

ABOUT US

Christoph Fabianek

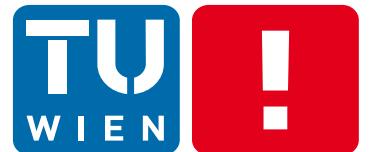
- Technical & business background
- Scientist at Frequentis AG
- Founder of OwnYourData, MyData Austria



Verein zur Förderung der selbstständigen Nutzung von Daten

Peb Ruswono Aryan

- Doctoral student at TU Wien
- Semantic web expert
- Python & Wikidata enthusiast



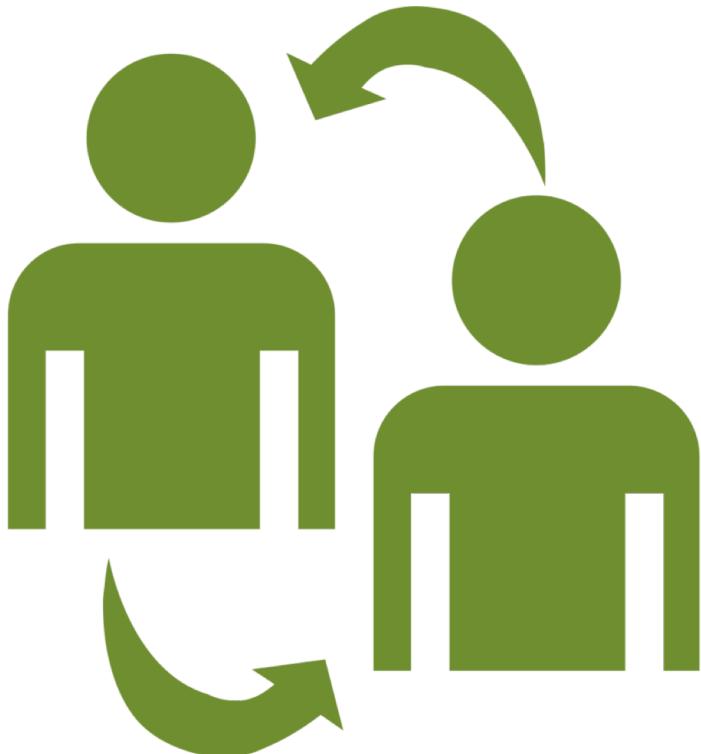
Linked Data Lab
Institute of Software Technology
& Interactive System, TU-Wien

AGENDA

- ❖ Semantic Container
 - Introduction
 - Design
- ❖ Use Case with Python
 - Visualize Seismic Events
 - Query Usage Policies
 - Correlation with other Data @Linked Widget Platform
- ❖ Summary & Outlook
- ❖ Q&A

SEMANTIC CONTAINER FOR DATA MOBILITY

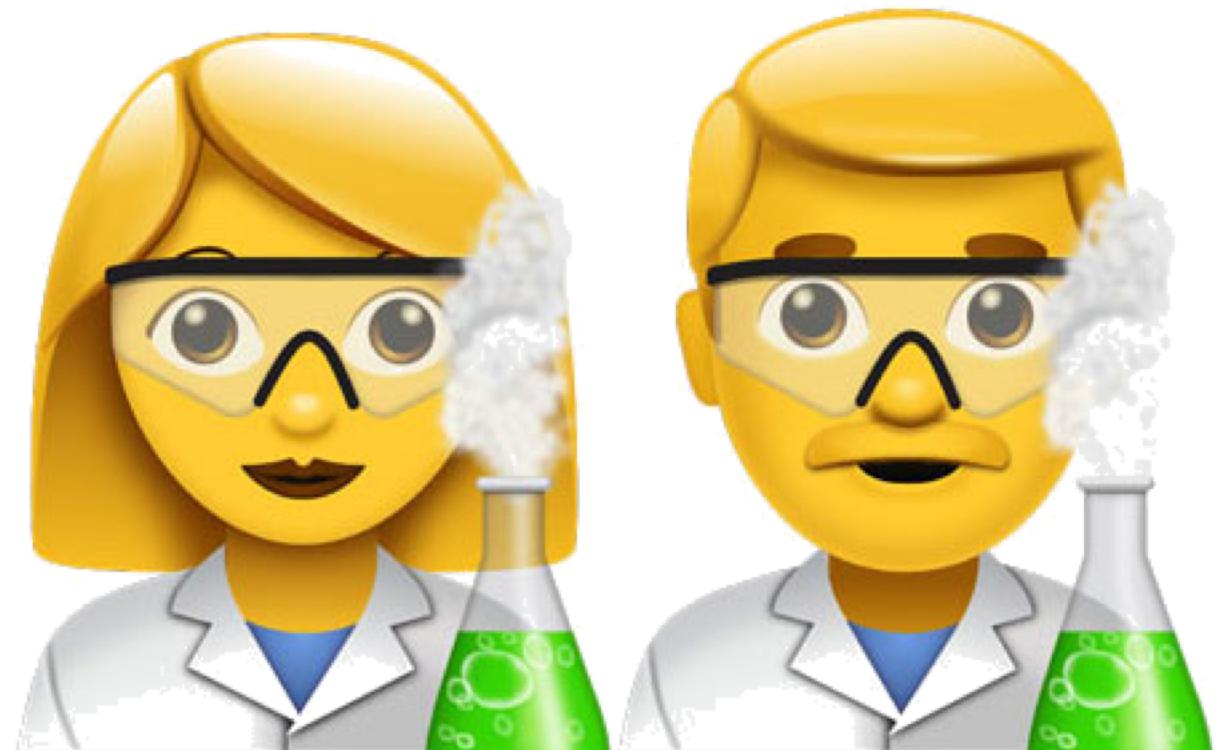
or: „How to exchange data between 2 parties?“



