

# Medical Data Manager: an interface between PACS and the gLite DMS

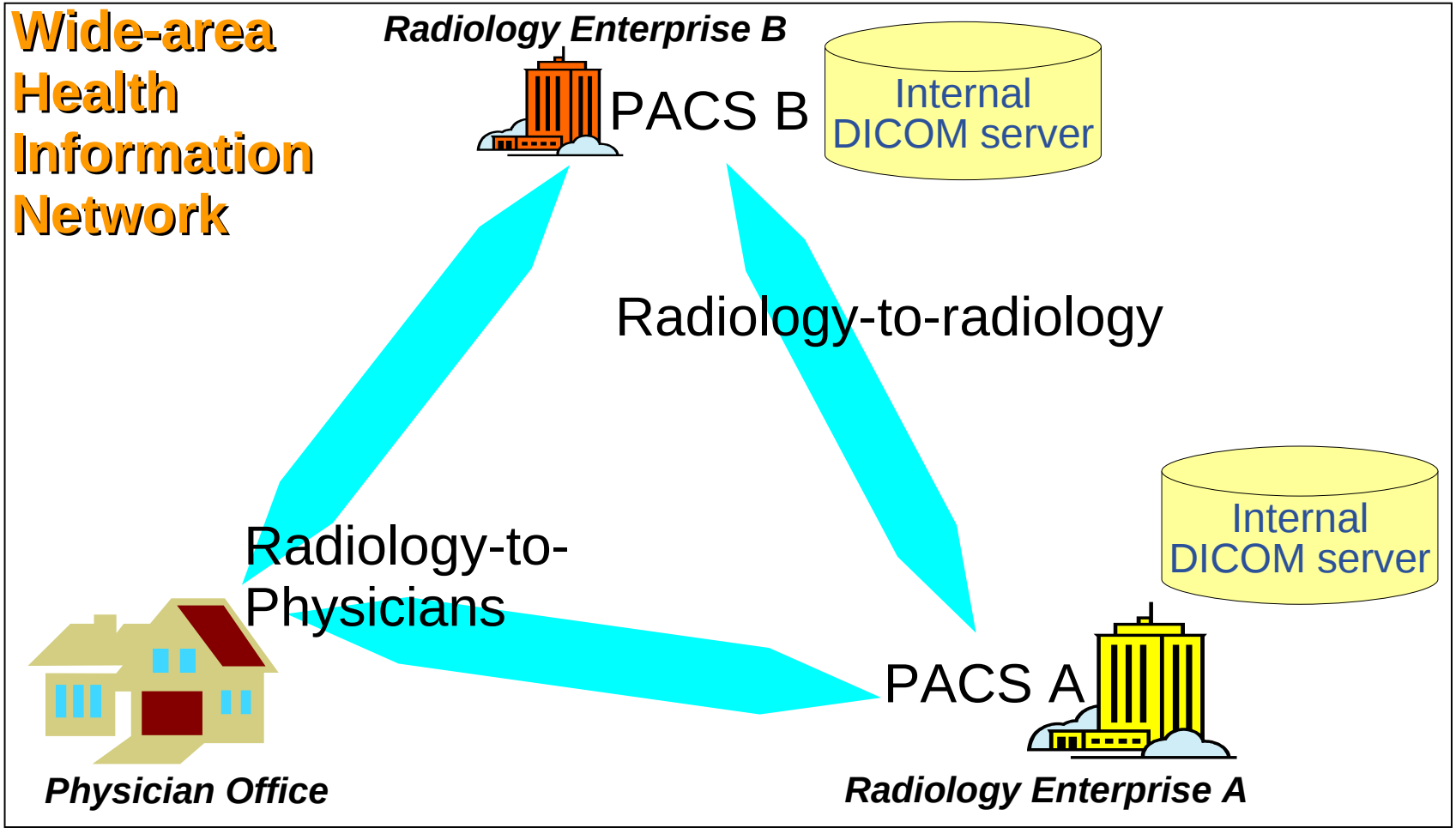
**3<sup>rd</sup> EGEE User Forum, Data Management session**  
**February 13<sup>th</sup>, 2008**



