

# Rolling Out a New Platform

## for Information System Architecture at SOLEIL



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### Context

Redesigning an information system given new challenges for SOLEIL II\*

- Provide an **organisational framework** to guarantee the global coherence of the Information System (IS)
- Provide a **platform** for managing interconnections between IS components
- **Roll-out** this new solutions on concrete use cases to get real life feedback

[\*] SOLEIL II: Towards A Major Transformation of the Facility, ICALEPCS 2023, Y.M.Abiven and al..



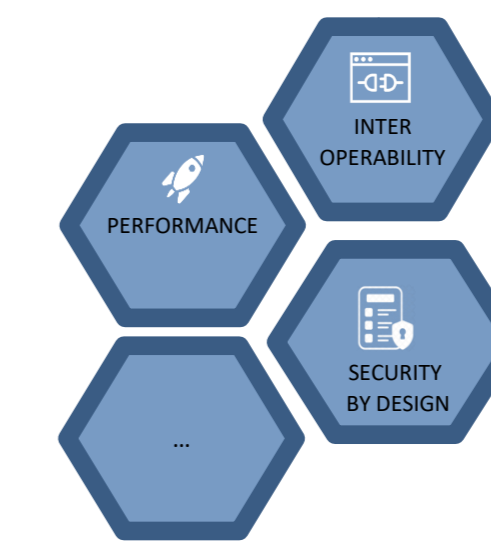
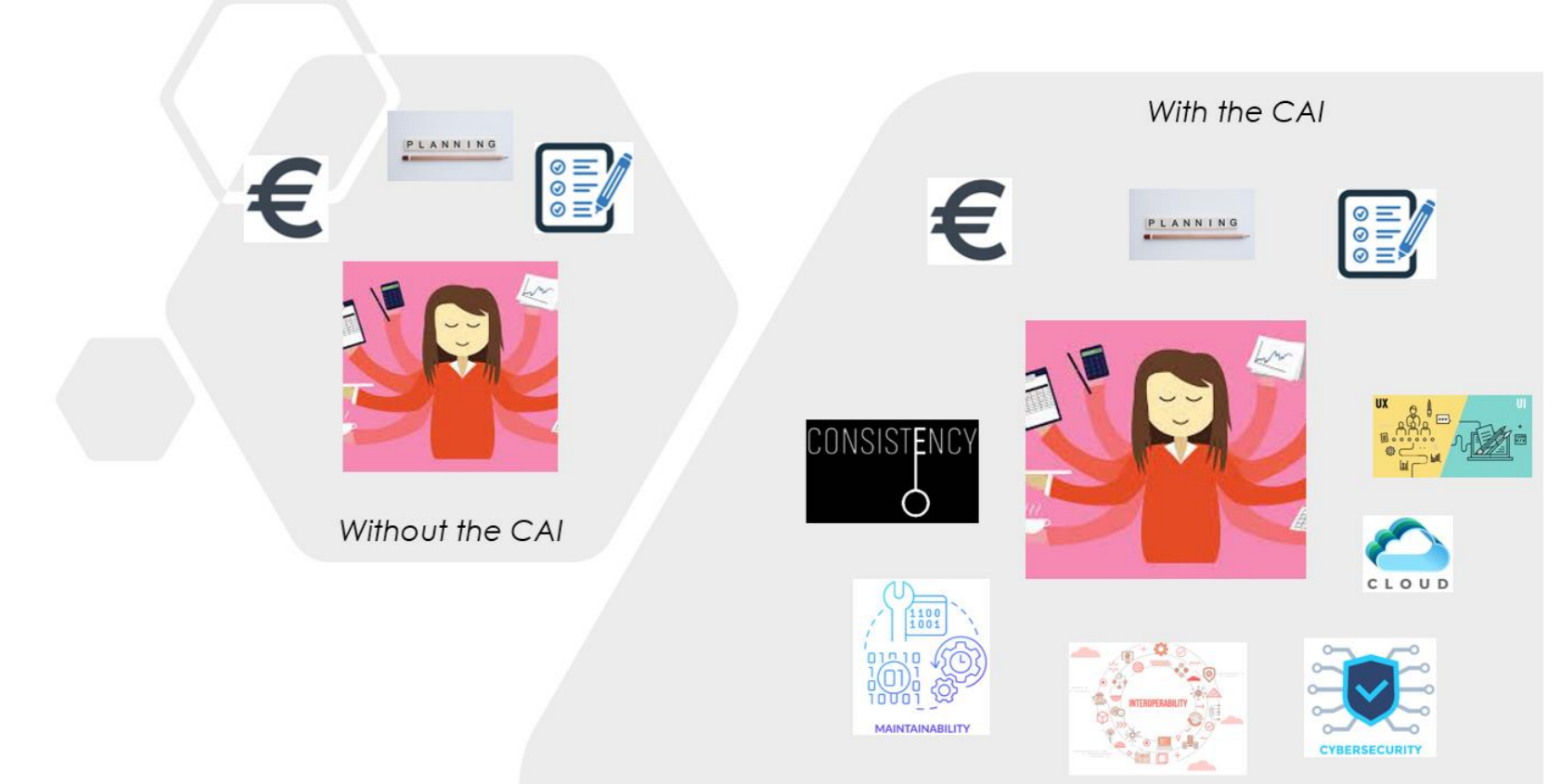
### Informatics Architecture Committee