- What is the data about?
- What is allowed?
- How much is it?

WHAT IS THE DATA ABOUT / DATA QUALITY

- ❖ Freshness / currentness
- ❖ Number & description of records
- ❖ Provenance / history
- ❖ Clean data
- ❖ Data access



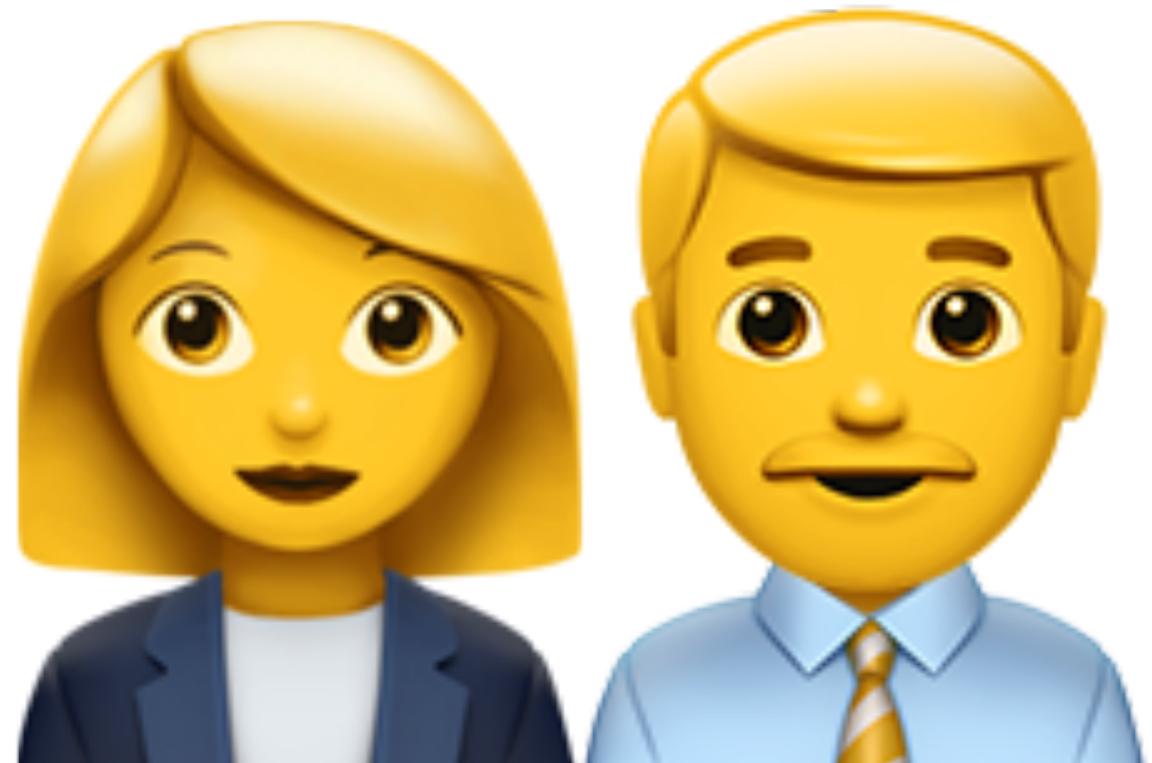
WHAT IS ALLOWED / LEGAL STATUS

- ❖ Right to use
- ❖ Storage & location restrictions
- ❖ GDPR compliance
- ❖ Traceability

