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Geospatial and Grid infrastructures interoperability in enviroGRIDS

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EnviroGRIDS (Black Sea Catchment Observation and Assessment System supporting Sustainable Development) is a 4-years FP7 Project aiming to address the subjects of ecologically unsustainable development. The geospatial technologies offer very specialized functionality for Earth Science oriented applications as well as the Grid oriented technology that is able to support distributed and parallel processing. One challenge of the enviroGRIDS project is the interoperability between geospatial and Grid infrastructures by providing the basic and the extended features of the both technologies.

Detailed analysis

According with the Service Oriented Architecture concepts and the requirements of interoperability between geospatial and Grid infrastructures each of the main functionalities is visible fromthe EnviroGRIDS Portal and consequently, by the end user applications such as Decision Maker/Citizen oriented Applications. The Geospatial Oriented Level in the enviroGRIDS architecture supports the integration of the compatibility between Grid (i.e. gLite) and the OGC Web Services concerning mainly with: data management (e.g. metadata, catalogues, and data access), resource management (e.g. storage elements, computing elements, services, etc), job execution (e.g. process synchronization, fault recovering, workflow management, etc), security (e.g. certificates, single sign-on mechanism, etc), and other issues arisen from conceptual, technical and technological particularities.
Interoperability between geospatial and Grid infrastructures provides features such as the specific geospatial complex functionality and the high power computation and security of the Grid, high spatial model resolution and geographical area covering, flexible combination and interoperability of the geographical models.

Conclusions and Future Work

The research carried out in enviroGRIDS is closely connected to achievements of the standards and organizations such as OGC, G-OWS, gLite, INSPIRE, GEOSS, EGEE, etc.

Impact

The single access Web portals and Earth Science oriented applications could combine the features provided by the interoperability between the geospatial and Grid infrastructures. The main features consist of complex geospatial functionality and the Grid oriented high power distributed computation and secured resource management, which support the development and the simulation of large geographical and high resolution spatial models.

Keywords

Geospatial infrastructure, Grid infrastructure, interoperability, Web and Grid services, enviroGRIDS

URL for further information

http://www.envirogrids.net/

Justification for delivering demo and/or technical requirements (for demos)

it is appropriate for an oral presentation and debate.

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