm Management, Data Trending, and Operator Display and Control. Redundant Server-Client based architecture provides more reliable, extendable and usuable applications than before. Leveraging the Terminal Services and Thin Client Architecture provides remote access to servers and clients from practically anywhere in your enterprise. The SCADA systems can even be integrated with web technology using a Web Server.

Human Machine Interfaces (HMIs) act as the gateway for users to control and monitor industrial processes. Through custom designed user interfaces, HMIs can be used to analyze trends, generate reports, control systems and address any alarms that may arise during plant operation.

In brief, SCADA and HMI systems help visualize and control industrial processes. They provide users with the capabilities and versatilities that today’s industrial processes demand.

Can-Technologies Services and Expertise

At Can-Technologies we specialize in a wide range of SCADA applications, particularly complex Redundant Server/Client systems. We design and develop your process line with many popular HMI/SCADA packages, including:

- RSView SE
- Wonderware
- iFix / Fix32
- Cimplicity
- WinCC
- Monitor Pro
- Citect

In addition to PC-based systems, Can-Technologies is experienced in the development and commissioning of plant-floor operator terminals. By specializing in a wide range of manufacturers and software packages, Can-Technologies can deliver the right solution tailored to specific customer process control needs.

Some of the more common operator terminals Can-Technologies have developed projects with include:

- PanelView
- QuickPanel
- Panel Mate
- Magelis
- Easy Touch
- Siemens OPs
Case Study 1: Paint Shop SCADA Consolidation

A leading automotive manufacturer sought to upgrade the SCADA system of their Paint Department. The existing system consisted of six SCADA nodes, each configured independently despite the fact that some information between the nodes was shared. The segmentation of the system made it difficult to manage and perform upgrades to the system software and a lack of system redundancy, contributed to poor system robustness.

Can-Technologies proposed the introduction of a Client/Server-based architecture that would effectively move all software and data into a centralized location. Using GE Fanuc's iFix package, the six SCADA nodes were replaced with custom PC-based HMI clients. The Server/Client approach ensured that the HMI clients would all run the same version of the paint department software and improve data fidelity by sharing a common database. The introduction of a backup server further improved system reliability.

In addition to consolidating the system software and data, Can-Technologies enhanced the paint department system by introducing advanced trending and historical reporting features as well as sign boards for communicating process information to paint shop workers.

In the end, Can-Technologies provided a SCADA solution that greatly improved the overall performance of the existing system and paved the way for further continuous improvement initiatives.

Case Study 2: Melt Shop SCADA/PLC Upgrade

A major steel manufacturer sought to upgrade and optimize their existing melt shop control system. The main goals of the upgrade were to replace the primary legacy controller with a more modern one, reduce the number of PLCs in the system by combining all programs into two units, and replace all HMI terminals with similar clients. Complicating the project were the facts that the primary controller was required to communicate over multiple network protocols. A time-critical element was also introduced as all upgrades were to be completed during the plant’s summer shutdown.

The solution proposed by Can-Technologies involved two Allen-Bradley ControlLogix PLC hardware as well as five terminals running AB’s RSView SE HMI software.

The first of the two PLCs, known as the Gateway PLC, was responsible for performing data exchanging between the various non-Control Logix components of the system. In general, this involved conversion of signals between various network protocols including Modbus, DeviceNet, ControlNet and Ethernet. The second PLC was responsible for performing process calculations and issuing corresponding control signals.

The existing HMI network consisted of several standalone HMIs running different pieces of software. Can-Technologies upgraded the system to a Client/Server-based architecture running RSView SE software. The HMI software was redesigned and rebuilt based on the two previous systems to include all features of the old software while implementing additional functionality for status monitoring and diagnostics.

Despite the short time frame for commissioning and testing, Can-Technologies successfully completed the melt shop control system upgrades. Following installation, Can-Technologies showed their dedication to providing a complete solution by providing thorough document as well as full training and support for the new equipment.

Can-Technologies proudly supports a wide range of SCADA/HMI manufacturers including: