Report on the User Analysis Stress Test (UAT)

Nurcan Ozturk

University of Texas at Arlington

US ATLAS Tier2/3 Workshop at UTA

November 10-12, 2009

UAT History, Scope

- Goal: stress test the distributed analysis system with real users.
- It was initially planned as an user analysis challenge in US and then it became an ATLAS-wide effort.
- Special datasets have been produced for this exercise: a large AtlfastII sample, produced in US starting in April-May by Kaushik De, looks like first data with ~100pb^{-1}. I have done the validation of the sample.
- A follow-on test to the STEP09 exercise (in June 2009) and our last one before data taking.
- Dates: October 28-30, 2009.
- Coordinator: Jim Shank. US contact: Jim Cochran. Massimo for other clouds.
- Day plan: First 2 days users submit jobs. 3rd day is for copying output to T3's or local disks (by dq2-get and DDM subscriptions).
- Pretest: users test analysis code on small datasets, HammerCloud to verify sites.
- Metric gathering, feedback: Collect site/system performance metrics as well as user feedback.
- https://twiki.cern.ch/twiki/bin/view/Atlas/UserAnalysisTest

UAT Datasets

- Users were asked to run their usual jobs or on the following large AtlfastII samples or on the samples provided by physics groups.
- Event types in the AtlfastII samples :
  - medcut samples: JF35 sample, which is primarily multijet but with appropriate amounts of W, Z, J/Psi, DY, ttbar etc., that satisfy the JF35 cut (jet pt > 35 GeV) - it was noted that most W->munus (and Z->mumu as well) will be lost since the 35 GeV "jet cut" doesn't include muons.
  - lowcut sample: JF17 sample with 17 GeV cut (jet pt > 17 GeV), useful for studies of lower Et objects.
- AtlfastII samples have been replicated to all Tier 1 and Tier 2 sites based on space availability.
  - uat09.00000101.jetStream_lowcut.merge.AOD.a84/
    - total files: 9988, total size: 12434 GB
  - uat09.00000101.jetStream_medcut.merge.AOD.a84/
    - total files: 2281, total size: 3239 GB
  - uat09.00000102.jetStream_medcut.merge.AOD.a84/
    - total files: 2988, total size: 4243 GB
  - uat09.00000103.jetStream_medcut.merge.AOD.a84/
    - total files: 7000, total size: 9946 GB
  - uat09.00000104.jetStream_medcut.merge.AOD.a84/
    - total files: 10000, total size: 14208 GB
  - uat09.00000105.jetStream_medcut.merge.AOD.a84/
    - total files: 19987. total size: 28404 GB
- Samples from physics groups: four B-physics samples and aTop physics sample. 1 copy per cloud, Tier-2s only.

Oct. 28 @ ~2 pm (1)

(Panda analysis dashboard for all user jobs, Texas time)

Panda Analysis Dashboard - Mozilla Firefox

File Edit View History Bookmarks Yahoo! Tools Help

http://panda.cern.ch:25980/server/pandamon/query?dash=analysis

Most Visited Getting Started Latest Headlines Customize Links Free Hotmail Windows Marketplace Windows Media Windows

Search Web Mail Shopping Personals My Yahoo! News Games Travel Finance Answers Sports Sign In

Tasks - search
Generic Task Req
EvGen Task Req
CTBsim Task Req
Task list
New Tag
Bug Report
Task overview query

Datasets - search
Popular datasets
Aborted datasets
Datasets Browser

Datasets Distribution
DaTRI
DaTRI: Req list
AODs
EVNTs
Conditions DS
DB Releases
SIT pacballs
Validation Samples
Functional Tests
ATLAS Data
Reprocessed_Datasets

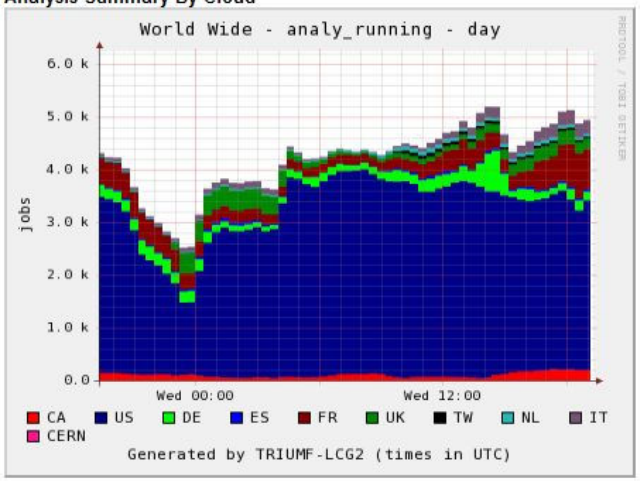
Sites

Logging monitor

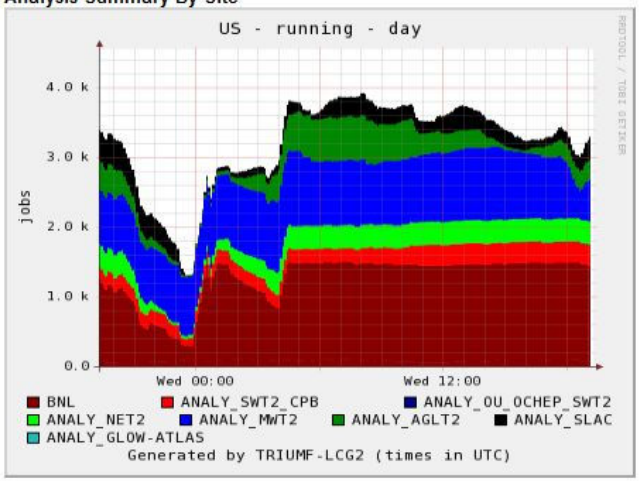
Groups: Groups are supported to organize users by role, physics working groups etc. and support collaborative work, accounting rights etc. (Not much used yet.)

Data access: See the physics data page linked above for infomation on data location, requesting replication of data, and staging data from tape to disk.

Analysis Summary By Cloud



Analysis Summary By Site



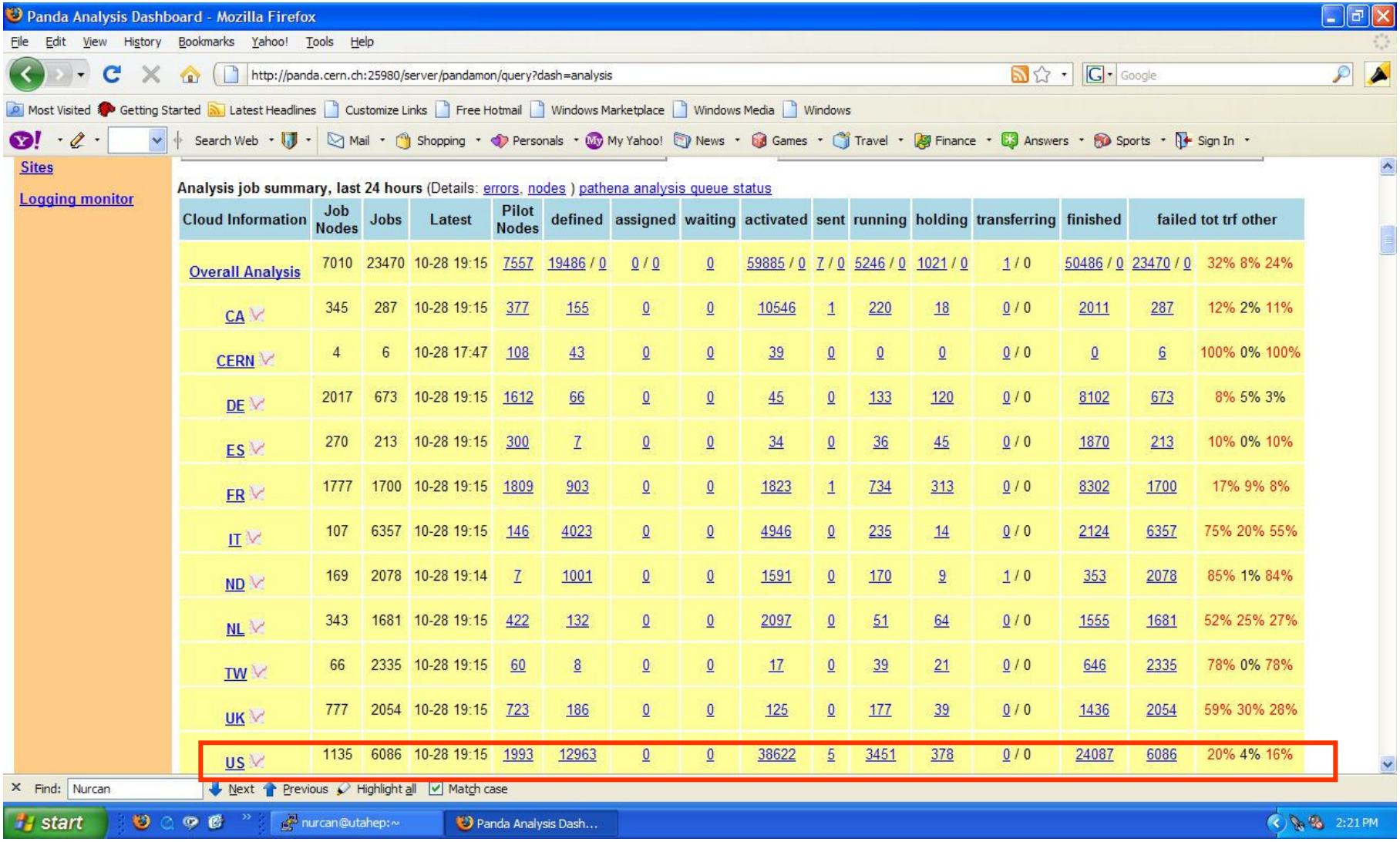
Analysis job summary, last 24 hours (Details: errors, nodes) pathena analysis queue status

Cloud Information	Job Nodes	Jobs	Latest	Pilot Nodes	defined	assigned	waiting	activated	sent	running	holding	transferring	finished	failed	tot	trf	other
Overall Analysis	7010	23470	10-28 19:15	7557	19486 / 0	0 / 0	0	59885 / 0	7 / 0	5246 / 0	1021 / 0	1 / 0	50486 / 0	23470 / 0	32%	8%	24%
CA	345	287	10-28 19:15	377	155	0	0	10546	1	220	18	0 / 0	2011	287	12%	2%	11%

Find: Nurcan Next Previous Highlight all Match case

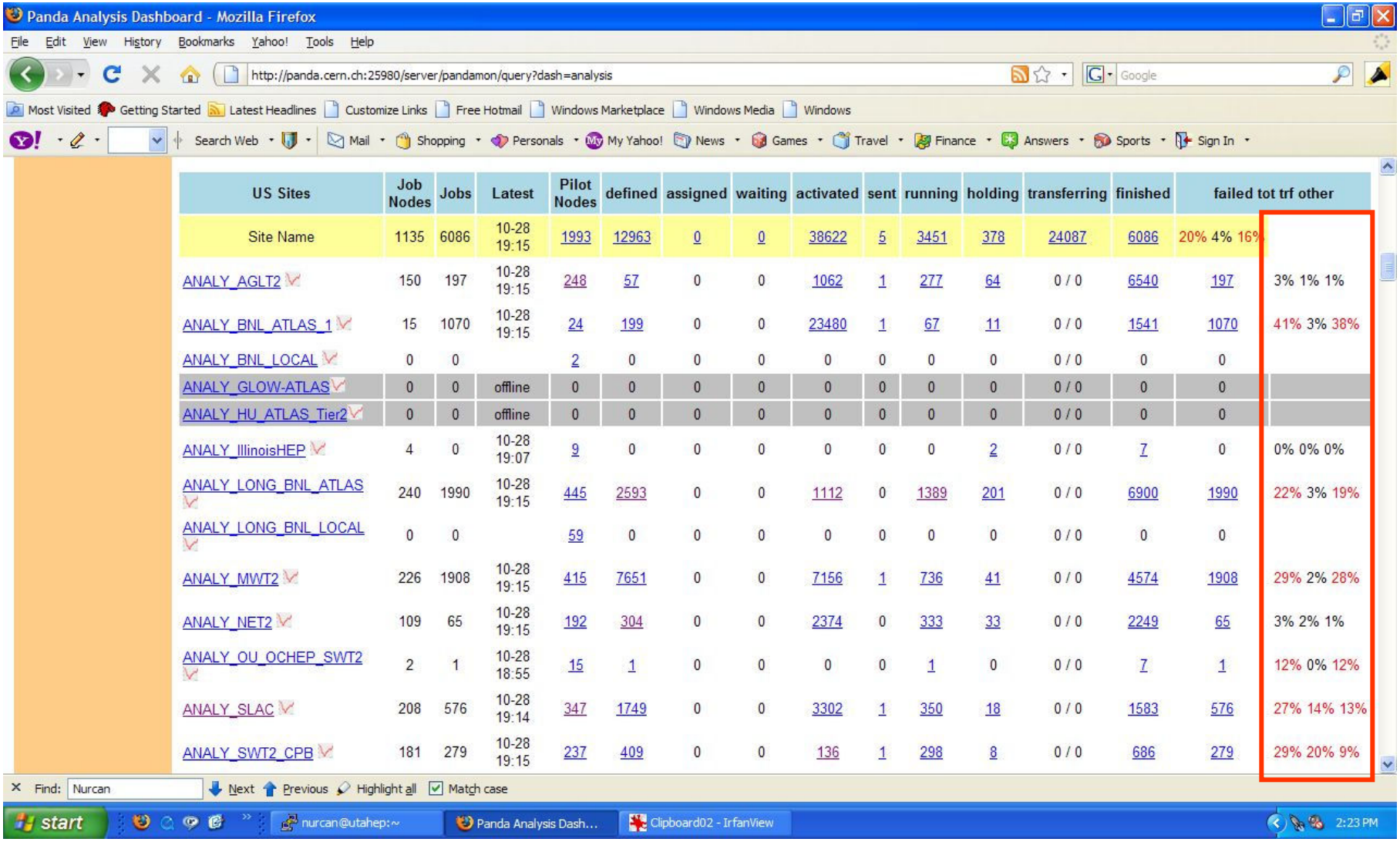
start nurcan@utahep:~ Panda Analysis Dash... 2:18 PM

Oct. 28 @ ~2 pm (2)



Cloud Information	Job Nodes	Jobs	Latest	Pilot Nodes	defined	assigned	waiting	activated	sent	running	holding	transferring	finished	failed	tot	trf other
Overall Analysis	7010	23470	10-28 19:15	7557	19486 / 0	0 / 0	0	59885 / 0	7 / 0	5246 / 0	1021 / 0	1 / 0	50486 / 0	23470 / 0	32%	8% 24%
CA	345	287	10-28 19:15	377	155	0	0	10546	1	220	18	0 / 0	2011	287	12%	2% 11%
CERN	4	6	10-28 17:47	108	43	0	0	39	0	0	0	0 / 0	0	6	100%	0% 100%
DE	2017	673	10-28 19:15	1612	66	0	0	45	0	133	120	0 / 0	8102	673	8%	5% 3%
ES	270	213	10-28 19:15	300	7	0	0	34	0	36	45	0 / 0	1870	213	10%	0% 10%
FR	1777	1700	10-28 19:15	1809	903	0	0	1823	1	734	313	0 / 0	8302	1700	17%	9% 8%
IT	107	6357	10-28 19:15	146	4023	0	0	4946	0	235	14	0 / 0	2124	6357	75%	20% 55%
ND	169	2078	10-28 19:14	7	1001	0	0	1591	0	170	9	1 / 0	353	2078	85%	1% 84%
NL	343	1681	10-28 19:15	422	132	0	0	2097	0	51	64	0 / 0	1555	1681	52%	25% 27%
TW	66	2335	10-28 19:15	60	8	0	0	17	0	39	21	0 / 0	646	2335	78%	0% 78%
UK	777	2054	10-28 19:15	723	186	0	0	125	0	177	39	0 / 0	1436	2054	59%	30% 28%
US	1135	6086	10-28 19:15	1993	12963	0	0	38622	5	3451	378	0 / 0	24087	6086	20%	4% 16%

Oct. 28 @ ~2 pm (3)



