Production Support Update

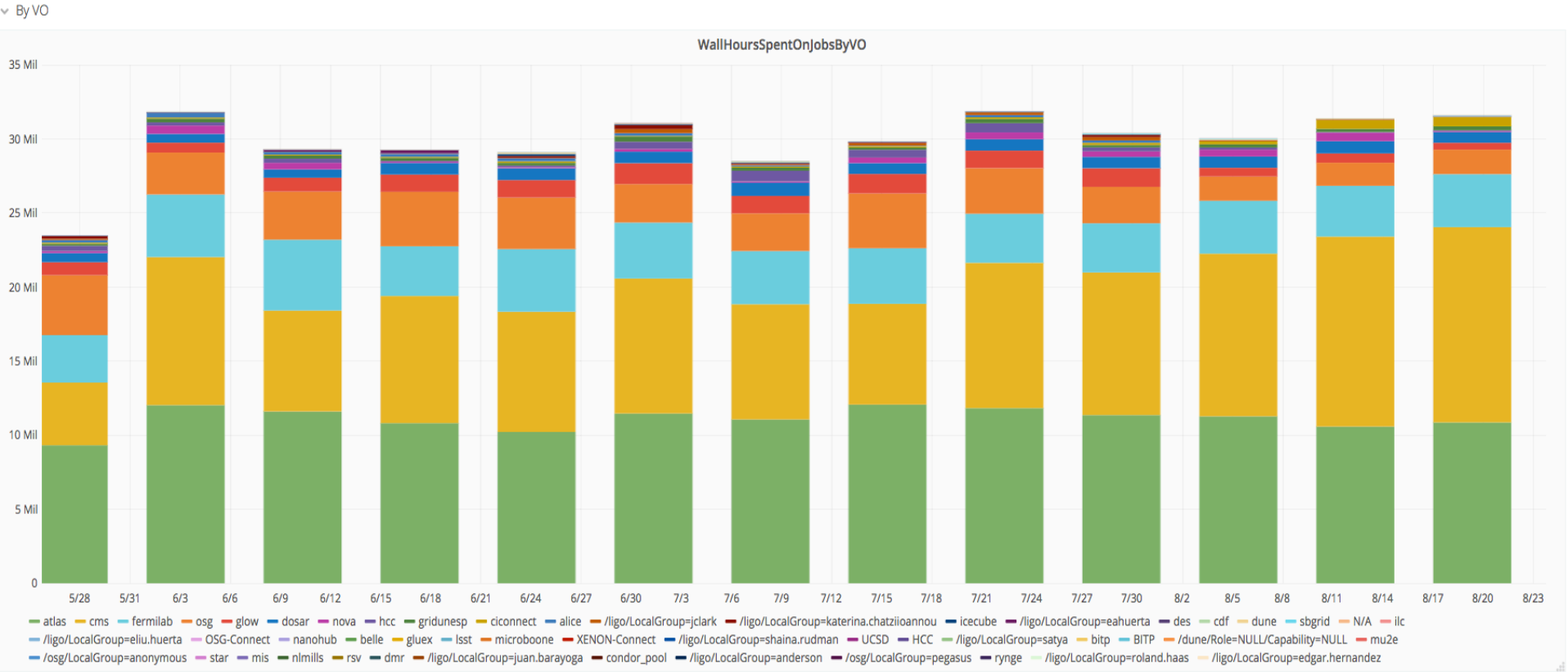
Ken Herner

Area Coordinators Meeting

23 Aug 2017

Pilots past 90 days

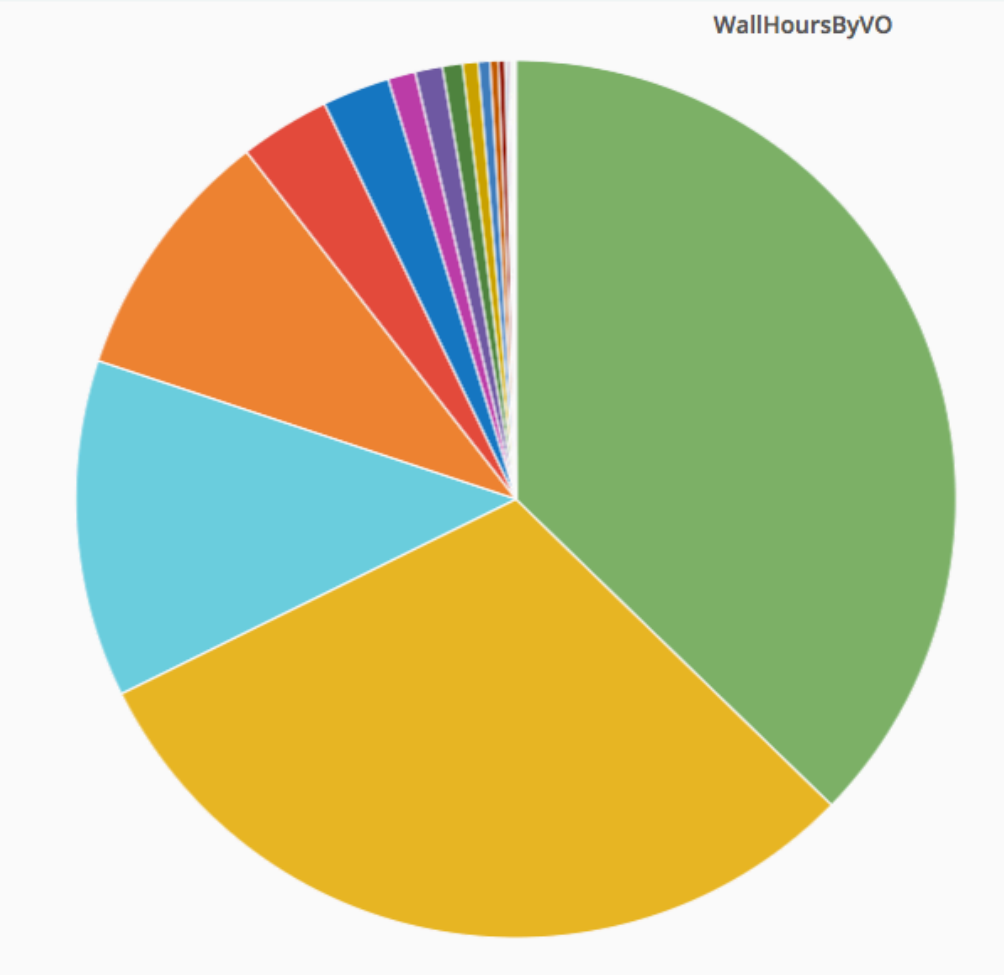
- OSG+HCC+GLOW+SBgrid hours roughly steady (18 M/month)



Fermilab

Pilots past 90 days (2)

- OSG+HCC+GLOW+SBgrid hours roughly steady (18 M/month)
  - Combined FNAL expts. nearly equal to those 4 over this time



