



Enabling Grids for E-science

# GILDA activities in Africa

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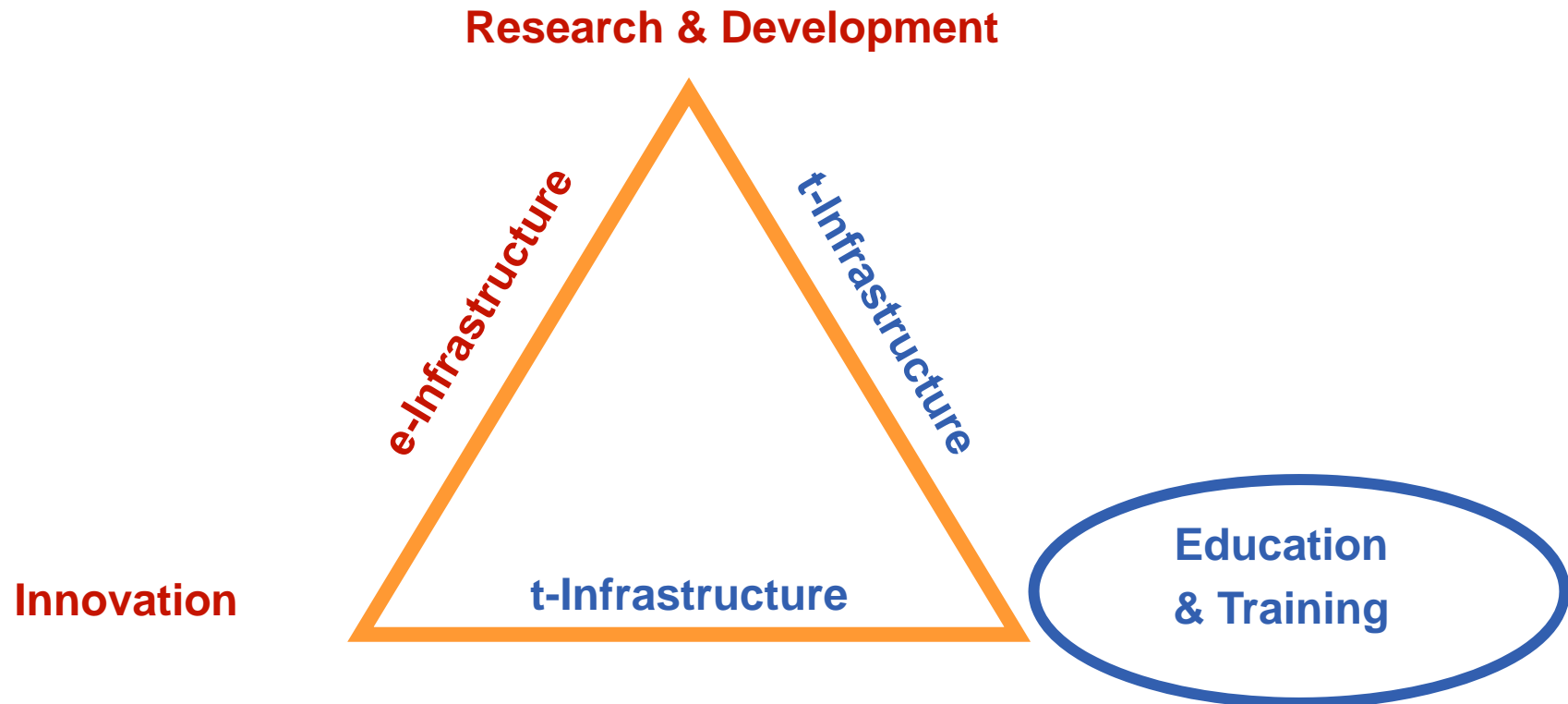
*INFN Catania*

*EGEE User Forum*

*Catania, 02/06.03.2009*

[www.eu-egee.org](http://www.eu-egee.org)





