



Supporting WLCG Analysis Services and Analysis Users



Massimo Lamanna (CERN IT)

Discussions/Material/ManyThanks: Dan van der Ster,
James Letts, Julia Andreeva, Sanjay Padhi, P. Saiz, ...
Material from recent presentations/web pages

Session content

- Overview
- Case study
 - User support for ATLAS and LHCb
- Discussion session

Analysis support in WLCG

- Computing infrastructure (hardware)
 - Host of processes (+DBs!) to support computing services
 - Interaction with the fabric management (at CERN, in the Tier1s, in the Tier2, in the Tier3,...)
- Computing services (software)
 - Experiment-specific services to support experiment workflows and data management
 - Layered structure built on baseline infrastructures
 - Development, deployment support, maintenance
- User support (humans)
 - Tutorial, support, bug fixes,...

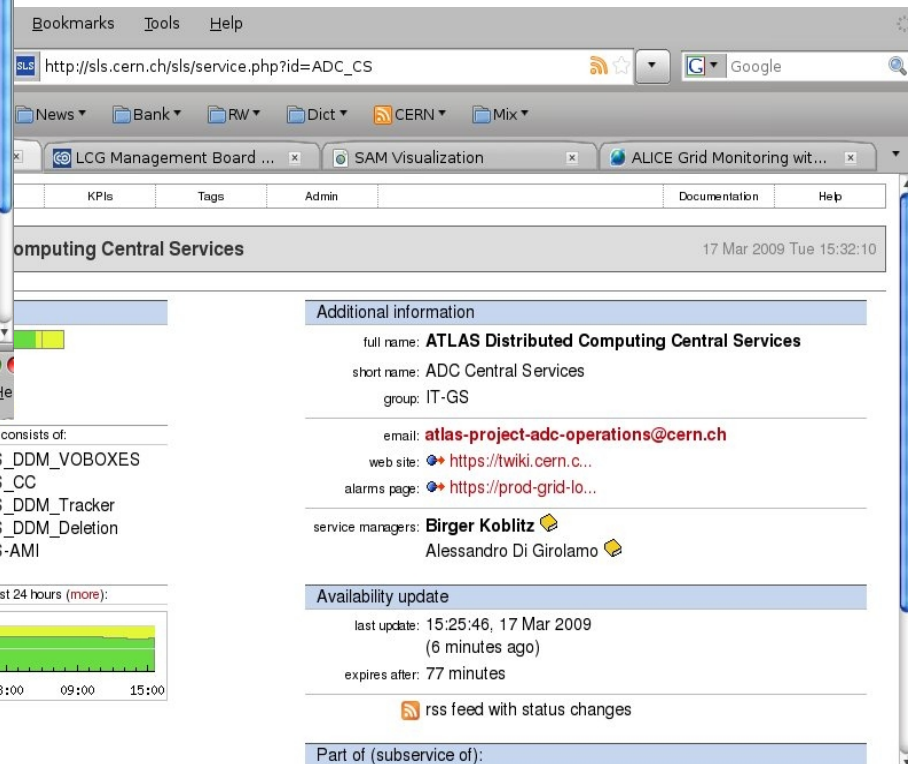
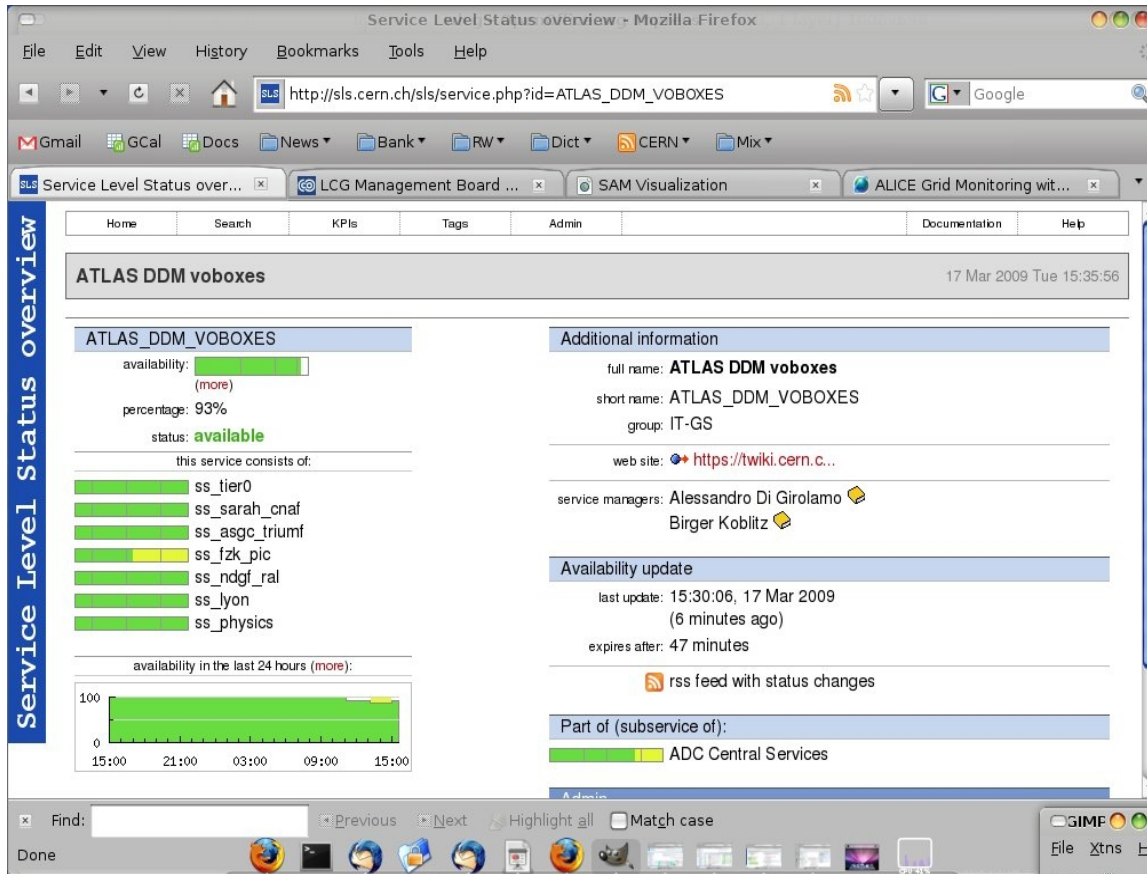
WLCG experiment-specific infrastructures



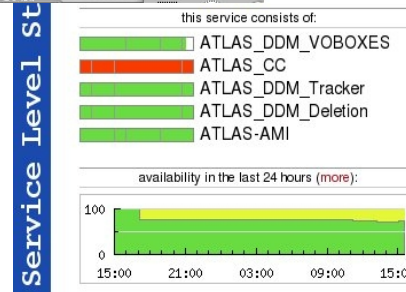
A few examples...

