



Enabling Grids for E-scienceE

A service oriented framework to create, manage and update metadata for earth system science

K. Ronneberger, DKRZ, Germany
S. Kindermann, DKRZ, Germany

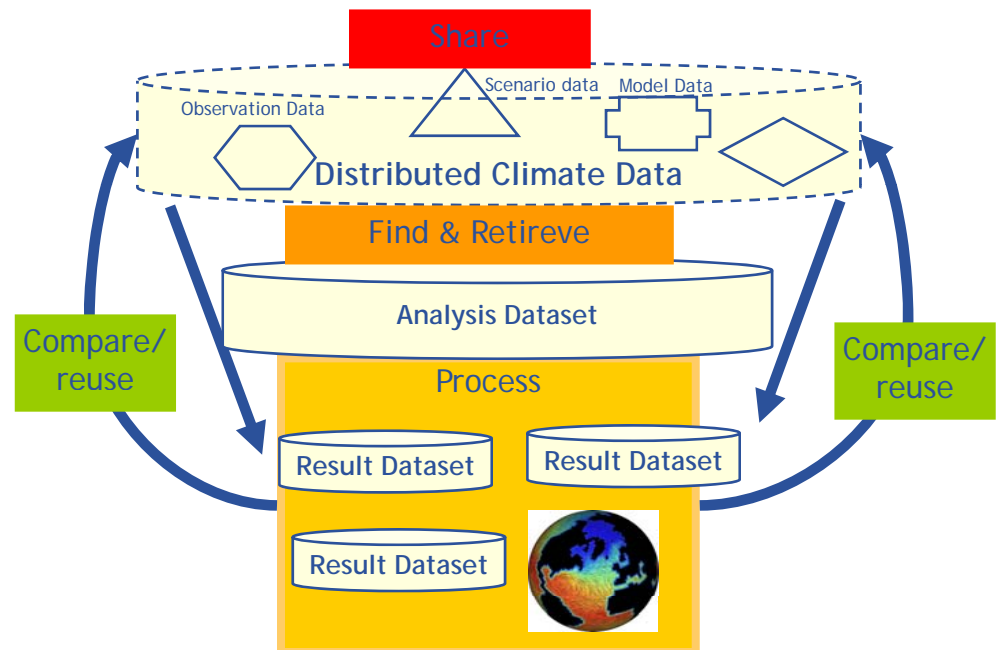


www.eu-egee.org

- Background:
 - What is Earthsystem science about
 - Motivation of this framework
- Design of the metadata framework
 - Requirements
 - Concept
 - Implementation
- Potential impact and vision

- **Goal:** learn about the past, the present, and possible futures of the earth system
- **Method:** Modelling, analysing, comparing and processing data
- **Input:** data from observations and/or other modelling studies
- **Community:** internationally and interdisciplinary distributed but strongly interconnected

Typical workflow



- A grid to

...needs Metadata to describe

- Share data

- **Content** (unique variable description, temporal & spatial bound)

- Find data

- **Discovery** (where to find, how to access)

- Process data in modular, independent steps

- **Use** (format, size, etc.)

