

# University of Stuttgart

Institute of Industrial Automation  
and Software Engineering

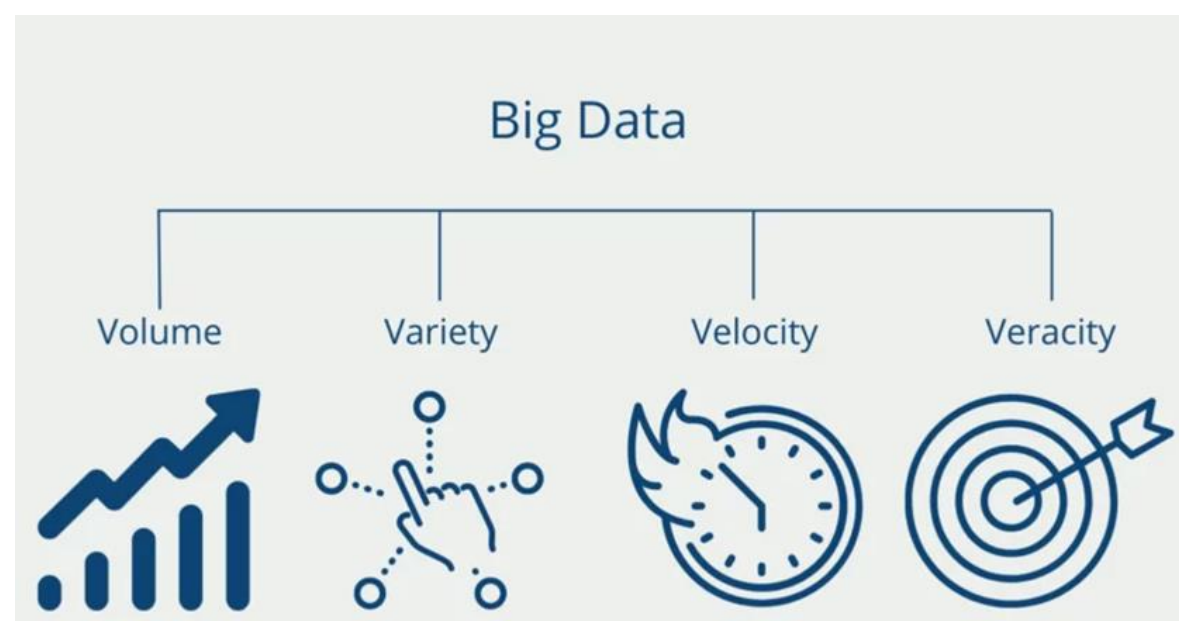
Research Project 3546

Examiner: Prof. Dr.-Ing. M. Weyrich  
Supervisor: Simon Kamm, M.Sc.

