HOPE
HOsptital Platform for E-health

http://sourceforge.net/projects/telemed

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HOPE: Presentation - Mozilla Firefox
Fichier Édition Affichage Historique Marque-pages Outils ?
http://telemed-service.lpc-rd.fr/gridsphere/gridsphere
Débuter avec Firefox À la une HOPE Portal: Presenta...
HOPE
Hospital
Open software
Platform for
E-health
Français
GRID-ENABLED COLLABORATIVE HEALTHCARE
Welcome to the HOPE portal, a collaborative telemedicine platform developed as part of the LifeGrid project.
Connexion
PARTNERS
This portal will use Grid technologies to bring you the following features:
Smart patient folders: securely store, modify and search the medical folders of your patients.
Collaborative diagnosis: securely interact and share access to selected folders with experts to receive a second diagnosis.
Monte Carlo dosimetry: Perform your treatment planning in a more user-friendly and faster way using GATE.
Centre JEAN PERRIN
PCSV
LifeGrid
IN2P3
CNRS
eGee Enabling Grids for E-sciencE
Université Blaise Pascal
HealthGrid
SSL Security Encryption
Privacy policy - About HOPE
Terminé
démarrer
2 Outlook Expr...
3 Explorateur ...
Microsoft PowerP...
CGSA Workshop -...
HOPE: Presentati...
16:21

Actual use

- **Neurosurgery application:**
  - 2 sites in Clermont-Ferrand
  - 1 in University of Almeria
  - 1 in Ho Chi Minh City Institute of IT