- Compare/reuse data

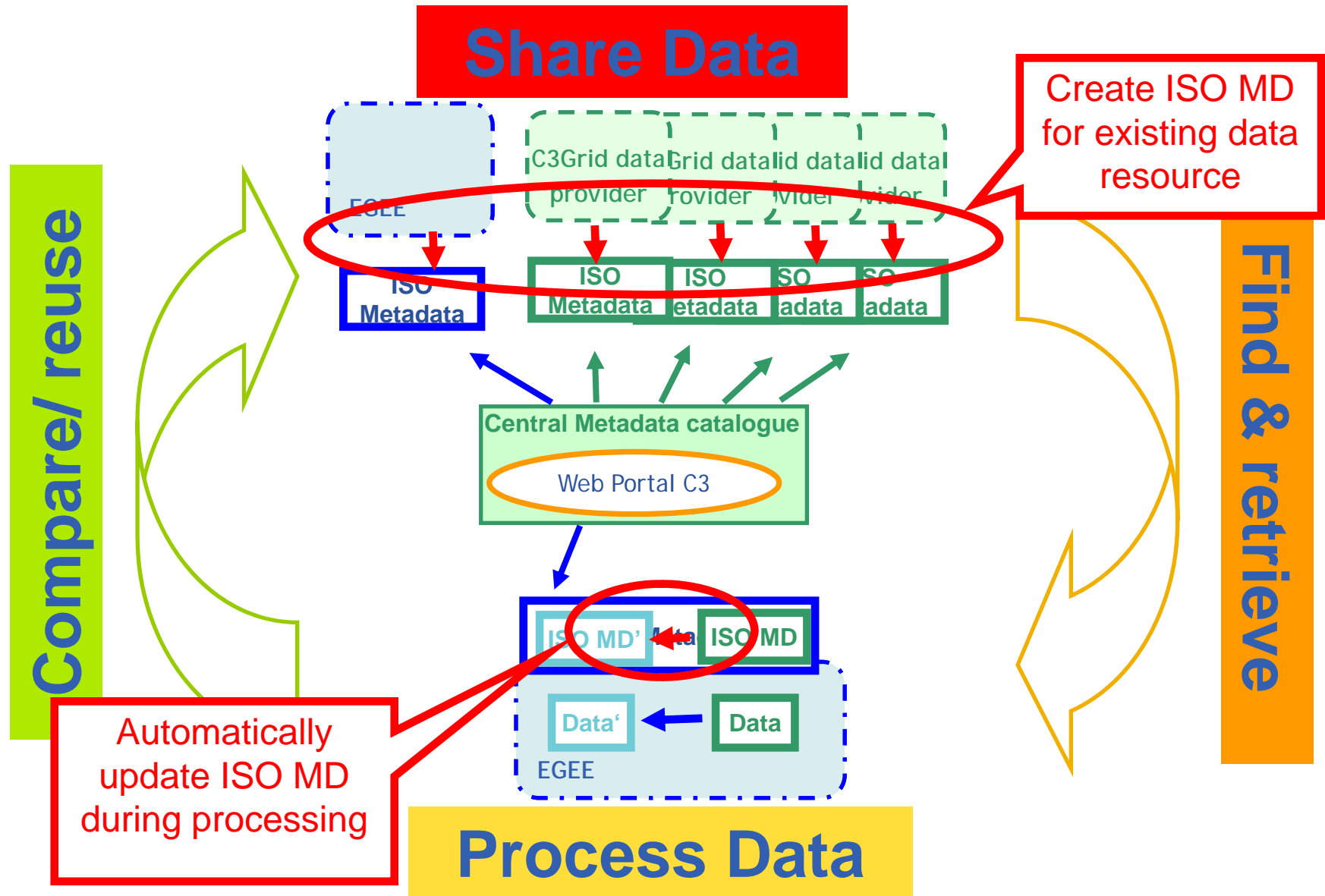
- **Provenance** (origin of data, performed processing steps etc.)

ISO 19115

- Content
- Discovery
- Use
- Provenance

- **Complex enough to reference geographic data**
- **Offers a hierarchical description**
- **XML implementation ISO 19139 available**
- **Used for ESS data by academic and business:**
 - ANZLIC
 - ESRI
 - con terra GmbH
- **C3Grid -> adapted ISO format for grid world**

