# PDSF Users Meeting

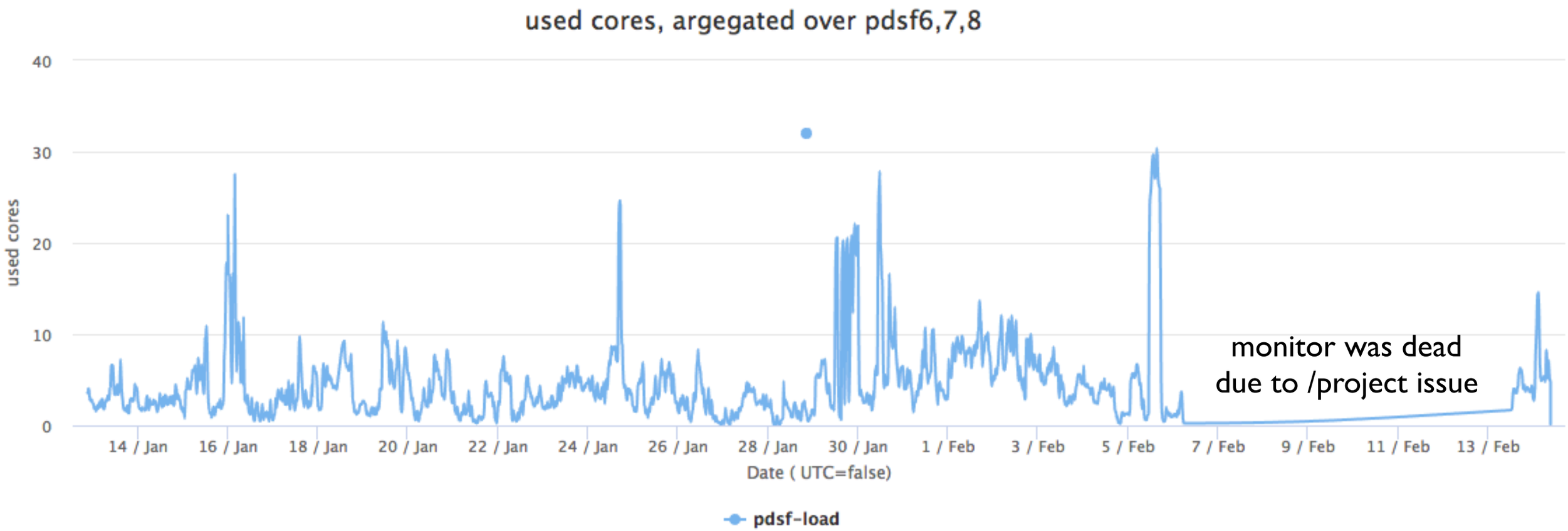
* PDSF performance
* announcements
* PDSF chos-equivalent Shifter images on Cori
* AOB

