The GILDA t-Infrastructure

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INFN Catania

ICTP/INFM-Democritos Workshop on Porting Scientific Applications on Computational GRIDs

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www.eu-egee.org

Information Society

Outline

- **Motivation**
- **The GILDA t-Infrastructure**
  - services
  - tools
  - applications
- **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)

The GILDA Test-bed (https://gilda.ct.infn.it/testbed.html)

19 sites in 3 continents !

All GILDA Services available and tested on GILDA

- Grid tutorials
- GILDA Poster
- Video tutorials
- Live User Interface
- User Interface PnP
- Instructions for users
- Instructions for sites
- Useful links
- Sponsors
- Usage Statistics
- Old Usage Statistics

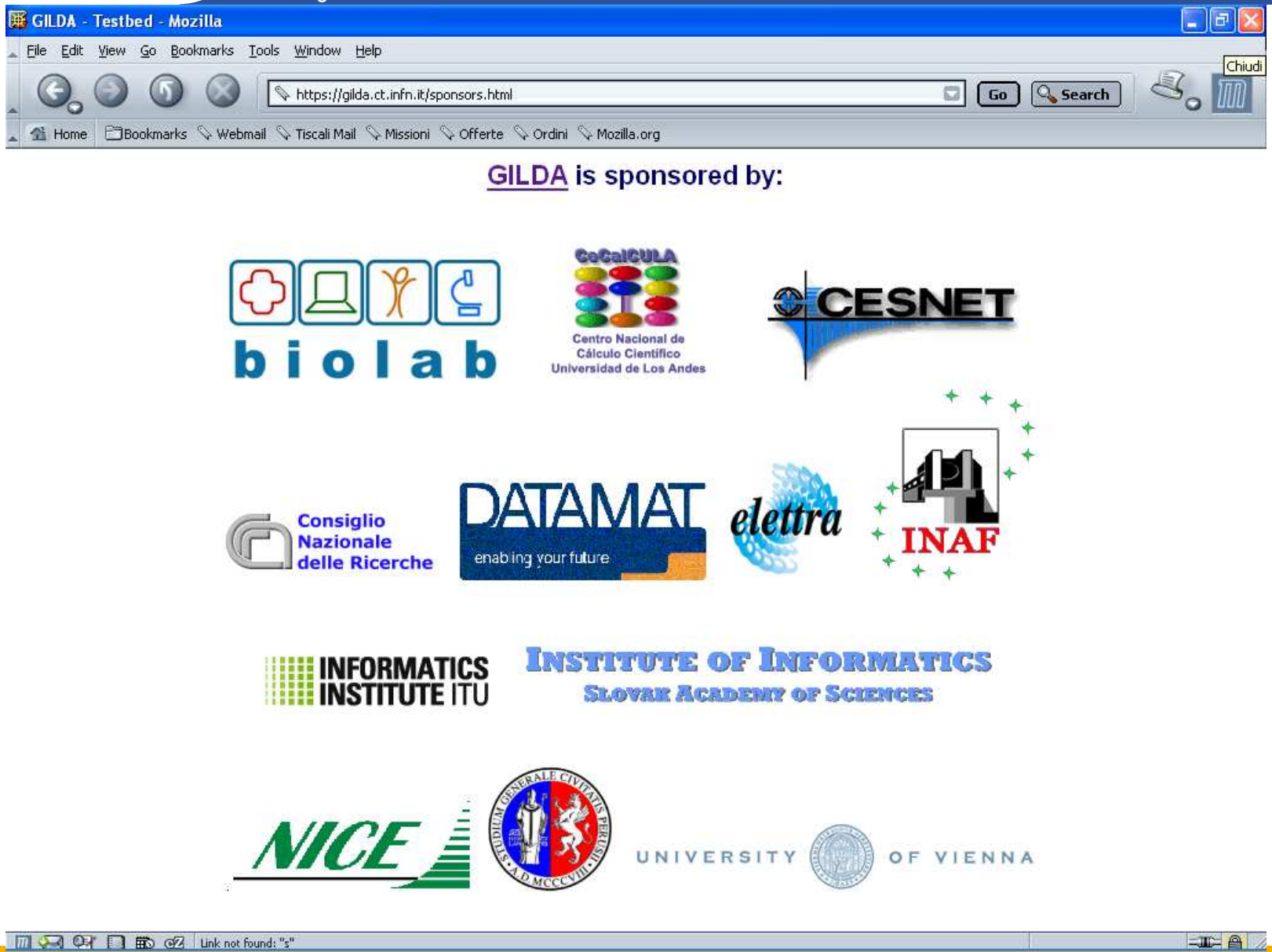
gLite Services

Grid services

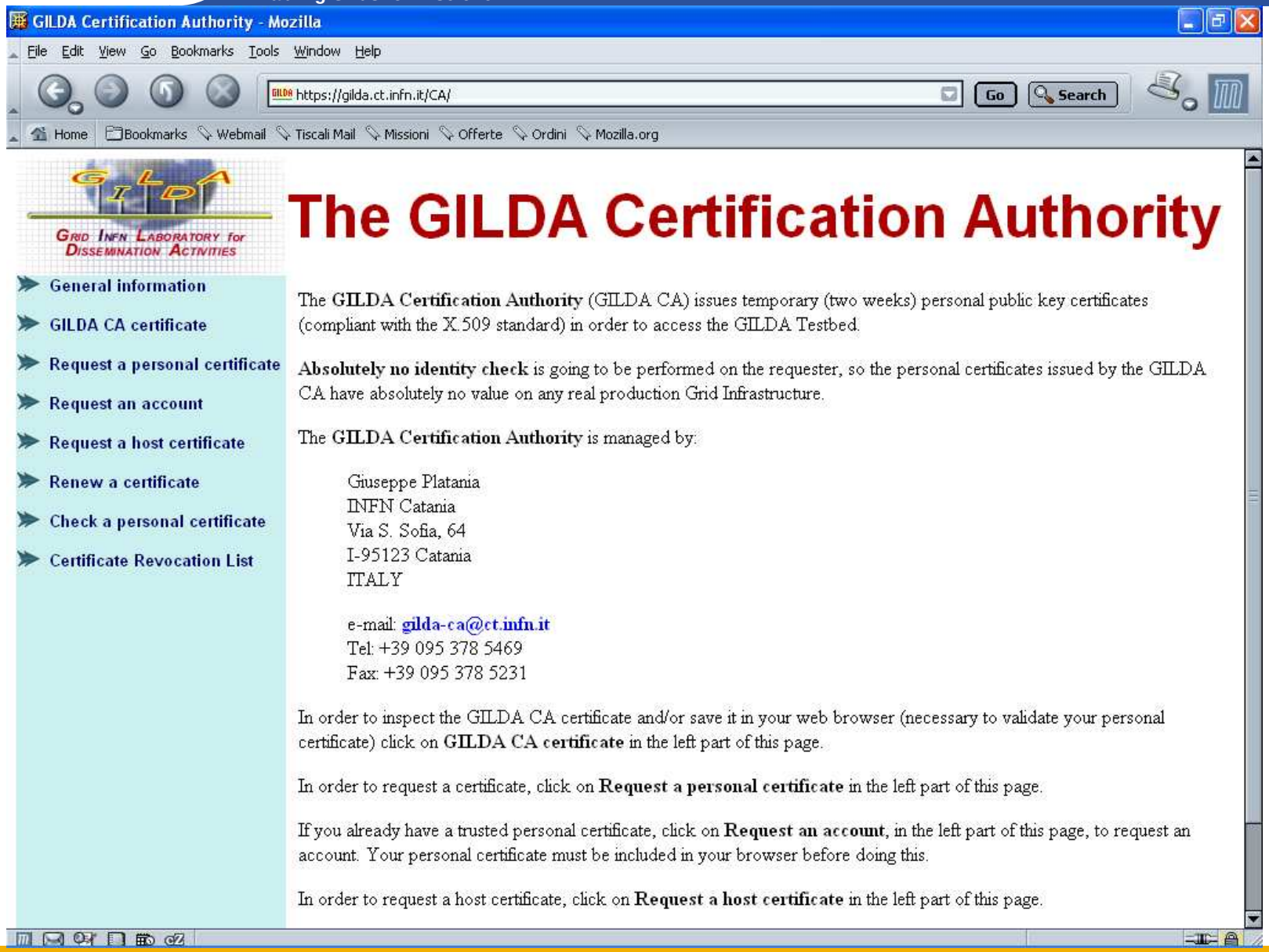
This is a table of the general Grid Services available on GILDA.

SERVICE	HOST
LCG-2 Resource Broker (RB)	grid004.ct.infn.it
LCG-2 Resource Broker (RB)	grid013.ct.infn.it
LCG-2 Resource Broker (RB)	skurut2.cesnet.cz
LCG-2 Resource Broker (RB)	rb.be.itu.edu.tr
gLite Resource Broker (RB)	glite-rb.ct.infn.it
gLite Resource Broker (RB)	glite-rb2.ct.infn.it
Information Index (BDII)	grid004.ct.infn.it
Backup Information Index (BDII)	grid013.ct.infn.it
GILDA VOMS server	voms.ct.infn.it:8443/voms/gilda
GILDA gLite DGAS Price Authority	grid-demo1.ct.infn.it:56568
GILDA gLite DGAS HLR	grid-demo1.ct.infn.it:56567
GridICE Monitoring System	alifarm7.ct.infn.it:50080
LCG-2 File Catalog (LFC)	lfc-gilda.ct.infn.it
Backup LCG-2 File Catalog (LFC)	lfc-gilda.cern.ch
gLite FiReMan Catalog	grid017.ct.infn.it
gLite File Transfer/Placement Service	fts.ct.infn.it:8443
AMGA Metadata Catalog	amga.ct.infn.it:8822
gLite R-GMA server	rgmasrv.ct.infn.it:8443
MyProxy Server	grid001.ct.infn.it
Backup MyProxy Server	grid014.ct.infn.it

The GILDA Sponsors (https://gilda.ct.infn.it/sponsors.html)

