

# Fermilab Site Report Spring 2012 HEPiX

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# Outline

Organization Changes

Email & Calendar Migration

Distributed Redundant Network Core

Facilities

Managed Services

Scientific Linux

Tape Drives, Robots & Storage

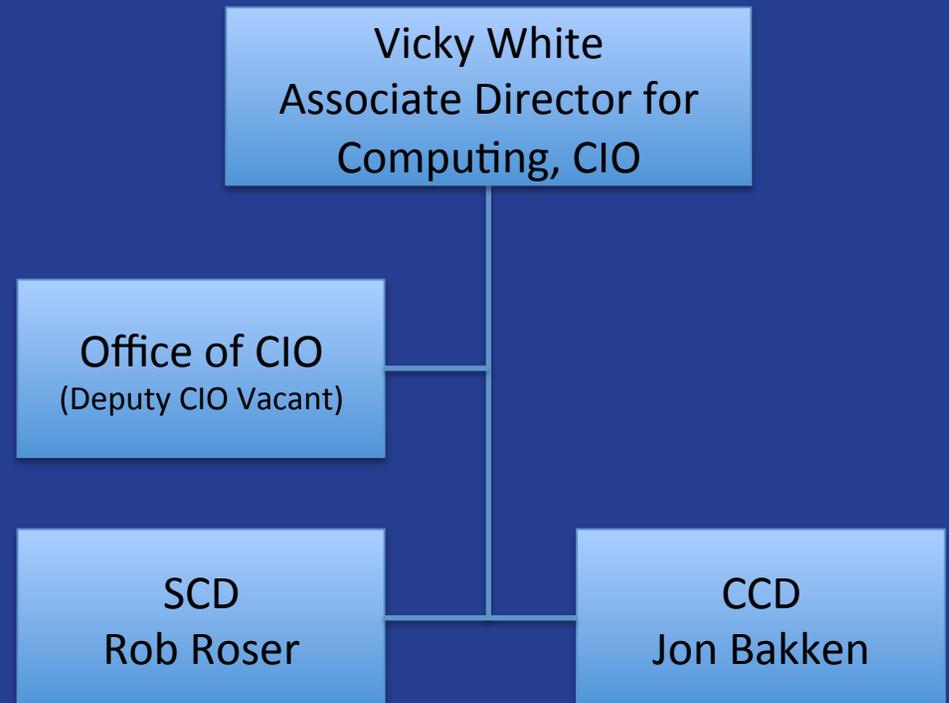
HPC & Lattice QCD

FermiGrid

FermiCloud

# Organization Changes

- Rob Roser appointed as the Scientific Computing Division Head,
- Lothar Bauerdick was elected by the OSG Council to be the Open Science Grid Executive Director,
- Ruth Pordes is now the head of the OSG Council,



