



Enabling Grids for E-scienceE

FiReMan Catalog installation

Emidio Giorgio

INFN

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www.eu-egEE.org



Information Society



- **FiReMan overview**
- **Guiding principles**
- **Features**
- **Installation & Configuration**

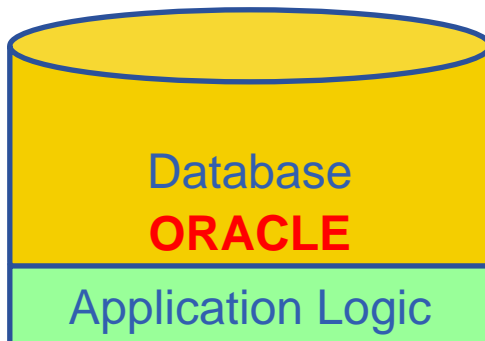


- **Catalogs built based on requirements from HEP experiments and the Biomedical EGEE community**
- **Started design from AliEn File Catalog**
 - Logical namespace management
 - Virtual Filesystem view (DataSets via directory hierarchy)
 - Support Metadata attached to files (not full implemented yet)
 - Bulk Operations
 - Strong security: basic unix permissions and fine-grained ACLs (i.e. not just directory but file-granularity)
 - Support flexible deployment models
 - Single central catalog model
 - Site local catalogs connected to a single central catalog model
 - Site local catalogs without single central catalog model
 - Scalable to many clients and to a large number of entries; address performance issues seen with EDG RLS

- 2 independent implementations exist

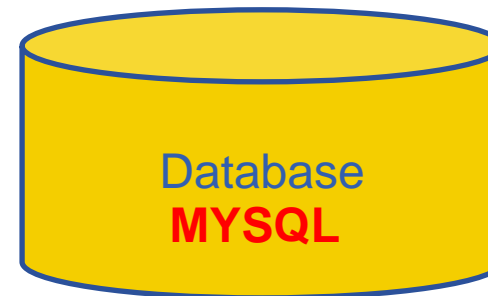
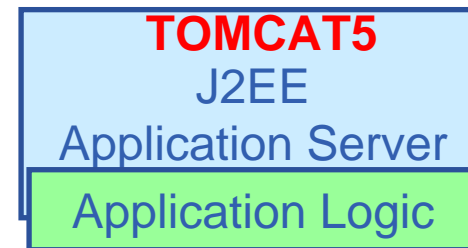
Oracle Implementation

- Catalog Logic lives inside Oracle as Stored Procedures
- Tomcat parses credential only, passes operations through to DB



