Batch Computing Best Practices

...And how to get help!

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DUNE Tutorials
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FABRIC FOR FRONTIER EXPERIMENTS

Outline

- Behind the scenes in your job: common problems
  - How to avoid said problems
- Best practices in data management
- Where to go for help

Girl Scout Law

I will do my best to

. . .

use resources wisely,

. . .

make the world a better place,

. . . .

When you submit a job

- You execute jobsub_submit ... <your_job_spec>
  - You get credentials on the jobsub server, executables and input files get copied around, and the job is submitted for you behind the scenes
  - You wait in the queue for a while and you start running on a worker node
- Your job doesn't just run via HTCondor on the worker node. It actually runs as part of a ***glidein*** (part of the glideinWMS system) on the worker node
- The glideins are ***partitionable***: they start out with access to a number of cores with some memory (8 CPUs and 16384MB memory on GPGrid; other sites differ) and they're then carved up into sandboxes for individual jobs like yours. Could have a 4-CPU, 8000MB job and four 1-CPU, 2000MB jobs running in the same glidein on the worker node
- Glideins have a finite lifetime (few hours to several days depending on the site.) There is a cutoff time for accepting new jobs.

Common user complaints and problems

1) Jobs are taking too long to start
2) Fewer jobs run simultaneously than expected
3) Jobs fail due to missing mount points
4) Jobs run much longer than expected or get held after exceeding resource requests (memory, local disk, run time)

Complaints 1 and 2

Your jobs start slowly or you don't get many running at once.

(By far) Most likely cause: there are no available slots that match your request

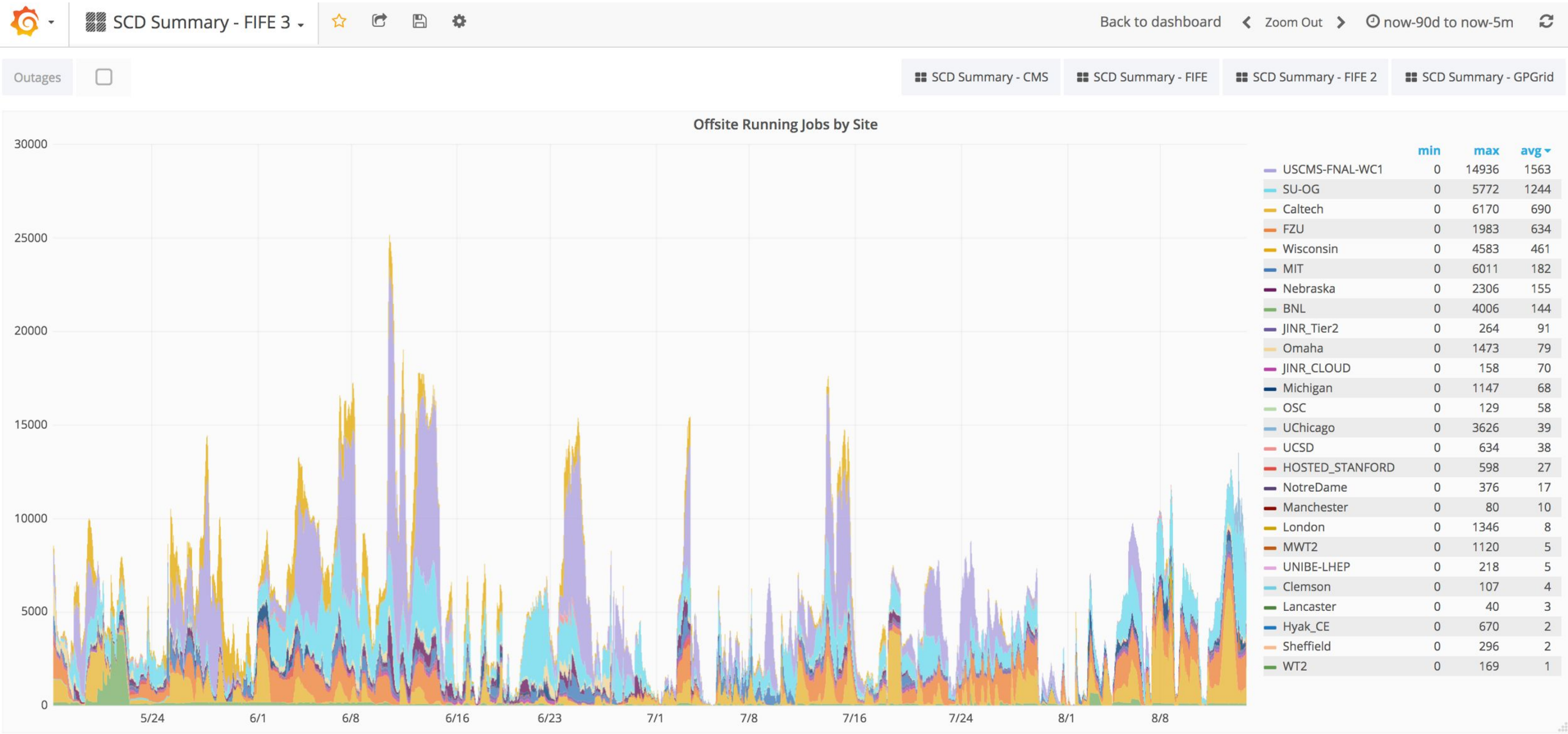
Some things to consider:

Have you submitted to all available resources, especially offsite resources?

Have you accurately specified your resource request? The more you request, the harder it is to match

Getting more resources offsite

There are potentially thousands of cores available beyond GPGrid. **Make your scripts OSG-ready from the beginning.**



	min	max	avg
USCMS-FNAL-WC1	0	14936	1563
SU-OG	0	5772	1244
Caltech	0	6170	690
FZU	0	1983	634
Wisconsin	0	4583	461
MIT	0	6011	182
Nebraska	0	2306	155
BNL	0	4006	144
JINR_Tier2	0	264	91
Omaha	0	1473	79
JINR_CLOUD	0	158	70
Michigan	0	1147	68
OSC	0	129	58
UChicago	0	3626	39
UCSD	0	634	38
HOSTED_STANFORD	0	598	27
NotreDame	0	376	17
Manchester	0	80	10
London	0	1346	8
MWT2	0	1120	5
UNIBE-LHEP	0	218	5
Clemson	0	107	4
Lancaster	0	40	3
Hyak_CE	0	670	2
Sheffield	0	296	2
WT2	0	169	1

Getting more resources offsite

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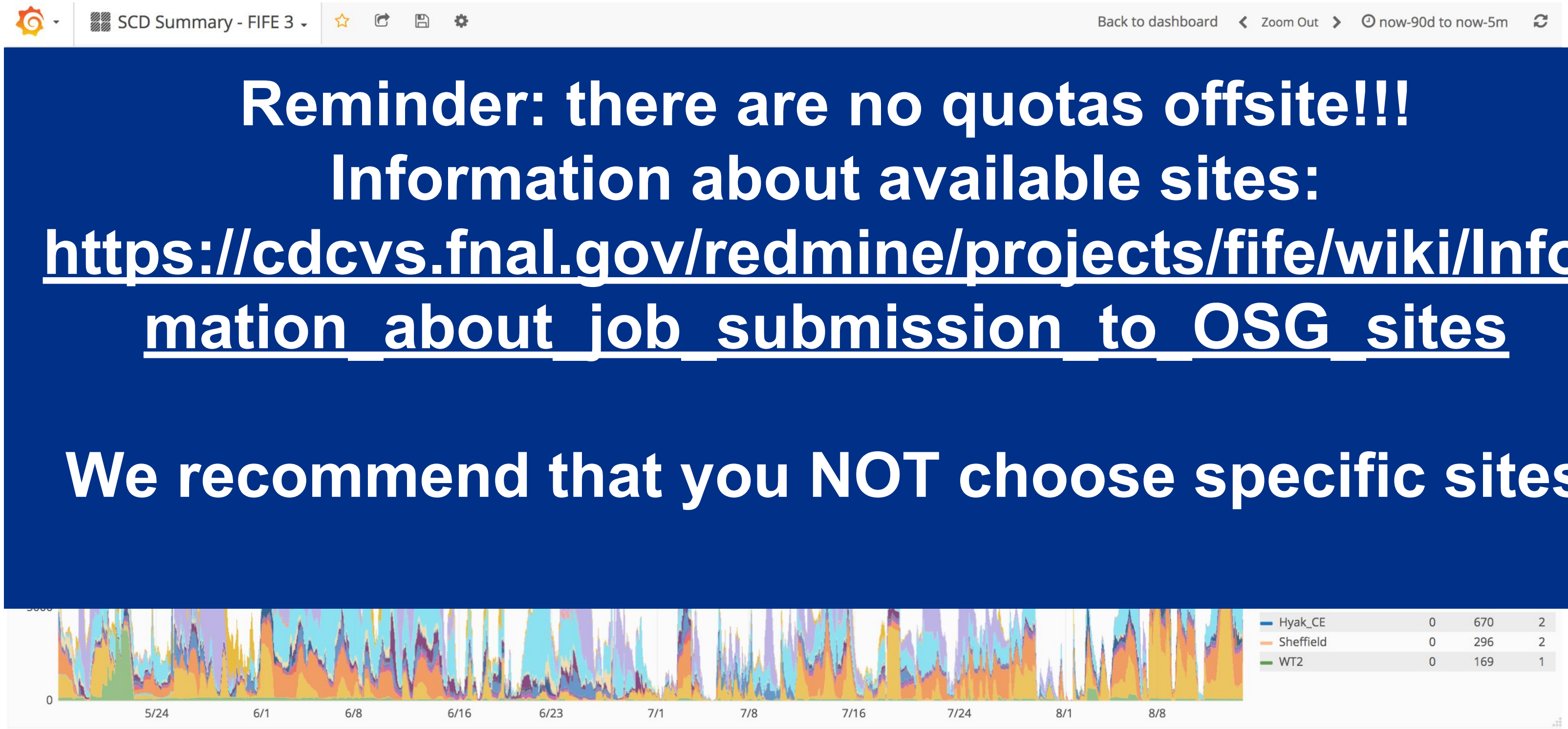


Hyak_CE	0	670	2
Sheffield	0	296	2
WT2	0	169	1

Reminder: there are no quotas offsite!!!
Information about available sites:
https://cdcvs.fnal.gov/redmine/projects/fife/wiki/Information_about_job_submission_to_OSG_sites

