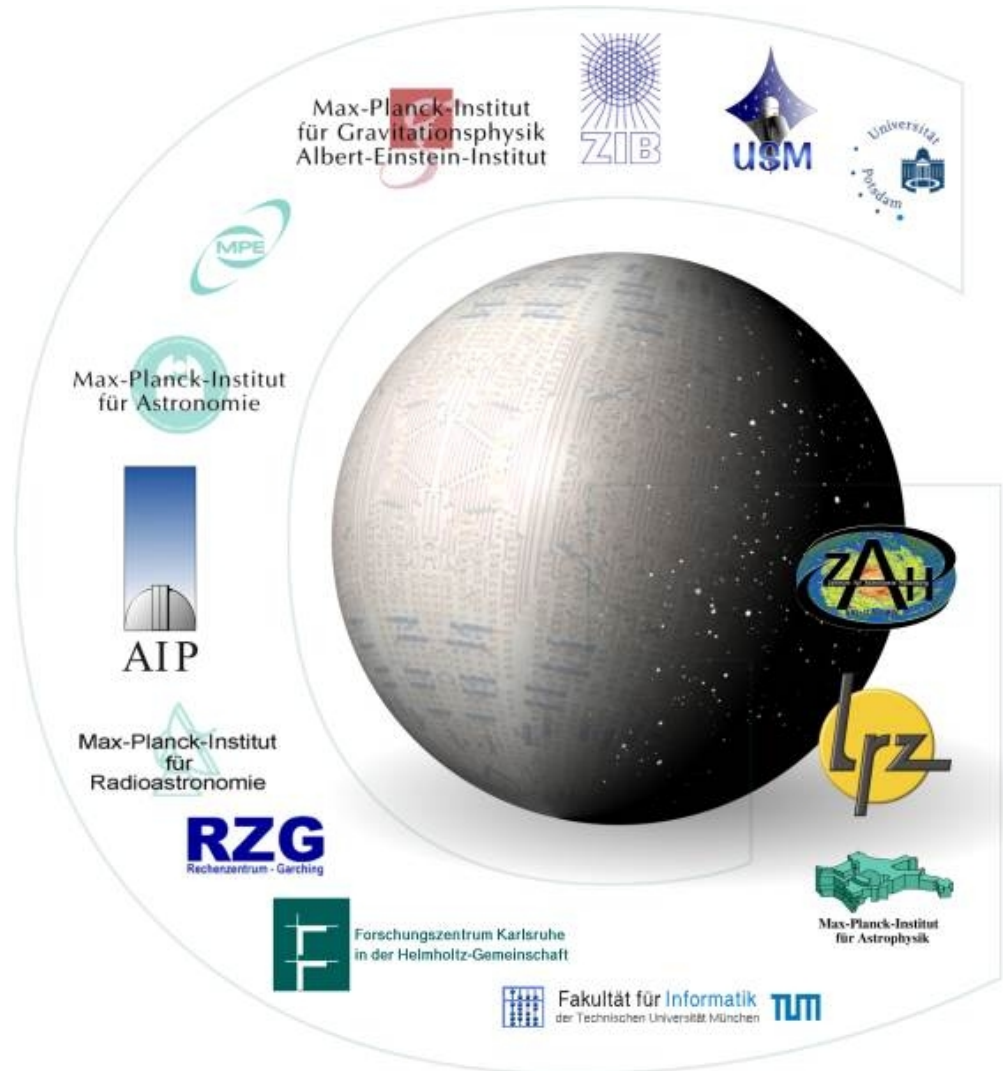
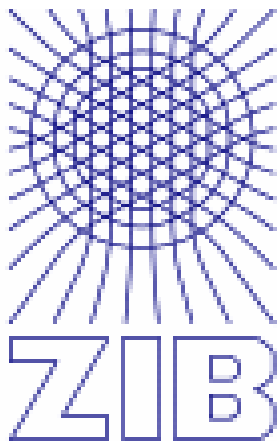




Stellaris: The AstroGrid-D Information Service

Mikael Högqvist
hoegqvist@zib.de





Metadata in AstroGrid-D

- Different metadata classes:
 - ◆ Resources, grid activity, application and science-specific
- Metadata schemes are not defined by all users
- Data is distributed over several sources
- VO-based security



