

Operations Automation: SEE-GRID-SCI View

www.see-grid.eu

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Overview



SEE-GRID-SCI
SEE-GRID eInfrastructure for regional eScience

- SEE-GRID Operations
- SEE-GRID Operational/monitoring tools
- Automation/integration of tools
- Conclusions

[illegible]

Grid operations



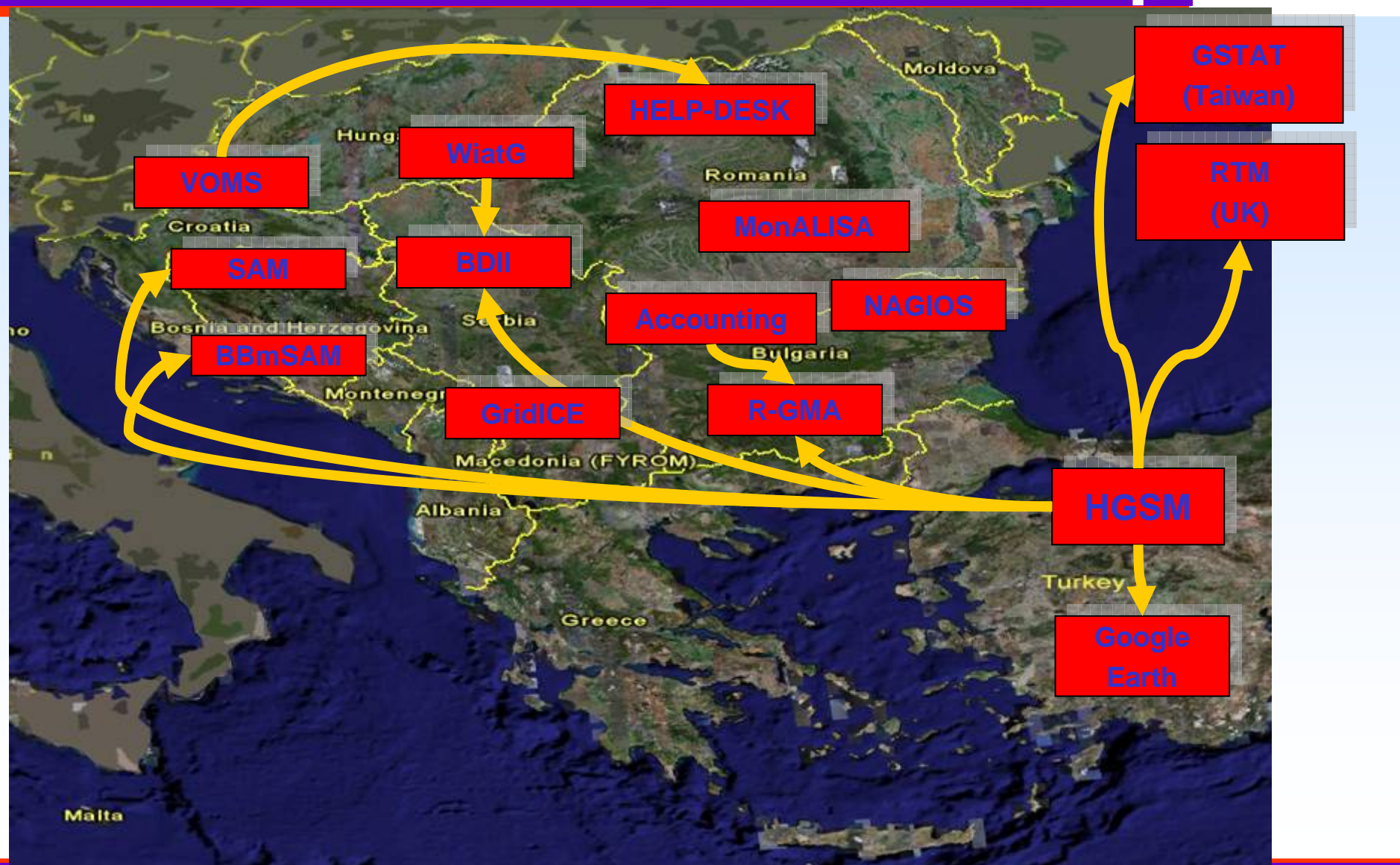
SEE-GRID-SCI
SEE-GRID infrastructure for regional eScience