February 14, 2017

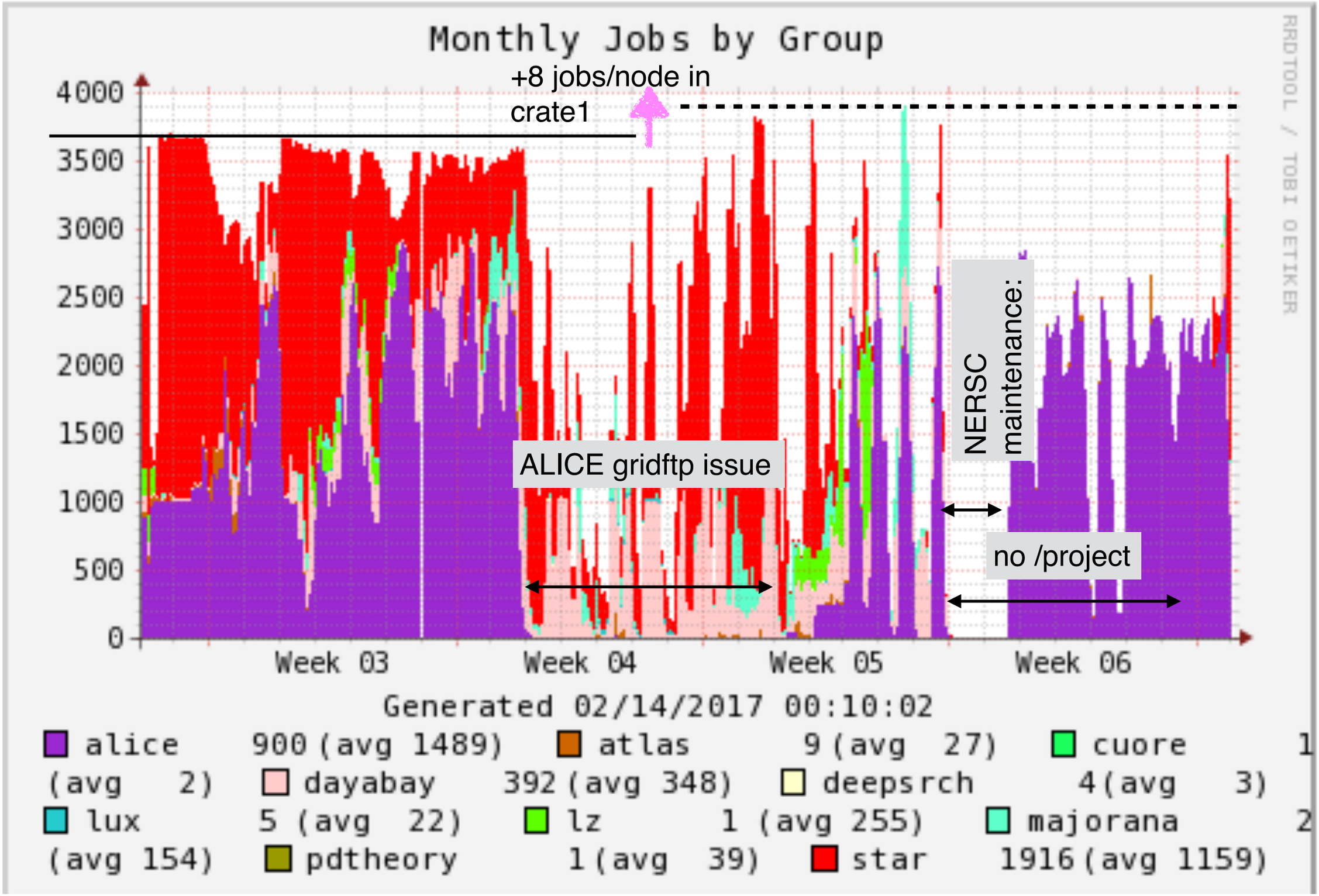
Jan Balewski

# aggregated load on PDSF interactive nodes

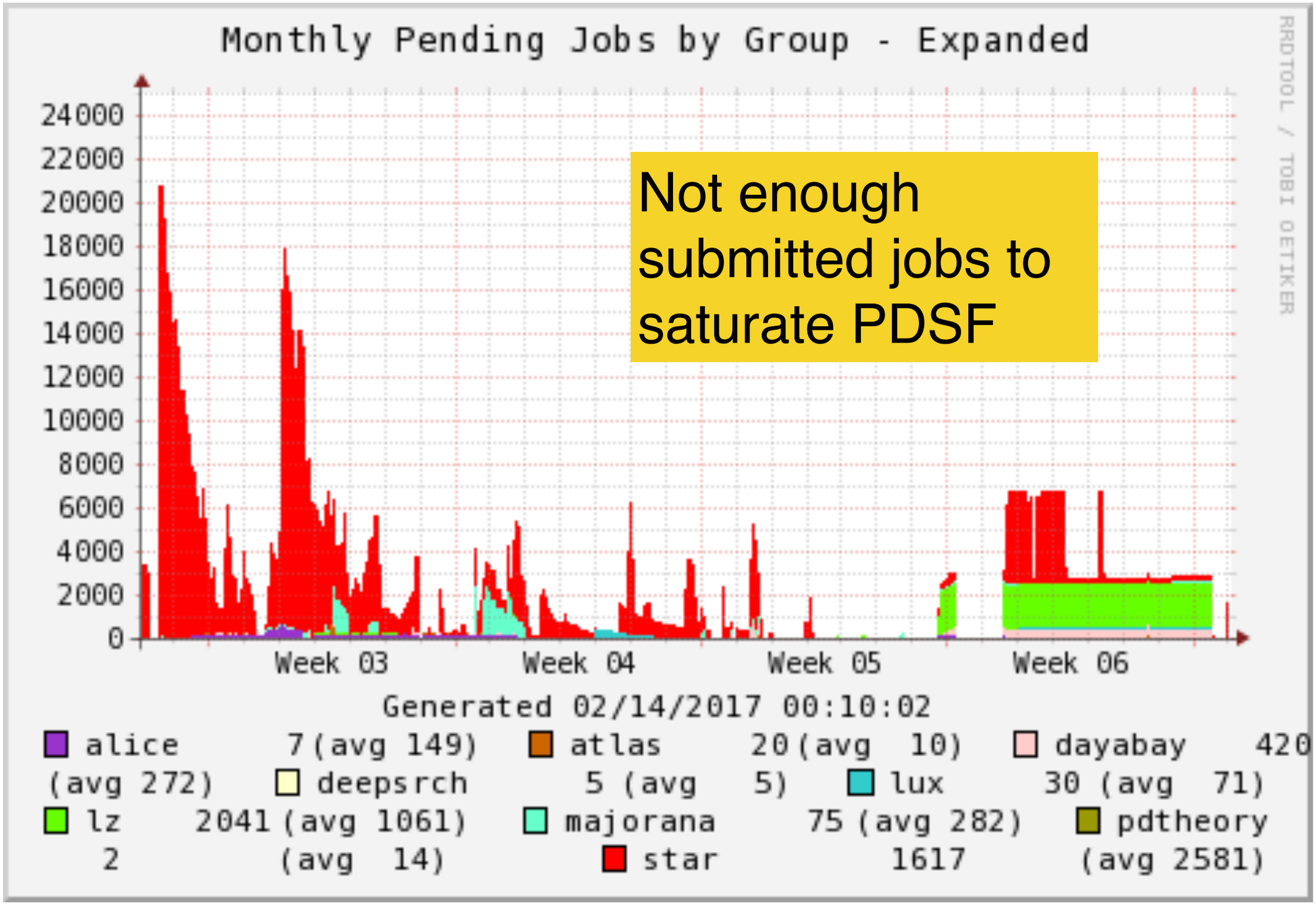
https://portal-auth.nersc.gov/pdsf-mon/



# CPU Utilization is not great



# UGE queue load




