egee

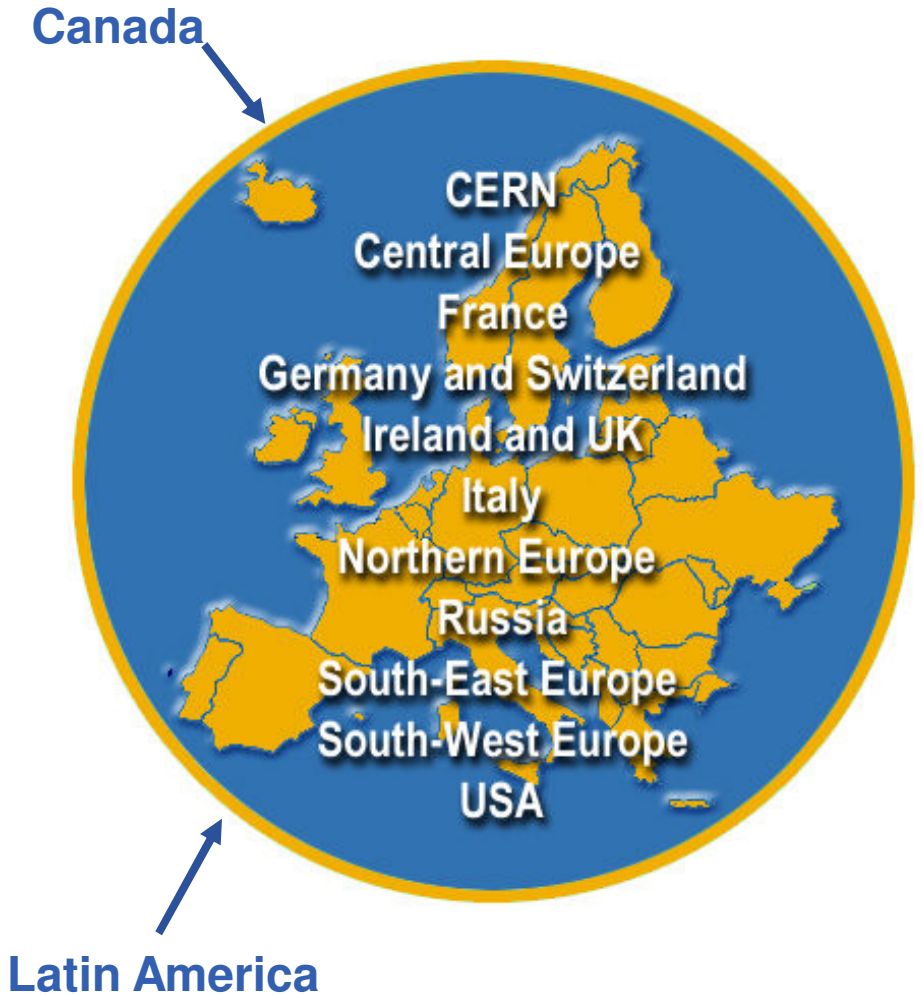# South East Europe resources in EGEE and next steps

