

Autosubmit role in the EDITO-infra

Bruno De Paula Kinoshita¹, Daniel Beltran Mora¹, Manuel G. Marciani^{1,2} (manuel.gimenez@bsc.es), Luigi Tenorio Ku¹, and Miguel Castrillo¹

1 : Barcelona Supercomputing Center (BSC), 08034 Barcelona, Spain 2 : Universitat Politècnica de Catalunya (UPC), 08034 Barcelona, Spain

Introduction

- **The European Digital Twin of the Ocean, EDITO**, is an initiative of the European Commission to make ocean knowledge readily available to citizens, entrepreneurs, scientists and policy-makers.
- **EDITO** aims to create a virtual representation of marine and coastal environments around the globe to assess future impacts of climate change and human activities.
- **Virtual Ocean Model Lab (VOML)**, a virtual co-working Environment as software infrastructure to integrate the various components developed in EDITO) is built inside EDITO-infra.
- **The VOML** aims to create a comprehensive environment for optimizing and managing diverse computing resources.
- **Autosubmit**, the backbone of the VOML, enriches the underlying infrastructure by granting access to HPC resources and enabling the federation of both cloud-based and HPC resources. It provides workflow orchestration, operation, and visualization.
- One of VOML's highlights is the integration of specialized Graphical User Interfaces (GUIs) connected to model builders. These GUIs offer user-friendly interfaces for configurations, validations, and utilization of tools for the development of the FAs and WiS, enhancing accessibility and ease of use.
- **Autosubmit** has already been deployed in the VOML infrastructure and will be the starting point for deploying additional process and service layers in the VOML.

References

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- [3] CINECA. Datalab edito, 4 2024. URL <https://datalab.dive.edito.eu/>.
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1. EDITO-infra and VOML

The “EU Public Infrastructure for the European Digital Twin Ocean (EDITO-Infra)” project aims to build the public infrastructure backbone for the European Digital Twin of the Ocean.

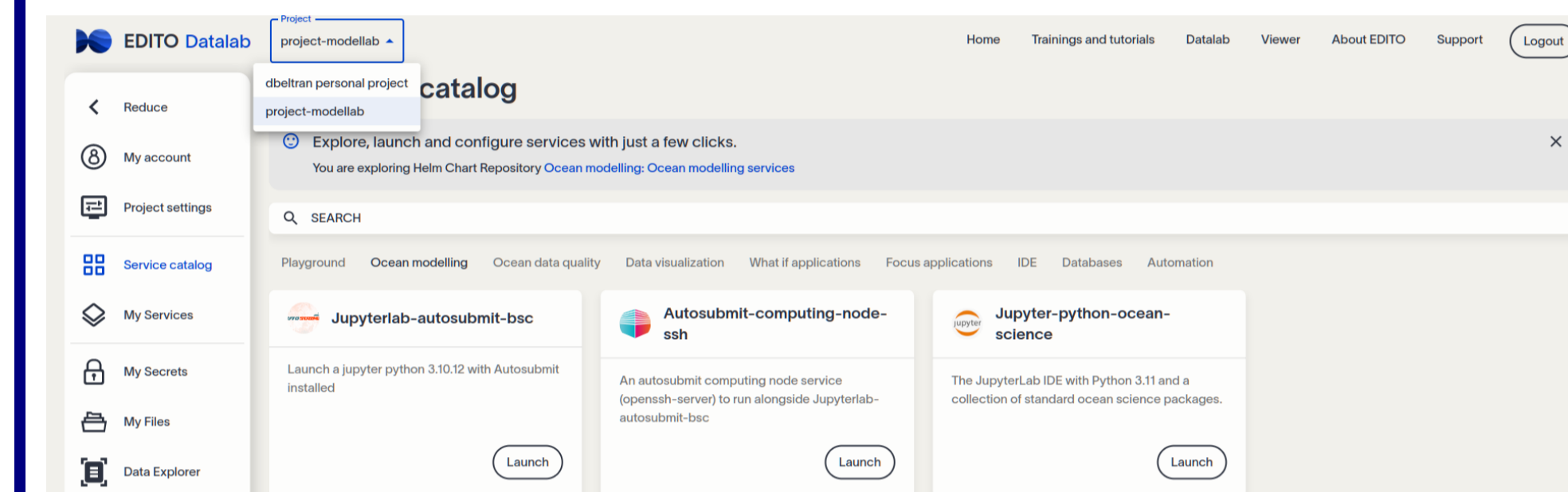


Figure 1: This figure illustrates the front-end of EDITO-infra named datalab. Each catalog features a set of containers that individual or project users can deploy on demand.

