Fifemon User Guide & Tutorial

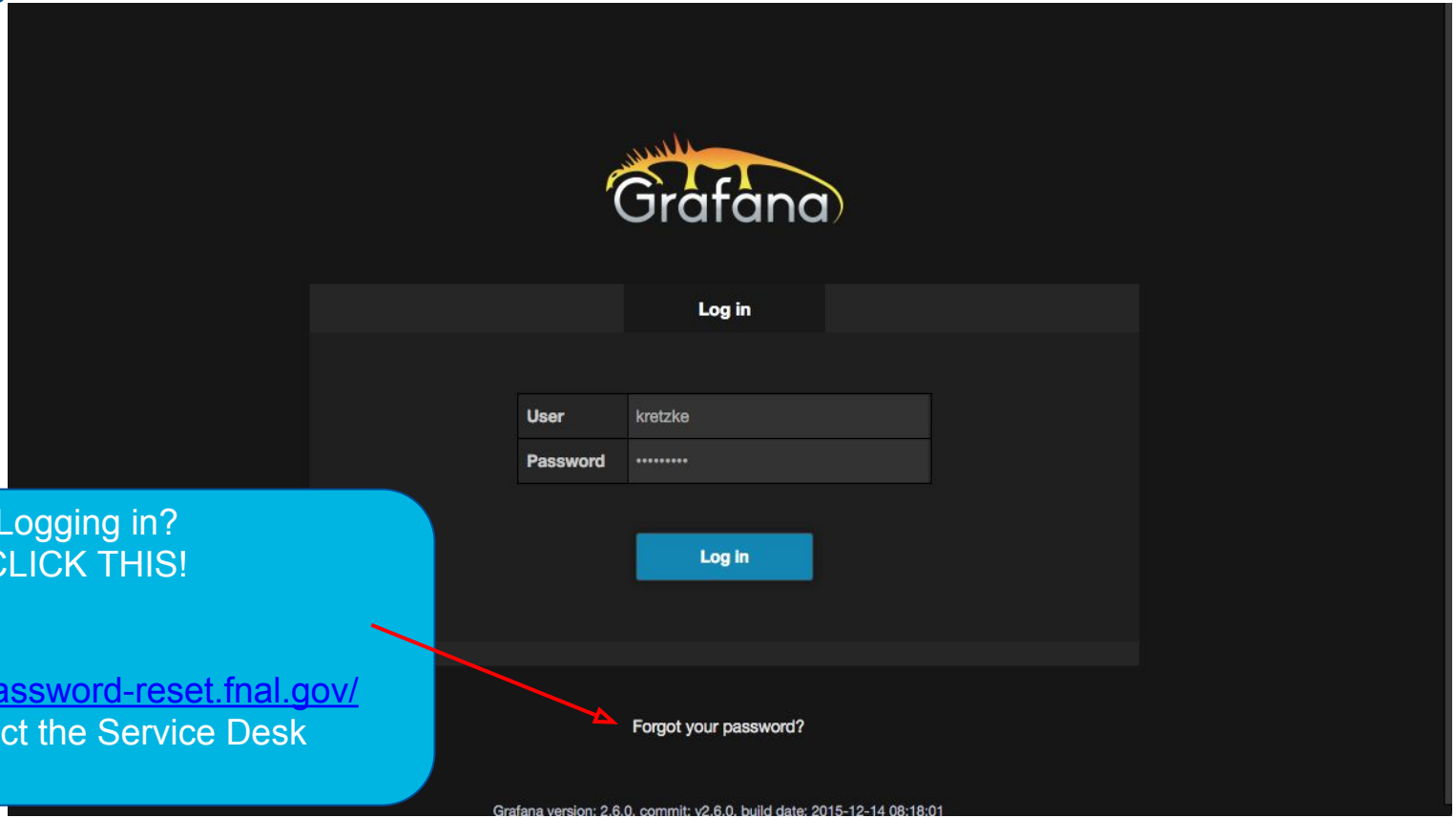
Fifemon v3.02 - June 2016

https://fifemon.fnal.gov/monitor

https://fifemon-pp.fnal.gov

Grafana Basics

Signing In: FNAL Services Account

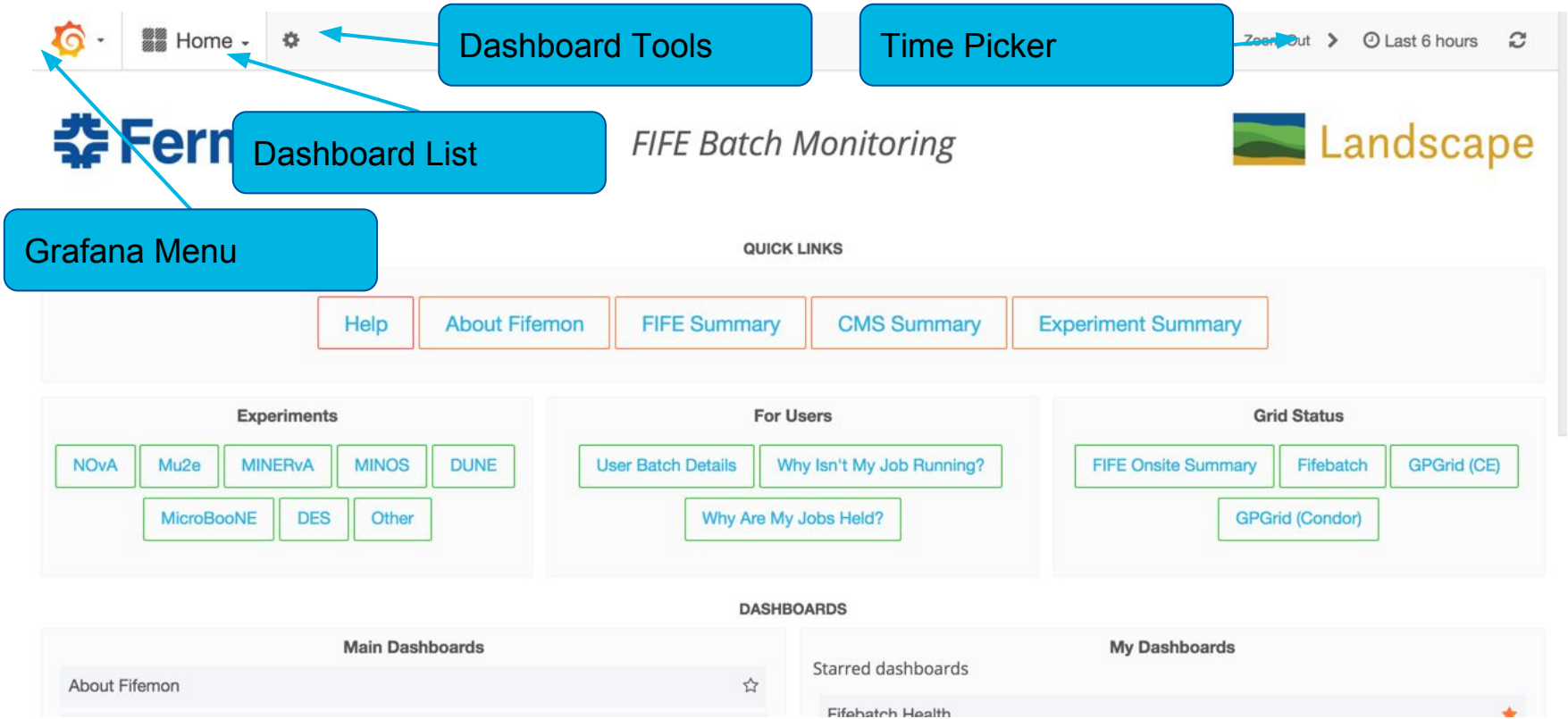


Trouble Logging in?
DON'T CLICK THIS!

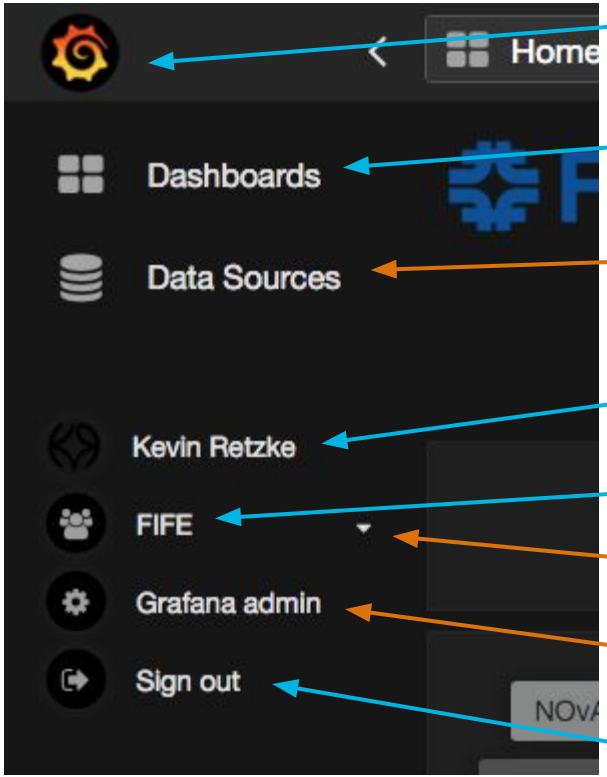
Go to:
https://password-reset.fnal.gov/
Or contact the Service Desk