A proficient Information System (IS) architecture does not only rely on new technologies but also leans on a human organisation.  
 -> Set up of a **committee** called **CAI** (Cellule d'Architecture Informatique or Informatics Architecture Committee) to ensure the architectural and technical coherence of the.



### Project architecture reviews

- For new projects or major refactoring
- **Dialog** between architects, project managers, experts...
- Validate the **application of the principles** or agree on temporary derogation

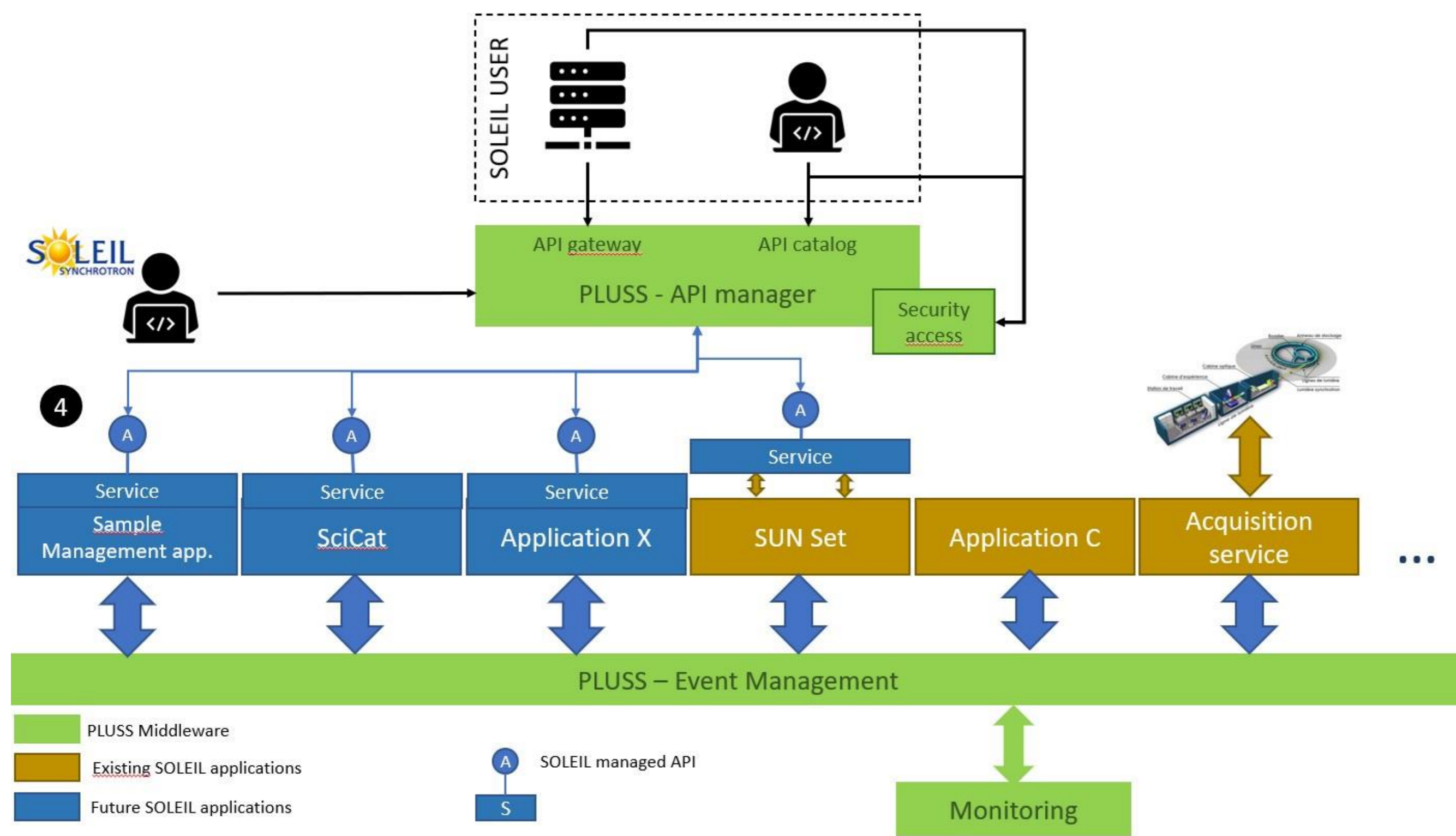


### Set of architectural principles

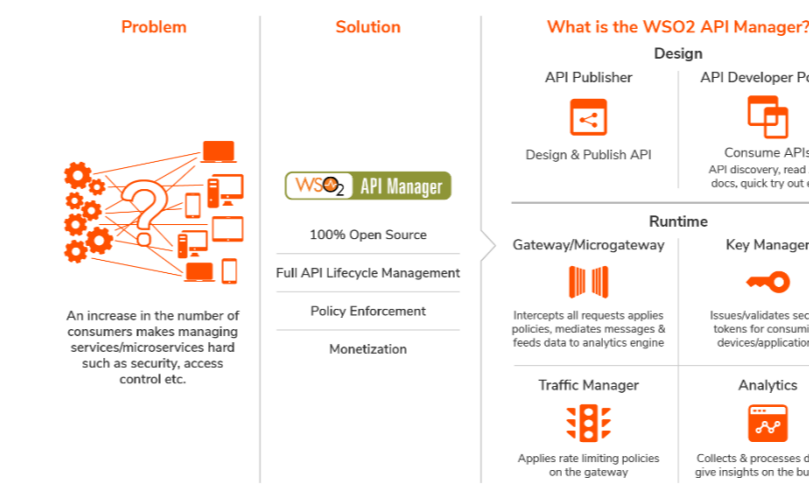
- Common shared consensus
- Design guide
- Applied proactively
- Evolving rules

### PLUS

A central interconnection platform:  
**PLUS (PLaform d'Urbanisation du Synchrotron SOLEIL, or SOLEIL's PLatform for Information System Design)**

