



Open Science Grid

OSG Production Support

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Fermilab

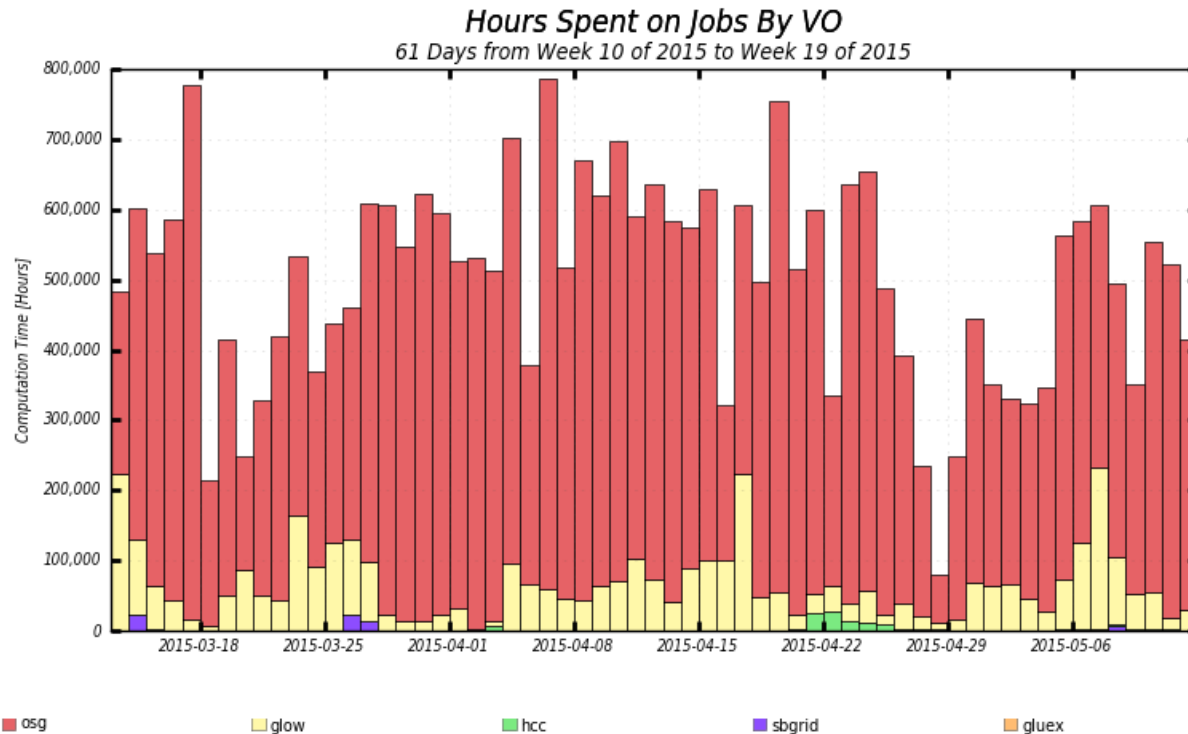
OSG Area Coordinators Call
May 13, 2015

Mission of Production Support

1. Growing the opportunistic pool of the OSG
 - Add sites to opportunistic sphere
 - Improve on methods and technology to access opportunistic resources more efficiently
2. Help experiments (and VOs) access the opportunistic sphere
 - *e.g.* find the right VO for experiments (OSG for PHENIX, Fermilab for the FNAL IF experiments)
3. Be a catalyst for projects and technologies that help VOs run opportunistically
 - *e.g.* XRootD-based StashCache system for distributed storage access

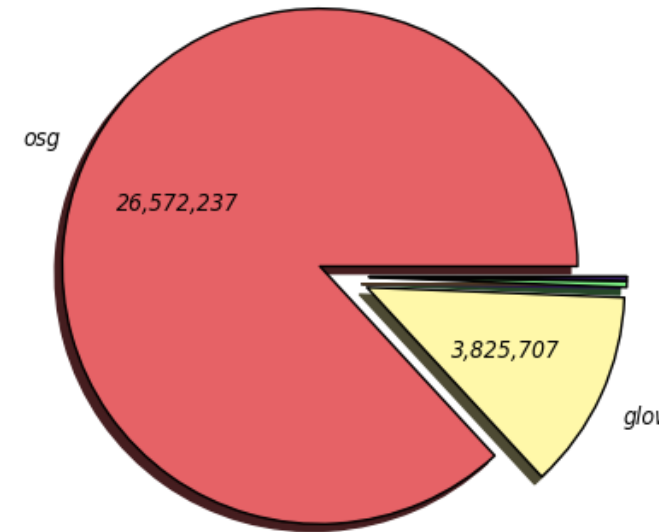


Opportunistic VOs



Maximum: 785,437 Hours, Minimum: 79,703 Hours, Average: 501,459 Hours, Current: 413,988 Hours

