egee

Enabling Grids for E-sciencE

WLCG Service Reliability Workshop

Metrics Implementation Group

Etienne URBAH

urbah@lal.in2p3.fr

28 November 2007

EGEE - JRA2

CNRS - IN2P3 - LAL

Draft of 27 Nov 2007

www.eu-egee.org

Information Society
and Media

EGEE SA1 – Metrics Implementation Group

- **Mission** = **Simple web site for EGEE deliverables (MSA1.1 and DSA1.7) and Quarterly Reports**

- **Web site** = **Description and links to metrics**

- **Metric types** = **Size, Operations, Usage, User support, Service**

- **Tools** = **Monitoring web portals**

- **Examples**

- **Summary**

Mission statement of the Metrics Implementation Group

- **Purpose**

  The purpose of the MIG is to create a simple web site which makes it easy to view the set of metrics defined in MSA1.1

  These metrics are required for the quarterly reports of the activity and also for the deliverable on Infrastructure Assessment (DSA1.7)

- **Caveats**
  - The group will not create new tools to collect metrics.
  - It will make it easy to access the existing ones.
  - Where the existing ones are not in a suitable state it will work with the appropriate group towards the goal of getting something suitable.

- **Phase I (achieved) permits to report statistics for :**
  - the quarterly reports due in October 07, January 08 and April 08
  - the deliverable DSA1.7 due in February 2008

- **Manager - Leader**

  EGEE - SA1   Alistair MILLS   Alistair.Mills@cern.ch

http://egee-docs.web.cern.ch/egee-docs/list.php?dir=./mig/&

SA1 - EGEE-II Documents

/ egee-docs / mig /

📄 **MIG mission statement** - revised November 2007

Notes
This folder contains information about the work of the Metrics implementation group

➡️ 📁 Production implementation ⬅️
📁 Test implementation
🔵 Mail-list archive (requires logon)
📁 List of meetings of the group

Documents collected by type
The following folder contains pointers documents which are relevant to the work of the group by type.

🔵 EDMS location for MSA1.1 "Operations metrics defined"

Enabling Grids for E-sciencE

MIG metric types : Some simple, Others quite extensive

- **Size metrics** (CPU, Storage, Users)

- **Operation metrics** (Site availability, Site reliability)

- **Usage metrics** (Jobs, Data transfer, CPU, Storage)

- **User support tickets** (Numbers, Types, Response times)

- **Services metrics** (RB, LFC, SRM, FTS, VOMS, BDII, CE, R-GMA, MyProxy)

MIG already provides description & links for 40 metrics

http://egee-docs.web.cern.ch/egee-docs/list.php?dir=./mig/production/&

SA1 Site Guide

Main Pages

Index
ROCs
Operations
Support
Documents
Deliverables
Reports
Links
Search site
Search egee-sa1

Related pages within EGEE

EU
EGEE-II Technical
EGEE-II Public

Regional Operations Centres

UKI
FR
IT
SW
CERN
DECH
NE
RU
CE
SE
AP

Related pages within SA1

SA1 web site for EGEE
MIG

SA1 - EGEE-II Documents

/ egee-docs / mig / production /

📄 Documentation Conventions

Tools

There are large number of tools (monitoring web portals) involved in this work.

For each tool, the associated page below provides specific information, and the list of metrics that it provides.

- **Cesga :** EGEE Accounting Portal
- **CIC :** Core Infrastructure Center
- **Dashboard :** Monitoring covering only LHC experiments
- **GGUS :** Global Grid User Support
- **GOCDB :** Grid Operations Centre DataBase
- **GridICE :** Distributed Monitoring Tool
- **GridMap :** Visualizing the "State" of the Grid
- **GridPP :** Real time monitoring of the Grid
- **Gridview :** Monitoring and Visualization Tool for LCG ⬅
- **GStat :** GIIS monitor
- **R-GMA :** Relational Grid Monitoring Architecture
- **SAM :** Service Availability Monitoring

Metrics

– Metrics with font in **bold colored straight** are required by MSA1.1
– Metrics with font in ***bold colored italic*** are specific to DSA1.7
– Metrics with font in grey are not implemented yet.

