CASE STUDY

Skellefteå Kraft's SCADA upgrade

A maintenance agreement with Netcontrol following a 2009 SCADA delivery showed its benefits as the customer's whole software system was upgraded in 2015.

In 2009 Netcontrol delivered a Netcon 3000 SCADA system to Skellefteå Kraft in Sweden. After a successful guarantee period, a maintenance agreement was signed which also included a software upgrade. Given the complexity of their SCADA system and that total software upgrades were to be expected every 5–6 years, Skellefteå realised that there were advantages to having upgrades included in the agreement. The first upgrade was carried out in 2015.

The Skellefteå SCADA system controls both hydropower stations and a distribution network. Skellefteå decided to upgrade the NIS (network information system) and the PMS (power management system) at the same time. What is more, all the hardware was to be replaced as well.

Netcontrol was commissioned to take care of the overall project management for all the upgrades. The hardware and the system infrastructure were installed by Skellefteå in close cooperation with Netcontrol. The SCADA system, using virtual servers, was configured and prepared by Netcontrol and then installed in the new infrastructure.

CHALLENGES IN COORDINATION

Technically the delivery was a standard upgrade with no significant new features. Its realisation, however, required coordination between three different suppliers – Powel (PMS), Digpro (DMS) and Netcontrol (SCADA) – on the one hand, and between the corresponding three departments within the customer's organisation on the other. Netcontrol tackled the task through regular meetings with strict agendas and also relied on task lists, up-to-date schedules and regular reviews of potential problems.

Another project management challenge was the acommissioning. The PMS required an essentially un-interrupted migration from the old to the new system. This affected all the deliveries and made coordination between the different sub-projects a must.

SCOPE

Skellefteå's Netcon 3000 is a duplicated (A + B) main SCADA system. However, it also includes a backup SCADA, a test SCADA and an emergency SCADA. The main system includes the actual

SCADA system, the data warehouse, terminal servers, gateways, firewalls and routers. The other three systems are basically downgraded copies of this. External connections are not just to the field equipment but also to the DMS and PMS and to the office LAN. The supervision and control is from two dispatch centres, one for the distribution network and another for power generation. The system totals 16,600 I/O points.

UPGRADE STRATEGIES AND COMMISSIONING

The SCADA database and the pictures were migrated from the old system and upgraded with the features of the new release. Since all the data were transferred electronically, with a very small risk of human errors, no extensive point-to-point testing was performed.

The new system operated in parallel with the old systems until testing established that everything was in order. After this the new system was made the main one. The transfer to live operation was made under strict sub-project coordination.

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