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The UNOSAT-GRID Project: Access to Satellite Imaginary Through the Grid Environment

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The EGEE infrastructure is the largest production infrastructure (over 200 sites, more than 15,000 CPUs and about 9 PB storage). High-Energy Physics (notably the experiments at the Large Hadron Collider at CERN), Biomedical applications, Earth Observation, Computational Chemistry and Nuclear Fusion are depending on the EGEE infrastructure.
The computational and storage capability of the Grid is attracting more scientific and innovative applications. In this contribution we would like to demonstrate the status of the EGEE-UNOSAT collaboration.
UNOSAT is a United Nations activity to provide access to satellite imaginary and geographic system services for humanitarian operations to plan 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 public and private organizations constitute the UNOSAT consortium. Among these partners, CERN participates actively providing the computational and storage resources needed for their images analysis. Indeed through its partnership with CERN, UNOSAT is spearheading the use of Grid applications for access to the images and use of decentralized Geographic Information systems (GIS).
Based on two successful CERN-UNOSAT pilot projects (data storage/compression/download and image access through mobile phone), UNOSAT is seeking to consolidate the considerable work undertaken so far in the present activity.
The use case we would like to demonstrate is the delivery of

satellite images
from the Grid to a portal (web and portable devices). In particular, we would
like to enable 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
(use of X509 certificates).
The system uses EGEE services already used by other applications and our
demo orchestrates 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 (The technology used by Genius EGEE
Grid portal as well, for a development and deployment environment for portal
applications, with support for secure access to Grid resources and a powerful
toolkit for application development).
We believe that this project is extremely interesting for the UNOSAT community
and the collaboration schema would also be very interesting as a model for
other applications supported by EGEE II.

Primary authors: Mr RETIERE, Alain (CERN IT/DI); Mr FALZONE, Alberto (NICE (Italy)); Mr UGOLOTTI, Beppe (NICE (Italy)); Dr KOBLITZ, Birger (CERN IT/PSS); Mr LAGRAVA SANDOVAL, Daniel (CERN IT/PSS); Mr BJORGO, Einar (CERN IT/DI); Mr KOMMERI, Jukka Antero (CERN PH/UCM); Dr LAMANNA, Massimo (CERN IT/PSS); Mr VENUTI, Nicola (NICE (Italy)); Dr MENDEZ LORENZO, Patricia (CERN IT/PSS); Mr MACCARONE, Salvo (NICE (Italy))

Presenters: Mr FALZONE, Alberto (NICE (Italy)); Mr LAGRAVA SANDOVAL, Daniel (CERN IT/PSS); Mr KOMMERI, Jukka Antero (CERN PH/UCM); Dr MENDEZ LORENZO, Patricia (CERN IT/PSS)

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