- Distributed SEE-GRID ROC
 - Coordinates deployment and upgrades
- Pilot SLA established
- Monitoring and Accounting Tools
- Helpdesk tickets procedures
 - Generic support group for users
 - TPM-like (monitoring open tickets created by users, trying to solve the simple ones, route the tickets, etc.).
 - Country-level user support groups
 - Application-level user support groups
 - Grid-Operator-On-Duty shifts
- SEEGRID Wiki with detailed information for site administrators

Operational & monitoring tools map



SEE-GRID-SCI
SEE-GRID infrastructure for regional eScience



Operational and monitoring tools (1)



SEE-GRID-SCI
SEE-GRID infrastructure for regional eScience

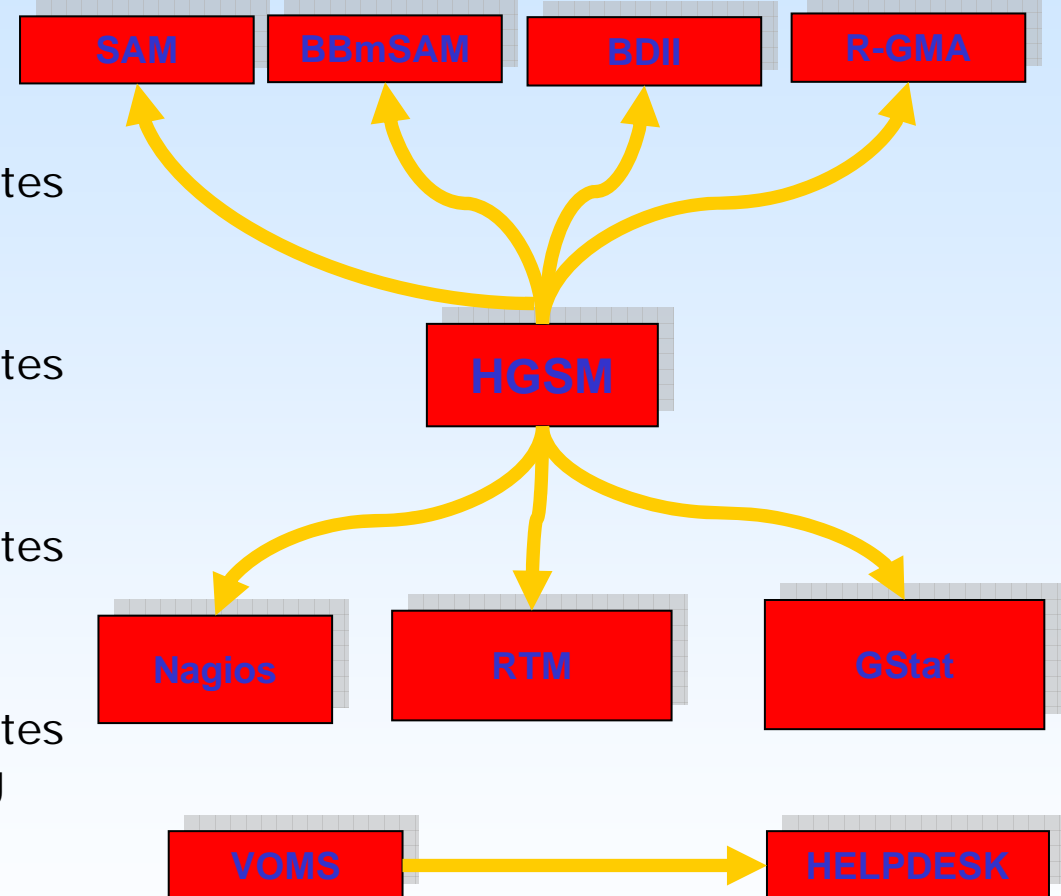
- Operational & monitoring tools deployment status
 - Hierarchical Grid Site Management (HGSM) – Turkey
 - Service Availability Monitoring (SAM) (+ porting to MySQL) – Bosnia and Herzegovina with CERN support
 - Helpdesk - Romania
 - BBmSAM - Bosnia and Herzegovina
 - GridICE – FYR of Macedonia
 - SEE-GRID GoogleEarth – Turkey + ic.ac.uk
 - Global Grid Information Monitoring System (GStat) – ASGC, Taiwan
 - R-GMA and Accounting Portal – Bulgaria
 - Nagios - Bulgaria
 - Real Time Monitor (RTM) – ic.ac.uk and Turkey (HGSM)
 - MONitoring Agents using a Large Integrated Services Architecture (MonALISA) – Romania
 - What is at the Grid (WiatG) – CERN with support from Serbia
 - RB/WMS monitoring tool – CERN with support from Serbia
 - Pakiti - Greece

Operational and monitoring tools (2)



