

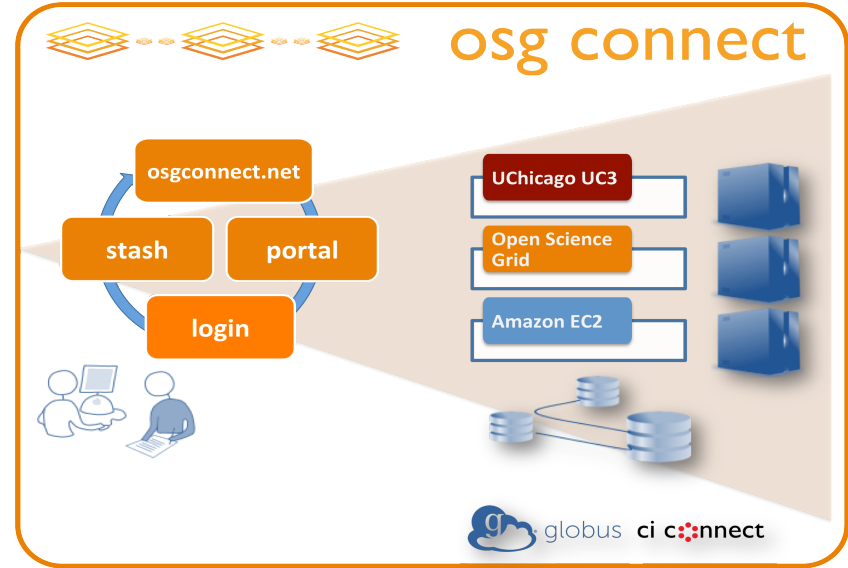
OSG Connect and Connect Client

Thursday, Part 1

Lauren Michael, CHTC

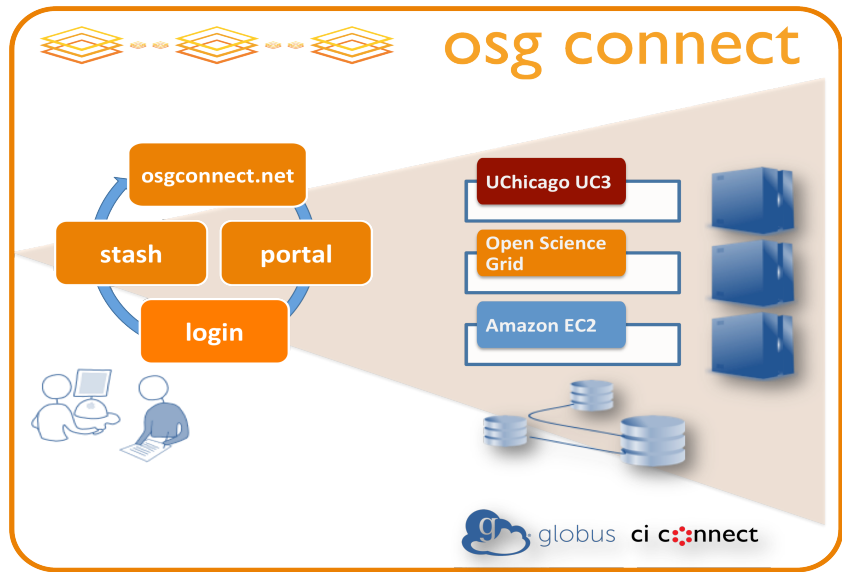
Overview

- What is OSG Connect?
- Using OSG Connect
- Connect Client



Overview

- What is OSG Connect?
- Using OSG Connect
- Connect Client



What is OSG Connect?

- a OSG virtual organization (VO) for U.S. academics without a local VO
- includes submit point, online guides, remote human support, some software, and data support

Review:

OSG Submit Points – 4 Ways

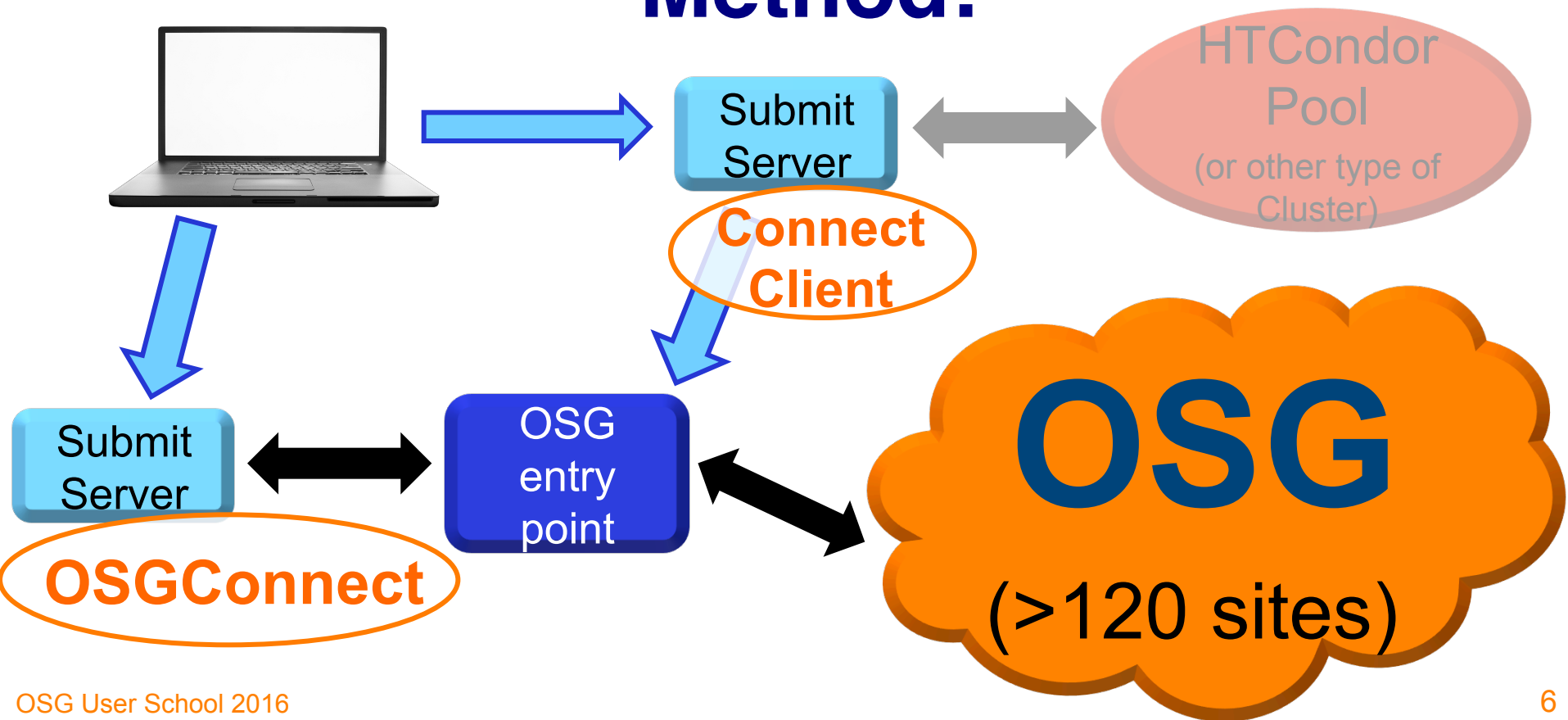
	Local VO	OSG Connect	Connect Client	XSEDE
Available to	users with a campus/org VO	affiliates of U.S. research orgs	users of cluster with Connect Client	users with XSEDE allocation
Cost	unlikely	FREE	unlikely	FREE (but need allocation)
Limit on CPU hrs	unlikely	NO	NO	YES (per allocation)
Local Help	very likely (local staff)	unlikely	likely (cluster staff)	possibly* (Campus Champion)
Online Guides	likely	YES	YES	limited
Submit Point Type	submit server (or direct OSG entry server)	submit server to OSG entry server	cluster submit server to OSG entry server	submit server to OSG entry server

