K4U – Kubernetes for You

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Elements: 4 to 6

Background

Several members of the academic community want to have their own small applications running in the IT services of the institution (sTIC). Since this department is overwhelmed with requests, sometimes they can't fulfill due to manpower and computational resource limitations. Containerization and some of the automation tools available within the container ecosystem might be able to solve this problem by reducing each application computation footprint and IT staff interactions required to manage them. All that remains to be done is to tie these tools together in a simple to use system for our community, creating our own in-house alternative to services like AWS and Google Cloud.

Goals

Inspired by the AWS services, we aim to develop a web portal and automation systems where users can create requests for the deployment of a Docker-based application. Users must have visibility into the application's state while being abstracted from as much operational complexity as possible.

Work plan

The work can be divided into the following tasks:

- Use-case analysis and system architecture design
- Application requests and approval implementation
- Deployment automation
- Monitoring and analytics
- Tests and validation
- Integration with sTIC environments

References

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