Emanouil Atanassov, Todor Gurov, Vladimir Dimitrov - IPP-BAS, Bulgaria

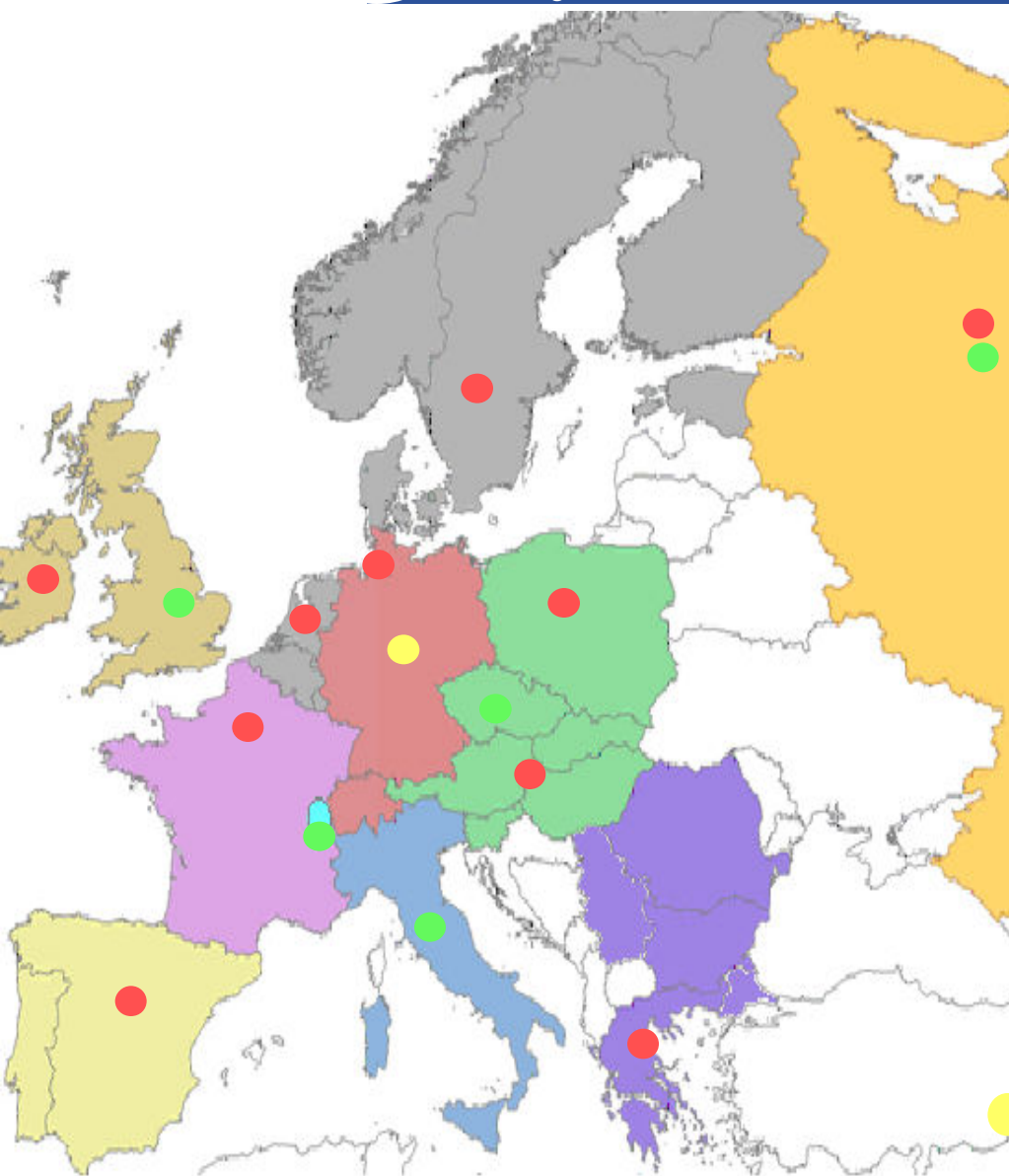*Ognjen Prnjat, Kostas Koumantaros, Ioannis Liabotis - GRNET, Greece*

www.eu-egee.org

Information Society

Enabling Grids for E-sciencE

- **Organization of EGEE project**
- **Organization of EGEE SEE ROC**
- **Authorization/Authentication resources**
- **Information system resources**
- **Workload Management System resources**
- **Monitoring Tools**
- **Bulgarian sites in EGEE**
- **Conclusions**

- The EGEE project brings together experts from more than **50 countries** with the common aim of building on recent advances in Grid technology and developing a service Grid infrastructure which is available to scientists 24 hours-a-day.

- The project provides researchers in academia and industry with access to a production level Grid infrastructure, independent of their geographic location. The EGEE project also focuses on attracting a wide range of new users to the Grid.

- The EGEE III project is organized in 14 federations. **Bulgaria** is a member of the South Eastern Federation

Canada

CERN
Central Europe
France
Germany and Switzerland
Ireland and UK
Italy
Northern Europe
Russia
South-East Europe
South-West Europe
USA

Latin America

egee

Enabling Grids for E-sciencE

- **Resource centres (RC)** are controlled by the **Regional Operation Centres (ROC)**
- **Bulgaria is a member of South East European ROC, which comprises:**
  - **Greece**
  - Bulgaria
  - Romania
  - Turkey
  - Serbia
  - Macedonia
  - Cyprus
  - Israel

- **ROC managers are located at GRNET, Greece.**
- Every country has country representative in SEE ROC.
- **Bulgaria is represented by Emanouil Atanassov** (emanouil at parallel.bas.bg)