## Prototypical Realization and Evaluation of the Data Organization and Management for Heterogeneous Data

Sarath Chandran  
Maimpilly

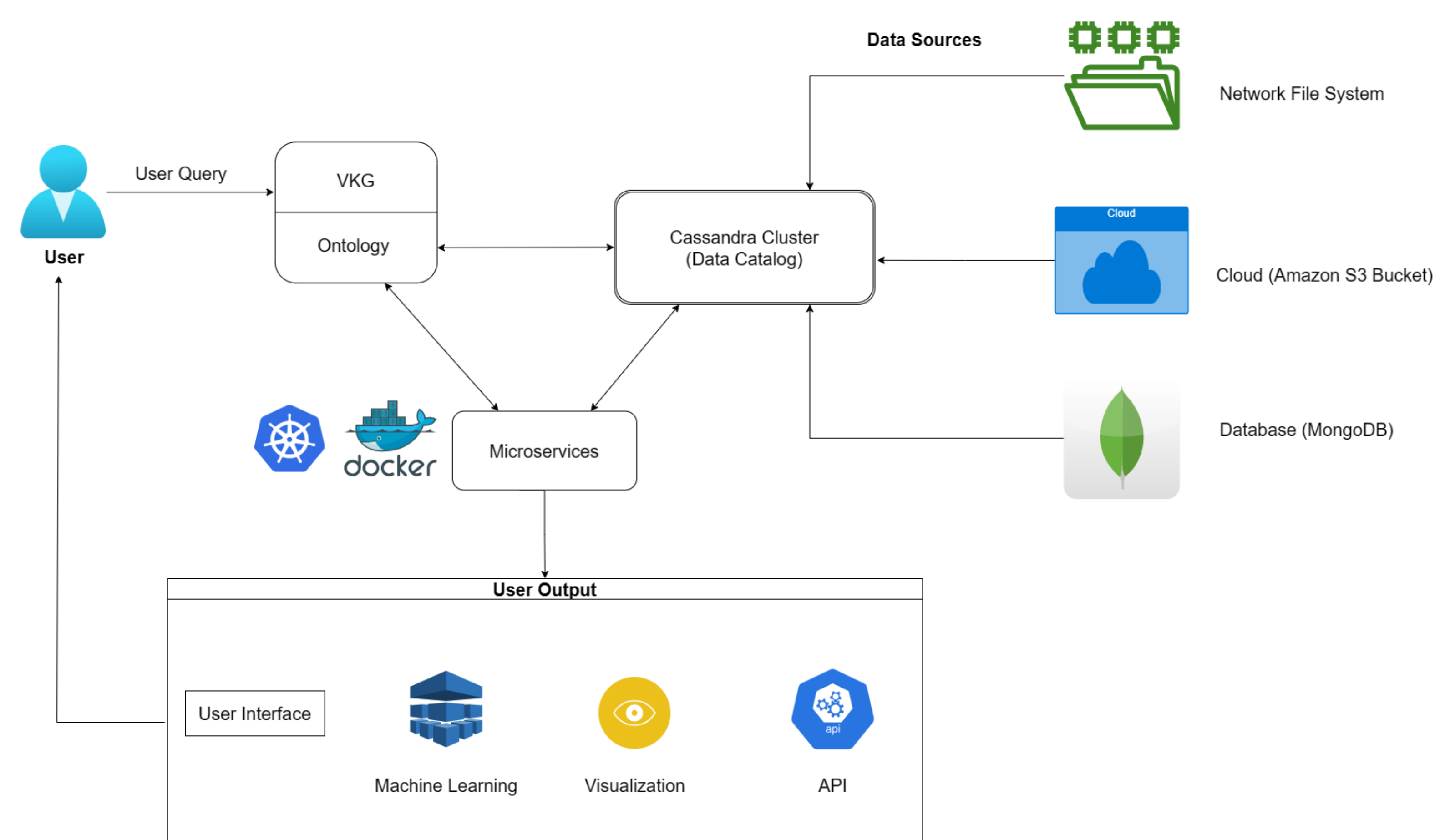
### Motivation and Task



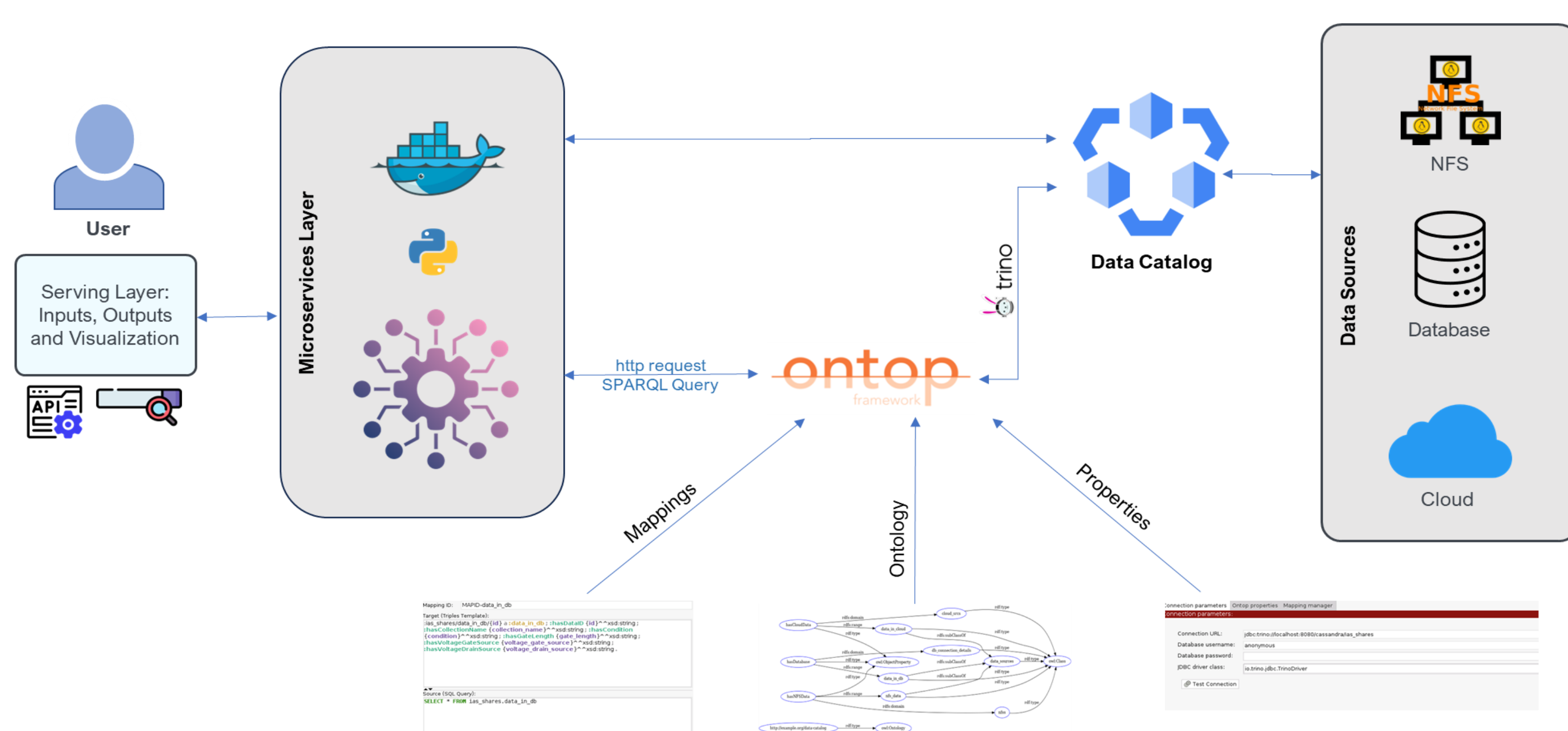
- Multiple data sources with variety of data formats and storage locations
- Heterogenous data management
- Data reuse
- Extension of existing works