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atlas	144460856
cms	117857672
fermilab	48122287
osg	36490999
glow	12866187
dosar	9591399
nova	3899123
hcc	3893507
gridunesp	2857161
ciconnect	2196051
alice	1681482
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icecube	354199
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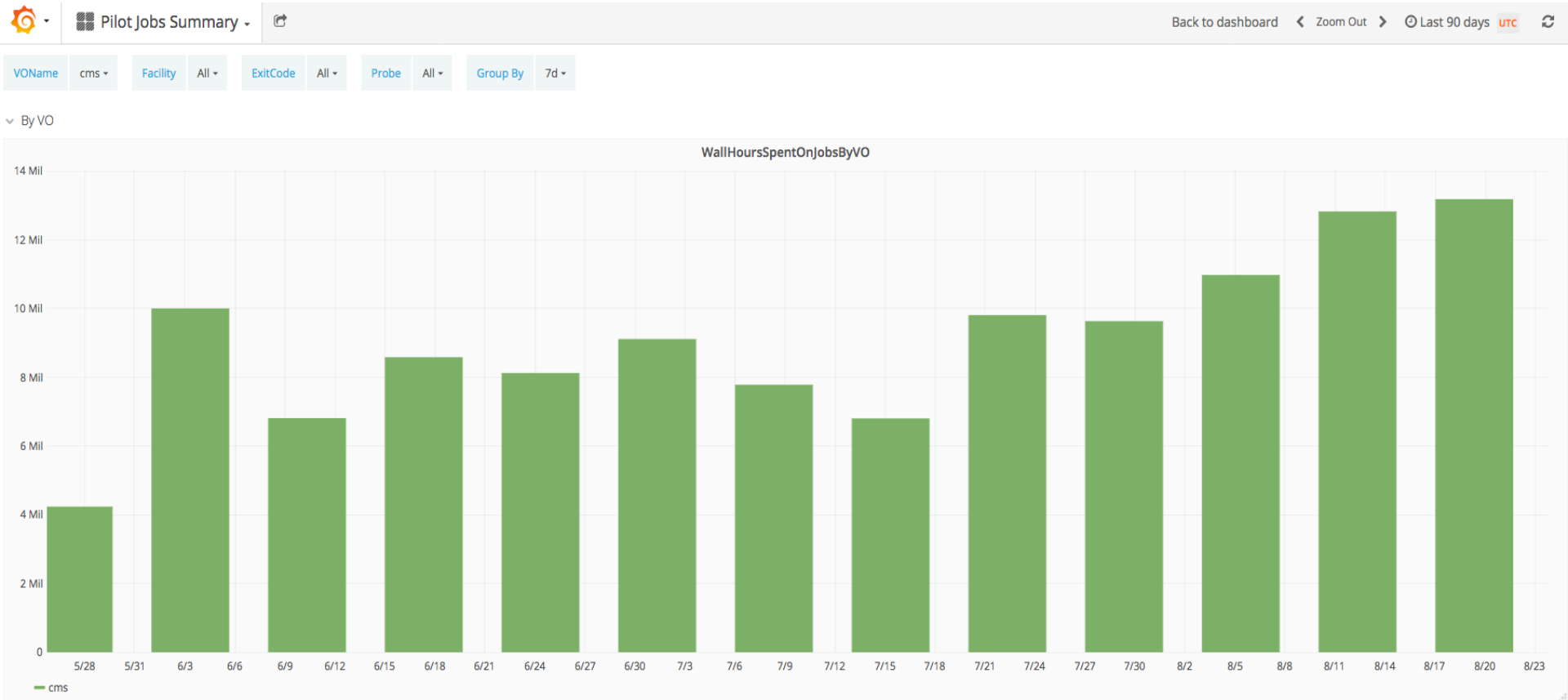
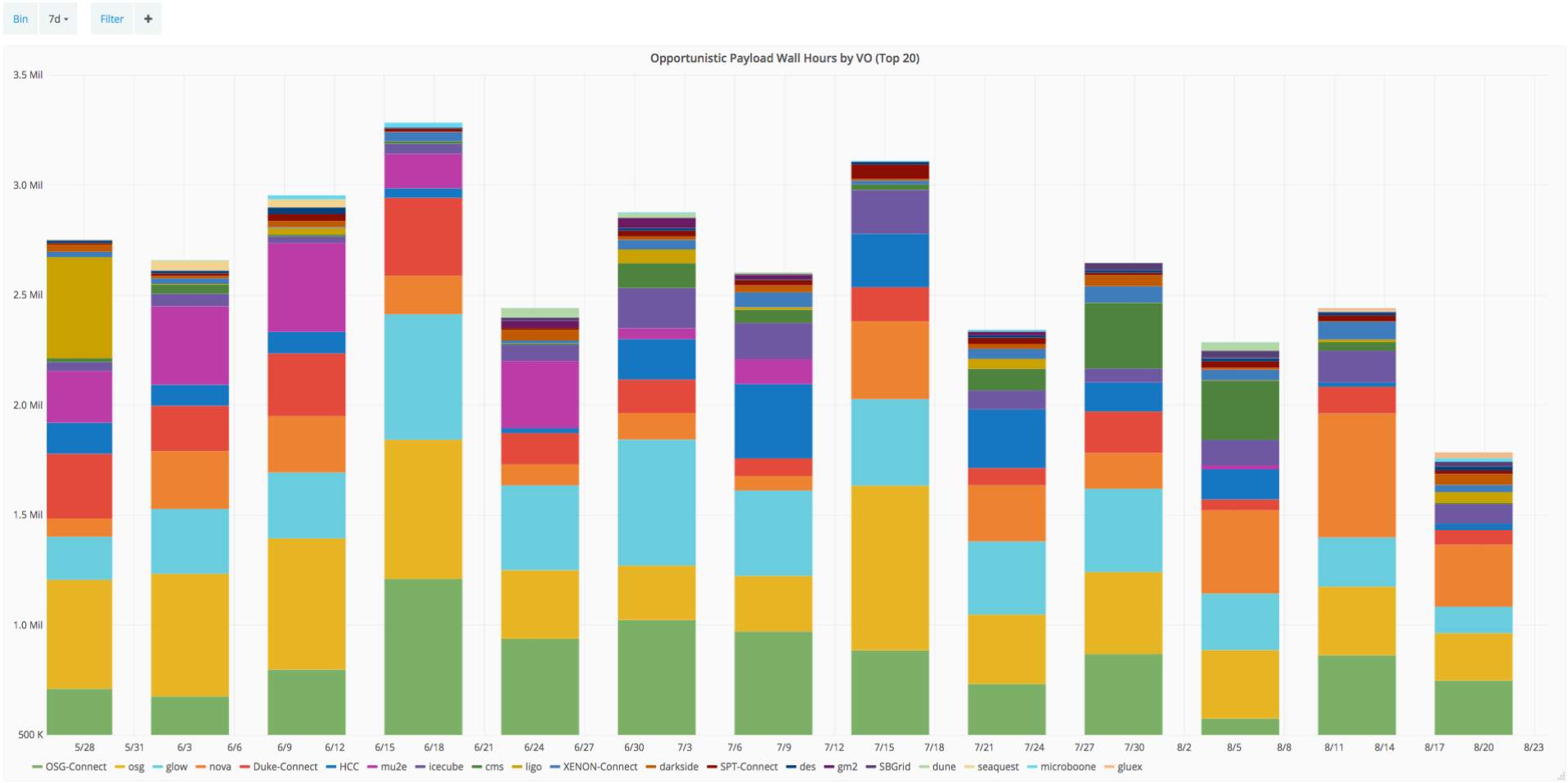
des	221471
cdf	211328
dune	199613
sbgrid	177238
N/A	64236