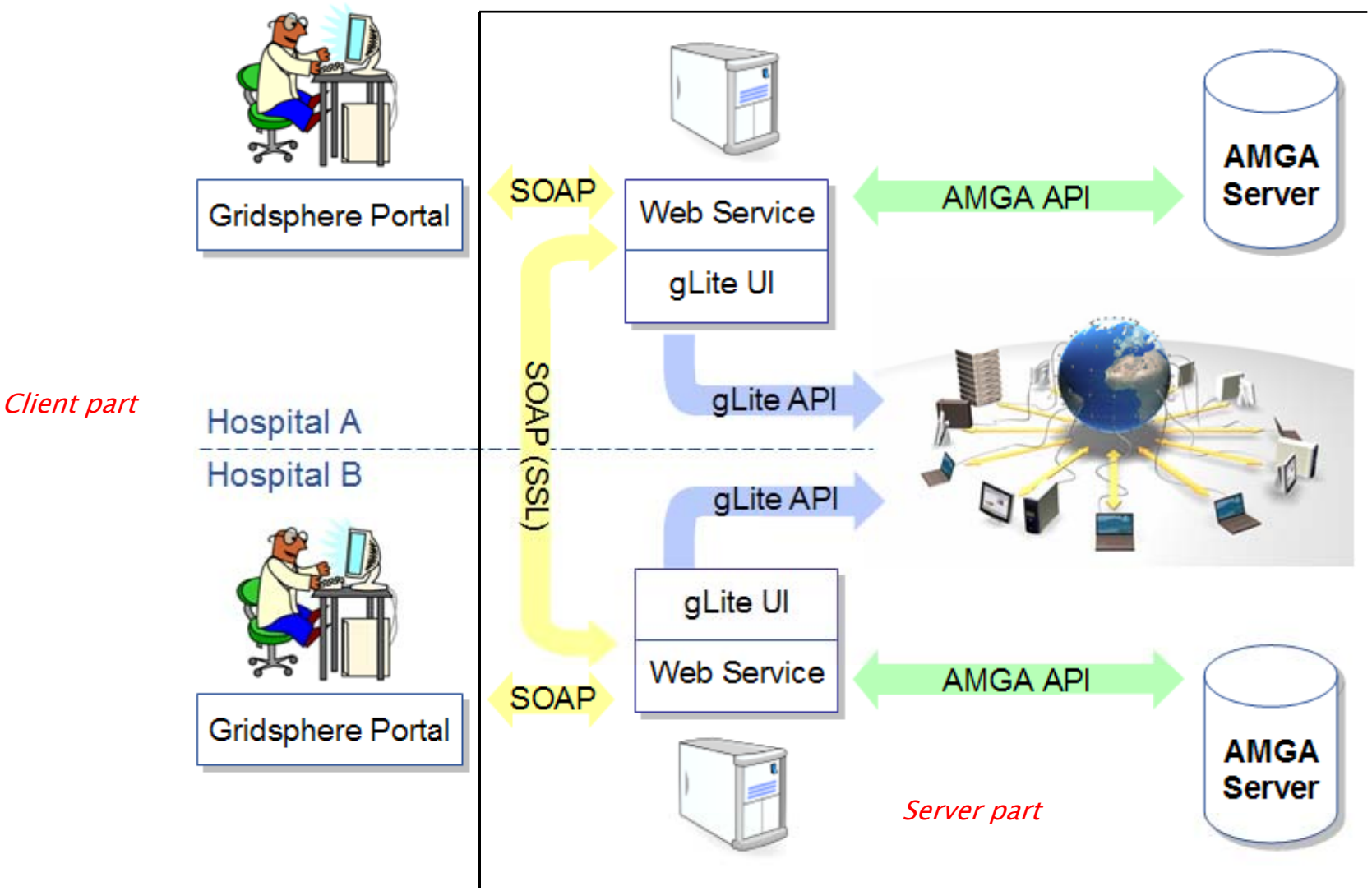
HOPE: original idea

- **Offer a set of different components for medicine purposes.**
  - Don’t give a ready-to-use application
- **Ensure data security and keep privacy.**
  - Crucial in medical world
- **Let the data where they are produced**
  - Typically in hospitals or medical structures
- **Give access and take advantages of grid functionnalities, in terms of storage, computation and communication.**
  - Store medical data on the grid
  - Perform high CPU consuming calculation