GGUS

Integrated

SEE Help Desk
(One Zero)
Knowledge Base

SEE ROC Managers

EGEE-SEE Web Portal

For Regional Specific
Documentation,
Wiki

Turkey Local Support Representative	Romania Local Support Representative	Greece Local Support Representative	**Bulgaria** Local Support Representative	Cyprus Local Support Repsesentative	Israel Local Support Representative	Serbia Local Support Representative
•TR-Site1..N Support Staff	•RO-Site1..N Support Staff	•GR-Site1..N Support Staff	•BG-Site1..N Support Staff	•CY-Site1..N Support Staff	•IL-Site1..N Support Staff	•YU-Site1..N Support Staff

Site Certification

Installation and Release

Core Service

GridICE & monitoring tools

Local VOs & local user

Middleware general

MyProxy

Certification Authorities

Security Management

ROC Central

Operations coordination

VOMS

MPICH / MPI

Fabric

First Line

helpdesk

➢ **Global Grid User Support (GGUS):** https://gus.fzk.de

➢ **Regional web site:** http://www.egee-see.org

➢ **Regional SEE helpdesk:** http://helpdesk.egee-see.org

➢ **SEE wiki pages:** http://wiki.egee-see.org

➢ **Country web site for Bulgaria:** http://www.grid.bas.bg

➢ **Country representative for Bulgaria:** Emanouil Atanassov

➢ **Security contact for SEE:** Christos Triantafyllidis, ctria at grid.auth.gr

In order to access the Grid, every user needs a valid certificated from an accepted **Certification Authority** (CA), accredited by EUGridPMA (http://www.eugridpma.org)

Bulgarian Academic Certification Authority – **BG.ACAD|CA**, **http://ca.acad.bg**

A certificate request is created on a UI computer, using correct values for the organization's name. Follow

http://ca.acad.bg/howto.html

The certificate request is sent to the nearest **RA** person (Registration Authority) for Bulgaria (**http://ca.acad.bg/ra_list.html**) and if approved, the user receives a certificate signed by **BG.ACAD|CA**. The certificate can be used for **any** Grid activity and access to restricted Grid related Web sites.

See:

http://ca.acad.bg/policy.html

and also

man pkcs12

*on a Unix based User Interface machine (**UI**)*

After the user has a valid certificate, the next step is to request membership in the appropriate **Virtual Organization** (**VO**).

A comprehensive list and contacts of existing EGEE-wide VOs can be obtained from:

https://cic.gridops.org/index.php?section=vo

Bulgarian Virtual Organizations:

biotech.grid.acad.bg

bg-edu.grid.acad.bg

new-energy-sources.grid.acad.bg

national-heritage.grid.acad.bg

Request for membership:

https://voms.ipp.acad.bg:8443/voms/bg-edu.grid.acad.bg/Siblings.do

- For users that can not locate an appropriate VO, we provide membership in **SEE VO** (a.k.a. "catch all VO"):

  https://www.grid.auth.gr/services/voms/SEE/request.php

- *In order to join SEE VO the user must submit a description of the application that he or she is going to develop and/or use to the BG country representative in SEE ROC.*

• Upon approval of the request, the user joins the corresponding **VO** and can submit jobs and perform data management.

• Users are advised to always use **voms-proxy-init** instead of **grid-proxy-init** command.

• *Example for SEE VO:*

• The VOMS server is located at: voms.grid.auth.gr

The command **voms-proxy-init –voms see** uses automatically this VOMS server. The main myproxy server for SEE VO is located at

myproxy.grid.auth.gr

See: https://www.grid.auth.gr/services/myproxy/user_guide.php

*Always check if the **RB/WMS** you are using works correctly with the **MyProxy** server that you specify!*

- In order to submit jobs in EGEE SEE sites, one can use:
  - The production WMS: **wms.ipp.acad.bg**

- In order to locate resources in SEE ROC, one can use the BDII **bdii.isabella.grnet.gr**

- Changing the BDII used on a UI (User Interface) is accomplished by editing the environment variable **LCG_GFAL_INFOSYS** in **/etc/profile.d/lcgenv.sh** and **/etc/profile.d/lcgenv.csh**

- *Example:*

  export LCG_GFAL_INFOSYS=bdii.isabella.grnet.gr:2170

Using the BDII for finding information about available resources:

  lcg-infosites –vo see ce – for computing elements

  lcg-infosites –vo see se – for storage resources

  lcg-infosistes –vo see lfc – the name of the LFC server for SEE VO

SEE ROC production sites

The picture of SEE ROC sites and their status is obtained from GStat:

http://goc.grid.sinica.edu.tw/gstat/SouthEasternEurope.html

SEE ROC has 46 production sites with a total number of about 6180 CPUs, and the total storage 1650 TB right now.