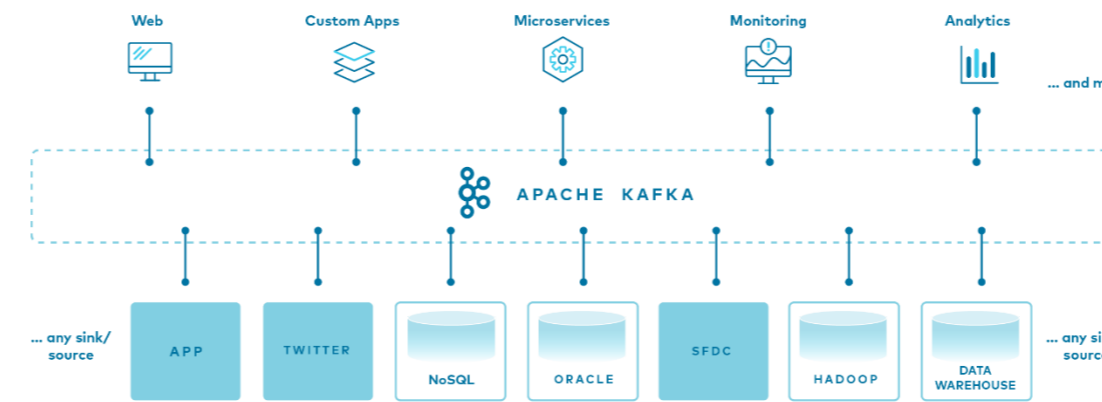


### API Manager



- For synchronous communications
- Provide a catalog of Web APIs (REST, GraphQL, ...)
- Control API usages (security, quotas...)

### Streaming platform

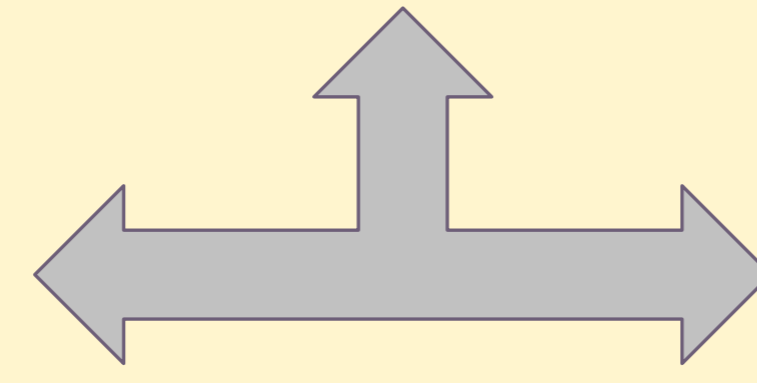


- Event streaming based on a broker
- HA, scalable, high throughput
- Decoupling between producers and consumers
- Large number of existing connectors