**Building e-Infrastructures is a waste if we don't “build”, at the same time, their users.**

**Along with e-Infrastructures, t-Infrastructures are also needed.**

- **Easy entry point for new users/communities**
- **Provide guaranteed resources for training activities**
- **Support for pilot Grid Infrastructures**
- **Avoid to interfere with production Grid infrastructures**
- **Prepare participants for future middleware releases**
- **Provide users/applications to e-Infrastructures**


- **Grid INFN Laboratory for Dissemination Activities**
- **The main objectives of GILDA activity are:**
  - to encourage and help new and existing communities,
  - to support them for improvement or migration of their applications to the Grid infrastructure,
  - to accelerate the adoption of grid technologies, and
  - to increase the satisfaction of those currently using the Grid service through the communities' feedback.
- **It is free of charge**



More sites soon available in  
Latin America and South Africa

- **~ 20 sites in 4 continents**

- **# of Sites may change in time (they are managed on a “best effort” basis)**

- **Infrastructure**
  - GILDA CA
  - GILDA VOMS
  - Creation of pilot test-beds: EELA, EUMED, EUCHINA, EUINDIA, SAGRID...
  - Testing and development on new available gLite services
  - Dedicated Software repository/Virtual services (INFN Grid)
  - Monitoring (GridICE, GStat, SAM, etc. )
- **Training on Grid**
  - Tutorial for Users
  - Tutorial for Site Admin 
  - Grid Schools
  - Tutorial for Trainers/Customized events
  - University courses (Degree, Ms.C, Ph.D, etc.)
  - Training materials: Wiki pages, Printable Documentation, Demos, Videos, etc.
- **Grid Application development**
  - Support to Grid application development
  - Deployment of the applications into the GENIUS grid portal
  - GILDA Ticketing support system

**(New) Remote site installation**

- **The birth of GILDA**
  - Launched in 2004 by the Italian National Institute for Nuclear Physics (INFN), soon adopted successfully to support other Grid Projects
  - EGEE project
- **2006-2008 6<sup>th</sup> EC Framework**
  - EELA
  - EUMED
  - EUCHINA
  - EUINDIA
  - ICEAGE
  - EGEE II
- **2008-2010 7<sup>th</sup> EC Framework**
  - EGEE III
  - EELA-2
  - EPIKH
- **SAGrid**

## List of events from 2004 ...



**INFN GRID**

**GILDA**  
GRID INFN LABORATORY for DISSEMINATION ACTIVITIES

**EGEE** Enabling Grids for E-science in Europe

**ICEAGE**

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

**News**

**List of Tutorials**

**Request a Tutorial**

**Posters**

**Video Tutorials**

**User Interface PnP**

**Virtual Services**

**Instructions for Users**

**Instructions for Sites**

**Training Material (wiki)**

**GILDA Forge**

**Support System**

**Useful Links**

**Check Your IP**

**Sponsors**

**Usage Statistics**

**Old Usage Statistics**

**2004 (34) - 2005 (53) - 2006 (69) - 2007 (85) - 2008 (83)**

**2009**

- 1) Valencia, 03 January - 20 March 2009, [home page and agenda](#)
- 2) Linz, 19 January 2009, [home page and agenda](#)
- 3) Zagreb, 20-23 January 2009, [home page and agenda](#)
- 4) Catania, 22-23 January 2009, [home page and agenda](#)
- 5) Manchester, 31 January - 5 February 2009
- 6) Aubiere, 1 February - 31 March 2009
- 7) "On-line", 3 February - 30 April 2009, [home page, agenda](#)
- 8) Cuernavaca, 9-13 February 2009, [home page, agenda](#)
- 9) Catania, 11-20 February 2009, [home page, agenda](#)
- 10) Larnaca, 16 February 2009, [home page and agenda](#)
- 11) Padova, 18 February - 13 March, [home page and agenda](#)
- 12) Bogota, 23-24 February 2009, [home page, agenda](#)
- 13) Szeged, 23 February - 11 May 2009, [home page, agenda](#)
- 14) Catania, 2 March 2009, [home page and agenda](#)
- 15) Gijon, 16-27 March 2009, [home page, agenda](#)
- 16) Helsinki, 23-24 April 2009