Signing In: FNAL SSO

Grafana Interface

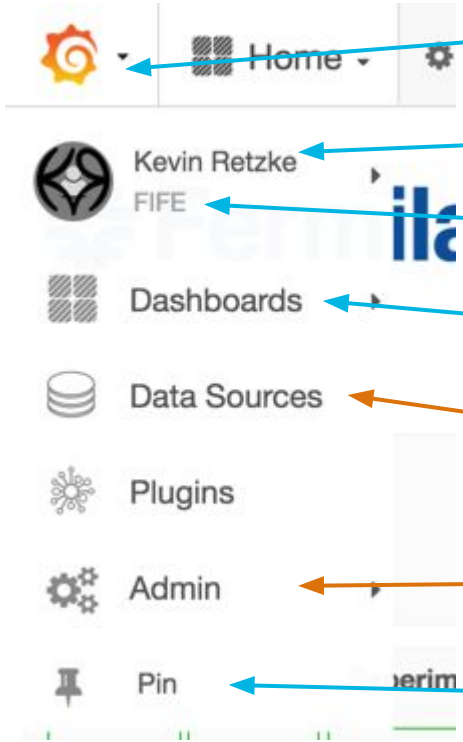


Grafana v2.6 Menu



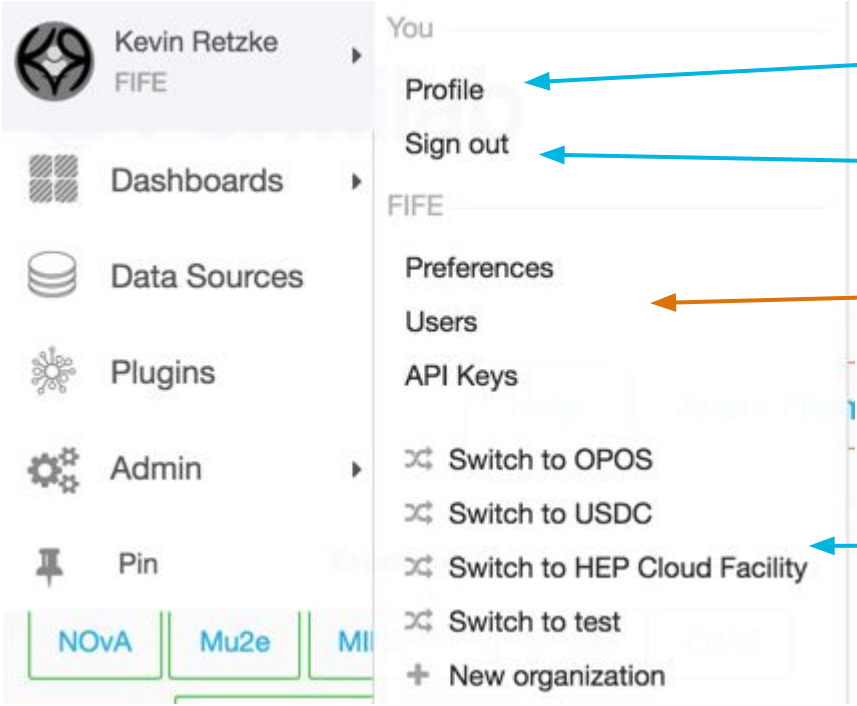
- Collapse Menu
- Home Page/Dashboard List
- Configure data sources (Org Admin only)
- Personal profile & settings
- Current Organization
- Change Organization & Org. Settings
- Grafana Settings (Grafana Admin only)
- Sign out

Grafana v3.0 Menu



- Collapse Menu
- Personal profile & settings
- Current Organization
- Dashboard Menu
- Configure data sources (Org Admin only)
- Grafana Settings (Grafana Admin only)
- Keep menu open

Grafana v3.0 User Menu



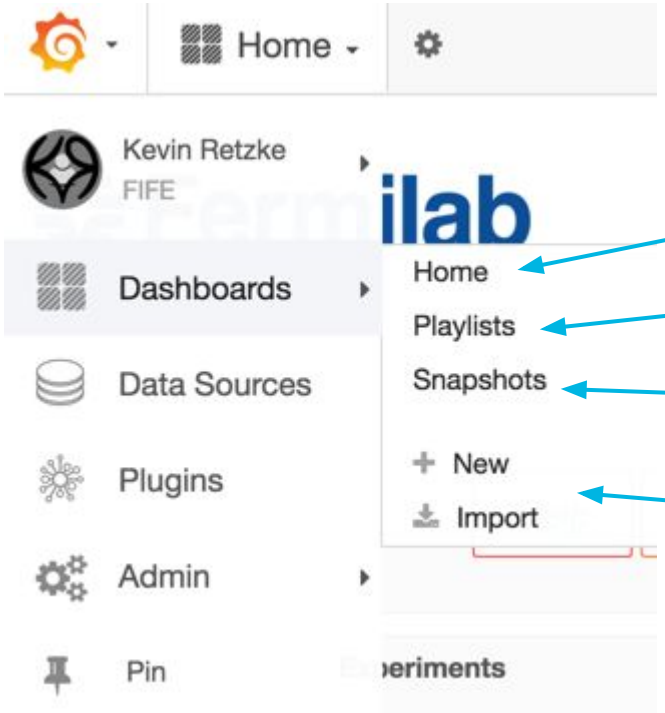
Personal profile & settings

Sign out (NO-OP with SSO!)

Organization Settings (Org. Admin Only)

