



Enabling Grids for E-science

NA4/medical imaging.

Medical Data Manager Installation

EGEE'06 Conference 25-29 September 2006

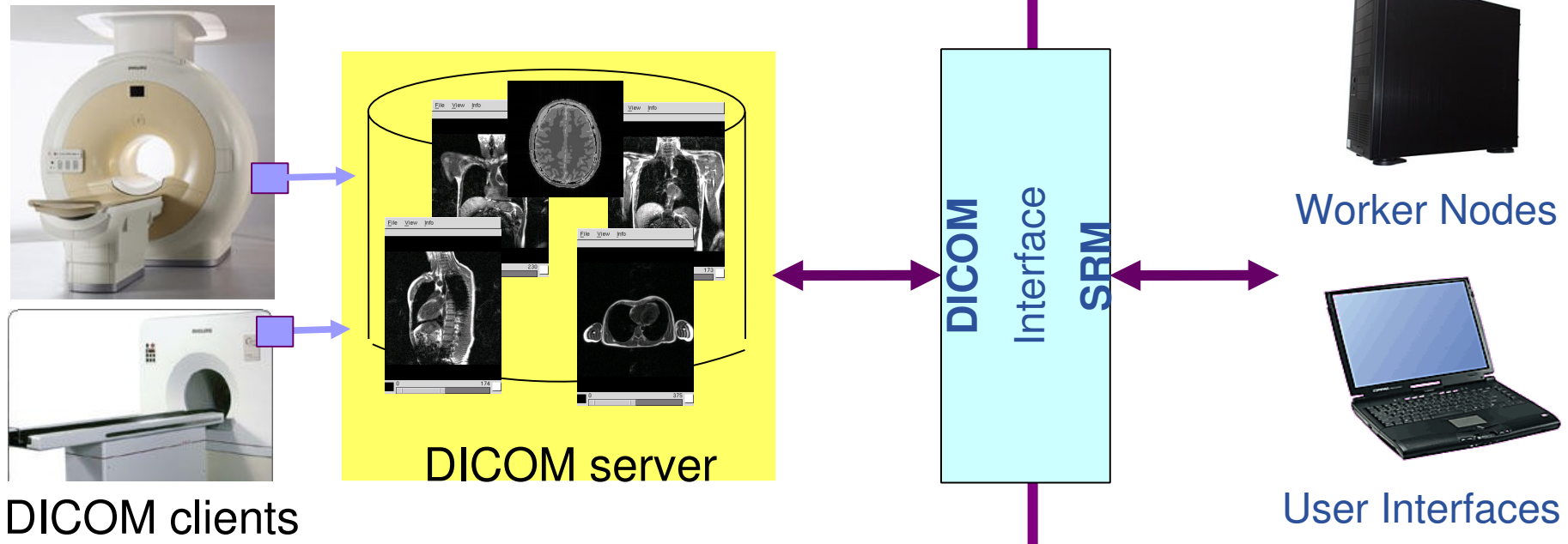
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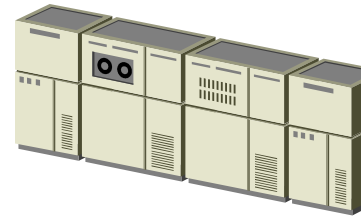


- Expose an standard grid interface (SRM) for medical image servers (DICOM)
- Use native DICOM storage format
- Fulfil medical applications security requirements

