GRID SUPPORT CENTRE
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The UK Grid Support Centre supports all aspects of the deployment, operation and maintenance of Grid middleware and distributed resource management for the UK e-Science test beds.

In the spring of 2003, the Grid Support Centre was asked to undertake a survey of the 22 e-Science CORE projects of the five Research Councils, to identify their support needs. The results of this survey are intended to direct the future service that the UK GSC provides. The results were collated to identify trends.

An important result of the survey was identifying the UK e-Science Certificate Authority and its continued work as a key facility. It also became clear that the activities generally undertaken were successfully scoped to provide what the user community needed.

The support model provided by the UK Grid Support Centre has been sufficiently successful that it has now been decided to establish a European Grid Support Centre. This is initially working as collaboration between CCLRC, CERN and KTH Sweden. It is intended that the activities of this organisation will be shaped by the national/organisational requirements of the host institutions that the staff of the EGSC. It is expected that the EU may establish a full multi-nation support centre.

This paper addresses the current operations of the Grid Support Centre.

USER SERVICES

Website (http://www.grid-support.ac.uk/)

The Grid Support Centre website is your first port of call when you have any sort of query about Globus, other forms of Grid middleware, or the e-Science Certificate Authority. As well as downloadable installation guides, papers and technical notes, we have an ever expanding online Globus knowledge base. And if your query still isn’t answered, you can place a support call to the Grid Support Helpdesk. There is also a section dedicated to getting you up and running with Globus.

We maintain a news and events section and provide links to e-Science centres and projects worldwide. There is a download section where you can obtain documents, a Globus auto installer CD image and access the DiSCo software download portal.

Helpdesk

The GSC operates a helpdesk for user queries and problems. This can be accessed through either a web-form, email address or telephone helpline.

The above figure shows performance of the helpdesk to close submitted problems and calls.

Training

The Grid Support Centre at RAL has developed a training course for system administrators installing the Globus Toolkit 2, and connecting to the level 2 grid. This was run for the first time at the beginning of June, and is planned again for October at NESC. It is expected to run this course approximately monthly and that the agenda will include Globus Toolkit 3 and the level 3 grid as these resources become available.

Training is also given to new Registration Authority representatives. This covers the use of the tools and methods they use to act in accordance with the rules and procedures of our Certification Authority.
CERTIFICATION AUTHORITY (CA)

The idea of a common logon through digital authentication and authorisation is a core fundamental of e-Science. The GSC currently operates the UK e-Science CA for the community. For the certificates to be really useful though they must be trusted by other CAs. The following CAs now trust the certificates issued by e-Science CA:

- Eurogrid;
- DataGrid;
- CrossGrid;
- DoE.

There are currently 38 Registration Authorities (RAs) around the country to perform the physical identification of the users (through photographic ID). The RAs are shown on the map with the London RAs grouped, and BBSRC & NERC distributed. To date, they have approved 852 certificates for users, machines and services. The following figure shows the number of certificate issued by each Organisational Unit (OU).

Users complete a web based form to request a certificate. The address of the ca is: http://ca.grid-support.ac.uk.

REFERENCE SYSTEMS

Reference systems are implementations of various grid related software for a number of different purposes. It is convenient to distinguish between two groups.

External reference systems

There are currently four external reference systems. The purpose of an external reference system is to provide an implementation of software for use by people involved in the Grid. As far as possible the system should be continuously available and accessible on the Internet.

The current systems are called:

- grid.escience.circ.ac.uk: runs Linux Red Hat 6.2 and the Globus Toolkit 2.2.3;
- grid2.esc.rl.ac.uk: runs Linux Red Hat 7.2 and the Globus Toolkit 2.2.3;
- ginfo.grid-support.ac.uk: the Grid information service;
- http://esc.dl.ac.uk/InfoPortal/: acts as a gateway to ginfo.grid-support.ac.uk as well as a single point for obtaining transient information on the status of resources available on the Level 2 Grid.

The following figure shows the home page for the InfoPortal.

Internal reference systems

An internal system is a system whose availability is intermittent. It is intended for the development or trial deployment of new software.

- grid[4.5.6.7.8.9].esc.rl.ac.uk run Linux Red Hat 7.2 with a variety of trial software;
- ca[sign]-dev.esc.rl.ac.uk run Linux Red Hat 7.2 with the e-Science CA development system;
- esc[2.3.4.5].dl.ac.uk run Linux Suse 8 with globus took kit 2.2.3, and resource management software such as LSF;
- esc5 also has a prototype of the UDDI implementation.
ENGINEERING TASK FORCE

The operational state of the Level 2 Grid (L2G) is monitored using the GITS test script. Tests are run daily by each site on the grid to ensure the correct operation of all components of the GT2 tool kit. This includes tasks ranging from fork and batch queue job submission, to file transfer, and tests of the local and national MDS services. The results from each site are published daily on the web and are monitored at RAL. Any problems with the grid are quickly reported to the sites concerned.

The following figure shows a typical page from the Operational Monitor.

Results are also stored in a database. A web service interface is used to upload results. Several interfaces are available to query the data. This allows analysis of historical data, such as the long term reliability of the grid.

OGSA-DAI

It was decided that the Grid Support Centre would provide long-term support for the OGSA-DAI (Open Grid Services Architecture - Data Access and Integration).

The following support is provided:

- Reporting of problems encountered with the software;
- Answers to general queries about OGSA-DAI;
- A list of frequently asked questions;
- A users’ mailing list;
- Additional documentation.

The OGSA-DAI software uses version 3 of the Globus Toolkit and is based on a new set of technologies with regard to Globus Toolkit 2 including Web Service technologies such as SOAP, WSDL, XML, Apache Axis and Tomcat. OGSA-DAI requires knowledge of databases, both relational (e.g. Oracle, MySQL), and XML based (e.g. Xindice).

A web page to provide access to the support organisation is provided with access to problem reporting and simple question asking through web forms, email and telephone direct contacts.

The following figure shows the home for OGSA-DAI support (http://www.ogsadai.org.uk).

EUROPEAN GRID SUPPORT CENTRE

This Centre has been established to test the feasibility of a pan-European grid support organisation. This is preparation for the next generation production grids. The Centre is currently operating as a collaboration between CCLRC, CERN and the KTH, Sweden.

The following figure shows the home page for the EGSC (http://www.grid-support.org).

Activities include collaboration with the Globus group from Argonne National Lab, USA on the release and testing of the Globus 2.4 release.

This type of international collaboration has also been extended into large scale activity within the Global Grid Forum. One staff member is co-chairman of several working groups and another is a candidate for the User Services Research Group co-chair.

It is intended to participate in further collaborations with other groups such as GridLab and Nordugrid. This will enhance the operation of the Centre with support for many more products and services.
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Principal points on contact on the Internet

Main Web Site http://www.grid-support.ac.uk
CA Web Site http://ca.grid-support.ac.uk
Ogsa-dai support http://www.ogsadai.org.uk
InfoPortal http://esc.dl.ac.uk/InfoPortal/
Grid Monitoring http://www.grid-support.ac.uk/etf/wg/globusv223_results.html
European Grid Support http://www.grid-support.org