CMS demand returning?

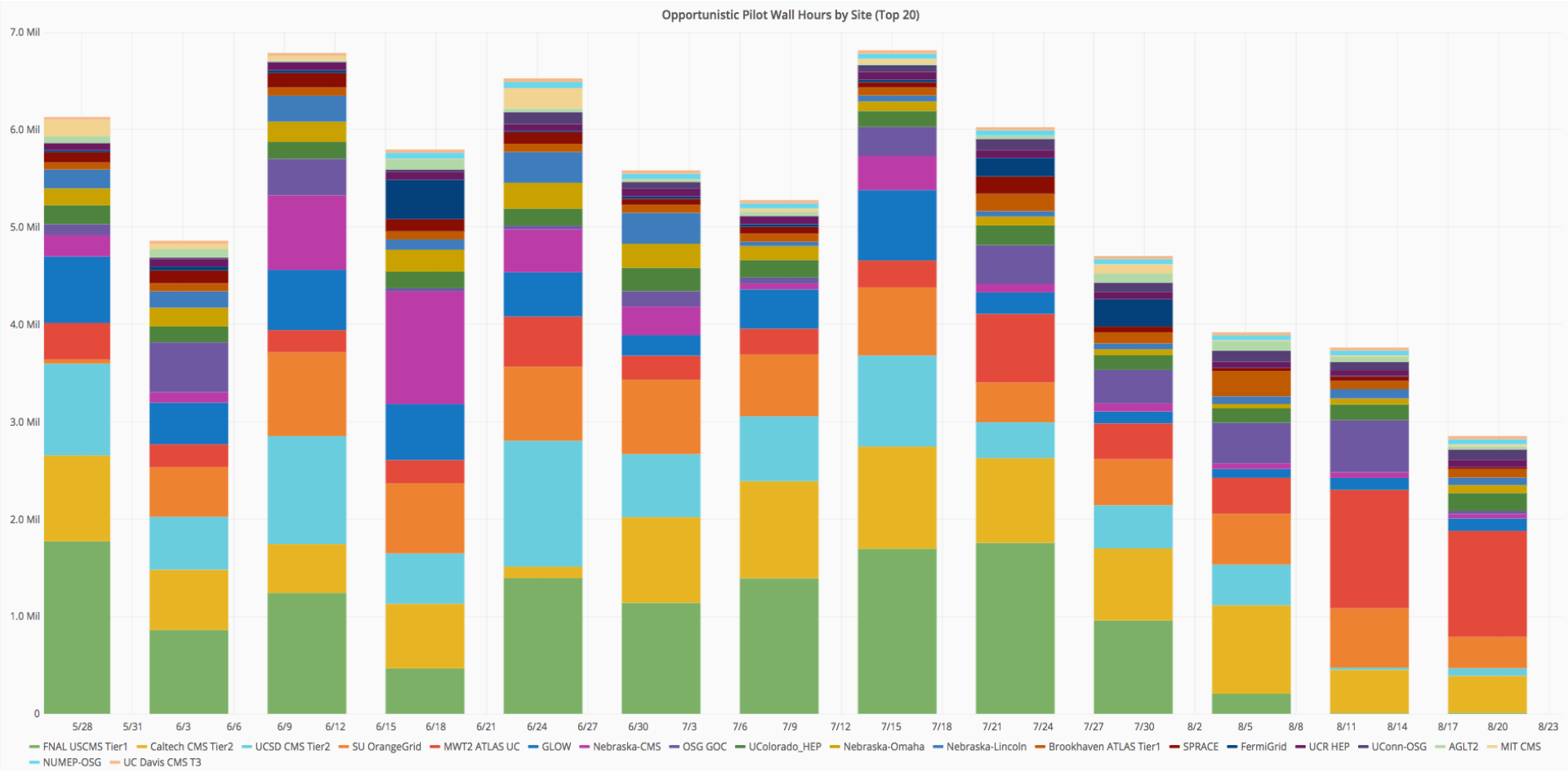


Fermilab

Opportunistic Payload hours by VO