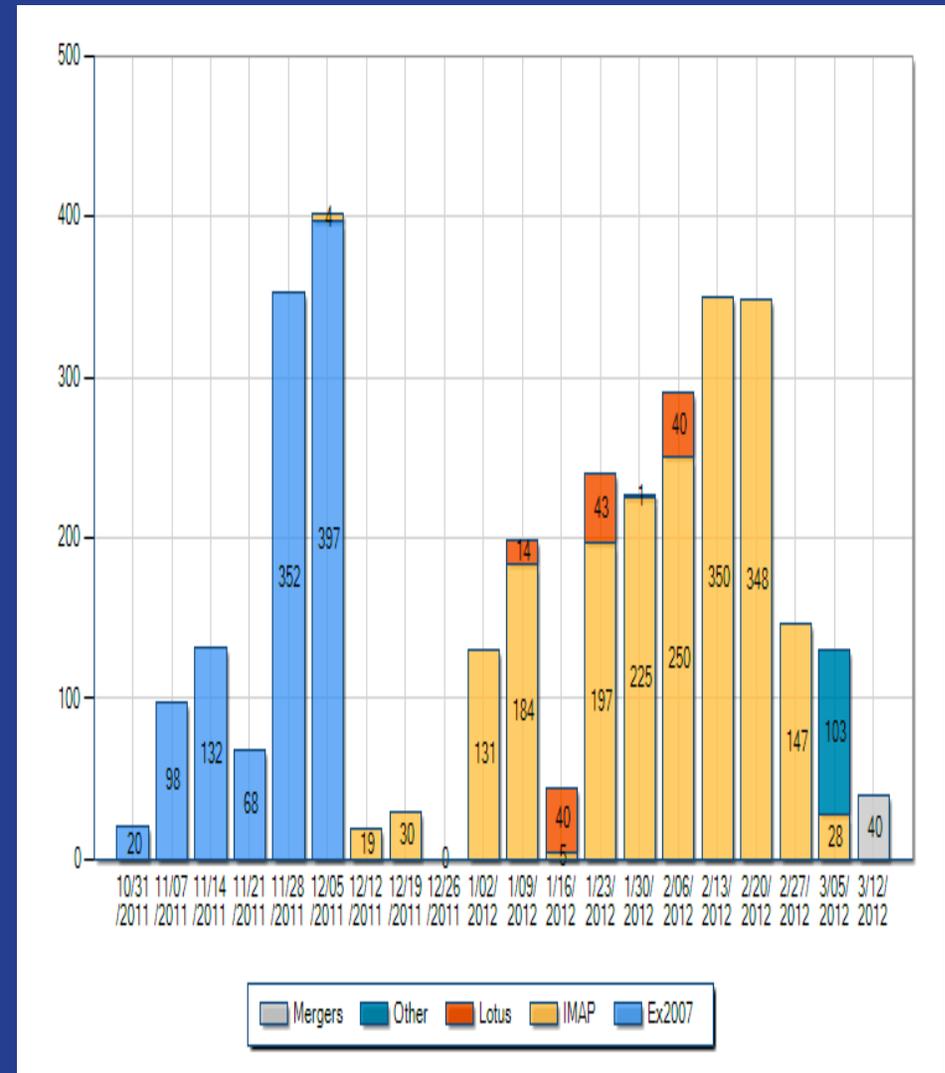
# Email & Calendar Migration

The email migration to Exchange 2010 was completed on Monday 26-Mar-2012.

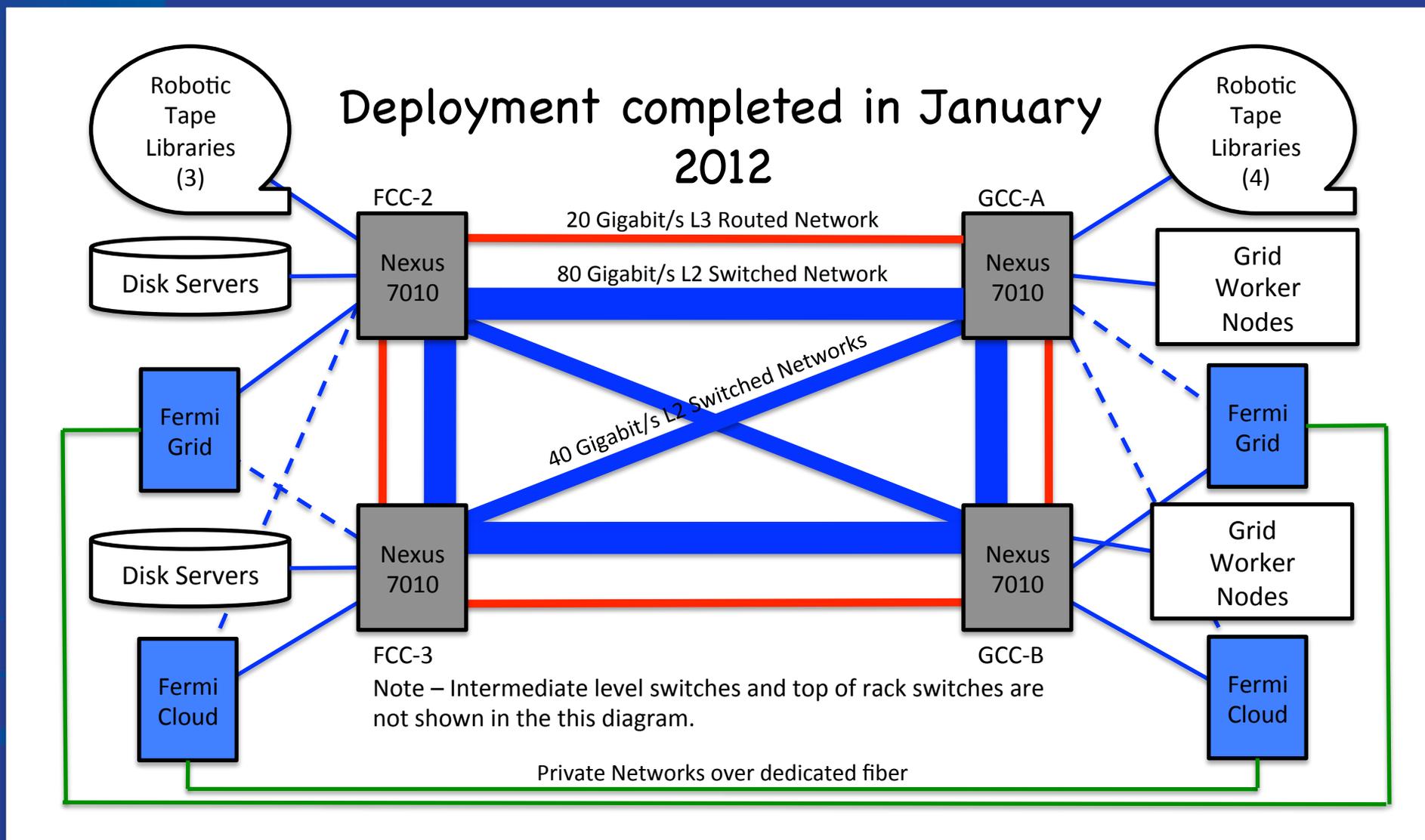
A total of 2959 accounts were migrated from a combination of IMAP, Exchange 2007 & Lotus Notes.

