

Grid Site Monitoring tools developed and used at SCL



www.see-grid-sci.eu

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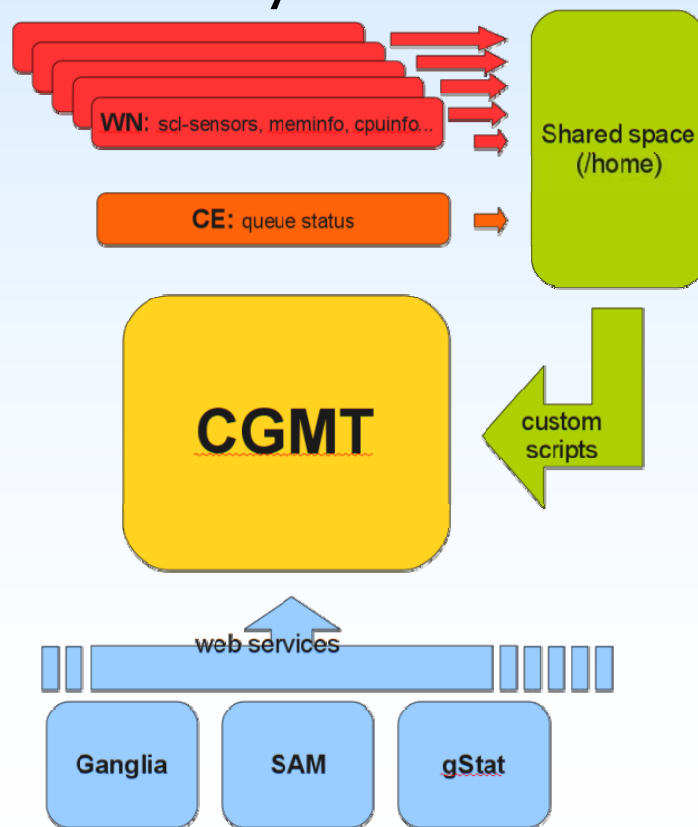
- Introduction
- Grid site monitoring tools
 - CGMT
 - WMSMON
 - WatG browser
 - Pakiti
 - Ganglia
 - SAM
 - BBmSAM
 - GStat
- Conclusions



- Grid site is a complex system
- Different subsystems and its parameters:
 - Basic hardware layer
 - temperature, voltage, fan speed
 - Operating system (OS) layer
 - CPU load, disk and memory usage
 - Grid middleware software stack layer
 - number of jobs, available CPU and storage resources, test results
 - Additional network and cooling subsystems
- Grid site administrators have to monitor and supervise each of these important attributes
- SCL use several monitoring tools – some of them developed by SCL for its specific needs

Cumulative Grid Monitoring Tool – CGMT (1 / 4)

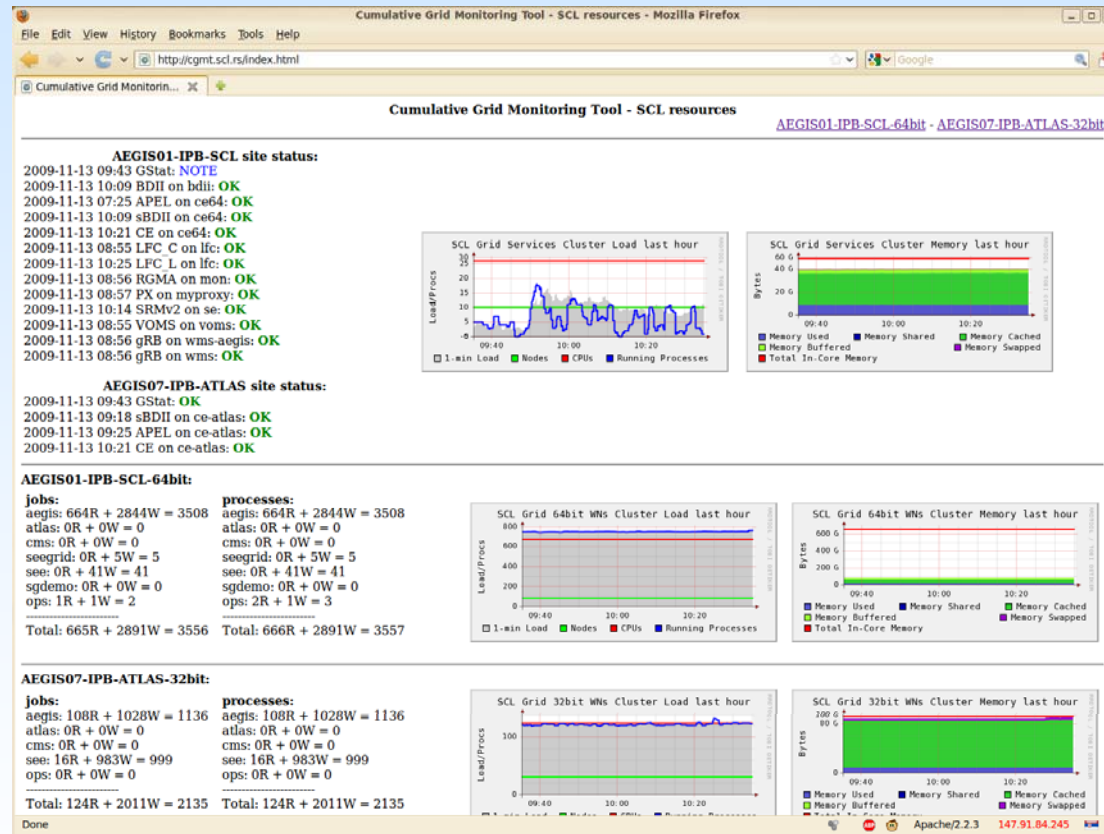
- Set of scripts accompanied by the simple web interfaces
- Provide Grid site monitoring and integrated presentation of the results provided by various monitoring tools



Cumulative Grid Monitoring Tool – CGMT (2/4)



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- Main web page of CGMT tool

Cumulative Grid Monitoring Tool – CGMT (3/4)



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Cumulative Grid Monitoring Tool - SCL resources - Mozilla Firefox

http://cgmt.scl.rs/index64.html

Cumulative Grid Monitoring Tool - AEGIS01-IPB-SCL-64bit

Fri Nov 13 10:35:04 CET 2009

AEGIS01-IPB-SCL site status:
 2009-11-13 09:43 GStat: **NOTE**
 2009-11-13 10:09 BDII on bdi: **OK**
 2009-11-13 07:25 APEL on ce64: **OK**
 2009-11-13 10:09 sBDII on ce64: **OK**
 2009-11-13 10:21 CE on ce64: **OK**
 2009-11-13 08:55 LFC C on lfc: **OK**
 2009-11-13 10:25 LFC L on lfc: **OK**
 2009-11-13 08:56 RGMA on mon: **OK**
 2009-11-13 08:57 PX on myproxy: **OK**
 2009-11-13 10:14 SRMv2 on se: **OK**
 2009-11-13 08:55 VOMS on voms: **OK**
 2009-11-13 08:56 gRB on wms-aegls: **OK**
 2009-11-13 08:56 gRB on wms: **OK**