*not all XSEDE Campus Champions will have experience with HTC or OSG



Open Science Grid

OSG Connect Access Method:

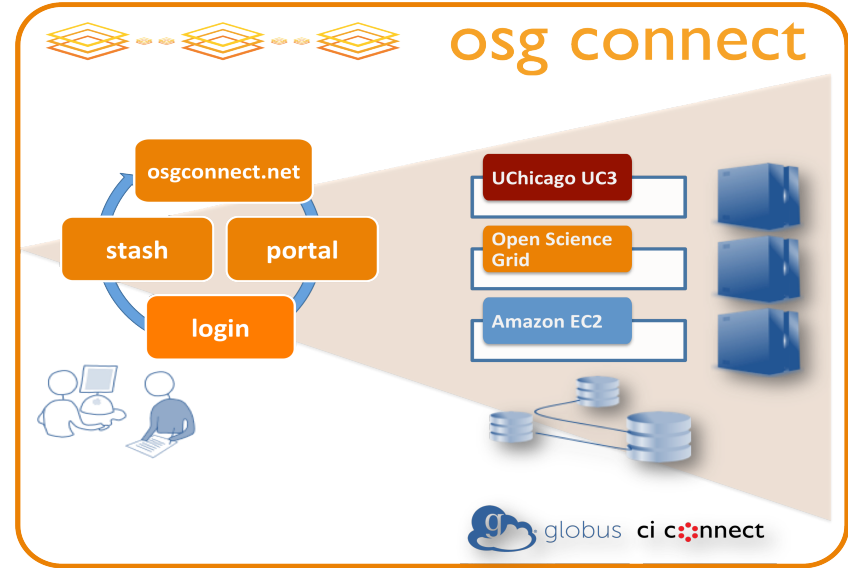


Why OSG Connect?

- not everyone has access to a local VO, or the means to establish one
(through the OSG User School, you have one!)
- OSG via XSEDE requires an XSEDE account and allocation (limits CPU hours)
- *Tell colleagues who don't have a local VO!*

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Using OSG Connect

- Get Access
- Online Resources
 - OSG Projects
- Use the Submit Server
- OSG Tools Supported by OSG Connect
 - OSG Software
 - Stash for large input (more later today)

Get Access

- **Account:** <http://osgconnect.net/signup>
(you've already done this!)
- **Online resources:** osgconnect.net
 - including “helpdesk” online guides
- **Submit server:** login.osgconnect.net

Online Resources



Your Home Page

transfer

Imichael ▾

Home

Groups

Update Profile

Log out

Welcome, Lauren Michael

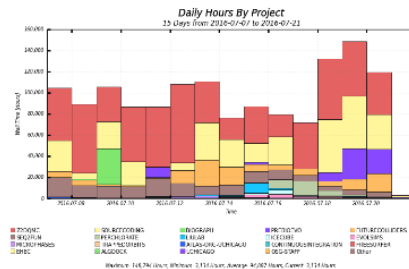
Personal Grid Metrics

customize

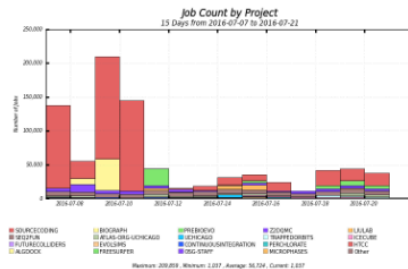
My jobs (last 24h) [large]

No Data

Grid Hours by Project (all users) [large]



Grid Jobs by Project (all users) [large]



Grid Hours by Project (you) [large]

No data returned by DB query.

Grid Jobs by Project (you) [large]

No data returned by DB query.

Your Projects



[Support](#) [Resources](#) [Connect](#) [Transfer](#) [Account](#)

Connect ▾

Transfer

My Projects

Join a Project

Create a Project

My Groups (3)

Search

MEMBER OF (3)

connect

osg

osg.UserSchool2014



Groups

Use groups to easily manage access to shared data and web resources.