Purpose of our platform

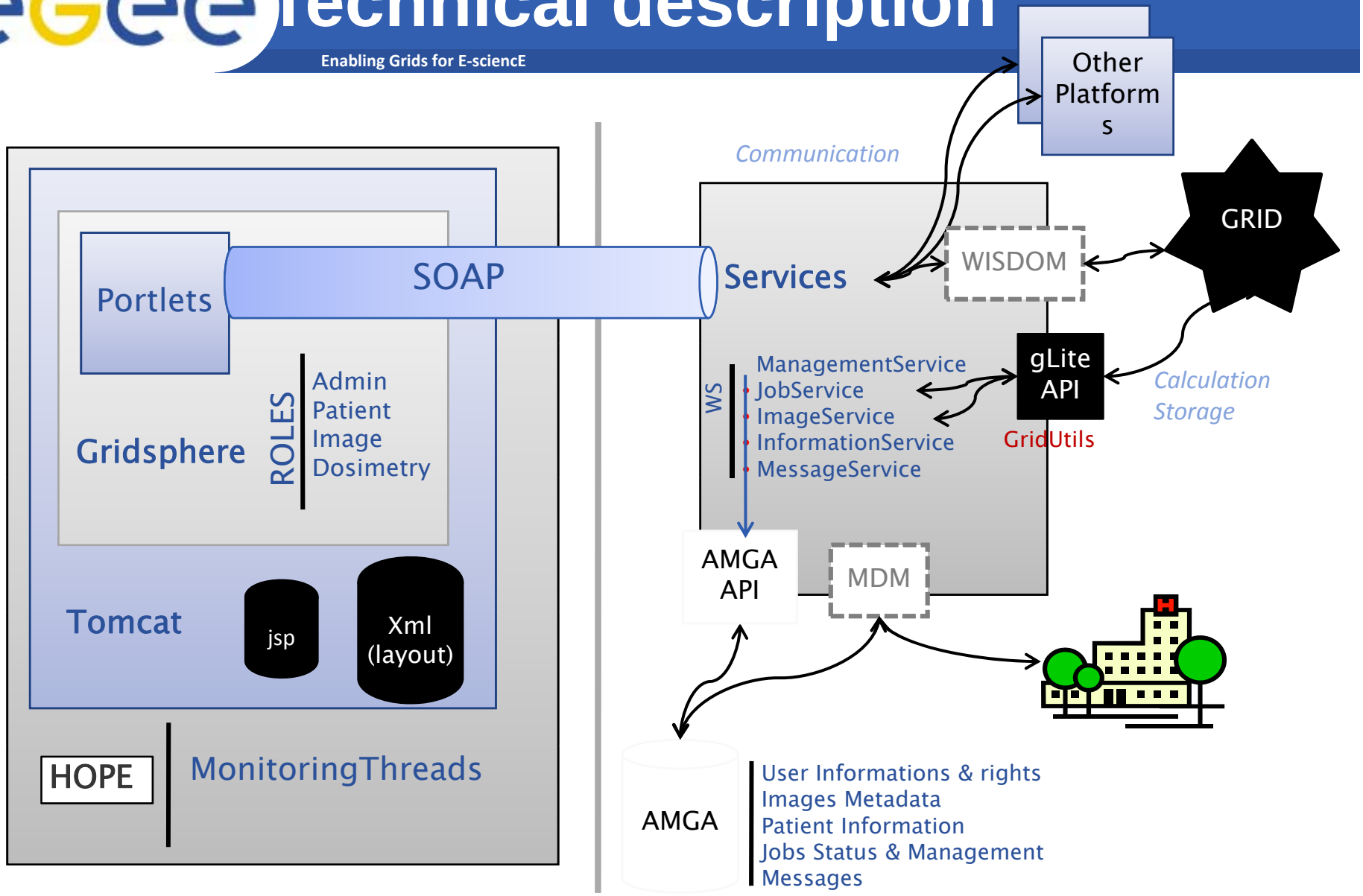
- **What are the field of applications ?**
  - Medical physics
    - radiotherapy, brachytherapy treatments, nuclear medicine imaging
- **Who will use the platform ?**
  - Physicians
  - Medical physicists
  - Researchers
- **What type of data will be used ?**
  - DICOM Medical images
    - scanner
    - IRM
    - SPECT, PET scans
  - Standard images
- **What type of calculations will be done on the grid ?**
  - Monte Carlo calculations using GATE