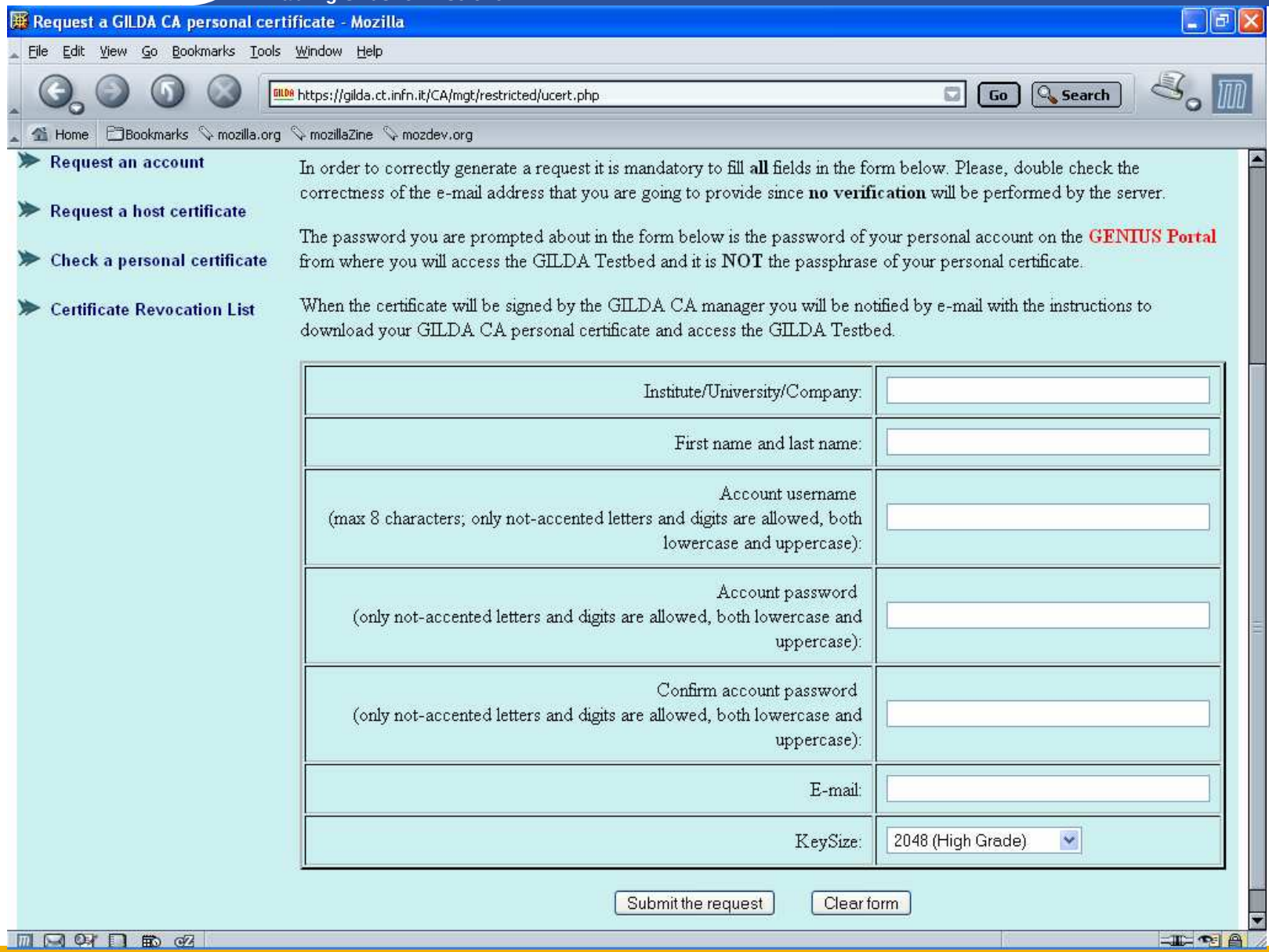


The GILDA Certification Authority (https://gilda.ct.infn.it/CA)

