EGEE Data Management Services

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Information Society

Enabling Grids for E-sciencE

Data management components in gLite R3.0:

- **Storage Element (DPM)**
- **File Transfer Service (FTS)**
- **File catalog (LFC, Fireman*)**
- **meta-data catalog (AMGA**)**
- **POSIX I/O library and CLI tools (GFAL and lcg-utils, gLite I/O*)**
- **encrypted storage (EDS library and Hydra)**

* supported until replacement is available

** supported by NA4/ARDA

- **Disk Pool Manager: lightweight disk-only storage element**
  – disk only storage with focus on manageability
- **Features**
  – secure: authn. via GSI or Kerberos 5; authz. via VOMS
  – full POSIX ACL support with DN (userid) and VOMS groups
  – disk pool management (direct socket interface)
  – storage name space (aka. storage file catalog)
    DPM can act as a site local replica catalog
  – SRMv1, SRMv2.1 and SRMv2.2 (in progress)
  – gridFTP, rfio
- **Other non-gLite SE solutions:**
  – Castor
  – dCache

dpm
ns
rfio
gridftp
srm v1
srm v2
dli
SE/DPM

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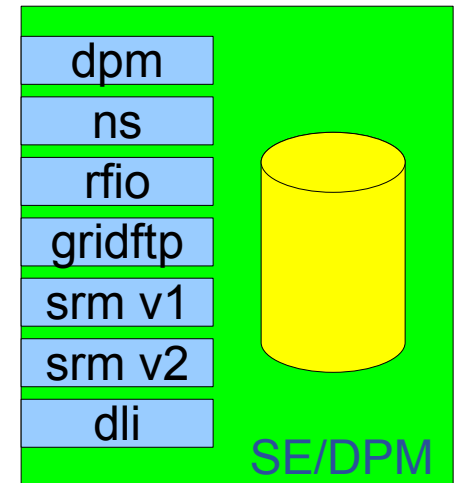
- **File Transfer Service is a data movement fabric service**
  - multi-VO service, used to balance usage of site resources according to VO and site policies
  - uses SRM and gridFTP services of an SE
- **Why is it needed ?**
  - For the user, the service it provides is the reliable point to point movement of Storage URLs (SURLs) among Storage Elements
  - For the site manager, it provides a reliable and manageable way of serving file movement requests from their VOs
  - For the VO manager, it provides ability to control requests coming from his users (re-ordering, prioritization,...)

FTS

srm
gridftp
SE

data

srm
gridftp
SE

eGee
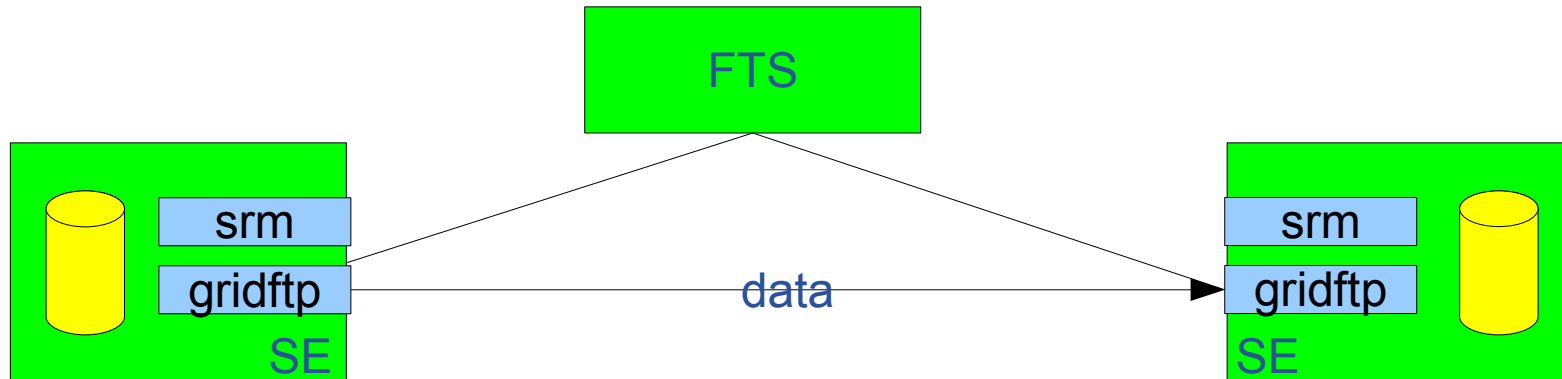
- **LFC**
  - secure (authn: GSI, authz: VOMS) file and replica catalog; DLI
  - supports full POSIX namespace and ACLs
  - central file catalog and local file catalog modes
- **Fireman***
  - secure (authn: GSI, authz: VOMS/ACL) file, replica and meta-data catalog; data location interface (DLI) for WMS
  - web-service interface with bulk operations
- **AMGA****
  - grid meta-data catalog
  - streaming socket interface

