# Replica Catalog Middleware Component

*ILDG-4 Workshop, May 2004*

# Replica Catalog

Web Services

| Meta Data Catalog |
| Replica Catalog |
| Replication Service |
| SRM Service |

File Client

File Server(s)

SRM Listener

Storage Resource

Single Site
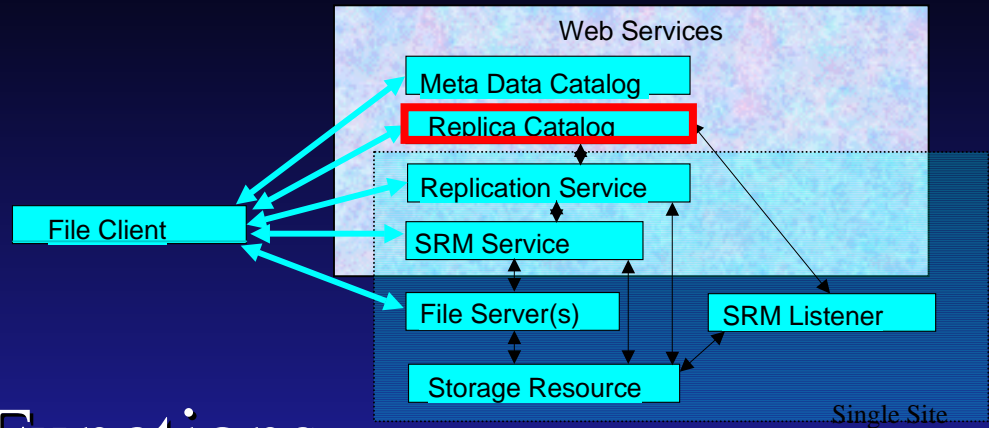
## ILDG Essential Functions

With this function, we could build a working grid.

- ◆ rcGetSURL

  For a given GFN, return the set of SURL's
  - ◆ GFN = global file name
  - ◆ SURL = Site URL, same as SRM

# Replica Catalog

The Replica Catalog Service holds a logical name space with the following Unix-like characteristics:

- Recursive directories
- Soft links
- Unix style attributes
  - Owner, Group, protection mode
  - Created / modified times
  - Size (bytes)
- Extended attributes (extensible)
  - Storage state (disk, offline, pinned)
- Pointers to file instances
  - SURL = Site URL