Change current organization

Grafana v3.0 Dashboard Menu



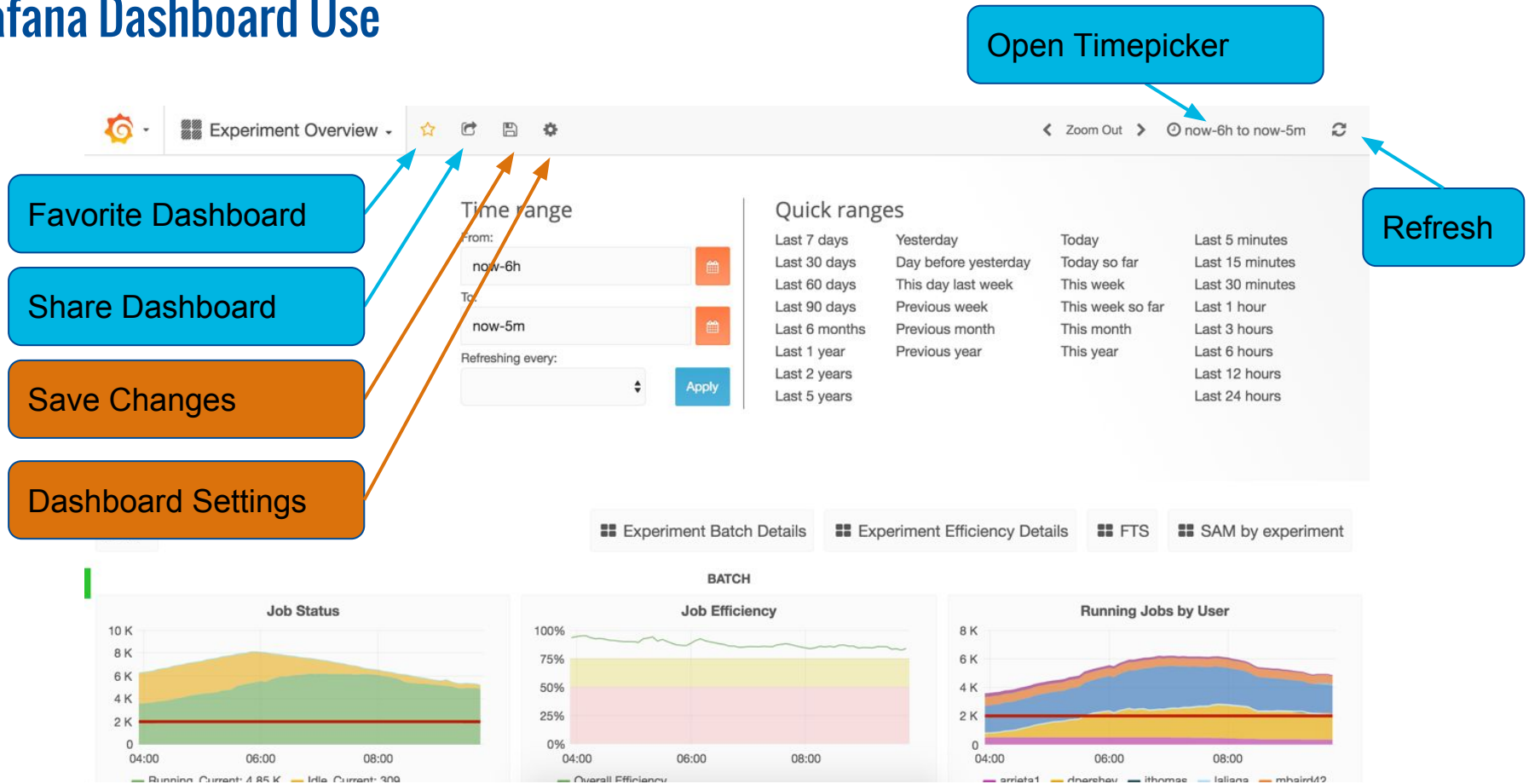
Home page

View/manage playlists

View/manage snapshots

Create new dashboard or import from file

Grafana Dashboard Use

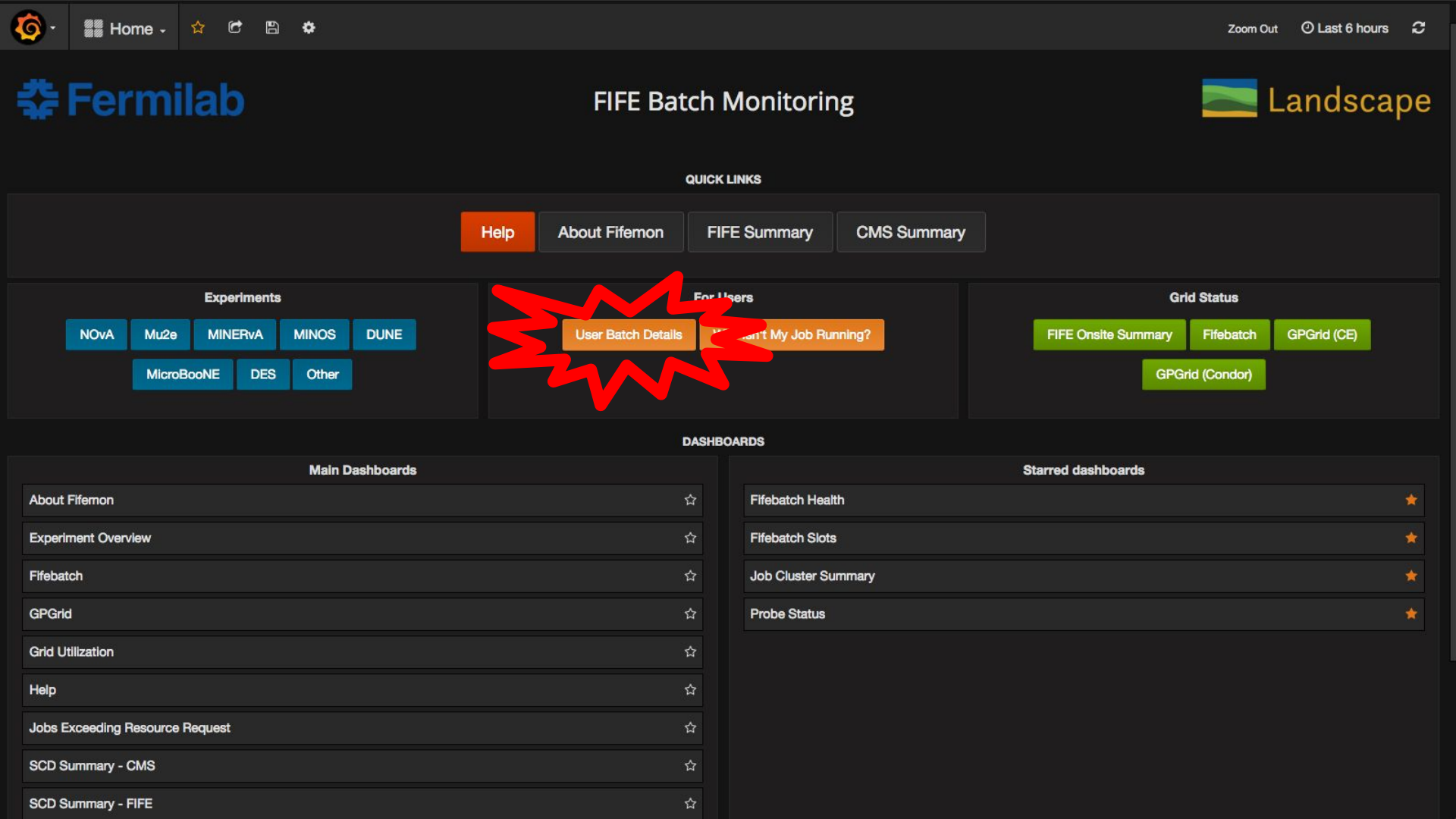


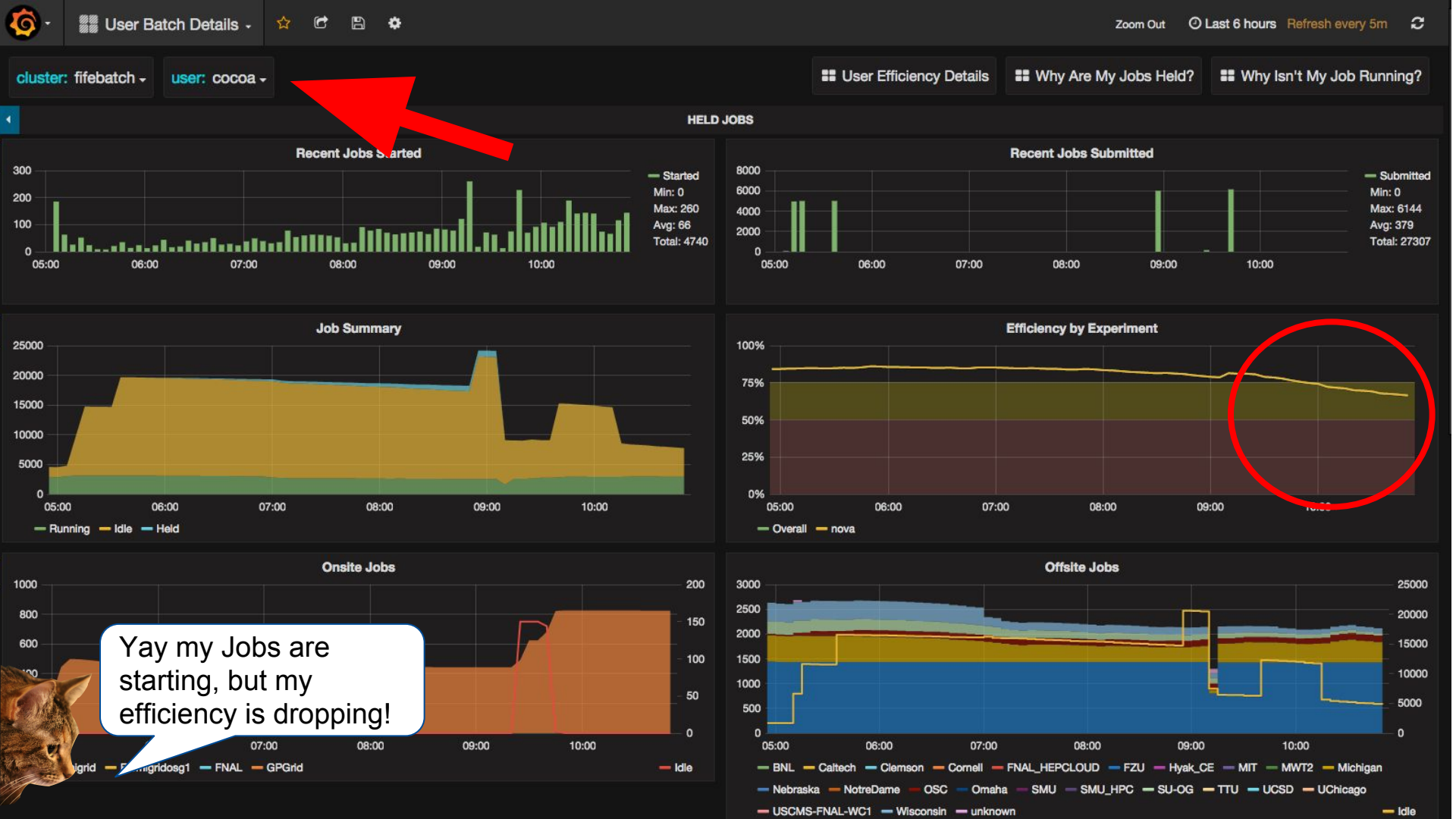
Tutorials

"There's a dashboard for that..."

User A

"What's the status of my jobs?"


Home
Zoom Out
Last 6 hours
Fermilab
FIFE Batch Monitoring
Landscape
QUICK LINKS
Help
About Fifemon
FIFE Summary
CMS Summary
Experiments
NOvA
Mu2e
MINERvA
MINOS
DUNE
MicroBooNE
DES
Other
For Users
User Batch Details
Grid Status
FIFE Onsite Summary
Fifebatch
GPGrid (CE)
GPGrid (Condor)
DASHBOARDS
Main Dashboards
About Fifemon
Experiment Overview
Fifebatch
GPGrid
Grid Utilization
Help
Jobs Exceeding Resource Request
SCD Summary - CMS
SCD Summary - FIFE
Starred dashboards
Fifebatch Health
Fifebatch Slots
Job Cluster Summary
Probe Status


User Batch Details
Zoom Out
Last 6 hours
Refresh every 5m
cluster: fifebatch
user: cocoa
User Efficiency Details
Why Are My Jobs Held?
Why Isn't My Job Running?
HELD JOBS
Recent Jobs Started
Started
Min: 0
Max: 260
Avg: 66
Total: 4740
Recent Jobs Submitted
Submitted
Min: 0
Max: 6144
Avg: 379
Total: 27307
Job Summary
Running
Idle
Held
Efficiency by Experiment
Overall
nova
Onsite Jobs
FNAL
GPGrid
Idle
Yay my Jobs are starting, but my efficiency is dropping!
Offsite Jobs
BNL
Caltech
Clemson
Cornell
FNAL_HEPCLOUD
FZU
Hyak_CE
MIT
MWT2
Michigan
Nebraska
NotreDame
OSC
Omaha
SMU
SMU_HPC
SU-OG
TTU
UCSD
UChicago
USCMS-FNAL-WC1
Wisconsin
unknown
Idle

05:00 06:00 07:00 08:00 09:00 10:00

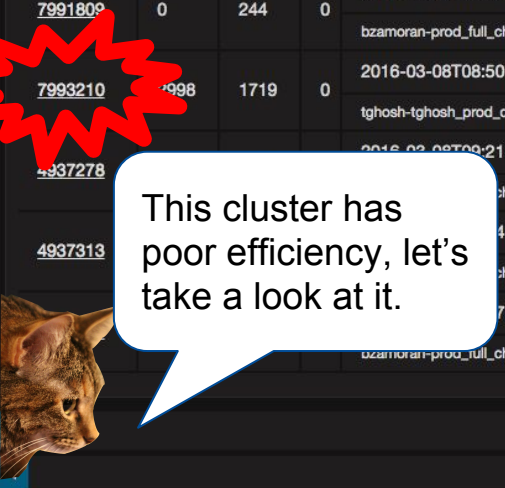
Fermigrid — Fermigridosg1 — FNAL — GPGrid — Idle

05:00 06:00 07:00 08:00 09:00 10:00

BNL — Caltech — Clemson — Cornell — FNAL_HEPCLOUD — FZU — Hyak_CE — MIT — MWT2 — Michigan — Nebraska — NotreDame — OSC — Omaha — SMU — SMU_HPC — SU-OG — TTU — UCSD — UChicago — USCMS-FNAL-WC1 — Wisconsin — unknown — Idle