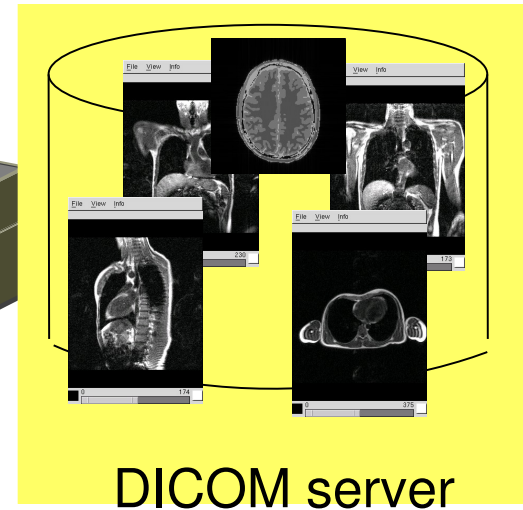


- The script installs:
 - DICOM server
 - SRM server
 - gLite IO server

gLiteIO
server

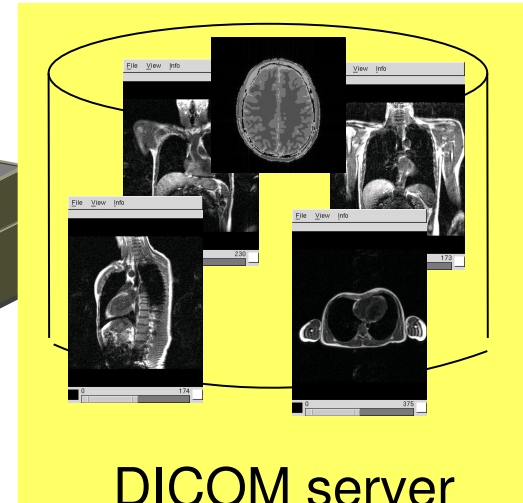
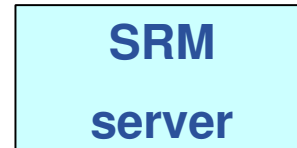
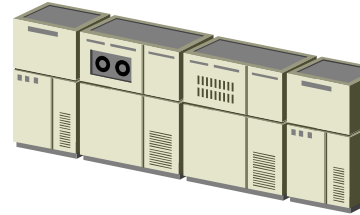


SRM
server



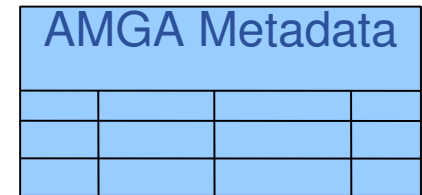
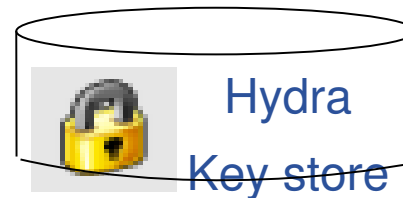
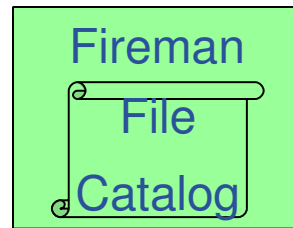
- The script installs:

- DICOM server
- SRM server
- gLite IO server



- The deployment procedure configures the access to:

- Hydra server
- AMGA server
- Fireman



- **The hospital client pushes DICOM files**
- **It is both a DICOM client (registering DICOM files) and a grid client (gLite UI with a gLite IO server)**
- **The user certificate must be authorized**
- **The Linux account must be configured**
- **The installation procedure takes care of it**



- Any gLite 3.0 client (UI or Worker node) is a MDM client
- Could only retrieve DICOM files (read-only)
- The user must have the rights on the file
- Small configuration of the EGEE middleware is needed



Worker Nodes



User Interfaces

- **Very easy to use**
- **All softwares are in a repository :**
 - The script retrieves the files
 - Only the needed files are downloaded
 - New software version could be add
 - Only stable version will be included in the repository
- **Do not need compiler / library**
 - The deployment procedure is a Shell Script.

```
Select software to install :
```

```
 UI      install UI gLite
[X] gLite  Install gLite IO server
[X] SRM    Install SRM
[X] CTN    install CTN (DICOM server)
[X] Dcmtk  Install dcmtk
[X] Java   Install java
[X] MySQL  Install to MySQL
[X] GetUID  Install getuid
```

- The user selects the softwares to install
- The user may modify the configuration
- The script install and configure all the softwares

Installation of the Medical Data Management

Configuration of the AMGA client

Set the configuration of AMGA client :

The hostname of the AMGA server is :

`amga.creatis.insa-lyon.fr`

The port number of the AMGA server is `8822`

The login to the AMGA server is `metadata`

The password to the AMGA server is `certificate`

- **AMGA server store the metadata of all files in the MDM**
- **These parameters are the only one without default value**

```
Set the configuration of DICOM server :  
  
the DICOM server is CTN  
  
peer application title :      CTN  
put application title :      STORESCU  
DICOM server peer :          texier  
DICOM server port :          10004  
default retrieve port :      2100  
move application title :      MOVESCU  
provider application title :  STORESCP
```