**If you want to book GILDA for a grid tutorial click here.**

**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 Testbed.

**Absolutely no identity check** is going to be performed on the requester, so the personal certificates issued by the GILDA CA have absolutely no value as an official production Grid Testbed structure.

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

**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

**>14,000 certificates issued since 2004. More than 30% renewed at least once.**

**Virtual Organization Membership Service**

The gilda VO

Request to Administrators > requesting VO membership

**VO User Registration Request**

To access the VO resources, you must agree to the VO's Usage Rules. Please fill out all fields in the form below and click on the appropriate button at the bottom.

After you submit the form, you will not be forwarded to the VO resources. You will receive an email with those instructions.

**IMPORTANT:** If you are not a site administrator, please make sure your email address is correct, that it is not a temporary email address, and contact you in case of any problems.

CONFIRMATION OF THE EMAIL ADDRESS

Request to Administrators

Requesting VO Membership

Listing Requests

Confirmation of the Email Address

**341 tutorials in 54 countries since 2004. Up to 6 at the same time.**

**GILDA (Grid Infn Laboratory for Dissemination Activities)**

Home | Testbed | Grid Demonstrator | Certification Authority | 2) AUP | 3) Virtual Organization | Grid Tutor | Monitoring | Contacts

**New GILDA usage rule**

News

- List of Tutorials
- Request a Tutorial

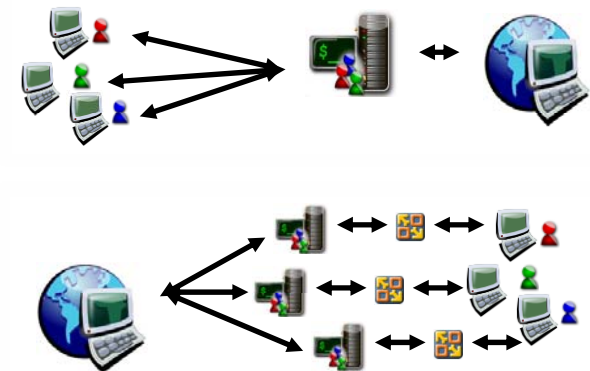
**GILDA tutorials from 01/08/07 to 31/07/08**

**>1000 users registered in the GILDA VO**

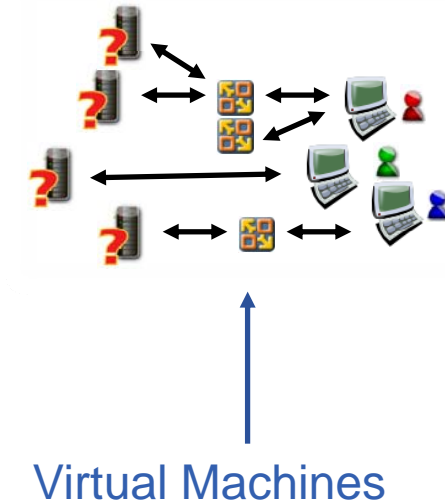




- Tutorial in Johannesburg: 27 – 28 March 2008



Tutorial in Cuernavaca (Mexico): 9 – 13 February 2009



- African scientific communities can use GILDA to “gridify” and run applications of local interest;
- Share best practices and common policies in e-Infrastructure set-up and management (especially the “stand-alone” Grid);
- Institutions can setup “clones” of GILDA locally to implement campus grids or even nation-wide e-infrastructures (we are already doing so in South Africa and Cuba);
- GILDA can offer free technical support for anyone willing to organize local training events on Grid computing
  - It can be undergraduate courses, M.Sc courses, tutorials, Grid Schools etc.
  - Share training contents and material

## STATE OF THE ART

A compute grid based on *gLite 3.1* is currently being deployed in South Africa amongst most Universities and National Laboratories thanks to GILDA, which serves in this exercise as a national and regional infrastructure model deployments.

