

Ways to Connect to OSG

Tuesday afternoon, 3:15 pm

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University of Wisconsin-Madison

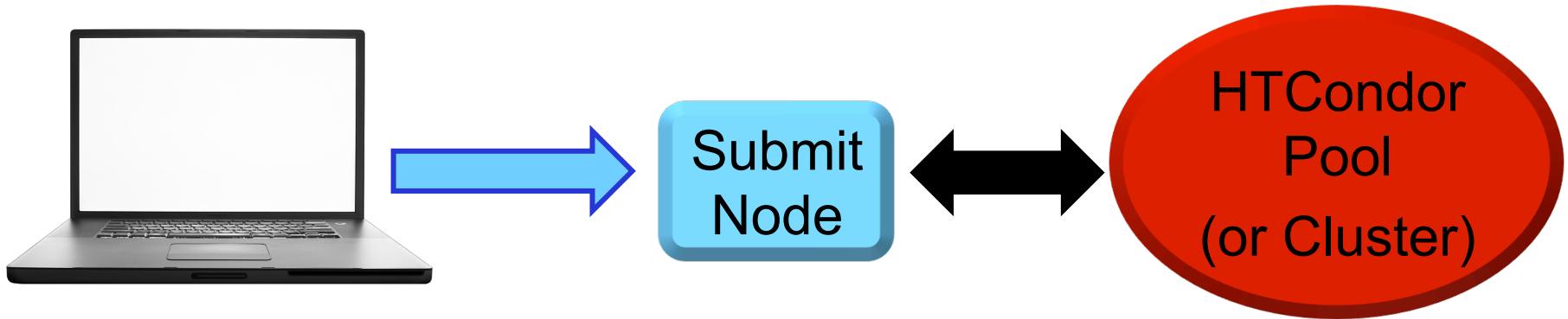
Overview

- OSG submit points
- Accessing an OSG submit point
 - VO (OSG School of Campus/Organization)
 - OSG Connect
 - OSG via XSEDE
- Submitting to an OSG submit point from your own machine (Bosco)