**Web Browser**

**Application**

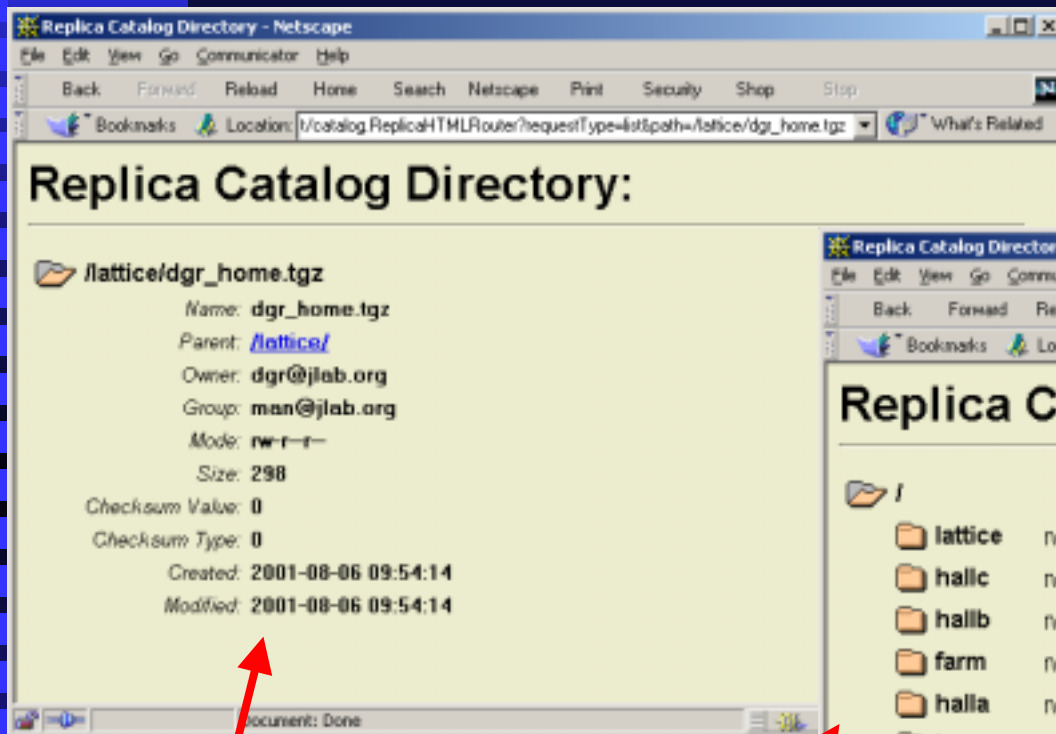**Replica Catalog Service** | **Web Server**
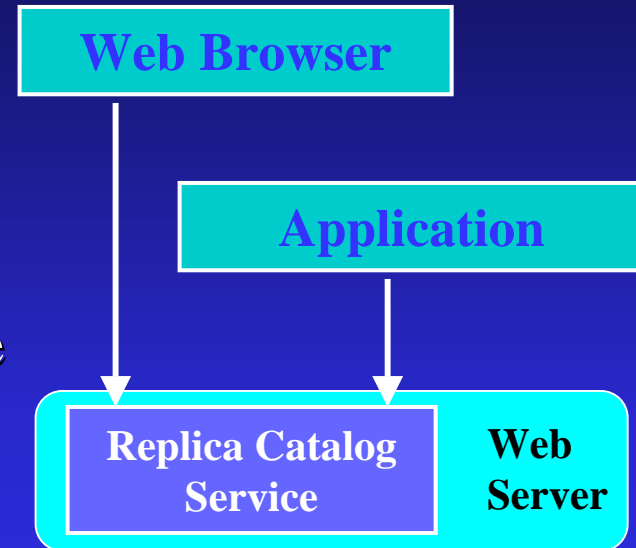
# Replica Catalog

Categories of Prototype Functionality

- ◆ Namespace operations
  - ♦ Mkdir, Rmdir, Ls, Rm, …
  - ♦ Copy, link (operates only on namespace)
- ◆ Replica instance (SURL) addition / removal
- ◆ Attribute manipulation
  - ♦ File/directory permissions
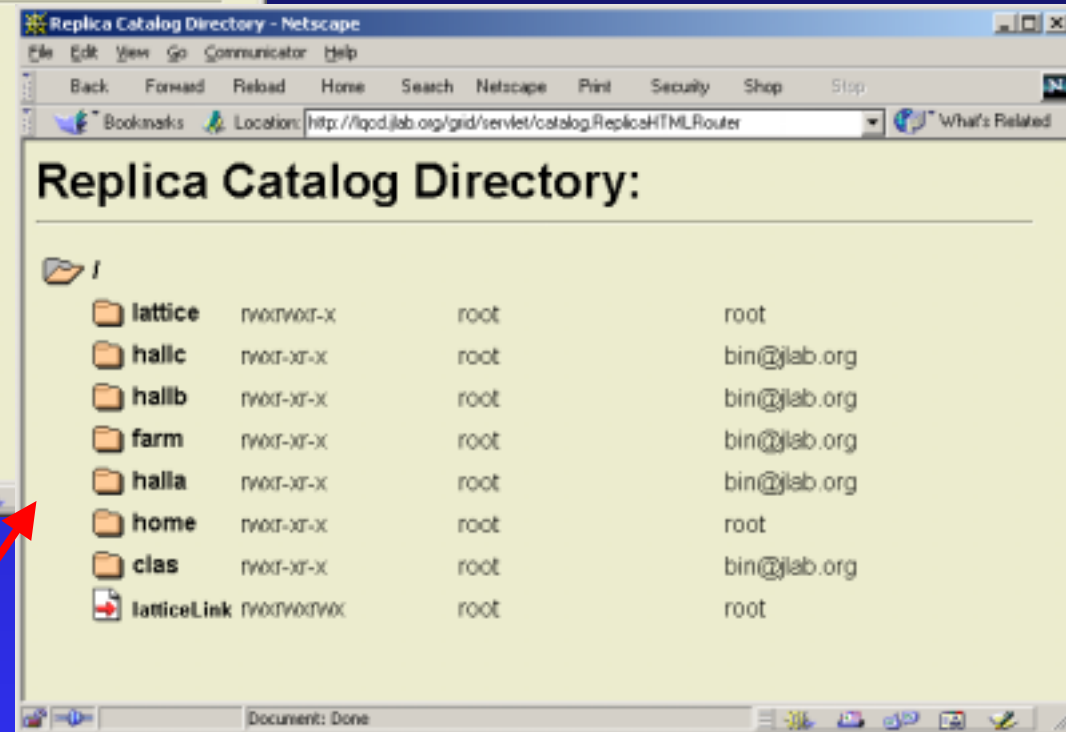  - ♦ SURL storage state