## STRATEGY

Since April 2008, we are working with a phased institutional procedures, site deployment and associated training strategy:

- **Infrastructure setup**: basic hardware infrastructure compatible with the standard EGEE model is either currently in place or being deployed, temporary joined to GILDA t-Infrastructure until the stability will be reached. Compute services will be provided by several South African Universities and National Laboratories,
- **Vitual Organisation's to be supported**: the SAGrid will support a wide range of local research in many fields (**computational chemistry, astronomy, bioinformatics, hadron therapy, meterology and climate modelling**, etc.) and will follow the existing research supported by the CHPC, as well as support already existing international collaborations: **ALICE** (UCTCERN Research Centre), **ATLAS** (University of Johannesburg), **WISDOM** (C4 Pretoria).

# The SAGrid e-Infrastructure (Deployment model based on GILDA)

Scheduled = 0  
Running = 0

**Sites installed, currently testing:**

- **iThemba LABS**
- **North West University**
- **Wits School of Physics**

**Under discussion:**

- **SAAO, SALT**
- **CHPC**
- **UCT-CERN Research Centre**
- **UKZN**
- **University of Stellenbosch**
- **Cape Peninsula University of Technology**
- **University of South Africa**

**Activities led by Bruce Becker**  
**(SAGrid National Coordinator)**

• C4  
• UJ

• UFS

**The infrastructure is under control. Jobs will run soon!**

sa-grid GStat: 08:32:24 12/13/08 GMT - @egee017.cnaf.infn.it

home alert table service regional service metrics links prod ops test baltic cela euchina euindia cumed seegrid gilda trigrind pi2s2 grisu ireland aeolis e-nmr sa-grid

CSIR-C4		ILABS		UFS						
sites	countries	totalCPU	freeCPU	runJob	waitJob	seAvail TB	seUsed TB	maxCPU	avgCPU	
Total	3	1	8	8	0	0	3.27	0.02	9	5

Global Grid Tests

Color Legend  
GSTAT . OK INFO NOTE WARN ERROR CRIT MAINT OFF  
SFT . OK . . . . . WARN ERROR CRIT SchedDown

Site List, sort by: siteName domain maxCPU status

No	Site Reports	GIS Host	hnode	cernse	uport	sanity	serv	serEntry	version	slust	totalCPU	freeCPU	runJob	waitJob	seAvail TB	seUsed TB	maxCPU	avgCPU	gicc				
1	CSIR-C4	grid-ce.04.csisr.co.za	.	.	ok	WARN	.	ok	GLITE-3_1_0 ScientificSL 4.6						0.00	0.00	1	0	.				
2	ILABS	qf92@ilabs.ac.za	.	.	ok	WARN	.	ok	03							0	0		.				
3	UFS	grid.ufs.ac.za	.	.	ok	ok	.	ok	GLITE-3_1_0 ScientificSL 4.6	0	8	0	0	0	3.27	0.01	8	5	.				
		sites		countries		totalCPU		freeCPU		runJob		waitJob		seAvail TB		seUsed TB		maxCPU		avgCPU			
		Total		3		1		8		8		0		0		3.27		0.02		9		5	

INFN CNAF

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Comments to author: roc-dev\_at\_lists.grid.sinica.edu.tw  
Generated: Sat Dec 13, 2008