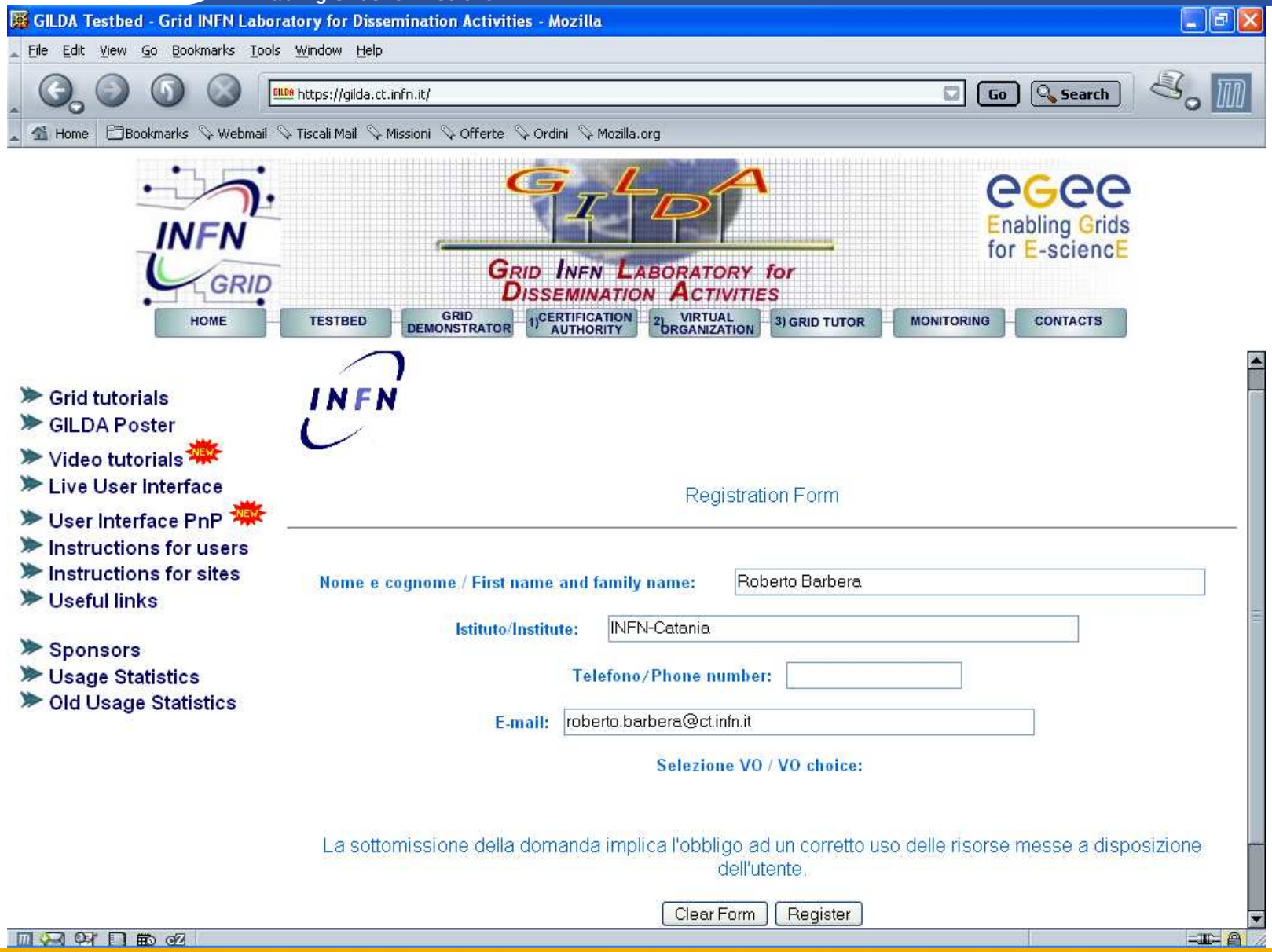


The GILDA Certification Authority

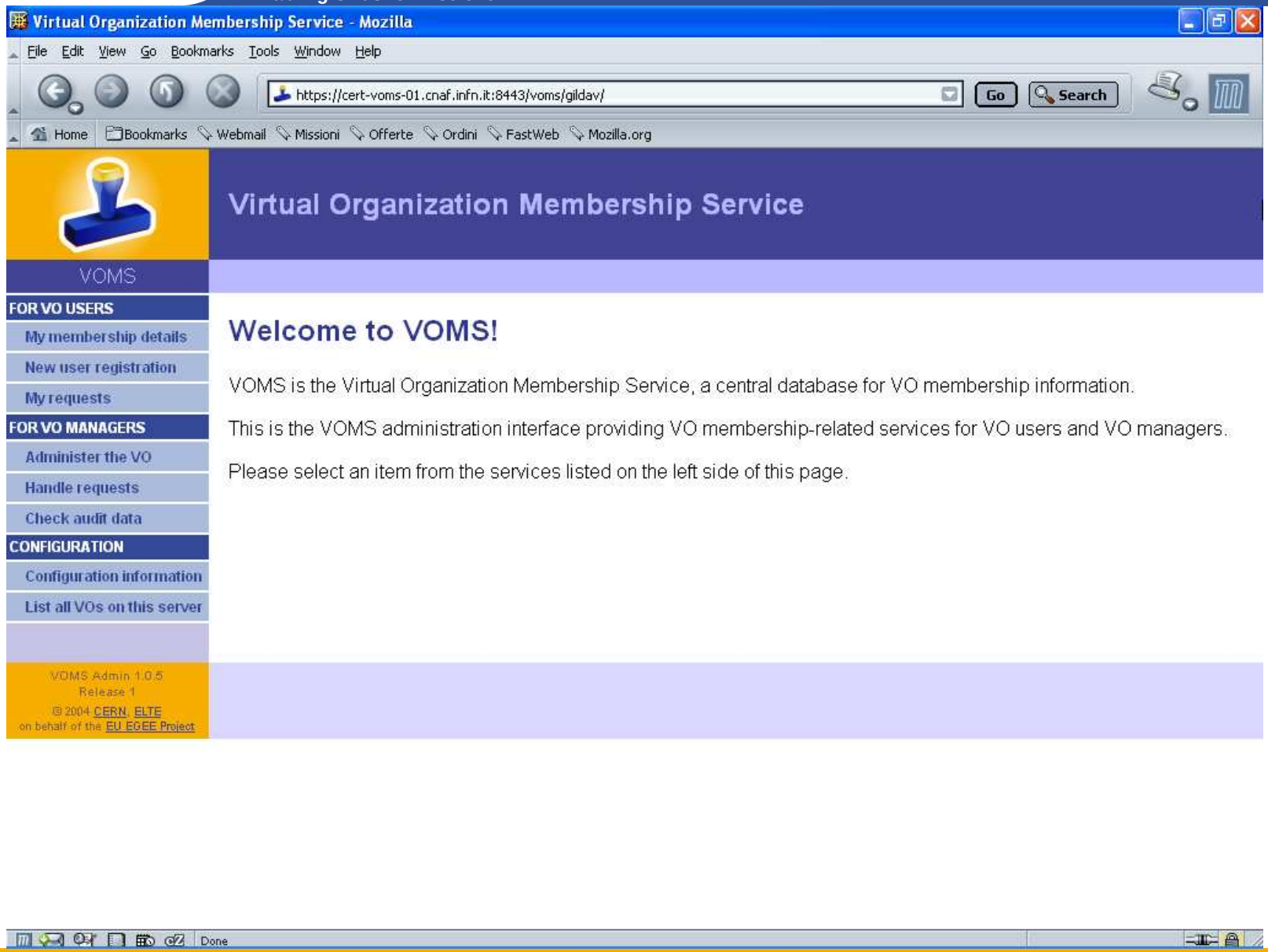
Enabling Grids for E-sciencE



The GILDA Virtual Organization

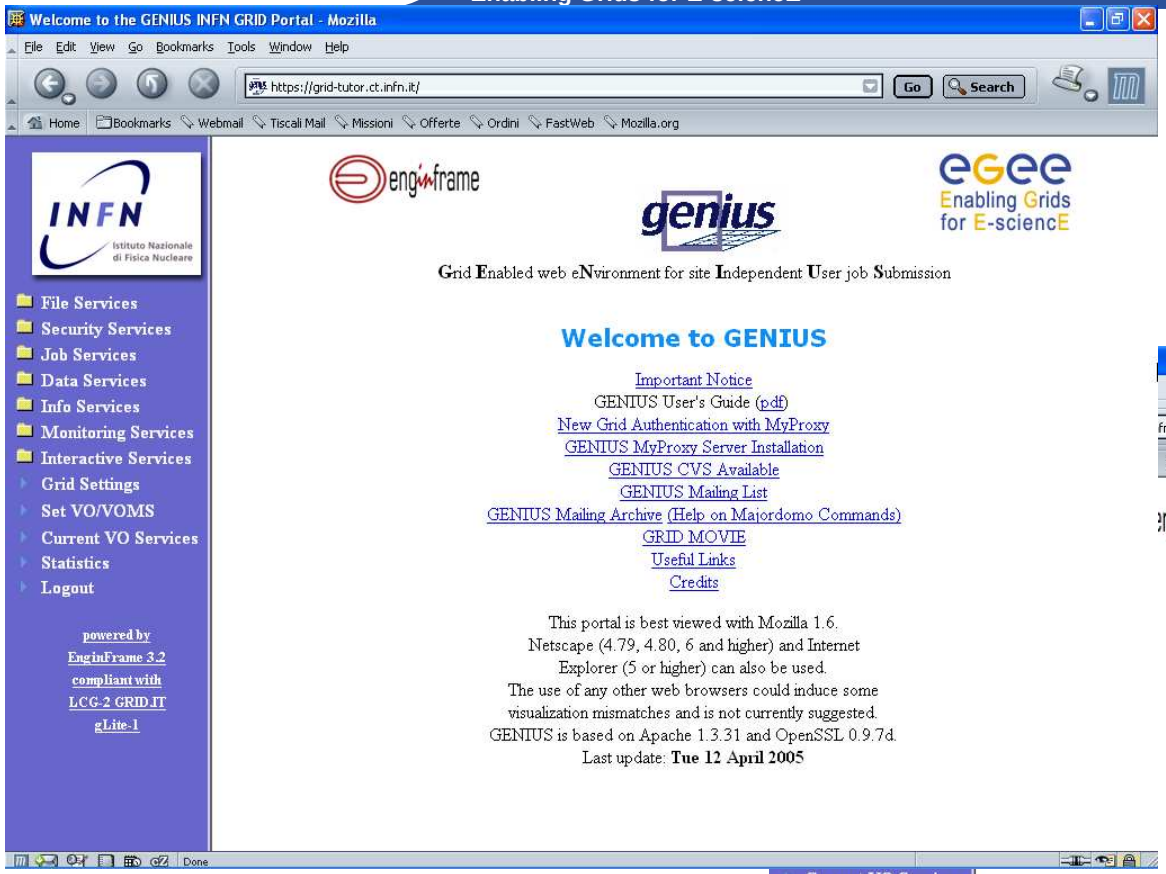


The GILDA VOMS



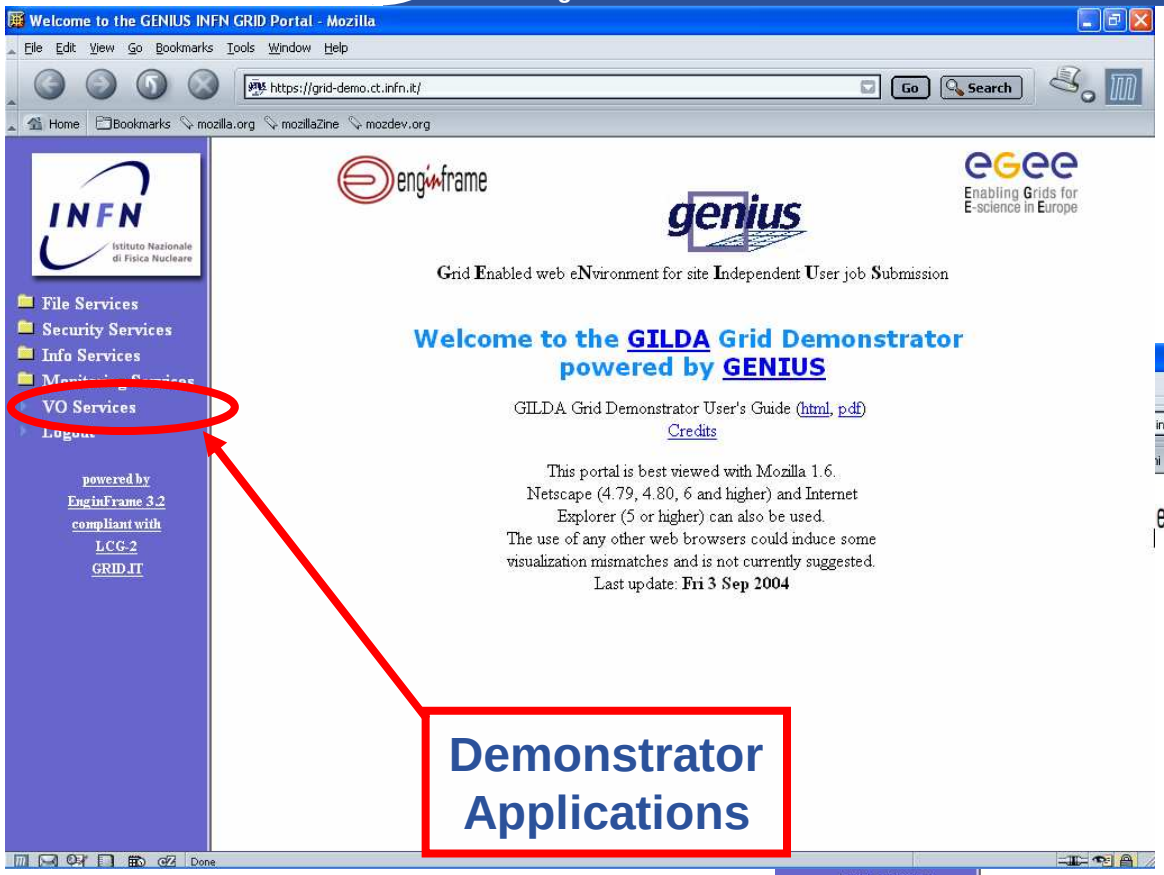
The GILDA Monitoring System (http://alifarm7.ct.infn.it:50080/gridice)

The Grid Tutor
(https://grid-tutor.ct.infn.it, https://glite-tutor.ct.infn.it)

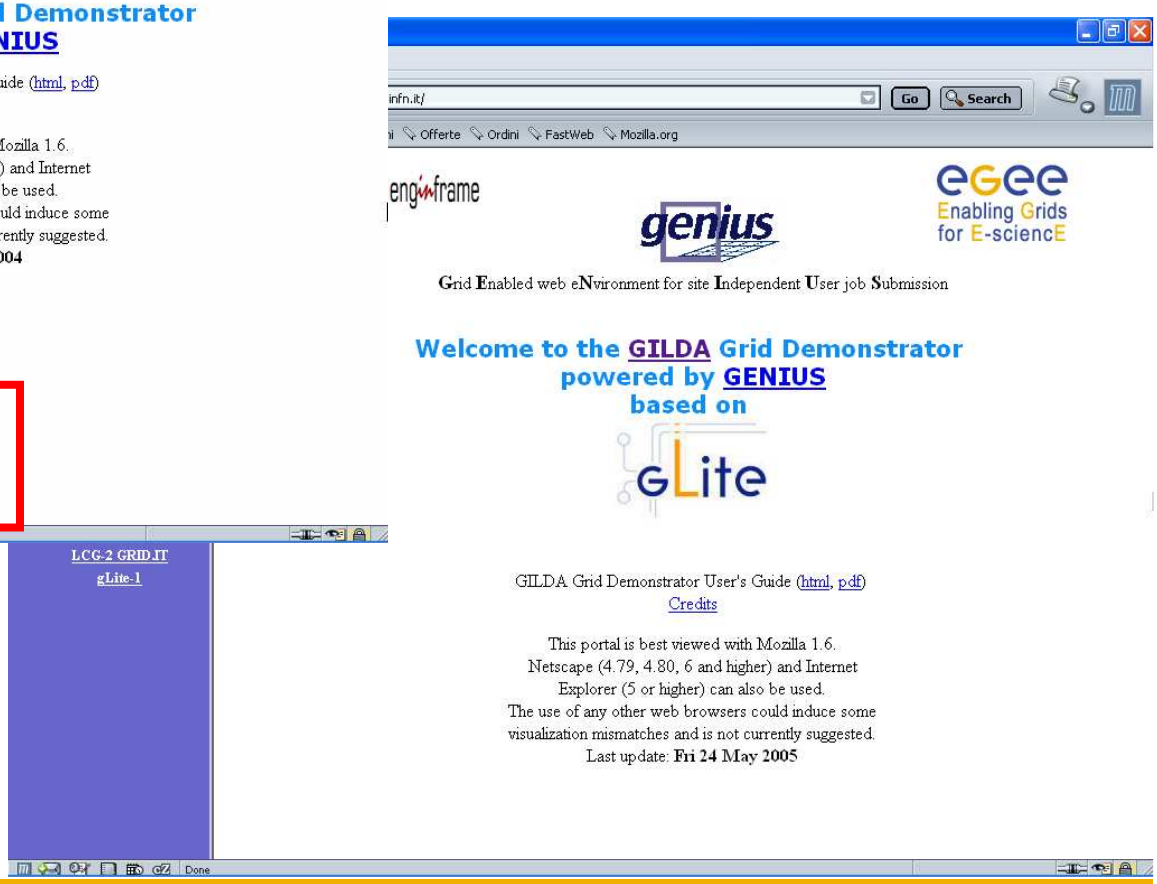


The Grid Demonstrator (1/2)
(https://grid-demo.ct.infn.it, https://glite-demo.ct.infn.it)