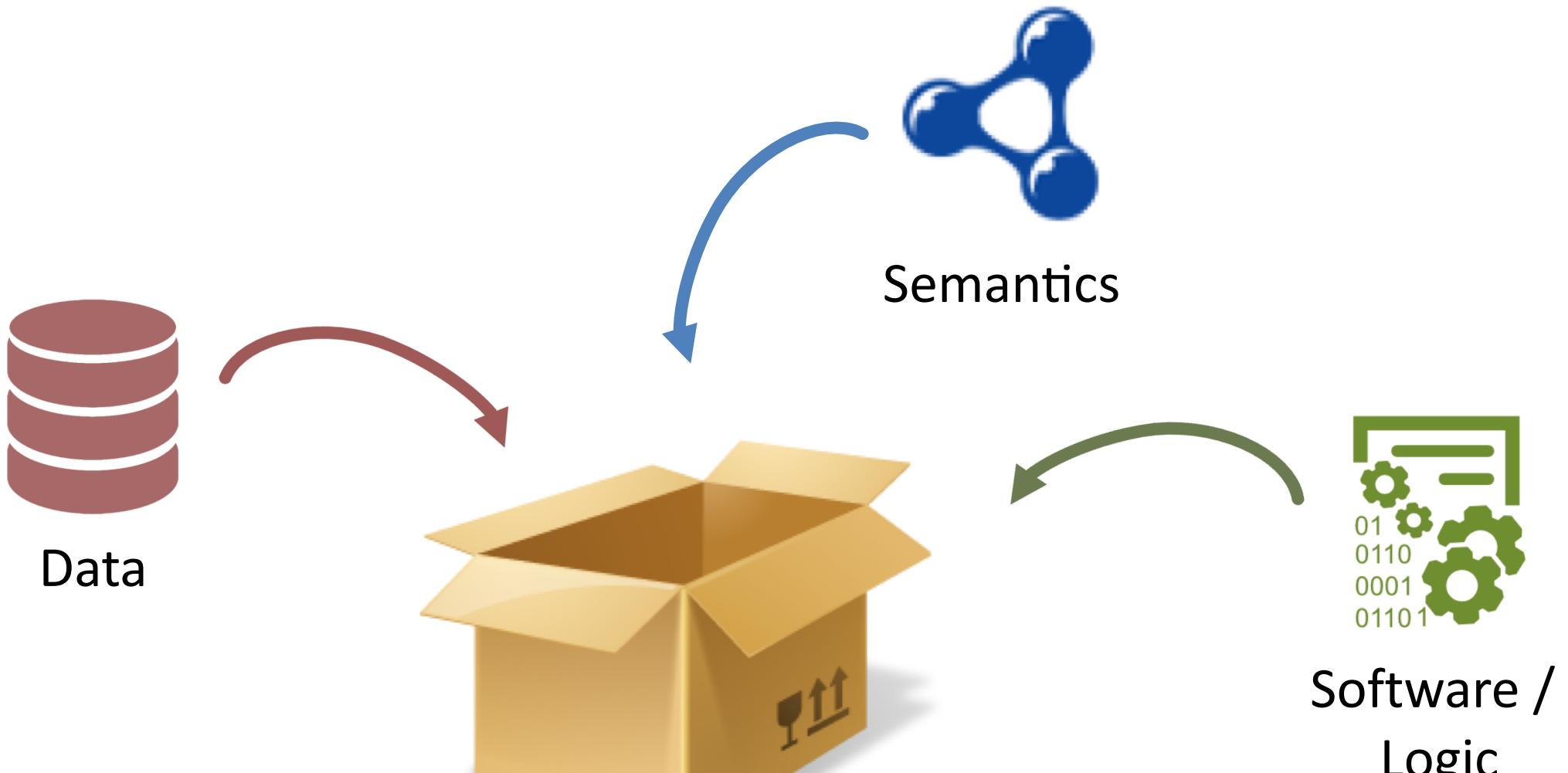


HOW MUCH IS IT? / BUSINESS ASPECTS

- ❖ Control usage
- ❖ Simple billing
- ❖ Compare offers
- ❖ Price tag

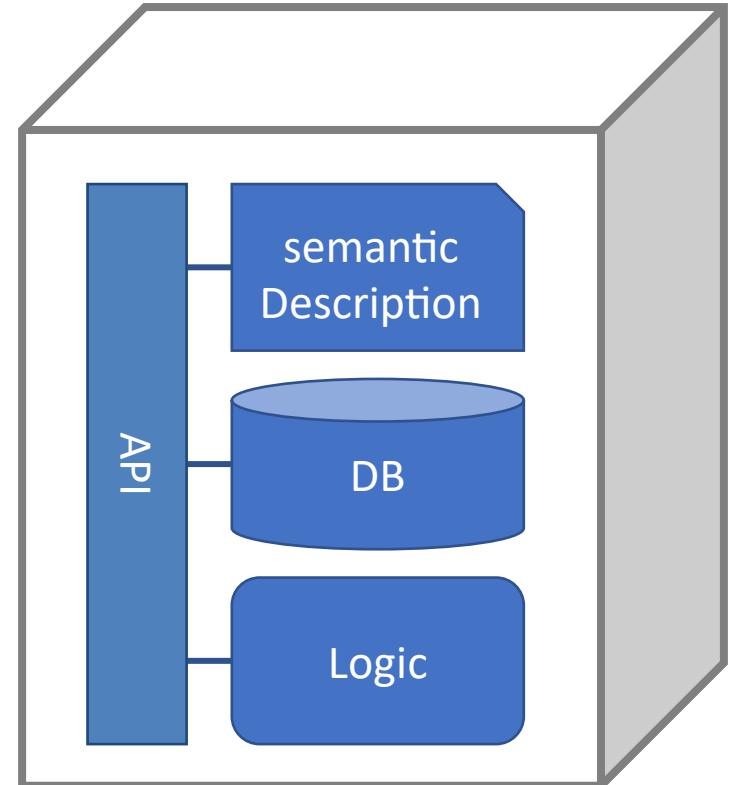


TECHNOLOGIES



