ITERATIVE DEVELOPMENT OF THE ATLAS PUBLICATION TRACKING SYSTEM

Norfolk, US - May 2023 | CHEP 2023

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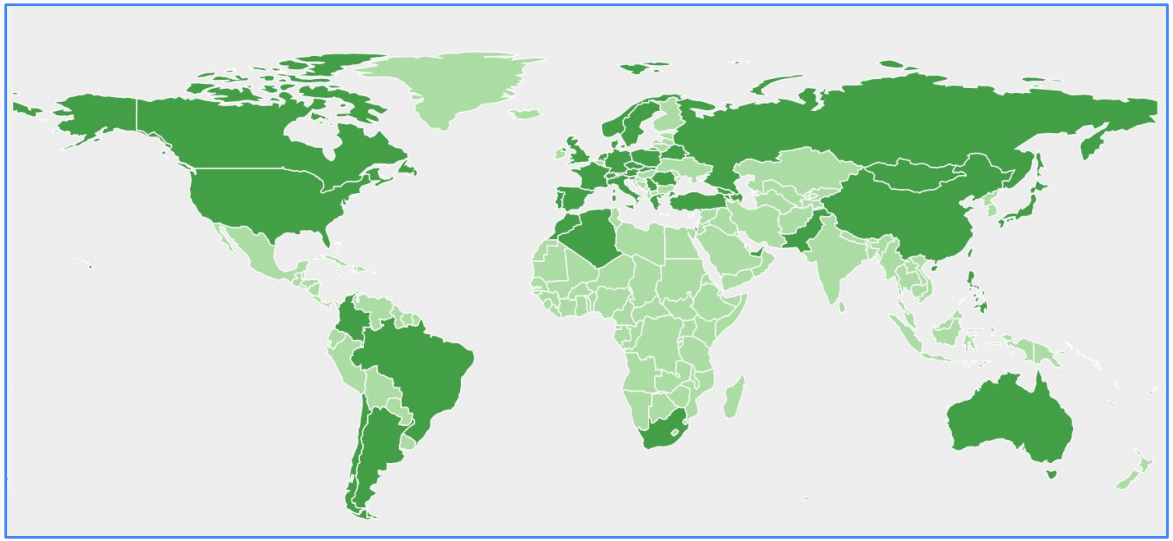
Context

The ATLAS experiment | The Glance Team | The Analysis System

~ 6,000
Active members

~ 300
Institutes around the Globe

> 100
Papers published per year



Collaboration Map. The darker colors represent the countries with institutes affiliated to ATLAS

Context

Goal
Provide software interfaces that support effective management of data

Team
12 Developers
3 Different Institutes

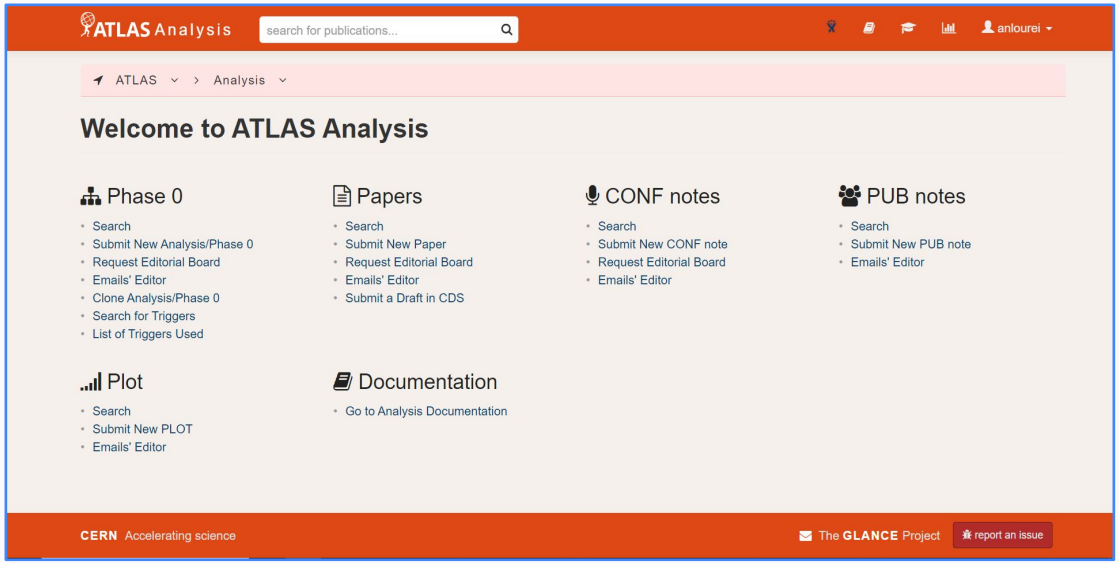
Scope
3 experiments: ATLAS, ALICE and LHCb

Projects
In ATLAS, the Glance team provides interfaces to manage members, employments, appointments, papers' submission, speakers selection, etc.