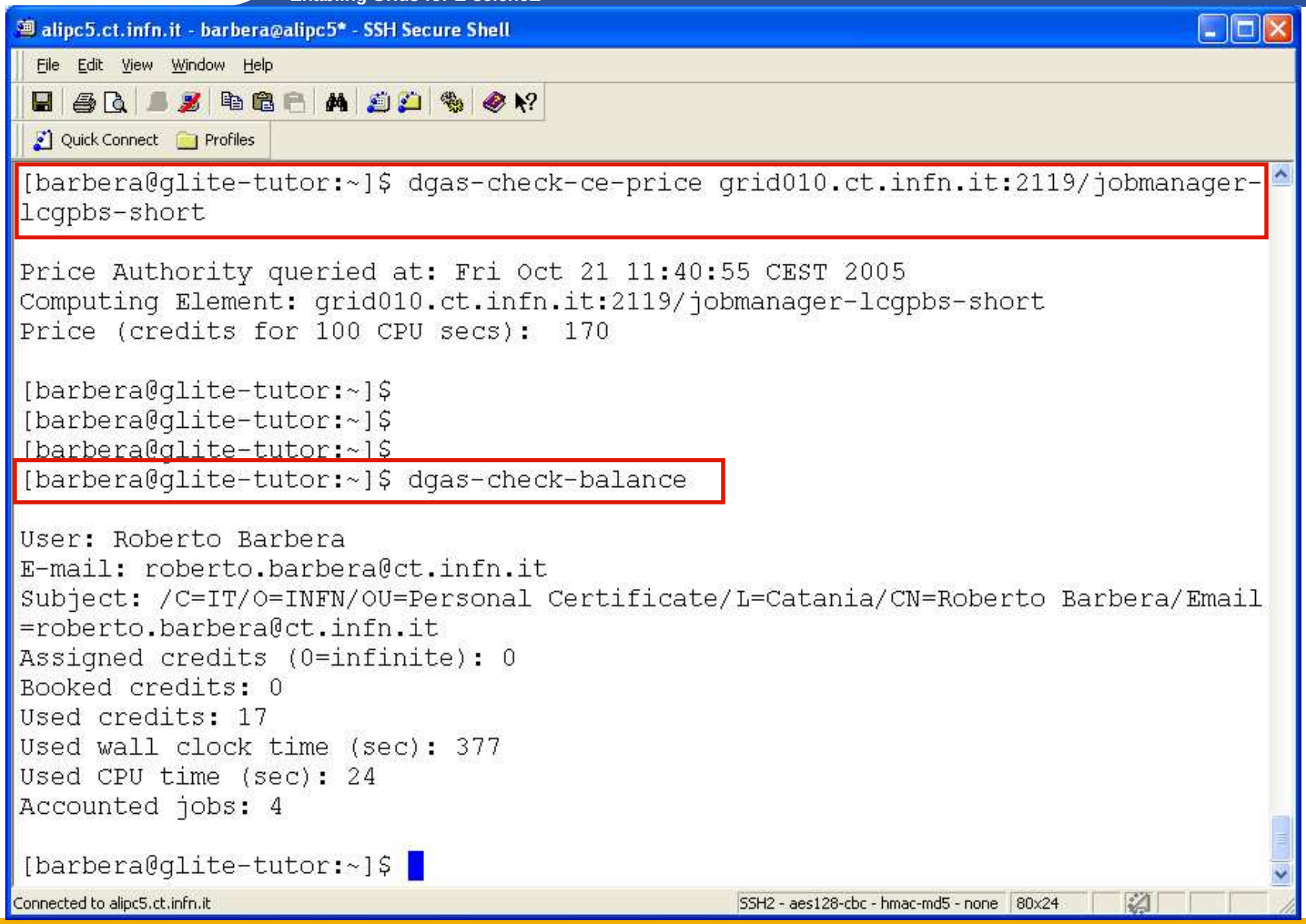
Enabling Grids for E-sciencE



Demonstrator Applications

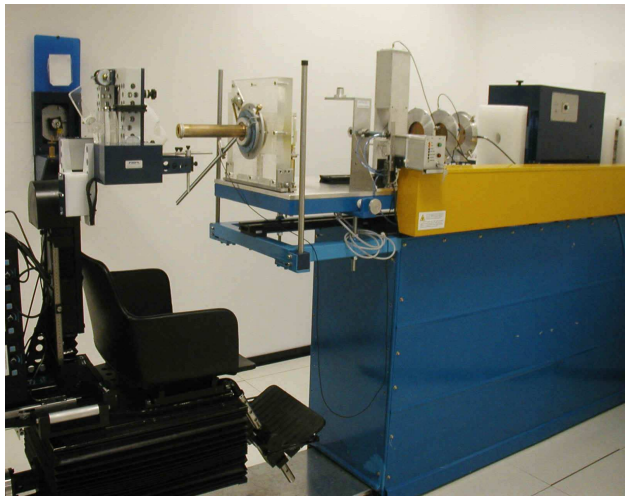


The GILDA Accounting System (based on DGAS)

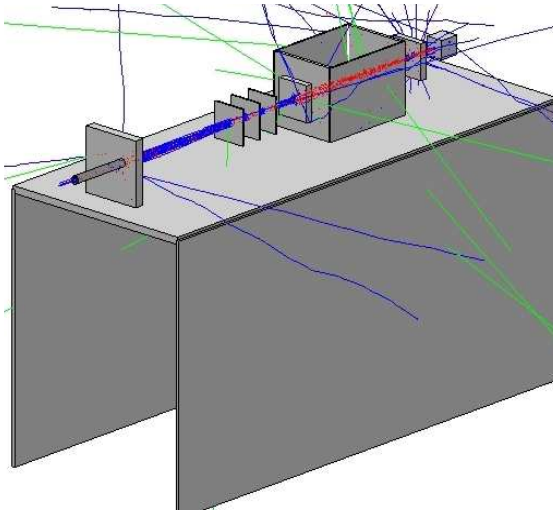


hadronTherapy example

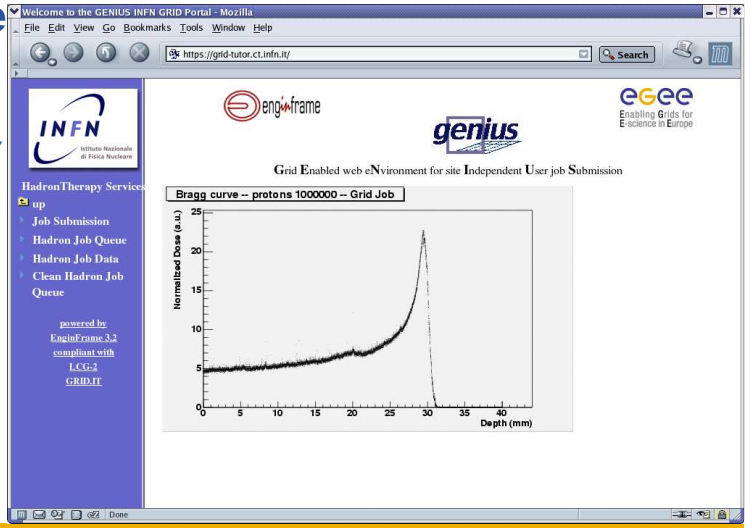
CATANA beam line in reality



hadronTherapy in GENIUS



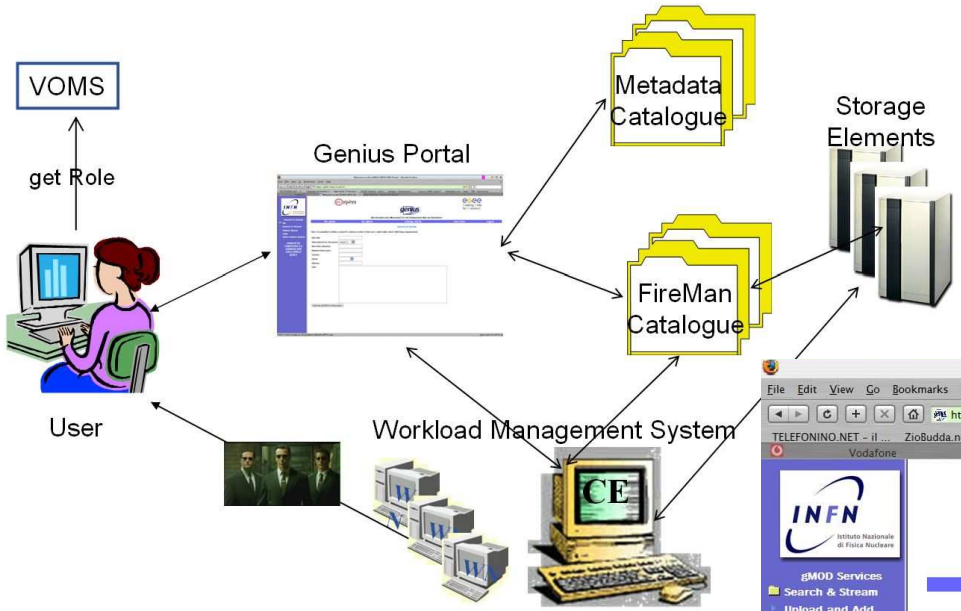
CATANA beam line simulated by *hadronTherapy*