Opportunistic Pilot Hours by Site



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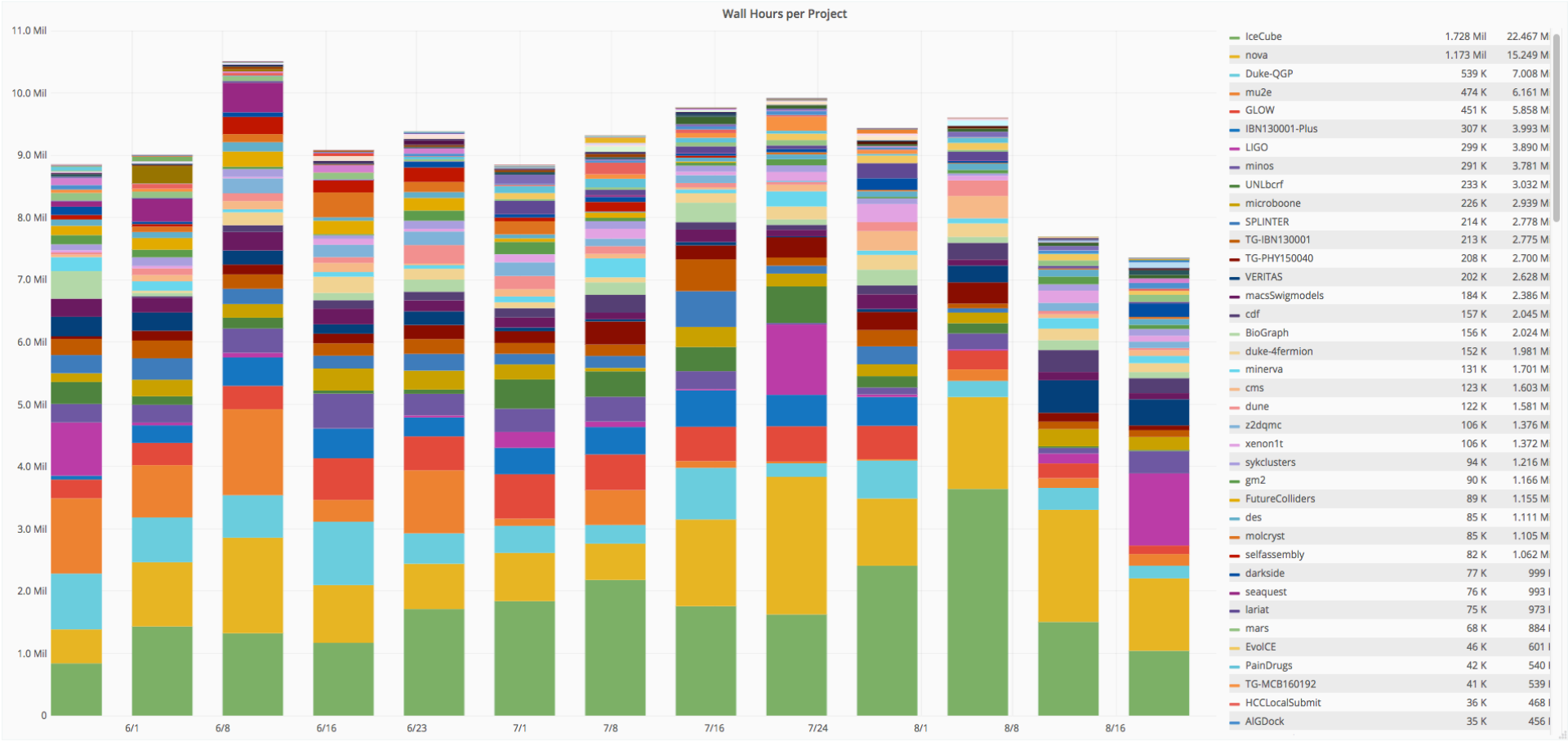
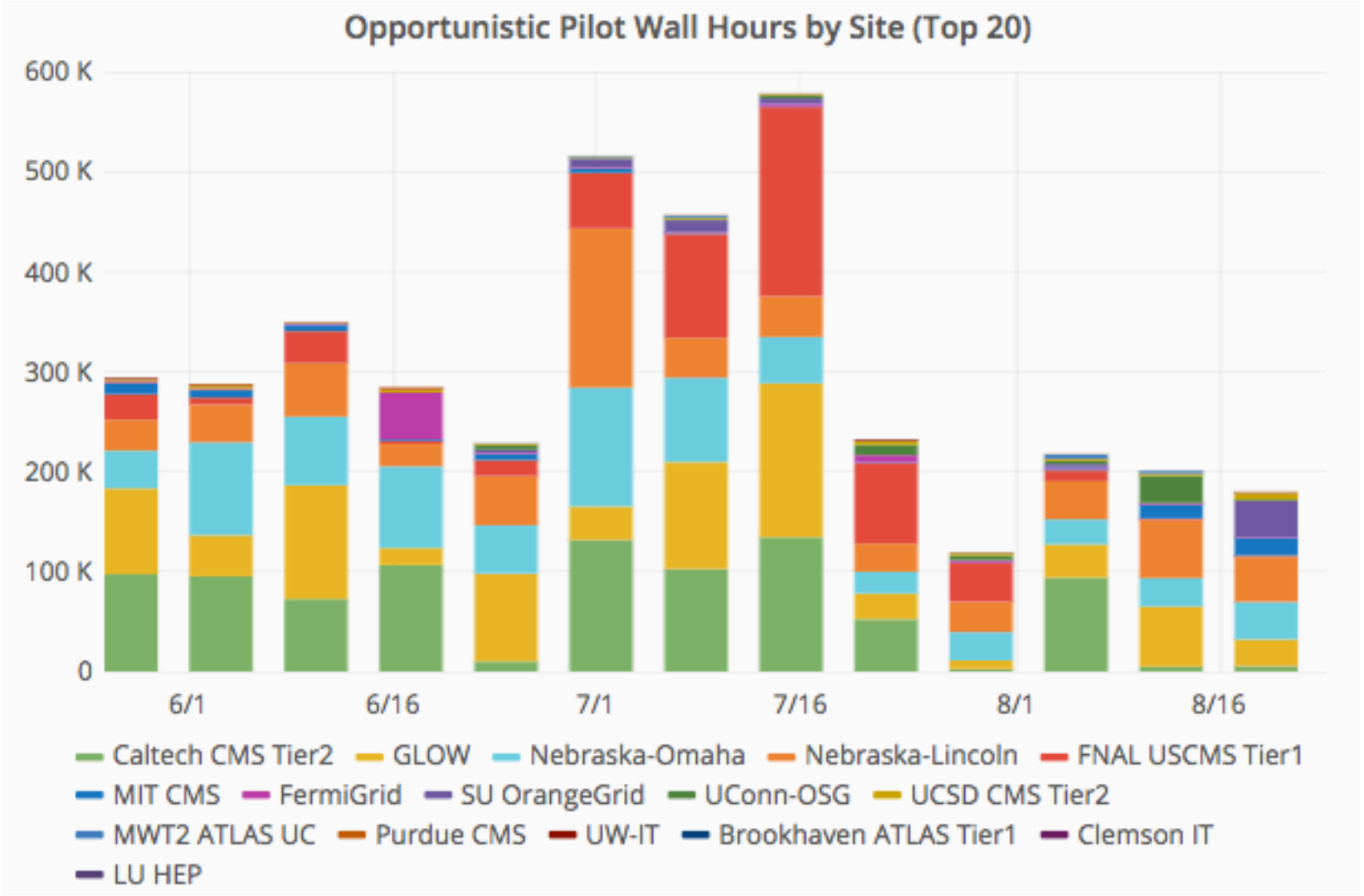
Projects last 90 days