Context

Main Goals:

- ✔ Ensure Publications' deadlines
- ✔ Ensure communication between the involved groups
- ✔ Ensure the continuity of workflows



Analysis System interface.

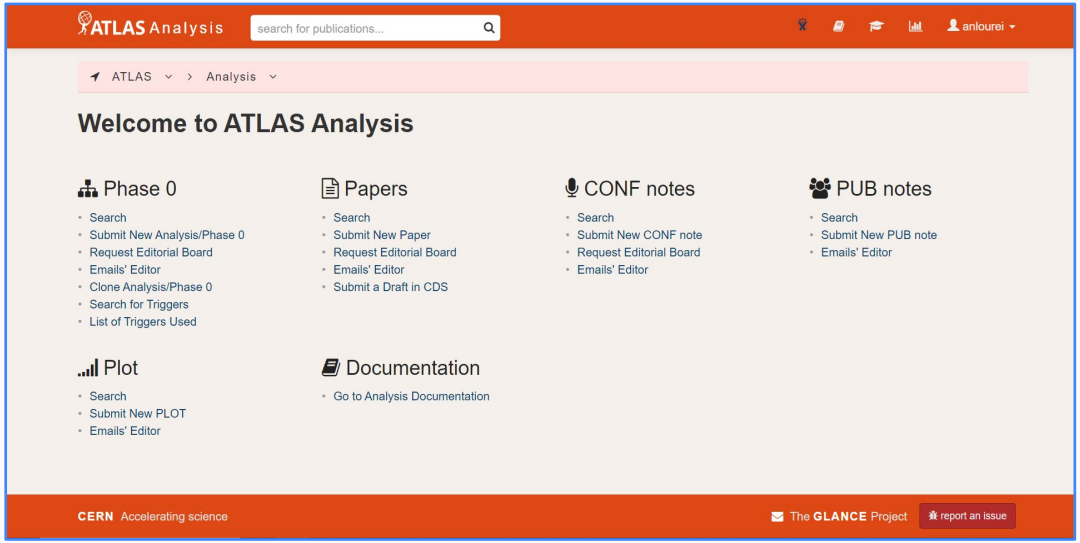
Context

Main Goals:

- ✔ Ensure Publications' deadlines
- ✔ Ensure communication between the involved groups
- ✔ Ensure the continuity of workflows

Problems:

- ✔ Code base outdated -> difficult to implement new features
- ✔ Rigid workflow
- ✔ Duplication of data for different types of Publications



Analysis System interface.

The Evolution of the Analysis System

Current Analysis System → **ATLAS Publication Tracking System**

Code base outdated
Difficult to implement new features

→ **Code optimization**
Focus on automated tests

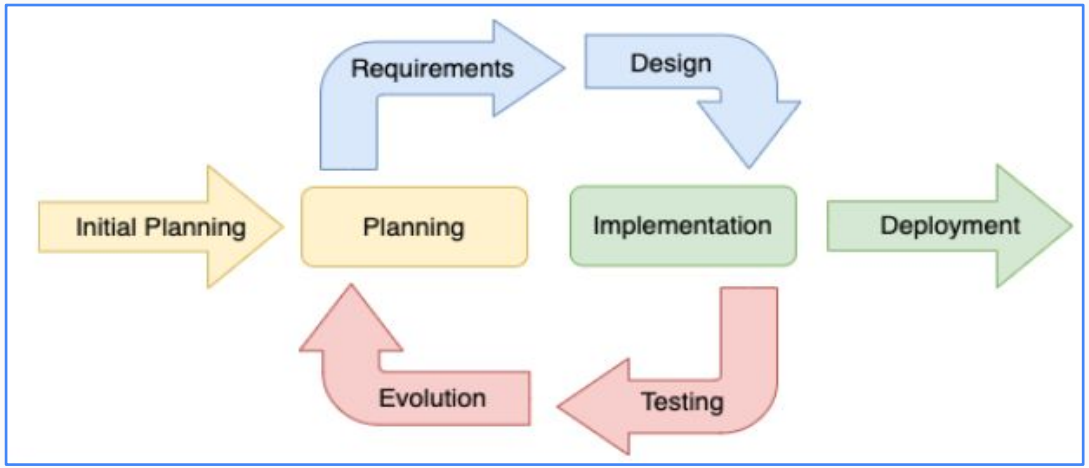
Rigid Workflow
Does not meet all the users' needs