gMOD example

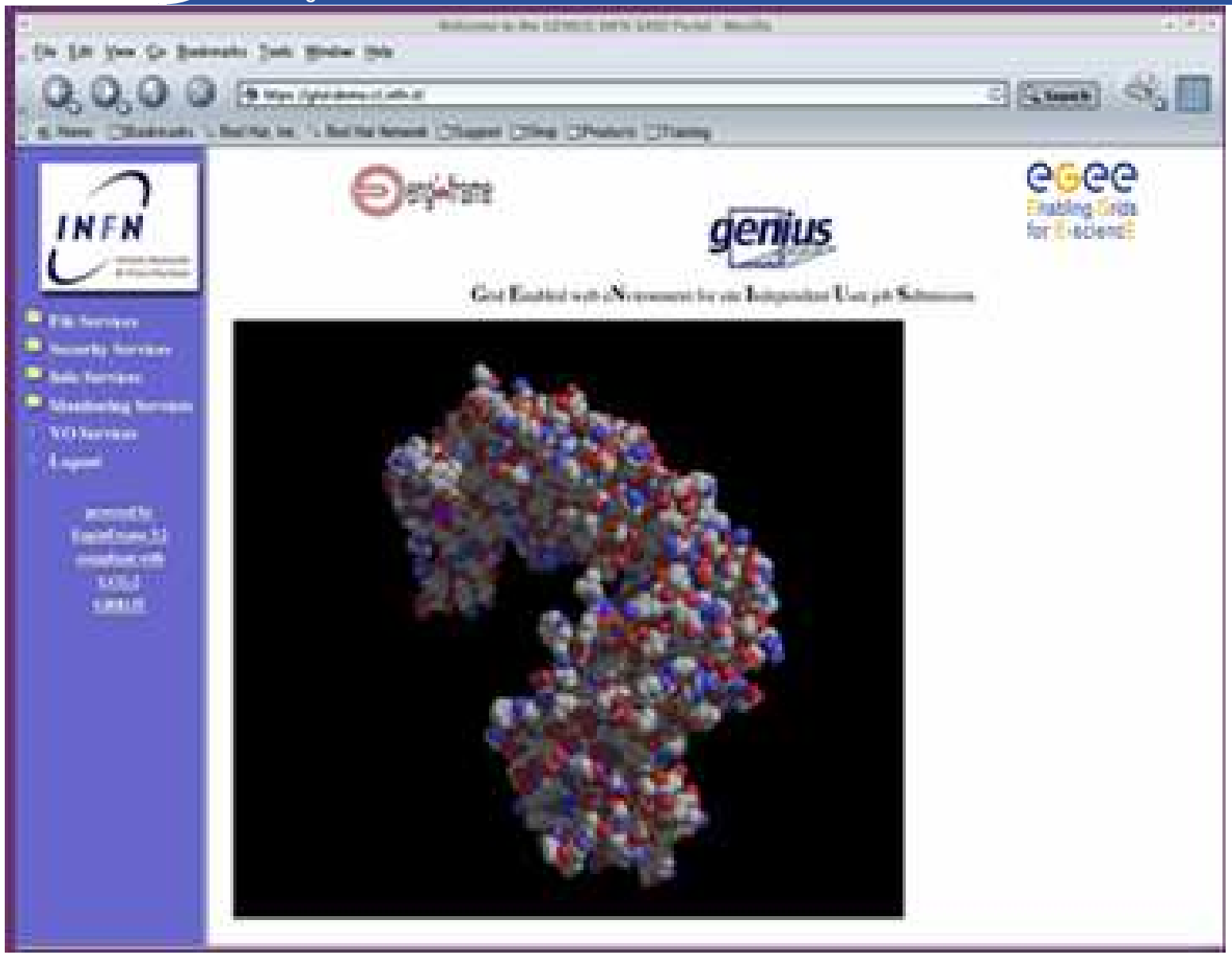
gMOD interactions

Enabling Grids for E-sciencE



Grid for Entertainment !

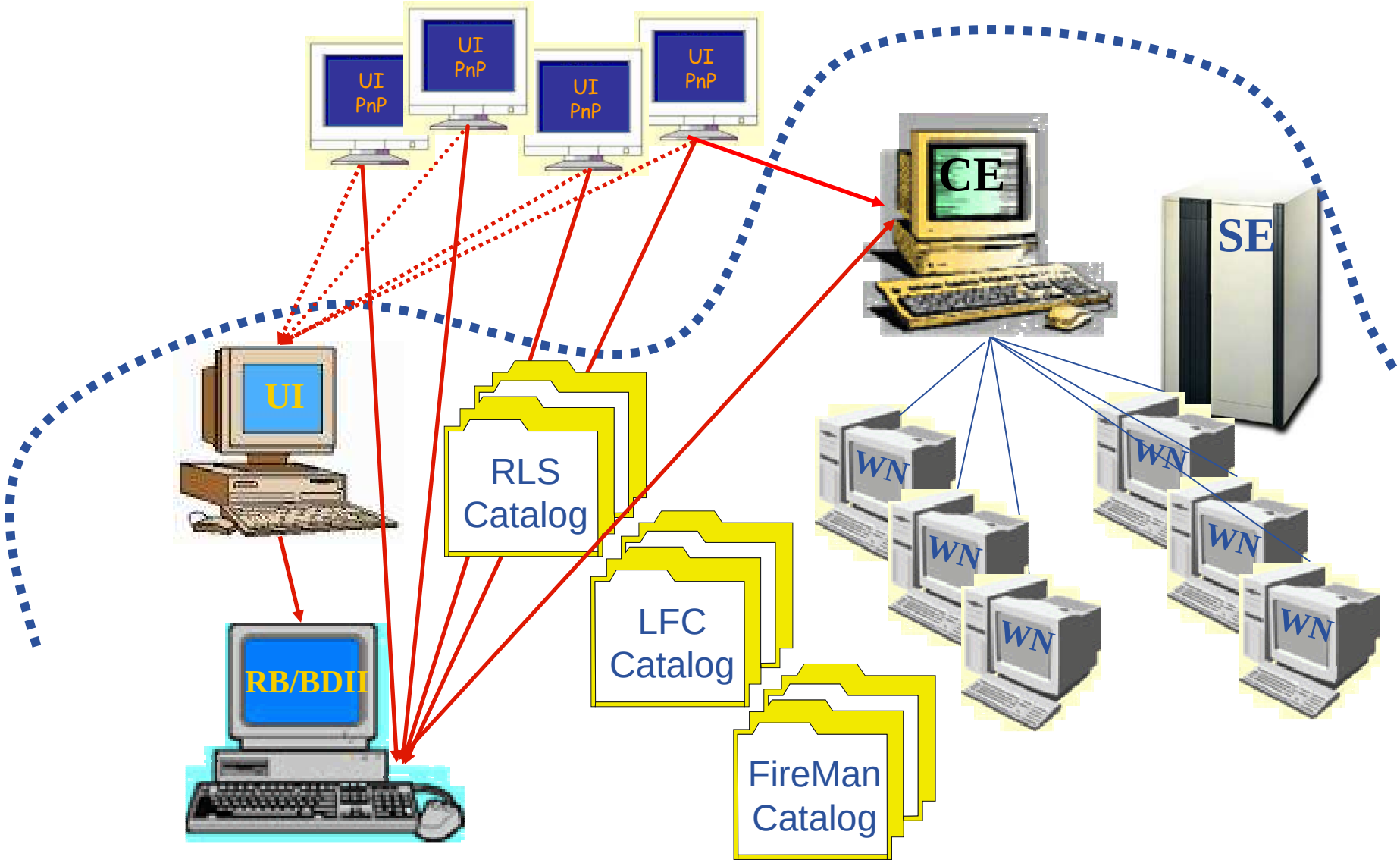
RASTER-3D example



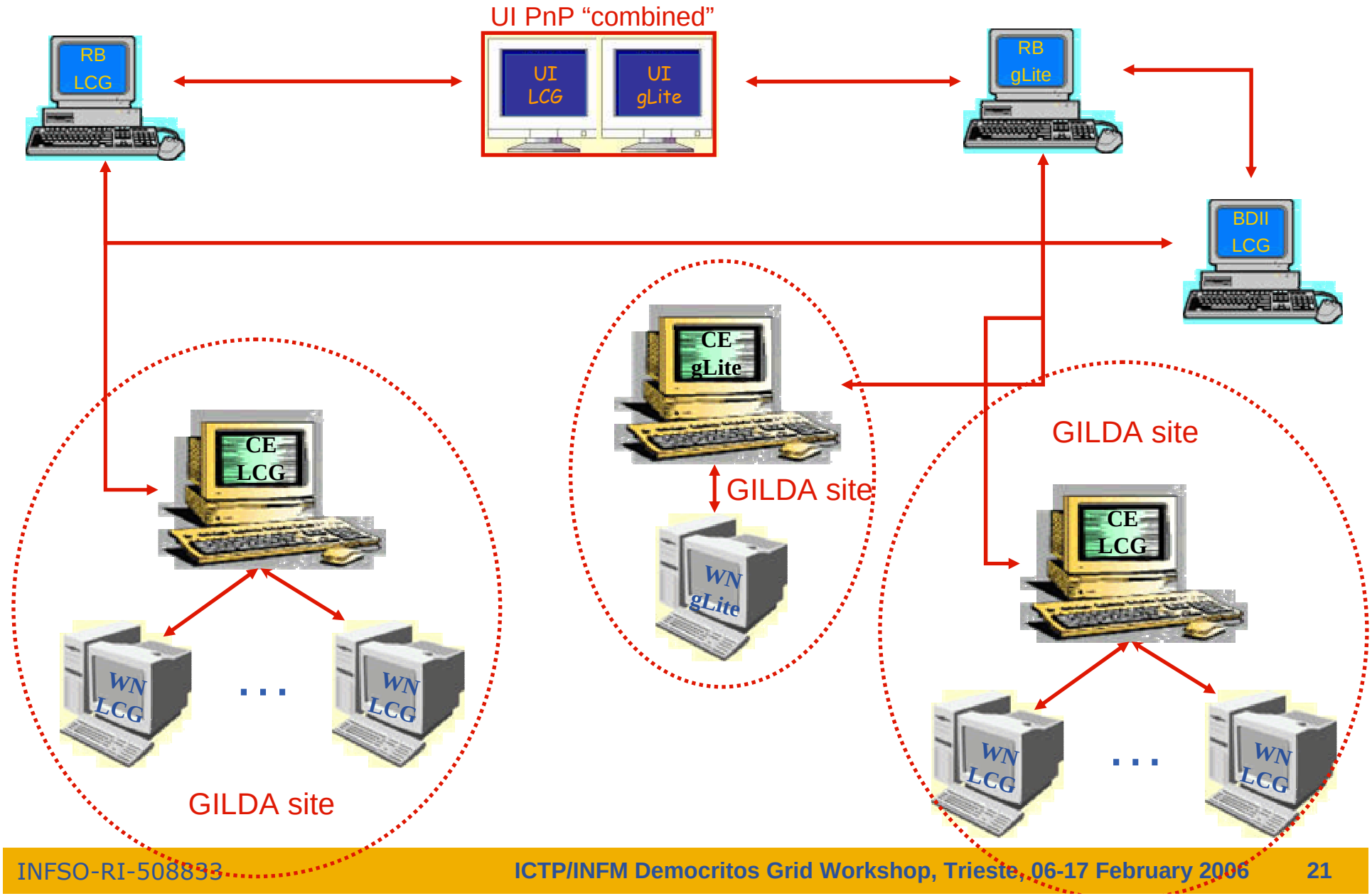
The GILDA User Interface Plug&Play combined (https://gilda.ct.infn.it/UIPnPcomb/)

