

Portal Web Services: Support of DOE SciDAC Collaboratories

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Summary

Grid portals provide the scientific community with familiar and simplified interfaces to the Grid and Grid services, and it is important to deploy grid portals onto the SciDAC grids and collaboratories. The goal of this project is the research, development and deployment of interoperable portal and web services that can be used on SciDAC National Collaboratory grids. This project has four primary task areas: development of portal systems; management of data collections; DOE science application integration; and development of web and grid services in support of the above activities.

1. Introduction

This project represents a collaboration across 4 sites (TACC, IU, SDSC, GA), diverse technologies (portals, data, applications, experimental physics), and various entities (national lab, educational, government). In the first year of effort the sites separated into two teams focusing on separate strategic areas: defining architecture and technologies for portals and integration of SRB and MDSPlus.

Initial deployment will be on the National Fusion Collaboratory, with plans to explore deployment onto the DOE Sciences Collaboratory and the Multiscale Chemical Science (CMCS) collaboratory, and other NC's in the later phases of the project.

Project highlights include: (1) TACC and IU were part of the NSF Middleware Initiative (NMI) Open Grid Computing Environments (OGCE) award; (2) SDSC and GA teams successfully demonstrated a prototype MDSPlus-SRB system; (3) Fusion portal demonstrated at SC03 based on the alpha OGCE software; (4) DOE Portals All Hands Meeting.

2. Accomplishments

TASK 1: Portal Systems: In 2003, TACC and Indiana were part of the NSF Middleware Initiative for Grid Portal Development project (led by M. Pierce, IU; Thomas and Gannon co-PI's). OGCE is a collaborative effort including Argonne National labs, Indiana Univ., University of Michigan, and NCSA. The proposal was the largest funded proposal awarded by the NSF program and was a direct result of R&D conducted as part of the DOE Portals project. OGCE software will be used for the Fusion portal and others.

Significant progress was made on a preliminary OGCE release. The current list of general features and capabilities include: group access/control lists; chat. discussion; schedule, calendar program; upload/sharing of documents and URLs; news; and Anabas Impromptu portal. Grid capabilities include proxy manager, job submit, LDAP browser; Grid FTP, Grid Context, GridPort Information Repository Portlets. Details can be found at <http://www.ogce.org>.

TASK 2: Data Collection Management: SDSC focused on three major tasks related to data management: Continued development of data handling features required for portals; Integration of the SRB data management system with the MDSPlus system; Integration of the Storage Resource Broker with portal technology. Much of this work was done in collaboration with General Atomics Fusion group who worked with SDSC to deploy software.

TASK 3: Web/Grid Services: Web and Grid services developed include: the TACC Grid Portal Information Repository to provide status and system data and GridPort v3 services (Globus 3.0) portlets (see <http://www.gridport.net/>); SDSC implemented a complete set of WSDL web services for SRB managed collections, including access to both data and metadata; IU continues development of the batch script generator services.

TASK 4: Applications (Fusion): The Fusion group worked with the portals team and data teams to support deployment of a portal based on the OGCE software and integration of SRB with MDSPlus (see above). TRANSP will be initial application.

2. Future Plans

TASK 1: Portal Systems: We will develop specific portlets to support pre-TRANSP submission. We will integrate portlets for GridPort 3 into the OGCE framework. We will develop Audio/Video collaboration portlets.

TASK 2: Data Collection Management: We will enhance peer-to-peer federation technology to improve efficiency and robustness based on feedback from the Fusion community to improve the software. We will continue testing of the SRB-

MDSPlus integration, with a focus on use of the peer-to-peer federation environment. The research issues are related to consistency requirements between MDSPlus and the underlying federated system

TASK 3: Web/Grid Services: We will modify TRANSP and pre-TRANSP portlets to work with GridPort 3. We will continue to develop Web services to manage audio/video collaboration. We will investigate the integration of IDL events with NaradaBrokering event system for shared collaborations.

TASK 4: Applications: We plan to deploy a production Fusion portal system, including security, GSI authentication and TRANSP job submission and data access. Activities include testing the integration of the portal system with a web services based dataflow system developed under the NSF Grid Physics Network funding. We will continue to develop and integrate OGCE portlets as needed. New activities include plans to initiate the CMCS portal project.

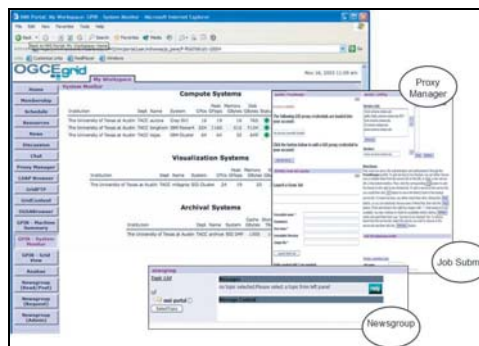


Figure 1. Screenshot of prototype Fusion portal based on NMI Portals software.

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