- **size.1 Sites : List and Number of CPUs**
- **size.2 kSpecInt : Available Total**
- **size.3 kSpecInt : Available to each VO**
- **size.4 Storage : Available Total**
- **size.5 Storage : Available to each VO**
- **size.6 VOs : List and activity**
- **size.7 VO Users : Number of active Users**
- **size.8 Countries : Number**

- operations.1 Sites and ROCs : Response Time to operational tickets
- *operations.2 Tickets : Total number created during the week*
- operations.3 Tickets : Total number modified during the week
- **operations.4 Sites : Availability according to scheduled downtime declaration**
- **operations.5 Sites : Availability according to the Critical Tests failures**

- usage.1 Jobs : Numbers which have been submitted
- usage.2 Jobs : Efficiency = Worker Node Time / Total Time (average)
- usage.3 Jobs : Failure rate
- usage.4 Data Transfer : Average throughput
- usage.5 Data Transfer : Average failure rate
- usage.6 CPU usage : Total
- usage.7 Storage : Usage

- user_support.1 Tickets : Total number
- user_support.2 Tickets : Percentage which are solved
- *user_support.3 Tickets : Number in each category : Operational, Middleware related,*
- user_support.4 Tickets : Percentage which are solved in each category
- user_support.5 Tickets : Average response time
- user_support.6 Tickets : Average number of hops to solve
- *user_support.7 Tickets : Percentage which need to be escalated*
- user_support.8 Tickets : Percentage which were assigned to the incorrect support group

- service.1 Jobs : Time for RB to match make a simple job
- *service.2 Jobs : Execution time on the Worker Node*
- service.3 Jobs : Number in each status
- *service.4 LFC : Availability*
- *service.5 SRM : Availability*
- *service.6 VOMS : Active availability*
- service.7 VOMS : Passive availability
- *service.8 BDII : Performance*
- *service.9 FTS : Availability*
- *service.10 CE : Availability*
- *service.11 R-GMA : Availability*
- *service.12 MyProxy : Availability*

Introduction

Number	operations.5
Description	Availability of sites, according to the Critical Tests failures; aggregation by VO, federations and project
What is measured	◇ Fraction of production sites passing generic SFTs ◇ Fraction of production sites passing generic SFTs per VO ◇ Fraction of production sites passing specific VO SFTs per VO
Applicability	Site, country, VO, ROC, production service
Included in QR	Yes

Notes

None

Preferred implementation

Link displaying **Sites : Availability according to the Critical Tests failures**	Table	Graph
GridView : http://gridview.cern.ch/GRIDVIEW/same_index.php On the left : – At the top, select **'Aggregate Site Availability'** – At the bottom, click on **'Display Graphs'**	NO	Click on one Graph to see Site-wise Details

Alternative implementations

Link displaying **Sites : Availability according to the Critical Tests failures**	Table	Graph
GridMap : http://gridmap.cern.ch/gm/	NO	Snapshot or Total with rectangles
GridICE : http://gridice2.cnaf.infn.it:50080/gridice/site/site.php?region=all&Bdii=all&view=first&orderby=Name	Lines without highlighting (Not complete)	NO

Deliverables
Reports
Links
Search site
Search egee-sa1
Related pages within EGEE
EU
EGEE-II Technical
EGEE-II Public
Regional Operations Centres
UKI
FR
IT
SW
CERN
DECH
NE
RU
CE
SE
AP
Related pages within SA1
SA1 web site for EGEE
MIG

Example of availability of GRID-WIDE services with ATLAS at CERN-PROD

https://gridview.cern.ch/GRIDVIEW/same_graphs.php?XX=&Information=SiteDetail&DefVO=4&TestVO=-1&DurationOption=monthly&LComponent=-2&NodeID=-1&TestID=-1&StartDay=-1&StartMonth=5&StartYear=2007&EndDay=2&EndMonth=10&EndYear=2007&LTier1Site=160&RelOrAvail=Availability&ContAvailFlag=ON&SiteFullName=0&LTier2Site[]=160

