# SAM Status

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Grid Deployment Board

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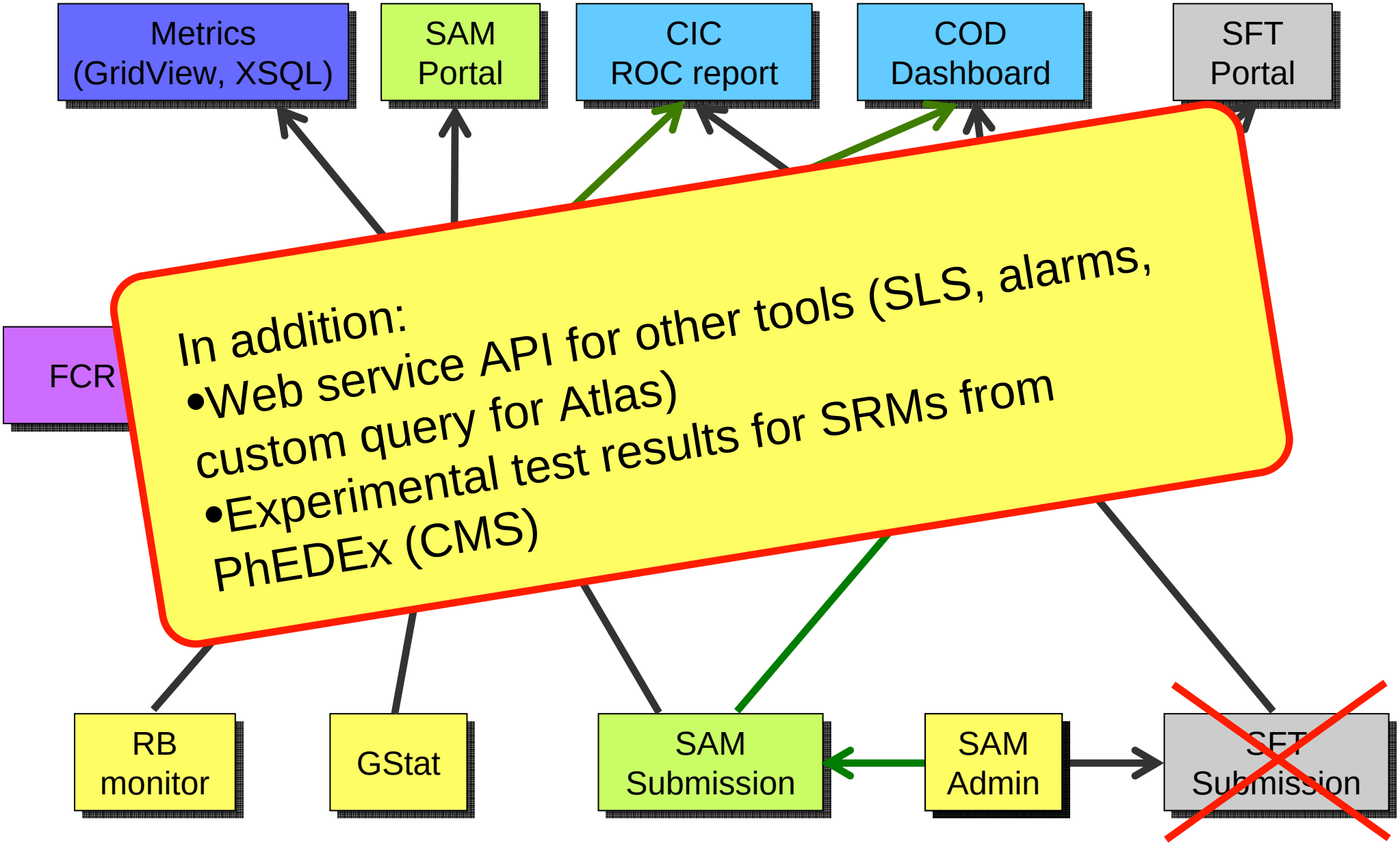
# Outline

- Deployment status
- Sensors status
- Existing tests
- VO specific tests
- Jobwrapper tests
- Availability metrics
- Open issues

