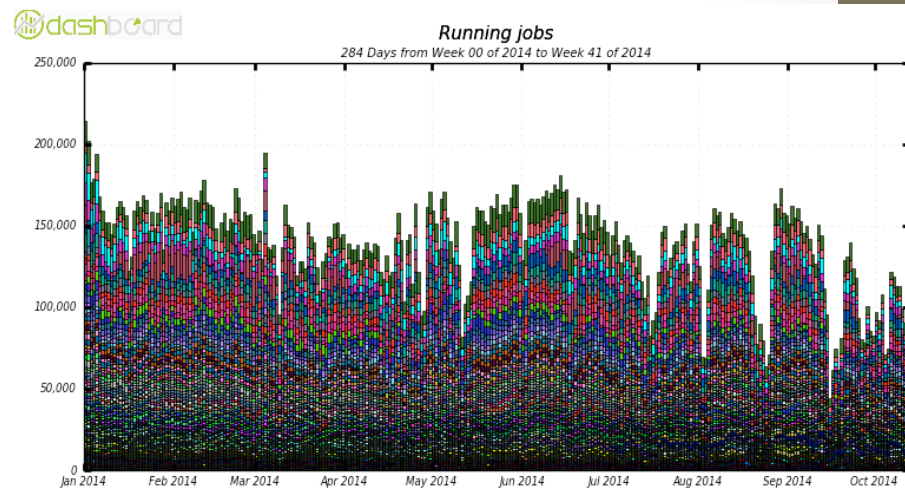
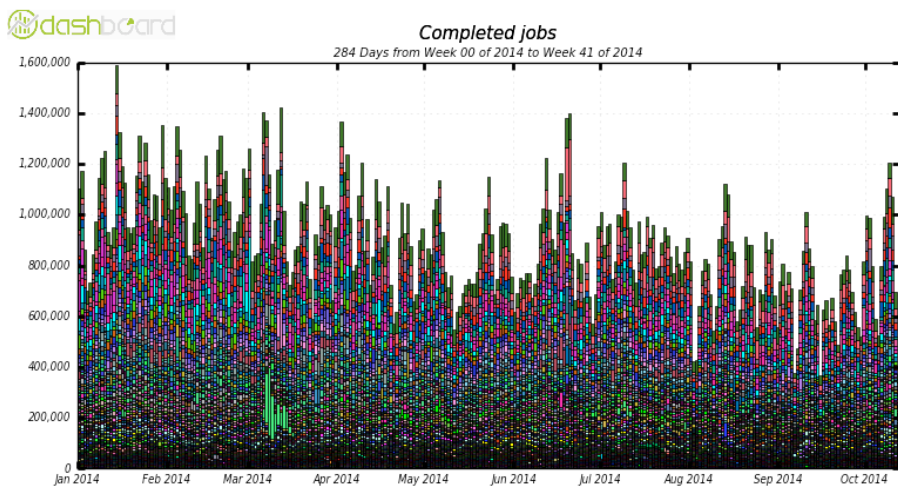




# Monitoring ATLAS Distributed Computing Tools and Productions

# ATLAS jobs in numbers

ATLAS data are distributed, processed and analyzed at more than 130 grid and cloud sites across the world within the WLCG



- |                         |                     |                           |                           |                        |
|-------------------------|---------------------|---------------------------|---------------------------|------------------------|
| ■ BNL-ATLAS             | ■ MWT2              | ■ TRIUMF-LCG2             | ■ AGLT2                   | ■ RAL-LCG2             |
| ■ FZK-LCG2              | ■ DESY-HH           | ■ INFN-T1                 | ■ WT2                     | ■ CERN-PROD            |
| ■ SWT2_CP8              | ■ IN2P3-CC          | ■ TOKYO-LCG2              | ■ NDGF-T1                 | ■ LRZ-LMU              |
| ■ UKI-LT2-OMUL          | ■ NIKHEF-ELPROD     | ■ UKI-SCOTGRID-GLASGOW    | ■ CERN-P1                 | ■ IN2P3-CC-T2          |
| ■ UKI-NORTHGRID-MAN-HEP | ■ BU_ATLAS_TIER2    | ■ PRAGUELCG2              | ■ SARA-MATRIX             | ■ RU-PROTVINO-IHEP     |
| ■ IFIC-LCG2             | ■ PIC               | ■ TW-FTT                  | ■ TAIWAN-LCG2             | ■ MPPMU                |
| ■ GRIF-IRFU             | ■ INFN-NAPOLI-ATLAS | ■ HU_ATLAS_TIER2          | ■ UKI-NORTHGRID-LANCS-HEP | ■ INFN-ROMA1           |
| ■ GOEGRID               | ■ IN2P3-CPPM        | ■ CA-VICTORIA-WESTGRID-T2 | ■ UKI-SOUTHGRID-OX-HEP    | ■ UKI-LT2-RHUL         |
| ■ INFN-MILANO-ATLASC    | ■ MPPMU             | ■ IN2P3-LAPP              | ■ CSCS-LCG2               | ■ UKI-SOUTHGRID-OX-HEP |
| ■ INFN-FRASCATI         | ■ GRIF-LPNHE        | ■ AUSTRALIA-ATLAS         | ■ INFN-ROMA1              | ■ ... plus 79 more     |
- Maximum: 1.591,927, Minimum: 368,138, Average: 897,876, Current: 371,001