ATLAS

- Complex structure of experiment-specific services
- A lot of it at CERN (Computer Centre)
- Progressive “concentration” (from Tier1s to CERN)



- Example: ATLAS Site Services
 - 1 per Tier1 (and “its” Tier2s)
 - Typically 2 Tier1s on one box
 - Using standard CERN Computer Centre procedures (CERN FIO)





CMS

- Central services (CERN) and distributed infrastructure of “agents” (in each site)
 - Central services: TMB, DBS, ...
 - Example of site services: Phedex, SW install, etc...
- One person (part-time) in each Tier2
 - Site-specific config (e.g. TFC)
 - Follow up of the site behaviour and maintenance
 - Biweekly meeting to coordinate them (for example, in the US). Similar mechanisms in Europe.

Identity: /DC=org/DC=doeagrids/OU=People/CN=Sanjay Padhi 496075#[admin]

| Jobid | Job Info | CPU Efficiency/Memory |
|--|--|-----------------------|
| <input type="text" value="Listbox"/> <input type="text" value="Text"/> | Local JobID: 202244.0 Status: Finished Local User: uscms2294 (cms) Queue: cms Submitted at: Thu Mar 19, 2009 13:59:56 hrs Started at: Fri Mar 20, 2009 07:36:14 hrs Finished at: Fri Mar 20, 2009 08:48:53 hrs Exit Status: 0 CPU Time: 0:24 hrs Wall Time: 1:10 hrs Execution Host: grid-wn0420.desy.de | |

Admin Job ps WN top Work Dir Job Dir Job Output Job Error

| Admin | Job ps | WN top | Work Dir | Job Dir | Job Output | Job Error |
|-----------------|--|--------|----------|---------|------------|-----------|
| Grid JobID | glidein-2.t2.ucsd.edu_202244.0_1237496397 | | | | | |
| CE ID | grid-ce2.desy.de:2119/jobmanager-lcgpbs-cms | | | | | |
| RB/WMS | CRABSERVER - glideinWMS | | | | | |
| Subject | /DC=org/DC=doeagrids/OU=People/CN=Sanjay Padhi 496075 | | | | | |
| Proxy Validity | 36:13 hrs | | | | | |
| Role | group_cms.cms | | | | | |
| Job Description | /data/gftp_cache/spadhi_crab_0_090319_215745_i19o2x/CMSSW.sh | | | | | |

Event Logger Error Logger Debug Logger Configuration

Show Grid ID 38 Entries

State Selection Diagnosis Query Builder

Queue LoadAll

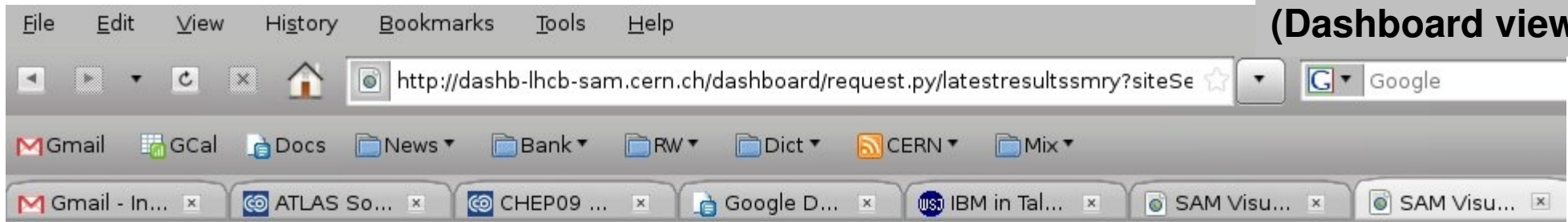
CEId

RB

LHCb



SAM test for LHCb (Dashboard viewer)



| Sitename | Service Type | Service Name | ConditionDB | LHCb CE-lhcb-availability | LHCb CE-lhcb-install | LHCb CE-lhcb-job-Boole | LHCb CE-lhcb-job-Brunel | LHCb CE-lhcb-job-DaVinci | LHCb CE-lhcb-job-Gauss | LHCb CE-lhcb-lock | LHCb CE-lhcb-os | PilotRole | LHCb CE-lhcb-queues | csh | js | ver s | | |
|---------------|--------------|------------------|-------------|---------------------------|----------------------|------------------------|-------------------------|--------------------------|------------------------|-------------------|-----------------|-----------|---------------------|-----|----|-------|----|--|
| LCG.CERN.ch | CE | ce103.cern.ch | ok | ok | stb | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | | |
| | | ce104.cern.ch | ok | ok | stb | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | |
| | | ce105.cern.ch | ok | ok | stb | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | |
| | | ce106.cern.ch | ok | ok | stb | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | |
| | | ce107.cern.ch | ok | ok | stb | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | |
| | | ce108.cern.ch | ok | ok | stb | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | |
| | | ce109.cern.ch | | ok | stb | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | |
| | | ce111.cern.ch | ok | ok | stb | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | |
| | | ce112.cern.ch | ok | ok | stb | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | ok | |
| | | ce113.cern.ch | ok | ok | stb | | | | | | | | | | | | | |
| | | ce114.cern.ch | ok | ok | stb | | | | | | | | | | | | | |
| | | ce115.cern.ch | ok | ok | stb | | | | | | | | | | | | | |
| | | ce124.cern.ch | ok | ok | stb | | | | | | | | | | | | | |
| | | ce125.cern.ch | ok | ok | stb | | | | | | | | | | | | | |
| | | ce126.cern.ch | ok | ok | stb | | | | | | | | | | | | | |
| | | ce127.cern.ch | ok | ok | stb | | | | | | | | | | | | | |
| ce128.cern.ch | error | na | | | | | | | | | | | | | | | | |
| ce129.cern.ch | error | na | | | | | | | | | | | | | | | | |
| | SRMv2 | srn-lhcb.cern.ch | | | | | | | | | | | | | | | | |