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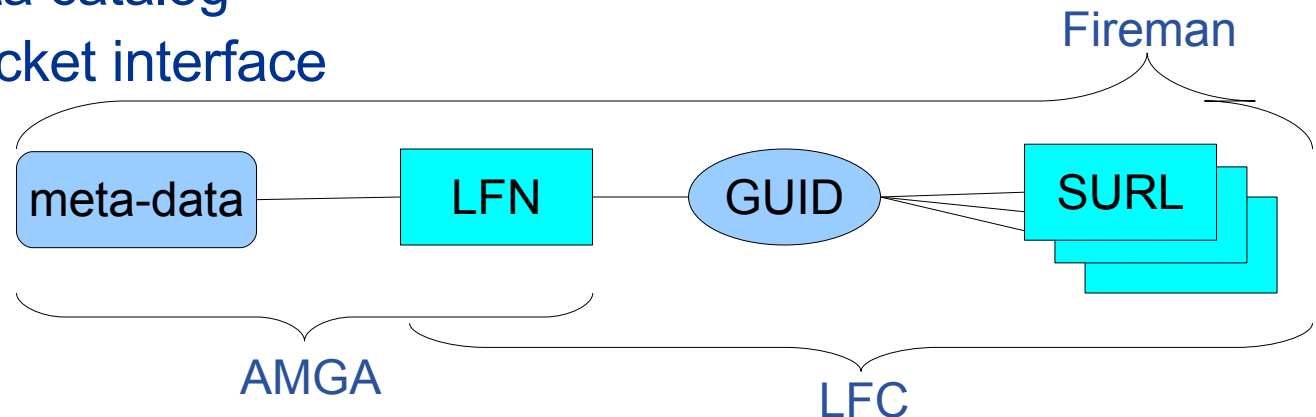
POSIX-like access to Grid storage resources and access to grid catalogs