FTS
prod-fts-ws.cern.ch
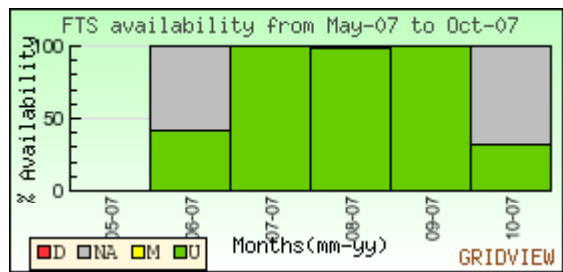
LFC
prod-lfc-atlas-central.cern.ch
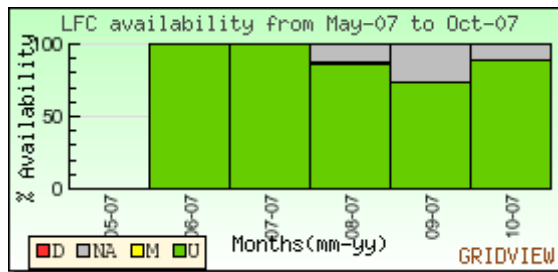
gRB
wms101.cern.ch
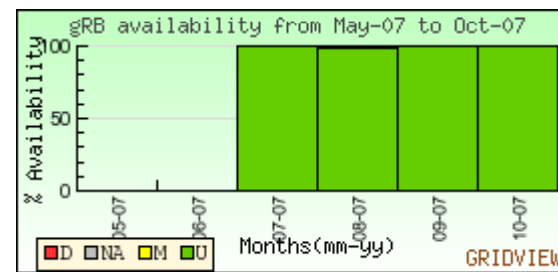
BDII
lcg-bdii.cern.ch

Pending implementation

VOMS
lcg-voms.cern.ch

Pending implementation

MyProxy
myproxy.cern.ch

Pending implementation

LB
lb102.cern.ch

Pending implementation

See Savannah bug 31455 at https://savannah.cern.ch/bugs/?31455

Introduction

Number	usage.3
Description	Job failure rate per VO
What is measured	Percentage of job failures per VO, split according to the different job execution errors
Applicability	VO, production service
Included in QR	Yes

Notes

None

Preferred implementation

Link displaying Jobs : Failure rate	Table	Graph
GridView : http://gridview.cern.ch/GRIDVIEW/job_index.php On the left, select : What do you want ? **Job Successrate** You can select : **Current Summary** **Hourly Report** **Daily Report** **Weekly Report** **Monthly Report** Then click on '**Display Graphs**'	Overall VO wise Distribution RB wise Distribution Site wise Distribution	Overall VO wise Distribution RB wise Distribution Site wise Distribution

Alternative implementations

Link displaying Jobs : Failure rate	Table	Graph
Dashboard **ALICE** http://dashb-alice.cern.ch/dashboard/request.py/jobsummary?grid=LCG&sortby=site	Column '**Grid%**'	YES
Dashboard **ATLAS** http://dashb-atlas-job.cern.ch/dashboard/request.py/jobsummary?grid=LCG&sortby=site	Column '**Grid%**'	YES
Dashboard **CMS** http://lxarda09.cern.ch/dashboard/request.py/jobsummary?grid=LCG&sortby=site	Column '**Grid%**'	YES

https://gridview.cern.ch/GRIDVIEW/job_graphs.php?Information=srate&Site%5B%5D=AllSites&VO%5B%5D=AllVOs&RB%5B%5D=All RBs&DurationOption=monthly&StartMonth=11&StartYear=2006&EndMonth=10&EndYear=2007