- |                         |                         |                     |                           |                           |                           |
|-------------------------|-------------------------|---------------------|---------------------------|---------------------------|---------------------------|
| ■ BNL-ATLAS             | ■ MWT2                  | ■ RAL-LCG2          | ■ CERN-PROD               | ■ INFN-T1                 | ■ CERN-P1                 |
| ■ RAL-LCG2              | ■ FZK-LCG2              | ■ TRIUMF-LCG2       | ■ UKI-SCOTGRID-GLASGOW    | ■ AGLT2                   | ■ DESY-HH                 |
| ■ WT2                   | ■ IN2P3-CC              | ■ NDGF-T1           | ■ BU_ATLAS_TIER2          | ■ NDGF-T1                 | ■ LRZ-LMU                 |
| ■ UKI-LT2-OMUL          | ■ UKI-NORTHGRID-MAN-HEP | ■ INFN-NAPOLI-ATLAS | ■ NIKHEF-ELPROD           | ■ UKI-NORTHGRID-MAN-HEP   | ■ TOKYO-LCG2              |
| ■ UKI-NORTHGRID-GLASGOW | ■ TAIWAN-LCG2           | ■ HU_ATLAS_TIER2    | ■ PIC                     | ■ PRAGUELCG2              | ■ SARA-MATRIX             |
| ■ MPPMU                 | ■ INFN-ROMA1            | ■ GOEGRID           | ■ IFIC-LCG2               | ■ GRIF-IRFU               | ■ IN2P3-CC-T2             |
| ■ INFN-ROMA1            | ■ UKI-LT2-RHUL          | ■ SIGNET            | ■ INFN-MILANO-ATLASC      | ■ GRIF-IRFU               | ■ UKI-NORTHGRID-LANCS-HEP |
| ■ UKI-LT2-RHUL          | ■ UKI-SOUTHGRID-OX-HEP  | ■ IN2P3-CPPM        | ■ RU-PROTVINO-IHEP        | ■ INFN-MILANO-ATLASC      | ■ OU_OCHEP_SWT2           |
| ■ UKI-SOUTHGRID-OX-HEP  | ■ CSCS-LCG2             | ■ UTA_SWT2          | ■ CA-VICTORIA-WESTGRID-T2 | ■ RU-PROTVINO-IHEP        | ■ DESY-ZN                 |
| ■ INFN-FRASCATI         | ■ INFN-ROMA1            | ■ UTA_SWT2          | ■ CA-VICTORIA-WESTGRID-T2 | ■ UKI-NORTHGRID-LANCS-HEP | ■ UKI-NORTHGRID-LANCS-HEP |
|                         |                         |                     | ■ CA-CINET-T2             | ■ GRIF-LPNHE              | ■ ... plus 79 more        |
- Maximum: 214,218, Minimum: 44,013, Average: 139,859, Current: 78,251

More than 1000000 jobs/day

More than 120 000 concurrent jobs

## Data Management

Central Deletion Monitoring	Functional Tests	Data Replication	Data Replication Details	Dataset Recovery Service	DDM Blacklisting	DDM Dashboard 2.0	WLCG Transfers Dashboard	Single File Transfer Monitoring
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## DDM & Storage Accounting

DDM Accounting	DDM Popularity Prototype	PD2P Prototype	Storage Accounting	Storage Monitoring	T1 Storage Space
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## Data Processing

PANDA Brokerage Monitor	BigPanDA Monitor
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## Data Processing Accounting

Historical Views Dashboard	Historical Views (BETA)	ICB Accounting
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## Sites and Services

AGIS	Hammercloud	Pilot factory	SLS Central Services	SLS Services for ATLAS	Site Status Board	SUM Visualization	ABCD metric
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## Databases

DB dashboard	Frontier AWSTAT	Frontier SLS	Squid
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## Point 1

conTZole Tier-0 (i1)	conTZole Tier-0 (i2)	Detector Operation
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## Miscellaneous

ADC Monitoring JIRA	TWiki
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- Covers the full-range of distributed computing activities.
  - Provides a real time monitoring and long term accounting in the scope of ATLAS

Provides information to different categories of clients:

- ✓ ADC Operations team
- ✓ Site admins, site managers
- ✓ Production managers
- ✓ Analysis users
- ✓ VO and ATLAS Managers

# Software development methodology

Life cycle of monitoring applications uses Agile methodology which is suited for large and mission critical projects such as ADC .



The model includes

- features driven development
  - enables concurrent development and delivery within an overall planned context.
  - functionality can be developed rapidly and demonstrated
- 
- ❑ Agile development provides opportunities to assess the direction throughout the development lifecycle
  - ❑ Early released software facilitates customer evaluation and feedback.
  - ❑ Good model for environments that change steadily

The ADC monitoring team works in close collaboration with user community spread all over the world.

# Main components

- Data collectors
- Message brokers
- Databases (relational and nonrelational)
- Web applications
  - Visualization layer ( GUI )
  - Data access layer ( APIs for data retrieval)



Architecture of the ADC Monitoring tools standardized to multi-layer design with clear separation of data access and visualization. E.g. changes to the persistence logic of the Data access layer will not impact to the code as long as the interface remains correctly implemented.

# Automation

ADC Monitoring tools help to improve automation of repetitive tasks

- Gather real time statistics about various activities running at a site, e.g. data transfers and job processing : activity monitoring
- Make probes at regular intervals to test various services of a site – functional tests

Automatic probes take storage and computing elements out of production if they don't pass testing . Result : less manual interventions from the shift team and site administrators.



# Site Availability Monitoring (SAM) tests

http://dashb-atlas-sum.cern.ch/

Functional testing

Interface used for the validation of sites and services  
Real time stats

**SUM VISUALIZATION | ATLAS**

VO view | Latest Results | Historical View | Feedback | Help | Bugs

Site-Groups: All sites | Profiles: ATLAS | Metric Exit Status: All Exit Status (OK, WARNING, CRITICAL, UNKNOWN, MISSING, REMOVED, NA) | Show Results |  Display in a new window

Sites	Service Flavours	Metrics
All Sites AGLT2 AM-04-YERPHI ANLASC ARNES Australia-ATLAS Australia-NECTAR	All Service Flavours All CE Flavours ARC-CE CREAM-CE OSG-CE All SRM Flavours OSG-SRMv2	All Metrics emi.cream.glexec.WN-gLExec org.atlas.CE-Pilot-submission-atlas org.atlas.HC-Analysis org.atlas.WN-FrontierSquid org.atlas.WN-cvmfs org.atlas.WN-gangarobot_panda

Show Disabled Flavours |  Show Disabled Metrics

**Algorithm for calculating the Site and Service Availability**

**Legends for Metric Result Status**

Status:	NA	OK	WARNING	CRITICAL	UNKNOWN	MISSING	MAINTENANCE	REMOVED
Legend:	NA	OK	W	C	U	M	MT	RM

Note: brightest colors: test is 0 - 12 hours old, ... lightest colors: test is more than 12 hours old

