Open Science Grid

Panda

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Open Science Grid Users' Meeting
Fermilab
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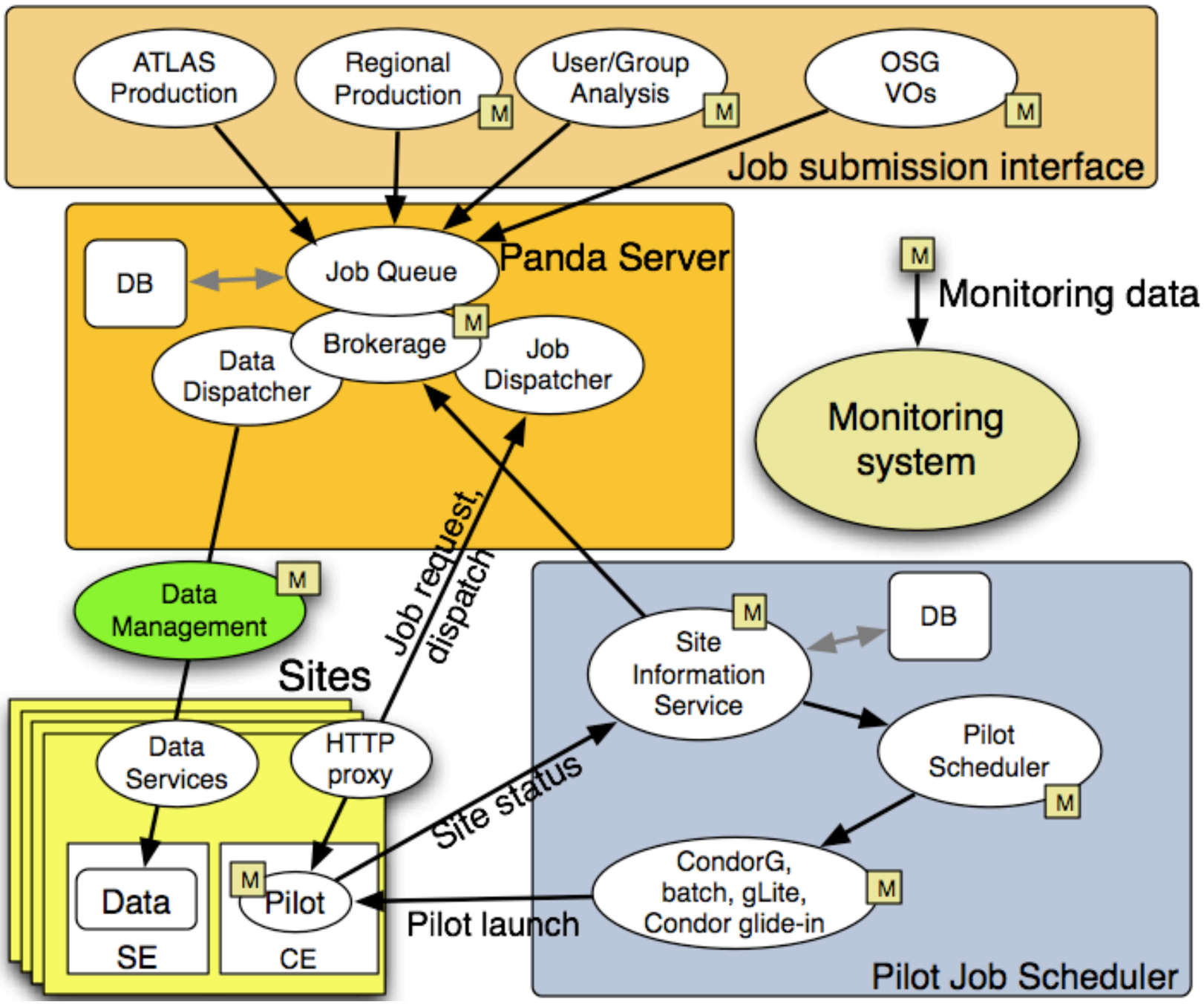
BROOKHAVEN
NATIONAL LABORATORY

Panda Basics

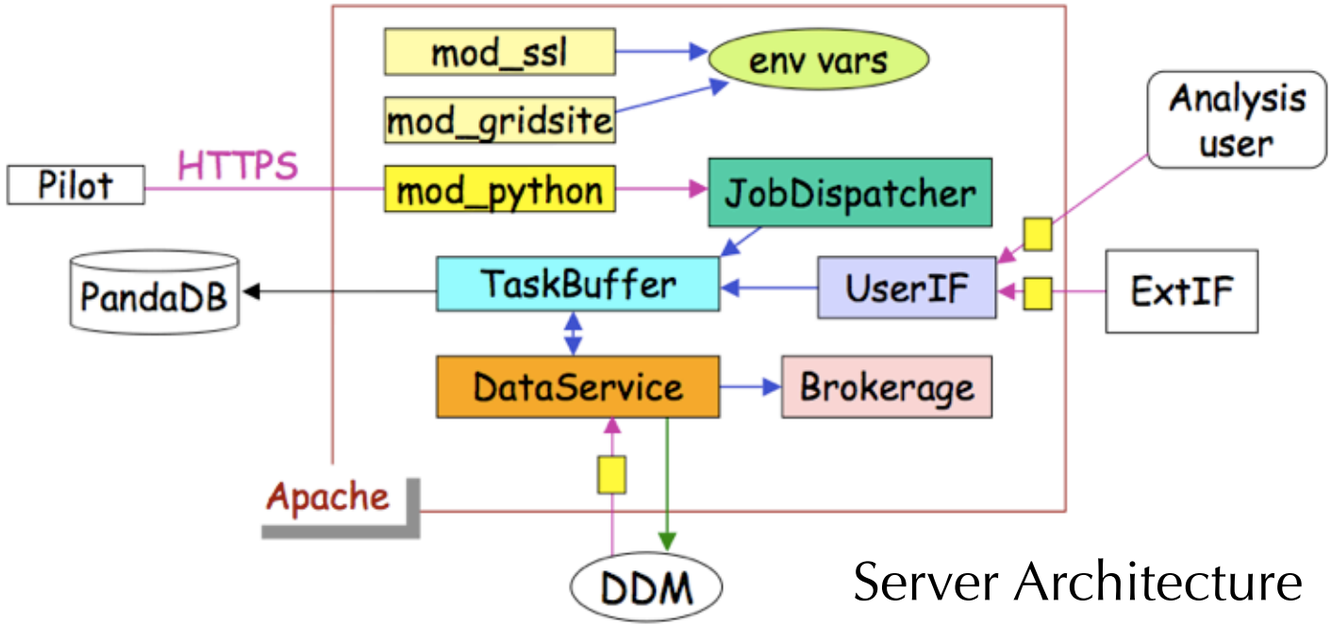
Workload management system for Production ANd Distributed Analysis

