



# **IDGF** **International Desktop Grid Federation**

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## **Desktop Grids for EGI/NGI User Communities**

2010-09-17

Ad Emmen  
AlmereGrid

EDGI project

# EC Vice President Kroes

Press releases – Neelie Kroes – European Commission – EUROPA

http://ec.europa.eu/information\_society/newsroom/cf/commissioner-kroes.cf

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Vice-President of the European Commission  
**Neelie Kroes**

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**PRESS RELEASES**

**Digital Agenda: EU grid project unlocks processing power of 200,000 desktop computers for European researchers**  
14/09/2010  
EU researchers will have sustainable and continuous access to the combined processing power of over 200,000 desktop computers in more than 30 European countries thanks to the European Commission funded European Grid Infrastructure (EGI) project (...)

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# EC Vice President Kroes

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▶ “On average, a desktop computer remains idle for around 60-85% of the time. Networks like EGI distribute computing tasks involving large amounts of data among the processing capacity of many thousands of separate desktop computers, putting their idle processor cycles to productive use. EGI-InSPIRE will give European researchers access to the aggregated processing power of 200,000 desk-top computers hosted by more than 300 centres around the world. The Commission is contributing €25 million over four years to the €73 million project. Other funding is provided from national sources such as National Grid Initiatives (NGI). “



# EC Vice President Kroes

“On average, a desktop computer remains idle around 60-85% of the time. Networks like EDGI/DEGISCO/IDGF are computing tasks involving large amounts of data, making use of the processing capacity of many desktop computers, not just a few supercomputers, to make productive use of European research infrastructure. The European Union has aggregated processing power of 200,000 processors hosted by more than 300 universities and research centres around the world. The Commission is contributing €73 million over four years to the €73 million project. Other funding is provided from national sources such as National Grid initiatives (NGI).”

**Not entirely True - Actually it will be through EDGI/DEGISCO/IDGF She gives about 3 million to these projects**



# Prelude - what do people at home and SME's think about desktop grid computing

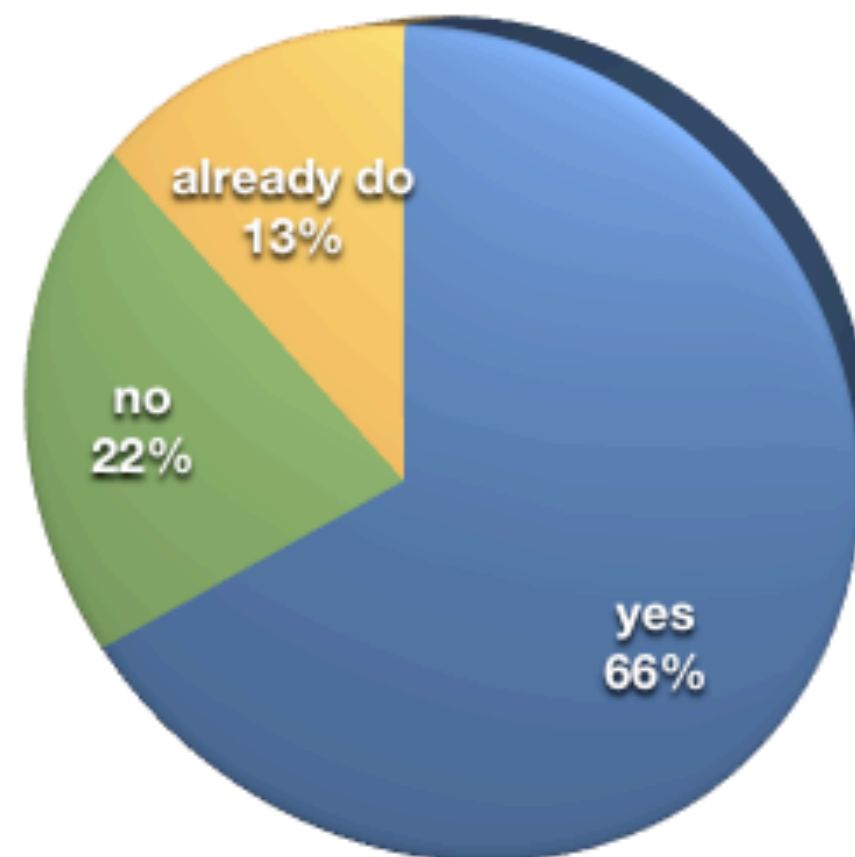
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- ▶ Survey of EDGeS project, 2008
- ▶ Questionnaires all across Europe
- ▶ Get an idea of the interest in people and SMEs to donate computing time for science to a Grid
- ▶ Get an idea of the interest in running a Grid inside an SME

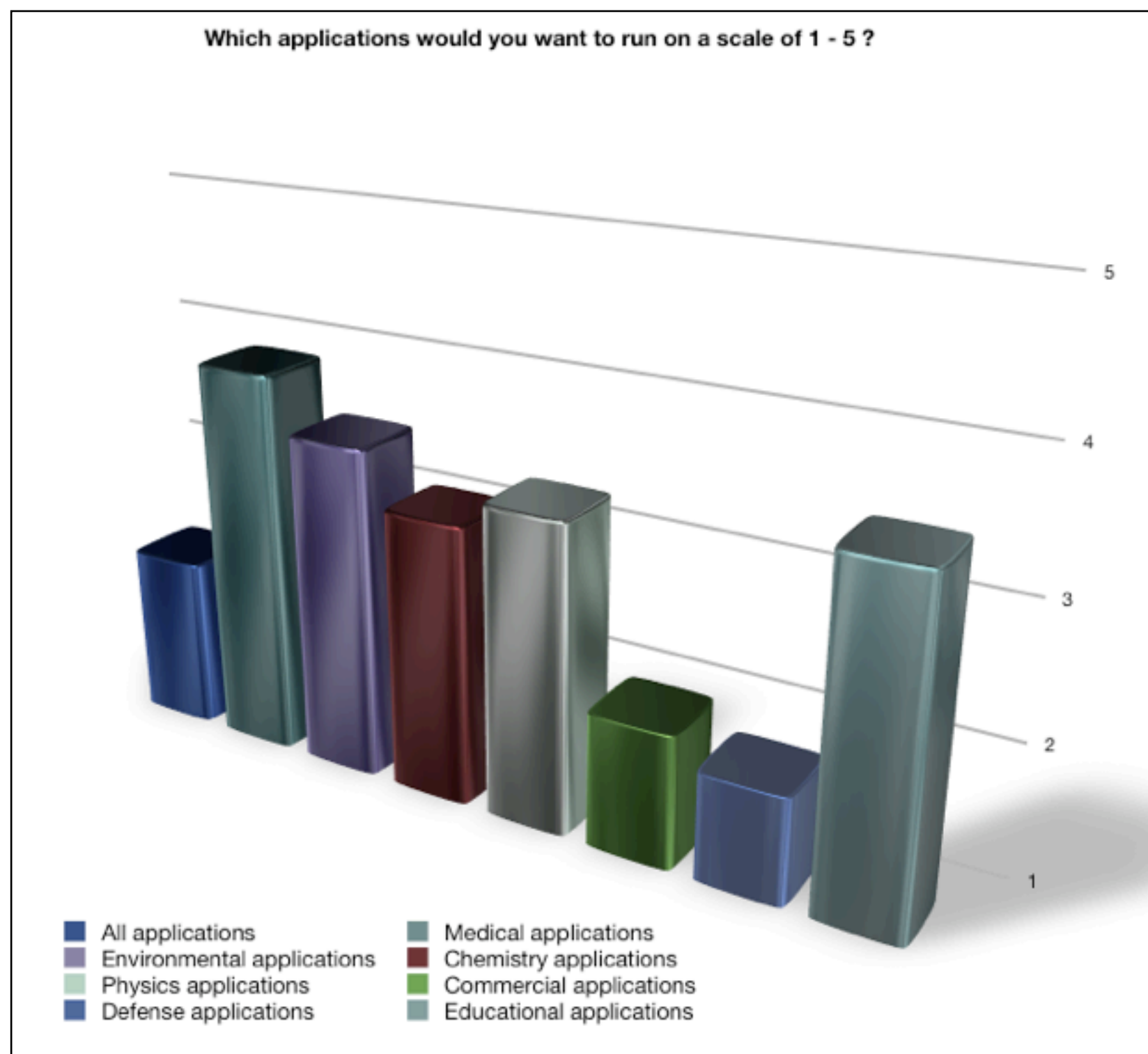
# Are people interested in donating computing time?

- ▶ Short answer:  
Yes, they are
- ▶ Of course, there is more needed to actually let them participate

Interest in donating computing time



# Which applications?



# Survey - Conclusions

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- ▶ Overall: *there is interest in Desktop Grid computing in Europe.*
- ▶ However, that people are willing to change their current practice and say that they want to participate in Grid efforts does not mean that they are actually going to do that.
- ▶ Need to *generate trust in the organisation that manages the Grid.*
- ▶ People want to *donate computing time for scientific applications*, especially medical applications. They *do not like to donate computing time to commercial or defense applications.*
- ▶ People want *feedback on the application they are running.*
- ▶ No clear technical barriers perceived by the respondents: so this does not need much attention.
- ▶ Overall the respondents were rather positive about donating computing time for a Grid or about running applications on a Grid.

