

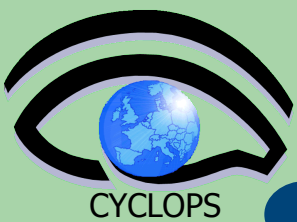
The GILDA t-Infrastructure



Tony Calanducci
INFN Catania
CYCLOPS First Training
Workshop
Bologna, 11^h-13th April 2007

Outline

- Motivation
- The GILDA t-Infrastructure
 - Services
 - Tools
 - Applications
- GILDA Support System
- Tutorial Lay-out
- Summary and conclusions



The t-Infrastructure

- Why t-infrastructure?
 - e-Infrastructure for production
 - t-Infrastructure for training
- Need guaranteed response for tutorials; limit the vulnerability of production systems
 - use training grid
 - have training CA
 - able to change middleware to prepare participants for future releases on production system
- Also:
 - need safe resources for installation training
 - easy entry point for new communities





The GILDA Project

(<https://gilda.ct.infn.it>)

GILDA Testbed - Grid INFN Laboratory for Dissemination Activities - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

https://gilda.ct.infn.it/

Getting Started Webmail FastWeb FastWeb NA/RM AP 3COM trip Missioni Offerte Ordini GILDA Progetti



HOME

TESTBED

GRID DEMONSTRATOR

1) CERTIFICATION AUTHORITY

2) VIRTUAL ORGANIZATION

3) GRID TUTOR

MONITORING

CONTACTS

➤ List of Tutorials

➤ Request a Tutorial

➤ Posters

➤ Video Tutorials

➤ User Interface PnP

➤ Virtual Services

➤ Instructions for Users

➤ Instructions for Sites

➤ Training Material (wiki)

➤ Support System

➤ Useful Links

➤ Sponsors

➤ Usage Statistics

➤ Old Usage Statistics

GILDA (Grid INFN Laboratory for Dissemination Activities)

is a virtual laboratory to demonstrate/disseminate the strong capabilities of grid computing.

GILDA consists of the following elements:

- the GILDA Testbed: a series of sites and services (Resource Broker, Information Index, Data Managers, Monitoring tool, Computing Elements, and Storage Elements) spread all over Italy and the rest of the world on which the latest version of the INFN Grid middle-ware (fully compatible with gLite) is installed;
- the Grid Demonstrator: a customized version of the full GENIUS web portal, jointly developed by INFN and NICE, from where **everybody** can submit a pre-defined set of applications to the GILDA Testbed;
- the GILDA Certification Authority: a fully functional Certification Authority which issues 14-days X.509 certificates to everybody wanting to experience grid computing on the GILDA Testbed;
- the GILDA Virtual Organization: a Virtual Organization gathering all people wanting to experience grid computing on the GILDA Testbed; the GILDA Virtual Organization is based on the Virtual Organization Membership Service (VOMS) developed by INFN;
- the Grid Tutor: based on a full version of the GENIUS web portal, to be used only during grid tutorials;
- the monitoring system: a versatile monitoring system completely based on GridICE, the grid monitoring tool developed by INFN;
- the GILDA mailing list: gilda@infn.it also archived on the web [here](#)





...and the Projects using GILDA

GILDA Testbed - Grid INFN Laboratory for Dissemination Activities - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

https://gilda.ct.infn.it/

Getting Started Webmail FastWeb FastWeb NA/RM AP 3COM trip Missioni Offerte Ordini GILDA Progetti

INFN GRID **GILDA** **EGEE** **ICEAGE**

Enabling Grids for E-science in Europe

HOME TESTBED GRID DEMONSTRATOR 1) CERTIFICATION AUTHORITY 2) VIRTUAL ORGANIZATION 3) GRID TUTOR MONITORING CONTACTS

GILDA is an activity of the Italian [Istituto Nazionale di Fisica Nucleare \(INFN\)](#) carried on in the context of the following Projects:

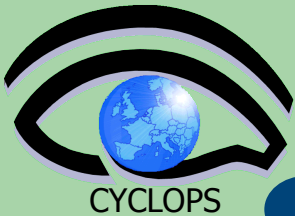
- List of Tutorials
- Request a Tutorial **NEW**
- Posters
- Video Tutorials
- User Interface PnP
- Virtual Services
- Instructions for Users
- Instructions for Sites
- Training Material (wiki)
- Support System
- Useful Links
- Sponsors
- Usage Statistics
- Old Usage Statistics

INFN GRID **EGEE** **BEInGRID** **BioinfoGRID**

CoreGRID **euchinagrid** **MBRACE Grid** **ICEAGE**

EUMED Grid **Health-e-Child** **Trinacria Grid Virtual Laboratory**

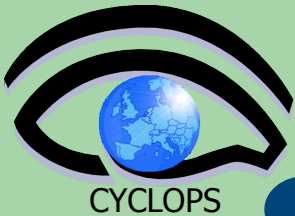
Done gilda.ct.infn.it



(Some of) The GILDA Sponsors

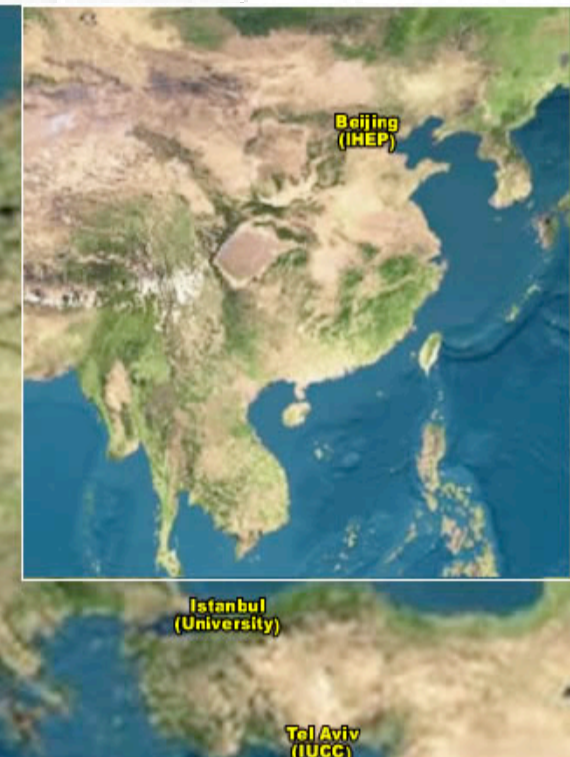
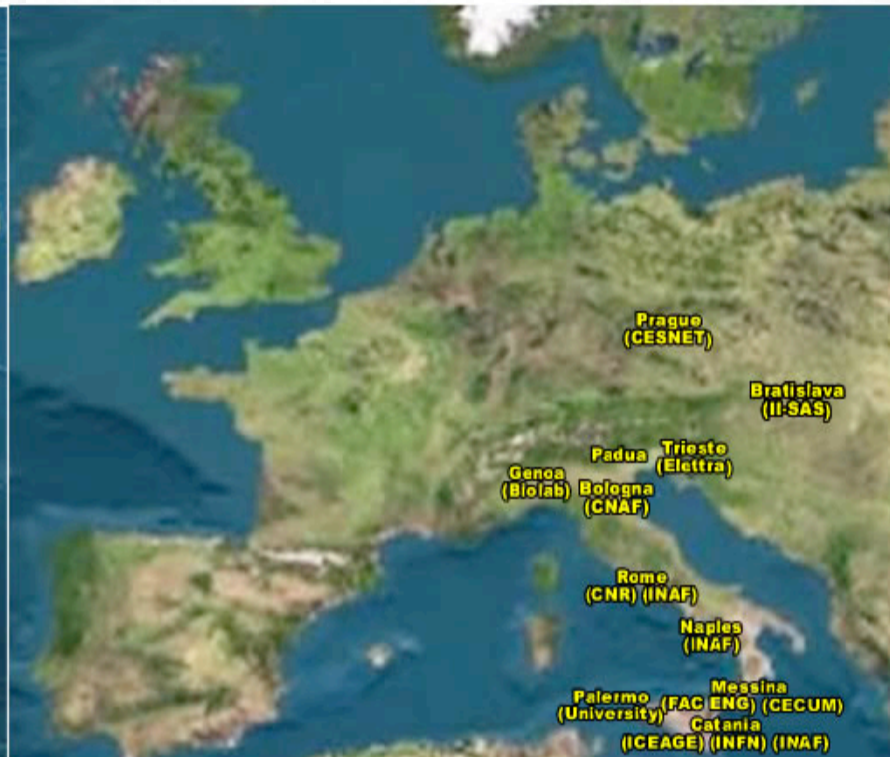
(<https://gilda.ct.infn.it/sponsors.html>)





The GILDA Test-bed

(<https://gilda.ct.infn.it/testbed.html>)



20+ sites in 3 continents
(not all available at the same time,
though)



LCG Resource Broker (RB)	glite-rb.ct.infn.it
gLite Resource Broker (RB)	glite-rb2.ct.infn.it
WMproxy Resource Broker (RB)	glite-rb3.ct.infn.it
Information Index (BDII)	grid004.ct.infn.it
VOMS server	voms.ct.infn.it:8443/voms/gilda
DGAS Price Authority	grid-demo1.ct.infn.it:56568
DGAS HLR	grid-demo1.ct.infn.it:56567
GridICE Monitoring System	alifarm7.ct.infn.it:50080
LCG File Catalog (LFC)	lfc-gilda.ct.infn.it
gLite File Transfer Service	fts.ct.infn.it
AMGA Metadata Catalog	amga.ct.infn.it:8822
R-GMA server	https://rgmasrv.ct.infn.it:8443/R-GMA
MyProxy Server	grid001.ct.infn.it
Backup MyProxy Server	grid014.ct.infn.it


Ports Used

This table, provided by EDG, shows the ports used by the grid services.

An update provided by LCG is available at [LCG Table ports \(PDF, external link\)](#) [updated 23/08/2004]



The GILDA Certification Authority (<https://gilda.ct.infn.it/CA/>)



- General information
- GILDA CA certificate
- Request a personal certificate
- Request an account
- Request a host certificate
- Renew a certificate
- Check a personal certificate
- Certificate Revocation List

The GILDA Certification Authority

The **GILDA Certification Authority** (GILDA CA) issues temporary (two weeks) personal public key certificates (compliant with the X.509 standard) in order to access the GILDA CA.

Absolutely no identity check is going to be performed on the certificates. The certificates have absolutely no value on any real production Grid Infrastructure.

