



## ST/CV Control System and Projects

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- The ST/CV control system requirements
- ST/CV control system architecture
- Integration in CERN Network
- Projects and contracts ( running / terminated )
  - > Controls Examples
- Future projects
  - > Project Example
- Conclusions



## CV Control System Requirements

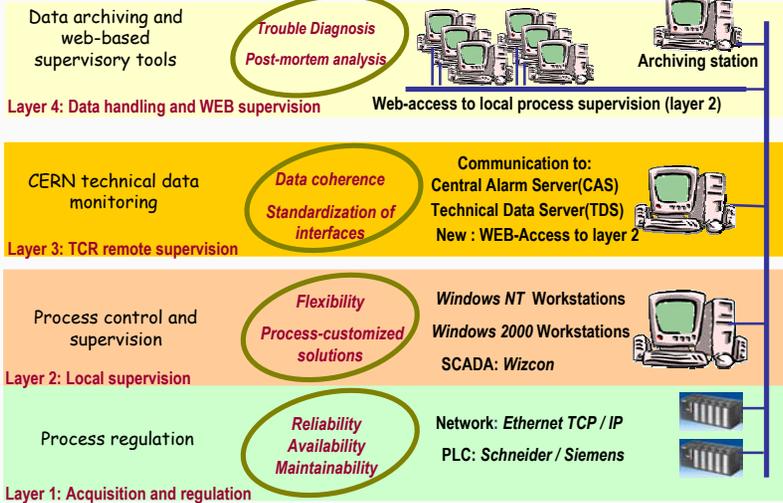
### ST/CV Control System design stage for LHC projects started more than 5 years ago

- **First technical specifications for LHC-Ventilation surface buildings in 1997**
- Use of **reliable automatism** (Siemens, Schneider)
- A powerful **local supervisory SCADA System** included well adapted operation and maintenance tools (Wizcon)
- **Standardized interfaces and protocols**
- **Openness and networking:** To provide flexibility in a distributed environment
- **Following the industrial evolution:** Today still staying operational for the next 15 years