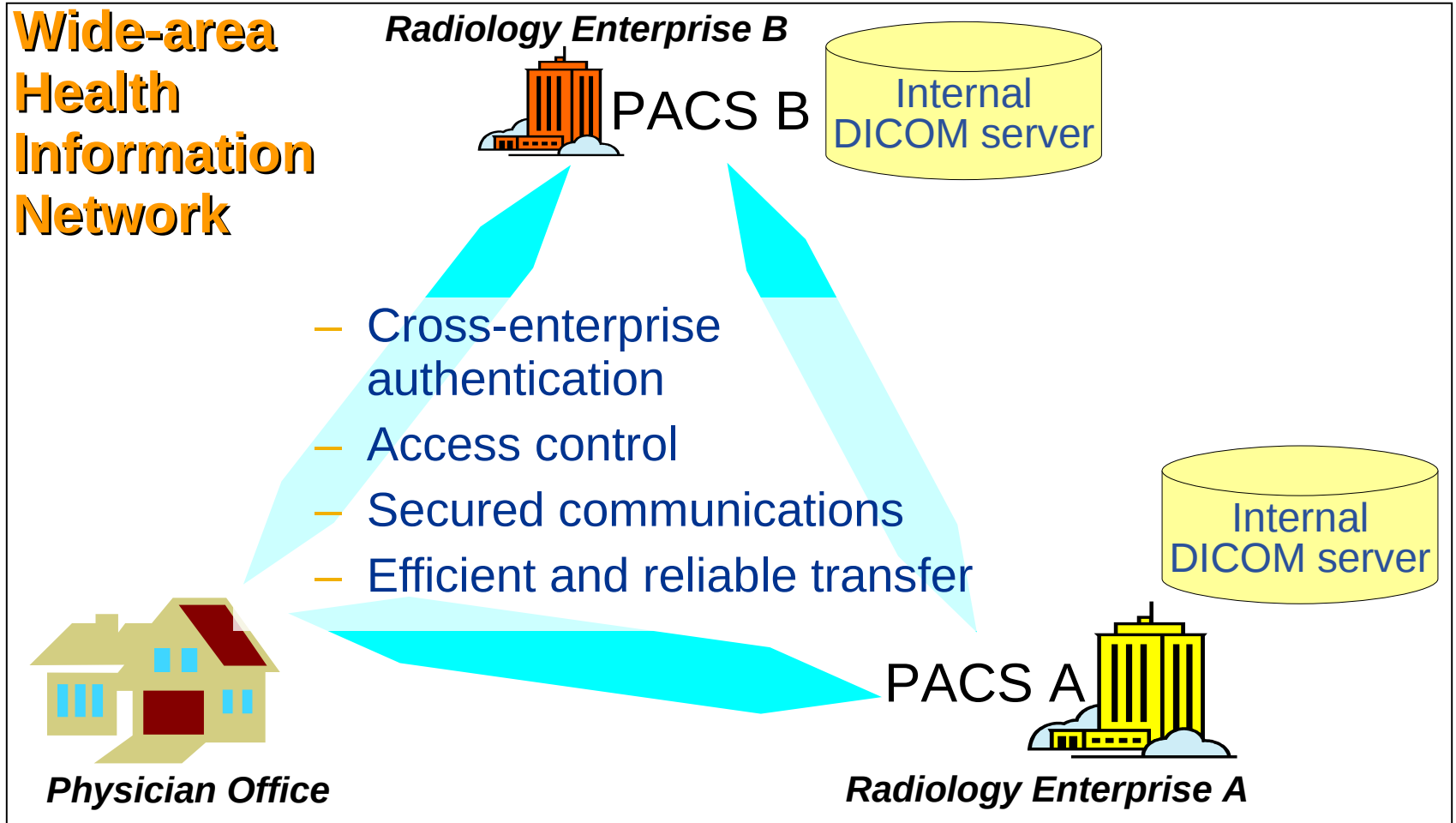
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- **Content**
  - Medical images (data, confidential)
  - Patient folder (attached metadata, very sensitive)
- **Requirements**
  - Patient privacy
    - Needs fine access control (ACLs on all data and metadata)
    - Needs metadata contention (metadata databases administrated by accredited staff)
  - Data protection
    - Needs data encryption (even grid sites administrators are not accredited to access the data)
- **How important it is?**
  - The medical community will just not use a system in which they are not trustful (both a technical and a human problem).