Calendar migration from MeetingMaker to Exchange was completed in late March.

Site email gateways are expected to migrate this month (or early next).



# Distributed Network Core Provides Redundant Connectivity



# Fermilab Computing Facilities

An engineering study of the GCC cooling issues encountered during 2011 has recommended the removal of the berm adjacent to GCC.

The contract has been signed and the "notice to proceed" has been issued,

- Berm removal should be completed by ~mid-May 2012.

No supplemental cooling will be deployed this year,

- If removal of the berm does not address the cooling issue, then the next step would be to relocate the external heat exchangers.



# Managed Services

Fermilab has recently signed a contract with Dell to provide a set of managed computing services.

The set of managed services include:

- Service Desk Support Personnel,
- “Deskside” Support Services (including PC/MAC refresh),
- Printer Support & Services (including printer supplies and printer refresh),
- Logistic services (hardware service, moves, adds, changes),
- Network cable installation.

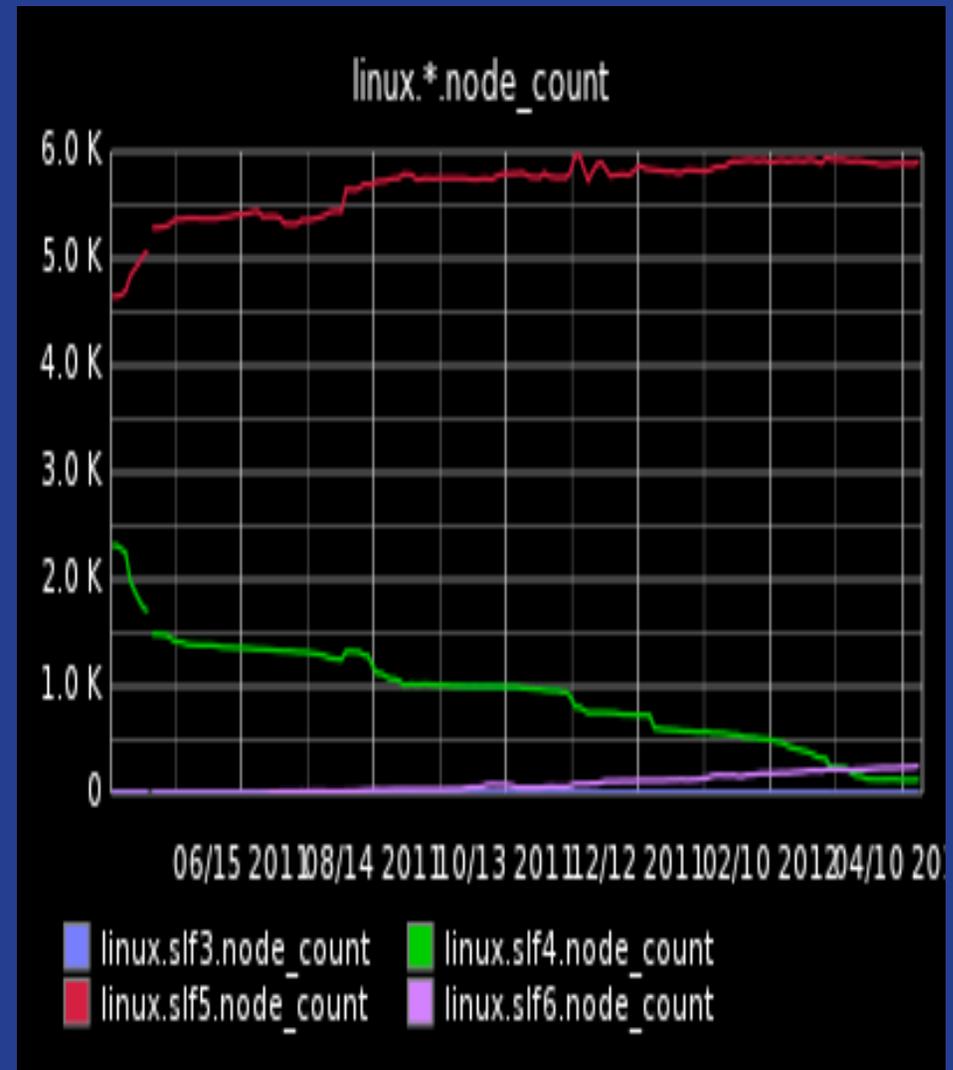
# Scientific Linux

Migration off of SL(F) 4 largely completed by 28-Feb-2012,

A small number (<20) of baseline "exemptions" issued for systems to run SL(F) 4,

Starting to see a (slow) increase in SL(F) 6 deployments,

See Connie Sieh's SL Update talk for more details!



# Tape Robots, Drives & Storage

T10KC Tape drives are in full production,

- We found another bug in the small file accelerator microcode, and Oracle has delivered a fix that is being tested.

The small file aggregation/cache for enStore was deployed on 19-Apr-2012,

Pnfs -> Chimera:

- Was deployed on stken & enStore on 22-Feb-2012,
- Will be deployed for cdfen and d0en on 1-May-2012,

BlueArc firmware update (6.1 -> 8.1) will be performed 1-May-2012,

AFS server code update to support "compound" principals is scheduled to be deployed on 17-May-2012,