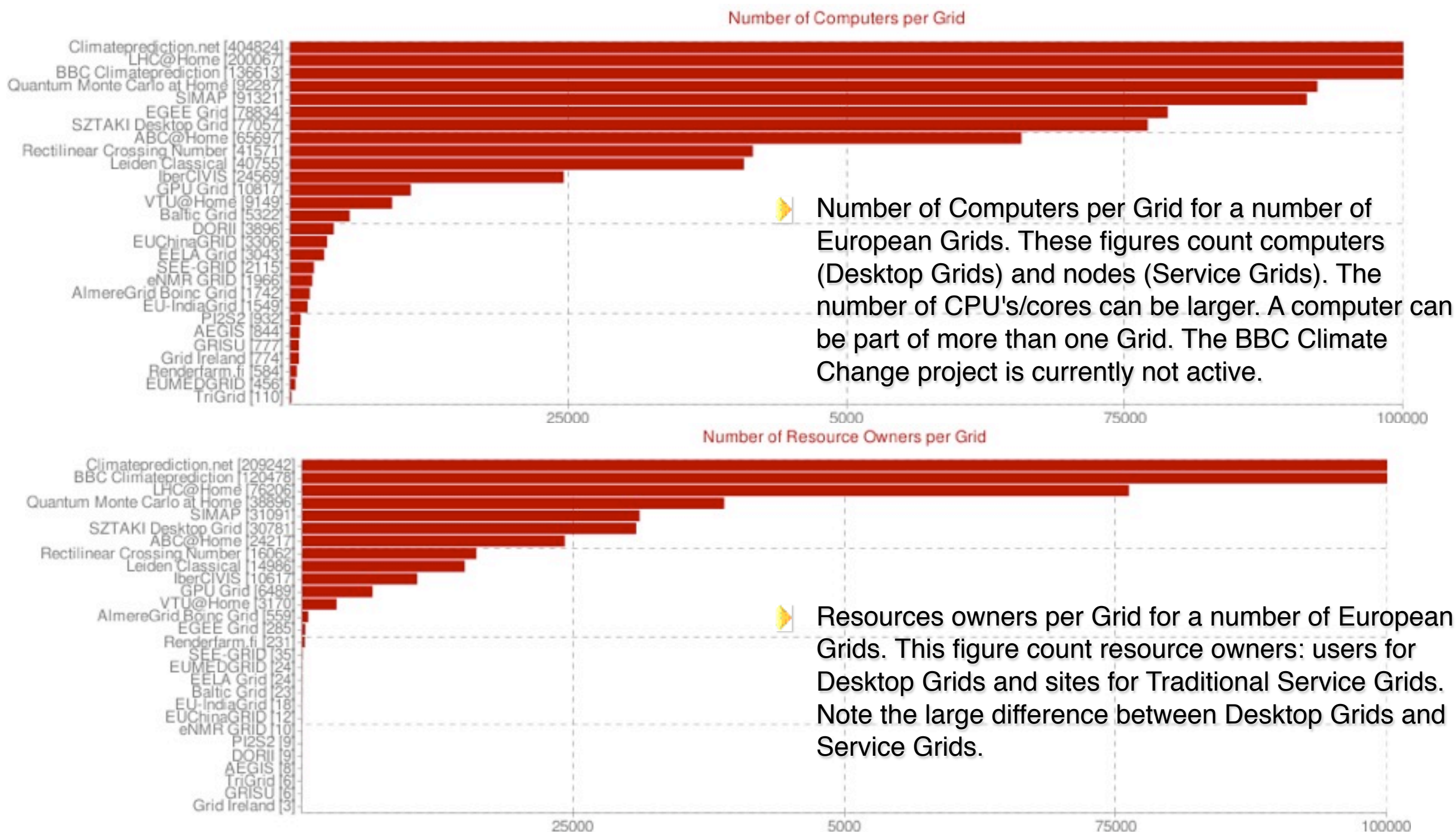


# But how much capacity?

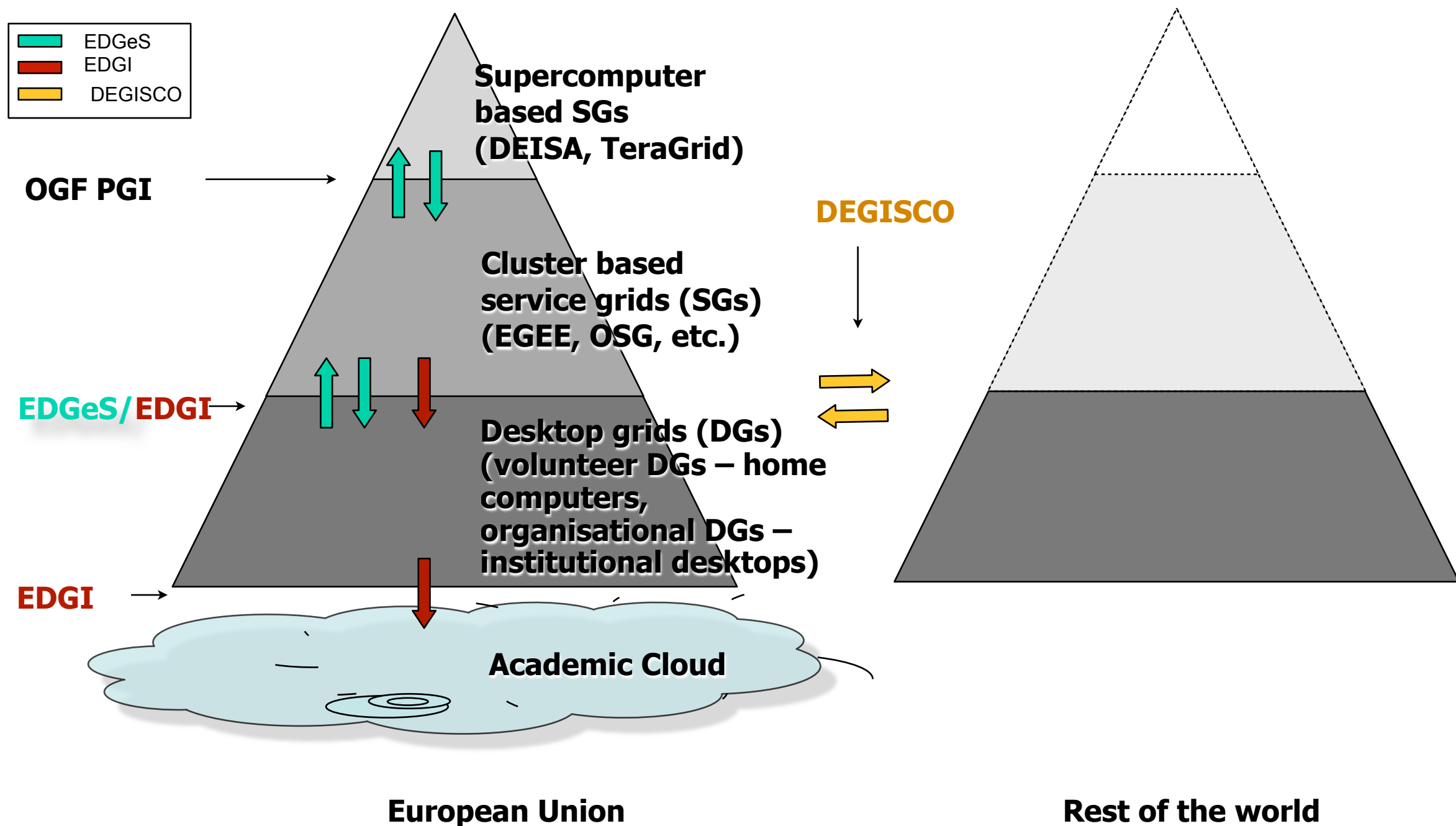
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- ▶ OK, people want to donate computing time to science. But what is the capacity of a Desktop grid?
- ▶ Can be considerable: tens of thousands or more computers
- ▶ And also you can consider installing a local Desktop Grid at your institute university
- ▶ So enough capacity available for your scientific project or your scientific users
- ▶ But how and when to use it?

# Importance of Desktop Grids for Science: <http://knowledgebase.e-irg.eu>



# Where Desktop Grids fit in





# Support provided by IDGF

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- ▶ Support to use Desktop Grids by NGIs/EGI is provided by the International Desktop Grid Federation (IDGF)
- ▶ IDGF provides a number of services
- ▶ Your institute, organisation, company and you can become member of IDGF
- ▶ Help connecting Desktop Grids into the EGI infrastructure is an important goal
- ▶ So integrating Desktop Grids into EGI infrastructure



# Providing services for its members

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- ▶ IDGF is a member organisation
- ▶ You can become member, your organisation can, your company can, so do it
- ▶ IDGF provides services to its members. Services aimed at improving cooperation between those involved in Desktop Grids:
  - ▶ Member administration, including interest group and chapter management
  - ▶ Dissemination services
  - ▶ News service
  - ▶ Discussion fora
  - ▶ Support services
  - ▶ Meetings and event organisation



# Know other members and their area of expertise

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## ▶ Member administration, including interest group and chapter management

- ▶ There are several interest groups that one can join.
- ▶ Two chapters: European and International