- Cross-enterprise exchange of radiology reports and images

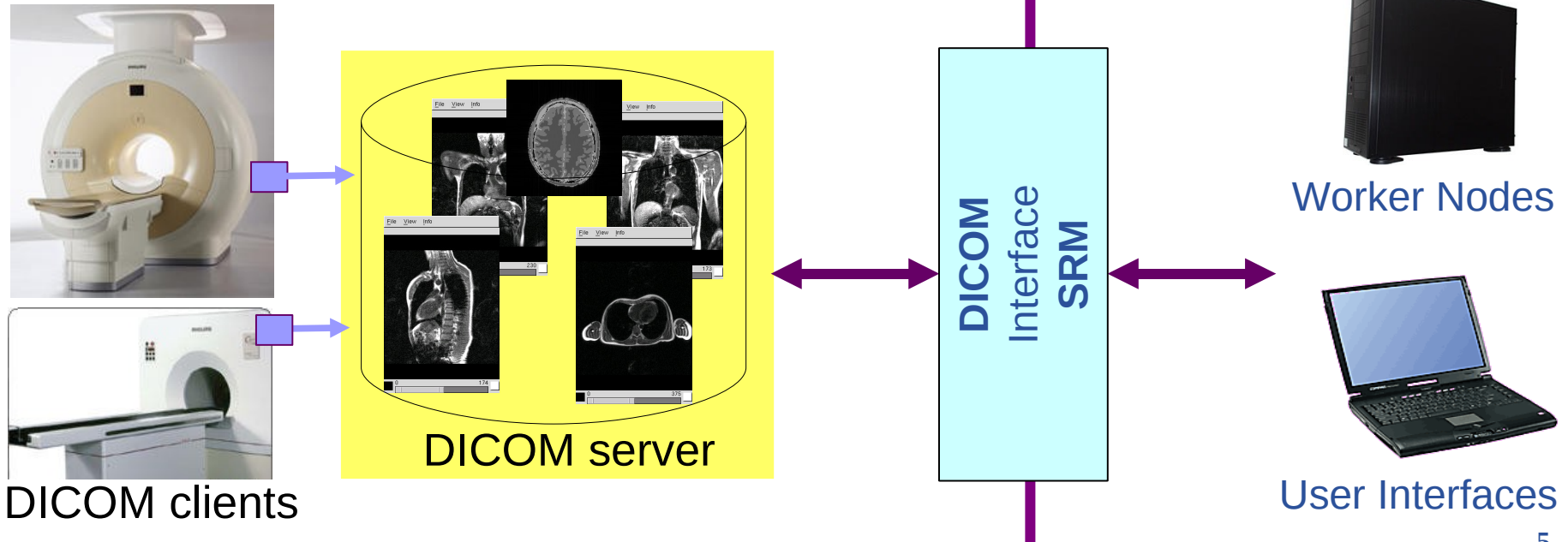


- **Beyond DICOM protocol limitations**

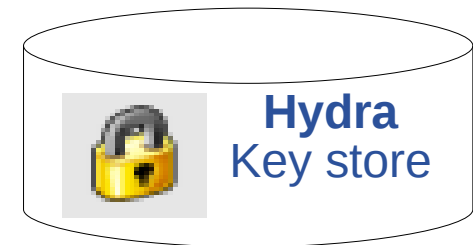
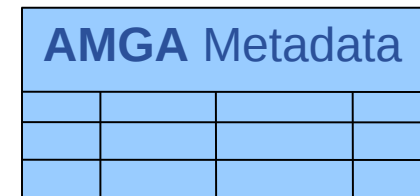
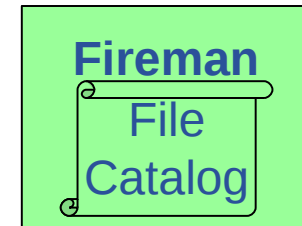


## Objectives

- Expose a **standard grid interface (SRM)** for **medical image servers (DICOM)**
- Use native DICOM storage format
- Fulfill medical applications security requirements
- Do not interfere with clinical practice

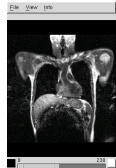


- **Two versions**
  - A gLite 1.5 DMS prototype available for download
  - A gLite 3.1 DMS experimental version
  
- **Prototype**
  - **Fireman** provides file level **ACLs**
  - **gLiteIO** provides **transparent** access control
  - **AMGA** provides metadata **secured communication** and **ACLs**
  - **SRM-DICOM** provides on-the-fly **data anonymization**
    - It is based on the dCache implementation (SRM v1.1)
  - **Hydra** provides encryption/ decryption **transparently**