US Sites	Job Nodes	Jobs	Latest	Pilot Nodes	defined	assigned	waiting	activated	sent	running	holding	transferring	finished	failed tot trf other
Site Name	1135	6086	10-28 19:15	1993	12963	0	0	38622	5	3451	378	24087	6086	20% 4% 16%
ANALY_AGLT2	150	197	10-28 19:15	248	57	0	0	1062	1	277	64	0 / 0	6540	197 3% 1% 1%
ANALY_BNL_ATLAS_1	15	1070	10-28 19:15	24	199	0	0	23480	1	67	11	0 / 0	1541	1070 41% 3% 38%
ANALY_BNL_LOCAL	0	0		2	0	0	0	0	0	0	0	0 / 0	0	0
ANALY_GLOW-ATLAS	0	0	offline	0	0	0	0	0	0	0	0	0 / 0	0	0
ANALY_HU_ATLAS_Tier2	0	0	offline	0	0	0	0	0	0	0	0	0 / 0	0	0
ANALY_IllinoisHEP	4	0	10-28 19:07	9	0	0	0	0	0	0	2	0 / 0	7	0 0% 0% 0%
ANALY_LONG_BNL_ATLAS	240	1990	10-28 19:15	445	2593	0	0	1112	0	1389	201	0 / 0	6900	1990 22% 3% 19%
ANALY_LONG_BNL_LOCAL	0	0		59	0	0	0	0	0	0	0	0 / 0	0	0
ANALY_MWT2	226	1908	10-28 19:15	415	7651	0	0	7156	1	736	41	0 / 0	4574	1908 29% 2% 28%
ANALY_NET2	109	65	10-28 19:15	192	304	0	0	2374	0	333	33	0 / 0	2249	65 3% 2% 1%
ANALY_OU_OCHEP_SWT2	2	1	10-28 18:55	15	1	0	0	0	0	1	0	0 / 0	7	1 12% 0% 12%
ANALY_SLAC	208	576	10-28 19:14	347	1749	0	0	3302	1	350	18	0 / 0	1583	576 27% 14% 13%
ANALY_SWT2_CPB	181	279	10-28 19:15	237	409	0	0	136	1	298	8	0 / 0	686	279 29% 20% 9%

Oct. 29 @ ~4 pm (1)

Panda Analysis Dashboard - Mozilla Firefox

File Edit View History Bookmarks Yahoo! Tools Help

http://panda.cern.ch:25980/server/pandamon/query?dash=analysis

Most Visited Getting Started Latest Headlines Customize Links Free Hotmail Windows Marketplace Windows Media Windows

Search Web Mail Shopping Personals My Yahoo! News Games Travel Finance Answers Sports Sign In

Errors: days
Nodes: days
Usage 1, 3 days

Tasks - search
Generic Task Req
EvGen Task Req
CTBsim Task Req
Task list
New Tag
Bug Report
Task overview query

Datasets - search
Popular datasets
Aborted datasets
Datasets Browser

Datasets Distribution
DaTRI
DaTRI: Req list
AODs
EVNTs
Conditions DS
DB Releases
SIT pacballs
Validation Samples
Functional Tests
ATLAS Data
Reprocessed_Datasets

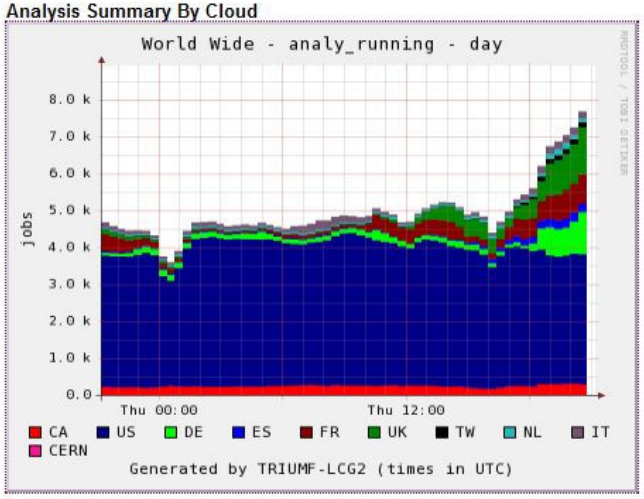
Sites

Logging monitor

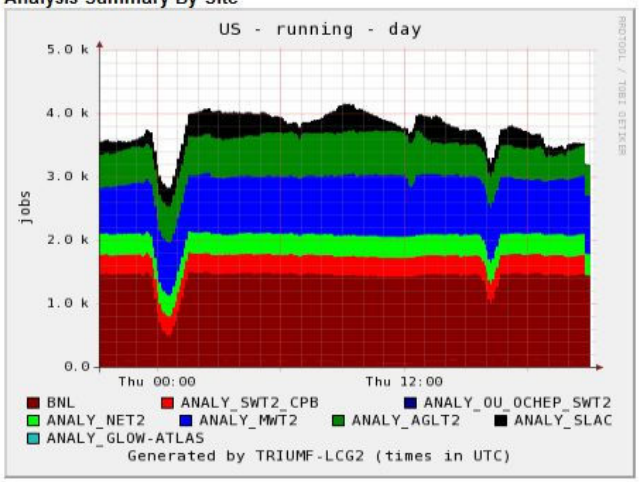
Groups: Groups are supported to organize users by role, physics working groups etc. and support collaborative work, accounting rights etc. (Not much used yet.)

Data access: See the physics data page linked above for infomation on data location, requesting replication of data, and staging data from tape to disk.

Analysis Summary By Cloud



Analysis Summary By Site

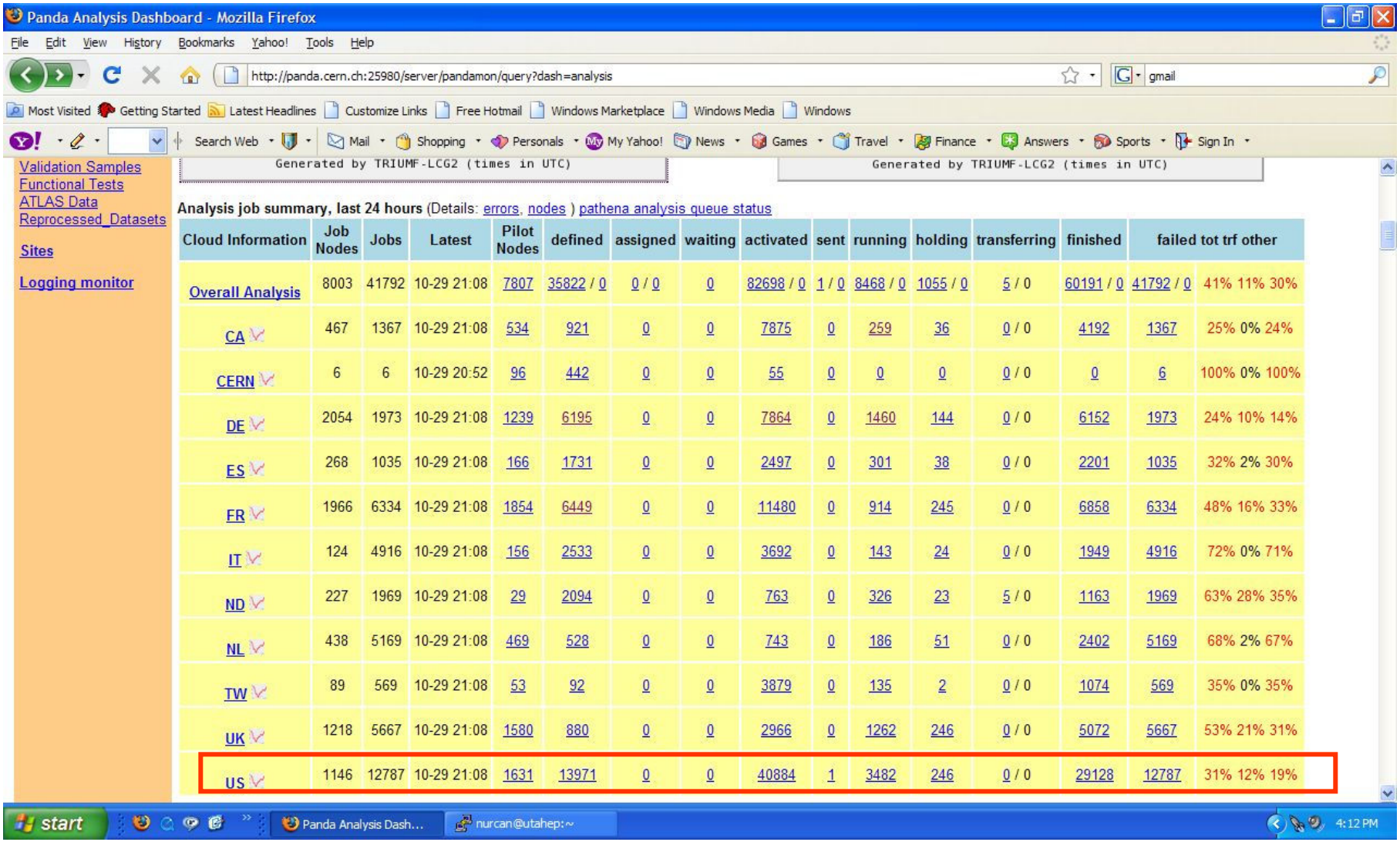


Analysis job summary, last 24 hours (Details: errors, nodes) pathena analysis queue status

Cloud Information	Job Nodes	Jobs	Latest	Pilot Nodes	defined	assigned	waiting	activated	sent	running	holding	transferring	finished	failed	tot	trf	other
Overall Analysis	8003	41792	10-29 21:08	7807	35822 / 0	0 / 0	0	82698 / 0	1 / 0	8468 / 0	1055 / 0	5 / 0	60191 / 0	41792 / 0	41%	11%	30%
CA	467	1367	10-29 21:08	534	921	0	0	7875	0	259	36	0 / 0	4192	1367	25%	0%	24%

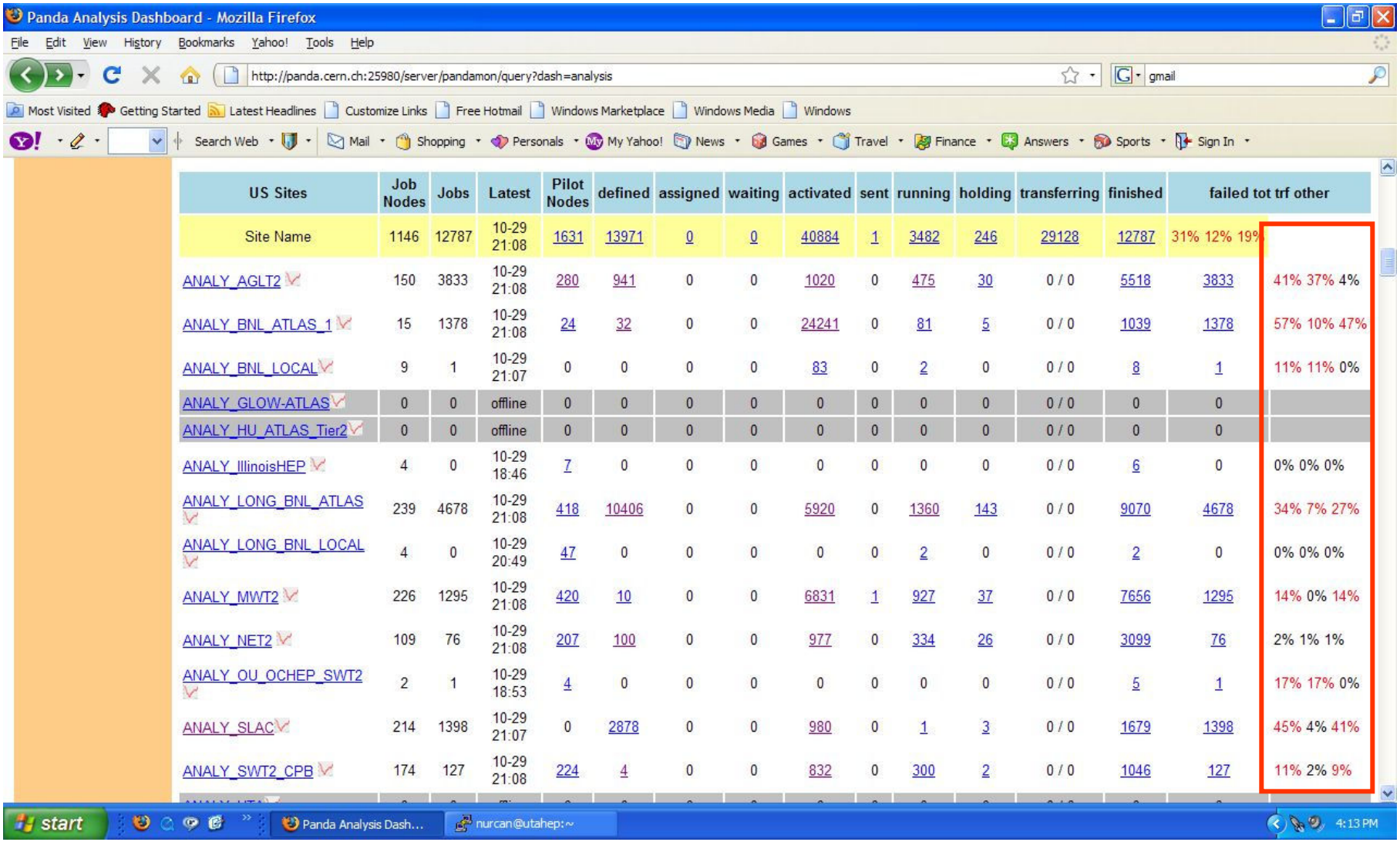
start Panda Analysis Dash... nurcan@utahep:~ 4:12 PM

Oct. 29 @ ~4 pm (2)



Cloud Information	Job Nodes	Jobs	Latest	Pilot Nodes	defined	assigned	waiting	activated	sent	running	holding	transferring	finished	failed	tot	trf	other
Overall Analysis	8003	41792	10-29 21:08	7807	35822 / 0	0 / 0	0	82698 / 0	1 / 0	8468 / 0	1055 / 0	5 / 0	60191 / 0	41792 / 0	41%	11%	30%
CA	467	1367	10-29 21:08	534	921	0	0	7875	0	259	36	0 / 0	4192	1367	25%	0%	24%
CERN	6	6	10-29 20:52	96	442	0	0	55	0	0	0	0 / 0	0	6	100%	0%	100%
DE	2054	1973	10-29 21:08	1239	6195	0	0	7864	0	1460	144	0 / 0	6152	1973	24%	10%	14%
ES	268	1035	10-29 21:08	166	1731	0	0	2497	0	301	38	0 / 0	2201	1035	32%	2%	30%
FR	1966	6334	10-29 21:08	1854	6449	0	0	11480	0	914	245	0 / 0	6858	6334	48%	16%	33%
IT	124	4916	10-29 21:08	156	2533	0	0	3692	0	143	24	0 / 0	1949	4916	72%	0%	71%
ND	227	1969	10-29 21:08	29	2094	0	0	763	0	326	23	5 / 0	1163	1969	63%	28%	35%
NL	438	5169	10-29 21:08	469	528	0	0	743	0	186	51	0 / 0	2402	5169	68%	2%	67%
TW	89	569	10-29 21:08	53	92	0	0	3879	0	135	2	0 / 0	1074	569	35%	0%	35%
UK	1218	5667	10-29 21:08	1580	880	0	0	2966	0	1262	246	0 / 0	5072	5667	53%	21%	31%
US	1146	12787	10-29 21:08	1631	13971	0	0	40884	1	3482	246	0 / 0	29128	12787	31%	12%	19%

Oct. 29 @ ~4 pm (3)



US Sites	Job Nodes	Jobs	Latest	Pilot Nodes	defined	assigned	waiting	activated	sent	running	holding	transferring	finished	failed	tot	trf	other
Site Name	1146	12787	10-29 21:08	1631	13971	0	0	40884	1	3482	246	29128	12787	31%	12%	19%	
ANALY_AGLT2	150	3833	10-29 21:08	280	941	0	0	1020	0	475	30	0 / 0	5518	3833	41%	37%	4%
ANALY_BNL_ATLAS_1	15	1378	10-29 21:08	24	32	0	0	24241	0	81	5	0 / 0	1039	1378	57%	10%	47%
ANALY_BNL_LOCAL	9	1	10-29 21:07	0	0	0	0	83	0	2	0	0 / 0	8	1	11%	11%	0%
ANALY_GLOW-ATLAS	0	0	offline	0	0	0	0	0	0	0	0	0 / 0	0	0			
ANALY_HU_ATLAS_Tier2	0	0	offline	0	0	0	0	0	0	0	0	0 / 0	0	0			
ANALY_IllinoisHEP	4	0	10-29 18:46	7	0	0	0	0	0	0	0	0 / 0	6	0	0%	0%	0%
ANALY_LONG_BNL_ATLAS	239	4678	10-29 21:08	418	10406	0	0	5920	0	1360	143	0 / 0	9070	4678	34%	7%	27%
ANALY_LONG_BNL_LOCAL	4	0	10-29 20:49	47	0	0	0	0	0	2	0	0 / 0	2	0	0%	0%	0%
ANALY_MWT2	226	1295	10-29 21:08	420	10	0	0	6831	1	927	37	0 / 0	7656	1295	14%	0%	14%
ANALY_NET2	109	76	10-29 21:08	207	100	0	0	977	0	334	26	0 / 0	3099	76	2%	1%	1%
ANALY_OU_OCHEP_SWT2	2	1	10-29 18:53	4	0	0	0	0	0	0	0	0 / 0	5	1	17%	17%	0%
ANALY_SLAC	214	1398	10-29 21:07	0	2878	0	0	980	0	1	3	0 / 0	1679	1398	45%	4%	41%
ANALY_SWT2_CPB	174	127	10-29 21:08	224	4	0	0	832	0	300	2	0 / 0	1046	127	11%	2%	9%