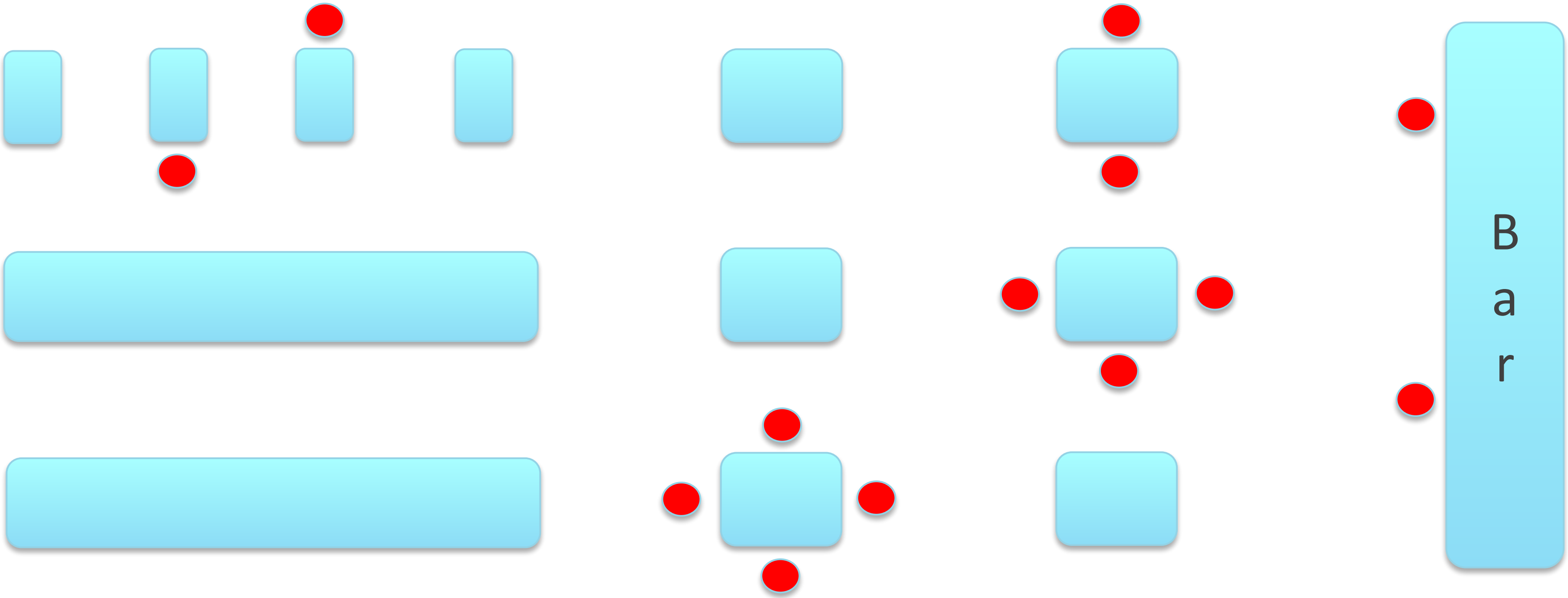
We recommend that you NOT choose specific sites

Best Practice: Accurate resource requests

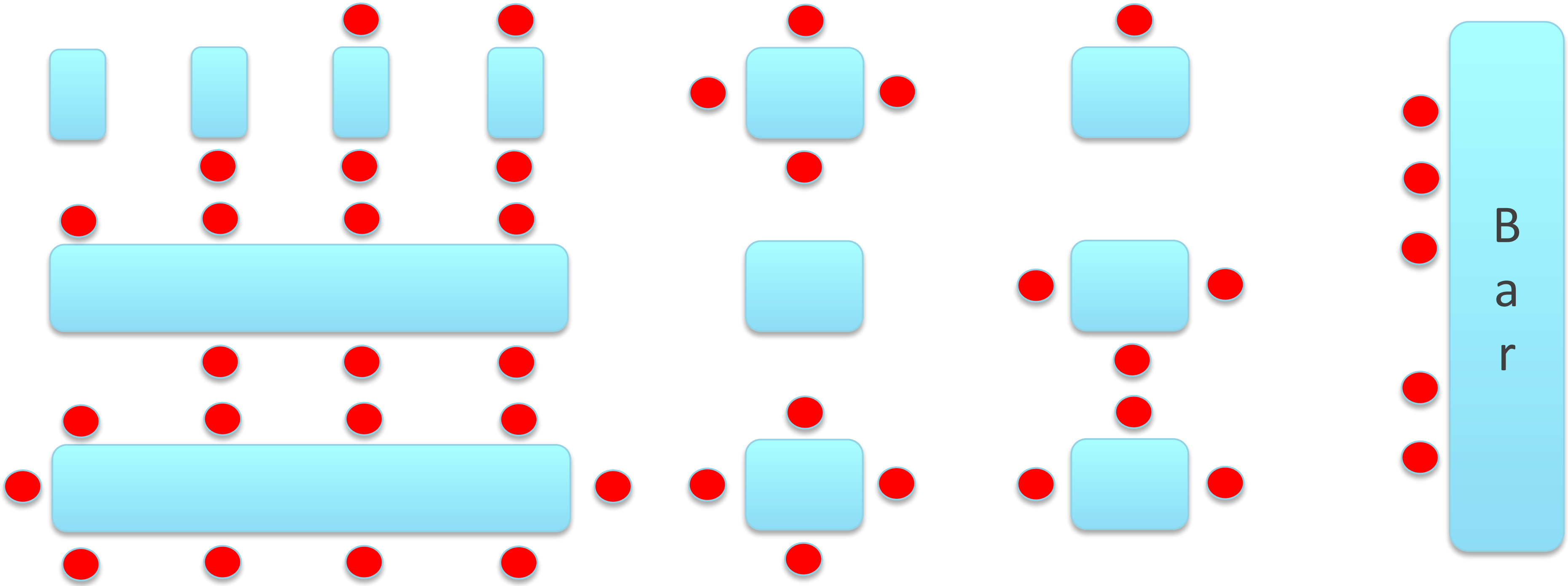
- Especially check **memory, disk**, and **run time**
- If you use Art/LArSoft, use the profiling tools to determine your resource needs
- Request only what you need. The default might be more than you need. If it is, don't just stick with it. You can gain a lot by requesting *less* than the default.
- Jobs are matched to slots based on resource **requests**.
- Consider the problem of getting a table in a restaurant:

Lunchtime

- A table seating more than one is no problem right now...

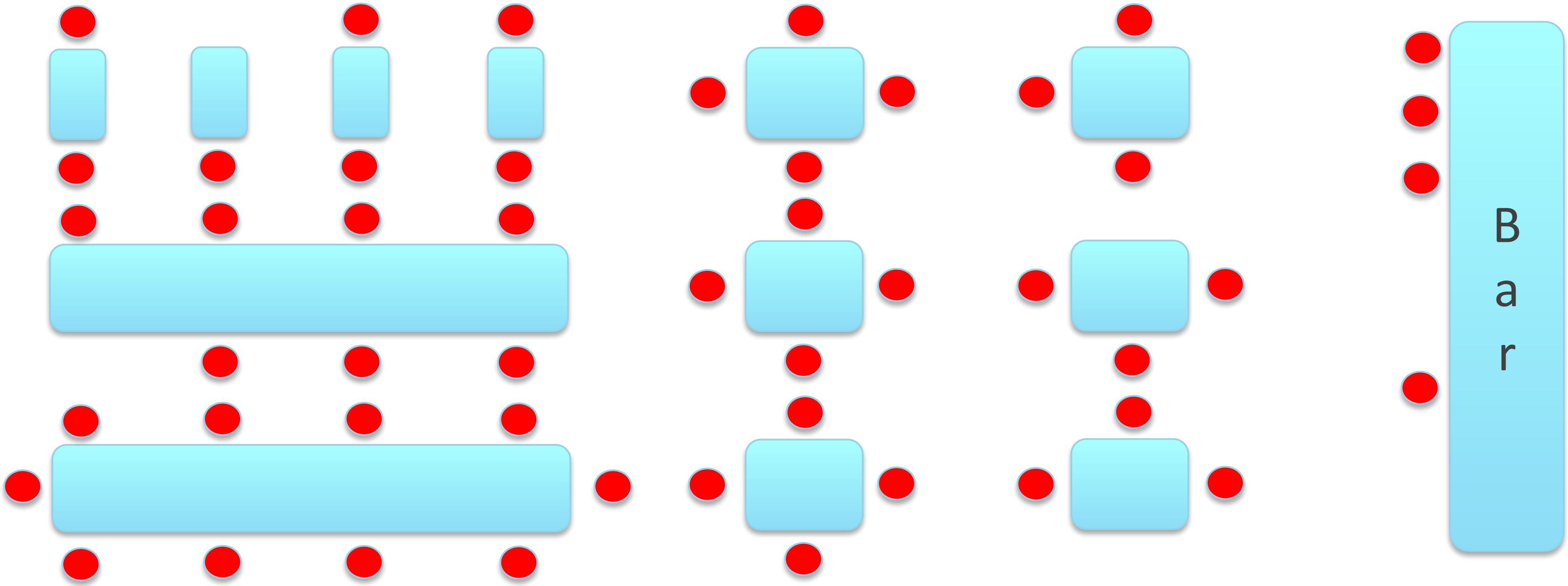


Lunchtime

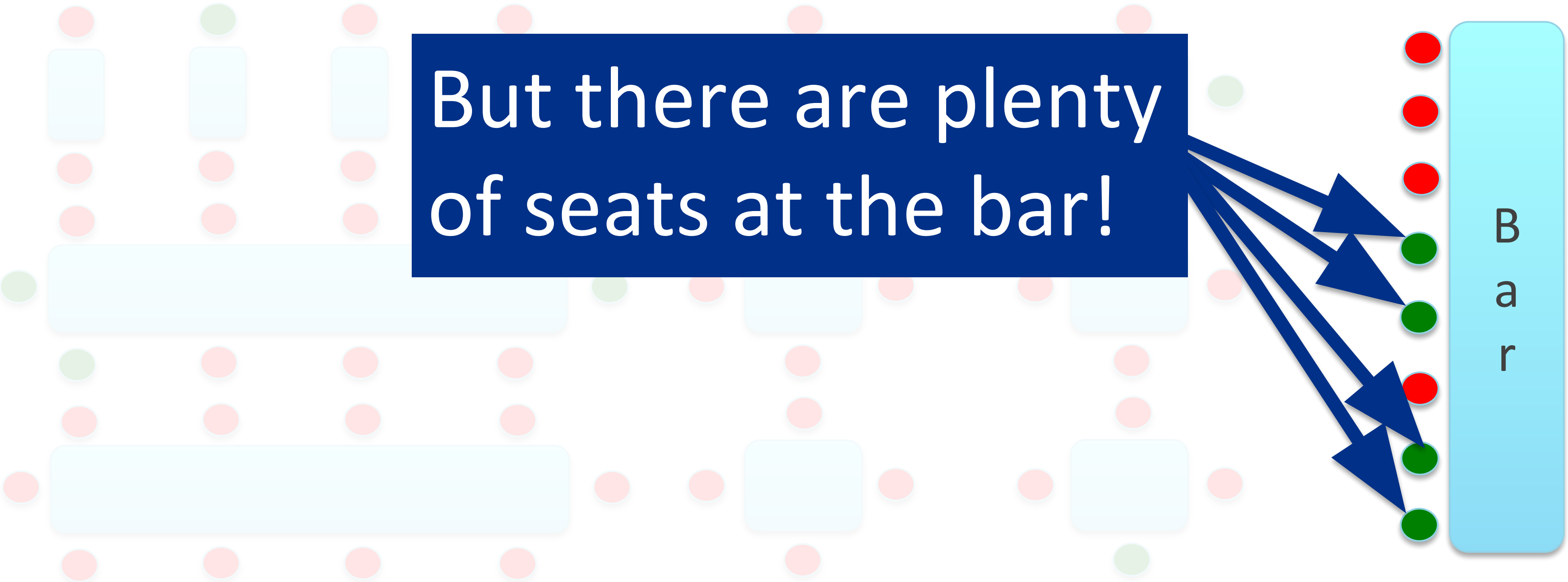


Lunchtime

- But if you want a table now, you are going to wait



Lunchtime



But there are plenty of seats at the bar!