**Wall Hours by VO (Sum: 30,589,058 Hours,
9 Weeks from Week 10 of 2015 to Week 19 of 2015**



- Past two months (since last AC presentation)
- 30.6M wall hours — **21%** of all OSG hours



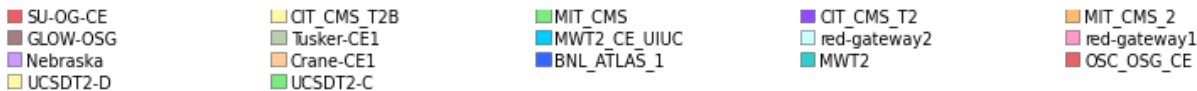
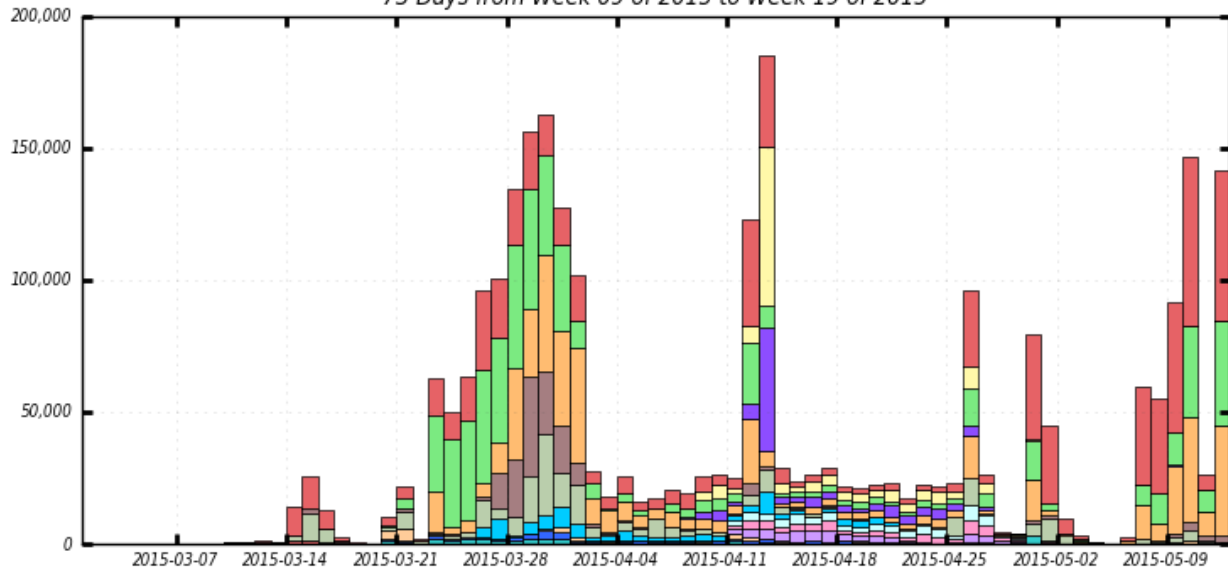
10 Largest Sites in April