The different model workflows are not developed from scratch but rather integrate higher-level building blocks. Along this line, the relocatable platforms (model builders) provide a framework to configure and execute on-demand focus applications and what-if scenarios. Specialized GUIs are connected to the model builders, offering user-friendly interfaces for various configurations and validations.



Figure 2: Scan this qr to go to the Datalab.

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2. Back-end overview of VOML

- **The Autosubmit workflow manager plays a vital role within the VOML infrastructure.**
- **Autosubmit ensures smooth workflow orchestration** and helps establish robust data pipelines, guaranteeing uninterrupted data flow to HPC and Cloud applications.

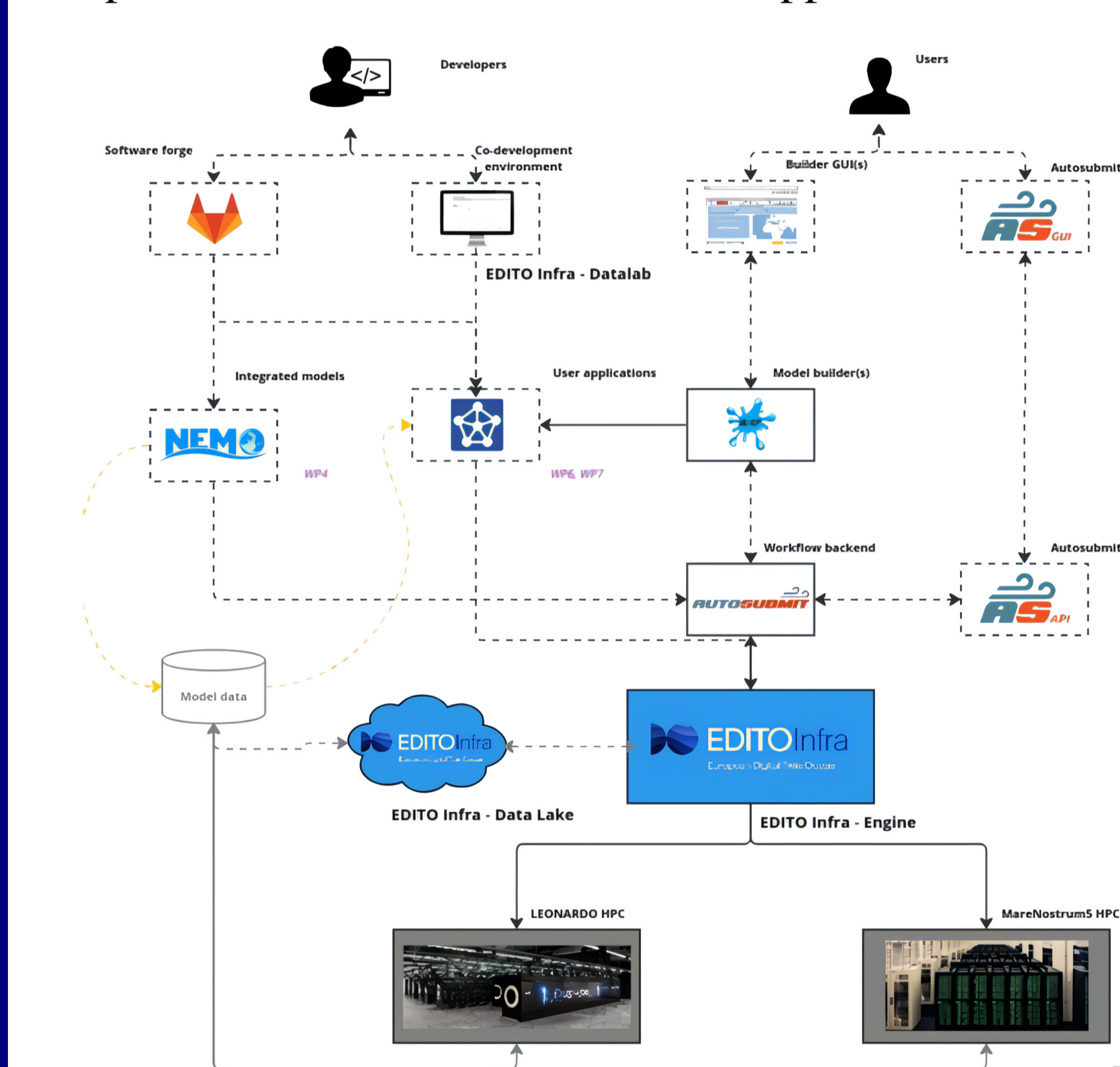


Figure 3: This diagram illustrates the points of access that developers and users interact and Autosubmit's role.

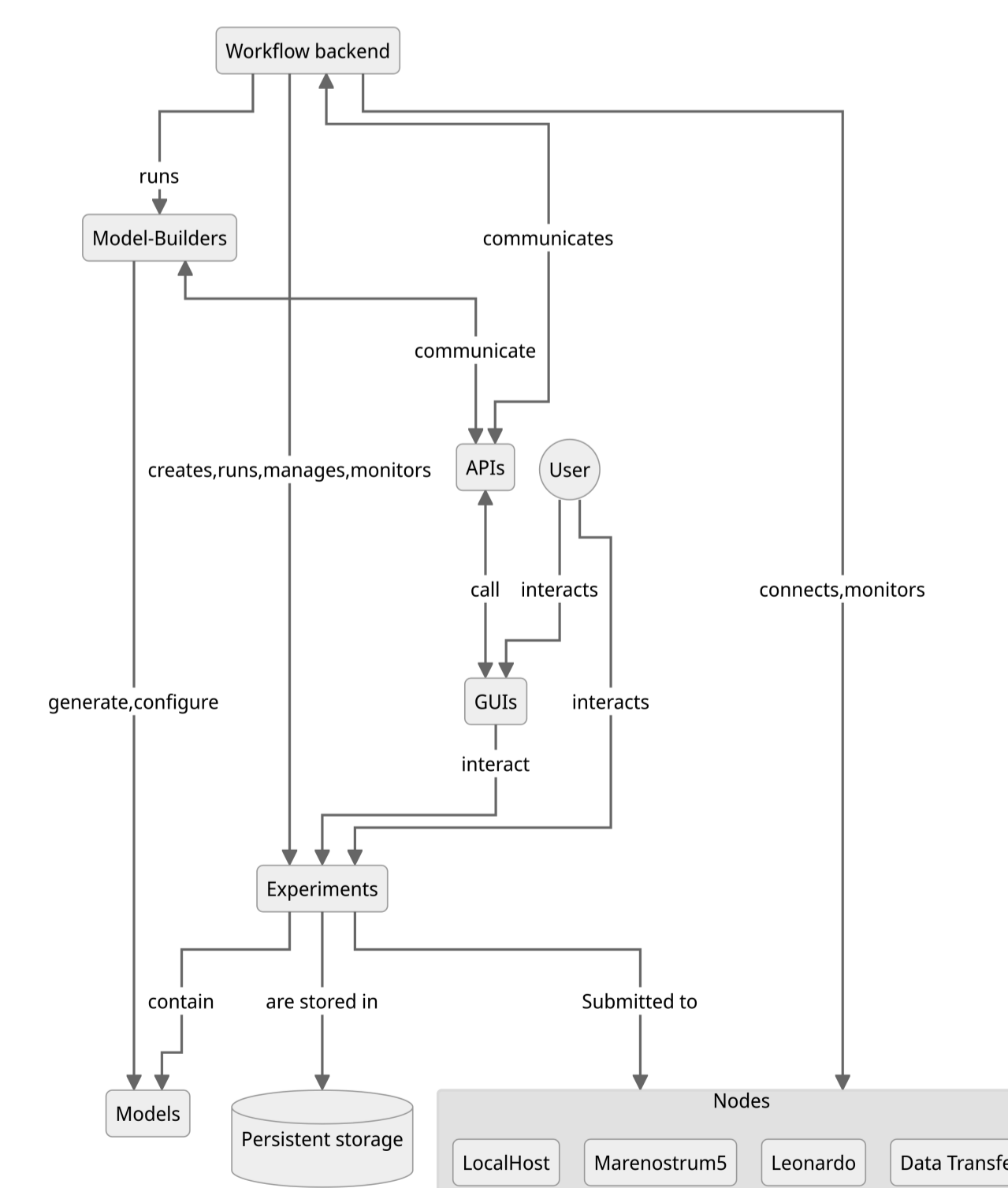


Figure 4: This flowchart depicts the deployment of the models through the EDITO-infra.