When you ask for more than you need

- Suppose the grid is very busy and for a moment there is only one 8-core 16 GB glidein with some free space. Currently it's running jobs with the following requests:

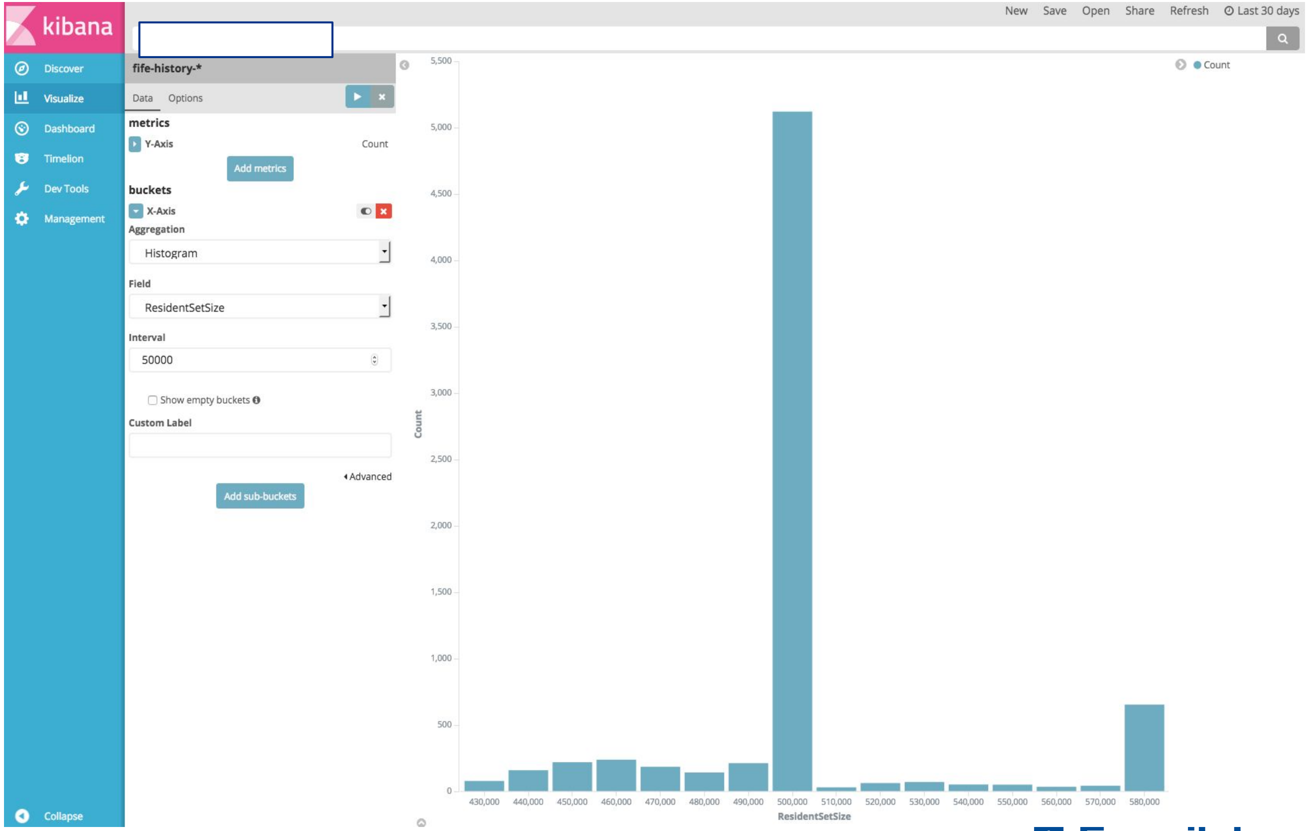
Slots	CPUs	Memory (MB)
Job 1	1	2000
Job 2	1	2000
Job 3	1	1900
Job 4	1	1900
Job 5	1	2500
Job 6	2	4000
Tot	7	14300
Free	1	1700

A job requesting 1 CPU and <= 1700 MB memory can run here; all others have to wait... We see glideins looking like this *all the time.* Don't just stick to the default requests...

A missed opportunity

These jobs never used more than **600MB** of memory, but were requesting **2000MB**.

At the time there were **220** free slots with memory between 600 MB and 2000 MB that could have been used



fife-history-*

metrics

Y-Axis Count

buckets

X-Axis

Aggregation
Histogram

Field
ResidentSetSize

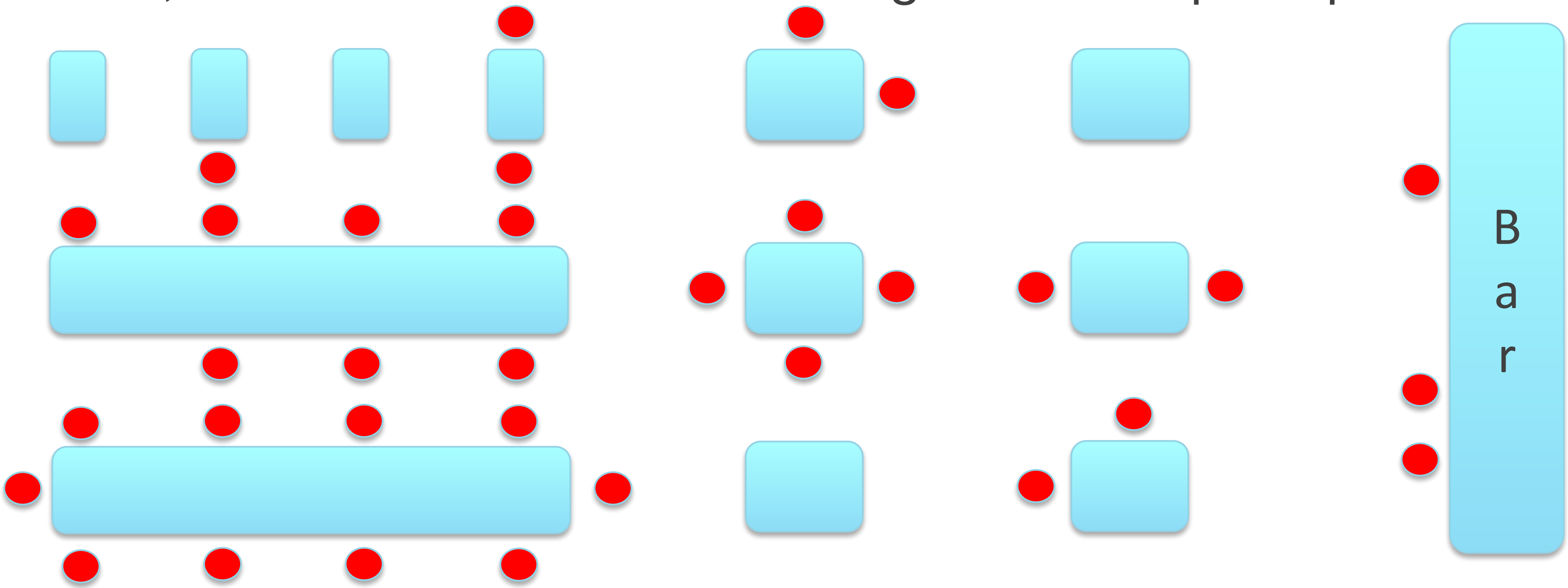
Interval
50000

□ Show empty buckets

Custom Label

Another scenario

- Let’s say we go as a party of 8 (they don’t take reservations)
- Here, we will have to wait for the big tables to open up



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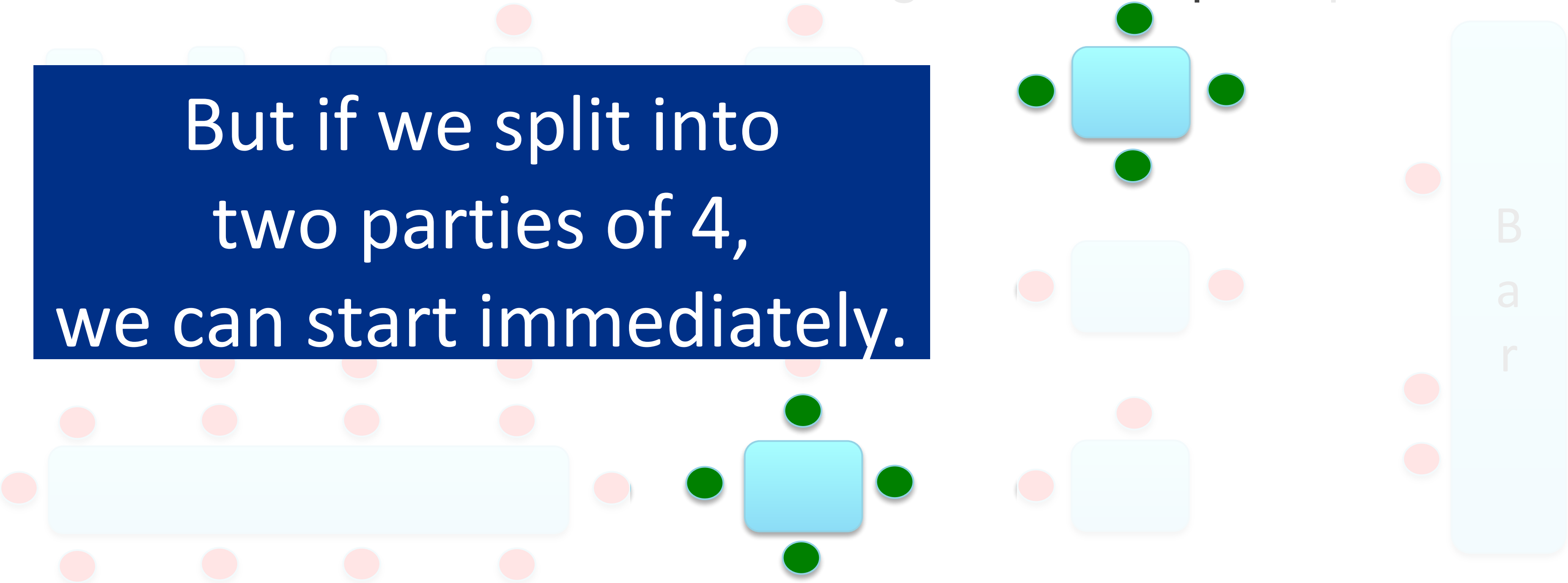


But if we split into
two parties of 4,
we can start immediately.

But requesting too little isn’t good either

- As you may know, your job will be automatically **held** if it goes above its memory, local disk, or run time request. Held = job stopped and will restart from the beginning when manually released
- With partitionable slots this is very important
- At some sites if the overall glidein memory usage goes over the max (could be caused by only one job), the *entire* glidein is killed immediately (all jobs within it are lost.) **This can affect other users.**
- Memory/disk usage checks runs every 2 minutes

Setting up your resource request

- Jobsub has --memory, --disk, --cpu, --expected-lifetime opts
- --memory and disk will take units of KB, MB, GB, TB (default MB for memory and KB for disk)
  - Important note: **Right now 1 GB = 1024 MB, not 1000 MB**
- --cpu takes an integer
- --expected-lifetime can take a number with units of h,m, or s (default s) or a “short”, “medium”, or “long” preset (currently 3, 8, 24 hours)
- A well-formed request might look like:
- --cpu=1 --memory=1800MB --disk=15GB --expected-lifetime=6h
- You might not be using jobsub directly, so consult the documentation of whatever you’re using for how to pass resource requests to jobusb_submit
- **Default resource requests** (you get these when you don’t specify the corresponding option):
  - **2,000 MB memory; 1 cpu; 35,000,000KB disk; 8 hours max run time**

Complaint 3: missing mount points

A script might work on dunegpvmXX and fail on a grid node

GPGrid nodes don't have /pnfs directly mounted.

non-GPGrid nodes do not have /grid/fermiapp/anything, /experiment/anything, or /pnfs/anything mounted. You must copy in all files that you need with ifdh, and/or get software from /cvmfs

Later this year, that will also be the case on GPGrid

Once in a while a worker will have a problem with a mount point (e.g. /cvmfs is not up to date), but this is quite rare.

