Federated Multicloud

Common infrastructure services for NFDI

Marius Dieckmann[1,2,3]

Marius.Dieckmann@computational.bio.uni-giessen.de
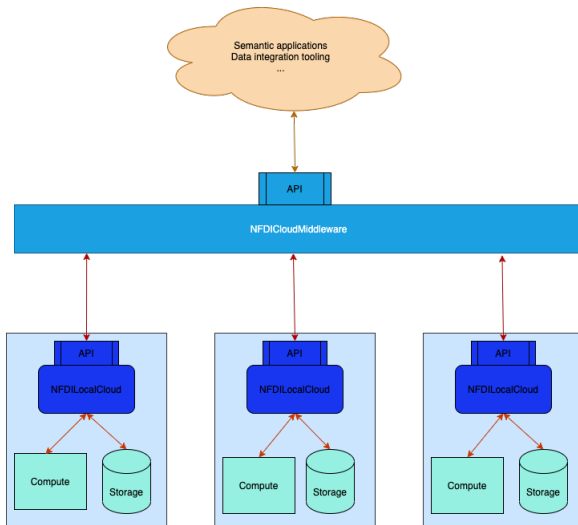
[1] Justus-Liebig-Universität Gießen

[2]NFDI4Biodiversity

[3]de.NBI

March 11, 2022

Federated Multicloud

Basic concept

- ▶ API based management system
- ▶ Local configurable deployments that are connected via a middleware across multiple datacenters
- ▶ Common AAI across all deployments
- ▶ gRPC API with pre-generated clients stubs
- ▶ HTTP-REST gateway with OpenAPI documentation
- ▶ Update event notification via event streaming
- ▶ gRPC API with pre-generated clients stubs
- ▶ HTTP-REST gateway with OpenAPI documentation
- ▶ Update event notification via event streaming

Components

- Storage component:
  - Simple data structure with consistent versioning
  - Versioning schema based on semantic versioning
  - Object history
  - Configurable access rights for sensible data
  - Update event notification via event streaming
  - Caching and read-only (edge) deployments
- Compute component:
  - Various compute services
  - Examples:
    - Personal health train
    - Cluster deployment (BiBiGrid)
    - Simple website deployment (heroku)
  - List of available functions is provided by the local deployment (see GAIA-X)

Implementation

- ▶ Continous development based on continous requirements engineering
- ▶ Storage solution already in implementation in NFDI4Biodiv, NFDI4Microbiota and FAIR-datacenters
- ▶ Close cooperation with GAIA-X to reuse tooling if possible
- ▶ All components are containerized and designed to run in Kubernetes
- ▶ Components can be developed within the defined standards by individual subgroups