| Site | Total | Percent | Opportunistic VOs | | | | Total Opp |
|-------------------|------------|---------------|-------------------|---------|------------|--------|------------|
| | | Opportunistic | glow | hcc | osg | sbgrid | |
| Total (all sites) | 71,055,170 | 22% | 1,624,498 | 105,123 | 13,983,722 | 101 | 15,713,444 |
| CIT_CMS_T2 | 3,740,081 | 65% | 433,164 | 5,718 | 1,994,352 | 10 | 2,433,244 |
| Nebraska | 3,208,588 | 75% | 327,814 | 2,690 | 2,091,254 | | 2,421,758 |
| SU-OG | 2,280,215 | 89% | 104,859 | 54,777 | 1,878,958 | 2 | 2,038,596 |
| MIT_CMS | 2,979,428 | 58% | | 1,945 | 1,720,257 | 26 | 1,722,228 |
| Tusker | 1,443,098 | 84% | 57,527 | 461 | 1,147,567 | | 1,205,555 |
| Purdue-Hadoop | 1,445,378 | 50% | 65,955 | 904 | 655,657 | 14 | 722,530 |
| FNAL_FERMIGRID | 7,836,830 | 9% | 90,873 | 227 | 592,046 | | 683,146 |
| USCMS-FNAL-WC1 | 7,462,100 | 9% | 82,532 | 2,035 | 570,207 | | 654,774 |
| UCSDT2 | 1,452,613 | 41% | 100,008 | 2,027 | 493,140 | 31 | 595,206 |
| MWT2 | 5,205,889 | 10% | 137,281 | 6,405 | 388,295 | | 531,981 |



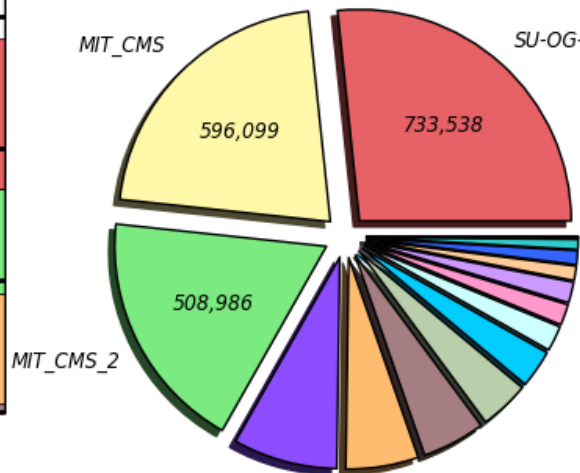
Recent success: mu2e

Hours Spent on Jobs By Facility
73 Days from Week 09 of 2015 to Week 19 of 2015



Maximum: 184,980 , Minimum: 17.07 , Average: 37,698 , Current: 141,524

Wall Hours by Facility (Sum: 2,752,005 Hour)
11 Weeks from Week 09 of 2015 to Week 19 of 2015



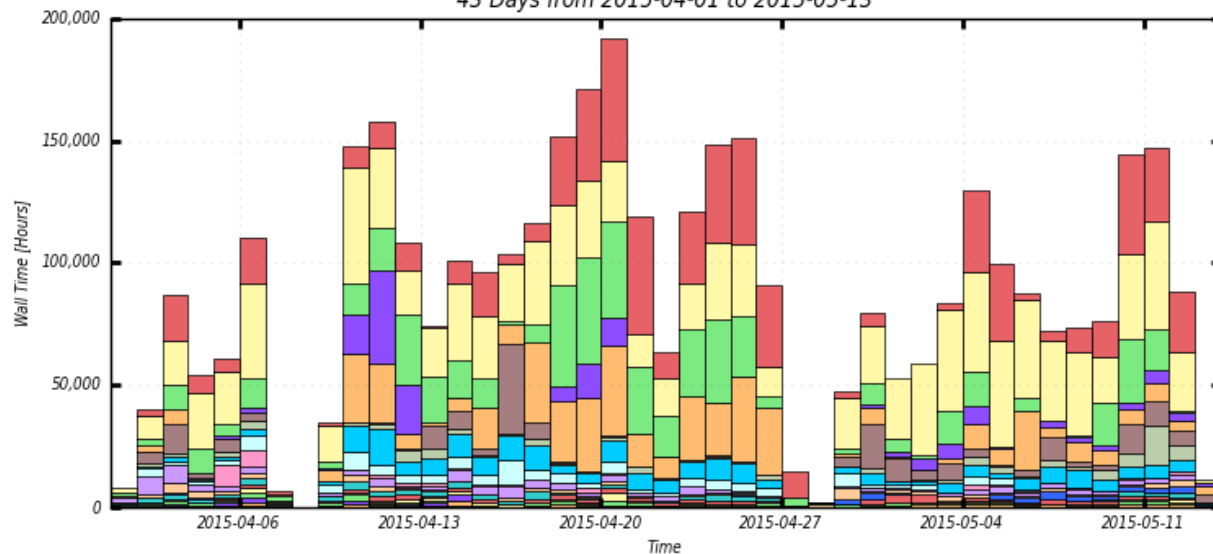
- Large production campaign through ~September
- Nearly 3M off-FNAL hours this year
- Some site-specific hiccups but support being utilized