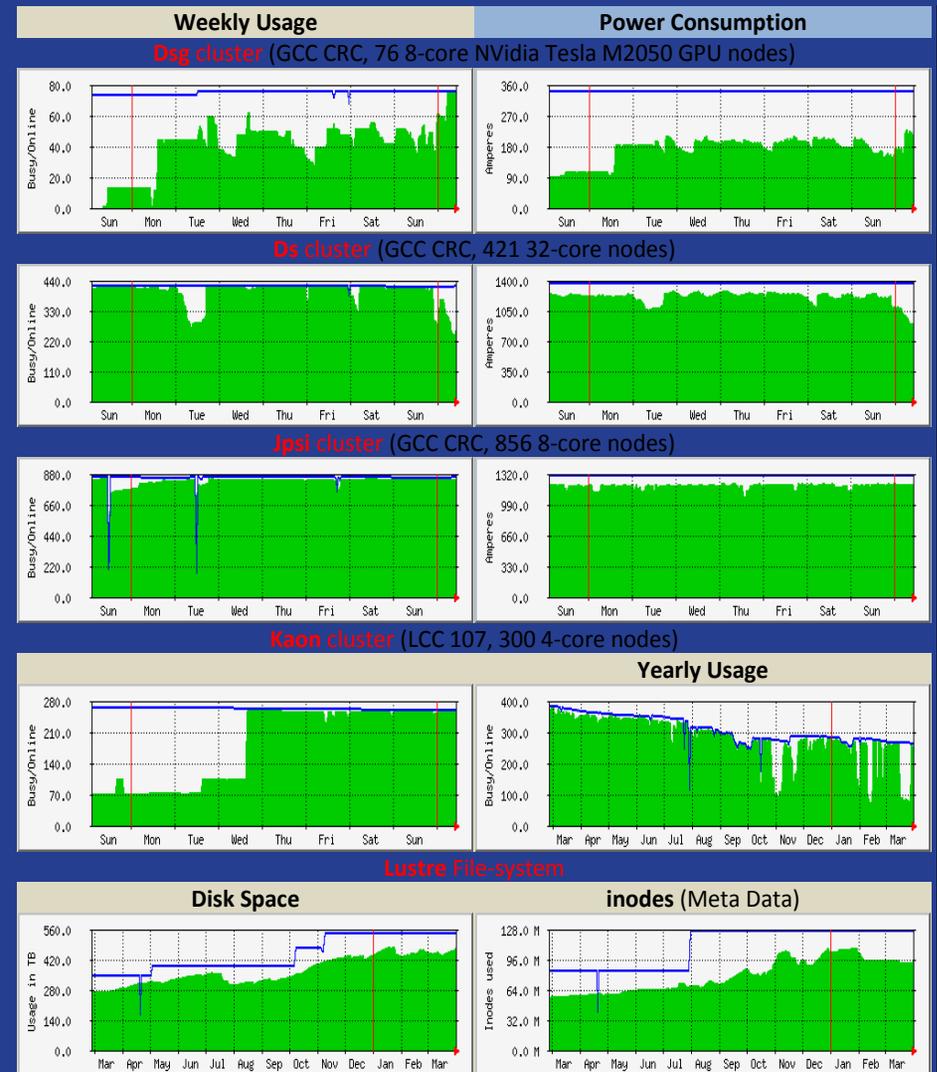
- example: `chadwick/cron/fermigrid0.fnal.gov@FNAL.GOV`

# HPC & Lattice QCD

Existing HPC & Lattice QCD [Ds, J/Psi, Kaon, Wilson] clusters are running well,

New GPU based HPC [Dsg] cluster deployed,

