

The UNOSAT-GRID Project: Access to Satellite Imagery through the Grid Environment

Wednesday, 9 May 2007 17:30 (20 minutes)

Describe the scientific/technical community and the scientific/technical activity using (planning to use) the EGEE infrastructure. A high-level description is needed (neither a detailed specialist report nor a list of references).

UNOSAT is a United Nations activity to provide access to satellite images and geographic system services for humanitarian operations for rescue or aid activities. UNOSAT is implemented by the UN Institute for Training and Research (UNITAR) and managed by the UN Office for Project Services (UNOPS). In addition, partners from different organizations constitute the UNOSAT consortium. Among these partners, CERN participates actively providing the required computational and storage resources.

Report on the experience (or the proposed activity). It would be very important to mention key services which are essential for the success of your activity on the EGEE infrastructure.

During the project development we have enabled the selection and download of satellite images starting on a portable device (using the GPS coordinates provided by the device itself). The system provides seamless access to valuable satellite images while preserving the security requirements of the data provider and of the EGEE infrastructure (using X509 certificates). The system uses EGEE services already used by other applications and in this presentation we show how we have orchestrated them. The satellite images are catalogued by the AMGA (metadata) and LFC (location) services. The handling of images (compression/decompression, cropping, etc) is provided by the computational GRID resources via the EGEE workload management system. This work is being performed in close collaboration with the NICE Company, providing their EnginFrame technology (used also by Genius EGEE portal, for a development and deployment environment for portal applications)

With a forward look to future evolution, discuss the issues you have encountered (or that you expect) in using the EGEE infrastructure. Wherever possible, point out the experience limitations (both in terms of existing services or missing functionality)

The fast access and processing of the images is the key point for the UNOSAT project. It requires to build the support for a reliable storage and workload management system in the EGEE production is system to be ready in case of peak activity.

Describe the added value of the Grid for the scientific/technical activity you (plan to) do on the Grid. This should include the scale of the activity and of the potential user community and the relevance for other scientific or business applications

The bottleneck of the UNOSAT activity is the storage and processing of large quantities of images that their members need to manage. The fast and secure access to these images from any part of the world is mandatory during these activities. Based on two successful CERN-GRID/UNOSAT pilot projects (data storage/compression/download and image access through mobile phone), the GRID-UNOSAT project has consolidated the considerable work undertaken so far in the present activity. The use case we have demonstrated is the delivery of satellite images from the GRID to a portal (web and portable devices). This use case, applied for the moment to UNOSAT, can also be used by many communities requiring a fast and reliable access to geographical images from any portable device.

Primary authors: Mr RETIERE, Alain (UNOSAT/CERN); Mr FALZONE, Alberto (NICE-Italy); Mr UGOLOTTI, Beppe (NICE-Italy); Dr KOBLITZ, Birger (CERN IT/PSS-ED); Ms BJORGO, Einar (UNOSAT/CERN); Dr LAMANNA, Massimo (CERN IT/PSS-ED); Mr LAZEYRAS, Michel (HESGE-Geneva); Mr VENUTI, Nicola (NICE-Italy); Dr MENDEZ LORENZO, Patricia (CERN IT/PSS-ED); Mr MACCARONE, Salvo (NICE-Italy); Mr MEYER, Xavier (CERN/HESGE)

Presenter: Dr MENDEZ LORENZO, Patricia (CERN IT/PSS-ED)

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