Access Groups

The **My Groups** tab on the left provides instant access to all of the groups that you belong to and manage.

Find Groups & Users

Use the [Search](#) tab on the left to quickly locate groups.

Create Groups

Easily [create new groups](#) and invite users to join them. Use the link at the bottom of the left panel.

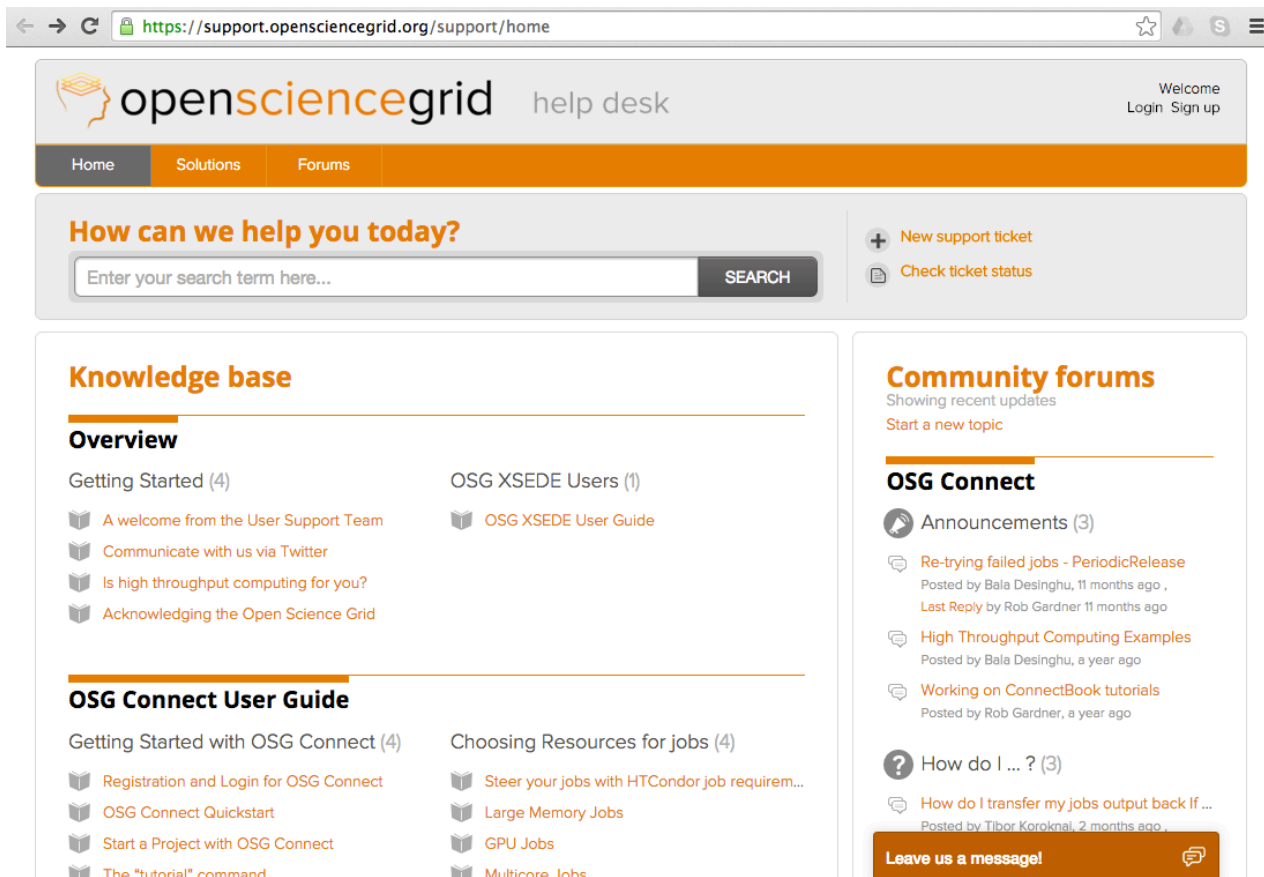
OSG Projects

- *Projects* are how OSG accounts for resource usage by different research groups
 - Your use of OSG via osg-learn.chtc.wisc.edu is automatically accounted for
- Project *managers* can be a faculty PI or student representing the research group.
- **Via OSG Connect, you should always indicate a project in the submit file.**

Projects After the School

- For today's exercises:
 +ProjectName = "UserSchool2016"
- After the school, please **create (or join) a new project** before doing heavy computation from OSG Connect
 - <http://osgconnect.net/newproject> (to create)
 - <http://osgconnect.net/project-summary> (to join existing)

OSG help desk



The screenshot shows the OSG help desk website. The browser address bar displays <https://support.opensciencegrid.org/support/home>. The website header includes the Open Science Grid logo, the text "help desk", and links for "Welcome", "Login", and "Sign up". A navigation bar contains "Home", "Solutions", and "Forums". A sidebar on the left has a "Support" dropdown menu with "DOCUMENTATION" (containing "Helpdesk") and "DIRECT SUPPORT" (containing "Open Ticket"). The main content area features a search bar with the text "How can we help you today?" and a "SEARCH" button. Below the search bar, there are two columns: "Knowledge base" and "Community forums". The "Knowledge base" column has an "Overview" section with links like "Getting Started (4)", "A welcome from the User Support Team", "Communicate with us via Twitter", "Is high throughput computing for you?", and "Acknowledging the Open Science Grid". It also has an "OSG Connect User Guide" section with links like "Getting Started with OSG Connect (4)", "Registration and Login for OSG Connect", "OSG Connect Quickstart", "Start a Project with OSG Connect", and "The 'tutorial' command". The "Community forums" column has a section for "OSG Connect" with links like "Announcements (3)", "Re-trying failed jobs - PeriodicRelease", "High Throughput Computing Examples", "Working on ConnectBook tutorials", and "How do I ... ? (3)". At the bottom of the community forums, there is a "Leave us a message!" button.