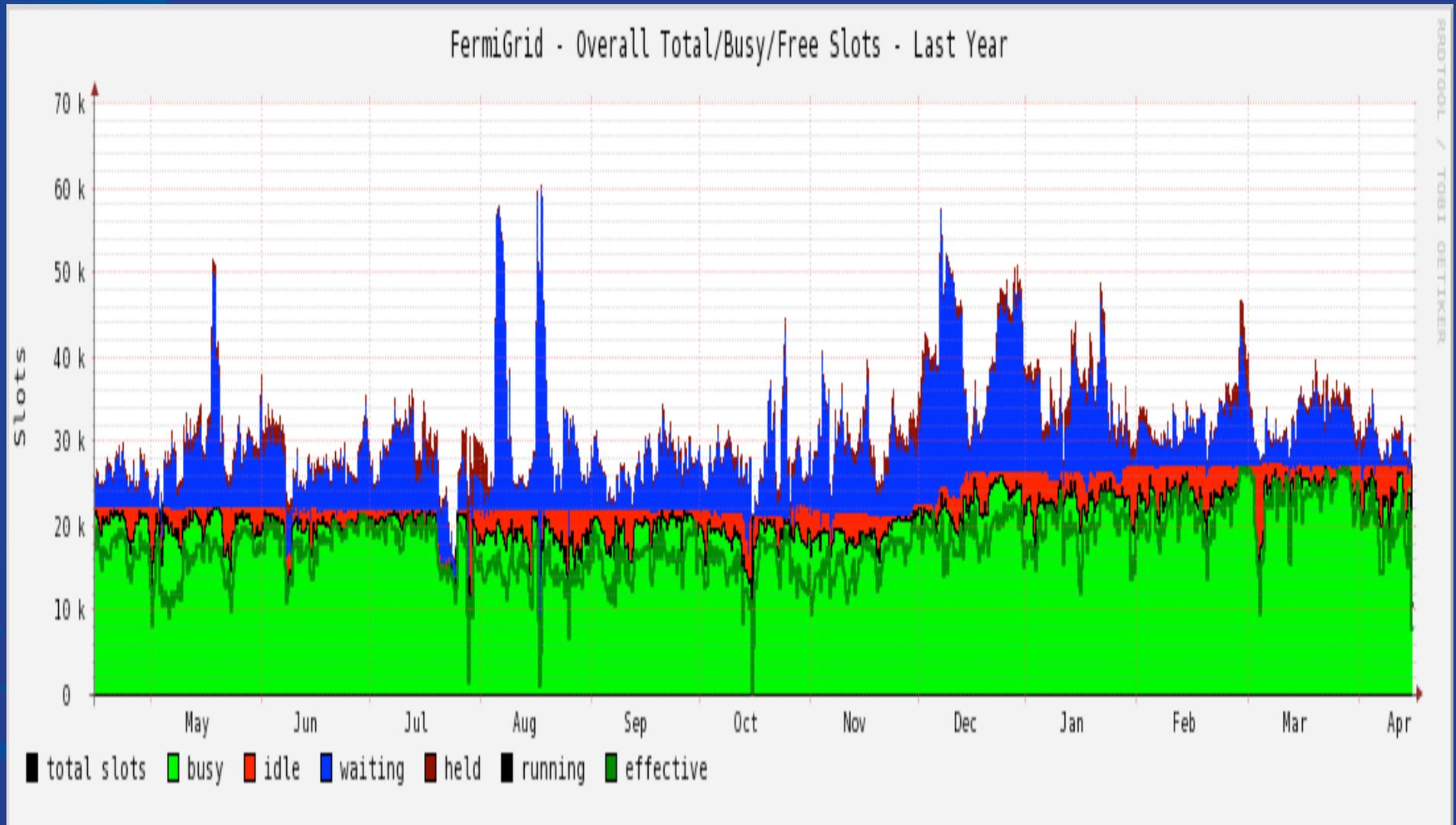
- Hardware delivered 9-Jan-2012,
- Had some teething pains with infant mortal hardware and power controller microcode,
- Released to user community the week of 5-Mar-2012.



