



Enabling Grids for E-science

Nagios for Grid Services

E. Imamagic, SRCE

WLCG Collaboration Workshop

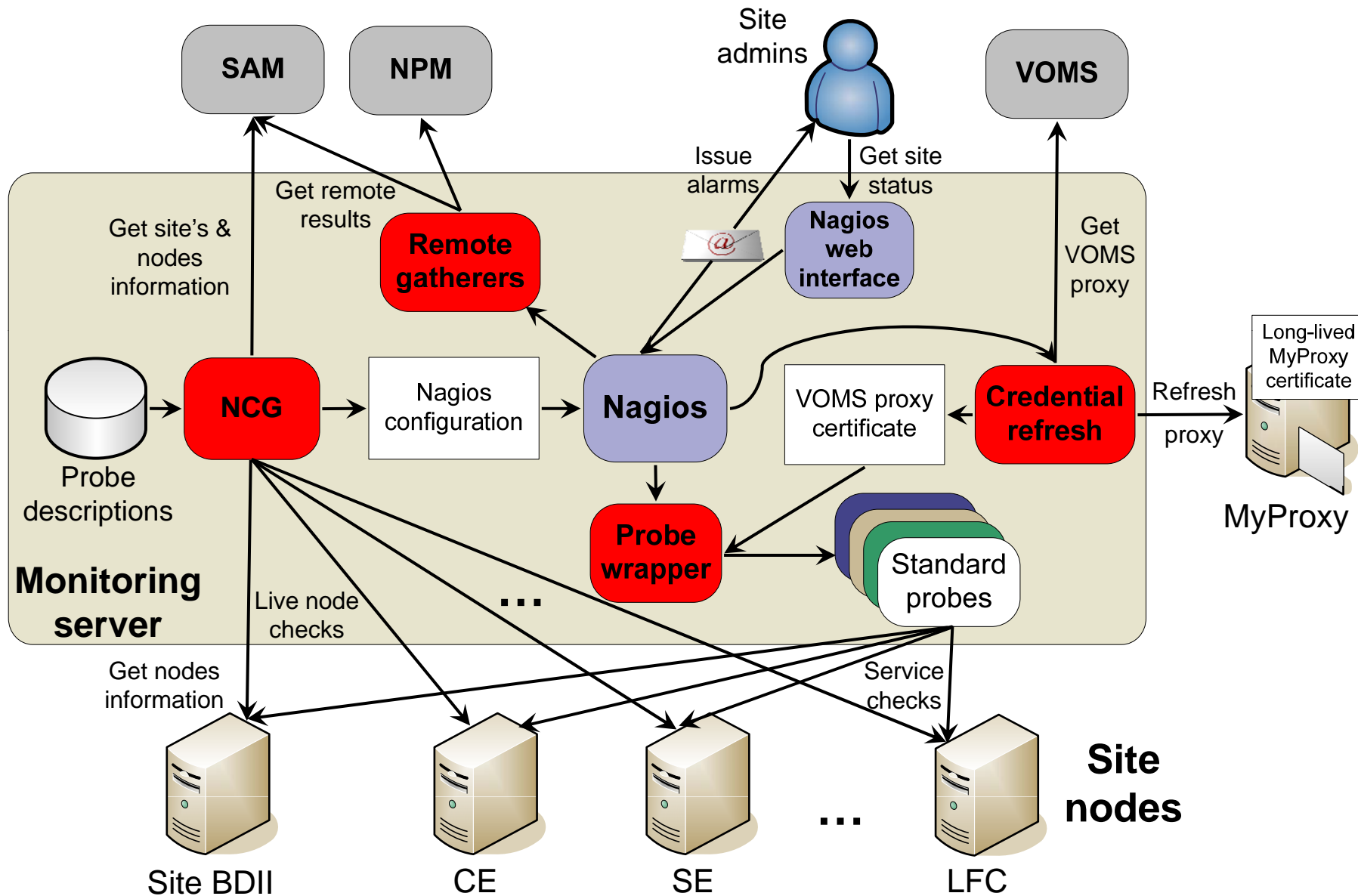
www.eu-egee.org



- **Introduction**
- **Architecture**
- **Standard grid probes**
- **Remote gatherers**
- **Credential management**
- **Nagios Config Generator**
- **Web interface**
- **Installation procedure**
- **Future work**
- **Conclusions**