The **GILDA Certification Authority** is managed by:

Giuseppe Platania
INFN Catania
Via S. Sofia, 64
I-95123 Catania
ITALY

e-mail: gilda-ca@ct.infn.it
Tel: +39 095 378 5469
Fax: +39 095 378 5231

In order to inspect the GILDA CA certificate and/or save it in your browser (to check it and/or use it as a certificate) click on **GILDA CA certificate** in the left part of the page.

In order to request a certificate, click on **Request a personal certificate**.

If you already have a trusted personal certificate, click on **Request an account**. Your personal certificate must be included in your browser.

In order to request a host certificate, click on **Request a host certificate**.

Statistics of certificates

TOTAL CERTIFICATES	5779
PERSONAL CERTIFICATES	
TOTAL	4658
REQUESTED ONE TIME	2767
REQUESTED MORE TIMES	776
HOST CERTIFICATES	
TOTAL	914
REQUESTED ONE TIME	795
REQUESTED MORE TIMES	58





The GILDA Certification Authority

Request a GILDA CA personal certificate - Mozilla

File Edit View Go Bookmarks Tools Window Help

https://gilda.ct.infn.it/CA/mgt/restricted/ucert.php Go Search

Home Bookmarks mozilla.org mozillaZine mozdev.org

- **Request an account**
- **Request a host certificate**
- **Check a personal certificate**
- **Certificate Revocation List**

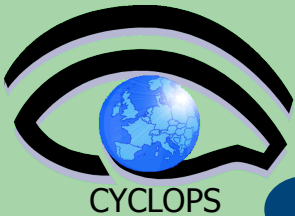
In order to correctly generate a request it is mandatory to fill **all** fields in the form below. Please, double check the correctness of the e-mail address that you are going to provide since **no verification** will be performed by the server.

The password you are prompted about in the form below is the password of your personal account on the **GENIUS Portal** from where you will access the GILDA Testbed and it is **NOT** the passphrase of your personal certificate.

When the certificate will be signed by the GILDA CA manager you will be notified by e-mail with the instructions to download your GILDA CA personal certificate and access the GILDA Testbed.

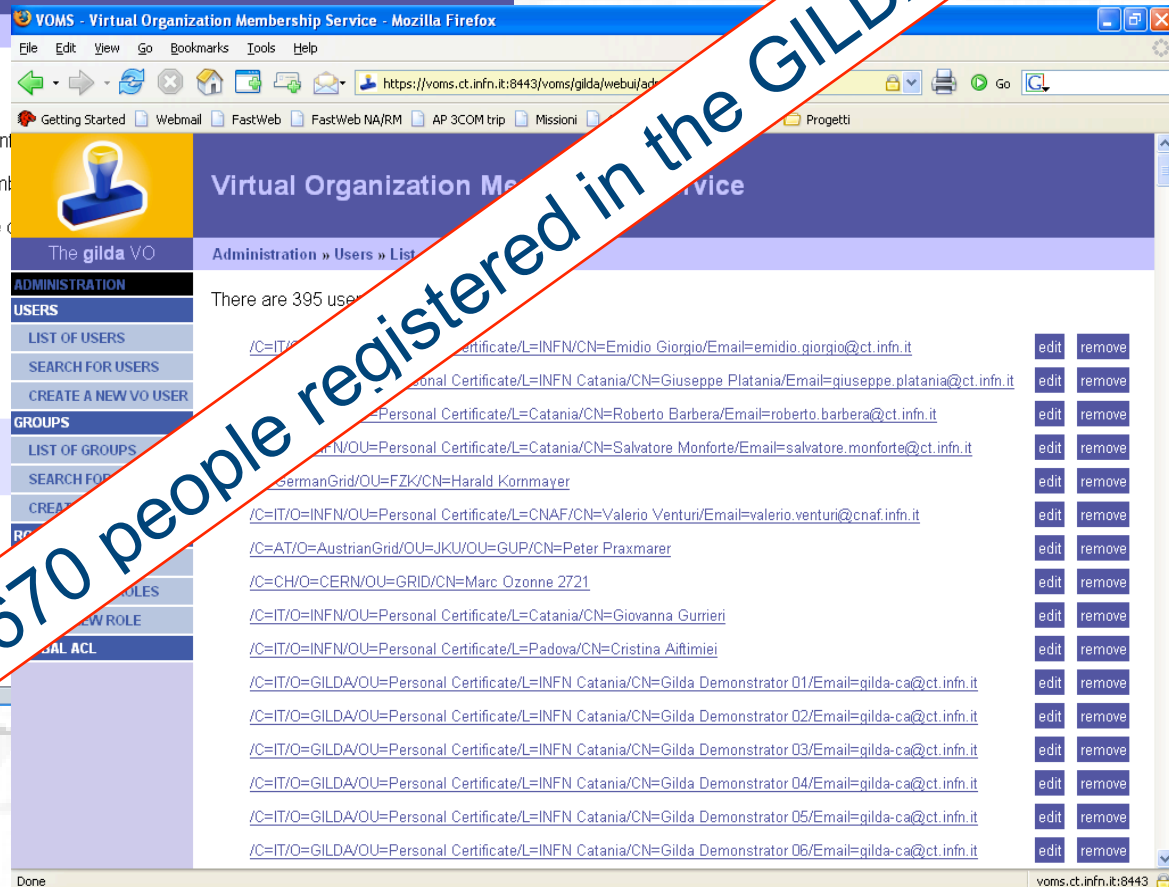
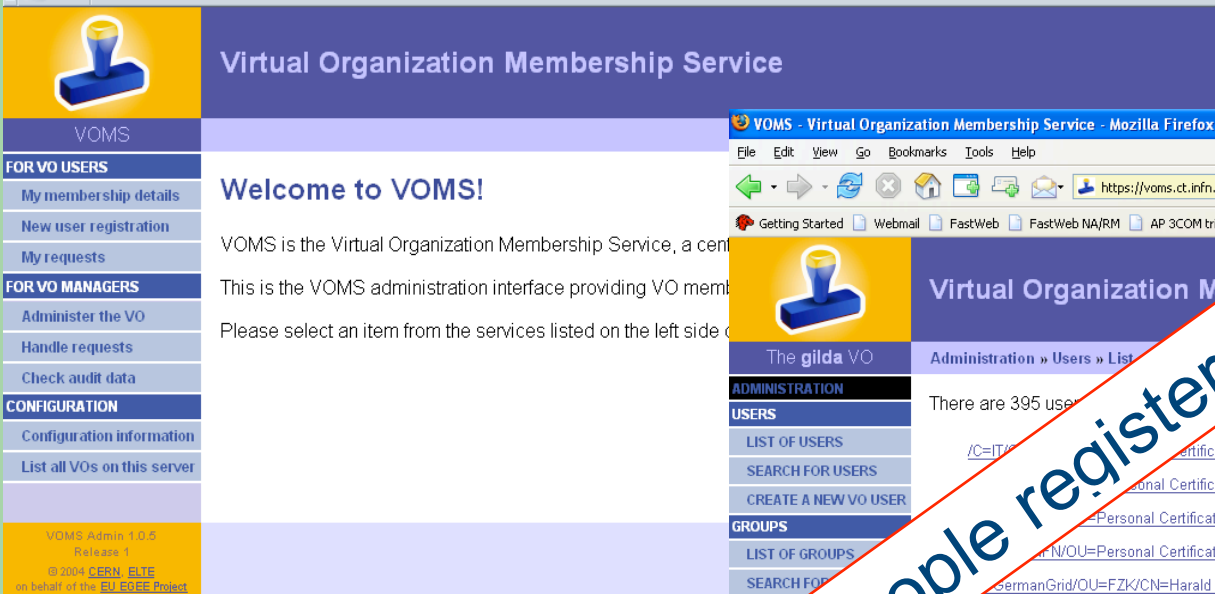
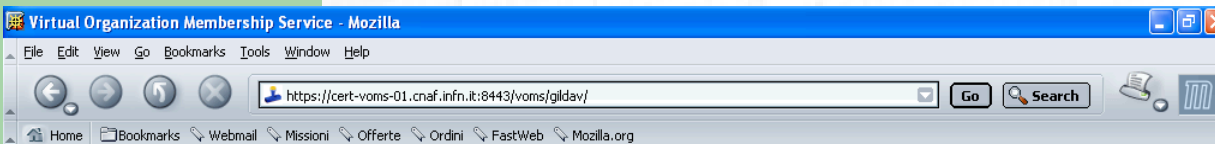
Institute/University/Company:	<input type="text"/>
First name and last name:	<input type="text"/>
Account username (max 8 characters; only not-accented letters and digits are allowed, both lowercase and uppercase):	<input type="text"/>
Account password (only not-accented letters and digits are allowed, both lowercase and uppercase):	<input type="password"/>
Confirm account password (only not-accented letters and digits are allowed, both lowercase and uppercase):	<input type="password"/>
E-mail:	<input type="text"/>
KeySize:	2048 (High Grade) <input type="button" value="v"/>





The GILDA VOMS

(<https://voms.ct.infn.it:8443/voms/gilda/>)





The GILDA Monitoring System

(<http://alifarm7.ct.infn.it:50080/gridice>)

GILDA - GridICE - Grid Monitoring Service - Mozilla

File Edit View Go Bookmarks Tools Window Help

http://alifarm7.ct.infn.it:50080/gridice/site/site.php

Home Bookmarks Webmail Tiscali Mail Missioni Offerte Ordini Mozilla.org

GILDA
GRID INFN LABORATORY for DISSEMINATION ACTIVITIES

GridICE
the eyes of the Grid

Site view VO view Job Monitoring Geo view Gris view

Site view::ALL >> Summary

Computing Resources

Site ▼	GK#	CE#	RunJob	WaitJob	JobLoad	SlotLoad	Power	WN#	CPU#	CPUload	Available
be.itu.edu.tr	1	3	3	0	100%	100%	-	-	-	-	139.2 Gb
cesnet.cz	1	1	0	0	-	-	-	-	-	-	3 Tb
cnaf.infn.it	1	4	0	1	0%	0%	6K	1	2	0%	13.4 Gb
ct.astro.it	1	4	0	17	0%	0%	4K	1	1	0%	104.5 Gb
ct.infn.it	2	7	0	0	0%	0%	-	-	-	-	1.4 Tb
grid.unipg.it	1	3	0	0	0%	0%	20K	8	10	4%	7.3 Gb
na.astro.it	1	4	0	0	0%	0%	-	-	-	-	213.8 Gb
pd.infn.it	1	4	2	6	2%	0%	8K	2	4	5%	498.6 Gb
ui.savba.sk	1	4	0	0	0%	0%	19K	4	4	0%	68.5 Gb
TOTAL	10	34	5	24	15%	12%	56K	16	21	10%	5.4 Tb

