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Research strategies for an advanced grid e-infrastructure for Civil Protection applications

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In the context of the EU co-funded project CYCLOPS the problem of designing a grid-based e-Infrastructure for Civil protection (CP) applications has been addressed. This work presents the main outcomes of the project, namely the proposed architectural framework and the research strategies aiming to its possible implementation.

Impact

Throughout Europe CP infrastructures are characterized by great heterogeneity. On the other side risk management especially during emergency situations would greatly benefit from seamless access to distributed resources (data, services, models, etc.). Therefore the availability of an advanced common e-Infrastructure could be a significant step towards a more efficient risk management at a European level. The proposed architectural framework and research strategies are a first step in the definition of a roadmap towards the design and development of such an e-Infrastructure. This is also one example of a study aiming to evaluate the possibility of using research infrastructures in other (operational) contexts.

URL for further information

http://www.cyclops-project.eu/Default.aspx?id_menu=9

Conclusions and Future Work

An architectural framework and related research strategies for the realization of a Grid-based European e-Infrastructure for Civil Protection applications is presented. Future work will be aimed to the pursuing of the proposed research strategies. They will include the development of prototypes of applications used in operational CP activities based on the proposed architectural framework, and the development of a Grid-enabled advanced middleware for CP applications.

Keywords

Civil Protection, GMES, SDI, Earth Sciences, OGC

Detailed analysis

Grid technologies could provide significant benefits to CP applications in terms of computing power and storage space. However current grid platforms are designed taking into account requirements different from CP ones (e.g. strict Real-Time support, complex data policies, geospatial data sharing, etc.). Basing on such specific requirements an architectural framework has been defined. It is made of a Web Service layer providing advanced services for CP applications (e.g. standard geospatial data sharing and processing services) working on the underlying gLite-based Grid platform. This framework has been tested through the development of prototypes as proof-of-concept. These theoretical studies and proof-of-concept allowed to define the research strategies towards the implementation of an European e-Infrastructure for CP applications based on such architectural framework. The research themes and main topics have been identified and detailed.

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