Support ▾ Resource

DOCUMENTATION

Helpdesk

DIRECT SUPPORT

Open Ticket

Home Solutions Forums

How can we help you today?

Enter your search term here... SEARCH

+ New support ticket

📄 Check ticket status

Knowledge base

Overview

Getting Started (4) OSG XSEDE Users (1)

- 📖 A welcome from the User Support Team
- 📖 OSG XSEDE User Guide
- 📖 Communicate with us via Twitter
- 📖 Is high throughput computing for you?
- 📖 Acknowledging the Open Science Grid

OSG Connect User Guide

Getting Started with OSG Connect (4) Choosing Resources for jobs (4)

- 📖 Registration and Login for OSG Connect
- 📖 Steer your jobs with HTCondor job requirem...
- 📖 OSG Connect Quickstart
- 📖 Large Memory Jobs
- 📖 Start a Project with OSG Connect
- 📖 GPU Jobs
- 📖 The "tutorial" command
- 📖 Multicore Jobs

Community forums

Showing recent updates

Start a new topic

OSG Connect

📢 Announcements (3)

- 🗨 Re-trying failed jobs - PeriodicRelease
Posted by Bala Desinghu, 11 months ago ,
Last Reply by Rob Gardner 11 months ago
- 🗨 High Throughput Computing Examples
Posted by Bala Desinghu, a year ago
- 🗨 Working on ConnectBook tutorials
Posted by Rob Gardner, a year ago

? How do I ... ? (3)

- 🗨 How do I transfer my jobs output back If ...
Posted by Tibor Koroknai, 2 months ago ,

Leave us a message! 🗨

HTC Recipes

[←](#)
[→](#)
[C](#)
[https://support.opensciencegrid.org/support/home](#)

[Q](#)
[☆](#)
[🔥](#)
[S](#)
[☰](#)

High Throughput Computing Recipes

Molecular Dynamics (4)

- [NAMD](#)
- [NAMD with input data from Stash using HTTP](#)
- [Pegasus - NAMD example](#)
- [GROMACS](#)

Quantum Chemistry (1)

- [Electronic Structure Calculations with CP2K](#)

Workflow solutions (5)

- [Makeflow - Quickstart](#)
- [Molecular dynamics simulations in sequential ...](#)
- [DAGMan - NAMD example](#)
- [Pegasus](#)
- [Swift](#)

R (3)

- [Calculating Pi using R](#)
- [Adding external packages to your R jobs](#)
- [Scaling up compute resources - R example](#)

Drug Discovery (2)

- [AutoDock Vina](#)
- [Managing AutoDock Vina Tasks with Pegasus](#)

Bioinformatics (3)

- [Sequence Search with BLAST](#)
- [Blast Similarity Search with Pegasus](#)
- [StashCache-Blast](#)

MATLAB Runtime (4)

- [Basics of compiled MATLAB applications - He...](#)
- [Matlab - RandomMatrix and Wigner's semi-circ...](#)
- [Matlab - Parameter sweep: Resonance in a dr...](#)
- [Matlab - RandomMatrix](#)

Running FreeSurfer Workflows from Your Computer (9)

- [Introduction to Esurf and FreeSurfer](#)

[Connect client access from midway](#)
 Posted by David Champlon, a year ago ,
 Last Reply by Suchandra Thapa 10 months ago

[Find the Connect Client in Github?](#)
 Posted by Rob Gardner, a year ago ,
 Last Reply by Rob Gardner a year ago

Feature Requests (0)

Report a problem (0)

HPC Admins

Announcements (0)

How do I ... ? (0)

Feature Requests (0)

Report a problem (1)

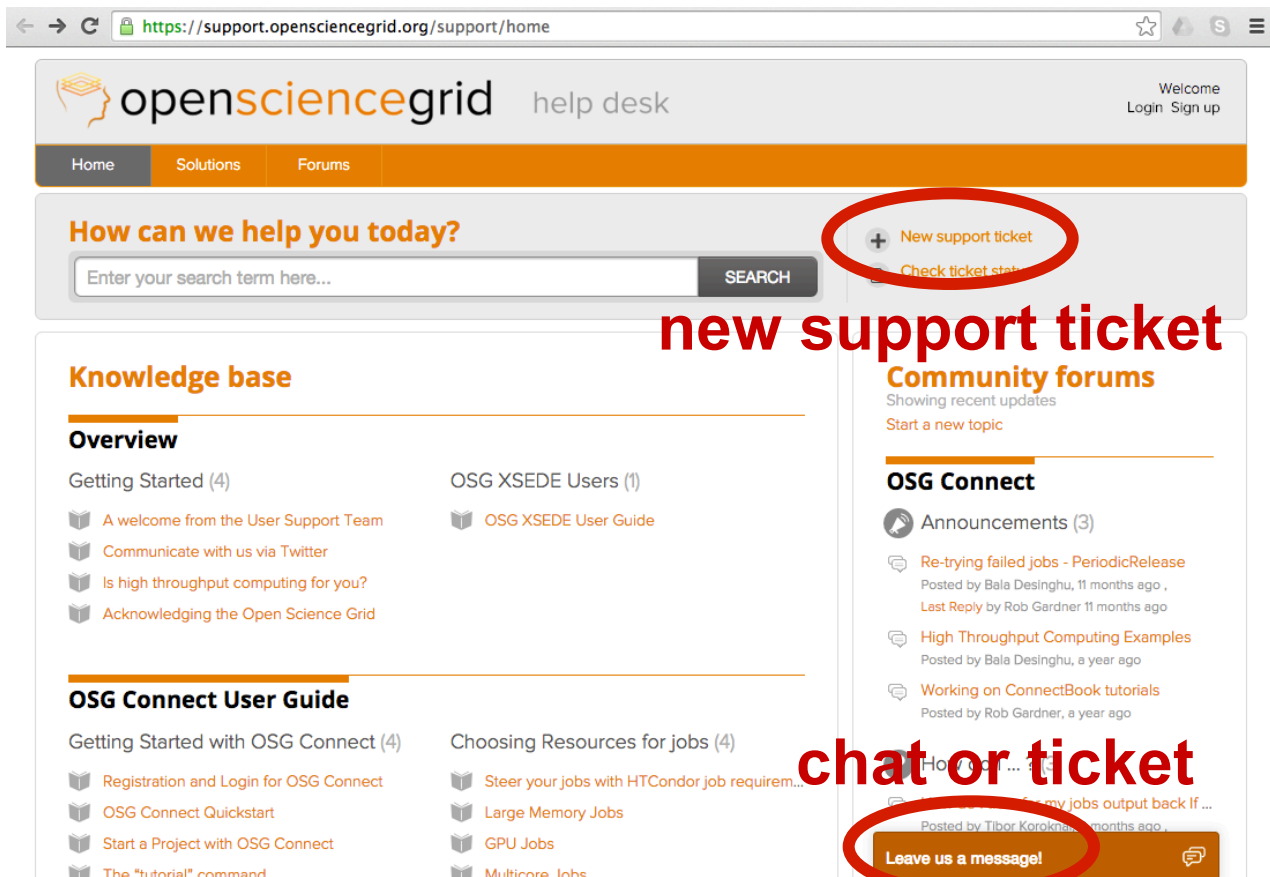
[Feb 17th, 2016: The home directory server...](#)
 Posted by Chengxin Zhang, 5 months ago