Generated: Fri, 6 May 2005 12:28:49 +0200

VO view::gilda >> Core Services >> Storage Resources

Computing Resources Storage Resources

Storage Element ID	Storage Space ID	Site ▼	Available Space	Used Space
cn02.be.itu.edu.tr	gilda:gilda	be.itu.edu.tr	139.22 Gb	32 Mb
testbed005.cnaf.infn.it	gilda:gilda	cnaf.infn.it	13.44 Gb	1.89 Gb
gildase.ct.astro.it	gilda:gilda	ct.astro.it	104.54 Gb	1.92 Gb
grid009.ct.infn.it	gilda:gilda	ct.infn.it	1.38 Tb	638.26 Gb
alifarm12.ct.infn.it	gilda:gilda	ct.infn.it	22.19 Gb	2.68 Gb
se.grid.unipg.it	gilda:gilda	grid.unipg.it	7.33 Gb	1.79 Gb
grid3.na.astro.it	gilda:gilda	na.astro.it	213.79 Gb	3.23 Gb
gilda-se-01.pd.infn.it	gilda:gilda	pd.infn.it	498.59 Gb	727 Mb
dgt02.ui.savba.sk	gilda:gilda	ui.savba.sk	68.54 Gb	145 Mb

Generated: Fri, 6 May 2005 12:49:01 +0200

GridICE Homepage

GILDA - GridICE - Grid Monitoring Service - Mozilla

File Edit View Go Bookmarks Tools Window Help

http://alifarm7.ct.infn.it:50080/gridice/vo/vo_details.php?voName=gilda&visi

Home Bookmarks Webmail Tiscali Mail Missioni Offerte Ordini Mozilla.org

Site view VO view Job Monitoring Geo view Gris view

VO view::gilda >> Core Services >> Computing Resources

Computing Resources Storage Resources

Computing Element ID	Site ▼	Free Slots	Total Slots
cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-infinite	be.itu.edu.tr	0	2
cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-long	be.itu.edu.tr	0	2
cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-short	be.itu.edu.tr	0	2
skurut1.cesnet.cz:2119/jobmanager-lcgpbs-gilda	cesnet.cz	0	0
grid011f.cnaf.infn.it:2119/jobmanager-lcgpbs-cert	cnaf.infn.it	2	2
grid011f.cnaf.infn.it:2119/jobmanager-lcgpbs-infinite	cnaf.infn.it	2	2
grid011f.cnaf.infn.it:2119/jobmanager-lcgpbs-long	cnaf.infn.it	2	2
grid011f.cnaf.infn.it:2119/jobmanager-lcgpbs-short	cnaf.infn.it	2	2
gildace.ct.astro.it:2119/jobmanager-lcgpbs-infinite	ct.astro.it	1	1
gildace.ct.astro.it:2119/jobmanager-lcgpbs-long	ct.astro.it	1	1
gildace.ct.astro.it:2119/jobmanager-lcgpbs-short	ct.astro.it	1	1
ce-test.ct.infn.it:2119/jobmanager-lcglsf-infinite	ct.infn.it	8	8
ce-test.ct.infn.it:2119/jobmanager-lcglsf-long	ct.infn.it	8	8
ce-test.ct.infn.it:2119/jobmanager-lcglsf-short	ct.infn.it	8	8
grid010.ct.infn.it:2119/jobmanager-lcgpbs-infinite	ct.infn.it	19	19
grid010.ct.infn.it:2119/jobmanager-lcgpbs-long	ct.infn.it	19	19
grid010.ct.infn.it:2119/jobmanager-lcgpbs-short	ct.infn.it	19	19
ce.grid.unipg.it:2119/jobmanager-lcgpbs-infinite	grid.unipg.it	16	16
ce.grid.unipg.it:2119/jobmanager-lcgpbs-long	grid.unipg.it	16	16
ce.grid.unipg.it:2119/jobmanager-lcgpbs-short	grid.unipg.it	16	16
grid4.na.astro.it:2119/jobmanager-lcgpbs-cert	na.astro.it	7	7
grid4.na.astro.it:2119/jobmanager-lcgpbs-infinite	na.astro.it	7	7
grid4.na.astro.it:2119/jobmanager-lcgpbs-long	na.astro.it	7	7
grid4.na.astro.it:2119/jobmanager-lcgpbs-short	na.astro.it	7	7
gilda-ce-01.pd.infn.it:2119/jobmanager-lcgpbs-infinite	pd.infn.it	2	2



The GILDA Accounting System (based on DGAS)

```
alipc5.ct.infn.it - barbera@alipc5* - SSH Secure Shell
File Edit View Window Help
[Icons: Save, Print, Find, Copy, Paste, Undo, Redo, Home, Up, Down, Left, Right, Search, Help]
Quick Connect Profiles

[barbera@glite-tutor:~]$ dgas-check-ce-price grid010.ct.infn.it:2119/jobmanager-
lcpbbs-short

Price Authority queried at: Fri Oct 21 11:40:55 CEST 2005
Computing Element: grid010.ct.infn.it:2119/jobmanager-lcpbbs-short
Price (credits for 100 CPU secs): 170

[barbera@glite-tutor:~]$
[barbera@glite-tutor:~]$
[barbera@glite-tutor:~]$
[barbera@glite-tutor:~]$ dgas-check-balance

User: Roberto Barbera
E-mail: roberto.barbera@ct.infn.it
Subject: /C=IT/O=INFN/OU=Personal Certificate/L=Catania/CN=Roberto Barbera/Email
=roberto.barbera@ct.infn.it
Assigned credits (0=infinite): 0
Booked credits: 0
Used credits: 17
Used wall clock time (sec): 377
Used CPU time (sec): 24
Accounted jobs: 4

[barbera@glite-tutor:~]$
```

Connected to alipc5.ct.infn.it

SSH2 - aes128-cbc - hmac-md5 - none 80x24





The gLite Tutor

(<https://glite-tutor.ct.infn.it>)

Welcome to the GENIUS Grid Portal - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

<https://glite-tutor.ct.infn.it/>

TELEFONINO.NET - il si... Third EELA Tutorial for ... 190.it OSx86 Project - Home ZioBudda.net Italian Lin... glite-tutor eBay Italia: il mercato ... GILDA Testbed - Grid I... INFN & Dip. Fisica - Cat...


Welcome to the GENIUS Grid Por...

INFN Egee Enabling Grids for E-science Grid Enabled web eNvironment for genius site I ndependent U ser job S ubmission enginframe NICE

GENIUS Services

- File
 - Create a File
 - View/Edit a File
 - Copy/Rename a File/Dir
 - Delete Files/Dirs
 - Create a Directory
 - Upload a TAR ball
 - Upload a File
 - Change Permissions
 - Show the Environment
- Security
 - Info on proxy
 - Info on MyProxy
 - Info on VOMS proxy
 - Change OS Password
 - Remove proxy & Logout
- Job
 - GUI
 - Accounting
 - Job Submission
 - Job Queue
 - Clean Job Queues
 - List Available Resources
- Data
 - Publish a File
 - Navigate Catalog
 - Manage Dir on Catalog
 - Rename on Catalog
- Info
- Monitoring
 - View Testbed
- Interactive
 - Open Desktop
 - Close Desktop
 - Set Desktop Password
- Preferences

Welcome to GENIUS Portal




ver. 3.1

compliant with [gLite 3.0.2](#) middleware

[Credits](#)

This portal is best viewed with Mozilla 1.7.12 or higher.
Netscape (4.79, 4.80, 6 or higher) and Internet Explorer (5 or higher) can also be used.
The use of any other web browsers could induce some visualization mismatches and is not currently suggested.

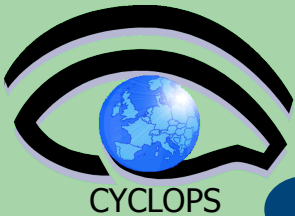
powered by



Last update: **Thu 1 June 2006**

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The gLite Demonstrator

(<https://glite-demo.ct.infn.it>)

Welcome to the GENIUS Grid Portal - Mozilla

File Edit View Go Bookmarks Tools Window Help

https://glite-demo.ct.infn.it/ Go Search

Home Bookmarks Webmail FastWeb FastWeb NA/RM AP 3COM trip Missioni Offerte Ordini GILDA Mozilla.org

INFN eGee Enabling Grids for E-science Grid Enabled web eNvironment for genius site Independent User job Submission enginframe NICE

GENIUS Services

- File
- Security
- Data
- Info
- Monitoring
- BLAST Services
- VO Services

Welcome to the **GILDA** Grid Demonstrator
powered by **GENIUS Portal**
based on

gLite

[Credits](#)

This portal is best viewed with Mozilla 1.7.12 or higher.
Netscape (4.79, 4.80, 6 or higher) and Internet Explorer (5 or higher) can also be used.
The use of any other web browsers could induce some visualization mismatches and is not currently suggested.

powered by

enginframe

Last update: Mon 3 July 2006

Demonstrative Applications

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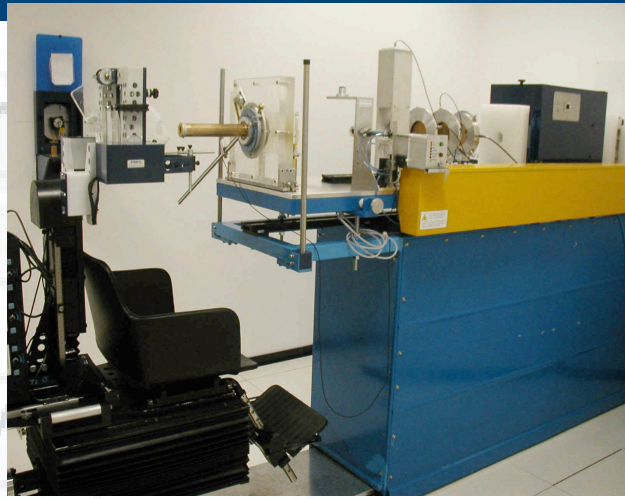
Done