## ▶ Dissemination services

- ▶ Tell what you do, know what others do. Share experiences. Joint campaigns

## ▶ News service

- ▶ Blog, RSS/Atom, Twitter
- ▶ News for and from members

## ▶ Discussion fora

# Joint campaigns

---

- ▶ Create material for citizens that works
- ▶ If it does: translate and reuse in other countries
- ▶ In IDGF already: French, Dutch, Hungarian, Russian, Chinese, Danish, Portuguese, Spanish, and even English speakers
- ▶ Re-use campaign elements that work:
  - ▶ material for schools
  - ▶ media campaigns
- ▶ Do joint campaigns

# Joint campaigns

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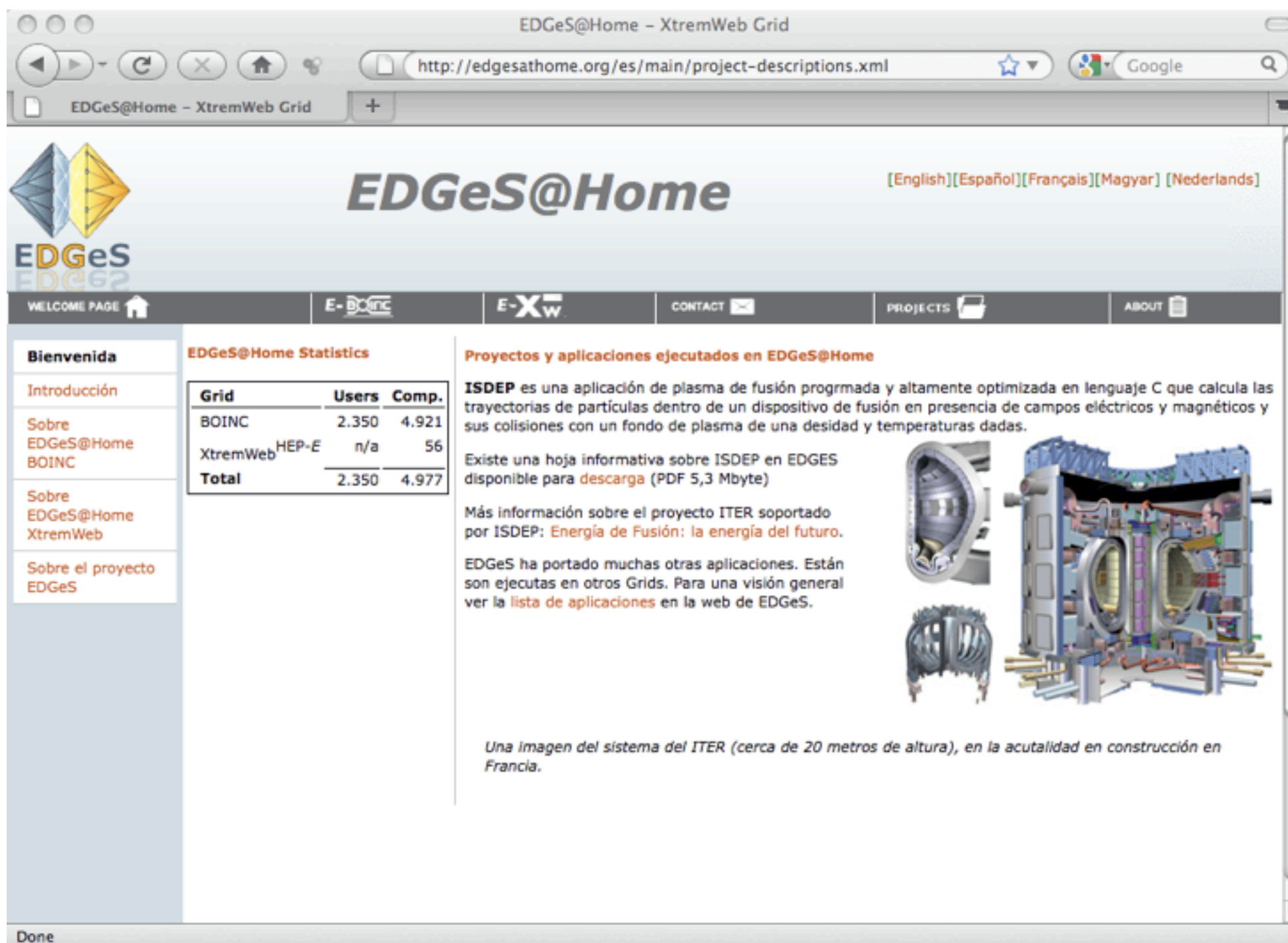


[http://www.omroepflevoland.nl/nieuws/recent?](http://www.omroepflevoland.nl/nieuws/recent?NewsKey=5479D73C07E37DA0C12575A5004E84D5)  
[NewsKey=5479D73C07E37DA0C12575A5004E84D5](http://www.omroepflevoland.nl/nieuws/recent?NewsKey=5479D73C07E37DA0C12575A5004E84D5)



# Joint Campaign

## EDGeS@Home - Donate to Energy Research



EDGeS@Home - XtremWeb Grid

http://edgesathome.org/es/main/project-descriptions.xml

EDGeS@Home - XtremWeb Grid

**EDGeS@Home** [English][Español][Français][Magyar][Nederlands]

WELCOME PAGE E-BOINC E-Xw CONTACT PROJECTS ABOUT

**Bienvenida**

Introducción

Sobre EDGeS@Home BOINC

Sobre EDGeS@Home XtremWeb

Sobre el proyecto EDGeS

**EDGeS@Home Statistics**

Grid	Users	Comp.
BOINC	2.350	4.921
XtremWeb <sup>HEP-E</sup>	n/a	56
<b>Total</b>	<b>2.350</b>	<b>4.977</b>

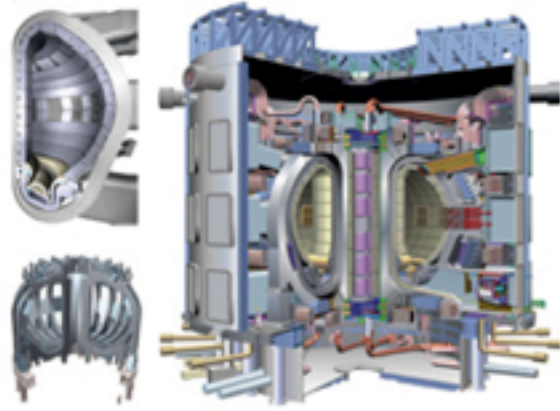
**Proyectos y aplicaciones ejecutados en EDGeS@Home**

**ISDEP** es una aplicación de plasma de fusión programada y altamente optimizada en lenguaje C que calcula las trayectorias de partículas dentro de un dispositivo de fusión en presencia de campos eléctricos y magnéticos y sus colisiones con un fondo de plasma de una densidad y temperaturas dadas.

Existe una hoja informativa sobre ISDEP en EDGES disponible para [descarga](#) (PDF 5,3 Mbyte)

Más información sobre el proyecto ITER soportado por ISDEP: [Energía de Fusión: la energía del futuro](#).

EDGeS ha portado muchas otras aplicaciones. Están son ejecutas en otros Grids. Para una visión general ver la [lista de aplicaciones](#) en la web de EDGeS.



*Una imagen del sistema del ITER (cerca de 20 metros de altura), en la actualidad en construcción en Francia.*



# Joint Campaign

## EDGeS@Home - Donate to Energy Research

EDGeS@Home - XtremWeb Grid

http://edgesathome.org/es/main/project-descriptions.xml

EDGeS@Home - Introduction

http://edgesathome.org/fr/main/intro.xml

EDGeS@Home

[English][Español][Français][Magyar][Nederlands]

WELCOME PAGE

Bienvenida

Introducción

Sobre EDGeS@Home BOINC

Sobre EDGeS@Home XtremWeb

Sobre el proyecto EDGeS

Page d'accueil

Introduction

A propos d'EDGeS@Home BOINC

A propos d'EDGeS@Home XtremWeb

A propos du projet EDGeS

EDGeS@Home Statistics

Grid	Users	Comp.
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EDGeS@Home - Introduction

EDGeS@Home vous permet d'accorder votre puissance de calcul inutilisée aux sciences. EDGeS@Home fait opérer des applications qui ont été développées pour des grilles scientifiques mais qui sont également aptes pour les grilles de PC sur la base du volontariat composées des ordinateurs domestiques.

Tout le monde peut accorder sa puissance de calcul inutilisée à EDGeS@Home et ainsi aux chercheurs scientifiques qui utilisent EGEE. Il suffit de télécharger et d'installer un petit logiciel permettant la connexion au réseau EDGeS@Home qui active l'ordinateur lorsque celui-ci n'est pas utilisé afin d'effectuer des calculs scientifiques. Les résultats sont transmis à votre PC. EDGeS@Home est adapté pour Windows MacOSX et des systèmes Linux.

EDGeS@Home assure la sécurité: nous ne vous faisons utiliser que des programmes de software qui ont subi des testes de sécurité, de validation et de confiance et des applications qui ne mettront en aucun danger votre système.

EDGeS@Home propose deux versions différentes.

Nous vous présentons EDGeS@Home en deux versions différentes:

- EDGeS@Home BOINC Grid
- EDGeS@Home XtremWeb<sup>HEP-E</sup>

EDGeS@Home BOINC Grid utilise le Middleware de BOINC Desktop Grid de l'Université de Berkeley, California, USA. Un des avantages consiste dans le choix d'accorder votre puissance de calcul inutilisée aux plusieurs projets, et non seulement à EDGeS@Home. BOINC a aussi un interface agréable et des outils qui vous montrent ce que vous avez contribué.

