



Enabling Grids for E-science

LFC Server Installation and Configuration

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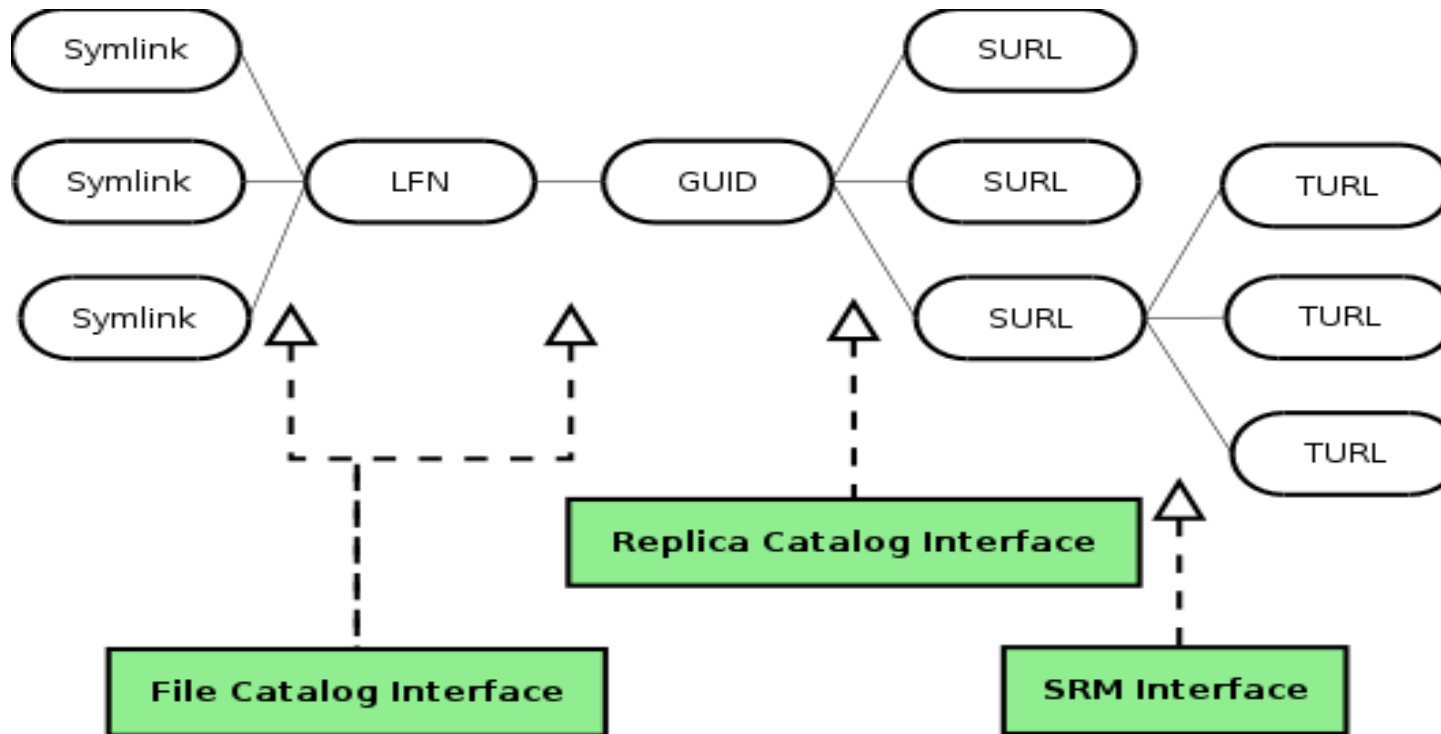
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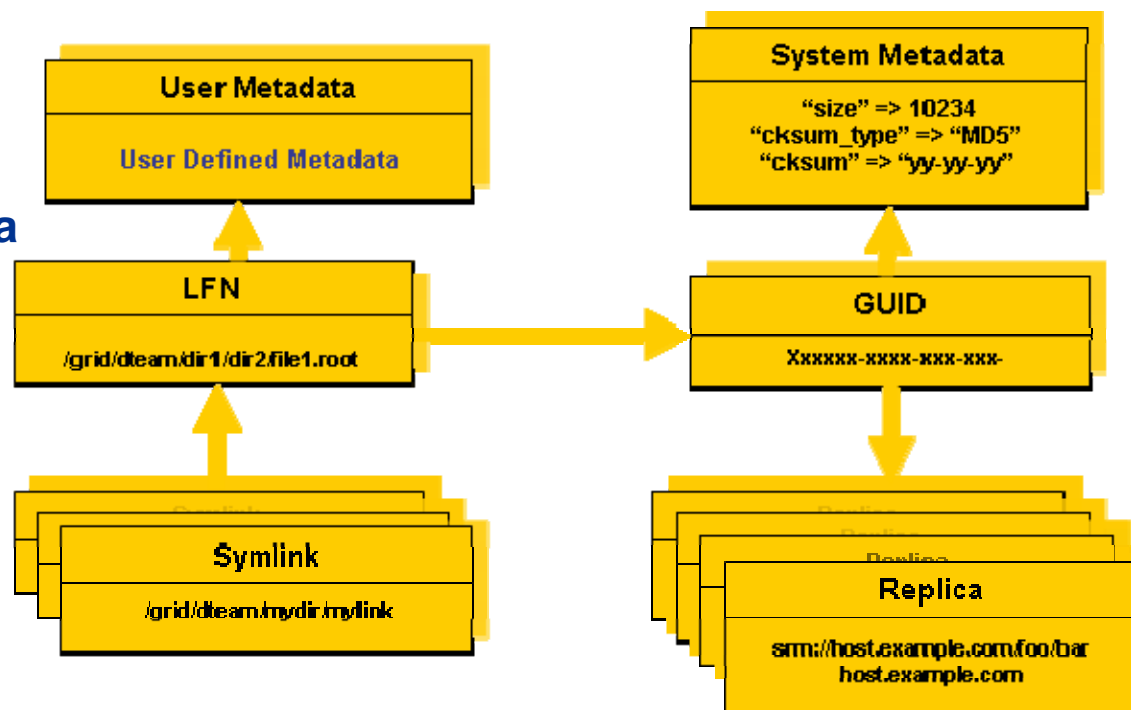
- **Introduction to LCG File Catalogue (LFC)**
- **How to install a LFC Server**
- **LFC References**

