Adding a Bosco backend to HTCondor-CE

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Motivation

- Sites want an easy on-ramp to the OSG but the OSG full-stack can be daunting!

- However, most sites:

  - Can allow SSH pubkey-based auth.

  - Can easily add user accounts.

- Idea behind BOSCO: Utilize SSH as a gateway.

Motivation

- BOSCO has been used for awhile by the OSG-Connect team. However,

  - Operational effort for this team — effort spent here means they can't spend it elsewhere.

  - Accounting information doesn't show up correctly in Gratia.

  - Results in a slightly different pilot environment.

Our Proposal

- Create a new backend to the standard HTCondor-CE.

- Glideins submitted to this HTCondor-CE are routed to a remote job submission through Bosco

- Transparent to the users, glideins will come from GlideinWMS factories
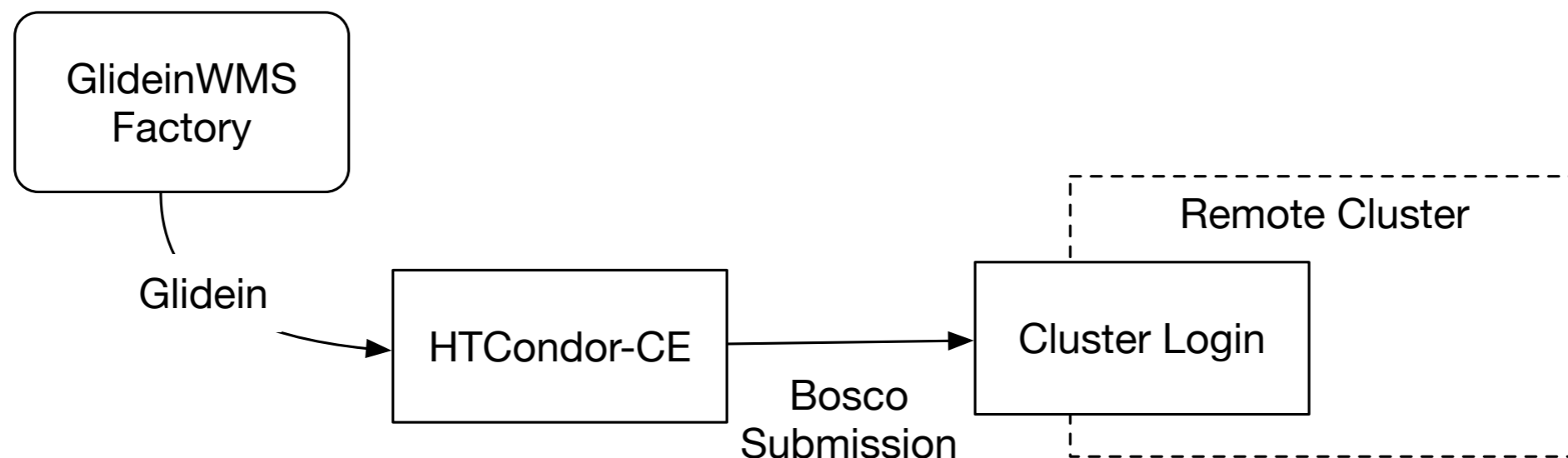
Installation

- `yum install htcondor-ce-bosco`

- A simple configuration in `osg-configure`.

- `osg-configure -c` will setup Bosco on the CE and the remote cluster.

Why Bosco?

- Stable and supported by the HTCondor team

- Bosco is quietly being used through the OSG

- For example …

How it's currently being done

- Last week, AMS began submitting to a local MIT Slurm cluster.