Current Jobs

Cluster	I	R	H	Submit Time/Command	Memory (MB)	Disk (MB)	Time (hr)	Max Eff.	Starts
7989120	7	0	0	2016-03-08T02:22:51.000Z qhuang-qhuang-reco-keepup-Offsite-3000-S16-03-04-neardet-BNB-25_days_ago-20160308_0222.sh_20160308_022251_3281177_0_1_wrap.sh	0 / 3000	0 / 10240	0 / 11	----	0
7989126	7	0	0	2016-03-08T02:23:06.000Z qhuang-qhuang-reco-keepup-Offsite-3000-S16-03-04-neardet-BNB-27_days_ago-20160308_0222.sh_20160308_022305_3282245_0_1_wrap.sh	0 / 3000	0 / 10240	0 / 11	----	0
7989131	7	0	0	2016-03-08T02:23:18.000Z qhuang-qhuang-reco-keepup-Offsite-3000-S16-03-04-neardet-BNB-29_days_ago-20160308_0223.sh_20160308_022318_3283095_0_1_wrap.sh	0 / 3000	0 / 10240	0 / 11	----	0
7989137	7	0	0	2016-03-08T02:23:30.000Z qhuang-qhuang-reco-keepup-Offsite-3000-S16-03-04-neardet-BNB-31_days_ago-20160308_0223.sh_20160308_022329_3284093_0_1_wrap.sh	0 / 3000	0 / 10240	0 / 11	----	0
7991809	0	244	0	2016-03-08T04:58:24.000Z bzamoran-prod_full_chain_R16-03-03-prod2reco.a_ND_numi_epoch3c-20160308_0458.sh_20160308_045824_3734826_0_1_wrap.sh	1952 / 2000	451 / 34180	6 / 6	62.3%	2
7993210	[illegible]998	1719	0	2016-03-08T08:50:35.000Z tghosh-tghosh_prod_daq_R16-02-11-prod2genie.b_fd_genie_nonswap_fhc_nova_v08_full_batch1_v1_birksmodB-20160308_0850.sh_20160308_085035_4016786_0_1_wrap.sh	1353 / 2000	2178 / 4000	2 / 3	36.8%	1
4937278				2016-03-08T09:21:32.000Z [illegible]chain_R16-03-03-prod2reco.a_ND_numi_period1-20160308_0921.sh_20160308_092132_3138891_0_1_wrap.sh	1925 / 2000	114 / 34180	1 / 6	57.5%	1
4937313				2016-03-08T09:24:26.000Z [illegible]chain_R16-03-03-prod2reco.a_ND_numi_epoch3b-20160308_0924.sh_20160308_092426_3149550_0_1_wrap.sh	1929 / 2000	79 / 34180	1 / 6	55.2%	1
				2016-03-08T09:37:01.000Z bzamoran-prod_full_chain_R16-03-03-prod2reco.a_ND_numi_period2-20160308_0936.sh_20160308_093701_3191659_0_1_wrap.sh	1920 / 2000	85 / 34180	1 / 6	53.2%	1



COMPLETED JOBS

RESOUCE GRAPHS

Job Cluster Summary

Zoom Out | Last 24 hours | Refresh every 5m

cluster: 7714932

PAGE HELP

JOB INFORMATION

Job ID:	7714932.0@fifebatch2.fnal.gov
Submit Date:	2016-02-26T18:09:46
Experiment:	mu2e
User:	mu2epro (mu2epro/cron/mu2egpvm01.fnal.gov@FNAL.GOV)
Usage Model:	OFFSITE
Sites Requested:	BNL,Caltech,FERMIGRID,FNAL,MIT,Michigan,Nebraska,Omaha,SU-OG,Wisconsin,UCSD,NotreDame,MWT2

View sandbox files

Resources Requested	
CPU:	1
Memory:	3994 MB
Disk:	9216 MB
Runtime:	9 hr

View available slots

PROCESS STATUS

Total Processes	Idle Processes	Running Processes	Held Processes
9175	6065	2898	4

Failed Processes (nonzero exit code)	Disconnected Processes
26	408

A few failed processes, and a bunch are disconnected.

RESOURCES USED

Max Memory Usage	Max Disk Usage	Max Walltime

Competed Processes (exit code 0)	Failed Processes (nonzero exit code)	Disconnected Processes
1011	26	408

RESOURCES USED

Max Memory Usage	Max Disk Usage	Max Walltime
1.934 GiB	7.91 GiB	11.11 hour

Memory Usage

Min	Max	Average
10.02 MiB	1.93 GiB	1.31 GiB

Disk Usage

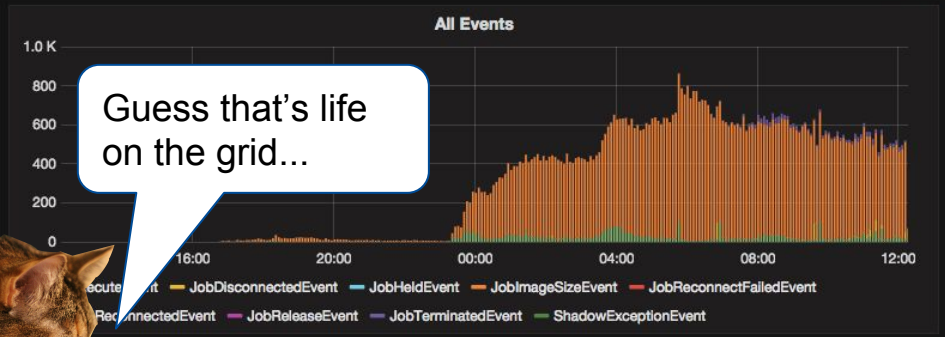
Min	Max	Average
1.75 GiB	7.91 GiB	5.34 GiB

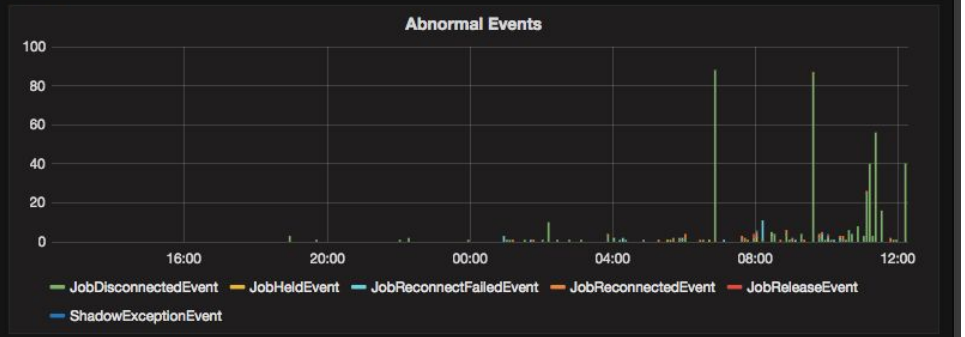
Walltime

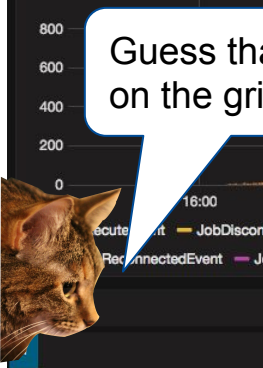
Min	Max	Average
33.70 min	11.11 hour	5.36 hour

PROCESS LIST

CONDOR EVENTS







STATS BY SITE

JOBSUB

User B

"Why isn't my job running yet?!"

Home

Zoom Out | Last 6 hours

Fermilab

FIFE Batch Monitoring

Landscape

QUICK LINKS

Help | About Fifemon | FIFE Summary | CMS Summary

Experiments

NOvA | Mu2e | MINERvA | MINOS | DUNE | MicroBooNE | DES | Other

F Use

User Batch Deta | Why Isn't My Job Running?

Grid Status

FIFE Onsite Summary | Fifebatch | GPGrid (CE) | GPGrid (Condor)

DASHBOARDS

Main Dashboards

- About Fifemon
- Experiment Overview
- Fifebatch
- GPGrid
- Grid Utilization
- Help
- Jobs Exceeding Resource Request
- SCD Summary - CMS
- SCD Summary - FIFE

Starred dashboards

- Fifebatch Health
- Fifebatch Slots
- Job Cluster Summary
- Probe Status

Why Isn't My Job Running? ▾ Zoom Out Last 6 hours

Username: peanut ▾ Fifebatch Troubleshooting Guides

General Tips

How long ago did you submit your jobs?

It can take several hours (up to a day) for jobs to start, the grid is generally running at full capacity. Remember, the batch system is for large-scale computing. if you need immediate results on a small scale you should be using the interactive nodes provided for your experiment.

What resources did you request?

If you're not sure, you can see these listed on your User Batch Details page or Job Cluster Summary in the table below (select your username from the dropdown above). If you didn't request any your job got the defaults. Your job will only start in a slot that has at least your requested resources available; the more you request, the fewer slots that will be available.

What is your usage model?

- DEDICATED or OPPORTUNISTC: your job will run on GPGrid, and how long your job takes to start is dependent on:
  - how many other jobs are vying for slots on GPGrid (take a look at the FIFE Onsite Summary dashboard).
  - how much your experiment is using; your experiment has a quota on GPGrid (visible on the Experiment Overview page), usage over this number is purely opportunistic
  - what resources are available in the remaining slots on GPGrid (see the Fifebatch Slots dashboard)
- OFFSITE: your job will run on the OSG, where availability is opportunistic and highly variable (with some exceptions, e.g. FZU for NOvA).
  - Did you request any specific sites? Some sites have restrictions on resources, runtime, or experiments (see the FIFE wiki for details)
  - take a look at the Fifebatch Slots dashboard to see where we are currently getting slots

IDLE JOBS

Idle Jobs

jobid	Submit Date	Group	CPUs	Memory	Disk	Runtime	Usage Model	Sites
4924655.0@fifebatch1.fnal.gov	2016-03-08 00:17:42	nova	1	4.88 GiB	10.00 GiB	3.00 hour	OFFSITE	Wisconsin
7936096.0@fifebatch2.fnal.gov	2016-03-07 00:17:26	nova	1	3.42 GiB	10.00 GiB	3.00 hour	OFFSITE	UCSD
4924412.0@fifebatch1.f			1	3.42 GiB	10.00 GiB	3.00 hour	OFFSITE	Caltech
4924398.0@fifebatch1.f			1	3.42 GiB	10.00 GiB	3.00 hour	OFFSITE	BNL
			1	3.42 GiB	10.00 GiB	3.00 hour	OFFSITE	Nebraska
	2016-03-08 00:17:03	nova	1	3.42 GiB	10.00 GiB	3.00 hour	OFFSITE	UCSD
nal.gov	2016-03-06 00:22:21	nova	1	3.42 GiB	10.00 GiB	3.00 hour	OFFSITE	UCSD

Job Cluster Summary

Zoom Out | Last 24 hours | Refresh every 5m

cluster: 4924655

PAGE HELP

JOB INFORMATION

Job ID:	4924655.0@fifebatch1.fnal.gov
Submit Date:	2016-03-08T00:17:42
Experiment:	nova
User:	novapro (UNKNOWN)
Usage Model:	OFFSITE
Sites Requested:	Wisconsin

View sandbox files

Resources Requested

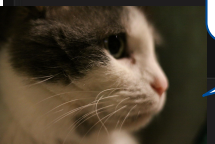
CPU:	1
Memory:	5000 MB
Disk:	10240 MB
Runtime:	3 hr

View available slots

PROCESS STATUS

Total Processes	Idle Processes	Running Processes	Held Processes
1	1	0	0

Competed Processes (exit code 0)	Failed Processes (nonzero exit code)	Disconnected Processes
	N/A	N/A



Are there any slots available?