Not enough submitted jobs to saturate PDSF

# Utilization of PDSF compute nodes

Achieved month-average of 2200 concurrent jobs
(PDSF capacity was 3600)

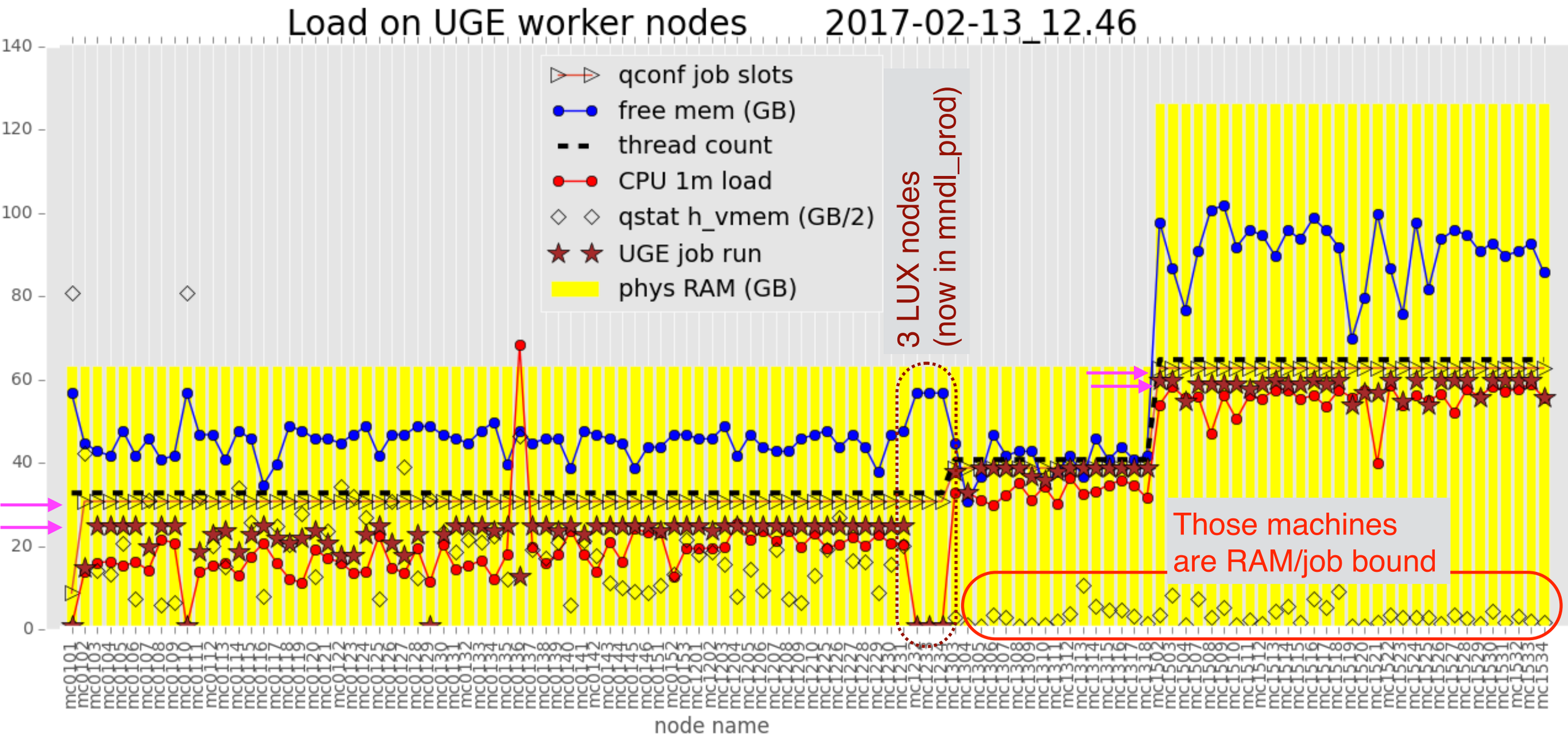
end-time was set to 2017-02-14 06:01, DB collName=ugeJobs2017