- **Installation procedure could reuse already installed components**
- **MDM could use any DICOM compliant server (by default, the CTN open source implementation is installed)**

- **The installation deploy many other softwares :**
 - DCMTK
 - GDCM
 - Java
 - MySQL 4.0
 - NTPD
 - SRM server
- **The installation procedure configures these softwares without help from the user**
- **Takes care of many little things :**
 - Open needed ports
 - Update certificate
 - Check host certificate

Installation of the Medical Data Management

```

Summary :
CTN install :           Done
MySQL install :        Done
glite io server install: Done
lcmaps/lcas install :  Done
srm server install :   Done
dcmtk install :        Done
MDM library install :  Done
java install :         Done
Write to MAGA :        Done
getuid install :       Done
Trigger script :       Done

CTN config :           Done
MySQL config :         Done
glite io server config : Done
srm server config :    Done
srmtodicom config :   Done
sdm storescp config :  Done
AMGA's client config : Done
Write to AMGA configuration:Done
dcmtk configuration :  Done
getuid configuration :  Done
    
```

< OK >

- A summary is displayed
- All installation status are reported
- The script can be restarted to do any missing step

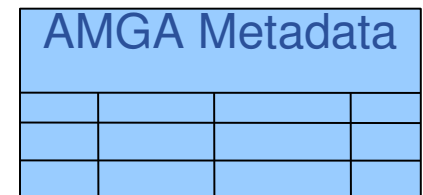
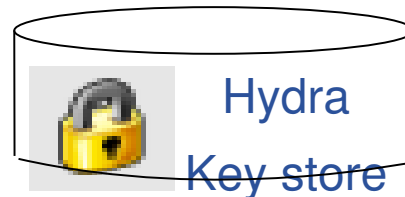
- **The hydra default security policy has been modified since a few day**
- **The SRM server must be adapted accordingly**
- **The EGEE middleware configuration to access a remote glite IO server is needed**
- **The deployment procedure does not include this feature yet**

- **Easy to use installation script**
- **Most parameters have default values. Only AMGA server location must be entered.**
- **Installation in less than 2 hours**
- **Deploy and Use gLite 1.5 & 3.0**
- **The deployment procedure could reuse components previously installed**

- **Any questions ?**

- Deployment on test sites
- Feedback to improve installation procedure
- Improvement of DICOM server support
- Modify the SRM server to obtain more deterministic performance

- Software to install and configure Hydra server.
 - More servers means more security and more availability



- Software to install and configure AMGA server

- **First step have been done : Perl & MySQL => MySQL 4.0**
 - Some type of variables have been translated from perl to MySQL
- **The server does not work with MySQL 4.1 & 5.0**
 - Some constraints are not accepted
- **The next step : MySQL 4.0 => MySQL 5.0**
 - Rewrite constraints and types.

- Start the servers :
 - Now
 - At startup

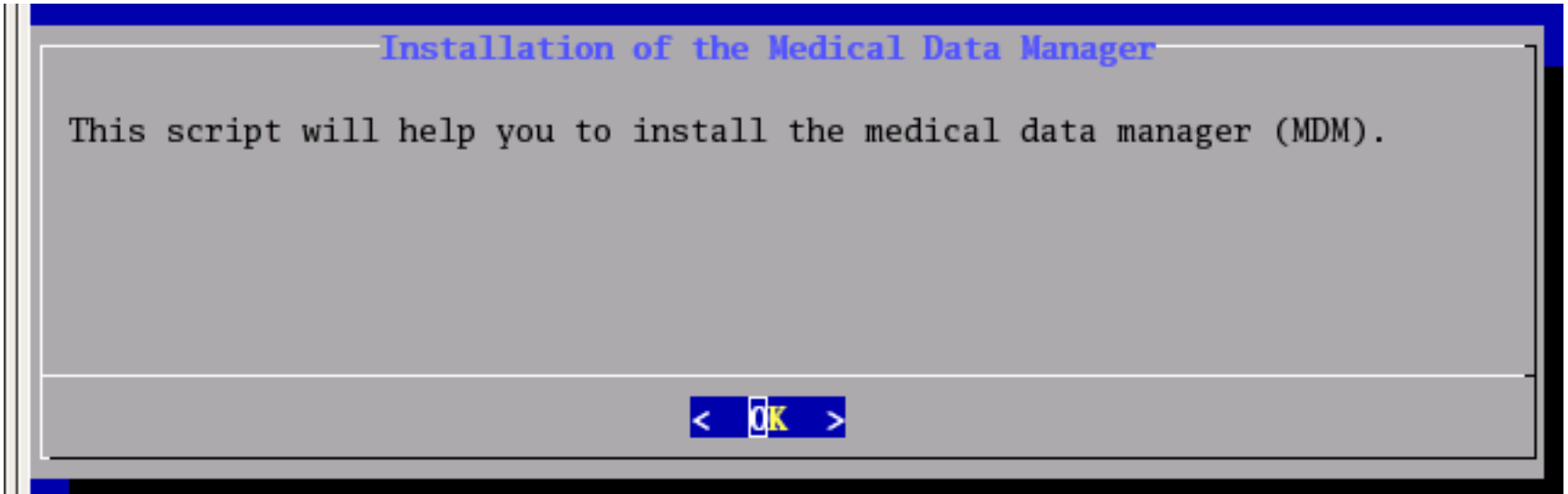
Summary :

```
setup firewall :           Done
copy of scripts start/stop: Done
environment server :      Done
Host certificate :        Done
Certificate Revocation Lists: Done

start CTN :               Done
start ntpd :              Done
start MySQL :            Done
start SRM :               Done
start SDM :               Done
start glite io server :   Done

service CTN :             Done
service ntpd :            Done
service MySQL :          Done
service SRM :             Done
service SDM :             Done
service glite io server : Done
```