EDGeS@Home XtremWeb<sup>HEP-E</sup> est un Middleware de Desktop Grid développé par INRIA/IN2P3 en France. Il a été étendu pour être utilisé au sein d'EDGeS. Il opère plutôt à l'arrière-plan et est spécifiquement utile si vous voulez accorder votre puissance de calcul inutilisée sans trop d'outils supplémentaires.

Diagram illustrating the EDGeS@Home architecture:

```

graph TD
    EGEE[EGEE Service Grid]
    BOINC[BOINC based Desktop Grid]
    XtremWeb[XtremWeb based Desktop Grid]
    EGEE --> BOINC
    EGEE --> XtremWeb
    BOINC --> EGEE
    XtremWeb --> EGEE
  
```





# Joint Campaign

## EDGeS@Home - Donate to Energy Research

The screenshot displays the EDGeS@Home website interface across three overlapping browser windows. The main window shows the 'XtremWeb - Hosts' section, which includes a pie chart and a table of host details.

**XtremWeb - Hosts**

Number of hosts: 64  
 Number of Linux hosts: 39  
 Number of MacOSX hosts: 2  
 Number of Windows hosts: 23

Computer name	Date last contact	OS	Processor	Local IP	Details
tipi02.lri.fr	2009-12-12 09:39:24.0	LINUX	IX86	129.175.6.202	[details]
tipi04.lri.fr	2009-12-12 09:37:44.0	LINUX	IX86	129.175.6.204	[details]
tipi07.lri.fr	2009-10-02 17:27:57.0	LINUX	IX86	129.175.6.207	[details]
tipi08.lri.fr	2009-12-12 09:39:43.0	LINUX	IX86	129.175.6.208	[details]
MacBook-de-Oleg.local	2009-10-05 15:22:05.0	MACOSX	IX86	192.168.0.11	[details]
server1	2010-01-08 12:39:25.0	LINUX	IX86	82.148.216.194	[details]
edges-fedak.gillus.net	2010-02-19 08:46:17.0	MACOSX	IX86	192.168.0.173	[details]
almeregird7	2010-03-20 16:37:53.0	WIN32	IX86	192.168.7.157	[details]
tipi01.lri.fr	2010-01-15 16:36:26.0	LINUX	IX86	129.175.6.201	[details]
tipi03.lri.fr	2010-03-31 04:43:34.0	LINUX	IX86	129.175.6.203	[details]
7pron	2010-01-17 14:02:33.0	WIN32	IX86	192.168.1.2	[details]
URA	2010-02-06 21:18:25.0	WIN32	IX86	192.168.1.3	[details]
MAHNO	2010-04-06 10:05:08.0	WIN32	IX86	10.9.0.40	[details]
wmub	2010-03-04 16:31:05.0	LINUX	IX86	127.0.1.1	[details]
stouf-laptop	2010-03-08 17:17:23.0	LINUX	IX86	127.0.1.1	[details]
PC	2010-03-04 22:54:29.0	WIN32	IX86	192.168.11.2	[details]



# Joint Campaign

## EDGeS@Home - Donate to Energy Research

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### ▶ Good message

- ▶ With EDGeS@Home you can help solve the world's energy crisis
- ▶ Donate unused computing time to fusion research
- ▶ Program ISDEP of Spanish scientists

### ▶ Good initial coverage

- ▶ Fusion communication departments
- ▶ Press, radio
- ▶ Available in local languages, local press releases

### ▶ But...

- ▶ Also lessons learned



# Educate, train, support

## ▶ *Support services:*

- ▶ Expert support for Desktop Grid operators
- ▶ Expert support for application developers

## ▶ **Call for Operators and Developers (through EDGI) with financial support for 2 x 2 small projects.**

- ▶ Open later this month
- ▶ Connected Cloud/Desktop Grid/Service Grid infrastructure

## ▶ *Meetings and event organisation:*

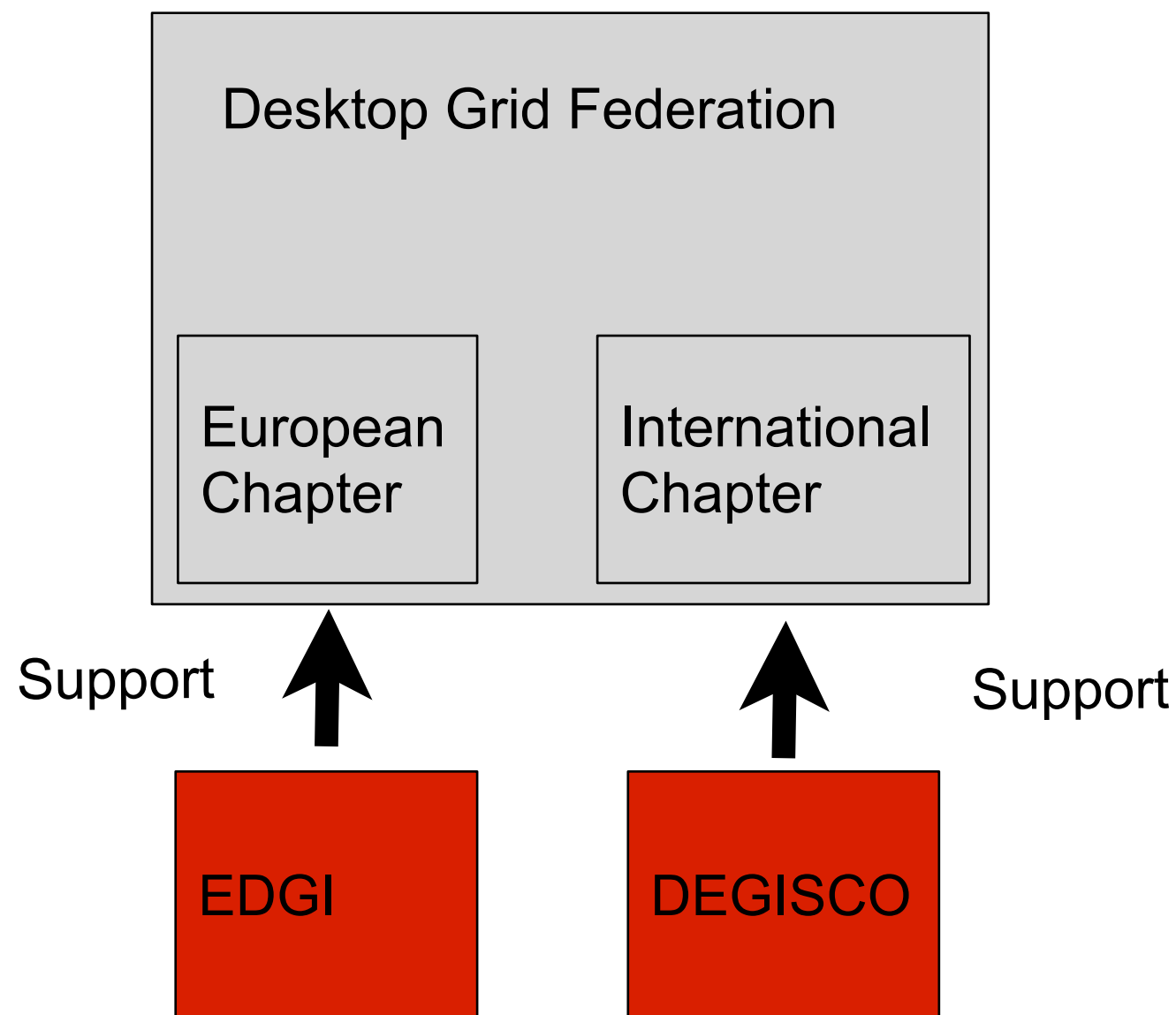
- ▶ Tutorials on Desktop Grids and integration into the standard scientific e-Infrastructure
- ▶ About one each month already
- ▶ Next one: This afternoon, Amsterdam, EGITF

# What is already there?

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- ▶ An existing infrastructure connecting gLite with BOINC, XtremWeb and OurGrid desktop grids
- ▶ About 24 applications have already been ported
- ▶ As part of the EDGeS project
- ▶ More about this in the next presentations