| user \ timeRange | sum last 7_days | sum last 3_days | sum last 30_days |
|---|---|---|---|
| **0-all-users : owner** | 36.5 (cpu*year) , 104029 jobs<br>wallT fract=1.000, CPU eff=0.85 | 16.6 (cpu*year) , 64121 jobs<br>wallT fract=1.000, CPU eff=0.81 | 184.0 (cpu*year) , 1028646 jobs<br>wallT fract=1.000, CPU eff=0.85 |
| **alice : project** | 34.7 (cpu*year) , 65197 jobs<br>wallT fract=0.950, CPU eff=0.86 | 14.9 (cpu*year) , 33124 jobs<br>wallT fract=0.893, CPU eff=0.83 | 88.3 (cpu*year) , 158314 jobs<br>wallT fract=0.480, CPU eff=0.88 |
| **atlas : project** | 0.1 (cpu*year) , 11191 jobs<br>wallT fract=0.003, CPU eff=0.54 | 0.1 (cpu*year) , 7422 jobs<br>wallT fract=0.004, CPU eff=0.60 | 0.9 (cpu*year) , 40915 jobs<br>wallT fract=0.005, CPU eff=0.74 |
| **dayabay : project** | 0.5 (cpu*year) , 1341 jobs<br>wallT fract=0.015, CPU eff=0.19 | 0.5 (cpu*year) , 1339 jobs<br>wallT fract=0.033, CPU eff=0.18 | 22.2 (cpu*year) , 129890 jobs<br>wallT fract=0.121, CPU eff=0.76 |
| **dybspade : owner** | 0.0 (cpu*year) , 387 jobs<br>wallT fract=0.000, CPU eff=0.12 | 0.0 (cpu*year) , 387 jobs<br>wallT fract=0.000, CPU eff=0.12 | 1.9 (cpu*year) , 18083 jobs<br>wallT fract=0.010, CPU eff=0.57 |
| **lux : project** | 0.0 (cpu*year) , 147 jobs<br>wallT fract=0.000, CPU eff=0.94 | 0.0 (cpu*year) , 147 jobs<br>wallT fract=0.000, CPU eff=0.94 | 0.2 (cpu*year) , 956 jobs<br>wallT fract=0.001, CPU eff=1.00 |
| **lz : project** | 0.0 (cpu*year) , 2086 jobs<br>wallT fract=0.001, CPU eff=0.89 | 0.0 (cpu*year) , 2086 jobs<br>wallT fract=0.002, CPU eff=0.89 | 3.4 (cpu*year) , 234461 jobs<br>wallT fract=0.018, CPU eff=0.92 |
| **majorana : project** | 0.1 (cpu*year) , 2681 jobs<br>wallT fract=0.002, CPU eff=0.96 | 0.1 (cpu*year) , 2681 jobs<br>wallT fract=0.003, CPU eff=0.96 | 6.2 (cpu*year) , 99870 jobs<br>wallT fract=0.034, CPU eff=0.91 |
| **star : project** | 1.1 (cpu*year) , 21372 jobs<br>wallT fract=0.030, CPU eff=0.82 | 1.1 (cpu*year) , 17311 jobs<br>wallT fract=0.064, CPU eff=0.82 | 62.6 (cpu*year) , 362855 jobs<br>wallT fract=0.340, CPU eff=0.83 |
| **staremb : owner** | 62.6 (cpu*year) , 0 jobs<br>wallT fract=0.000, CPU eff=0.00 | 62.6 (cpu*year) , 0 jobs<br>wallT fract=0.000, CPU eff=0.00 | 6.5 (cpu*year) , 15658 jobs<br>wallT fract=0.035, CPU eff=0.66 |

More details: http://portal.nersc.gov/project/mpccc/balewski/pdsfJobHistory/latest/

