



LABORATÓRIO DE INSTRUMENTAÇÃO
E FÍSICA EXPERIMENTAL DE PARTÍCULAS
partículas e tecnologia

Developing a distributed and fault tolerant Dataverse architecture.

Our challenges.

- Dataverse Service for National Scientific Computation Foundation;
- Fault tolerant service;
- No single point of failure;
- High availability.

Our issues.

- No recipe to elaborate on;
- Package installations not flexible enough;
- Expandable storage – local/S3/swift/minio;
- Distributed database;
- SOLR index – standalone vs distributed;
- Server role shifting.

Our drawbacks.

- Trial and error advanced installation;
- Existing docker recipe not what we intended;
- Storage direct upload/download issues with S3/swift;
- Postgres documentation lacking solutions;
- Distributed SOLR index was cumbersome;
- Server role shifting demands intervention.

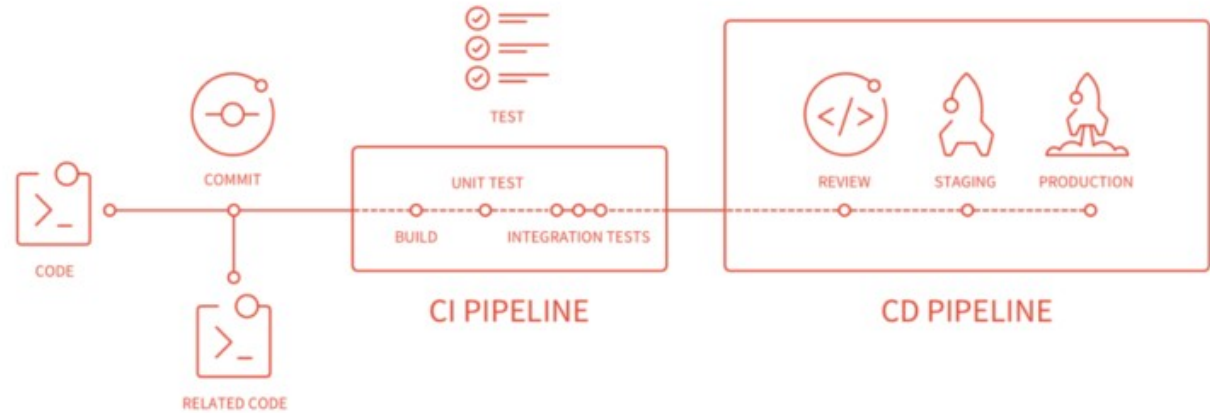
Our solutions.

- Created our own recipe / pipeline;
- Docker containers;
- Minio;
- pg_auto_failover;
- Standalone SOLR
- Keepalived/VIP.