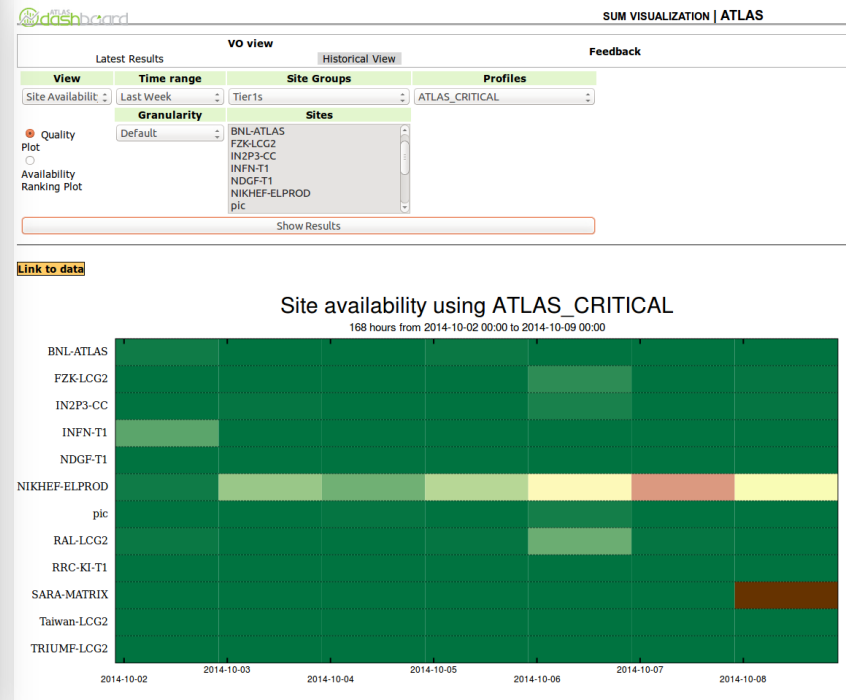
**Legends for Metric Names**

Legend	Metric Name	Legend	Metric Name	Legend	Metric Name	Legend	Metric Name	Legend	Metric Name
1	emi.cream.glexec.WN-gLExec	2	org.atlas.CE-Pilot-submission	3	org.atlas.CE-Pilot-submission-atlas	4	org.atlas.HC-Analysis	5	
6	org.atlas.SRM-VODEL	7	org.atlas.SRM-VODELATLASDATADISK	8	org.atlas.SRM-VODELATLASGROUPDISK	9	VODELATLASLOCALGROUPDISK	10	VO
11	org.atlas.SRM-VOGet	12	org.atlas.SRM-VOGetATLASDATADISK	13	org.atlas.SRM-VOGetATLASGROUPDISK	14	VOGetATLASLOCALGROUPDISK	15	VO
16	org.atlas.SRM-VOLs	17	org.atlas.SRM-VOLsDir	18	org.atlas.SRM-VOPut	19	org.atlas.SRM-VOPutATLASDATADISK	20	V
21	org.atlas.SRM-VOPutATLASLOCALGROUPDISK	22	org.atlas.SRM-VOPutATLASSCRATCHDISK	23		24	org.atlas.WN-cvmfs	25	
26	org.atlas.WN-gangarobot_wms	27	org.atlas.WN-swspace	28	org.sam.CONDOR-JobSubmit				

**Link to data**

Site name	Flavour	Host status in profile ATLAS	Hosts	1	3	4	23	24	25	26	27	28
AGLT2	OSG-CE	CRITICAL	gate04.aglt2.org	C	W	W	OK	OK	OK	OK	OK	OK
	OSG-SRMv2	OK	head01.aglt2.org	OK	OK	OK	OK	OK	OK	OK	OK	OK
AM-04-YERPHI	CREAM-CE	CRITICAL	ce.yerphi-cluster.grid.am	M	OK	M	M	M	M	M	C	
	SRMv2	OK	se.yerphi-cluster.grid.am	OK	OK	OK	OK	OK	OK	OK	OK	OK

Historical stats



0/23/14

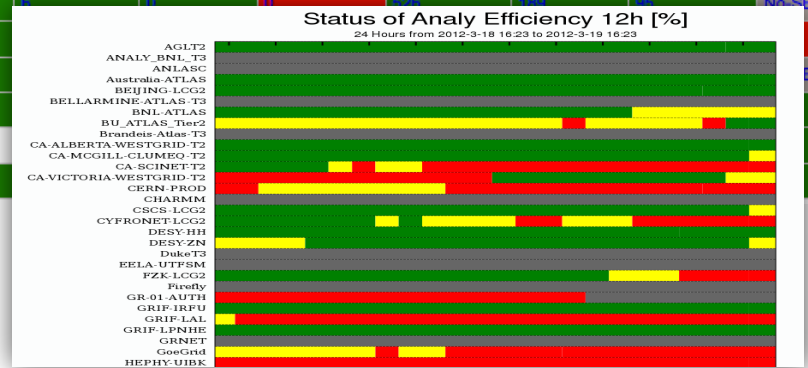
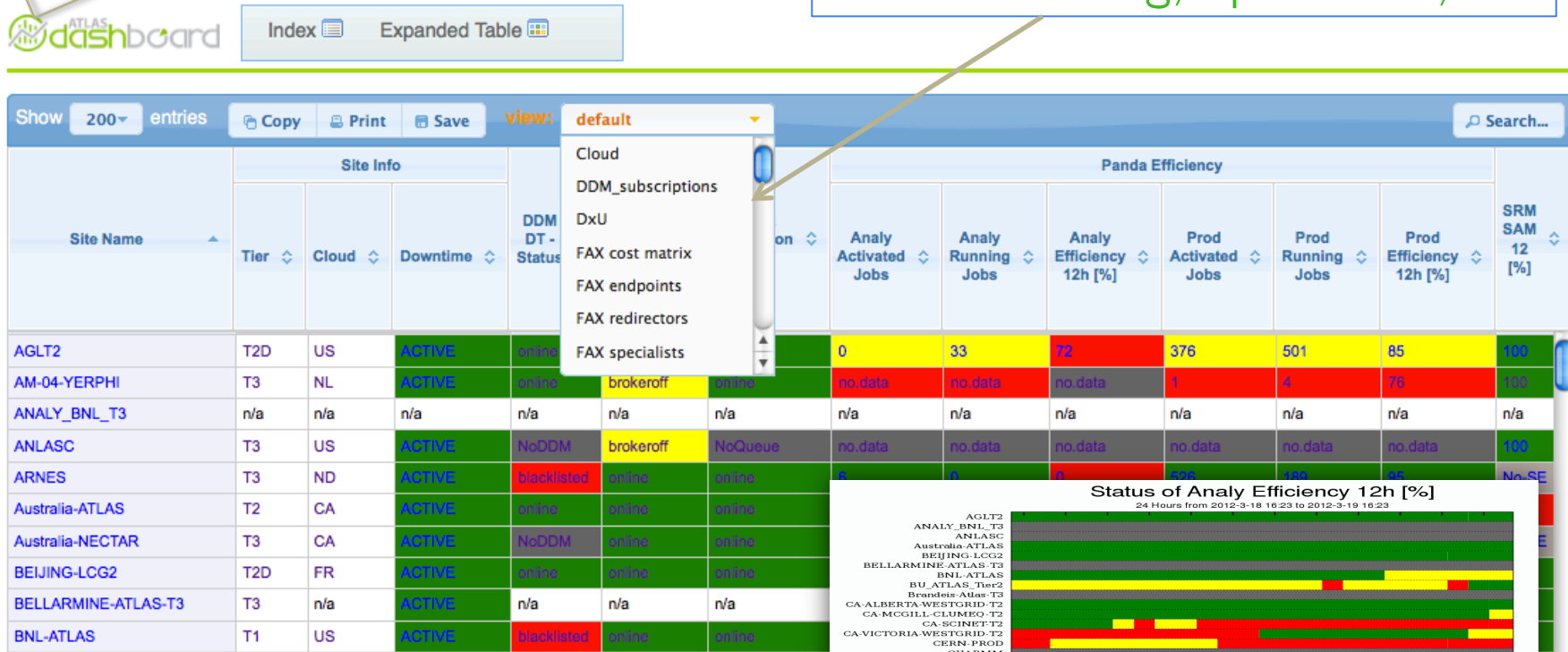
# Site Status Board (SSB)

<http://dashb-atlas-ssb.cern.ch/>

Status of sites/services according to VO-defined metrics

Activity monitoring

Different views for shifters, site commissioning, ops teams, ...