ATLAS and CMS Opportunistic Hours



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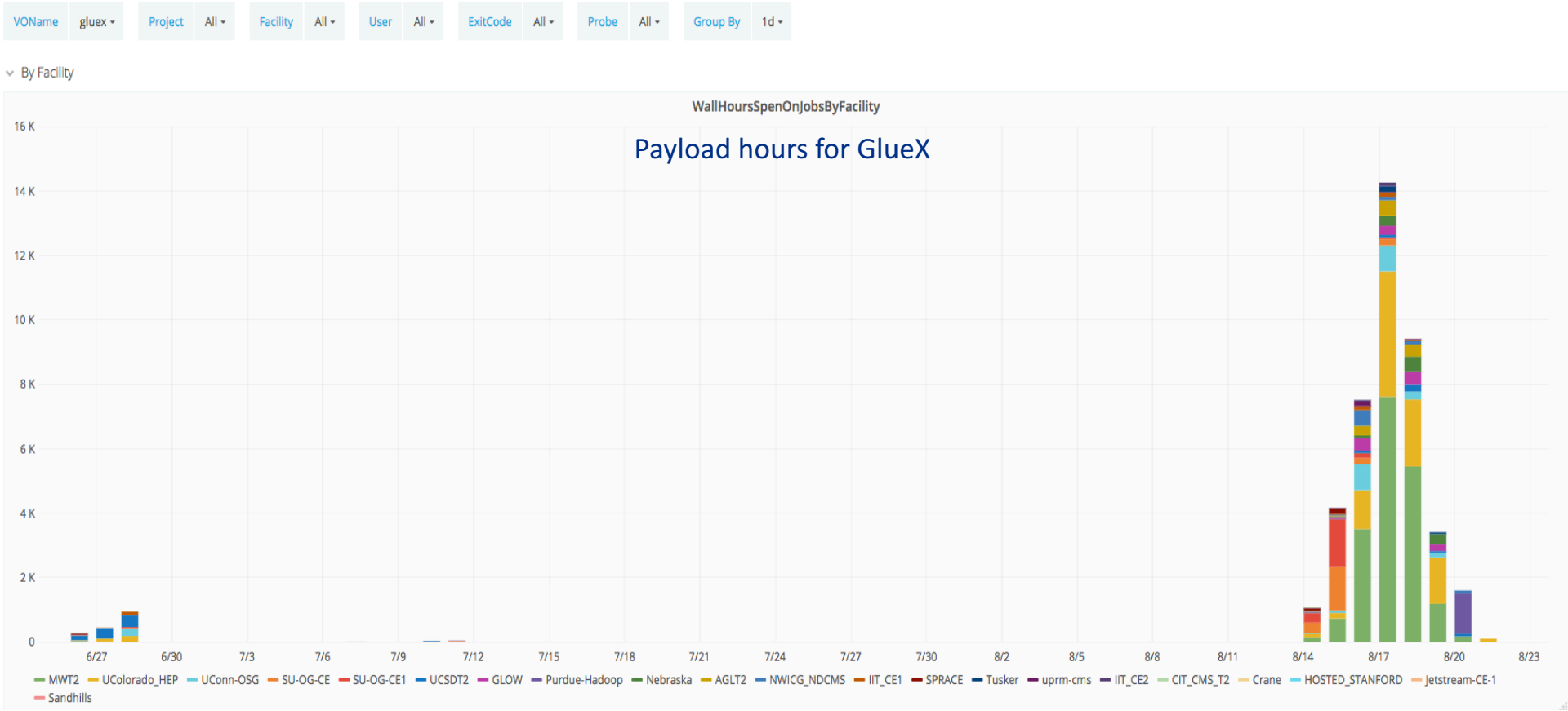
GlueX Rides Again!