< OK >



- **Do not need an X/Xorg server**
- **Installation may be done through ssh**

Select the UI you want to install:

```

Default  gLite 3.0
Previous  gLite 1.5
    
```

The gLite UI installation need a configuration file.
Which .def will be used to install gLite 3.0 :

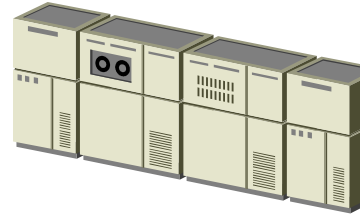
```

Default  use default parameters
File      select a definition file
    
```

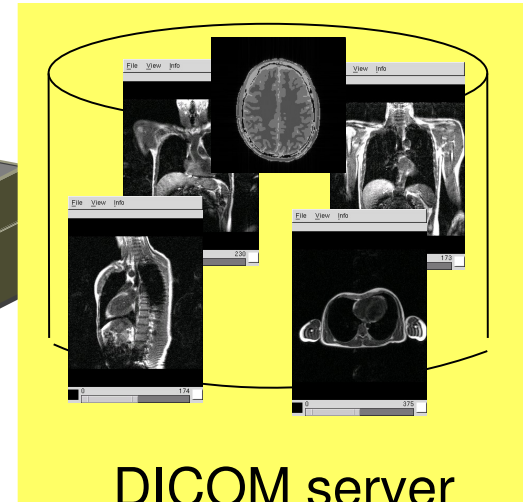
- **No dependencies : only need a Scientific Linux 3**
- **You will be able to install a gLite 1.5 or 3.0 UI**
 - Automatic check of previous installation of an UI
 - You can use a default definition file or select one

- **The MDM was tested through**
 - Multiple push tests
 - Synchronous or asynchronous retrieve file tests
- **Two type of packages could be use.**
 - Rpm : MDMinstall-0.60-1-noarch.rpm, MDMinstall_test-0.60-1-noarch.rpm
 - tar : MDMinstall-0.60.tgz

gLiteIO
server

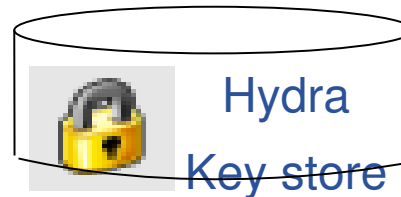
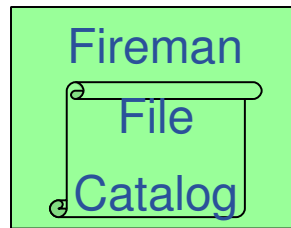


SRM



- Some users may want their own server.
- The deployment procedure will permit the deployment of :

- Hydra server
- AMGA server
- Fireman



AMGA Metadata			

-
- **You could install Server**
- **The remote client will be the EGEE middleware.**
 - The configuration of the middleware need to be verify before its release
- **The local client (on the server) could be installed**
- **The Hydra server have been upgraded a few day ago.**
 - The server must be modify to accept the restricted policy
-