- **Provide site admin-centric monitoring**
 - simplify grid resources operations
- **Enable better resource availability**
 - issue notifications as soon as problem appears
- **Achieve complex sensor's dependencies**
 - enables problem isolation
 - only relevant notifications are issued
- **Visualization & management interface**
 - grid resources status
- **Report generation**
 - availability, problem history

- **Monitoring CRO-GRID Infrastructure (2004-2006)**
 - Globus Toolkit Pre-WS & WS, UNICORE, other services
 - active recovery of services
 - <http://www.cro-ngi.hr>
- **Monitoring EGEE resources in Central Europe (CE)**
 - core services since mid 2006
 - all CE sites for 1st line support since September 2006
 - <http://nagios.ce-egee.org>
- **Grid Services Monitoring (GSM) WG**
 - site monitoring prototype, mid 2007
 - <http://crnjak.srce.hr/nagios> (egee.srce.hr)
 - <https://pps-monitoring.cern.ch/nagios> (CERN-PPS)



- **Probes for monitoring grid services**
 - reusable in any monitoring framework
 - can provide multiple metrics
 - Grid Monitoring Probes Specification
 - <https://twiki.cern.ch/twiki/bin/view/LCG/GridMonitoringProbeSpecification>

```

$ MyProxy-probe -u sel-egEE.srce.hr \
                -m hr.srce.MyProxy-CertLifetime
serviceType: MyProxy
metricName: hr.srce.MyProxy-CertLifetime
metricStatus: OK
timestamp: 2008-04-23T22:48:08Z
summaryData: Certificate will expire in 113.87 days (Aug 15 19:34:35
2008 GMT).
serviceURI: sel-egEE.srce.hr
gatheredAt: crnjak.srce.hr
EOT

```

- **Run by Nagios server**
 - WLCG probe wrapper (check_wlwg)
 - **local** probes
- **Simple atomic checks of grid services**
 - e.g. transfer file via SRM, store MyProxy, check certificate lifetime
- **Three sets of standard probes**
 - SRCE, CERN, OSG

- **Gather results from other monitoring systems**
 - Grid Monitoring Data Exchange Standard
 - <https://twiki.cern.ch/twiki/bin/view/LCG/GridMonitoringDataExchangeStandard>

```

<Host name="cel-egge.srce.hr">
  <Service endpoint="cel-egge.srce.hr:2119" type="CE">
    <metricGroup>
      <ServiceMetric name="NMAP">
        <measurement>
          <status>OK</status>
          <timestamp>2008-04-24T01:44:03Z</timestamp>
        </measurement>
      </ServiceMetric>
    </metricGroup>
    ...
  </Service>
  ...
</Host>

```


- **Run by Nagios server**
 - check gathers all results and import to Nagios
 - SAM-Gather (check_sam), NPM-Gather (check_npm)
- **Results are imported as passive checks**
 - **remote** probes
- **Two external monitoring systems**
 - SAM
 - ENOC DownCollector

- **Provides credentials for standard probes**
- **Based on MyProxy certificate**
 - password-based MyProxy certificates
 - must be renewed periodically
- **Run by Nagios**
 - like standard grid probe
 - `hr.srce.GridProxy-Get (refresh_proxy)`
- **MyProxy certificate lifetime check**
 - issues expiration warning
 - `hr.srce.MyProxy-ProxyLifetime`

- **Generates Nagios configuration**
- **Uses multiple information sources**
 - SAM, BDII, active heuristic checks, user definitions
 - special logic for aliases and load balancing nodes

- **Services**
 - high level Grid services
 - e.g. CE, SE, VOMS, LFC
 - mapped to Nagios **hostgroups**
- **Metric sets**
 - concrete low-level services
 - e.g. BDII, GRAM Gatekeeper, GridFTP, SRMv1, DPNS
 - mapped to Nagios **servicegroups**
- **Metrics**
 - metrics from standard probes, remote results
 - e.g. hr.srce.GRAM-CertLifetime, hr.srce.GridProxy-Get, CE-sft-job-OPS
 - mapped to Nagios **services**

- **Local**
 - standard grid probes (active)
- **Remote**
 - results gathered by remote gatherers (passive)
 - provided links to external interfaces and documentation
- **Native**
 - native Nagios checks (active)

