



Computation Institute

# Campus Grids

Rob Gardner

Area Coordinators Report

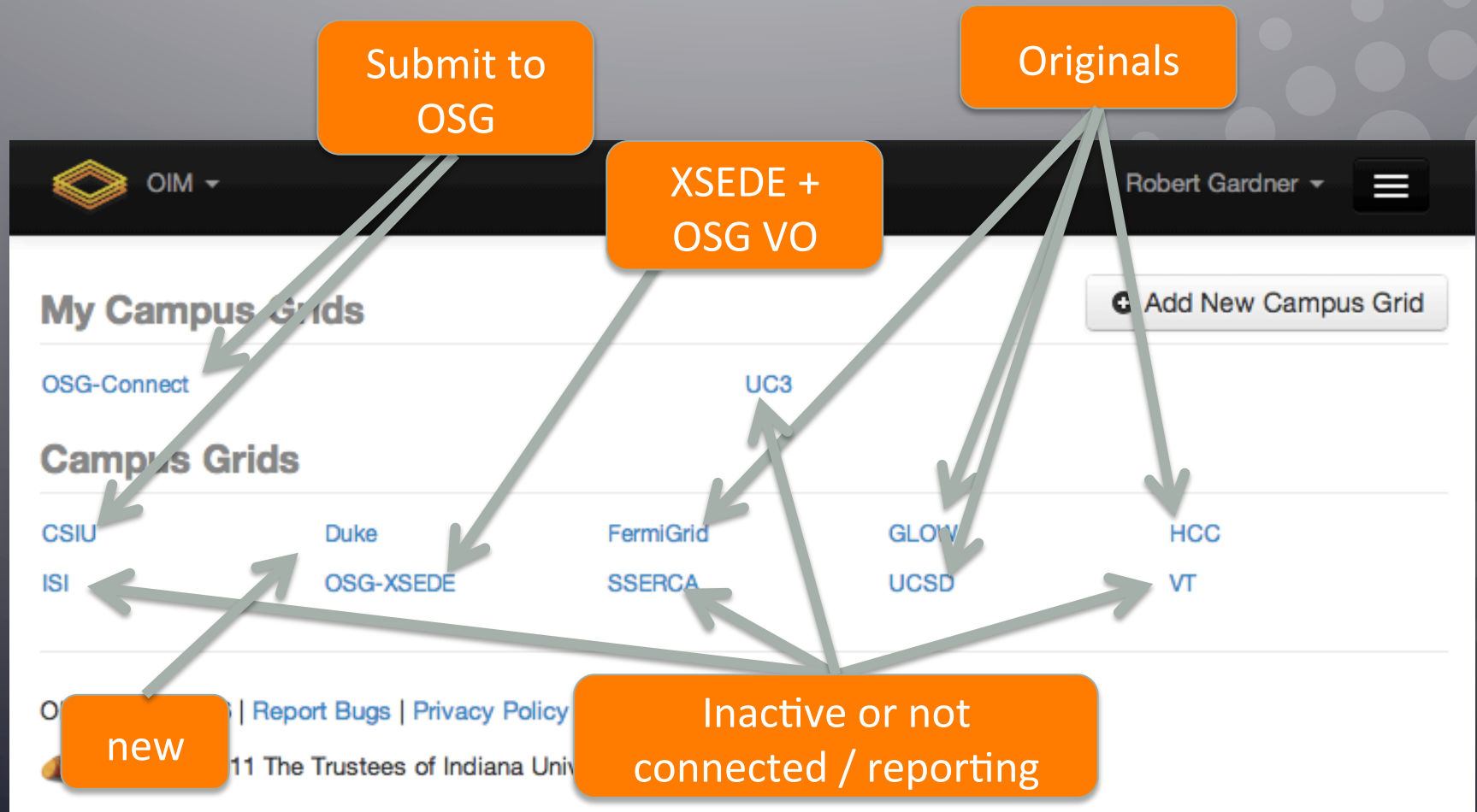


# Overview

- Campus Grids Overview
- OSG Connect Status
- Duke CI Campus Grid Status
- Campus Infrastructures Day at OSG AHM
- Project planning