HOPE: Architecture



Technical description

Enabling Grids for E-sciencE



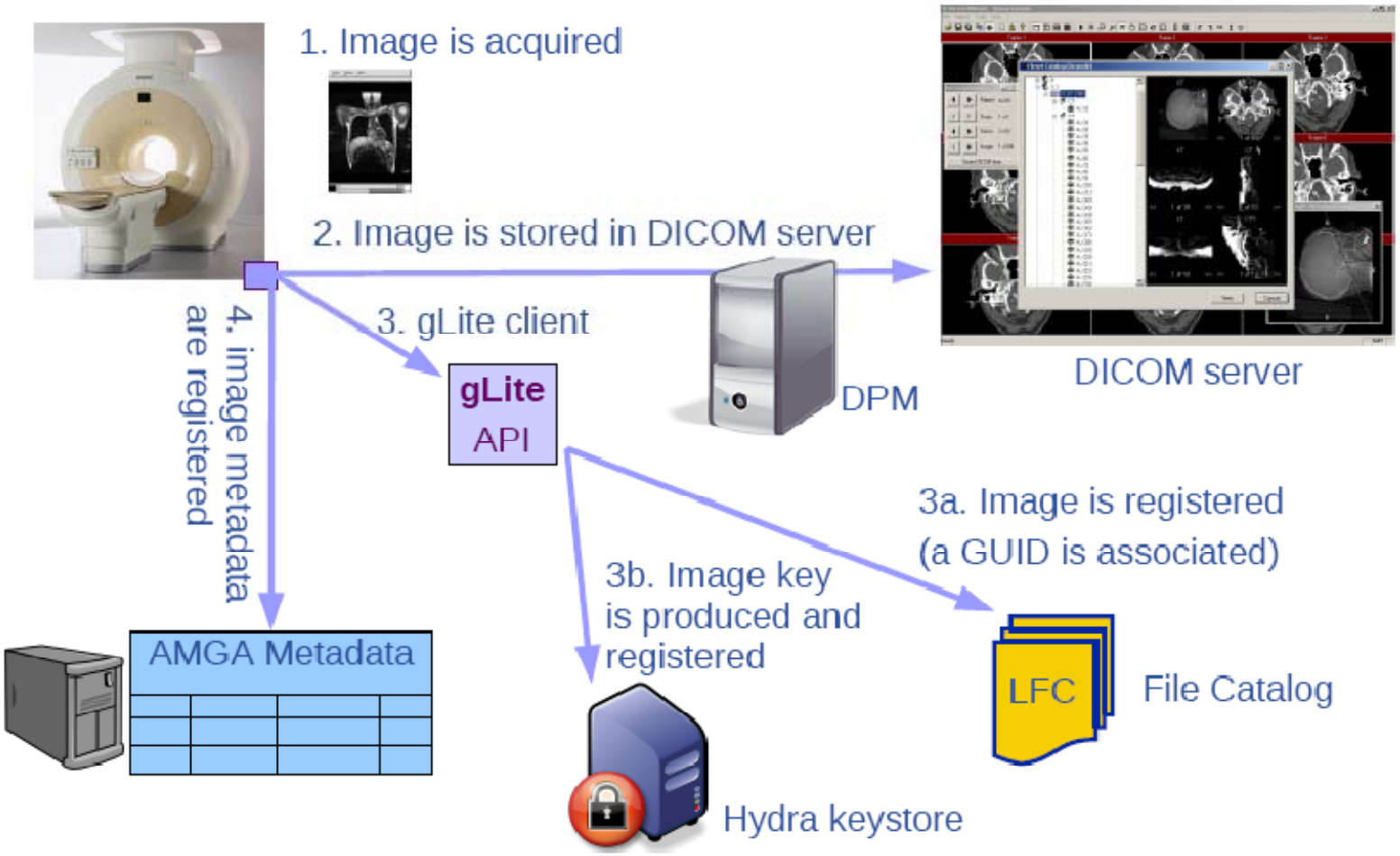
AMGA

- **Generic Metadata catalog**
  - Metadata management system on the grid
  - Security management
- **Layer on top of other databases**
  - Common interface
  - Data base backend independence
- **For our platform: handle "textual" information**
  - Patients sheets
  - DICOM images metadata

Hospital medical images access

- **Management of Medical Images from PACS to the grid**
  - Integration in the next months of MDM (Medical Data Management) from the gLite project:
    - Direct access of dicom images through the hospital network
    - Images are available directly by the grid with LFC but stay in the hospital.
    - Encryption and anonymisation on the fly with gLite-Hydra key server
    - Rights management with grid certificates

Hospital medical images access



Enhancements

- **Access for physicians**
  - Smart-card based authentication
- **Hospital medical images**
  - Integration of :
    - MDM
    - Hydra
    - PDM
- **Job management**
  - Use of the WISDOM production environment for a faster and more reliable link to the grid.
- **Add a research-oriented submission of Gate simulations:**
  - Customization of the interface
- **Automatic split in several job the simulation**
    - Optimize the number of jobs to make it as shortest as possible

