

Site monitoring from the perspective of the LHC VOs

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EGEE 08
Istanbul

Outline

- ▶ Tools
- ▶ Applications for Site monitoring
 - SAM web portal
 - Site Status Board
- ▶ Site availability improvement
- ▶ Next steps
- ▶ Conclusion

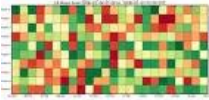
Tools used

▶  dashboard

- Collectors, database, web portal
- Output in several formats: html, gif, txt, xml, csv...
- See Julia's presentation

▶  Gridmap technology

- Developed by Max Böhm (EDS)

▶  Graphtool

- Developed by Brian Bockleman (Nebraska)

SAM web portal

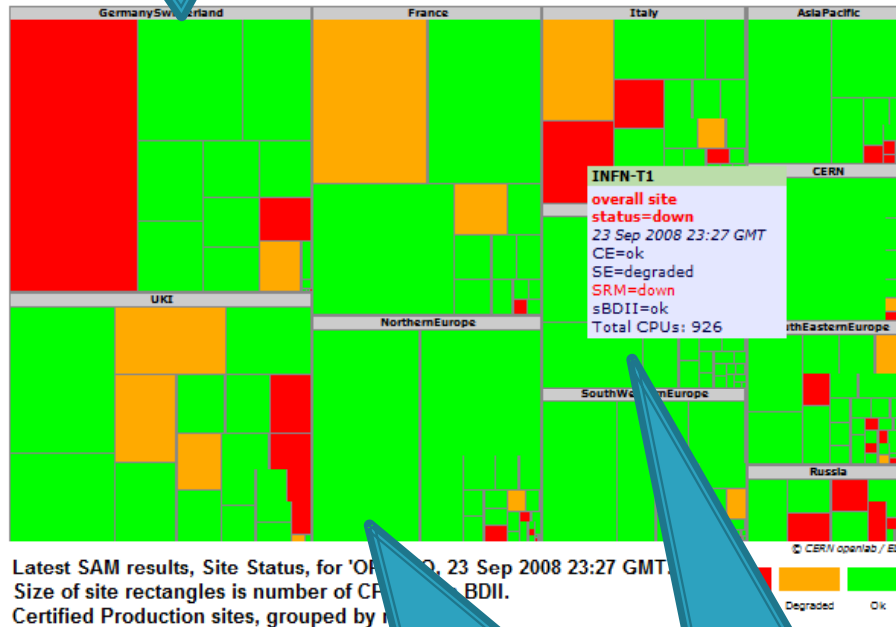
- ▶ Started one year ago as a CMS specific application
 - Developed by Gerhild Maier
- ▶ ATLAS, LHCb and ALICE want to use it
 - ‘Generalization’ of the application
 - Work in progress by William Ollivier
- ▶ Thanks to the input from Stefano Belforte, Alessandro Di Girolamo, Andrea Sciaba,

Gridmap entry point for SAM

<http://gridmap.cern.ch>

Sites grouped

GridMap Visualizing the "State" of the Grid



Topology View

regions tiers pps all

show sitenames

Size by:

CPU_s (GStat)

use historical CPU numbers

CPU_s (BDII) Running Jobs

use VO specific information show SI2k

SAM Results

Virtual Organization:

OPS Alice Atlas CM

LHCb

Services:

Site CE SE SRM

sBDII

Current Status:

latest SAM test result

Historical Availability:

hourly daily weekly month

Different group definition

Different size definition

For all the LHC VO.
Could be used by any VO

Selecting different time

Size represents importance of the site

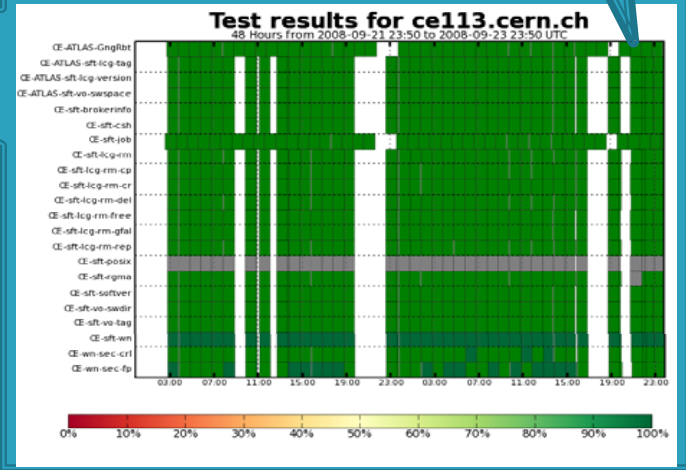
Clicking on a box leads to the image in the next slide

SAM latest tests

| Sitename | Service Type | Service Name | atlas-lcgtag | js | swdir | ftschn | lfcls | lfcwf | atlas_cp | atlas_cr | atlas |
|-----------|---------------|--------------------------------|---------------------|----|-------|--------|-------|-------|----------|----------|-------|
| CERN-PROD | CE | ce103.cern.ch | ok | ok | ok | | | | | | |
| | | ce104.cern.ch | ok | ok | ok | | | | | | |
| | | ce105.cern.ch | ok | ok | ok | | | | | | |
| | | ce106.cern.ch | ok | ok | ok | | | | | | |
| | | ce107.cern.ch | ok | ok | ok | | | | | | |
| | | ce108.cern.ch | ok | ok | ok | | | | | | |
| | | ce109.cern.ch | ok | ok | ok | | | | | | |
| | | ce111.cern.ch | ok | ok | ok | | | | | | |
| | | ce112.cern.ch | ok | ok | ok | | | | | | |
| | | ce113.cern.ch | ok | ok | ok | | | | | | |
| | | ce114.cern.ch | ok | ok | ok | | | | | | |
| | | ce115.cern.ch | ok | ok | ok | | | | | | |
| | | ce124.cern.ch | ok | ok | ok | | | | | | |
| | | ce125.cern.ch | ok | ok | ok | | | | | | |
| | ce126.cern.ch | ok | ok | ok | | | | | | | |
| | ce127.cern.ch | ok | ok | ok | | | | | | | |
| | ce128.cern.ch | ok | ok | ok | | | | | | | |
| | ce129.cern.ch | ok | ok | ok | | | | | | | |
| | CERN-PROD | FTS | prod-fts-ws.cern.ch | | | | ok | | | | |
| FTS | | tiertwo-fts-ws.cern.ch | | | | ok | | | | | |
| LFC | | prod-lfc-atlas-central.cern.ch | | | | | ok | ok | | | |
| CERN-PROD | LFC | prod-lfc-atlas-local.cern.ch | | | | | ok | ok | | | |
| | SE | srm-atlas.cern.ch | | | | | | | | | |
| FZK-LCG2 | CE | ce-1-fzk.gridka.de | ok | ok | ok | | | | | | |
| | | ce-2-fzk.gridka.de | ok | ok | ok | | | | | | |
| | | ce-3-fzk.gridka.de | ok | ok | ok | | | | | | |
| | | ce-4-fzk.gridka.de | ok | ok | ok | | | | | | |
| | | ce-5-fzk.gridka.de | ok | ok | ok | | | | | | |
| | FTS | fts2-fzk.gridka.de | | | | ok | | | | | |
| | LFC | lfc-2-fzk.gridka.de | | | | | | ok | ok | | |
| FZK-LCG2 | | gridka-dCache.fzk.de | | | | | | | | | |
| | | cclgceli01.in2p3.fr | ok | ok | ok | | | | | | |
| IN2P3-CC | | cclgceli02.in2p3.fr | ok | ok | ok | | | | | | |
| | | ... | | | | | | | | | |

Clicking on a test displays its output

Clicking on a service...