674 procs on 84 nodes

node	load	RAM MB	Swap MB	Temp
n05	10.97	1439	0	45 C
n06	8.98	2498	0	44 C
n07	8.99	775	0	45 C
n08	9.00	1924	0	47 C
n09	8.96	454	0	42 C
n10	8.99	1048	0	44 C
n11	7.96	5162	0	
n12	8.99	765	0	45 C
n13	8.97	1326	0	41 C
n14	8.99	751	0	44 C
n15	9.07	1916	0	38 C
n16	8.99	1337	0	42 C
n17	9.13	749	0	38 C
n18	8.99	1327	0	39 C
n19	8.97	767	0	38 C
n20	8.99	773	0	38 C
n21	8.99	783	0	38 C
n22	8.98	776	0	38 C
n23	8.99	2513	0	39 C
n24	8.99	1948	0	37 C
n25	9.09	1345	0	38 C
n26	8.99	765	0	38 C
n27	9.00	767	0	38 C
n28	9.00	794	0	38 C
n29	8.99	791	0	39 C
n30	8.99	1330	0	40 C
n31	8.99	740	0	44 C
n32	8.99	3616	0	44 C
n33	8.99	787	0	44 C
n34	8.99	779	0	43 C
n35	8.99	1921	0	42 C
n36	8.99	770	0	40 C
n37	9.01	783	0	42 C
n38	9.07	769	0	38 C

AEGIS01-IPB-SCL-64 jobs:
 aegls: 664R + 2844W = 3508
 atlas: 0R + 0W = 0
 cms: 0R + 0W = 0
 seegrid: 0R + 5W = 5
 see: 0R + 41W = 41
 sgdemo: 0R + 0W = 0
 ops: 1R + 1W = 2
 Total: 665R + 2891W = 3556

AEGIS01-IPB-SCL-64 processes:
 aegls: 664R + 2844W = 3508
 atlas: 0R + 0W = 0
 cms: 0R + 0W = 0
 seegrid: 0R + 5W = 5
 see: 0R + 41W = 41
 sgdemo: 0R + 0W = 0
 ops: 2R + 1W = 3
 Total: 666R + 2891W = 3557

AEGIS01-IPB-SCL-64bit - AEGIS07-IPB-ATLAS-32bit

node	load	RAM MB	Swap MB	Temp
n47	9.04	770	0	35 C
n48	8.99	776	0	36 C
n49	9.04	764	0	36 C
n50	8.99	762	0	35 C
n51	8.99	733	0	37 C
n52	9.07	731	0	36 C
n53	8.99	738	0	35 C
n54	7.99	5122	0	
n55	9.00	734	0	36 C
n56	8.96	742	0	36 C
n57	9.01	737	0	36 C
n58	8.99	741	0	37 C
n59	9.05	735	0	36 C
n60	0.00	673	0	33 C
n61	8.99	750	0	49 C
n62	8.98	731	0	46 C
n63	8.99	734	0	45 C
n64	9.00	734	0	44 C
n65	8.97	738	0	42 C
n66	9.01	758	0	42 C
n67	8.99	746	0	39 C
n68	8.99	734	0	42 C
n69	9.00	736	0	37 C
n70	8.98	739	0	42 C
n71	8.92	728	0	35 C
n72	8.99	733	0	41 C
n73	8.99	730	0	33 C
n74	8.99	728	0	39 C
n75	8.95	730	0	32 C
n76	8.94	727	0	36 C
n77	8.94	732	0	32 C
n78	8.99	730	0	34 C
n79	8.99	730	0	32 C
n80	8.99	729	0	32 C

SCL Grid 64bit WNs Cluster Load last hour

SCL Grid 64bit WNs Cluster Memory last hour

Done Apache/2.2.3 147.91.84.245

CGMT cluster page

Cumulative Grid Monitoring Tool – CGMT (4/4)



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

wn04.ipb.ac.rs
Fri Nov 13 10:34:01 CET 2009
w83627hf-isa-0290
Adapter: ISA adapter
VCore 1: +1.42 V (min = +0.00 V, max = +0.00 V)
VCore 2: +3.33 V (min = +0.00 V, max = +0.00 V)
+3.3V: +3.26 V (min = +3.14 V, max = +3.47 V)
+5V: +5.00 V (min = +4.76 V, max = +5.24 V)
+12V: +11.67 V (min = +10.82 V, max = +13.19 V)
-12V: -11.54 V (min = -13.18 V, max = -10.80 V)
-5V: -2.08 V (min = -5.25 V, max = -4.75 V)
V5SB: +5.11 V (min = +4.76 V, max = +5.24 V)
VBat: +3.57 V (min = +2.40 V, max = +3.60 V)
fan1: 4440 RPM (min = 2848 RPM, div = 2)
fan2: 4245 RPM (min = 2848 RPM, div = 2)
fan3: 0 RPM (min = 1424 RPM, div = 4)
temp1: +37 C (high = +65 C, hyst = +0 C) sensor = thermistor
temp2: +37.5 C (high = +80 C, hyst = +75 C) sensor = thermistor
temp3: +37.5 C (high = +80 C, hyst = +75 C) sensor = thermistor
ERROR: Can't get VID data!
alarms: Chassis intrusion detection ALARM
beep_enable:
Sound alarm disabled

eeeprom-i2c-0-56
Adapter: SMBus I801 adapter at 0540
Memory type: DDR SDRAM DIMM
Memory size (MB): 1024

eeeprom-i2c-0-55
Adapter: SMBus I801 adapter at 0540
Memory type: DDR SDRAM DIMM
Memory size (MB): 512

eeeprom-i2c-0-52
Adapter: SMBus I801 adapter at 0540
Memory type: DDR SDRAM DIMM
Memory size (MB): 1024

eeeprom-i2c-0-51
Adapter: SMBus I801 adapter at 0540
Memory type: DDR SDRAM DIMM
Memory size (MB): 512

max1617-i2c-0-1a
Adapter: SMBus I801 adapter at 0540
Board: +38 C (low = -55 C, high = +127 C)
CPU: +51 C (low = -55 C, high = +78 C)

Done

• Node info page

WN04 Temp
WN04 TempThe statistics were last updated Friday, 13 November 2009 at 10:36

'Daily' Graph (5 Minute Average)

	Max	Average	Current
CPU Temp	54.0 C (72.0%)	52.0 C (69.3%)	51.0 C (68.0%)
Node Temp	41.0 C (54.7%)	39.0 C (52.0%)	38.0 C (50.7%)

'Weekly' Graph (30 Minute Average)

	Max	Average	Current
CPU Temp	61.0 C (81.3%)	44.0 C (58.7%)	51.0 C (68.0%)
Node Temp	47.0 C (62.7%)	33.0 C (44.0%)	39.0 C (52.0%)