- **Mapped to Nagios servicegroups**
 - local, remote (sam, npm), native
- **Metric dependencies**
 - e.g. metrics from standard grid probes depend on `hr.srce.GridProxy-Get`,
remote probes depend on gatherers `SAM-Gather`, `NPM-Gather`

- **Modular approach**
 - plugging in additional information sources
 - integration with other monitoring systems (e.g. LEMON)
- **Three phases**
 - site information (host-service mappings)
 - metrics information (host-metric sets/metrics mappings)
 - configuration generation

Module	Available modules	Description
NCG::SiteInfo	SAM, BDII, File	Gets list of tuples (host, service, VO)
NCG::LocalMetricSets	Hash, File	Gets list of tuples (host, metric set)
NCG::LocalMetricsAttrs	Active, File, LDAP	Gets data needed for local probes (e.g. ports, SE paths, service URIs) and filters out metric sets.

Module	Available modules	Description
NCG::LocalMetrics	Hash, File	Gets list of tuples (host, local & native metric)
NCG::RemoteMetrics	SAM, NPM	Gets list of tuples (host, remote metric)
NCG::LocalRules	File	Module applies local rules on gathered data
NCG::ConfigGen	Nagios	Generates configuration.

- **Configuration**
 - Apache HTTP structure
 - detailed configuration for each module
 - modules' documentation is provided in modules (perldoc)

```
# global variable, loads env variable
SITENAME = ${SITE_NAME}

<NCG::ConfigGen>
  <Nagios>
    MYPROXY_SERVER=${MYPROXY_SERVER}
    GLITE_VERSION=${GLITE_VERSION}
    PROBES_TYPE=all
    # NRPE_UI=nrpe.srce.hr
  </Nagios>
</NCG::ConfigGen>
```

- **Static file definitions**
 - possible in each phase
 - useful for nodes outside of information systems (e.g. test nodes)
 - NCG::<*>::File modules

```
# NCG::::File
# add non-VO-dependent service to host
#HOST_SERVICE!myhost.srce.hr!CE
# add service for defined VO to host
#HOST_SERVICE_VO!myhost.srce.hr!CE!ops

# NCG::::File
SERVICE_METRICSET!CE!TestMetricSet

# NCG::::File
# association between metric and metricset
METRICSET_METRIC!TestMetricSet!TestMetric
...
```

