

NGI OPERATIONS IN TURKEY

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01/06/10



EGI-InSPIRE - ROD teams workshop



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Who we are?

TUBITAK:

- The Scientific and Technological Research Council of Turkey (TUBITAK) established in 1963 is an autonomous institution and is governed by a scientific board
- Nation-wide research is conducted in 15 different research institutes.
- The national coordinating body of EU's Framework Program



Who we are?

• ULAKBIM

 Turkish National Academic Network and Information Center is an institute of TUBITAK which is responsible for:

- Managing national grid initiative and infrastructure (NGI)
- Managing national academic network ULAKNET (NREN)
- Acting as a (digital) library for academic publications

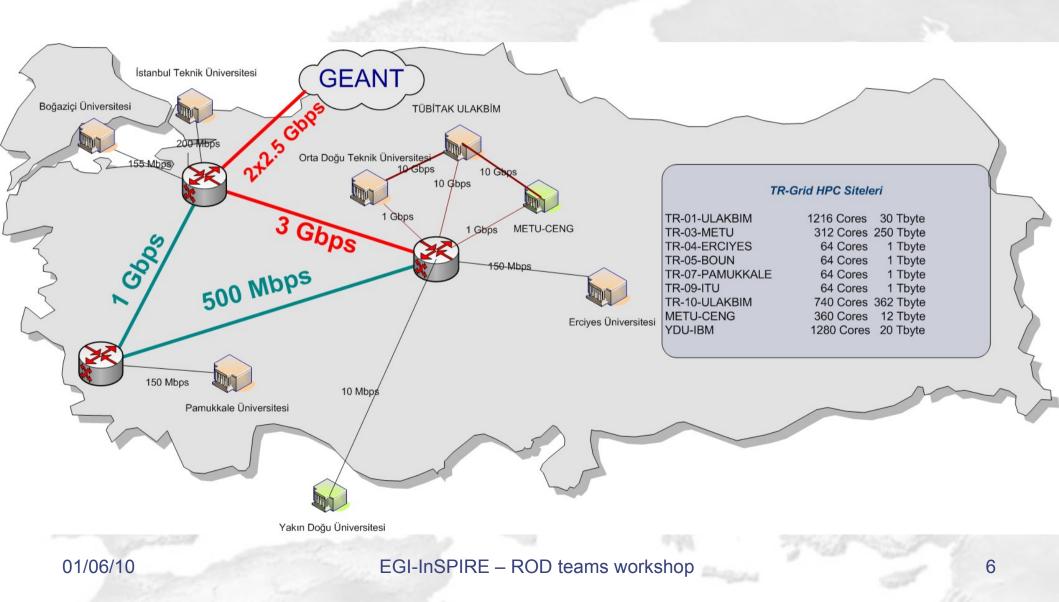


TR-Grid

- TR-Grid initiative was established in 2003 with a MoU between:
 - TUBITAK-ULAKBIM
 - Bogazici University
 - Bilkent University
 - İstanbul Technical University
- Then, it was extended with the participation of four universities
- SEEGRID, SEEGRID-II, SEE-GRID-SCI, EUMEDGRID, EUMEDGRID-Support, EGEE-II, EGEE-III and EGI are the international projects that TR-Grid have been involved
- Under the management of ULAKBIM, TR-Grid NGI has been coordinating national grid related activities for 7 years



TR-Grid Infrastructure





EGEE Certified Sites

	Number of Cores	Storage (Tbyte)	Memory per Cores (GB)	Interconnectivity	Theoretical Computing Performance (Tflops)
TR-01-ULAKBIM	1216	30	3	Infiniband	13
TR-03-METU	312	250	1	Gigabit Ethernet	2
TR-04-ERCIYES	64	1	1	Gigabit Ethernet	0.5
TR-05-BOUN	64	1	1	Gigabit Ethernet	0.5
TR-07-PAMUKKALE	64	1	1	Gigabit Ethernet	0.5
TR-09-ITU	64	1	1	Gigabit Ethernet	0.5
TR-10-ULAKBIM	740	360	2	Gigabit Ethernet	6.1
TOTAL	2524	646	5696		