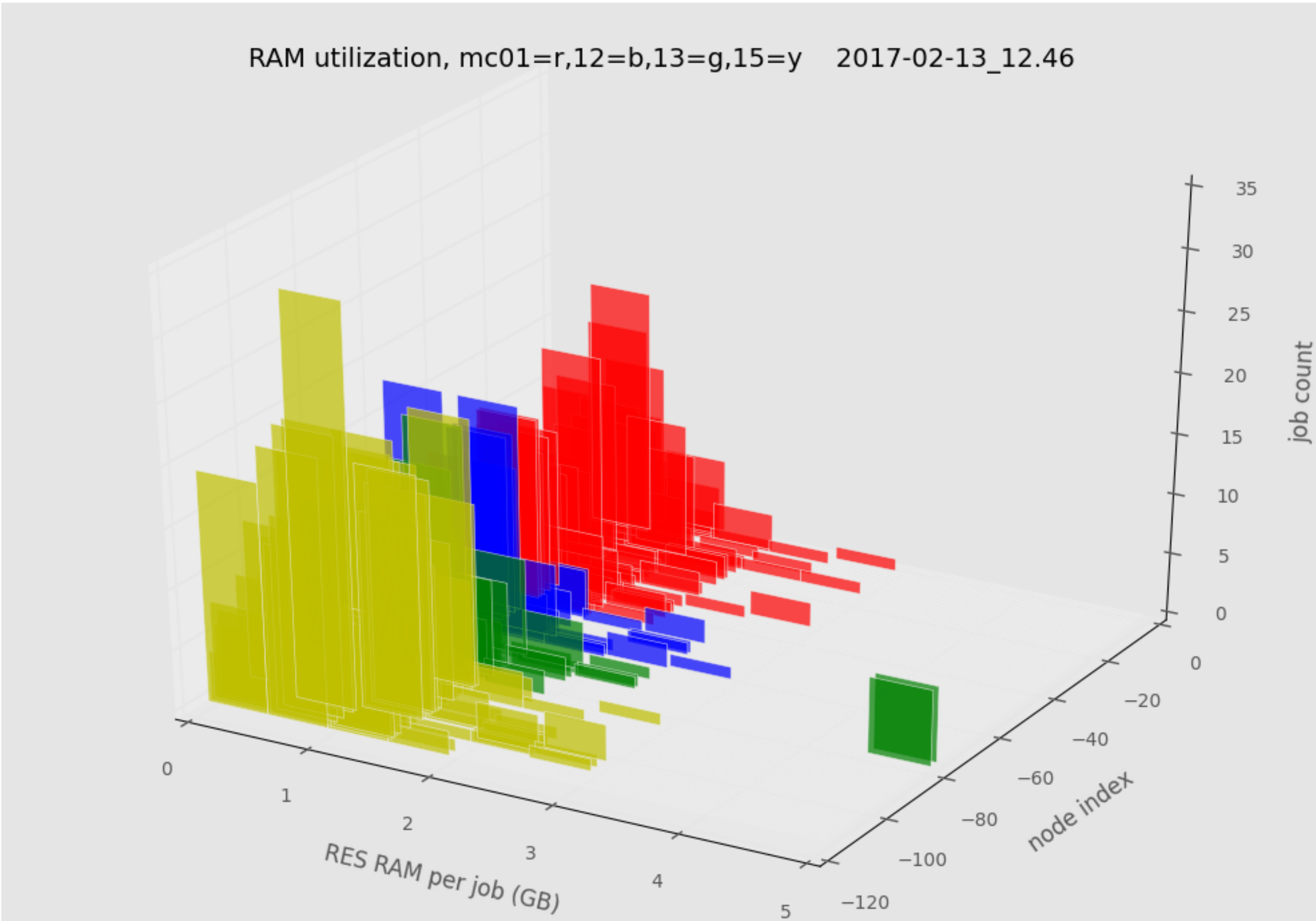
# UGE CPU utilization

116 UGE nodes, 4578 job slots (potentially),
3794 jobs run, cluster is fully loaded (last Monday)

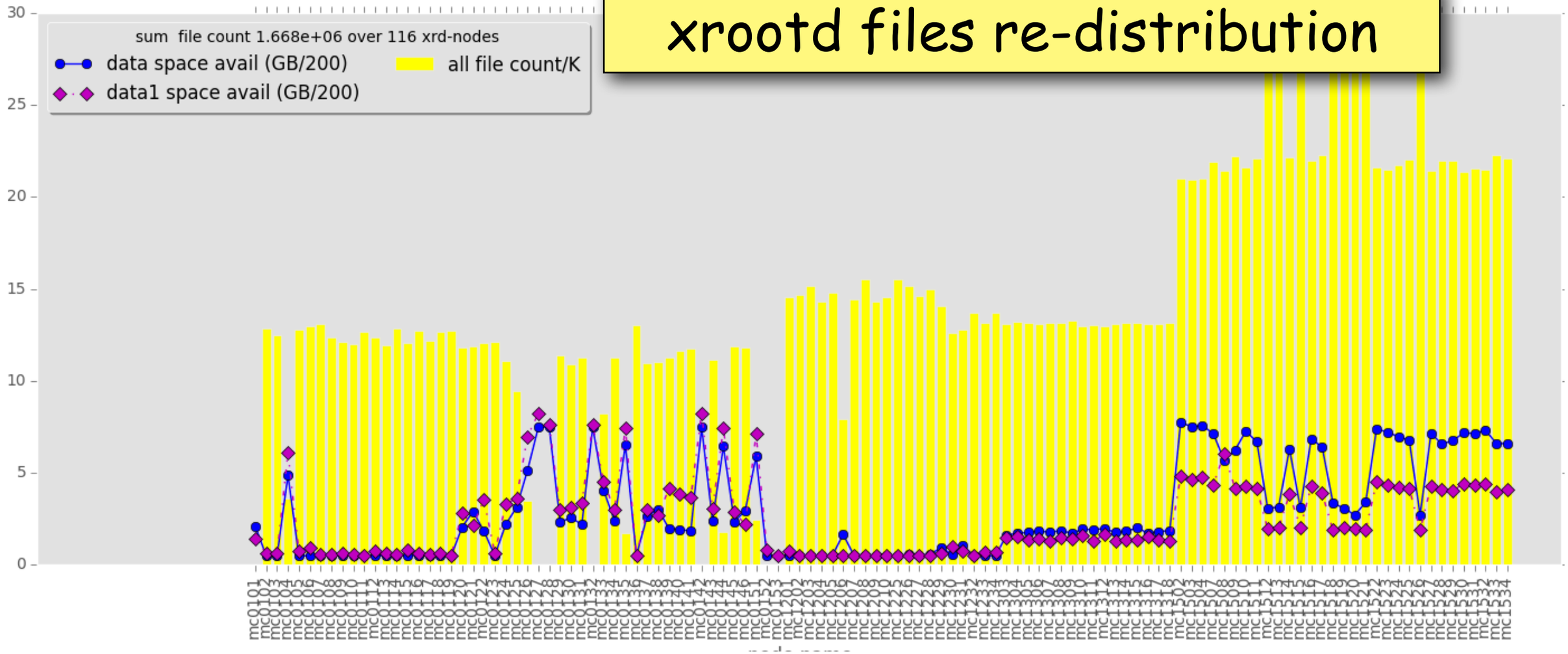