Oct. 30 @ midnight (1)

Panda Analysis Dashboard - Mozilla Firefox

File Edit View History Bookmarks Yahoo! Tools Help

http://panda.cern.ch:25980/server/pandamon/query?dash=analysis

Most Visited Getting Started Latest Headlines Customize Links Free Hotmail Windows Marketplace Windows Media Windows

Search Web Mail Shopping Personals My Yahoo! News Games Travel Finance Answers Sports Sign In

Dataset
Task request
Task status
File

Summaries
Blocks: days
Errors: days
Nodes: days
Usage 1, 3 days

Tasks - search
Generic Task Req
EvGen Task Req
CTBsim Task Req
Task list
New Tag
Bug Report
Task overview query

Datasets - search
Popular datasets
Aborted datasets
Datasets Browser

Datasets Distribution
DaTRI
DaTRI: Req list
AODs
EVNTs
Conditions DS
DB Releases
SIT pacballs
Validation Samples
Functional Tests
ATLAS Data
Reprocessed_Datasets

Status of pathena analysis queues: See the wiki page PathenaAnalysisQueues

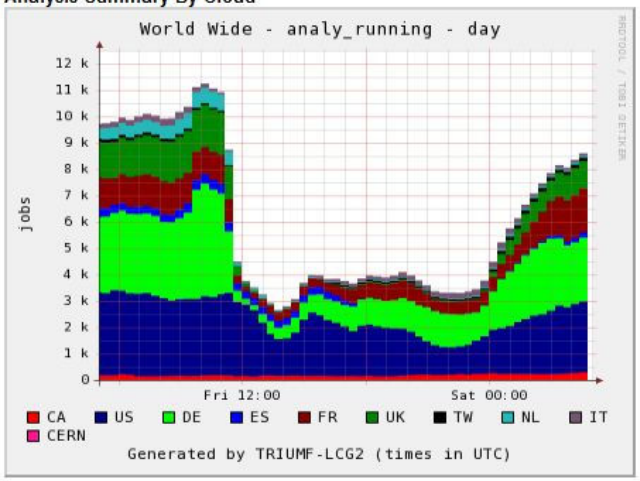
Analysis jobs: Listing of analysis jobs. To look up a particular Panda job by ID use the quick search at left or click a PandaID in the job listing.

Analysis users: User list (also linked at top right, or above if you've logged in) shows analysis usage, ordered by most recent. From there you can go to your page (you're on the list if you've run a Panda job); if you 'log in' you'll get easier access to your page from a new menu at the top of the page.

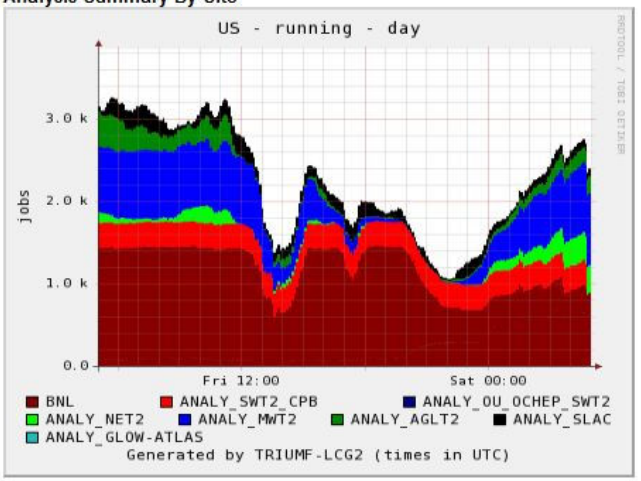
Groups: Groups are supported to organize users by role, physics working groups etc. and support collaborative work, accounting rights etc. (Not much used yet.)

Data access: See the physics data page linked above for infomation on data location, requesting replication of data, and staging data from tape to disk.

Analysis Summary By Cloud



Analysis Summary By Site

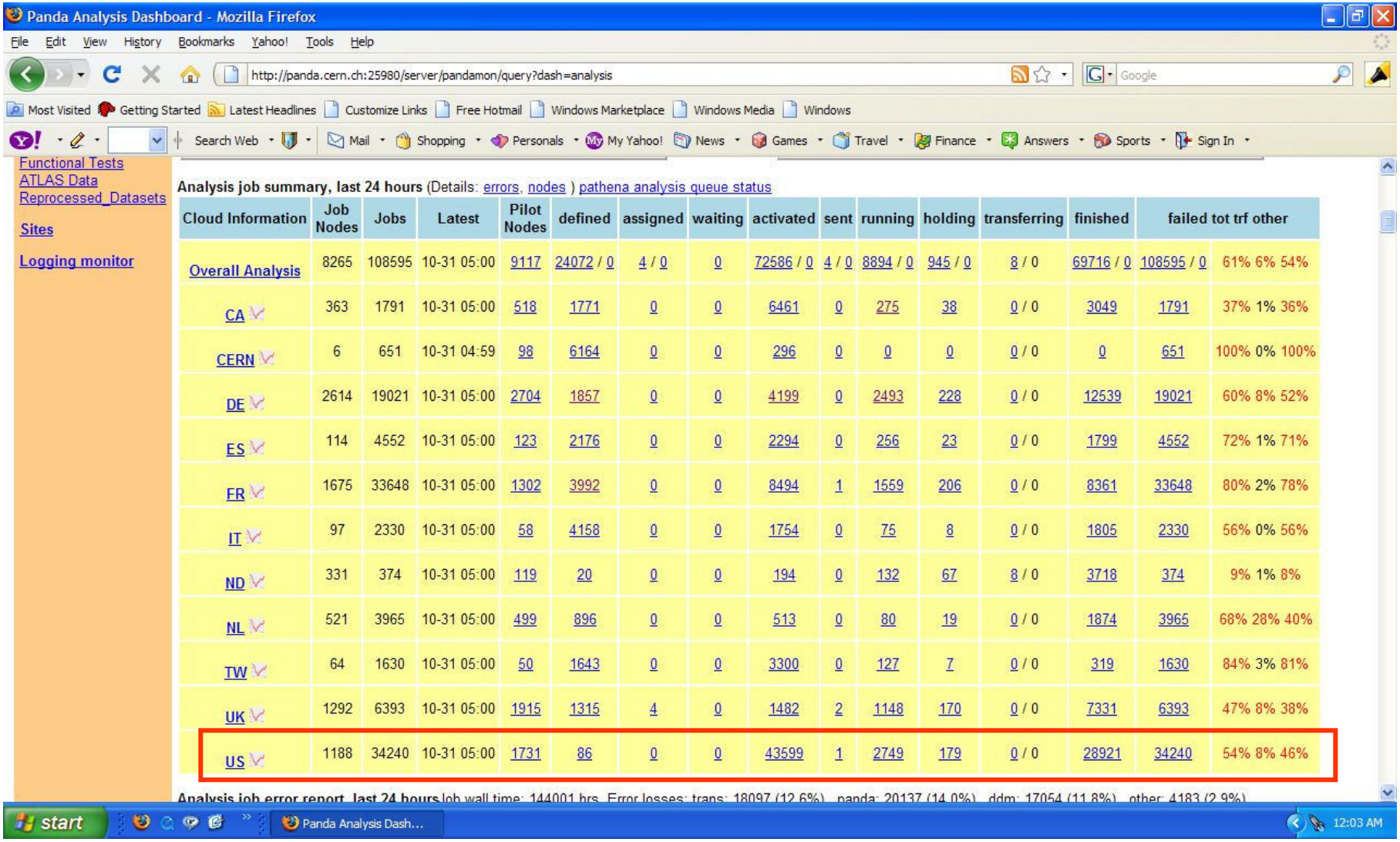


Analysis job summary, last 24 hours (Details: errors, nodes) pathena analysis queue status

Cloud Information	Job	Jobs	Latest	Pilot	defined	assigned	waiting	activated	sent	running	holding	transferring	finished	failed tot trf other

start Panda Analysis Dash... 12:02 AM

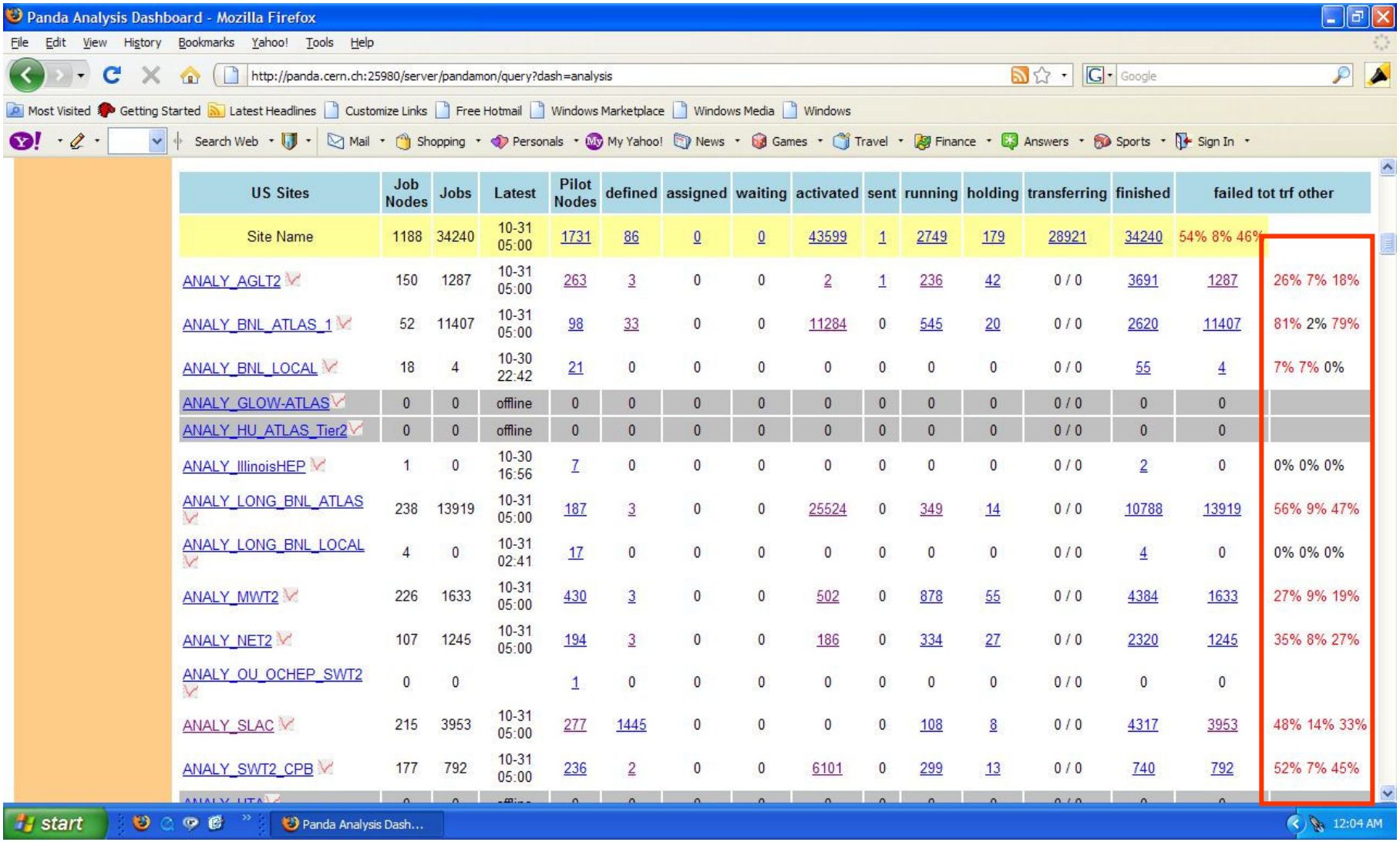
Oct. 30 @ midnight (2)



Cloud Information	Job Nodes	Jobs	Latest	Pilot Nodes	defined	assigned	waiting	activated	sent	running	holding	transferring	finished	failed	tot	trf	other
Overall Analysis	8265	108595	10-31 05:00	9117	24072 / 0	4 / 0	0	72586 / 0	4 / 0	8894 / 0	945 / 0	8 / 0	69716 / 0	108595 / 0	61%	6%	54%
CA	363	1791	10-31 05:00	518	1771	0	0	6461	0	275	38	0 / 0	3049	1791	37%	1%	36%
CERN	6	651	10-31 04:59	98	6164	0	0	296	0	0	0	0 / 0	0	651	100%	0%	100%
DE	2614	19021	10-31 05:00	2704	1857	0	0	4199	0	2493	228	0 / 0	12539	19021	60%	8%	52%
ES	114	4552	10-31 05:00	123	2176	0	0	2294	0	256	23	0 / 0	1799	4552	72%	1%	71%
FR	1675	33648	10-31 05:00	1302	3992	0	0	8494	1	1559	206	0 / 0	8361	33648	80%	2%	78%
IT	97	2330	10-31 05:00	58	4158	0	0	1754	0	75	8	0 / 0	1805	2330	56%	0%	56%
ND	331	374	10-31 05:00	119	20	0	0	194	0	132	67	8 / 0	3718	374	9%	1%	8%
NL	521	3965	10-31 05:00	499	896	0	0	513	0	80	19	0 / 0	1874	3965	68%	28%	40%
TW	64	1630	10-31 05:00	50	1643	0	0	3300	0	127	7	0 / 0	319	1630	84%	3%	81%
UK	1292	6393	10-31 05:00	1915	1315	4	0	1482	2	1148	170	0 / 0	7331	6393	47%	8%	38%
US	1188	34240	10-31 05:00	1731	86	0	0	43599	1	2749	179	0 / 0	28921	34240	54%	8%	46%

