Contribution ID: **20** Type: **poster**

Archaeological Applications on e-Infrastructures by ArchaeoGRID

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).

ArchaeoGRID enables the possibility to exploit advanced grid computational and storage technologies in archaeology for the analysis of the emerging large region archaeology. The advantage of multidisciplinary research,"specialists work alone using appropriate techniques", and of interdisciplinary research, "specialists cooperate and discover new aspects of their data", are combined and enabled by ArchaeoGRID. ArchaeoGRID community uses methods of analysis and data from other grids.

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.

The research project on the origin of the City in the Mediterranean Region between the XVIII Centuries B.C., has been approved by EGEE- II Committee and a paleoclimatic application is running on GILDA t-Infrastructure. Paleoclimate simulation is made using the MM5 Mesoscale Model. MM5 package is installed and is running on GILDA t-Infrastructure. This topic can be considered as a natural application of ArchaeoGRID.
In fact the protohistorical urbanisation process can be considered as the starting point of the Mediterranena and European Civilisations
Paleoclimate evaluation is relevant for evaluating:agricultural and pastoral activities; forests amount and distribution ; exchange and trade; environment ; habitation and dressing; epidemiological situation, etc.
With MM5 seasonal weather will run to derive information about the climate of that period and how that compares to the present climate. Series of daily weather are produced by Stochastic Weather Generator and used for hydrology

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)

Future evolution of ArchaeoGRID include the prosecution of
programs testing on
t-Infrastructure GILDA and the integration of the ArchaeoGRID
system on
e-Infrastructure EUMEDGrid for running archaeological applications.

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

ArchaeoGRID is not only grid applications. Some of ArchaeoGRID
applications could be
deployed on an e- Infrastructure only if this structure will
satisfy specific needs
of the archaeological research and of the use of the
archaeological knowledge.
In fact, the middleware DILIGENT (or other Digital Library
middleware) must be
present on the e- Infrastructures, integrated at some level with
g- Lite, for the
final narration by production of a digital document; a
Visualization Laboratory, with
the most advanced Virtual Reality and Augmented Reality
technologies available, must
be accessible; the archaeological geospatial -
temporal data must be accessible and manageable by means of some
GRID GIS; the grid
interoperability must be ensured to operate with the other grid;
last but not least,
through the e- Infrastructure must be possible design and access
to large
repositories of the archaeological
information .

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Session Classification: Poster and Demo Session