Solution: Write your scripts without those mounts

- The best thing to do is to make sure that you don’t need any of those mount points:
  - Get your experiment software from CVMFS and/or tarballs copied in from dCache areas, not from places like /grid/fermiapp or /dune/app, etc..
  - Avoid hard-coding file paths, especially home areas (CVMFS is OK to hard-code)
- You can test to make sure you don’t need them by running your job script on fermicloud168.fnal.gov. Follow these instructions: https://cdcvs.fnal.gov/redmine/projects/fife/wiki/Using_'grid-like'_nodes

Complaint 4: Jobs taking too long

- Your job could be stuck copying inputs or copying back outputs
  - Did you use a BlueArc disk (more later)?
  - Did you allow enough time for file transfer from remote sites?
  - Are you running a SAM dataset? If so did you pre-stage it?
- You’re competing with others for a resource (a DB access or SAM queries, for example)
  - It’s important to **prestage** your SAM datasets. Otherwise files have to be fetched from tape (can take a while) and only then copied to your job. See SAM documentation for how to it.
- Was your job held for some reason? Check here: https://fifemon.fnal.gov/monitor/dashboard/db/why-are-my-jobs-held (choose your username from the drop-down menu in the upper left corner)

A Common Denominator

What can bring about the following problems?

- Inability to use offsite resources
- Slow run times and slow file transfer rates
- Jobs failures due to missing mount points
- Stuck in idle waiting for jobs to copy

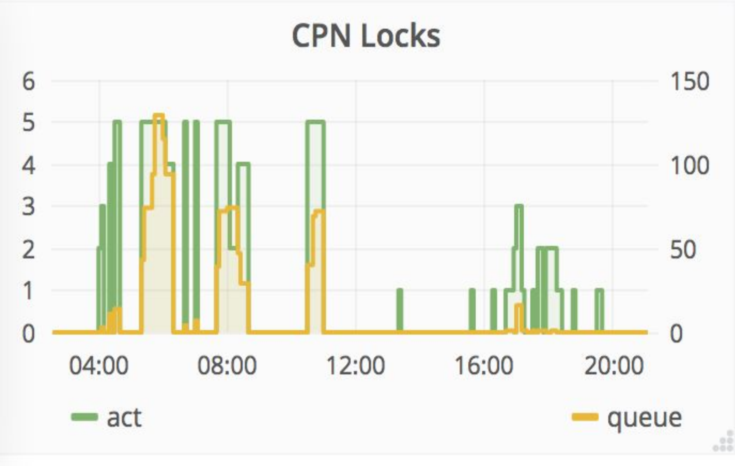
Using BlueArc areas in your job can do all of these things.

Why BlueArc in Grid jobs is Bad

1) Scripts that directly depend on BlueArc paths (/grid/fermiapp/foo, /experiment/app/foo, etc.) or home areas will not work offsite (and **soon not on GPGrid**). That alone deprives you of significant resources.
2) Scripts that copy things to/from BlueArc (e.g. ifdh cp /dune/app/users/me/myfiles …) must all go through the BestMan gridftp server...

The BestMan server and CPN locks

- This server is the way you get to/from BlueArc in Grid jobs
- It is a single machine with a **1 Gb/s** (gigabit, not gigabyte) network connection. Shared by **ALL** experiments in ALL grid jobs.
- Only 5 simultaneous transfers are allowed per EXPERIMENT. Anything over that goes into the CPN lock queue
- Off-hours support not guaranteed



When there's a lock queue...

Your ifdh cp command will sleep and try again later. This can take a long time if the queue is large. Meanwhile your job is running at 0% efficiency, effectively blocking a slot.

```
LOCK - Wed Apr 26 21:08:06 UTC 2017 LOCKS/LIMIT/QUEUE 5/5/581 sleeping 581
LOCK - Wed Apr 26 21:08:06 UTC 2017 queue
20170426.21:08:06.fnpc7025.3155713.REDACTED.REDACTED
LOCK - Wed Apr 26 21:17:47 UTC 2017 LOCKS/LIMIT/QUEUE 5/5/1461 sleeping
1461
LOCK - Wed Apr 26 21:17:47 UTC 2017 queue
20170426.21:08:06.fnpc7025.3155713.REDACTED.REDACTED
LOCK - Wed Apr 26 21:42:08 UTC 2017 LOCKS/LIMIT/QUEUE 5/5/1434 sleeping
1434
LOCK - Wed Apr 26 21:42:08 UTC 2017 queue
20170426.21:08:06.fnpc7025.3155713.REDACTED.REDACTED
LOCK - Wed Apr 26 22:06:02 UTC 2017 LOCKS/LIMIT/QUEUE 5/5/1434 sleeping
1434
…
LOCK - Thu Apr 27 01:52:45 UTC 2017 freed
/grid/data/lariat/LOCK/LOCKS/20170427.01:52:44.17078.fnpc7025.3155713.REDACT
ED.REDACTED
```

This job took almost **four hours** just to copy some initial input files!

The BestMan server and CPN locks

This server is the way you get to/from

Bl

It is

(g

co

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Any

lock queue

Q: Is the server going to be upgraded?

Q: Is the transfer limit going to be raised?

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Q: Is the server going to be upgraded?

NO

Q: Is the transfer limit going to be raised?

NO

Let me sum up...

Consider **BlueArc use in grid jobs** (even an ifdh cp to bring files in) **deprecated.**

If you don't use it now, **DON'T START**.

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If you don't use it now, **DON'T START**.

If you do use it now, **STOP. STOP NOW.**

IT IS GOING AWAY ANYWAY LATER THIS YEAR.

Let me sum up…

Consider **BlueArc use in grid jobs** (even an ifdh cp to bring files in) **deprecated.**

If you don't use it now, **DON'T START**.

If you do use it now, **STOP. STOP NOW.**

IT IS GOING AWAY ANYWAY LATER THIS YEAR.

Seriously, **STOP DOING IT.** It is the **biggest single obstacle** to improving your grid jobs' throughput.

It is OK to do e.g. *jobsub_submit <options> file:///dune/app/foo*

But /dune/app/foo should not use BlueArc inside of it

Cutting the BlueArc cord

How do you get rid of BlueArc? Consider this simple job script on the worker node:

```
#!/bin/bash
# setup SW
. /grid/fermiapp/products/dune/setup_dune.sh
setup some_packages
Ifdh cp -D /pnfs/dune/scratch/users/${GRID_USER}/my_input_file ./
/dune/app/users/${GRID_USER}/my_custom_code/mycode -i my_input_file -o
    my_output_file
Ifdh cp -D my_output_file /pnfs/dune/scratch/users/${GRID_USER}/some_dir/
```

Bad News:

1) Dependence on /grid/fermiapp and /dune/app means no running outside of GPGrid

Cutting the BlueArc cord

How do you get rid of BlueArc? Consider this simple job script:

```
#!/bin/bash
# setup SW
. /cvmfs/dune.opensciencegrid.org/products/dune/setup_dune.sh
setup some_packages
Ifdh cp -D /pnfs/dune/scratch/users/${GRID_USER}/my_input_file ./
ifdh cp -D /dune/app/users/${GRID_USER}/my_custom_code.tar.gz ./
tar zmfx my_custom_code.tar.gz
./my_custom_code/mycode -i my_input_file -o my_output_file
Ifdh cp -D my_output_file /pnfs/dune/scratch/users/${GRID_USER}/some_dir/
```

Bad News:

2) ifdh cp from /dune/app requires a CPN lock and goes through the BestMan server.

Cutting the BlueArc cord

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setup some_packages
Ifdh cp -D /pnfs/dune/scratch/users/${GRID_USER}/my_input_file ./
ifdh cp -D /pnfs/dune/scratch/users/${GRID_USER}/my_custom_code.tar.gz ./
tar zmfx my_custom_code.tar.gz
./my_custom_code/mycode -i my_input_file -o my_output_file
Ifdh cp -D my_output_file /pnfs/dune/scratch/users/${GRID_USER}/some_dir/
```

Good News:

All file I/O is via dCache (no locks)
Main experiment software is from CVMFS; we can run anywhere!

BUT:

Still lots of bad behavior here (not checking exit codes, not checking dependencies are present, etc.)

Cutting the BlueArc cord

How do you get rid of BlueArc? Consider this simple job script:

These are just examples. Your scripts may be using BlueArc disks (/dune/data, /dune/app, /grid/fermiapp, etc.) in ways not shown here. CHECK EVERYTHING.