| Sitename | Service Type | Service Name | ftschn | ftsinfo |
|---------------|--------------|------------------------|--------|---------|
| LCG.CERN.ch | FTS | fts-t0-export.cern.ch | ok | ok |
| | | fts-t2-service.cern.ch | ok | ok |
| LCG.CNAF.it | FTS | fts.cr.cnaf.infn.it | ok | ok |
| LCG.GRIDKA.de | FTS | fts2-fzk.gridka.de | ok | ok |
| LCG.IN2P3.fr | FTS | cclgftsprod.in2p3.fr | ok | ok |
| LCG.NIKHEF.nl | FTS | fts.grid.sara.nl | ok | ok |
| LCG.PIC.es | FTS | fts.pic.es | ok | error |
| LCG.RAL.uk | FTS | lgfts.gridpp.rl.ac.uk | ok | ok |

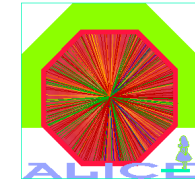
Experiment-specific tests
of the infrastructure services

Users in action

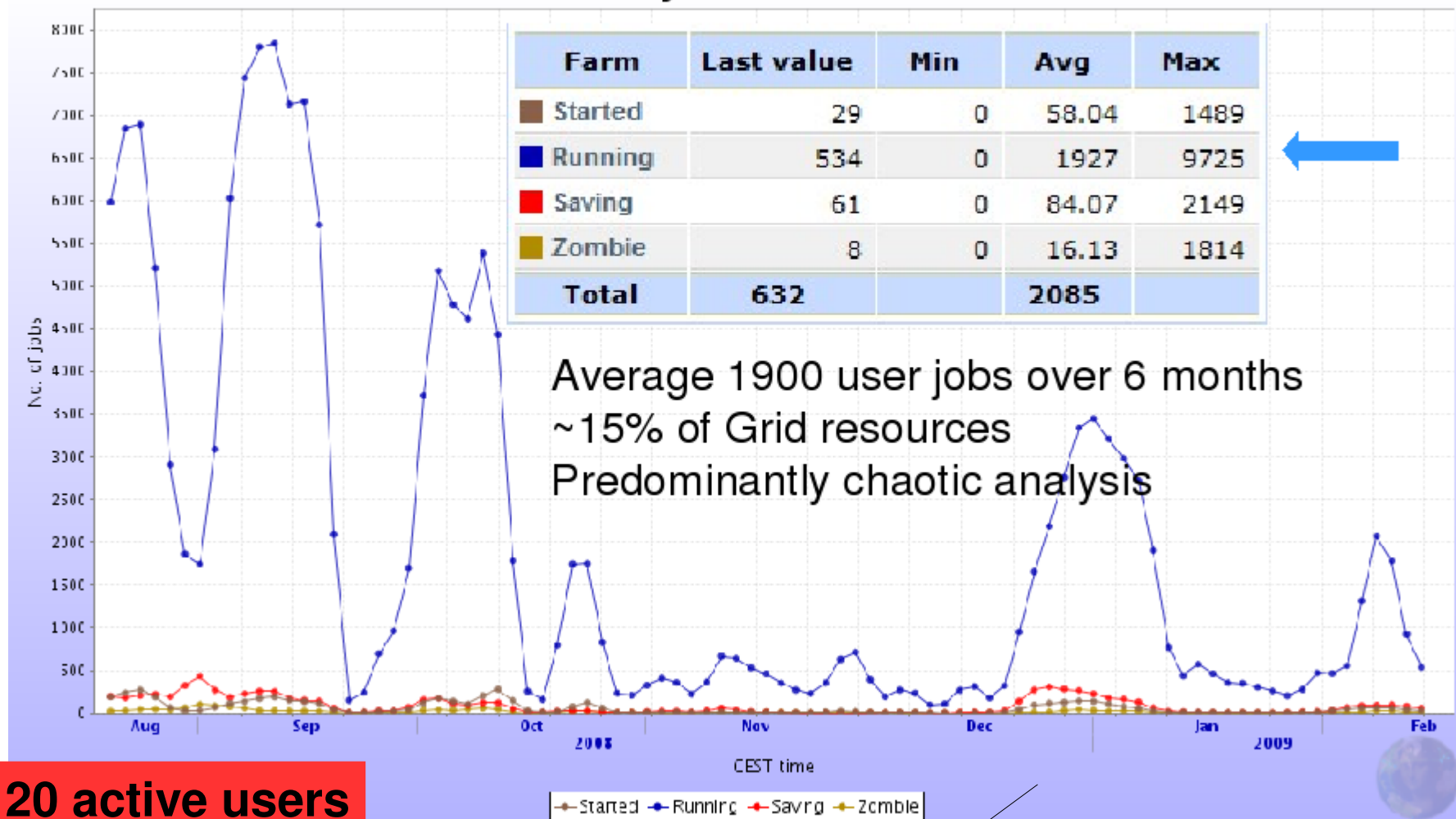
A few examples...