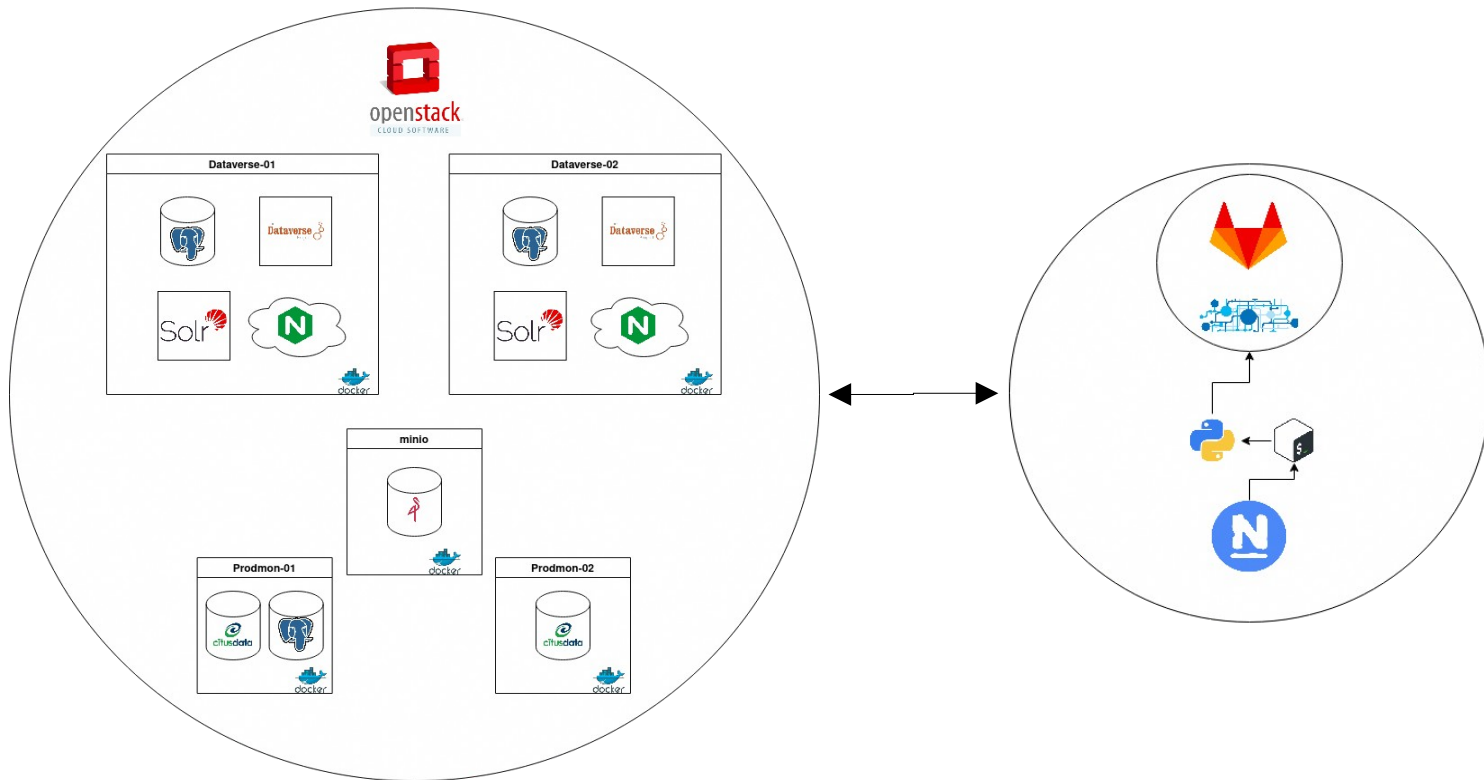
The gitops approach



GitLab CI

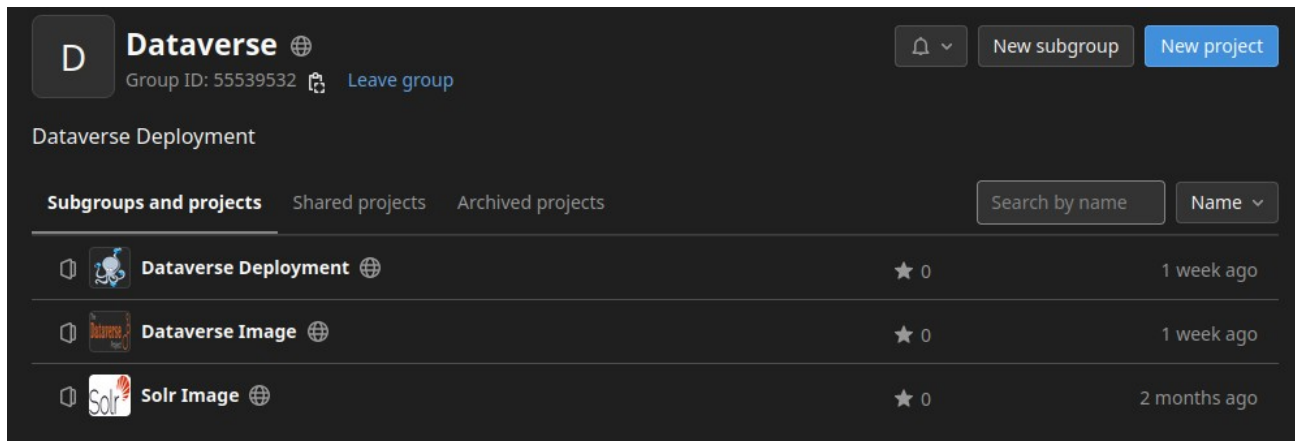


Dataverse Distributed Architecture



Our one stop shop solution

<https://gitlab.com/lip-computing/dataverse>



The screenshot shows the GitLab interface for the 'Dataverse' group. At the top, there is a group header with the name 'Dataverse', a globe icon, and a 'Leave group' link. To the right are buttons for 'New subgroup' and 'New project'. Below the header, the text 'Dataverse Deployment' is visible. A navigation bar includes 'Subgroups and projects', 'Shared projects', and 'Archived projects', along with a search box and a dropdown menu. The main content area lists three subgroups: 'Dataverse Deployment' (created 1 week ago), 'Dataverse Image' (created 1 week ago), and 'Solr Image' (created 2 months ago). Each entry includes a folder icon, a project icon, the name, a globe icon, a star icon with a '0', and the creation date.

Subgroup	Created
Dataverse Deployment	1 week ago
Dataverse Image	1 week ago
Solr Image	2 months ago



Thanks

Any questions?

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