# Campus Grids Overview

- Mix of campus grid types and activity level



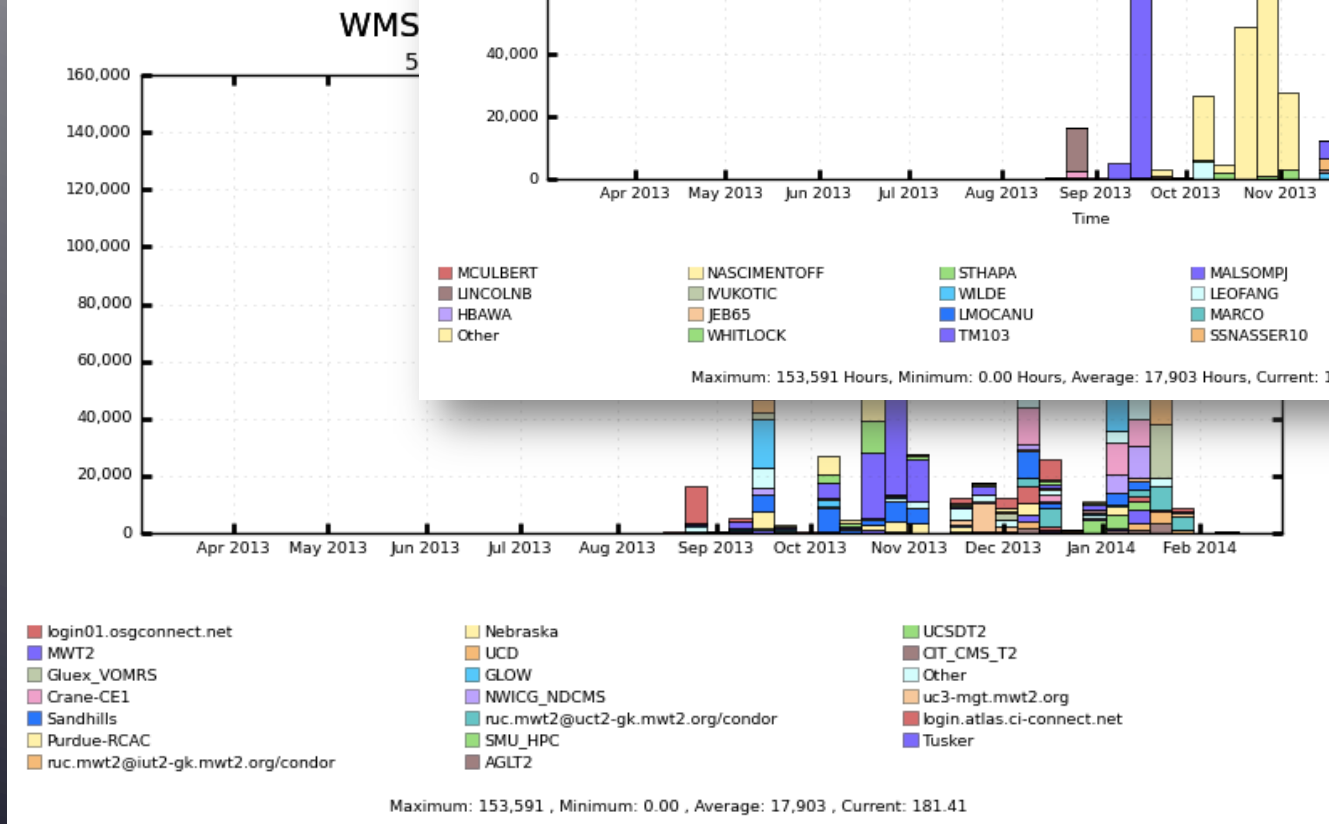