- Permet de gérer des ressources partagées sur la grille
- Fournit un accès uniforme à des données hétérogènes
- Fournit un accès à des données de stockage temporaires ou permanentes
- **This srm don't store file.**
- **The srm push/get file to/from a DICOM server**
- **The srm call the Hydra server to encrypt the file**
- **The encrypted file are store for less than an hour in the SRM.**

Multiple retrieve will be done fast

- **All softwares are in a repository :**
 - The script retrieve the files
 - Only the needed files are download
 - New software version could be add
 - Only stable version will be included in the repository

- **The deployment procedure is a Shell Script :**
 - Easy to modify
 - Call many other tools (apt-get, mysql, rpm,tar, grep, sed ...)
 - Don't need compiler / library

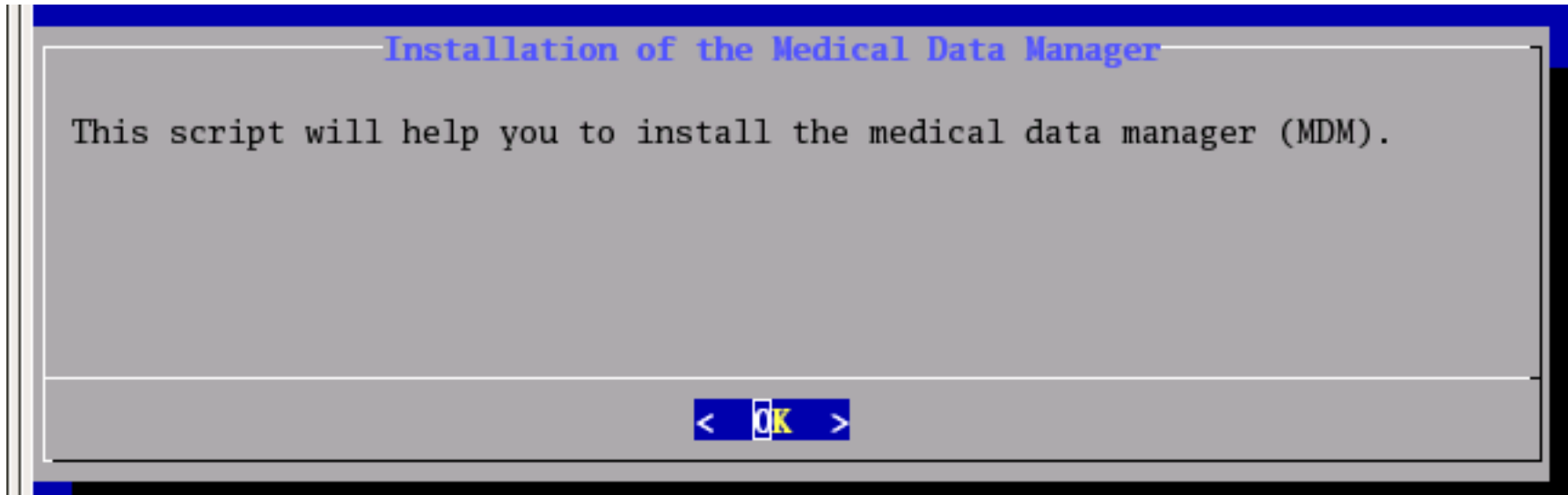
- **Client Hydra de gLite**
- **Install the Hydra client**
- **Configure the gLite IO server to call three Hydra server**
-
- **Each file store will have a key.**
- **The Hydra server create the key when the file is register**
- **This key will be retrieve when the file is get from the server (by the server and the user**

- Feedback to improve installation procedure
- Software to install and configure Hydra server
 - More servers means more security and more availability
- Software to install and configure AMGA server.
- Improvement of Dicom server support
 - Test with only one server (CTN)
- Test :
 - This installation tools have been tested on only two computers.

- Modify the SRM server to obtain more deterministic performance



- The script use the “dialog” software
 - Reliable (RedHat installation procedure)
 - Don't need a X/Xorg server
- Installation may be done throw ssh
 - No latency
 - No mouse need



```
Installation of the Medical Data Manager

This script will help you to install the medical data manager (MDM).

< OK >
```