Panda team @ BNL, UT Arlington, U Chicago

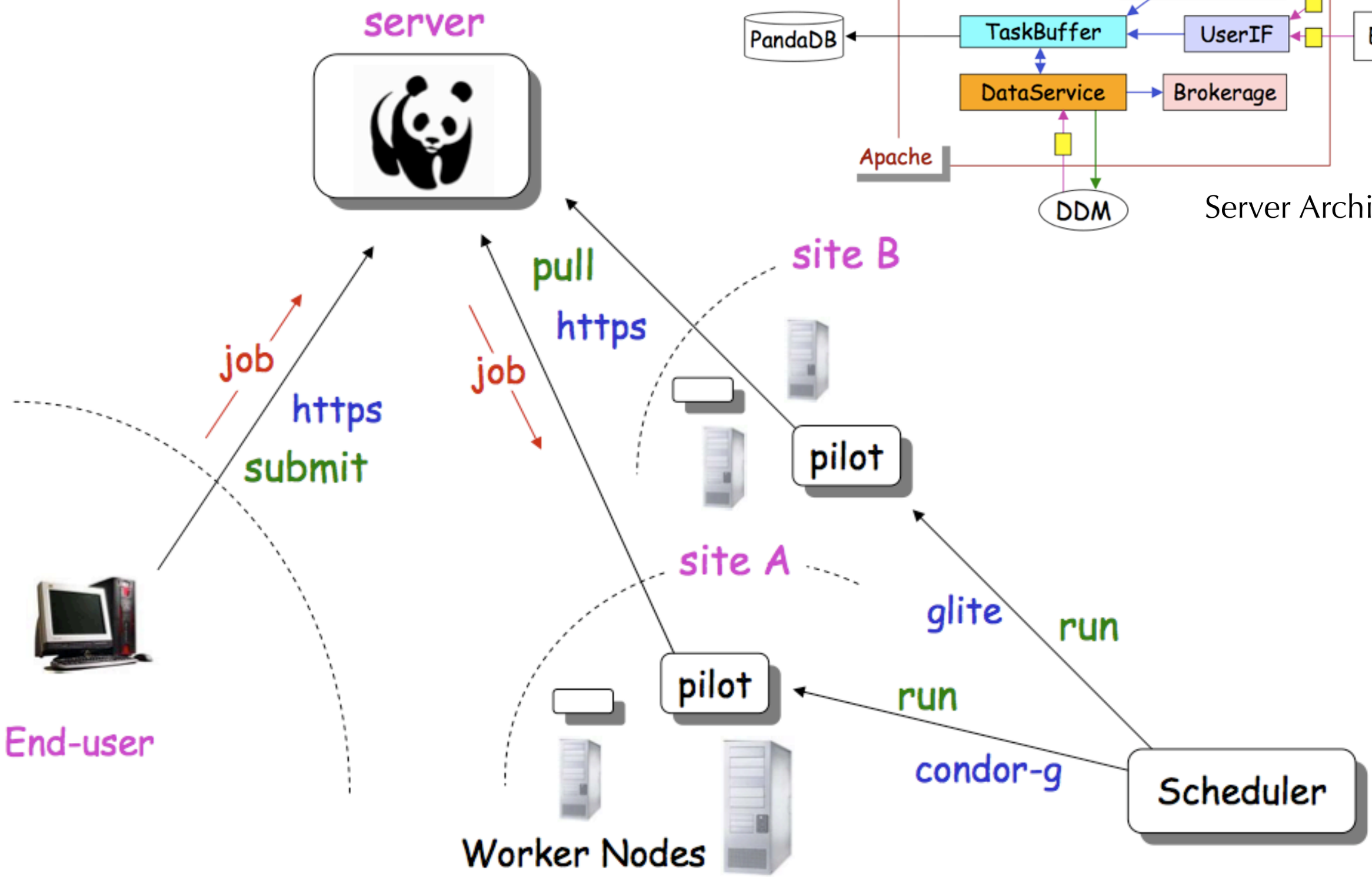


- Launched 8/05 to achieve scalable data-driven WMS
  - Prototype 9/05
  - Production 12/05
- OSG program 9/06
  - VO-neutral, Condor++
- Integrated with data mgmt
- Pilot-based 'CPU harvesting'
- Analysis as well as production
- Automation, monitoring, low operations manpower
- *Insulate* users (end- and VO-) from grid complexity, problems
  - Lower entry threshold
- Cautious in its dependencies
  - Proven components