Daily Hours By Project and Site
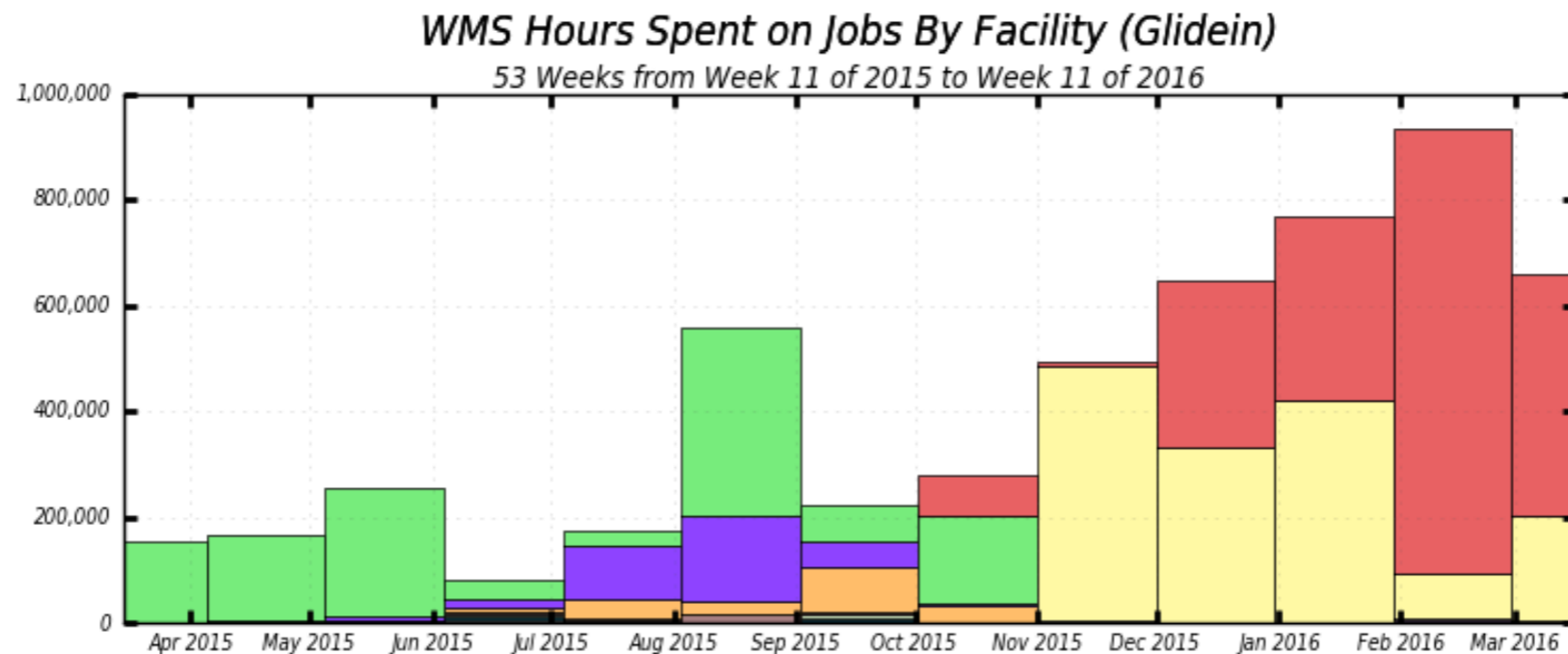10 Days from 2016-03-05 to 2016-03-14
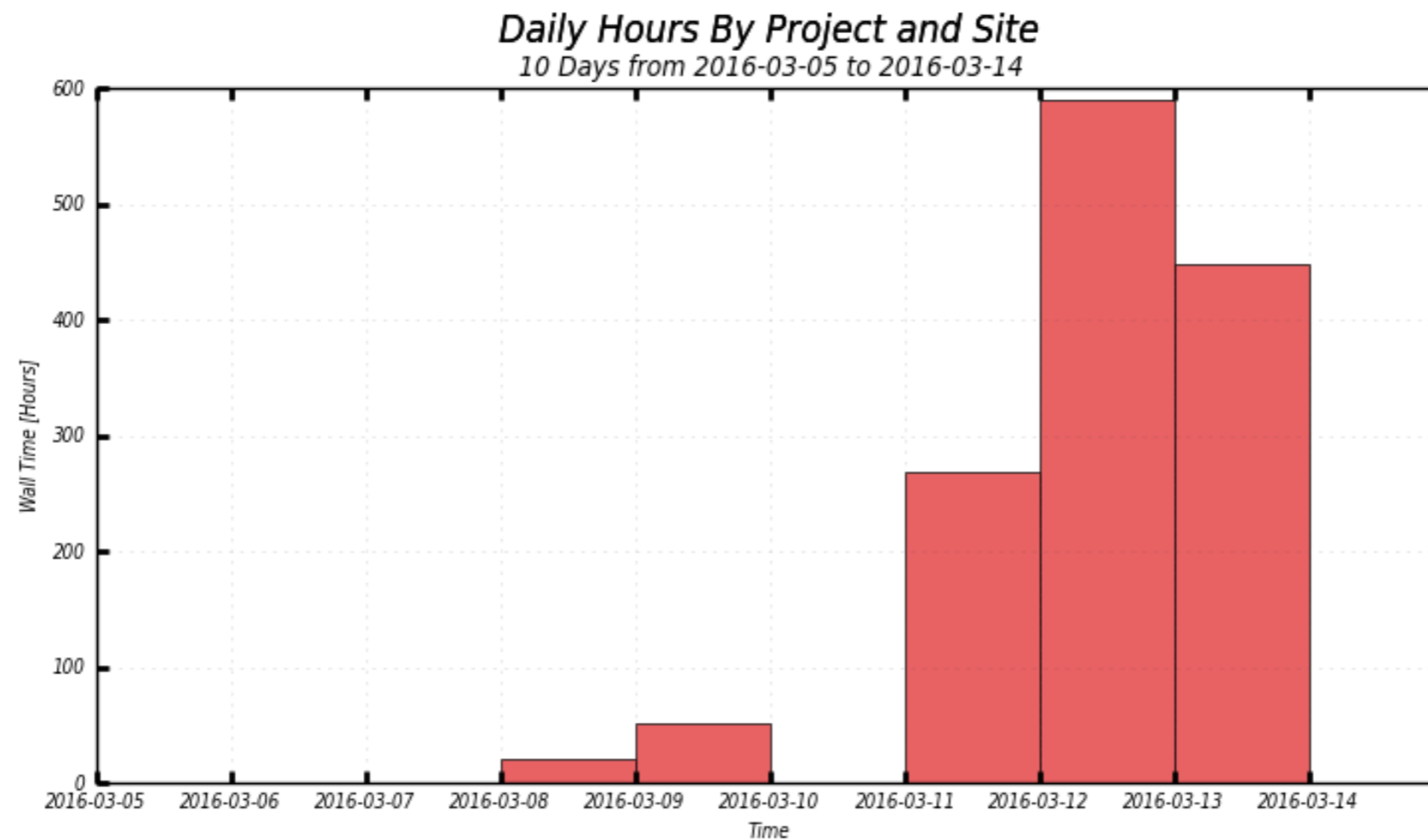
AMS , boj@eofe4.mit.edu/pbs