ALICE

User job distribution



Jobs status



~120 active users

AliEn+ API services::
 analysis services

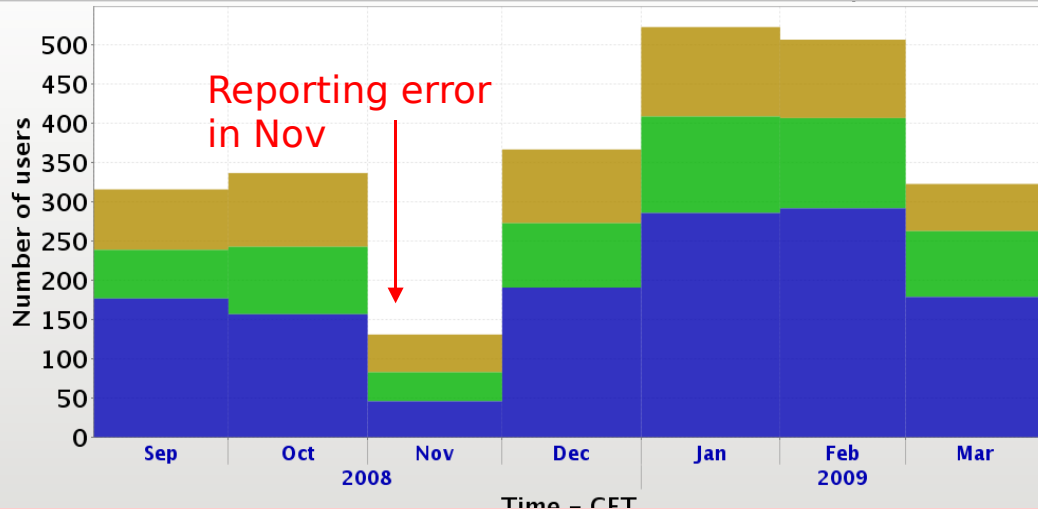
From L. Betev (ALICE
 SW week March 09)

ATLAS



Production and analysis services

Ganga (ATLAS + LHCb + other users)



Users PanDA statistics

Users: 883 in last 3 days: 72 7: 96 30:118 90:391 180:526
 Usage in last 6 months: Job count: 4840911 Users with >1000 jobs: 297 >10k jobs: 103
 Listed by most recent usage

| User | Jobs | Latest | Sites used |
|------------------------------------|-------|------------------|--|
| Luca-Florini | 15682 | 2009-03-10 07:09 | ANALY_LONG_BNL_ATLAS (800) ANALY_GLOW-ATLAS (20 (8206) ANALY_SWT2_CPB (5344) ANALY_SLAC (816) BNL_ANALY_NET2 (302) |
| HYEON JIN KIM | 910 | 2009-03-10 07:09 | ANALY_BNL_ATLAS_1 (658) ANALY_SWT2_CPB (160) ANA ANALY_AGLT2 (82) |
| Heather Gray | 3666 | 2009-03-10 07:09 | ANALY_BNL_ATLAS_1 (1034) ANALY_LONG_BNL_ATLAS (; |
| ChangWei Loh | 3188 | 2009-03-10 07:08 | ANALY_LYON_DCACHE (82) ANALY_SFU (12) ANALY_LON ANALY_LYON (82) ANALY_BNL_ATLAS_1 (1904) BNL_ATLA |
| Nadia May Davidson | 5922 | 2009-03-10 07:07 | ANALY_BNL_ATLAS_1 (1792) ANALY_LONG_BNL_ATLAS (; ANALY_TRIUMF (1030) |
| waruna fernando | 35432 | 2009-03-10 07:03 | ANALY_MWT2 (4) ANALY_LYON (68) ANALY_IllinoisHEP (40 (33618) ANALY_OU_OCHEP_SWT2 (54) ANALY_LONG_BNI |
| Tomas Jakoubek | 26 | 2009-03-10 06:49 | ANALY_BNL_ATLAS_1 (4) ANALY_LONG_BNL_ATLAS (12) , |
| Vladimir Savinov | 11260 | 2009-03-10 04:22 | ANALY_MWT2_SHORT (62) ANALY_LONG_BNL_ATLAS (12 ANALY_LAPP (1540) ANALY_BNL_ATLAS_1 (5068) ANALY_ (1872) |
| Ian M. Nugent | 1686 | 2009-03-10 04:09 | ANALY_LYON_DCACHE (10) ANALY_SFU (98) ANALY_CER ANALY_LONG_BNL_ATLAS (30) ANALY_LYON (142) ANALY ANALY_TAIWAN (362) ANALY_TRIUMF (736) ANALY_LYON, |

• ATLAS

- **Ganga: >1,000 unique users in past 6 months**
- **ATLAS: ~50% of these users (similar number of users from pAthena)**
- **~300 unique users in Feb**
- **~ 20k analysis jobs per day (>100k prod. jobs)**

• Execution back-ends

- **Direct submission and PanDA**

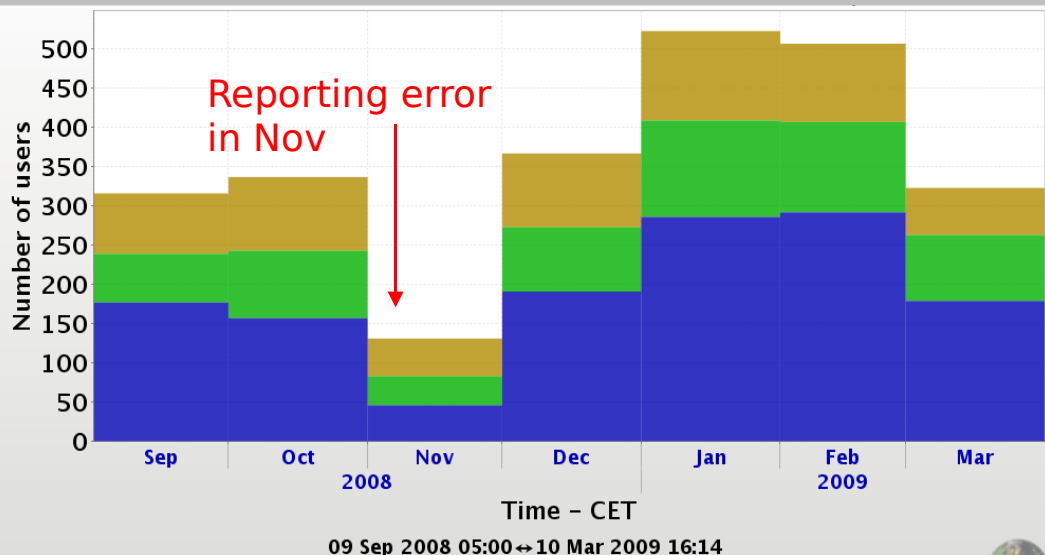
• Ganga website:

- **<http://cern.ch/ganga>**

LHCb



Ganga (ATLAS + LHCb + other users)



• LHCb

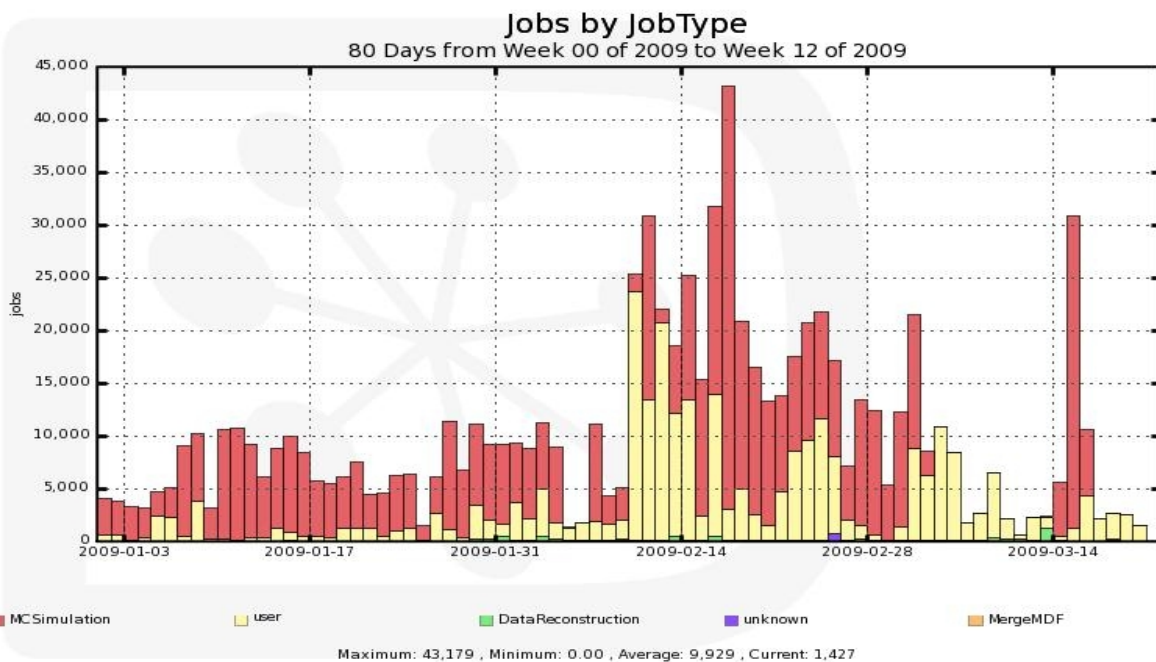
- **Ganga: >1,000 unique users in past 6 months**

- **LHCb represents ~25% of the Ganga users**

- **~150 unique user in Feb**

• Analysis job also go to DIRAC

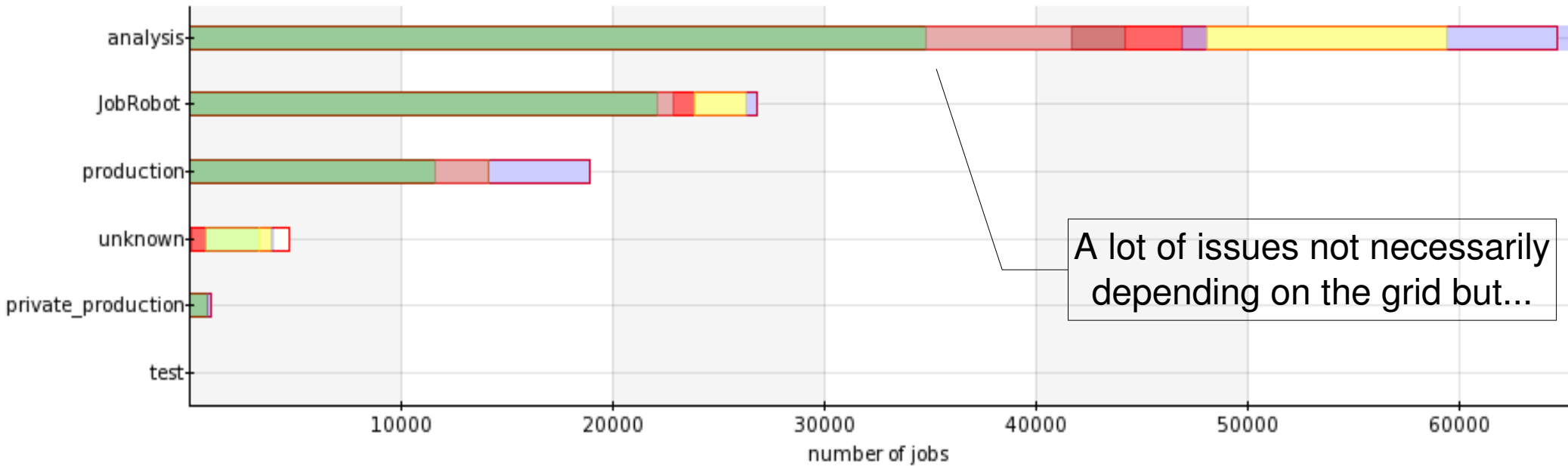
Analysis (and production) services



CMS



jobs per genactivity



A lot of issues not necessarily depending on the grid but...

submitted app-succeeded application-failed site-failed aborted cancelled app-unknown pending running

- Last 24 hours in CMS (17th of March at 15:00)

- Impressive analysis activity

Analysis services

- Users go to WLCG thanx to CRAB (direct submission + CRAB servers)

- Production was not active at full steam

WLCG Analysis Users

Examples

Supporting WLCG Analysis Users

- Analysis support
 - On the grid(s)
 - Effectively a catch-all for many users problems
 - Is that site down? Is a problem with my code? Are my experiment analysis services down?
- So far steady grow in usage
 - Expect to grow much faster when data arrive
 - More people/requests
 - Resolution time will be critical

CCRC09 goal: demonstrating we can support our users !

