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Implementation of geospatial services in gLite: the RISICO case study

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RISICO presently runs in gLite accessing input data stored in a SE using various proprietary formats. Our aim is to integrate this application with a framework of standard geospatial web services to gain more flexibility. In this case the data will be stored in standard formats (GRIB) and will be accessed through standard interfaces. The workflow will be as follows:
-The CP user selects an area in which the model should be run, selects the input data URIs and indicates an appropriate priority for the action;
-A Web Processing Service (WPS) receives the request,evaluates the input size and the priority, and then activates various independent data access services (WCS/WFS) which split the input data;
-When the various inputs have been set up, the WPS spawns and distributes an adequate number of jobs on the grid. These are responsible for the execution of the core algorithm;
-When all the jobs have correctly run, the WPS takes care of merging the results and publishes them to the CP user.

3. Impact

With this new approach, new use cases could be easily implemented with a limited effort:
a) in case of an emergency the CP could easily choose to increase the priority of the run, telling the WPS to submit the algorithm on a greater quantity of WN to get the results in a shorter time. Alternatively WPS could run the algorithm on a specific region with a better resolution;

b) the same algorithm could be run using data accessed through standard interfaces from different data providers on the same region for increased availability and for comparison purposes.

c) in future scenarios different algorithms accessible trough the standard WPS interface could be run on the same data inputs for output comparison and integration.

4. Conclusions / Future plans

A prototype of RISICO that makes use of the grid enabled WPS and WCS services is under development. This project is going to be part of the OGC-OGF interoperability initiative.

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

civil protection,geospatial services,interoperability,forest fires,risk assessment,workflows,GMES,

1. Short overview

The CYCLOPS project is a FP6 SSA which aims to bring together two important Communities: GMES and Grid, focusing on the operative sector of European Civil Protection (CP).

Recently RISICO, a pre-existent Civil Protection application for forest fires risk assessment, has been successfully ported to gLite. As a further step we discuss which benefits could be granted to the CP application, implementing an intermediate layer of geospatial web-services between the CP environment and gLite.

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