RESOURCES USED

Max Memory Usage	Max Disk Usage	Max Walltime

Fifebatch Slots Unclaimed

Zoom Out | Last 5 minutes | Refresh every 5m

cluster: fifebatch | Sites: Wisconsin | Min. Cores: 1 | Min. Memory (MB): 5000 | Min. Time (hr): 3.00 | Available to: nova | Fifebatch

Unclaimed CPUs

0

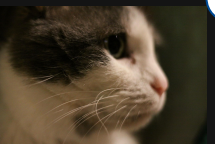
Claimed CPUs

0

Unclaimed by Site

Claimed by Site

There are no Glideins running at Wisconsin with 5GB memory!



Fifebatch Slots Unclaimed

Zoom Out | Last 5 minutes | Refresh every 5m

cluster: fifebatch | Sites: All | Min. Cores: 1 | Min. Memory (MB): 5000 | Min. Time (hr): 3.00 | Available to: nova | Fifebatch

Unclaimed CPUs

25

Claimed CPUs

134

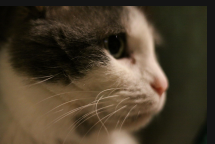
Unclaimed by Site

Site	# Cpus	# Glideins
GPGrid	25	5

Claimed by Site

Site	# Cpus	# Glideins
GPGrid	134	134

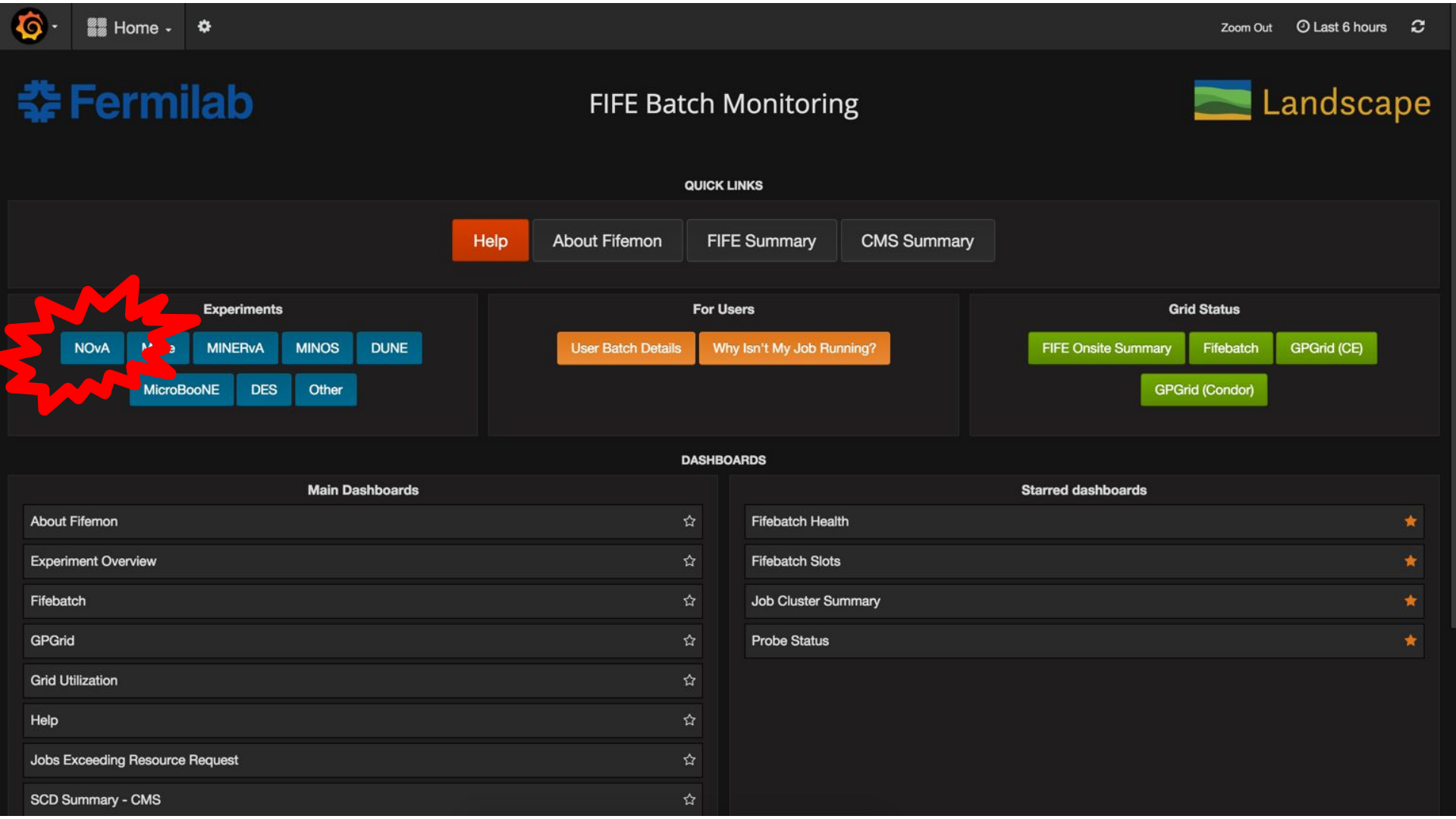
Hey, there are some Glideins on GPGrid that could run a job needing 5GB memory! Maybe I should submit there instead.



Stakeholder

"Is my experiment getting the resources it needs and using them effectively?"

Photo: Claudio Gennari (CC-BY-2.0)


Home
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Fermilab
FIFE Batch Monitoring
Landscape
QUICK LINKS
Help
About Fifemon
FIFE Summary
CMS Summary
Experiments
NOvA
MINERvA
MINOS
DUNE
MicroBooNE
DES
Other
For Users
User Batch Details
Why Isn't My Job Running?
Grid Status
FIFE Onsite Summary
Fifebatch
GPGrid (CE)
GPGrid (Condor)
DASHBOARDS
Main Dashboards
About Fifemon
Experiment Overview
Fifebatch
GPGrid
Grid Utilization
Help
Jobs Exceeding Resource Request
SCD Summary - CMS
Starred dashboards
Fifebatch Health
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Experiment Overview

Out now-12h to now-5m

nova

Experiment Batch Details | Experiment Efficiency Details | FTS | SAM by experiment

Job Status

25 K
20 K
15 K
10 K
5 K
0
00:00 02:00 04:00 06:00 08:00 10:00

Running Current: 5.90 K Idle Current: 17.54 K Held Current: 43 GPGrid Quota Current: 2.00 K

Job Effi...

100
75
50
25
00:00 02:00 04:00 06:00 08:00 10:00

Overall Efficiency

SAM

Size of active files catalogued

4.6221 PiB
4.6212 PiB
4.6203 PiB
4.6194 PiB
4.6185 PiB
4.6176 PiB
4.6168 PiB
4.6159 PiB
300 MBps
250 MBps
200 MBps
150 MBps
100 MBps
50 MBps
0 Bps
00:00 08:00 10:00

Total Rate of change

Number of files catalogued

31.56 Mil
31.54 Mil
31.52 Mil
31.50 Mil
31.48 Mil
31.46 Mil
6 Hz
5 Hz
4 Hz
3 Hz
2 Hz
1 Hz
0 Hz
00:00 02:00 04:00 06:00 08:00 10:00

Total Rate of change

We're well above our quota, but efficiency could be better.

All activity on enstore system stken

1.3 K

Experiment Efficiency Deta…

Zoom Out | now-12h to now-5m

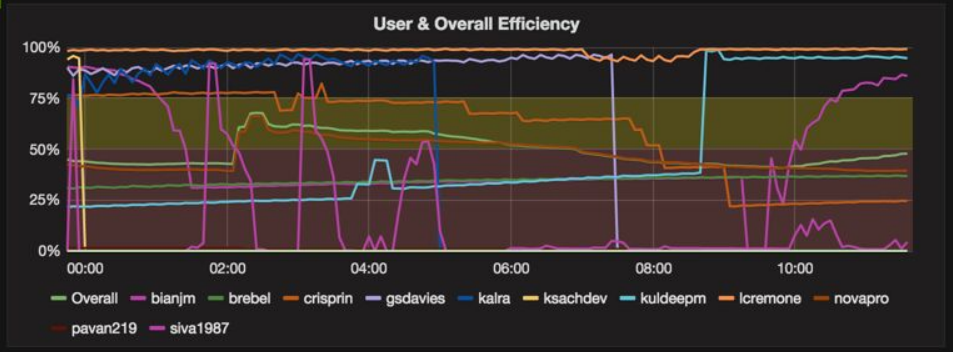
nova

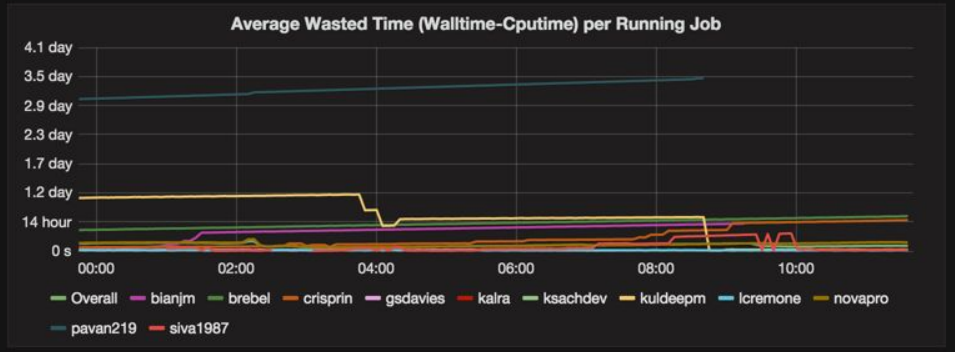
GratiaWeb Efficiency Tre | Experiment Batch Details | Experiment Overview | FTS | SAM by experiment

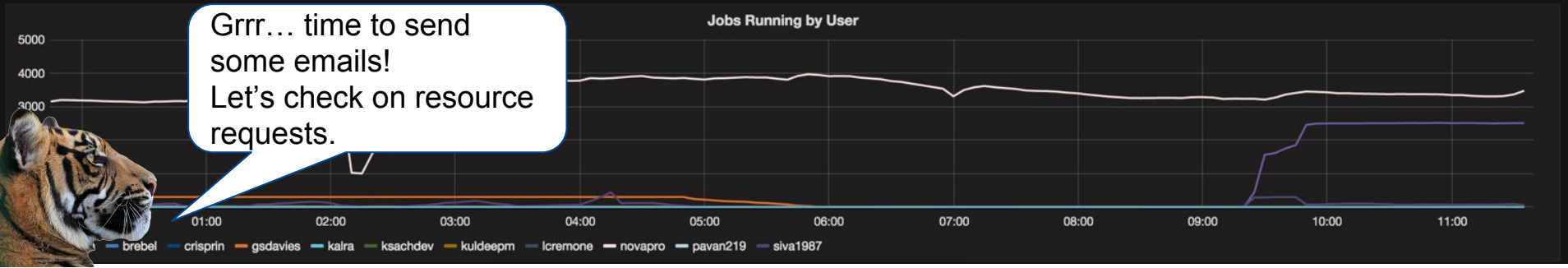
CURRENT

Overall Efficiency	Onsite Efficiency	Offsite Efficiency
48%	65%	4.7%

USER HISTORY







Grrr… time to send some emails!
Let's check on resource requests.