Recent success: sPHENIX

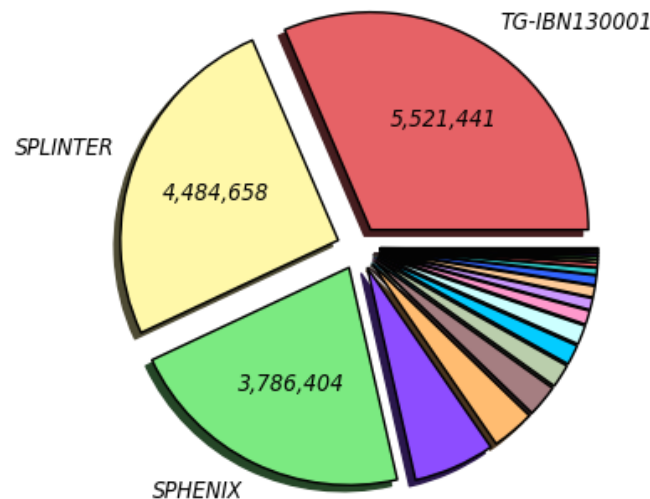
Daily Hours By Project and Site

43 Days from 2015-04-01 to 2015-05-13



Wall Hours by VO (Sum: 17,557,412 Hours)

43 Days from 2015-04-01 to 2015-05-13



Maximum: 191,837 Hours, Minimum: 283.78 Hours, Average: 88,053 Hours, Current: 11,697 Hours

- Studies for upgraded PHENIX detector at BNL (~5 trillion collisions)
- Expected to continue through the end of this month
 - Able to ramp up rapidly - #3 project on OSG in that time



