

Grid@home

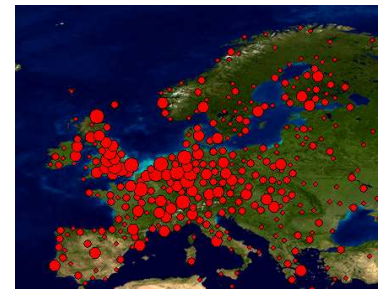
Watch individual PCs collaborating (in their spare time) to a distributed, lightweight grid application

With Grid@home, we illustrate how interlinked computers process tasks as a unified 'grid' by allowing users across the Internet to download a distributed application, and let their computer work (during spare time) on a given task.

This class of applications is usually referred to as 'global computing', or 'lightweight grid systems', and comprises examples such as SETI@Home, ClimatePrediction.net, etc.

Here, the task chosen here is a distributed crawling of the web, following links and gathering URLs in a decentralised fashion. This crawling is the first logical step of a search engine, in this case providing architectural advantages in terms of freshness and depth.

A map of Europe attempts to show geographically where the processing is actually happening.



Watch the demo and you will see :

- ✖ *how anyone can download a copy of the distributed application onto his PC, and offer his spare processing time to contribute to the global task*
- ✖ *how the processing of a complex task may be spread upon many computers*
- ✖ *a mapping application allowing to display the geographical location of users.*

Some details :

Grid@Home is currently a lightweight demonstrator, aiming to illustrate lightweight grid concepts. It uses XtremWeb as its distribution platform.

XtremWeb is developed by a team headed by Franck Cappello at LRI (INRIA).

A more robust version of Grid@Home is planned, that would gather thousands of contributors, in order to provide a crawl of European webpages that has the most depth and freshness, to be exploited by further search engines and tools.

Developed by :



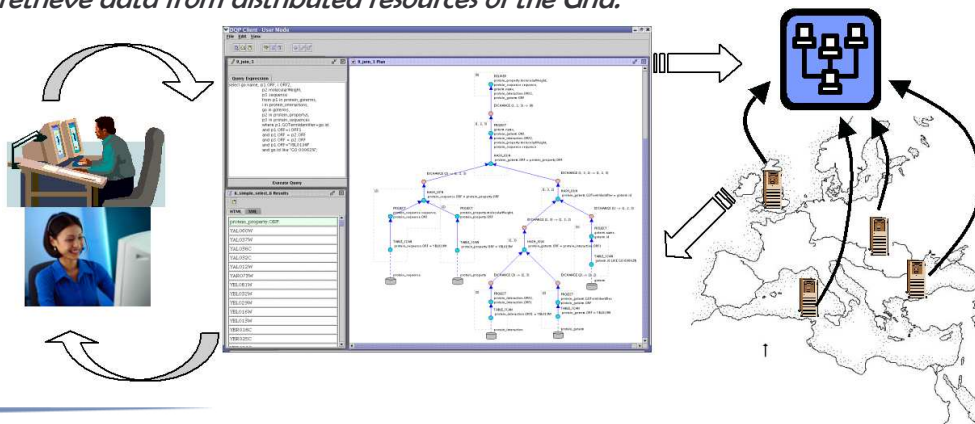
Charleroi, Belgium

Contact : Roald Sieberath (rs@cetic.be)

Access diverse, geographically distributed databases as simply as you do with a single local database

Retrieving data from distributed resources of the Grid

With OGSA-DQP (Open Grid Services Architecture – Distributed Query Processing), you have a high-level data access and integration service, designed to hide the complexity of the Grid from users who wish to retrieve data from distributed resources of the Grid.