```
#!/bin/bash
# setup SW
. /cvmfs/dune
setup some_p
Ifdh cp -D /pn
ifdh cp -D /pnfs/dune/scratch/users/${GRID_USER}/my_custom_code.tar.gz ./
tar zmfx my_custom_code.tar.gz
./my_custom_code/mycode -i my_input_file -o my_output_file
Ifdh cp -D my_output_file /pnfs/dune/scratch/users/${GRID_USER}/some_dir/
```

s:

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n run anywhere!

Still lots of bad behavior here (not checking exit codes, not checking dependencies are present, etc.)

Options for custom code in jobs

If you have custom code/libraries/scripts you'll need to get that to the worker node (do NOT read it directly, except for CVMFS and StashCache paths)

Recommended practices (any combination of these is OK):

1) Within the job script use ifdh cp and tar as needed. **All files that will be copied to the worker node should be in dCache**; nothing should be on BlueArc (see previous example)
2) As part of your submission, use the -f option with jobsub_submit. Files will be in a directory stored in the CONDOR_DIR_INPUT environment variable. You can move it around locally, untar, etc as you like. **All files used with -f should be in dCache.** Example on the next slide.
3) If StashCache is an option for you, use that and then you can read the files directly (do not need to ifdh cp or -f them)

Bad practice:

There is a jobsub option called --tar_file_name. This will copy the tarball once at submission time, transfer and extract it for you within the job. *However everything goes through fifebatch server and can grind everything (including other users!) to a halt if the file is too big.* This has happened!!!

Consider this option deprecated and **do not use it.** Will be removed from future releases.

Other Best Practices

- **No BlueArc dependence.** Get code from CVMFS and/or tarballs copied in from dCache areas via ifdh. **Do not copy to or from BlueArc, period.**
- Avoid hard-coding file paths, especially home areas (CVMFS is OK though)
- Do not count on a certain username when running the job. Use the **GRID_USER** environment variable (this is set to the “real you” at FNAL, or “dunepro” when running production jobs.)
- Check for the existence of necessary files before using them
- ***Check exit codes of all major steps in your scripts;*** print useful messages on failure

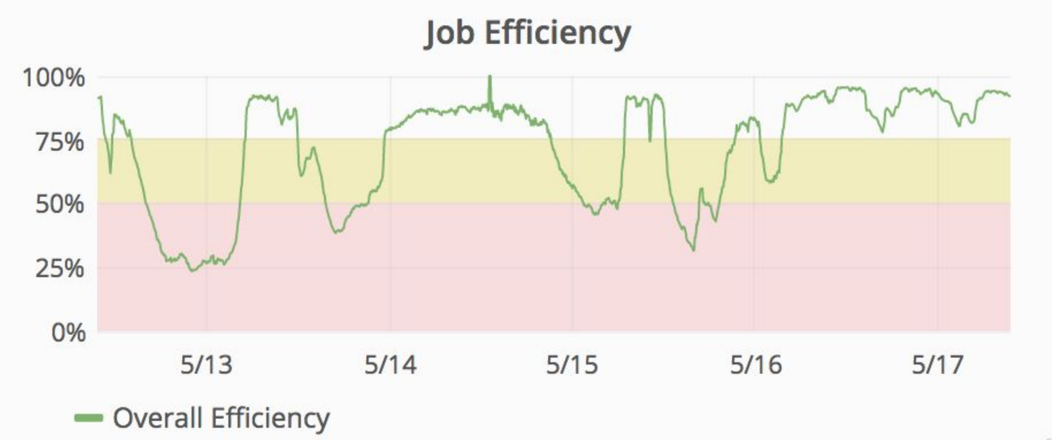
Other Best Practices (2)

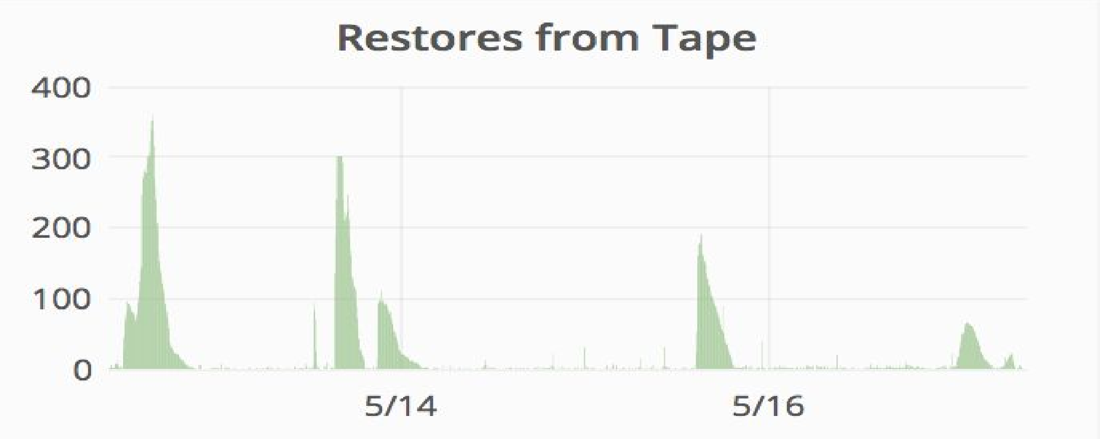
- Submit some test job(s) before any large submissions that will use a new script or after changing something
  - Test interactively (a few events/single input file) first
  - Then send a few test batch jobs. If those work, proceed with the full project
- Consult with DUNE S&C coordinators before large submissions
  - What is a “large” submission, you might ask…
    - It could be large in terms of total CPU hours, total size of outputs, or per-job resource (i.e. very large memory requests)
    - When in doubt, just ask the coordinators.

Other Best Practices (2)

- Submit some test job(s) before any large submissions that will use a new script or after changing something
  - **Test interactively (a few events/single input file) first**
  - Then send a few test batch jobs. If those work, proceed with the full project. Use gpgtest or fermicloud168 for these tests.
- If you have specific requirements the worker node must meet, put them in the job requirements via the **--append_condor_requirements** jobsub option
  - These might include a specific CVMFS/StashCache version, veto of a specific site, running on a specific subcluster, etc.
  - Jobs will not start on worker nodes that don’t meet your request
- **Prestage your input files. See data handling best practices.**

When you don’t prestage...





Adding additional condor requirements

--append_condor_requirements takes HTCondor requirement expressions; evaluated before job starts. **Can have more than one.**

Examples (note the quotes escaped with \)

1) Require the worker to have NOvA StashCache version >1234:

```
--append_condor_requirements=’(TARGET.HAS_CVMFS_NOVA_OSGATORAGE_ORG==\”true\”&&TARGET.CVMFS_NOVA_OSGSTORAGE_ORG_REVISION>1234)’
```

2) Omaha has the Tusker and Crane subclusters. Allow only to run at Crane:

```
--append_condor_requirements=’(TARGET.GLIDEIN_ResourceName==\”Crane\”)’
```

Passing options to your script

You may have arguments to your script (anything after file://foo.sh is treated as an argument)

Sometimes these could be an init script with a specific path

Example: you might be used to doing something like **jobsub_subimt <opts> file://myscript.sh \ --/experiment/app/users/me/script.sh**

Logical to copy script.sh in fromm dCache with -f and do --source=$CONDOR_DIR_INPUT/script.sh

But jobsub will try to expand $CONDOR_DIR_INPUT at submit time, and $CONDOR_DIR_INPUT isn't known until the job starts! How can we solve this problem?

Passing options to your script (2)

You can escape the environment variable with a backslash:

--source=\$CONDOR_DIR_INPUT/script.sh

Then $CONDOR_DIR_INPUT won't be evaluated until you're in the job.

In this way you can change from hard-coding BlueArc paths in scripts like this

Maxima and Large submissions

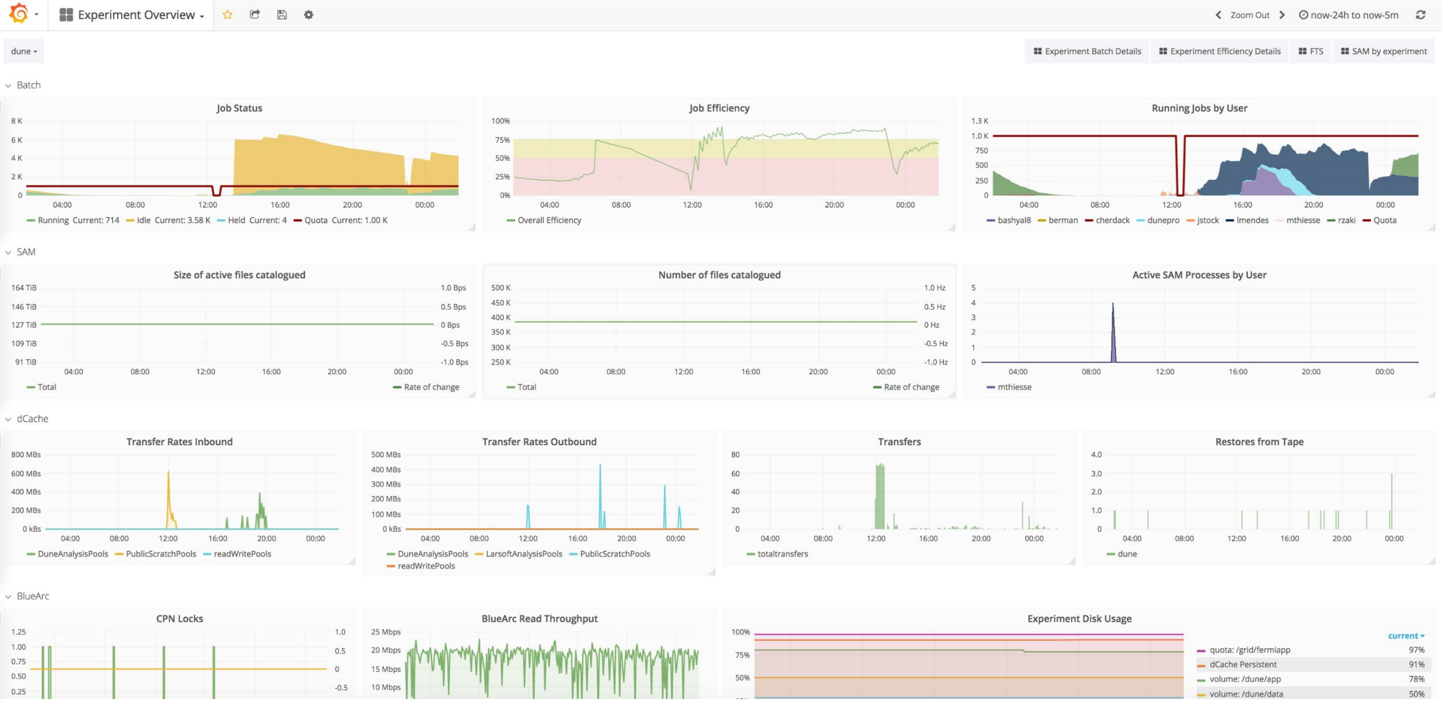
- What are the effective resource limits, if any?
  - Memory: 16000MB on GPGrid; varies on OSG sites
  - CPU: 8 on GPGrid; typically that or less on OSG
  - Run time: 4 days on GPGrid; varies on OSG sites
- How many jobs can I submit at once?
  - Now: max in a single submission is 10K (but need to be careful with these.)
  - When doing multiple submission, do not exceed an average rate of **1000 jobs/minute**. If you submit 10K, wait 10 min before submitting more.
- How many jobs can I (a user) have queued?
  - No hard limit, but more than you could run in one week using DUNE's GPGrid quota is a good rule of thumb.
  - Example: DUNE's quota is 1000. You have jobs that you expect to take 12h to run. 1000* (168 hours/week) / (12 h run time request) = 14K Max jobs queued.
  - Don't forget to account for slot weight! For 4 GB memory jobs, again divide by 2.

Monitoring your submissions

FIFEMON has a wealth of information

For example, the DUNE overview:

https://fifemon.fnal.gov/monitor/dashboard/db/experiment-overview?var-experiment=dune



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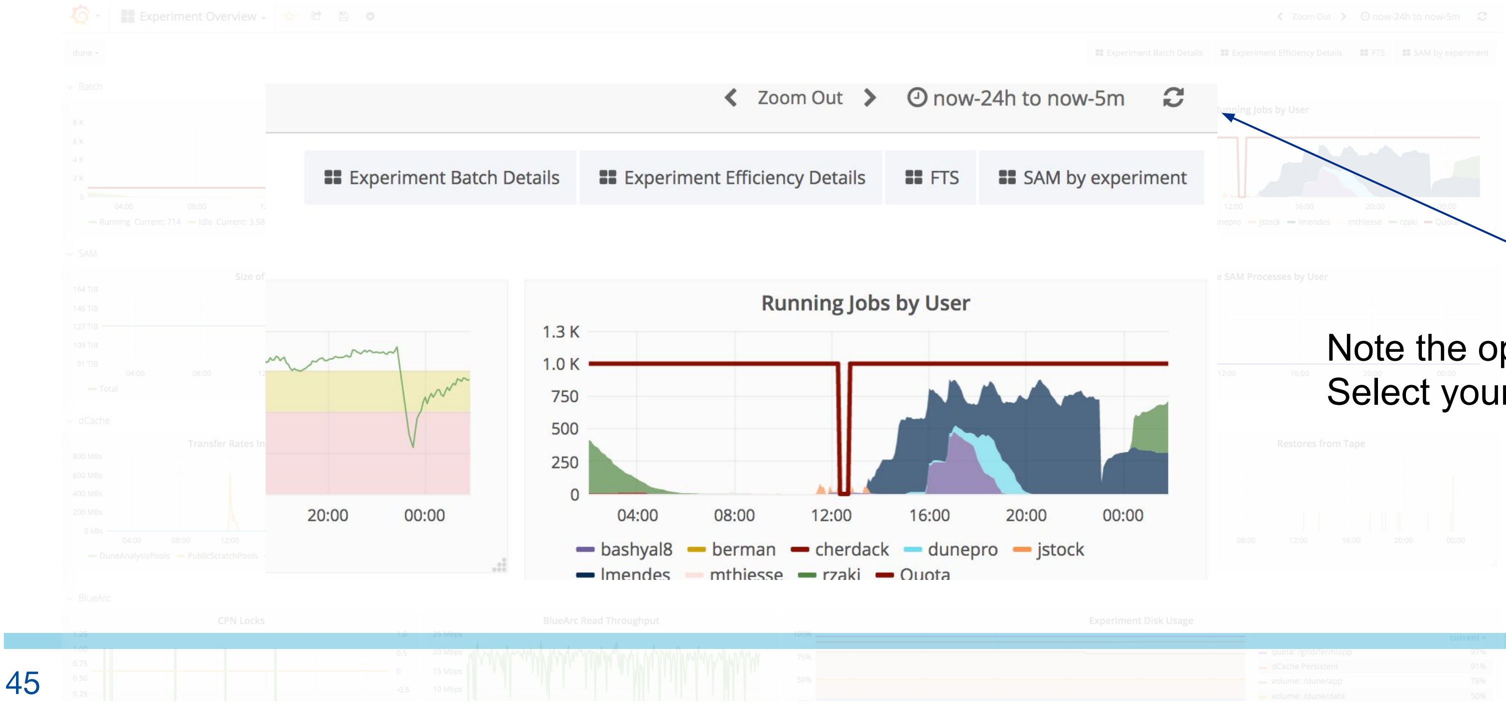
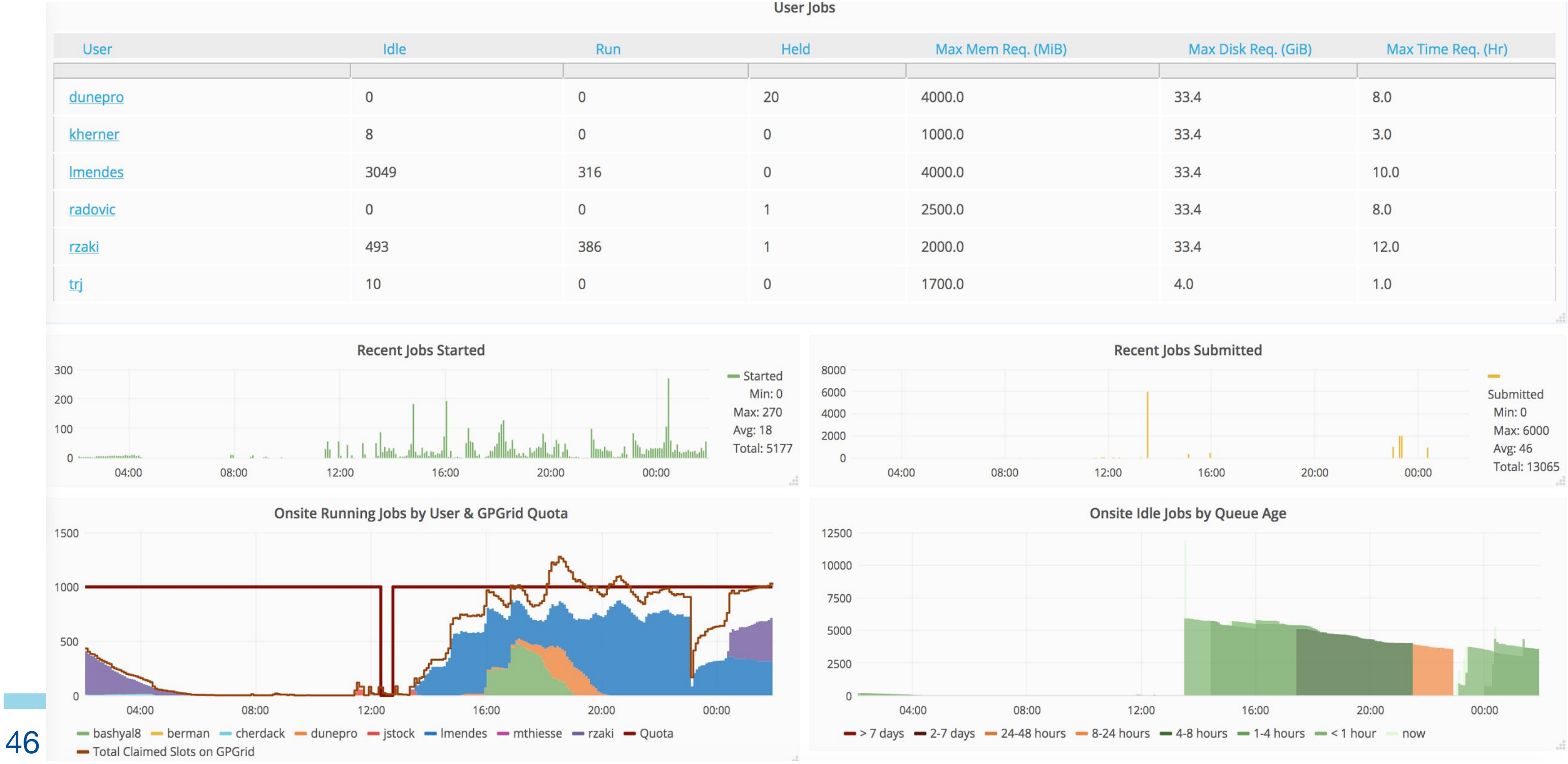


Note the option to
Select your time range

Monitoring your submissions

See details of DUNE batch jobs:

https://fifemon.fnal.gov/monitor/dashboard/db/experiment-batch-details?var-experiment=dune



User Jobs

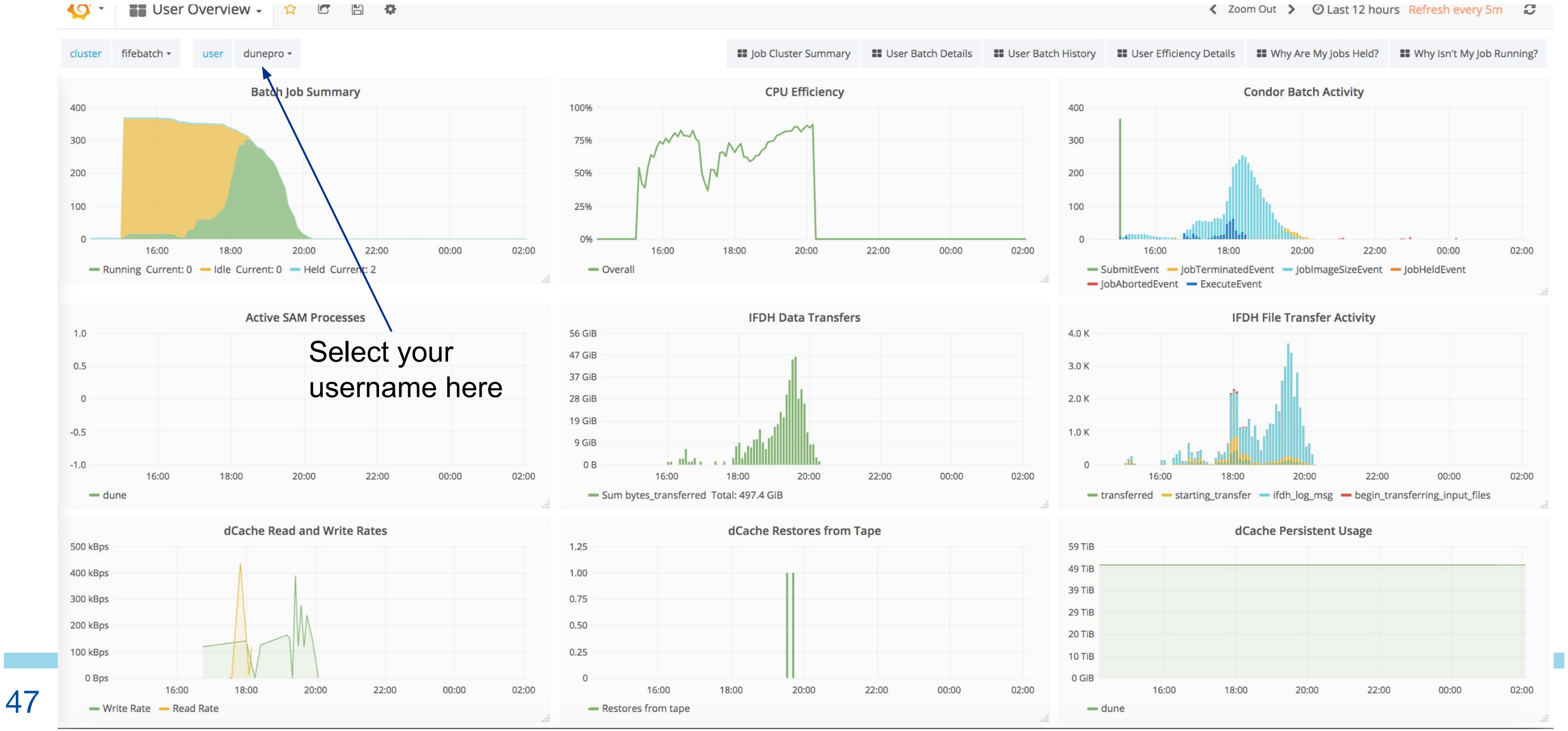
User	Idle	Run	Held	Max Mem Req. (MiB)	Max Disk Req. (GiB)	Max Time Req. (Hr)
dunepro	0	0	20	4000.0	33.4	8.0
kherner	8	0	0	1000.0	33.4	3.0
lmendes	3049	316	0	4000.0	33.4	10.0
radovic	0	0	1	2500.0	33.4	8.0
rzaki	493	386	1	2000.0	33.4	12.0
trj	10	0	0	1700.0	4.0	1.0

Monitoring your submissions

There are also pages with details for each user

https://fifemon.fnal.gov/monitor/dashboard/db/user-overview

https://fifemon.fnal.gov/monitor/dashboard/db/user-batch-details



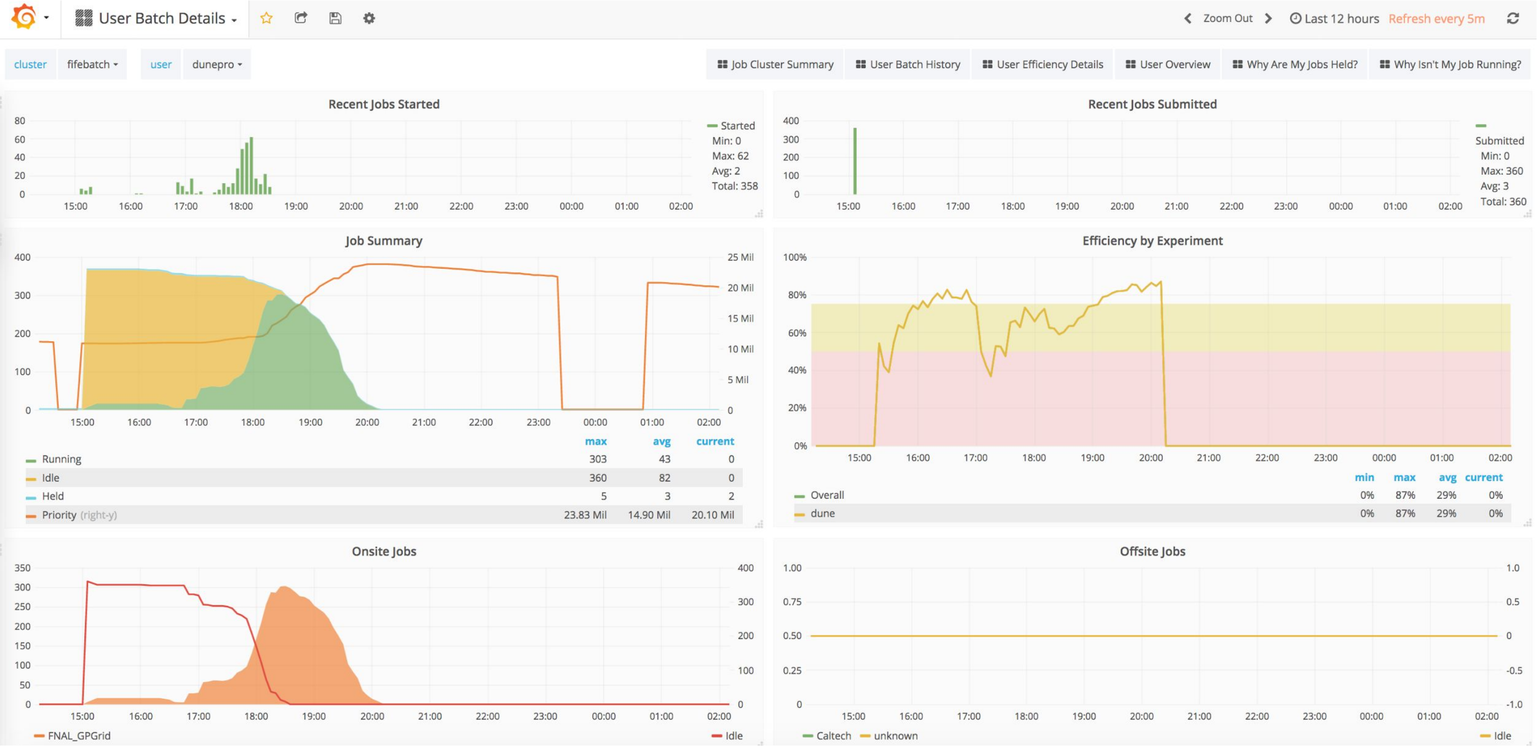
Select your username here

Monitoring your submissions

There are also pages with details for each user

https://fifemon.fnal.gov/monitor/dashboard/db/user-overview

https://fifemon.fnal.gov/monitor/dashboard/db/user-batch-details



cluster fifebatch

user dunepro

Started
Min: 0
Max: 62
Avg: 2
Total: 358

Submitted
Min: 0
Max: 360
Avg: 3
Total: 360

	max	avg	current
Running	303	43	0
Idle	360	82	0
Held	5	3	2
Priority (right-y)	23.83 Mil	14.90 Mil	20.10 Mil

	min	max	avg	current
Overall	0%	87%	29%	0%
dune	0%	87%	29%	0%

Getting Help

- **Rule #1: Never be ashamed to ask for help!**
- Different problems generally have different experts
- For DUNE software issues, look for the DUNE Service Portal, coming this summer. For now, email Eileen Berman, Tom Junk, Andrew Norman
- For issues with grid job submission or strange errors within jobs (please fetch the log files and try to see if it's a software or config issue first), contact the USDC group (also known as Distributed Computing Support) *via the Service Desk.* We can also answer other more general questions if you're not sure about a category.
- Issues with data movement (ifdh cp stuck, trouble with SAM, dCache) should either be Service Desk tickets with Scientific Data Management or Scientific Data Storage and Access

Helpful Documentation

Start with these:

https://cdcvs.fnal.gov/redmine/projects/dune/wiki/Getting_Started_with_DUNE_Computing

https://cdcvs.fnal.gov/redmine/projects/dune/wiki/Computing_How-To_Documentation

Additional Reading and useful places to look:

https://fermipoint.fnal.gov/project/FIFE/SitePages/Home.aspx

https://cdcvs.fnal.gov/redmine/projects/fife/wiki/Wiki

https://cdcvs.fnal.gov/redmine/projects/fife/wiki/Introduction_to_FIFE_and_Component_Services

https://cdcvs.fnal.gov/redmine/projects/fife/wiki/Advanced_Computing

