
Alliance Portal Expedition

Developing Scientific Portals through Portal Middleware

Technology: Alliance Portal to the Grid

The NCSA Alliance Expedition *Scientific Portal* seeks to provide gateways to the Grid, accessing facilities such as the TeraGrid. To this end, it provides tools for collaborating scientists to access Grid services. Through a Scientific Portal, a scientist can accomplish key tasks including authentication, managing, and launching a set of applications and can handle input and output datasets from a desktop environment. This expedition delivers and deploys a Scientific Portal toolkit that uses best-of-breed technology that can be easily adapted to any Grid application.

The project partners are from the University of Michigan, Indiana University Extreme and Pervasive Technology Labs, and Argonne National Laboratory. Some of the notable projects involved are the Java CoG Kit Project,¹ NCSA portal project, and DOE SciDAC CMCS pilot project.

The portal is based on Apache Jetspeed and leverages a variety of projects. Jetspeed is an open source implementation of an Enterprise Information Portal implemented in Java and using XML. The user accesses information and information serving applications through a portal. Jetspeed introduces the concept of portlets that provide a variety of panels that can be selected and included in a customized view controlled by each user.

Our group has prototyped a variety of portlets that allow users to authenticate, submit remote jobs, and transfer files to the Grid. We also distribute content management portlets, enabling group collaborations while fostering calendar services, news groups, and event notifications.

We are developing a Globus Toolkit 3 version of these portlets. A certificate store simplifies the authentication to our portal.

For more information, please visit our Web site:
<http://www.extreme.indiana.edu/alliance/>

Application: Gnare – a portal to a Genome Analysis Research Environment

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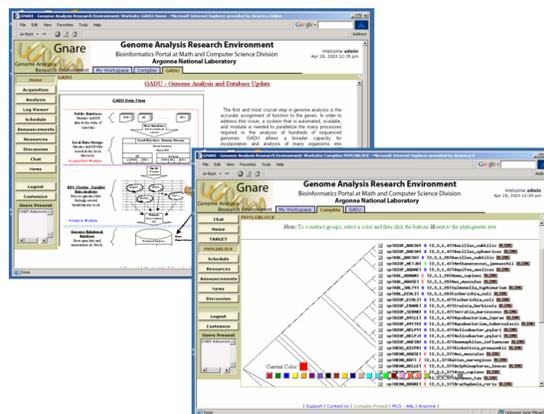


Figure 1: Position-Resolved Measurements

Realizing the scientific potential of exponentially growing biological information requires powerful tools for knowledge discovery and data mining and the development of high-throughput, automated computational environments that integrate large amounts of genomic and experimental data. To assist in high-throughput analysis of the genomes, we have developed the Genome Analysis and Databases Update (GADU) system accessed through Gnare a scientific portal for biologists. GADU efficiently automates major steps of genome analysis: data acquisition, and data analysis by a variety of tools and algorithms, as well as data storage and annotation. We are developing a TeraGrid technology-based backend for large-scale computations using GADU. Gnare enables easy access to GADU (Figure 1). This architecture ensures its robust performance and allows simultaneous processing of a large number of sequenced genomes regardless of their size.

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