Panda Operation

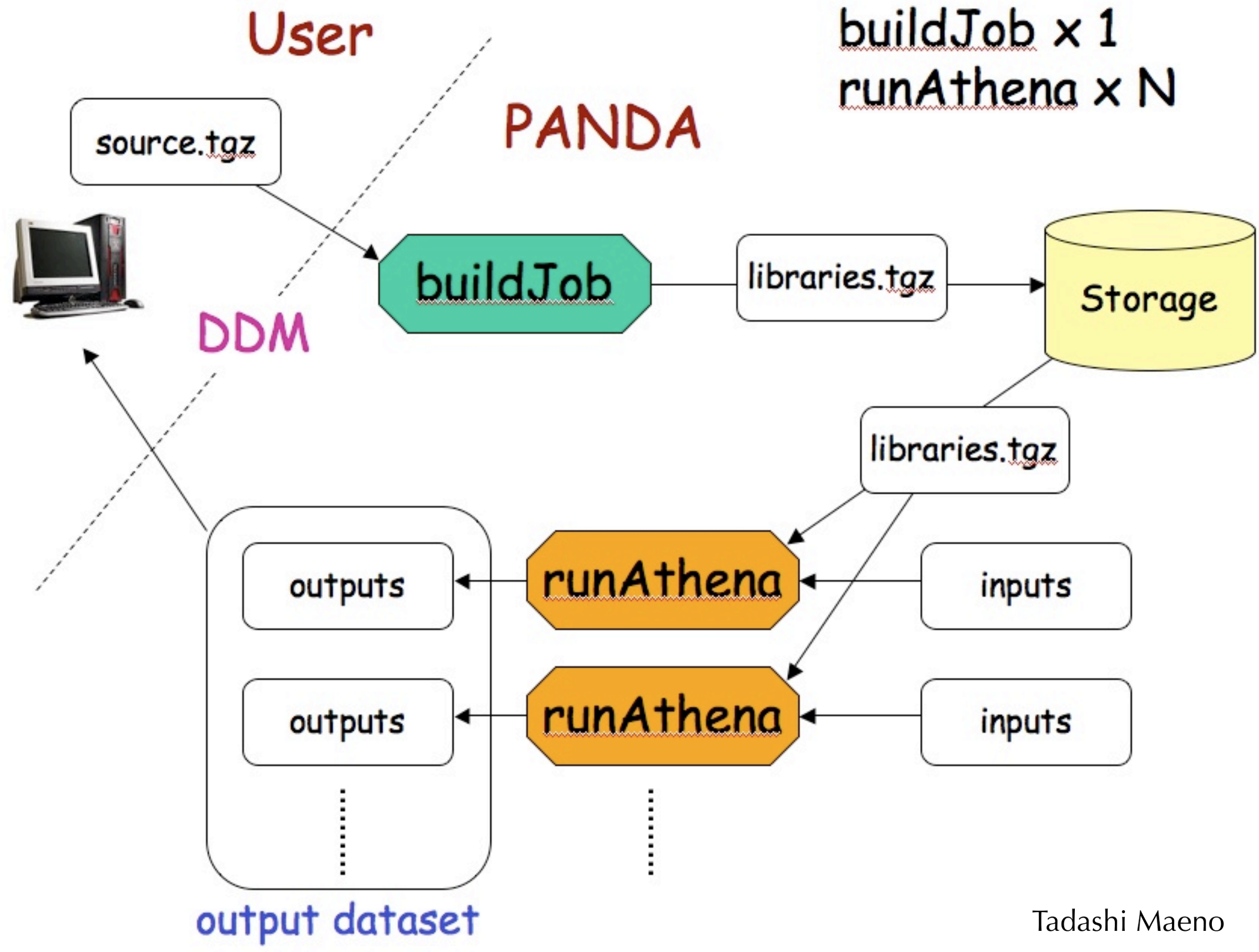


Server Architecture



Pilots exit immediately if no jobs available; no queue slot time wasted

Panda Based Analysis



Panda Monitor

Open Science Grid

Configuration | **Dashboards:** Production DDM AutoPilot Sites & Grids Analysis Physics data Usage & Quotas Plots ProdDash DDMDash

4 min old Update

Not logged in.

Panda monitor

Panda Production Operations Dashboard

Quick guide, twiki | Panda shift guide calendar mailing list

User info

Jobs - search
Recent running, activated, waiting, assigned, defined, finished, failed jobs
Select analysis, production, test jobs

Quick search
Job
Dataset
Task
File

Summaries
Blocks: days
Errors: days
Nodes: days
Daily usage

Tasks - search
Generic Task Req
EvGen Task Req
CTBsim Task Req
Task list
Task browser

Datasets - search
Dataset browser
New datasets
Aborted MC datasets
Panda subscriptions
All subscriptions

Datasets Distribution
DDM Req
Req list
AODs
RDOs
Conditions DS
DB Releases
Validation Samples

Sites - see all
BNL BU IU OU SLAC UC UMICH UTA LCG NG

Servers: Panda:OK Panda-dev:OK Logger:OK DQ2:offline
Tasks assigned to OSG

Jobs updated >12 hrs ago: activated:2 running:none
Jobs updated >36 hrs ago: transferring:767

Space available at sites:

Site	GB	As of
AGLT2	2461	07-27 07:41
BU_ATLAS_Tier2	20266	07-27 07:28
BU_ATLAS_Tier2o	20266	07-27 07:29
IU_ATLAS_Tier2	51223	07-27 09:18
MWT2_IU	51223	07-27 09:02
MWT2_UC	91857	07-27 08:36
OU_OCHEP_SWT2	416	07-27 09:14
SLACXRD	12862	07-27 09:08
UC_ATLAS_MWT2	91857	07-27 09:11
UTA-DPCC	766	07-27 09:11
UTA_SWT2	3870	07-27 09:11

Pilot job requests per hour, last 3 hours

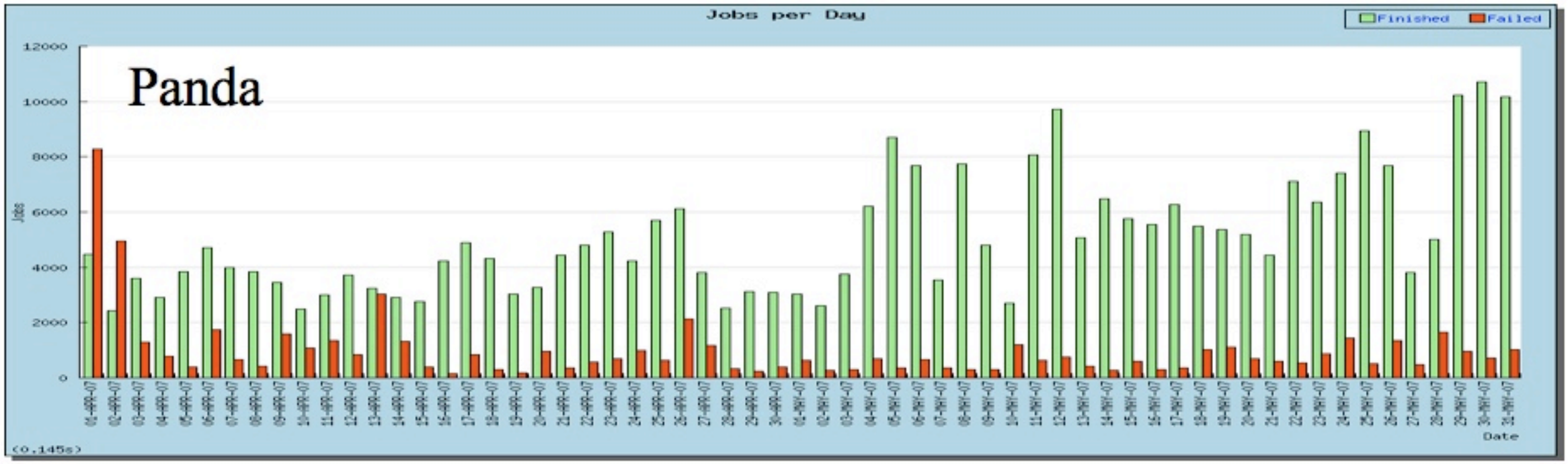
	Production	Analysis
AGLT2	121	
ANALY_BNL_ATLAS_1		27
ANALY_LONG_BNL_ATLAS		81
BNL_ATLAS_1	381	
BU_ATLAS_Tier2	195	
BU_ATLAS_Tier2o	190	
IU_ATLAS_Tier2	5	
MWT2_IU	145	
MWT2_UC	182	
OU_OCHEP_SWT2	19	
OU_OSCER_ATLAS	9	
SLACXRD	8	
UTA-DPCC	8	
UTA_SWT2	59	