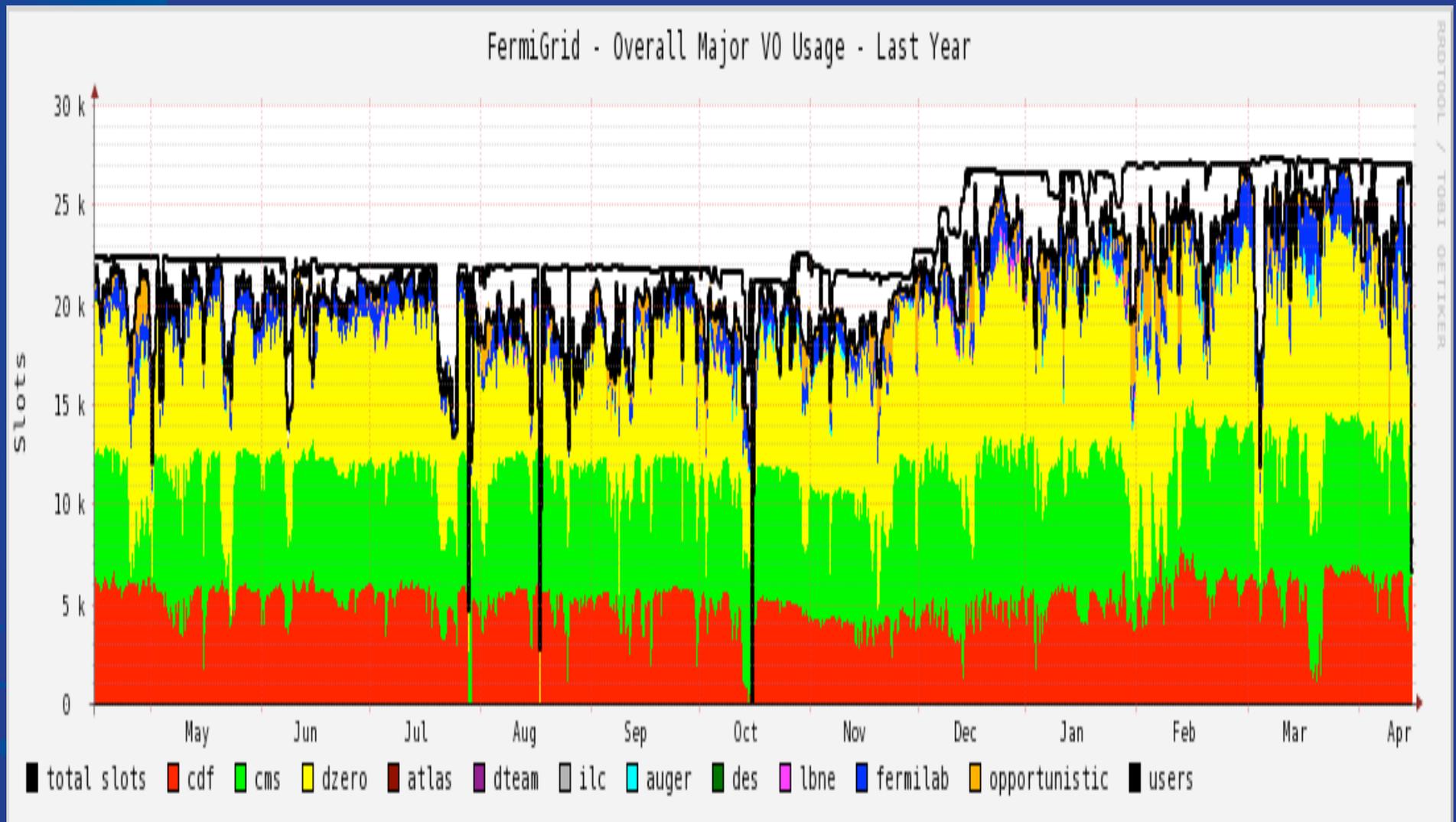
# Current FermiGrid Statistics (as of April 2012)