eGee

Enabling Grids for E-sciencE
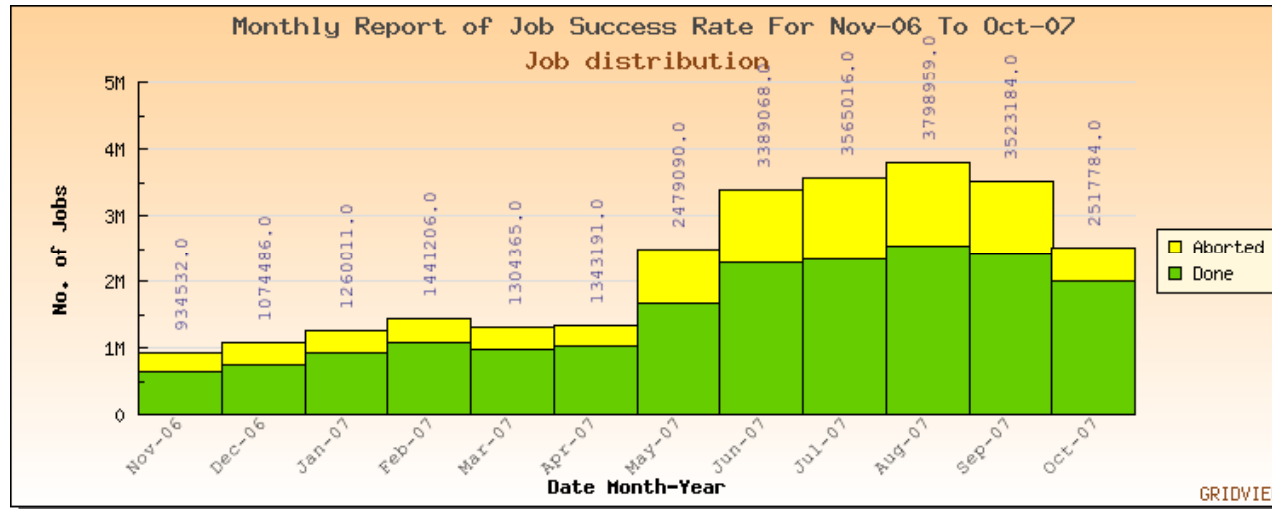
Reference VO is ATLAS.   The Dashboard web portal permits to report all ATLAS jobs, submitted through the Resource Brokers as well as other means :

http://dashb-atlas-prodsys-test.cern.ch/dashboard/request.py/summary

Daily job success for the last 2 months
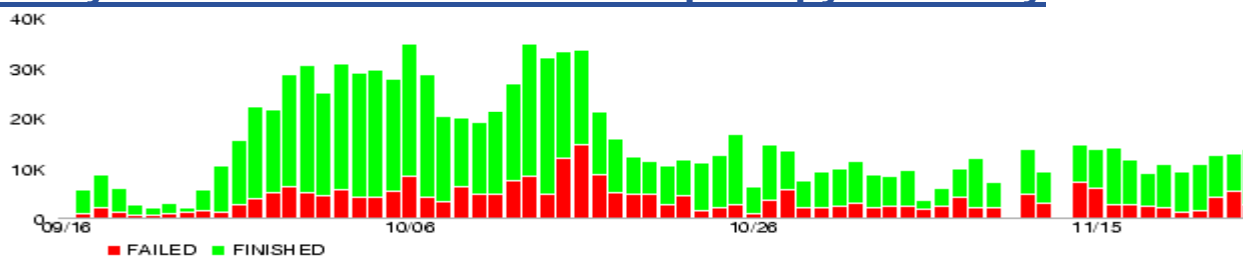
Daily job executor type For the last 2 months
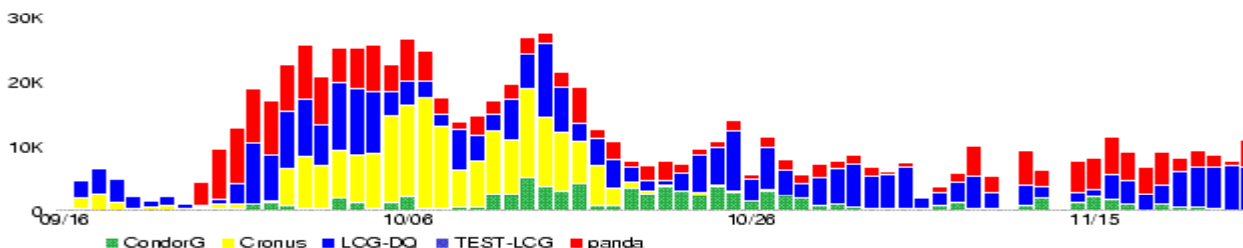
Job error breakdown for the last day

http://dashb-atlas-prodsys-test.cern.ch/dashboard/request.py/overview

EGEE-II Public
Regional Operations Centres
UKI
FR
IT
SW
CERN
DECH
NE
RU
CE
SE
AP
Related pages within SA1
SA1 web site for EGEE
MIG

