

# *Grid Technologies: Foundations for Preservation Environments*

*Portals for managing user interactions*

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***<http://www.infomall.org>***

# What is a Portal?

- It implies a model for the electronic interface to an activity (preservation, predict an earthquake ..) where all capabilities are gathered together as an integrated set
  - Often termed domain specific **Problem Solving Environment**
- Implies the user interface to services are mediated by an intermediate “server” – the **portal server**
  - There are concepts like **portlet** and JSR168 supporting this



# An Earthquake Portal

The screenshot shows a web browser window displaying the OGCE (Open Grid Computing Environment) portal. The browser's address bar shows the URL: `http://gf2.ucs.indiana.edu:10081/nmi/portal?SERVOPortal=%2Fnm%2FGCWS%2FGEMDSUser%2FMeshGenerator%2FActionManager.jsp&okcurl=SERVOPortal`. The page features a navigation menu on the left with options like Home, Membership, Schedule, Resources, News, Discussion, Chat, Proxy Manager, LDAP Browser, GridFTP, GridContext, GPIR Browser, CSF Job Submission, Anabas, Newsgroup (Read/Post), Bibtex (Read/Edit), Condor, and SERVOApps. The main content area is divided into several sections:

- SERVO Job Submit Project Input:** A section for creating geometry out of layers and faults. It includes a form for "Project Name: TestInputCreation" and four radio button options: "Create New Layer", "Create New Fault", "Add Layer from DB", and "Add Fault from DB". A "Make Selection" button is at the bottom.
- Current Project Components:** A section with two sub-panels. The "Faults" panel has a table with columns "Name", "View", and "Remove", containing one entry "Northridge2". The "Layers" panel has a similar table with three entries: "NorthridgeAreaMantle", "NorthridgeAreaMidCrust", and "NorthridgeAreaUpper". Both panels have "Update" buttons. The "Create Initial Mesh" panel contains instructions to generate a mesh, with input fields for "Mesh Size" (50) and "Mesh Refine Limit" (1.5), and a "Generate Mesh" button.
- Danube Job Monitor:** A table showing job details. The table has columns: PID, USER, PRI, NI, SIZE, RSS, SHARE, STAT, %CPU, %MEM, TIME, COMMAND. One row is visible: PID 1341, USER gateway, PRI 15, NI 0, SIZE 77392, RSS 75M, SHARE 14516, STAT R, %CPU 0.0, %MEM 7.5, TIME 1:20, COMMAND java. A "Refresh" button is below the table.
- GridFTP Client:** A section for managing file transfers. It shows a directory listing for "Grid FTP Host 1: rainier.extreme.indiana.edu:2811 /u/mpierce/ant". The listing table has columns "Name", "Size", and "Time". The "Name" column includes entries like "bin", "etc", "KEYS", "lib", "LICENSE", "LICENSE.dom", "LICENSE.sax", "LICENSE.xerces", "README", "welcome.html", and "WHATSOEVER". The "Time" column shows "2003 Nov 15" for all entries. There are "Upload" icons next to several files. Below the listing is an "Upload file:" section with a "Browse..." button, an "Upload File" button, and a "Reset" button.

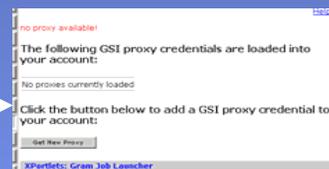
At the bottom left, there is a "Main Home" button. At the bottom right, a status message reads: "Status: Host1 connected to rainier.extreme.indiana.edu Host2 not connected" with a "Back" link below it.

Uses general and specific portlets

# Portals and Services?

- We are meant to take our problem and divide into “**simple services**”
  - Services interact with **messages**
- Individual capabilities that are **as small as possible** but have enough internal work that **overhead** of messaging with other “simple services” not excessive
- Each “simple service” has **its own user interface** integrated by portal server