Cluster(s)	Batch System	Job Slots	Raw Occupancy	Effective Utilization
CDF (Merged)	Condor	6,260	94.3	75.5
CMS T1	Condor	7,784	94.5	85.9
D0 (Merged)	PBS	8,242	84.0	67.3
GP Grid	Condor	4,898	84.1	73.7
_____		_____	_____	_____
Overall-Today		27,184	89.4	75.8
Last Year		23,285	82.0	62.4

# FermiGrid Overall Usage



# Usage by Community



# FermiGrid Services

FermiGrid-HA2 Services deployment continues to operate well, significant events include:

A major Gratia accounting service upgrade for both Fermilab and the Open Science Grid (OSG) was deployed in December 2011:

- Without any downtime!

Latest VOMS/VOMS-Admin was deployed on 28-Mar-2012:

- We generated an unscheduled 8 hour outage of our (old) production VOMS servers while deploying changes to support the new production VOMS servers,
- We have identified several issues with the new production VOMS software and are in contact with the developers (the fixes are promised soon...).
- The current OSG Grid User Mapping Service (GUMS) also has an issue with the new VOMS (the GUMS developers have promised a fix soon – it is currently in testing).

Our MyProxy deployment has had a few problems over the past six months:

- Triggered by incompatible SL(F)/DRBD yum upgrades taking down both the primary and secondary copy,
- We have revised our MyProxy upgrade procedures,
- and have deployed extra MyProxy monitoring.

# FermiGrid Service Availability (measured over the past year)

Service	Raw Availability	HA Configuration	Measured HA Availability	Minutes of Downtime
VOMS – VO Management Service	99.667%	Active-Active	99.908% 	480
GUMS – Grid User Mapping Service	99.663%	Active-Active	100.000%	0
SAZ – Site AuthoriZation Service	99.622%	Active-Active	100.000%	0
Squid – Web Cache	99.663%	Active-Active	100.000%	0
MyProxy – Grid Proxy Service	99.374%	Active-Standby	99.749% 	1,320
ReSS – Resource Selection Service	99.779%	Active-Active	100.000%	0
Gratia – Fermilab and OSG Accounting	99.195%	Active-Standby	100.000%	0
MySQL Database	99.785%	Active-Active	100.000%	0

