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# EPICS containers @INFN—LNF: EPIK8s

*Wednesday, 9 April 2025 16:40 (5 minutes)*

The presentation presents the current status of migrating INFN-LNF custom control systems to EPICS using EPIK8s, a containerization and orchestration framework that seamlessly integrates EPICS applications into Kubernetes environments. EPIK8s, an implementation of the DLS epics-containers framework developed at INFN-LNF, leverages modern container technologies to overcome the challenges of traditional deployment methods in scientific control systems. Despite limited manpower and specialized EPICS expertise, we have successfully deployed EPICS along with supporting services on INFN-LNF beamlines—including SPARC, BTF, and a remote ELI beamline.

This achievement demonstrates that combining containerization, orchestration, and CI/CD pipelines dramatically improves the deployment process for EPICS controls in new beamlines. Key benefits include maximized development speed through containerized environments that facilitate sharing and reuse, the ability to package IOC software in lightweight virtual environments, and the flexibility to run and test applications anywhere —from local laptops to remote facilities. Additionally, leveraging Kubernetes together with ArgoCD enables centralized orchestration and management of all IOCs and services, allowing control system teams to focus on application development and control services rather than on IT infrastructure challenges.

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