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Type: **Demonstration**

## **Applications using Remote Instrumentation in Grid environment - DORII project**

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We present here the final results obtained in the context of the EU FP7 project Deployment of Remote Instrumentation Infrastructure project. This is one of the EGEE related projects. We present here the oceanographic and coastal observation and modeling using an imaging use case for demonstrating the usage of the remote instrumentation infrastructure. The remote instrumentation techniques and services has been integrated with grid - glite middleware, giving new possibilities to the scientists. The provided solutions are generic and so could be re-used for different applications.

### **Detailed analysis**

The DORII infrastructure provides several services, ranging from general purpose to more specific ones, to carry out daily activities in a specific community context, to communicate with remote collaborators and to control and manage remote resources and equipment integrated with the traditional Grid resources. The proposed use case - oceanographic and coastal observation and modeling using imaging - has several cameras along the north coast of Spain. These cameras provide important information about the coastal state. The DORII infrastructure allows users to easily access the images provided by these cameras and apply different kinds of image processing algorithms to them. Image retrieval allows users to access and process huge sets of data in different manners, such as initial and final date, image type, the specific beach and camera. The same infrastructure and services have been applied in DORII also for another applications in the field of Network-Centric Seismic Simulations, Earthquake early warning system, Experimental applications like: SAXS beamline, SYRMEP beamline, environmental applications .

### **Conclusions and Future Work**

We present here a very important extension of the gLite middleware towards accessing remote instruments. Remote Instrumentation is one of the emerging technologies that, combined with the grid gives a lot of new opportunities, and DORII is the major project in FP7 that takes care of such services. The proposed demonstration having good visual aspects could attract the visitors. For the future work DORII is in last stage of the project so we are planning to support the applications on the production level.

### **Impact**

Remote Instrumentation is an emerging technology that combined with grid capabilities gives a new perspective. It has become particularly important with respect to ESFRI projects, where remote access to very unique and expensive installations will be essential for many scientists. Many of the ESFRI projects have already raised their interest in the technologies that have been developed by DORII. Integration of instrumentation with other elements of the e-infrastructure is a key point to enable not only better research projects based on acquisition of experimental data, but also to promote an adequate framework for inter-disciplinary initiatives. The access to remote instruments was also mentioned as one of the sub-call subject in the last infrastructure call. Such an dissemination possibility - during the user forum - could result in a higher number of researchers

accessing the resources. It is worth to mention that the necessity of supporting remote instrumentation was reflected in the last e-IRG (e-Infrastructure Reflection Group, <http://www.e-irg.org>) 2009 White Paper with a special chapter devoted to “Remote Instrumentation”.

## **Keywords**

grid, remote, instrumentation, dorii,

## **URL for further information**

<http://www.dorii.eu>

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

This demo will show broad range of the RI infrastrucutre usage. DEMO will show integrated whole gateway collaborative platfrom including scientific workflows. It has nice visualisation capabilities

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