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## **The Applications Infrastructure**

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Applications for LHC hardware commissioning are being built as part of the development effort put in place since 2002 for the LHC era applications. For classic operations, like Power Converters controls, we aim to reuse the software developed for TI8. At the same time a huge effort is underway to introduce new industrial controls for the supervision of several important systems like the QPS, QRL and PIC, in the traditional controls approach.

Our strategy is to develop once, using a simple and iterative development model and to exploit every possible controls milestone, using dry runs, to validate the complete integration of our systems and to improve the functionality.

Our software development is based on standard CO components and general services, some already available and tested successfully for TI8. In the front ends, a framework for building device servers (FESA) is offered to the equipment groups. The Java controls applications are built on top of existing core business logic, while the supervisory applications are based on SCADA (PVSS) systems. Both the SCADA and Java based controls are coupled via CMW for data exchange. General CO services for handling and displaying Alarms, post-mortem, measurements and logging, fixed displays and console manager are being finalised and will be available for the hardware commissioning phase. The Technical Network will be used for the network communications and a new security policy will be applied to isolate this network from outside intrusion and to manage, monitor and secure the connectivity inside the domain.

This autumn, the hardware commissioning will be a major milestone and a new phase for controls. It is the first time that existing and new mainstream and industrial based software will be integrated seamlessly to interchange data, while automated procedures will provide efficient means for repetitive tasks. At the same time the strict network security policy will have to be taken into account to allow for the smooth running of the commissioning.

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