3. Back-end details

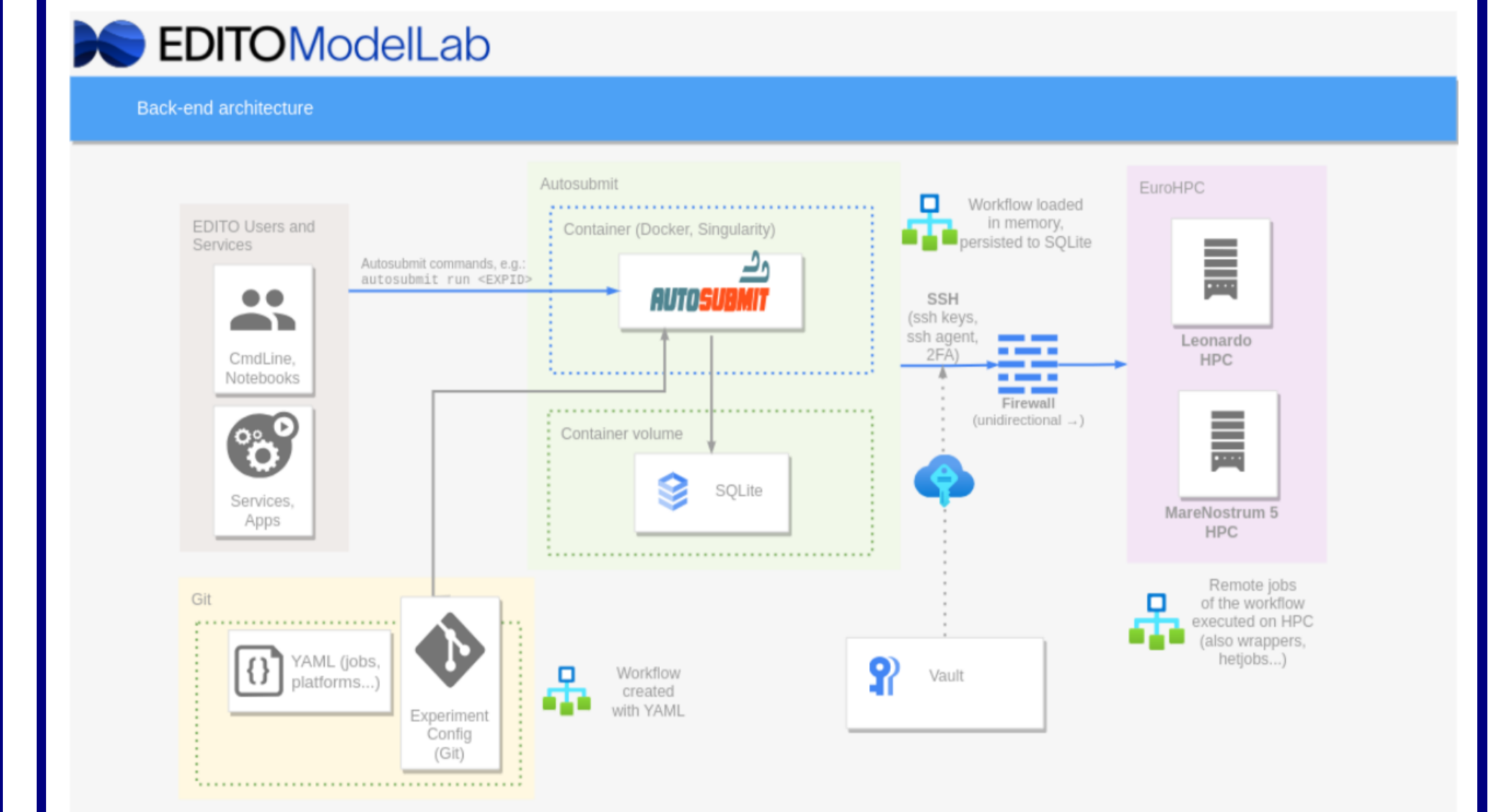


Figure 5: Diagram of the Autosubmit backend implementation at the VOML.