The Grid users and administrators must understand the meaning of the GStat report.

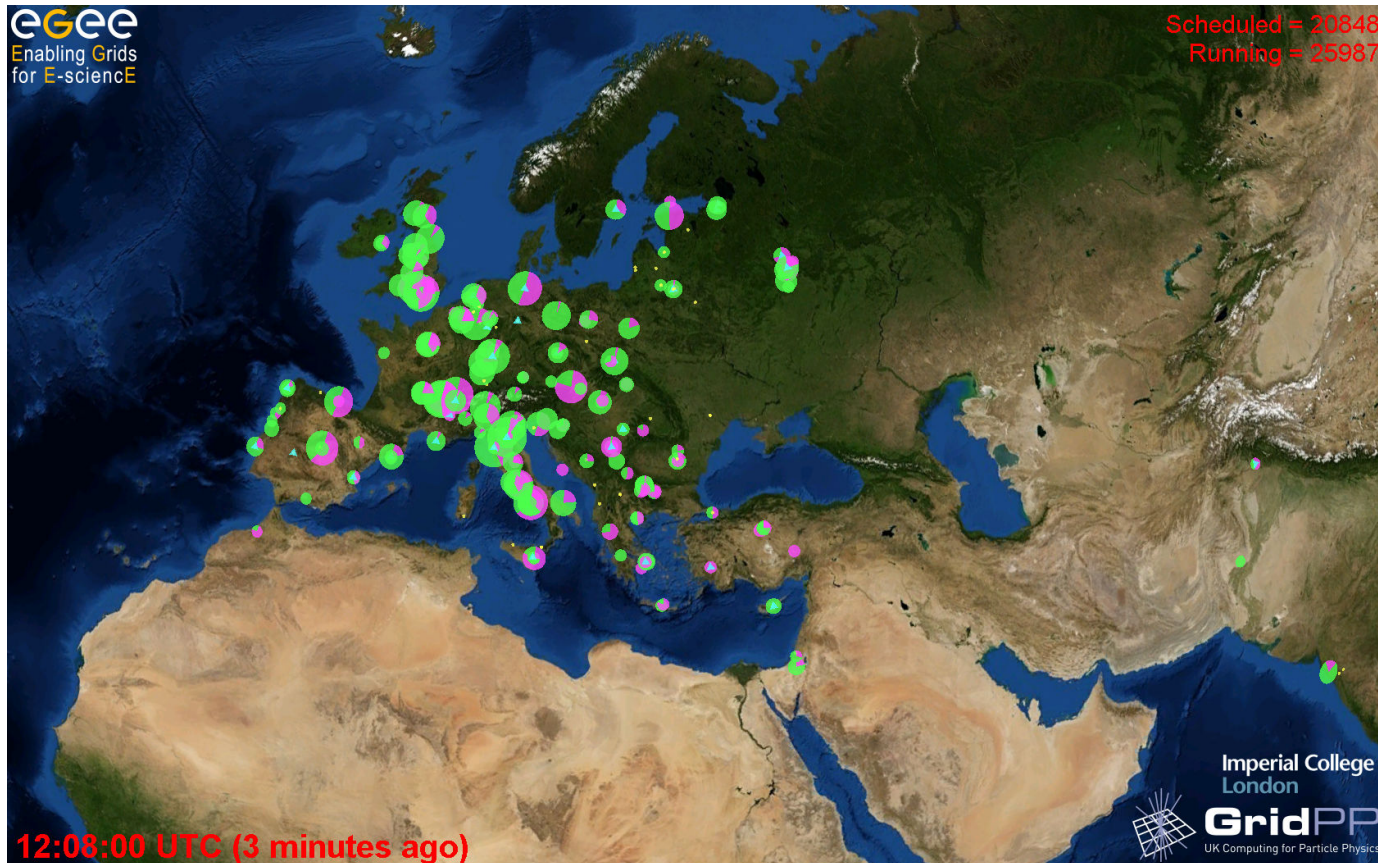GStat: 09:14:46 01/25/10 GMT - @wgoc01.grid.sinica.edu.tw