### Concept

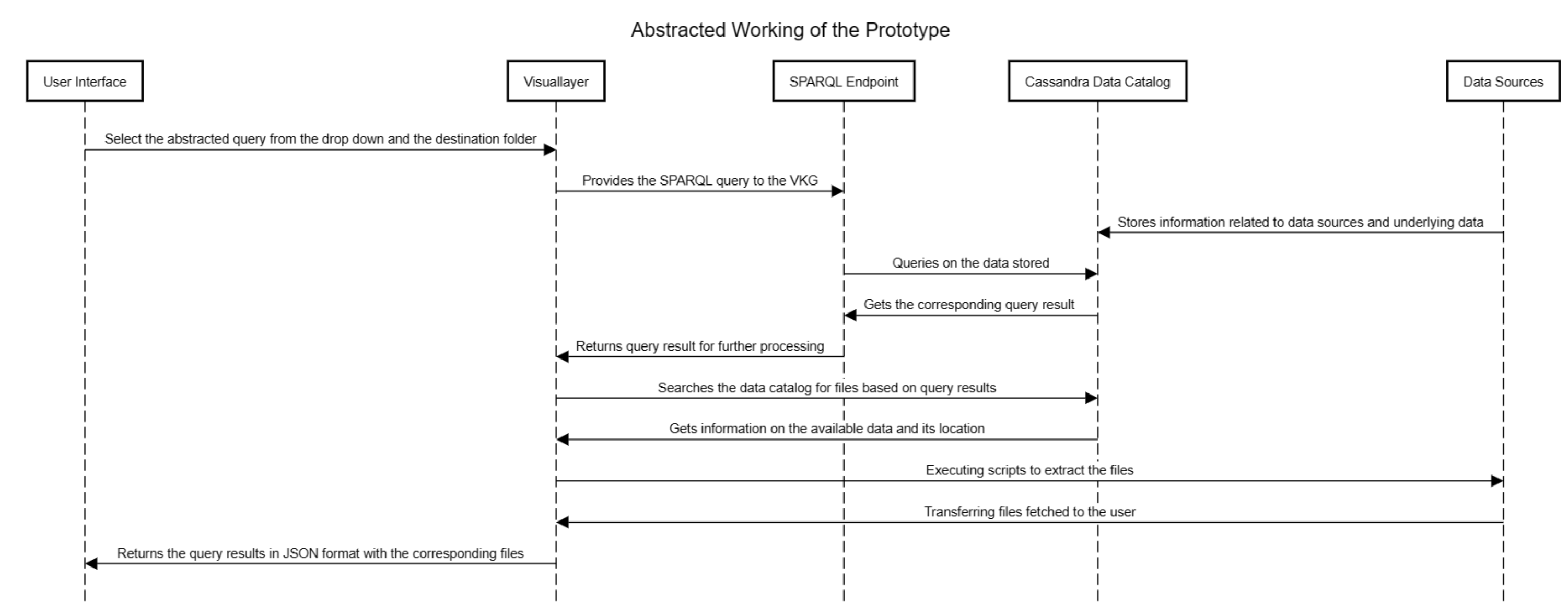
- Handle & extract data from 3 main sources
- Data catalog for indexing, organizing and providing metadata
- Ontology and virtual knowledge graphs to interpret meanings and relationships
- Ontology based on competency questions
- Microserices for modularity
- User output through various channels