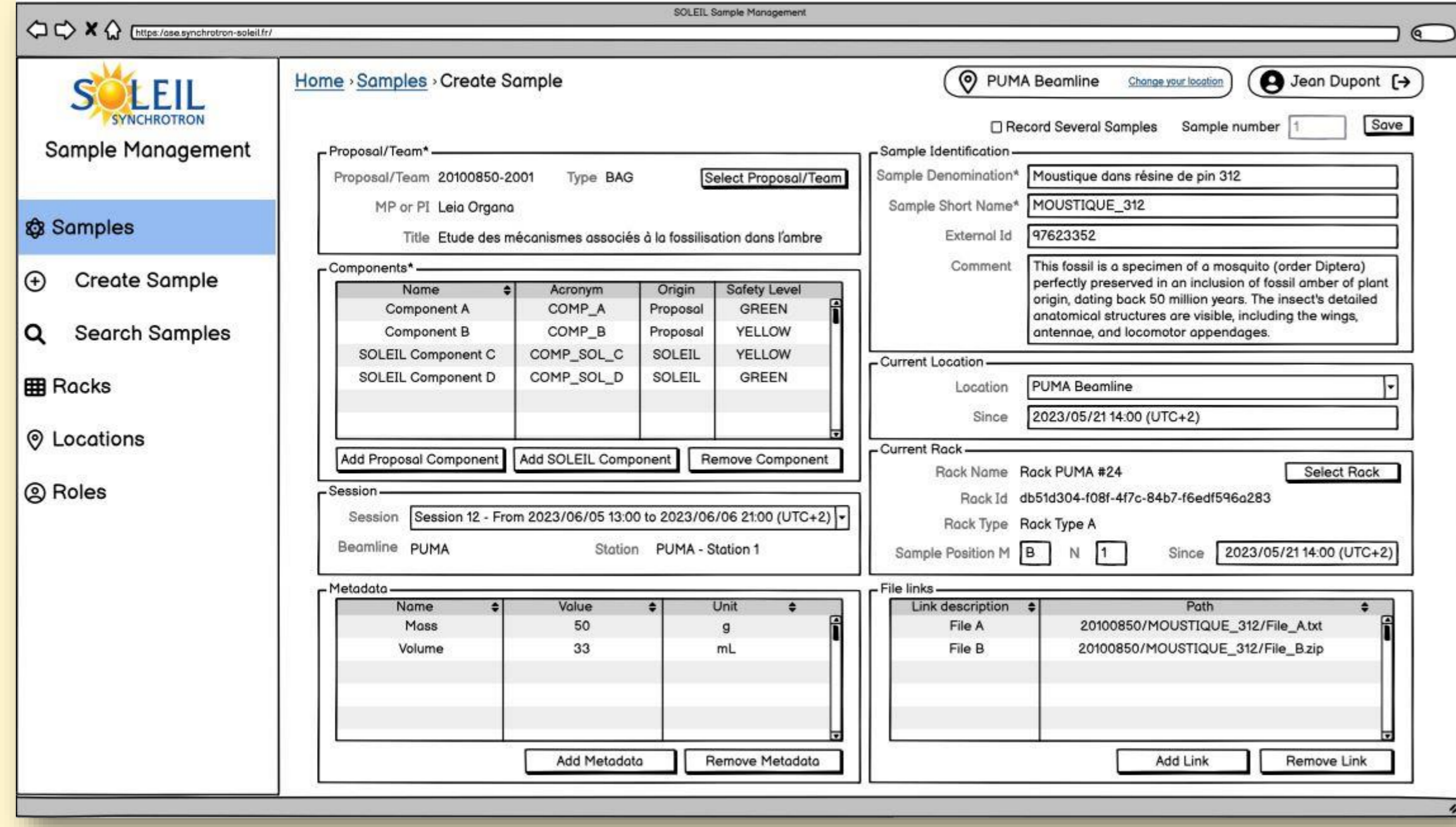
### Sample Lifecycle

Roll out a **first use case using PLUS**: Following the whole lifecycle of samples measured at SOLEIL. In SOLEIL II TDR (Technical Design Report) [\*] starting beginning of 2022, a dedicated work-package began to collect all needs for sample management.