'Monthly' Graph (2 Hour Average)

	Max	Average	Current
CPU Temp	61.0 C (81.3%)	45.0 C (60.0%)	52.0 C (69.3%)
Node Temp	47.0 C (62.7%)	33.0 C (44.0%)	39.0 C (52.0%)

'Yearly' Graph (1 Day Average)

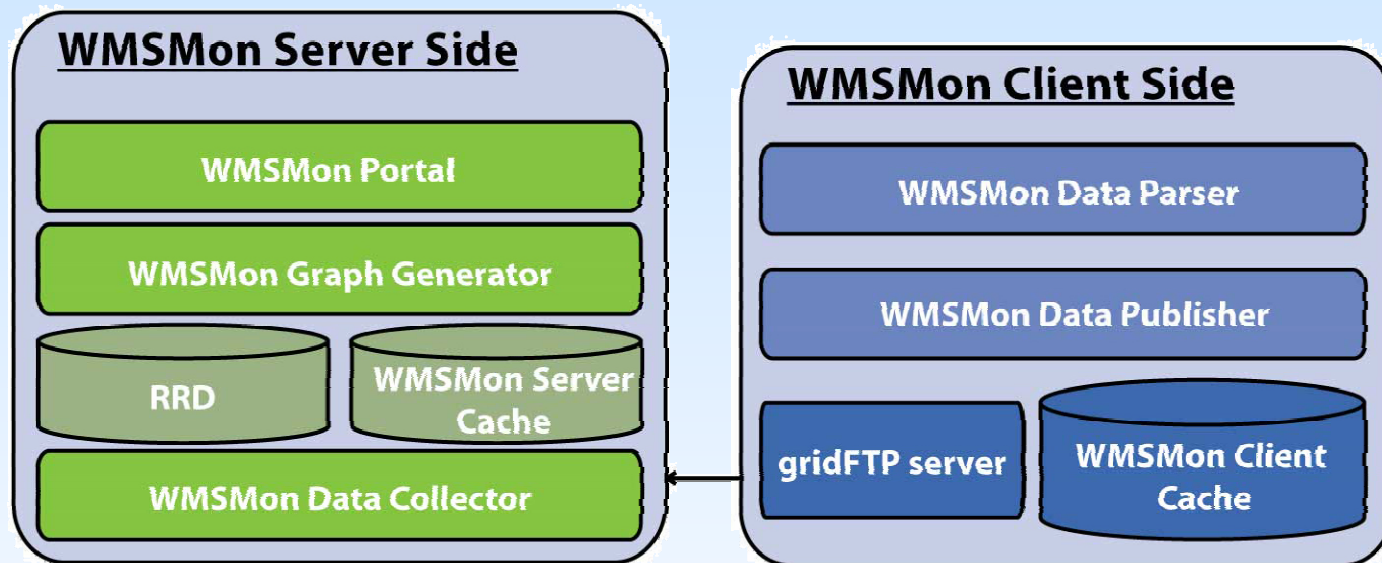
	Max	Average	Current
CPU Temp	61.0 C (81.3%)	45.0 C (60.0%)	52.0 C (69.3%)
Node Temp	47.0 C (62.7%)	33.0 C (44.0%)	39.0 C (52.0%)

Done

Node temperature page

- Workload Management System (WMS) is one of the key Grid services of the gLite middleware software stack
- WMSMON provides a site independent, centralized, uniform monitoring of gLite WMS services
- Properties of WMS that can be monitored:
 - Load averages
 - Job queues properties
 - File system properties
 - Log file properties
 - Availability/responsiveness of gLite services/daemons

WMSMON (2/3)



• WMSMON architecture

- WMSMON web portal presents information from different WMS sources in a unified way
- Data is shown in simplified way with the emphasis on WMS services identified not to work properly
- Pages with detailed information and graphs for each monitored WMS service

WMSMON (3/3)



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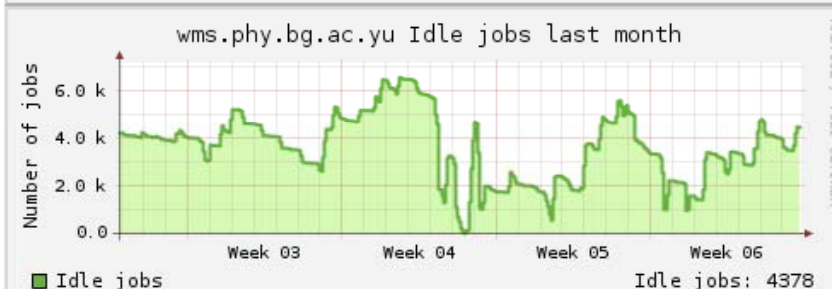
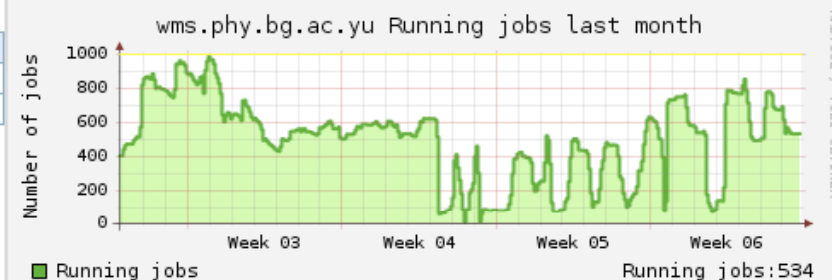
wmsmon

wmsmon

WMS Hostname	Timestamp	Load	Jobs	File system	Log files	gLite daemons
wms.phy.bg.ac.yu	Sun, 08 Feb 2009 20:25:01 +0100	●●●●	●●●●	●●●●●●●●	●●	●●●●●●●●
wms-aegis.phy.bg.ac.yu	Sun, 08 Feb 2009 20:25:01 +0100	●●●●	●●●●	●●●●●●●●	●●	●●●●●●●●
c16.grid.etfbl.net	Sun, 08 Feb 2009 20:30:01 +0100	●●●●	●●●●	●●●●●●●●	●●	●●●●●●●●

