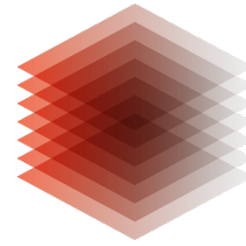LEIBNIZ INFORMATION CENTRE
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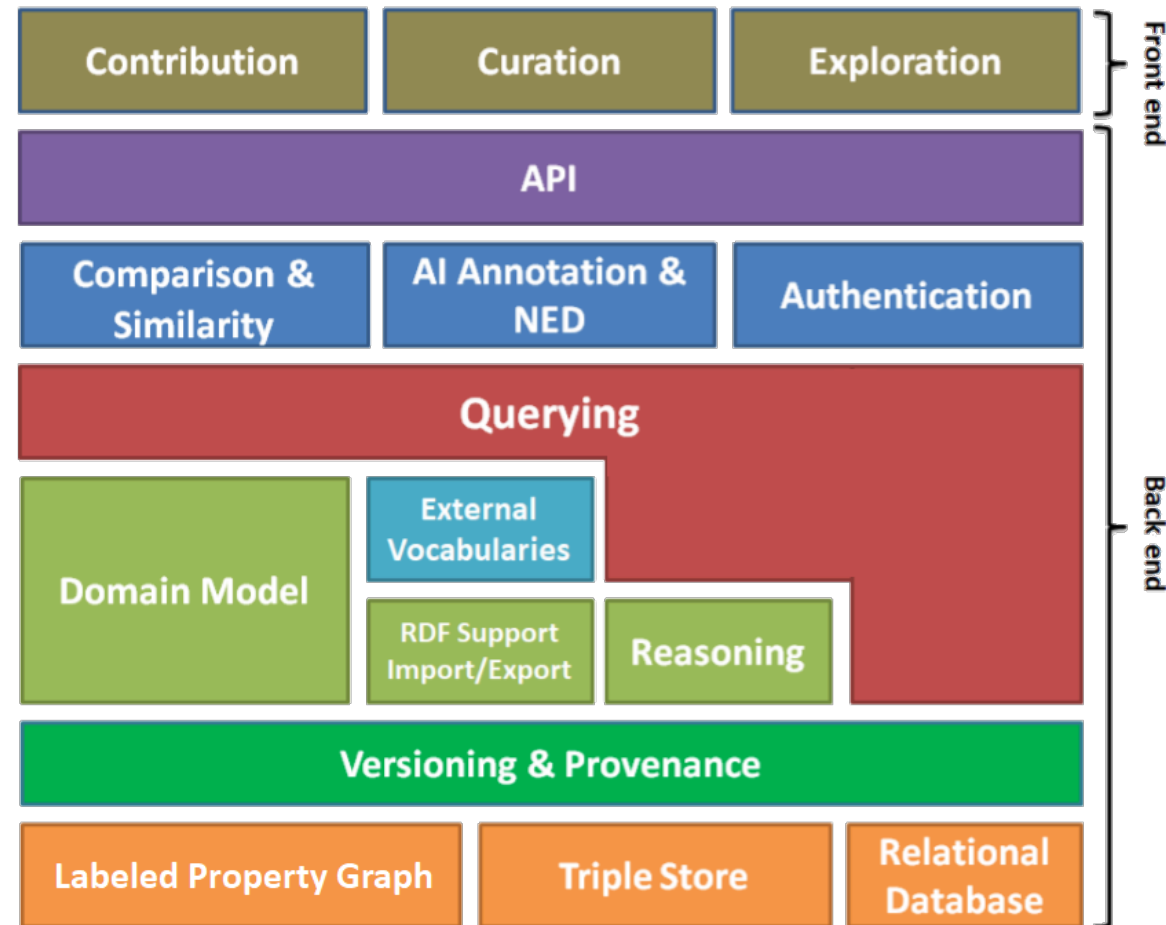
ORKG Backend

Manuel Prinz,
3rd ORKG Workshop

Leibniz
Association

What does the general architecture look like?