Experiment Batch Details

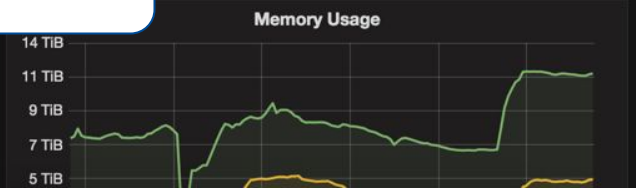
Zoom Out | now-12h to now-5m

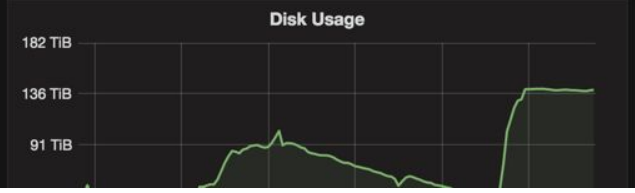
nova | GPGrid Usage | Experiment Efficiency Details | Experiment Overview | FTS | SAM by experiment

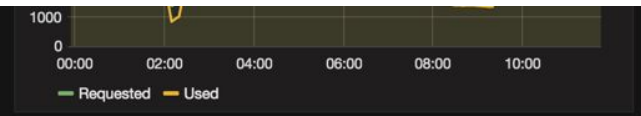
User Jobs

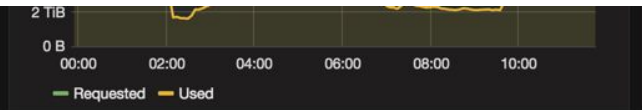
User	I	R	C	X	H	Max Memory/Request	Max Disk/Request	Max Time/Request
anorman	0	0	0	0	9	0.78	0.00	0.00
arrieta1	100	0	0	0	3	0.00	0.00	0.00
bianjm	825	2506	0	0	0	0.37	0.00	0.73
boyd	50	0	0	0	0	0.00	0.16	0.00
brebel	0	1	0	0	0	0.00	0.00	3.27
crisprin	0	3	0	0	0	0.01	0.00	8.55
dmendez	0	0	0	0	6	1.00	0.01	0.00
kherner	4	0	0	0	0	0.00	0.00	0.00
kretzke	1	0	0	0	0	0.00	0.00	0.00
kuldeepm	0	10	0	0	0	0.34	0.00	6.07
lcremone	0	2	0	0	0	0.29	0.13	5.54
novapro	22154	3464	0	0	14	1.05	1.01	12.04
pavan219	[illegible]	[illegible]	[illegible]	0	11	0.95	0.11	0.00
siva1987	[illegible]	[illegible]	[illegible]	0	0	0.66	0.00	3.39

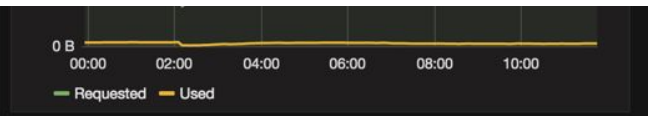
Disk and Memory requests look good, lots of users exceeding request time though.

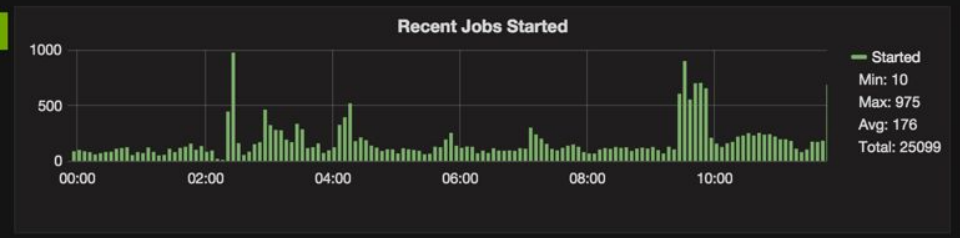




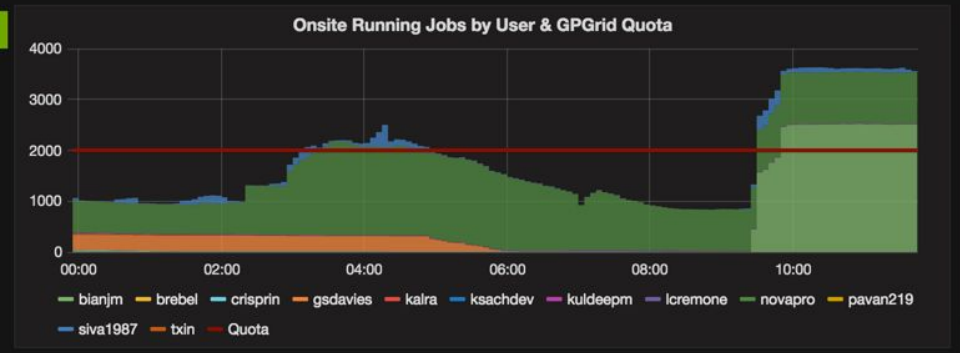

1000
0
00:00
02:00
04:00
06:00
08:00
10:00
Requested
Used

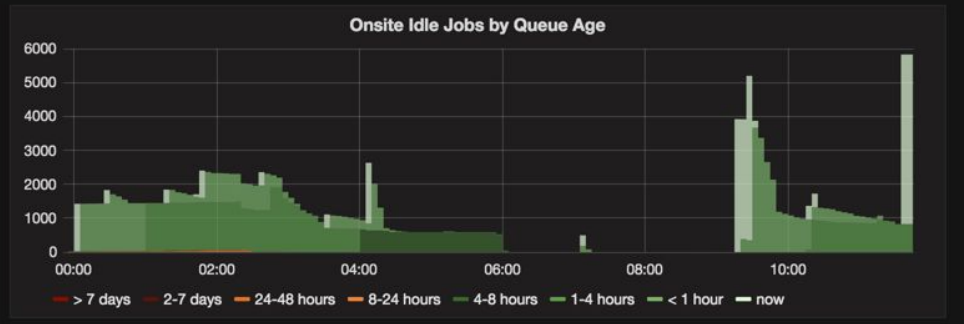

2 TiB
0 B
00:00
02:00
04:00
06:00
08:00
10:00
Requested
Used

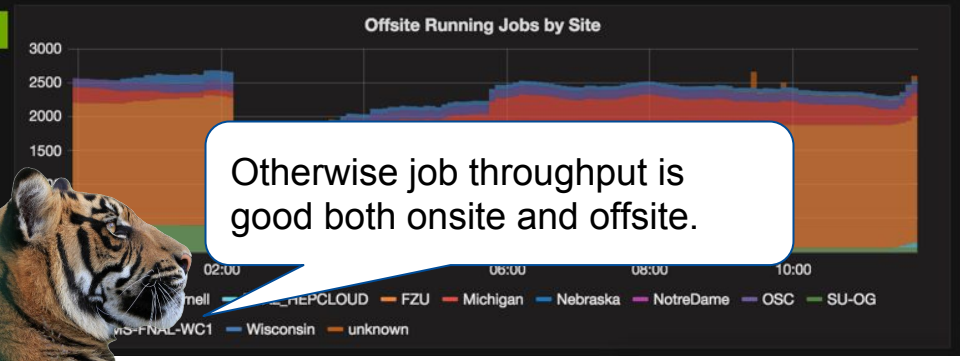

0 B
00:00
02:00
04:00
06:00
08:00
10:00
Requested
Used

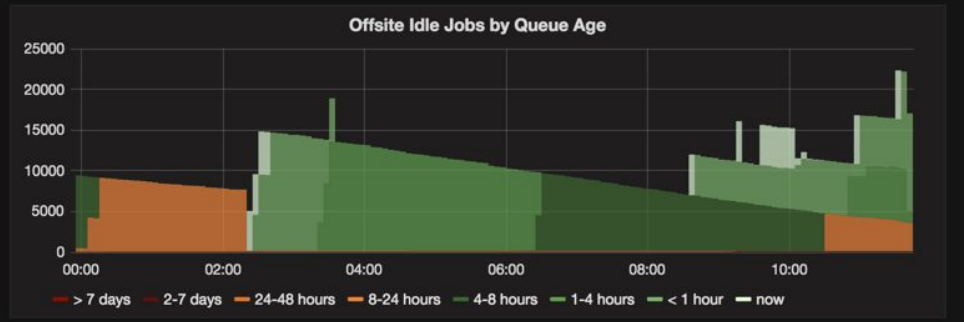

Recent Jobs Started
1000
500
0
00:00
02:00
04:00
06:00
08:00
10:00
Started
Min: 10
Max: 975
Avg: 176
Total: 25099

Recent Jobs Submitted
8000
6000
4000
2000
0
00:00
02:00
04:00
06:00
08:00
10:00
Submitted
Min: 0
Max: 6000
Avg: 542
Total: 77569


Onsite Running Jobs by User & GPGrid Quota
4000
3000
2000
1000
0
00:00
02:00
04:00
06:00
08:00
10:00
bianjm
brebel
crisprin
gsdavies
kalra
ksachdev
kuldeepm
lcremone
novapro
pavan219
siva1987
txin
Quota


Onsite Idle Jobs by Queue Age
6000
5000
4000
3000
2000
1000
0
00:00
02:00
04:00
06:00
08:00
10:00
> 7 days
2-7 days
24-48 hours
8-24 hours
4-8 hours
1-4 hours
< 1 hour
now


Offsite Running Jobs by Site
3000
2500
2000
1500
02:00
06:00
08:00
10:00
FZU
Michigan
Nebraska
NotreDame
OSC
SU-OG
Wisconsin
unknown
Otherwise job throughput is good both onsite and offsite.