# Deployment status



# Status of sensors

| Service | Responsible | Status |
|---|---|---|
| SRM | P. Nyczyk | Done |
| LFC | J. Casey | Done |
| FTS | P.Nyczyk | Done (static list of files for transfer tests) |
| CE | P. Nyczyk | Done |
| RB | D. Kant | Done |
| RB-pasv | S. Andreozzi | No news |
| gLite WMS | ? | Certification tests migrated to SAM in CTB |
| Top-level BDII | M. Tsai | Done |
| Site BDII | M. Tsai | Done |
| MyProxy | M. Litmaath | To be done (simple tests) |
| VOMS | V. Venturi | Sensor written, to be integrated |
| R-GMA | ? | Script written, sensor has to be created |
| Tier-1 DB | ? | Suggested by Dirk Duelmann, to be done |

# Existing tests - CE, gCE

- job submission - UI->RB->CE->WN chain
- version of CA certificates installed (on WN!)
- version of software middleware (on WN!)
- broker info - checking *edg-brokerinfo* command
- UNIX shells environment consistency (BASH vs. CSH)
- replica management tests - using lcg-utils, *default SE* defined on WN and a selected “central” SE (3-rd party replication)
- accessibility of experiments software directory - environment variable, directory existence
- accessibility of VO tag management tools
- other tests: R-GMA client check, Apel accounting records

# Existing tests - SE, SRM

- storing file from the UI - using *lcg-cr* command with LFC registration
- getting file back to the UI - using *lcg-cp* command
- removing file - using *lcg-del* command with LFC de-registration

# Existing tests - LFC, FTS

- LFC
  - directory listing - using *lfc-ls* command on /grid
  - creating file entry in /grid/<VO> area
- FTS
  - checking if FTS is published correctly in the BDII
  - channel listing - using *glite-transfer-channel-list* command with ChannelManagement service
  - transfer test (in development):
    - submitting transfer jobs between SRMs in all Tier0 and Tier1 sites (N-N testing)
    - checking the status of jobs
    - Note! The test is relying on availability of SRMs in sites

# Existing standalone sensors

- GStat:
  - site-BDIIs: accessibility (response time), sanity checks (partial Glue schema validation)
  - top-level BDIIs: accessibility (response time), reliability of data (number of entries)
- RB:
  - jobs submitted through all important RBs to selected “reliable” CEs
  - measuring time of matchmaking

# VO specific tests submission

- LHCb
  - already submits jobs, but using old SFT framework (only CEs, need to migrate to SAM)
  - VO specific tests (Dirac installation)
- Atlas
  - jobs for all sensors submitted from SAM UI with Atlas credentials
  - standard set of tests
- CMS
  - account on SAM UI created, sample jobs sent, no regular submission yet
  - VO is using OPS results in FCR
- Alice - no information

# JobWrapper tests I

- Requested by experiments - motivation:
  - SAM/SFT jobs are not reaching all WNs, thus not detecting broken WNs which can lead to unacceptable failure rate
- Simplified set of tests executed on WNs by the CE wrapper with each grid job
- Will potentially reach all WNs in relatively short time
- Test results will be passed to the job but also published to the central DB
- Core scripts have to be installed on CE and WNs (will become part of the release)
- Set of tests will be updated centrally (signed tarball installed in software area)

# JobWrapper tests II

- Gains for operations:
  - infrastructure description with unique identification of WNs:
    - relation between CEs, batch queues, WNs
    - detection of monitoring queues pointing to “carefully” selected WN
    - counting WNs at the site without risk of double counting due to shared batch farms
  - detection of sites with broken WNs: basic fabric monioring for small sites
- Status:
  - scripts, tests, transport layer ready and certified on CTB
  - deployment on PPS should start soon
  - visualisation and data processing tools have to be written (simple view at CERN, data analysis by team from Wuppertal?)