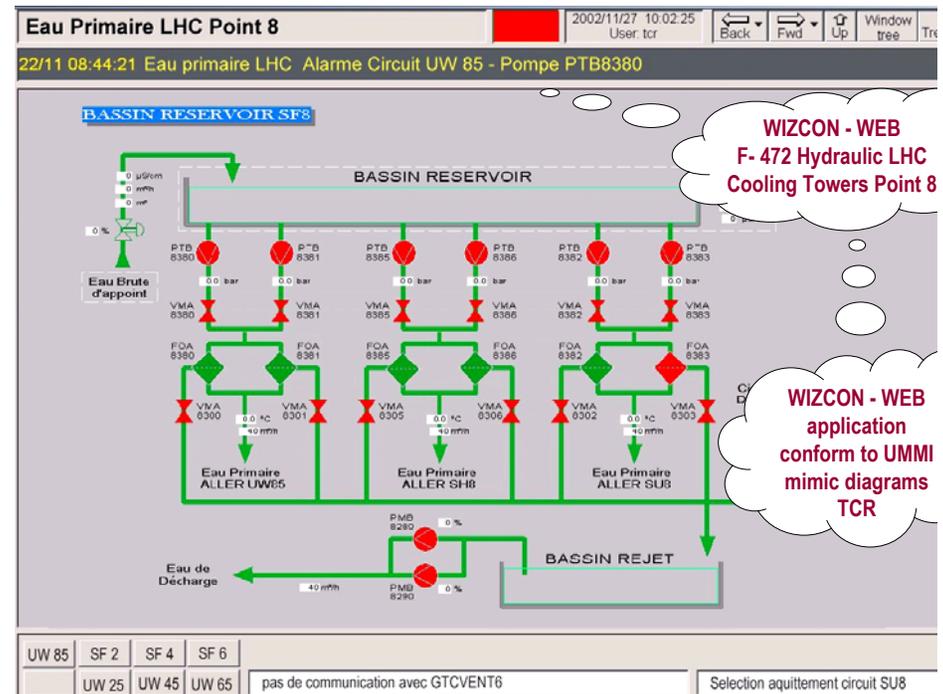
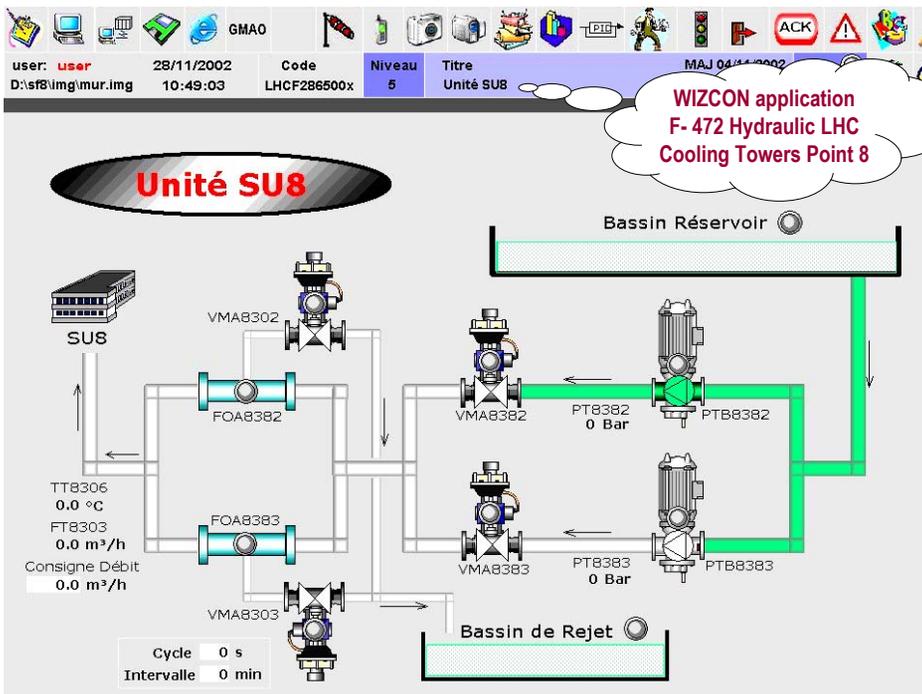
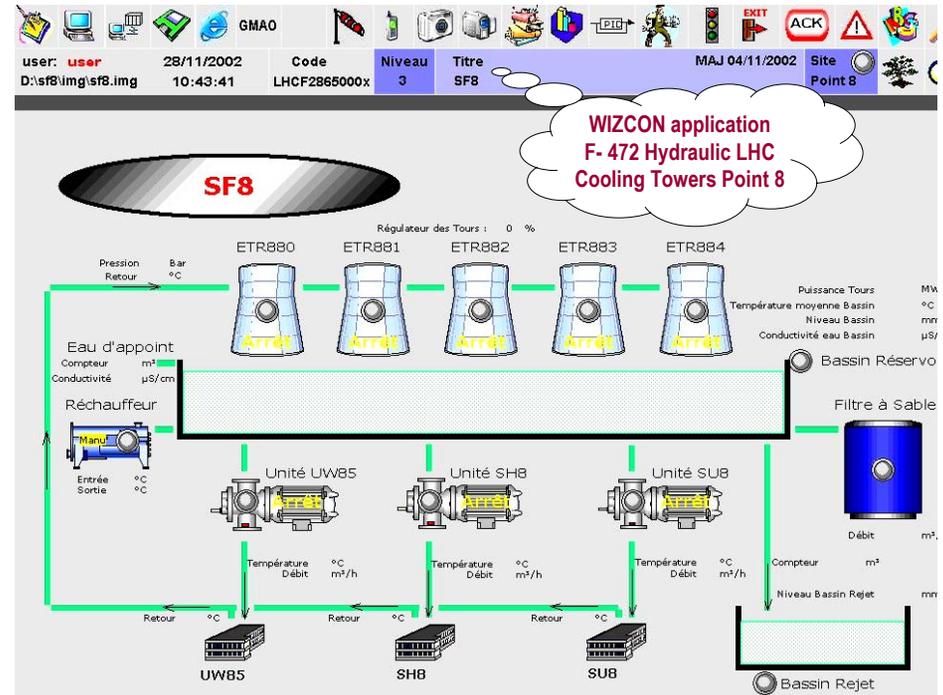
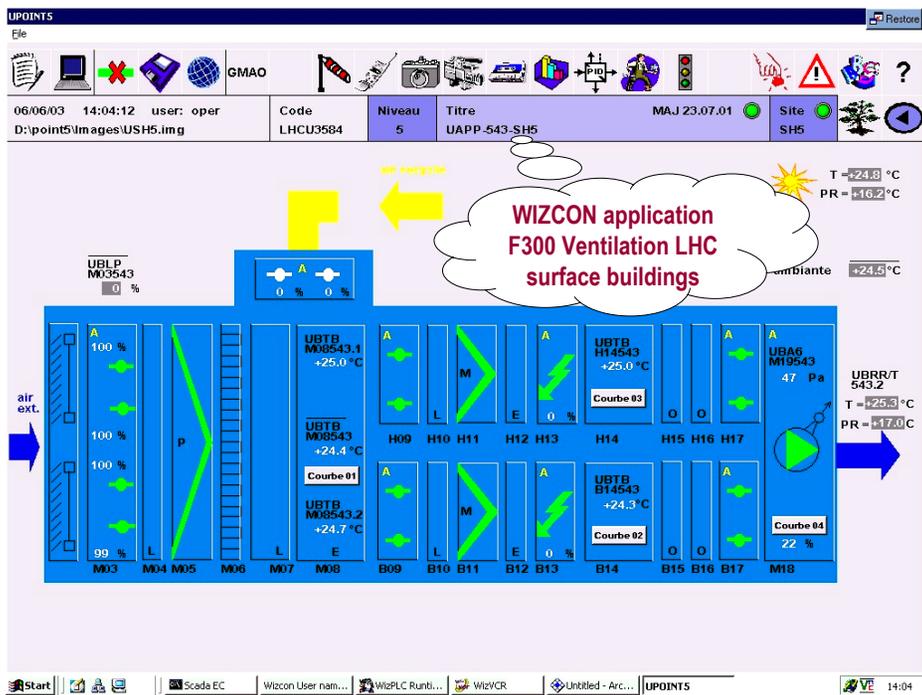
**... keeping a global and homogeneous solution**