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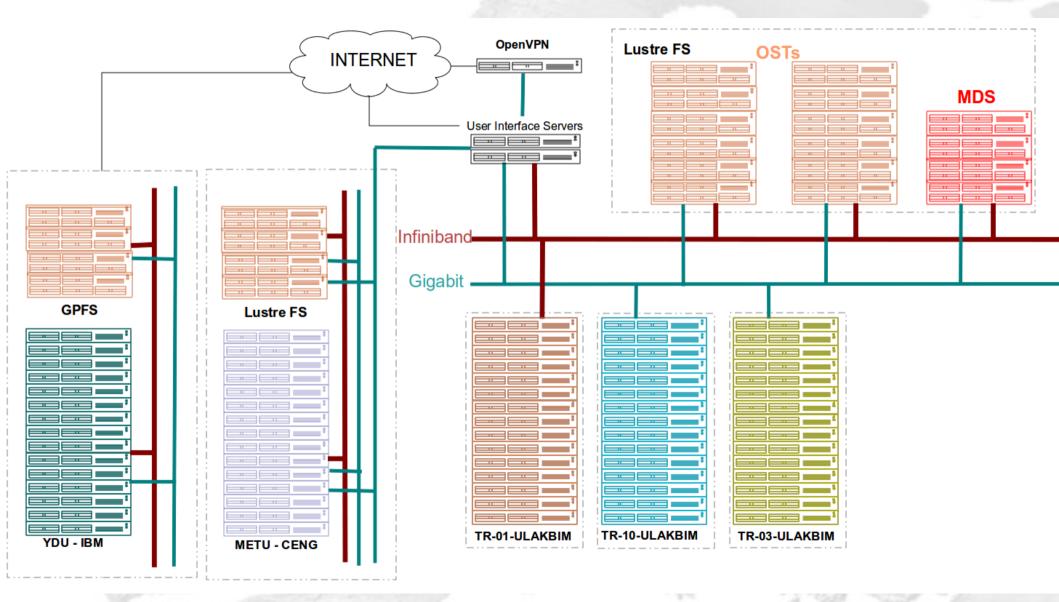
TR-Grid-HPC Resources

		Number of Cores	Storage (TByte)	Memory per Core (GB)	Interconnectivity	Theoretical Computing Performance (Tflops)
	TR-01-ULAKBIM	1216	30	3	Infiniband	13
	METU - CENG	360	12	2	Infiniband	3,8
	YDU – IBM	1280	20	2	Infiniband	12

 The national HPC users can also utilize other computing centers, which are mostly managed by technical staffs on the universities



TR-Grid HPC Architecture



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TR-Grid Infrastructure

- TR-Grid infrastructure was initiated by donated resources from collaborating institutes in the context of SEE-GRID project in 2004.
- Competitive TR-Grid infrastructure was formed with a 1MEuro project that was supported by TUBITAK at the end of 2006.
- TUBITAK supported project was lasted two years. To provide continuance and expansion of the infrastructure a project for strengthening infrastructure was submitted to State Planning Organization in 2008.
- Supporting organizations are providing support at hardware, network and security issues.
- Thanks to remote server management on the purchased hardware, OS and middleware are fully controlled by TR-Grid central operation center in Ankara.



Strengthen of Infrastructure

- Infrastructure has being supported by State Planning Organization since the start of 2009.
- Current project is a five year, 15MEuro project.
- For 2010 following purchases are on the bidding process:
 - Storage Resources
 - Expanding with additional ~650 TB storage, totally ~1.3 PB storage will be available
 - Computing Resources and Performance Network
 - Nearly 4800 CPU cores will be added, totally ~7400 cores will be available
 - Current infiniband infrastructure (144 port 4x DDR and 648 port 4x QDR) at ULAKBIM will be densely used for computing and storage network in grid resources also.

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NGI_TR Organization

- Local Site Managers manage the failure of
 - Network
 - Hardware
 - Operating System
- Middleware and operating system management of all sites are in responsibility domain of NGI_TR Operational Center



TR-Grid Users Profile

- Totally 450 users for grid and cluster computing
- 32 various disciplines
- From 55 universities with various public institutes and industries



TR-Grid Leading Projects

CERN Experiment

- Both atlas and cms are supported with two production T2 centers
- 9800 CPU (HEP-Spec) and 900 TB will be dedicated in this year
- Earth Sciences
 - Seismology
 - Data repository for seismic waveform obtained by geographically distributed stations
 - ~7.6 M files, ~2 TB data
 - National data as well as other countries in SEE region as part of SEE-Grid-SCI project
 - Meteorology
 - ~20 TB data for processing
- Network Flow on WAN
 - ~18 TB data for storing
- Individual users scientific data



HEP Studies

- TR-Grid has two T2 centers for supporting ATLAS and CMS experiment.
 - TR-10-ULAKBIM for atlas

- TR-03-METU for cms

		2009			2010	
Turkey, Turkish Tier-2 Federation	ATLAS	CMS	TOTAL	ATLAS	CMS	TOTAL
CPU (HEP-SPEC06)	2800	2600	5400	5100	4700	9800
Disk (Tbytes)	340	210	550	550	350	900
Nominal WAN (Mbits/sec)	1000	1000		1000	1000	



NGI User Community Services

- The following virtual organizations are going to be supported during EGI
 - atlas, cms, biomed, ops, compchemp, see, see-grid, seismo.see-grid-sci.eu, trgrida, trgridb, trgridd, trgride
- We are providing training supports to all VOs, as well as application porting supports for national VOs
- There are 5 accredited trainers in our NGI