- Rules
 - rules are applied before generation
 - module NCG::LocalRules

```

# remove the host
REMOVE_HOST!host

# remove the host/service
REMOVE_SERVICE!host!service

# add load balancing node
ADD_LB!host!node

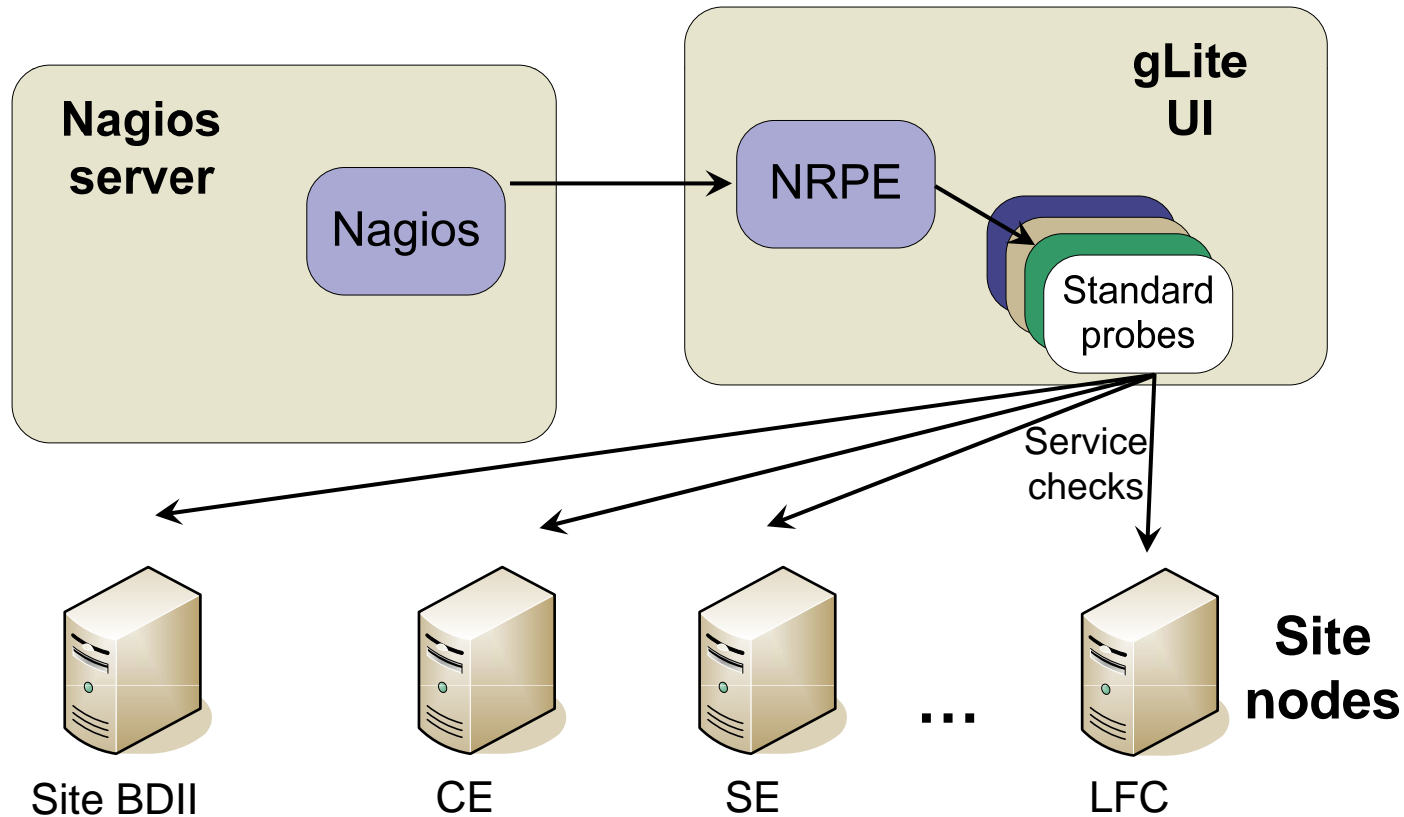
# remove load balancing node
REMOVE_LB!host!node

# add contact to all hosts
ADD_CONTACT!email@email.com

# add contact to all hosts
ADD_HOSTCONTACT!host!email@email.com

```

- **Execute standard grid probes on existing gLite UI**
 - WLCG_UI
 - avoid installation of grid middleware on Nagios server
 - use Nagios Remote Plugin Executor (NRPE)



General

- Home
- Documentation

Monitoring

- Tactical Overview
- Service Detail
- Host Detail
- Hostgroup Overview
- Hostgroup Summary
- Hostgroup Grid
- Servicegroup Overview
- Servicegroup Summary
- Servicegroup Grid
- Status Map
- 3-D Status Map
- Service Problems
- Host Problems
- Network Outages

Show Host:

- Comments
- Downtime
- Process Info
- Performance Info
- Scheduling Queue

Reporting

- Trends
- Availability
- Alert Histogram
- Alert History
- Alert Summary
- Notifications
- Event Log

Configuration

- View Config

Tactical Monitoring Overview

Last Updated: Mon Oct 1 14:32:31 CEST 2007
 Updated every 90 seconds
 Nagios® - www.nagios.org
 Logged in as *guest*

Network Outages

0 Outages

Hosts

0 Down 0 Unreachable 5 Up 0 Pending

Services

1 Critical 1 Warning 0 Unknown 90 Ok 0 Pending

1 Disabled 1 Disabled 50 Disabled

Monitoring Features

	Flap Detection	Notifications	Event Handlers	Active Checks	Passive Checks
Disabled	N/A	Enabled All Services Enabled All Hosts Enabled	Enabled All Services Enabled All Hosts Enabled	Enabled 52 Services Disabled All Hosts Enabled	Enabled 40 Services Disabled All Hosts Enabled

Monitoring Performance

Service Check Execution Time: 0.02 / 197.59 / 8.298 sec
 Service Check Latency: 0.01 / 0.28 / 0.146 sec
 Host Check Execution Time: 0.02 / 0.03 / 0.022 sec
 Host Check Latency: 0.00 / 0.00 / 0.000 sec
 # Active Host / Service Checks: 5 / 40
 # Passive Host / Service Checks: 0 / 52

Network Health

Host Health:

Service Health:

General

- [Home](#)
- [Documentation](#)

Monitoring

- [Tactical Overview](#)
- [Service Detail](#)
- [Host Detail](#)
- [Hostgroup Overview](#)
- [Hostgroup Summary](#)
- [Hostgroup Grid](#)
- [Servicegroup Overview](#)
- [Servicegroup Summary](#)
- [Servicegroup Grid](#)
- [Status Map](#)
- [3-D Status Map](#)

- [Service Problems](#)
- [Host Problems](#)
- [Network Outages](#)

Show Host:

- [Comments](#)
- [Downtime](#)
- [Process Info](#)
- [Performance Info](#)
- [Scheduling Queue](#)

Reporting

- [Trends](#)
- [Availability](#)
- [Alert Histogram](#)
- [Alert History](#)
- [Alert Summary](#)
- [Notifications](#)
- [Event Log](#)

Configuration

- [View Config](#)

Current Network Status

Last Updated: Mon Oct 1 14:45:16 CEST 2007
 Updated every 90 seconds
 Nagios® - www.nagios.org
 Logged in as *guest*

- [View Service Status Detail For All Host Groups](#)
- [View Host Status Detail For All Host Groups](#)
- [View Status Overview For All Host Groups](#)
- [View Status Grid For All Host Groups](#)

Host Status Totals

Up	Down	Unreachable	Pending
5	0	0	0

[All Problems](#) [All Types](#)

0	5
---	---

Service Status Totals

Ok	Warning	Unknown	Critical	Pending
90	1	0	1	0

[All Problems](#) [All Types](#)

2	92
---	----

Status Summary For All Host Groups

Host Group	Host Status Totals	Service Status Totals
MyProxy server (myproxy-server)	1 UP	31 OK
Nagios server (nagios-server)	1 UP	5 OK
EGEE BDII nodes (node-BDII)	1 UP	3 OK
EGEE CE nodes (node-CE)	1 UP	40 OK 1 WARNING 1 CRITICAL
EGEE DPM nodes (node-DPM)	1 UP	31 OK
EGEE MON nodes (node-MON)	1 UP	31 OK
EGEE PROX nodes (node-PROX)	1 UP	31 OK
EGEE RB nodes (node-RB)	1 UP	11 OK
EGEE SE nodes (node-SE)	1 UP	31 OK
EGEE SRM1 nodes (node-SRM1)	1 UP	31 OK
EGEE SRM2 nodes (node-SRM2)	1 UP	31 OK
EGEE Site-BDII nodes (node-Site-BDII)	1 UP	40 OK 1 WARNING 1 CRITICAL
Site egee.srce.hr nodes (site-egee.srce.hr)	4 UP	85 OK 1 WARNING 1 CRITICAL

General

- [Home](#)
- [Documentation](#)

Monitoring

- [Tactical Overview](#)
- [Service Detail](#)
- [Host Detail](#)
- [Hostgroup Overview](#)
- [Hostgroup Summary](#)
- [Hostgroup Grid](#)
- [Servicegroup Overview](#)
- [Servicegroup Summary](#)
- [Servicegroup Grid](#)
- [Status Map](#)
- [3-D Status Map](#)

- [Service Problems](#)
- [Host Problems](#)
- [Network Outages](#)

Show Host:

- [Comments](#)
- [Downtime](#)
- [Process Info](#)
- [Performance Info](#)
- [Scheduling Queue](#)

Reporting

- [Trends](#)
- [Availability](#)
- [Alert Histogram](#)
- [Alert History](#)
- [Alert Summary](#)
- [Notifications](#)
- [Event Log](#)

Configuration

- [View Config](#)

Current Network Status

Last Updated: Mon Oct 1 14:42:41 CEST 2007
 Updated every 90 seconds
 Nagios® - www.nagios.org
 Logged in as *guest*

- [View Service Status Detail For All Service Groups](#)
- [View Status Overview For All Service Groups](#)
- [View Service Status Grid For All Service Groups](#)

Host Status Totals

Up	Down	Unreachable	Pending
5	0	0	0

[All Problems](#) [All Types](#)

0	5
---	---

Service Status Totals

Ok	Warning	Unknown	Critical	Pending
90	1	0	1	0

[All Problems](#) [All Types](#)

