



CGL project

Portal and GIS Grid

Science Grid Portal Components and Services

www.collab-ogce.org www.crisisgrid.org

Introduction

Computing Web portals are undergoing a revolution as standardized portal containers allow portals to be built out of reusable components. The NMI Open Grid Computing Environment (OGCE) Collaboratory (Indiana, Michigan, ANL, TACC, NCSA, SDSU) provides these basic building blocks, including:

- ▶ Login/Grid Authentication
- ▶ Job submission
- ▶ File transfer
- ▶ System monitoring through GPIR
- ▶ Document share services
- ▶ Calendars
- ▶ Group accessible areas

Science portals, such as the QuakeSim project, can be built from these pieces, providing higher level, application-specific capabilities. The QuakeSim portal builds upon OGCE tools to provide the following capabilities:

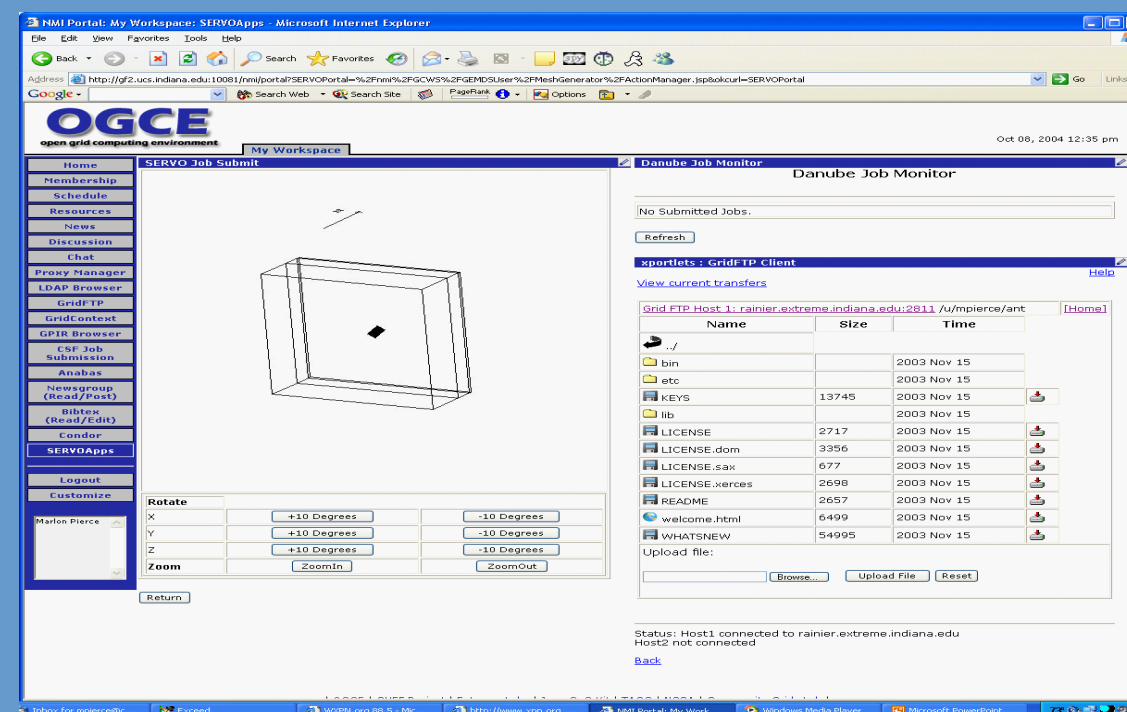
- ▶ Access to QuakeTables fault data base
- ▶ Submission forms for high performance simulation codes like GeoFEST and Virtual California
- ▶ Job orchestration support for coupling applications to remote visualization services
- ▶ User project support for creating and archiving projects, input parameters, output data, and images
- ▶ Geograph information system services for accessing data, creating maps, and managing information

Applications of portal and GIS Grid services are as follows:

