The Glance Project

- Active since 2003
- Used by 3 CERN experiments
- +20 web systems
LHCb Systems

Membership

- 96 Institutes
- 1571 Members
- 1077 Authors
- 21 Countries

Equipment Management

- 53617 Assets
- 1080 Models
- 25110 Cables

Radiological Protection Survey

- 10536 radiation measurements
- 240 surveys
- 83 points
LHCb Challenges

- How many members joined the Collaboration in 2023?
- Which assets were removed from the detector last week?
- How to extract all radioactive measurements in CSV?

Glance Search Library
Precursor: FENCE

The FENCE Framework

- A software framework:
  - is an environment that provides already implemented functionalities to be used as part of a system that is being developed.
  - provides a standard way to implement systems.
  - a framework (structure that serves as a support or guide) is wider than a library (building blocks that can be used anywhere).

- FENCE is an object oriented framework:
  - Gathers the required knowledge to develop systems that are suitable to CERN.
  - It is continuously being evolved by innovation.
  - Promotes reuse and gathers the concepts of inheritance.
  - Standardization on how to develop systems.
  - Minimize the impacts of team turnover (less effort to be trained, understand requirements, etc).
  - Offers high level of configuration (heterogeneous users/needs).
  - Offers transition between:
    - Static relational and normalized BD x Dynamic and procedural system.

Issues

- High coupling
- Limited customization
- Lack of documentation
Precursor: FENCE
New complex interfaces

New complex case

Popup window

4XCELEROCK0001

Description
Electrical sockets from zone globale UX85

Responsible

Location
H

Status
Installé et Maintenu

Commission date
08-MAR-2023 00:00

TREC info

Column
The new architecture inherited a backlog of 20 issues from the Fence Super Search:

- Save search not persistent and limited
- Sorting / Lookup
- Download

New additions:
- Caching
- Preloaded searches and custom interfaces
- API
💡 Create a query language that is easy to write and translate to a SQL WHERE clause

💬 "I want to see all active members who joined LHCb in 2022 and all members who left that year."

💡 (startDateInLHCb >= 01-01-2022 AND startDateInLHCb <= 31-12-2022 AND employmentStatus = active) OR (endDateInLHCb >= 01-01-2022 AND endDateInLHCb <= 31-12-2022)"

Elements that compose a Search Filter:
• Search field
• Search Operator
• Search Value
• Conjunction
• Grouping mark

WHERE ((START_DATE_IN_LHCB >= TO_DATE('2022-01-01', 'YYYY-MM-DD') AND START_DATE_IN_LHCB <= TO_DATE('2022-12-31', 'YYYY-MM-DD') AND UPPER(EMPLOYMENT_STATUS) = UPPER('Active')) OR (END_DATE_IN_LHCB >= TO_DATE('2022-01-01', 'YYYY-MM-DD') AND END_DATE_IN_LHCB <= TO_DATE('2022-12-31', 'YYYY-MM-DD')));
A **Provider** class exposes all methods available. **Search configuration** provides the necessary information to map a **Search field** to a database table column. It also includes **caching** information.

```php
public function runSearch(SearchInputDTO $command, string $configurationPath): array

public function saveSearch(array $input, int $agentId): int

public function getSearchConfigurationById(int $searchId): array

public function getMemberSearchConfigurations(int $memberId): array

public function deleteSearch(int $searchId): void
```
Glance Search Library Backend - Configuration

**Configuration:**

- 💪 Simpler configuration files
- 🔄 Proper lookup
- 🔄 Results can be exposed with API
- 🔥 Cache a specific query
Glance Search Library Frontend

- Save search
- Pagination
- Lookup
- Download all
- Caching

All components are grouped in a wrapper: `SuperSearch.vue`. This component receives a set of properties that define the available search fields.

✨ Slots

Vue documentation
Glance Search Library Frontend - Predefined searches
Glance Search Library Frontend - Predefined searches
Summary

Results

- 10 search interfaces currently deployed to production, helping hundreds of active users;
- 2 external applications querying our APIs to power their systems;
- The Glance Search Library fulfilled one of the most important requirements among all applications maintained by Glance in LHCb. This made possible the upgrade of Legacy Systems to a more modern stack.

Goals for the future:

- Implement the Glance Search Library on every future LHCb Glance system;
- Keep adding new features to the Glance Search Library;
  - Improving both the user and the developer experience;
- Adoption of the Glance Search Library by the other experiments at Glance;
  - For now, only LHCb uses the library.
Thanks!

Glance project presentations at CHEP 2023:
- The ALICE Glance Membership system
  - Poster session, Poster #13, 15:30 - 16:30
- The ALICE Glance Service Work system
  - T8 May 8th, 2023, 15:00 - 15:15
- Iterative and incremental development of the ATLAS Publication Tracking system
  - T5 May 9th 2023, 14:00 - 14:15
- Enhancing data consistency in ATLAS and CERN databases through automated synchronization
  - T5 May 9th 2023, 14:15 - 14:30
- The migration to a standardized architecture for developing systems on the Glance project
  - T5 May 9th 2023, 14:45 - 15:00

Contact: carlos.brito@cern.ch / gabriel.jss@cern.ch