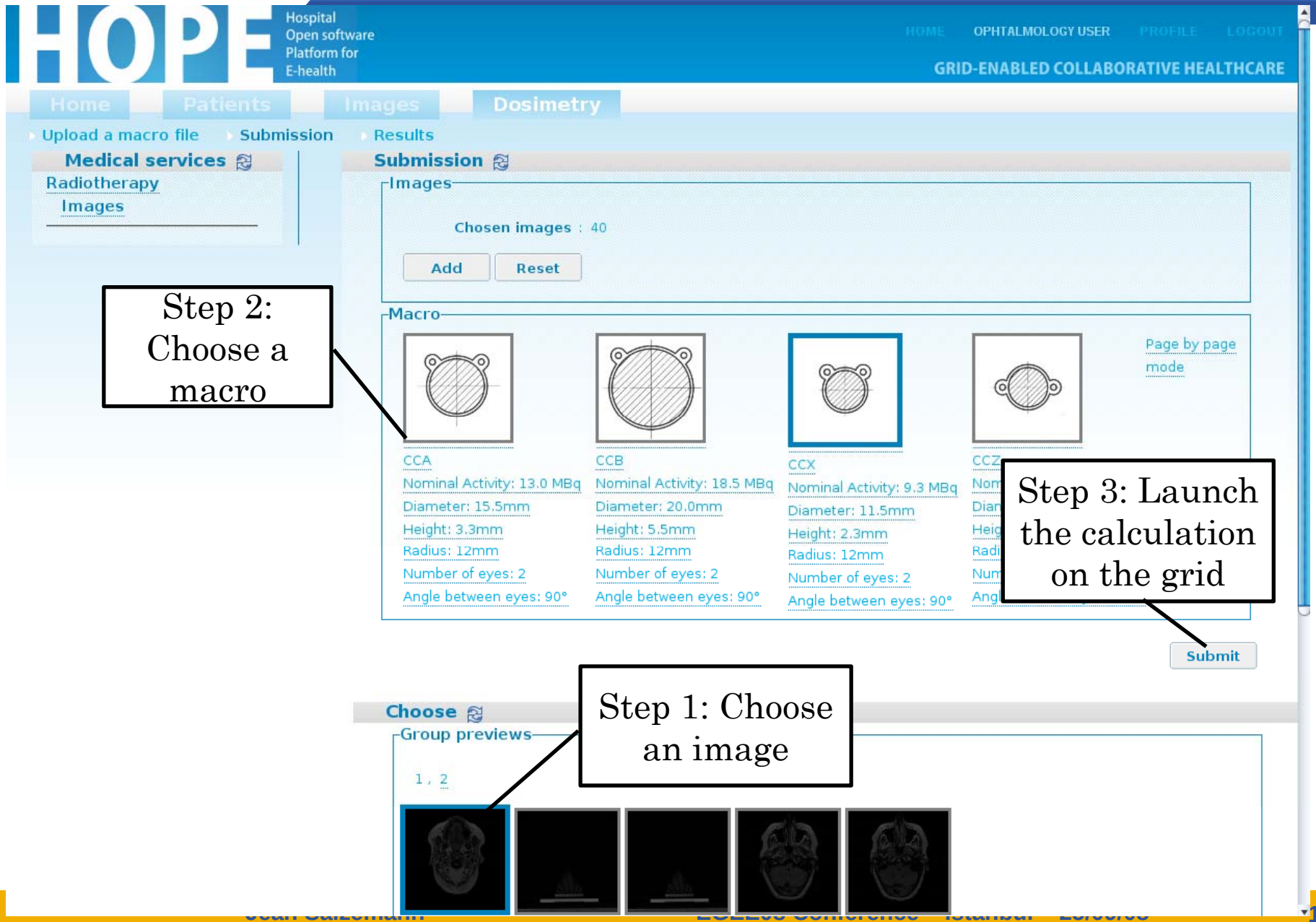
OPHTHALMOLOGIC APPLICATION

Medical data management

Dosimetric calculation on the grid:

Monte-carlo GATE simulation

JOB SUBMISSION



JOB STATUS

Hospital
Open software
Platform for
E-health
HOME
OPHTALMOLOGY USER
PROFILE
LOGOUT
GRID-ENABLED COLLABORATIVE HEALTHCARE
Home
Patients
Images
Dosimetry
Upload a macro file
Submission
Results
Medical services
Radiotherapy
Job status
ID
Author
Start date
Status
view
123 ophtalmology 7/16/08 11:53 AM finished view
122 ophtalmology 7/15/08 10:59 PM finished view
121 ophtalmology 7/3/08 11:24 AM finished view
120 ophtalmology 7/3/08 11:24 AM finished view
119 ophtalmology 6/12/08 11:11 AM finished view
118 ophtalmology 6/9/08 3:36 PM finished view
117 ophtalmology 6/5/08 9:41 AM finished view
116 ophtalmology 6/5/08 9:41 AM finished view
115 ophtalmology 6/2/08 10:07 AM finished view
114 ophtalmology 5/23/08 5:47 PM finished view
SSL
Security
Encryption
Privacy policy – About HOPE

