

gUSE: grid User Support Environment

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Users of gUSE can be either grid application developers or end-users. Application developers can develop sophisticated workflow applications where workflows can be embedded into each other at any depth. Even recursive workflows allowed. gUSE enables to embed workflows derived from other workflow systems (e.g. Taverna, Triana, Kepler, etc.). gUSE supports the concept of workflow templates, abstract workflows, concrete workflows and workflow instances. All of them can be published in a workflow repository. Members of a developer community can import workflows from the repository and can continue the work on them. End-users can import completed workflow applications from the repository and can execute them based on a simple user interface that hides grid details from them. Grid is exposed only for the application developers. Parametric sweep nodes and normal nodes can be used in a mixed way in the workflows enabling very complex applications to develop in gUSE.

3. Impact

gUSE is based on the lessons we learnt from the P-GRADE portal and significantly extends its objectives and features. The workflow concept of gUSE is much more flexible than other workflow systems. Its DAG topology is extended with

- embedded WFs and even recursive embedded WFs
- parameter sweep nodes
- conditional control mechanism
- special workflow starting control mechanisms based on external events or periodic timing.

It supports not only grid interoperability but also workflow interoperability. It can be easily connected to any known grid middleware. It is already connected to GT2, GT4, LCG-2, gLite and WS based grid systems but it can also be connected to local systems like clusters or supercomputers. It contains a built-in grid broker that can automatically distribute the jobs of a workflow into any of the connected grids. Of course, it can use other grid brokers like the gLite broker or GridWay.

URL for further information:

<http://www.lpds.sztaki.hu/gUSE/>

4. Conclusions / Future plans

Its implementation is highly scalable, can be distributed on a cluster or even on different grid sites. Stress tests show that it can simultaneously serve several thousand users. gUSE can be installed with or without a portal interface. The portal interface developed for gUSE is called WS-PGRADE. Its user interface provides a graphical workflow editor that is much faster than the one in P-GRADE portal. WS-PGRADE also supports a workflow repository and its use by end-users and appl. developers.

Provide a set of generic keywords that define your contribution (e.g. Data Management, Workflows, High Energy Physics)

Workflows, Repositories, Brokers, Grid interoperability, Workflow interoperability

1. Short overview

gUSE provides a high-level grid service layer in order to support grid application development. gUSE is based on the lessons we learned from the P-GRADE portal and significantly extends its objectives. The main goal of gUSE is to provide a set of high-level grid services by which interoperability between grids and user

communities could be achieved. Workflow interoperability and user collaboration is supported by application repository. gUSE as a collection of web services is highly scalable.

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