Visualization tools: treemaps

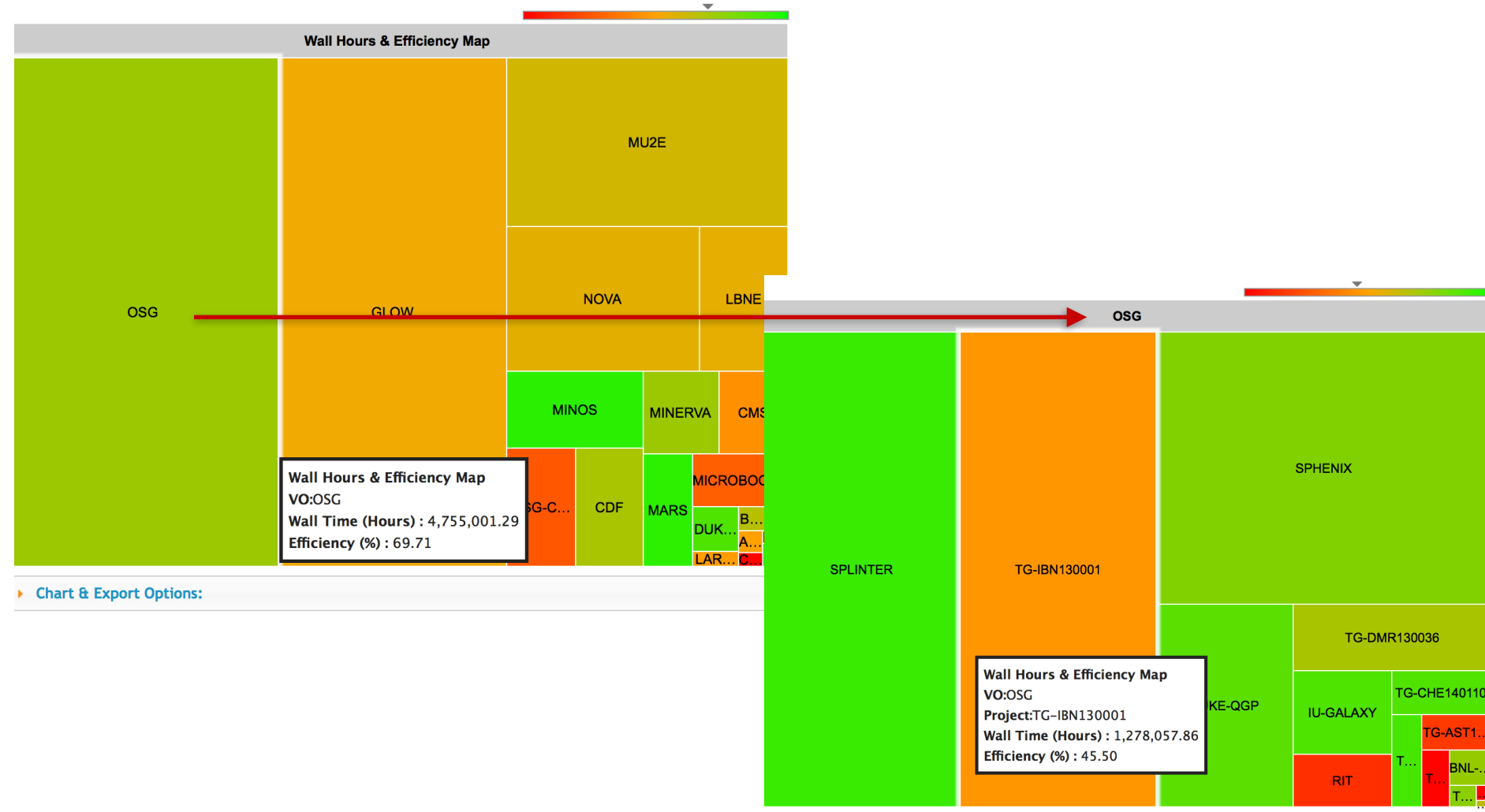


Chart & Export Options:

Upcoming: SDSC Comet

- New HPC Installation at SDSC: Comet
 - “HPC for the 99%” (see M. Norman’s [talk at 1/14/15 Council meeting](#))
 - 45K cores, online now
 - Targeted user base similar in profile to OSG/DHTC users (jobs that don’t require massive MPI and tend to be shorter)
- Plan: implement OSG-CE in front of Comet
 - Allows users with OSG experience who also have a Comet allocation to run on both easily using the same code/tools
 - Support/onboarding of users by production support group
 - Many open questions still (e.g., accounting)

Current concerns/work

- Can we grow any more?
 - Current accounting of “opportunistic” is incomplete
 - New options for gratia to truly show opportunistic hours (run on sites not owned by VO) being tested and soon deployed
 - Rough estimate is ~17M/month for the past 3 months
 - Are there structural limitations? Test proposed at last council meeting to be carried out
- New site integration
 - FIU in testing now
- StashCache testing for use cases outside of OSG Connect
 - Timing tests for NOvA flux files comparing dCache and Stash done at Fermilab. Soon to be done at Nebraska.



Open Science Grid

Backup



Personnel

User Support

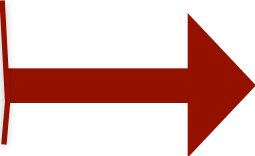
| Name | Institution |
|----------------|-------------|
| Alex Zaytsev | BNL |
| Marko Slyz | FNAL |
| Tanya Levshina | FNAL |
| Bo Jayatilaka | FNAL |
| Chander Sehgal | FNAL |
| Mats Rynge | ISI |
| Emelie Harstad | Nebraska |



Production Support

| Name | Institution | FTE |
|--------------------|-------------|-------------------|
| Alex Zaytsev | BNL | 0.10 |
| Marko Slyz | FNAL | 0.60 |
| Tanya Levshina | FNAL | 0.25 |
| Bo Jayatilaka | FNAL | 0.75 |
| Chander Sehgal | FNAL | <i>ex officio</i> |
| Robert Illingworth | FNAL | 0.50 |