JOB RESULTS

Hospital Open software Platform for E-health

HOME OPHTALMOLOGY USER PROFILE LOGOUT

GRID-ENABLED COLLABORATIVE HEALTHCARE

Home | Patients | Images | Dosimetry

Upload a macro file | Submission | Results

Medical services

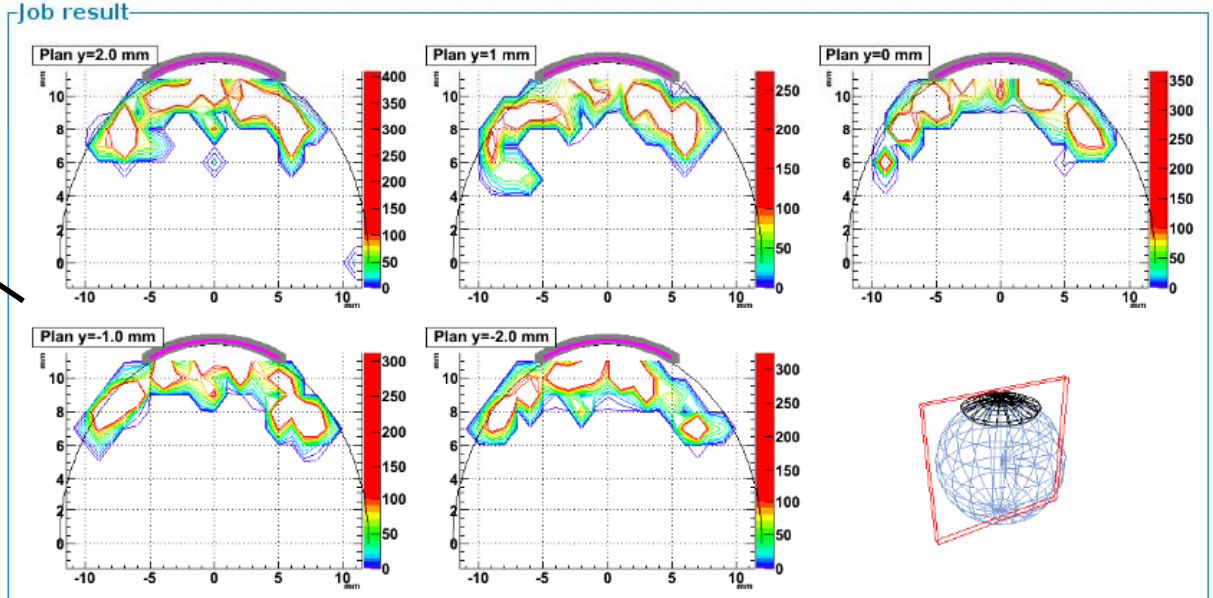
Radiotherapy

Job status

ID	Author	Start date	Status	view
123	ophtalmology	7/16/08 11:53 AM	finished	view
122	ophtalmology	7/15/08 10:59 PM	finished	view
121	ophtalmology	7/3/08 11:24 AM	finished	view
120	ophtalmology	7/3/08 11:24 AM	finished	view
119	ophtalmology	6/12/08 11:11 AM	finished	view
118	ophtalmology	6/9/08 3:36 PM	finished	view
117	ophtalmology	6/5/08 9:41 AM	finished	view
116	ophtalmology	6/5/08 9:41 AM	finished	view
115	ophtalmology	6/2/08 10:07 AM	finished	view
114	ophtalmology	5/23/08 5:47 PM	finished	view