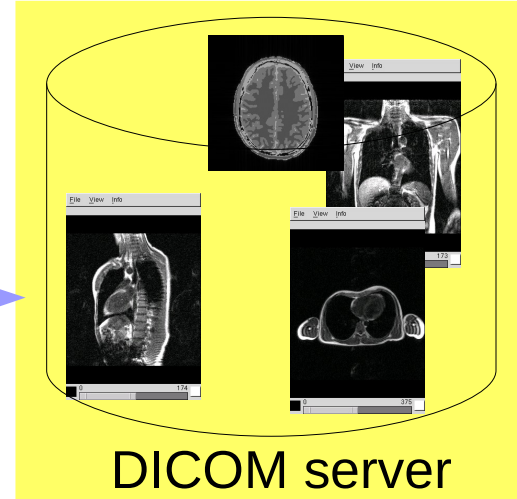




1. Image is acquired



2. Image is stored in DICOM server



DICOM server

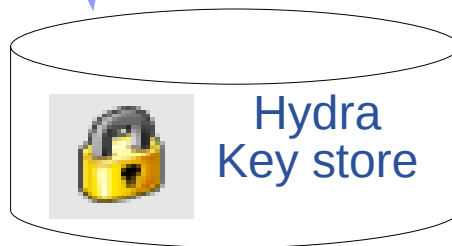
3. glite-eds-put

**gLiteO**  
server

3a. Image is registered (a GUID is associated)