Which technology do you use?

- Spring Boot 2 + Spring Framework
- Kotlin programming language
- Persistence:
  - PostgreSQL
  - Neo4j + APOC + Semantics extension
- GitLab for collaboration and CI/CD
- Docker for Development and Deployment

Do you have a REST API?

- Yes!
- Still improving, not (officially) considered stable yet
  - We do our best, though
- Documentation: https://labs.tib.eu/orkg/doc/api/

- APIs of other services are not for public use (yet)

What does the data model look like?

- RDF-like data model
- Challenge: provenance information
  - Statements need to be referenced
  - Storage in LPG removes need of reification
- Data model is an implementation detail
  - May change to adopt to new requirements
  - Interaction will happen via UI / REST API / RDF

What are we currently working on?

- RDF export
  - Data export and SPARQL endpoint
- Single Sign-On
  - OAuth2 with external services, such as ORCID
- Graph History (Versioning)
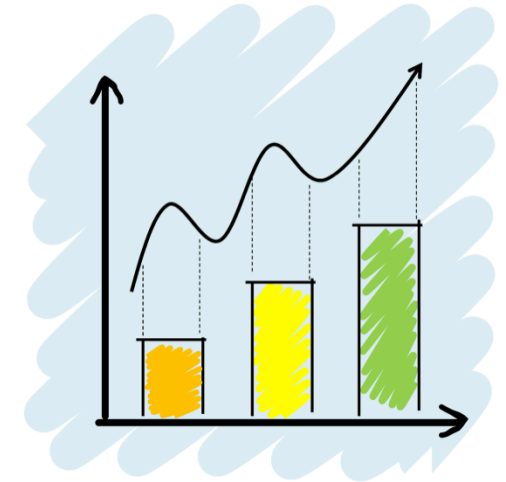- Performance improvements and benchmarks

Graph History (Versioning)

- Record all changes, including provenance information
- Wiki-like history view
- Ability to query any state of the knowledge graph
    - Reproducible queries
    - Possibly roll-back feature?

Performance Improvements

- Dealing with large datasets
  - How many data can we serve?
  - Where are the bottlenecks? How do we improve those?
  - Which caching / pre-computation strategies might help?
- Performance difference between different technologies
  - LPGs vs. Triple stores
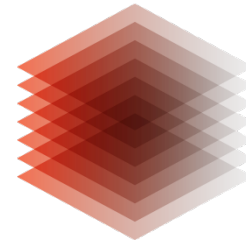 - Custom data model vs. Neo4j semantics extension data model

Questions?

TIB

MORE INFORMATION
projects.tib.eu/orkg/

Contact
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Leibniz
Association

What other features are we thinking about?

- GraphQL interface
- RDF import
- SPARQL interface
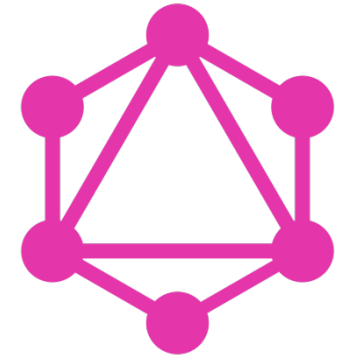
Agenda with background image

1. **Creating an agenda is always a good idea so that the audience can follow.**
   - ▪ **Here is a sub-item**
   - ▪ **Another sub-item**

2. **Here you can find a new topic**
   - ▪ **Here is a sub-item**
   - ▪ **Another sub-item**

3. **Here is a highlighted topic**
   - ▪ **With a sub-item**

4. **Here you can find another topic**

Agenda without background image

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Text slide with headline, which can also run in two lines

Texts are always set in the font Arial and in TIB grey.

Special statements can be marked bold and coloured in the TIB red

Basically, less is more!

▪ First level: Highlight the text and press the tab key for bulleted text.

   ▪ The bullets are grey boxes.

      ▪ Third level

         ▪ Fourth level