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Maintaining control system viability and reliability amidst declining budgets, resources and sanity (or: How I learned to stop worrying and love saying no).

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Jefferson Lab's CEBAF electron accelerator has been in operation for over 30 years. The first 4 GeV beam was delivered in 1994. Machine energy increased to 6 GeV, then 12 GeV by 2014. CEBAF has made significant contributions to nuclear physics, refining our understanding of QCD, making precision tests of the Standard Model, and identifying the internal dynamics of protons and neutrons. Further upgrades are planned. CEBAF's control system was initially based on an in-house design (CEBAF Control System (CCS)). The mid-90s brought a transition to EPICS. During this period, Jefferson Lab's software team (now incorporated in the Accelerator Computing Group) was a significant contributor to the EPICS community. In the intervening years, the scope of ACG's responsibilities has increased dramatically, while group size has declined from 3.2% of the lab population in 2000 to 1.6% presently. Developers have attempted to compensate for this shortfall through creative scaling, improved process efficiency, and heroic effort. Significant challenges with hardware and software obsolescence and technical debt remain to be addressed. This work will re-introduce Jefferson Lab's accelerator programs and discuss control system evolution, approaches taken to mitigate resource – responsibility imbalance, team management, and current and future modernization efforts.

Footnotes

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