Offsite Idle Jobs by Queue Age
25000
20000
15000
10000
5000
0
00:00
02:00
04:00
06:00
08:00
10:00
> 7 days
2-7 days
24-48 hours
8-24 hours
4-8 hours
1-4 hours
< 1 hour
now

Grid Admin

"Is the batch system healthy?"

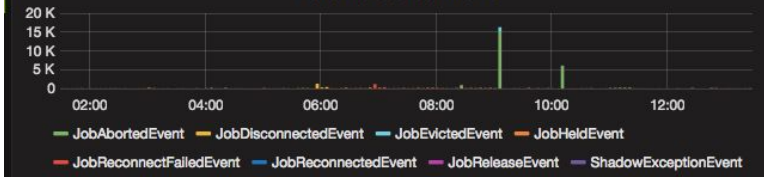
Photo: Hans Kemperman (Public Domain)

Fifebatch Health

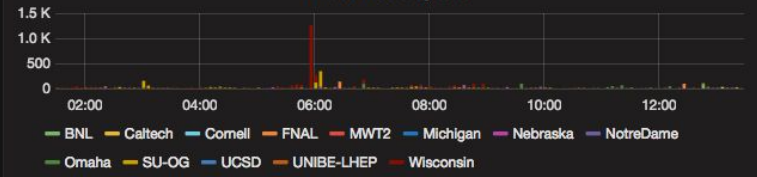
Zoom Out | now- 12h to now | Refresh every 5m

Fifebatch | ifmon check_mk

Abnormal Condor Events



Disconnects by Site



Disconnected Jobs

513

SCHEDD

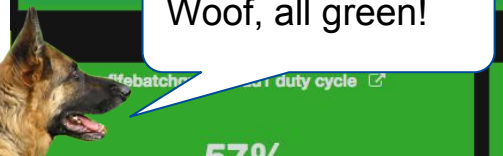
fifebatch1 Duty Cycle	fifebatch1 Running Jobs	fifebatch1 Idle Jobs	fifebatch1 Recent Jobs Exit Exception
48%	11875	48867	2
fifebatch2 Duty Cycle	**fifebatch2 Running Jobs**	**fifebatch2 Idle Jobs**	**fifebatch2 Recent Jobs Exit Exception**
49%	10460	43384	1

NEGOTIATOR

fifebatchgpvmhead1 Duty Cycle	Total Slots	Negotiation Cycle Matches	Negotiation Cycle Duration
74%	24433	108	42 s

COLLECTORS

[illegible] duty cycle	fifebatchgpvmhead2 duty cycle
57%	47%



Fifebatch

Zoom Out | now-6h to now-5m | Refresh every 5m

cluster: fifebatch

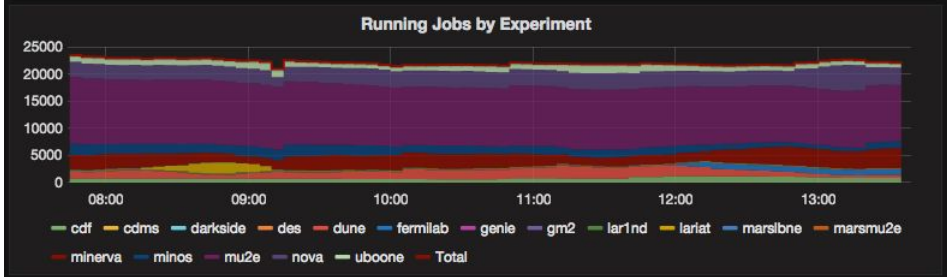
Fifebatch

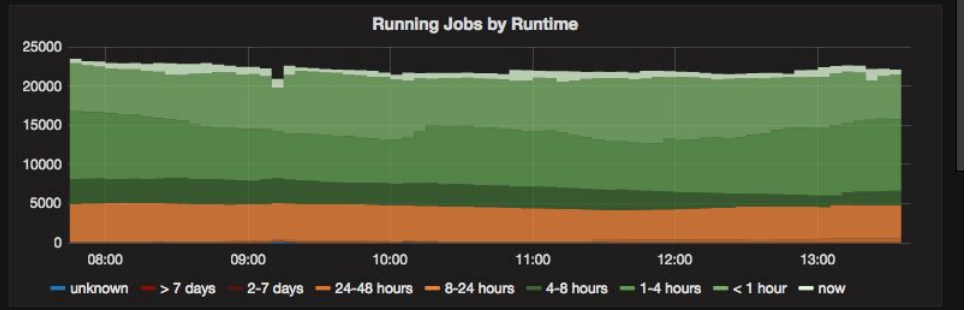
CURRENT JOB STATUS

Total	Running	Idle	Held
116018	21974	91392	2652

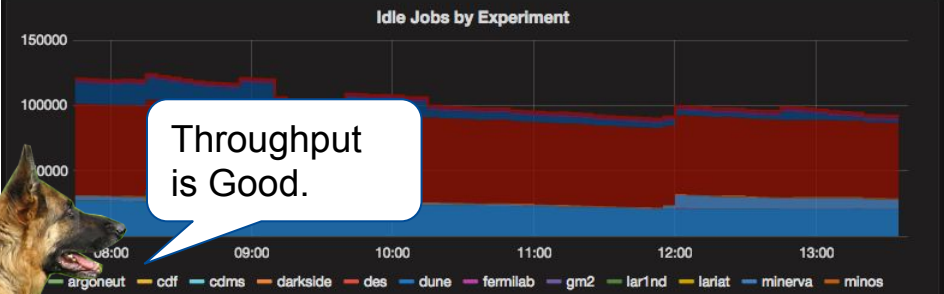
RESOURCE UTILIZATION

RUNNING JOBS

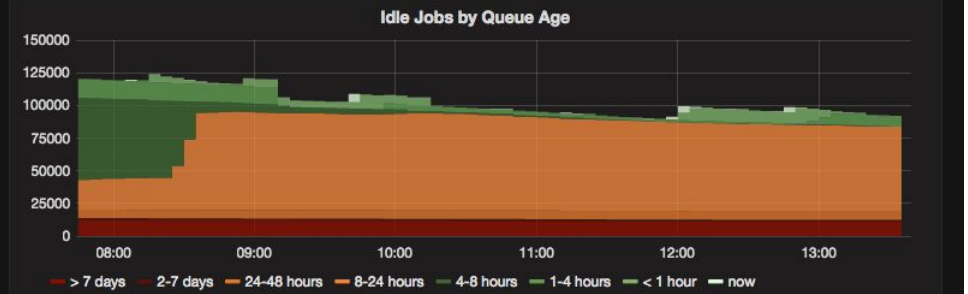




IDLE JOBS



Throughput is Good.



Grid Utilization

Zoom Out | now-6h to now-5m

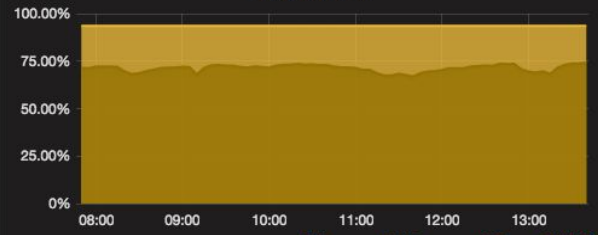
Grid: gpgrid

FIFE Onsite Summary | GPGrid | GPGrid Group | Why Are There Unused Slots on GPGrid?

PAGE HELP

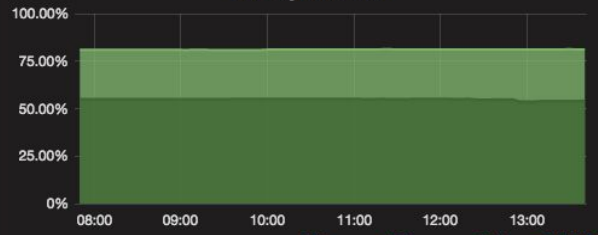
RELATIVE UTILIZATION

CPU Utilization



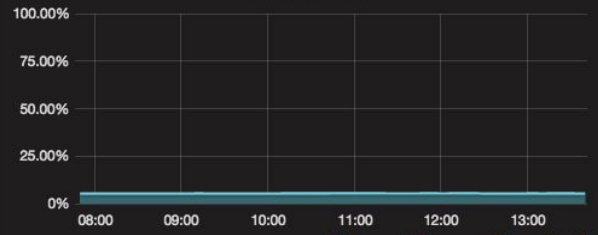
	min	max	avg	current
CPU Claimed	93.488%	93.622%	93.549%	93.580%
CPU Utilized	66.928%	74.206%	71.271%	74.206%

Memory Utilization



	min	max	avg	current
Memory Claimed	80.853%	81.224%	81.063%	81.180%
Memory Utilized	53.703%	55.235%	54.930%	54.102%

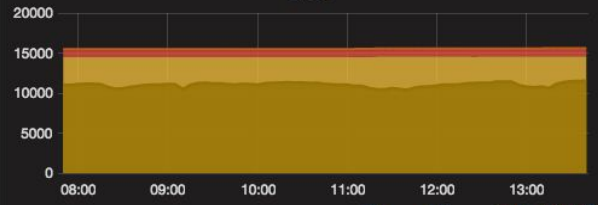
Disk Utilization



	min	max	avg	current
Disk Claimed	5.301%	5.438%	5.386%	5.415%
Disk Utilized	3.938%	4.053%	3.990%	3.954%

ABSOLUTE UTILIZATION

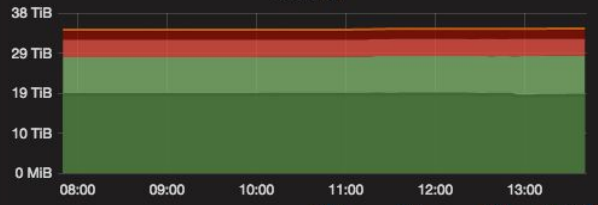
CPU



	min	max	avg	current
Claimed			14521	14606
Unclaimed			1001	1002
Unusable			0	0
Total			15523	15608
			11063	11582

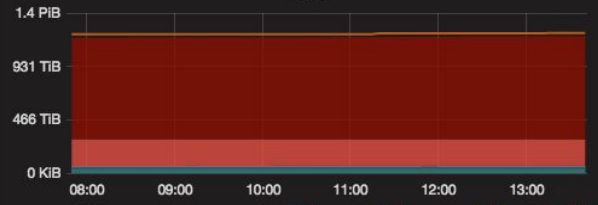
Grid utilization is OK.