SEE-GRID-SCI
SEE-GRID infrastructure for regional eScience

- Full integration of all tools
 - HGSM+SAM, HGSM+BBmSAM
 - Automatic creation of list of sites to be tested
 - HGSM+BDII
 - Automatic creation of list of sites in the infrastructure
 - HGSM+GStat, HGSM+Nagios
 - Automatic creation of list of sites to be monitored
 - HGSM+RTM, HGSM+R-GMA
 - Automatic creation of list of sites monitoring and for accounting
 - VOMS+Helpdesk
 - Automatically create new user accounts when accessing helpdesk
 - Certificate based access for Helpdesk





- Single ROC, multiple countries per ROC, and multiple sites per country
- Per user information edit rights
- Contact information per country, and per site
- General information about sites and detailed information about nodes
- Detailed downtime information
- Mass node editing, XML imports, and site BDII imports
- Customizable universal export
- Applications Using HGSM: R-GMA, RTM and BBmSAM
- Projects using HGSM: SEE-GRID and EUMedGRID

HGSM (Hierarchical Grid Site Management)

SEEGRID > TR > TR-01-ULAKBIM > Site Info > Contacts > Site Nodes > Downtimes > Get XML Dump > Go to Edit Mode

General Info and Contacts:		Resources:	
Last Modified Time:	2008-03-18 09:50:53	Operating System	SL 3.0.7
Site ID:	TR-01-ULAKBIM	MiddleWare Software	GLITE 3.0.2
Institution Name:	Turkish Academic Network and Information Center, Ankara	Batch System:	PBS torque
Site Registration Date:		VO-s Supported:	dream, atlas, lhc, cms, seegrid, ops, see, eumed, trgrida, trgrids, trgridc, trgridd, trgride, trgridf, trgridg
Home Page:	http://www.ulakbim.gov.tr/en/	Supported Applications:	GPV, GridAE, SDA, SE4SEE
GIS URL:	http://ge.ulakbim.gov.tr/2170mde-vo-name=TR-01-ULAKBIM-e-grid	Number of Worker nodes:	114
Monitoring:	Yes	SEE-GRID Dedicated CPU Count:	32
Status:	certified	Storage Type:	SATA
Type:	egge_production	Storage Size (GB):	3000
Hours Available:	08:00-17:00	LAN Connection (Mbps):	1000
Timezone:	1	WAN Connection (Mbps):	622
Email:	grid.teknik@ulakbim.gov.tr	Comments:	
Phone:	90 312 2986363	Coordinates:	
Emergency Phone:	90 312 298 93 63	Google Map Latitude:	39.094
CSIRT Email:	msoray@ulakbim.gov.tr	Google Map Longitude:	33.0249
CSIRT Phone:	90 312 298 93 10	RTM X Coordinate:	649
		RTM Y Coordinate:	405

Important: This site works best with Firefox

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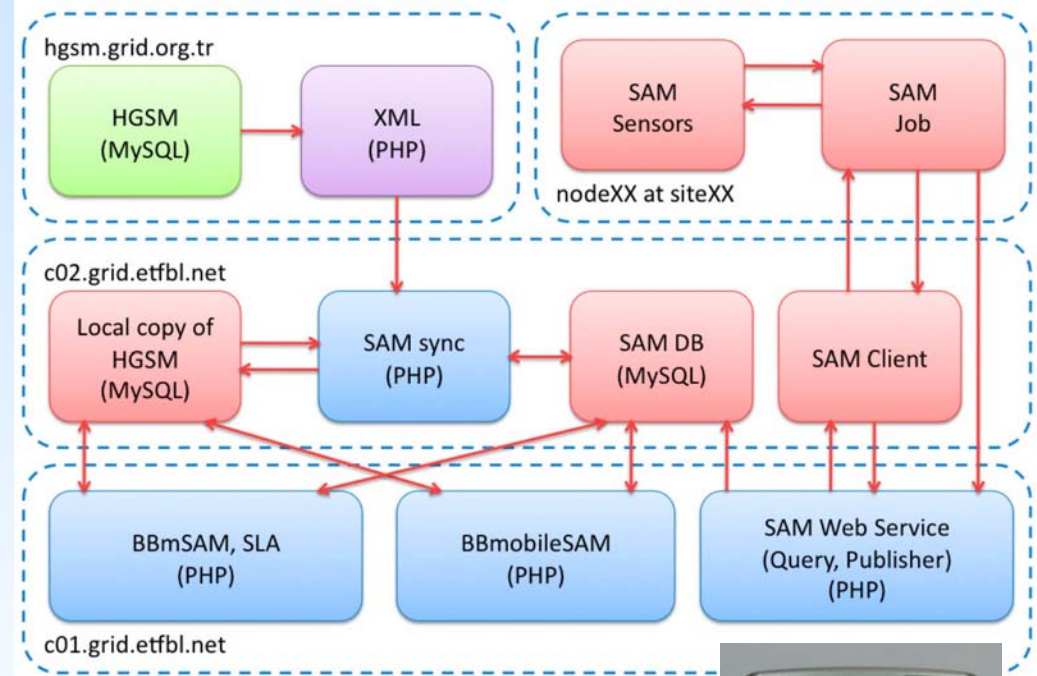
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BBmSAM



