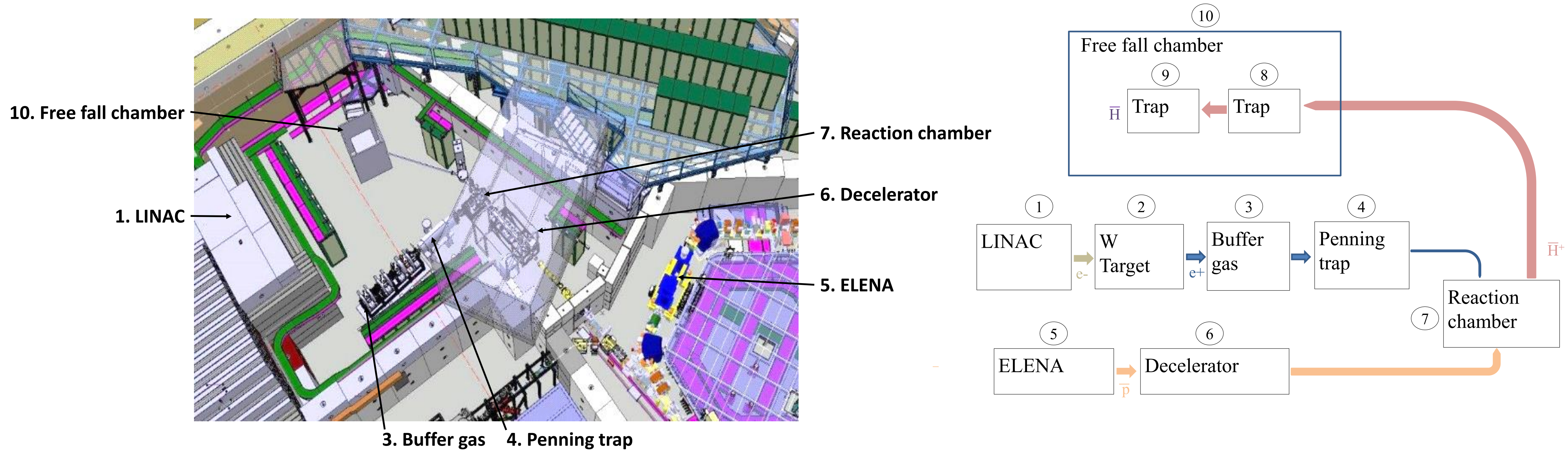
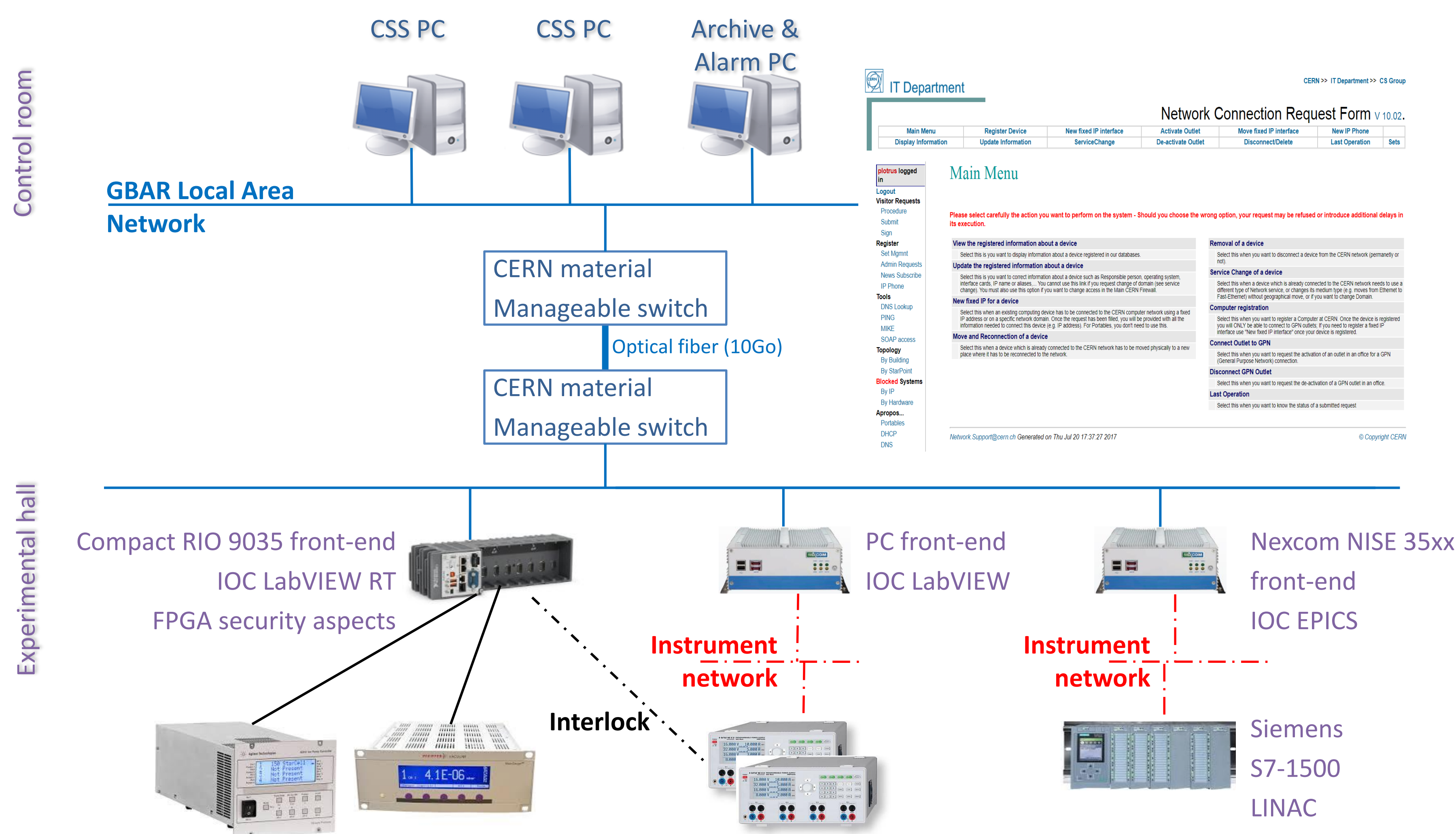