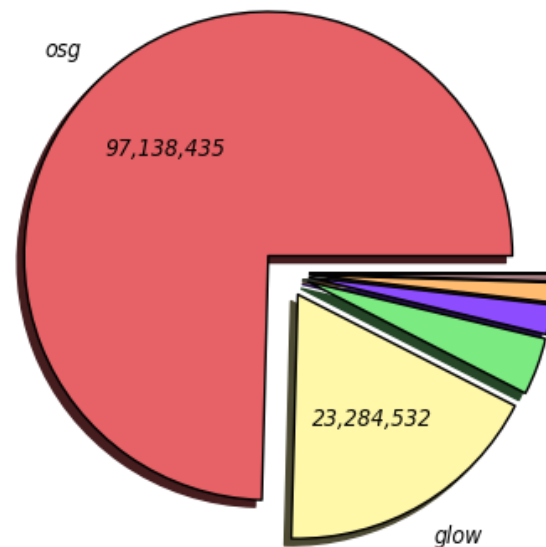
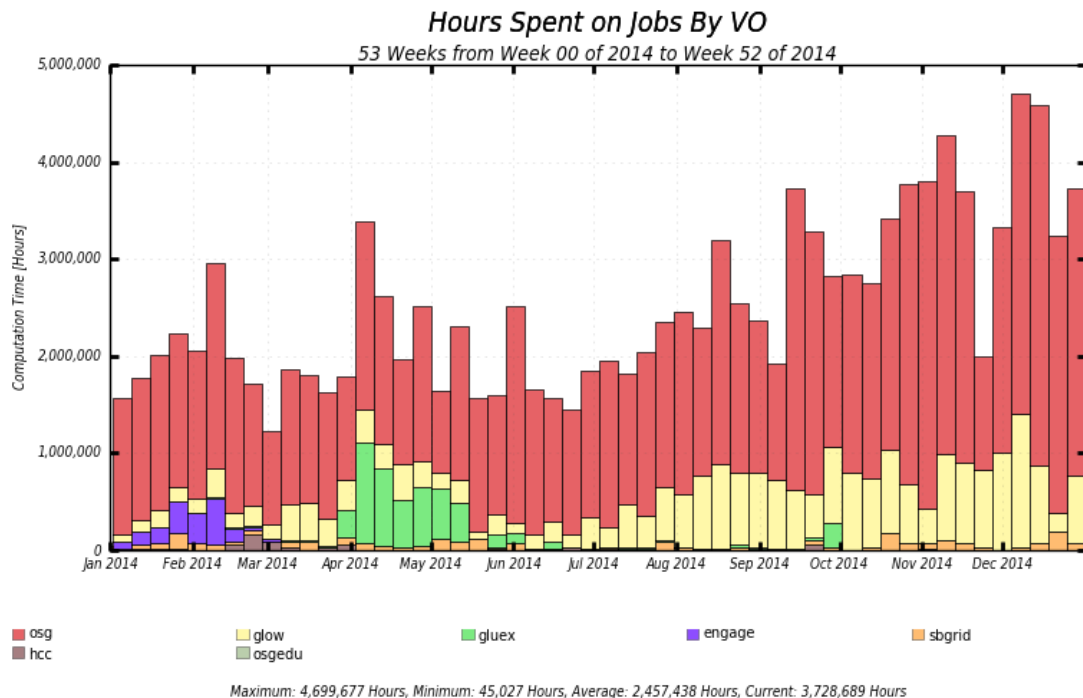
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Campus
Grids