CMS: User Survey

*See talk of James Letts
talk in the conference*



- Out of ~500 active users, 226 responded to the User Survey
- Very interesting (although no big surprises:
 - Lot of “invisible” help (colleagues down the corridor)
 - “Try-again before worrying” strategy :)
- Hypernews-like forum seems to be the tool
- 7-8 active persons in answering
- Preparing to move to a more structured approach
 - “Ref. Site(s)” to pin down user code problems
 - First-level filter (protect the developers)

ATLAS: User support shifters

- Front line of shifters
 - Help the users but protect the developers!
- Distributed shift
 - Pro: OK in achieving 24h coverage
 - But: need tools/discipline to be effective

See talk of Dan van der Ster in this session

user2user / canonical user support

- User2user
 - Attractive
 - Can not be the unique system
 - Users should be empowered
 - Where are we with end-user monitoring?
- User support
 - 24h 7/7 is the goal
 - Made “easier” if one set-ups distributed shifts
 - Relies on user2user support
 - Requires investment in infrastructure
 - To allow shifters to effectively share work and experience

Empower the users....

It sounds to me a synonym of monitoring!

several tools available...
enough?

Downloads Dashboard :: Site Overview - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://dashb-atlas-data.cern.ch/dashboard/request.py/site?name=&statsInter

Gmail GCal Docs News Bank RW Dict CERN Mix

Gmail - Inbox... ATLAS Softw... CHEP09 Abst... Google Docs ... IBM in Talks t... Dashboard ::...

ATLAS dashboard

Data: All Activities Jobs: Production Jobs: Analysis Panda: Production SLS: C. Services

Overview Dataset Info Page Help User Guide Feedback

OVERVIEW

Activity Period

- Activity in Last Hour
- Activity in Last 4 Hours
- Activity in Last 24 Hours
- Activity in Last 7 Days
- Activity in Last 30 Days
- Activity in ...

Selected Activities

- MC Production
- Data Export
- Functional Test
- User Subscriptions
- Staging

Selected Cloud

- ASGC Cloud
- BNL Cloud
- CERN Cloud
- CNAF Cloud
- FZK Cloud

Throughput (MB/s)

Legend: ASGC, CERN, FZK, NDGF, RAL, TRIUMF, BNL, CNAF, LYON, PIC, SARA

Data Transferred (GBytes)

Legend: ASGC, CERN, FZK, NDGF, RAL, TRIUMF, BNL, CNAF, LYON, PIC, SARA

Completed File Transfers

Legend: ASGC, CERN, FZK, NDGF, RAL, TRIUMF, BNL, CNAF, LYON, PIC, SARA

Total Number Transfer Errors

Legend: ASGC, CERN, FZK, NDGF, RAL, TRIUMF, BNL, CNAF, LYON, PIC, SARA

ATLAS Distributed Data Management Monitoring (Drill down to single FTS transfers)



Select a User: Select a Time Range: **Last Month** [Help](#) [User Support](#)

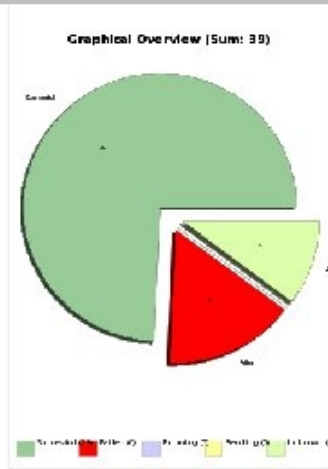
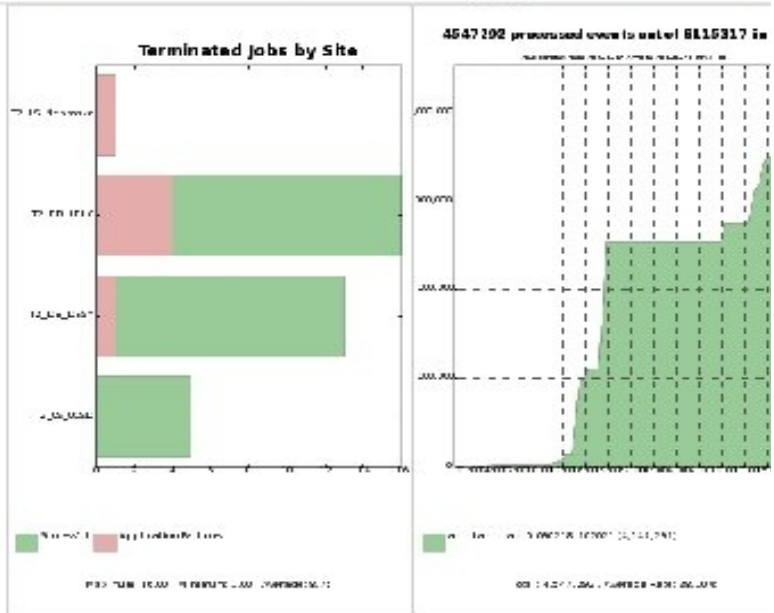
Task: 202021 All Jobs [Back to all Tasks](#) [This Task](#)

| TaskM | Num of Jobs | Pending | Running | Successful | Failed | Unknown | Consumed Time | Plots |
|-------------|-------------|---------|---------|------------|--------|---------|---------------|----------------|
| 0218_202021 | 39 | 0 | 0 | 29 | 6 | 4 | Time Info | Plot Selection |

Dashboard Plots

Jobs Distributed by Site Processed Events by Site Terminated Jobs in terms of Success/Failures Application Failed Jobs by Reason of Failure Grid Aborted Jobs by Reason of Failure Terminated Jobs by Site Processed Events Cumulative