MySQL Implementation

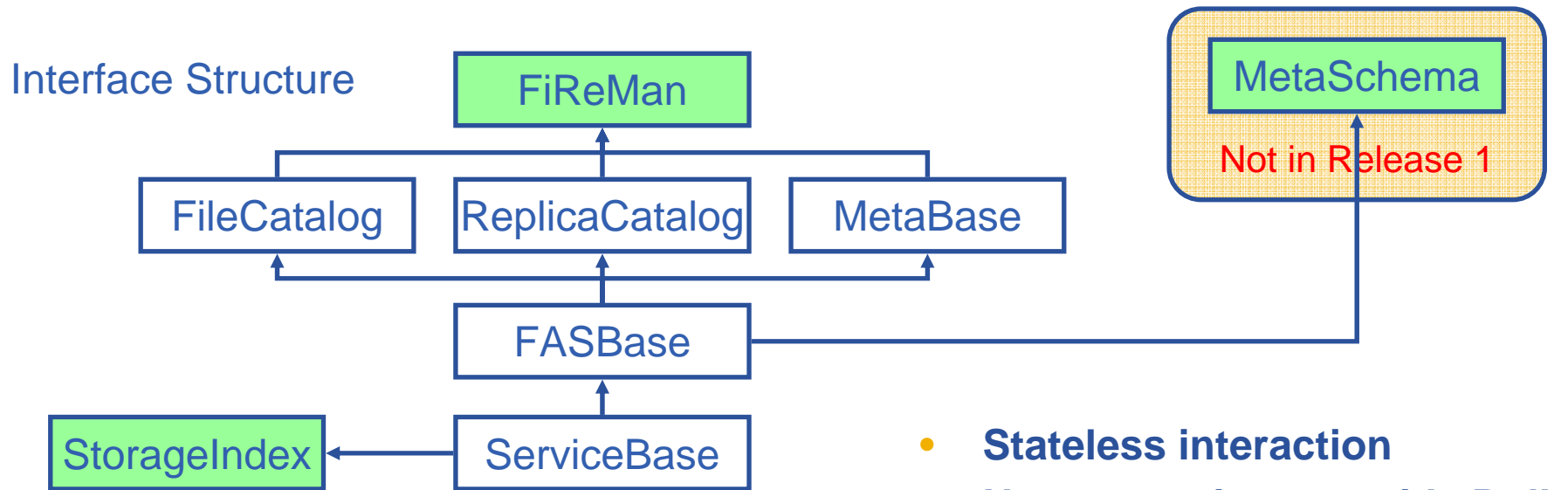
- Simple Table Structure using InnoDB tables
- Credential parsing and all of the logic is in Tomcat



- **Oracle / MySql implementation**
- **Hierarchy: Filesystem view**
- **Full Security support**
 - VOMS integration
 - Fine grained ACL control
 - Minimal performance penalties
- **Bulk operations**
 - Necessary to meet performance requirements
- **WS-tuning**
 - Web services are not as bad as they first seem...
- **Useful and intuitive interfaces**
 - Logical interface decomposition for well-defined feature-sets
- **Metadata support...**

- Logical File Namespace management
- Replica locations
- File-based metadata
- Metadata Management
- Authentication and Authorization information (ACLs)
- Service Metadata
- WMS interaction and global file location

- FileCatalog**
- ReplicaCatalog**
- MetaBase**
- MetaSchema**
- FASBase**
- ServiceBase**
- ServiceIndex**



- Stateless interaction
- No transactions outside Bulk

- **Web-services interface:** Guarantees client support on many platforms and many languages.
- **Standardization effort ongoing.** It is being managed through the EGEE PTF. Are provided:
 - **Linux Command Line tools**
 - **C/C++ API**
 - **Java API**
 - **Perl modules**
 - **JavaScript (for web clients)**
 - **gLite integrated bash (glitesh) – prototype**
- **Security:** Fine-grained ACL support with minimal performance penalty.
 - DNs own the files
 - VOMS group support
 - Basic Unix security (ugo rwx)
 - Additional ACLs for setPermission, list, remove, setMetadata, getMetadata

- **FiReMan Catalog**
 - Release 1: Single Central deployment model only
 - Release 2: Distributed catalog according to design using Java Messaging Services to propagate updates between catalog instances
- **Storage Index**
 - Already in Release 1
 - Main interaction point with Workload Management
- **Metadata Catalog**
 - Release 1: Base Implemented by FiReMan – AMGA (> 1.4)
 - Also a standalone service, single central instance
 - Release 2: distribution using a messaging infrastructure

- **Start from a fresh install of Scientific Linux \geq 3.0.4**
- **FiReMan server can be installed via a gLite deployment package**
 - Download: <http://glite.web.cern.ch/glite/packages>
- **Installation via**
 - Installer script
 - APT
- **Installation will install all dependencies, including**
 - other necessary gLite modules
 - external dependencies (e.g. TOMCAT)
- **You will need to install non-freely available packages yourself (e.g. Java, Oracle)**
- **Be sure that, if needed, non EGEE CA's rpm are present**