Jobs

Property	Value
Number of Running Jobs	534
Number of Idle Jobs	4378

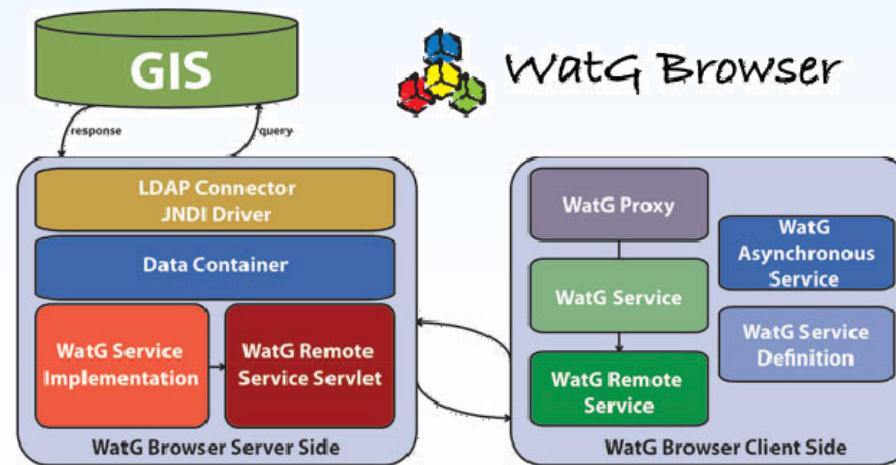


- WMSMON web portal



- WatG Browser (What is at the Grid Browser) is a web-based Grid Information System (GIS) visualization application
- Provides detailed overview of the status and availability of various Grid resources in a given gLite-based e-Infrastructure
- Information sources:
 - Local resource information system (GRIS)
 - Grid site information system (site BDII)
 - Top-level information system (top-level BDII)
- Allows quick and easy navigation through entries and objects of the LDAP tree retrieved by the specified query

- Supports partial refreshes and desynchronization of a web page
- Developed with Google Web Toolkit (GWT) open source Java software development framework
- Operational tool in the framework of the SEE-GRID project
- Will be integrated into GStat EGEE tool



WatG (3/3)



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

WatG Browser - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://watgbrowser.scl.rs:8080/

WatG Browser

Host: bdii.ipb.ac.rs

Base: o=grid

Filter:

Attributes:

Submit

Mds-Vo-name=local,o=grid

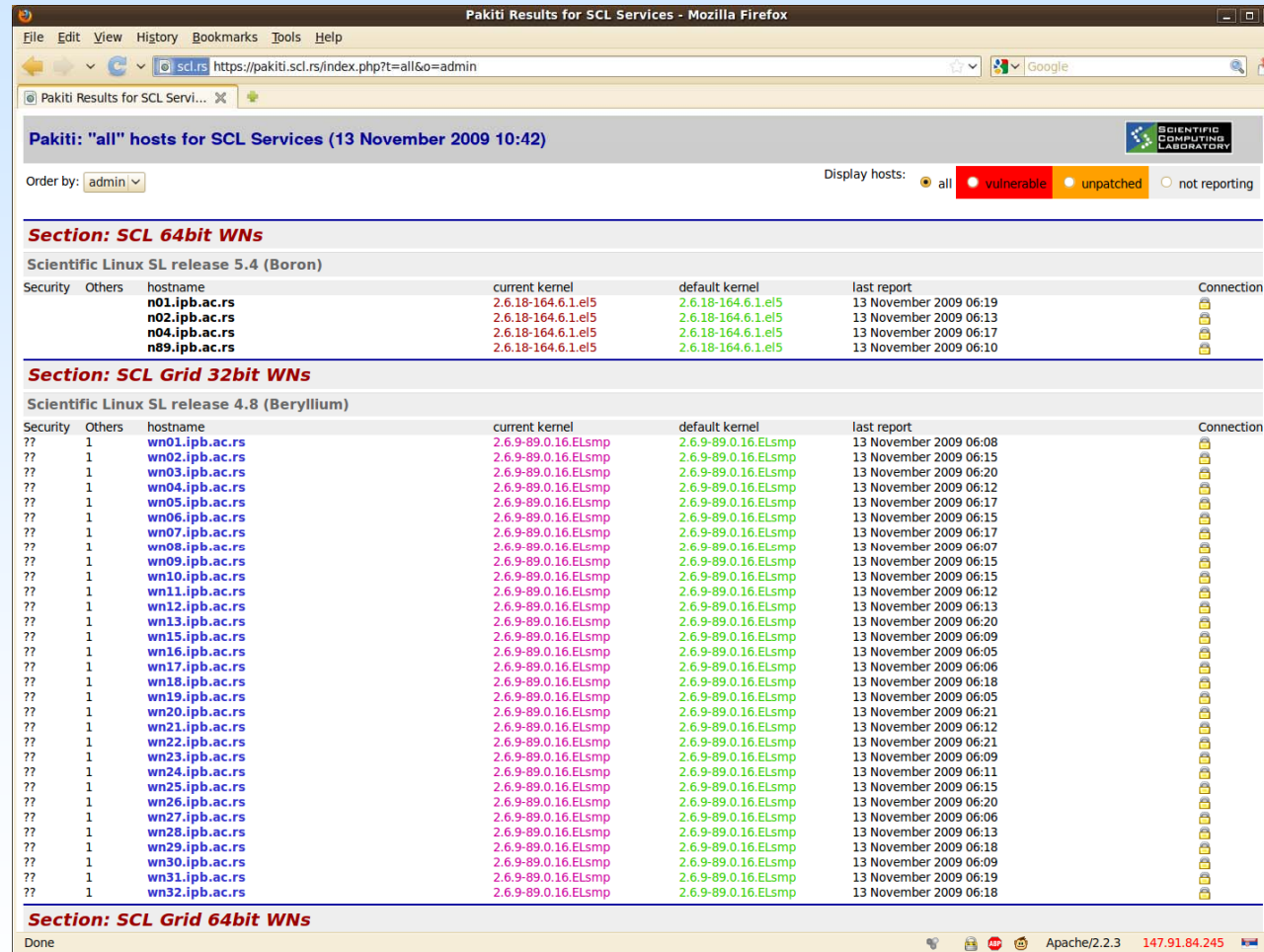
- Mds-Vo-name=aegis01-ipb-scl,Mds-Vo-name=local,o=grid
 - GlueCESEBIndGroupCEUniqueID=ce64.ipb.ac.rs:2119/jobmanager-pbs-aegis,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueCESEBIndGroupCEUniqueID=ce64.ipb.ac.rs:2119/jobmanager-pbs-atlas,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueCESEBIndGroupCEUniqueID=ce64.ipb.ac.rs:2119/jobmanager-pbs-cms,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueCESEBIndSEUniqueID=se.ipb.ac.rs,GlueCESEBIndGroupCEUniqueID=ce64.ipb.ac.rs:2119/jobmanager-pbs-cms,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueCESEBIndGroupCEUniqueID=ce64.ipb.ac.rs:2119/jobmanager-pbs-cms
 - GlueCESEBIndGroupSEUniqueID=se.ipb.ac.rs
 - GlueSchemaVersionMajor=1
 - GlueSchemaVersionMinor=3
 - objectClass=GlueCESEBIndGroup
 - objectClass=GlueGeneralTop
 - objectClass=GlueSchemaVersion
 - GlueCESEBIndGroupCEUniqueID=ce64.ipb.ac.rs:2119/jobmanager-pbs-ops,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueCESEBIndGroupCEUniqueID=ce64.ipb.ac.rs:2119/jobmanager-pbs-see,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueCESEBIndGroupCEUniqueID=ce64.ipb.ac.rs:2119/jobmanager-pbs-seegrid,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueCESEBIndGroupCEUniqueID=ce64.ipb.ac.rs:2119/jobmanager-pbs-sgdemo,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueCEUniqueID=ce64.ipb.ac.rs:2119/jobmanager-pbs-aegis,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueCEUniqueID=ce64.ipb.ac.rs:2119/jobmanager-pbs-atlas,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueCEUniqueID=ce64.ipb.ac.rs:2119/jobmanager-pbs-cms,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueCEUniqueID=ce64.ipb.ac.rs:2119/jobmanager-pbs-ops,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueCEUniqueID=ce64.ipb.ac.rs:2119/jobmanager-pbs-see,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueCEUniqueID=ce64.ipb.ac.rs:2119/jobmanager-pbs-seegrid,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueCEUniqueID=ce64.ipb.ac.rs:2119/jobmanager-pbs-sgdemo,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueClusterUniqueID=ce64.ipb.ac.rs,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueSEUniqueID=se.ipb.ac.rs,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueServiceUniqueID=bdii.ipb.ac.rs_bdii_top_1813027130,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueServiceUniqueID=ce64.ipb.ac.rs_bdii_site_3877936872,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueServiceUniqueID=ce64.ipb.ac.rs_org_edg_gatekeeper_3763786136,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueServiceUniqueID=ce64.ipb.ac.rs_org_glite_RTEPublisher_2855976528,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueServiceUniqueID=http://ffc.ipb.ac.rs:8085/,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueServiceUniqueID=http://se.ipb.ac.rs:8443/srm/managerv1,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid
 - GlueServiceUniqueID=http://se.ipb.ac.rs:8446/srm/managerv2,Mds-Vo-name=AEGIS01-IPB-SCL,Mds-Vo-name=local,o=grid