# Missing tests

- gLite WMS
  - tests from Certification Test Suite were migrated to SAM in Certification TestBed (but mostly stress tests)
- MyProxy sensor - ???
- VOMS sensor
  - some work done by Valerio Venturi, needs to be integrated
  - additional tests are being developed by CTB team
- R-GMA registry
  - sensor has to be written, but not very urgent
- Tier1 DB
  - need for monitoring of selected Oracle DB services at Tier1 centres
  - sensor has to be written almost from scrat
- R-GMA

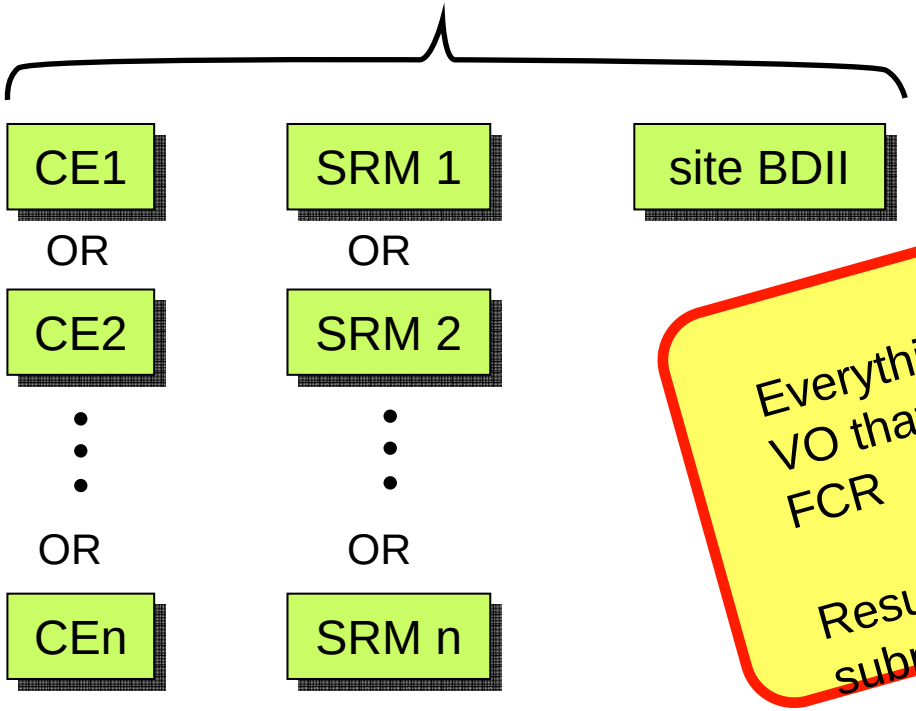
# Availability metrics - algorithm

$\wedge$ = boolean AND
$\vee$ = boolean OR

Status of node N = $\bigwedge_{t \in \text{CriticalTests}}$ TestResult (N,t)

Status of central service C = $\bigvee_{N \in \text{instances(C)}}$ Status (N)

Status of site S = AND




Everything is calculated for each VO that defined critical tests in FCR

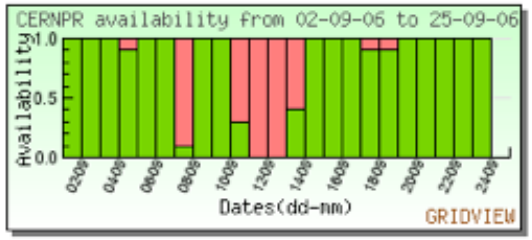
Results make sense only if VO submits tests!!!

# Availability metrics - algorithm II

- Service and site status values are recorder every hour (24 snapshots per day)
- Daily, weekly, monthly availability is calculated using integration (averaging) over the given period
- Scheduled downtime information from GOC DB is also recorder and integrated for comparisons
- Details of the algorithm on GOC: http://goc.grid.sinica.edu.tw/gocwiki/SAM_Metrics_calculation