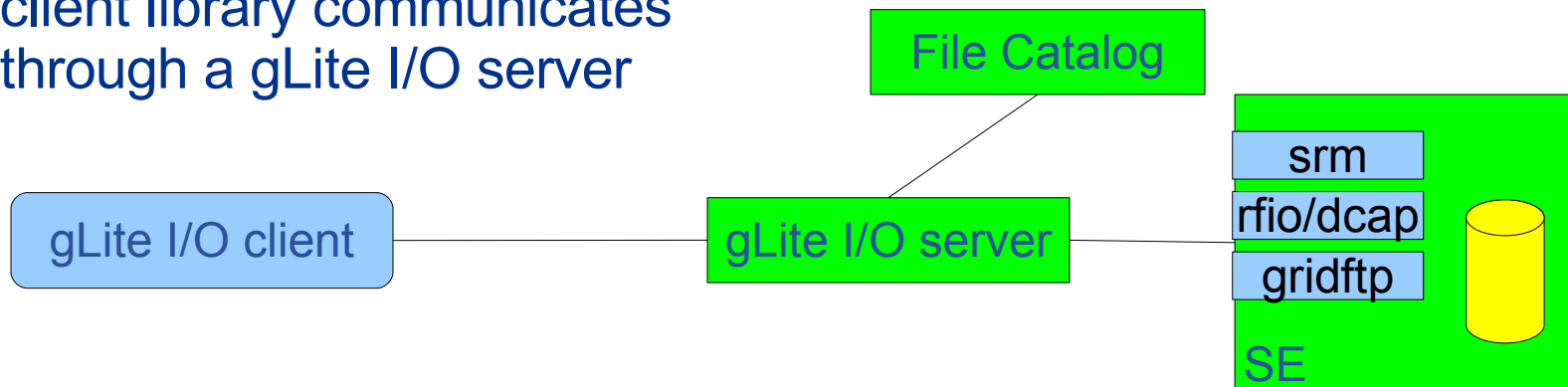- **GFAL**
 - client library with direct access to the grid services
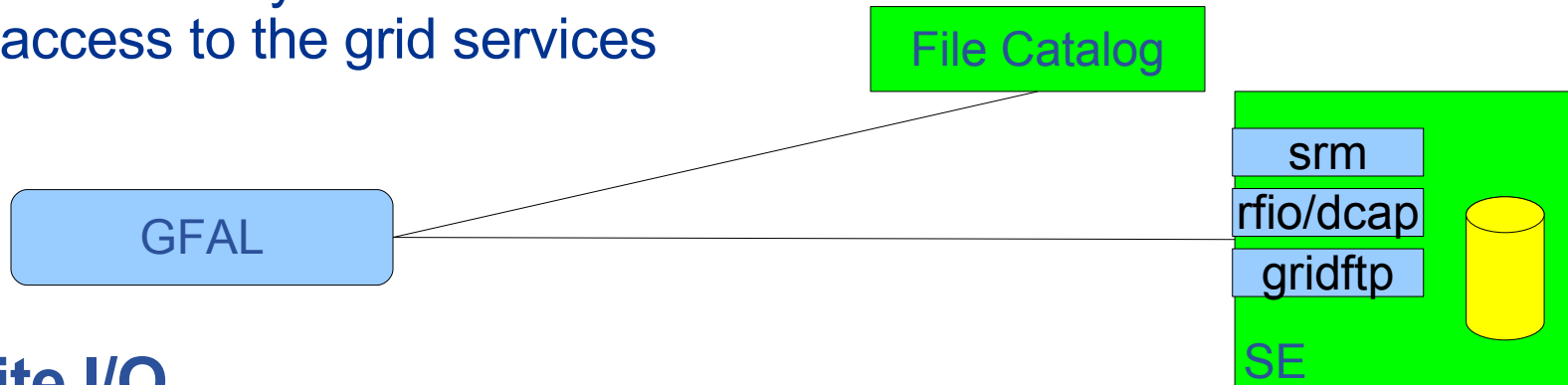
- **gLite I/O**
  - client library communicates through a gLite I/O server

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- **Encrypted data storage (EDS)**
  - client side en/decryption library based on POSIX I/O access
  - Hydra key storage service with fine grained access control
- **Current limitations/work in progress:**
  - single keystore (will use SSSS to split keys)
  - can use only gLite I/O client (will be replaced by GFAL)

Hydra keystore

Hydra client — POSIX I/O — grid storage
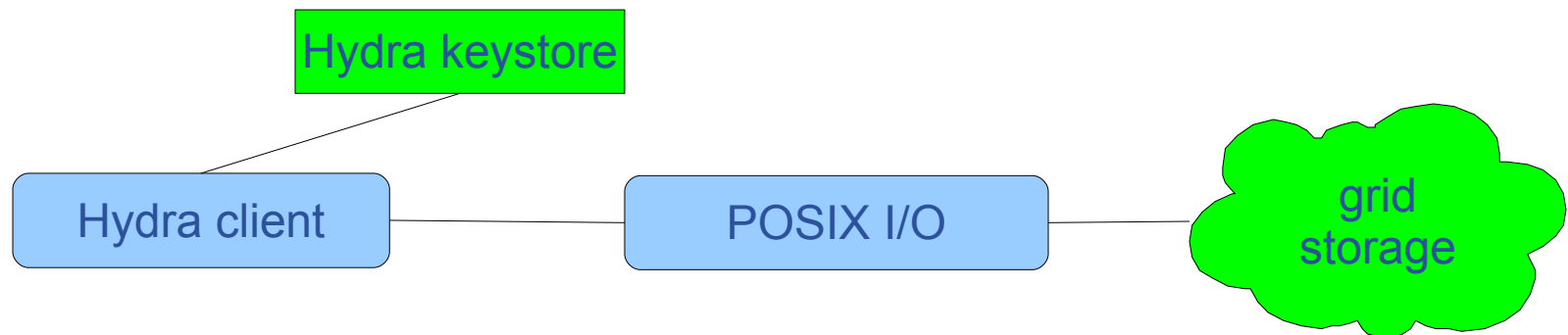
- **SRMv2 for fine grained access control in every SE**
- **ACL synchronization in FTS at replication**
- **GFAL based EDS library**
- **Multiple key stores**
  - for reliability and to reduce the risk
- **DPM-MDM integration**