Done Apache-Coyote/1.1 147.91.84.245

• WatG front end



- Provides a monitoring and notification mechanism for checking the patching status of installed packages on an RPM-based Linux system
- Client/server model
- Exchanging information using HTTP(S)
- Through a cron job Pakiti on client checks if new patches are available and report them to the relevant Pakiti Server(s)
- Helps the system administrator keeping multiples machines up-to-date



Pakiti Results for SCL Services - Mozilla Firefox

Order by: admin Display hosts: all vulnerable unpatched not reporting

Section: SCL 64bit WNs

Scientific Linux SL release 5.4 (Boron)

Security	Others	hostname	current kernel	default kernel	last report	Connection
		n01.ipb.ac.rs	2.6.18-164.6.1.el5	2.6.18-164.6.1.el5	13 November 2009 06:19	
		n02.ipb.ac.rs	2.6.18-164.6.1.el5	2.6.18-164.6.1.el5	13 November 2009 06:13	
		n04.ipb.ac.rs	2.6.18-164.6.1.el5	2.6.18-164.6.1.el5	13 November 2009 06:17	
		n89.ipb.ac.rs	2.6.18-164.6.1.el5	2.6.18-164.6.1.el5	13 November 2009 06:10	

Section: SCL Grid 32bit WNs

Scientific Linux SL release 4.8 (Beryllium)

Security	Others	hostname	current kernel	default kernel	last report	Connection
??	1	wn01.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:08	
??	1	wn02.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:15	
??	1	wn03.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:20	
??	1	wn04.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:12	
??	1	wn05.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:17	
??	1	wn06.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:15	
??	1	wn07.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:17	
??	1	wn08.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:07	
??	1	wn09.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:15	
??	1	wn10.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:15	
??	1	wn11.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:12	
??	1	wn12.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:13	
??	1	wn13.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:20	
??	1	wn15.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:09	
??	1	wn16.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:05	
??	1	wn17.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:06	
??	1	wn18.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:18	
??	1	wn19.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:05	
??	1	wn20.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:21	
??	1	wn21.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:12	
??	1	wn22.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:21	
??	1	wn23.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:09	
??	1	wn24.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:11	
??	1	wn25.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:15	
??	1	wn26.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:20	
??	1	wn27.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:06	
??	1	wn28.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:13	
??	1	wn29.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:18	
??	1	wn30.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:09	
??	1	wn31.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:19	
??	1	wn32.ipb.ac.rs	2.6.9-89.0.16.ELsmp	2.6.9-89.0.16.ELsmp	13 November 2009 06:18	