Duplication of Data
The users have to synchronize manually

} **Remodel the database**
Makes it easier to manage workflow changes and avoid the duplication of data

The Evolution of the Analysis System

How to implement core changes at a system that has such important role at the Publications management?



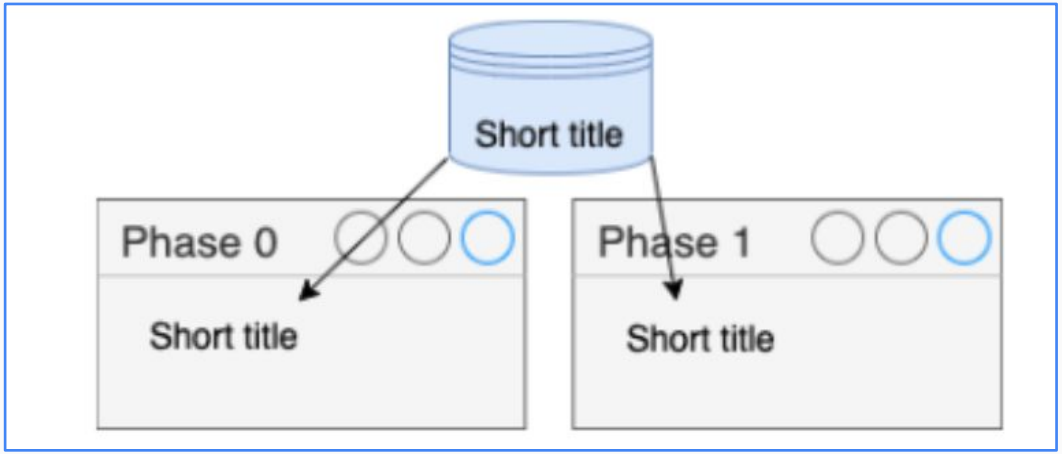
Methodology. Divide the delivery in iterations

First Iteration

Database changes | Code changes | Automated tests

New modeling of the database

- ✔ Creation of a separate schema
- ✔ Implementation of data inheritance
- ✔ History implementation



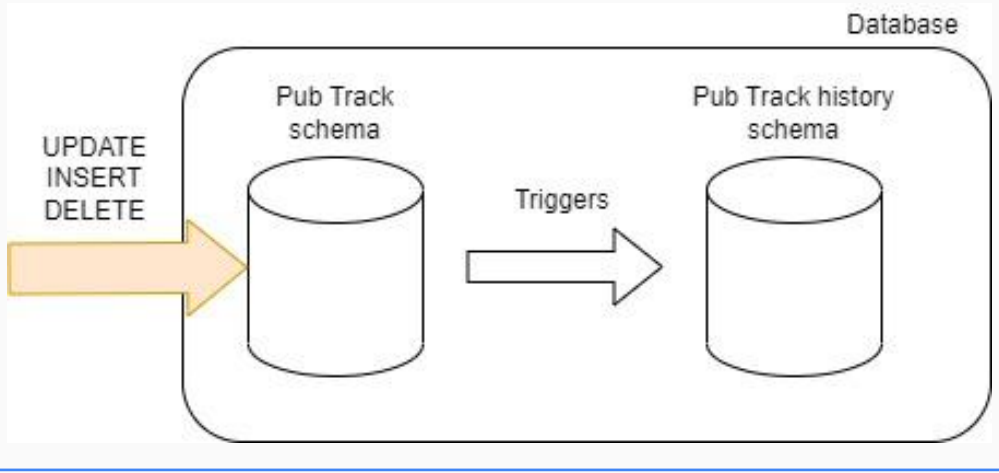
Metadata inheritance implementation.