Maximum: 590.21 Hours, Minimum: 0.00 Hours, Average: 153.18 Hours, Current: 447.57 Hours

How it's currently being done

- Bosco is being used all of the OSG, and growing!

5,400,000 Hours

WMS Hours Spent on Jobs By Facility (Glidein)
53 Weeks from Week 11 of 2015 to Week 11 of 2016

Legend:
- SU-OSG-CONNECT
- osgconnect@its-condor-submit.syr.edu/condor
- rccf-osg.ci-connect.net:11012?sock=collector
- rccf-atlas.ci-connect.net:11027?sock=collector
- rccf-atlas.ci-connect.net:11024?sock=collector
- UCHICAGO-ZC-CLOUD-CONNECT
- login.ci-connect.uchicago.edu
- rccf-osg.ci-connect.net:11013?sock=collector
- duke-login.osgconnect.net
- CLEMSON-CONNECT
- login01.osgconnect.net
- atlasconnect@gate04.aglt2.org/condor
- rccf-atlas.ci-connect.net:11023?sock=collector
- ciconnect@condor-login-01.oit.duke.edu/condor
- login.atlas.ci-connect.net
- UTAH-CONNECT
- atlasconnect@utatlas.its.utexas.edu/condor

Maximum: 935,694 , Minimum: 79,236 , Average: 415,545 , Current: 661,342

Why did they choose Bosco?