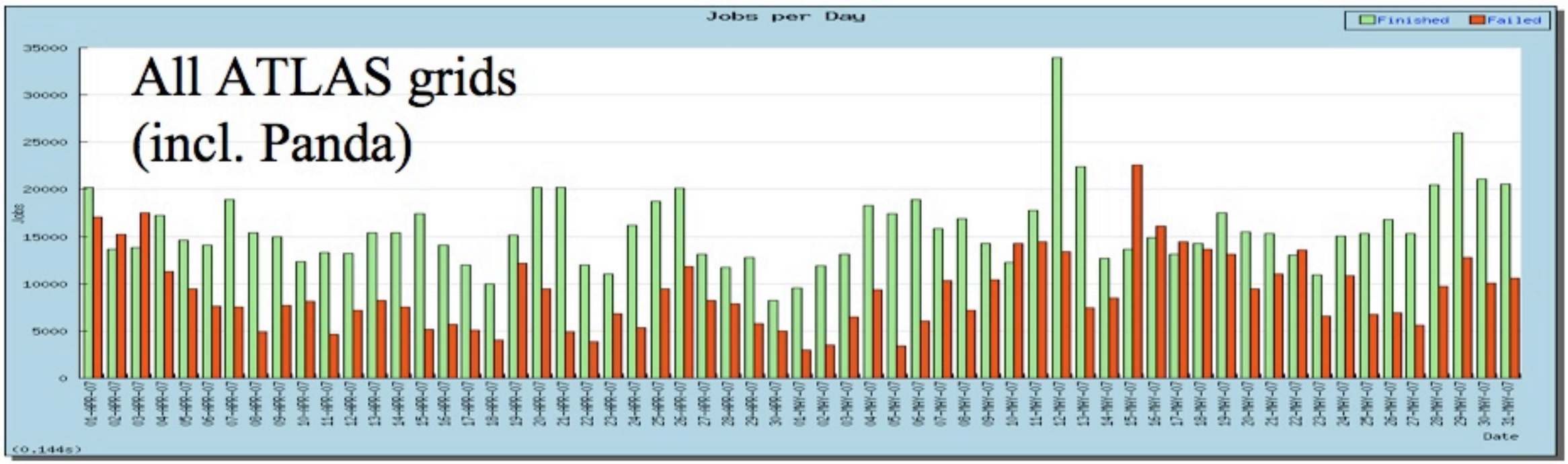
Production job summary, last 12 hours (Details: errors, nodes)

Site	Nodes	Jobs	Latest	defined	assigned	waiting	activated	running	holding	transferring	finished	failed	tot	trf	other
All	1486	8481	07-27 09:18	0	1	3	207	1322	1922	1418	3528	80	2%	0%	2%
AGLT2	32	168	07-27 09:17	0	1	0	0	62	8	55	41	1	2%	0%	2%
BNL_ATLAS_1	345	2001	07-27 09:18	0	0	0	0	415	1389	0	163	34	17%	0%	17%
BNL_ATLAS_2	0	0		0	0	0	0	0	0	0	0	0			
BU_ATLAS_Tier2	25	385	07-27 09:18	0	0	0	0	4	215	22	144	0	0%	0%	0%
BU_ATLAS_Tier2o	68	737	07-27 09:15	0	0	0	0	0	225	21	491	0	0%	0%	0%
IU_ATLAS_Tier2	19	83	07-27 09:18	0	0	0	12	31	3	33	1	3	75%	0%	75%
MWT2_IU	39	523	07-27 09:17	0	0	0	0	88	7	131	289	8	3%	0%	3%
MWT2_UC	34	534	07-27 09:18	0	0	0	0	76	0	74	378	6	2%	0%	2%
Unassigned	1	4	07-27 09:06	0	0	3	1	0	0	0	0	0			
OU_OCHEP_SWT2	41	427	07-27 09:18	0	0	0	50	80	5	15	276	1	0%	0%	0%
OU_OSCER_ATLAS	176	490	07-27 09:18	0	0	0	36	92	12	55	295	0	0%	0%	0%
PROD_SLAC	0	0		0	0	0	0	0	0	0	0	0			

US ATLAS Apr/May Error Rates

Includes all error sources (for Panda, primarily application errors)