Grouped by site, service type and site

Site Status Board

- ▶ Display the status of site according to different metrics
 - Metrics defined by the VO
 - Thanks to Stefano Belforte, Josep Flix, Andrea Sciaba, Artem Trunov, Xiaomei Zhang
- ▶ Flexibility to add new metrics
- ▶ Keep historical data
- ▶ Currently used on the CMS computer shifts
 - Also used for space monitoring
- ▶ Generic application
 - ATLAS and LHCb have shown interest

Home page



CMS Site Status Board

(last update at 2008-09-16 10:38:59)

Click on any of the headers to show/hide those sites

| T0 +T1 | T2 | T2 waiting room |
|---------------------------------|------------------------------------|--------------------------------------|
| ✓ T0_G11_CERN | ✓ T2_AT_Vie | ✓ T2_RU_IHIP |
| ✓ T1_DE_FZK | ⚠ T2_AT_Vie | ✓ T2_RU_IPHC |
| ✓ T1_ES_PIC | ✓ T2_BR_UE | ✓ T2_RU_TIFR |
| ✓ T1_FR_CCIN2P3 | ✗ T2_CN_Beijing | ✗ T2_DE_DESY |
| ✓ T1_IT_CNAF | ✓ T2_DE_RWTH | ✗ T2_BE_Estonia |
| ✓ T1_TW_ASGC | ✓ T2_ES_CIEMAT | ✗ T2_ES_IFCA |
| ✓ T1_UK_RAL | ✓ T2_FR_CCIN2P3 | ✗ T2_FR_GRIF_IRFU |
| ✓ T1_US_FNAL | ✓ T2_HU_Budapest | ✓ T2_IT_Bari |
| | ✓ T2_IT_Legnaro | ✓ T2_IT_Pisa |
| | ✓ T2_IT_Rome | ✓ T2_KR_KNU |
| | ✓ T2_PL_Warsaw | ✗ T2_PT_LIP_Coimbra |
| | ✓ T2_PT_LIP_Lisbon | ✓ T2_RU_IHEP |
| | ✓ T2_RU_IJEP | ✓ T2_RU_JINR |
| | ✓ T2_TW_Taiwan | ✗ T2_UK_London_Brmel |
| | ✓ T2_UK_London_IC | ✓ T2_UK_SGnd_Bristol |
| | ✗ T2_UK_SGnd_RALPP | ✓ T2_US_Caltech |
| | ✓ T2_US_Florida | ✓ T2_US_MIT |
| | ✗ T2_US_Nebraska | ✗ T2_US_Purdue |
| | ✓ T2_US_UCSD | ✓ T2_US_Wisconsin |
| T3 | | |
| ✗ T3_CN_PKU | ✗ T3_CO_Uniandes | ⚠ T3_DE_Karlsruhe |

<http://dashb-ssb/ssb.html>
and [gridmap on](http://dashb-ssb.cern.ch/ssbmap.htm)

<http://dashb-ssb.cern.ch/ssbmap.htm>

Maintenance

Colour of the site
defined by
combination of
columns

[Algorithm for calculating the status of the site](#)
Some of the columns of the table contribute to the status displayed in this page. At the moment, the columns that contribute are:
BDII: Visible
SAM TESTS: CE
SAM TESTS: SRM
Production
If you want to change that, go to the column definition and update the field 'Column Critical'

Different
groups

Standard view

Site Status for the CMS sites

Put the mouse over any column header to get the description of the column
 Clicking on a column header will display the evolution of that column over the last 24 hours
[Back to the index](#)