SEE-GRID-SCI
SEE-GRID infrastructure for regional eScience

- Implemented with:
 - Web server – Apache
 - RDBMS – MySQL (no Oracle)
 - PHP scripting language
- Integration with HGSM
- SLA calculation



					SE: grid01 - ok - 100%
AEGIS04-KG	Serbia	2	Certified	Production	CE: cluster1 - ok - 100% SE: se - ok - 100% SRM: se - ok - 100%
AEGIS05-ETFBG	Serbia	2	Certified	Production	CE: rti29 - ok - 100% SE: rti29 - ok - 100%
AEGIS06-AOB	Serbia	2	Certified	Production	CE: grid01 - error - 0% SE: grid02 - error - 0%
AL-01-INIMA	Albania	2	Certified	Production	CE: prof - maint - 0% SE: prof - maint - 0% SE: v101 - maint - 0%

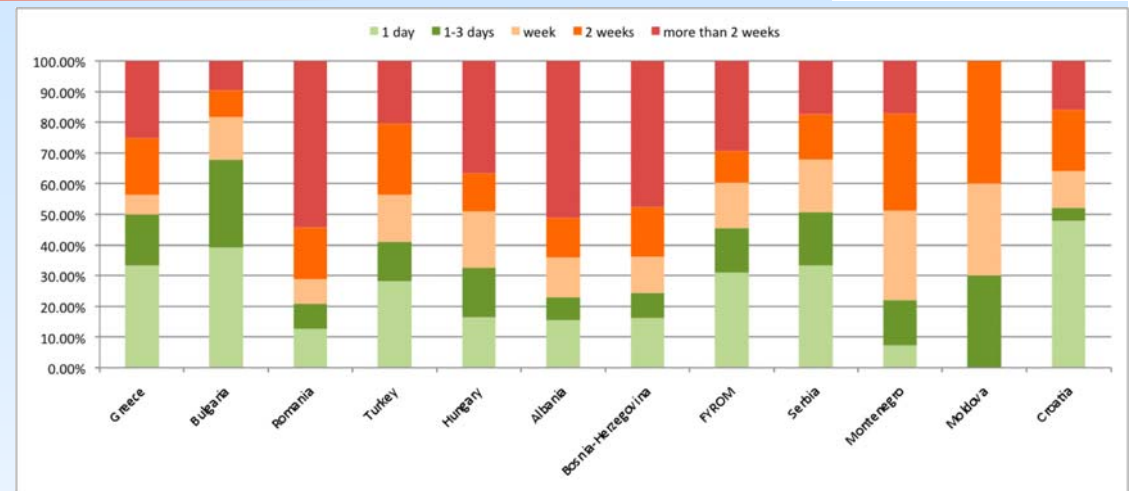


Helpdesk

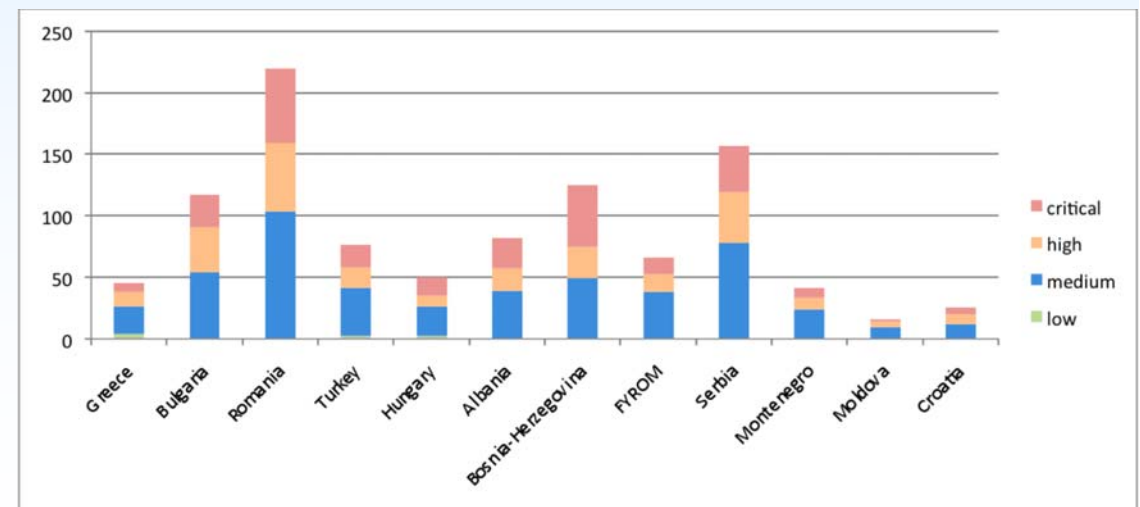


SEE-GRID-SCI
SEE-GRID eInfrastructure for regional eScience

- Oneorzero
- Integration with VOMS server and DN based logging



The screenshot shows the Oneorzero Task Management System interface. It includes a sidebar with navigation links like 'Task Manager Options', 'Contacts', 'FAQ Options', 'User Documentation', 'Task Manager Options', and 'Reporting'. The main area is titled 'Task Search' and contains various search filters such as 'Search