

CESP - Companhia Energetica de São Paulo *System of Supervision and Control of Production*

Context

CESP is the largest company of power generation in the state of São Paulo, the fourth of Brazil in installed capacity and the third in energy produced, according to data published by the National Electric Energy Agency (Aneel). The company has six hydroelectric plants, with a total of 57 generating units, which have an installed capacity of 7,456 MW and physical guarantee of energy of 3,916 MW.

In 2006, the company launched an announcement to hire a company that implanted its production control system. Spin, competing with major multinational companies, won and implemented the system in less than a year.

Challenges

The data is available in the plants by concentrators of different manufacturers, including five with the IEC-60870-5-101 protocol and one on the HDLC protocol. The latter protocol is very old, based on the SDLC protocol of IBM, created in 1975, and Spin had to develop it specifically for this application.

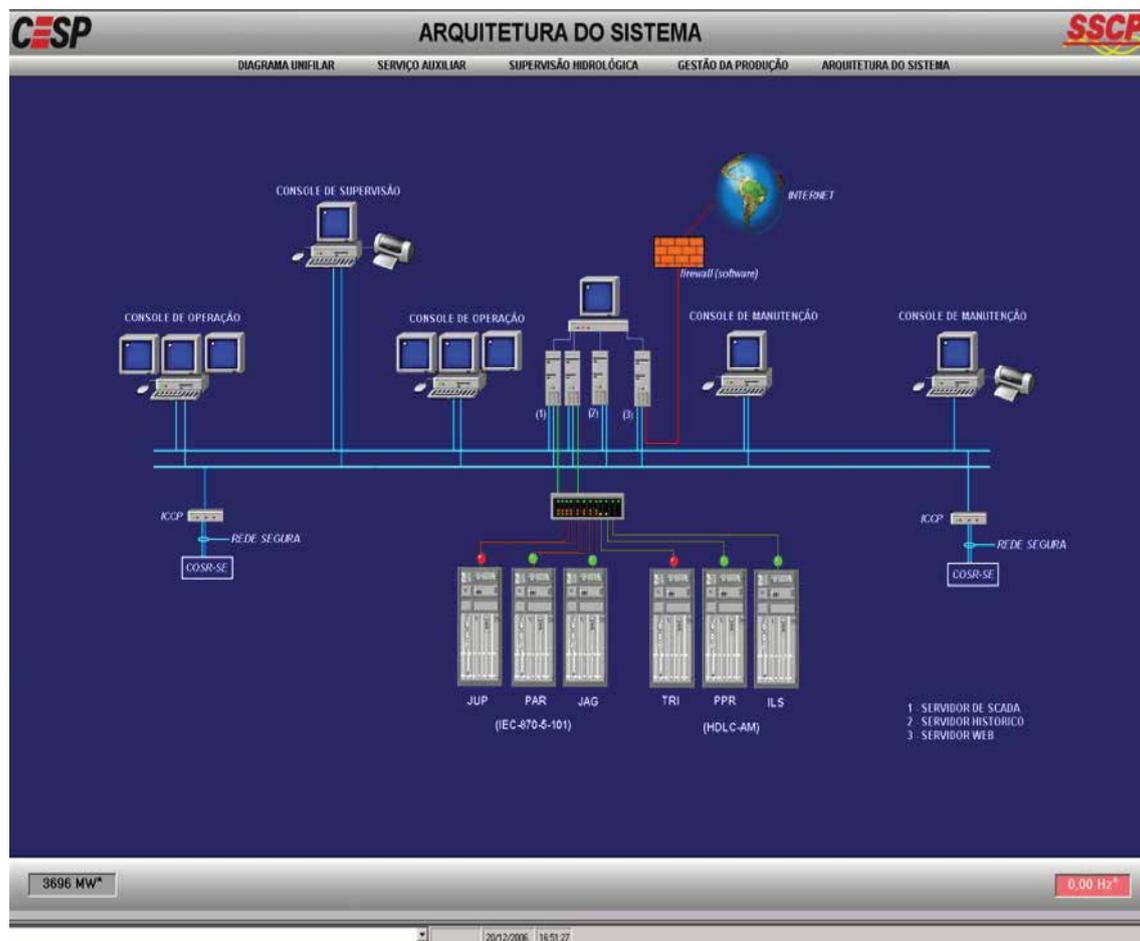
Production of CESP is coordinated by the ONS (National Operator of the Interconnected System), which makes it necessary to introduce balanced communication link between them, using the ICCP protocol.

The center of CESP is located at the UHE of Jupiá, with full access also in São Paulo. The plants, as can be seen below, are located in different locations in the state of São Paulo. At the time of deployment, there were two links of different telecommunication utilities connecting them to the Centre and the ONS.



Implanted Solution

The figure below shows the solution deployed in 2006, using the software SCADA ActionView with dual hot-standby architecture.



In the 2009 blackout occurrence in Brazil, where 18 states were affected due to a failure of the lines supplied by Furnas which triggered problems in the Itaipu hydroelectric plant, the CESP's Center of Production remained operational and was used by the ONS to the restoration of the interconnected system.

This center, later, with the requirement from ONS that CESP implanted the submodule 2.7 network procedures in some of its plants was adequate to meet such procedures.

CESP was one of the pioneers in the implementation of network procedures in the Operation Center, instead of deploying it in each plant, greatly reducing the cost of the solution.

Results

From this implantation, Spin started to gain a greater visibility for solutions for operation centers of power generation systems.

Today Spin's solutions using SCADA are used in various hydro and wind power plants, as well as in energy production centers.