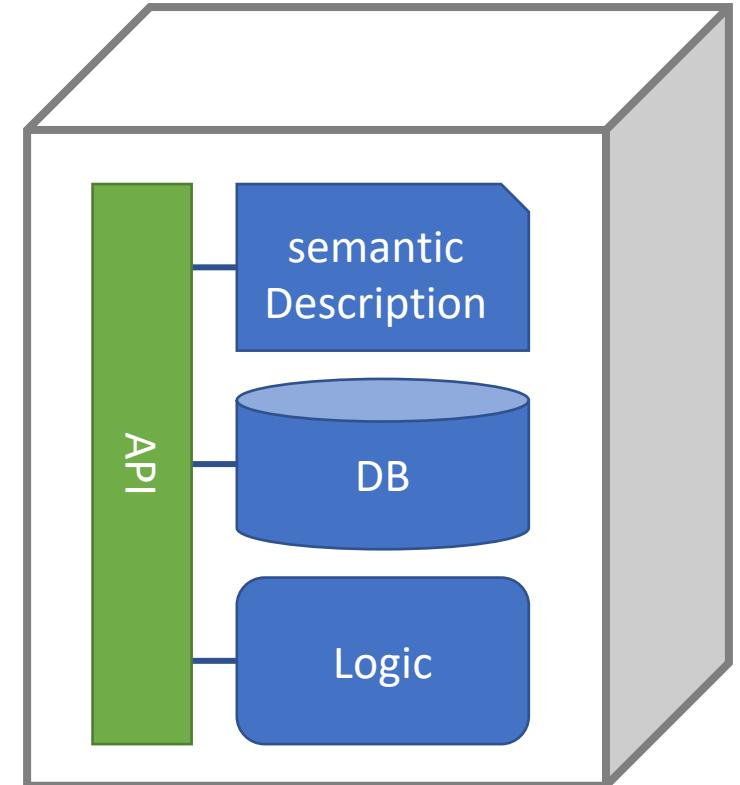
docker AS INFRASTRUCTURE

- established distribution platform
- efficient encapsulation
- active community



SEMANTIC CONTAINER ACCESS

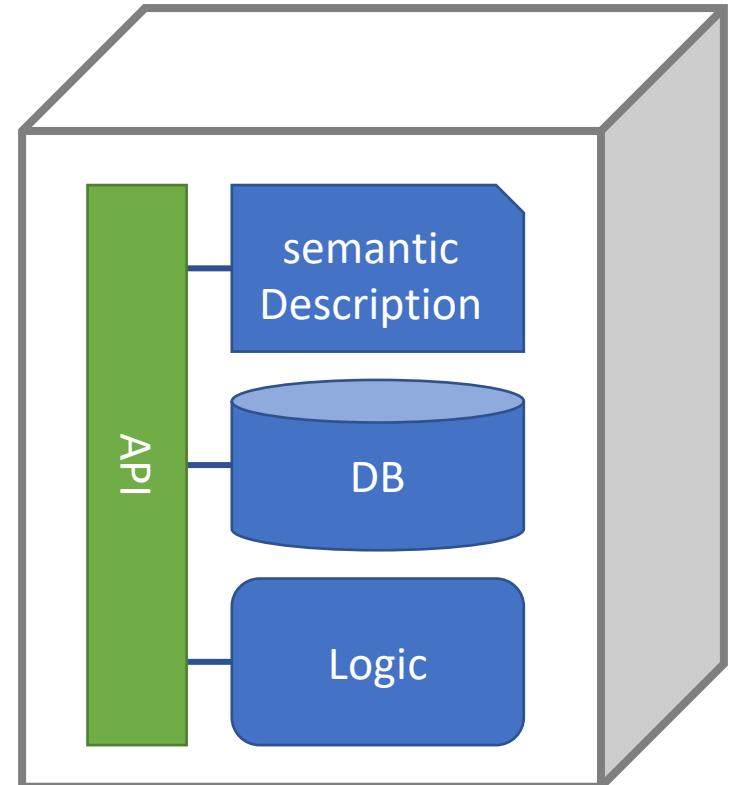
Access via standardized API