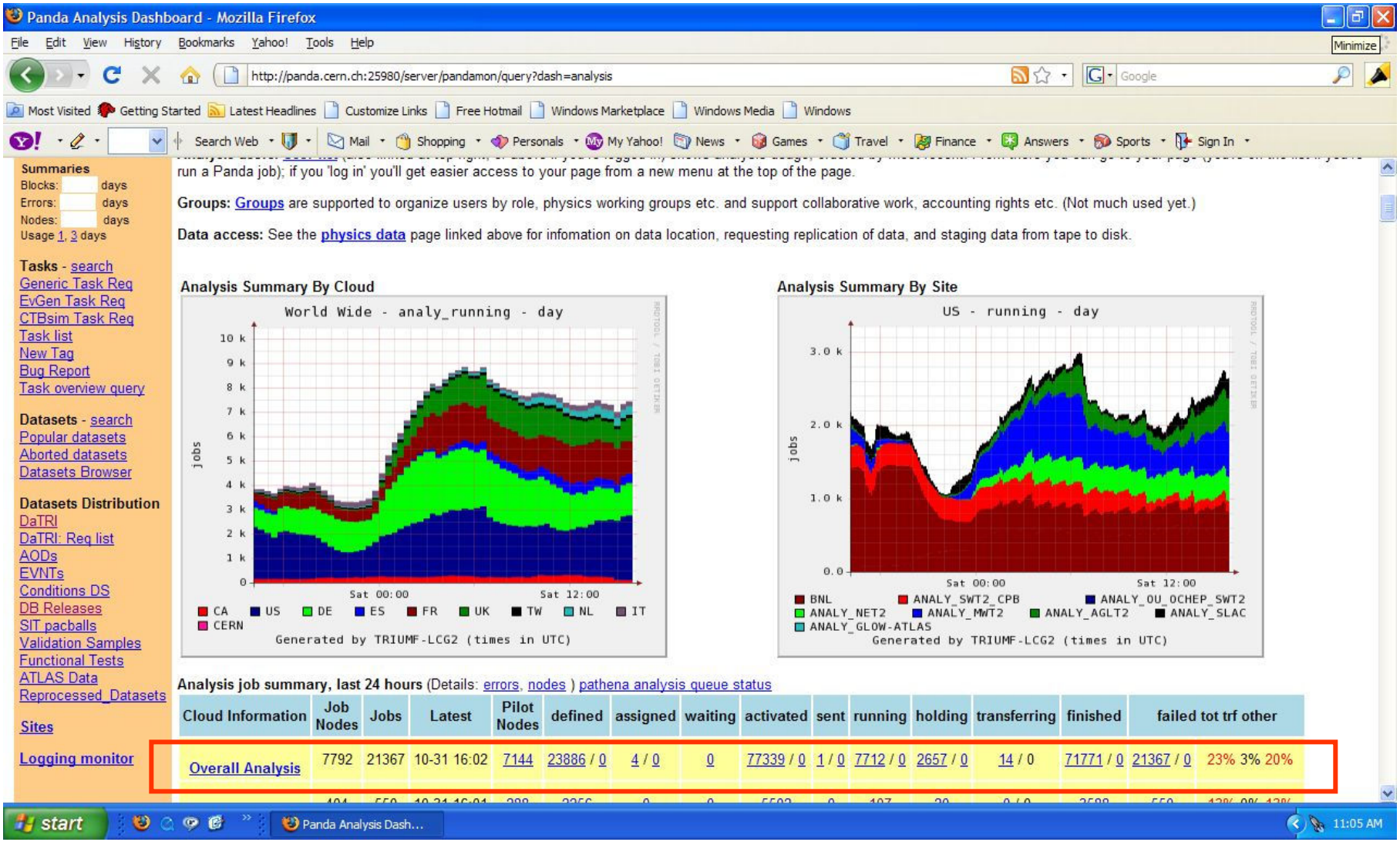
Analysis job error report, last 24 hours Job wall time: 144001 hrs. Error losses: trans: 18097 (12.6%) panda: 20137 (14.0%) ddm: 17054 (11.8%) other: 4183 (2.9%)

Oct. 30 @ midnight (3)

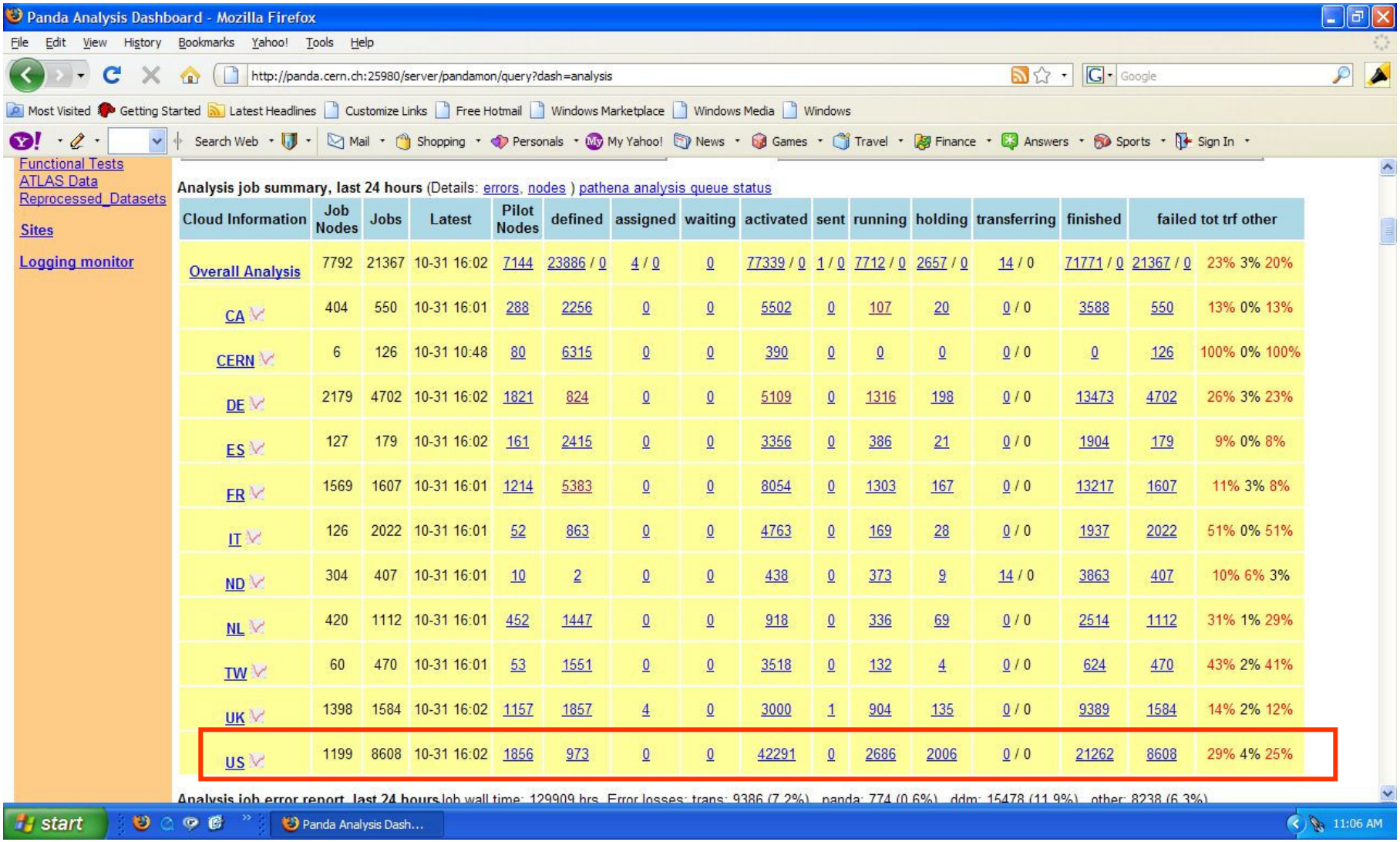


US Sites	Job Nodes	Jobs	Latest	Pilot Nodes	defined	assigned	waiting	activated	sent	running	holding	transferring	finished	failed tot trf other
Site Name	1188	34240	10-31 05:00	1731	86	0	0	43599	1	2749	179	28921	34240	54% 8% 46%
ANALY_AGLT2	150	1287	10-31 05:00	263	3	0	0	2	1	236	42	0 / 0	3691	1287 26% 7% 18%
ANALY_BNL_ATLAS_1	52	11407	10-31 05:00	98	33	0	0	11284	0	545	20	0 / 0	2620	11407 81% 2% 79%
ANALY_BNL_LOCAL	18	4	10-30 22:42	21	0	0	0	0	0	0	0	0 / 0	55	4 7% 7% 0%
ANALY_GLOW-ATLAS	0	0	offline	0	0	0	0	0	0	0	0	0 / 0	0	0
ANALY_HU_ATLAS_Tier2	0	0	offline	0	0	0	0	0	0	0	0	0 / 0	0	0
ANALY_IllinoisHEP	1	0	10-30 16:56	7	0	0	0	0	0	0	0	0 / 0	2	0 0% 0% 0%
ANALY_LONG_BNL_ATLAS	238	13919	10-31 05:00	187	3	0	0	25524	0	349	14	0 / 0	10788	13919 56% 9% 47%
ANALY_LONG_BNL_LOCAL	4	0	10-31 02:41	17	0	0	0	0	0	0	0	0 / 0	4	0 0% 0% 0%
ANALY_MWT2	226	1633	10-31 05:00	430	3	0	0	502	0	878	55	0 / 0	4384	1633 27% 9% 19%
ANALY_NET2	107	1245	10-31 05:00	194	3	0	0	186	0	334	27	0 / 0	2320	1245 35% 8% 27%
ANALY_OU_OCHEP_SWT2	0	0		1	0	0	0	0	0	0	0	0 / 0	0	0
ANALY_SLAC	215	3953	10-31 05:00	277	1445	0	0	0	0	108	8	0 / 0	4317	3953 48% 14% 33%
ANALY_SWT2_CPB	177	792	10-31 05:00	236	2	0	0	6101	0	299	13	0 / 0	740	792 52% 7% 45%

Oct. 31 @ ~11am (1)


Panda Analysis Dashboard - Mozilla Firefox
File Edit View History Bookmarks Yahoo! Tools Help
http://panda.cern.ch:25980/server/pandamon/query?dash=analysis
Most Visited Getting Started Latest Headlines Customize Links Free Hotmail Windows Marketplace Windows Media Windows
Search Web Mail Shopping Personals My Yahoo! News Games Travel Finance Answers Sports Sign In
Summaries
Blocks: days
Errors: days
Nodes: days
Usage 1, 3 days
Tasks - search
Generic Task Req
EvGen Task Req
CTBsim Task Req
Task list
New Tag
Bug Report
Task overview query
Datasets - search
Popular datasets
Aborted datasets
Datasets Browser
Datasets Distribution
DaTRI
DaTRI: Req list
AODs
EVNTs
Conditions DS
DB Releases
SIT pacballs
Validation Samples
Functional Tests
ATLAS Data
Reprocessed_Datasets
Sites
Logging monitor
run a Panda job); if you 'log in' you'll get easier access to your page from a new menu at the top of the page.
Groups: Groups are supported to organize users by role, physics working groups etc. and support collaborative work, accounting rights etc. (Not much used yet.)
Data access: See the physics data page linked above for infomation on data location, requesting replication of data, and staging data from tape to disk.
Analysis Summary By Cloud
World Wide - analy_running - day
jobs
Sat 00:00
Sat 12:00
CA US DE ES FR UK TW NL IT CERN
Generated by TRIUMF-LCG2 (times in UTC)
Analysis Summary By Site
US - running - day
jobs
Sat 00:00
Sat 12:00
BNL ANALY_SWT2_CPB ANALY_OU_OCHEP_SWT2 ANALY_NET2 ANALY_MWT2 ANALY_AGLT2 ANALY_SLAC ANALY_GLOW-ATLAS
Generated by TRIUMF-LCG2 (times in UTC)
Analysis job summary, last 24 hours (Details: errors, nodes) pathena analysis queue status
Cloud Information | Job Nodes | Jobs | Latest | Pilot Nodes | defined | assigned | waiting | activated | sent | running | holding | transferring | finished | failed tot trf other
Overall Analysis | 7792 | 21367 | 10-31 16:02 | 7144 | 23886 / 0 | 4 / 0 | 0 | 77339 / 0 | 1 / 0 | 7712 / 0 | 2657 / 0 | 14 / 0 | 71771 / 0 | 21367 / 0 | 23% 3% 20%
start
Panda Analysis Dash...
11:05 AM

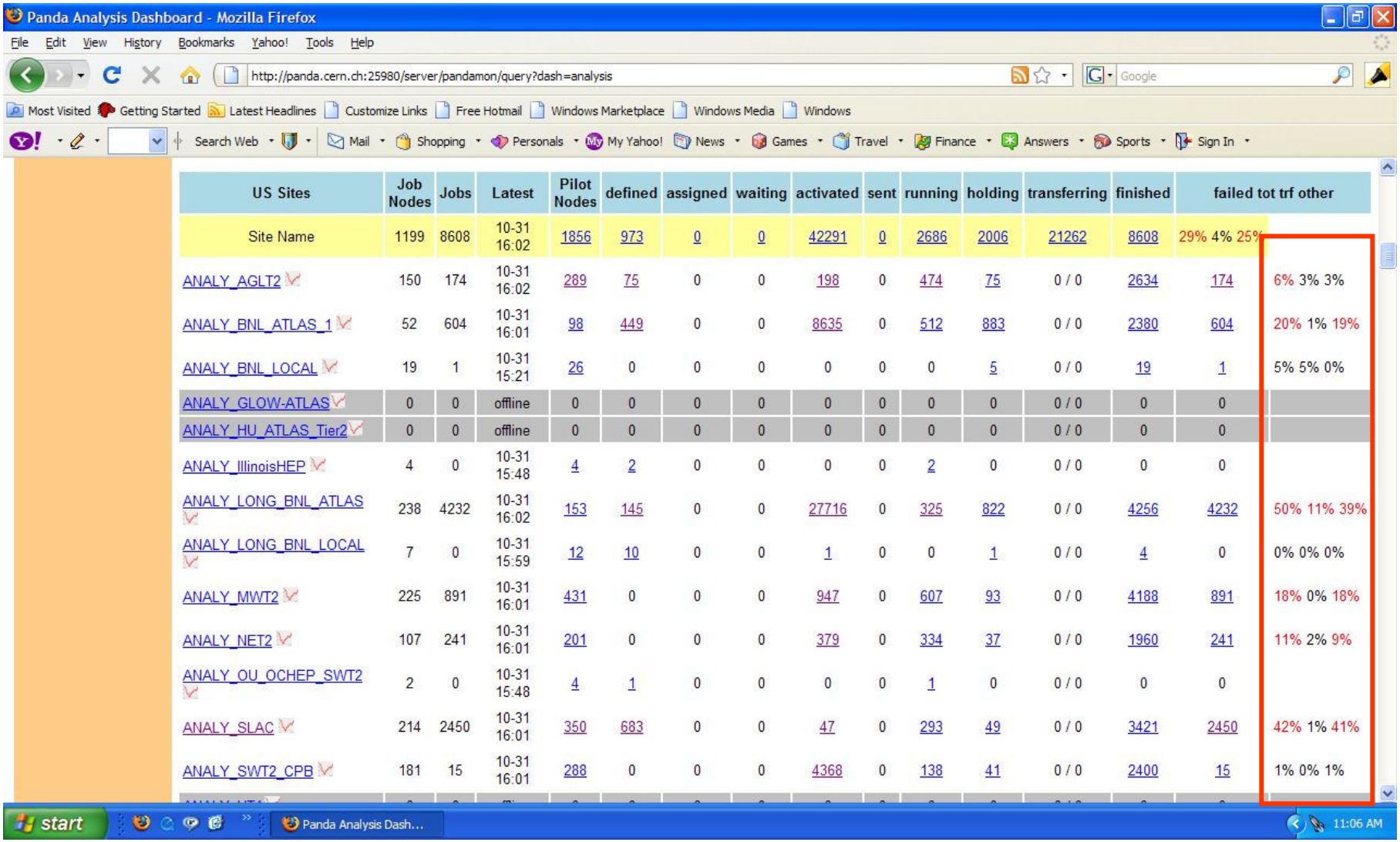
Oct. 31 @ ~11am (2)



Cloud Information	Job Nodes	Jobs	Latest	Pilot Nodes	defined	assigned	waiting	activated	sent	running	holding	transferring	finished	failed	tot	trf	other
Overall Analysis	7792	21367	10-31 16:02	7144	23886 / 0	4 / 0	0	77339 / 0	1 / 0	7712 / 0	2657 / 0	14 / 0	71771 / 0	21367 / 0	23%	3%	20%
CA	404	550	10-31 16:01	288	2256	0	0	5502	0	107	20	0 / 0	3588	550	13%	0%	13%
CERN	6	126	10-31 10:48	80	6315	0	0	390	0	0	0	0 / 0	0	126	100%	0%	100%
DE	2179	4702	10-31 16:02	1821	824	0	0	5109	0	1316	198	0 / 0	13473	4702	26%	3%	23%
ES	127	179	10-31 16:02	161	2415	0	0	3356	0	386	21	0 / 0	1904	179	9%	0%	8%
FR	1569	1607	10-31 16:01	1214	5383	0	0	8054	0	1303	167	0 / 0	13217	1607	11%	3%	8%
IT	126	2022	10-31 16:01	52	863	0	0	4763	0	169	28	0 / 0	1937	2022	51%	0%	51%
ND	304	407	10-31 16:01	10	2	0	0	438	0	373	9	14 / 0	3863	407	10%	6%	3%
NL	420	1112	10-31 16:01	452	1447	0	0	918	0	336	69	0 / 0	2514	1112	31%	1%	29%
TW	60	470	10-31 16:01	53	1551	0	0	3518	0	132	4	0 / 0	624	470	43%	2%	41%
UK	1398	1584	10-31 16:02	1157	1857	4	0	3000	1	904	135	0 / 0	9389	1584	14%	2%	12%
US	1199	8608	10-31 16:02	1856	973	0	0	42291	0	2686	2006	0 / 0	21262	8608	29%	4%	25%