Open Grid Computing Environments

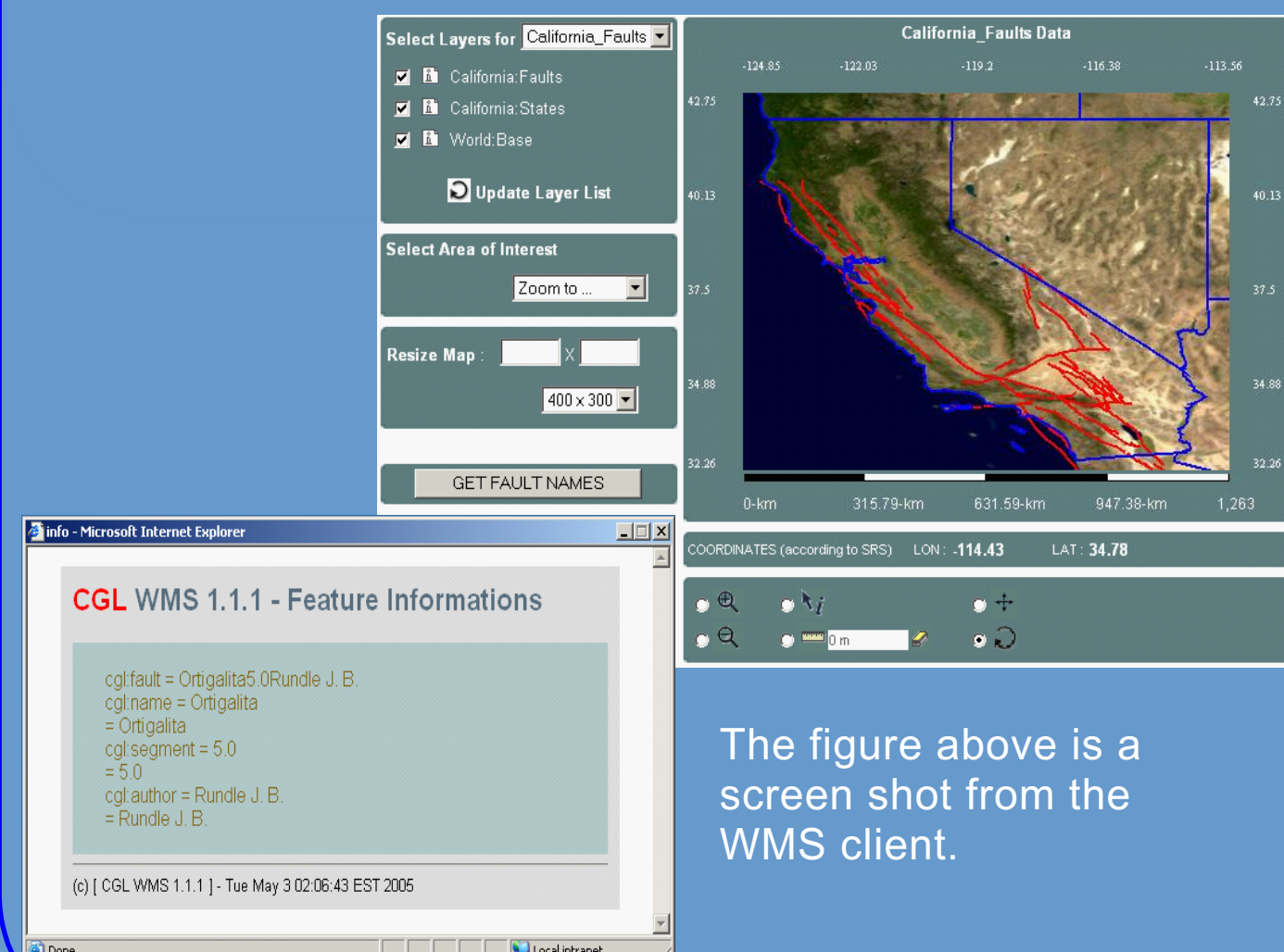
The OGCE is funded by the NSF National Middleware Infrastructure to produce free, open source software for building Grid Computing Portals.

OGCE portlets can be used to build science portals out of usable components. The figure illustrates a geometry specification that is used for creating a finite element mesh input file for the GeoFEST FEM code. The portlet on the right shows the user's remote file system on a selected host.



GIS Grid Services

The figure shows a client to a Web Map Server, which combines satellite imagery layered with drawn images (state boundaries, earthquake fault locations, etc) retrieved from a Web Feature Server. We use this to provide an interactive user interface for setting up and running geophysical applications.



The figure above is a screen shot from the WMS client.

Realtime Data Portlets

Real time data portlets and services can be used to connect to streaming data sources and sequentially data streams. The figure shows an example of data streams integrated with Google maps of California.