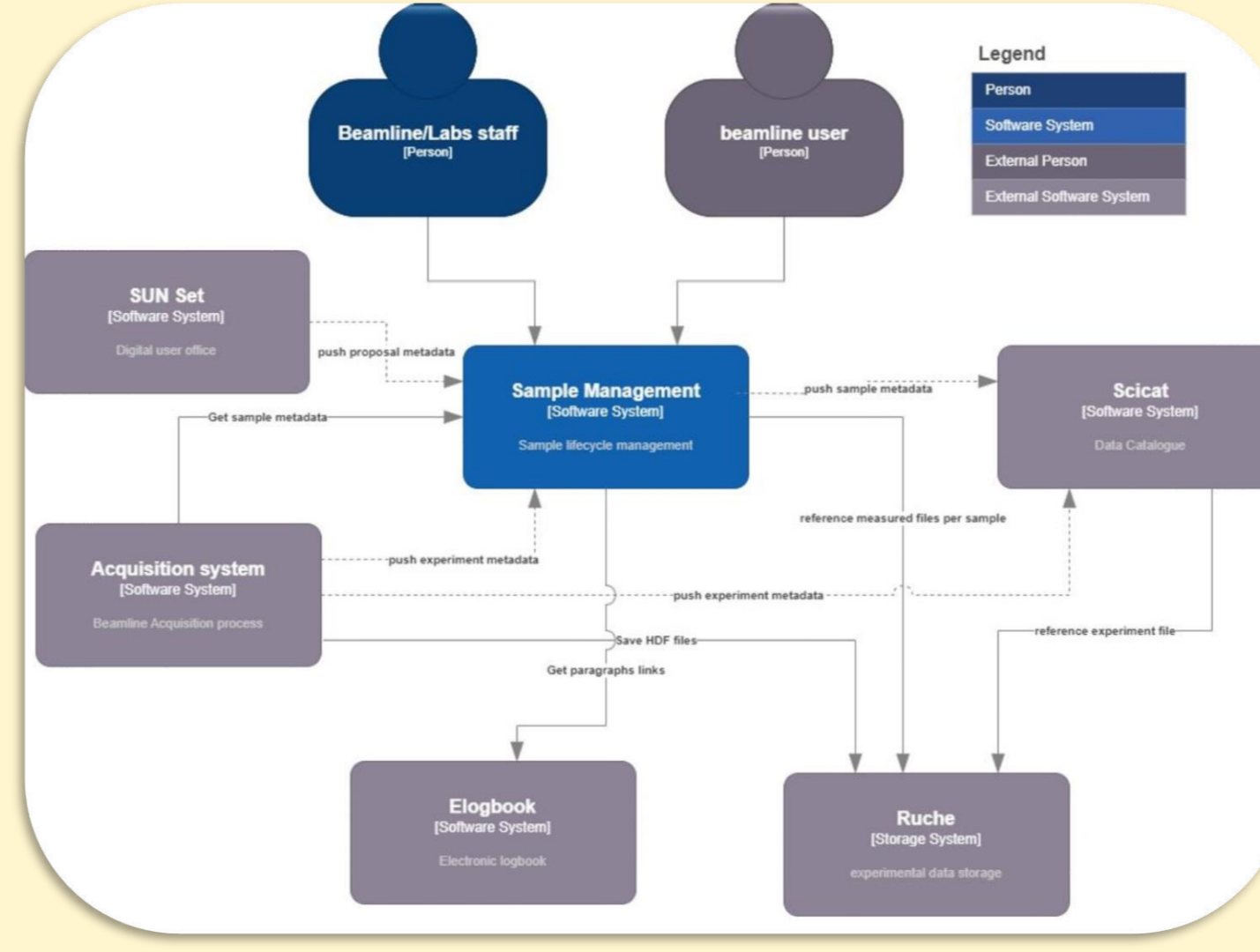
- Front-end first development workflow:**
- Get users feedback as earlier as possible
  - Wireframing mock-ups
  - Develop front-end before back-end components



- Continuous Architecture activities:**
- Interactions between experts to design solution that are applying architecture principals
  - Design the architecture based on detailed non-functional requirements



Wireframe of the screen 'Create Sample'



Global architecture



Roll out a **second use case using PLUS**: **SciCat Scientific data catalog** has been selected by SOLEIL to comply with the European **Open Data** policy.