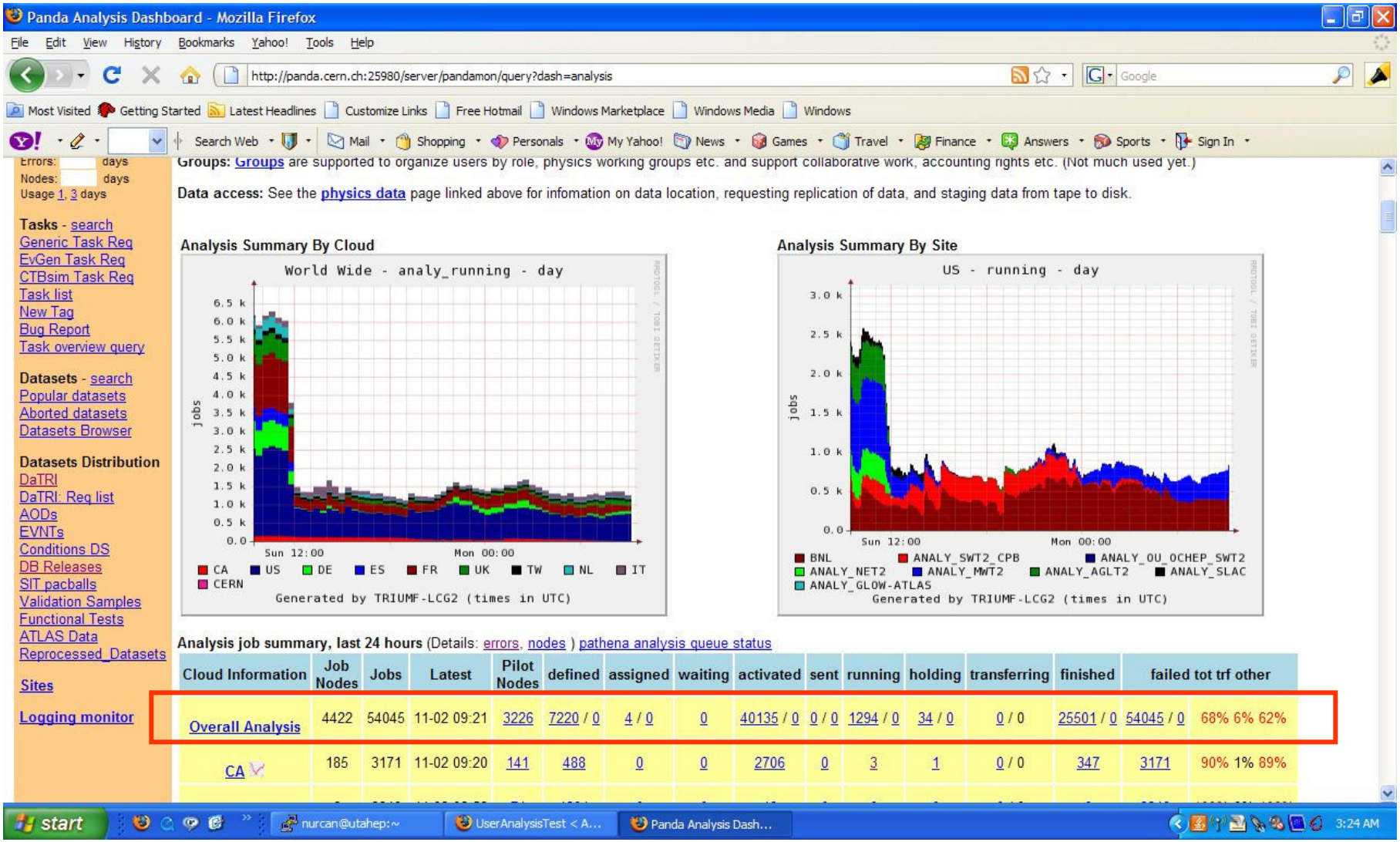
Analysis job error report, last 24 hours lob wall time: 129909 hrs. Error losses: trans: 9386 (7.2%) panda: 774 (0.6%) ddm: 15478 (11.9%) other: 8238 (6.3%)

Oct. 31 @ ~11am (3)

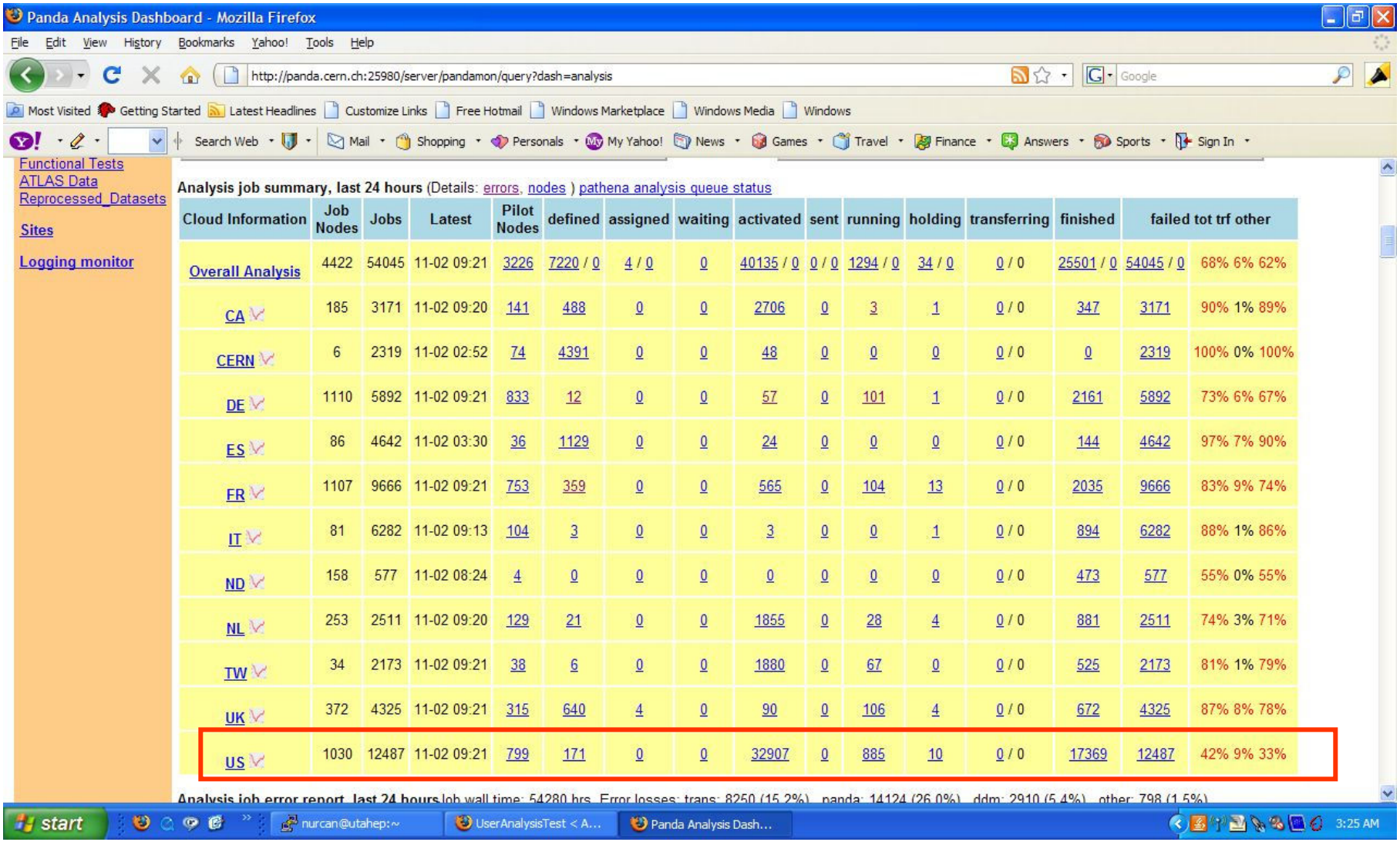


US Sites	Job Nodes	Jobs	Latest	Pilot Nodes	defined	assigned	waiting	activated	sent	running	holding	transferring	finished	failed tot trf other
Site Name	1199	8608	10-31 16:02	1856	973	0	0	42291	0	2686	2006	21262	8608	29% 4% 25%
ANALY_AGLT2	150	174	10-31 16:02	289	75	0	0	198	0	474	75	0 / 0	2634	174 6% 3% 3%
ANALY_BNL_ATLAS_1	52	604	10-31 16:01	98	449	0	0	8635	0	512	883	0 / 0	2380	604 20% 1% 19%
ANALY_BNL_LOCAL	19	1	10-31 15:21	26	0	0	0	0	0	0	5	0 / 0	19	1 5% 5% 0%
ANALY_GLOW-ATLAS	0	0	offline	0	0	0	0	0	0	0	0	0 / 0	0	0
ANALY_HU_ATLAS_Tier2	0	0	offline	0	0	0	0	0	0	0	0	0 / 0	0	0
ANALY_IllinoisHEP	4	0	10-31 15:48	4	2	0	0	0	0	2	0	0 / 0	0	0
ANALY_LONG_BNL_ATLAS	238	4232	10-31 16:02	153	145	0	0	27716	0	325	822	0 / 0	4256	4232 50% 11% 39%
ANALY_LONG_BNL_LOCAL	7	0	10-31 15:59	12	10	0	0	1	0	0	1	0 / 0	4	0 0% 0% 0%
ANALY_MWT2	225	891	10-31 16:01	431	0	0	0	947	0	607	93	0 / 0	4188	891 18% 0% 18%
ANALY_NET2	107	241	10-31 16:01	201	0	0	0	379	0	334	37	0 / 0	1960	241 11% 2% 9%
ANALY_OU_OCHEP_SWT2	2	0	10-31 15:48	4	1	0	0	0	0	1	0	0 / 0	0	0
ANALY_SLAC	214	2450	10-31 16:01	350	683	0	0	47	0	293	49	0 / 0	3421	2450 42% 1% 41%
ANALY_SWT2_CPB	181	15	10-31 16:01	288	0	0	0	4368	0	138	41	0 / 0	2400	15 1% 0% 1%

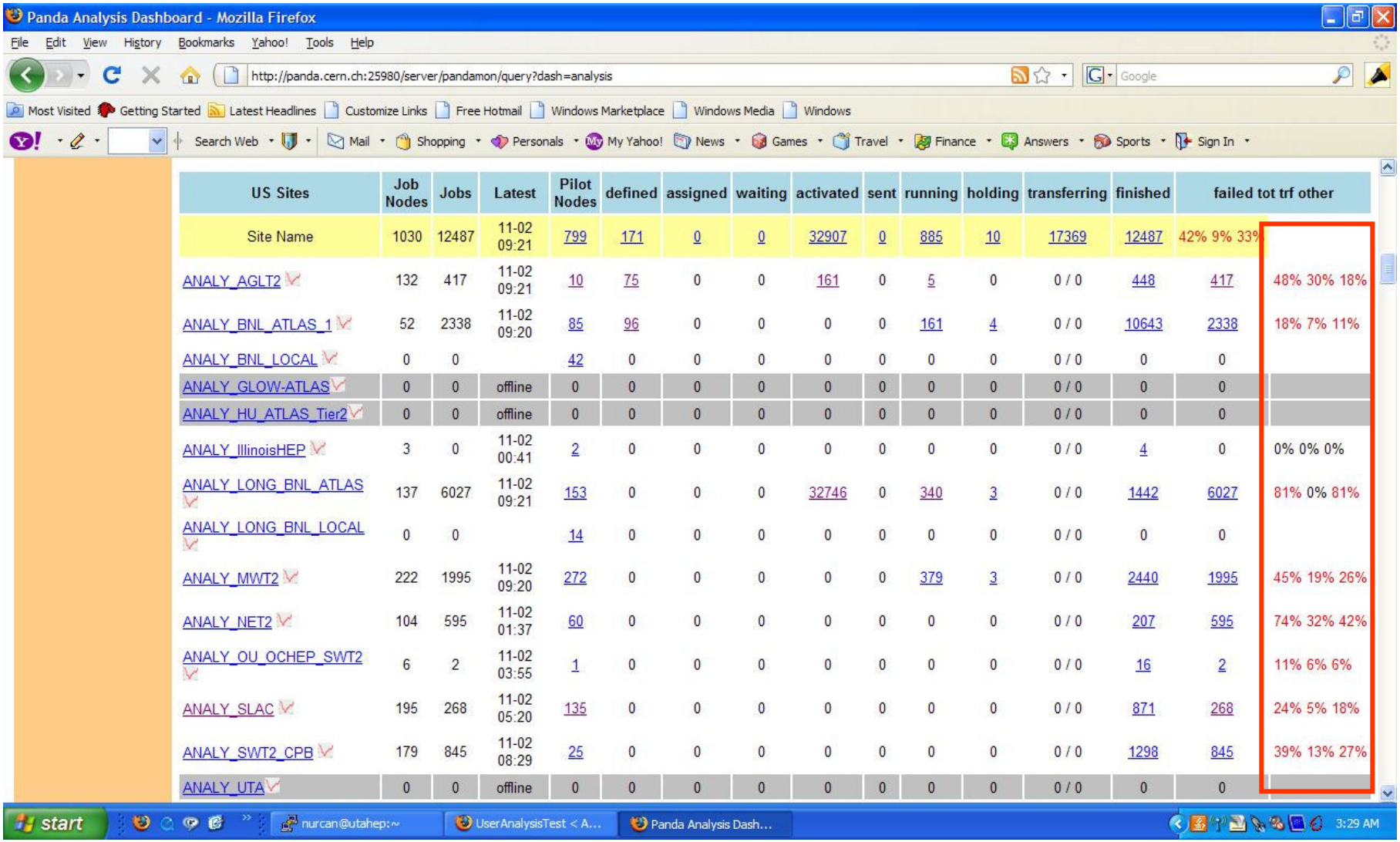
Nov 2 @ ~3 am (1)


Panda Analysis Dashboard - Mozilla Firefox
http://panda.cern.ch:25980/server/pandamon/query?dash=analysis
Groups: Groups are supported to organize users by role, physics working groups etc. and support collaborative work, accounting rights etc. (Not much used yet.)
Data access: See the physics data page linked above for infomation on data location, requesting replication of data, and staging data from tape to disk.
Analysis Summary By Cloud
World Wide - analy_running - day
Generated by TRIUMF-LCG2 (times in UTC)
Analysis Summary By Site
US - running - day
Generated by TRIUMF-LCG2 (times in UTC)
Analysis job summary, last 24 hours (Details: errors, nodes) pathena analysis queue status
Cloud Information | Job Nodes | Jobs | Latest | Pilot Nodes | defined | assigned | waiting | activated | sent | running | holding | transferring | finished | failed | tot | trf | other
Overall Analysis | 4422 | 54045 | 11-02 09:21 | 3226 | 7220 / 0 | 4 / 0 | 0 | 40135 / 0 | 0 / 0 | 1294 / 0 | 34 / 0 | 0 / 0 | 25501 / 0 | 54045 / 0 | 68% | 6% | 62%
CA | 185 | 3171 | 11-02 09:20 | 141 | 488 | 0 | 0 | 2706 | 0 | 3 | 1 | 0 / 0 | 347 | 3171 | 90% | 1% | 89%

Nov 2 @ ~3 am (2)