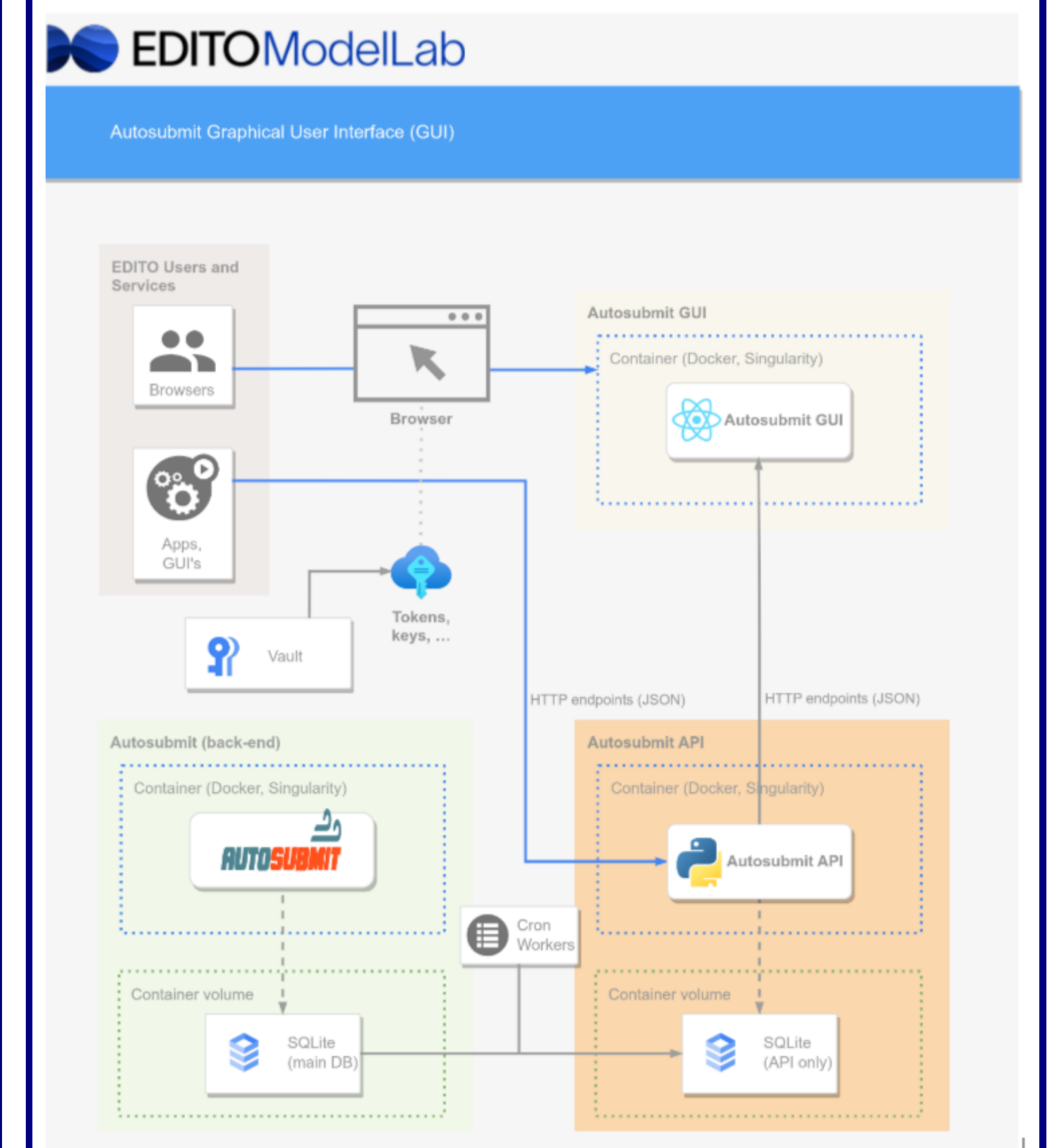


Figure 6: Diagram of the Autosubmit GUI deployment at the EDITO Infrastructure.