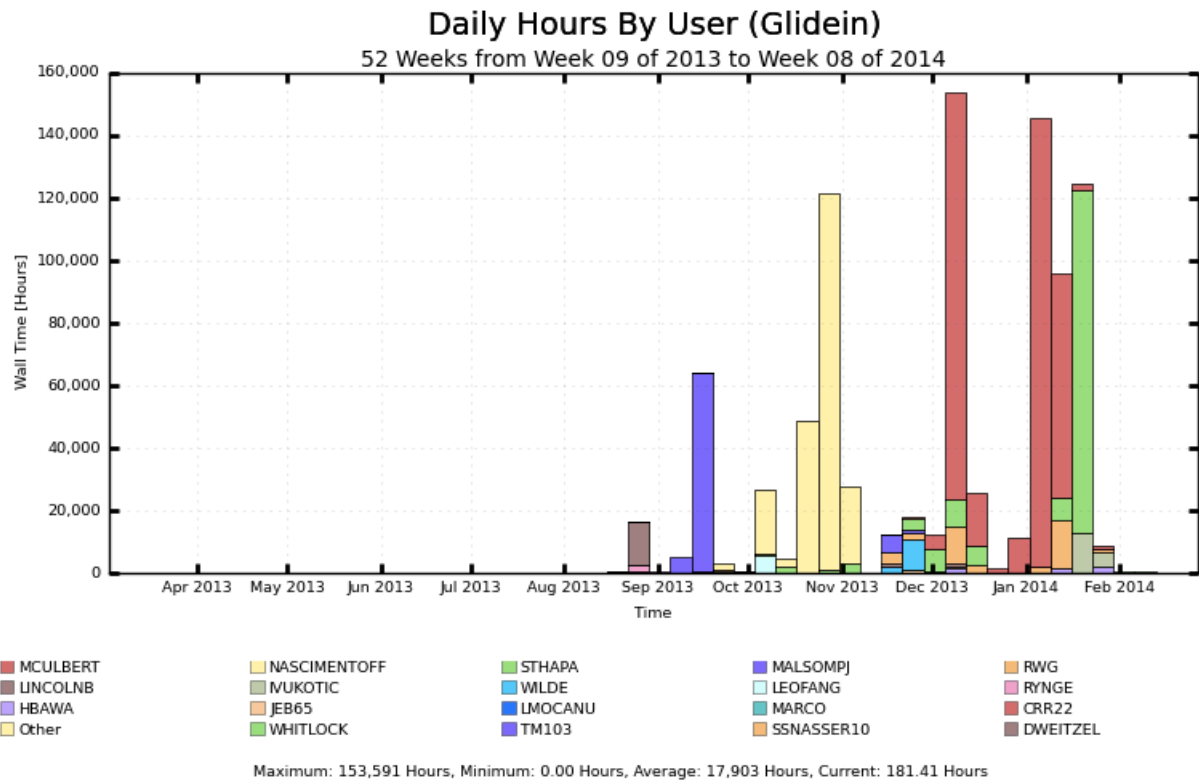
Would like to get  
easier, comparative  
view of campus grid  
production