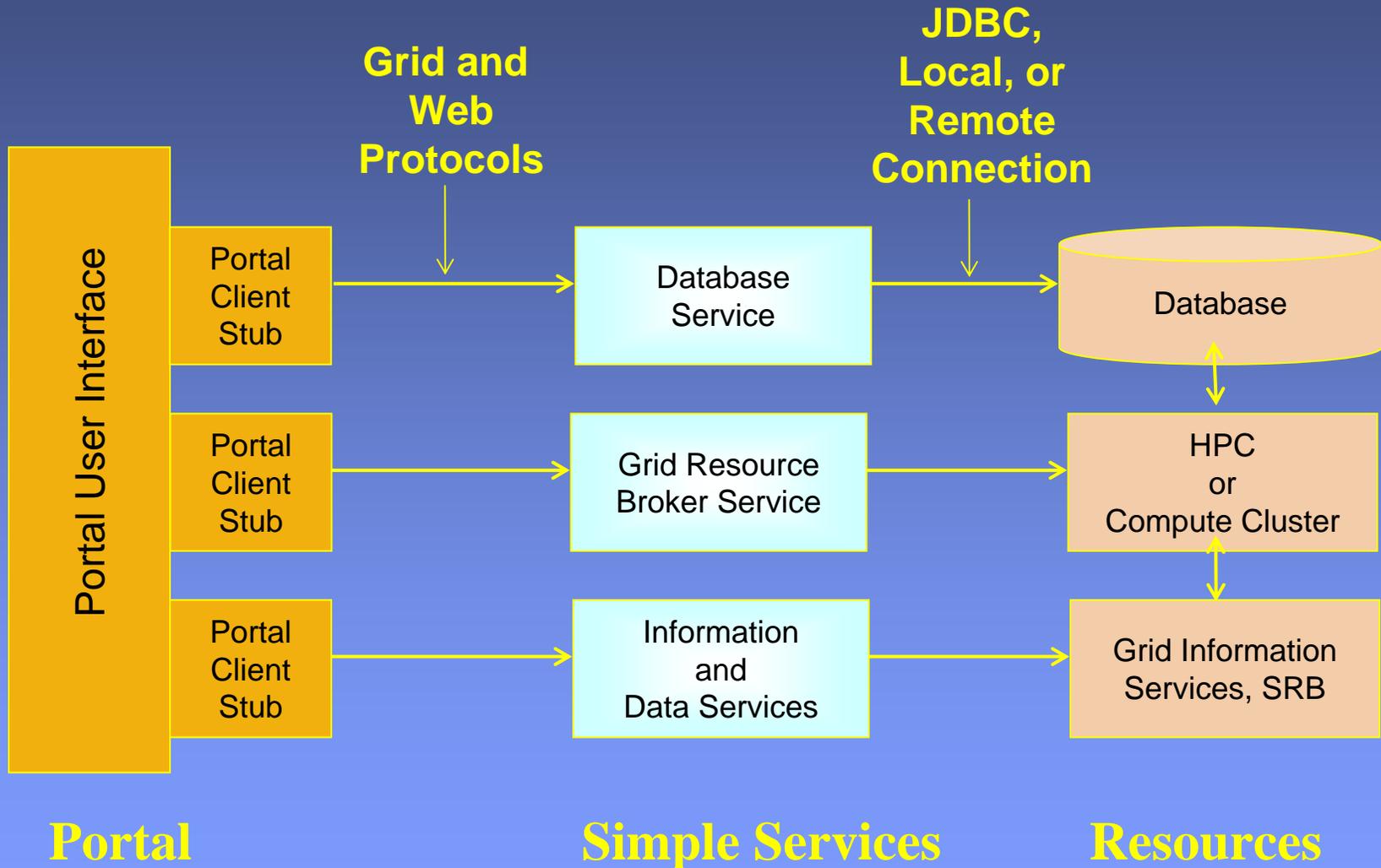
Simple Service



HTML Fragment

- **Re-use existing services** and their portlet interfaces
  - See collection at <http://www.oqce.org>
- Build domain (**preservation**) **specific services** packaged with their user interface

# Three-Tiered Architecture



# Portal Features

- Supports component (**Web** or **Grid Service**) model for middleware
- Hosts a **uniform security** (access) model
- **Customizability** from “component” model for user interfaces
  - User profile service includes authorization and roles
- Allows more competition and **easier update** as can swap in and out new capabilities or new versions of existing capabilities
  - As **user Interface** packaged with service
- Supports different types of **clients** with custom or mapped portlets for **PDA**'s and cell phones
- Allows easy inclusion of **general capabilities** such as file transfer, collaboration (A/V conferencing), search, metadata generation with **preservation specific** features

# *Preservation Portal Services*

- A preservation portal would have several **domain specific** services (Reagan Moore) including:
  - Producer-archive submission procedure
  - Preservation metadata validation procedure
  - Archival information package generation procedure
  - Transformative migration (of encoding format) procedure
  - Archival storage procedure
  - Discovery and access procedure
- Each of these could be **multiple services**
  - Discovery could have both meta-data and Google-style searches
- Each portal service could combine many other “atomic” services using **workflow**
  - This allows customization of “**general**” **preservation services** into a service aimed at a particular archive