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Data flow in ALICE detector control system

The Alice Detector Controls system is in charge of configuration, control and monitoring of more than 100 subsystems, consisting of a total numbers of ~100 000 channels. All controls tasks are performed by a big distributed system based on PVSS-II. A big emphasis was put into providing software abstraction layers which hide the complexity and variety of the implemented hardware access technologies. Together with centralized data management based on relational database the implemented approach allows for unified operation of 18 ALICE subdetectors. Several hundreds of MB of configuration data is needed to setup the PVSSII system, controls devices (power supplies, cooling plants, ...) and front-end electronics. All channels are monitored at a rate of 1Hz (or faster). This results in huge data flow which has to be handled by the controls system and archived in the database for later processing. Data reduction techniques such as filtering or smoothing were implemented in all stages of the data acquisition in order to limit the resulting insertion rate to ~1000 changes/second. In this paper we describe the data flow from the configuration database to devices and from monitored channels into the archive. Data processing at different stages of the system is explained. We provide also information on data exchange with external systems (such as data acquisition system, offline, high level trigger).

Author: KAPUSTA, Svetozar (Comenius University)

Presenter: KAPUSTA, Svetozar (Comenius University)