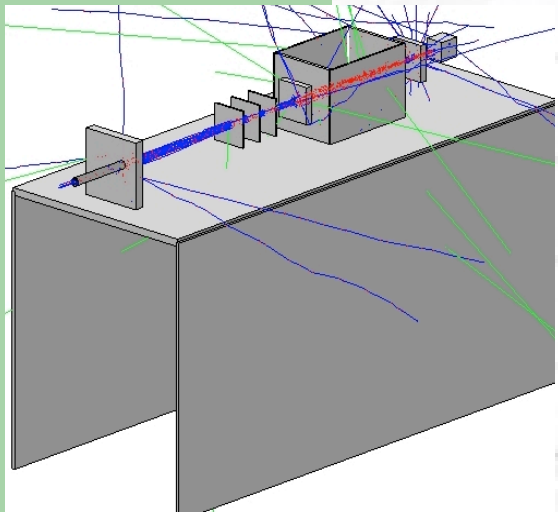
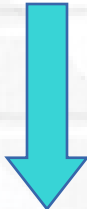


hadronTherapy example

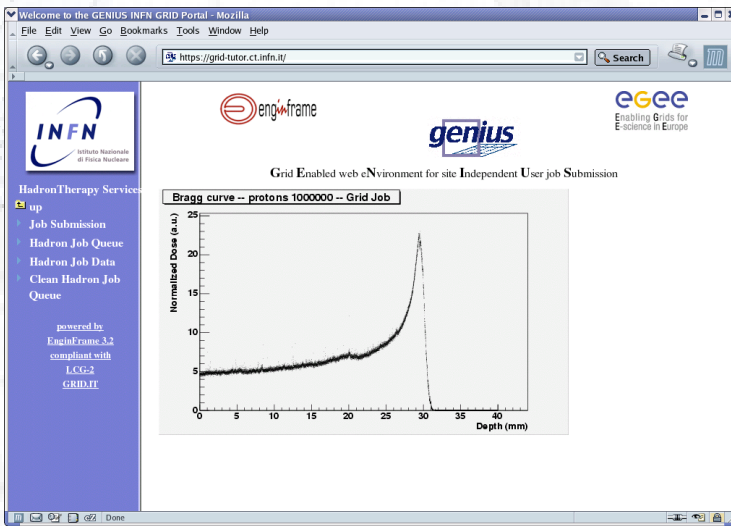
CATANA beam line in reality



hadronTherapy in GENIUS



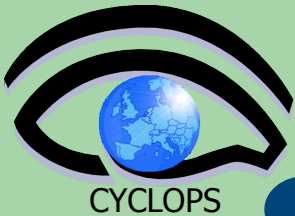
CATANA beam line simulated by hadronTherapy





RASTER-3D example

The screenshot displays the GENIUS INFN GRID Portal interface. At the top, a browser window shows the URL <https://grid-demo-1.ath.cx/>. The page features logos for INFN, EnginFrame, genius, and EGEE. A navigation menu on the left lists services: File Services, Security Services, Bulk Services, Monitoring Services, VO Services, and Logout. The main content area, titled "Grid Enabled web environment for site Independent User job Submission", contains a large 3D molecular model of a protein structure, rendered with red, blue, and grey spheres.

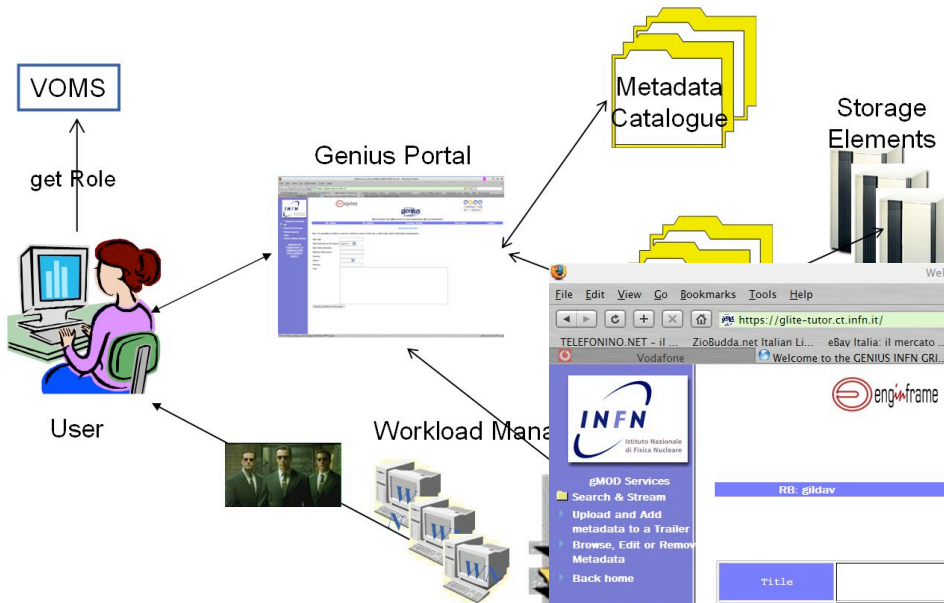


gMOD example

eGee

Enabling Grids for E-science

gMOD interactions



Grid for
Entertainment !



Welcome to the GENIUS INFN GRID Portal - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

https://glite-tutor.ct.infn.it/

TELEFONINO.NET - il ... ZioBudda.net Italian Li... eBay Italia: il mercato ... GILDA Testbed - Grid I... airfavev - Smartphone... Login to INAF-Gilda P... thinkpads.com :: Index TIM AstroComp

Welcome to the GENIUS INFN GRID Portal

eng*frame

genius

eGee
Enabling Grids
for E-science

Grid Enabled web eNvironment for site Independent User job Submission

RB: gildav VO: gildav Catalog: GILDA Your Data Logout

You have selected the trailer /trailers/Shrek2.mpg.
These are the attributes of the trailer you have choosen.

Title	Shrek 2				
Run Time	92	Country	USA	Release Date	2004
Genre	Action	Director	William Steig		
Cast	Mike Myers ... Shrek (voice) Eddie Murphy ... Donkey (voice) Cameron Diaz ... F (voice) John Cleese ... King (voice) Rupert Everett ... Prince Charming (voice) Jel Page/Eir/Nobleman/Nobleman's Son (voice) Cody Cameron ... Pinocchio/Three (voice) Christopher Knights ... Blind Mouse (voice) David P. Smith ... Herald/Mar				
Plot Outline	The film picks up right where the first movie ended... Shrek and Fiona return from The only problem is that they have no idea that their daughter is now an ogre.				

powered by
Engin*frame 3.2
compliant with
LCB-2 GRID II
glite-1

LFN: /trailers/Shrek2.mpg
Created: 2005-10-13 17:23:58.000
Modified: 2005-10-13 17:23:58.000
Size: 6100996
Type: File
Expires: Never
GUID: 000f0e2e-7c0d-134e-a731-c1ced08dbef
Created: 2005-10-13 17:24:03.000
Modified: 2005-10-13 17:24:03.000
Size: 6100996
Checksum: 00000000
Status: 0
User: /C=IT/O=GILDA/OU=Personal Certificate/L=INAF
Group: egee-group
User rights: pdrwl-gs

VLC media player

File Visualizza Impostazioni Audio Video Navigazione

0:01:21 / 0:02:30 x1.00 C:\Documents and Settings\TonyI

glite-tutor.ct.infn.it



The GILDA User Interface Plug&Play

(<https://gilda.ct.infn.it/UIPnP/>)

GILDA UI PnP - Mozilla

File Edit View Go Bookmarks Tools Window Help

https://gilda.ct.infn.it/UIPnP/ Go Search

Home Bookmarks Webmail FastWeb FastWeb NA/RM AP 3COM trip Missioni Offerte Ordini GILDA Mozilla.org

INFN GRID

GILDA

GRID INFN LABORATORY for DISSEMINATION ACTIVITIES

EGEE ICEAGE

Enabling Grids for E-science in Europe

HOME TESTBED GRID DEMONSTRATOR 1) CERTIFICATION AUTHORITY 2) VIRTUAL ORGANIZATION 3) GRID TUTOR MONITORING CONTACTS

GILDA
PnP
GILDA User Interfaces Plug & Play

GILDA USER INTERFACE PLUG & PLAY
(GLITE 3.0)

The GILDA User Interface Plug & Play tarball contains all the necessary software to seamlessly turn your Linux PC into a machine from you can access and use the GILDA dissemination grid realized in the context of both the Italian INFN Grid Project and the European EGEE Project. The installation procedure installs the User Interface in the user directory so no root privilege is required. This User Interface is based both on gLite 3.0.

Grid tutorials
GILDA Posters
Video tutorials
User Interface PnP
Virtual Services **NEW**
Instructions for users
Instructions for sites **NEW**
GILDA Wiki **NEW**
Support system
Useful links

Sponsors
Usage Statistics
Old Usage Statistics

GILDA User Interface Plug & Play

Introduction

Use

Download

Useful links & info

Contacts & acknowledgments

SYSTEM REQUIREMENTS





The GILDA Virtual Services

(<https://gilda.ct.infn.it/VirtualServices.html>)

GildaVirtualServices - GILDA - Grid CT WIKI - Mozilla

File Edit View Go Bookmarks Tools Window Help

Jump Search

GRID CT

GILDA

You are here: [Grid CT WIKI](#) > [GILDA Web](#)
> [GILDAElementsInstallation](#) > [GildaVirtualServices](#)

GILDA Virtual Services

The GILDA Virtual Services is a group of... with VMWare Workstation 5.x In every VM has been installed a Grid Element.

Requirements :

You must download the...

VM Player : [Download/...](#)

GILDA... [https://gilda.ct.infn.it](#)

able :

(Readme) ([Readme](#))

with only Scientific Linux Cern 3.0.6

a new installation you can see the following

GILDA VM UI gLite 3.0 ([Readme](#))
(User Interface VM is already configured to...)