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One yet unanswered questions in physics today concerns the action of gravity upon antimatter. The GBAR experiment proposes to measure the free fall acceleration of neutral antihydrogen atoms. Installation of the project at CERN (ELENA) began in late 2016. This research project is facing new challenges and needs flexibility with hardware and software. EPICS modularity and distributed architecture has been tested for control system and to provide flexibility for future installation improvement. This paper describes the development of the software and the set of software tools that are being used on the project.



## Architecture



EPICS is the SCADA chosen for controlling GBAR experiment.

Alarm is managed by BEAST solution which includes a server, notification, CSS GUI and a web interface.

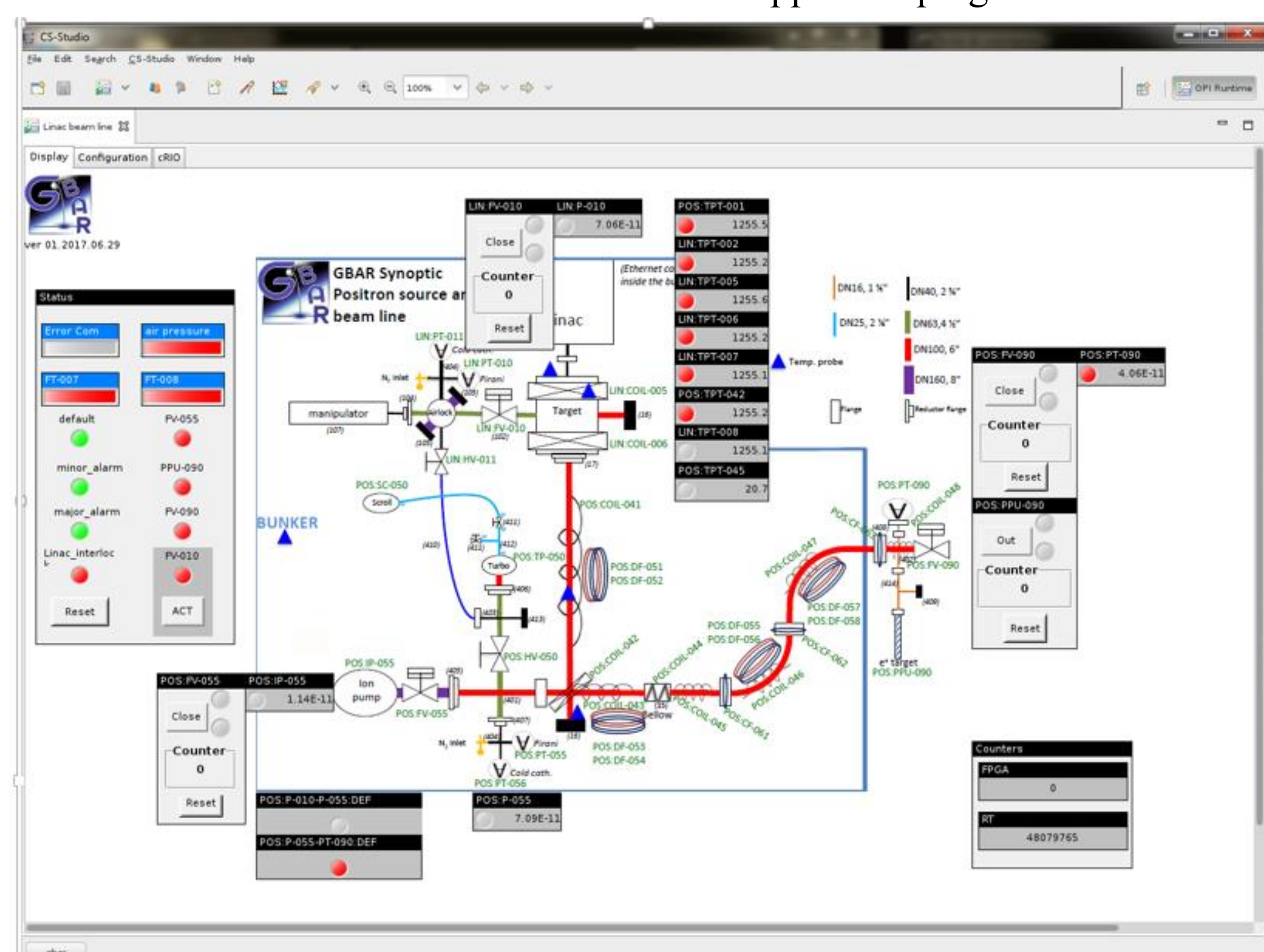
Archiving software is Archive Appliance. An Ansible script has been developed to automatize its installation and customization for our needs.

National Instrument with LabVIEW and Compact RIO is largely used. Other programming languages will be integrated like Python and C++.

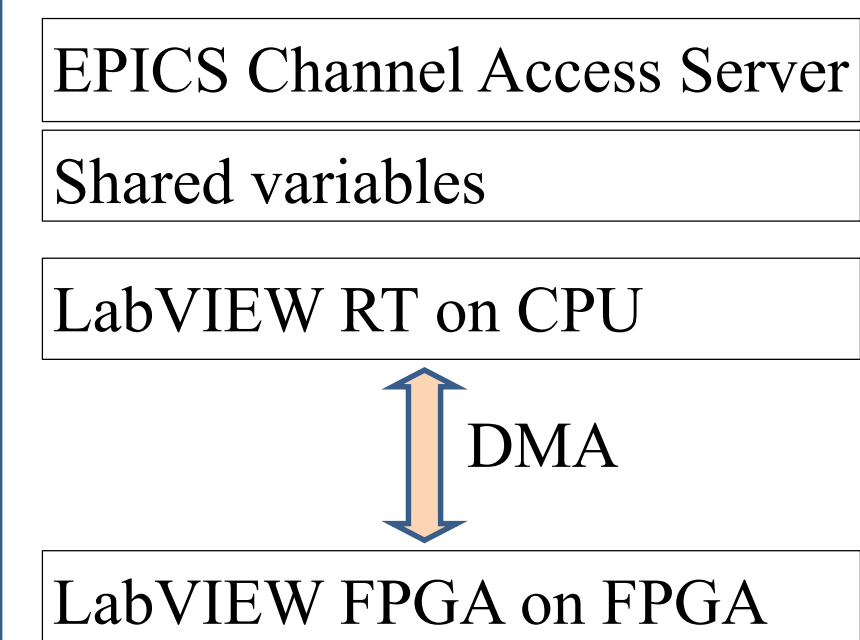
CERN provides a full web interface for configuration of the GBAR network. This solution manage DHCP server providing automatically IP addresses, access to CERN tools like Git.

## Material protection

CSS BOY with BEAST and Archive Appliance plugins



Channel Access



Compact RIO 9035: 1,33 GHz double cœur, 1 Go DRAM, 4 Go disk, FPGA Kintex-7 70T, 8 slots



## Reference

[1] The GBAR collaboration. *Proposal to measure the Gravitational Behavior of Antihydrogen at Rest*. CERN-SPSC-2011-029, 2011.