## CV Control System Architecture







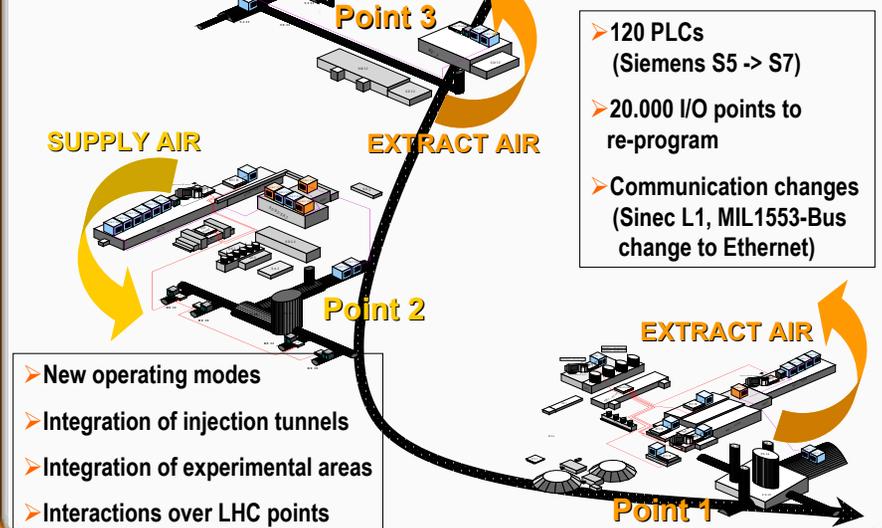


## Future ST/CV Projects

- CNGS and Hadron Stop ventilation
- CNGS cooling
- Upgrade of Clean and Waste Water Systems of LHC
- Cooling of Dump Quench Resistors
- Air-Conditioning in SCX5 and UX85
- Air-Conditioning of Racks in SDX1
- CMS Cooling Plants
- Renewal of PM 32 Pumping Stations Control System
- LHC Ventilation – Process Control Migration ( LEP -> LHC )  
--> some details ...



## LHC Ventilation – Process Control Migration ( LEP -> LHC )



## Conclusions

- The control of cooling or ventilation processes can be achieved without considering specific solutions and by using **a fully Industrial SCADA-based control architecture.**
- The retained solution provides a high **process control precision.**
- The reusability of the well-proven solutions results in **safer control systems:** better **reliability** and **maintainability** of the process.
- A **global vision** of the cooling and ventilation facilities allows to achieve the required levels of **flexibility, coherence and homogeneity** in order to assure the **follow-up of the technical evolution.**