GILDA VM BDII gLite 3.0 ([Readme](#))

GILDA VM DPM gLite 3.0 ([Readme](#))

GILDA VM CE gLite 3.0 ([Readme](#))

Log In or Register

GILDA Web

- Create New Topic
- Index
- Search
- Changes
- Notifications
- Statistics
- Preferences

Webs

- GILDA
- Main
- Sandbox
- Wiki

Wiki pages also available

GILDA - Virtual Services - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

Getting Started Webmail FastWeb FastWeb NA/RM AP 3COM trip Missioni Offerte Ordini GILDA Progetti

INFN GRID

GILDA

GRID INFN LABORATORY for DISSEMINATION ACTIVITIES

HOME TESTBED GRID DEMONSTRATOR 1) CERTIFICATION AUTHORITY 2) VIRTUAL ORGANIZATION 3) GRID TUTOR MONITORING

Virtual Services

- List of Tutorials
- Request a Tutorial
- Posters
- Video Tutorials
- User Interface PnP
- Virtual Services
- Instructions for Users
- Instructions for Sites
- Training Material (wiki)
- Support System
- Useful Links
- Sponsors
- Usage Statistics
- Old Usage Statistics

GILDA VM Base ([Readme](#))

GILDA VM UI gLite 3.0 ([Readme](#))

GILDA VM BDII gLite 3.0 ([Readme](#))

GILDA VM DPM gLite 3.0 ([Readme](#))

GILDA VM CE gLite 3.0 ([Readme](#))

GILDA VM FTS gLite 3.0 ([Readme](#))

GILDA VM LFC_MySQL gLite 3.0 ([Readme](#))

GILDA VM MyProxy gLite 3.0 ([Readme](#))

GILDA RGMA gLite 3.0 ([Readme](#))

GILDA VOMS gLite 3.0 ([Readme](#))

GILDA VM WMS+LB gLite 3.0 ([Readme](#))



GILDAUI - VMware Player

GRUB version 0.93 (638K i386)

Scientific Linux CERN (2.4.21-3)

Use the ↑ and ↓ keys to select which entry is highlighted.
Press enter to boot the selected OS, 'e' to edit the
commands before booting, 'a' to modify the kernel arguments
before booting, or 'c' for a command-line.

Scientific Linux

start

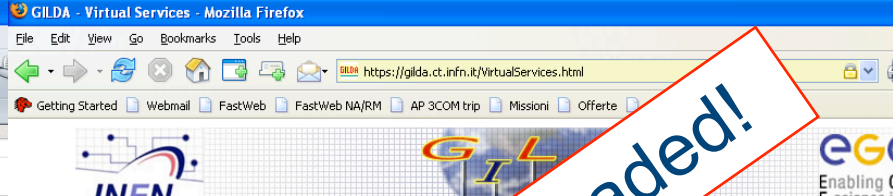
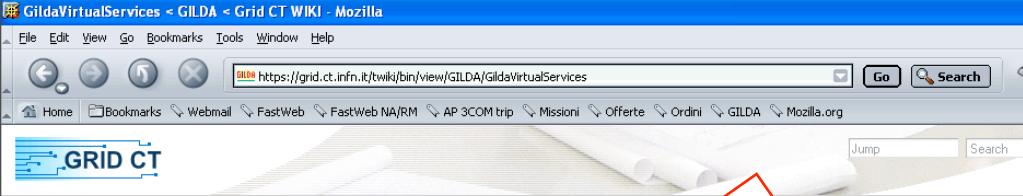
GILDAUI - VMware Player

Imagine - Paint



The GILDA Virtual Services

(<https://gilda.ct.infn.it/VirtualServices.html>)



Wiki pages also available

You are here: [Grid CT WIKI](#) > [GILDA Web](#)
> [GLiteElementsInstallation](#) > [GildaVirtualServices](#)

GILDA Virtual Services

The GILDA Virtual Services is a group of virtual machines installed with VMWare Workstation 5.x In every VM has been installed a Grid Element.

Requirements :

You must download the

VM Player : [http://www.vmware.com](#)

GILDA : [http://gilda.ct.infn.it](#)

Virtual Services : [http://gilda.ct.infn.it/VirtualServices.html](#)

Grid CT : [http://grid.ct.infn.it](#)

Grid CT WIKI : [http://grid.ct.infn.it/twiki](#)

Grid CT Web : [http://grid.ct.infn.it/web](#)

Grid CT Mail : [http://grid.ct.infn.it/mail](#)

Grid CT News : [http://grid.ct.infn.it/news](#)

Grid CT Events : [http://grid.ct.infn.it/events](#)

Grid CT Contacts : [http://grid.ct.infn.it/contacts](#)

Grid CT Downloads : [http://grid.ct.infn.it/downloads](#)

Grid CT Publications : [http://grid.ct.infn.it/publications](#)

Grid CT Projects : [http://grid.ct.infn.it/projects](#)

Grid CT Partners : [http://grid.ct.infn.it/partners](#)

Grid CT Sponsors : [http://grid.ct.infn.it/sponsors](#)

Grid CT Friends : [http://grid.ct.infn.it/friends](#)

Grid CT Supporters : [http://grid.ct.infn.it/supporters](#)

Grid CT Volunteers : [http://grid.ct.infn.it/volunteers](#)

Grid CT Members : [http://grid.ct.infn.it/members](#)

Grid CT Associates : [http://grid.ct.infn.it/associates](#)

Grid CT Affiliates : [http://grid.ct.infn.it/affiliates](#)

Grid CT Sponsors : [http://grid.ct.infn.it/sponsors](#)

- [List of Tutorials](#)
- [Request a Tutorial](#)
- [Posters](#)
- [Video Tutorials](#)
- [User Interface](#)
- [Virtual Services](#)
- [Instructions](#)
- [Downloads](#)
- [Usage Statistics](#)
- [Old Usage Statistics](#)

- [GILDA VM Base \(Readme\)](#)
- [GILDA VM UI gLite 3.0 \(Readme\)](#)
- [GILDA VM BDII gLite 3.0 \(Readme\)](#)
- [GILDA VM DPM gLite 3.0 \(Readme\)](#)
- [GILDA VM CE gLite 3.0 \(Readme\)](#)
- [GILDA VM FTS gLite 3.0 \(Readme\)](#)
- [GILDA VM LFC_MySQL gLite 3.0 \(Readme\)](#)
- [GILDA VM MyProxy gLite 3.0 \(Readme\)](#)
- [GILDA RGMA gLite 3.0 \(Readme\)](#)
- [GILDA VOMS gLite 3.0 \(Readme\)](#)
- [GILDA VM WMS+LB gLite 3.0 \(Readme\)](#)

a new installation you can see the following

GILDA VM UI gLite 3.0 ([Readme](#))
(User Interface VM is already configured to be used)

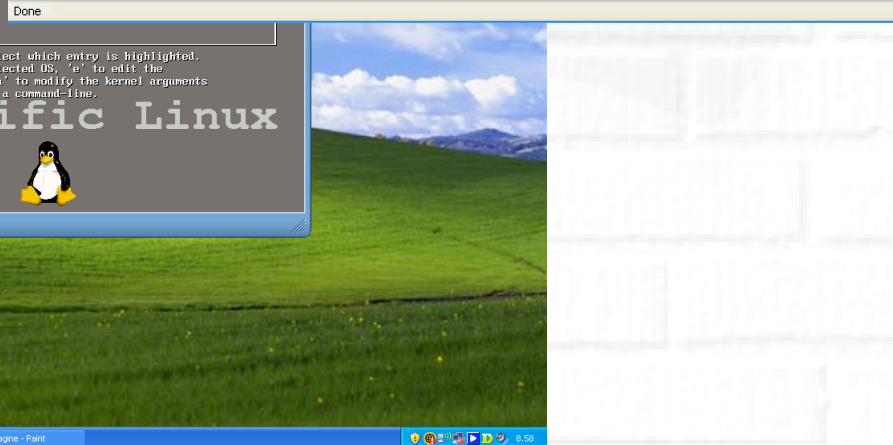
GILDA VM BDII gLite 3.0 ([Readme](#))

GILDA VM DPM gLite 3.0 ([Readme](#))

GILDA VM CE gLite 3.0 ([Readme](#))

Use the ↑ and ↓ keys to select which entry is highlighted.
Press enter to boot the selected OS, 'e' to edit the
commands before booting, 'a' to modify the kernel arguments
before booting, or 'c' for a command-line.

Scientific Linux



More than 2 TB of training material already downloaded!





The GILDA Training Material (1/4)

(<https://grid.ct.infn.it/twiki/bin/view/GILDA/WebHome>)

WebHome < GILDA < Grid CT WIKI - Mozilla Firefox


File Edit View Go Bookmarks Tools Help

← → ↺ × 🏠 📁 📧 GILDA <https://grid.ct.infn.it/twiki/bin/view/GILDA/WebHome> 🔔 🔒 ⚙️ 🖨️ 🎧 Go 🔍

🔥 Getting Started 📧 Webmail 📧 FastWeb 📧 FastWeb NA/RM 📧 AP 3COM trip 📧 Missioni 📧 Offerte 📧 Ordini GILDA GILDA 📁 Progetti

GRID CT

GILDA



[Log In](#) or [Register](#)

GILDA Web

- Create New Topic
- Index
- Search
- Changes
- Notifications
- Statistics
- Preferences

Webs

- GILDA
- Main
- Sandbox
- TWiki

You are here: [Grid CT WIKI](#) > [GILDA Web](#) > WebHome

r18 - 09 Oct 2006 - 05:28:58 - EmidioG

Welcome to the GILDA web

Topics

- Grid Elements Installation : [gLite 3.0](#)
- gLite 3.0 [UserTutorials](#)
- gLite 3.0 [SysAdminTutorials](#)
- gLite 3.0 [API Usage](#)
- [GildaVirtualServices](#)

GILDA Web Utilities

Search - [advanced search](#)

- [WebTopicList](#) - all topics in alphabetical order
- [WebChanges](#) - recent topic changes in this web
- [WebNotify](#) - subscribe to an e-mail alert sent when topics change
- [WebRss](#), [WebAtom](#) - RSS and ATOM news feeds of topic changes
- [WebStatistics](#) - listing popular topics and top contributors
- [WebPreferences](#) - preferences of this web

[Edit](#) | [Attach](#) | [Printable](#) | [Raw View](#) | Backlinks: [Web](#), [All Webs](#) | [History](#): r18 < r17 < r16 < r15 < r14 | [More topic actions](#)

Done grid.ct.infn.it







The GILDA Training Material (2/4)


(<https://grid.ct.infn.it/twiki/bin/view/GILDA/UserTutorials>)

UserTutorials < GILDA < Grid CT WIKI - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

← → ↺ × 🏠 📁 📧 📧  <https://grid.ct.infn.it/twiki/bin/view/GILDA/UserTutorials> 📡 🔒 ⌵ 🖨️ ⏪ Go 🔍

🔗 Getting Started 📁 Webmail 📁 FastWeb 📁 FastWeb NA/RM 📁 AP 3COM trip 📁 Missioni 📁 Offerte 📁 Ordini  GILDA 📁 Progetti







Log In or Register

GILDA Web

- Create New Topic
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- Search
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Webs

-  GILDA
-  Main
-  Sandbox
-  TWiki

gLite 3.0 User Tutorials

- ↓ [Basic](#)
- ↓ [Medium](#)
- ↓ [Advanced](#)

This section is intended as a quickstart for users with none or small experience in use of the gLite middleware. The section is divided in different sub-topics, but it's mandatory starting from the one regarding authentication and authorization.