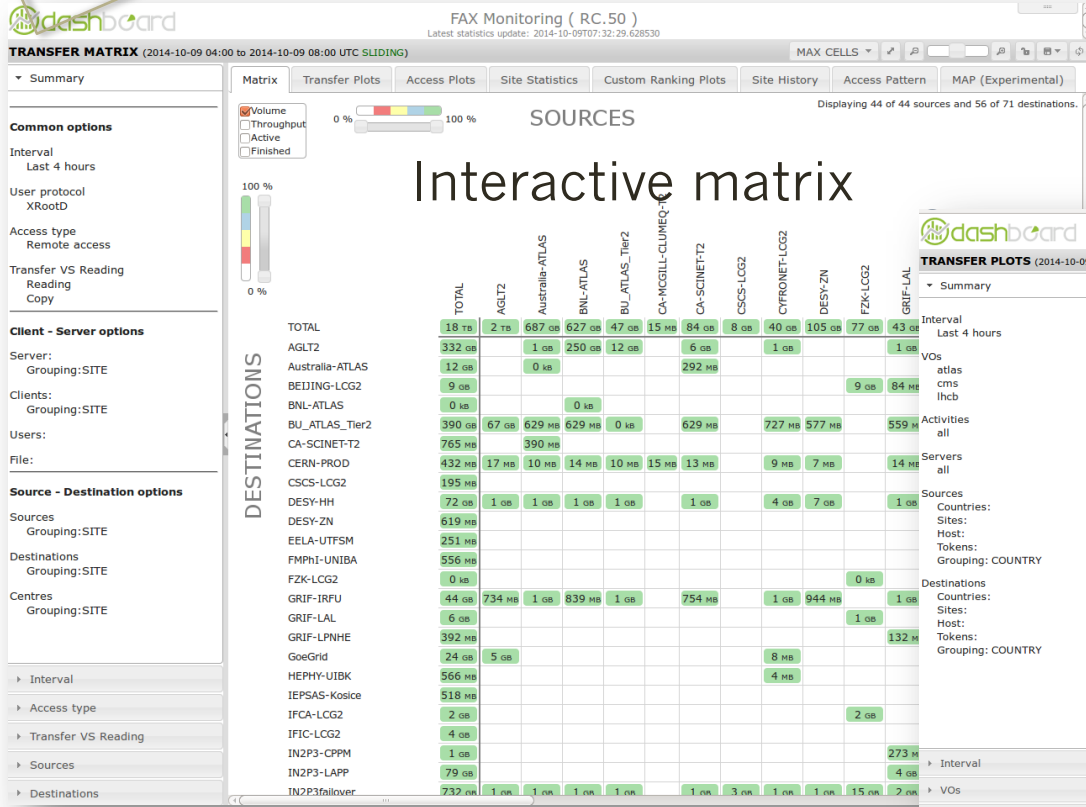


South-Caucasus Grid & Cloud Computing Workshop 10/23/14

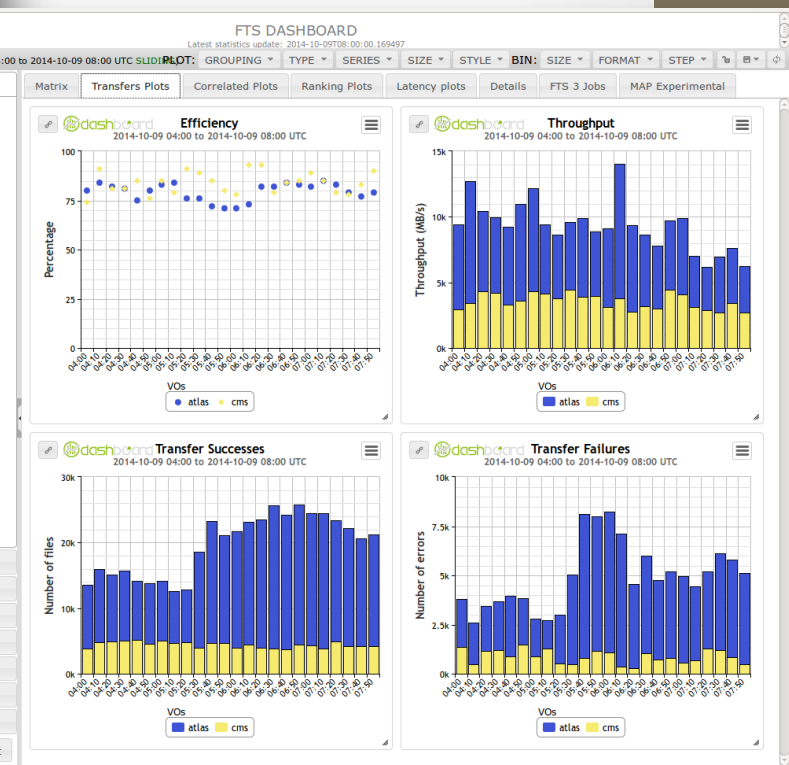


# Activity monitoring and XRootD Dashboard

Monitors data traffic and data access within sites

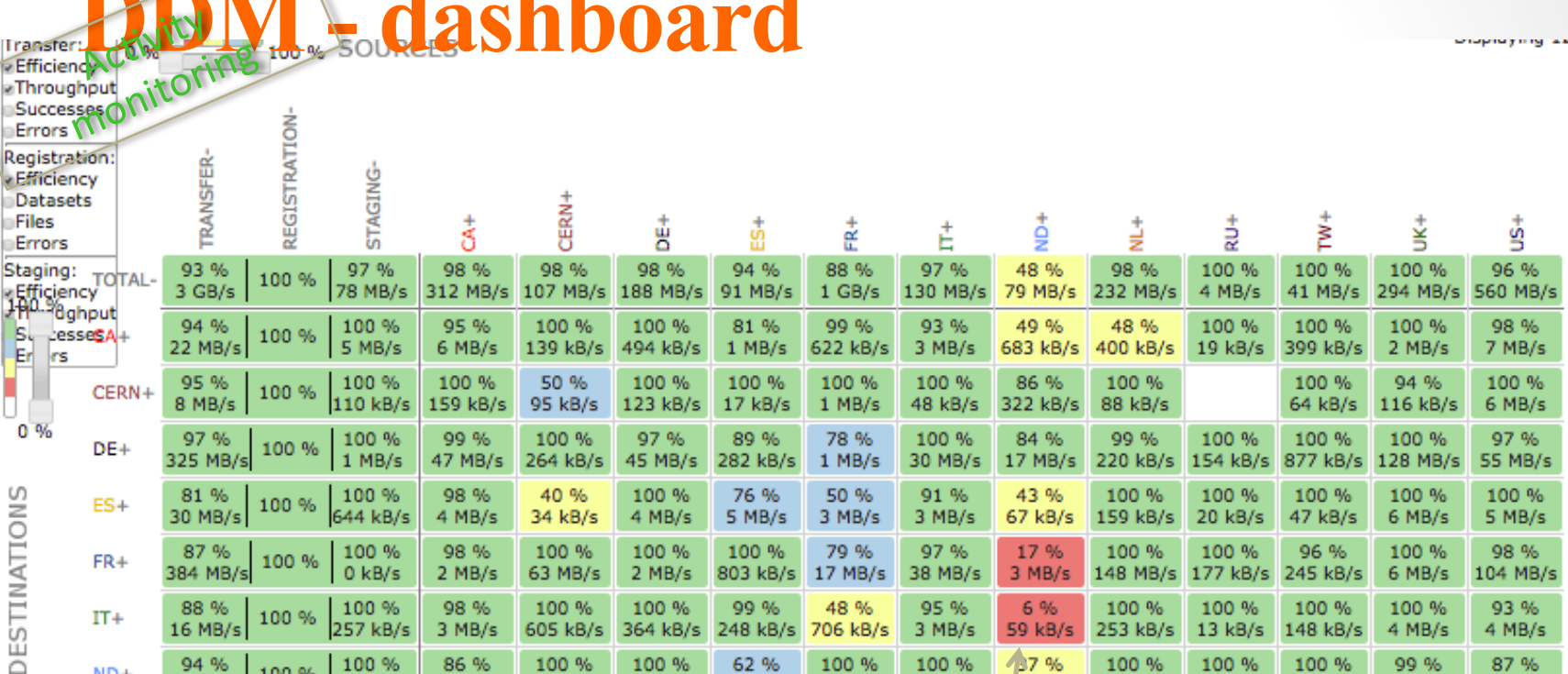


Interactive matrix



Provides a global view of data transfers in scope of ATLAS

# DDM - dashboard



Grid & Cloud  
g Workshop  
10/23/14

## DDM errors - how to figure out why transferring was failed

TRANSFER ERROR SAMPLES: "ND" --> "FR"

Code	Sample	Total /651
#171	[FTS] FTS State [Failed] FTS Retries [0] Reason [SOURCE SRM_GET_TURL error on the turl request : [SE][PrepareToGet][SRM_FILE_UNAVAILABLE] File is not online.] Duration [2]	545
#154	[FTS] FTS State [Failed] FTS Retries [0] Reason [TRANSFER gfal gridftp internal operation timeout, operation canceled, operation timeout] Duration [3851]	8

Show 50 entries

Placement Time	Logical File Name	Code	State
2014-10-13 14:09:48	AOD_01587949_011885.pool.root.1	#171	FAILED_TRANSFER
2014-10-13 14:09:22	AOD_01572405_001929.pool.root.1	#171	FAILED_TRANSFER
2014-10-13 14:09:22	AOD_01572405_000836.pool.root.2	#171	FAILED_TRANSFER