# OSG Connect Status

- Infrastructure remains stable
- Now sits in Science DMZ with 80 Gbps network
- Use pattern is chaotic and underwhelming though
  - Additional effort to be applied on engagement and follow-up (more on this later)

# OSG Connect Usage

Peak 150k hours per week



# New Project: DB Concepts

- Digital literature project at UChicago
- Interdisciplinary collaboration
  - English literature (PI), sociologist, literature faculty focusing on medicine and health, computer scientist, and a physics grad student
- Searching the Google books/HathiTrust scanned-text corpus
  - About 2 million volumes from various academic libraries
  - Graphs ("networks") of word associations broken down by time period.
  - They want to discover through this network analysis how the way that people write about such words varies through time, over a span of 100 years or so
- Dataset stored on Stash: 1.7 TB, 6M files
- Software needs are minimal – python and C.
- Condor and DAGMAN scripts provided by the Ph.D. physics student



### osg.DBConcepts

[Home](#)[Members](#)[Subgroups](#)[Settings](#)

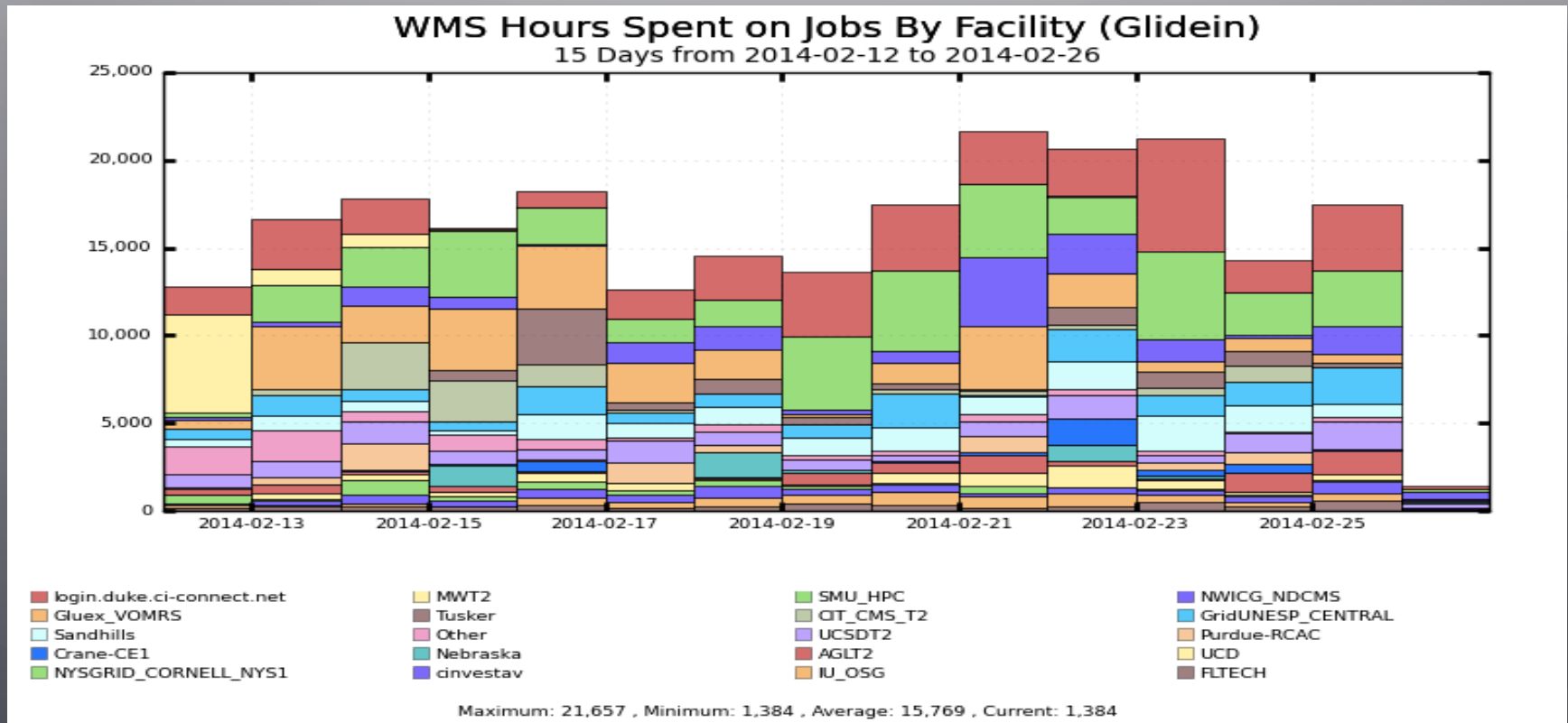
connect > osg > osg.DBConcepts

edit

Project Name: Database Concepts  
Short Project Name: DBConcepts  
Field of Science: Other  
Field of Science (if Other): Digital Humanities/English Literature  
PI Name: Richard Jean So  
PI Email: richardjeanso@uchicago.edu  
PI Organization: University of Chicago  
PI Department: English & American Literature  
Join Date: 5 Feb 2014  
Sponsor: OSG Connect  
OSG Sponsor Contact: David Champion  
Project Contact: Monica Lee  
Project Contact Email: monicalee@uchicago.edu  
Telephone Number: 630-415-4546  
OIM: <https://oim.grid.iu.edu/oim/project?id=62>

We're conducting a network analysis of a 10% sample (1.6TB; 3.6m files) of the Google Books corpus.

# Duke CI Connect ([duke.ci-connect.net](http://duke.ci-connect.net))



- The Duke Condor grid bridged to UC3 and flocked to OSG
- No operational issues, no support needed
- Only one (very happy) user chooses to allow jobs to OSG (QCD theory)
  - Again, an engagement opportunity



# Duke CI Connect – more on usage

## Welcome

What is virtually available

### Pool Summary

Pool	Total Slots	Running	Idle	Owner	Status	Detailed View
Duke Condor Grid	428	384	16	28		<a href="#">Usage</a> <a href="#">Jobs</a>
Open Science Grid	1325	997	328	0		<a href="#">Usage</a> <a href="#">Jobs</a>
UChicago Computing Cooperative	504	278	226	0		<a href="#">Usage</a> <a href="#">Jobs</a>
<b>Total</b>	<b>2257</b>	<b>1659</b>	<b>570</b>	<b>28</b>		<a href="#">Usage</a> <a href="#">Jobs</a>