Results

Job result

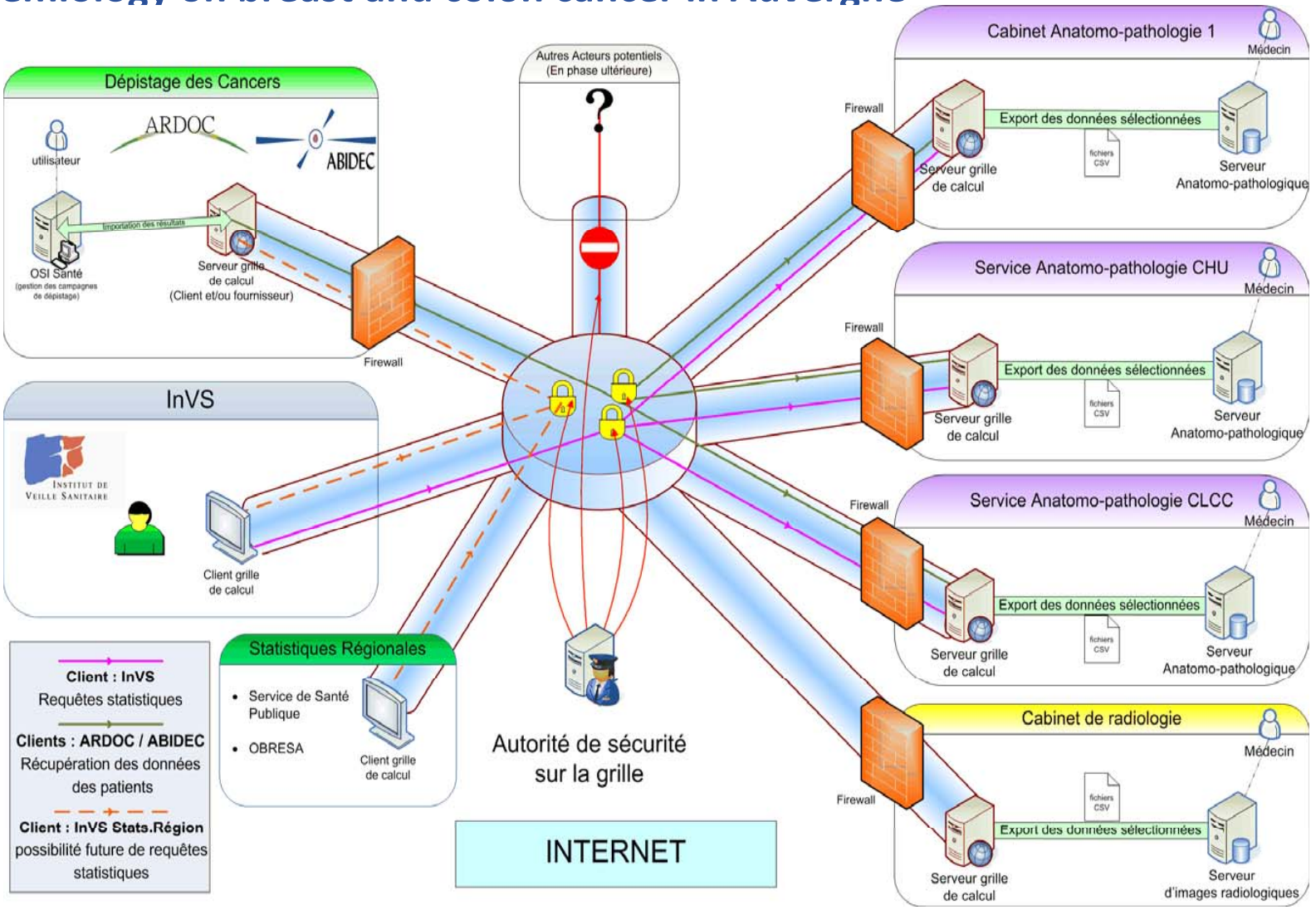


Generated images of radioactivity diffusion in the eye.

To prepare treatments of tumors.

New application: Regional epidemiology

- **Epidemiology on breast and colon cancer in Auvergne**



References

- **Hope**
  - http://sourceforge.net/projects/telemed
- **LifeGrid**
  - http://www.lifegrid.fr/
- **EGEE**
  - http://www.eu-egee.org/
- **AMGA**
  - http://amga.web.cern.ch/amga/