2014-10-13 14:09:22	AOD_01572405_002142.pool.root.1	#171	FAILED_TRANSFER
2014-10-13 14:09:22	AOD_01572405_000060.pool.root.1	#171	FAILED_TRANSFER
2014-10-13 14:09:22	AOD_01572405_000284.pool.root.1	#171	FAILED_TRANSFER

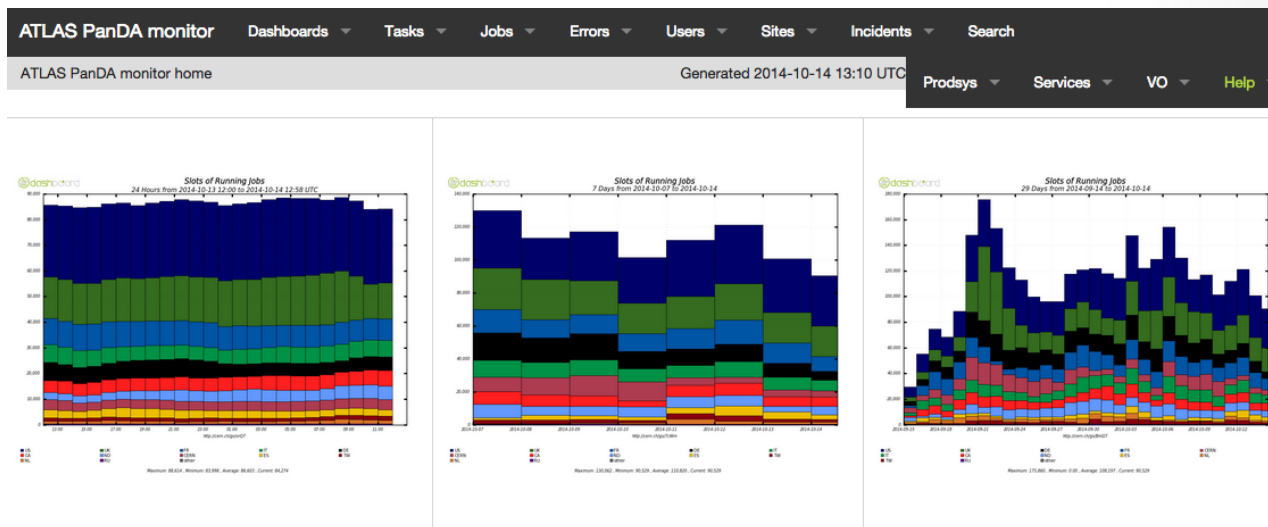
Activity: Production

0

# New Big PanDA monitor

PanDA is the main ATLAS Production and Distributed Analysis system

\* Monitor your tasks with the new BigPaDA monitor



\* Search you task/job using different filters

Search	
	<input type="text"/> <input type="button" value="Submit"/>
Batch ID	<input type="text"/> <input type="button" value="Submit"/>
Task ID	<input type="text"/> <input type="button" value="Submit"/>
Task name	<input type="text"/> <input type="button" value="Submit"/>
Tasks for campaign	<input type="text"/> <input type="button" value="Submit"/>
Tasks for project	<input type="text"/> <input type="button" value="Submit"/>
Tasks for tag	<input type="text"/> <input type="button" value="Submit"/>
Tasks for stream	<input type="text"/> <input type="button" value="Submit"/>
Site	<input type="text" value="INFN-ROMA1"/> <input type="button" value="Submit"/>