Basic

- [Authentication & authorization](#)
- [Certificate Management](#)
- [Browsing into the VOMS SERVER machine \(WEB\)](#)
- [Browsing Information System \(BDII/RGMA\)](#)
- [Simple job submission](#)
- [Basic Data Management](#)

Medium

- [Credential Delegation through MyProxy](#)
- [Use of WM Proxy interface for job submission : DAG, collection, parametric jobs](#)
- [More on JDL \(includes MPI jobs \)](#)
- [Job requesting data](#)
- [Job requesting data - A Grid application case](#)


Done grid.ct.infn.it








The GILDA Training Material (3/4)


(<https://grid.ct.infn.it/twiki/bin/view/GILDA/GliteElementsInstallation>)


 **GILDA Web**


 Create New Topic


 Index

 Search


 Changes


 Notifications


 Statistics


 Preferences

Webs

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gLite 3.0 Site Admin Tutorials

Operating on a Grid site, once a job submission or a data management failure occurs, could not be so easy. In this section will be illustrated a procedure to monitor Grid sites together with Grid Middleware testing to speed up troubleshooting activity.

Monitoring procedure could be based on three main activities:

- ↓ [Problem Detection](#)
 - ↓ [SFTs](#)
 - ↓ [GridICE](#)
- ↓ [Diagnosis](#)
 - ↓ [Security](#)
 - ↓ [Submission](#)
 - ↓ [Data Management](#)
- ↓ [Problem Tracking](#)
 - ↓ [Logging Tickets](#)

Problem Detection

To rapidly detect problems on a Grid Site, and more generally on a Grid composed by many sites, monitoring tools utilization play a key role. In the following section we will have a survey of the three tools most used by EGEE site admins:

- SFTs
- GridICE

For each tool we will see how to better investigate Grid site functionality. If you are a Grid site admin interested in monitoring your site, a daily monitoring tools utilization is needed.

SFTs

Developed by CERN as a framework able to monitor the regularity of performance for a Grid Site, its approach is based on the periodical submission of ad hoc jobs, to test different aspects of a Computing Element (CE) (es. job submission, replica management, CA proxy). The results of that submission are then published in a web context to easily check Grid sites sanity.



The GILDA Training Material (4/4)

(<https://grid.ct.infn.it/twiki/bin/view/GILDA/APIUsage>)

APIUsage < GILDA < Grid CT WIKI - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

https://grid.ct.infn.it/twiki/bin/view/GILDA/APIUsage

Getting Started Webmail FastWeb FastWeb NA/RM AP 3COM trip Missioni Offerte Ordini GILDA Progetti

GRID CT

GILDA

You are here: [Grid CT WIKI](#) > [GILDA Web](#) > APIUsage

r4 - 25 Sep 2006 - 11:20:43 - ValeriaArdizzone

gLite 3.0 API Usage Examples

This section aims to give an overview of API usage within the gLite 3.0 environment available to unprivileged users on a gLite user interface 3.0.x. Sometimes has been necessary to add something at the standard UI configuration, whether this has happened it has been clearly indicated.

[WM Proxy C++ API](#)

[LFC Java API](#)

[GFAL Java API](#)

[VOMS C++ API](#)

[R-GMA API](#)

-- [EmidioG](#) - 20 Sep 2006

[Edit](#) | [Attach](#) | [Printable](#) | [Raw View](#) | Backlinks: [Web](#), [All Webs](#) | History: [r4](#) < [r3](#) < [r2](#) < [r1](#) | [More topic actions](#)

GILDA Web

- Create New Topic
- Index
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- Notifications
- Statistics
- Preferences

Webs

- GILDA
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- Sandbox
- TWiki

Information Society and Media

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Ideas, requests, problems regarding Grid CT WIKI? [Send feedback](#)

TWiki



The GILDA Video Tutorials

(<https://gilda.ct.infn.it/video.html>)

GILDA Testbed - Grid INFN Laboratory for Dissemination Activities - Mozilla

File Edit View Go Bookmarks Tools Window Help

https://gilda.ct.infn.it/ Go Search

Home Bookmarks Webmail Tiscali Mail Missioni Offerte Ordini Mozilla.org

INFN GRID

GILDA

GRID INFN LABORATORY for DISSEMINATION ACTIVITIES

eGEE Enabling Grids for E-scienceE

HOME TESTBED GRID DEMONSTRATOR 1) CERTIFICATION AUTHORITY 2) VIRTUAL ORGANIZATION 3) GRID TUTOR MONITORING CONTACTS

The INFN Grid Video

- Real stream (voice in italian, faster but lower quality)
- MPEG movie (voice in italian, slower but higher quality, 620MB!)

How to join GILDA

- Real stream (faster but lower quality)
- Flash movie (slower but higher quality)

Certificate: conversion and manipulation

- Real stream (faster but lower quality)
- Flash movie (slower but higher quality)

The GILDA Grid Demonstrator

- Real stream (faster but lower quality)
- Flash movie (slower but higher quality)

The GILDA Grid Tutor: how to install it

- Real stream (faster but lower quality)
- Flash movie (slower but higher quality)

The GILDA Grid Tutor: how to use it

- Real stream (faster but lower quality)
- Flash movie (slower but higher quality)

Grid tutorials

GILDA Poster

Video tutorials ^{NEW}

Live User Interface

User Interface PnP ^{NEW}

Instructions for users

Instructions for sites

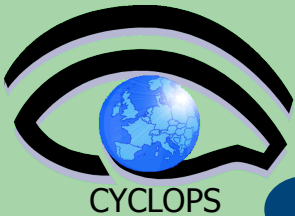
Useful links

Sponsors

Usage Statistics

Old Usage Statistics

Information Society and Media



The GILDA Support System

(<https://gilda-support.ct.infn.it>)

GILDA SUPPORT - Mozilla

File Edit View Go Bookmarks Tools Window Help

http://gilda-support.ct.infn.it/ Go Search

Home Bookmarks Webmail FastWeb FastWeb NA/RM AP 3COM trip Missioni Offerte Ordini GILDA Mozilla.org

INFN GRID

GILDA

GRID INFN LABORATORY for DISSEMINATION ACTIVITIES

eGee
Enabling Grids
for E-science

Thursday, 21 September 2006 Site Search

Login

Username:

Password:

User Login

Lost Password?

Register now!

WELCOME

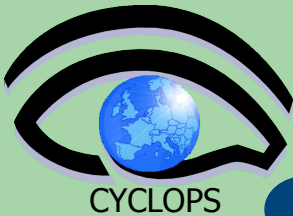
This is the entry point of the GILDA Support .
You are welcome to register to it if you want to submit Tickets for problems and/or requests of information.

WARNING

Once you register and successfully log in for the first time, please edit your account and change the value of the parameter "Notification Method: When you monitor e.g. a forum, how would you like to receive notifications of updates?" from "Private Message" to "Email (use address in my profile)" otherwise you will not correctly receive in your mailbox the information about your tickets

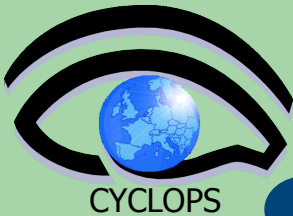
Powered by XOOPS 2.0 © 2001-2003 **The XOOPS Project**
Page Load Statistics: 1.025 Seconds | 36 Queries
Grid CT 2006

Information Society and Media



Ticket Creation (1/2)

The screenshot displays the INFN GRID website interface. At the top, there are logos for INFN, GILDA, and eGEE (Enabling Grids for E-science). A 'Login' button is visible. The 'Main Menu' is expanded, showing options: Home, Ticket Management (highlighted with a red oval), and Contact Us. Below this, the 'User Menu' is also expanded, listing: View Account, Edit Account, Notifications, Logout, and Inbox. A red arrow points from the 'Inbox' link in the User Menu to a pink banner that reads 'This is the entrance to the ticket system'. The banner also includes the text 'are welcome to register to it if you want to access the system' and 'ests of information.' A 'Site Search' box is located on the right. In the bottom left corner, there is a logo for 'Information Society and Media'.



Ticket Creation (2/2)

 Site Search

Main Menu

[Home](#)
[Ticket Management](#)
[Contact Us](#)

User Menu

[View Account](#)
[Edit Account](#)
[Notifications](#)
[Logout](#)
[Inbox](#)

[Main](#)[Create Ticket](#)[My Profile](#)[View All Tickets](#)[Search](#)

Highest Priority Unassigned Tickets

No tickets found



New Tickets

No tickets found



Open Tickets Assigned to Me

No tickets found



My Submitted Tickets

No tickets found

Batch Actions:

With Selected:

Change Class

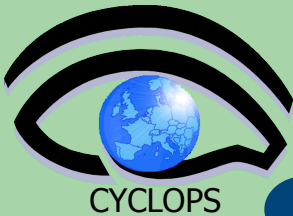


Go!

No Auto Refresh



Submit



Ticket Creation (2/2)

 Site Search

Main Menu

[Home](#)
[Ticket Management](#)
[Contact Us](#)

User Menu

[View Account](#)
[Edit Account](#)
[Notifications](#)
[Logout](#)
[Inbox](#)

[Main](#)[Create Ticket](#)[My Profile](#)[View All Tickets](#)[Search](#)

Highest Priority Unassigned Tickets

No tickets found



New Tickets

No tickets found



Open Tickets Assigned to Me

No tickets found



My Submitted Tickets

No tickets found

Batch Actions:

With Selected:

Change Class



Go!

No Auto Refresh



Submit



Ticket Creation (2/2)



GILDA

eGee
Enabling Grids
for E-science

Main Menu

Home
Ticket Management
Contact Us

User Menu

View Account
Edit Account
Notifications
Logout
Inbox



Main



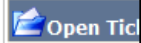
Highest P

No tickets fo



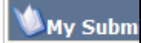
New Tick

No tickets fo



Open Ticl

No tickets fo



My Subm

No tickets fo

Batch Action

With Selecte

No Auto Refresh



Create a Ticket

Username:

brunor



Lookup User

Class:

Accesso alla Grid (VOMS - MYPROXY)

Priority:



Subject:

Description:

Add File:

Sfoggia...

