

Alliance Portal:

User-centric Services for Access to the Teragrid

The potential impact of making the Teragrid useable by a broad community of researchers and educators is extremely large, as the immense resources that have been collected and organized in recent years and the supporting Grid technologies become visible as usable components of the researcher and educators' desktop. The goal of the Alliance Portal over the past year has been to simplify access to and use of Teragrid services and allow reuse of client-side services that provide that access. To illustrate, many groups have developed user interfaces to common Grid services such as GridFTP and Globus MDS. As new groups install Grid software and decide to build user and science portals, they should not have to reinvent these client-side interface components. Instead, there should be a common repository from which a developer can check out the necessary interface components, and plug them into their portal. Specifically, a portal should be composed of well-defined reusable client-side services that interact with Grid and Teragrid services.



Figure 1: The Alliance Expedition Grid Portal is based on the Jetspeed standard.

The portal is a collection of user-centric services that simplify access to the Grid, and more importantly, individualize the Grid. The portlet design concept is one of distributed, loosely coupled development and deployment: user interfaces and client services are developed independently using a standard portlet API, and then reused between portals. Much richer than a basic browser interface, the portal provides such functionality as secure access to multiple Grid resources, services and applications. It interacts with users to guide job submission and monitoring. It provides a personalized view of information. It supports formation of flexible groups of collaborators across the world and their use the Grid to share data and resources.

The portlet model is also an ideal fit to the emerging OGSA web-service architecture. Access to web service components is done naturally through componentized interfaces, of which portlets are. The NCSA Alliance Portal, shown in Figure 1, depicts a portal based on the Jetspeed portal technology. A user can configure his or her portal environment into a set of tabbed panes; a pane contains a configured portlets. The figure shows one pane containing three portlets: one portlet manages grid proxy credentials, a second accesses the GRAM protocol for contacting remote compute resources, and a third browses an LDAP directory. This portal may resemble other Grid portals in use, but the difference here is that the portlet components are selected by the user from a list of available components and arranged in the display as the user desires.

An important accomplishment of portal expedition over the last year has been successes in getting the Grid portal community to adopt the expedition portal proposed portal standard. This standard, exemplified by Apache's Jetspeed, separates portal control and services from client services. A Jetspeed control server provides such services as authentication, access control, and user customizability. Into this framework, client services are plugged using software components called portlets. The container manages the organization and interaction of the portlets, and the portlets deliver specific web content (either local or remote), including Grid service interfaces.

The development of sophisticated, re-usable, easy-to-use, and maintainable portals is crucial to the success of sophisticated scientific Grid applications. We believe that the expedition portal has had an will continue to have substantial impact in making typical science easier, complex science possible, and scientific and education endeavors usable in new collaborative modalities through portals.