

Case Study: GIS for Distribution SCADA

Provider Name : KALKI Communication Technologies (P) Ltd.

Client Name : Fortune 500 Utility Automation Major

Project Title : GIS for Distribution SCADA

The Problem

The client, a major Utility Automation OEM required to Design and develop a GIS System, and integrate with OEM's SCADA Platform. This required the development of GIS software with necessary maps and GIS features including panning, zooming etc., and tightly integrated to SCADA. The requirement also specified GIS Workstation capability and Hot-Backup switchover of the GIS along with the SCADA switchover.

The Solution

The stated solution was developed using the following resources:

1. Third Party GIS Software Package
2. SCADA Software
3. SCADA Communication Programming Interface (CPI)
4. ActiveX Data Exchange Components for data and communication interchange with SCADA and GIS

The end-customer Distribution SCADA System is based on OEM's Network Management SCADA platform. This SCADA system, does control and monitoring of a state-wide distribution network spanning a number of RTU's, communicating to the central station on IEC 60870-5-101. This project involved the implementation of a GIS package that would provide spatial distribution of the Distribution network, with RTU locations as well as distribution lines represented on a spatial map. The GIS Software was required to communicate with SCADA system, and show all the latest RTU and network status on the GIS GUI Interface as well. All network lines were given specific color coding to distinguish their status information. The SCADA alarm and event list information was also required to be available on the GIS software too.

These requirements were met, by customizing the 3rd party GIS package with Vector maps of the distribution network, with additional capability to add RTU's and network lines. GIS was customized to provide for importing the RTU engineering point configuration data from the SCADA. In addition the software was programmed to support redundancy capability to ensure that the SCADA hot-standby feature was reflected in the same manner on the GIS too.

Case Study: GIS for Distribution SCADA

The SCADA communication interface with the GIS package was accomplished by utilizing the SCADA CPI communication-programming Interface. The GIS communication interface was done using Active-X components available for integration with GIS package.

Tools Used:

- OEM's SCADA
- SCADA CPI programming interface
- Spatial Map Data in Vector Format
- Active X Component Interface
- VB Based Component Programming
- Windows Socket Based GIS Redundancy Capability