Each column can be provided by a different source

| Site Name | Visible | JobRobot | SAM TESTS | | Production | Analysis | Site usage | | Phedex | | | CMSSW | Open issues | Maintenance |
|-----------------|-------------|-----------|-----------|-------|------------|---|------------|---------|---------|---------|----------|-------|-------------|--------------|
| | | | CE | SRM | | | Running | Pending | # Links | In rate | Out rate | | | |
| T0_CH_CERN | n/a | n/a | OK | OK | 100%(104) | 39%(3229) | n/a | n/a | OK | 0 | 0 | n/a | info | GOCDB-info |
| T1_CH_CERN | n/a | n/a | n/a | n/a | n/a | OK if there are CRAB jobs, and 80% of them are successful in last 24h (last update: 2008-08-12 10:10:45) | | n/a | n/a | n/a | n/a | n/a | info | GOCDB-info |
| T1_DE_FZK | OK | 99%(304) | OK | error | n/a | | | | | | | OK | info | GOCDB-info |
| T1_ES_PIC | OK | SubFail | OK | OK | n/a | 62%(131) | 12 | 130 | OK | 103 | 0 | OK | info | GOCDB-info |
| T1_FR_CCIN2P3 | OK | 98%(160) | OK | OK | 100%(141) | 0%(4) | 0 | 1212 | OK | 51 | 0 | OK | info | GOCDB-info |
| T1_IT_CNAF | OK | 100%(300) | OK | OK | n/a | 55%(247) | 11 | 13 | OK | 102 | 2 | OK | info | GOCDB-info |
| T1_TW_ASGC | OK | 100%(400) | OK | OK | n/a | 93%(326) | 9 | 442 | OK | 227 | 108 | OK | info | GOCDB-info |
| T1_UK_RAL | OK | pend | OK | error | n/a | 0%(2) | 6 | 1 | OK | 21 | 78 | OK | info | GOCDB-info |
| T1_US_FNAL | warning 3/4 | 100%(400) | OK | OK | 100%(4697) | 67%(531) | 32 | 5347 | OK | 202 | 318 | OK | info | OSG-downtime |
| T2_AT_Vienna | OK | 100%(404) | OK | OK | n/a | 51%(402) | 9 | 50 | OK | 0 | 2 | OK | info | GOCDB-info |
| T2_BE_IHHE | OK | 100%(192) | OK | OK | 100%(14) | 57%(205) | 14 | 52 | OK | 0 | 0 | OK | info | GOCDB-info |
| T2_BE_UCL | OK | 88%(144) | OK | OK | n/a | 31%(32) | n/a | 29 | OK | 0 | 0 | OK | info | GOCDB-info |
| T2_BR_SPRACE | error | 99%(300) | OK | OK | n/a | 100%(4) | 1 | 18 | err | 27 | 0 | OK | info | OSG-downtime |
| T2_BR_URJ | OK | pend | OK | OK | n/a | 58%(19) | 11 | 15 | OK | 49 | 0 | OK | info | OSG-downtime |
| T2_CH_CAF | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | OK | 55 | 0 | n/a | info | GOCDB-info |
| T2_CH_CSCS | OK | 100%(404) | OK | OK | n/a | 53%(218) | 24 | 17 | OK | n/a | n/a | OK | info | GOCDB-info |
| T2_CN_Beijing | OK | 81%(200) | OK | OK | 100%(3) | 80%(122) | 11 | 16 | OK | n/a | n/a | error | info | GOCDB-info |
| T2_DE_DESY | OK | 100%(122) | OK | OK | n/a | 52%(205) | 193 | 18 | OK | 0 | 2 | OK | info | GOCDB-info |
| T2_DE_RWTH | OK | 99%(300) | OK | OK | n/a | 80%(233) | 11 | 1135 | OK | 3 | 1 | OK | info | GOCDB-info |
| T2_EE_Estonia | OK | 83%(400) | OK | OK | n/a | 43%(268) | 11 | 125 | OK | 0 | 1 | OK | info | GOCDB-info |
| T2_ES_CIEMAT | OK | 100%(300) | OK | OK | 100%(13) | 71%(455) | 42 | 91 | OK | 1 | 1 | OK | info | GOCDB-info |
| T2_ES_IFCA | OK | 100%(400) | OK | OK | 100%(14) | 66%(1265) | 12 | 22 | OK | 12 | 14 | OK | info | GOCDB-info |
| T2_FI_HIP | error | n/a | OK | OK | n/a | n/a | n/a | n/a | OK | 0 | 0 | n/a | info | GOCDB-info |
| T2_FR_CCIN2P3 | OK | n/a | OK | OK | 100%(9) | 8%(1354) | 11 | 15 | n/a | n/a | n/a | OK | info | GOCDB-info |
| T2_FR_GRIF_IRFU | error | 100%(404) | OK | OK | 100%(38) | 36%(2089) | 103 | 252 | OK | n/a | n/a | OK | info | GOCDB-info |