- Wanted to see results very quickly.

  - Often required small software tweaks for each site. Convenient to control the end-to-end for quick iterations.

- Fast progress increases interest and buy-in from sites

HTCondor-CE-Bosco improvements

- Current BOSCO implementations are limited to a single VO submitting to the remote cluster.

- By using an HTCondor-CE-Bosco, multiple VO's can submit to a Bosco instance

- Accounting is the same as any other CE

HTCondor-CE-Bosco

- The HTCondor-CE-Bosco will enable a faster on-ramp for new clusters.

- It will provide a great first step to entering the OSG.

  - And allow the OSG-Connect team to offload operational costs to GlideinWMS.

- User support can easily create the CE and send jobs to remote HPC clusters

- **Available later this month**

New Features of HTCondor-CE

HTCondor-CE View

- Provides a clear view into what pilots are running

- Installable through a sub package of htcondor-ce-view
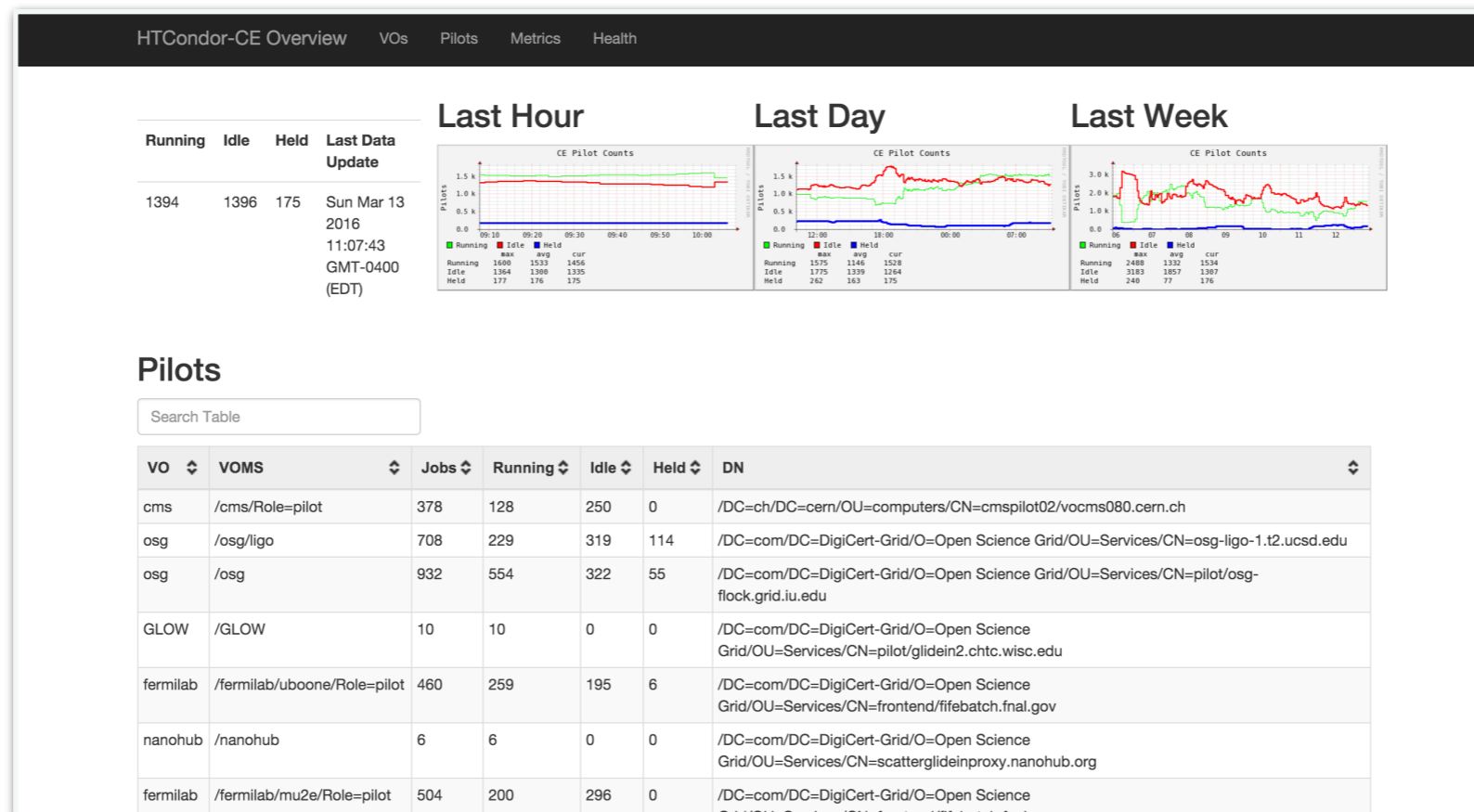
HTCondor Pilot View