Open Science Grid

Panda/pathena Users

Users

Users: 216
Job count: 369334

User	Jobs	Latest	Sites used	Job types run	Groups
akira shibata	59818	2007-07-26 17:46	ANALY_BNL_ATLAS_1 (1732) ANALY_CERN (8) ANALY_LONG_BNL_ATLAS (57966) BNL_ATLAS_1 (112)	panda (1740) user (58078)	all atlas
Peter Steinberg	49300	2007-05-15 04:26	ANALY_BNL_ATLAS_1 (42656) ANALY_LONG_BNL_ATLAS (6644)	panda (72) user (49228)	all atlas usatlas
Arthur Marques Moraes	35452	2007-05-18 18:51	ANALY_BNL_ATLAS_1 (462) ANALY_LONG_BNL_ATLAS (34990)	panda (56) user (35396)	all atlas usatlas
Eric Lancon	32324	2007-05-31 11:32	ANALY_BNL_ATLAS_1 (370) ANALY_LYON (31776) ANALY_LONG_BNL_ATLAS (4) ANALY_LONG_LYON (174)	panda (104) user (32220)	all atlas
Ning Zhou	19556	2007-04-23 08:11	ANALY_BNL_ATLAS_1 (16508) ANALY_LONG_BNL_ATLAS (3048)	panda (28) user (19528)	all atlas
Torre Wenaus	17536	2007-07-26 21:25	(14) BU_ATLAS_Tier2o (16) ANALY_BNL_ATLAS_1 (6) UTA_SWT2 (2) ANALY_LONG_LYON (14) ANALY_PIC (12) NULL (2) ANALY_CNAF (28) ANALY_LONG_UBC (38) MWT2_IU (4) PROD_SLAC (4) TPATHENA (3324) ANALY_UK (36) ANALY_TAIWAN (12) ANALY_SHEF (12) ANALY_TOKYO (12)	test (10486) panda (2704) user (4346)	admin all atlas usatlas
Sandrine Laplace	15682	2007-05-30 07:30	ANALY_BNL_ATLAS_1 (7098) ANALY_LYON (284) ANALY_LONG_BNL_ATLAS (8296) ANALY_LONG_LYON (4)	panda (362) user (15320)	all atlas
TARRADE Fabien	14324	2007-05-30 01:36	ANALY_BNL_ATLAS_1 (12698) ANALY_LONG_BNL_ATLAS (1626)	panda (980) user (13344)	all atlas usatlas
Ana Damjanovic	14268	2007-07-27 06:37	TESTCHARMM (42) PROD_SLAC (52) UC_Teraport (24) MWT2_UC (26) AGLT2 (20) UTA-DPCC (16) BU_ATLAS_Tier2 (16) CHARMM (14042) UC_ATLAS_MWT2 (14) OU_OCHEP_SWT2 (16)	test (14268)	all atlas usatlas
Vikas Bansal	13700	2007-05-23 03:15	ANALY_BNL_ATLAS_1 (40) ANALY_LONG_BNL_ATLAS (13660)	panda (36) user (13664)	all atlas usatlas
Kevin Black	7472	2007-05-31 07:57	ANALY_BNL_ATLAS_1 (2554) ANALY_LONG_BNL_ATLAS (4918)	panda (186) user (7286)	all atlas usatlas
Arnab K. Pal	7202	2007-05-27 01:44	UC_Teraport (202) ANALY_LONG_BNL_ATLAS (6060) BNL_ATLAS_2 (202) ANALY_BNL_ATLAS_1 (290) UTA-DPCC (22) UTA_SWT2 (224) UC_ATLAS_MWT2 (202)	panda (188) user (7014)	all atlas usatlas
michael flowerdew	5046	2007-05-27 00:32	ANALY_BNL_ATLAS_1 (4334) ANALY_LONG_BNL_ATLAS (712)	panda (30) user (5016)	all atlas
Mike S. Bachtis	4092	2007-05-24 14:56	ANALY_BNL_ATLAS_1 (2680) ANALY_LONG_BNL_ATLAS (1412)	panda (76) user (4016)	all atlas
George Redlinger	3694	2007-07-24 13:28	ANALY_BNL_ATLAS_1 (926) ANALY_LONG_BNL_ATLAS (2768)	user (3634) panda (60)	all atlas usatlas
Olga Igonkina	3404	2006-05-18 05:19	ANALY_BNL_ATLAS_1 (3294) NULL (110)	user (3380) panda (24)	all atlas usatlas
christina potter	3038	2007-05-30	ANALY_BNL_ATLAS_1 (988) ANALY_LONG_BNL_ATLAS (2050)	panda (232)	all atlas

Personal Pages

Kevin Black

Jobs: 8118 total jobs, last at 2007-06-20 12:47
Sites used: ANALY_BNL_ATLAS_1 (3082) ANALY_LONG_BNL_ATLAS (5036)
Job types run: user (7890) panda (228)
Groups: all atlas usatlas

Usage	1 day (quota)	7 day (quota)	30 day (quota)
Analysis	None (300)	8308 (2100)	8308 (9000)
User production	None (30)	None (210)	None (900)
Express	None (150)	None (1050)	None (4500)

Summary of all **jobs for the last** 1 **days in** any **state at** any **site** Go

44 jobs. Click job number to see details.
States: defined:0 assigned:0 waiting:0 activated:0 running:0 transferring:0 holding:18 finished:25 failed:1
Users: Kevin Black:44
Releases: Atlas-12.0.6:44
Sites: ANALY_LONG_BNL_ATLAS:44
Datasets used by selected jobs

Job Sets:

User:jobID	Created	Latest	Jobs	Pre-run	Running	Holding	Finished	Failed	buildJob	Site
Kevin Black:194	06-18 17:31	06-18 18:34	34			14	19	1		ANALY_LONG_BNL_ATLAS
	In:trig1_misal1_csc11.005010.J1_pythia_jetjet.recon.AOD.v12000601 Out:user.KevinBlack.5010_J1.evView.ntuple									
Kevin Black:192	06-18 18:17	06-18 18:34	8			2	6			ANALY_LONG_BNL_ATLAS
	In:trig1_misal1_csc11.005145.PythiaZmumu.recon.AOD.v12000601 Out:user.KevinBlack.5145_Zmumu.evView.ntuple									
Kevin Black:191	06-18 18:17	06-18 18:17	1			1				ANALY_LONG_BNL_ATLAS
	In:trig1_misal1_mc12.006626.JimmyZmumu650M800.recon.AOD.v12000601 Out:user.KevinBlack.6626_DY650800.evView.ntuple									
Kevin Black:190	06-18 17:47	06-18 17:47	1			1				ANALY_LONG_BNL_ATLAS
	In:trig1_misal1_mc12.006625.JimmyZmumu450M650.recon.AOD.v12000601 Out:user.KevinBlack.6625_DY450650.evView.ntuple									

Jobs:

PandaID, Owner	Job	Status	Created	Time to start	Duration	Ended/ Modified	Site, Type
1965651 Kevin Black	pathena jobID=194 runAthena10	finished	06-18 18:34	18:18:46	0:27:31	06-19 13:20	ANALY_LONG_BNL_ATLAS analysis-run
	In: trig1_misal1_csc11.005010.J1_pythia_jetjet.recon.AOD.v12000601 Out: user.KevinBlack.5010_J1.evView.ntuple						
	Parameters						
1965649 Kevin Black	pathena jobID=194 runAthena10	finished	06-18 18:34	18:17:49	1:01:07	06-19 13:53	ANALY_LONG_BNL_ATLAS analysis-run
	In: trig1_misal1_csc11.005010.J1_pythia_jetjet.recon.AOD.v12000601 Out: user.KevinBlack.5010_J1.evView.ntuple						
	Parameters						
1965647 Kevin Black	pathena jobID=194 runAthena10	finished	06-18 18:34	18:17:38	0:55:00	06-19 13:47	ANALY_LONG_BNL_ATLAS analysis-run
	In: trig1_misal1_csc11.005010.J1_pythia_jetjet.recon.AOD.v12000601 Out: user.KevinBlack.5010_J1.evView.ntuple						
	Parameters						

- Job set, job, dataset access
- Quota info (quotas not active yet)
- Same diagnostic access as shift ops; drill-down to pilot level
- Browser access to logfiles
- Integrated with dataset browser
- EGEE sites supported in dataset/file browser (within limits of LFC capability)
- Functions like initiating dataset replications to be added