Type', 'Task Manager Group', 'Task Priority', 'Task Status', 'Task Category', 'Task Group', 'First Name', 'Last Name', 'User', 'Office', 'Between Dates', 'Keywords', and 'SQL Statement'. A 'Search For Task' button is at the bottom.



RGMA and accounting portal





SEE-GRID-SCI
SEE-GRID infrastructure for regional eScience

- Based on the gLite accounting framework
- Web front-end for querying has been deployed, and it provides views of CPU usage
 - Per site
 - Per country/institute
 - Per application

IPP BAS GRID Accounting Portal

Accounting By Site Accounting By Institution Application Accounting



IPP BAS GRID Accounting Portal

<u>Accounting by Site</u>	Accounting for sites that are not in EGEE
<u>Accounting by Institution</u>	Accounting by Country or/and Institution
<u>Application Accounting</u>	Accounting for SEE-GRID applications

IPP BAS GRID Accounting Portal

Accounting By Site Accounting By Institution Application Accounting

Application accounting

Date Type: Basic CPU Time(hours)

Period: Start month: 5 Start year: 2007 End month: 6 End year: 2008

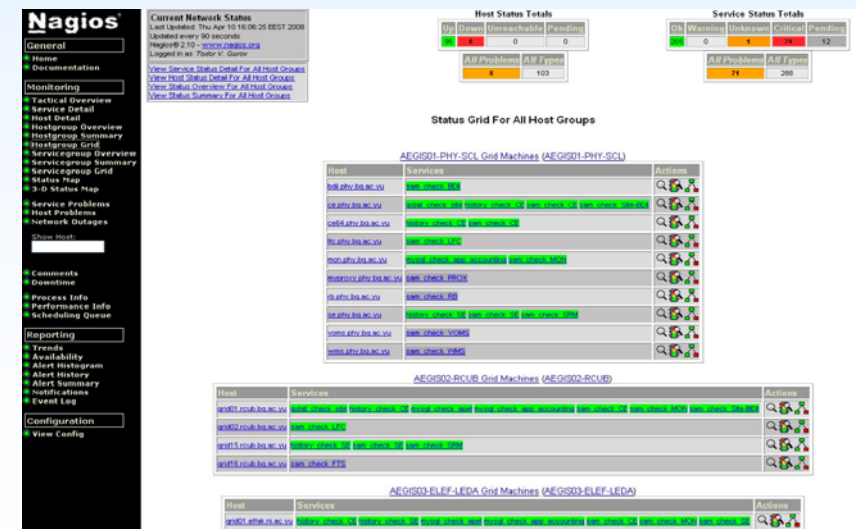
Rows: Grouped by: Application Split values by: none

