Medical data management requirements

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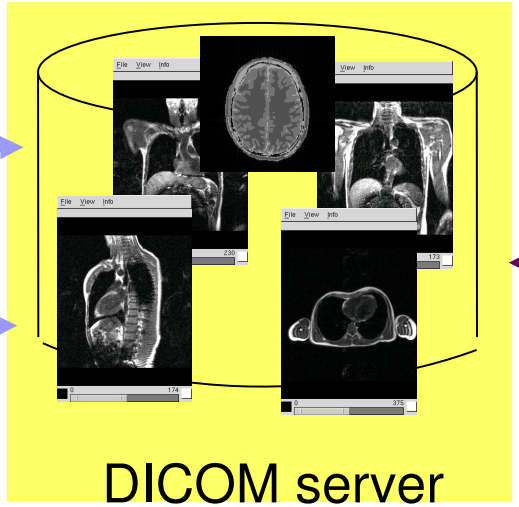
Medical data security

- **Medical data is composed of**
  - Medical images (DICOM standard)
  - Any associated patient record (HL7, DICOM, XDS...)
- **Medical data stores**
  - DICOM image repositories
  - Multiple databases: Hospital / Radiological Information System
- **Medical data privacy**
  - No identifying information ever exposed (really none)
  - Medical data accessible to the patient and accredited clinical practitioners only
- **The security measure is often to isolate the imaging network inside hospital**

Medical Data Manager

- **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

DICOM clients



DICOM server

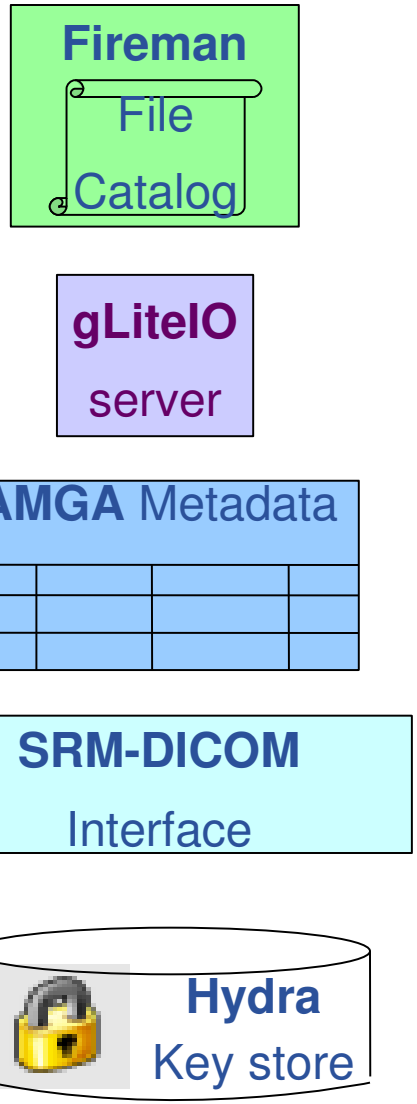
DICOM Interface SRM

Worker Nodes

User Interfaces

Interfacing sensitive medical data

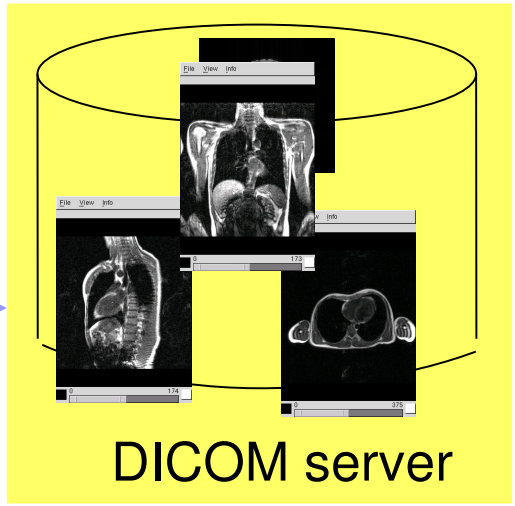
- **Privacy**
  - **Fireman** provides file level **ACLs**
  - **gLiteIO** provides **transparent** access control
  - **AMGA** provides metadata **secured communication** and **ACLs**
  - **SRM-DICOM** provides on-the-fly **data anonimization**
    - It is based on the dCache implementation (SRM v1.1)
- **Data protection**
  - **Hydra** provides encryption/ decryption **transparently**



Medical Data Registration

1. Image is acquired

2. Image is stored in DICOM server



3. glite-eds-put

gLiteIO server

3a. Image is registered

Fireman File Catalog

3b. Image key is produced and registered

Hydra Key store

4. image metadata are registered

AMGA Metadata

Conclusions

- **gLite 1.5 services → gLite 3.1**
  - Fireman → LFC
  - gLite/IO → GFAL
  - Hydra integration into gLite 3.1 DMS
  - More work planed to uniform access control
- **More development will be needed for clinical set up**
  - Complex metadata schemas
  - Metadata distribution and adaptation
  - Role-based identification (MEDICUS uses Shibboleth)
  - Clinical users enrolment...