Panda on OSG, EGEE: AutoPilot

- Extensions to support broad OSG, EGEE deployment developed since Sep '06
  - Extends automation/monitoring into the pilot/scheduling subsystem
    - Keeps operational manpower low despite broader deployment
    - Rapid diagnostics of site, submission problems
  - Flexible use of 'tags' to dynamically define logical queue groupings for use by application communities
    - Queue content of the tag changed 'behind the scenes', either automatically (lcg-infosites) or manually (OSG), based on queue health
    - Insulates user from 'grid weather'; hit 'play' and forget
  - Centralized control, monitoring of multiple distributed pilot submit hosts for scalability, redundancy (BNL, Madison, CERN, Lyon)
    - Avoids Condor submission/monitoring scaling limits
  - Enables dynamically adjustable, feedback-driven pilot submit rate
- Operating stably on OSG+EGEE since fall '06; currently 255 gatekeepers, 360 queues, 281 with working pilots
  - OSG: 58 gatekeepers, 69 queues, 49 operational

AutoPilot pilot/scheduler system

Times are in UTC. Time now: 2007-07-27 14:56

GSTAT VORS BDII GridView GOC

Recent pilots: All pilots

ANALY_CERN:7670 ANALY_CNAF:1202 ANALY_CPPM:4151 ANALY_FZK:1596 ANALY_LAPP:1881 ANALY_LONG_LYON:298 ANALY_LPC:5040
ANALY_LYON:683 ANALY_PIC:1758 ANALY_SACLAY:3739 ANALY_SARA:2296 ANALY_SHEF:1446 ANALY_TAIWAN:2456 ANALY_TOKYO:5088
ANALY_UBC:792 ANALY_UK:2851 BNL_ATLAS_DDM:1954 CHARMM:34393 RDIGTEST:303 TESTCHARMM:6341 TestPilot:10465

Pilot error summary

Recently active services

Last=time since last heard from. Cycle=time to execute one monitoring/scheduling cycle.

ID	Host	Configuration	User	PID	Status	Last	Cycle
95	condor-g-1	pilotScheduler.py --monitor	umesh	30212	running	0'	2.9'
98	condor-g-1	pilotScheduler.py --tag=charmm --pandasite=CHARMM	tim	31208	running	1'	3.5'
173	condor-g-1	pilotScheduler.py --tag=testcharmm --pandasite=TESTCHARMM	tim	30206	running	0'	1.3'
296	gridui03.usatlas.bnl.gov	pilotScheduler.py --tag=ANALY_LPC --pandasite=ANALY_LPC --pilot=atlasProd	wenaus	15569	stopped	30'	1.0'
304	gridui03.usatlas.bnl.gov	pilotScheduler.py --tag=ANALY_SARA --pandasite=ANALY_SARA --pilot=atlasProd	wenaus	8444	running	0'	1.0'

Queues

Gatekeepers:258 Queues:360 Working queues:281 Not working (authorization or job failures):65 Abort after timeout (3hr wait in scheduled state):32

Regions: with queue count per region

:1 Australia:1 Austria:2 Brazil:2 Bulgaria:4 Canada:7 CERN:32 China:2 Cyprus:1 CzechR:2 France:26
Germany:24 Greece:10 Holland:8 Hungary:5 Ireland:1 Israel:4 Italy:31 Japan:2 Pakistan:2 Poland:7 Portugal:2 Romania:2
Russia:11 Serbia/Montenegro:1 Singapore:1 Slovakia:3 Slovenia:1 Spain:13 Sweden:2 Switzerland:1 Taiwan:5 Turkey:8 UK:44 US:93

Queue tags: List of queues in each tag

ANALY_CERN:28 ANALY_CNAF:2 ANALY_CPPM:1 ANALY_FZK:2 ANALY_LAPP:1 ANALY_LONG_LYON:1 ANALY_LPC:3 ANALY_LYON:1
ANALY_PIC:3 ANALY_RAL:4 ANALY_SACLAY:1 ANALY_SARA:2 ANALY_SHEF:1 ANALY_TAIWAN:2 ANALY_TOKYO:2 ANALY_UBC:1
ANALY_UK:2 broken:57 charmm:17 condor:3 has_worked:339 itb:15 lcg:6 lcg-cg:267
lsf:3 never_worked:47 noauth:6 no_atlas:0 offline:9 osg:69 pathena:42 pbs:1
prod-atlas:9 prod-usatlas:9 rdigtest:1 schedduniv:2 testcharmm:1 timeout:36 tpprod:6 working:267

	Queue name	Region: Site	System	Que	Run	Fin	Fail	Abort	Latest	TJob
pilots	Australia-UNIMELB-LCG2-lcg-compute-atlas-lcgpbs	Australia: Australia-UNIMELB-LCG2	lcg-cg			8	2	18	07-25 18:52	128'
			TestPilot:			8	2	18	07-26 19:09	128'
			UMESHTEST:				9		06-20 20:17	5'
pilots	HEPHY-UIBK-grid-atlas-lcgpbs	Austria: HEPHY-UIBK	lcg-cg				28		07-25 18:52	6'
			TestPilot:				28		07-26 16:13	6'
pilots	HEPHY-UIBK-hepx4-atlas-lcgpbs	Austria: HEPHY-UIBK	lcg-cg				28		07-25 18:52	6'
			TestPilot:				28		07-26 16:13	6'
pilots	HEPGRID_UERJ-osgce-atlas-condor	Brazil: HEPGRID_UERJ	lcg-cg			15	12	1	07-25 18:52	10'
			TestPilot:			15	12	1	07-26 19:10	10'
pilots	SPRACE-sprid-atlas-condor	Brazil: SPRACE	lcg-cg			11		17	07-25 18:52	128'

Open Science Grid

Pilot Monitoring

Configuration | **Dashboards:** Production DDM AutoPilot Sites & Grids Analysis Physics data Usage & Quotas Plots ArdaDash

Update | Show my page users groups | Torre Wenaus Log out

Panda monitor

Recent pilots

Quick guide, twiki | Times are in UTC | ATLAS BDII GridView GSTAT VORS SFT GOC GridCat

AutoPilot main page

Jobs - search
Recent running, activated, waiting, assigned, defined, finished, failed jobs
Select analysis, production, test jobs
Quick search
Job
Dataset
Task
File

Summaries
Blocks: days
Errors: days
Nodes: days
Daily usage

Tasks - search
Generic Task Req
EvGen Task Req
CTBsim Task Req
Task list
Task browser

Datasets - search
Dataset browser
New datasets
Panda subscriptions
All subscriptions