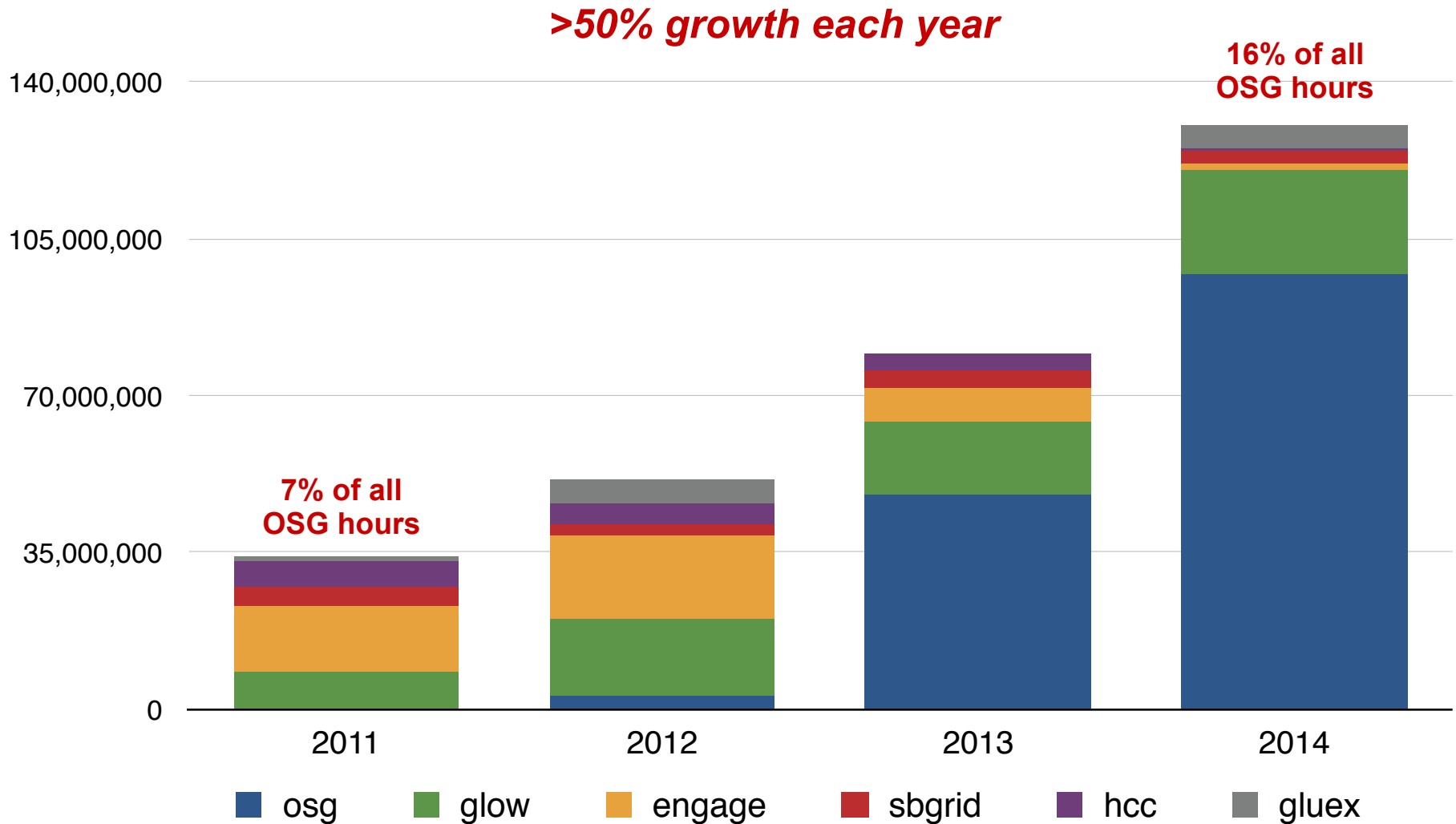
Opportunistic Computing in 2014



- Primarily opportunistic VOs (osg, glow, gluex, engage, sbgrid, hcc) received **130M wall hours** in 2014
 - 16% of all OSG hours