 Tools are needed to create, manage and update metadata

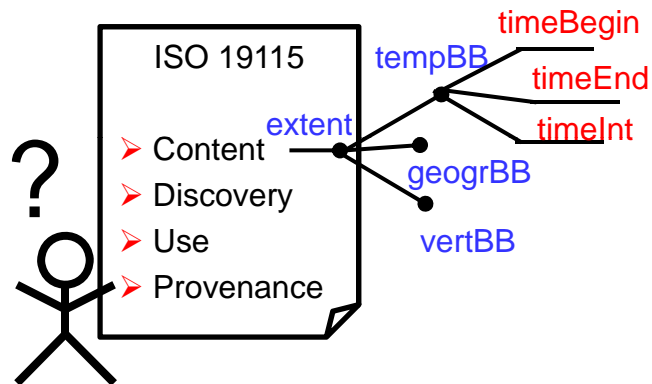


Create ISO MD for existing data resource

(2) Interactively create default file

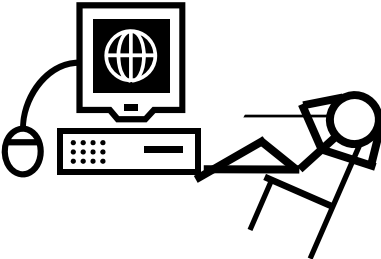
Default A
 Ref_xml B,C

 update timeEnd with t1
 add vertBB from A
 update cfvar = a with b
 delete keyword = c



```

<iso:abstract> this
  data ..
</iso:abstract>
...
<iso:contactInfo>
<iso:name> DKRZ
</iso:name>...
  
