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P-GRADE grid portal family

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Science gateways are important tools to provide user friendly access to various grid systems for various user communities. The most popular way of creating science gateways is the establishment of grid portals through which users can access grid facilities without any grid installation. In many cases science gateway portals completely hide the underlying grid infrastructure and some of them provide high level programming concepts like workflow programming. The P-GRADE portal family belongs to this class of science gateways. It has three main members: P-GRADE, NGS P-GRADE and WS-PGRADE.

Detailed analysis

P-GRADE Grid Portal is an open source, generic-purpose, workflow-oriented, graphical Grid front-end. It supports workflows composed of sequential jobs, parallel jobs and application services. P-GRADE can be used to develop, execute and monitor workflow applications on Grid systems built with Globus, EGEE (LCG or gLite) and ARC middleware technologies. Workflows and workflow based parameter studies defined in P-GRADE Grid Portal are portable between Grid platforms without learning new systems or re-engineering program code.

The NGS P-GRADE Portal significantly extends the portal with a legacy code repository and submission engine (GEMLCA), with support towards various Grid based file and database management solutions (SRB and OGSA-DAI support at the level of individual portlets and at workflow level), and enables the embedding of third party workflows (e.g. Taverna, Triana or Kepler workflows) into native P-GRADE workflows.

WS-PGRADE (newest member) has numerous new features (scalable SOA architecture, seamless access to various types of Grids and resources) and increased capabilities in many areas.

The talk explains the highlights of these portals and their relationship.

Conclusions and Future Work

P-GRADE portal has been developed by the P-GRADE portal Developer Alliance. This is an open organization and any institution can join it. The aim of the alliance to further develop the portal family according to the needs and feedbacks of the user community. Recent feedbacks from the user community requires the porting of P-GRADE from GridSphere to Liferay portal framework and hence this will be one of the near future works. The portal will also be extended with Shibboleth support as requested by the UK NGS and Swiss Grid.

Impact

In the recent years more and more communities select members of the P-GRADE portal family as their science gateway. P-GRADE portal became particularly popular due to its robustness and easy-to-use interface. It has been established for national grids (Grid Ireland, Swiss Grid, Belgian Grid, Turkish Grid, Kazakh Grid, Hungarian Grid, Croatian Grid, Armenian Grid, Malaysian Grid, etc.), for regional grids (SEE-GRID, VOCE, Baltic Grid, White Rose Grid) and for application specific grids (Chemistry Grid, Math Grid, EGRID - Economics VO, etc.). The NGS P-GRADE portal has been serving the UK NGS for several years. WS-PGRADE portal has been used by the EU FP6 CancerGrid project and the UK ProSim projects.

P-GRADE is a GPL licenced OSS that can be accessed and downloaded from sourceforge.

P-GRADE portal has been extended with a new layer that enables the rapid creation of application specific science gateways. Based on this feature the following community specific portals have been set up: Rendering portal for Blender community, OmNet++ portal (for network simulation community), Traffic simulation portal, e-market place portal, seizmology portal.

Keywords

science gateway, grid portal, workflow, open source

URL for further information

<http://portal.p-grade.hu/>, <http://sourceforge.net/projects/pgportal/>, <http://www.guse.hu/>

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