More details: http://portal.nersc.gov/project/mpccc/balewski/ugeLoad/latest/

# RAM/job distribution



# xrootd files re-distribution



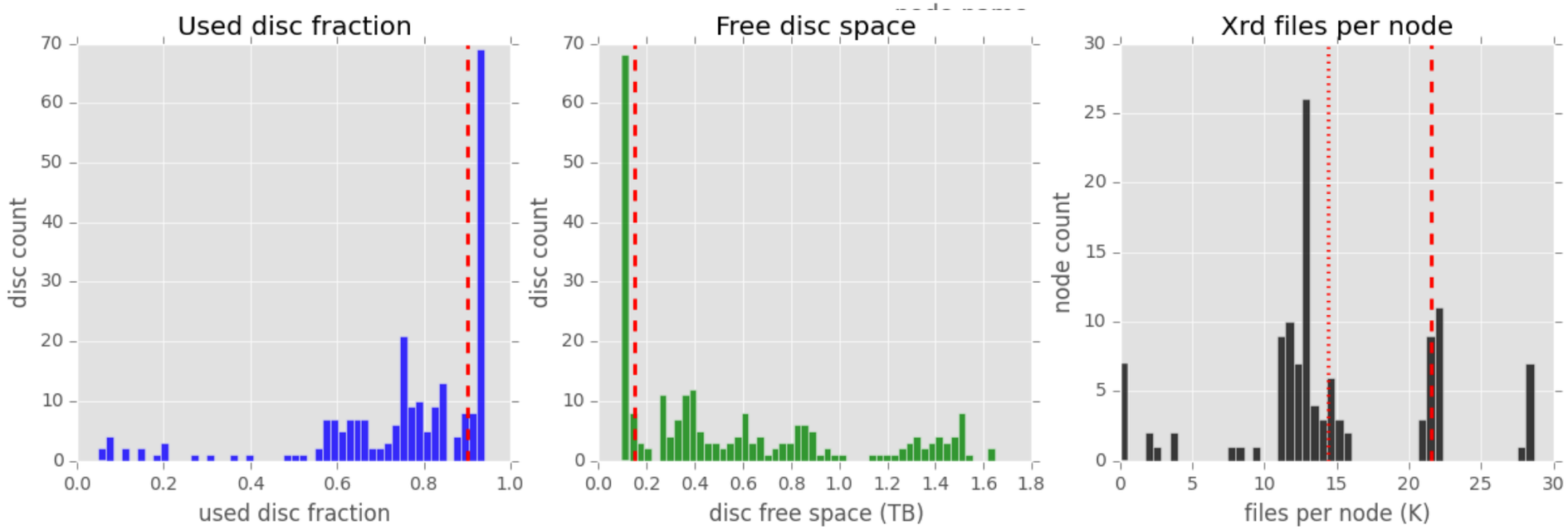