Section: SCL Grid 64bit WNs

Done Apache/2.2.3 147.91.84.245

- SCL Pakiti main web page

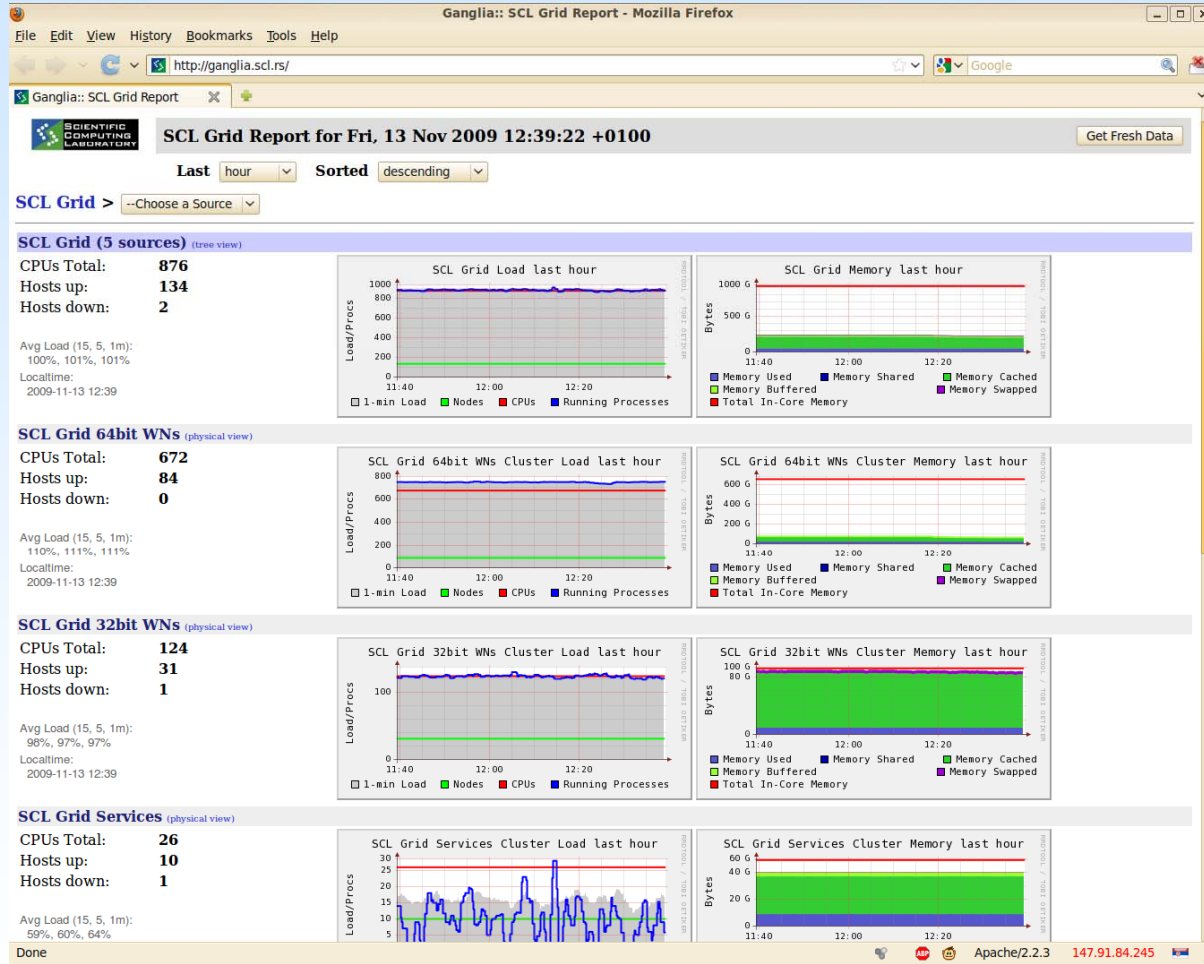


- Scalable distributed monitoring system for high-performance computing systems (clusters and Grids)
- Currently in use on thousands of clusters around the world
- Gives fast and reliable overview of the status of site nodes
- Client-server based system
 - gmond daemon working on each monitored node collecting various data about OS
 - gmetad daemon on server side collects gmond outputs and publishes them on the web interface
- Easy to add new custom monitored parameters data into gmond daemon on ganglia clients

Ganglia (2/2)



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



- SCL Ganglia main page



- Service Availability Monitoring
- Framework used in EGEE for the monitoring of production Grid sites
- It consists of:
 - Set of probes submitted at regular intervals
 - Database that stores test results
- Valid certificate is needed to access web portal
- In addition, access can be granted for specific IP address

SAM (2/3)



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

Service Availability Monitoring
2009/11/13 - 09:42:25

<input type="radio"/>	APEL	APEL
<input type="radio"/>	ArcCE	ARC Computing Element
<input type="radio"/>	BDII	Top-level BDII
<input checked="" type="radio"/>	CE	Computing Element
<input type="radio"/>	CREAMCE	CREAM-CE
<input type="radio"/>	FTS	File Transfer Service
<input type="radio"/>	gCE	gLite Computing Element
<input type="radio"/>	gRB	gLite Resource Broker
<input type="radio"/>	LFC_C	Central LFC
<input type="radio"/>	LFC_L	Local LFC
<input type="radio"/>	MyProxy	MyProxy
<input type="radio"/>	OSGBestm	OSG BestmanXrootd
<input type="radio"/>	OSGCE	OSG Computing Element
<input type="radio"/>	OSGGdFTP	OSG GridFtp
<input type="radio"/>	OSGSRMv1	OSG SRM version 1
<input type="radio"/>	OSGSRMv2	OSG SRM version 2
<input type="radio"/>	RB	Resource Broker
<input type="radio"/>	RGMA	RGMA Registry
<input type="radio"/>	sBDII	Site BDII
<input type="radio"/>	SRMv2	SRM version 2

Regions:
GermanySwitzerland
Italy
NorthernEurope
OpenScienceGrid
ROC_LA
Russia
SouthEasternEurope

VOs:
na4.vo.eu-egee.org
na48
ncf
ndgf
nordugrid.org
rw_ru
ops

Sorting Order:
SiteName

ShowSensorTests

SAM main page

SAM (3/3)



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

The screenshot shows a web browser window displaying the SAM (Service Availability Monitoring) results for CE64.ipb.ac.rs. The page title is "Service Availability Monitoring - CE" and the subtitle is "ce64.ipb.ac.rs - AEGIS01-IPB-SCL (SouthEasternEurope)". The timestamp is "2009/11/13 - 09:43:45".

On the left, there is a "Tests Displayed" section with a dropdown menu showing "ops" tests: CE-freecpu, CE-host-cert-valid, CE-runjob, CE-sft-brokerinfo, CE-sft-caver, CE-sft-csh, and CE-sft-job. Below this is a "Display limit (days): 5" and a "ShowHistory" button.

The main content area features a summary table and a detailed test results table.

show	stat	description	sum
<input checked="" type="checkbox"/>	NA	no status available	0
<input checked="" type="checkbox"/>	OK	normal status	178
<input checked="" type="checkbox"/>	INFO	useful information	0
<input checked="" type="checkbox"/>	NOTE	important information	0
<input checked="" type="checkbox"/>	WARN	subject may fall soon	0
<input checked="" type="checkbox"/>	ERROR	subject has failed and problem is localized	6
<input checked="" type="checkbox"/>	CRIT	subject has failed and problem is fatal	0
<input checked="" type="checkbox"/>	MAINT	subject is under maintenance	0

testname	desc	crit
js	Job submission	CT
ver	Software Version (WN)	CT
ca	CA certs version	CT
bi	BrokerInfo	CT
csh	CSH test	CT
rm	Replica Management	CT
cert	Test if the service host certificate is valid.	CT

No	Timestamp (submission time)	Status	ops						
			js	ver	ca	bi	csh	rm	cert
1	13-Nov-2009 09:20:55	OK	na	3.2.0	ok	ok	ok	ok	na
2	13-Nov-2009 08:14:25	OK	na	3.2.0	ok	ok	ok	ok	na
3	13-Nov-2009 07:55:51	OK	na	na	na	na	na	na	ok
4	13-Nov-2009 07:31:07	OK	na	na	na	na	na	na	ok
5	13-Nov-2009 07:12:32	OK	ok	3.2.0	ok	ok	ok	ok	na
6	13-Nov-2009 06:16:04	OK	na	na	na	na	na	na	ok
7	13-Nov-2009 06:10:15	OK	ok	3.2.0	ok	ok	ok	ok	na
8	13-Nov-2009 05:49:49	OK	na	na	na	na	na	na	ok
9	13-Nov-2009 05:12:05	OK	ok	3.2.0	ok	ok	ok	ok	na
10	13-Nov-2009 04:14:55	OK	na	na	na	na	na	na	ok
11	13-Nov-2009 04:12:07	OK	ok	3.2.0	ok	ok	ok	ok	na

SAM results web page



- SEE-GRID alternative to the EGEE SAM framework
- Web application implemented in PHP relying on MySQL database
- Main features of BBmSAM are:
 - Use of unaltered client and sensor components of EGEE SAM system
 - Synchronization with central HGSM service
 - Use of free and open source technologies
 - Enabling more efficient access by mobile and small screen devices
- Main components of BBmSAM are:
 - Database server
 - Synchronization service
 - BBmSam web services
 - BBmobileSAM
 - BBmSAM portal