## - Initial training and induction programme

- **June 2008, Catania, Italy, 1<sup>st</sup> Training for Certification and Registration Authority Manager (2 RAs of the INFN CA** have been created in South Africa (**Pretoria and Faure**) to allow grid user's certification);
- **June 2008, Catania, Italy 1<sup>st</sup> Training for Grid Site Administrator (6 South African site administrator** have been trained locally in Catania, while other **13 ones from Nigeria, Algeria and South Africa** have been attended by INFN e-Learning System;
- **June 2008, Catania, Italy 1<sup>st</sup> Training for Grid User (20 participants from Nigeria, Algeria and South Africa** have been attended locally and remotely using the INFN e-Learning System based in Adobe Connect;
- **July 2008, Cape Town, South Africa, 2<sup>nd</sup> Training for User**
- **July 2008, Cape Town, South Africa, 2nd Training for Site Administrator**
- **July 2008, Cape Town, South Africa, 1<sup>st</sup> Training for Application**
- **July 2008, Cape Town, South Africa, Grid Science and Industry Open Day**
- **December 2008 Durban, South Africa, 3th Training for User**



HP/UNESCO/EGEE  
Johannesburg



**Almost 100 people trained on e-Infrastructure from Algeria, Congo, Ghana, Kenya, Malawi, South Africa, Uganda, United Arab Emirates, and Zimbabwe**

•Event  
Sponsored by EELA-2

**EELA-2 Grid tutorial  
Lilongwe (Malawi) – 13.11.08**



**2<sup>nd</sup> SAGrid Workshop & Tutorial  
Durban – 11-13.12.08**

- **“Exchange Programme to advance e-Infrastructure Know-How” (EPIKH)**
  - EU FP7- Marie Curie Actions – People - International Research Staff Exchange Scheme (IRSES)
  - Reinforce the impact of e-Infrastructures in scientific research defining and delivering stimulating programme of educational events, including Grid Schools and High Performance Computing courses;
  - Broaden the engagement in e-Science activities and collaborations both geographically and across disciplines;
- **Consortium “numbers”:**
  - 23 partners;
  - 18 countries;
  - 4 continents (**Africa**, **Latin America**, Asia, Europe);
  - 115 persons involved;
  - >650 researcher-months;
  - >500 secondments;
- **Duration: March, 1, 2009 – February, 29, 2012 (48 months)**
- **EC contribution: 1,188,000 €**



Partner Number	Partner Name	Partner short name	Country
1	Consorzio COMETA	COMETA	Italy
2	Magyar Tudományos Akadémia Számítástechnikai és Automatizálási Kutató Intézet	MTA SZTAKI	Hungary
3	Centro de Investigaciones Energéticas Medioambientales y Tecnológicas	CIEMAT	Spain
4	Universidad Técnica Federico Santa María	UTFSM	Chile
5	Electronics Research Institute		Egypt
6	Council for Scientific and Industrial Research		South Africa
7	Institute of High Energy Physics of the Chinese Academy of Sciences		China
8	CESNET Zajmové Sdružení Právnicků		Czech Republic
9	Centro Federal de Educação Tecnológica Celso Suck D'Araújo		Brazil
10			India
11			Jordan
12		CERIST	Algeria
13		UTIC	Tunisia
14		PKU	China
15	Tel Aviv University	SCS-TAU	Israel
16	Centre National pour la Recherche Scientifique et Technique	CNRST	Morocco
17	School of Computer Science and Engineering of Beihang University	BUAA	China
18	Centre National de la Recherche Scientifique	CNRS	France
19	Universidade Federal do Rio de Janeiro	UFRJ	Brazil
20	Universidad Nacional Autónoma de México	UNAM	Mexico
21	Istituto Nazionale di Fisica Nucleare	INFN	Italy
22	Greek Research and Technology Network	GRNET	Greece
	University of Cape Town	UCT	South Africa

**Eight 1-month Grid & HPC schools and related thematic workshops in Africa in the period 2009-2012!**

## 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-orting of new applications to EGEE Infrastructure
- It is also a digital inclusion tool by helping to spread Grid Computing knowledge around the world.