Jobs by State



Jobs by Owner



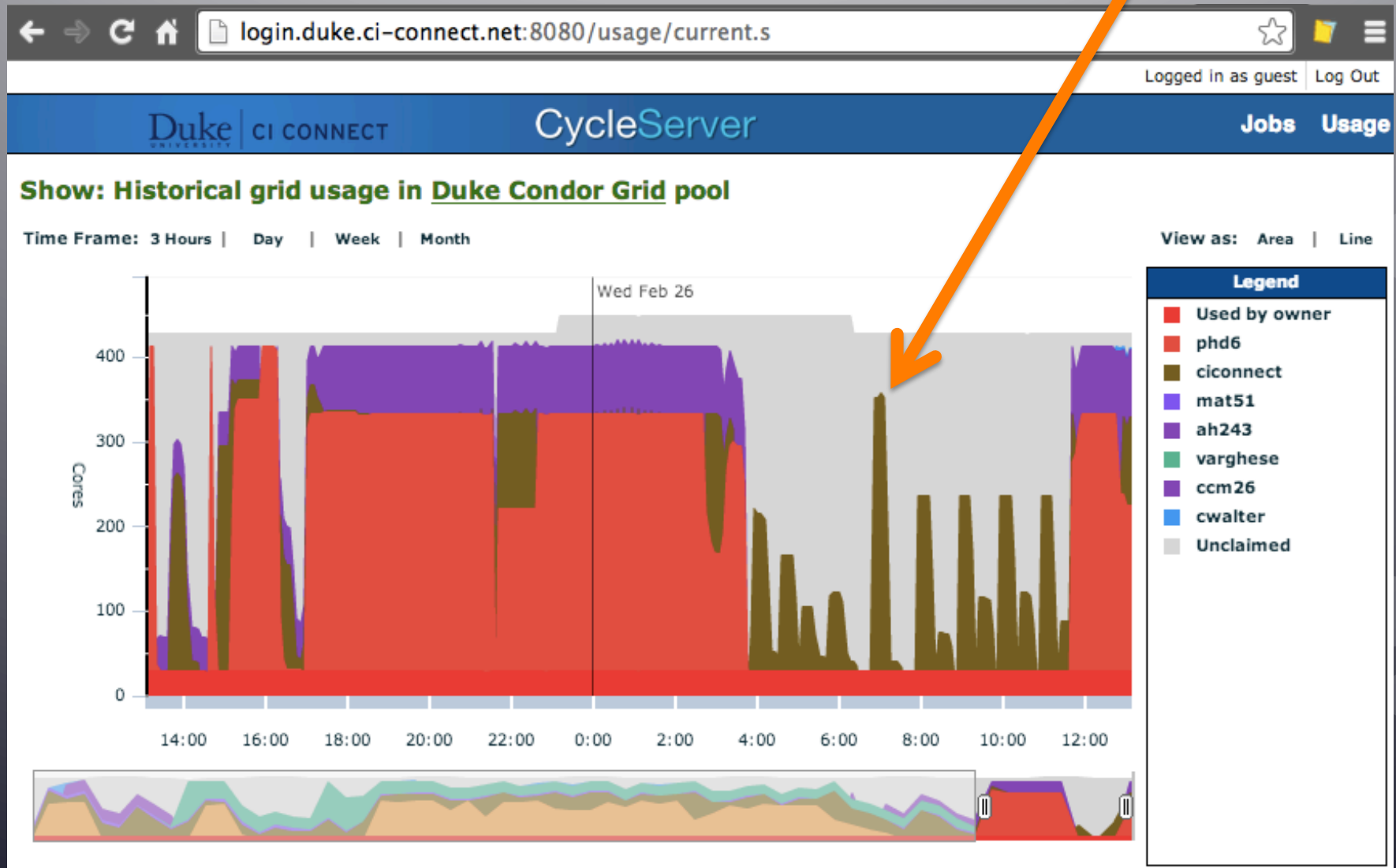
Slots by State



Slots by Owner

# Duke Grid only

A mix of local users and “returned” flocks



# OSG Campus Infrastructures Day at OSG AHM

09:00	<b>3 - Campus Infrastructures Community - Introduction</b> <i>Gardner, Robert</i>		
10:00	SLAC <span style="float: right;">09:00 - 10:30</span>		
	Morning Break		
	SLAC <span style="float: right;">10:30 - 11:00</span>		
11:00	<b>16 - Campus Grids and Bridges</b> <i>Gardner, Robert</i>	<b>11 - OSG Connect Tutorial</b> <i>Champion, David</i>	<b>12 - Throughput Challenge</b> <i>Quick, Rob</i>
14:00	<b>13 - Usability for Science: Research Experiences</b>  SLAC <span style="float: right;">14:00 - 15:00</span>		
15:00	<b>14 - Advanced Services</b>  SLAC <span style="float: right;">15:00 - 16:00</span>		
16:00	Afternoon Break		
	SLAC <span style="float: right;">16:00 - 16:30</span>		
	<b>15 - Panel Discussion: Campus grids and campus bridging as tools for enabling campus researchers</b>  SLAC <span style="float: right;">16:30 - 17:10</span>		
17:00	<b>5 - The DHTC-way Forward for Campuses</b> SLAC <span style="float: right;">17:10 - 17:30</span>		