Filter: Site: AEG001-PRY-SOL Country: Albania

Refresh


	5.2007	6.2007	7.2007	8.2007	9.2007	10.2007	11.2007	12.2007	1.2008	2.2008	3.2008	TOTAL
ippgrid-BA/App-GA/AlfaDCPP	0	0	0	0	0	5	0	0	0	0	0	178
ippgrid-BA/App-ET/AlfaDCPP	23	14	11	7	8	7	25	37	48	54	94	298
ippgrid-BA/App-Soft/APPGrid	0	0	0	0	1	0	0	0	0	0	0	1
ippgrid-BO/App-Clara_1	0	0	968	10287	2673	2369	1819	2447	1848	1368	137	23638
ippgrid-EG/App-CRYSTAL	0	0	0	0	0	0	0	0	0	441	80	521
ippgrid-EG/App-SALUTE	11796	8839	37	24793	12652	149	31	95	16	182	10412	90000
ippgrid-IE/App-PAFF	0	0	0	0	0	0	0	0	0	17	0	17
ippgrid-IE/App-VSPAR	0	0	19	0	796	483	367	1268	91	1818	5089	8643
ippgrid-IE/App-EMMIL	2	0	0	0	0	0	1	0	358	110	2071	2546

- Provides overview of the results of various tests performed on SEE-GRID sites, as well as automated early notifications to site admins
- Configuration of the nagios service is generated and updated automatically, based on HGSM data
- SEE-GRID Nagios includes:
 - BBmSAM tests (fetched from the BBmSAM service)
 - Other tests (with links to test description pages and links to possible solutions)



What is at the Grid

- Web application for visualization of BDII information
- Used by:
 - Other regional Grid projects
 - EUMedGRID (bdii.isabella.grnet.gr)
 - EUChinaGrid (euchina-bdii-1.cnaf.infn.it)
 - EELA (lnx112.eela.if.ufrj.br)
 - Health-e-Child (hec-maat-server2.cern.ch)
 - BalticGrid (bdii.mif.vu.lt)
 - Int-EU-Grid (i2g-ii01.lip.pt)
 - EGEE (ROC CERN)
 - PROD (lcg-bdii.cern.ch)
 - PPS (pps-bdii.cern.ch)
 - OPS (sam-bdii.cern.ch)



RB/WMS monitoring tool



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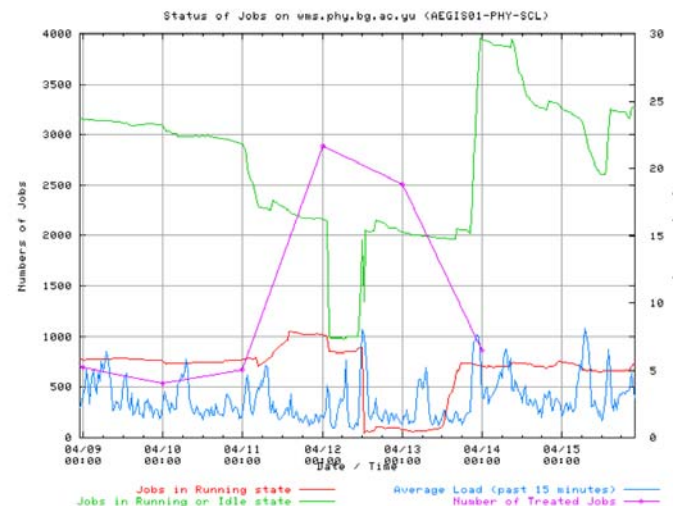
- Developed by CERN and optimized for usage outside of CERN by SEE-GRID
- Two RPMs: rbwmsmon-server and rbwmsmon

RB/WMS Monitoring (Tue Apr 15 22:05:29 CEST 2008)

WMSLB	date	running jobs	current jobs	jobs treated	load	input.fl	queue.fl	dg20logd	history size	input.fl size	job_queue	FD	sandbox	tmp	planners	WM	LL	LB	PX	LM	JC	NS	MI
wms.phy.bg.ac.yu	04/15-22:00	722	3270	863	2.92	10	0	2	14983	203165	17538	9	24	24	-	0	0	0	0	0	0	na	-

RB	date	running jobs	current jobs	jobs treated	load	input.fl	queue.fl	dg20logd	history size	input.fl size	job_queue	FD	sandbox	tmp	planners	WM	LL	LB	PX	LM	JC	NS	MI
rb.phy.bg.ac.yu	04/15-22:00	13	24	292	0.00	0	0	0	1542	0	44062	47	9	9	-	0	0	0	0	0	0	0	0

[wms.phy.bg.ac.yu \(AEGIS01-PHY-SCL\)](#) [top](#)



Pilot Service Level Agreement (1)