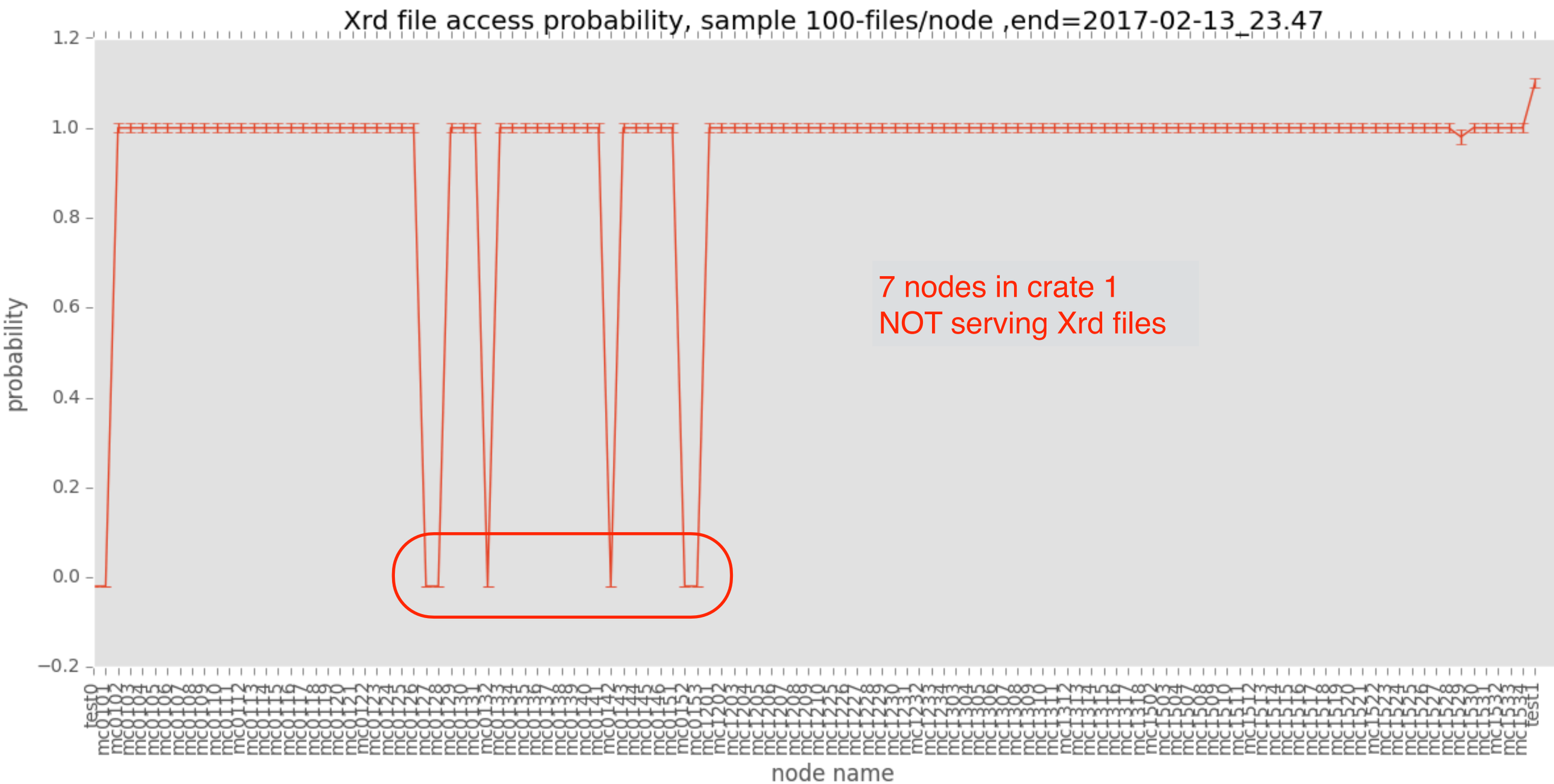




Table produced on 2017-02-13_23.47

| highDiscFract | lowFreeDisk | highFileCount |
|---|---|---|
| 41 nodes | 40 nodes | 21 nodes |