GStat 2.0 Production Instance	GStat 2.0 Release Note	GStat 2.0 Installation Guide	GStat 2.0 Overview	GStat Support List

home alert table service regional service metrics links ❓ prod pps test aegis baltic dorii eela euchina euindia eumed e-nmr gilda grisu ireland pi2s2 sa-grid seegrid trigrid

AsiaPacific	CERN	CentralEurope	France	GermanySwitzerland	Italy
NorthernEurope	ROC_Canada	ROC_IGALC	ROC_LA	Russia	SouthEasternEurope
SouthWesternEurope	UKI				

	Site			Site			Site			Site			Site	
GStat 2.0	AEGIS01-IPB-SCL	ok	GStat 2.0	AEGIS07-IPB-ATLAS	ok	GStat 2.0	BG-INRNE	ok	GStat 2.0	BG01-IPP	ok	GStat 2.0	BG02-IM	ok
GStat 2.0	BG03-NGCC	ok	GStat 2.0	BG04-ACAD	ok	GStat 2.0	BG05-SUGrid	ok	GStat 2.0	BG08-MADARA	ok	GStat 2.0	CY-01-KIMON	ok
GStat 2.0	CY-03-INTERCOLLEGE	er	GStat 2.0	GR-01-AUTH	ok	GStat 2.0	GR-04-FORTH-ICS	ok	GStat 2.0	GR-06-IASA	ok	GStat 2.0	GR-07-UOI-HEPLAB	ok
GStat 2.0	GR-09-UoA	ok	GStat 2.0	GR-10-UOI	ok	GStat 2.0	HG-01-GRNET	ok	GStat 2.0	HG-02-IASA	ok	GStat 2.0	HG-03-AUTH	ok
GStat 2.0	HG-04-CTI-CEID	ok	GStat 2.0	HG-05-FORTH	er	GStat 2.0	HG-06-EKT	ok ok	GStat 2.0	IL-TAU-HEP	ok	GStat 2.0	MK-01-UKIM_II	ok ok
GStat 2.0	NIHAM	ok	GStat 2.0	RO-01-ICI	er	GStat 2.0	RO-02-NIPNE	ok ok	GStat 2.0	RO-03-UPB	ok	GStat 2.0	RO-07-NIPNE	ok
GStat 2.0	RO-08-UVT	ok	GStat 2.0	RO-09-UTCN	ok	GStat 2.0	RO-11-NIPNE	ok ok	GStat 2.0	RO-13-ISS	ok	GStat 2.0	RO-14-ITIM	ok
GStat 2.0	RO-15-NIPNE	ok	GStat 2.0	RO-16-UAIC	ok	GStat 2.0	TECHNION-HEP	er	GStat 2.0	TR-01-ULAKBIM	ok	GStat 2.0	TR-03-METU	ok
GStat 2.0	TR-04-ERCIYES	ok	GStat 2.0	TR-05-BOUN	ok	GStat 2.0	TR-07-PAMUKKALE	ok	GStat 2.0	TR-09-ITU	ok	GStat 2.0	TR-10-ULAKBIM	ok
GStat 2.0	WEIZMANN-LCG2	er												