Submit Ticket

Reset

Site Search

Search



Ticket Creation (2/2)



GILDA

eGee
Enabling Grids
for E-sci

Main Menu

Home
Ticket Management
Contact Us

User Menu

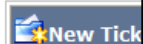
View Account
Edit Account
Notifications
Logout
Inbox



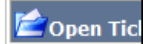
Main



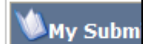
No tickets for



No tickets for



No tickets for



No tickets for

Batch Action

With Select

No Auto Refresh

Create a Ticket

Username: Lookup User

Class:

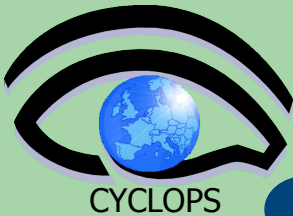
Priority: ☐ ☒ ☐ ☐ ☐ ☐ ☐ ☐

Subject:

Description:

Add File:

- Accounting
- Authorization / Authentication
- Data Management
- Grid Interactive
- Grid Monitoring
- Grid MPI jobs
- Grid Portal
- Grid User Environment
- Information System
- Other
- Security
- Site CECUM-ME
- Site CENAPAD-UNICAMP
- Site IHEP-BEIJING
- Site IISAS-BRATISLAVA
- Site INAF-CATANIA
- Site INFN-CATANIA
- Site INFN-CATANIA (gLite)
- Site INFN-CNAF
- Site INFN-CNAF (gLite)
- Site INFN-PADOVA
- Site INFN-PADOVA (gLite)
- Site ING-MESSINA
- Site IUCC-LCG2
- Site TRIGRID_UNIPA
- Site ULA-MERIDA
- Site UNIANDS (gLite)
- Site UNIDIST-GENOVA
- Workload Management



Ticket Creation (2/2)



- Main Menu
- Home
- Ticket Management
- Contact Us
- User Menu
- View Account
- Edit Account
- Notifications
- Logout
- Inbox

- Main
- Highest P
- No tickets fo
- New Tick
- No tickets fo
- Open Tidl
- No tickets fo
- My Subm
- No tickets fo
- Batch Action
- With Selecte

Create a Ticket

Username:

brunor

Lookup User

Class:

Accesso alla Grid (VOMS - MYPROXY)

Priority:

☐ ☒ ☐ ☐ ☐ ☐ ☐

Subject:

Description:

Add File:

Sfoglia...

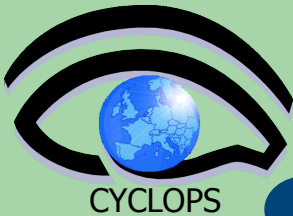
Submit Ticket

Reset

Site Search

Search

No Auto Refresh



Ticket Creation (2/2)



Main Menu

Home
Ticket Management
Contact Us

User Menu

View Account
Edit Account
Notifications
Logout
Inbox



Main



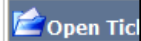
Highest P

No tickets fo



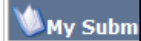
New Tick

No tickets fo



Open Ticl

No tickets fo



My Subm

No tickets fo

Batch Action

With Selecte

No Auto Refresh

Create a Ticket

Username: Lookup User

Class:

Priority: ☐ ☒ ☐ ☐ ☐ ☐ ☐

Subject:

Description:

Add File:

Site Search

Search



GILDA Tutorial request





(https://gilda.ct.infn.it/request_tutorial)

GILDA - Grid tutorials request - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

https://gilda.ct.infn.it/request_tutorial/index.php


Getting Started Webmail FastWeb FastWeb NA/RM AP 3COM trip Missioni Offerte Ordini GILDA GILDA Progetti

GRID INFN LABORATORY for DISSEMINATION ACTIVITIES

HOME TESTBED GRID DEMONSTRATOR 1) CERTIFICATION AUTHORITY 2) VIRTUAL ORGANIZATION 3) GRID TUTOR MONITORING CONTACTS

Request a GILDA tutorial

- List of Tutorials
- Request a Tutorial 
- Posters
- Video Tutorials
- User Interface PnP
- Virtual Services
- Instructions for Users
- Instructions for Sites
- Training Material (wiki)
- Support System
- Useful Links
- Sponsors
- Usage Statistics
- Old Usage Statistics

Location

Start date

End date

Tutorial home page

Agenda page

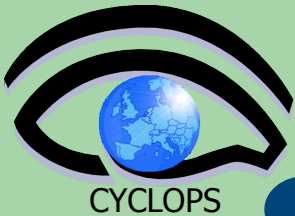
Expected number of participants

E-mail address of the organiser

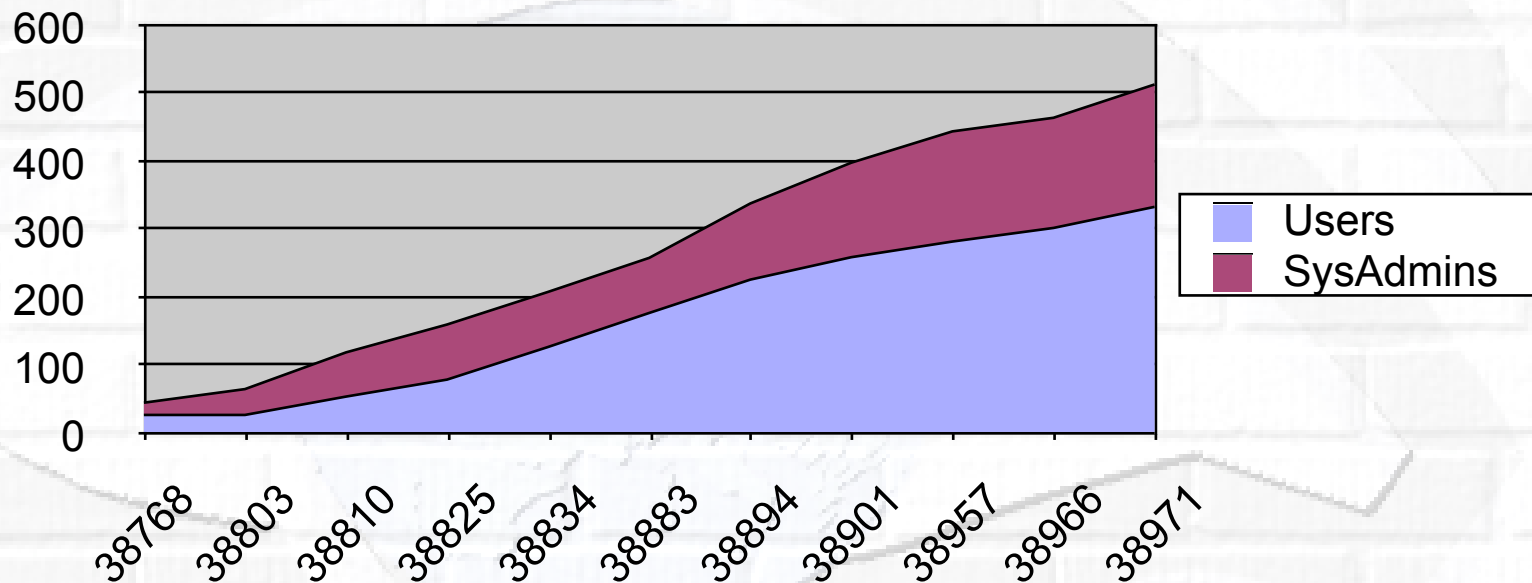
IP range used

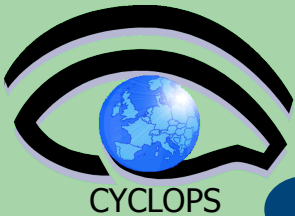
Done gilda.ct.infn.it



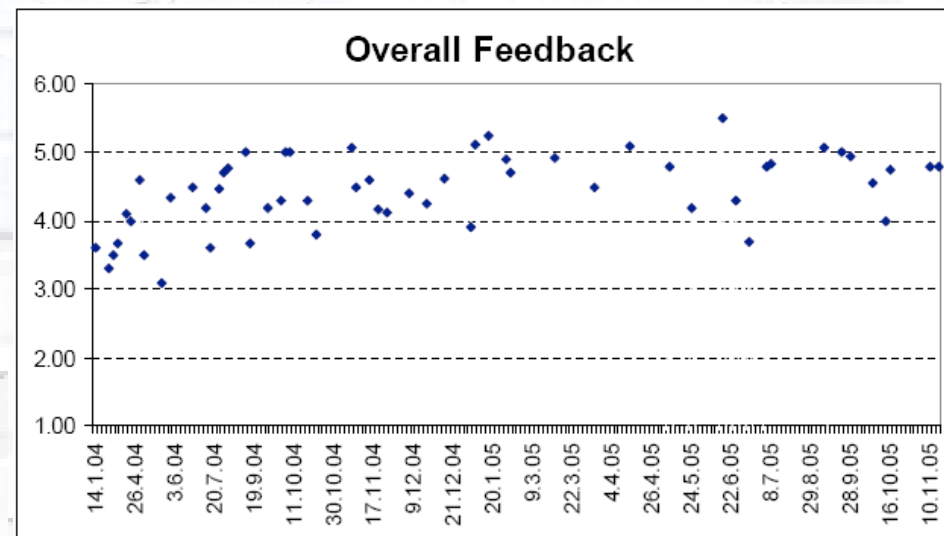
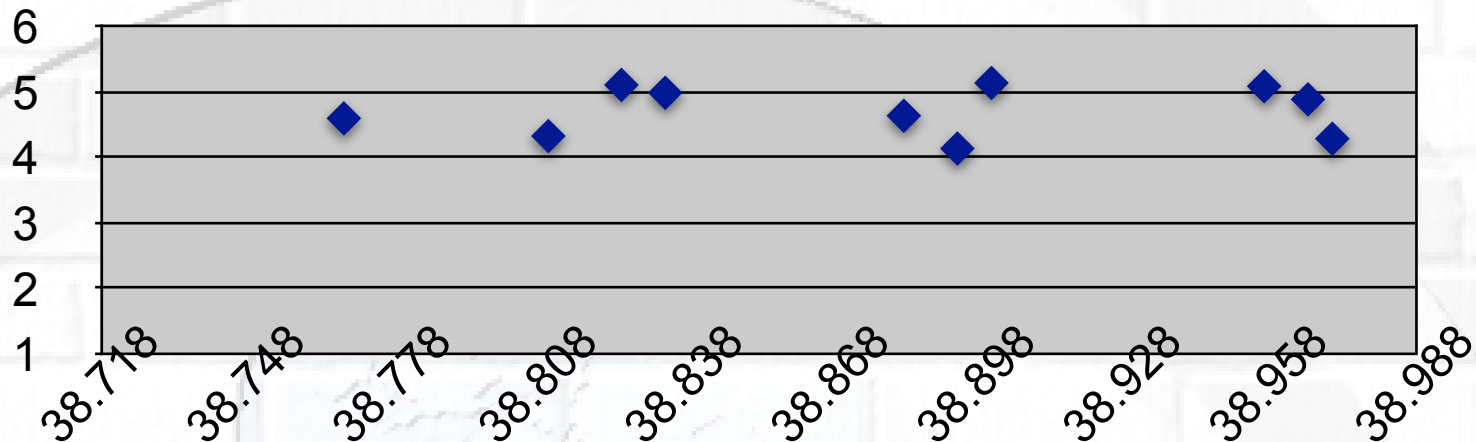