# xrootd file availability




http://portal.nersc.gov/project/mpccc/balewski/xrdLoad2/latest/

# 2017 Share Calculation

## (To be installed as soon as approved)

| Group | 2016 ($) | 2015 ($) | 2014 ($) | Raw Share | Norm share | After FTE split | Based On 4000 | % share |
|---|---|---|---|---|---|---|---|---|
| ALICE | 7,082 | 6,199 | 5000 | 25,762 | 49 | 495 | 825 | 21 |
| ATLAS | 7,082 | 48,604 | 39,023 | 104,984 | 202 | 427 | 712 | 18 |
| DAYABAY (+ Lz) | 7,082 | 141,621 | 39,023 | 229,007 | 440 | 665 | 1108 | 28 |
| STAR | 7,082 | 99,392 | 4375 | 149,606 | 287 | 736 | 1227 | 31 |
| MAJORANA | 13,328 | 0 | 0 | 26,656 | 51 | 51 | 85 | 2 |
| LUX | 0 | 0 | 20,236 | 13,490 | 26 | 26 | 43 | 1 |
| NSD | 233,000 | | | 466000 | 895 | 0 | 0 | |
| PD | 117,000 | | | 234000 | 449 | | | |
| Total | | | | 1249505 | 2400 | 2400 | 4000 | |

Steering Committee Chair Report
Jeff Porter, January 20, 2017

Raw share = 2*{$2016+(2/3)*$2015+(1/3)*$2014}

# Announcements

Bi-weekly office hours 12:30 -2:30pm
Thursday, March 2,16, 59-4016-CR

PDSF user meeting

- Tuesday, March 14, 11am - 12pm, 59-3034-CR

## Outages

Cori: Maintenance: Next Tuesday, February 21,
Cori Extended Maintenance: Early March

# PDSF CHOS Shifter images: SL5.3

users can compile inside them any code they want - as if they were still on PDSF interactive nodes.

1) ——— DayaBay code runs in this sl5.3 image:
**salloc -p debug -Chaswell -t 20 --image=custom:pdsf-chos-sl53:v1**

their environment is loaded with:

shifter /bin/bash
**cd /global/homes/b/balewski/nuwa/NuWa-trunk**
source setup.sh
cd dybgaudi/DybRelease/cmt
source setup.sh
/global/homes/b/balewski/test_cjslin/takeX
**nuwa.py** --random=off --repack-rpc=on -n 1000 --dbirollback="* = 2015-08-31 00:00:00
@$P14BROOT/share/runReco @$P14BROOT/share/runTags @$P14BROOT/share/
runODM @$P14BROOT/share/runFilters -o recon.Neutrino.0057046.Physics.EH3-
Merged.P15A-E._0144.root ../daq.Neutrino.0057046.Physics.EH3-
Merged.SFO-3._0144.data
.1$ module load Geant4
bash-4.1$ time  ./LUXSimExe LUXSimMacros/LZQuickCheckNoVis.mac

# PDSF CHOS Shifter images: SL6.4

2) — — LZ code runs in this sl6.4 image:
**salloc -p shared -n1 -Chaswell -t 20 --image=custom:pdsf-chos-sl64:v1**

their environment is loaded with:

shifter /bin/bash
source /usr/share/Modules/init/bash
module use /usr/common/usg/Modules/modulefiles
module load SGE
RUN LZ-code in Shifter
— load LZ-specific modules and run simulation:
bash-4.1$ **cd /global/homes/b/balewski/LUXSim-pdsf**
bash-4.1$ module load ROOT
bash-4.1$ module load CLHEP
bash-4.1$ module load Geant4
bash-4.1$ time **./LUXSimExe** LUXSimMacros/LZQuickCheckNoVis.mac

# PDSF CHOS Shifter images: SL6.4 w/ STAR binaries

STAR code runs in this sl6.4 image containing all existing STAR code compiled at PDSF at /common/os/sl64/

**salloc -p shared -n1 -Chaswell -t 30 --image=custom:pdsf-sl64-star:v3**
their environment is loaded with:

unset MODULE_VERSION_STACK
unset MODULE_VERSION
unset MODULEPATH MODULESHOME
unset LOADEDMODULES PRGENVMODULES

shifter **/bin/tcsh**
set NCHOS = sl64
set SCHOS = 64
set SCRATCH = $CSCRATCH
setenv GROUP_DIR /common/star/star${SCHOS}/group/
source $GROUP_DIR/star_cshrc.csh

```
$ pwd
/common/star/star64/packages
$ ls -d SL1[567]*
SL15a/   SL15c/   SL15d/   SL15e/   SL15e_embed@  SL15e_embed_v1/  SL15e_embed_v1_old/  SL15f/  SL15i/
SL15k@  SL15k_1/  SL15k_old/  SL15l/  SL16a/  SL16b/  SL16c/  SL16d/  SL16e/  SL16f/  SL16g/  SL16h/
SL16i/  SL16j/  SL16k/  SL16l/  SL17a/
```

**starver SL17a**
**cd /global/homes/b/balewski/example_star_cons**
rm -rf .sl*
**cons**
**root4star -b -q rdTLA.C**
**starsim -b -q**