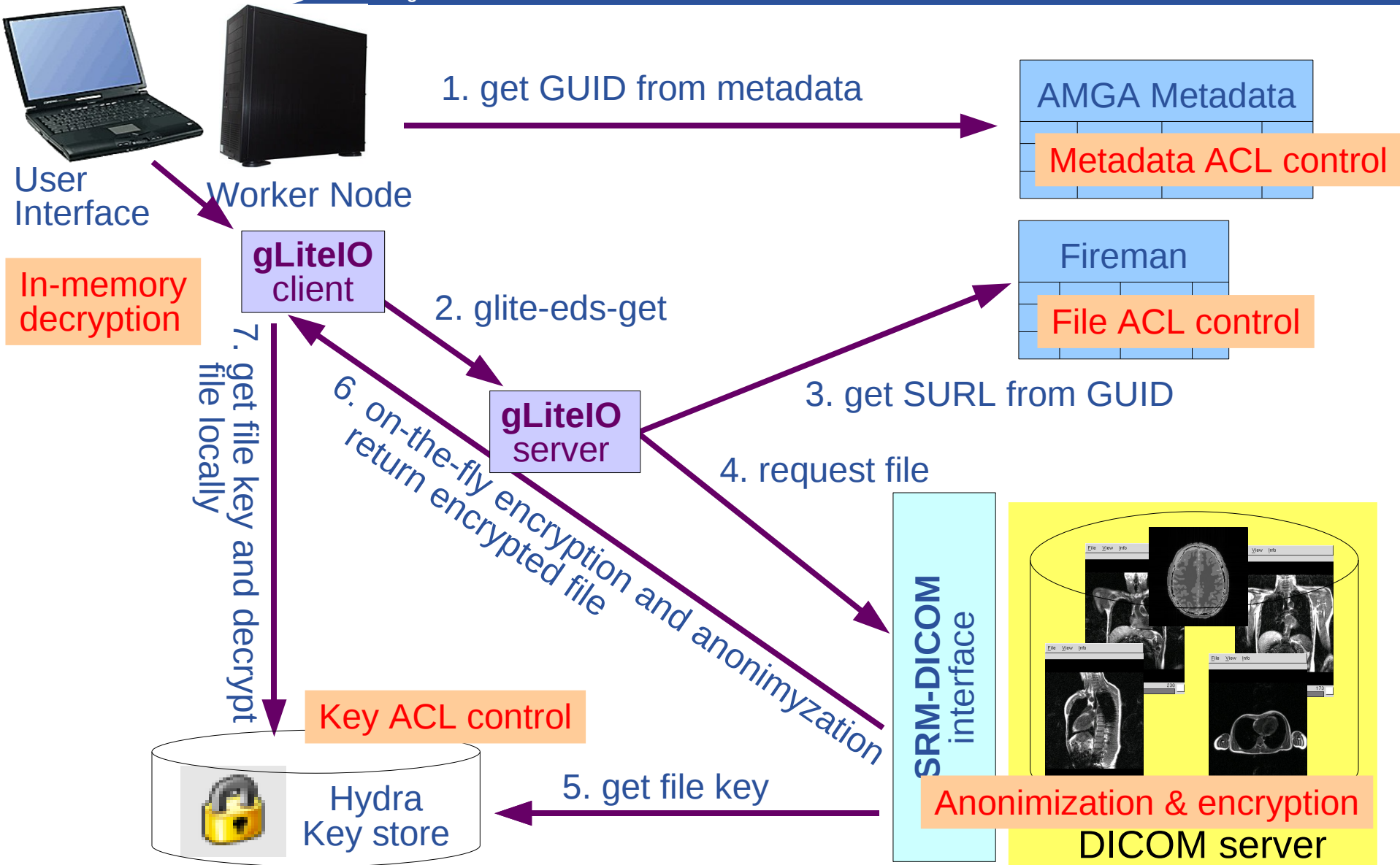
Fireman			

3b. Image key  
is produced and  
registered

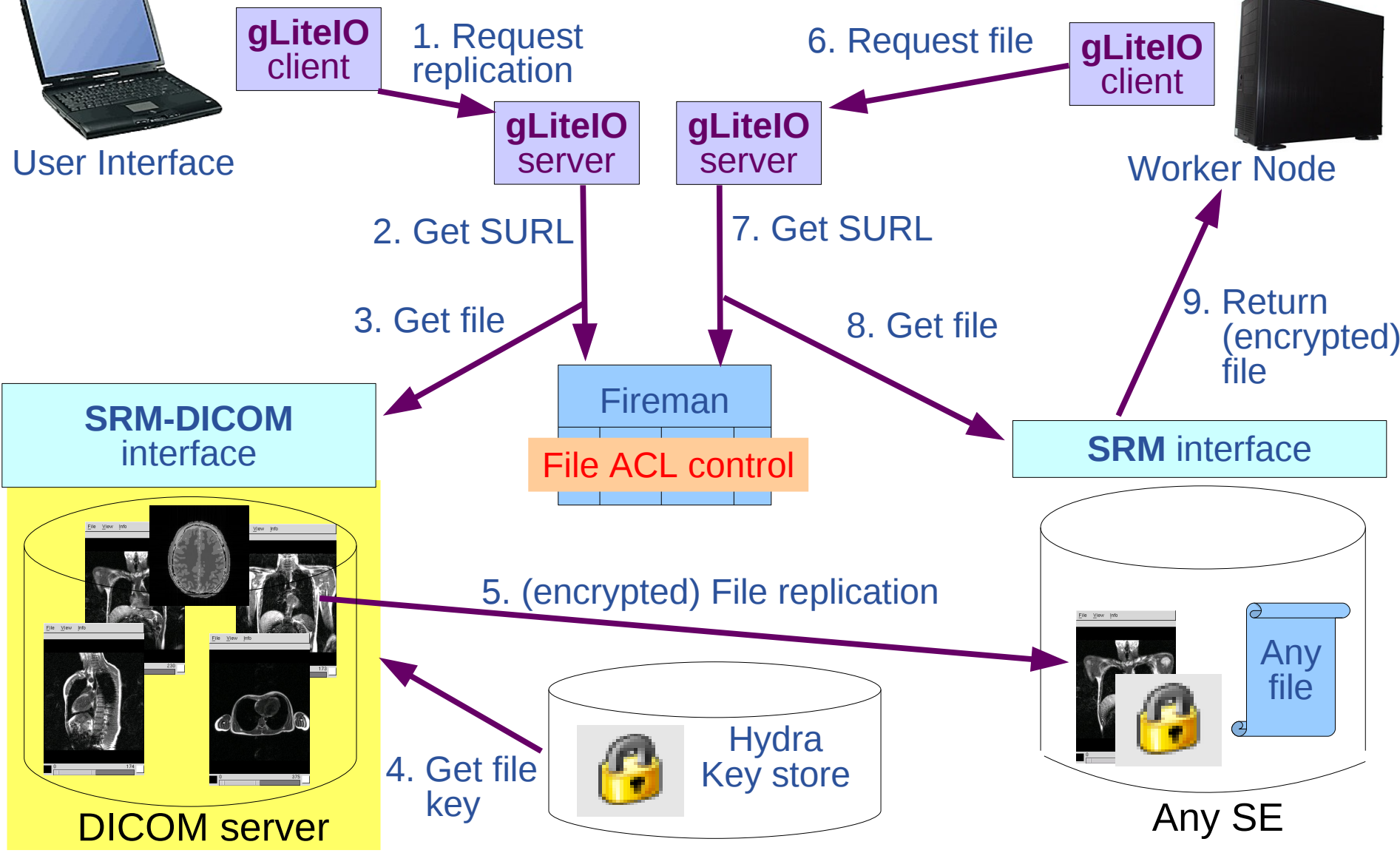


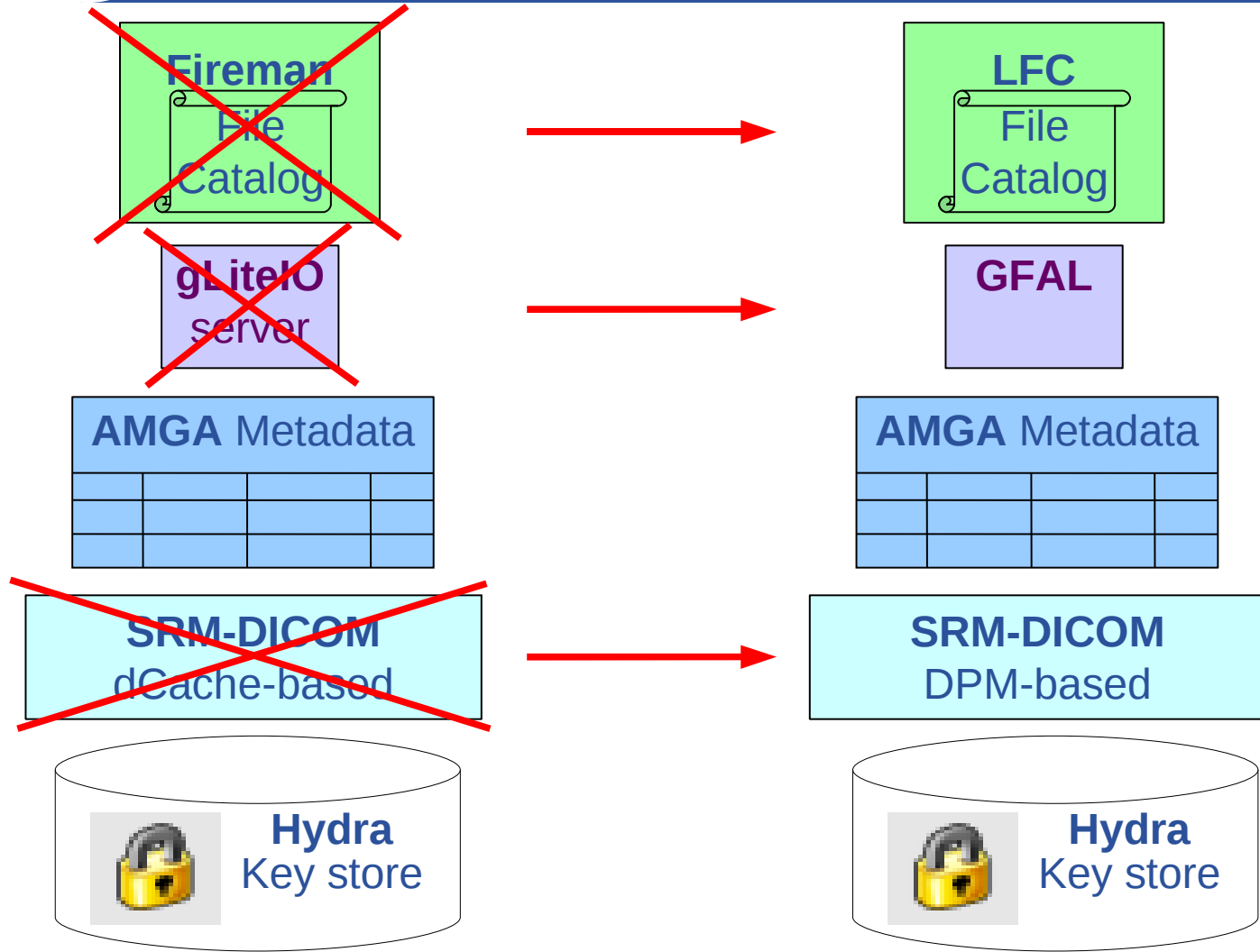
4. image metadata  
are registered

AMGA Metadata			









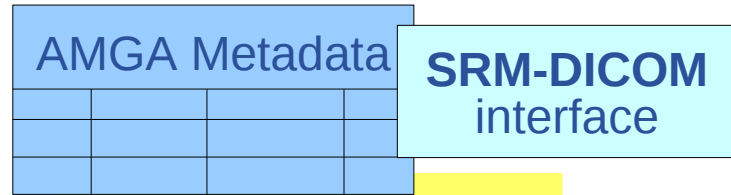
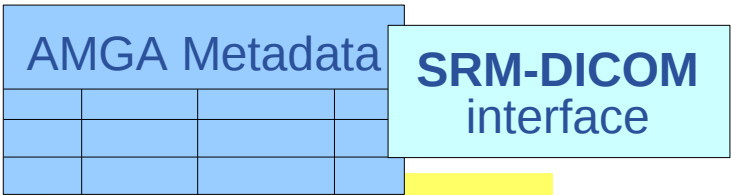
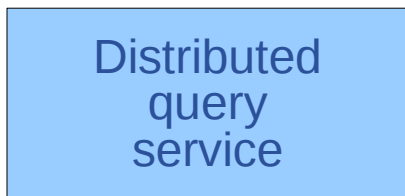
**First prototype just completed. Permanent demonstration at the AGIR booth.**

- **LFC**