1. Verify if apt is present:

- rpm -qa | grep apt
- Install apt if necessary:
 - rpm -ivh <http://linuxsoft.cern.ch/cern/slc30X/i386/SL/RPMS/apt-0.5.15cnc6-8.SL.cern.i386.rpm>

2. Add gLite apt repository:

- Put one of the following lines in a file (e.g. glite.list) inside the /etc/apt/sources.list.d directory
- rpm http://glitesoft.cern.ch/EGEE/gLite/APT/R1.4/ rhel30 externals Release1.4 updates

3. Update apt repository:

- apt-get update
- apt-get upgrade

4. Install FiReMan server:

- apt-get install glite-data-single-catalog-config

Extra packages needed (non freely distributable) :

- J2SE v 1.4.2 08 JRE: <http://java.sun.com/j2se/1.4.2/download.html>

See <http://glite.web.cern.ch/glite/packages/APT.asp>

- `ls /opt/glite/etc/config/templates` to find the xml templates for configuration files.
- **Copy needed ones under /opt/glite/etc/config**

```
[root@glite-se-test root]# cd /opt/glite/etc/config/
[root@glite-se-test config]# ls -l
```

`glite-data-single-catalog.cfg.xml`

← Fireman specific parameters

`glite-global.cfg.xml`

← Common environment variables

`glite-rgma-common.cfg.xml`

← Parameters for R-GMA service tools

`glite-rgma-servicetool.cfg.xml`

`glite-security-utils.cfg.xml`

← GSI and security utilities

Configuration is easy : attribute description is self-explaining
Check that value for JAVA_HOME attribute in glite-global.cfg.xml is coherent with the path of installed JVM

- **Key parameters**

- VO Name served by the instance (more VO can be served)
- DB Admin passwd
- DB Name, user and password for used database (configurator script will create it if not existing)
- Secure / Unsecure mode, switched through the `allow.unsecure.port` attribute.

If working in secure mode, the endpoint will be reachable only through https protocol at the port 8443, and communication will pass through GSI. Otherwise http and the port 8080 can be used

- **When finished, run the configurator/start scripts**

```
cd /opt/glite/etc/config/scripts/
./glite-data-single-catalog.config.py --configure
./glite-data-single-catalog.config.py --start
```

- **The catalog endpoints can be retrieved from configuration file under `/etc/tomcat5/Catalina/localhost`**

- Test tomcat is working → Point your browser to catalog/SEIndex endpoint
- Test catalog functions from UI clients

```
[glite-tutor] /home/giorgio > glite-catalog-ls -v \
-s https://glite-se-test.trigrid.it:8443/romaVO/\
glite-data-catalog-service-fr-mysql/services/FiremanCatalog \
-1 /
# Using endpoint https://glite-se-test.trigrid.it:8443/romaVO/\
glite-data-catalog-service-fr-mysql/services/FiremanCatalog
# Service version: 1.4.2
# Interface version: 2.0.0
# Schema version: 1
dpdrwx--pdrwx--pdrwx--      0  1970-01-01  01:00:01  /free
dpdrwx--pdrwx--pdrwx--      0  1970-01-01  01:00:01  /tmp
```

- **JRA1 Data Management homepage**
<http://cern.ch/egee-jra1-dm>
- **gLite FiReMan user guide**
 - Overview
<https://edms.cern.ch/file/570643/1/EGEE-TECH-570643-v1.0.pdf>
 - Command Line tools
<https://edms.cern.ch/file/570780/1/EGEE-TECH-570780-v1.0.pdf>
 - C/C++ API
<https://edms.cern.ch/file/570780/1/EGEE-TECH-570780-C-CPP-API-v1.0.pdf>
 - Java API
<https://edms.cern.ch/file/570780/1/EGEE-TECH-570780-JAVA-API-v1.0.pdf>
- **gLite Release 1**
 - <http://glite.web.cern.ch/glite/packages/R1.0/R20050331>
 - <http://glite.web.cern.ch/glite/documentation>