# Implementation

- Jefferson Lab has implemented a ReplicaCatalog prototype (not an ILDG standard)

- Uses a mysql back end

- Java servlets to make the Web Service accessible via the web

  - Name space can be interactively browsed (directory traversal)

  - Selecting a file / dataset shows the set of SURL's for that dataset

# HTML Servlet Output



Single file view

Directory view

# Implementation

- Replica Catalog Service is a java servlet (SOAPservlet)
- Web interface provided by an http(s) servlet, which constructs & executes the SOAP call
- Persistence of the logical name space is via **jdbc** calls to a mySQL database
  - ◆ Tested to ~1 million entries

**Web Browser**

**Application**

Replica Catalog Service — **Web Server**

**jdbc**

mySQL database — **Back End**
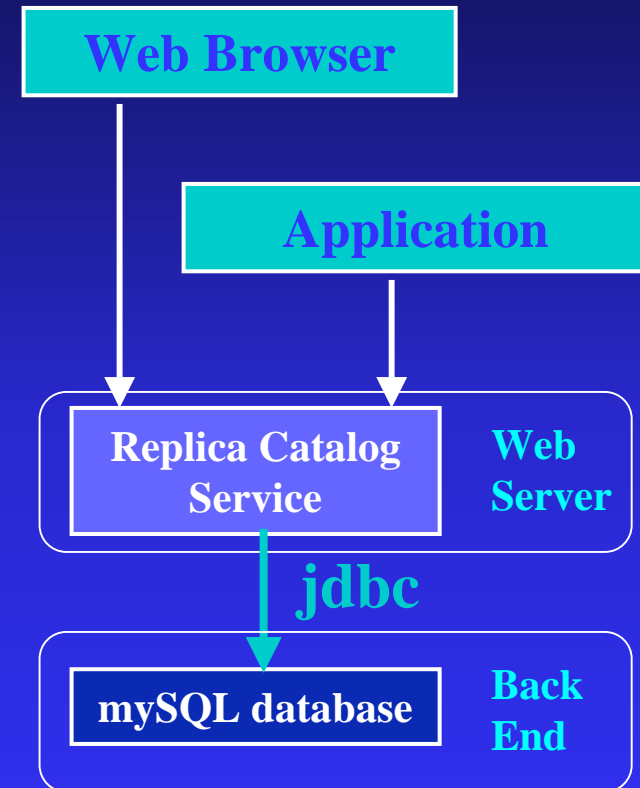
# Implementation Status

- Prototype is not in production use, and is currently offline. Thus, now is a good time to modify the interface specification. E.g. make it compatible with SRM v2.1 with respect to some datatypes, errors, etc.

- Prototype RC was not implemented using gsi, but rather https (the RC doesn't need delegation). Could change to support either (simple).

- Will be refreshed and brought back online both for SciDAC, ILDG, and experimental physics users

  (at that time it will be available as reference implementation)