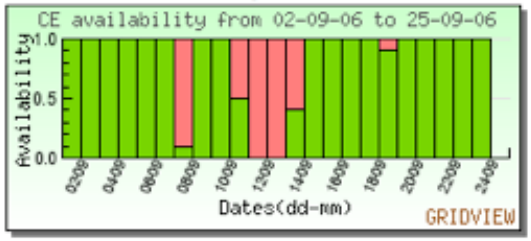
# Availability metrics - GridView

**Overall Service Availablity for site CERNPR : Daily Report**

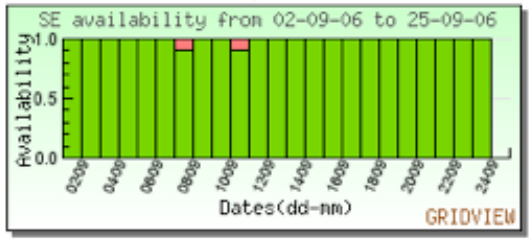



**Individual Service Availablity for site CERNPR : Daily Report**

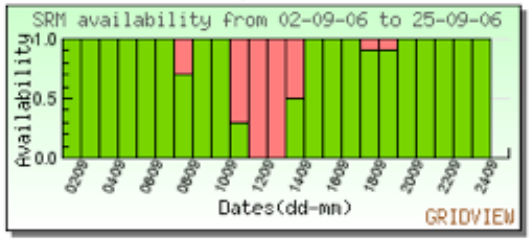
CE :




SE :



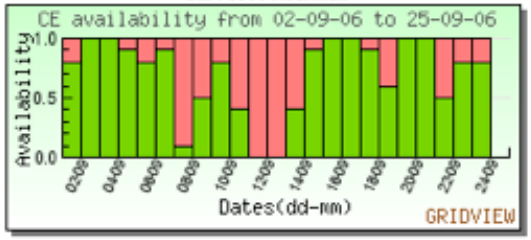

SRM :