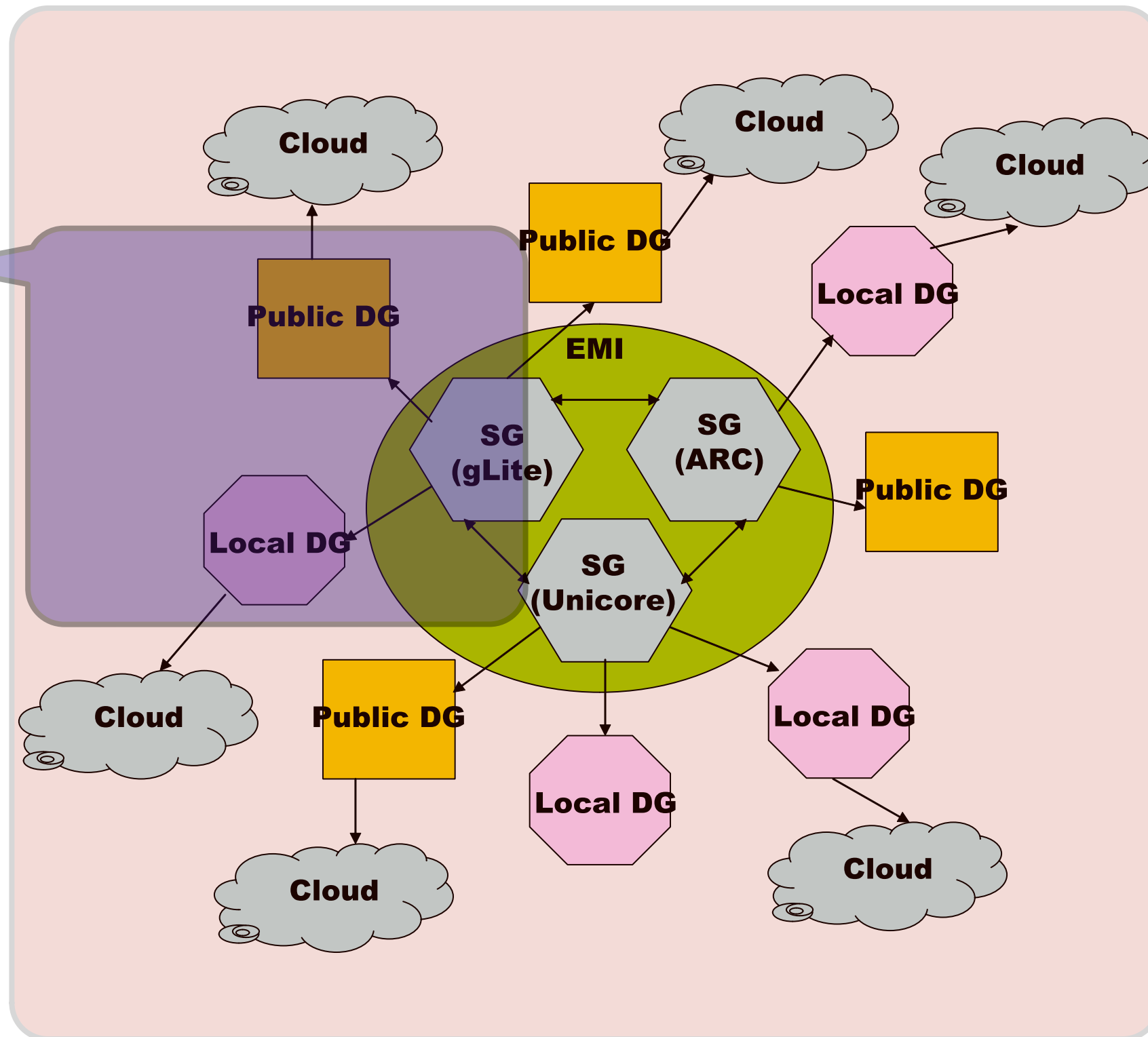
# Support by EDGI & DEGISCO



- ▶ Desktop Grid Federation entity independent of the projects
- ▶ Membership organisation
- ▶ Partners of DEGISCO and EDGI are members of the Federation (about 20 organisations)
- ▶ All activities of the Federation either “supported by EDGI” or “supported by DEGISCO” when appropriate and for reporting in the projects
- ▶ Work in progress: choose legal vehicle if any, develop bylaws, etc.

# Scope of the EDGI project

EDGeS  
scope only  
for compute  
intensive  
applications  
for EGEE  
(gLite)



EDGI scope  
for both  
compute and  
data intensive  
applications  
for EMI/EGI  
(gLite, ARC,  
Unicore)

Extend  
Desktop Grids  
with Clouds  
for QoS



# DEGISCO project

- ▶ *“Expand European DCIs into ICPC countries by supporting the creation of new Desktop Grids for e-Science in those countries and in Europe and by connecting them using the EDGeS bridge technology. Support applications on this expanded infrastructure, disseminate, promote and provide training about this expanded infrastructure and its usage”.*
- ▶ European e-Infrastructure EDGeS connects 100.000 Desktop Grid computers with 150.000 core EGEE and other service Grids, including EELA2, SEE-Grid
- ▶ Goal of DEGISCO:
  - ▶ Connect non-EU countries (ICPC countries in Europe, Asia and Latin-America) to this European infrastructure
  - ▶ Help them to set-up local Desktop Grids