SEMANTIC CONTAINER ACCESS

Access via standardized API

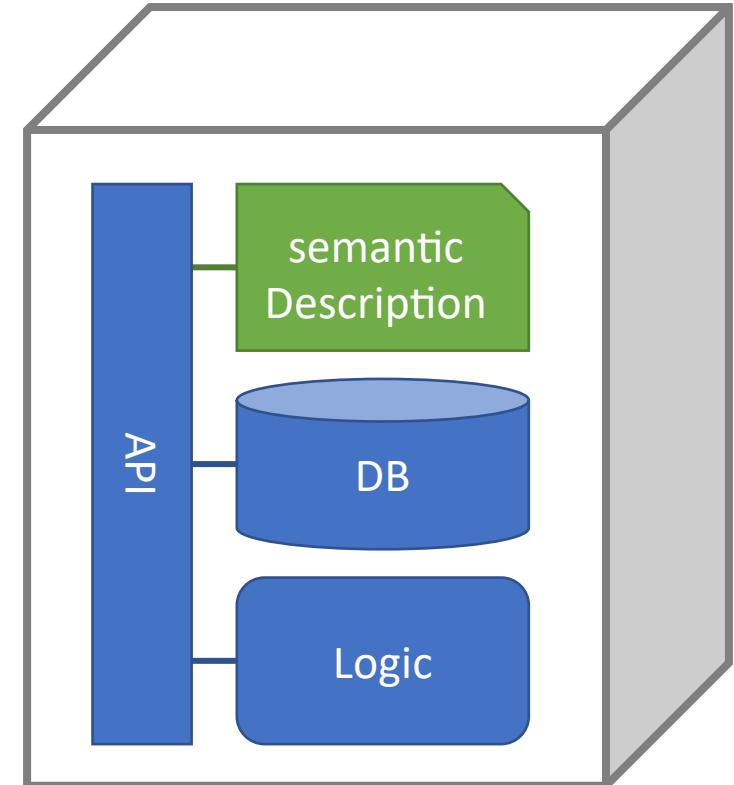
- http as transport layer
- any programming language
- Self-sustained bundle of data, semantic and software