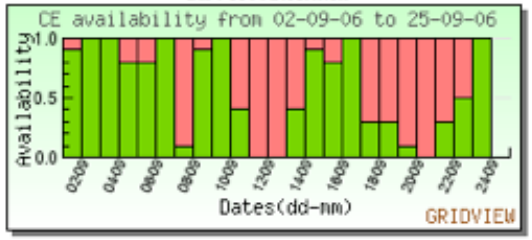

**Service Instance Availablity for site CERNPR : Daily Report**

**Site Services**

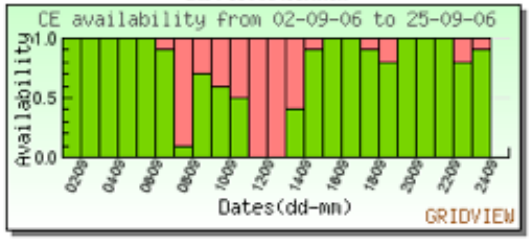
CE : ce101.cern.ch



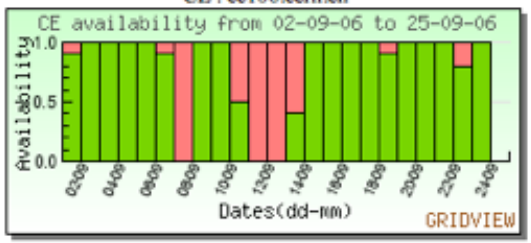

CE : ce102.cern.ch



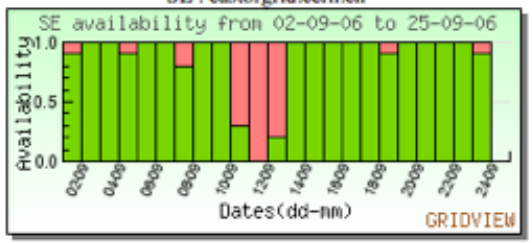

CE : ce105.cern.ch



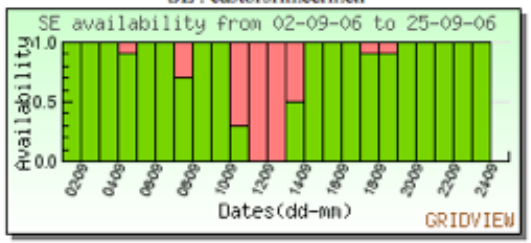