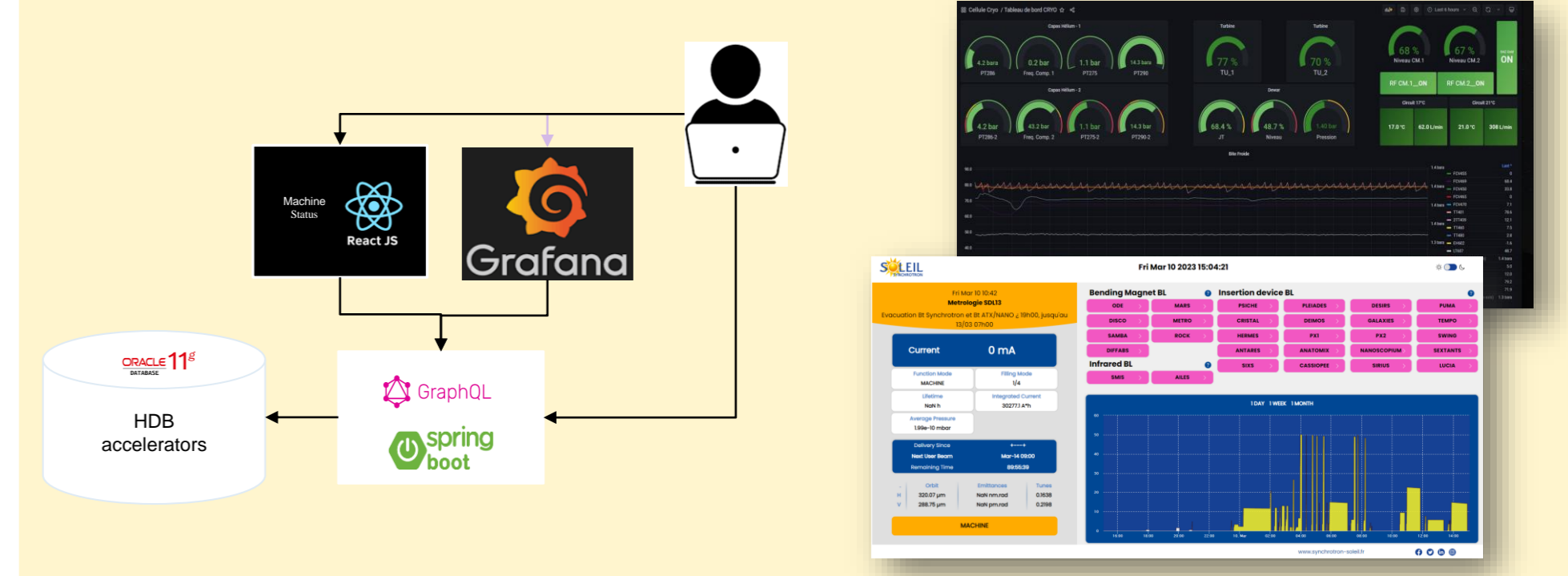
POC Data ingestion from mock data sources of a beamline and its proposals thought Apache Kafka

Roll-out starting end 2023

<https://scicatproject.github.io>

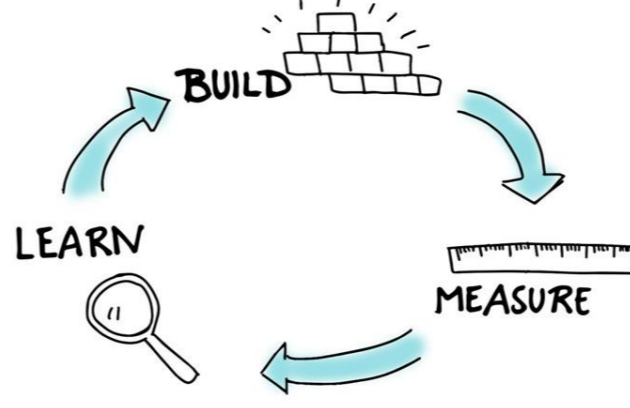
### Access to operational data

Roll out a **third use case using PLUS**: Access to Tango historical database via a GraphQL API managed by WSO2 API manager



### Outcomes

A **continuous improvement cycle** has been engaged. We have created a framework where we can address the challenges of digital transformation from the central architectural point of view.



By driving some **concrete implementations** on real products, we gain experience and feedback that are now mandatory in a modern complex computing technologies ecosystem.