# Campus Grids in the works

- University of Michigan
  - Working with Shawn on Flux HPC resource
  - <http://arc.research.umich.edu/flux/>
  - Will be a Flux + UMich Physics + UC3 bridge and a flock to OSG
- Chicago: the current UC3 operates without flocking to OSG. Plan to change that it gets recast as UC3 CI Connect

# Other activities

- Working on Bosco flocking services to Midway Cluster at UC Research Computing Center and TACC Stampede for ATLAS
  - (with aligned goal of deploying submit service on OSG Connect)
  - SLURM schedulers
  - No local support for either CVMFS or OASIS
  - Parrot job wrappers, transparent to users
  - Working, but evaluating performance overheads
  - Using Ceph object store at UC for job IO (same backend used for Stash; http + Globus interfaces)
  - For both resources, we need to make group-level allocation requests
  - Not possible currently to map to individual PI's account and allocation with common service



# Stampede work to inform a general **OSG Connect → XSEDE service**

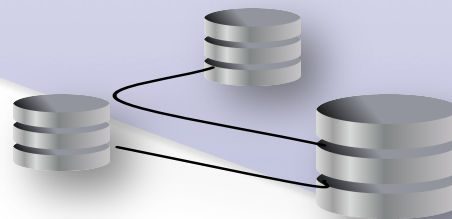
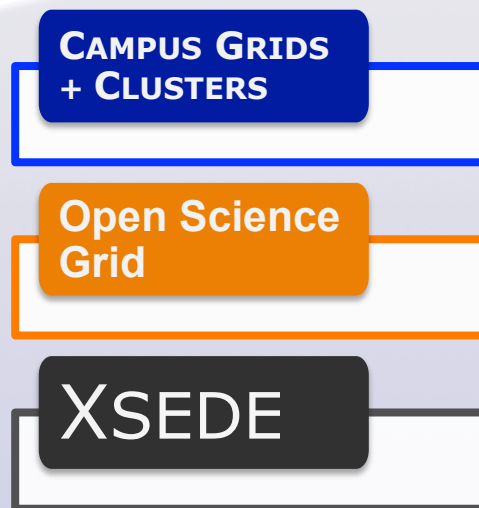
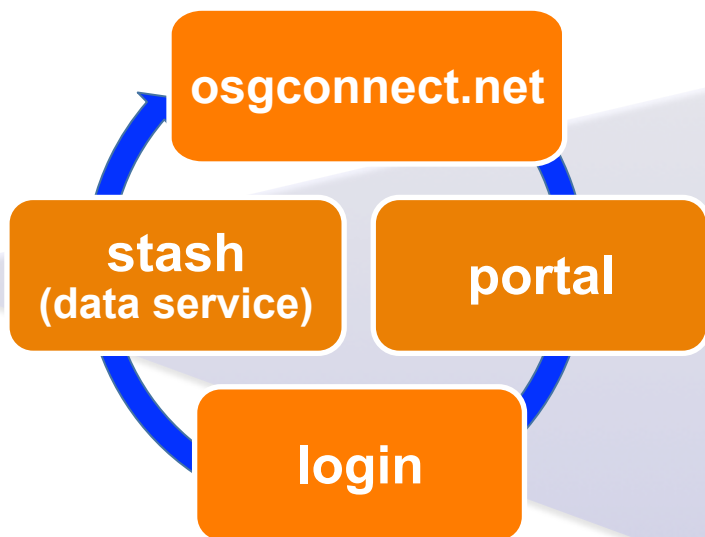
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- The experience with ATLAS Connect and Stampede can be leveraged for campus researchers with high throughput workloads
- Minimizing XSEDE admin load while hiding complexity for users
  - Simple SSH to submit nodes
  - Remotely mount OASIS software service
  - BOSCO factories for glideins
  - Use http for caching user binaries



Open Science Grid

# OSG Connect + XSEDE (will require blueprint discussion)



## osg connect

R. Gardner

# Project Issues and Plans

- As mentioned earlier, campus engagement has been lacking mostly due to effort
- Negotiating with Tim to move 50% Suchandra to campus
- Search for Research Professional to be based at UChicago
  - Slow going... lots of go-rounds with HR w.r.t. job classification
  - This position will require a PhD
  - I will send around the announcement and description as soon as its officially posted