SEMANTIC CONTAINER ACCESS

Access via standardized API

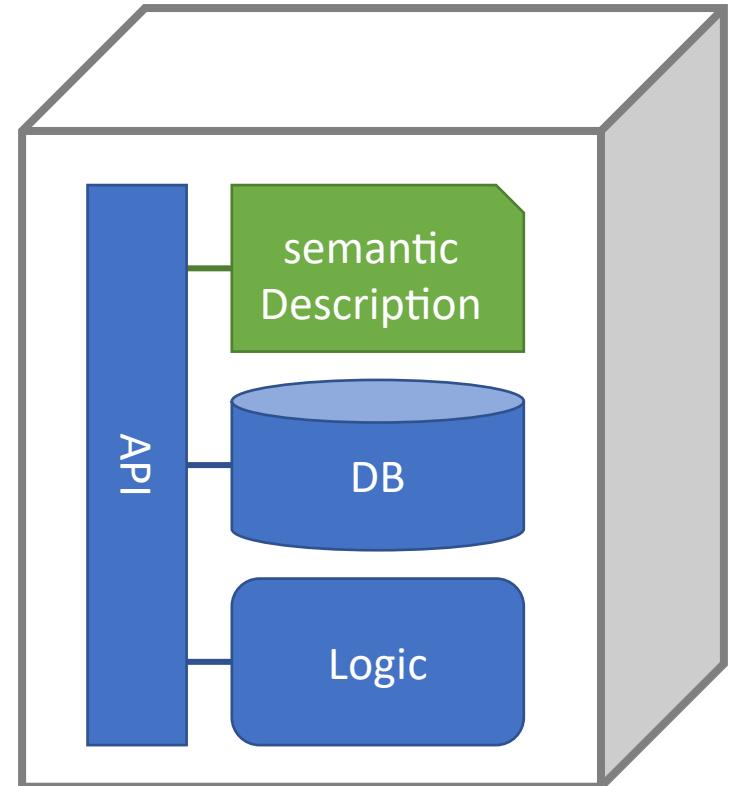
- Semantic Description



SEMANTIC CONTAINER ACCESS

Access via standardized API

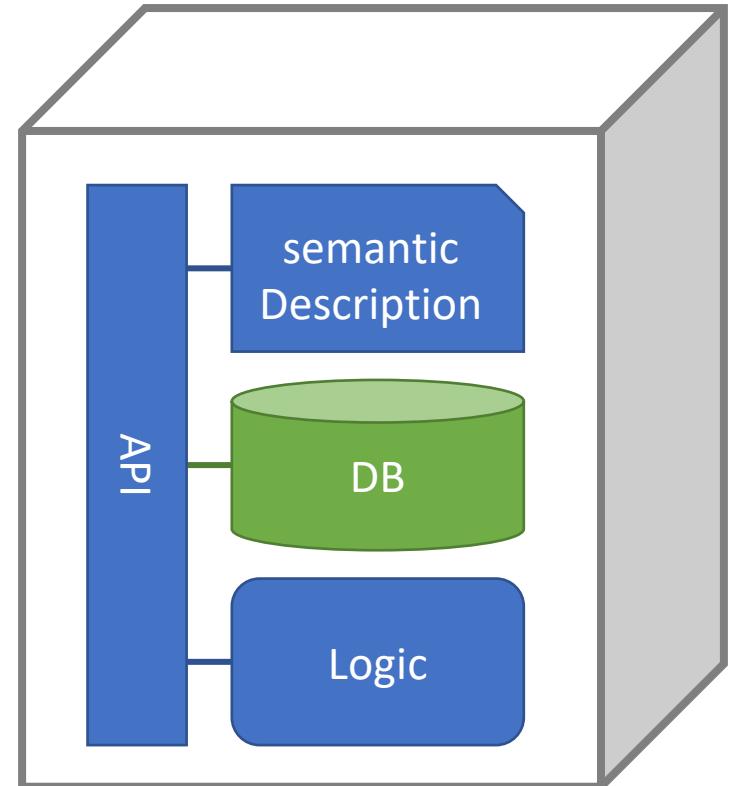
- Semantic Description
 - Data validation
 - Allowed usage
 - Provenance
 - other meta data



SEMANTIC CONTAINER ACCESS

Access via standardized API

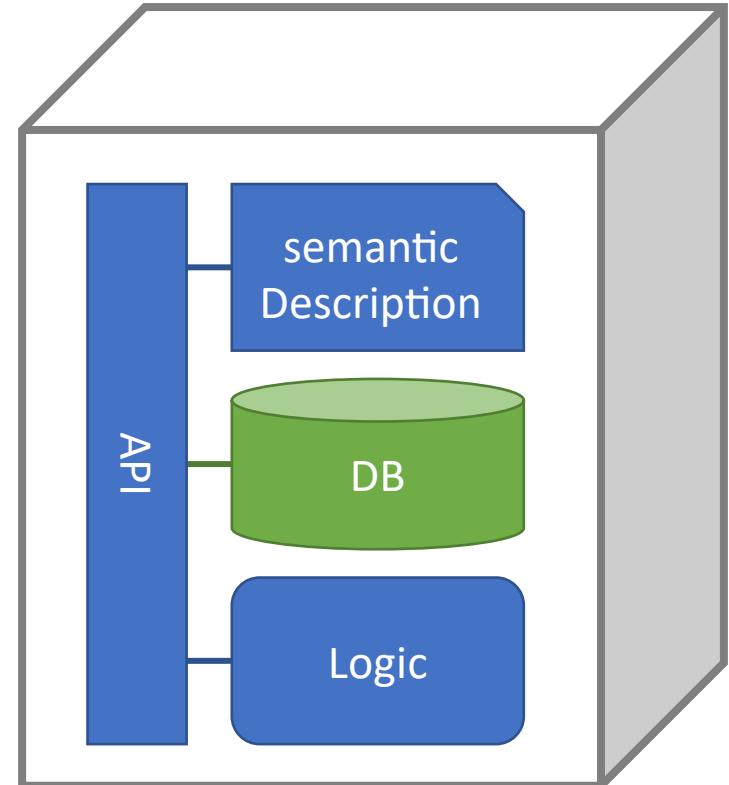
- Semantic Description
- Data in Container