Cells can have links to more detailed information

Standard view (II)

Site Status for the CMS sites

Put the mouse over any column header to get the description of the column
 Clicking on a column header will display the evolution of that column over the last 24 hours
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| Site Name | ERT (max) | Space Monitoring | | | | SiteComm JR | SAM (expand this column) | Commissioned Links (expand this column) | Commissioned T2 | Site availability |
|---------------|------------|------------------|------------------|------------------------|---------------------|----------------|--------------------------------|--|--------------------|----------------------|
| | | Pledged, TB | subscription, TB | on site(phedex), TB | on site(DBS), TB | | | | | |
| T0_CH_CERN | n/a | 0 | 189.5 | 165.6 | 2049.68 | n/a | combined | n/a | n/a | 1 |
| T1_CH_CERN | n/a | 0 | 690 | 757.3 | 2049.68 | n/a | n/a | combined | n/a | NA |
| T1_DE_FZK | 0 | 0 | 354.5 | 354.5 | 455.83 | n/a | combined | combined | 1 | 1 |
| T1_ES_PIC | 61877 | 0 | 301.1 | 130.8 | 195.21 | n/a | combined | combined | 1 | 1 |
| T1_FR_CCIN2P3 | 6341 | 0 | 473.6 | 469.0 | 526.37 | n/a | combined | combined | 1 | 1 |
| T1_JT_CNAF | 0 | 0 | 350.2 | 159.3 | 212.55 | n/a | combined | combined | 1 | 1 |
| T1_TW_AS GC | 6021286 | 0 | 273.1 | 229.0 | 230.72 | n/a | combined | combined | n/a | 1 |
| T1_UK_RAL | 3773574 | 0 | 345.0 | 304.4 | 317.10 | n/a | combined | combined | n/a | 1 |
| T1_US_FNAL | 2146660841 | 0 | 1100 | 1100 | 1476.04 | n/a | combined | combined | n/a | 1 |
| T2_AT_Vienna | 0 | 4638.5 | 32.1 | 20.9 | 25.10 | n/a | combined | combined | 1 | 1 |
| T2_BE_IJHE | 9 | 0 | 59.2 | 43.4 | 51.36 | n/a | combined | combined | 1 | 1 |
| T2_BE_UCL | 3616 | 0 | 33.8 | 33.3 | 39.29 | n/a | combined | combined | 1 | 1.625 |
| T2_BR_SPRACE | n/a | 4638.5 | 4.0 | 3.3 | 3.73 | n/a | combined | combined | n/a | 1.3333333333 |
| T2_BR_UERJ | 14400 | 4638.5 | 17.2 | 7.0 | 7.66 | n/a | combined | combined | 1 | 1 |
| T2_CH_CAF | n/a | 4638.5 | 356.2 | 323.9 | n/a | n/a | n/a | combined | n/a | NA |
| T2_CH_CSCS | 0 | 4638.5 | 32.6 | 34.8 | 42.37 | n/a | combined | combined | 1 | 1 |
| T2_CN_Beijing | 0 | 0 | 13.4 | 13.4 | 20.58 | n/a | combined | combined | n/a | 1 |
| T2_CN_Beijng | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | 1 | n/a |
| T2_DE_DESY | 0 | 4638.5 | 36.3 | 39.0 | 45.80 | n/a | combined | combined | 1 | 1 |
| T2_DE_RWTH | 0 | 4638.5 | 40.7 | 46.5 | 56.88 | n/a | combined | combined | 1 | 1.7500000000 |
| T2_EE_Estonia | 0 | 4638.5 | 33.1 | 22.2 | 26.04 | n/a | combined | combined | 1 | 1.9500000000 |
| T2_ES_CIEMAT | 0 | 4638.5 | 42.3 | 44.7 | 49.12 | n/a | combined | combined | 1 | 1 |
| T2_ES_IFCA | 0 | 4638.5 | 58.6 | 58.6 | 66.31 | n/a | combined | combined | 1 | 0 |
| T2_FL_HIP | n/a | 4638.5 | 23.8 | 24.9 | 28.73 | n/a | combined | combined | n/a | 1 |

