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Development of an innovative Storage Manager for a Distributed Control System

The most recent developments on high-performance software technologies suggest a redesign of the classic distributed control systems (DCS) paradigm used for particle accelerators and large experimental infrastructures.

These software technologies represent the core components in the design of a new DCS named !CHAOS, a new concept of Control and Data Acquisition System under development at INFN in Italy.

The !CHAOS framework will provide all the services needed for controlling and managing a large scientific infrastructure, including a number of innovating features such as abstraction of services, devices and data, easy and modular customization, extensive data caching for performance boost, integration of all functionalities in a common framework.

One of most relevant innovation in !CHAOS resides in the History Data Service (HDS) for a continuous acquisition of operating data pushed by devices controllers.

The core component of the HDS is the History engine(HST). It implements the abstraction layer for the underneath storage technology and the logics for indexing and querying data. The HST drivers are designed to provide specific HDS tasks such as Indexing, Caching and Storing, and for wrapping the chosen third-party database API with !CHOAS standard calls. Indeed, the HST allows to route to independent channels the different !CHAOS services data flow in order to improve the global efficiency of the whole data acquisition system.

The presentation aim to show the innovative solutions introduced with the !CHAOS History Data Service and the latest result of its development.

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