Using **Docker Containers** for EPICS IOC deployment and **diskless** servers with remote boot strategy bring **consistency** and **repeatability** to the control system

Sirius Diagnostics IOC Deployment Strategy

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Introduction

In order to ease maintenance and increase robustness, repeatability and dependency isolation a deployment workflow was developed for standardizing the diagnostics IOC at Sirius. It is based on two main components: containerization, which isolates the IOC in a well-known environment, and a remote boot strategy for our diagnostics servers, which ensures all hosts boot in the same base operating system image.

Methods

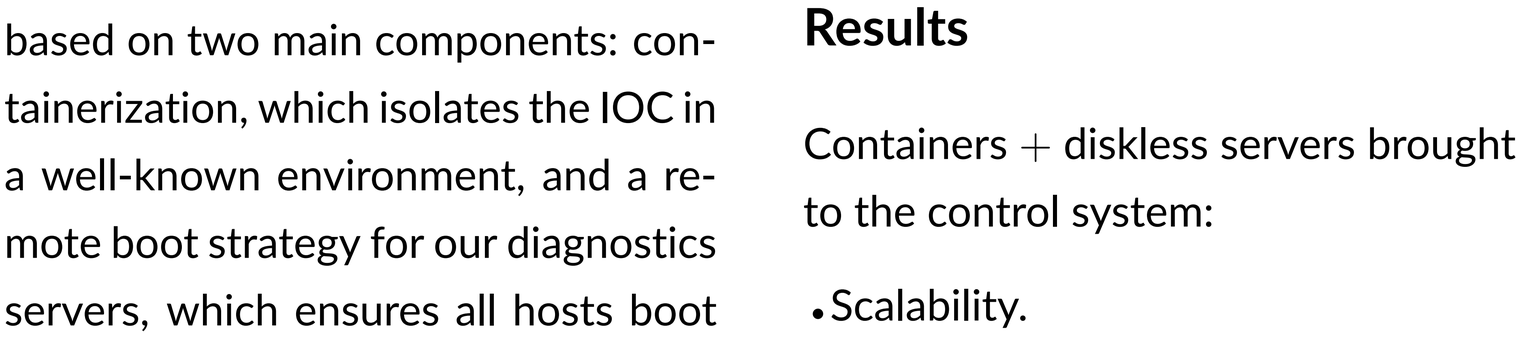
By following the *microservice* architecture principles, we choose to use Docker containers to package EPICS IOCs, using reusable base Docker images, *diskless* servers with Debian 9 base image and *NFS mounts* for rootfs, host customization and autosave features.

Results

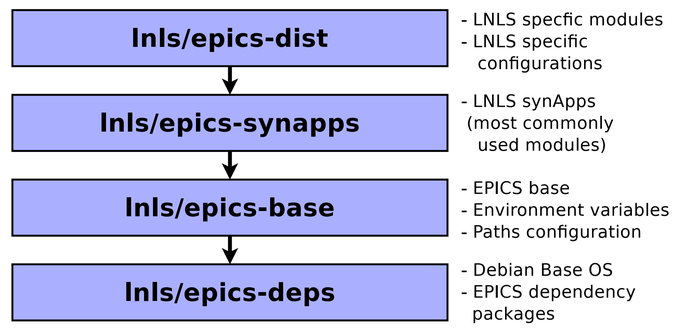
Containers + diskless servers brought to the control system:

- Scalability.
- Isolation.
- Repeatability.

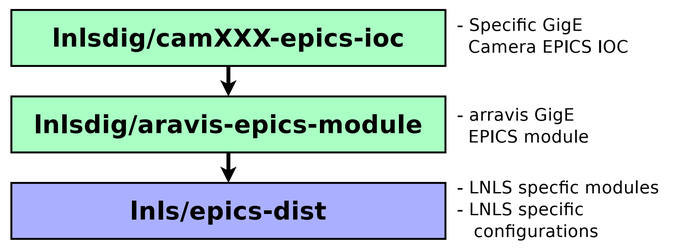
Container orchestration is being evaluated to substitute the node-based approach (pull updates) to a manager-node dispatcher (push updates).



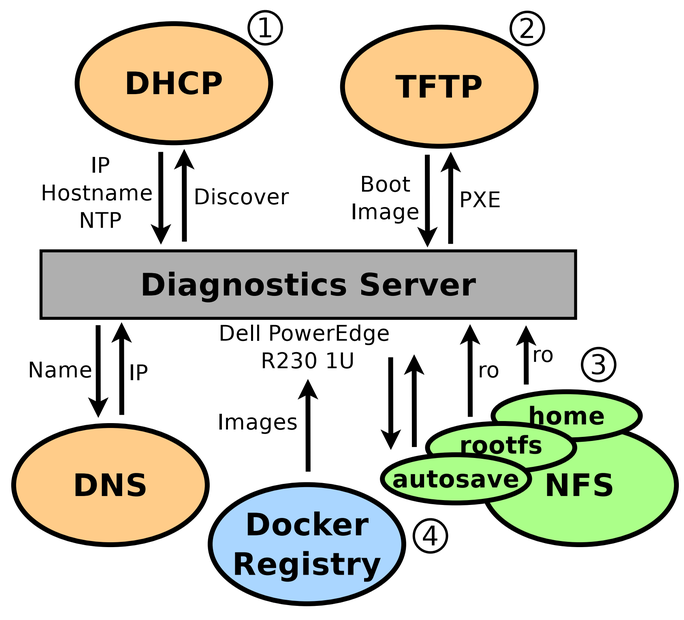
Sirius Deployment Workflow.



Sirius Docker Images Hierarchy.



Sirius Camera EPICS IOC and an Aravis EPICS module.



Sirius Diagnostics Remote Boot Strategy.

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