Enabling Grids for E-sciencE

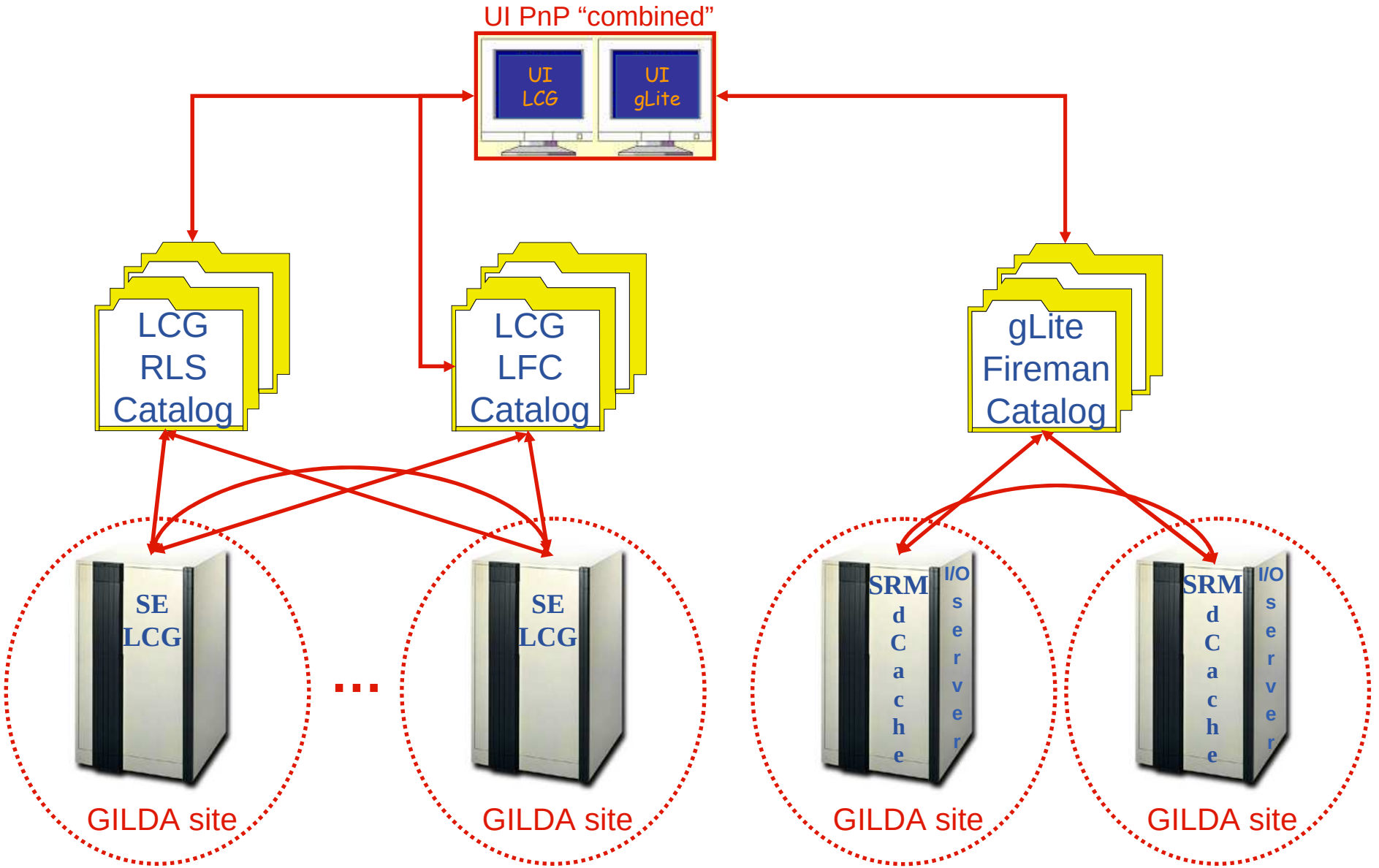
Tutorial layout and acronyms



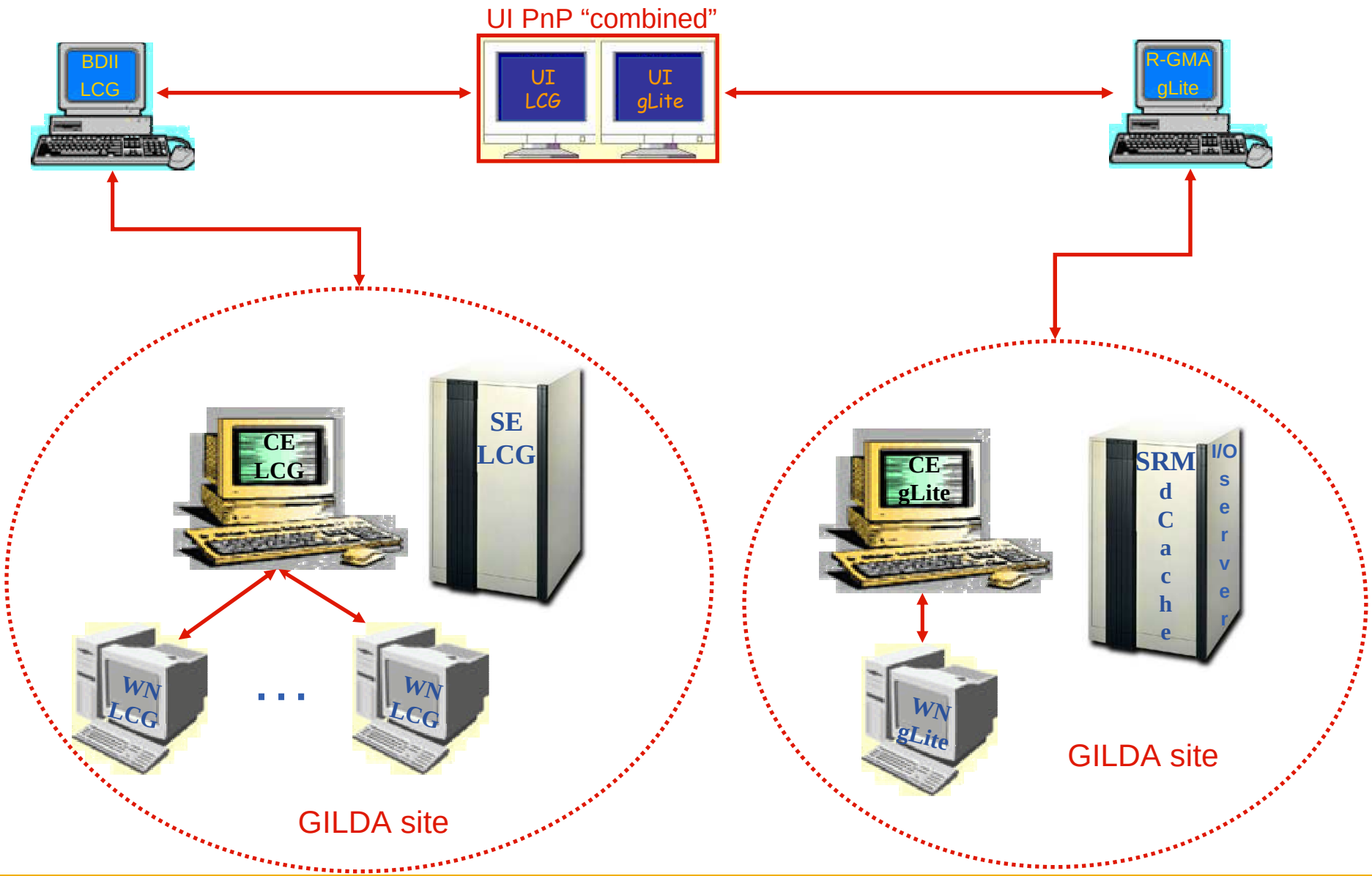
WMS layout in GILDA



DMS layout in GILDA



IS layout in GILDA



The GILDA Live User Interface (https://gilda.ct.infn.it/live-cd/)

The GILDA Tutorials/Demonstrations (1/2) (https://gilda.ct.infn.it/tutorials.html)