### Prototype



- Microservices based architecture
- Sources: NFS, MongoDB, Amazon S3 Bucket
- Active nodes for data catalog
- User interface for inputs, outputs and visualisation

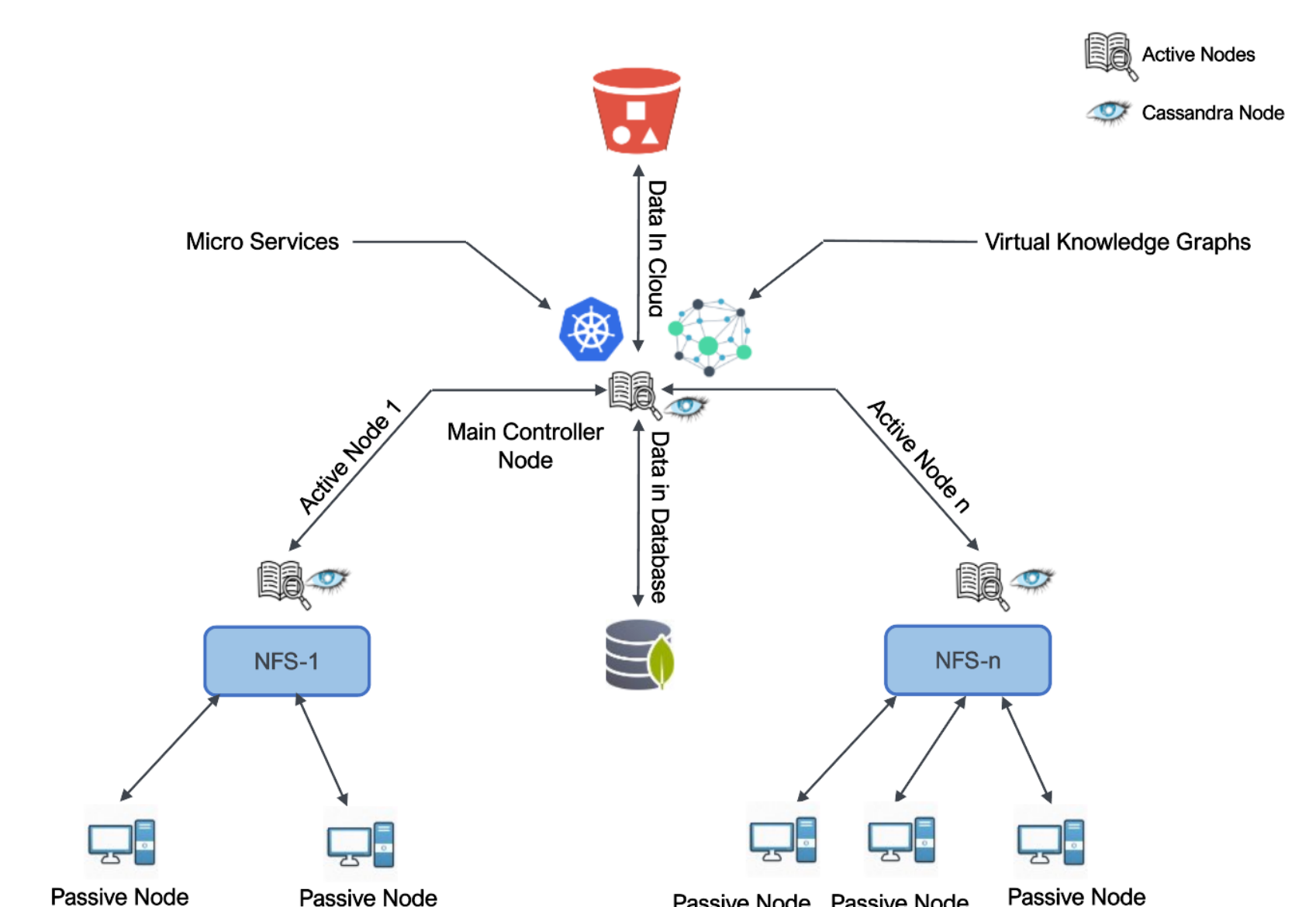


### Result

- Data management, integration, and knowledge representation
- Virtual knowledge graphs to unlock valuable insights and semantic meanings
- Abstracted user interface
- Microservice flexibility, scalability and extensibility

#### Database Query Interface

Select the condition to extract data:



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