[Leave us a message!](#)

Tutorials

- View list of tutorials on **login.osgconnect.net**:
\$ tutorial
- Load a tutorial to follow:
\$ tutorial gromacs
- Follow the steps!

Human help



The screenshot shows the Open Science Grid help desk interface. At the top, there's a navigation bar with 'Home', 'Solutions', and 'Forums'. Below this is a search bar with the text 'How can we help you today?' and a 'SEARCH' button. To the right of the search bar, there are two links: 'New support ticket' and 'Check ticket status', both of which are circled in red. Below the search bar, there are three main sections: 'Knowledge base', 'Community forums', and 'OSG Connect'. The 'Knowledge base' section has an 'Overview' with links to 'Getting Started (4)', 'OSG XSEDE Users (1)', and 'OSG XSEDE User Guide'. The 'Community forums' section shows 'Showing recent updates' and 'Start a new topic'. The 'OSG Connect' section has 'Announcements (3)' and lists several topics like 'Re-trying failed jobs - PeriodicRelease', 'High Throughput Computing Examples', and 'Working on ConnectBook tutorials'. At the bottom right, there is a 'chat or ticket' button, also circled in red, with the text 'Leave us a message!'. The URL in the browser's address bar is 'https://support.opensciencegrid.org/support/home'.

new support ticket

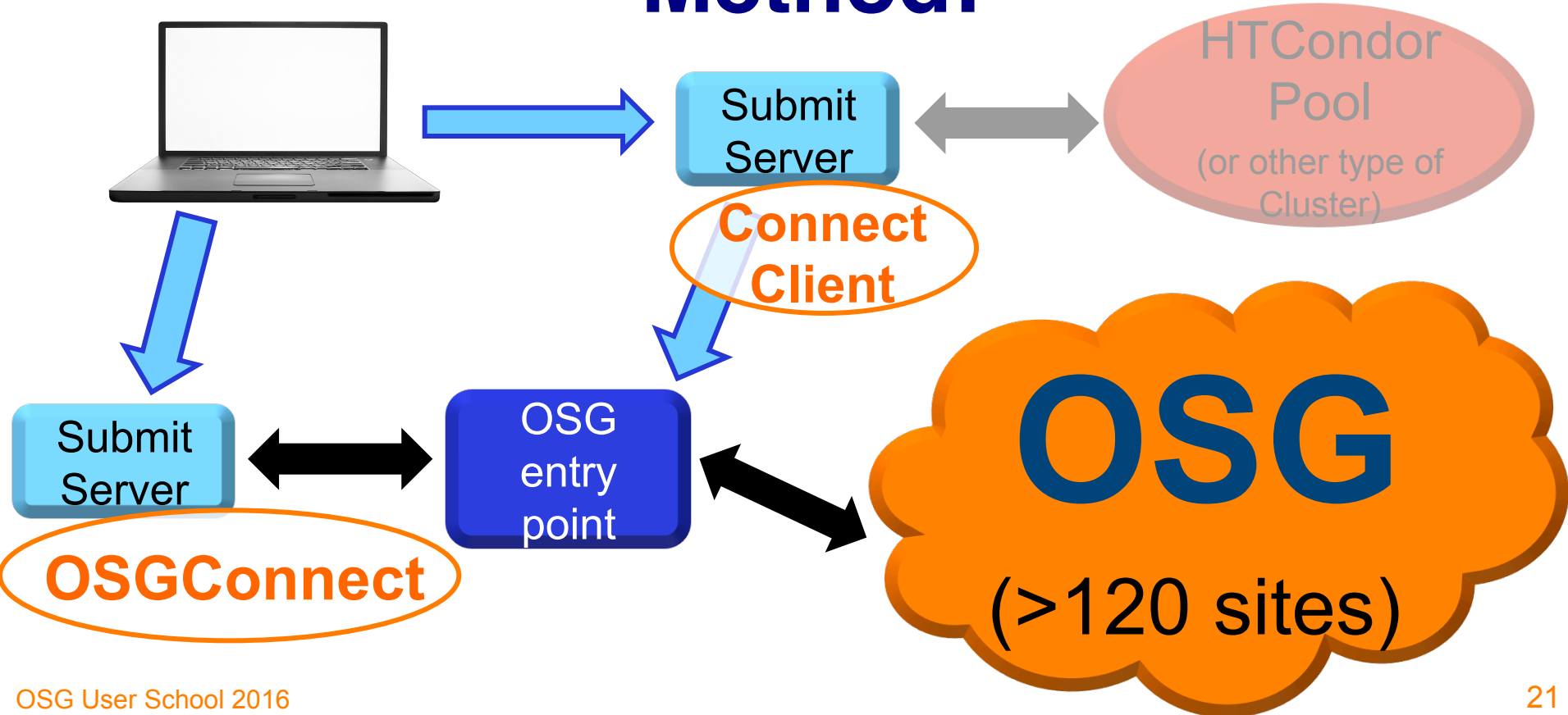
chat or ticket

Using the Submit Point

- SSH to: **login.osgconnect.net**
- Use **condor** commands and submit files as usual!
 - One exception: **condor_status**
condor_status -pool osg-flock.grid.iu.edu