Resource Update Transition from EGEE to EGI

- TR-01-ULAKBIM
 - Will be quadrupled in terms of computing resources
- TR-03-METU
 - T2 center for CMS experiment
 - Increase in both storage and computing capacity in terms of MoU aggreement
- TR-05-BOUN
 - Increase in the storage and computing resources regarding to needs of national EarthScience community
- TR-10-ULAKBIM
 - T2 center for ATLAS experiment
 - Increase in both storage and computing capacity in terms of MoU aggreement



Core Services in TR-Grid

- BDII, LFC, VOMS, RB and WMS have been using as secondary core services for SEE-Grid Project
- These services will continue to be supported through EGI VOs with FTS server



Middleware Stacks

- In the first year of EGI, we are not planning a change at the middleware stack of the sites.
- TR-01-ULAKBIM, TR-03-METU, TR-05-BOUN and TR-10-ULAKBIM will continue with gLite.
- ARC middleware has already been installed on TR-07-PAMUKKALE.
- Following sites will be migrated from gLite to ARC:
 - TR-04-ERCIYES, TR-09-ITU



Query Packages

Turkish NGI Operations

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1	AL	Albania	neki.frasheri@gmail.com	+355 68 22 59 467	Admins List		
2	BA	Bosnia and Herzegovina	badaboom@atfbi.nat	+387 51 221860	Admins List		
3	BG	Bulgaria	emanousl@parallel.bas.bg	+359 2 9796793	Admins List		
4	RS	Serbia	grid-admin@ipb.ac.rs	+381 11 3713152	Admins List		
5	GR	Greece	Fiaboti@gmet.gr	+302107474248	Adminis List		
1	HR	Croatia	kg-admin@irb.hr	+38514561168	Admins List		
z	HIL	Hungary	kg2@lpds.sztaki.hu	+361 2 796066	Admins List		
8	MK	FVR of Macedonia	beroj@ki.edu.mk	+389 70 328718	Admins List		
2	RQ	Romania	stanciu@grid.ici.ro	+40 21 2241256	Admins List		
10	IR	Turkey	grid@ulaktim.goutr	+90 312 2989363	Admins List		
11	ME	Hortenegro	kkat@cg.ac.yu	+381 81 242777	Adminis List		
12	MD	Holdavia	sw@renam.md		Admins List		
19	CH	Switzenland	dusan vudragovic@cem.ch		Admins List		
14	AM	Armenia	grid-admin@sci.am	+374 94 361138	Admins List		
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Turkish NGI Operations Accounting Repository

- TR-Grid is a composition of various resource types and project obligations.
- As well as the EGEE sites there are also SEE-GRID sites and TR-Grid-HPC infrastructure sites some of which are also involved in EGEE.
- Thus a central accounting repository was deployed as part of TR-Grid operations.
- Since this accounting repository is fully compatible with current EGEE accounting repository schemas, an adapter for filtering and pushing EGI only records can easily be developed.



Turkish NGI Operations Accounting Portal

- EGI view of Turkish sites can be reported through the central EGI accounting portal.
- This will enable us to compare the usage of international VOs with different countries.
- Implementation of an advanced portal which enables research groups to adjust resource usage in their groups at specific sites has been started.

Turkish NGI Operations Operations Portal

- TR-Grid operation center has been using an inhouse developed operations portal for three years.
- For Turkish users and site administrators it is important to have an operations portal in national language.
- Documents
 - Wiki
 - Blog
 - Training Events

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Turkish NGI Operations Operations Portal

- It also combines all the related tools such as help-desk, monitoring information for all supported VO's.
- Monitoring Tools and Operations Dashboard
 - Nagios
 - On the validation progress now
 - Ganglia
 - Pakiti
 - MRTG
 - -RT

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Turkish NGI Operations GOCDB & HGSM

- Two local installments of configuration repositories in Turkey.
- HGSM
 - Developed in the framework of SEE-GRID projects and has been used by all SEE-GRID countries for nearly five years

• GOCDB

 Alpha release of regional GOCDB was deployed in TR-Grid at the start of 2010



Turkish NGI Operations Ticketing System

- OneorZero based helpdesk is used for grid troubles, whereas RT based helpdesk is used for network problem
- Because of being located centrally, e-mail is also used for communication with the users
- We are in the progress of integration RT based help-desk with GGUS
- At the end of integration process, RT will be used for handling all tickets.

SUMMARY



Central management

- All operational tasks of grid and HPC cluster computing are being handled by TR-Grid Operation Center
- Transition to NGI_TR
 - The required steps have been almost completed
 - The GGUS ticket for enabling NGI_TR is on the progress
- Sustainability of TR-Grid is fully provided with hardware budget support from State Planning Organization and personnel support from TUBITAK.



THANKS !!!

01/06/10

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