



Enabling Grids for E-scienceE

# Practicals on GFAL

*Valeria Ardizzone*  
*INFN Catania*

*gLite Application Developers Course*  
*CERN, 23.10.2006*

[www.eu-egee.org](http://www.eu-egee.org)



- What is GFAL for?

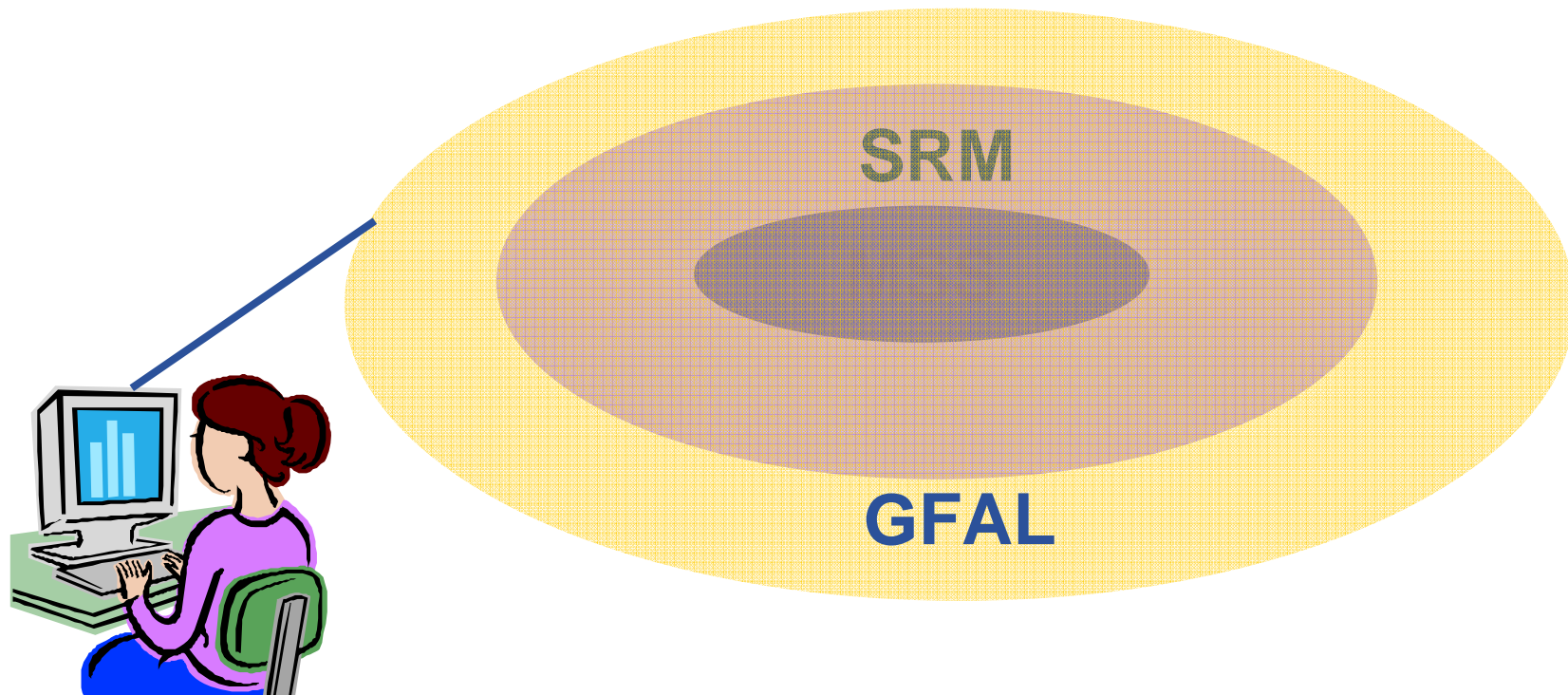
- Grid storage interactions today require using some existing software components:

- The catalog services to locate valid replicas of files in order to :
  - **Download** them to the user local machine
  - **Move** them from a SE to another one
  - Make job running on the worker node able to **access and manage** files stored on remote storage element.
- The SRM software to ensure:
  - Files existence on disk or disk pool (they are recalled from mass storage if necessary)
  - Space allocation on disk for new files (they are possibly migrated to mass storage later)

- **The GFAL Features**

- Hides interactions to the SRM to the end user
- Provides a Posix-like interface for File I/O Operation
- Based on shared libraries (both threaded e unthreaded version)
- Needs only one header file (gfal\_api.h) to write C applications
- Supports following protocols :
  - file for local access **nfs-like**
  - dcap, gsidcap and kdcap for dCache access protocol
  - rfio for CASTOR access protocol.
- Access to SRMs in secure mode, i.e. using a valid Grid proxy obtained by voms-proxy-init command.

1. **GFAL** will be the highest level interface
2. It will take care of **SRM** and Replica Managers and protocols (transparent for the user)
3. **SRM** will take care of the handling with **MSS** (not visible for the user)



- **GFAL works with all Grid types name:**
  - Logical File Name (LFN)
    - lfn:baud/testgfal15
  - Grid Unique IDentifier (GUID)
    - guid:2cd59291-7ae7-4778-af6d-b1f423719441
  - File Replica (SURL)
    - srm://wacdr002d.cern.ch:8443/castor/cern.ch/user/b/baud/testgfal
  - Transport file name (TURL).
    - rfiio:///castor/cern.ch/user/b/baud/testgfal15

- **Auxiliary linked libraries**
  - libcgsi\_plugin\_gsoap\_2.3
  - libglobus\_gss
  - api\_gsi\_gcc32dbg
  - libglobus\_gss\_assist\_gcc32dbg).
  
- **Environment Variables**
  - LCG\_GFAL\_VO (-> **gilda**)
  - LCG\_GFAL\_INFOSYS (-> *grid004.ct.infn.it:2170*)
  - LCG\_CATALOG\_TYPE (-> *lfc*)
  - LCG\_RFIO\_TYPE (-> *dpm*)
  - LFC\_HOST (-> *lfc-gilda.ct.infn.it* )
  - LD\_LIBRARY\_PATH