Watch the demo and you will see :

- ✧ *how the user experiences accessing diverse, geographically distributed databases as simply as accessing a single local database*
- ✧ *how the complexity is handled behind the scene*

Some details :

OGSA-DQP is built on two widely known and used Grid technologies:

- ✧ *Open Grid Services Architecture (OGSA) is used for resource discovery, utilization and lifetime management*
- ✧ *OGSA-Data Access and Integration (OGSA-DAI) is used for wrapping individual data sources to provide consistent access to data and metadata on the Grid.*

OGSA-DQP is the first distributed query processing engine available for the Grid, allowing transparent access to multiple databases made available through the Grid. It has been demonstrated on a number of occasions, funded through several UK projects and since the software was made publically available (first release last year) more than 400 downloads were recorded. More details are available from <http://www.ogsadai.org.uk/dqp/>

Presented by : University of Manchester, School of Computer Science, United Kingdom

MANCHESTER
1824

*Developed by : University of Manchester & University of Newcastle
(with support from EPSRC and the UK e-Science programme)*

The University
of Manchester

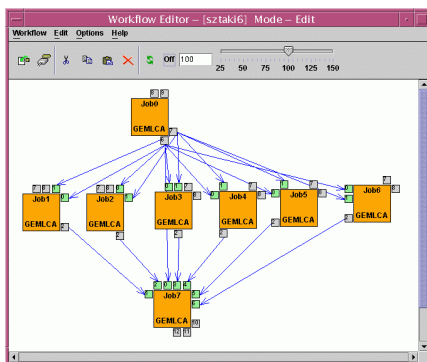
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Transform legacy code into a Grid service without any user intervention

Road Traffic Simulation on the Grid

With GEMLCA (Grid Execution Management for Legacy Code Architecture), any legacy code can be transformed into a Grid service without any user intervention. This transformation and the usage of the service happen from a user-friendly Grid portal interface.

The application shows the analysis of road traffic densities using multiple executions of legacy traffic simulators running on a GT3 testbed.



Watch the demo and you will see :

- ✖ how to convert a legacy code application into a Grid service*
- ✖ how to create a workflow from these legacy applications*
- ✖ how to execute it on the Grid*
- ✖ how to use the P-GRADE portal graphical interface for these tasks*

Some details :

In order to demonstrate the integrated GEMLCA P-Grade portal solution, a workflow for analysing urban car traffic on road is created. The workflow consists of three different components: a Manhattan road network generator, traffic simulators, called MadCity, and an analyser. The Manhattan road network generator creates MadCity compatible network and turn input-files. The output of this component is used as input to MadCity traffic simulators that run parallel at SZTAKI and Westminster clusters with different number of cars as input parameters. After completing the simulations, the generated trace files are input to an analyser that compare the traffic density on roads and illustrate the results on graphs.

Developed by :



University of Westminster &

London, United Kingdom



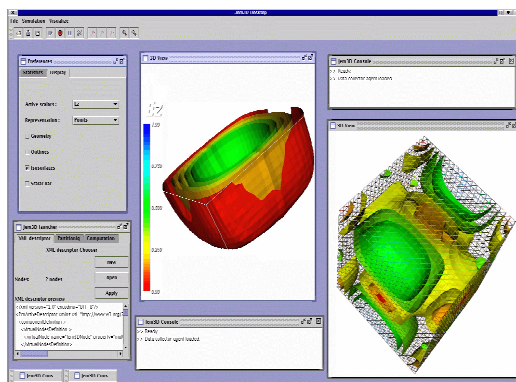
Budapest, Hungary

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LGPL Java library for parallel distributed and concurrent computing, also featuring mobility and security

Distribute applications on the Grid

With ProActive, you may deploy your applications on the Grid, with a comprehensive API. It features active models, asynchronous RPC, typed group communications, migration and mobile agents, future-based synchros, and components.



ProActive
Programming, Composing, Deploying on the Grid

ObjectWeb
Open Source Middleware

Watch the demo and you will see :

- ✦ *how an application can be deployed with a graphical interface*
- ✦ *how to execute it on the Grid*
- ✦ *how the electromagnetic features of an object can be calculated*

Some details :

ProActive is a uniform way to encapsulate remotely accessible objects, threads as asynchronous activities, servers of incoming requests, and mobile and secure activities. It is possible to distribute it to LANs, Clusters of workstations, internet Grids, Peer-to-Peer intranets. ProActive is a 100% Java Library, making it extremely portable. A graphical interface allows the remote monitoring and steering of distributed Java library, requiring no change to the Java Virtual Machine.

Developed by :



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