Panda Analysis Dashboard - Mozilla Firefox
File Edit View History Bookmarks Yahoo! Tools Help
http://panda.cern.ch:25980/server/pandamon/query?dash=analysis
Most Visited Getting Started Latest Headlines Customize Links Free Hotmail Windows Marketplace Windows Media Windows
Search Web Mail Shopping Personals My Yahoo! News Games Travel Finance Answers Sports Sign In
Functional Tests
ATLAS Data Reprocessed_Datasets
Sites
Logging monitor
Analysis job summary, last 24 hours (Details: errors, nodes) pathena analysis queue status
Cloud Information | Job Nodes | Jobs | Latest | Pilot Nodes | defined | assigned | waiting | activated | sent | running | holding | transferring | finished | failed | tot | trf | other
Overall Analysis | 4422 | 54045 | 11-02 09:21 | 3226 | 7220 / 0 | 4 / 0 | 0 | 40135 / 0 | 0 / 0 | 1294 / 0 | 34 / 0 | 0 / 0 | 25501 / 0 | 54045 / 0 | 68% 6% 62%
CA | 185 | 3171 | 11-02 09:20 | 141 | 488 | 0 | 0 | 2706 | 0 | 3 | 1 | 0 / 0 | 347 | 3171 | 90% 1% 89%
CERN | 6 | 2319 | 11-02 02:52 | 74 | 4391 | 0 | 0 | 48 | 0 | 0 | 0 | 0 / 0 | 0 | 2319 | 100% 0% 100%
DE | 1110 | 5892 | 11-02 09:21 | 833 | 12 | 0 | 0 | 57 | 0 | 101 | 1 | 0 / 0 | 2161 | 5892 | 73% 6% 67%
ES | 86 | 4642 | 11-02 03:30 | 36 | 1129 | 0 | 0 | 24 | 0 | 0 | 0 | 0 / 0 | 144 | 4642 | 97% 7% 90%
FR | 1107 | 9666 | 11-02 09:21 | 753 | 359 | 0 | 0 | 565 | 0 | 104 | 13 | 0 / 0 | 2035 | 9666 | 83% 9% 74%
IT | 81 | 6282 | 11-02 09:13 | 104 | 3 | 0 | 0 | 3 | 0 | 0 | 1 | 0 / 0 | 894 | 6282 | 88% 1% 86%
ND | 158 | 577 | 11-02 08:24 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 / 0 | 473 | 577 | 55% 0% 55%
NL | 253 | 2511 | 11-02 09:20 | 129 | 21 | 0 | 0 | 1855 | 0 | 28 | 4 | 0 / 0 | 881 | 2511 | 74% 3% 71%
TW | 34 | 2173 | 11-02 09:21 | 38 | 6 | 0 | 0 | 1880 | 0 | 67 | 0 | 0 / 0 | 525 | 2173 | 81% 1% 79%
UK | 372 | 4325 | 11-02 09:21 | 315 | 640 | 4 | 0 | 90 | 0 | 106 | 4 | 0 / 0 | 672 | 4325 | 87% 8% 78%
US | 1030 | 12487 | 11-02 09:21 | 799 | 171 | 0 | 0 | 32907 | 0 | 885 | 10 | 0 / 0 | 17369 | 12487 | 42% 9% 33%
Analysis job error report, last 24 hours lob wall time: 54280 hrs. Error losses: trans: 8250 (15.2%) panda: 14124 (26.0%) ddm: 2910 (5.4%) other: 798 (1.5%)
start
nurcan@utahep:~
UserAnalysisTest < A...
Panda Analysis Dash...
3:25 AM

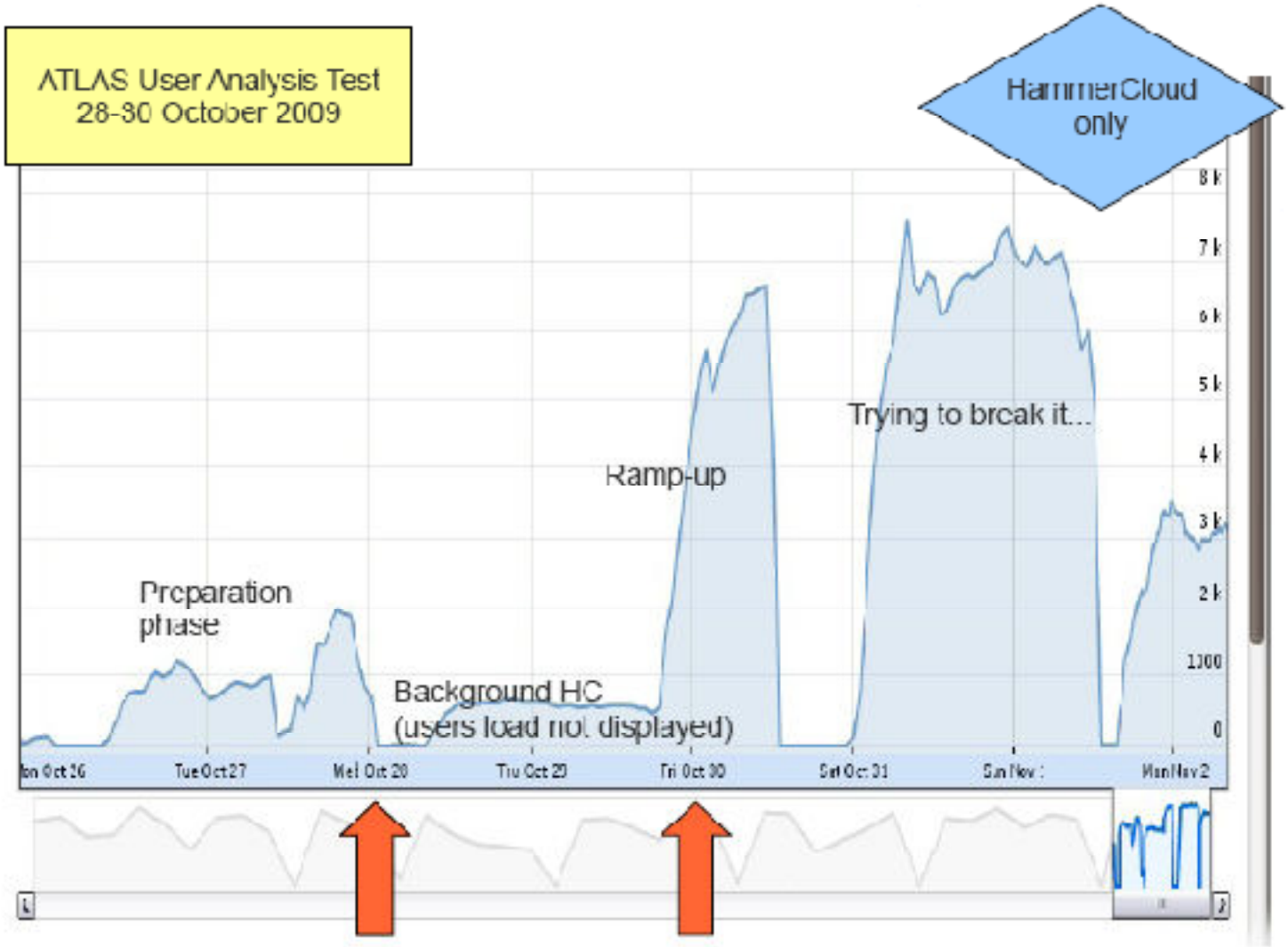
Nov 2 @ ~3 am (3)



US Sites	Job Nodes	Jobs	Latest	Pilot Nodes	defined	assigned	waiting	activated	sent	running	holding	transferring	finished	failed	tot	trf	other
Site Name	1030	12487	11-02 09:21	799	171	0	0	32907	0	885	10	17369	12487	42%	9%	33%	
ANALY_AGLT2	132	417	11-02 09:21	10	75	0	0	161	0	5	0	0 / 0	448	417	48%	30%	18%
ANALY_BNL_ATLAS_1	52	2338	11-02 09:20	85	96	0	0	0	0	161	4	0 / 0	10643	2338	18%	7%	11%
ANALY_BNL_LOCAL	0	0		42	0	0	0	0	0	0	0	0 / 0	0	0			
ANALY_GLOW-ATLAS	0	0	offline	0	0	0	0	0	0	0	0	0 / 0	0	0			
ANALY_HU_ATLAS_Tier2	0	0	offline	0	0	0	0	0	0	0	0	0 / 0	0	0			
ANALY_IllinoisHEP	3	0	11-02 00:41	2	0	0	0	0	0	0	0	0 / 0	4	0	0%	0%	0%
ANALY_LONG_BNL_ATLAS	137	6027	11-02 09:21	153	0	0	0	32746	0	340	3	0 / 0	1442	6027	81%	0%	81%
ANALY_LONG_BNL_LOCAL	0	0		14	0	0	0	0	0	0	0	0 / 0	0	0			
ANALY_MWT2	222	1995	11-02 09:20	272	0	0	0	0	0	379	3	0 / 0	2440	1995	45%	19%	26%
ANALY_NET2	104	595	11-02 01:37	60	0	0	0	0	0	0	0	0 / 0	207	595	74%	32%	42%
ANALY_OU_OCHEP_SWT2	6	2	11-02 03:55	1	0	0	0	0	0	0	0	0 / 0	16	2	11%	6%	6%
ANALY_SLAC	195	268	11-02 05:20	135	0	0	0	0	0	0	0	0 / 0	871	268	24%	5%	18%
ANALY_SWT2_CPB	179	845	11-02 08:29	25	0	0	0	0	0	0	0	0 / 0	1298	845	39%	13%	27%
ANALY_UTA	0	0	offline	0	0	0	0	0	0	0	0	0 / 0	0	0			

HammerCloud Jobs During UAT

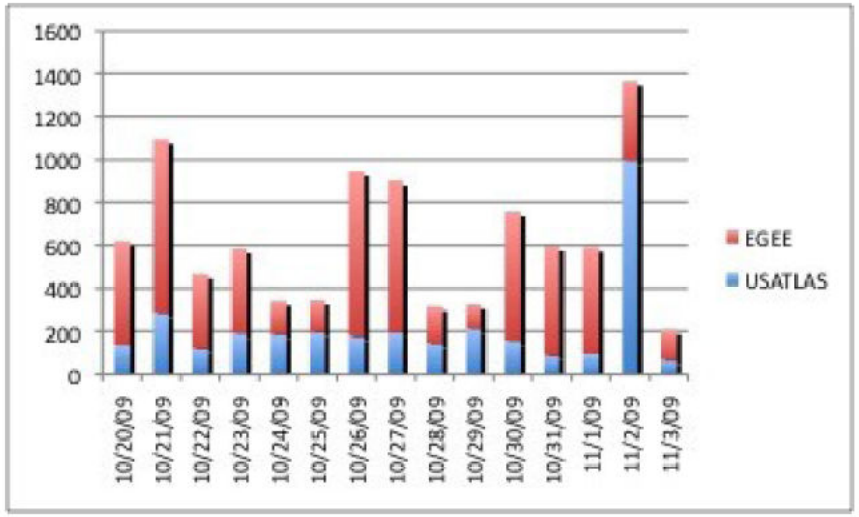
From Massimo



Last Day Activity – Data Retrieval

- Goal: test dq2-get and DDM subscriptions for data retrieval.
- Low usage on both.
- A jump on 11/2 at USATLAS site for dq2-get requests.
- Approval of DDM subscriptions by Kaushik also on 11/2.
- No major problems, slowness of dq2-get has been reported in User Feedback.
- Some NorduGrid usesr had difficulty on registering their grid-cert on the DDM subscription interface page. Mikhail has been following up.

Number of dq2-get requests for retrieving datasets



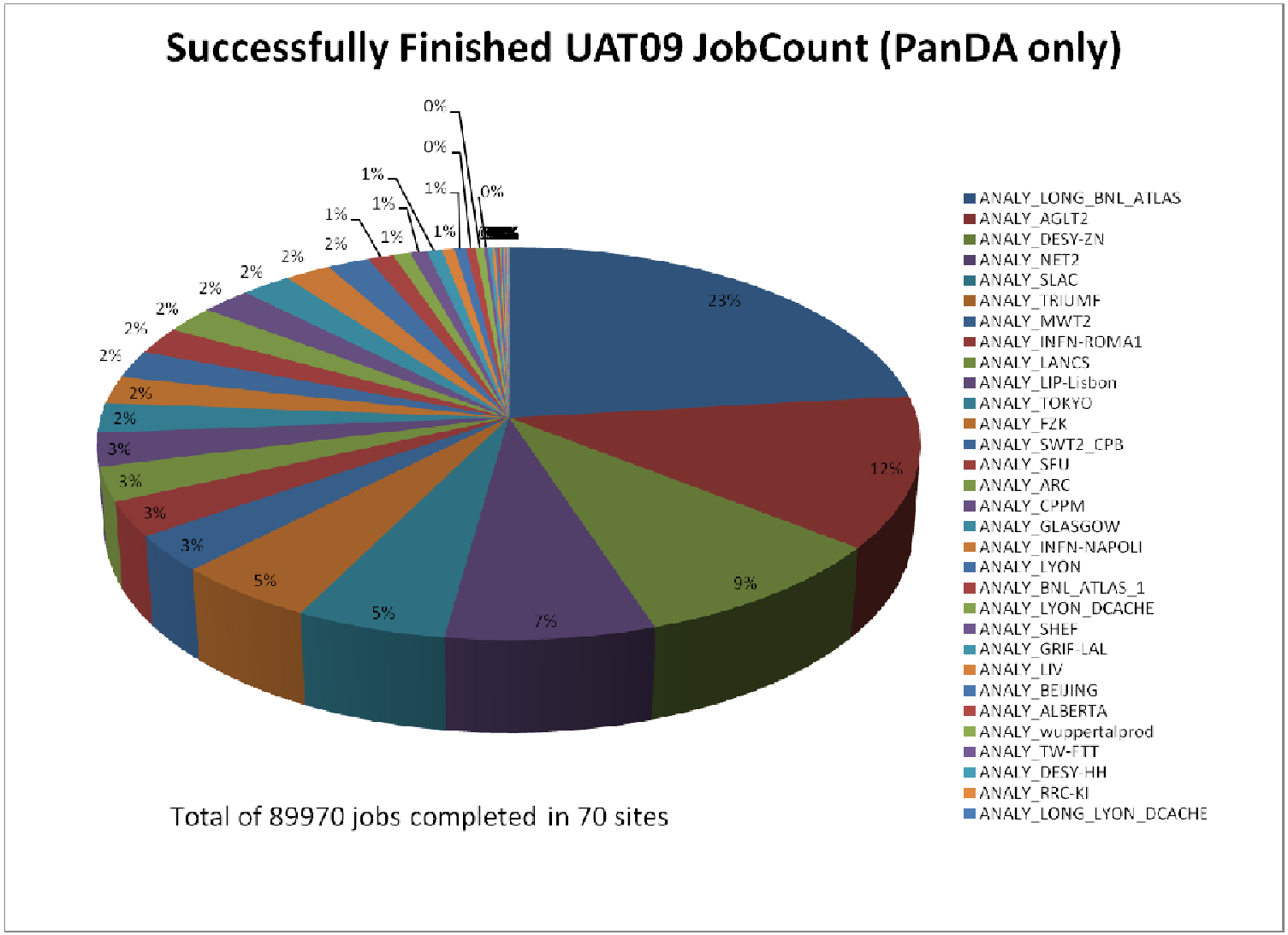
From DDM team

User/Job Statistics

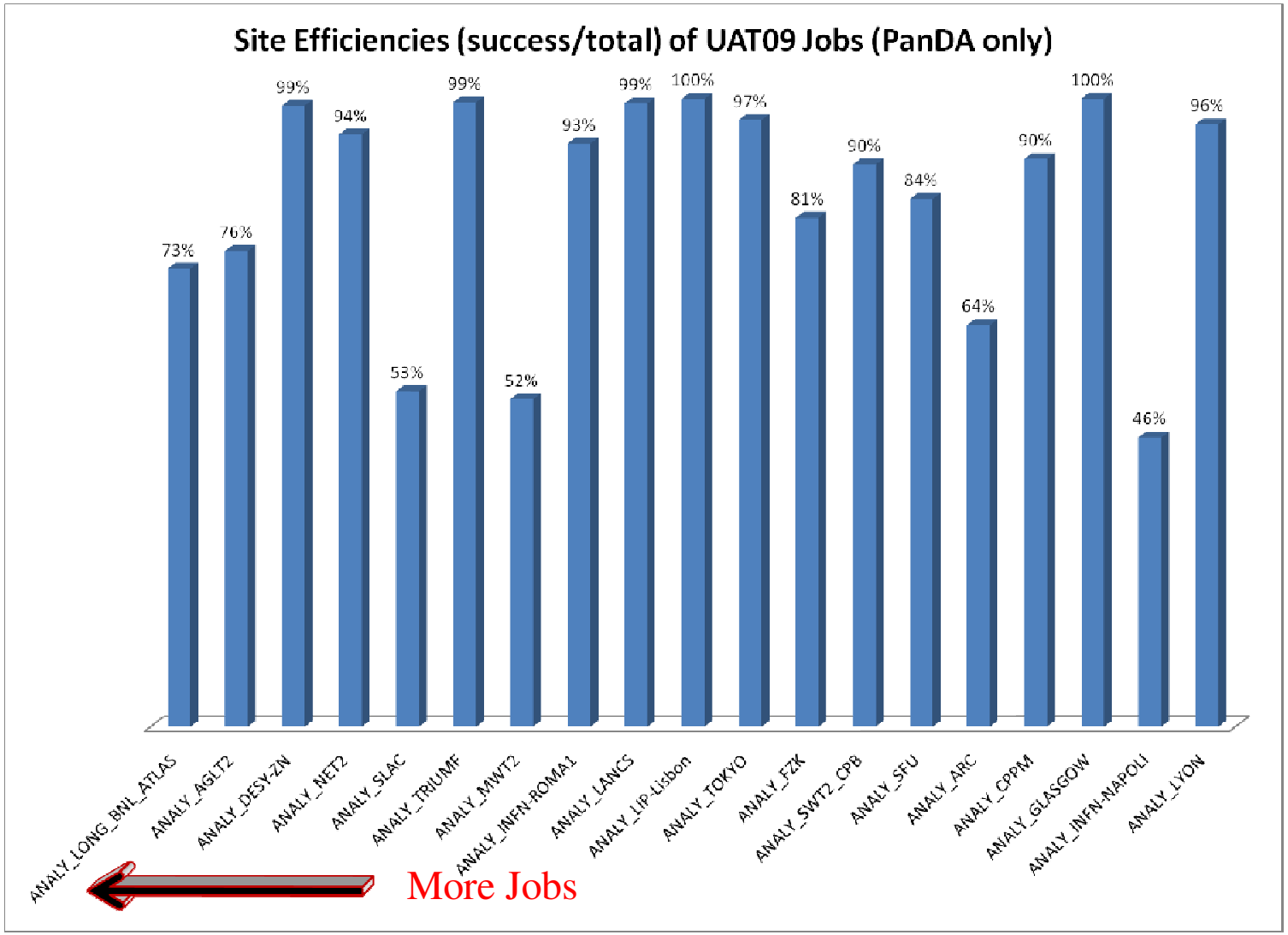
- 54 users submitted to 70 Panda analysis sites with processingType=stresstest label.
  - ~90k jobs sucessfuly completed.
- 112 users submitted to Ganga WMS sites. 60+ sited with more than 100 jobs.
  - 108k jobs submitted.
  - “Pure” Grid efficiency is 93%.
- 6/7 users from NorduGrid submitted to ARC sites via Ganga and to Panda sites via GangaPanda.
  - Job efficiency is over 90%.
- HammerCloud jobs submitted during the weekend to top up to the max. number of jobs.
  - ~10k jobs were run concurrently.