- **Users and programs produce and require data**
- **Data may be stored in Grid datasets (files)**
 - Located in Storage Elements (**SEs**)
 - Several replicas of one file in different sites
 - Accessible by Grid users and applications from “anywhere”
 - Locatable by the WMS (data requirements in JDL)
 - Data may be copied from/to local filesystems (WNs, UIs) to the Grid
- **Why File Catalogs are used?**
 - They keep track of the locations of copies (replicas) of Grid files
 - They provide DM tools and APIs through which users and grid services can deal with files

- Logical File Name (**LFN**)
 - An alias created by a user to refer to some item of data, e.g.
“lfn:cms/20030203/run2/track1”
- Globally Unique Identifier (**GUID**)
 - A non-human-readable unique identifier for an item of data, e.g.
“guid:f81d4fae-7dec-11d0-a765-00a0c91e6bf6”
- Site URL (**SURL**) (or Physical File Name (**PFN**) or Site FN)
 - The location of an actual piece of data on a storage system, e.g.
“srm://pcrd24.cern.ch/flatfiles/cms/output10_1” (SRM)
“sfn://lxshare0209.cern.ch/data/alice/ntuples.dat” (Classic SE)
- Transport URL (**TURL**)
 - Temporary locator of a replica + access protocol: understood by a SE, e.g.
“rfio://lxshare0209.cern.ch//data/alice/ntuples.dat”