  - As a replacement to FiReMAN
  - Client making use of the hydra keystore
- **GFAL**
  - Compatible with lcg-\* commands
- **DPM**
  - SRM v2 implementation, provides ACLs
  - ACLs are only controlling one physical replica on local site

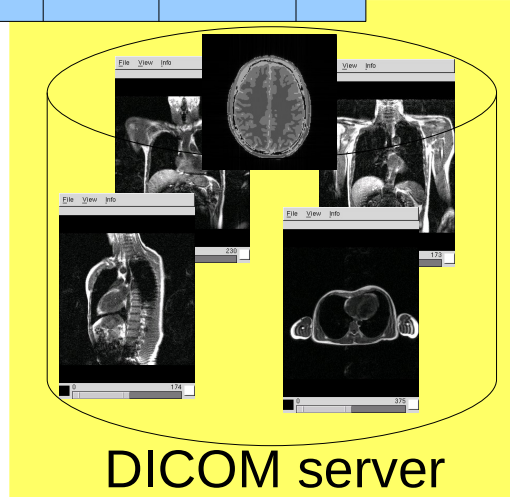
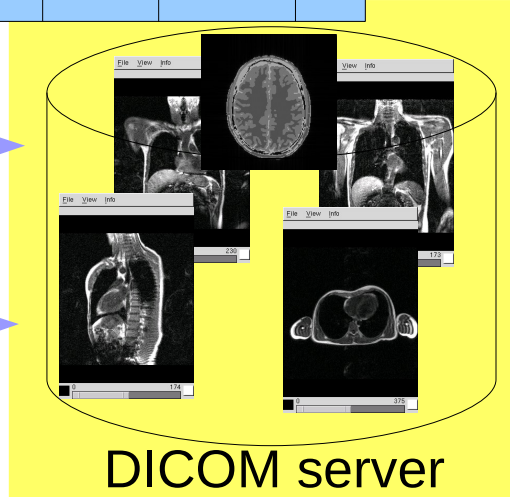
Enabling Grids for E-science



User Interface



DICOM clients



- **Current status**
  - Deployment was limited due to lack of availability of gLiteIO/Fireman
  - DPM + LFC version shortly available on the production infrastructure
  
- **Move to DPM + LFC:**
  - DPM is more modular than dCache.
  - SRMv2 based. More supported.
  - DPM and LFC file permissions are not yet synchronized
  - Avoid double file catalog management issue
  
- **Usability**
  - Still need to be tested at a larger scale / in clinical environment
  - Functionally very close to GLOBUS MEDICUS, plans for further joint development efforts