CASE STUDY

CARRARA AREA MEDICAL CENTER: 10 STRUCTURES...IN A CLICK

The solution for a complete management of more medical centres

The request of Massa Carrara Area Medical Centre was for a solution for manage and control 20 refrigerators (blood balks, freezer) in an only site.

The need was also for a solution of minimum impact, enabled to carry alarms both locally both at the Central Management Services and guaranteed continuity in the future for what concerned the expansion of the system and, at the same time, for technological developments.

System architecture

It was chosen to employ the Niagara™ framework, because its architecture fully Web Server provides consolidated management platform IP as Java and is open to the most widely used fieldbus and protocols such as ModBus, KNX, MBUS, BACNET and LONWORKS®, which was precisely the one used in this application.
The core of the system, the Web Server, Jace, is a device that is devolved to local control by distributing the weight and the amount of the devices according to specific needs. Even the architecture of Web servers, typically horizontal, guarantee the flexibility of the system, but this is even more enhanced by the availability of Jace with greater resources, allowing, however, to upgrade via SW.
From the first application considered "pilot project", we now have 22 Jace distributed in 10 sites in five different locations (Massa, Marina di Massa, Carrara, Pontremoli and

Fivizzano) depending from the same hospital, a few tens of kilometres from the main office.

Composition of the system

For now, there are controlled:

- Medical gas in hospital of Massa to manage 50 alarms and 4 display divided in:
  - Air;
  - Nitrous;
  - Void;
  - Oxygen;
  - Compressed Air.
- Generator Plant in the hospital of Massa for the management of probes warm water, oil and gas
- 14 refrigerators and 1 display in the department of Immunology in the hospital of Massa
- 6 refrigerators and 1 display in Pharmacy's stock in the hospital of Massa
- 10 refrigerators and 1 display in the ward of the transfusion centre in the hospital of Massa
- 24 refrigerators and 3 displays in the hospital of Carrara
  - 2 refrigerators and 1 displays in the location of Marina di Massa
  - 1 display for managing the global alarms coming from the other JACEs in the Reception of the hospital of Massa
  - Vacuum, air, oxygen, medical gas, pharmacy, generator, plus 4 sensors and 3 displays in Fivizzano.
  - Vacuum, air, oxygen, medical gas, pharmacy, refrigerators, generator, plus 7 sensors and 1 display in Pontremoli.

- Niagara Station - Supervisor: DB residents on the various servers (JACE) are synchronized and managed at the highest level through appropriate SW aggregating data, AX Supervisor, which was installed in the premises of the CED in the hospital of Carrara for managing logs and alarms from the hospital complexes of Massa, Marina di Massa Carrara, Pontremoli, Fivizzano.

Recently, we added a new section integrating refrigerators monitoring over RF with EnOcean because was not possible to have cabling.

Scalabily of the system

The "strength" of the system is to be growing with the addition of new checkpoints or new controls on existing stations. Thus, starting from the initial project, without changing the type of interface and control units, even today are monitored over 90 refrigerators, 4 generators, 4 vacuum machines, 4 oxygen machines spread across 5 different sites and managed via Internet from a single centre supervisor.
Other implementations are estimates relating to temperature, level, quality of water in dialysis machines and the integration of 6 smoke detection centrals and UPS.
The ultimate goal is to have a single user interface for all systems installed; possibly using the support of BACnet and its Protocol on IP applications in the increasingly consolidated climate land ventilation control.

Samples of grafhical pages

Different types of user interfaces were required, for the different operators, from the receptionist to the technicians until the manager who has got to control all the different areas; so that, there are different passwords to select the level of access to the system.