- BBmSAM system performs:
 - Periodical synchronization of local HGSM database with central HGSM database performed each 10 minutes
 - Regular SAM test submission performed each 3 hours for interactive tests (job based) and each hour for non-interactive tests
 - Publishing of interactive test data each 20 minutes
 - Calculating hourly uptime/availability each hour (for SEE-GRID-2 compatible SLA)
 - Calculating service instance uptime (for continuous time SLA calculations in SEE-GRID-SCI)
 - Generating information for end-users of portal on demand basis

BBmSAM (3/4)



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

BBmSAM @ BA-01-ETFBL - Mozilla Firefox

http://c01.grid.etfbl.net/bbmsam/

BBmSAM @ BA-01-ETFBL [seegrid] ops.vo.egee-see.org

Generate: SEE-GRID-SCI SLA HTML All sites from: 2009-11-06 to: 2009-11-12 >>>

Latest results for: CE LFC LFC_C LFC_L SE SRM SRMv1 SRMv2

Filter: Country Tier Certificatio Status Show

SITE	COUNTRY	TIER	STATUS	TYPE	SERVICE STATUS
AEGIS01-IPB-SCL	Serbia	1	Certified	Production	CE: ce04 - ok 1.4 d
					SE: se - ok 3.8 d
					SRM: sr - ok 3.8 d
					LFC: lfc - ok 11.8 d
					LFC_C: lfc - ok 11.8 d
					LFC_L: lfc - ok 11.8 d
AEGIS02-RCLUB	Serbia	2	Certified	Production	CE: grid01 - ok 1.2 d
					SE: grid15 - ok 6.0 h
					SRM: grid15 - ok 6.0 h
					LFC: grid02 - ok 1.0 d
					LFC_C: grid02 - ok 1.0 d
					LFC_L: grid02 - ok 1.0 d
AEGIS03-ELEF-LEDA	Serbia	2	Certified	Production	CE: grid01 - ok 3.8 d
					SE: grid02 - ok 16.1 d
					CE: cluster1 - error 6.6 d
AEGIS04-KG	Serbia	1	Certified	Production	SE: se - error 6.6 d
					SRM: sr - error 6.6 d
					SRM: se - error 6.6 d
AEGIS05-ETFBB	Serbia	2	Certified	Production	CE: grid-ce - ok 0.8 h
					SE: grid-ce - ok 16.2 d
AEGIS06-AOB	Serbia	2	Uncertified	Production	CE: ce-demo - error 16.2 d
					SE: se-demo - error 31+
AEGIS08-IPB-DEMO	Serbia	2	Certified	Candidate	SRM: sr-demo - error 31+
					SRM: se-demo - error 31+
					SRM: sr-demo - error 31+
AL-01-FIT	Albania	2	Certified	Production	CE: ce - ok 3.8 d
					SE: se - ok 3.5 d
					SRM: sr - ok 15.4 d
AM-01-IIAP-NAS-RA	Armenia	2	Certified	Production	CE: ce - ok 4.0 d
					SE: se - ok 1.2 d
					SRM: sr - ok 3.7 d
					LFC: lfc - ok 5.0 h
					LFC_C: lfc - ok 0.9 h
					LFC_L: lfc - ok 0.9 h
AM-02-SEUA	Armenia	2	Certified	Production	CE: ce - ok 1.5 h
					SE: se - ok 1.0 h
					SRM: sr - ok 0.9 h
AM-03-YSU	Armenia	1	Certified	Production	CE: ce - ok 3.8 d
					SE: se - ok 5.9 d
					SRM: sr - ok 3.9 d
AM-04-YERPHI	Armenia	1	Certified	Production	CE: ce - error 1.4 d
					SE: se - error 1.9 d
					SRM: sr - error 1.9 d
AM-05-YSU	Armenia	1	Certified	Production	CE: ce - ok 1.0 h
					SE: se - ok 1.0 h
					SRM: sr - ok 1.0 h
BA-01-ETFBL	Bosnia and Herzegovina	1	Certified	Production	CE: c01 - ok 3.0 d
					SE: c02 - ok 17.5 d
					SRM: c02 - ok 17.5 d
					LFC: c14 - ok 24.8 d
					LFC_C: c14 - ok 24.8 d
					LFC_L: c14 - ok 31+
BA-02-ETFIS	Bosnia and Herzegovina	2	Uncertified	Candidate	

Done

Apache/2.0.52 147.91.197.16

BBmSAM front web page

BBmSAM (4/4)



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

BBmSAM @ BA-01-ETFB - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://c01.grid.etfb.net/bbmSam?c=history&f_nodeid=403356f_date_type=3&f_service_id=1

BBmSAM @ BA-01-ETFB

Latest results for: CE LFC LFC_C LFC_L SE SRM SRMv1 SRMv2

Node history 3 days 2009-11-10 09:46:18 to 2009-11-13 09:46:18

NODE	SITE	TIMESTAMP	CRITICAL	ca	cash	js	rep	ver	cert	apel	bi	crf	rm	cp	cr	del	gfal	mpich2	posix	rgma	rgmaac	swdir	votag	wn
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 09:39:40	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 09:37:50	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 08:34:36	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 08:24:33	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 07:34:16	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 07:27:49	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 06:37:32	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 06:30:30	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 05:41:30	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 05:29:21	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 05:08:44	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 04:56:10	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 03:47:23	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 03:43:23	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 02:39:58	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 02:39:01	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 01:38:01	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 01:27:27	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 01:12:18	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-13 00:49:15	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 23:33:50	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 23:34:01	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 22:34:34	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 22:24:08	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 21:33:47	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 21:24:17	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 20:34:03	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 20:27:06	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 19:40:57	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 19:38:06	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 18:39:55	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 18:36:53	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 18:15:44	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 17:37:50	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 17:27:25	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 17:01:37	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 16:49:02	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 15:38:37	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 15:27:51	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 14:37:39	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 14:37:39	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 14:31:05	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 13:38:01	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 13:31:06	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 12:43:34	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	warm	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 12:43:34	OK	ok	ok	ok	ok	ok			ok		ok	ok	ok	ok	ok	ok	ok			ok	error	info
ce64.lpb.ac.rs	AEIGIS014PB-SCL	2009-11-12 12:38:21	ERR	no	no	no	no	no			no		no	no	no	no	no	no	no			no	error	info

Done

Apache/2.0.52 147.91.197.16

BBmSAM test results page

- Application designed to monitor EGEE/LCG compatible Information Systems
- Its purpose is to detect faults, verify the validity and display useful data from the Information System
- Relies on queries to site GISes/BDIs and not to any submitted job
- GStat covers the following areas:
 - Site and service information
 - Usage information
 - Information integrity
- Depends on the data found in the GOCDB
- GStat runs on a single server

GStat (2/3)



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

GStat: 11:14:34 12/10/09 GMT - @wgoc01.grid.sinica.edu.tw - Mozilla Firefox

File Edit View History Bookmarks Tools Help

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

GStat: 11:14:34 12/10/09 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 dorij eela euchina euindia eumed e-nmr gilda grisu ireland pi2s2 sa-grid seegrid trigrid