Introduction

Number	usage.4
Description	Data Transfer average throughput
What is measured	average throughput (Mb/s) of GridFTP data transfers that happen between storage elements
Applicability	site, production service
Included in QR	Yes

Notes

None

Preferred implementation

Link displaying **Data Transfer : Average throughput**	Table	Graph
GridView : http://gridview.cern.ch/GRIDVIEW/index.php What do you want ? **VO-wise graph Average Throughput** You can select : **Current Summary** **Hourly Report** **Daily Report** **Weekly Report** **Monthly Report** Then click on '**Display Graphs**'	NO	VO-wise Data Transfer From All Sites To All Sites

Alternative implementations

Link displaying **Data Transfer : Average throughput**	Table	Graph
Dashboard **ATLAS** http://dashb-atlas-data.cern.ch/dashboard/request.py/site	Column '**Throughput**'	Graph '**Throughput (MB/s)**'
Dashboard **CMS** http://lxgate30.cern.ch/rrd_io/index.php	YES	NO

Comments

CESGA does NOT deal with Data Transfer.

https://gridview.cern.ch/GRIDVIEW/gridftp_graphs.php?SiteVOOption=VO-wise&ThruputDataOption=thruput&VO%5B%5D=-1&SrcSite=AllSites&DestSite=AllSites&DurationOption=monthly&StartMonth=11&StartYear=2006&EndMonth=10&EndYear=2007

http://dashb-atlas-data.cern.ch/dashboard/request.py/site?name=&fromDate=2007-10-28%2000:00&toDate=2007-11-23%2000:00

FTS monitoring work

http://indico.cern.ch/getFile.py/access?contribId=21&sessionId=1&resId=2&materialId=slides&confId=20080
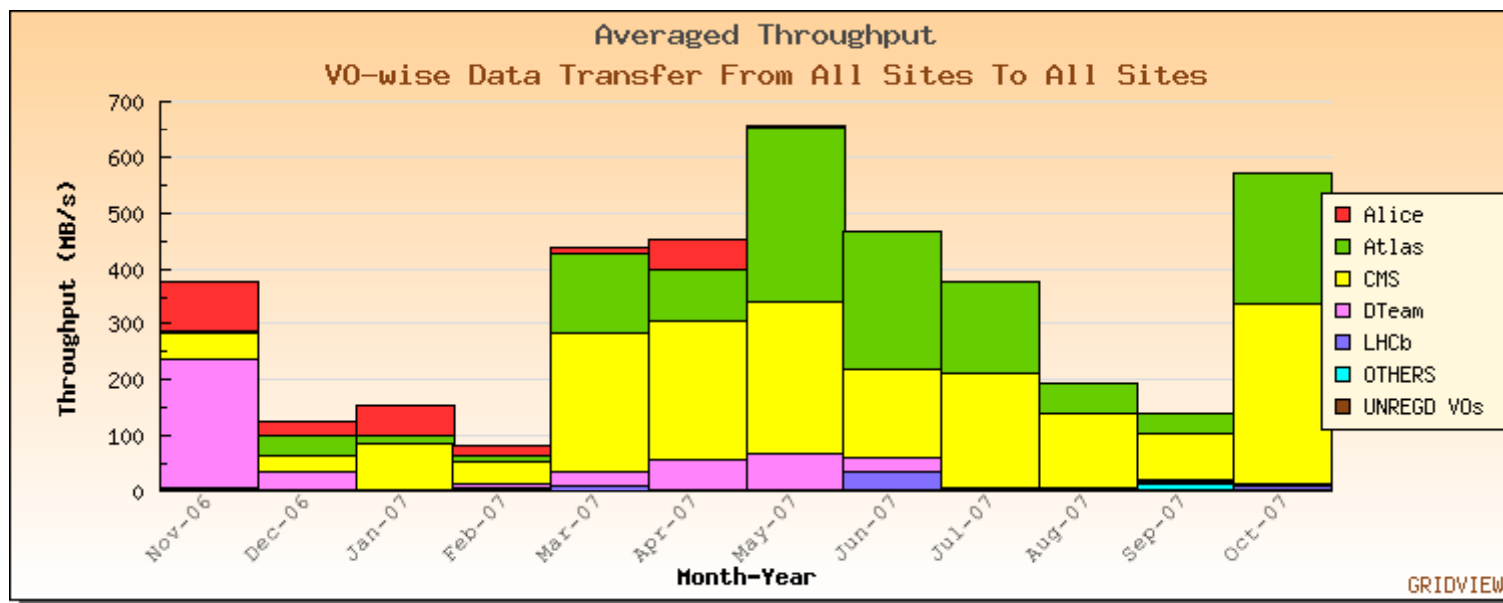
4. We maintain functionality of previous version, but add extra views!