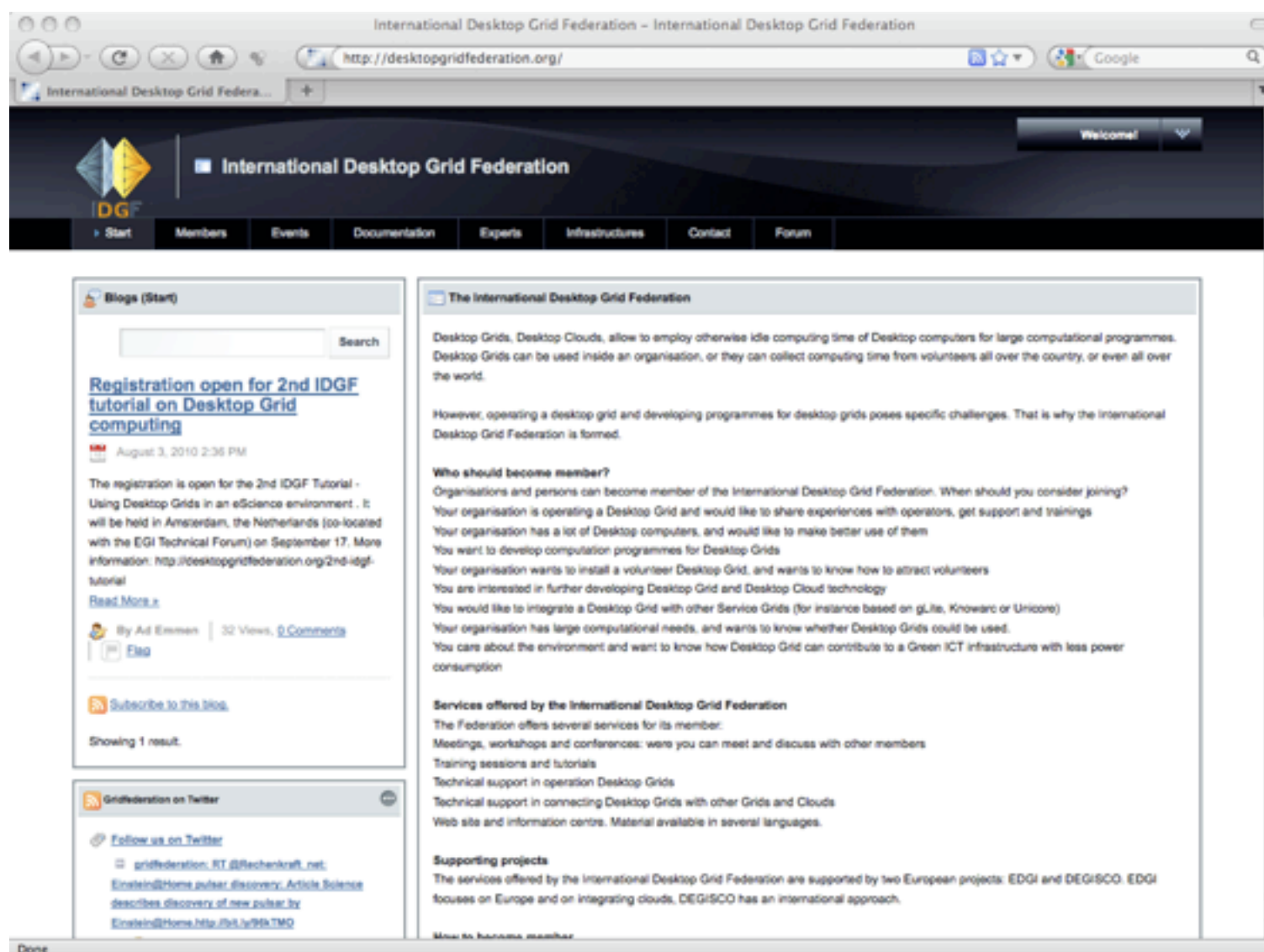


# What is already there

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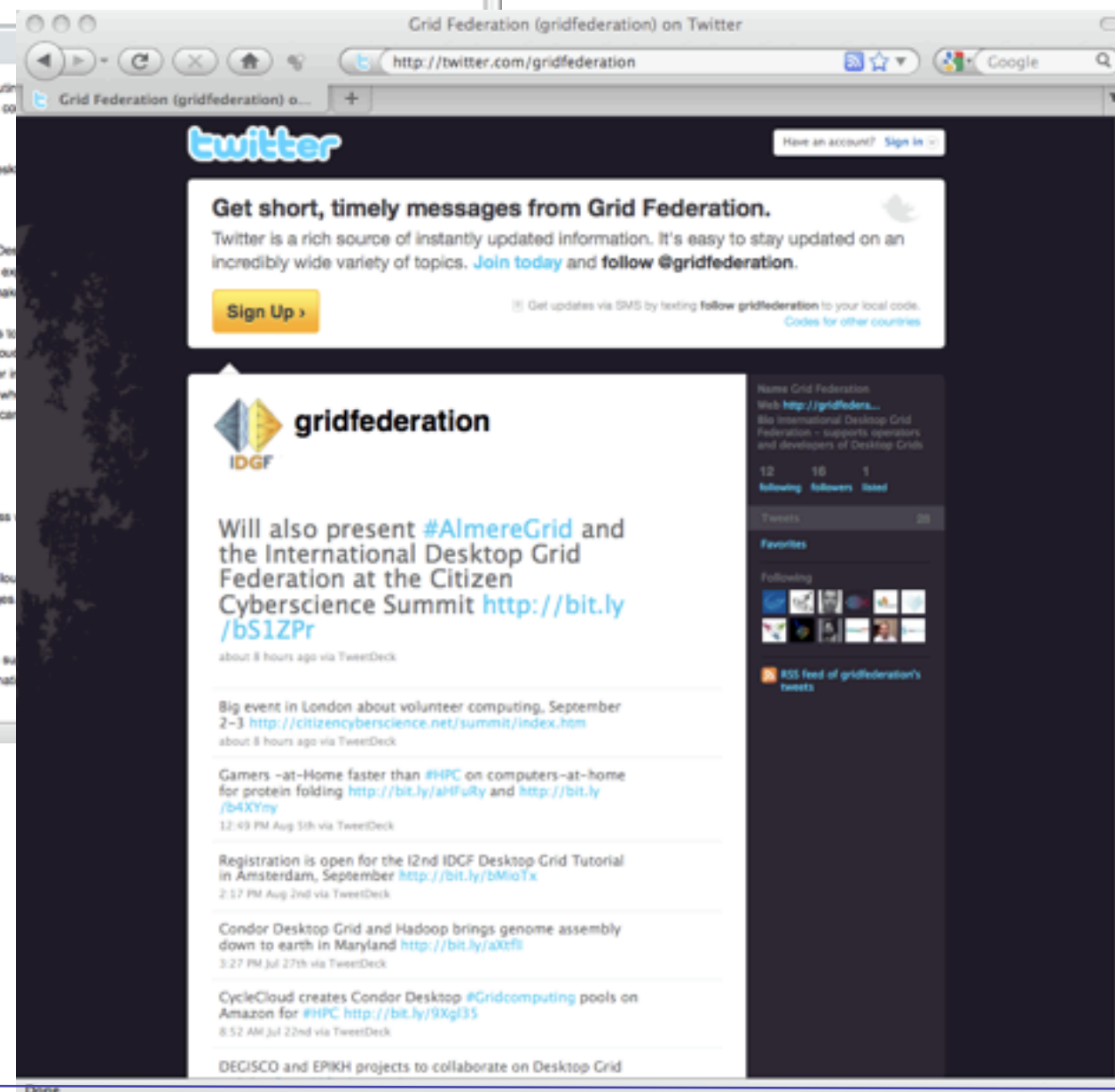
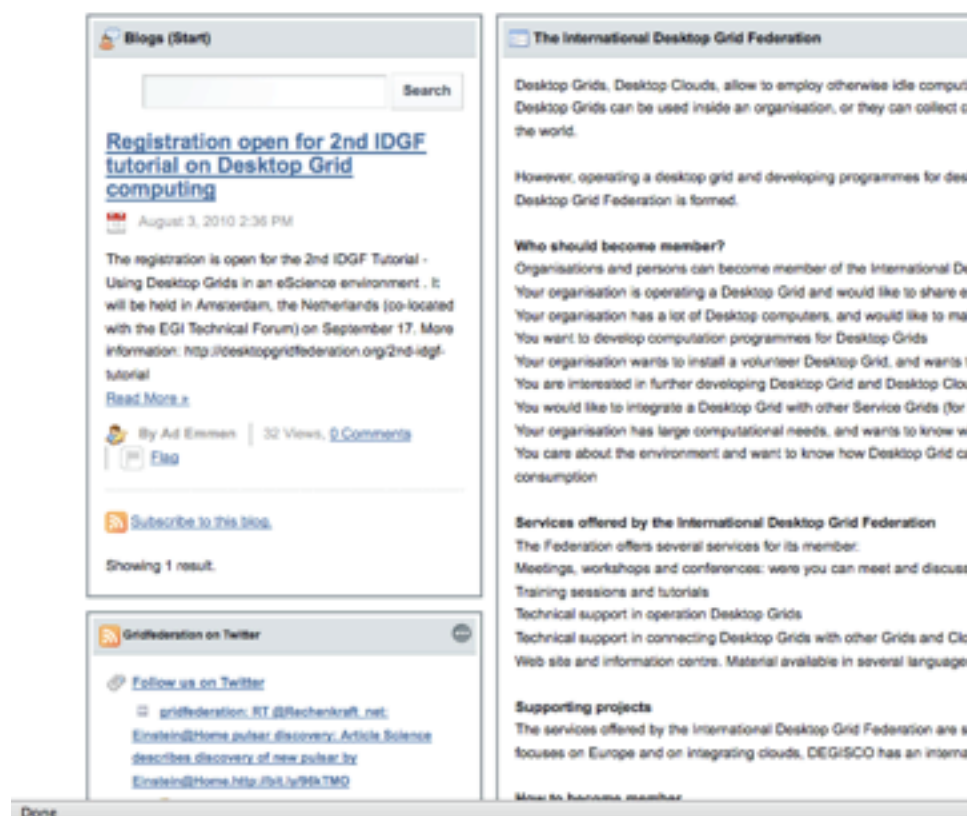
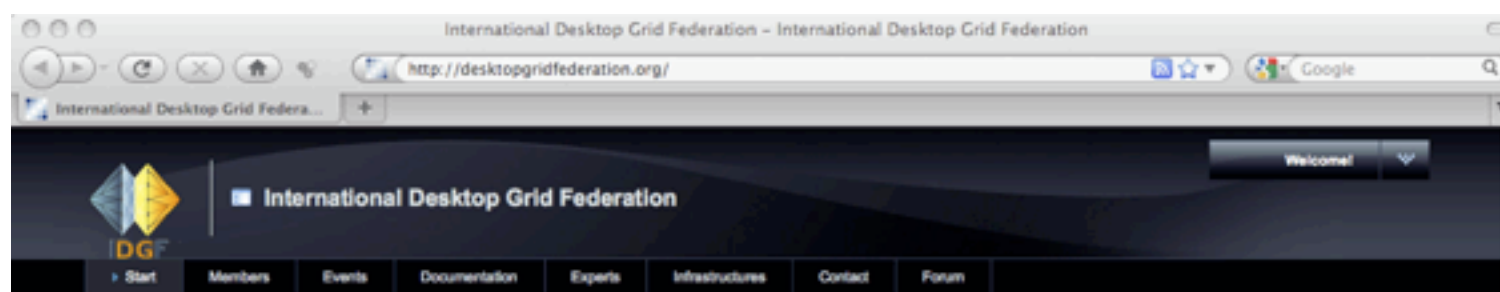