https://cdcvs.fnal.gov/redmine/projects/jobsub/wiki#Client-User-Guide

https://cdcvs.fnal.gov/redmine/projects/ifdhc/wiki

https://fifemon.fnal.gov/monitor/dashboard/db/experiment-batch-details?from=now-24h&to=now&var-experiment=dune

https://cdcvs.fnal.gov/redmine/projects/dune/wiki/Computing_How-To_Documentation

https://cdcvs.fnal.gov/redmine/projects/fife/wiki/Information_about_job_submission_to_OSG_sites

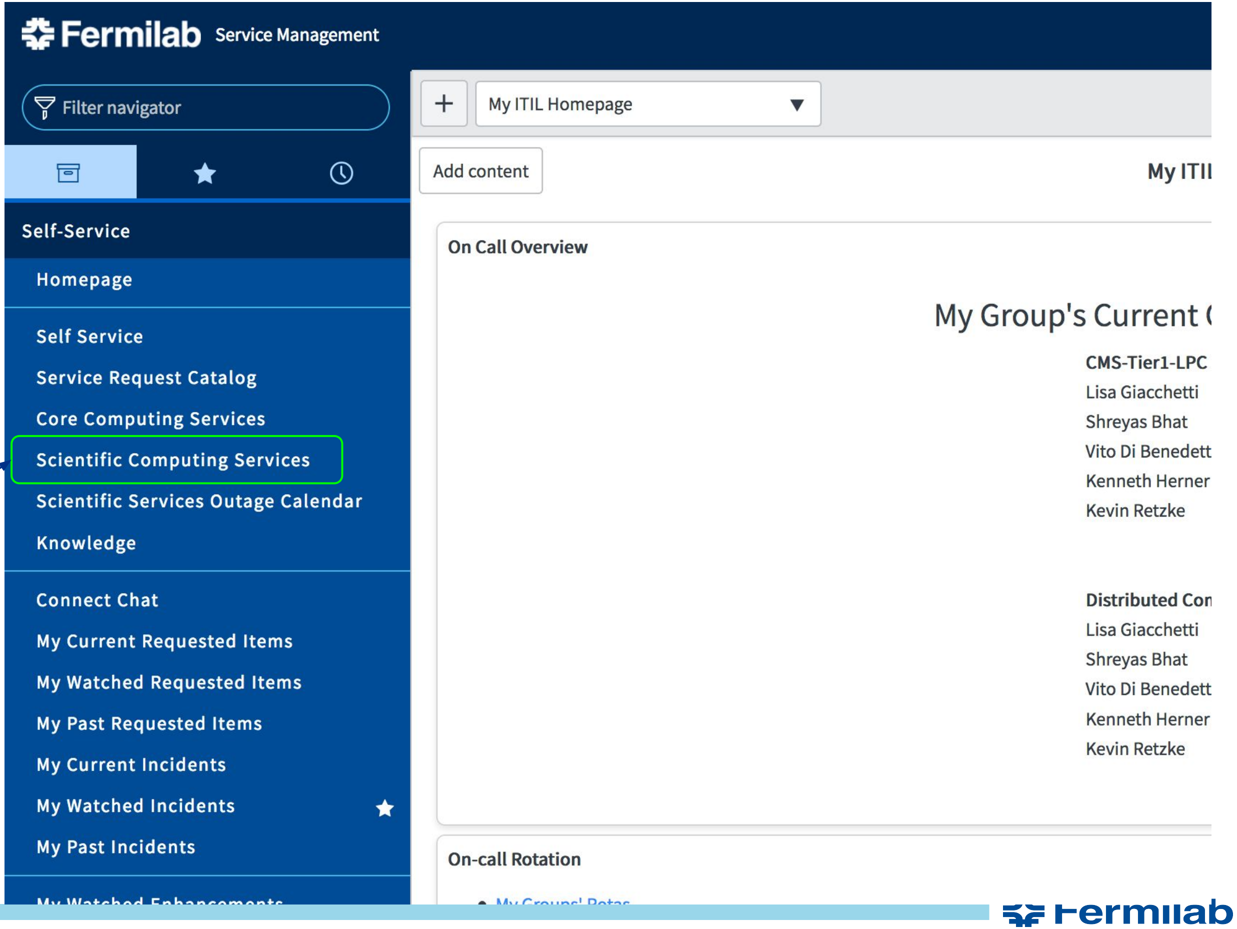
Opening a Distributed Computing Support Ticket

Service Desk page:

https://fermi.service-now.com/

Log in with your services (FNAL email) username & password

Start Here



Fermilab Service Management

Filter navigator

Self-Service

- Homepage
- Self Service
- Service Request Catalog
- Core Computing Services
- Scientific Computing Services
- Scientific Services Outage Calendar
- Knowledge
- Connect Chat
- My Current Requested Items
- My Watched Requested Items
- My Past Requested Items
- My Current Incidents
- My Watched Incidents ★
- My Past Incidents
- My Watched Enhancements

+ My ITIL Homepage ▼

Add content

My ITI

On Call Overview

My Group's Current (

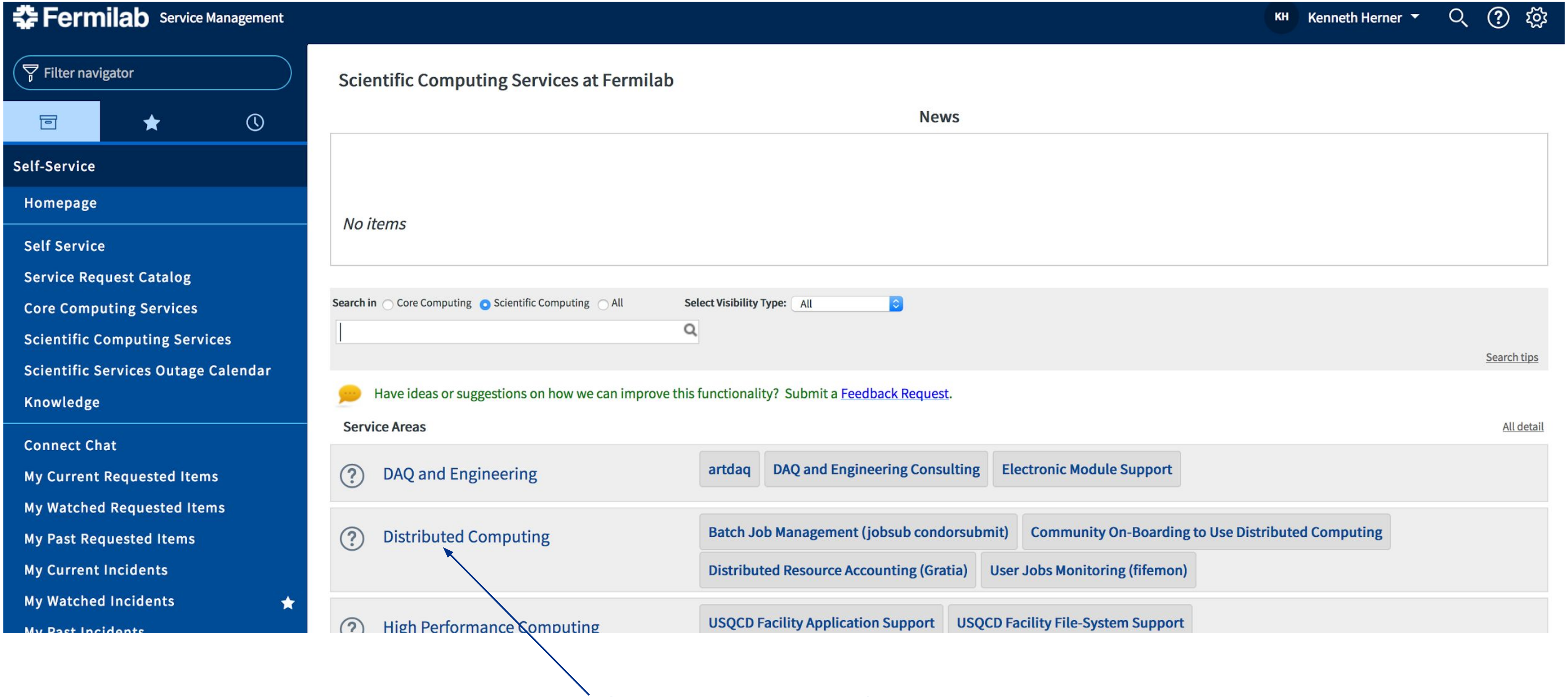
CMS-Tier1-LPC
Lisa Giacchetti
Shreyas Bhat
Vito Di Benedett
Kenneth Herner
Kevin Retzke

Distributed Con
Lisa Giacchetti
Shreyas Bhat
Vito Di Benedett
Kenneth Herner
Kevin Retzke

On-call Rotation

- My Groups' Rotas

Opening a Distributed Computing Support Ticket



Fermilab Service Management

KH Kenneth Herner

Filter navigator

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- My Past Incidents

Scientific Computing Services at Fermilab

News

No items

Search in ○ Core Computing ● Scientific Computing ○ All   Select Visibility Type: All

Search tips

Have ideas or suggestions on how we can improve this functionality? Submit a Feedback Request.

Service Areas   All detail

DAQ and Engineering	artdaq DAQ and Engineering Consulting Electronic Module Support
Distributed Computing	Batch Job Management (jobsub condorsubmit) Community On-Boarding to Use Distributed Computing Distributed Resource Accounting (Gratia) User Jobs Monitoring (fifemon)
High Performance Computing	USQCD Facility Application Support USQCD Facility File-System Support

Select Distributed Computing

Opening a Distributed Computing Support Ticket

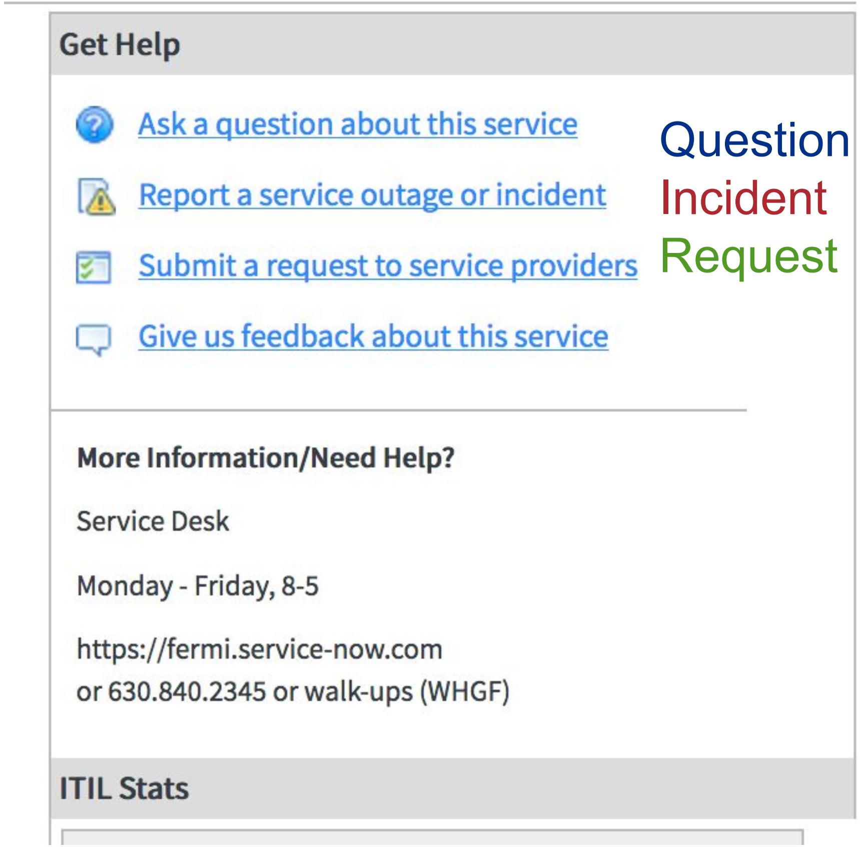
A word about ticket categories:

General questions: Ask a Question

New features, enhancement ideas: Requests

Something is not working normally: Incident

NOTE: Things that you want to see are not Incidents.



Get Help

- Ask a question about this service
- Report a service outage or incident
- Submit a request to service providers
- Give us feedback about this service

More Information/Need Help?

Service Desk

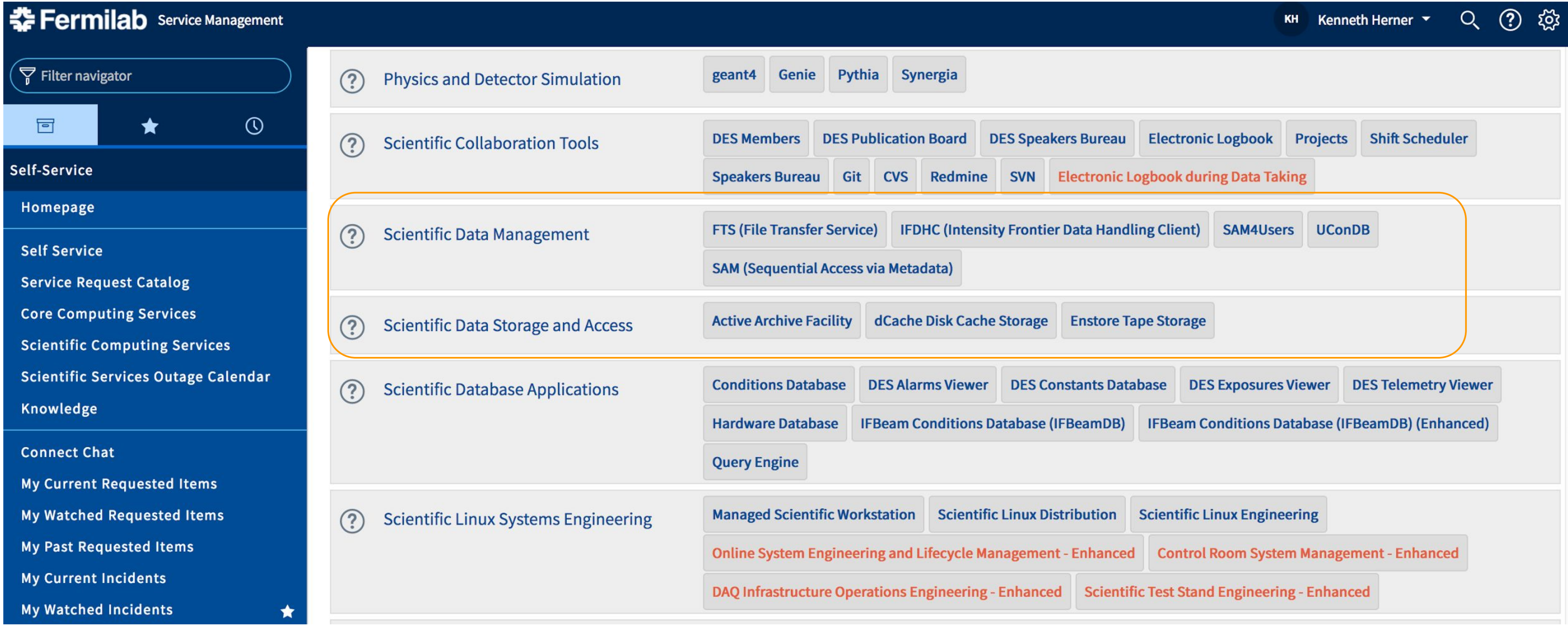
Monday - Friday, 8-5

https://fermi.service-now.com
or 630.840.2345 or walk-ups (WHGF)

ITIL Stats

Question
Incident
Request

Other Tickets (SDM, SDSA)



Physics and Detector Simulation	geant4 Genie Pythia Synergia
Scientific Collaboration Tools	DES Members DES Publication Board DES Speakers Bureau Electronic Logbook Projects Shift Scheduler Speakers Bureau Git CVS Redmine SVN Electronic Logbook during Data Taking
Scientific Data Management	FTS (File Transfer Service) IFDHC (Intensity Frontier Data Handling Client) SAM4Users UConDB SAM (Sequential Access via Metadata)
Scientific Data Storage and Access	Active Archive Facility dCache Disk Cache Storage Enstore Tape Storage
Scientific Database Applications	Conditions Database DES Alarms Viewer DES Constants Database DES Exposures Viewer DES Telemetry Viewer Hardware Database IFBeam Conditions Database (IFBeamDB) IFBeam Conditions Database (IFBeamDB) (Enhanced) Query Engine
Scientific Linux Systems Engineering	Managed Scientific Workstation Scientific Linux Distribution Scientific Linux Engineering Online System Engineering and Lifecycle Management - Enhanced Control Room System Management - Enhanced DAQ Infrastructure Operations Engineering - Enhanced Scientific Test Stand Engineering - Enhanced

Start with Scientific Computing Services on the left again, then select the appropriate choice in the middle

Summary

- We’ve discussed some common issues and how to avoid them
- Given some hints for best practices in jobs and data mgmt.
- **DON’T USE BLUEARC IN ANY WAY IN GRID JOBS.**
- Calculate the total resource for your project and consult the S&C coordinators on large submissions
- Following these best practices will help everyone get their work done better, **especially you!**
- We’ve gone over how to get help.
  - Please talk to us if anything comes up, or if you have needs/requests that weren’t discussed here.

BACKUP

Example .log