Some training statistics (1/2) (EELA+EUCHINAGRID +EUMEDGRID)

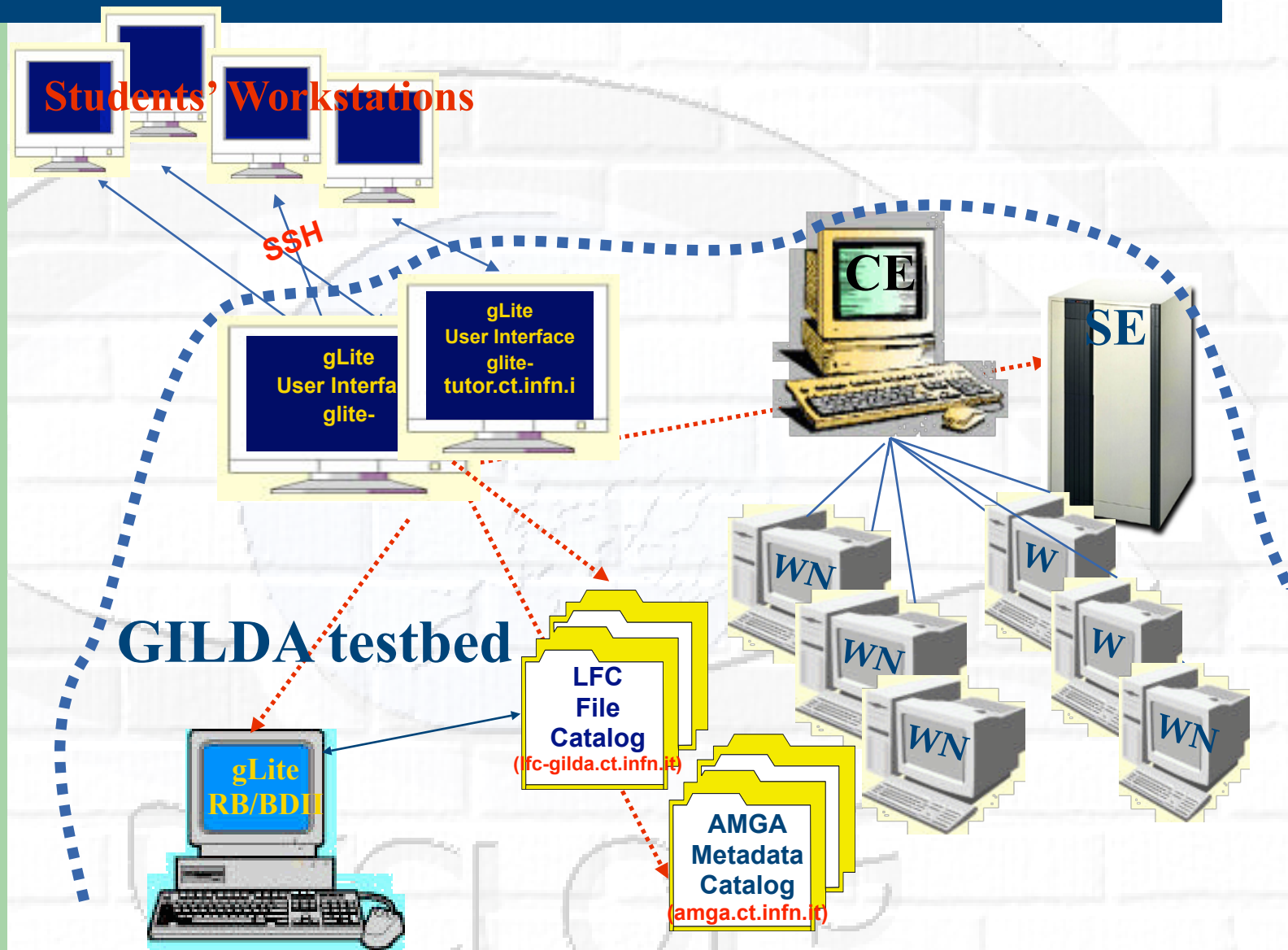




Some training statistics (2/2) (EELA+EUCHINAGRID +EUMEDGRID)



User's tutorial layout and acronyms





WMS tutorial layout

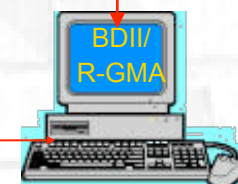
CYCLOPS
gLite RB
(glite-rb.ct.infn.it)



gLite User
Interface
glite-tutor.ct.infn.it e
glite-tutor2.ct.infn.it



gLite 3 WMPProxy RB
(glite-rb2.ct.infn.it)



GILDA site



GILDA site

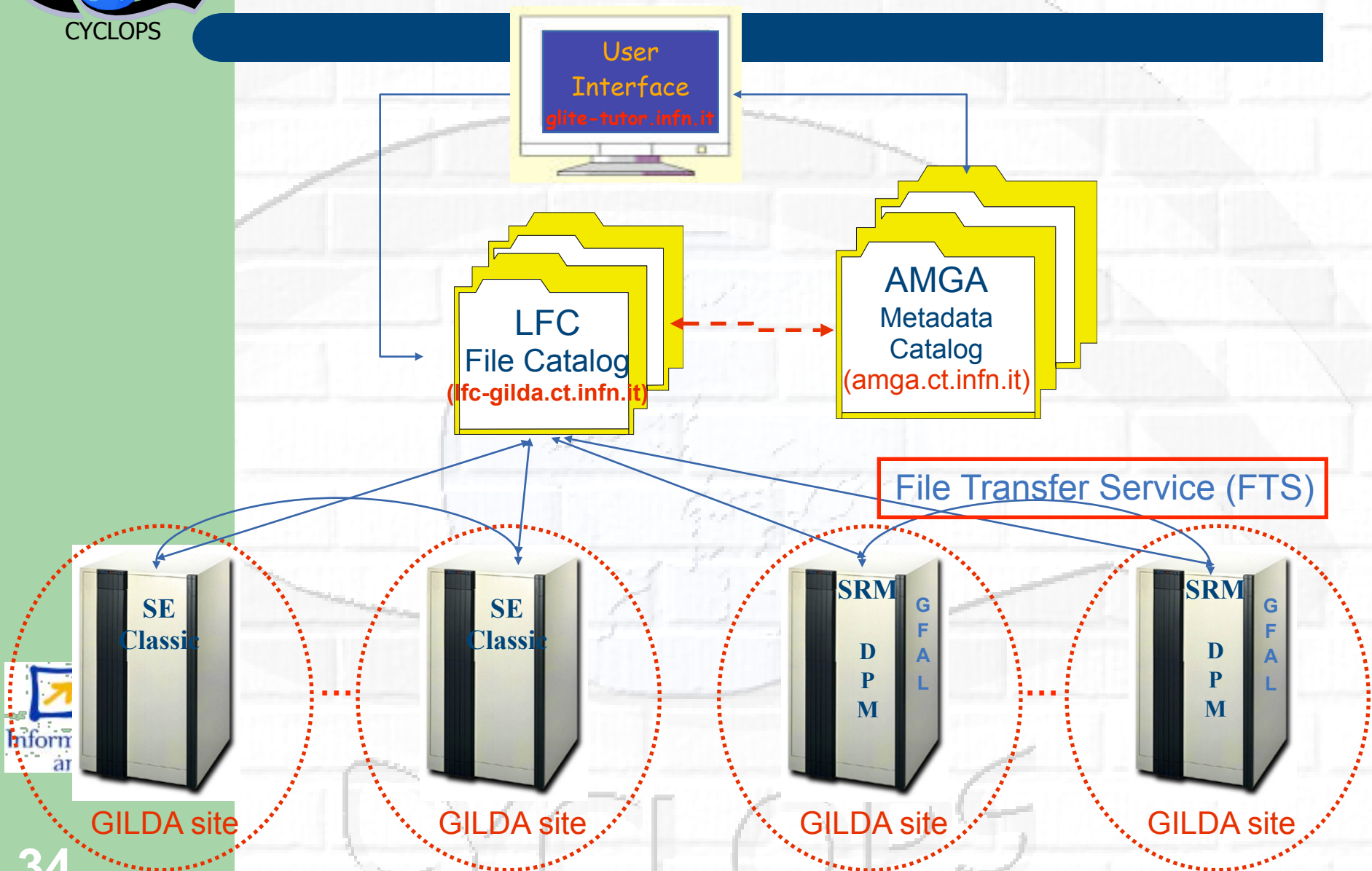


GILDA site





Data Management System tutorial layout



Summary and conclusions

GILDA is a virtual laboratory for dissemination of grid computing:

- It is a “de facto” standard t-Infrastructure adopted both by EGEE and many EU-FP6 projects (**EELA**, EUCHINAGRID, EUMEDGRID, EUINDIAGRID, ICEAGE, etc.)
- It is a complete suite of grid elements (test-bed, CA, VO, monitoring system, web portal, user interfaces, support system) and applications fully dedicated to dissemination purposes and pre-porting of new applications to EGEE Infrastructure
- GILDA runs latest production version of the gLite middleware to make the transition from the t-Infrastructure to the e-Infrastructure easy and transparent

Useful Links

- GILDA home page
 - <https://gilda.ct.infn.it>
- GILDA Certification Authority
 - <https://gilda.ct.infn.it/CA/>
- GILDA Virtual Organization
 - <https://voms.ct.infn.it:8443/voms/gilda/>
- GILDA Support System
 - <http://gilda-support.ct.infn.it>
- GILDA Form for Bookings
 - https://gilda.ct.infn.it/request_tutorial/index.php
- GILDA Repository of Training Material
 - <https://grid.ct.infn.it/twiki/bin/view/GILDA/WebHome>
- GILDA Virtual Services
 - <https://gilda.ct.infn.it/VirtualServices.html>
- EELA Training Material Repository (per-event basis)
 - <http://documents.eu-eela.org/?c=Training+Material&as=0&ln=en>
- EUMEDGRID Training Material Repository (per-topic basis)
 - <http://documents.eumedgrid.org/?c=Training+materials&as=0&ln=en>

Questions...