- New `condor_ce_status` command output shows the payload information:

```
[root@red ~]# condor_ce_status
```

Worker Node	State	Payload ID	User	Scheduler	Job Runtime	BatchID	BatchUser	Jobs	Pilot Age
red-c0801.unl.edu	Unclaimed				0+15:29:58	5803811.0	cmsprod	37	0+15:30:18
red-c0801.unl.edu	Claimed	436690.16	cmsdataops	cmsgwms-submit2.fnal.gov	0+04:00:15	5803811.0	cmsprod	37	0+15:30:18
red-c0801.unl.edu	Claimed	437109.65	cmsdataops	cmsgwms-submit2.fnal.gov	0+04:24:41	5803811.0	cmsprod	37	0+15:30:18
red-c0801.unl.edu	Claimed	437616.56	cmsdataops	cmsgwms-submit2.fnal.gov	0+00:07:12	5803811.0	cmsprod	37	0+15:30:18
red-c0801.unl.edu	Claimed	437132.39	cmsdataops	cmsgwms-submit2.fnal.gov	0+04:09:59	5803811.0	cmsprod	37	0+15:30:18
red-c0801.unl.edu	Claimed	437110.8	cmsdataops	cmsgwms-submit2.fnal.gov	0+04:22:43	5803811.0	cmsprod	37	0+15:30:18
red-c0801.unl.edu	Claimed	437214.89	cmsdataops	cmsgwms-submit2.fnal.gov	0+03:46:19	5803811.0	cmsprod	37	0+15:30:18
red-c0801.unl.edu	Claimed	437135.91	cmsdataops	cmsgwms-submit2.fnal.gov	0+04:06:04	5803811.0	cmsprod	37	0+15:30:18
red-c0801.unl.edu	Claimed	437113.83	cmsdataops	cmsgwms-submit2.fnal.gov	0+04:16:42	5803811.0	cmsprod	37	0+15:30:18
red-c0803.unl.edu	Unclaimed				0+01:36:42	5804385.0	cmsprod	34	0+01:37:03
red-c0803.unl.edu	Claimed	437620.6	cmsdataops	cmsgwms-submit2.fnal.gov	0+00:08:25	5804385.0	cmsprod	34	0+01:37:03
red-c0803.unl.edu	Claimed	61125.0	cmst1	vocms0311.cern.ch	0+00:48:54	5804385.0	cmsprod	34	0+01:37:03
red-c0803.unl.edu	Claimed	437536.40	cmsdataops	cmsgwms-submit2.fnal.gov	0+00:46:01	5804385.0	cmsprod	34	0+01:37:03

Questions?