- **LFC features**
 - Hierarchical namespace
 - Integrated GSI Authentication + Authorization
 - Access Control Lists (Unix Permissions and POSIX ACLs)
- **LFN acts as main key in the database. It has:**
 - Symbolic links to it
 - Unique Identifier (GUID)
 - System metadata
 - Information on replicas
 - One field of user metadata



LFC Server Installation

- Start with a machine with Scientific Linux CERN 3.0.X installed.
- Verify that these packages are installed and properly configured:
 - Java SDK
 - NTP daemon
 - ca_GILDA (<https://gilda.ct.infn.it/RPMS/>)
 - edg-voms-vo-gilda (<https://gilda.ct.infn.it/RPMS/>)
 - glite-yaim-3.0.0-* (<http://www.cern.ch/grid-deployment/gis/yaim/>)
 - gilda_ig-yaim-3.0.0-* (https://grid018.ct.infn.it/apt/gilda_app-i386/utils)
- Also check that your host certificates are present in */etc/grid-security* and have proper permissions:

```
-rw-r--r--      1 root root  1127   Jun 14 12:27 hostcert.pem
-r-----      1 root root   887   Jun 14 12:28 hostkey.pem
```


- **\$MY_DOMAIN** -> your domain
- **\$LFC_HOST** -> the hostname where the LFC will be installed
- **\$REG_HOST** -> **rgmasrv.ct.infn.it**
- **\$MON_HOST** -> the Mon Box you're using
- **\$LFC_DB_PASSWORD** -> the Mysql password for the "lfc" user
- **\$MYSQL_PASSWORD** -> the root Mysql password
- **\$LFC_CENTRAL** -> list of VOs for which the LFC should be configured as a central catalogue. If you leave this empty, the LFC will be set as a local catalog.
- **\$LFC_LOCAL** -> If you want to limit the VOs for your local catalog, add them here.
- **\$VOS** -> "gilda"

- **Start the download and installation of all the needed packages using the following command:**
 - `/opt/glite/bin/gilda_ig_install_node /root/my-site-info.def
GILDA_ig_LFC_mysql`
- **Configure the LFC server according to the parameters written into the my-site-info.def:**
 - `/opt/glite/bin/gilda_ig_configure_node /root/my-site-info.def
GILDA_ig_LFC_mysql`
- **Remember to open ports 8085 and 5010 on the firewall:**
 - `-A RH-Firewall-1-INPUT -m state --state NEW -m multiport -p tcp
--dports 8085,5010 -j ACCEPT`

- **Log into a gLite User Interface**
- **Set the hostname of the LFC catalog you installed:**
 - `export LFC_HOST=LFC_server_FQDN`
- **Be sure to have a valid a voms proxy:**
 - `voms-proxy-info`
- **Try to create a subdirectory with:**
 - `lfc-mkdir /grid/gilda/clermont`
- **Have a look inside the /grid/gilda folder with:**
 - `lfc-ls -l /grid/gilda`

- Check that **LCG_GFAL_INFOSYS** variable is correctly pointing to your **BDII** server:
 - export LCG_GFAL_INFOSYS= **BDII_Server_FQDN:2170**
- Use **lcg-infosites** to discover which **SEs** are available for your **VO**:
 - lcg-infosites --vo gilda se
- Choose a **SE** and upload a file with:
 - lcg-cr -v --vo gilda -d <hostname of the chosen SE> -l
lfn:/grid/gilda/clermont/test.jdl file://\$PWD/hostname.jdl
- Check if the file was correctly registered into the catalog and where it was stored:
 - lfc-ls -l /grid/gilda/clermont
 - lcg-lr --vo gilda lfn:/grid/gilda/clermont/test.jdl

- **LCG File Catalog (LFC) administrators' guide**
 - <https://uimon.cern.ch/twiki/bin/view/LCG/LfcAdminGuide>
- **LFC Troubleshooting**
 - <https://uimon.cern.ch/twiki/bin/view/LCG/LfcTroubleshooting>
- **GILDA gLite3.0 Wiki**
 - <https://grid.ct.infn.it/twiki/bin/view/GILDA/GliteElementsInstallation>