OSG Connect Access Method:



OSG Supported Software

- OSG Connect maintains *some* software for all of OSG
 - uses the “OASIS” data storage system (more details later today)
 - available across ~90% of OSG sites
 - `requirements = (HAS_MODULES =?= true)`
 - **use modules in jobs regardless of what OSG submit node you use!**



Check Software on OSG Connect

```
$ module avail
```

```
----- /cvmfs/oasis.opensciencegrid.org/osg/modules/modulefiles/Core -----  
MUMmer3.23/3.23          gcc/4.6.4          pcre/8.35  
OpenBUGS/3.2.3          (D) gcc/4.9.2          (D) pegasus/4.4.2-image_tools  
R/3.1.1                  geos/3.4.2          poppler/0.24.1  
SitePackage              git/1.9.0            povray/3.7  
SparseSuite/4.2.1        glpk/4.54            proot/2014  
ant/1.9.4                gnome_libs/1.0        protobuf/2.5  
apr/1.5.1                gnuplot/4.6.5         python/2.7          (D)  
apr-util/1.5.3           graphviz/2.38.0       python/3.4  
aprtutil/1.5.3           gromacs/4.6.5         qhull/2012.1  
atlas                    gromacs/5.0.0        (D) root/5.34-21  
autodock/4.2.6           hdf5/1.8.9           ruby/2.1  
bedtools/2.21            hdf5/1.8.12          samtools/0.1.17  
blasr/1.3.1              hdf5/1.8.13          (D) scons/2.3.4  
blast                    hmmer/3.1            sdpa/7.3.8  
blender                  java/7u71             serf/1.37
```

Software Modules in a Job

- Activate modules:

```
. /cvmfs/oasis.opensciencegrid.org/osg/modules/lmod/current/init/bash
```

- Load a software module:

```
module load modulename
```

- List loaded modules:

```
module list
```

- Unload a module (to prepare for another)

```
module unload modulename
```




Example: Check Python from login.osgconnect.net

```
$ module load python/2.7
```

```
$ module list
```

Currently Loaded Modules:

1) python/2.7

```
$ which python
```

```
/cvmfs/oasis.opensciencegrid.org/osg/modules/python-2.7.7/  
bin/python
```



Example: Python Wrapper Script

```
#!/bin/bash
# activate modules and load python2.7:
. /cvmfs/oasis.opensciencegrid.org/osg/modules/lmod/
current/init/bash
module load python/2.7

# run my python script:
python myscript.py
# END
```

Using OSG Connect

- Get Access
- Online Resources
 - OSG Projects
- Use the Submit Server
- OSG Tools Supported by OSG Connect
 - OSG Software
 - **Stash for large input (more later today)**

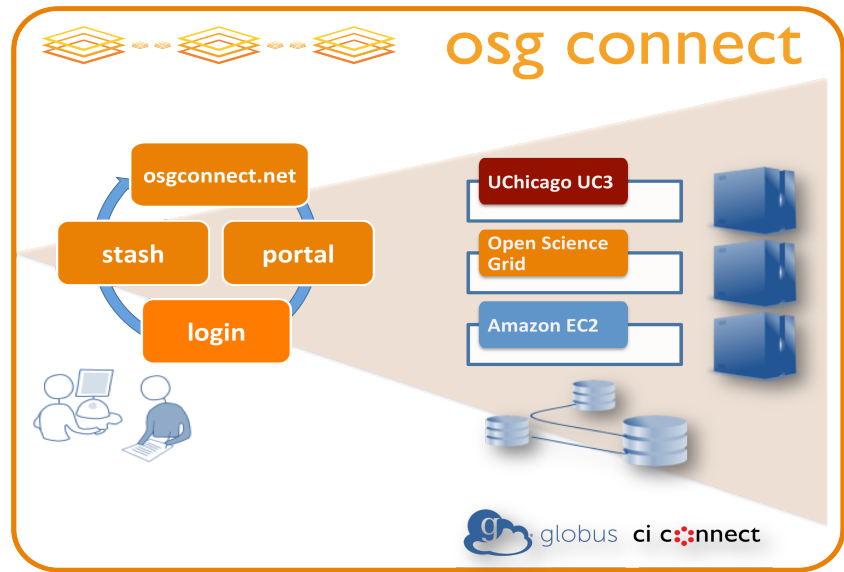
OSG Connect Exercises

- 1.1 Get acquainted with OSG Connect
- 1.2 Do the “OSG Connect Quickstart”
- 1.3 Run ‘Gromacs’ via the OASIS module