CMS User Monitoring (drill down to each task and all subjobs)



Click on a plot to increase its size.

| SchedulerJobId | EventRange | Status | Grid End Status | Submissions | Site | Submitted | Started | Finished |
|---|------------|---------|-----------------|-------------|------------|---------------------|---------------------|---------------------|
| https://b001.cnaf.infn.it:9000/58XHG4dBEFbFURHJ3aYQ | 1 | Success | UNKNOWN | 1 | T2_FR_IPHC | 2009-02-18 19:20:49 | 2009-02-19 11:27:13 | 2009-02-20 17:35:18 |
| https://b001.cnaf.infn.it:9000/2KcLIFRMGzdYXDKJ-Jndvq | 2 | Success | UNKNOWN | 1 | T2_US_UCSD | 2009-02-18 19:20:49 | 2009-02-19 11:27:39 | 2009-02-19 14:39:47 |
| https://b001.cnaf.infn.it:9000/kT-Wu203xwV-AJjHCxN57A | 3 | Success | UNKNOWN | 1 | T2_DE_DESY | 2009-02-18 19:20:49 | 2009-02-19 12:17:30 | 2009-02-19 18:05:31 |
| https://b001.cnaf.infn.it:9000/TC6oa1VUMg3YqVYkCD_g | 4 | Success | UNKNOWN | 1 | T2_DE_DESY | 2009-02-18 19:20:49 | 2009-02-19 12:17:33 | 2009-02-19 12:42:33 |
| https://b001.cnaf.infn.it:9000/AUGRK7OugufC4FPaQUJLSA | 5 | Failed | UNKNOWN | 1 | T2_FR_IPHC | 2009-02-18 19:20:49 | 2009-02-19 11:22:41 | 2009-02-19 20:43:23 |
| https://b001.cnaf.infn.it:9000/krcJqEokxHJk8oYaGcn3NA | 6 | Success | UNKNOWN | 1 | T2_US_UCSD | 2009-02-18 19:20:49 | 2009-02-19 11:26:52 | 2009-02-19 15:19:54 |
| https://b001.cnaf.infn.it:9000/JmZ1ev14Wb2SsK6XHGwQg | 7 | Success | UNKNOWN | 1 | T2_FR_IPHC | 2009-02-18 19:20:49 | 2009-02-19 11:25:32 | 2009-02-20 15:30:22 |
| https://b001.cnaf.infn.it:9000/d1b7Dw94ja9Guzhuortsg | 8 | Success | UNKNOWN | 1 | T2_FR_IPHC | 2009-02-18 19:20:49 | 2009-02-19 11:21:28 | 2009-02-20 14:20:06 |
| https://b001.cnaf.infn.it:9000/s-VdN1cMGoTcMxWHhX1QA | 9 | Success | UNKNOWN | 1 | T2_US_UCSD | 2009-02-18 19:20:49 | 2009-02-19 11:28:22 | 2009-02-19 14:45:20 |
| https://b001.cnaf.infn.it:9000/CIEBDn_IjE7rcCf3AdpO9w | 10 | Unknown | UNKNOWN | 1 | T2_US_UCSD | 2009-02-18 19:20:49 | 2009-02-19 19:28:26 | 2009-02-20 19:28:30 |
| https://b001.cnaf.infn.it:9000/K5Zmhd7JmEUJMaInu8CQ | 11 | Failed | UNKNOWN | 1 | T2_FR_IPHC | 2009-02-18 19:20:49 | 2009-02-19 11:22:25 | 2009-02-20 14:52:37 |
| https://b001.cnaf.infn.it:9000/a30m8k1bEADUoNEB3p4og | 12 | Failed | UNKNOWN | 1 | T2_DE_DESY | 2009-02-18 19:20:49 | 2009-02-19 12:17:34 | 2009-02-19 12:17:36 |
| https://b001.cnaf.infn.it:9000/PRbvVr-3udWz82-3YyNtA | 13 | Success | UNKNOWN | 1 | T2_US_UCSD | 2009-02-18 19:20:49 | 2009-02-19 11:26:53 | 2009-02-19 15:03:14 |
| https://b001.cnaf.infn.it:9000/ZxH1qD5Rjz_11stTh32HQ | 14 | Failed | UNKNOWN | 1 | T2_FR_IPHC | 2009-02-18 19:20:49 | 2009-02-19 11:24:33 | 2009-02-19 17:48:43 |
| https://b001.cnaf.infn.it:9000/1s6GwXAhazyh9ht-7Q | 15 | Success | UNKNOWN | 1 | T2_DE_DESY | 2009-02-18 19:20:49 | 2009-02-19 12:17:32 | 2009-02-19 16:10:14 |
| https://wms213.cern.ch:9000/prV_1aDn7mYbmWkjG52g | 16 | Success | UNKNOWN | 1 | T2_FR_IPHC | 2009-02-18 19:20:52 | 2009-02-19 22:50:10 | 2009-02-20 17:19:58 |
| https://wms213.cern.ch:9000/9PaP-nuDaxVYtuK2gpmNsQ | 17 | Success | UNKNOWN | 1 | T2_FR_IPHC | 2009-02-18 19:20:52 | 2009-02-19 22:50:10 | 2009-02-20 10:17:16 |

What happened to my job (bunch of jobs!)?