SEMANTIC CONTAINER ACCESS

Access via standardized API

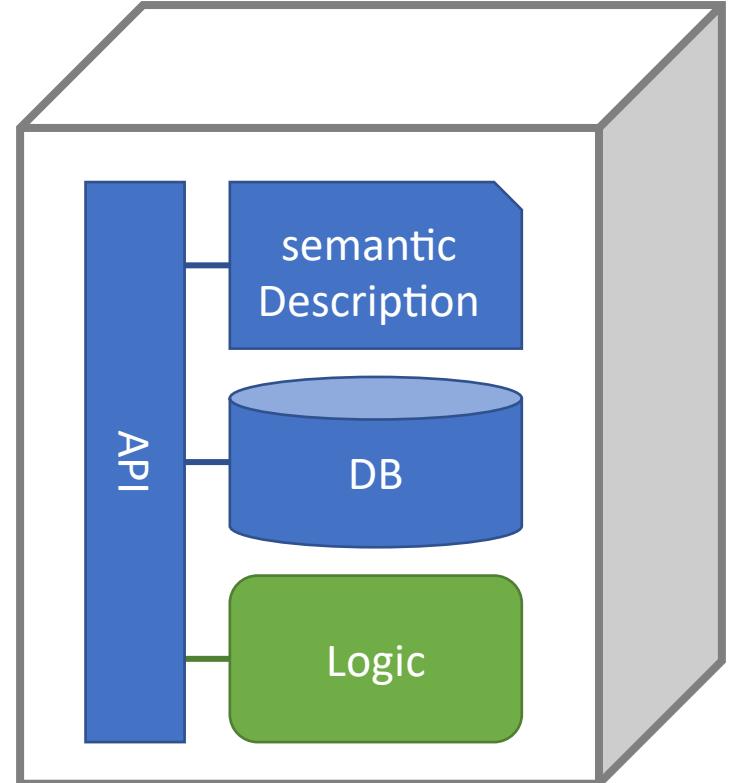
- Semantic Description
- Data in Container
 - Local in the container
 - Conduit to data store
 - Caching for frequent operations



SEMANTIC CONTAINER ACCESS

Access via standardized API

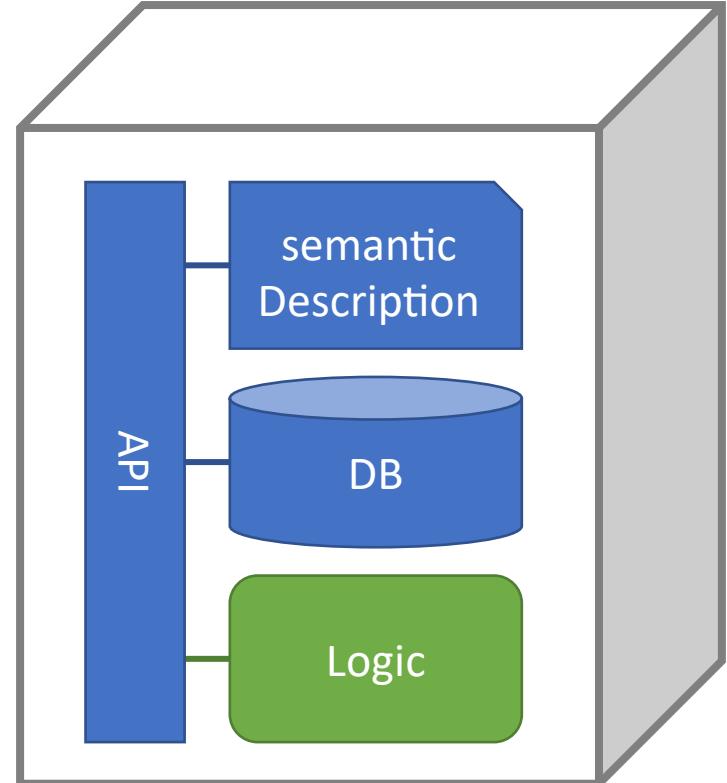
- Semantic Description
- Data in Container
- Software to facilitate environment



SEMANTIC CONTAINER ACCESS

Access via standardized API

- Semantic Description
- Data in Container
- Software to facilitate environment
 - Validation of data and policies
 - Authentication and billing
 - Provenance and Logging



USE CASES

- ❖ Visualizing Seismic Events in Jupyter Notebook
- ❖ Query Usage Policy to proof lawful processing
- ❖ Correlate Seismic Events and Twitter data

examples available at <https://github.com/sem-con/pydays-2019>

VISUALIZE SEISMIC EVENTS



- ❖ demonstrate easy access to Semantic Containers in Jupyter Notebooks
- ❖ use Leaflet for data visualization

QUERY USAGE POLICY

- ❖ Question: "Can I store data on US servers?"
- ❖ Usage Policy
 - based on <https://www.specialprivacy.eu/>
 - provides information about allowed usage of the data
 - packaged together with data
 - hash value stored in Ethereum blockchain
- ❖ Parse and query RDF graph to check allowed storage restrictions



LINKED WIDGET PLATFORM

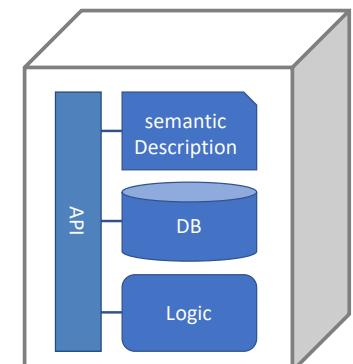
- ❖ Convert JSON data to RDF graph
- ❖ use as source in Linked Widget Platform
- ❖ combine with other data sources, e.g., Twitter

