

ANALYSIS OF INDUSTRIAL FRAMEWORKS FOR ACCELERATOR CONTROL.

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Simulation and control software has always had a large impact on the design, performance, and operation of accelerator systems. New multi-laboratory projects such as SNS present a challenging new task: implementation of open, interoperable accelerator environments that enable collaborative development and integration of distributed accelerator applications. This environment has a multi-level architecture. At this time, EPICS has implemented the lowest layer, a homogeneous interface to distributed physical devices. Higher level applications, such as accelerator simulation and correction modules, deal with object-oriented entities and require an additional framework. This framework has to provide the developer with a collection of reusable accelerator-specific patterns and a consistent infrastructure for employing general-purpose tools and services, such as Naming, Event, Transaction, Persistent, and others. Similar multi-tier distributed facilities are becoming available in other fields, and the emerging technologies, such as CORBA Components and Enterprise Java Beans are aimed at facilitating their development by providing component-oriented frameworks. This paper presents an analysis of these technologies from the perspective of their application to the SNS control systems and integration with the existing accelerator software, such as the Unified Accelerator Libraries and EPICS.