2004

Edinburgh, 7 April 2004, slides, pictures
Tunis, 22-23 April 2004, pictures
Edinburgh, 26-28 April 2004, slides, pictures
CERN, 17-19 May 2004, pictures
Catania, 24-25 May 2004, home page, pictures
Dubna, 29 June - 2 July 2004, agenda
Edinburgh, 6 July 2004, home page
Catania, 14-16 July 2004, home page, pictures
Vico Equense, 19 July 2004, slides, pictures
Vico Equense, 6-10 September 2004, home page
Catania, 4-8 October 2004, home page, agenda
Vilnius, 5-6 October 2004, agenda
London, 6 October 2004
Madrid, 6-7 October 2004, agenda
Heidelberg, 11-14 October 2004
CERN, 16 October 2004
Prague, 26 october 2004, home page
Warsaw, 4-6 November 2004, home page, agenda
Lyon, 9-10 November 2004, agenda
The Hague, 15-17 November 2004, pictures
Merida, 15-20 November 2004, home page, agenda, slides, pictures
Tunis, 20 November 2004
Rio de Janeiro, 22-23 November 2004, home page, agenda, pictures
The Hague, 24 November 2004, agenda
CERN, 29-30 November 2004, agenda
Kosice, 30 November - 1 December 2004, agenda
Tunis, 6-7 December 2004
Bochum, 7-10 December 2004, home page, agenda
Edinburgh, 8 December 2004, home page
Istanbul, 9-10 December 2004, agenda, slides, pictures
Shanghai, 9-10 December 2004, agenda
Aurillac, 13-14 December 2004
Prague, 16 December 2004, home page, pictures
Tel Aviv, 22-23 December 2004, agenda, pictures

2005

CERN, 13 January 2005, agenda
Torino, 18-19 January 2005, home page, agenda
CERN, 20 January 2005, agenda
CERN, 2-4 February 2005, agenda
Roma, 3 February 2005, home page, agenda, pictures
Sydney, 3-4 February 2005, home page
CERN, 9-11 February 2005, agenda
Amsterdam, 14-16 February 2005, home page
Trento, 23-25 February 2005, home page, agenda
Amsterdam, 28 February - 1 March 2005, home page
Julich, 9 March 2005,
Clermont-Ferrand, 9-31 March 2005, agenda
Vienna, March-August 2005
Hamburg, 23-24 March 2005, home page, agenda
Ula-Merida, 31 March-1 April 2005, agenda
Zilina, 4 April 2005, home page and agenda
Edinburgh, 9-13 May 2005, home page and agenda
St.Augustin,25 May 2005, home page and agenda
Catania, 13-15 June 2005, home page, agenda, pictures
Valencia, 14-16 June 2005, home page, agenda
Lyon, 17 June 2005, home page and agenda
Bratislava, 27-30 June 2005, agenda
Forschungszentrum Karlsruhe, 08 July 2005, home page and agenda
Vico Equense, 10-22 July 2005, home page, agenda
Budapest, 11-16 July 2005, home page, agenda
Clermont-Ferrand, 25-27 July 2005, home page, agenda
Madrid, 26-27 July 2005, home page, agenda
Swansea, 06 August 2005, home page and agenda
Taipei, 22-23 August 2005, home page and agenda
Tokyo, 25-26 August 2005, home page and agenda
Seoul, 29-30 August 2005, home page and agenda
Saint-Malo, 12-15 September 2005, home page, agenda
Karlsruhe, 26-30 September 2005, home page, agenda
Raanana, 28-29 September 2005, home page, agenda

The GILDA Tutorials/Demonstrations (1/2) (https://gilda.ct.infn.it/tutorials.html)

2005

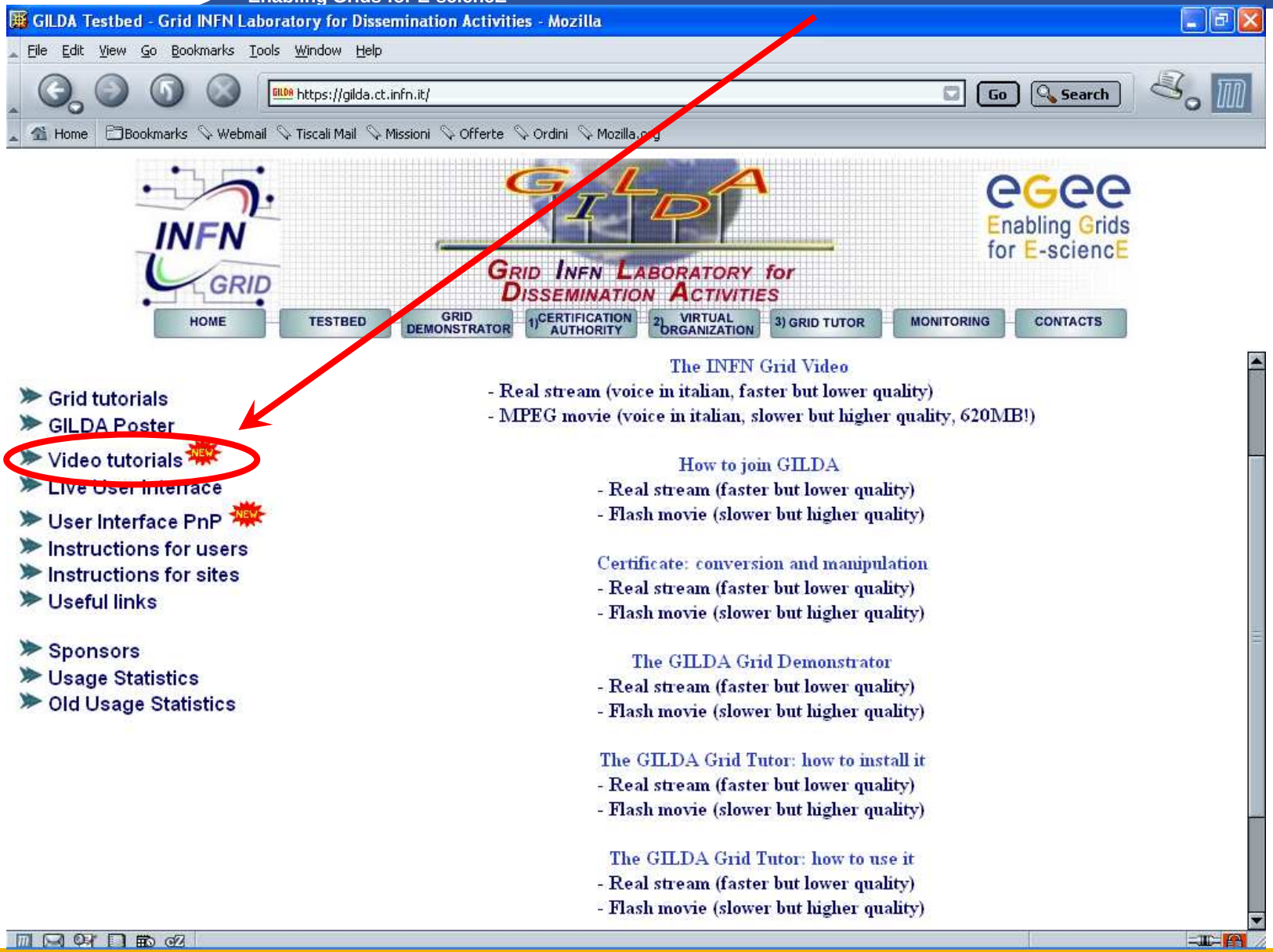
London, 6 October 2005, home page and agenda
Sophia Antipolis, 10-14 October 2005, home page, agenda
Tenerife, 16 October 2005, home page and agenda
Pisa, 23 October 2005, home page and agenda
Rome, 2-4 November 2005, home page and agenda
Cracow, 20-24 November 2005, home page, agenda
Merida, 21-25 November 2005, home page, agenda
Aurillac, 23 November 2005
Linz, 24 November - home page and agenda
Zaragoza, 28-30 November 2005, home page, agenda, pictures
Warsaw, 30 November - 3 December 2005, home page, agenda
Linz, 30 November - 8 December 2005, home page and agenda
Aurillac, 1 December 2005
CERN, 6-7 December 2005, home page and agenda
Aurillac, 8 December 2005
Sophia-Antipolis, 8-9 December 2005, home page and agenda

2006

Clermont-Ferrand, 2 January - 17 February 2006, home page and agenda
Aurillac, 5 January 2006
Naples, 10 January - 28 February 2006
Aurillac, 13 January 2006
Melbourne, 30-31 January 2006, home page and agenda
Brisbane, 2-3 February 2006, home page and agenda
Trieste, 6-17 February 2006, home page and agenda
Singapore, 9-10 February 2006, home page, agenda
Tel Aviv, 15 February 2006, home page, agenda
Madrid, 20-24 February 2006, home page, agenda
CERN, 27-28 February 2006, home page, agenda
Bari, 8-10 March 2006, home page, agenda
Edinburgh, 16-23 March 2006, home page, agenda
Beijing, 3-7 April 2006
Beijing, 12-16 June 2006

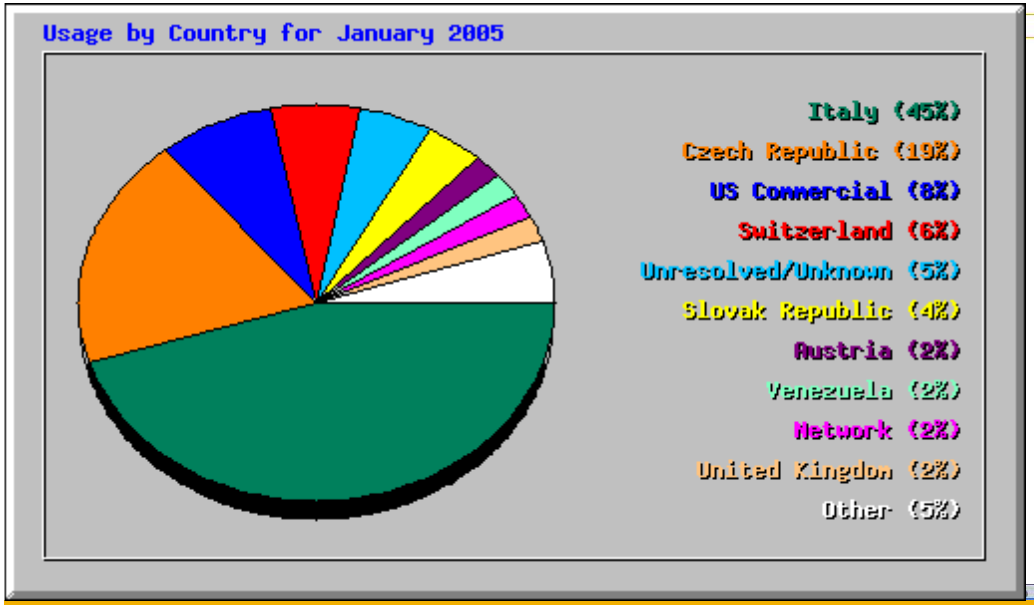
The GILDA Tutorials/Demonstrations (2/2) (https://gilda.ct.infn.it/tutorials.html)