News
<ul style="list-style-type: none"><li>• 20141013: Include zero-job sites and test jobs in dashboards</li><li>• 20141013: Logfile links routed to Jarka's new filebrowser</li><li>• 20141013: Creator job links on job pages now work for ages up to a year</li><li>• 20141013: Task list depth on user pages shortened to 7 days for speed.</li><li>• 20141010: Job pages provide links to creator job search for input files</li><li>• 20140923: Job pages directly link to object store based log tarballs</li><li>• 20140913: Link DEFT request page from task list and detail pages</li><li>• 20140912: On task page highlight input containers, hide datasets by default</li><li>• 20140911: Task name search supports wildcarding</li><li>• 20140911: Show wait time, duration for jobs not yet running, completed</li><li>• 20140818: Job attempt# off for user page, JEDI jobs. Not meaningful in JEDI.</li><li>• 20140818: Task attribute summary added to user page</li><li>• 20140817: Output container list added to task detail page</li><li>• 20140817: Support clarified. Use DAST list, as ever, for dist analysis support</li><li>• 20140817: curl retrieval of json task data. Search on curl in <a href="#">the help</a></li><li>• 20140817: Merge (and other non-retry) jobs supported as a relationship type</li><li>• 20140816: Cache lifetime 3min for all pages, documented in footer. Report issues</li><li>• 20140816: <a href="#">Restructured help with consolidated help page</a></li><li>• 20140815: Show prodsys1 tasknames in error summary</li><li>• 20140814: Task summaries (huge and slow) removed from non-task dashboards</li><li>• 20140814: Task state names in task list, detail pages link to state doc</li><li>• 20140814: Task list in user pages brought up to date, with input completion</li></ul>

\* Search site

# Activities at the site

INFN-ROMA1 information	
GOC name	<a href="#">INFN-ROMA1</a>
Queue (nickname)	INFN-ROMA1
Total queues for this site	1
Status	test
Comment	HC.Blacklist.set.test
Last modified	2014-03-21 12:35
Cloud	IT
Multicloud	FR,ES
Tier	T2D
DDM endpoint	INFN-ROMA1_PRODDISK
Maximum memory	3.8 GB
Maximum time	48.0 hours
Space	41 TB as of 10-19 14:55

All queues for INFN-ROMA1			
Queue	Status	Last modified	Comment
INFN-ROMA1	test	2014-03-21 12:35	HC.Blacklist.set.test

View: **worker nodes**   jobs, job errors   brokerage actions   pilots   Site status board   elogs   DDM source destination

Incidents over the last month	
2014-10-17 22:02	setmanual: queue=INFN-ROMA1_MCORE DN=gangarbt HC.Blacklist.set.manual
2014-10-17 22:02	settest: queue=INFN-ROMA1_MCORE DN=gangarbt HC.Blacklist.set.test
2014-10-17 22:02	settest: queue=INFN-ROMA1 DN=gangarbt HC.Blacklist.set.test
2014-10-17 22:02	setmanual: queue=INFN-ROMA1_MCORE DN=gangarbt HC.Blacklist.set.manual

WN view

Worker node slot performance at INFN-ROMA1														
WN summary for INFN-ROMA1														
WN	nSlots	nJobs	defined	waiting	throttled	sent	starting	running	holding	transferring	finished	failed	cancelled	% failed
All		446							1	444	1			0
Average		89.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00	0
atlas-wn-414.roma1.infn.it	1	47								47				0
atlas-wn-501.roma1.infn.it	1	103						1		102				0
atlas-wn-502.roma1.infn.it	1	113								112	1			0
atlas-wn-701.roma1.infn.it	1	92								92				0
atlas-wn-702.roma1.infn.it	1	91								91				0

# Monitoring PanDA jobs

Big PanDA monitor

ATLAS PanDA monitor   Dashboards ▾   Tasks ▾   Jobs ▾   Errors ▾   Users ▾   Sites ▾   Incidents ▾   Search

PanDA task 4267084: group.phys-higgs.mc12.HWW.161013.02-31\_reduced\_IDLOW\_01/   Generated 2014-10-19 18:18 UTC   Prodsys ▾   Services ▾   VO ▾   Help ▾

**Task 4267084: group.phys-higgs.mc12.HWW.161013.02-31\_reduced\_IDLOW\_01/**

Task ID	Jobset	Type	WorkingGroup	User	Task status	Ninputfiles   finished   failed	Created	Modified	Cores	Priority	Parent
4267084	266596	anal	phys-higgs	Joe Taenzer	done	4   4 (100%)   0 (0%)	2014-10-19 17:20	10-19 17:56	1	1000	

States of jobs in this task   [Show jobs](#)

defined	waiting	pending	assigned	throttled	activated	sent	starting	running	holding	transferring	finished	failed	cancelled	merging
											2			

Jump to [job parameters](#), [task parameters](#)

View [job list \(access to job details and logs\)](#)   [child tasks](#)   [prodsys task page](#)   [brokerage logger](#)   [JEDI action logger](#)   [error summary](#)

Click and get a list of finished jobs

Computing Workshop

# Monitoring of Production jobs

The screenshot shows the ATLAS PanDA monitor interface. A navigation menu is open, highlighting 'Production jobs - Region view'. Below the menu, a table titled 'production task summary by cloud, last 3 days' is displayed. The table lists various cloud providers and their associated task counts across different states.