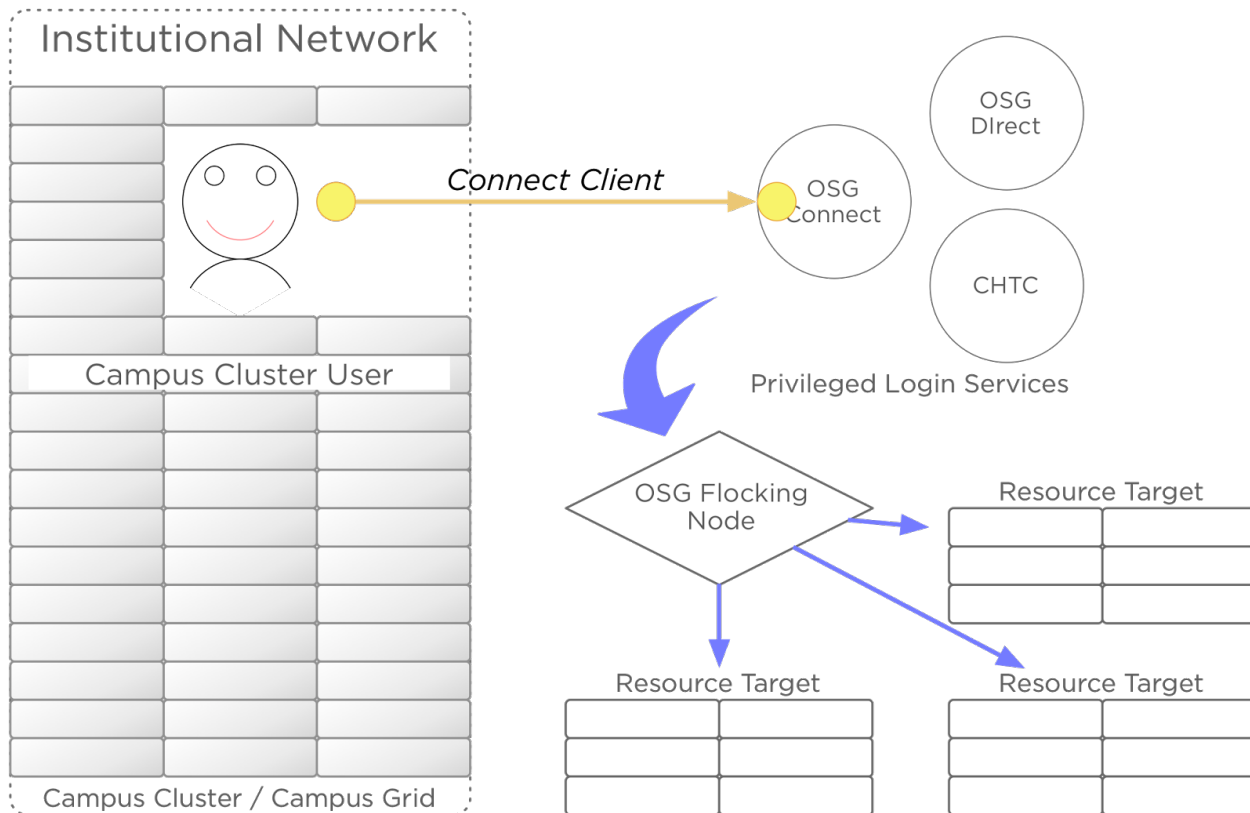
- BONUS: submit jobs from **osg-learn** using other software in OASIS (matlab, python, etc)

Overview

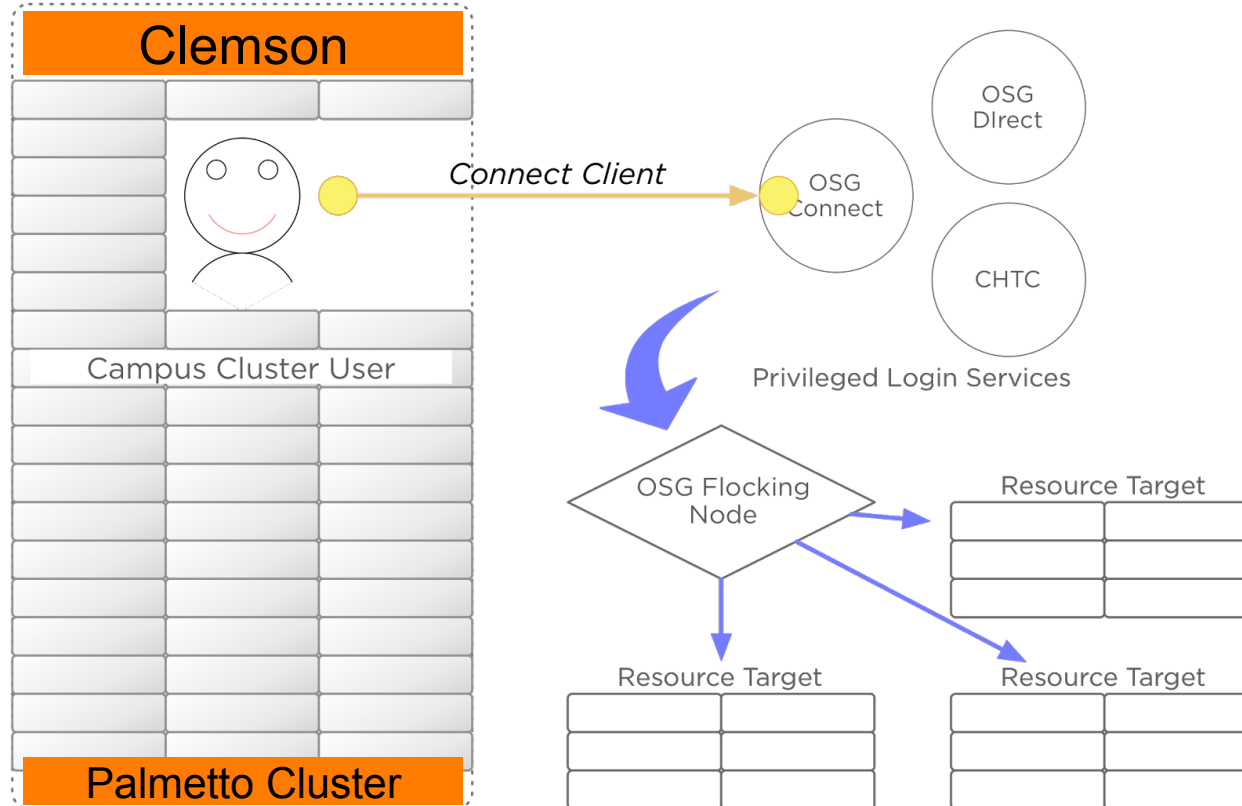
- What is OSG Connect?
- Using OSG Connect
- **Connect Client**