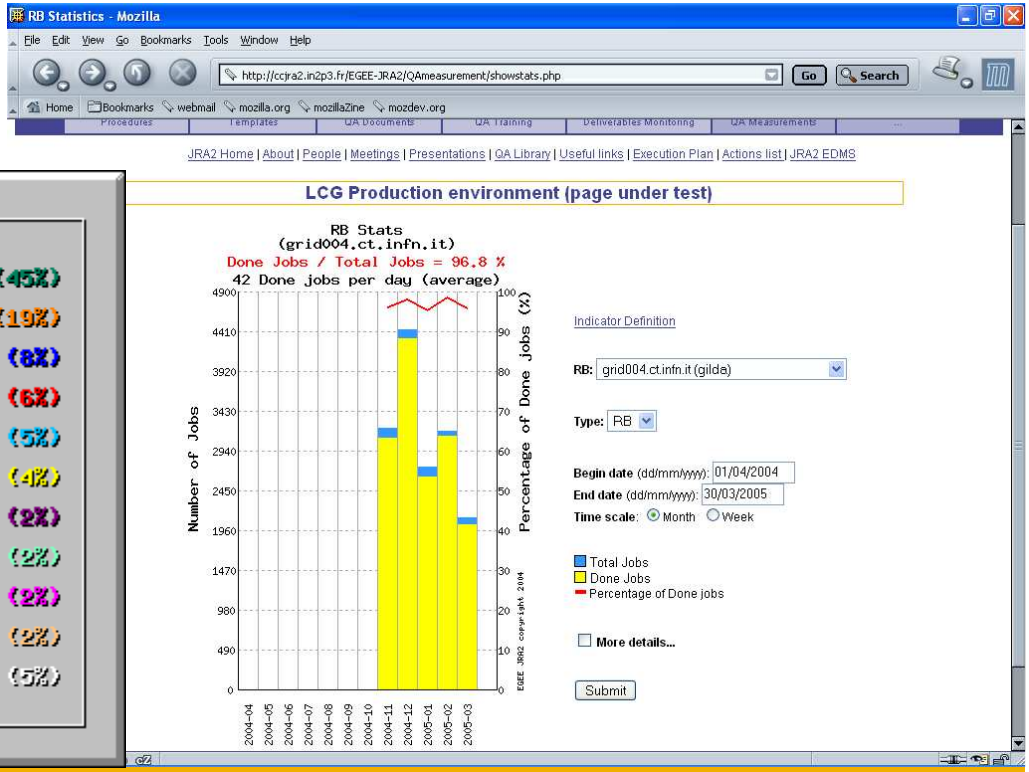
The GILDA Video Tutorials (https://gilda.ct.infn.it/video.html)



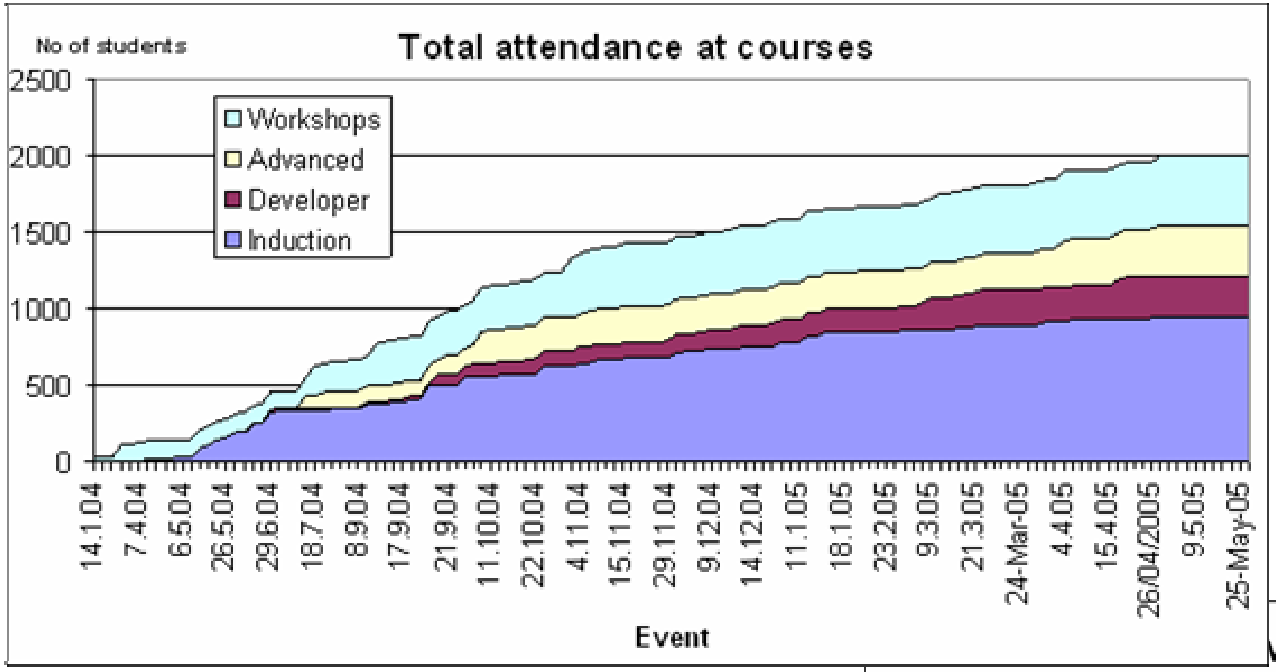
GILDA summary numbers

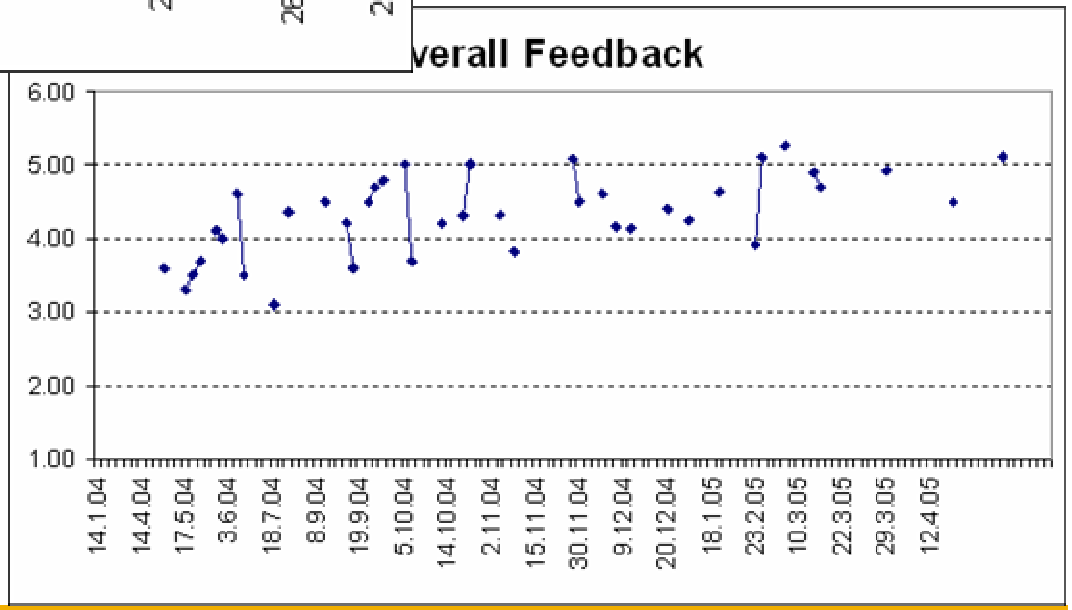
- 19 sites in 3 continents
- > 2000 certificates issued, 15% renewed at least once
- > 50 tutorials and demos performed in 15 months
- > 50 jobs/day on the average
- Job success rate above 80%
- > 750,000 hits (> 40,000 visits) on (of) the web site from 10's of different countries
- > 0.5 TB of videos and UI's downloaded from the web site





Training achievements





EGEE-NA4 Applications and GILDA

- **7 Virtual Organizations supported:**
  - Biomedicine (Biomed)
  - Earth Science Academy (ESR)
  - Earth Science Industry (CGG)
  - Astroparticle Physics (MAGIC)
  - Computational Chemistry (GEMS)
  - Grid Search Engines (GRACE)
  - Astrophysics (PLANCK)
- **Development of complete interfaces with GENIUS for 3 Biomed Applications: GATE, hadronTherapy, and Friction/Arlecore**
- **Development of complete interfaces with GENIUS for 4 Generic Applications: EGEODE (CGG), MAGIC, GEMS, and CODESA-3D (ESR) (successfull demos of EGEODE and GEMS at EGEE review)**
- **Development of complete interfaces with GENIUS for 16 demonstrative applications available on the GILDA Grid Demonstrator (https://grid-demo.ct.infn.it)**
- **Development of complete interface with CLI for NEMO**

Summary and conclusions

- **GILDA is a real virtual laboratory for dissemination of grid computing:**
  - It is a “de facto” standard t-Infrastructure adopted both by EGEE and some forthcoming EU-FP6 projects (EELA, EUCHINAGRID, EUMEDGRID, **ICEAGE**)
  - It is a complete suite of grid elements (test-bed, CA, VO, monitoring system, web portal, live user interface, user interface plug&play) and applications fully dedicated to dissemination purposes and pre-porting of new applications to EGEE Infrastructure
  - GILDA runs latest production (stable) version of both the LCG grid middleware but it is also early adopting gLite in order to make the transition to the new middleware smoother and easier