SUMMARY

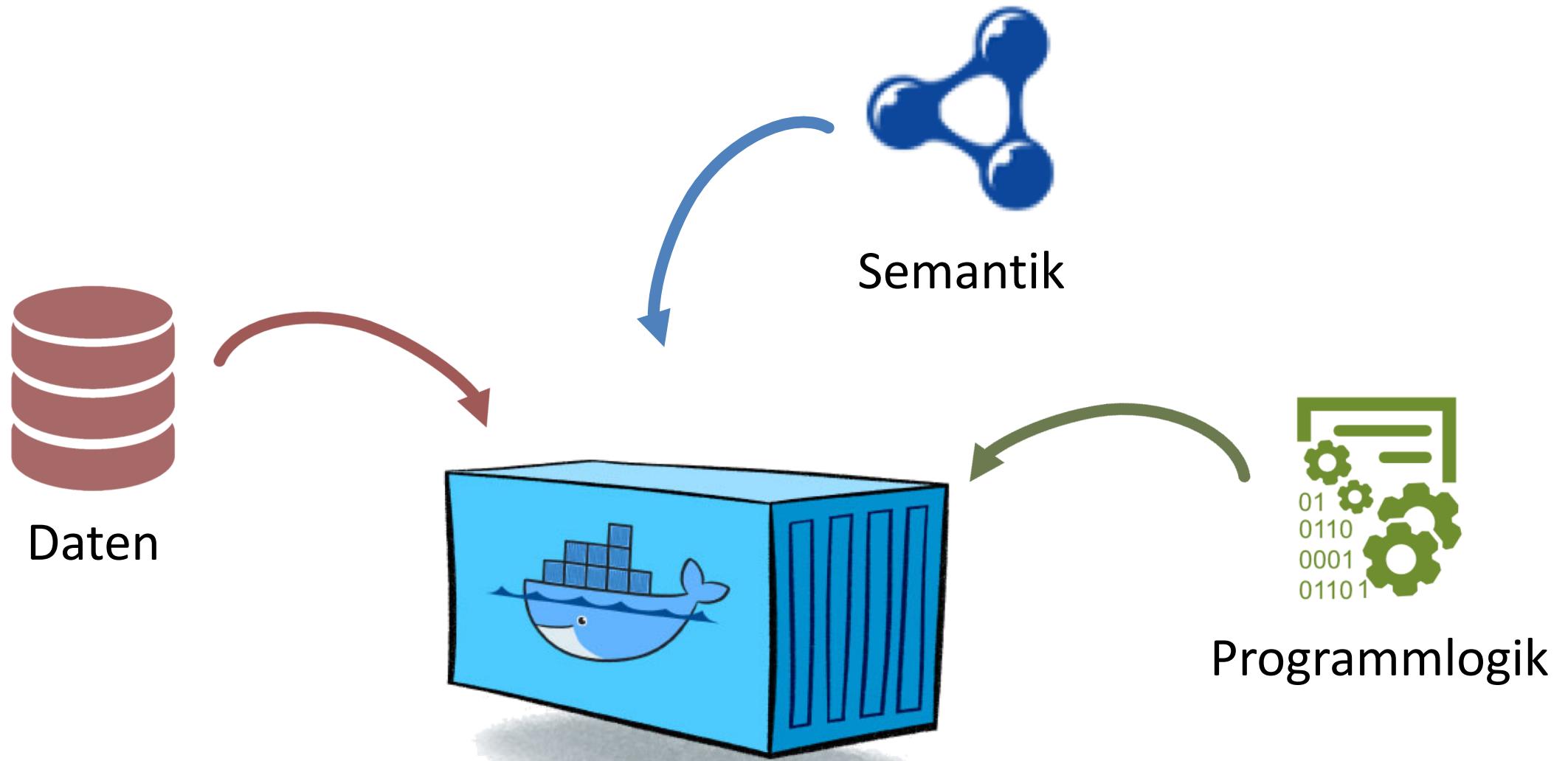
Data exchange between two parties that covers scientific, legal and business needs.



Semantic Container is open source, standards-based, and offers a light-weight infrastructure to make data available in an auditable and reproducible way.



TECHNOLOGIES



OUTLOOK

- ❖ Registry for container management
 - ❖ Semantic Container hosting
 - ❖ Digital Watermarking to trace leaks
-
- ❖ we are looking for more Use Cases

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Semantic Container for Data Mobility

OWNYOURDATA.EU/SEMCON