First Iteration

Database changes | Code changes | Automated tests

New modeling of the database

- ✔ Creation of a separate schema
- ✔ Implementation of data inheritance
- ✔ History implementation



History implementation

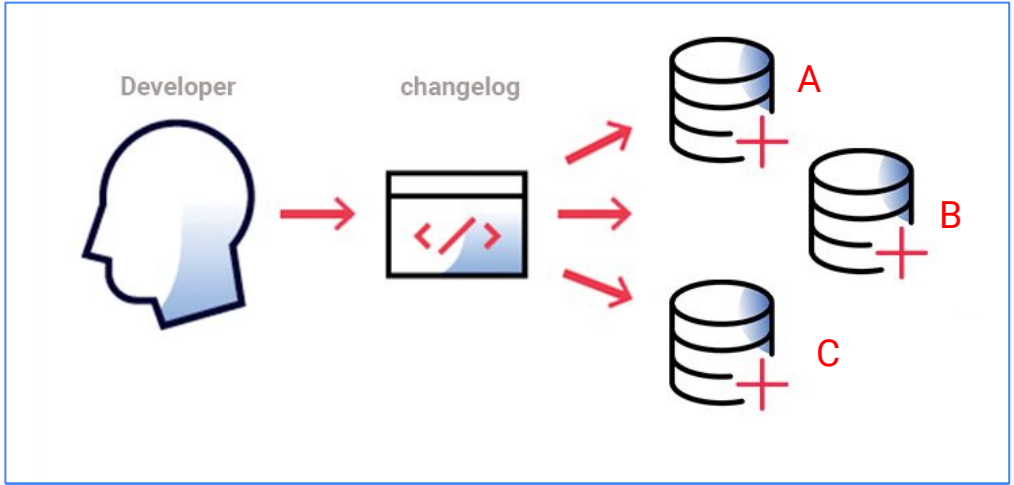
First Iteration

Database changes | Code changes | Automated tests

Liquibase implementation

✔ Allows tracking the changes to the database

✔ Easily goes to a specific state of the database



Liquibase diagram. Source: liquibase.com/how-liquibase-works

First Iteration

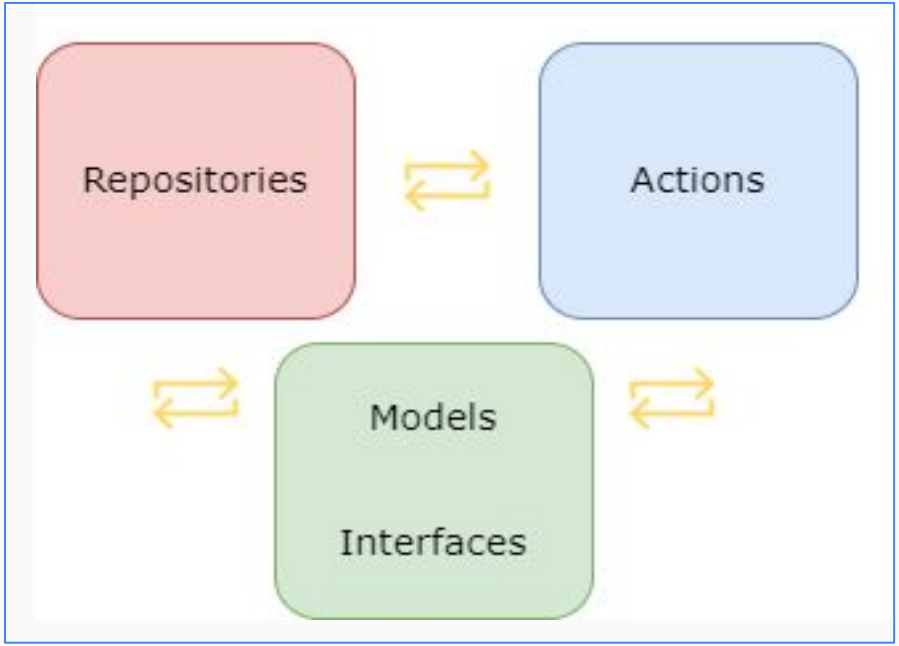
Database changes | Code changes | Automated tests

What?

✔ Separate Domain, Application and Infrastructure layers on the Back-end

Why?