2	92
---	----

Status Summary For All Service Groups

Service Group	Host Status Totals	Service Status Totals
BDII (BDII)	3 UP	3 OK
CAdistribution (CAdistribution)	3 UP	3 OK
DPNS (DPNS)	1 UP	1 OK
GridProxy (GridProxy)	1 UP	2 OK
MDS-GIIS (MDS-GIIS)	2 UP	2 OK
MyProxy (MyProxy)	1 UP	2 OK
ResourceDrover (ResourceDrover)	1 UP	3 OK
SRM1 (SRM1)	1 UP	4 OK
SRM2 (SRM2)	1 UP	2 OK
Tomcat (Tomcat)	1 UP	1 OK
qLite-RGMA (qLite-RGMA)	1 UP	1 OK
globus-GRAM (globus-GRAM)	1 UP	3 OK
gsiftp (gsiftp)	3 UP	6 OK
ft.infn.GridICE (ft.infn.GridICE)	1 UP	1 OK
local (local)	4 UP	34 OK
nrm (nrm)	4 UP	6 OK
org.qite.LL (org.qite.LL)	2 UP	2 OK
remote (remote)	4 UP	50 OK 1 WARNING 1 CRITICAL
sam (sam)	4 UP	44 OK 1 WARNING 1 CRITICAL

General

- Home
- Documentation

Monitoring

- Tactical Overview
- Service Detail
- Host Detail
- Hostgroup Overview
- Hostgroup Summary
- Hostgroup Grid
- Servicegroup Overview
- Servicegroup Summary
- Servicegroup Grid
- Status Map
- 3-D Status Map

- Service Problems
- Host Problems
- Network Outages

Show Host:

- Comments
- Downtime
- Process Info
- Performance Info
- Scheduling Queue

Reporting

- Trends
- Availability
- Alert Histogram
- Alert History
- Alert Summary
- Notifications
- Event Log

Configuration

- View Config

Current Network Status

Last Updated: Mon Oct 1 14:35:52 CEST 2007
 Updated every 90 seconds
 Nagios® - www.nagios.org
 Logged in as *guest*

[View History For This Host](#)

[View Notifications For This Host](#)

[View Service Status Detail For All Hosts](#)

Host Status Totals

Up	Down	Unreachable	Pending
1	0	0	0

[All Problems](#) [All Types](#)

0 1

Service Status Totals

Ok	Warning	Unknown	Critical	Pending
31	0	0	0	0

[All Problems](#) [All Types](#)

0 31

SAM

Service Status Details For Host 'se1-egee.srce.hr'

