

Hiwi/Bachelor Thesis/Master Thesis:

Improved setting up of Distributed Co-simulation scenarios for Power Systems with Hardware in the Loop (HIL)

Distributed co-simulation allows to integrate geographically distributed laboratory infrastructure like real-time simulators and HIL devices to achieve complex Power System scenarios and share resources among universities, research institutions, and the industry. However, maintaining the setup, management and reproducibility of the scenario based on manual processes is challenging considering the variety of device vendors, communication protocols, and data models. Moreover, there is a need for a unified way of communication among Research Infrastructures (RI). One of the main goals of the ERIGrid2 project is to develop tools for simplifying the setup of distributed co-simulation experiments, including machine-readable descriptions and the use of a REST API.

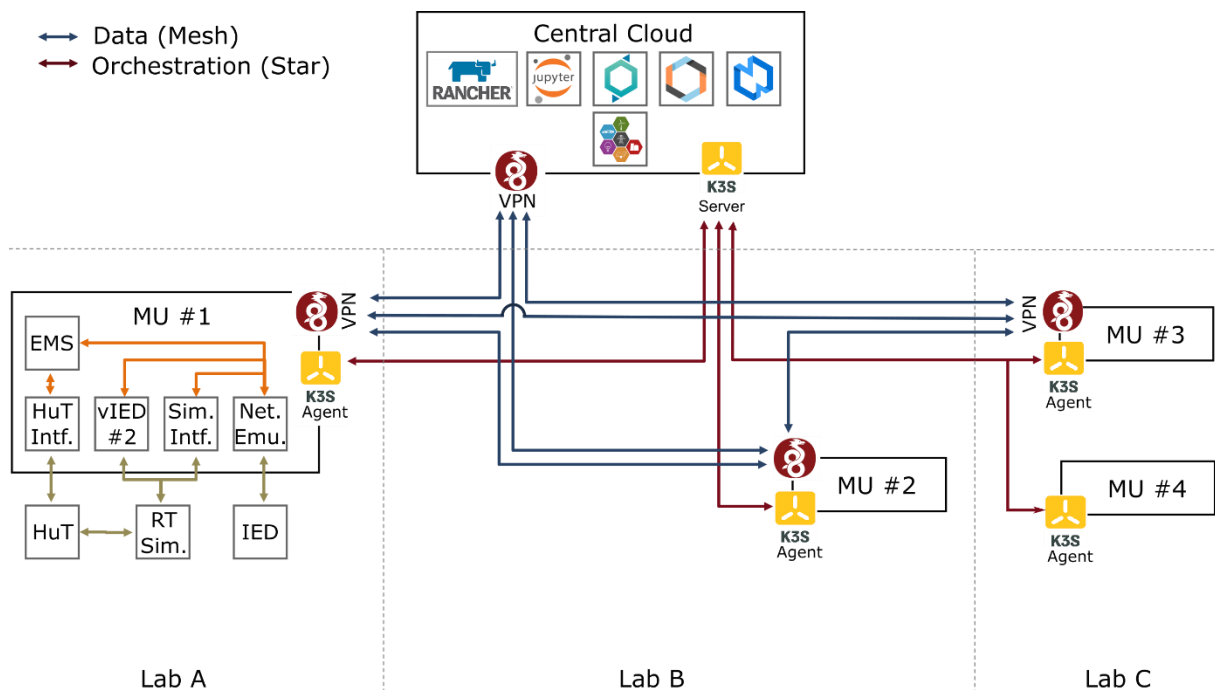


Figure 1 Architecture of the RIasC platform for distributed co-simulation, taken from <https://riasc.eu/docs/>

In this context, we are looking for a student to support the improvement of these tools and their testing in scenarios involving several universities and industry partners.

Tasks:

The scope of this Master thesis can be adapted to cover current objectives of the ERIGrid2 project and will relate to the following activities:

- Developing and testing of a REST API for distributed co-simulation
- Developing and testing of (semi)automated methods for automated configuration of distributed co-simulation experiments using machine-readable descriptions
- Supporting the implementation of a power system scenario to demonstrate the effectiveness of the tools

Your profile:

- Good knowledge of container orchestration tools, specifically Kubernetes, and REST API technologies
- Experience in power system modeling is not necessary, but preferable
- Knowledge of Matlab, Python and the Go programming language is a plus
- A good level of English is required

If you are interested in the advertised position, please send your CV and current grades

Contact:

Andrés Acosta
Tel. +49 241 80 49577
andres.acosta@eonerc.rwth-aachen.de

Jan Dinkelbach
Tel. +49 241 80 49613
jdinkelbach@eonerc.rwth-aachen.de