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Enabling the execution of various workflows (Kepler, Taverna, Triana, P-GRADE) on EGEE

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Different communities use different workflow (WF) systems and when they start to use EGEE they would like to run their WFs on EGEE sites. So far this required the porting of the various WF systems to EGEE. With the P-GRADE GEMLCA portal this activity can be reduced to the registration of the required WF engine in the GEMLCA repository. Then users of the WF system can run their WFs via the P-GRADE portal as in their native WF environment, even interconnected with other types of WFs.

Impact

Due to the solution presented in the talk every user community of EGEE can immediately run WFs developed in its favourite WF system without the effort of porting the WF system to EGEE. Moreover, every community using WF system X can incorporate into its workflows any other type of workflow developed by other communities in WF system Y. This has the significant impact that the different user communities using different WF systems do not have to redundantly develop workflows with the same functionalities. Rather they can share and exchange their WFs among themselves and can use the WFs developed by other WF systems inside their own WFs. This tremendously accelerates populating EGEE with many different workflow applications and can significantly increase the number of users and user communities of EGEE.

URL for further information

http://wgrass.wmin.ac.uk/index.php/WGrass:Workflow_Interoperability_Demo

Conclusions and Future Work

The solution presented in the talk is used in the production NGS P-GRADE portal that is a multi-grid portal, i.e. both the UK NGS and EGEE VOs can be accessed by it. As a result users of the NGS P-GRADE portal can execute P-GRADE, Taverna, Triana and Kepler WFs on any UK NGS and EGEE VO sites where they are authorized to submit jobs. Further work requires to register the WF engines of other WF systems (e.g. BPEL) and make them also usable on EGEE and NGS.

Keywords

workflow, workflow interoperability, portal, GEMLCA, P-GRADE, Taverna, Kepler, Triana

Detailed analysis

The solution developed for executing different workflows on EGEE is generic. So far we tested the concept with Kepler, Taverna, P-GRADE and Triana but any WF system whose WF engine can be used as an independent WF execution service can be ported with minimal effort to EGEE. The solution is based on GEMLCA (a Globus incubator project) that contains a legacy code repository and several job submission plugins that can send the legacy code jobs into gLite, GT2 and GT4 grid sites and execute them there as legacy code services. The WF engine to be ported to EGEE should be registered in the GEMLCA repository. If GEMLCA is incorporated in a WF system X, then registering WF engine Y in GEMLCA enables the execution of any WF Y as a node of

any WF X. Since GEMLCA is integrated with the P-GRADE portal any Taverna, Kepler, Triana etc. WF can be executed from a P-GRADE portal on EGEE. Moreover they can be used within the same P-GRADE WF as different nodes. Similarly, Taverna WF can execute Kepler WF, etc.

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