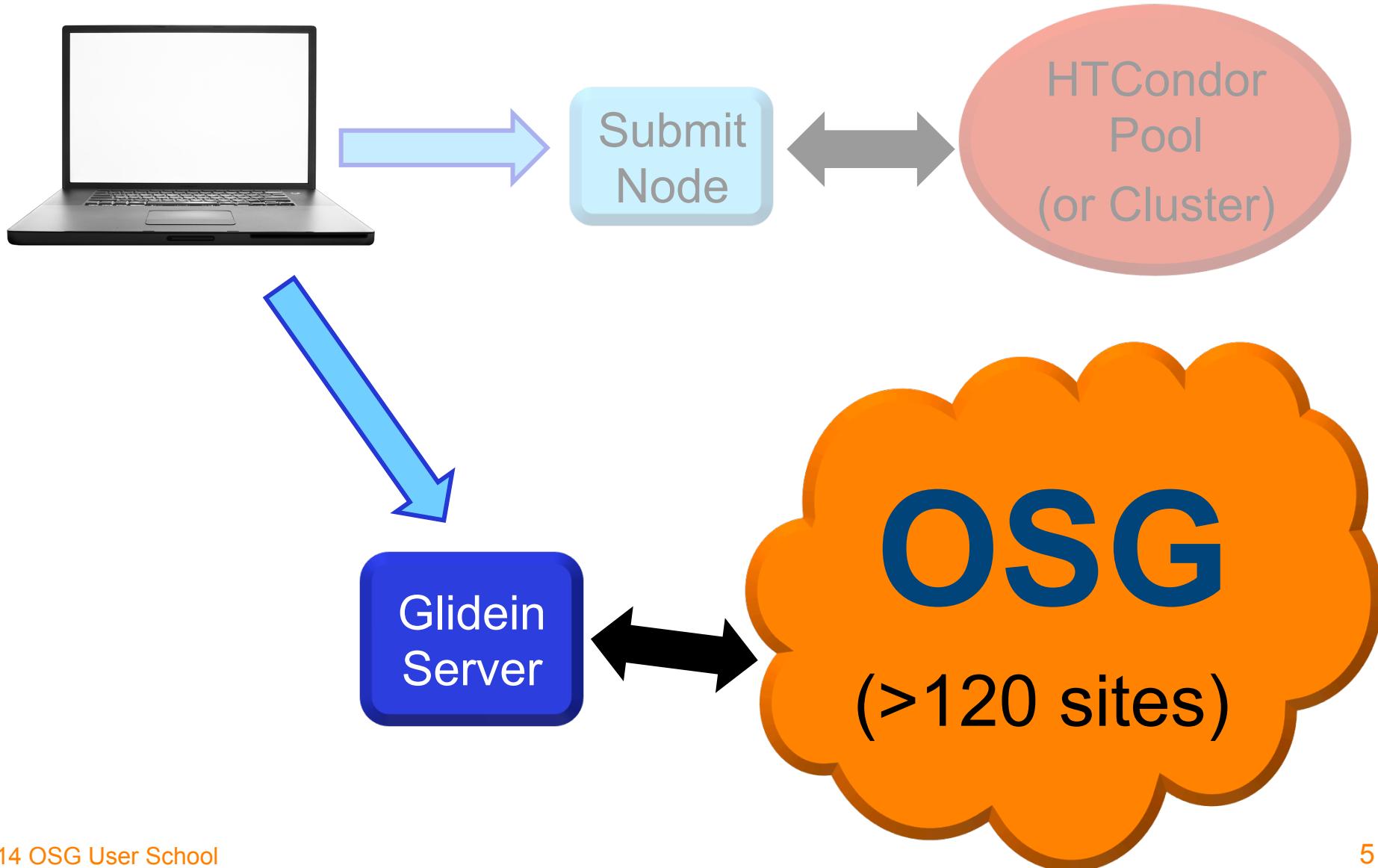
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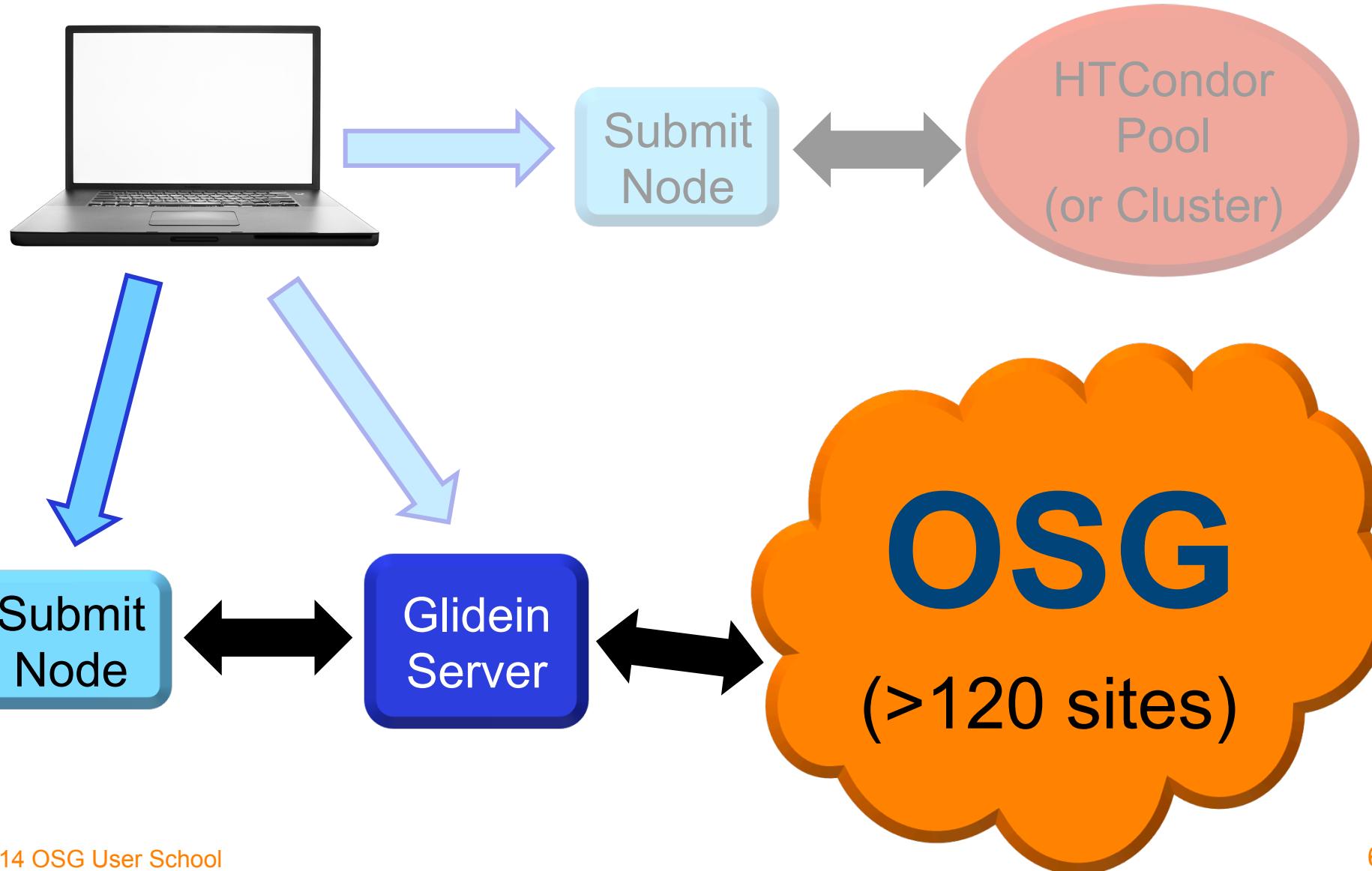
HTC Submit Point