SEE-GRID-SCI
SEE-GRID infrastructure for regional eScience

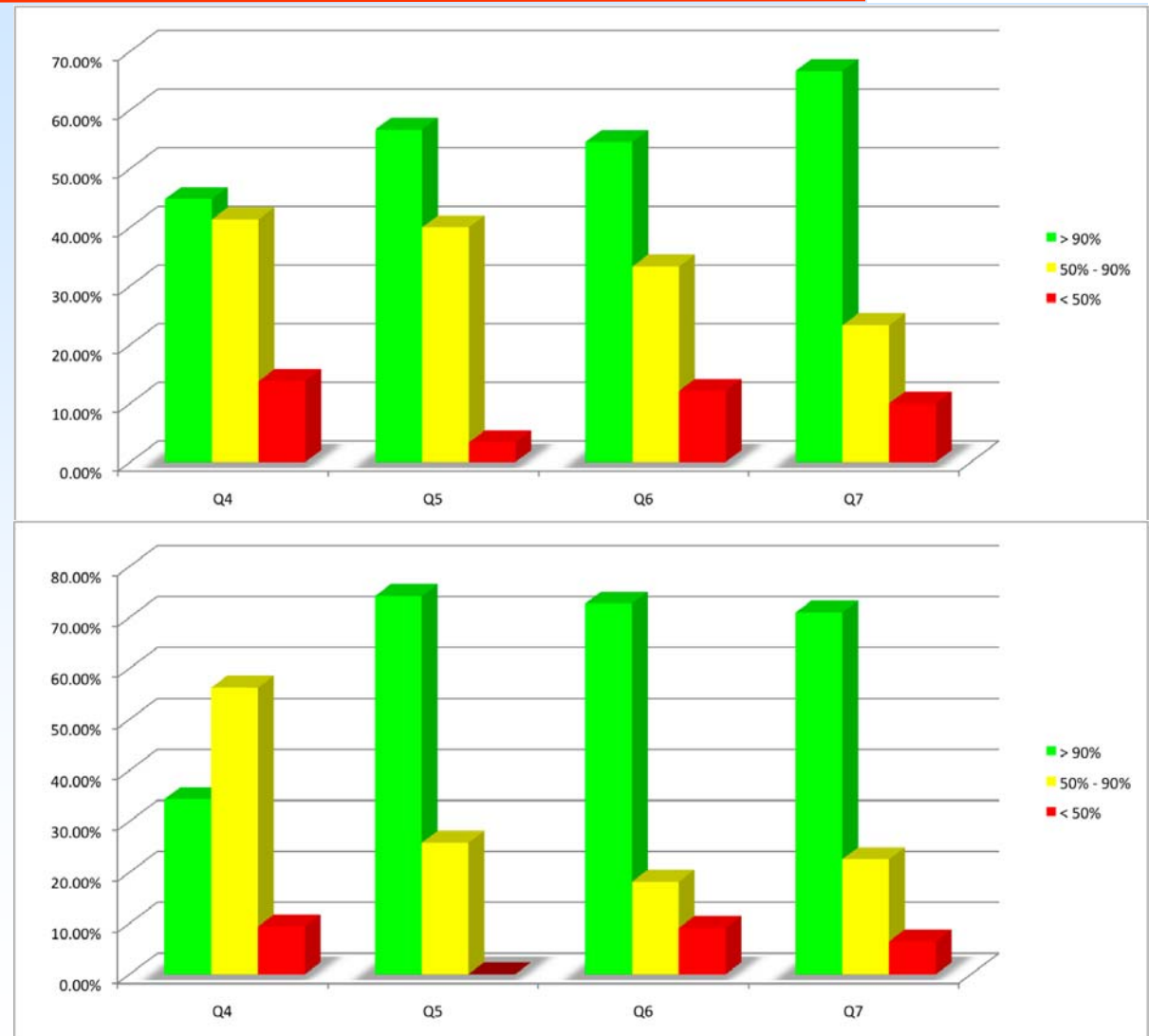
- Hardware and connectivity criteria
 - Min amount of resources for sites to participate in the infrastructure
 - Network to fulfill operations test requirements
- Level of support
 - Site and security administrators availability and response time
- Level of expertise
 - Site and security administrators declaration of expertise
- VO support
 - Site to provide support to SEEGRID VO and OPS role
- Conformance to Operational Metrics
 - Site availability
 - Downtimes

Pilot Service Level Agreement (2)



SEE-GRID-SCI
SEE-GRID infrastructure for regional eScience

- Conformance to the SEE-GRID SLA for computing elements (top) and storage elements (bottom)

