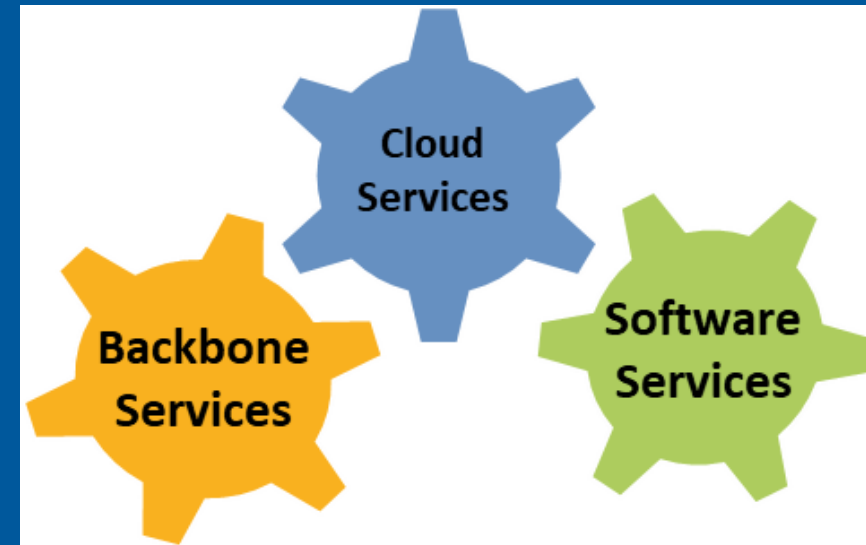


HIFIS Kick-Off

## HZDR: What can we bring in?

- Software Services
- Backbone Services
- (Cloud Services)



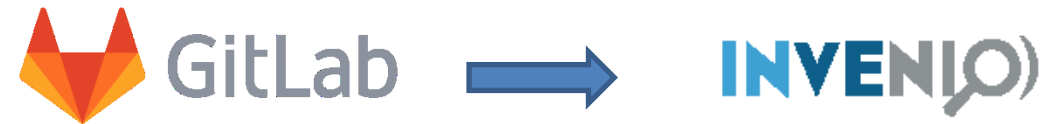
**hzdr**

 **HELMHOLTZ**  
ZENTRUM DRESDEN  
ROSSENDORF

# Software Services @ HZDR

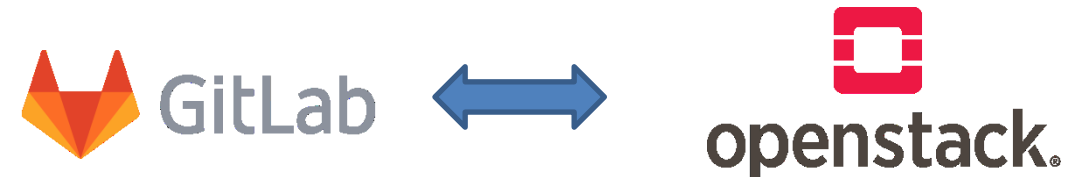
- **Modern end-to-end scientific software development environment**

- GitLab pages for hosting documentation
- Docker Container registry
- GitLab CI (Continuous Integration)



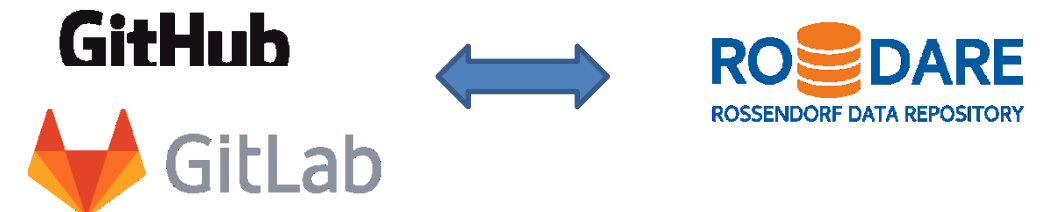
- **Continuous Integration and Deployment using GitLab CI**

- All jobs are executed in Docker containers
- Standard jobs run in Openstack
- Specific runners are available for special requirements (e.g. GPU etc.)



- **Software citation and preservation**

- User pushes new version tag
- RODARE/Invenio publishes the version and registers a DOI



# Software Services @ HZDR

- **Software development and architecture support**

al**aka**

C++ Interface to support heterogeneous architectures

- Uniform zero-overhead C++ interface to the zoo of existing many-core programming models
- All major multi and many core architectures supported
- With backends for:

- **Software Training: e.g.**

- Provide and support GPU Hackathons (e.g. @TU Dresden, CSCS, FZJ ...), next Hackathon April 2019 in Jülich
- Provide Python Training (@HZDR)



INTEL  
TBB

C++11-Threads

Fiber

# Backbone Services @ HZDR

- **Monitoring and Metrics**

- **Grafana** collects data from metrics sources (e.g. Grafana, InfluxDB) and visualizes them
- Grafana notifies about alerts in Mattermost channel
- In our case **Prometheus** collects various metrics
- Used for getting information about health of RODARE and GitLab



- Errors are automatically sent to **Sentry**.
- We can care about errors before we get notified by the user
- Both are currently under testing for RODARE and GitLab with good experience so far



- **Identity Management and Authentication**

- IDM: ~3.500 Users,  
Protocols: LDAP/Adm, Shibboleth, eduROAM (eduGAIN), SAP, soon: Moonshot
- Solution: Gate: Proposal Management for the research infrastructures (RI) at HZDR and HZB
- Solution: Umbrella: federated identity system for the users of the (European) large neutron and photon facilities
- SAML Interface to Invenio



## Cloud Services @ HZDR

- **File Sharing and Collaboration**

- ownCloud / nextCloud
- Redmine: Project Management
- Mattermost: Messaging, Team Communication



- **Software Development and Publication**

- GitLab (incl. continuous integration)
- Invenio



- **Data Management and Data Analysis**

- Invenio: Data Management and Publication
- Jupyter Notebooks and Jupyter Lab
- OpenBIS: Digital Notebook and Lab Information Management



## Summary: What can we bring in right now?

- **Software services:**
  - Modern software development infrastructure using GitLab and GitLab CI
  - Expertise for supporting users to follow good scientific software development best practice
  - Trainings and material to spread scientific software development best practice
  - *What we need:* An Openstack infrastructure for GitLab CI to scale further than today.
- **Backbone Services:**
  - Expertise to build up a modern monitoring and error-logging infrastructure
  - Expertise to manage identities and provide authentication services
- **Cloud Services:**
  - Run several Cloud Services @HZDR (owncloud, Redmine, Invenio ...)

# Backup Slides