Cloud	nTask	reg	def	assgn	rdy	pend	scout	scld	run	prep	done	fail	finish	abrtg	abrtd	finishg	toprep	prepro	tobrok	broken
CA	108	1	0	0	0	90	0	0	0	0	0	0	0	0	10	0	0	0	0	7
FR	70	0	0	0	0	2	26	0	22	0	11	3	0	0	3	0	0	0	0	3
CERN	19	0	0	0	0	0	0	0	0	0	4	10	0	0	5	0	0	0	0	0
DE	45	0	0	0	0	0	21	0	13	0	3	0	0	0	5	0	0	0	0	3
ES	52	0	0	0	0	0	23	0	12	0	10	0	0	0	7	0	0	0	0	0
FR	81	0	0	0	0	1	39	0	25	0	1	0	0	0	7	0	0	0	0	8
IT	27	0	0	0	0	0	18	0	4	0	1	0	0	0	2	0	0	0	0	2
ND	19	0	0	0	0	0	8	0	6	0	1	0	0	0	3	0	0	0	0	1
NL	30	0	0	0	0	0	13	0	13	0	2	0	0	0	2	0	0	0	0	0
TW	23	0	0	0	0	1	9	0	5	0	1	0	0	0	5	0	0	0	0	2



# Task Request and Production jobs monitoring

ATLAS PanDA Dashboard Jobs Requests Tasks Datasets Users Sites DDMDash SSB Quick search Help

Manage Production Tasks. Last task submit time Oct. 18, 2014, 12:46 a.m. UTC. Page was generated Oct. 18, 2014, 6:31 a.m. UTC

**Tasks select parameters**

Tasks type:

Project:

Owner:

Task name:

Task ID:

Task ID <=

Task ID >=

Request:

Chain:

Update table

Campaign:

Step name:

Step output format:

Status:

Provenance:

Physics group:

Last update time period:

Last update time from:

Last update time to:

**Tasks status statistics**

total	failed	finished	running	pending	broken	submitted	done	obsolete	aborted	ssubmitting	registered
258385	19180	7596	1728	9	17665	120	197089	3	13928	6635	432

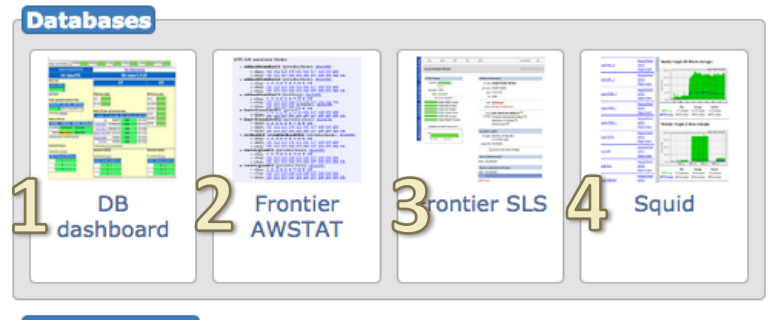
Filters:

- Last update time period : all
- Task type : all

Task Name	Request	Step	Task ID	Priority	Recd Jobs	Done Jobs	Events	Status	Submit time	Timestamp
<input type="checkbox"/> user.rrezvani.mc12_8TeV.188512.MadGraphPythia8_AU2MSTW2008LQ_VLQ_MG2000_HB1500_sbr06_g3.17Oct.v1/	300	Rec TAG	4259065	1000	55	0	0	running	Oct 18 00:46	Oct 18 03:30
<input type="checkbox"/> mc12_valid.156802.Herwigpp_UEEE3_CTEC6L1_Gtt_G1900_T2500_L1500.merge.e1221_s1469_s1470_r3542_r3549_p1635	954	Reco	4259064	900	44	0	0	running	Oct 18 00:39	Oct 18 03:30
<input type="checkbox"/> user.rdebba.histo_mc12_5TeV.147900_JZ0_e2897_pythia8.NTUP_TRUTH_rootCore_prod2/	300	Rec TAG	4259063	1000	11	2	0	done	Oct 18 00:19	Oct 18 06:30
<input type="checkbox"/> user.pwagner.CompSubStructure_from_DC14_nolD_v11/	300	Rec TAG	4259062	1000	3788	10	0	running	Oct 18 00:12	Oct 18 07:30
<input type="checkbox"/> user.rdebba.histo_mc12_2TeV.147900_JZ0_e2896_pythia8.NTUP_TRUTH_rootCore_prod2/	300	Rec TAG	4259061	1000	11	2	0	done	Oct 17 23:57	Oct 18 05:30
<input type="checkbox"/> user.mrammens.mc12_8TeV.107675.AlpgenJimmy_AUET2CTEQSL1_ZtautauNp5.NT.e1571_p1575.1LSkim.vj.12.2/	300	Rec TAG	4259060	1000	33	0	0	failed	Oct 17 23:49	Oct 18 03:10
<input type="checkbox"/> user.dkrasnop.mc12_8TeV.147367.Sherpa_CT10_Znunugammagama.SMWZ.p1328.rootcore.18.10.14.particle_truth/	300	Rec TAG	4259059	1000	100	0	0	submitting	Oct 17 23:35	Oct 18 02:30
<input type="checkbox"/> user.boliu.NTUP_ANAOUT.110141.e1743_s1581_s1586_r3658_r3549_p1575.1_7_0_0_MV1_70_ML_3BF.0007_70_em_sys_part1/	300	Rec TAG	4259058	1000	44	1	0	running	Oct 17 23:10	Oct 18 03:30
<input type="checkbox"/> user.boliu.NTUP_ANAOUT.182957.e2586_s1773_s1776_r4485_r4540_p1575.1_7_0_0_MV1_70_ML_3BF.0007_70_em_sys_part1/	300	Rec TAG	4259057	1000	22	3	0	done	Oct 17 23:10	Oct 18 06:30
<input type="checkbox"/> user.sblunier.x141018.US.ANALY_TAIWAN_SL6/	300	Rec TAG	4259056	1000	11	0	0	running	Oct 17 22:48	Oct 18 01:30
<input type="checkbox"/> user.sblunier.x141018.US.ANALY_SWT2_CPB/	300	Rec TAG	4259055	1000	11	0	0	running	Oct 17 22:48	Oct 18 01:30
<input type="checkbox"/> user.sblunier.x141018.US.ANALY_SLAC/	300	Rec TAG	4259054	1000	11	2	0	done	Oct 17 22:48	Oct 18 05:10
<input type="checkbox"/> user.sblunier.x141018.US.ANALY_OU_OCHEP_SWT2/	300	Rec TAG	4259053	1000	00	0	0	registered	Oct 17 22:48	Oct 18 01:10
<input type="checkbox"/> user.sblunier.x141018.US.ANALY_MWT2_SL6/	300	Rec TAG	4259052	1000	22	0	0	running	Oct 17 22:48	Oct 18 03:10
<input type="checkbox"/> user.sblunier.x141018.US.ANALY_BU_ATLAS_Tier2_SL6/	300	Rec TAG	4259051	1000	22	0	0	running	Oct 17 22:48	Oct 18 03:10
<input type="checkbox"/> user.sblunier.x141018.US.ANALY_BNL_CLOUD/	300	Rec TAG	4259050	1000	00	0	0	registered	Oct 17 22:47	Oct 18 01:10
<input type="checkbox"/> user.sblunier.x141018.US.ANALY_AGLT2_SL6/	300	Rec TAG	4259049	1000	22	0	0	running	Oct 17 22:47	Oct 18 02:30
<input type="checkbox"/> user.sblunier.x141018.UK.ANALY_UCL_SL6/	300	Rec TAG	4259048	1000	22	0	0	running	Oct 17 22:47	Oct 18 03:10
<input type="checkbox"/> user.sblunier.x141018.UK.ANALY_SHEP_SL6/	300	Rec TAG	4259047	1000	11	0	0	running	Oct 17 22:47	Oct 18 01:30
<input type="checkbox"/> user.sblunier.x141018.UK.ANALY_RHUL_SL6/	300	Rec TAG	4259046	1000	11	2	0	done	Oct 17 22:46	Oct 18 05:10