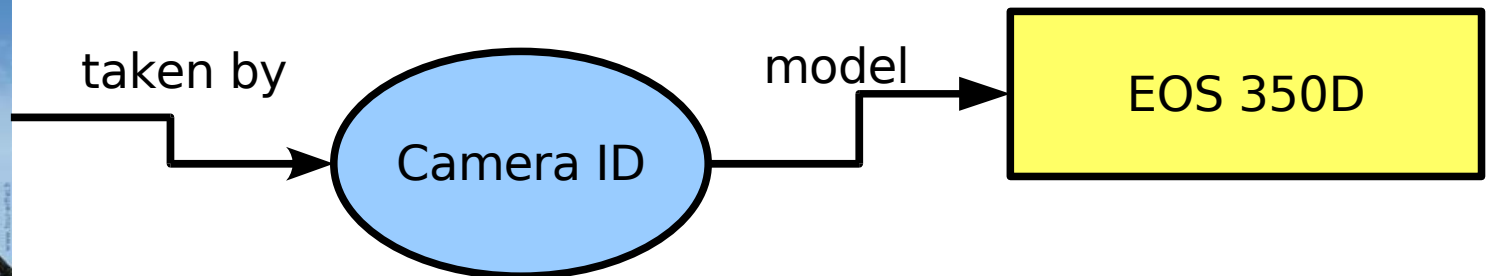
Stellaris features

- A service that **persistently stores** and **perform queries** over metadata
- **Standard formats** for metadata
 - ◆ **RDF** for data representation
 - ◆ Queries are defined in **SPARQL**
- Service interface based on **HTTP**
- **VOMRS and X.509 certificates** for authentication and authorization



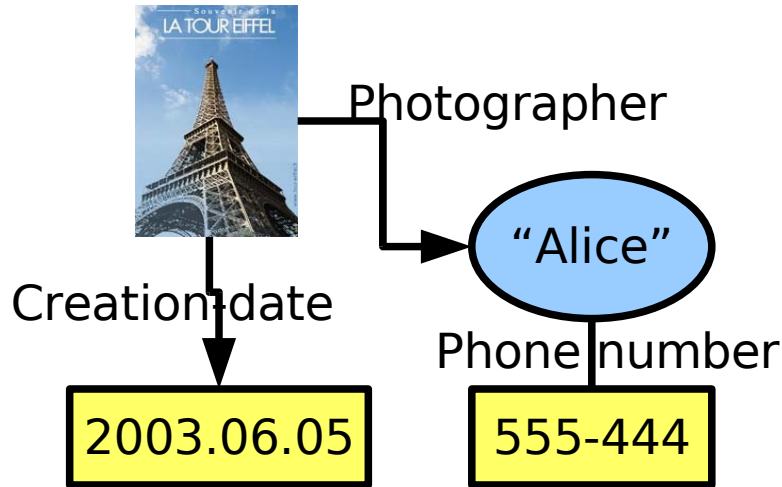
RDF and SPARQL

- RDF is an information model for describing resources
 - ◆ An RDF-entry consist of a (subject, predicate, object)-tuple
 - ◆ A set of triples form a graph
 - ◆ Flexible schema definition





SPARQL Example



“What is the name and phone number of the photographer who took the picture of the Eiffel tower?”

Input graph →

```
SELECT ?phone_number ?name WHERE  
{ "Picture of Eiffel tower" "Photographer" ?name .  
  ?name "Phone number" ?phone_number }
```

Number	Name
555-444	Alice

← Output results



Metadata organization

- *Context*, name of an RDF-graph
 - ◆ <http://example.org/contexts/pictures/eiffel>
- *Collection*, set of contexts
 - ◆ <http://example.org/contexts/pictures/>
- Access restriction through ACLs attached to contexts
- Data *time-stamping* and *garbage collection*



Applications

- MDS, Robotic telescopes (RTML)
- Modules -> RDF
- Job management
- Data stream management
- Cactus simulations (integration test suite)
- Demos
 - ◆ Resource map (including telescopes)
 - ◆ Timeline



Conclusions

- Heterogeneous environment with many use cases and resource types
- RDF used as a common data model
- SPARQL for defining queries over data
- Stable implementation in use by several applications



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