# What is already there





# What is already there



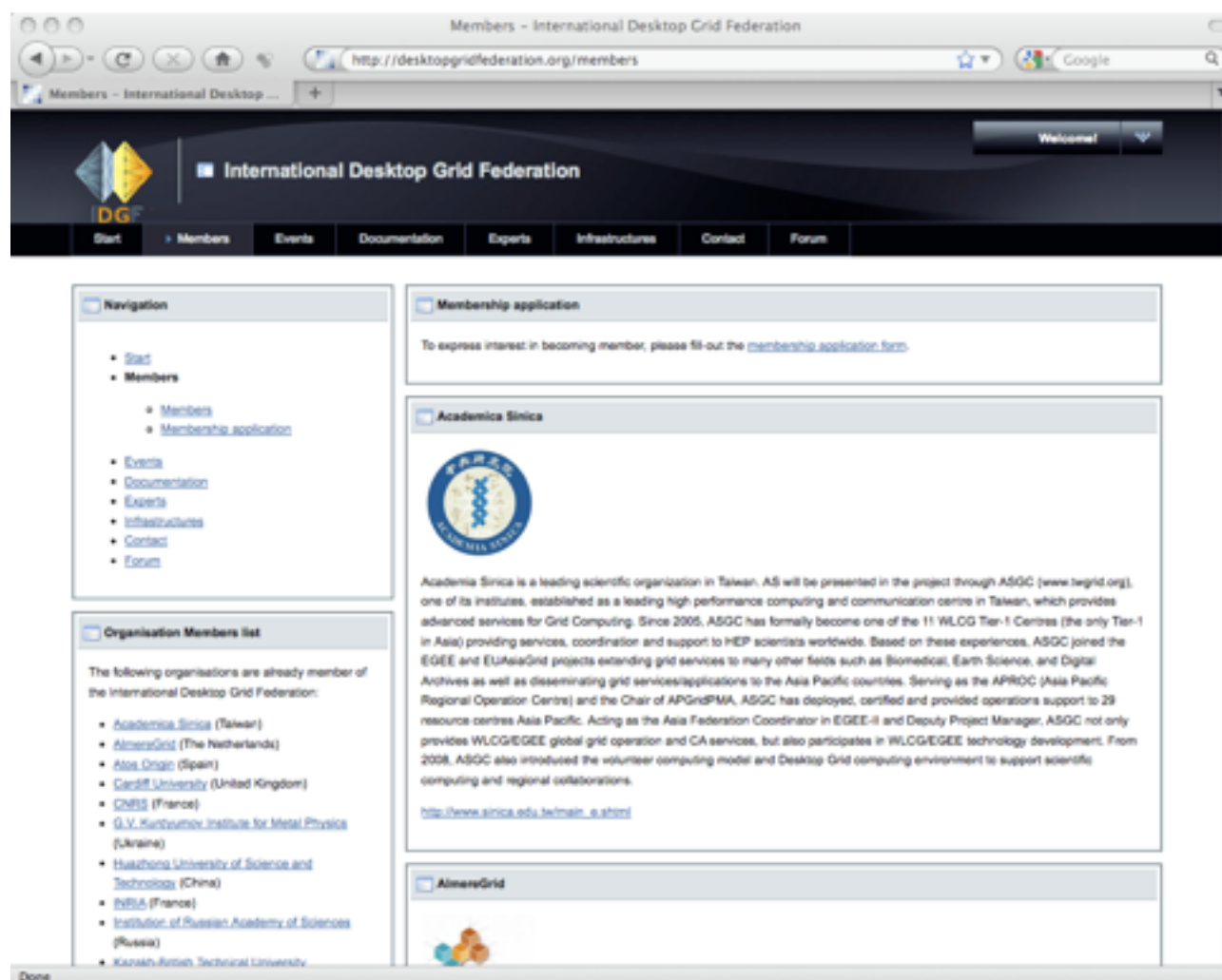


# List of organisation and individual members

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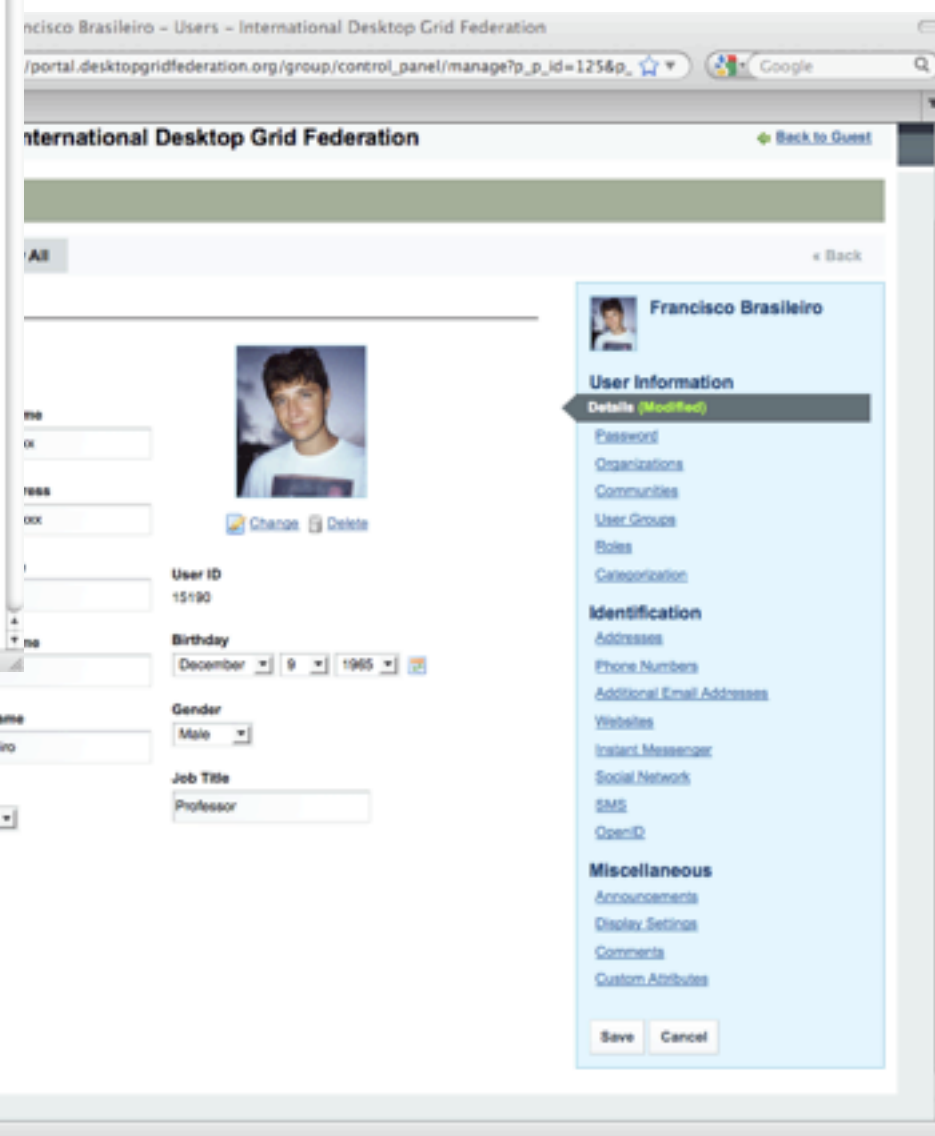
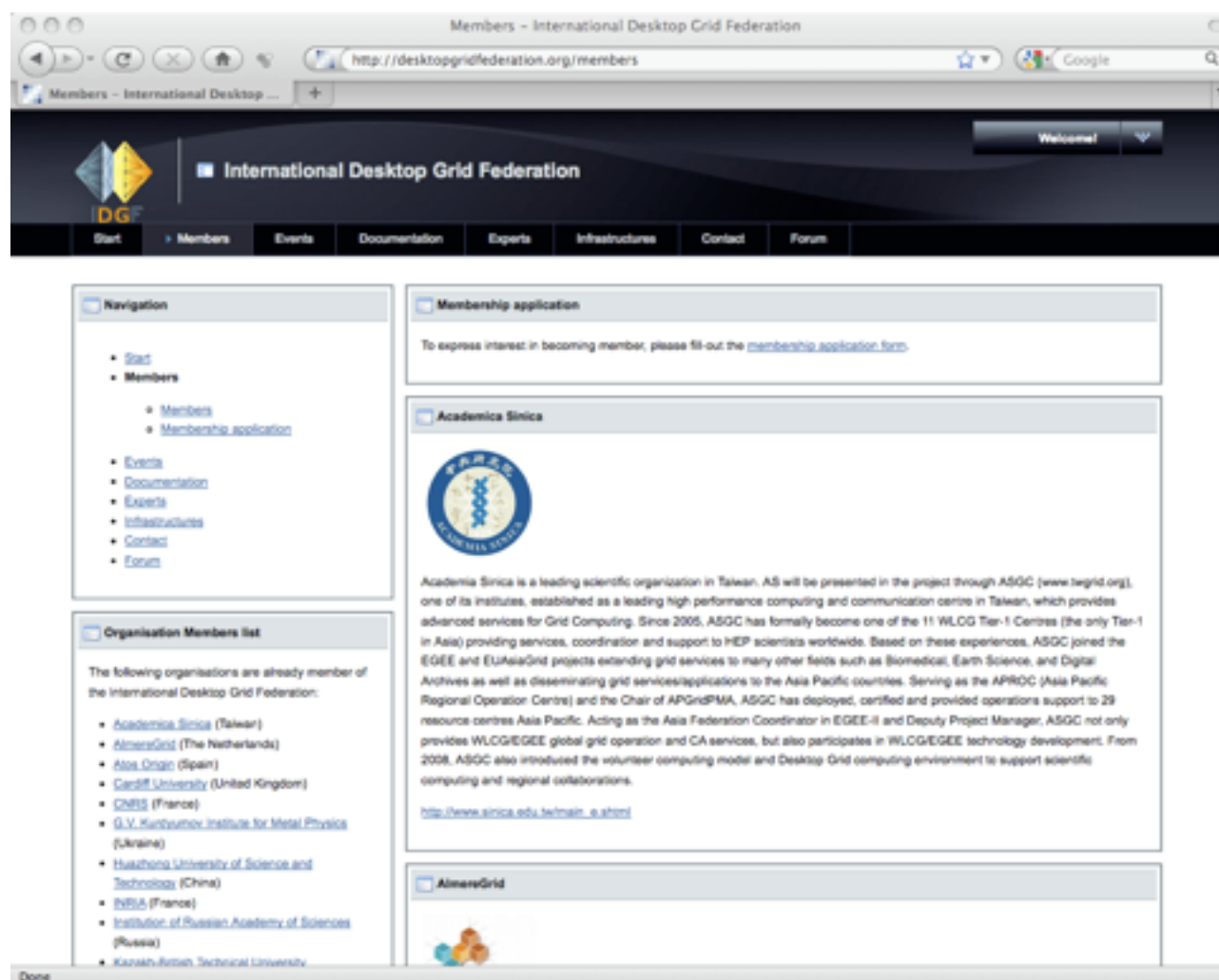


# List of organisation and individual members



The screenshot shows the 'Members - International Desktop Grid Federation' page in a web browser. The page features a navigation menu on the left with links to Start, Members, Events, Documentation, Experts, Infrastructures, Contact, and Forum. The main content area is divided into three sections: 'Membership application' with a link to the application form, 'Academia Sinica' with a detailed description of its role in the project and a link to its website, and 'AlmaredGrid' with a small logo. A sidebar on the left lists 'Organisation Members list' including Academia Sinica (Taiwan), AlmaredGrid (The Netherlands), ALOS Origin (Spain), Cardiff University (United Kingdom), CNRS (France), G.V. Kuznetsov Institute for Metal Physics (Ukraine), Huazhong University of Science and Technology (China), INRIA (France), Institute of Russian Academy of Sciences (Russia), and Karlsruhe Institute of Technology.

