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Evaluating meta data access strategies through implementing the GOME test suite

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With the realisation of the GOME validation test suite we tested the capabilities of the three underlying data access services as well as their integration into the gLite middleware. For the validation process data from a satellite and data from ground measuring stations have to be assigned by their spatial coordinates. For this we used GIS features available in modern databases when applicable and the services allowed it, e.g. with OGSA-DAI using the PostGIS extension for the PostgreSQL database. We additionally reviewed some of the advanced features of the underlying services.

3. Impact

The GOME validation test suite consists of distributed jobs with two different purposes. The first is to assemble the meta data repository with meta data extracted from the real datasets and the second is to use this repository to collocate related data sets. This collocation is done using a containment test on the spatial coordinates of the measurements. Thus the meta data is in this environment used to reflect and index relationship of data so the application can quickly identify data belonging to the specified sample. This is a typical application of meta data in the evaluation of experimental data or data obtained from simulations where you isolate a criterion and analyse its influence.

4. Conclusions / Future plans

For the final review of the services we considered the following criteria:
Deployment –setup and integration of the service
Integration –use of grid authorization / authentication, collaboration with other services, reusability of data repository
Access –data retrieval mechanism (e.g. query language and data transport)
Features –features needed (or helpful) to realize the test suite, possible extensions
Development –available APIs or client libraries, complexity of model

Provide a set of generic keywords that define your contribution (e.g. Data Management, Workflows, High Energy Physics)

data management, meta data, database integration, ogsa-dai, amga, grelc

1. Short overview

The aim of the DEGREE test suite activity was to generate test specifications that can be used to identify key requirements that grid middlewares should meet for operating earth science applications. The GOME validation test suite is one of these specifications and focusses mainly on meta data management. We implemented the test specification using gLite and three different meta data backends, the Grid Relational Catalogue (GRelC), the ARDA meta data catalogue (AMGA) and OGSA-DAI.

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