UAT Job Count by Sites

From Kaushik

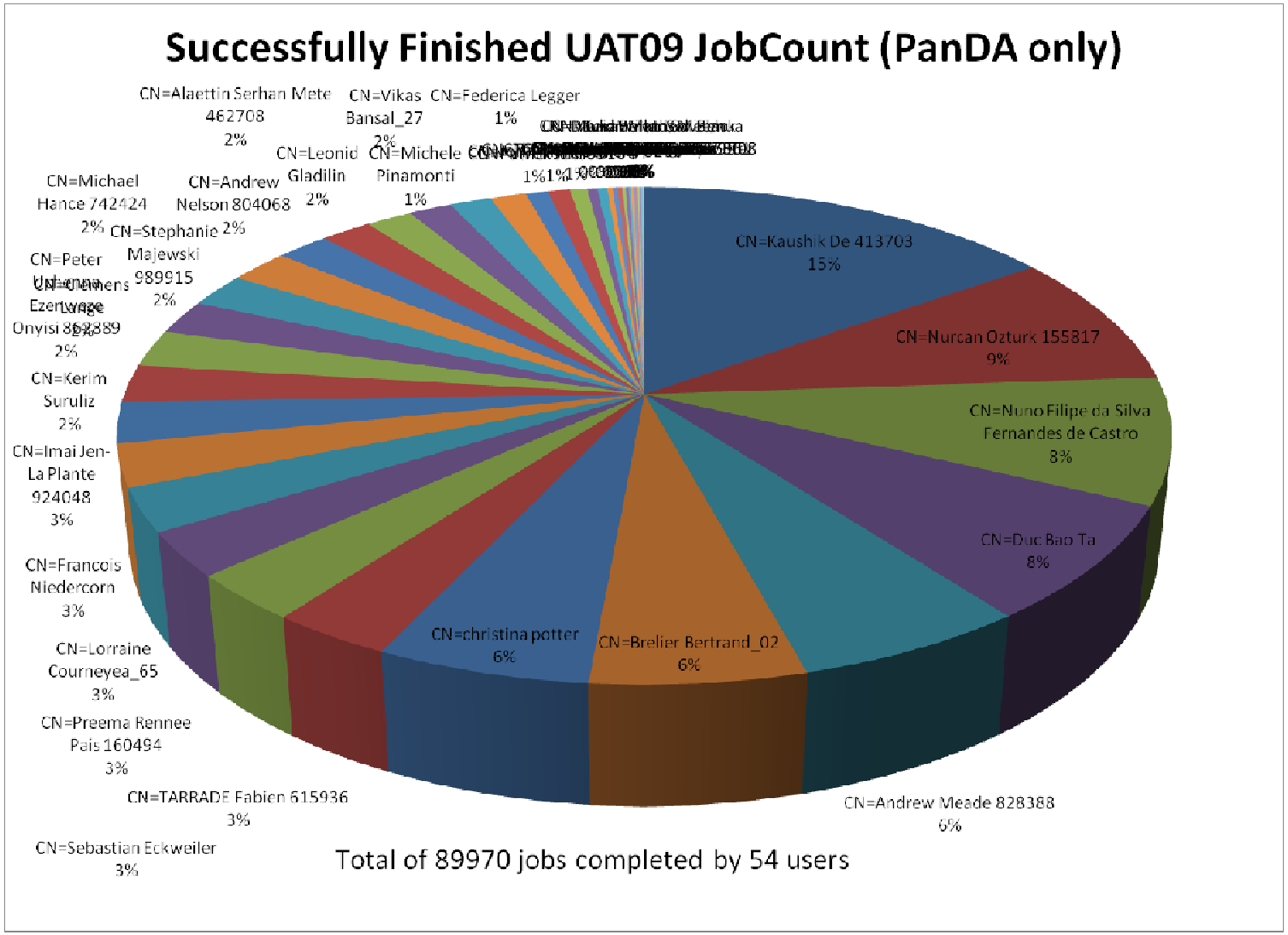


UAT Site Efficiencies



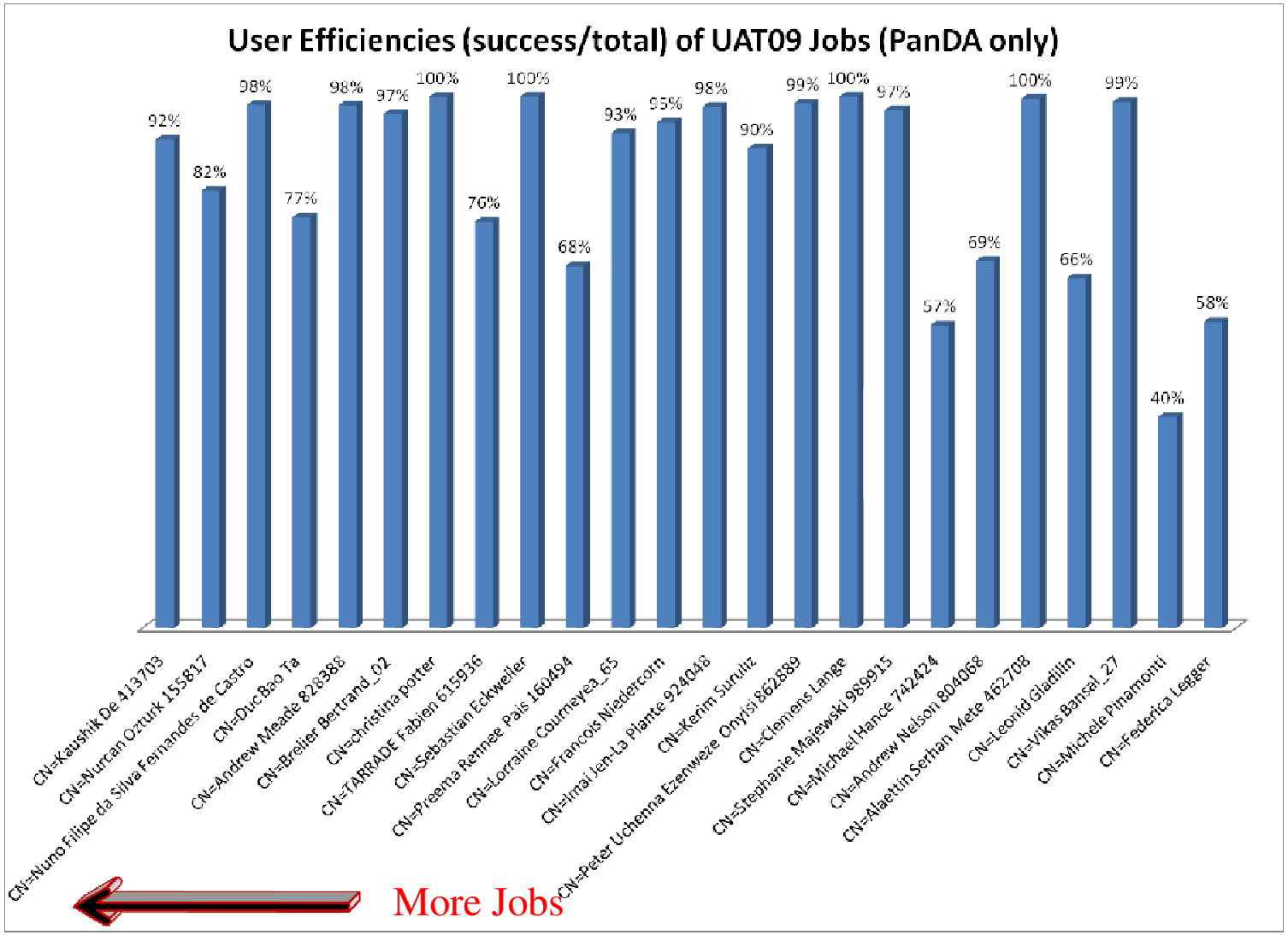
From Kaushik

UAT Job Count by Users



From Kaushik

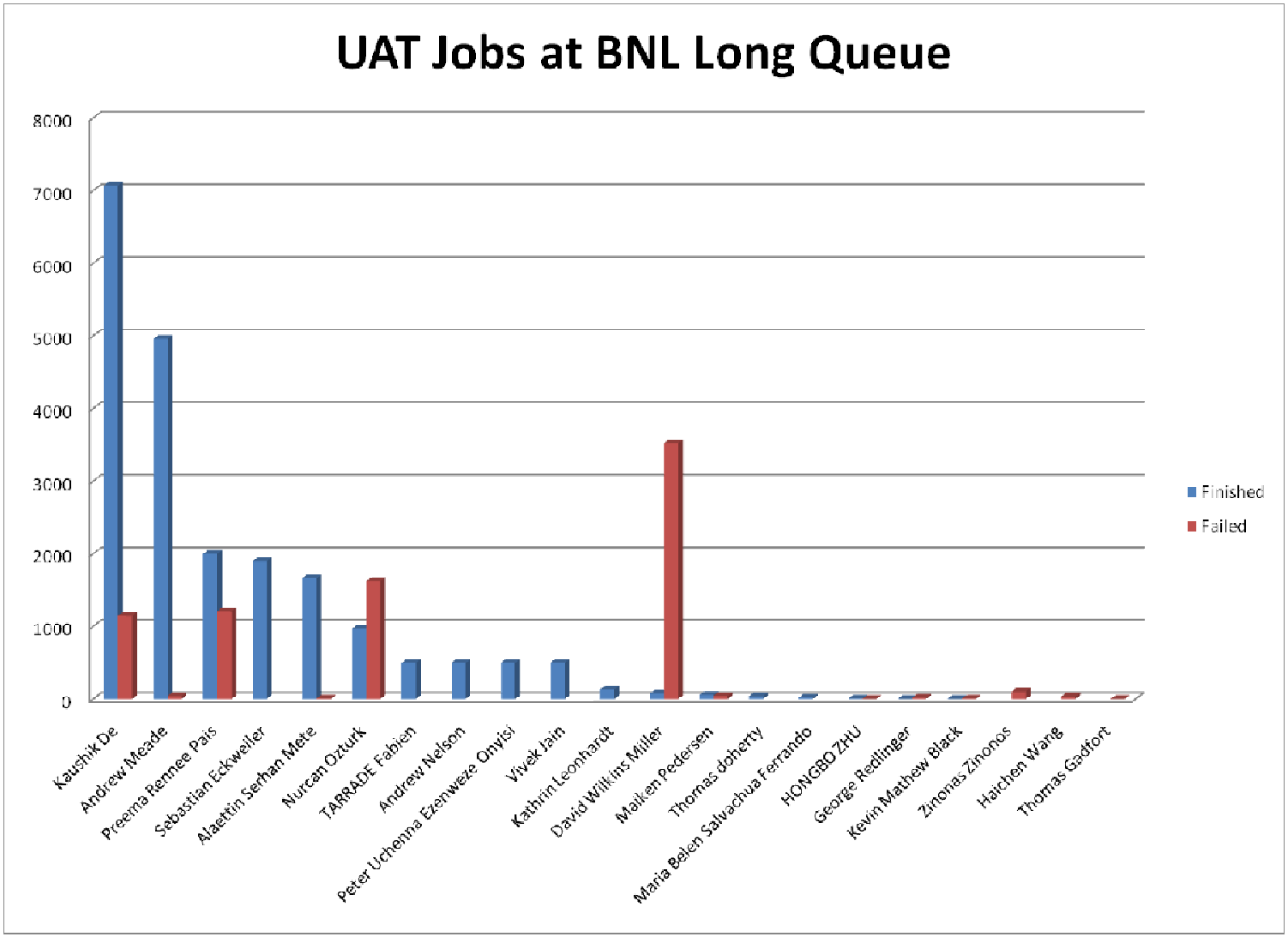
UAT User Efficiencies



From Kaushik

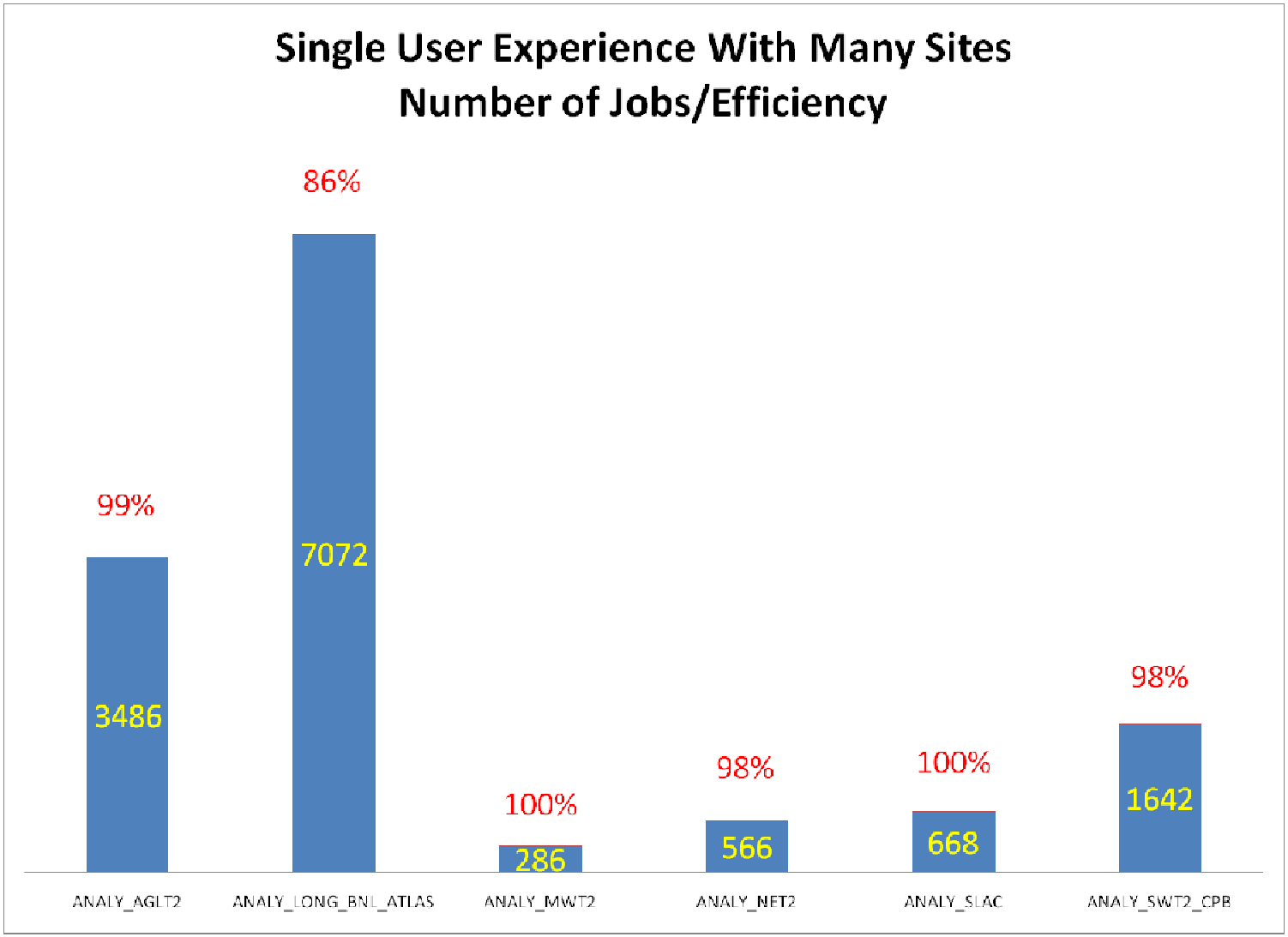
Example from BNL Site

From Kaushik



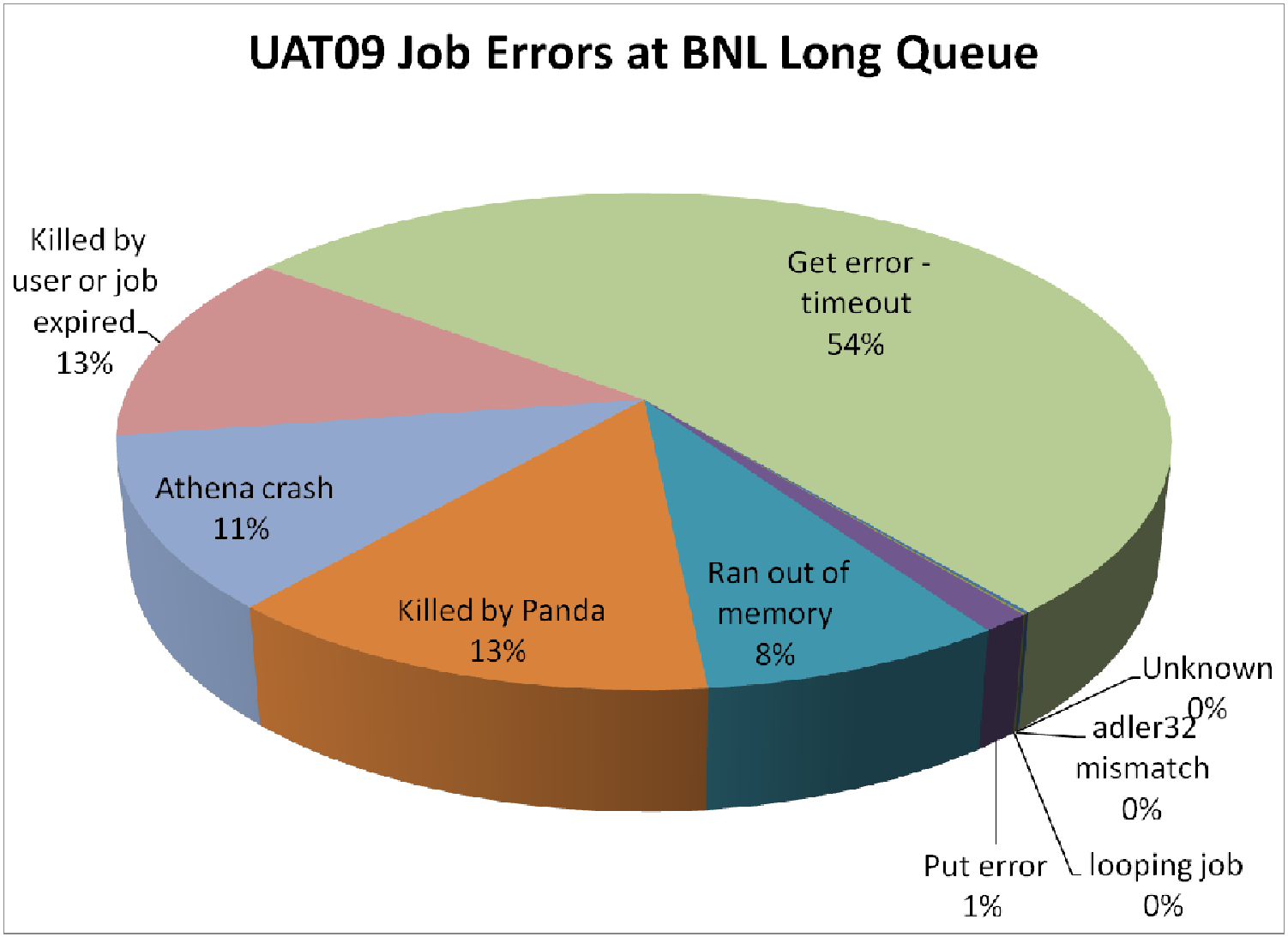
Kaushik's Jobs

From Kaushik



Error's at BNL Long Queue

From Kaushik



Panda Job Statistics (1)

- From Saul Youssef
- All jobs in the US Tier 2s in the past 10 days as of Nov.8

- Finished jobs: 104,674
- Failed excluding killed by users or panda server: 9,297

- Failure rate = 8.1%
- Wasted CPU time = 70.5 cpu-days

- The processing types of the failed jobs are:
  - stresstest/7615
  - pathena/5615
  - hammercloud/3504
  - ganga/1308
  - prun/897

Panda Job Statistics (2)

Likely site specific problems:

- AGLT2
  - Get error: No such file or directory:/56
  - Get error: dccp failed with output: ec 1, output 'int'/16
  - Get error: dccp failed with output: ec 65280, output/7
  - Get error: Unexpected exception: Traceback (most recent/9
  - Unspecified error, consult log file/83
  - expired after 7 days since submission/75
  - No such file or directory/8
  - The pilot will fail the job since the remote filedoes not exist|Log put error/7
  - Transformation not installed in CEOut/3
- MWT2
  - lsm-get failed
  - Job killed by signal 15/190
- NET2
  - lsm-get failed
  - Pilot has no child processes (job wrapper has either crashed or did not send final status) trans/92
- SLAC
  - Get error: Error copying the file: 256, cp: cannot stat/422
  - Failed to execute setup command/1112
  - Exception caught by pilot/203
  - None|Log put error/9
- SWT2
  - No likely site specific problems

Panda Job Statistics (3)

- Likely global panda/ddm/software problem
  - Athena crash - consult log file/347
  - Athena crash - consult log fileOut/385
  - Athena core dump/35
  - Expected output file does not exist/979
  - User work directory too large/189
  - Pilot has decided to kill looping job/71
  - Athena ran out of memory trans/56
  - Unknown transExitCode error code 20libDS/21

- Rare problems:
  - Transformation not installed in CEOut/3
  - Exception caught in/2
  - wget command failed/2
  - Adder._updateOutputs() XML is inconsistent withfilesTable/1
  - Adder._updateOutputs() could not getGUID/LFN/MD5/FSIZE/1
  - lfc_setfsizeg failed for lfn/1

Feedback from Users (1)

- 18 users provide feedback so far:
  - https://twiki.cern.ch/twiki/bin/view/Atlas/FirstUserFeedbackUAT
  - https://twiki.cern.ch/twiki/bin/view/Atlas/UserSurveyUAT
- Some highlights from users:
  - "no major problem [big progress since last time]".
  - "will be good to had datasets register in AMI" (to get x-section, geometry, type of data, etc. containers could be visible through AMI?)
  - "Sporadical failures, but overall very very good performances"
  - "My job took substantial time to finish. Would be great if it had finished a little quicker"
  - "I was running my regular analysis jobs, and I did not see any significant difference. I got around 80% success rate"
  - "I send small grid jobs to various clouds. One at UK and site ANALY_OX never finished. Panda server did not send any mail about this job"
  - "I suppose the only think that might be nice is to see how many jobs are ahead of yours (mine) at a particular site. Perhaps this is already available through the PANDA monitoring page, but I can't see it"
  - "One thing I am missing in pathena is an automatic extOutStream option: if I tell via joboptions that want to write a root file, it would be nice if pathena could recognize this"

Feedback from Users (2)

- “I am a pretty basic user, just doing basic things and running basic scripts. In the last ~6 months I switched to using panda and every job has worked. In the past I used ganga, and I'm not sure that I ever got a job to work through that system (could be my knowledge or how things were setup at Carleton). Either way, with my basic demands, I find that the system and tools available are sufficient for my needs. And the UAT worked better than I expected. My jobs did take longer to run than usual, with most jobs finishing after that weekend”
- “I've had problems with the GRID in the past, but its been more stable over the past year”

Feedback on data retrieval:

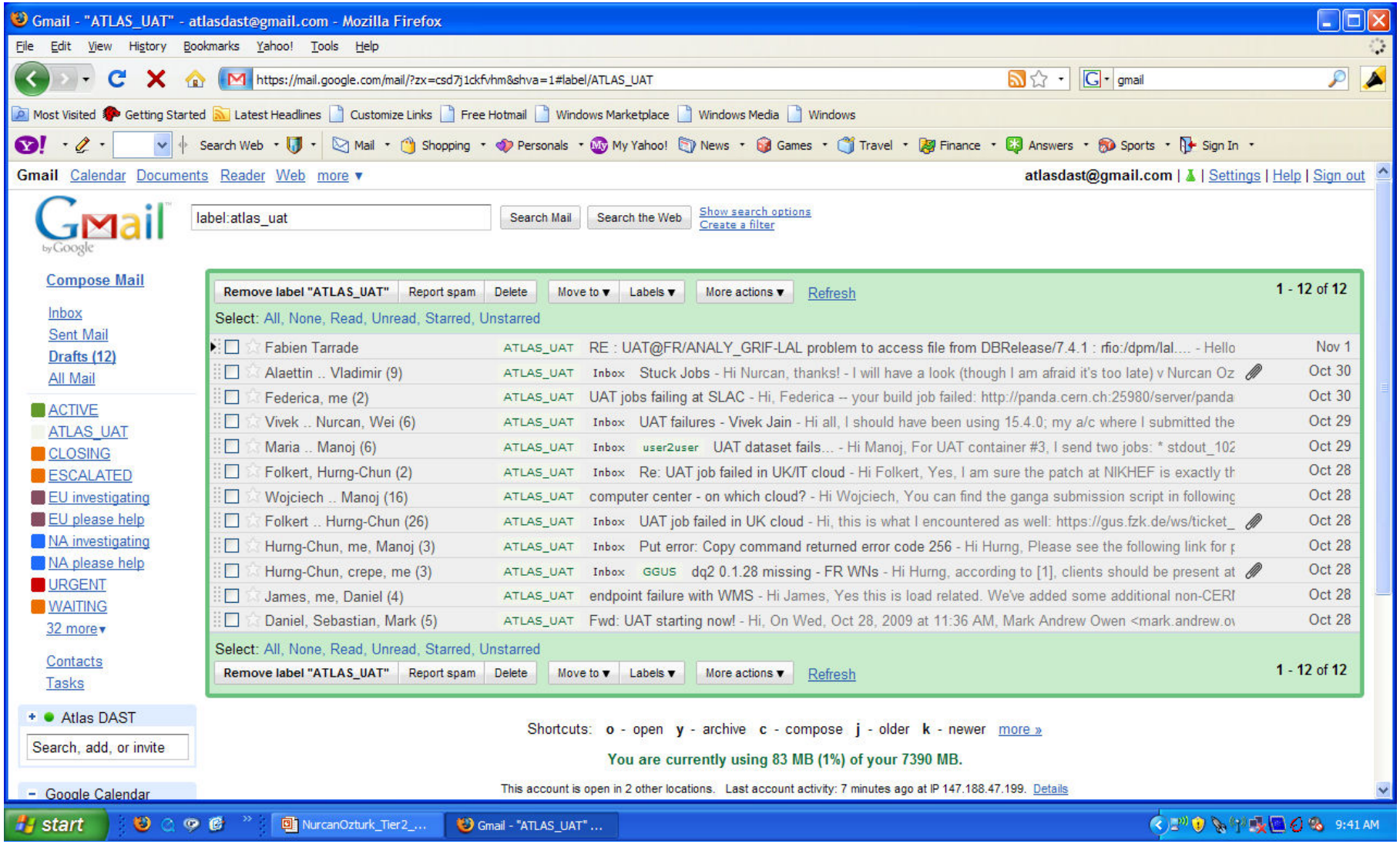
- “Everything went smoothly: with dq2-get, it took ~12 hours to get the ~0.9T output files locally and no errors were reported. The subscription via the panda web interface to LIP-COIMBRA_SCRATCHDISK (Request ID 2675) had no problems and was finished in less than a day”