Different view for columns that are not yet 'official'

Columns can be combined into a single column

Historical view

[Click here to go back to the table](#)

Column Name: JobRobot
Column source: <http://belforte.home.cern.ch/belforte/misc/JobRobotForSiteMonitor.txt>
Column URL: <http://belforte.home.cern.ch/belforte/misc/JobRobotForSiteMonitor.html>
Column Description: OK if JR is succeeding at least 80% in last 24h
Column Frequency: 3600
Column Update Hour: 5
Column Last Update: 2008-09-16 10:06:38

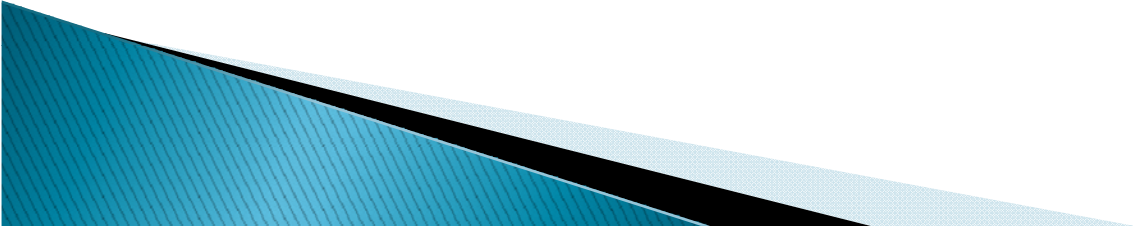
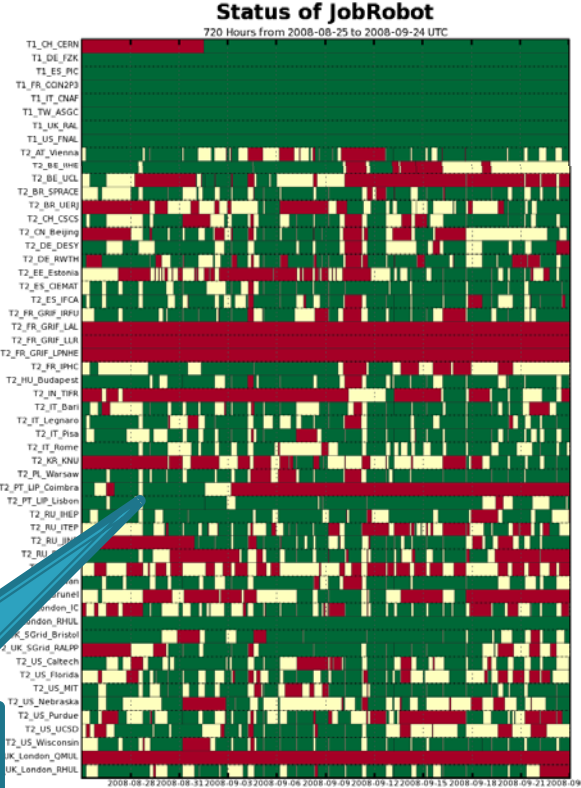
Update the information of this column