TOP 3 channels with biggest amounts of error 01.10 – 25.11

place	volume	channels
1	104990	CERN-INDIACMS
2	1924	CERN-GRIDKA
3	1743	CERN-INFN

TOP 10 errors for 01.10 - 25.11 sorted by total amount

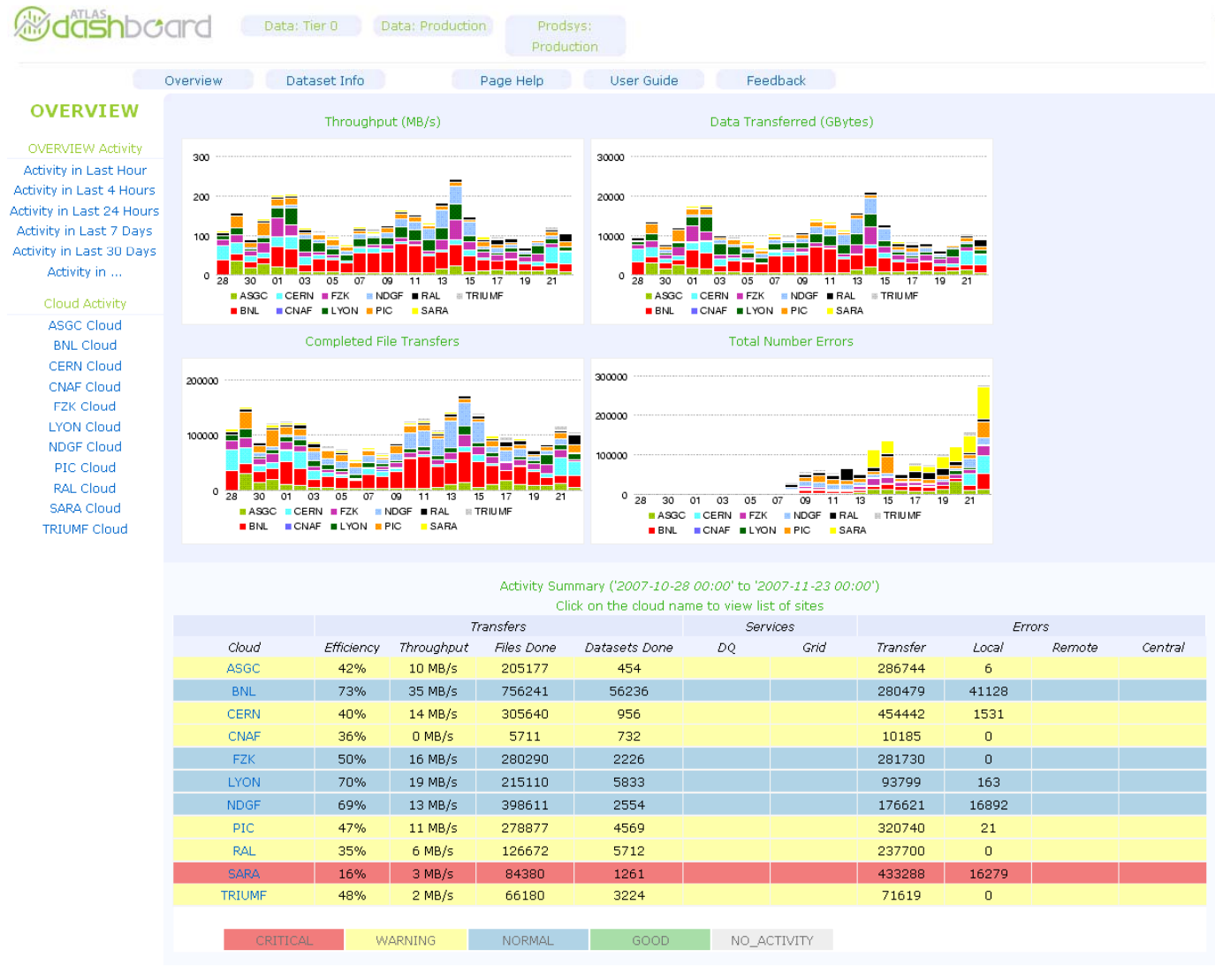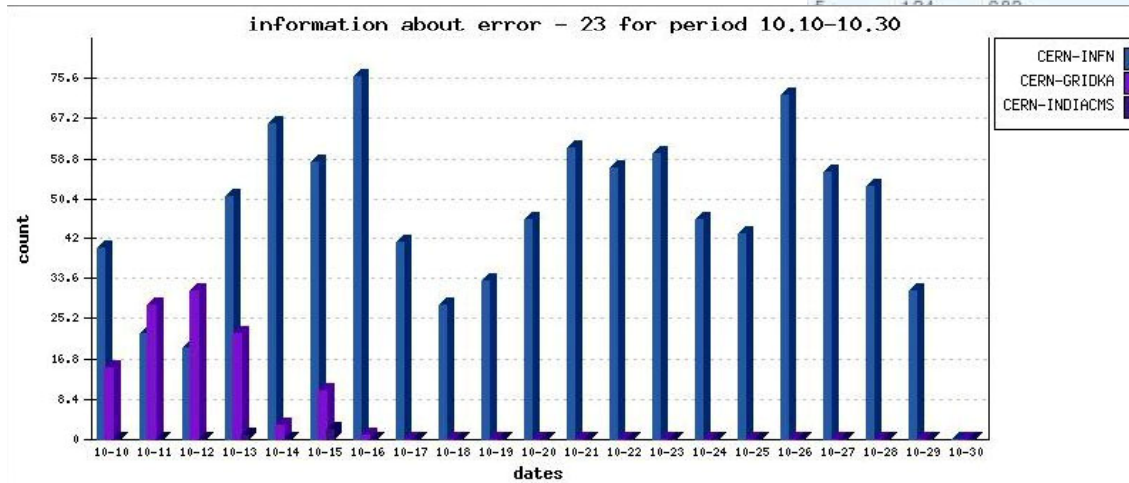| place	error_id	number	error sample
1	41	60955	failed to contact on remote SRM [srm]. Givin up after 3 tries
2	125	27691	Unable to map request to space for policy TRANSFER_WAN
3	123	17394	No such file or directory
4	23	1100	421 Timeout (900 seconds): closing control connection
5	124	883	426 Transfer aborted, closing connection :failed in recvEBlock
			425 Can|t open data connection. timed out() failed.
			failed to prepare Destination file in 180 seconds
			Request aborted
			gridftp_copy_wait: Connection timed out
			specified file(s) does not exist

information about error – 23 for period 10.10–10.30

Legend: CERN-INFN, CERN-GRIDKA, CERN-INDIACMS

EGEE SA1 MIG = Metrics Implementation Group

- **MIG already provides description and links for 40 metrics.**

- **It would be useful if GridView displayed for each VO the availability of BDII, VOMS, MyProxy, LB.
  This requires good workflow between VO managers, FCR, SAM and GridView.**

- **MIG is useful implementing** EGEE II Review Recommendation 42 :

  42. JRA2. Introduce further measures of robustness and reliability beyond the current metrics of job success and bug numbers.
  In particular, consider (a) introducing time-series data as well as snapshot data and (b) providing more finely-grained data.
  The aim should be to produce data on a per component basis to really assess the increased stability of each gLite component over time.