Datasets Distribution
AODs
RDOs
DB Releases

Sites - see all
BNL BU IU OU SLAC UC UMICH UTA LCG NG

Applications
CHARMM

Logging monitor

Selection: Accepting type=TestPilot

Listing limited to most recent 200 pilots

PilotID	Type	Accepts	Queue	Tstart	Tstate	State	Status	Err	ErrorInfo	Tjob	Tcheck
tp_gridui03_20070327-230805_281 jdl script submit log out err	default	TestPilot	INFN-FRASCATI-atlasce-atlas-lcgpbs	03-27 23:08	282' ago	done	finished		Dispatcher has no jobs	23'	282' ago
tp_gridui03_20070327-230804_279 jdl script submit log out err	default	TestPilot	IFIC-LCG2-ce01-short-pbs	03-27 23:08	300' ago	done	finished		Dispatcher has no jobs	5'	300' ago
tp_gridui03_20070327-230804_280 jdl script submit log out err	default	TestPilot	osg-gw-2.t2.ucsd.edu-osg-gw-2-atlas-condor	03-27 23:08	125' ago	done aborted	aborted			180'	125' ago
tp_gridui03_20070327-230803_277 jdl script submit log out err	default	TestPilot	RO-07-NIPNE-tbit01-atlas-lcgpbs	03-27 23:08	299' ago	done	finished		Dispatcher has no jobs	6'	299' ago
tp_gridui03_20070327-230803_278 jdl script submit log out err	default	TestPilot	UKI-LT2-IC-LeSC-mars-ce2-72hr-sge	03-27 23:08	125' ago	done aborted	aborted			180'	125' ago
tp_gridui03_20070327-230802_276 jdl script submit log out err	default	TestPilot	HG-06-EKT-ce01-atlas-pbs	03-27 23:08	303' ago	done	finished		Dispatcher has no jobs	2'	303' ago
tp_gridui03_20070327-230801_275 jdl script submit log out err	default	TestPilot	INFN-FIRENZE-grid001-atlas-lcgpbs	03-27 23:08	256' ago	done	finished		Dispatcher has no jobs	49'	256' ago
tp_gridui03_20070327-230800_272 jdl script submit log out err	default	TestPilot	UC_ATLAS_MWT2-condor	03-27 23:08	301' ago	done	finished		Dispatcher has no jobs	3'	301' ago
tp_gridui03_20070327-230800_273 jdl script submit log out err	default	TestPilot	MIT_CMS-condor	03-27 23:08	302' ago	done	finished		Dispatcher has no jobs	3'	302' ago
tp_gridui03_20070327-230800_274 jdl script submit log out err	default	TestPilot	JINR-LCG2-lgdce01-atlas-lcgpbs	03-27 23:08	300' ago	done	failed	2999	Empty output file	5'	300' ago
tp_gridui03_20070327-230758_271 jdl script submit log out err	default	TestPilot	INFN-BARI-gridba2-infinite-lcgpbs	03-27 23:07	125' ago	done aborted	aborted			180'	125' ago
tp_gridui03_20070327-230757_270 jdl script submit log out err	default	TestPilot	wuppertalprod-grid-ce-dg_short-lcgpbs	03-27 23:07	282' ago	done	finished		Dispatcher has no jobs	22'	282' ago
tp_gridui03_20070327-230756_269 jdl script submit log out err	default	TestPilot	UKI-LT2-IC-HEP-ce00-30min-sge	03-27 23:07	302' ago	done	finished		Dispatcher has no jobs	3'	302' ago
tp_gridui03_20070327-230755_268 jdl script submit log out err	default	TestPilot	CERN-PROD-ce113-grid_atlas-lcglsf	03-27 23:07	125' ago	done aborted	aborted			180'	125' ago
tp_gridui03_20070327-230754_267 jdl script submit log out err	default	TestPilot	INFN-BARI-gridba2-short-lcgpbs	03-27 23:07	125' ago	done aborted	aborted			180'	125' ago
tp_gridui03_20070327-230753_264 jdl script submit log out err	default	TestPilot	HEPHY-UIBK-grid-atlas-lcgpbs	03-27 23:07	299' ago	done	finished		Dispatcher has no jobs	6'	299' ago
tp_gridui03_20070327-230753_265 jdl script submit log out err	default	TestPilot	DARTMOUTH-condor	03-27 23:07	125' ago	done aborted	aborted			180'	125' ago
tp_gridui03_20070327-230753_266 jdl script submit log out err	default	TestPilot	FZK-LCG2-a01-004-128-atlasXS-pbspro	03-27 23:07	300' ago	done	finished		Dispatcher has no jobs	5'	300' ago

Queue Info DB

Queue IN2P3-CC-T2-cclcgceli05-medium-bqs details

AutoPilot main page

Queue IN2P3-CC-T2-cclcgceli05-medium-bqs

Look for pilot jobs on this queue

Look for grid status page

Queue recent activity summary:

Panda site	Nqueued	Nrunning	Nfinished	Nfailed	Naborted
Total	2	0	702	7	0
ANALY_LYON	2	0	674	7	0
TestPilot	0	0	28	0	0

Queue configuration:

```
nickname = IN2P3-CC-T2-cclcgceli05-medium-bqs
queue = cclcgceli05.in2p3.fr/jobmanager-bqs
localqueue = medium
gatekeeper = cclcgceli05.in2p3.fr
jobmanager = bqs
system = lcg-cg
sysconfig =
region = France
site = IN2P3-CC-T2
tags = has_worked ANALY_LYON working lcg-cg
releases = 10.0.1|10.0.4|11.0.3|11.0.42|11.0.5|11.2.0|12.0.3|12.0.31|12.0.5|12.0.6|12.0.7|12.0.95|
ddm = LYON
se = srm://ccsrm.in2p3.fr
sepath = /pnfs/in2p3.fr/data/atlas/disk/dq2/users/pathena
copytool = lcgcp
copysetup =
envsetup = export LFC_HOST=lfc-atlas.in2p3.fr ; source /afs/in2p3.fr/grid/profiles/lcg_env.sh;
name = default
version =
environ =
appdir =
datadir =
tmpdir =
wntmpdir =
dq2url =
special_par =
nodes = 0
status =
lastmod = 2007-07-26 17:56:38
queue = cclcgceli05.in2p3.fr/jobmanager-bqs
nqueue = 1
cmd = condor_submit -verbose %s
jdl = cclcgceli05.in2p3.fr/jobmanager-bqs
jdltext =

Universe        = globus
globusscheduler = cclcgceli05.in2p3.fr/jobmanager-bqs
stream_output   = false
```

- MySQL DB of site/queue status, config
- Auto-loading of current queue status from BDII, for LCG
  - lcg-infosites. Where is osg-infosites?
- Pilots scan the site to extract info, load to DB (eg available releases)
- Easy dynamic reconfiguration immediately visible to pilot submission system
- Use of tags to dynamically establish queue groupings for different purposes
- Site performance statistics gathering, the basis of dynamic brokerage decisions based on actual pilot availability

BROOKHAVEN NATIONAL LABORATORY

Non-ATLAS OSG Usage

Currently CHARMM, cf. Petar yesterday. Others welcome!