```
000 (8859960.000.000) 04/08 09:33:44 Job submitted from host: <131.225.67.139:9615?addrs=131.225.67.139-9615&noUDP&sock=3611905_50e2>
...
...
001 (8859960.000.000) 04/09 16:11:11 Job executing on host:
<18.12.8.228:56921?CCBID=131.225.67.218:9630%3faddrs%3d131.225.67.218-9630#3677262%20131.225.67.219:9630%3faddrs%3d131.225.67.219-9630#3675980
&noUDP>
...
028 (8859960.000.000) 04/09 16:11:11 Job ad information event triggered.
JOB_GLIDEIN_Name = "gfactory_instance"
JOB_Site = "MIT"
Proc = 0
JOB_GLIDEIN_Entry_Name = "CMSHTPC_T2_US_MIT_ce01"
EventTime = "2016-04-09T16:11:11"
TriggerEventTypeName = "ULOG_EXECUTE"
JOB_GLIDEIN_SiteWMS_Queue = "ce01.cmsaf.mit.edu"
TriggerEventTypeNumber = 1
ExecuteHost =
"<18.12.8.228:56921?CCBID=131.225.67.218:9630%3faddrs%3d131.225.67.218-9630#3677262%20131.225.67.219:9630%3faddrs%3d131.225.67.219-9630#3675980
&noUDP>"
JOB_GLIDEIN_Site = "MIT"
JOB_GLIDEIN_SiteWMS_JobId = "116651.0"
MyType = "ExecuteEvent"
JOB_GLIDEIN_ProcId = "6"
JOB_GLIDEIN_Schedd = "schedd_glideins7@gfactory-1.t2.ucsd.edu"
JOB_GLIDEIN_ClusterId = "3661662"
Cluster = 8859960
JOB_GLIDEIN_Factory = "SDSC"
JOB_GLIDEIN_SiteWMS_Slot = "slot1_1@t2bat0228.cmsaf.mit.edu"
Subproc = 0
```