CE : ce106.cern.ch




SE : castorgrid.cern.ch



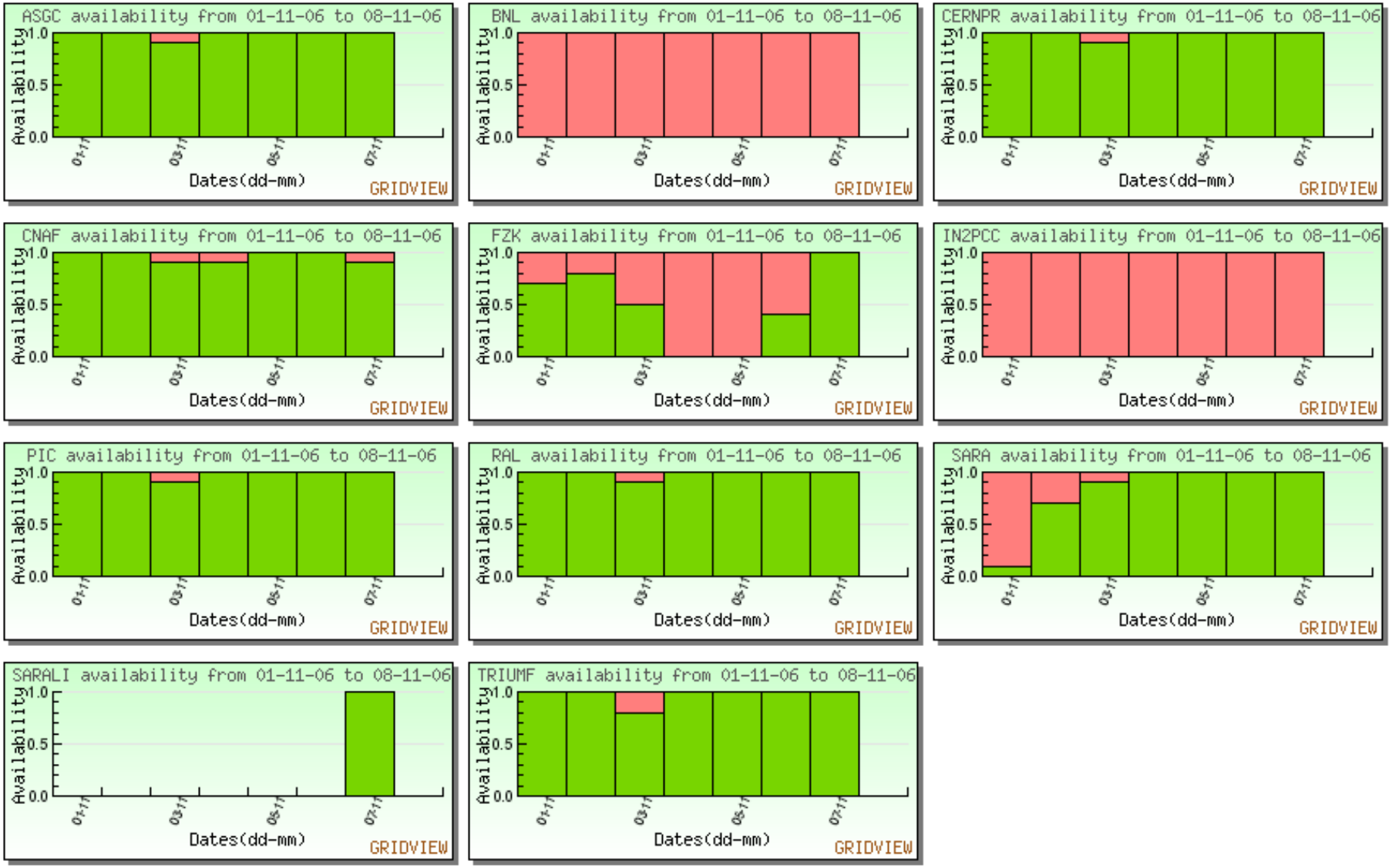

SE : castorsrm.cern.ch



# Availability metrics - Atlas VO

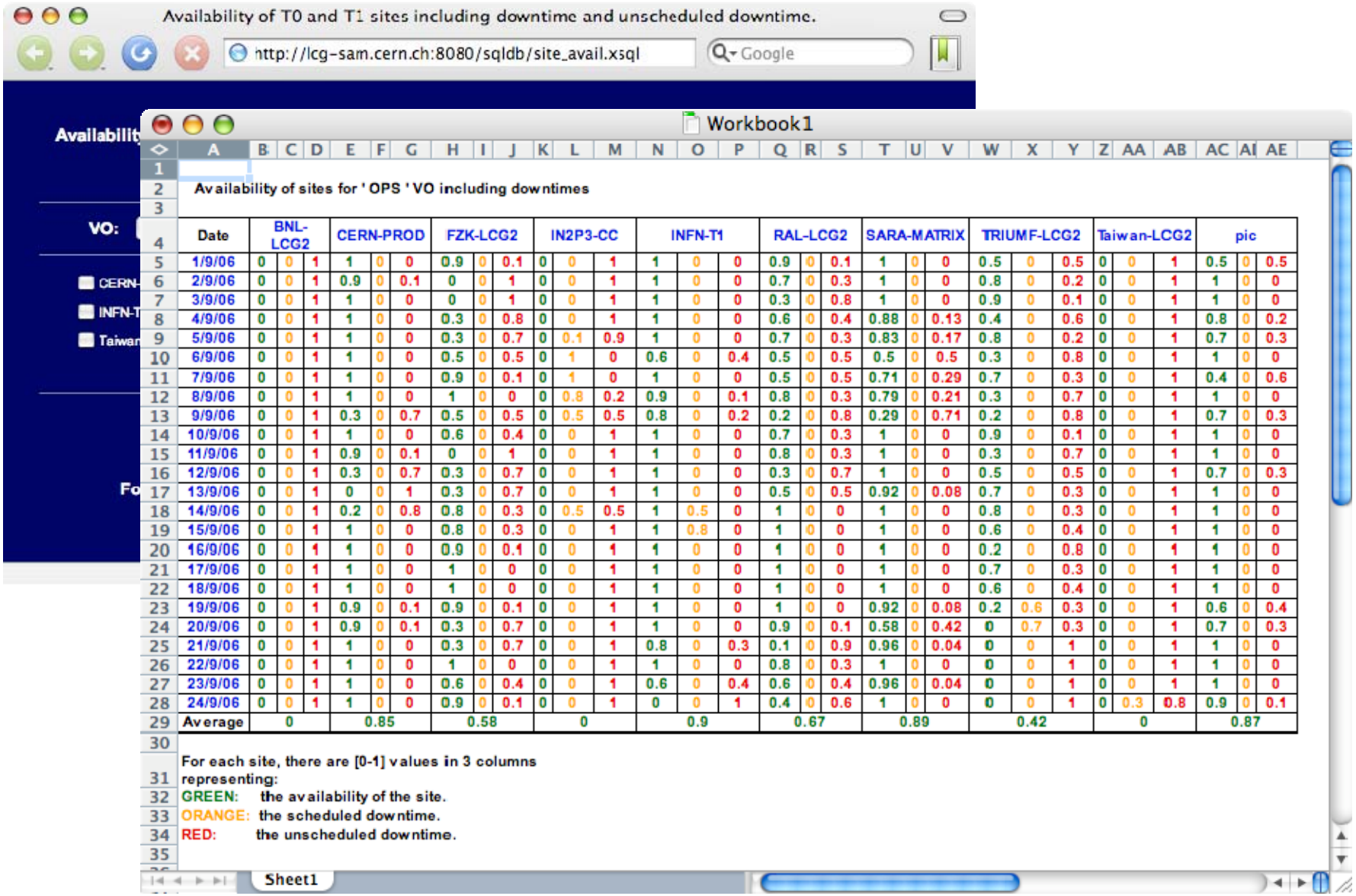
## Tier-1/0 Site Availability : Daily Report

(Click on the Graph below to see Availability of Individual Services at the Site)




