

The Next Generation of the Java CoG Kit

For more information please contact
Gregor von Laszewski
 Argonne National Laboratory
<http://www.cogkit.org>
gregor@mcs.anl.gov
 (phone) 630 252 0472
 (fax) 630 252 1997

Advanced Design

Problem

Many application developers desire to program the Grid in familiar higher level frameworks that allow rapid prototyping.

Solution

The Java CoG Kit provides such rapid prototyping abilities as part of the Java and XML frameworks. It integrates a variety of commodity tools, protocols, approaches, methodologies, while accessing the Grid through Grid toolkits in order to enable

- Easier development of advanced Grid services
- Easier and more rapid application development

Evolution

The Java CoG Kit has evolved from a project that exposes much of the Globus Toolkit functionality through Java to a framework that contains a significant feature enhancement to the Globus Toolkit architecture. Based on its features, it is used by, and distributed in part with the Globus Toolkit version 3 and version 4. We are proud of the fact that often users of CoG Kit technologies do not know that they are using them.

The features presented on this poster are **new features** and are not yet included in the distribution of the Globus Toolkit. However, you can use these technologies by downloading them from <http://www.cogkit.org>.

Abstractions

We have identified a number of higher level abstractions including Grid tasks, transfers, jobs, queues, hierarchical graphs, schedulers, and workflows, and control flows, which make the development of Grid programs easier. The status of the tasks is updated through the familiar Java event model.

Providers

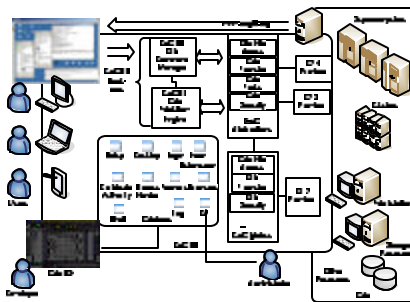
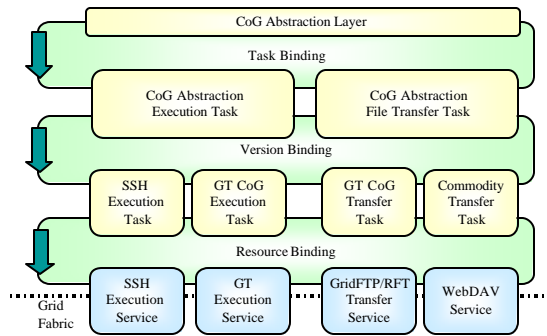
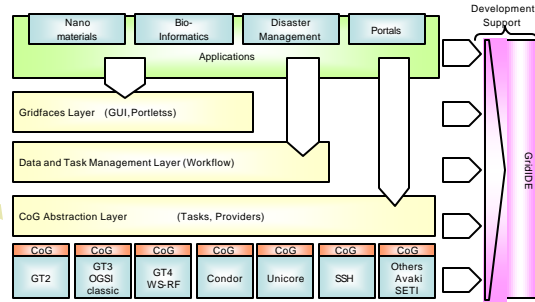
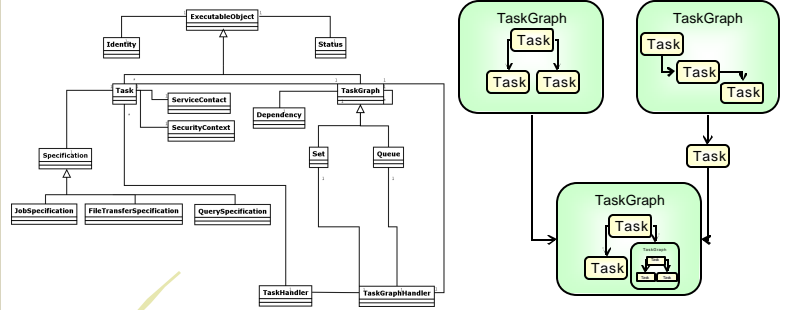
We have introduced the concept of Grid providers that allow different Grid middleware to be used as a part of an instantiation of the Grid abstractions. Hence the programmer does not have to worry about the particularities of the Grid middleware but can use the higher level abstractions for rapid prototyping.

Bindings

Through dynamic class loading we have the ability to do late binding against an existing production Grid. This includes the implementation of the Grid (task) abstractions, version binding against existing Grid Toolkits, and resource binding.

Protection

Through these concepts the Java CoG Kit protects your development investments by protecting you from changes to the Grid middleware.



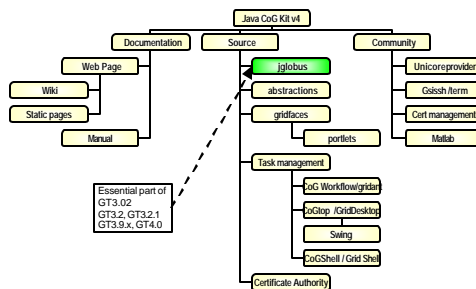
User Communities

The Java CoG Kit addresses the needs of several user communities. Grid architects can use various CoG Kit components to develop and design tools to access the Grid. This includes APIs, GUIs and workflow services.

Activities

The Java CoG Kit is an open source project and contains a flexible module design concept. It is easy to contribute. Activities include the development of a manual, code, and the integration of community contributed modules.

The Java CoG Kit is in part used by and distributed with the Globus Toolkit 3 and 4.



The Next Generation of the Java CoG Kit (Version 4)

Gregor von Laszewski, Kaizar Amin, Mike Hategan, Pankaj Sahasrabudhe,