OSG's Connect Client



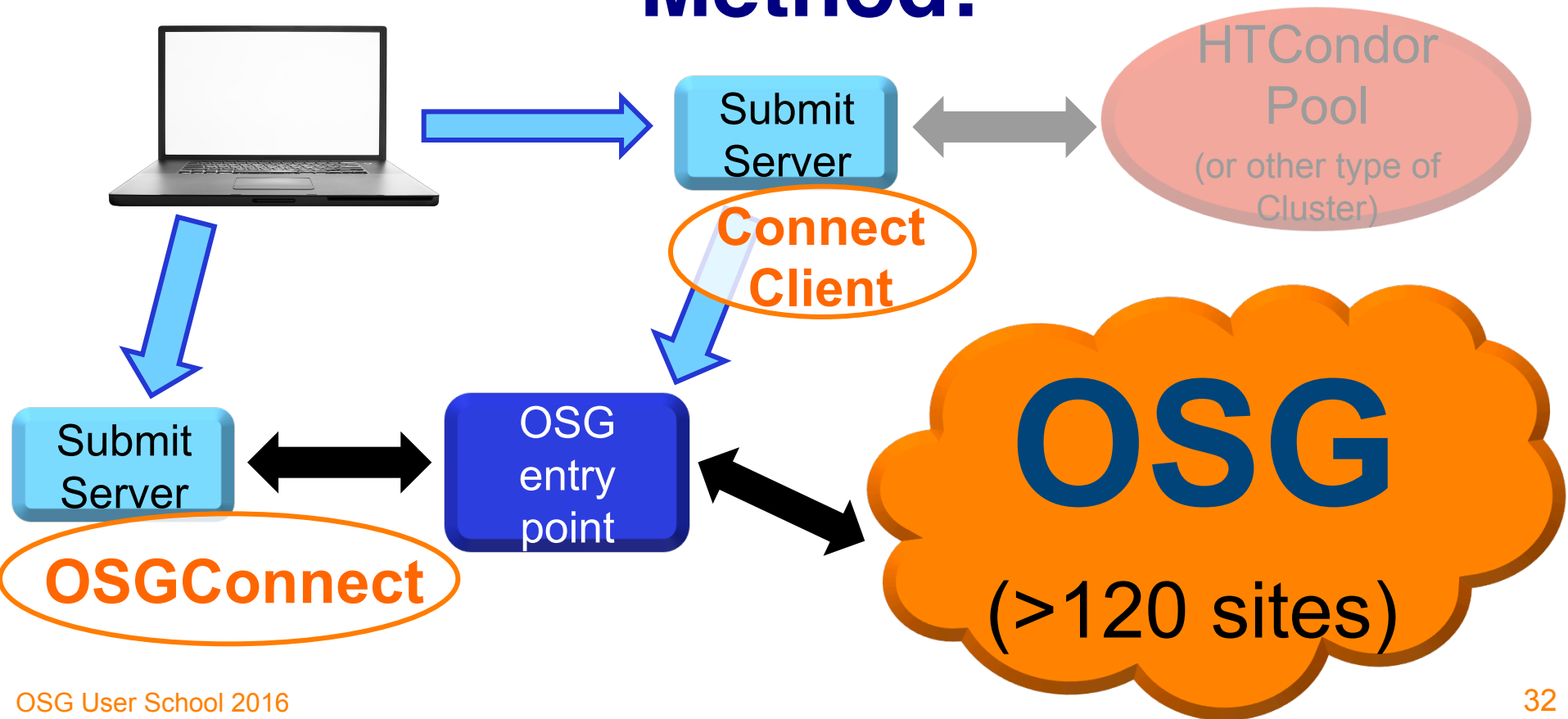
OSG's Connect Client





Open Science Grid

OSG Connect Access Method:



Connect Client Setup

- Initial setup
`connect setup`
- Show your accounting project(s), or set another
`connect show-projects`
`connect project`

Connect Client Commands

- Some are just like condor commands

connect q

connect status

connect submit

connect rm

connect history

- Submit files look the same!!

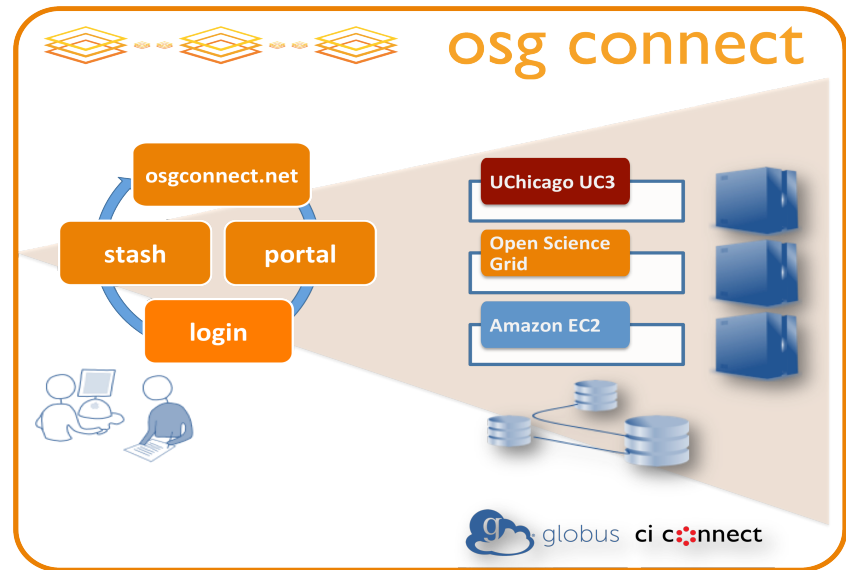
Job / Data Management

- Monitor Job Activity
`connect watch`
`connect histogram`
- Move data between local cluster server and OSG Connect
`connect push / pull / sync`

Full details in the help desk under “The Campus Connect Client”

Overview

- What is OSG Connect?
- Using OSG Connect
- Connect Client



Questions?

- Feel free to contact me:
 - lmichael@wisc.edu
- Next: OSG Connect Exercises
- Later: Handling data in OSG