

THE EVOLUTION OF JEFFERSON LAB'S CONTROL SYSTEM

M. Bickley, Jefferson Lab; K.S. White, Jefferson Lab

Thomas Jefferson National Accelerator Facility's (Jefferson Lab) accelerator controls were initially implemented as a proprietary in-house system. During machine commissioning, problems were encountered leading to a decision to migrate to the Experimental Physics and Industrial Control System (EPICS). Since then, the accelerator and all other laboratory controls have been successfully converted. In addition to implementing Jefferson Lab's controls using EPICS, new data visualization tools have been developed and existing programs have been enhanced with new capabilities. In order to provide a more generic interface for high level applications development, a device abstraction layer, called Common DEvice (cdev), was implemented. These additions have been made available to other laboratories and are in use at many sites, including some that do not use EPICS. Control system development is not limited to computer scientists; operators, engineers and physicists frequently add capabilities using EPICS, cdev, Tcl/tk, and other tools. These contributions have customized the control system for many different types of customers. For the future, we envision more intelligent processing for both front-end and back-end computers and more capable tools for data storage, retrieval and visualization. This paper discusses lessons learned, our experience with EPICS, and future plans.