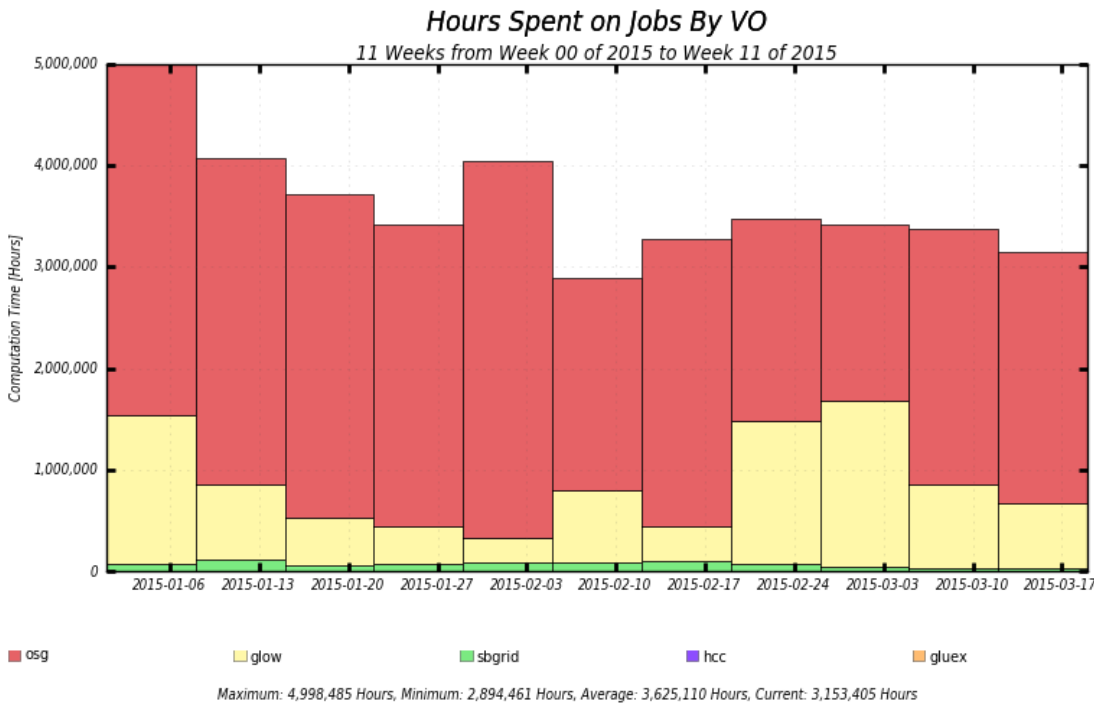


Growth of Opportunistic VOs

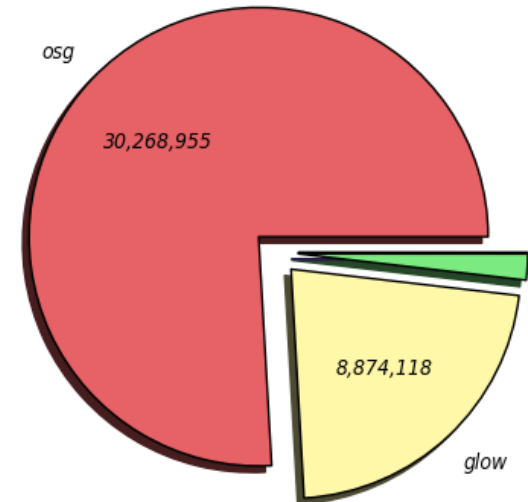




Opportunistic in 2015 so far



Wall Hours by VO (Sum: 39,876,209 Hours)
11 Weeks from Week 00 of 2015 to Week 11 of 2015

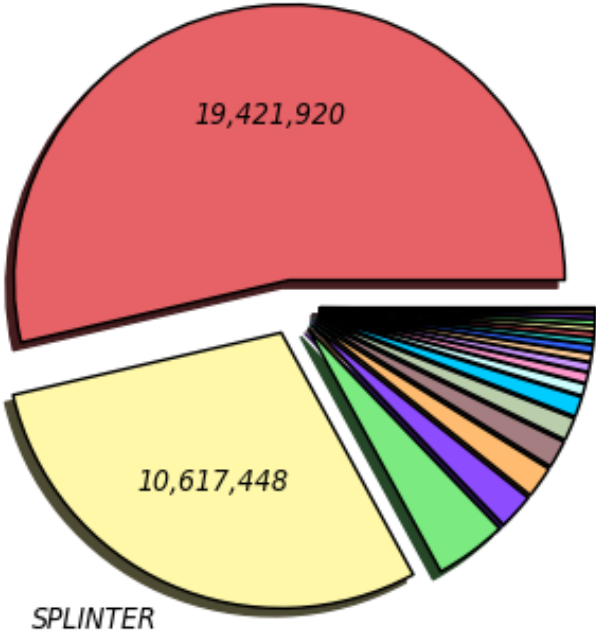


- Total of **39.9M** hours to-date in 2015 for primarily opportunistic VOs
 - ~24% of all OSG hours



Open Facility for US Researchers

Wall Hours by VO (Sum: 36,210,244 Hours)
90 Days from Week 50 of 2014 to Week 11 of 2015
TG-IBN130001



| | | | |
|---------------------------|-------------------------|----------------------------|----------------------|
| TG-IBN130001 (19,421,920) | SPLINTER (10,617,449) | ALGDOCK (1,525,831) | RIT (766,192) |
| DUKE-QGP (671,108) | TG-CHE140110 (584,142) | ERRORSTUDY (483,413) | BNL-PHENIX (426,798) |
| UCHICAGO (247,998) | UPRRP-MR (223,627) | DETECTORDESIGN (193,543) | ICECUBE (173,940) |
| Other (164,780) | DUKE-4FERMION (131,857) | PROTEVOL (119,122) | PHENO (115,511) |
| CONNECTTRAIN (111,108) | CENTAURSIM (98,359) | ATLAS-ORG-OKSTATE (84,660) | DEERDISEASE (48,887) |