- Note: Low score of BNL and IN2P3 caused by SRM failures

# Availability metrics - data export




Availability of sites for ' OPS ' VO including downtimes

| Date | BNL-LCG2 | | | CERN-PROD | | | FZK-LCG2 | | | IN2P3-CC | | | INFN-T1 | | | RAL-LCG2 | | | SARA-MATRIX | | | TRIUMF-LCG2 | | | Taiwan-LCG2 | | | pic | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/9/06 | 0 | 0 | 1 | 1 | 0 | 0 | 0.9 | 0 | 0.1 | 0 | 0 | 1 | 1 | 0 | 0 | 0.9 | 0 | 0.1 | 1 | 0 | 0 | 0.5 | 0 | 0.5 | 0 | 0 | 1 | 0.5 | 0 | 0.5 |
| 2/9/06 | 0 | 0 | 1 | 0.9 | 0 | 0.1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0.7 | 0 | 0.3 | 1 | 0 | 0 | 0.8 | 0 | 0.2 | 0 | 0 | 1 | 1 | 0 | 0 |
| 3/9/06 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0.3 | 0 | 0.8 | 1 | 0 | 0 | 0.9 | 0 | 0.1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 4/9/06 | 0 | 0 | 1 | 1 | 0 | 0 | 0.3 | 0 | 0.8 | 0 | 0 | 1 | 1 | 0 | 0 | 0.6 | 0 | 0.4 | 0.88 | 0 | 0.13 | 0.4 | 0 | 0.6 | 0 | 0 | 1 | 0.8 | 0 | 0.2 |
| 5/9/06 | 0 | 0 | 1 | 1 | 0 | 0 | 0.3 | 0 | 0.7 | 0 | 0.1 | 0.9 | 1 | 0 | 0 | 0.7 | 0 | 0.3 | 0.83 | 0 | 0.17 | 0.8 | 0 | 0.2 | 0 | 0 | 1 | 0.7 | 0 | 0.3 |
| 6/9/06 | 0 | 0 | 1 | 1 | 0 | 0 | 0.5 | 0 | 0.5 | 0 | 1 | 0 | 0.6 | 0 | 0.4 | 0.5 | 0 | 0.5 | 0.5 | 0 | 0.5 | 0.3 | 0 | 0.8 | 0 | 0 | 1 | 1 | 0 | 0 |
| 7/9/06 | 0 | 0 | 1 | 1 | 0 | 0 | 0.9 | 0 | 0.1 | 0 | 1 | 0 | 1 | 0 | 0 | 0.5 | 0 | 0.5 | 0.71 | 0 | 0.29 | 0.7 | 0 | 0.3 | 0 | 0 | 1 | 0.4 | 0 | 0.6 |
| 8/9/06 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0.8 | 0.2 | 0.9 | 0 | 0.1 | 0.8 | 0 | 0.3 | 0.79 | 0 | 0.21 | 0.3 | 0 | 0.7 | 0 | 0 | 1 | 1 | 0 | 0 |
| 9/9/06 | 0 | 0 | 1 | 0.3 | 0 | 0.7 | 0.5 | 0 | 0.5 | 0 | 0.5 | 0.5 | 0.8 | 0 | 0.2 | 0.2 | 0 | 0.8 | 0.29 | 0 | 0.71 | 0.2 | 0 | 0.8 | 0 | 0 | 1 | 0.7 | 0 | 0.3 |
| 10/9/06 | 0 | 0 | 1 | 1 | 0 | 0 | 0.6 | 0 | 0.4 | 0 | 0 | 1 | 1 | 0 | 0 | 0.7 | 0 | 0.3 | 1 | 0 | 0 | 0.9 | 0 | 0.1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 11/9/06 | 0 | 0 | 1 | 0.9 | 0 | 0.1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0.8 | 0 | 0.3 | 1 | 0 | 0 | 0.3 | 0 | 0.7 | 0 | 0 | 1 | 1 | 0 | 0 |
| 12/9/06 | 0 | 0 | 1 | 0.3 | 0 | 0.7 | 0.3 | 0 | 0.7 | 0 | 0 | 1 | 1 | 0 | 0 | 0.3 | 0 | 0.7 | 1 | 0 | 0 | 0.5 | 0 | 0.5 | 0 | 0 | 1 | 0.7 | 0 | 0.3 |
| 13/9/06 | 0 | 0 | 1 | 0 | 0 | 1 | 0.3 | 0 | 0.7 | 0 | 0 | 1 | 1 | 0 | 0 | 0.5 | 0 | 0.5 | 0.92 | 0 | 0.08 | 0.7 | 0 | 0.3 | 0 | 0 | 1 | 1 | 0 | 0 |
| 14/9/06 | 0 | 0 | 1 | 0.2 | 0 | 0.8 | 0.8 | 0 | 0.3 | 0 | 0.5 | 0.5 | 1 | 0.5 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0.8 | 0 | 0.3 | 0 | 0 | 1 | 1 | 0 | 0 |