# List of organisation and individual members



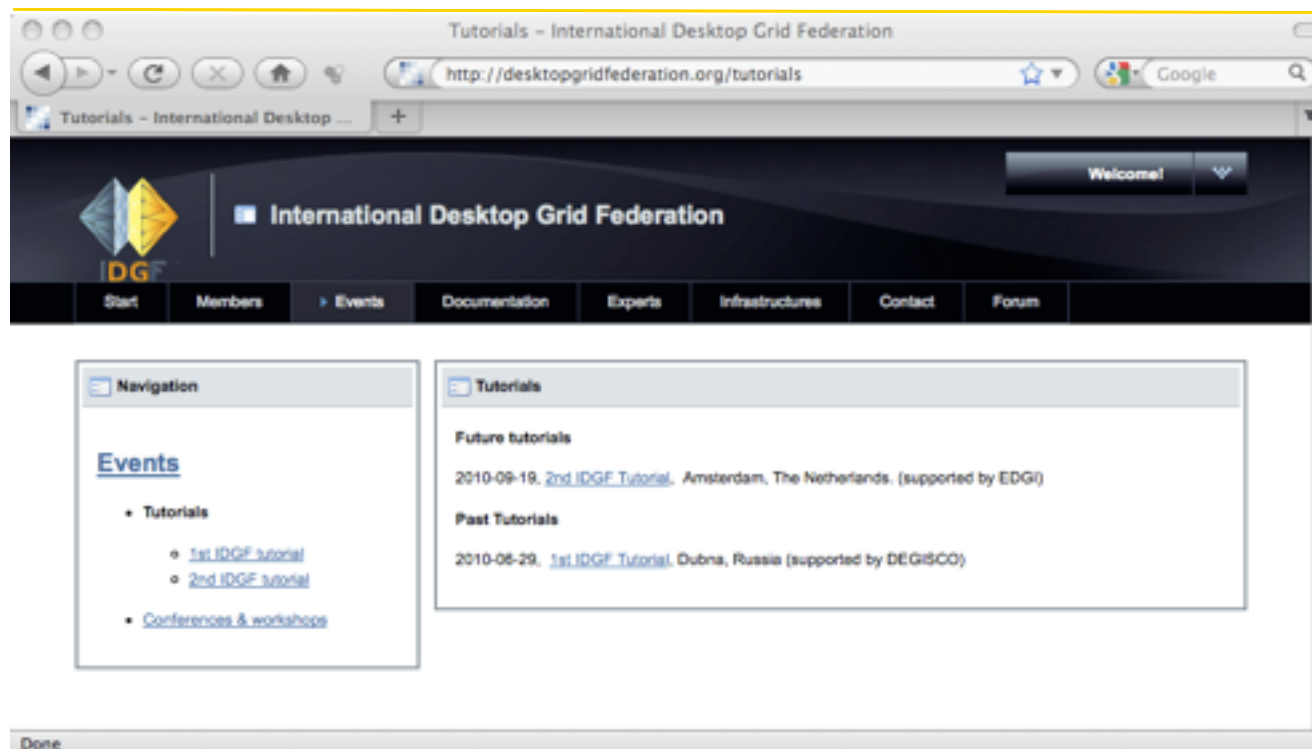


# Events: tutorials, workshops

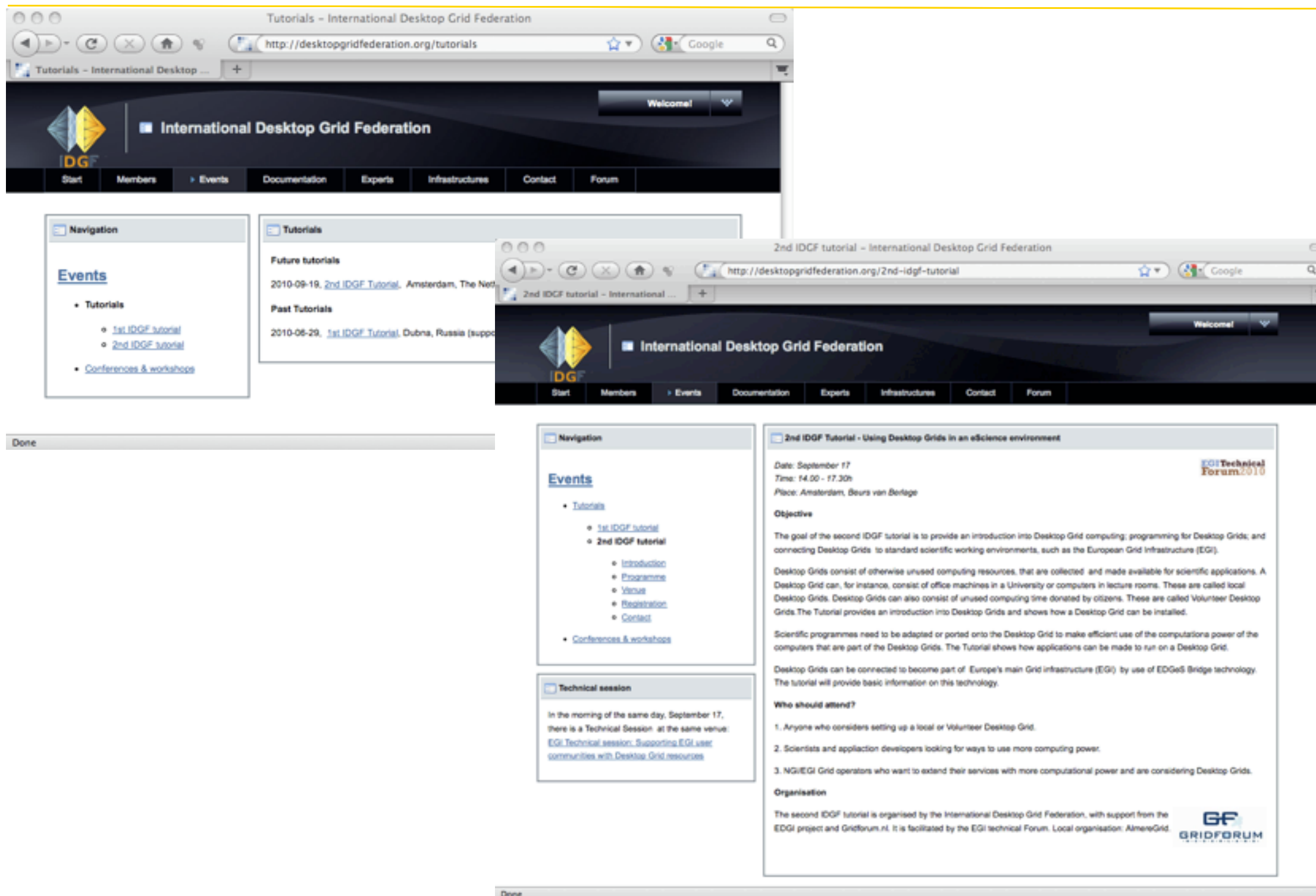
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# Events: tutorials, workshops



# Events: tutorials, workshops



The screenshot displays the IDGF website interface. The top navigation bar includes links for Start, Members, Events, Documentation, Experts, Infrastructures, Contact, and Forum. The main content area is divided into two sections: 'Future tutorials' and 'Past Tutorials'.

**Future tutorials:**

- 2010-09-19, [2nd IDGF Tutorial](#), Amsterdam, The Netherlands

**Past Tutorials:**

- 2010-06-29, [1st IDGF Tutorial](#), Dubna, Russia (supported by the Russian Federation)

The '2nd IDGF tutorial' page is also shown, detailing the event's objective, location, and organization. The objective is to provide an introduction into Desktop Grid computing, programming for Desktop Grids, and connecting Desktop Grids to standard scientific working environments, such as the European Grid Infrastructure (EGI).

**2nd IDGF Tutorial - Using Desktop Grids in an eScience environment**

Date: September 17  
Time: 14.00 - 17.30h  
Place: Amsterdam, Beurs van Berlage

**Objective**

The goal of the second IDGF tutorial is to provide an introduction into Desktop Grid computing; programming for Desktop Grids; and connecting Desktop Grids to standard scientific working environments, such as the European Grid Infrastructure (EGI).

Desktop Grids consist of otherwise unused computing resources, that are collected and made available for scientific applications. A Desktop Grid can, for instance, consist of office machines in a University or computers in lecture rooms. These are called local Desktop Grids. Desktop Grids can also consist of unused computing time donated by citizens. These are called Volunteer Desktop Grids. The Tutorial provides an introduction into Desktop Grids and shows how a Desktop Grid can be installed.

Scientific programmes need to be adapted or ported onto the Desktop Grid to make efficient use of the computational power of the computers that are part of the Desktop Grids. The Tutorial shows how applications can be made to run on a Desktop Grid.

Desktop Grids can be connected to become part of Europe's main Grid infrastructure (EGI) by use of EGI's Bridge technology. The tutorial will provide basic information on this technology.

**Who should attend?**

1. Anyone who considers setting up a local or Volunteer Desktop Grid.
2. Scientists and application developers looking for ways to use more computing power.
3. NGI/EGI Grid operators who want to extend their services with more computational power and are considering Desktop Grids.

**Organisation**

The second IDGF tutorial is organised by the International Desktop Grid Federation, with support from the EGI project and Gridforum.nl. It is facilitated by the EGI technical Forum. Local organisation: AlmereGrid.



**[http://  
desktopgridfederation.eu](http://desktopgridfederation.eu)**

**[http://  
desktopgridfederation.eu](http://desktopgridfederation.eu)**

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wikipedia/commons/f/fa/  
Globe.svg](http://upload.wikimedia.org/wikipedia/commons/f/fa/Globe.svg)