HINZ
A Rockwell Automation Company

SaskTel
Fleetnet 800 SCADA System

The Client:

SaskTel Mobility, a division of SaskTel, is responsible for both the cellular telephone system and land-based radio communications within the province of Saskatchewan. This Crown Corporation has become a leader in implementing new technologies to provide high quality, yet cost effective service, to a clientele that is widely spread across the sparsely populated province.

The Requirement:

The FleetNet 800 Trunked Radio Network has radio towers spread across the province of Saskatchewan. Each site uses Ericson GE radio equipment to provide fleet radio services for industrial clients. Interruptions in this service are unacceptable to these industrial clients who rely heavily on their radio links in the day-to-day operation of their business. SaskTel wanted a SCADA system that could monitor and control the remote sites to minimize down time. The FleetNet SCADA system was required to provide the maintenance centre in Saskatoon with alarm indication and status of the radio equipment at each site. It was to allow for remote reset of equipment or switching to backup systems, and provide the operator with remote diagnosis of equipment failures. It was also required to interface to SaskTel's existing STARS alarm system which was responsible for dispatching service personnel to all SaskTel sites. The SCADA system had to communicate with up to 260 sites, each with 200 status points and 50 control points. Sites had to be added online, without shutting down the master software. Alarm points also needed to be added, changed or deleted online. SaskTel preferred a DEC VMS based master due to their large experience base with that hardware platform.

The Design Solution:

Each site's RTU is a Modicon 984-130 PLC, which monitors the desired points and dials up the host when alarms occur. Up to three racks of I/O are configured for each site, with a maximum of ten radio channels monitored. The I/O consists of 64 digital input status points, 16 analog input points, and 32 digital output points for remote equipment reset and switching. All I/O cards have error alarms, as does the PLC battery. An additional 32 status points are configured for internal PLC alarm points generated from PLC logic.

The host system is composed of a VAXStation 4000 model 90 server in Saskatoon, and a VAXStation 4000 model 90 client in Saskatoon. They are tied together via Ethernet on a T1 telephone link. The server runs USDATA's FactoryLink software which allows the display and monitoring of any given site on demand, and provides a summary of alarms logged to disk, shown on an active alarm summary page. Each status point may be shown on a site status page, shown on the alarm summary, alarmed to a log file, have change-of-status reported to the STARS system, or any combination of these options. Each digital input has a debounce timer in the PLC that can be changed from the host. Each analog input has high and low alarm set points, scaling values and alarm dead-bands stored in the PLC, all modifiable from the host. Each digital output has a host configurable timer in the PLC that controls its pulse duration.

The host can automatically call each configured site (up to 6 times a day) to perform a "Sanity Check" which verifies that communication is still operating. During this check, the PLCs real-time clock is synchronized with the host system and the host reads all the status and alarm tags. All host configurable data such as alarm set points, timer presets, and the status point read masks are written to the PLC whenever the host connects to ensure the remote site is always up-to-date. The operator can also initiate a call to any site at any time and view analog and digital points or display them on a real-time trend. This data is stored in an RDB file for future reference. Each site can initiate a call to the host when an alarm condition occurs. If all lines are busy, or connection is unsuccessful, the remote will hang up and retry on a continuing basis. Alarms are not lost as the remote will continue to collect data while in a recall mode.

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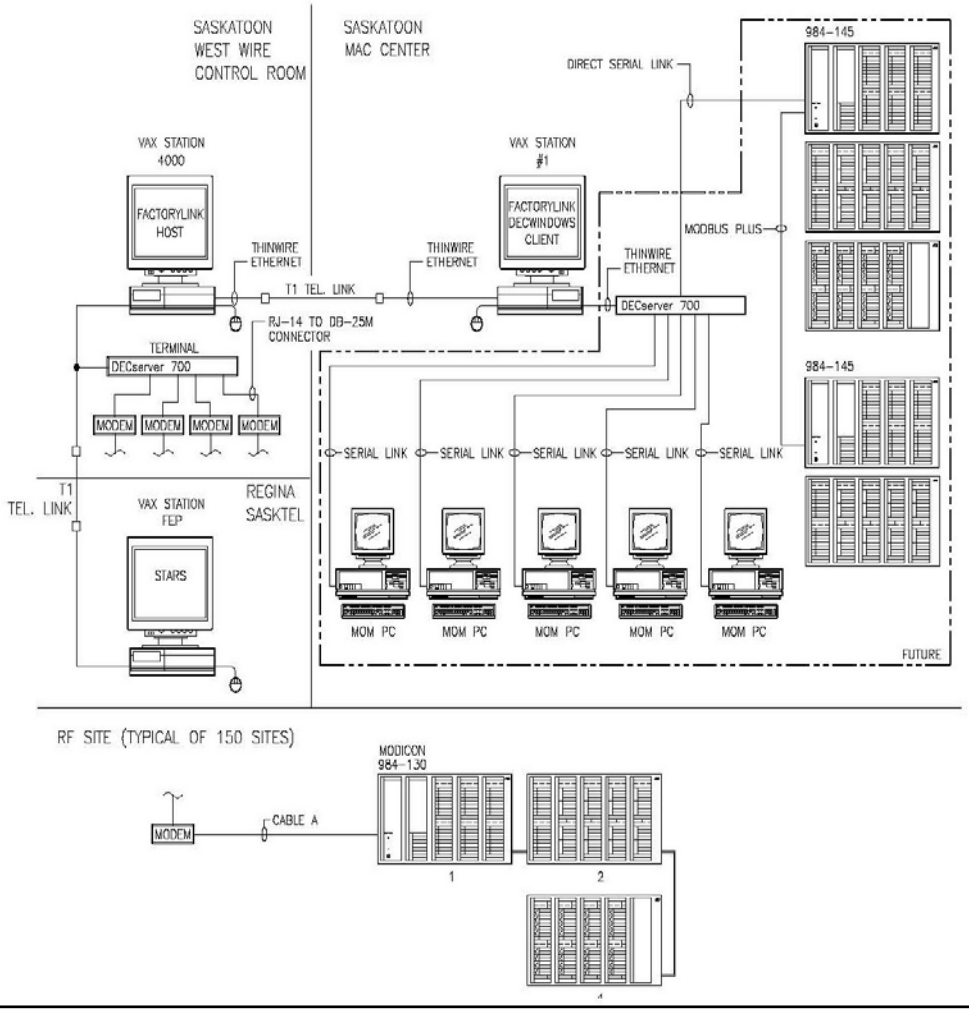

System Specifications:

260 sites, each with:

- Modicon 984-130 PLC for RTU
- 96 discrete I/O, 16 analog I/O
- 200 status database tags, 50 control database tags
- VAXStation 4000 host c/w 4 dial-up modems
- VAXStation 4000 client
- USDATA FactoryLink VMS software
- 14 graphics pages
- 225,000 database tags

For further information or to contact a Hinz office near you, please check our website at:

www.hinz.com