- “Everything seemed fine, except maybe a bit slower that usual”
- “Concerning the data retrieval, I was not able to make any subscriptions as my jobs and therefore my datasets were not finished/frozen. I check the data retrieval with 2 datasets (of about 300 files each) with dq2-get tool, everything was smooth and easy”

Feedback on DAST:

- “Very prompt and helpful”
- “I assume this is the jet stream "data" …“

Usage in DAST Forum

12 thread opened by users in the help forum, 5 related to Panda analysis.



Feedback from Sites (1)

https://twiki.cern.ch/twiki/bin/view/Atlas/UserAnalysisTest#UAT_site_problems_reports

- SLAC:
  - PyUtils in release 15.1.x doesn't support xrootd
  - Xrootd client libs in releases <= 14.4.0 have issue when large read ahead is enabled at site, causing data servers to be overloaded. We have to kill those jobs. This issue is patched by replacing xrootd client libs in those releases.
  - Site specific issue after xrootd upgrade.
  - User jobs access ATLAS releases frequently. Need to separate NFS server (host releases) form xrootd server.
- SWT2:
  - HammerCloud testing prior to UAT indicated an issue with Xrootd and releases > 15.1.0. This was patched about the same time UAT began.
  - We began UAT with 200 jobs slots, but increased this to 300 slots within the first 12 hours. In general, error rates were low but we notice that was an increase in the number of jobs killed by the pilot that were considered to be looping. This is an indication that there is a bottleneck getting data from the storage servers to the worker nodes for 300 job slots. We are in the midst of procuring additional network components to alleviate this issue.

Feedback from Sites (2)

- MWT2:
  - We made 1100 job slots available for UAT, which is a higher number of analysis jobs than we have attempted to run at our site - in the past we have limited analysis jobs slots to 400. This was a valuable stress test for our site.
  - autopilot adjuster settings (panda nqueue) needed to be increased to get enough analysis pilots to fill all available slots
  - We successfully completed over 14000 jobs, higher than other US T2s
  - Failure rate was ~50%, also higher than other US T2s
  - Major failure mode was failure to access input files in dCache, due to lingering dCache bugs. (dccp processes hanging in dcap_poll(), which had to be killed). Since UAT, dCache has been upgraded to the "golden" 1.9.5-6 release, and we are continuing to test and tune the installation
  - Further failures (lsm-get errors) were caused by a file-locking bug in pcache (worker-node file caching layer that sits on top of dCache). This bug had not been observed previously because it only happens under heavy system load. An attempt to fix this bug "in-place" led to a large number of failures on a single WN. These jobs failed on stage-in and consumed negligible CPU time. A new version of pcache which fixes this bug correctly is in the works.
  - Large number (>3000) of jobs cancelled by user. (Is this included in the 50% failure rate?)
  - Remainder of failures (a few percent) were typical garden-variety Athena crashes, out-of-memory conditions, etc.

Feedback from Sites (2)

- BNL:
  - problem with one of the storage servers which affected 12 MCDISK pools and 1 HOTDISK pool (so it can be neglected)
  - one of our probes that monitors the amount of time it takes for files on disk to be retrieved captured a problem with some storage servers (**but no transfer failures were being observed**). in one particular case, we had 550 clients trying to get data from the same storage server (from different pools). we took action and retuned the number of LAN movers so that we could fulfill transfers faster and allow dCache to distribute files on that storage server into another server to distribute the load. this worked very well. the load on the machines were reduced (because of less movers on each machine and by pool2pool transfers to fulfill the remaining transfer requests), transfers were completed faster and, in conclusion, a much shorter delay to get data into the worker nodes.
- NET2:
  - We have seen 92 jobs die from "pilot has no child process". We don't know why this happened yet, but we experienced no other problems, and, in particular no unusual IO loads.
- AGLT2:
  - There were a large number of athena crashes of user jobs. Nurcan has explained these as arising from tasks that should not have been targeted to us. No other problems were observed.

Discussion Points

- Sites limit their analysis share
- Do we have enough analysis slots
- Rebrokerage of Panda jobs (discussed with Torre already)
- Site specific issues
- Future UAT in US