



Enabling Grids for E-science

Cross-health enterprises Medical Data Management on the EGEE grid

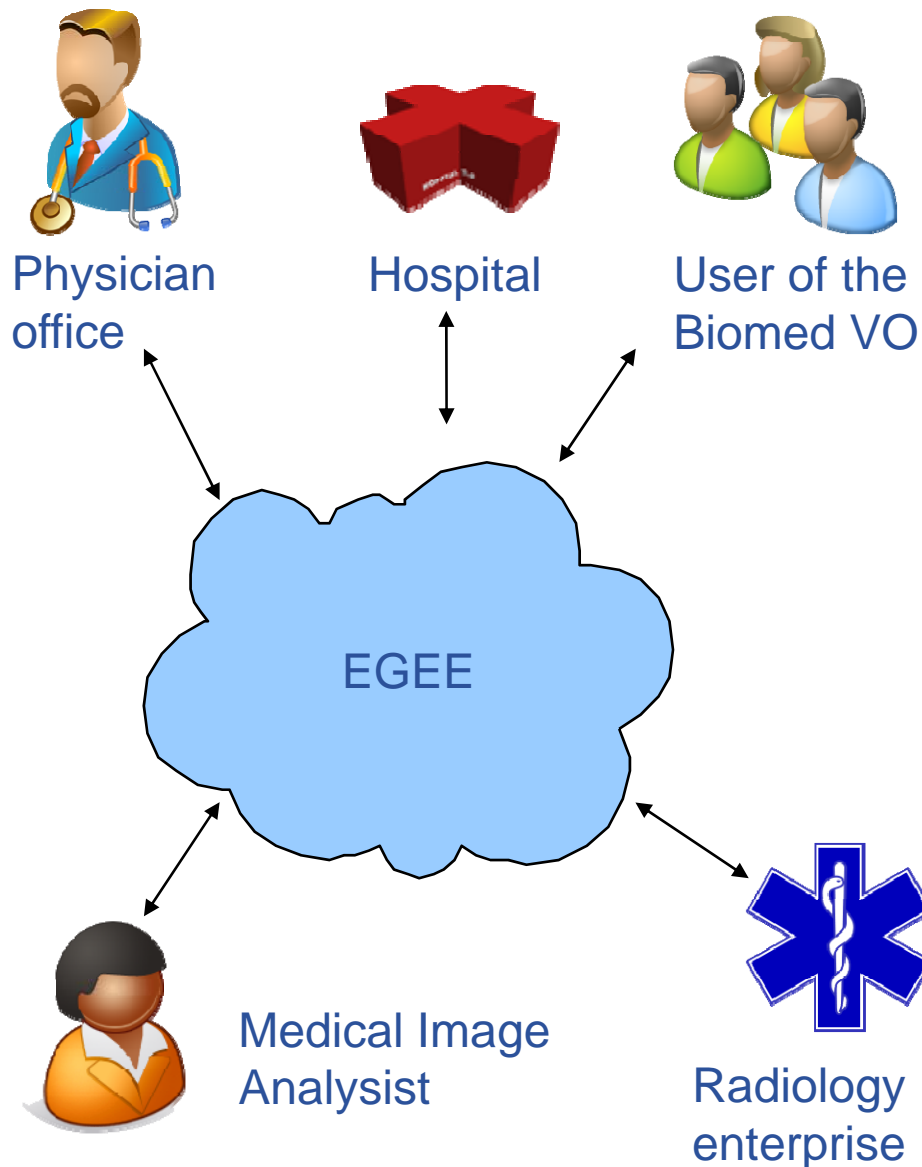
Romain Texier
EGEE, I3S laboratory



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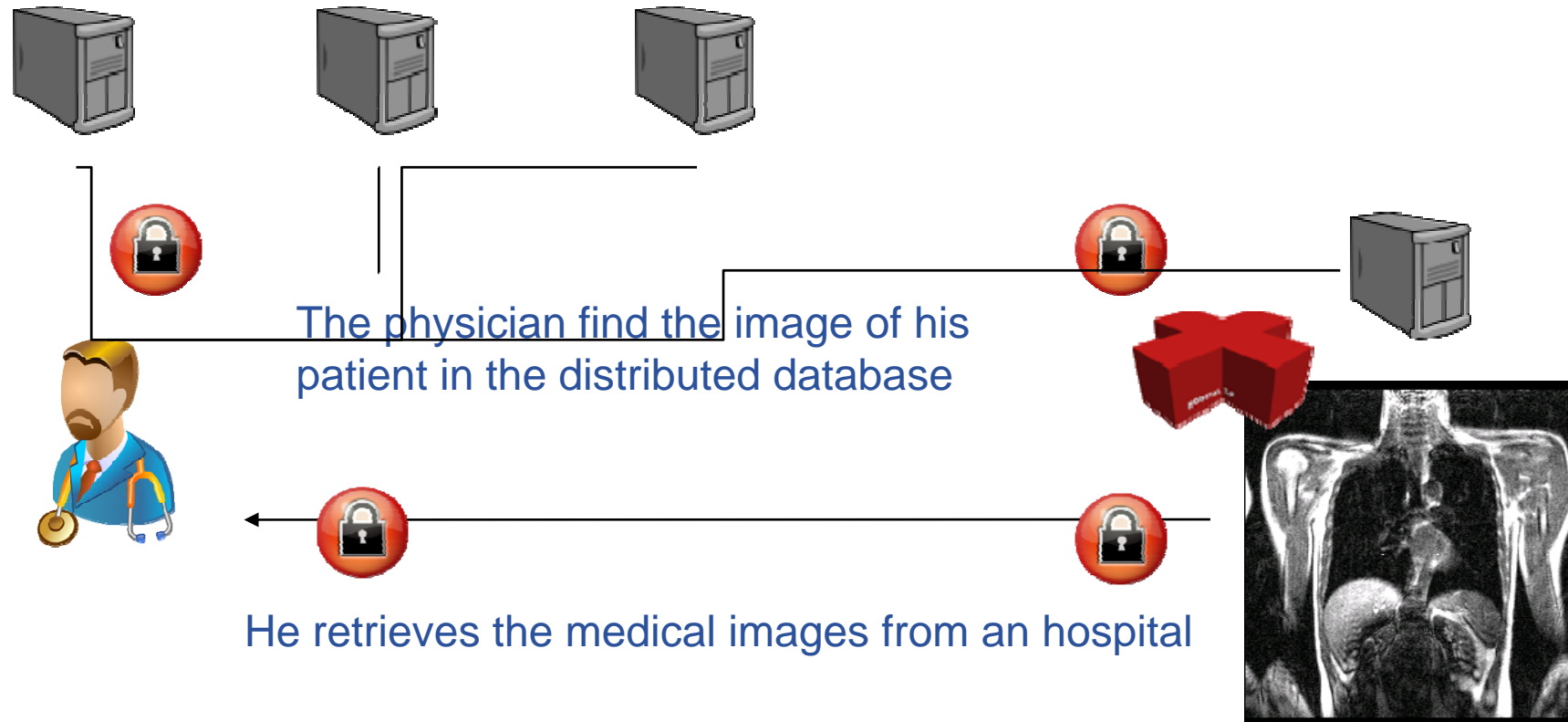


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- The Medical Data Manager is a distributed software to share medical images
- The user can access the images from any location (hospital, office ...)
- The users do not need to know where the images are stored
- The hospital and all the image providers choose the access policy to their images

- **The MDM is design to provides an access from hospital, office and home to medical images :**
 - Cross-enterprise authentication
 - Fine grain access control (ACL)
 - Secured communications (data encryption)
- **How important is security ?**
 - The medical community will just not use a system in which they are not trustful (both a technical and a human problem)



- Search a patient on all the database need only one query
- The access control is checked at all levels
- The hospital defines the access policy for the image and the database



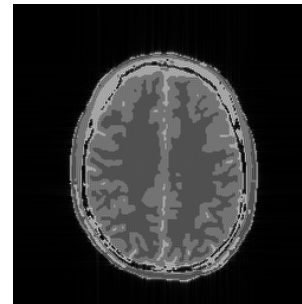
- The MDM can use a PACS or an hospital DICOM server to store the medical images
- No modification is needed : the hospital hardware and software continue to access their data in the same way
- An imager could be directly interfaced with the MDM : all the medical image produce will be available for authorized user

The MDM store the DICOM pictures in a DICOM server

– What is DICOM standard

- **It is a medical image standard**

- It defines a picture
- and the associated metadata



Name of the patient
 Birthdate
 Hospital name
 Physician name
 ...

- **It is a communication standard**

- DICOM storage server exchange use DICOM protocol to send file medical image

- **It also is many other standards**

- Display
- Printing
- System management
- ...

- **The MDM uses standard grid interface to retrieve the medical image:**
 - GridFTP protocol
 - RFIO protocol
 - SRM(v1,v2,v2.2) protocol
- ➔ **The standard gLite commands can be used to retrieve the medical image**
- ➔ **The worker nodes can retrieve medical image to make computation**



- **EGEE provides all the component of the MDM**



DPM : Storage server
The DPM provides a grid standard interface



LFC : File catalog
It provides an easy way to browse the files



Hydra : keystore service
It stores key to cypher and decypher medical images



AMGA : Metadata database
It store the metadata of the DICOM picture

Demo