```



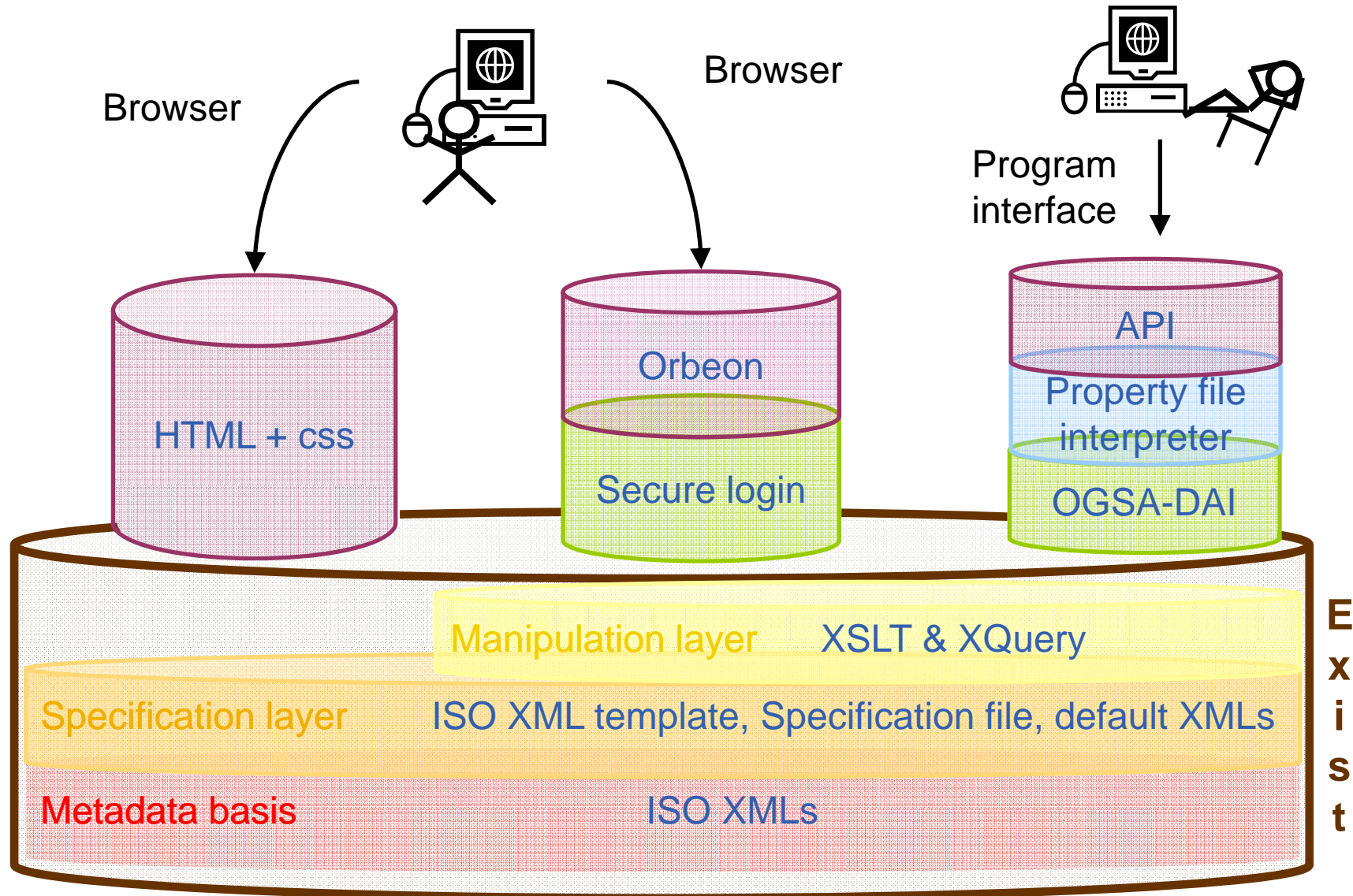
(1) Understand ISO-MD implementation

Automatically update ISO MD during processing

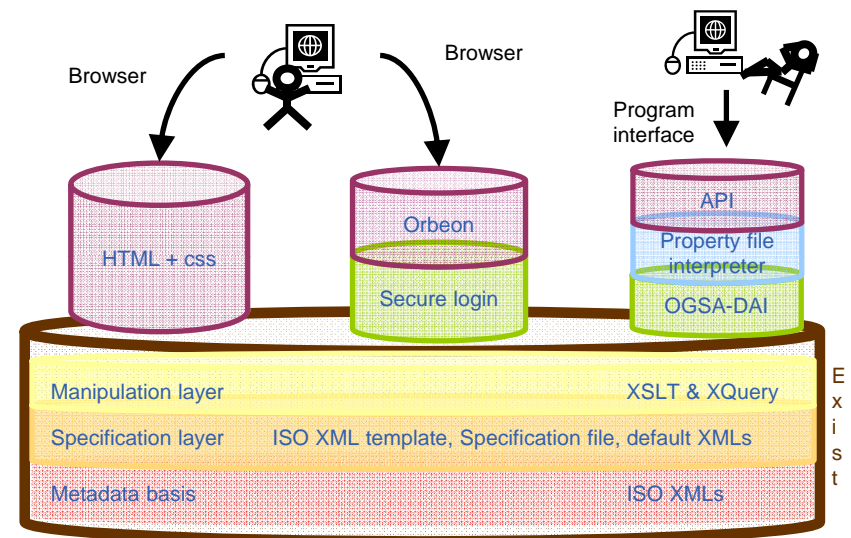
(3) Produce property file



Step	(1)	(2)	(3)
Function	<i>view structure, content and organization of the metadata</i>	<i>Parsed creation/change of metadata via GUI</i>	<i>Automatic, property file driven update of MD</i>
Requirements	<ul style="list-style-type: none"> graphical depiction Schema template & specification file Example MD files 	<ul style="list-style-type: none"> GUI Secure login Parsing functionality Schema template & specification file Example MD files 	<ul style="list-style-type: none"> API property file language A&A Update & parsing functionality Schema template, specification & default file Original MD files
System layout			



- **Modular**
 - Differentiated access
- **Common basis**
 - Easy maintainable
- **Layered system**
 - Easy extendable/reusable
- **Standardized technology**
 - Easy adaptable



- **Tools are used in C3-EGEE framework**
 - Ease integration of further data providers/processors
- **ISO is increasingly used as metadata format for ES data**
 - Foster the collaboration on ES data
- **The schema related XMLs are limited and easy to exchange**
 - Adapt tools for further schemas/communities