- Much credit to Rob, Bala, Mats et al. for working with GlueX



Fermilab

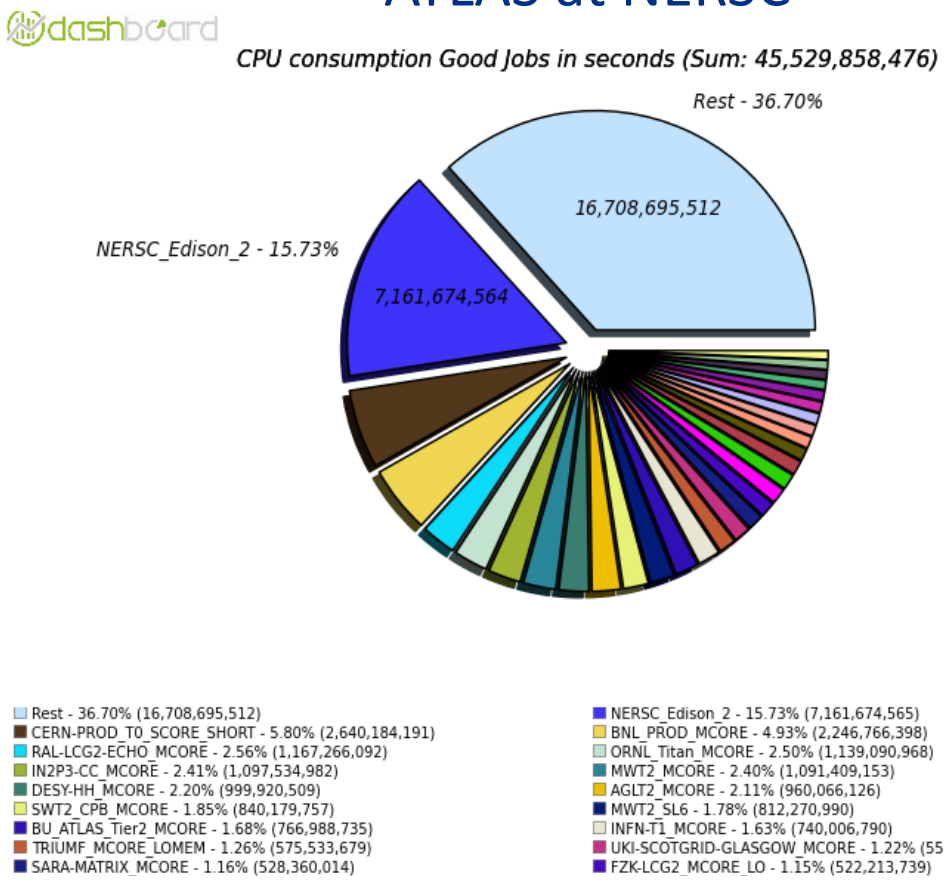
Site News

- Imperial and CERN Tier 0 now in production for DUNE
- Issues at OSC for NOvA. Turns out their new CE is all EL7 and NOvA jobs ask for EL6. Discussing with NOvA how they want to proceed
- Looked into asking for opportunistic use for Fermilab at Ole Miss. Cluster is kind of small and usually busy. Tabled for this week.
- Will probably target Colorado next for Fermilab and DUNE (they are nominally on DUNE now)
- Got busy w/other things, but need to look into UCSD's GPU resources

HPC Successes

- CMS and MINOS+ successful on Stampede with startup XSEDE allocations (also CMS on Comet)
  - glidewms modifications to pass project/allocation IDs were key
- CMS recently successful at NERSC
- ATLAS has done well on Titan (90M CPU hours)
- Mu2e now testing at NERSC (via HEPCloud); other FIFE expts have expressed interest
- Are we collaborating as much as we can here?

ATLAS at NERSC



GPU Progress

- IceCube has used GPU resources available at Nebraska; trying now at Syracuse but difficulty matching slots
- Very recently, Fermilab has started to use Nebraska as well as those at Syracuse (Singularity support still not in)
  - Set up and working in production; rolling out slowly
- **Main issue now is working out container support (seems to work when Singularity is not turned on at SU)**
  - BNL cluster is not likely to be available for opportunistic running
  - Actively looking for other sites (UCSD?)
- From Staff Retreat: best for everyone to come up with common GPU approaches wherever possible. Had a production inital meeting with FIFE expt. reps and CMS LPC reps 2 weeks ago

StashCache Progress

- StashCache use steadily increasing
- NOvA, DES, Microboone now actively using via CVMFS; repos @FNAL
  - Expect Mu2e to come soon; DUNE down the road
- Quite a few others using it via OSG Connect + stashcp

Goals for Year 6

- Weather the storm
  - Spring and summer 2018 will be very busy. IF experiments gearing up for Neutrino 2018 (July), LHC for Moriond (March) and ICHEP (July), NP for Quark Matter 2018 (May), protoDUNE coming online late July.
  - A **LOT** of mouths to feed over the next 12 months
  - Extremely important to keep growing the pie... user training part of this too (especially with certain experiments). Also, make sure ALL resources are accessible (containers, etc.)

Goals for Year 6 (2)

- CPU resources
  - Continue to increase opportunistic availability across new and existing resources (continue to onboard new sites) and make sure all VOs can use as many sites as possible (Fermilab, LSST, GlueX, etc.)
  - Work with VOs to commission HPC resources (cross-pollination is key here! See CMS and MINOS+ at Stampede)
    - Several potential tech issues (CVMFS, etc.) here. We (I) need to get more VOs sharing information. It's better for *everyone* if we can make this an easy process!
- GPU resources
  - Continue to push this forward and try to make a (at least somewhat) standard prescription for accessing the resources. Common, simple approaches go a long way.
  - Recent meeting with FIFE

Goals for Year 6 (3)

- Software and Infrastructure
  - Support VOs in using as much of the standard stack as possible.
  - Containers, containers, containers
  - Monitor SW developments (especially as S2I2 evolves) and push for modular toolkits and middleware (Fermilab's ifdhc data handling client is a good example- under the hood data transfer protocols can be transparently changed)
- HEPCloud
  - Help onboard VOs as needed (likely Fermilab and CMS first)

Concerns

- GPU ramp-up
  - Somewhat slower than I had hoped (containers at Syracuse for example)
  - Main concern: flooding the queue with poorly written job scripts and/or incorrect classads (non-GPU job take slots, etc.)
    - FNAL: Working with small set of power users first; deputize them once things are going well. Good model for others?
- Containers: Concerns about serving these over CVMFS
    - Overwrought?
    - Is there a better way?
- New sites
  - Coordination with non-US resources important
- Debugging/monitoring
  - Glidein logs in ElasticSearch would be great

Summary

- No major disasters over the summer (or Monday...)
- CMS demand returning
- Need to push on additional sites and GPU rollout
- Common solutions wherever possible!