Big PanDA Monitor

# Databases monitoring



1,3 Database Services Availability (SLS)

2 Response times and queues on Frontier central servers (awstats)

4 Frontier Traffic statistics (MRTG)

The screenshot shows the 'ATLAS Frontier Service' status page. At the top, a red oval highlights a message: "SLS is being retired. Please start using [dashboards.cern.ch](#)." Below this, the service status is shown as 'affected' with an availability of 83%. A list of services is provided, including ATLAS-CERN-Frontier, ATLAS-TO-Frontier, ATLAS-BNL-Frontier, ATLAS-IN2P3-CC-Frontier, ATLAS-RAL-Frontier, and ATLAS-TRIUMF-Frontier. Additional information includes the full name 'ATLAS Frontier Service', short name 'ATLAS-Frontier', group 'IT-ES-VOS', site 'CERN', email 'jd@bnl.gov', and web site 'http://frontier.cern...'. Managers listed are Alastair Dewhurst, John Steven De Stefano Jr, and Alessandro Di Girolamo.

The screenshot displays a Kibana dashboard titled 'Metrics: Availability'. It features a 'SERVICES' table, a 'PLOT' area with a line graph, and a 'GOAL' gauge showing 100%. The 'SERVICES' table lists various ATLAS services with their mean availability and actions. The 'PLOT' area shows a line graph of availability over time. The 'GOAL' gauge is a red circle with '100%' inside. A blue watermark diagonally across the dashboard reads "New Kibana frontier service availability monitor".

Term	mean	Action
ATLAS-TRIUMF-Frontier	100	Q
ATLAS-TO-Frontier	100	Q
ATLAS-RAL-Frontier	100	Q
ATLAS-CERN-Frontier	99.51	Q
ATLAS-IN2P3-CC-Frontier	100	Q

# Historical Views

## •Site, Management perspective

ATLAS dashboard HISTORICAL VIEWS v3.1.0-0\_rc11.

**DEFINE PARAMETERS**

Select T3s + T2s + T1s + T0 | Select Countries | Select Panda Resources | Select Cores | Resource Type: All | Select Groups | Select Datatypes | Select Projects | Select Output Projects | Select Destination Clouds | Select Transfer Types | Select Job Types | Last Month

set of powerful filtering options:

**PLOTTING CATEGORY**

- Completed, Submitted, Pending, Running Jobs
- CPU Consumption
- CPU Efficiency
- Processed Data
- Success/Failures
- Activities at the Site
- Parallel Running Jobs
- Resource Utilisation

**CHOSEN PARAMETERS**

Sites: All T3s+T2s+T1s...

Category of Sites: All Countries

Panda Resources: all

No. of Cores: all

Resource Type: all

Groups: all

Datatypes: all

Projects: all

Output Projects: all

Destination Clouds: all

Transfer Types: all

Job Types: all

Time Range: Last Month

Completed Jobs (links to data in different formats)

Submitted Jobs (links to data in different formats)

Completed Jobs (links to data in different formats)

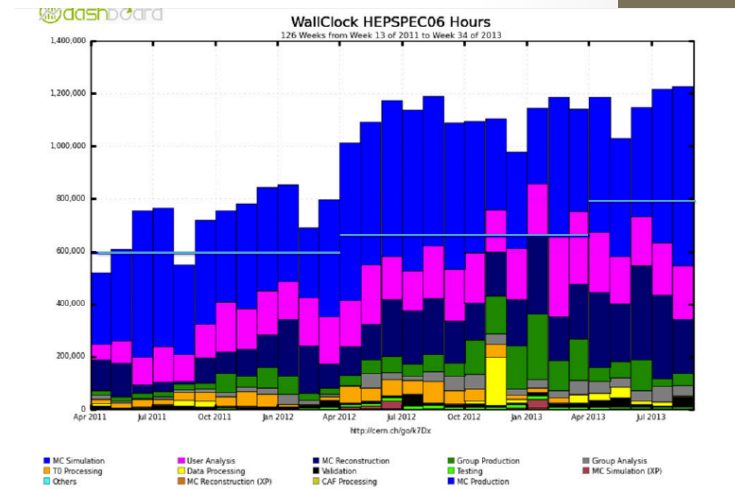
Completed jobs (Sum: 21,729,659)  
Analysis - 57.62%

Category	Percentage	Count
Analysis	57.62%	12,520,064
MC Simulation	15.96%	3,468,318
MC Reconstruction	11.85%	2,574,411
Others	11.39%	2,475,959

Submitted Jobs (links to data in different formats)

Submitted jobs (Sum: 21,728,600)  
Analysis - 57.89%

Category	Percentage	Count
Analysis	57.89%	12,579,159
MC Simulation	16.23%	3,527,194
MC Reconstruction	11.22%	2,437,341
Others	11.39%	2,475,906



Utilization of the ATLAS grid resources

## Job processing metrics as a function of time

# Challenges

Increase of monitoring data volume and complexity requires new approaches

- Current Oracle procedures quickly degrade with data volume
  - On spikes, processing could take more than 10 minutes for a 10 minute bin
- Can open source solutions provide similar functionality to Oracle and better performance than the current Oracle cluster?

# Technology evaluation

- Storage:
  - ElasticSearch, *Hadoop* Distributed File System, Impala
- Visualization:
  - Ember, Angular
- Services
  - Migration on Agile Infrastructure with OpenStack and Puppet ( will be completed soon)
- Real time analytics:
  - Storm, Esper

# Summary

- monitoring applications allow to facilitate the operational tasks and to ensure the steady improvement of the infrastructure quality
- provide a comprehensive way to monitor the distributed infrastructure
- promptly identify and addresses issues
- implemented automation of repetitive tasks  
reduces manual interventions
- following on technology evolution
- provide quality and scalable solutions  
to support the constantly evolving requirement