Identity: /DC=org/DC=doegrids/OU=People/CN=Sanjay Padhi 496075#[admin]

Jobid

ListBox Text

- glidein-2.t2.ucsd.edu_200430.0_1237492763
- glidein-2.t2.ucsd.edu_201404.0_1237494722
- glidein-2.t2.ucsd.edu_201409.0_1237494724
- glidein-2.t2.ucsd.edu_201414.0_1237494725
- glidein-2.t2.ucsd.edu_201435.0_1237494731
- glidein-2.t2.ucsd.edu_201552.0_1237494982
- glidein-2.t2.ucsd.edu_201603.0_1237495056
- glidein-2.t2.ucsd.edu_201732.0_1237495313
- glidein-2.t2.ucsd.edu_201753.0_1237495321
- glidein-2.t2.ucsd.edu_201760.0_1237495323
- glidein-2.t2.ucsd.edu_201951.0_1237495897
- glidein-2.t2.ucsd.edu_202019.0_1237495969
- glidein-2.t2.ucsd.edu_202198.0_1237496183
- glidein-2.t2.ucsd.edu_202244.0_1237496397
- glidein-2.t2.ucsd.edu_202337.0_1237496437
- glidein-2.t2.ucsd.edu_202995.0_1237497711
- glidein-2.t2.ucsd.edu_203013.0_1237497726
- glidein-2.t2.ucsd.edu_203792.0_1237498732
- glidein-2.t2.ucsd.edu_204122.0_1237499301

Show Grid ID 38 Entries

State Selection Diagnosis Query Builder

Queue LoadAll

CEId

RB

Job Info

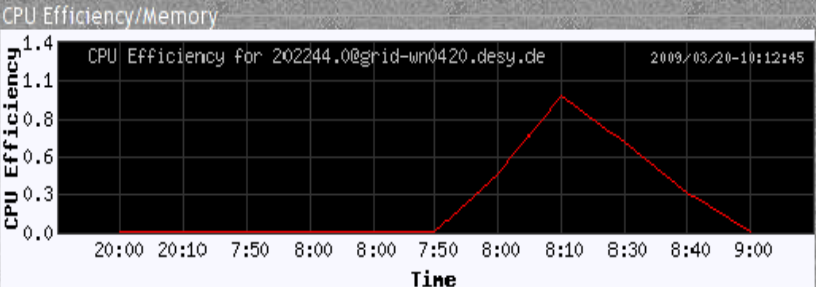
| | |
|----------------|-------------------------------|
| Local JobID | 202244.0 |
| Status | Finished |
| Local User | uscms2294 (cms) |
| Queue | cms |
| Submitted at | Thu Mar 19, 2009 13:59:56 hrs |
| Started at | Fri Mar 20, 2009 07:36:14 hrs |
| Finished at | Fri Mar 20, 2009 08:48:53 hrs |
| Exit Status | 0 |
| CPU Time | 0:24 hrs |
| Wall Time | 1:10 hrs |
| Execution Host | grid-wn0420.desy.de |

Admin Job ps WN top Work Dir Job Dir Job Output Job Error

| | |
|-----------------|--|
| Grid JobID | glidein-2.t2.ucsd.edu_202244.0_1237496397 |
| CE ID | grid-ce2.desy.de:2119/jobmanager-lcgpbs-cms |
| RB/WMS | CRABSERVER - glideinWMS |
| Subject | /DC=org/DC=doegrids/OU=People/CN=Sanjay Padhi 496075 |
| Proxy Validity | 36:13 hrs |
| Role | group_cms.cms |
| Job Description | /data/gftp_cache/spadhi_crab_0_090319_215745_i19o2x/CMSSW.sh |

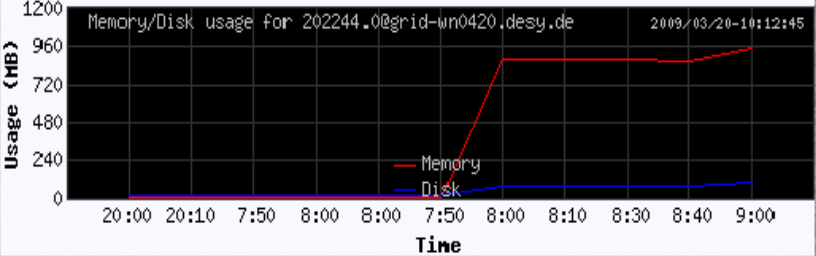
Event Logger Error Logger Debug Logger Configuration

CPU Efficiency/Memory



CPU Efficiency for 202244.0@grid-wn0420.desy.de 2009/03/20-10:12:45

Usage (MB)



Memory/Disk usage for 202244.0@grid-wn0420.desy.de 2009/03/20-10:12:45

User: is my job running, using CPU?, using (too much) memory, ...

Tier2 person: which jobs are running, using CPU?, using (too much) memory, ...

Siteview GridMap Test Page

Site status

ALICE

ATLAS

CMS

LHCb

job_processing

ATLAS

CMS

LHCb

Sites

Tier: 0 1 2 3

Site:

job_processing/CMS

2009-03-21 06:52

Status: good

status calculated on the basis of the success rate for the last 24 hours:

For Tier1 (where mostly MC production is run):
good>0.9, 0.9>degraded>=0.6, 0.6>=failed

For Tier2 (where mostly user analysis is run):
good>0.6, 0.6>degraded>=0.4, 0.4>=failed.

| Name | Value | Status | Target | Go to |
|---|-----------|--------|--------|---------------------|
| Running jobs [average over the last hour] | 1317 jobs | good | -1 | URL |
| Completed jobs over the last hour | 34 jobs | good | -1 | URL |
| Successfully completed jobs over the last hour | 31 jobs | good | -1 | URL |
| Wall time for jobs completed over the last hour | s | good | -1 | URL |
| CPU time for jobs completed over the last hour | s | good | -1 | URL |

OK
Good

normal

Degraded
Warning

Down
Error
Poor

Maintenanc

Inactive

Link to the [User Guide](#)

Dashboard site status (status, job processing, data transfers)
How is my site doing?



Case study: ATLAS (and LHCb) analysis support

Dan van der Ster (CERN/IT)

Points for discussion



- Layered approach in place (general-purpose foundation -high-level experiment specific)
 - Can we manage the upper layer in a similar way we do the baseline one? Is it desirable?
- “Empowering the users” sounds a good idea:
 - Just more monitoring? And more twikis/userGuides/...
 - Do we have big holes we should try to close now?
- User Support is also needed:
 - Are we missing tools? Not all tools are equivalent...
 - What is useful for the developers (savannah etc...) not necessarily desirable for users...
- **Your suggestions <here>**