✔ Improve testability
✔ Improve readability
✔ Improve performance
✔ Simplify maintenance



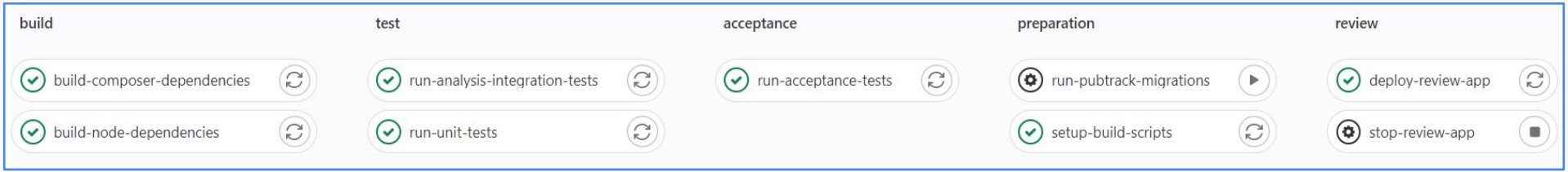
Back-end structure diagram using Domain Driven Design.

First Iteration

Database changes → Code changes → **Automated tests**

Importance

- ✔ Quality control of the system functionality
- ✔ Confidence in Deployments
- ✔ Document the use cases and the domain structure

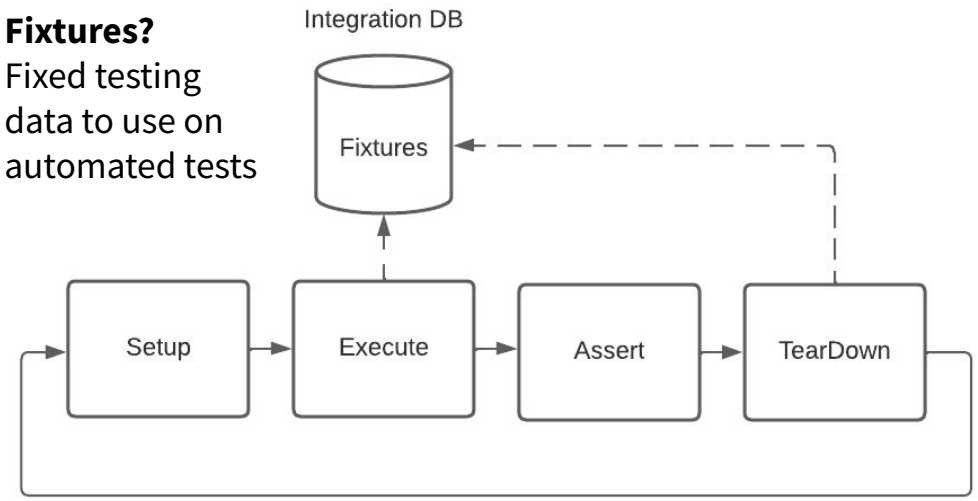


ATLAS Glance Gitlab Pipeline.

First Iteration

Database changes | Code changes | Automated tests

Fixtures?
Fixed testing data to use on automated tests



Testing workflow.

PHPUnit

Conclusion

Next iterations

- Expansion of the API Endpoints
- Flexibilization of the Workflow
- Authentication through Keycloack instead of Shibboleth
- Integration with new CERN Authorization Service
- Gitlab integration enhancements
- Broader code refactoring and database remodeling

Final considerations

- ✔ This is a long term Project
- ✔ The delivery in “packages” allows us to focus on smaller projects and prioritize according to the necessity of the users.

THANK YOU!
OBRIGADA!

Glance @ CHEP

The ALICE Glance Service Work system
T8 May 8th, 2023, 15:00 - 15:15

The ALICE Glance Membership system
Poster session, Poster #13, 15:30 - 16:30

Enhancing data consistency in ATLAS and CERN databases through automated synchronization
T5 May 9th 2023, 14:15 - 14:30

Glance Search Interface
T5 May 9th 2023, 14:30 - 14:45

The migration to a standardized architecture for developing systems on the Glance Project
T5 May 9th 2023, 14:45 - 15:00

Universidade Federal do Rio de Janeiro

lps COPPE/PoliUFRJ Laboratório de Processamento de Sinais e Inteligência Computacional

ATLAS EXPERIMENT

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