Refresh

Time of the last update

Source of data: text file with one line per site

Clickable image



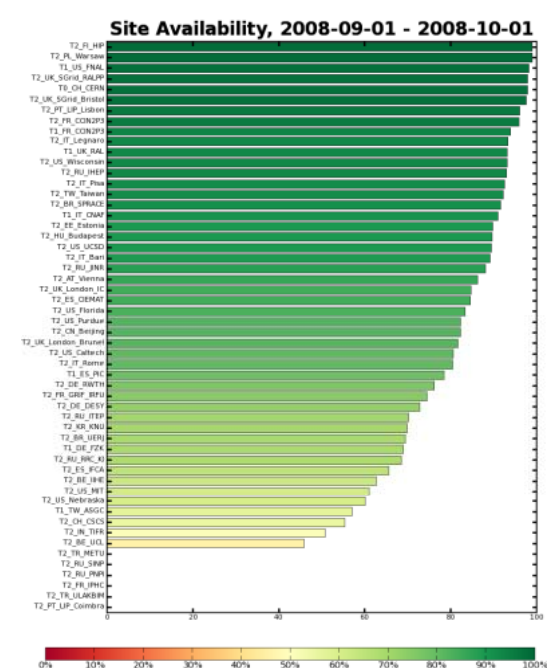
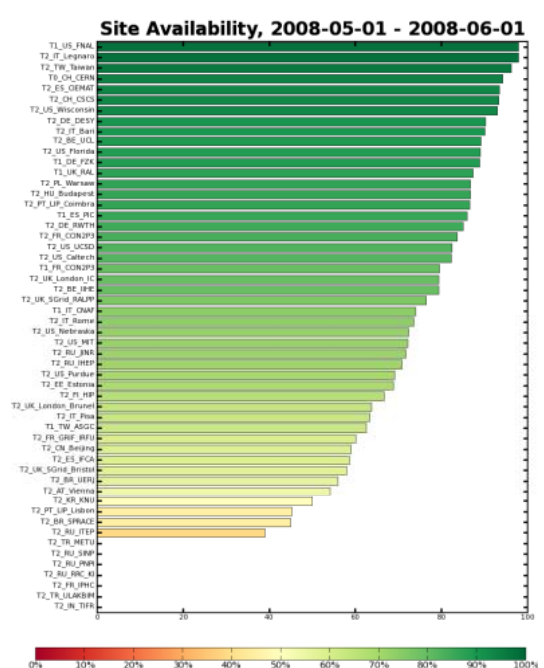
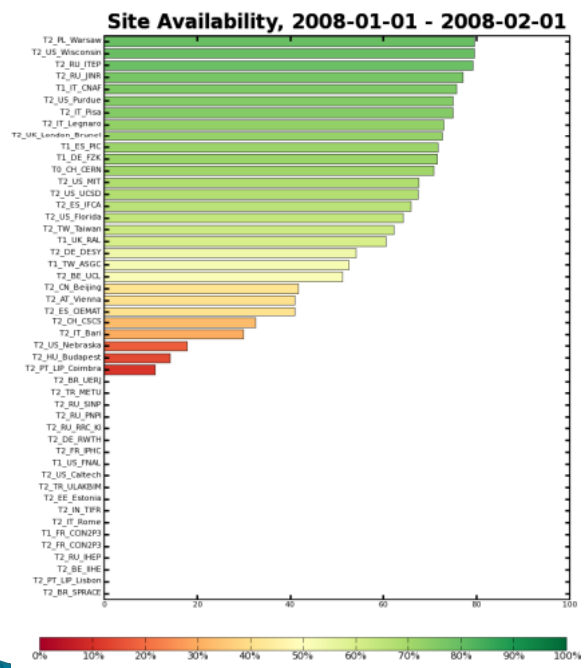
Monitoring GRID improvements

► CMS sites availability

January 2008

May 2008

September 2008



To Do

- ▶ Create 'Site View'
 - Reusing Site Status Board with different metrics
- ▶ Authentication
 - X509
 - Remember user preferences
- ▶ Aggregation of data
 - Already done in other dashboard applications

Conclusion



See also our poster!!
(and choose it as 'best poster' 😊)

- ▶ The dashboard provides all the applications needed for Site Monitoring
 - SAM web portal
 - Site Status Board
- ▶ Easy top level overviews
 - And possibility to drill down to more specific info
- ▶ Keeping historical data
- ▶ Currently used during the CMS computer shifts
- ▶ Applications developed with continuous feedback from users

<http://dashb-ssb.cern.ch/ssb.html>
<http://dashb-sam.cern.ch>