Host ↑↓	Service ↑↓	Status ↑↓	Last Check ↑↓	Duration ↑↓	Attempt ↑↓	Status Information
se1-egee.srce.hr	MyProxy-host-cert-valid-OPS-remote	OK	10-01-2007 13:39:25	7d 0h 21m 57s	1/1	SAM status: ok
	RGMA-host-cert-valid-OPS-remote	OK	10-01-2007 13:42:48	7d 0h 19m 4s	1/1	SAM status: ok
	SE-lcq-cp-Atlas-remote	OK	09-22-2007 07:01:04	9d 7h 34m 48s	1/1	SAM status: ok
	SE-lcq-cp-DTeam-remote	OK	10-01-2007 14:05:31	7d 0h 40m 59s	1/1	SAM status: ok
	SE-lcq-cp-OPS-remote	OK	10-01-2007 13:50:45	0d 21h 26m 10s	1/1	SAM status: ok
	SE-lcq-cr-Atlas-remote	OK	09-22-2007 07:00:56	9d 7h 34m 56s	1/1	SAM status: ok
	SE-lcq-cr-DTeam-remote	OK	10-01-2007 14:05:24	7d 0h 41m 6s	1/1	SAM status: ok
	SE-lcq-cr-OPS-remote	OK	10-01-2007 13:50:37	0d 21h 26m 16s	1/1	SAM status: ok
	SE-lcq-del-Atlas-remote	OK	09-22-2007 07:00:56	9d 7h 34m 56s	1/1	SAM status: ok
	SE-lcq-del-DTeam-remote	OK	10-01-2007 14:05:24	7d 0h 41m 6s	1/1	SAM status: ok
	SE-lcq-del-OPS-remote	OK	10-01-2007 13:50:37	0d 21h 26m 16s	1/1	SAM status: ok
	ch.cern.RGMA-ServiceStatus	OK	10-01-2007 14:29:58	6d 23h 58m 52s	1/4	OK
	hr.srce.CAdist-Version	OK	10-01-2007 14:29:58	6d 23h 58m 52s	1/4	Official IGTF version is 1.16. Valid distribution version found.
	hr.srce.DPNS-List	OK	10-01-2007 14:21:43	6d 23h 50m 55s	1/4	Listing content of /dpm succeeded. Directory contains domain srce.hr subdirectory.
	hr.srce.GridFTP-Transfer	OK	10-01-2007 14:25:28	6d 23h 49m 10s	1/4	Upload to remote computer succeeded. Download from remote computer succeeded. File successfully removed from remote computer. Received file is valid.
	hr.srce.MyProxy-CertLifetime	OK	09-30-2007 17:29:13	6d 22h 59m 45s	1/4	Certificate will expire in 320.17 days (Aug 15 19:34:35 2008 GMT).
	hr.srce.MyProxy-ProxyLifetime	OK	10-01-2007 14:32:58	6d 23h 55m 20s	1/3	Certificate will expire in 17.10 days (Oct 18 14:50:37 2007 GMT).
	hr.srce.MyProxy-Store	OK	10-01-2007 14:21:43	6d 23h 50m 55s	1/4	MyProxy credential created. Querying stored credential succeeded. MyProxy credential destroyed.
	hr.srce.SRM-Transfer	OK	10-01-2007 13:40:28	6d 23h 52m 41s	1/4	Upload to remote computer succeeded. Download from remote computer succeeded. File successfully removed from remote computer. Received file is valid.
	hr.srce.SRM1-CertLifetime	OK	09-30-2007 17:44:13	5d 23h 35m 36s	1/4	Certificate will expire in 320.16 days (Aug 15 19:34:35 2008 GMT).
	hr.srce.SRM1-Ping	OK	10-01-2007 14:33:43	5d 23h 31m 33s	1/4	SRM ping successful.
	hr.srce.SRM2-CertLifetime	OK	09-30-2007 17:22:28	5d 23h 27m 30s	1/4	Certificate will expire in 320.18 days (Aug 15 19:34:35 2008 GMT).
	org.egee.npm.MON-remote	OK	10-01-2007 14:29:58	6d 23h 58m 52s	1/1	OK
	org.egee.npm.PROX-remote	OK	10-01-2007 14:29:58	6d 23h 58m 52s	1/1	OK
	org.egee.npm.SE-remote	OK	10-01-2007 14:29:58	6d 23h 58m 52s	1/1	OK
	org.nagios.BDLC-Check	OK	10-01-2007 14:26:13	7d 0h 3m 17s	1/4	LDAP OK - 0.048 seconds response time
	org.nagios.GridFTP-Check	OK	10-01-2007 14:29:58	6d 23h 58m 52s	1/4	FTP OK - 0.007 second response time on port 2811 [220 se1-egee.srce.hr DPM GridFTP Server 1.12 GSSAPI type Globus/GSI wu-2.6.2 (gcc32dbg, 1069715860-42) ready.]
	org.nagios.GridICE-Check	OK	10-01-2007 14:33:43	6d 23h 54m 27s	1/4	OK - 0.007 seconds response time
	org.nagios.SRM1-PortCheck	OK	10-01-2007 14:22:28	5d 23h 42m 5	1/4	OK - 0.007 seconds response time on port 8445
	org.nagios.SRM2-PortCheck	OK	10-01-2007 14:26:13	5d 23h 38	1/4	OK - 0.007 seconds response time on port 8446
	org.nagios.Tomcat-Check	OK	10-01-2007 14:29:58	6d 23h 58m 52s	1/4	OK - 0.007 seconds response time on port 8443

Standard probes

NPM

Native probes

General

- [Home](#)
- [Documentation](#)

Monitoring

- [Tactical Overview](#)
- [Service Detail](#)
- [Host Detail](#)
- [Hostgroup Overview](#)
- [Hostgroup Summary](#)
- [Hostgroup Grid](#)
- [Servicegroup Overview](#)
- [Servicegroup Summary](#)
- [Servicegroup Grid](#)
- [Status Map](#)
- [3-D Status Map](#)

- [Service Problems](#)
- [Host Problems](#)
- [Network Outages](#)

Show Host:

- [Comments](#)
- [Downtime](#)
- [Process Info](#)
- [Performance Info](#)
- [Scheduling Queue](#)

Reporting

- [Trends](#)
- [Availability](#)
- [Alert Histogram](#)
- [Alert History](#)
- [Alert Summary](#)
- [Notifications](#)
- [Event Log](#)

Configuration

- [View Config](#)

Service Information

Last Updated: Mon Oct 1 14:38:23 CEST 2007
 Updated every 90 seconds
 Nagios@ - www.nagios.org
 Logged in as *guest*

[View Information For This Host](#)

[View Status Detail For This Host](#)

[View Alert History For This Service](#)

[View Trends For This Service](#)

[View Alert Histogram For This Service](#)

[View Availability Report For This Service](#)

[View Notifications For This Service](#)

Service
hr.srce.MyProxy-Store
 On Host
egee.srce.hr SE,MON,PROX,DPM,SRM2,SRM1
(se1-egee.srce.hr)

Member of
[MyProxy, local](#)

161.53.0.227

Service State Information

Current Status: **OK**

Status Information: MyProxy credential created. Querying stored credential succeeded. MyProxy credential destroyed.

Performance Data:

Current Attempt: 1/4

State Type: HARD

Last Check Type: ACTIVE

Last Check Time: 10-01-2007 14:36:43

Status Data Age: 0d 0h 1m 40s

Next Scheduled Active Check: 10-01-2007 14:51:43

Latency: 0.170 seconds

Check Duration: 1.621 seconds

Last State Change: 09-24-2007 14:44:57

Current State Duration: 6d 23h 53m 26s

Last Service Notification: N/A

Current Notification Number: 0

Is This Service Flapping? N/A

Percent State Change: N/A

In Scheduled Downtime? **NO**

Last Update: 10-01-2007 14:38:13

Active Checks: **ENABLED**

Passive Checks: **DISABLED**

Obsessing: **ENABLED**

Notifications: **ENABLED**

Event Handler: **ENABLED**

Flap Detection: **DISABLED**

Service Commands

- [Disable active checks of this service](#)
- [Re-schedule the next check of this service](#)
- [Start accepting passive checks for this service](#)
- [Stop obsessing over this service](#)
- [Disable notifications for this service](#)
- [Schedule downtime for this service](#)
- [Disable event handler for this service](#)
- [Enable flap detection for this service](#)

Service Comments

[Add a new comment](#)

[Delete all comments](#)

Entry Time	Author	Comment	Comment ID	Persistent	Type	Expires	Actions
This service has no comments associated with it							

- <https://twiki.cern.ch/twiki/bin/view/LCG/GridMonitoringNcg>
- 1. **Request access to SAM DB**
 - "WLCG Grid Services Monitoring Profile"
 - if your site is in SAM and want to use remote probes
- 2. **Install NCG package**
 - grid-monitoring-config-gen
 - <https://twiki.cern.ch/twiki/bin/view/LCG/GridMonitoringYumRepository>
- 3. **For remote probes**
 - install package grid-monitoring-fm-nagios-remote

4. For local probes

- find suitable MyProxy server & generate MyProxy certificate

1. for Nagios server

- install gLite UI on Nagios server
- install packages on Nagios server: grid-monitoring-fm-nagios-local, grid-monitoring-probes-*

2. for remote gLite UI

- install NRPE on remote gLite UI
- install packages on remote gLite UI: grid-monitoring-fm-nagios-local, grid-monitoring-probes-*

5. Generate configuration with NCG

6. Start Nagios

- **NCG development**
 - providing configuration for multiple sites (regional monitoring)
 - providing configuration for multiple VOs
- **Integration with global monitoring systems**
 - ActiveMQ messaging system
 - Operations Automation Team mandate
- **Credential management alternatives**
 - passwordless MyProxy certificates (-Z)
 - certificate-based MyProxy certificates (-R)
 - custom credential management

- **Nagios**
 - highly configurable monitoring framework with notifications, service dependencies, ...
 - widely used by site admins
- **Grid extensions**
 - integration with existing infrastructure (user certificates, VOMS, GOCDB, SAM)
 - probes for key grid services
 - GSM WG specifications key for integration
- **Nagios @ grid (EGEE)**
 - enables sites' better availability
 - admins get only relevant notifications

Thank You!

Questions?