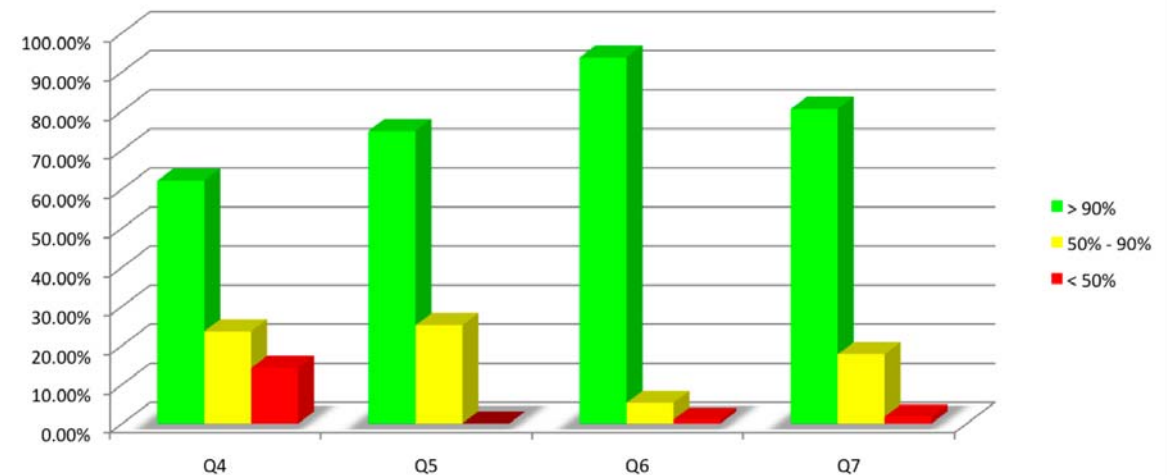
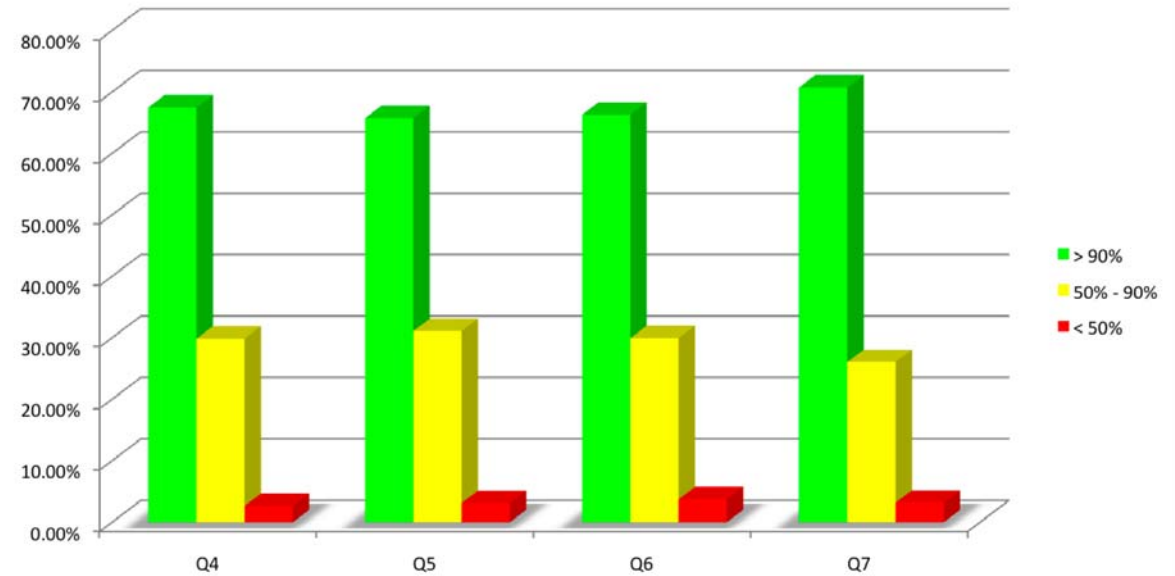


Pilot Service Level Agreement (3)



SEE-GRID-SCI
SEE-GRID infrastructure for regional eScience

- Conformance to the SEE-GRID SLA for computing elements (top) and storage elements (bottom), weighted by the amount of resources provided (CPUs for CEs, storage capacity for SEs)



Conclusions



SEE-GRID-SCI
SEE-GRID infrastructure for regional eScience

- CIC portal-like dashboard functionality missing
- Helpdesk will be integrated with the EGEE-SEE one, and interconnected with GGUS, and future national-level support systems
- HGSM central focal point, all other tools integrated with it
- BBmSAM portal can be used for testing of all sites in the SEE region
- Tools like (HGSM, BBmSAM, etc.) can be used by other regions/regional Grid projects
- We are actively considering other integrations/automations, and are very interested in collaboration regarding this