| 15/9/06 | 0 | 0 | 1 | 1 | 0 | 0 | 0.8 | 0 | 0.3 | 0 | 0 | 1 | 1 | 0.8 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0.6 | 0 | 0.4 | 0 | 0 | 1 | 1 | 0 | 0 |
| 16/9/06 | 0 | 0 | 1 | 1 | 0 | 0 | 0.9 | 0 | 0.1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0.2 | 0 | 0.8 | 0 | 0 | 1 | 1 | 0 | 0 |
| 17/9/06 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0.7 | 0 | 0.3 | 0 | 0 | 1 | 1 | 0 | 0 |
| 18/9/06 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0.6 | 0 | 0.4 | 0 | 0 | 1 | 1 | 0 | 0 |
| 19/9/06 | 0 | 0 | 1 | 0.9 | 0 | 0.1 | 0.9 | 0 | 0.1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0.92 | 0 | 0.08 | 0.2 | 0.6 | 0.3 | 0 | 0 | 1 | 0.6 | 0 | 0.4 |
| 20/9/06 | 0 | 0 | 1 | 0.9 | 0 | 0.1 | 0.3 | 0 | 0.7 | 0 | 0 | 1 | 1 | 0 | 0 | 0.9 | 0 | 0.1 | 0.58 | 0 | 0.42 | 0 | 0.7 | 0.3 | 0 | 0 | 1 | 0.7 | 0 | 0.3 |
| 21/9/06 | 0 | 0 | 1 | 1 | 0 | 0 | 0.3 | 0 | 0.7 | 0 | 0 | 1 | 0.8 | 0 | 0.3 | 0.1 | 0 | 0.9 | 0.96 | 0 | 0.04 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 22/9/06 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0.8 | 0 | 0.3 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 23/9/06 | 0 | 0 | 1 | 1 | 0 | 0 | 0.6 | 0 | 0.4 | 0 | 0 | 1 | 0.6 | 0 | 0.4 | 0.6 | 0 | 0.4 | 0.96 | 0 | 0.04 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 24/9/06 | 0 | 0 | 1 | 1 | 0 | 0 | 0.9 | 0 | 0.1 | 0 | 0 | 1 | 0 | 0 | 1 | 0.4 | 0 | 0.6 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0.3 | 0.8 | 0.9 | 0 | 0.1 |
| Average | 0 | | | 0.85 | | | 0.58 | | | 0 | | | 0.9 | | | 0.67 | | | 0.89 | | | 0.42 | | | 0 | | | 0.87 | | |

For each site, there are [0-1] values in 3 columns representing:
GREEN: the availability of the site.
ORANGE: the scheduled downtime.
RED: the unscheduled downtime.

Sheet1

# Open issues

- All sensors have to be reviewed and fixed:
  - check if tests reflect real usage (experiments)
  - avoid dependencies on central services and third party services if possible
  - increase reliability of results (resistant to any other failures not related to site configuration)
  - increase tests verbosity (make easier to find real problem - site debugging))
- Missing sensor/tests have to be written
- All tests should be well documented (TestDef inline doc + Wiki)
- Jobwrapper tests should be put in production (simple display or data export needed)
- Availability metric should be reviewed and fixed - *is the current one the way to go?*
- Metric calculation for aggregates of sites