Memory



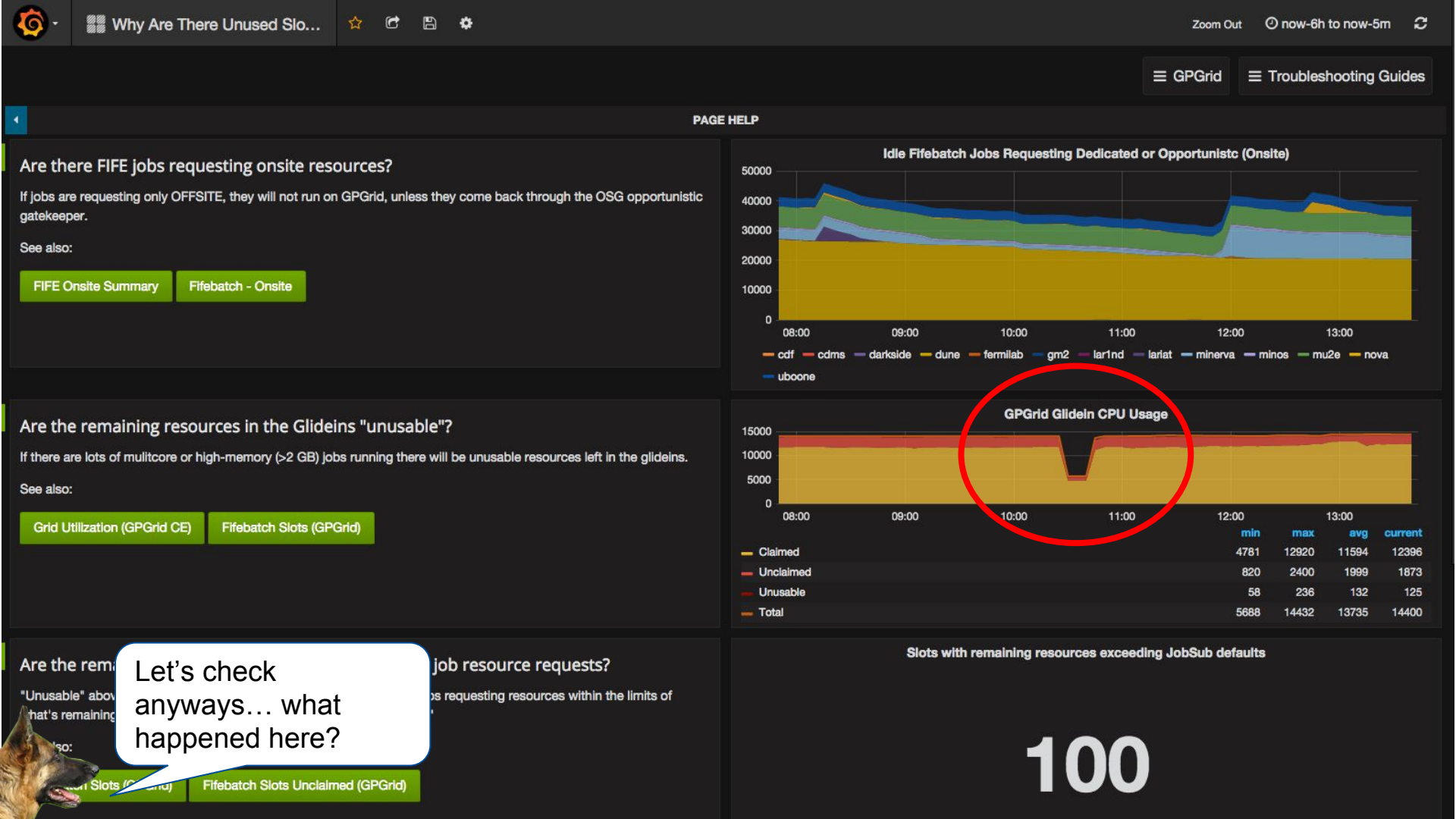
	min	max	avg	current
Claimed	27.6 TiB	28.0 TiB	27.8 TiB	27.9 TiB
Unclaimed	4.1 TiB	4.2 TiB	4.1 TiB	4.1 TiB
Unusable	2.3 TiB	2.4 TiB	2.3 TiB	2.4 TiB
Total	34.1 TiB	34.4 TiB	34.2 TiB	34.4 TiB
Effective	18.4 TiB	18.9 TiB	18.8 TiB	18.6 TiB

Disk



	min	max	avg	current
Claimed	63 TiB	65 TiB	64 TiB	65 TiB
Unclaimed	230 TiB	232 TiB	231 TiB	230 TiB
Unusable	887 TiB	901 TiB	892 TiB	900 TiB
Total	1.184 PiB	1.193 PiB	1.187 PiB	1.193 PiB
Effective	47 TiB	48 TiB	47 TiB	47 TiB

GROUP UTILIZATION


Why Are There Unused Slo...
Zoom Out
now-6h to now-5m
GPGrid
Troubleshooting Guides
PAGE HELP
Are there FIFE jobs requesting onsite resources?
If jobs are requesting only OFFSITE, they will not run on GPGrid, unless they come back through the OSG opportunistic gatekeeper.
See also:
FIFE Onsite Summary
Fifebatch - Onsite
Idle Fifebatch Jobs Requesting Dedicated or Opportunistc (Onsite)
50000
40000
30000
20000
10000
0
08:00
09:00
10:00
11:00
12:00
13:00
cdf
cdms
darkside
dune
fermilab
gm2
lar1nd
lariat
minerva
minos
mu2e
nova
uboone
Are the remaining resources in the Glideins "unusable"?
If there are lots of mulitcore or high-memory (>2 GB) jobs running there will be unusable resources left in the glideins.
See also:
Grid Utilization (GPGrid CE)
Fifebatch Slots (GPGrid)
GPGrid Glidein CPU Usage
15000
10000
5000
0
08:00
09:00
10:00
11:00
12:00
13:00
min max avg current
Claimed 4781 12920 11594 12396
Unclaimed 820 2400 1999 1873
Unusable 58 236 132 125
Total 5688 14432 13735 14400
Are the rem
job resource requests?
"Unusable" abov
s requesting resources within the limits of
hat's remaining
so:
Slots (
Fifebatch Slots Unclaimed (GPGrid)
Slots with remaining resources exceeding JobSub defaults
100
Let's check anyways… what happened here?

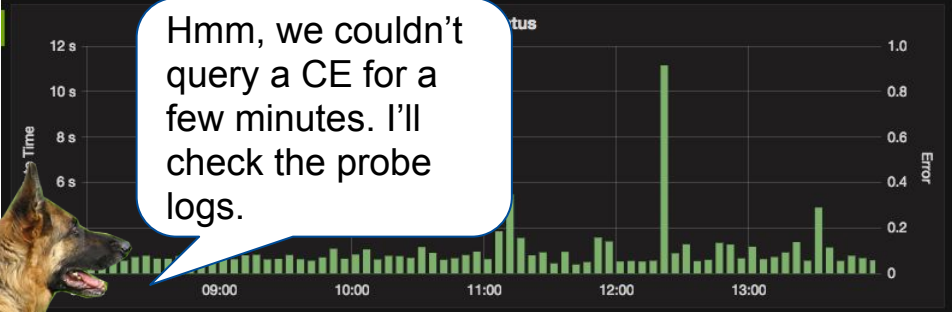
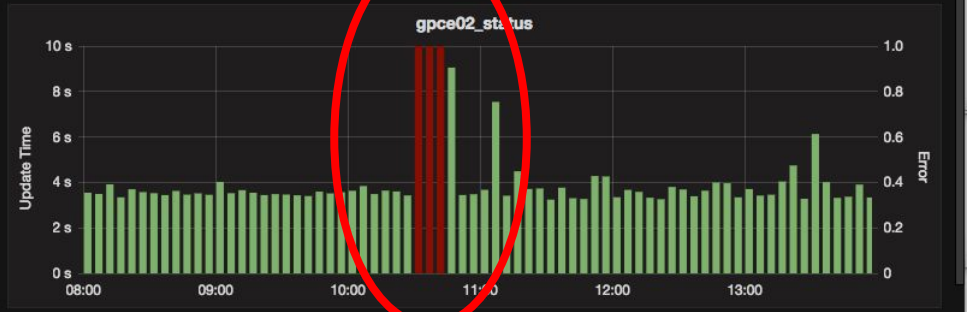
Probe Status - Dev

Zoom Out | Last 6 hours

probe: gpce01_status + gpce02_status

Update Time

Metric	Min	Max	Avg	Current
awsmonitor	-	-	-	-
cmssrv14_status	1.61 s	8.98 s	2.05 s	1.84 s
cmssrv274_status	0.32 s	1.02 s	0.39 s	0.38 s
cmssrv39_status	0.86 s	2.34 s	1.40 s	1.37 s
condor_pool_jobs	-	-	-	-
fifebatch-pp_status	1.18 s	11.11 s	1.71 s	1.26 s
fifebatch2_status	3.90 min	5.89 min	4.77 min	3.93 min
fifebatch_status	4.07 min	5.72 min	4.73 min	4.28 min
fnpccm1_status	-	-	-	-
gpce01_status	2.38 s	11.15 s	3.01 s	2.57 s
gpce02_status	3.24 s	9.05 s	3.79 s	3.34 s
gpcollector01_status	1.99 s	2.04 min	25.28 s	2.42 s
gpgrid	-	-	-	-



Hmm, we couldn't query a CE for a few minutes. I'll check the probe logs.