# FermiGrid "Core" Service Metrics (measured over the past year)

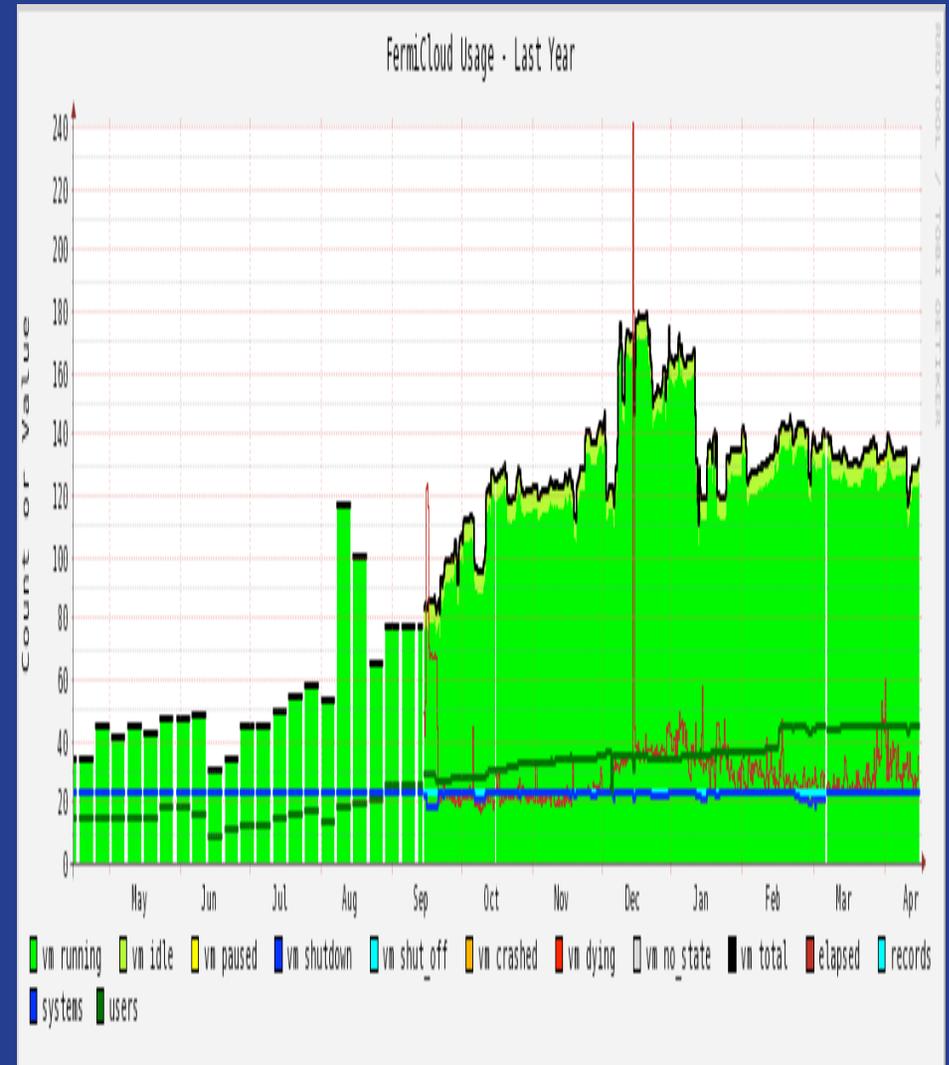
Service	Calls per Hour Average / Peak	Calls per Day Average / Peak
VOMS – VO Management Service	87 / 800	1.6K / 19K
GUMS – Grid User Mapping Service	17.3K / 114.1K	415K / 1.25M
SAZ – Site AuthoriZation Service	14.6K / 150.3K	350K / 1.23M
Squid – Web Cache	-not measured-	8.24M / 92M
MyProxy – Grid Proxy Service	867 / 8.5K	18.1K / 83.7K

# FermiCloud

We are in the process of deploying distributed & replicated SAN hardware, together with the software deployments to allow VM live migration between buildings,

We have some exciting results regarding cloud accounting and virtualized MPI,

More in my “FermiCloud” update talk later this week.



# Openings!

Fermilab has a number of positions open:

- System Administrators,
- Computing Services Specialists,
  - CSS III in the Grid and Cloud Computing Department
- Database Administrators,

If you are interested, please visit:

- <https://fermi.hodesiq.com/>

# Thank You!

## Any Questions?