ServDuplicate

GStat 2.0	AEGIS01-IPB-SCL	ok	GStat 2.0	AEGIS07-IPB-ATLAS	ok	GStat 2.0	ALBERTA-LCG2	ok	GStat 2.0	AUVERGRID	ok	ok	ok	ok	ok
GStat 2.0	Australia-ATLAS	ok	GStat 2.0	BEIJING-LCG2	ok	GStat 2.0	BEgrid-KULeuven	wn	GStat 2.0	BEgrid-ULB-VUB	wn	wn			
GStat 2.0	BG-INSRNE	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	BIFI	ok	GStat 2.0	BMEGrid				ok	
GStat 2.0	BMRZ-FRANKFURT	ok	GStat 2.0	BUDAPEST	ok	GStat 2.0	BY-NCPHEP	er	GStat 2.0	BY-UIIP				ok	
GStat 2.0	BelGrid-UCL	ok	GStat 2.0	CA-ALBERTA-WESTGRID-T2	ok	GStat 2.0	CAMK		GStat 2.0	CBPF				ok	
GStat 2.0	CEFET-RJ	ok	GStat 2.0	CERN-PROD	ok ok ok ok ok ok ok ok ok ok ok ok ok ok ok er ok ok	GStat 2.0	CESGA-EGEE	ok ok ok	GStat 2.0	CFP-IST				ok	
GStat 2.0	CGG-LCG2	ok	GStat 2.0	CIEMAT-LCG2	ok	GStat 2.0	CIRMMMP	ok	GStat 2.0	CN-BEIJING-PKU				ok	
GStat 2.0	CNR-ILC-PISA	wn	GStat 2.0	CNR-PROD-PISA	ok	GStat 2.0	CSC	ok er er er	GStat 2.0	CSCS-LCG2				ok	
GStat 2.0	CY-04-KIMON	ok	GStat 2.0	CY-03-INTER.COLLEGE	ok	GStat 2.0	CYFRONET-LCG2	ok	GStat 2.0	DESY-HH				ok ok	
GStat 2.0	DESY-ZN	ok	GStat 2.0	DI-UMinho	ok	GStat 2.0	EELA-UTFSM	er	GStat 2.0	EENet				ok	
GStat 2.0	EFDA-JET	ok	GStat 2.0	ELTE	er	GStat 2.0	ESA-ESAC	ok ok ok	GStat 2.0	ESA-ESRIN				ok	
GStat 2.0	ESRF	ok	GStat 2.0	FMPHI-UNIBA	ok ok	GStat 2.0	FZK-LCG2	er er er	GStat 2.0	GILDA-INFN-CATANIA				ok	

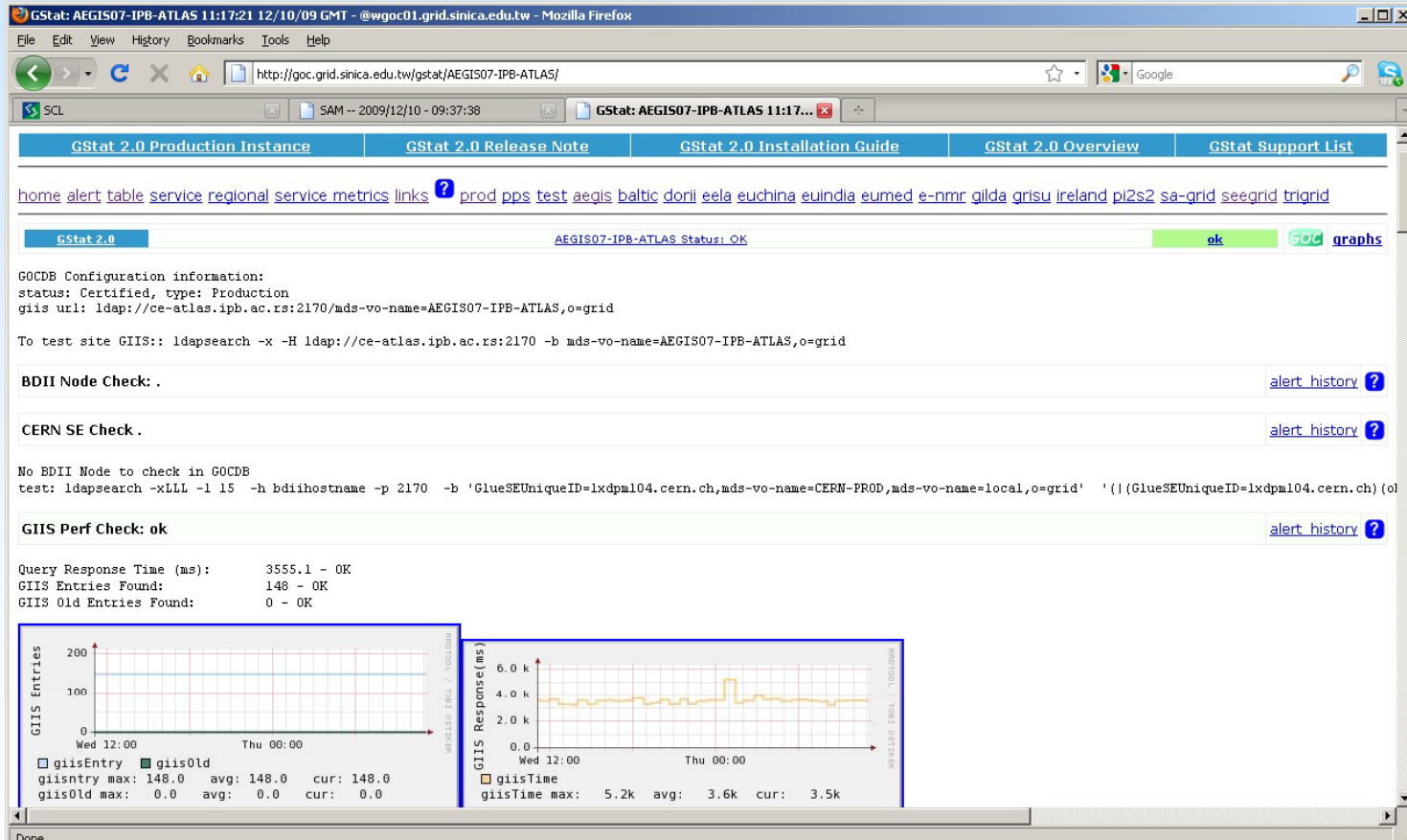
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Gstat main page

GStat (3/3)



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



Gstat site page

Conclusions



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

- Presented tools are used for overseeing two large Grid sites at SCL
- Considered vital for Grid operations
- Provide essential information about Grid sites' and services' health to site administrators and end-users
- Tools developed at SCL are provided to all interested site administrators through SCL's SVN and RPM repository