Much thanks to CHARMM team for patience and help!

Panda monitor

Quick guide, twiki

User info

Jobs - search
Recent running, activated, waiting, assigned, defined, finished, failed jobs
Select analysis, production, test jobs

Quick search
Job
Dataset
Task
File

Summaries
Blocks: days
Errors: days
Nodes: days
Daily usage

Tasks - search
Generic Task Req
EvGen Task Req
CTBsim Task Req
Task list
Task browser

Datasets - search
Dataset browser
New datasets
Aborted MC datasets
Panda subscriptions
All subscriptions

Datasets Distribution
DDM Req
Req list
AODs
RDOs
Conditions DS
DB Releases
Validation Samples

Sites - see all
BNL BU IU OU SLAC UC UMICH UTA LCG NG

Applications
CHARMM

CHARMM job overview

Recent CHARMM job submitters: Ana Damjanovic Benjamin Timothy Allen Miller

Recent CHARMM pilots: all submitted (37) scheduled (0) running (0) finished failed aborted

Queues used by CHARMM

Recent CHARMM jobs (last 3 days): ana1 ana2 ana3 ana4 bj50 btest1 btest50 btest99 s1_f s1_ff s2_f s2_ff struct1 struct2 tfull v21t1

All jobs:

	jobs	active	run	finish	fail
Totals:	*1738*	*0*	*1588*	*148*	*2*

Jobname ana1:

Wave	jobs	active	run	finish	fail	PandaIDs
Totals:	*22*	*0*	*22*	*0*	*0*	
3	4	0	4	0	0	1008684 1009260 1009327 1010430
2	3	0	3	0	0	998138 999868 1002365
1	12	0	12	0	0	989027 992341 992342 993107 993108 995119 995421 996927 997229 998134 998137 998139
0	3	0	3	0	0	1039253 1039254 1039255

Jobname ana2:

Wave	jobs	active	run	finish	fail	PandaIDs
Totals:	*10*	*0*	*10*	*0*	*0*	
0	10	0	10	0	0	1055685 1055686 1055687 1055688 1055689 1055690 1055691 1055692 1055693 1055694

Jobname ana3:

Wave	jobs	active	run	finish	fail	PandaIDs
Totals:	*20*	*0*	*20*	*0*	*0*	
4	2	0	2	0	0	1096240 1122782
3	2	0	2	0	0	1075263 1098558
1	4	0	4	0	0	1069745 1092942 1093543 1093544
0	12	0	12	0	0	1056295 1056296 1056297 1056298 1056299 1056303 1087021 1087026 1090391 1090692 1092193 1092202

Jobname ana4:

Wave	jobs	active	run	finish	fail	PandaIDs

User/VO does
- job submission, using simple http-based Python client
- pilot submission, such that pilots carry their DN identity
- queue group (tag) organization they require

BNL/ATLAS/OSG provides
- Panda service/DB infrastructure; same as used by US ATLAS
- Panda monitoring, VO customization possible
- Configured machine(s) for VO pilot submission (@ Madison)
- Support from ~3 FTE pool at BNL
- *Future: Data mgmt and data-driven workflow (ATLAS dependencies currently being excised)*

BROOKHAVEN NATIONAL LABORATORY

Panda, Condor Glide-ins, and OSG

- Use of glide-ins in Panda has been in the plan since Oct '05 meeting with Miron Livny et al @ Madison
- Actively pursued since Sep '06 when we gained manpower (a student) to work on it, support shared by ATLAS and OSG
- Initial priority is a new capability for Condor: schedd glide-ins to support site-level **pilot factory** to achieve better scalability, particularly for analysis
  - Moves pilot submission inside site perimeter to avoid GK GRAM bottleneck
  - Working directly with Condor team
  - Development complete, deployment in progress
- Just made a new OSG extensions hire at BNL which provides the manpower to proceed with startd glide-ins also
  - Re-implement Panda pilot using startd as basis of pilot
  - Use Igor Sfiligoi's glideinWMS as basis for startd glidein infrastructure
    - Well documented, code available, extensive security and monitoring features, welcomes collaboration
    - Objective: common glide-in infrastructure with CMS

Security in Panda

- Uses GSI based security for the server's LAMP software stack and its client communications (https)
- User ID, tracking, accounting, controls system is internal
  - Panda activity fully logged and accounted
    - Individual user activity (DN) recorded
- Will leverage Condor (startd glidein based pilots) to get glExec functionality (pilot ID = user ID) where needed
- Client<->Server validation, payload validation still to come
  - Expect to draw on CMS/FNAL work
- Data protection is responsibility of DDM system

Near-term Plans

- In progress: Broaden LCG, OSG deployment for ATLAS analysis & production
  - Based on interest and local data availability
- In progress: Panda based production on opportunistic OSG sites, LCG sites (Canada WestGrid)
- Summer: Deploy schedd glide-in based pilot factory to key ATLAS analysis sites (BNL, UTA, ...)
- Summer: Extend Panda@LCG to ATLAS production, depending on ATLAS decisions/policies
- Summer/Fall: Integrate startd glide-ins as pilots
  - Leveraging CMS (Igor Sfiligoi) startd glidein factory
    - Planning a visit of Igor and Condor expert to BNL, late Aug
  - Selective deployment depending on requirements/performance (eg. glexec (user ID) support, multi-tasking pilot support (Condor VMs))

Summary

- Panda performing very well for ATLAS production, analysis
  - Both as ATLAS production system component and as end-to-end system
  - Work on hardening, robustness, automation, monitoring has paid off
- Activity now is focusing on broadening deployment and usage, supporting scale-up, integrating middleware to extend functionality
  - ATLAS production/analysis across OSG and EGEE
  - Expand/improve OSG VO support, having learned from CHARMM
  - Condor extensions/integration in OSG program to support scale-up, extend pilot functionality (and simplify application-level code)
- Ready to provide stable and robust service for ATLAS when datataking starts
  - We're ready to start turning scalability knobs, but no operational need yet
  - Committed to making Panda the vehicle for effective ATLAS analysis throughout the US
- Demonstrated capability to support OSG VOs other than ATLAS
  - Ready, willing, and with the manpower resources to expand this
  - To provide low-threshold, low-maintenance WMS for OSG VOs
  - Will soon offer support for data handling and data-driven workflow which now is DIY