Color Legend

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

No	Site Reports	GIIS Host	bnode	cernse	gperf	sanity	serv	serEntry	version	sclust	totalCPU	freeCPU	runJob	waitJob	seAvail TB	seUsed TB	maxCPU	avgCPU	DI	gice
1	BG-INRNE	ds2.inrne.bas.bg	.	.	ok	ok	ok	ok	GLITE-3_1_0	ScientificSL 4.7	80	80	0	0	0.86	0	80	69	ok	info
2	BG01-IPP	ce002.ipp.acad.bg	.	.	ok	ok	ok	ok	GLITE-3_1_0	ScientificSL 4.5	60	39	5	1	1.55	0.26	60	59	ok	.
3	BG02-IM	ce001.imbm.bas.bg	.	.	ok	ok	ok	ok	GLITE-3_1_0	ScientificSL 4.5	14	0	14	6	0.68	0.25	14	13	ok	.
4	BG03-NGCC	ce.ngcc.acad.bg	.	.	ok	ok	ok	ok	GLITE-3_1_0	ScientificSL 4.6	200	150	34	15	8.12	0	200	199	ok	.
5	BG04-ACAD	ce02.grid.acad.bg	.	.	ok	ok	ok	ok	GLITE-3_1_0	ScientificSL 4.6	80	54	26	9	8.28	0	80	79	ok	.
6	BG05-SUGrid	ce001.grid.uni-sofia.bg	.	.	ok	ok	ok	ok	GLITE-3_1_0	ScientificCERNSLC 4.6	24	15	5	0	0.04	0.09	24	24	ok	.
7	BG08-MADARA	ce01.grid.orgchm.bas.bg	.	.	ok	ok	ok	ok	GLITE-3_2_0	ScientificSL 5.3	800	280	31	1	25.26	1.65	800	534	ok	.
8	CY-01-KIMON	sbdii.grid.ucy.ac.cy	ok	note	ok	ok	info	ok	GLITE-3_1_0	ScientificSL 4.5	82	70	6	0	1.90	1.60	82	81	ok	.
9	CY-03-INTERCOLLEGE	ce301.intercol.edu	.	.	ok	ok	ok	ok	GLITE-3_0_2	Scientific Linux 3.0.7	10	0	9	7			10	6	er	.
10	GR-01-AUTH	sbdii.grid.auth.gr	.	.	ok	ok	ok	ok	GLITE-3_1_0	ScientificSL 4.5	41	94	8	0	2.71	0.28	41	40	ok	.
11	GR-04-FORTH-ICS	grid001.ics.forth.gr	.	.	ok	ok	info	ok	GLITE-3_1_0	ScientificSL 4.7	7	3	1	0	0.67	0.04	7	7	ok	.

- **GStat -**   **http://goc.grid.sinica.edu.tw/gstat**
- **GridView -**   **http://gridview.cern.ch**
- **GridICE SEE -**   **http://mon.egee-see.org**
- **Real Time Grid Monitor -**   **http://gridportal.hep.ph.ic.ac.uk/rtm**

Bulgarian Grid sites in EGEE

	Sites	CPU	Storage (disk)	Tape	LAN (max.)	WAN (max.)	Jobs executed (Norm. CPU time)
March 2006	4	43	1 TB	–	1000 Mbps	155 Mbps	77 307
January 2010	7	1310	48 TB	10 TB	2000 Mbps	1000 Mbps	5 402 000

(EGEE-1 project has started April 2004)

Examples:

• **BG01-IPP** (42 CPU)   • **BG03-NGCC** (200 CPU)

➤ **7 sites (clusters) in EGEE production.**

The biggest site is **BG08-MADARA**, with 800 CPUs (cores). Each Worker node has 16 GB RAM with 64 bit OS and gLite middleware installed.

- **User Interface – provides user access to the Grid resources;**
- **Worker Node – basic building block, performs the computations;**
- **Computing Element – manages the received jobs inside the cluster;**
- **Workload Management System – manages the jobs between clusters;**
- **Berkerley Database Information Index – Information system;**
- **MON – Grid cluster monitoring;**
- **R-GMA – RDBMS for accounting;**
- **Storage Element (Castor, dCache, DPM) – reliable storage server;**
- **File Transfer Service – guaranteed fast file transfer;**
- **Logical File Catalogue – information about thedata files and their locations;**
- **AMGA – metadata file catalog;**
- **MyProxy – storage for user certificates;**
- **HYDRA – encrypting data services;**
- **Web-portals – for easy access to the Grid resources;**

Enabling Grids for E-sciencE

European Grid Initiative (http://web.eu-egi.eu)

Objectives:

- ✓ **Long-term sustainability of the European e-infrastructure;**
- ✓ **Coordinate the integration and interaction between NGIs;**
- ✓ **Production grid infrastructure for a wide range of scientific disciplines to link NGI;**
- ✓ **Global services and support that complement and/or coordinate national services (*Authentication, VO-support, security, etc.*);**
- ✓ **Coordinate the Grid middleware development;**
- ✓ **Advise National and European Funding Agencies in establishing their programmes for future software developments based on agreed user needs and development standards;**
- ✓ **Integrate, test, validate and package software from leading grid middleware development projects and make it widely available;**
- ✓ **Provide documentation and training material;**
- ✓ **Take into account developments made by national e-science projects which were aimed at supporting diverse communities;**
- ✓ **Link the European infrastructure with similar infrastructures elsewhere;**
- ✓ **Promote grid interface standards, in consultation with relevant standards organizations;**
- ✓ **Collaborate closely with industry.**

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