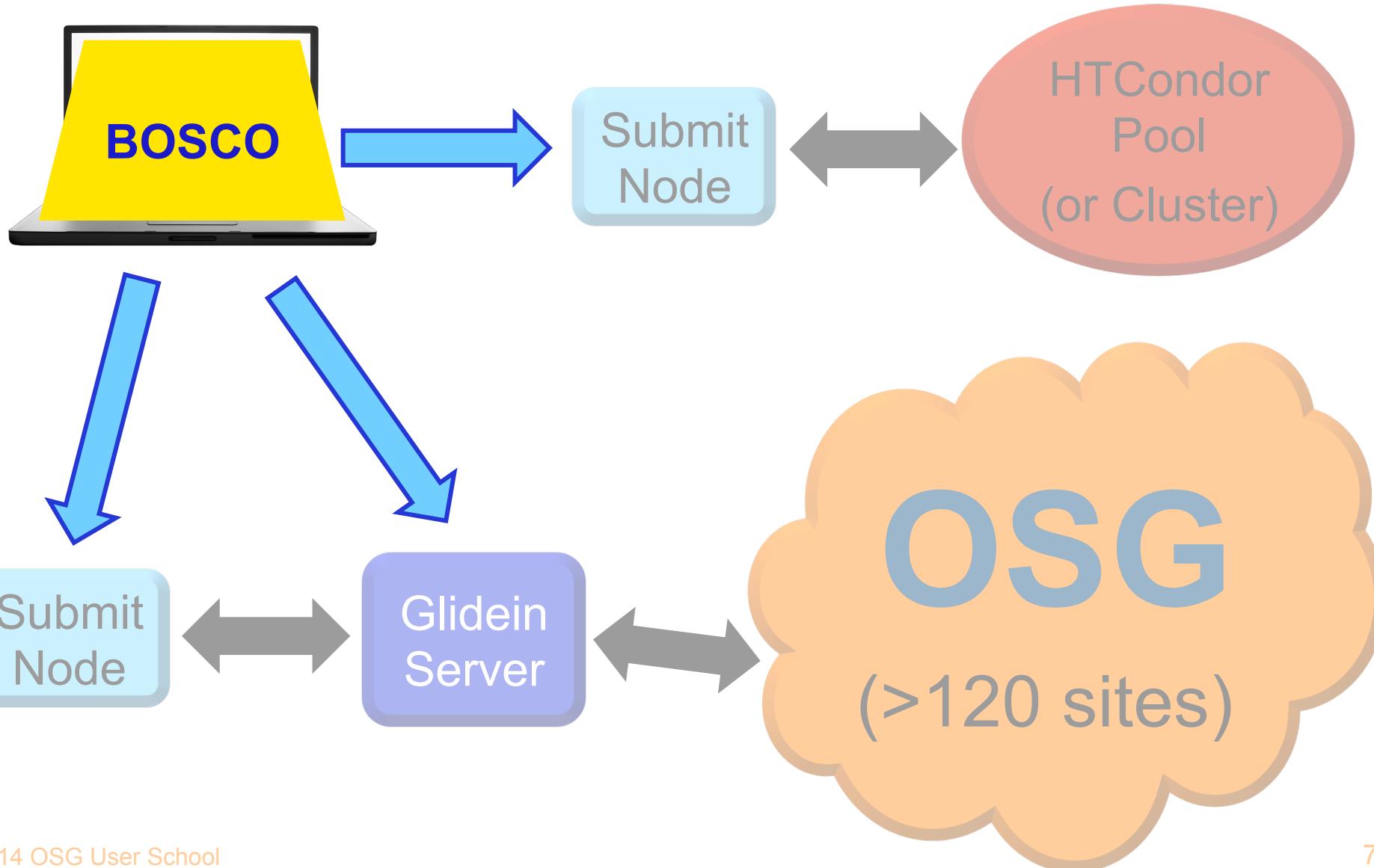
OSG Submit Points



OSG Submit Points



Submit From Laptop



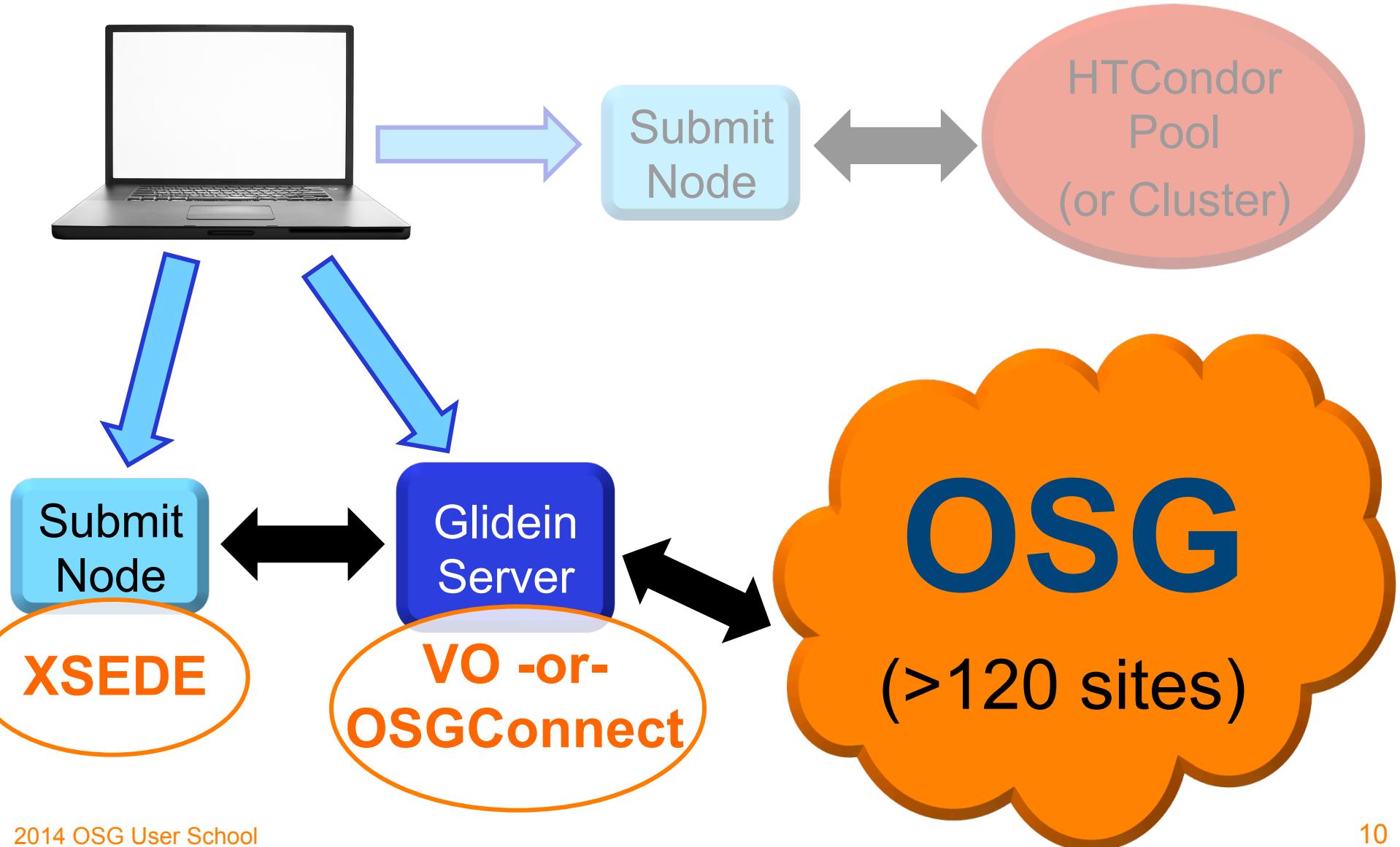
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Accessing an OSG Submit Point – 3 Ways

- Local Virtual Organization (VO)
 - campus, national lab, or research organization that is part of the OSG consortium
- OSG Connect
 - essentially, an OSG VO for individuals without a local VO
- XSEDE
 - collection of HPC clusters available to U.S. academics via allocations of compute hours

OSG Submit Points



Accessing an OSG Submit Point – 3 Ways

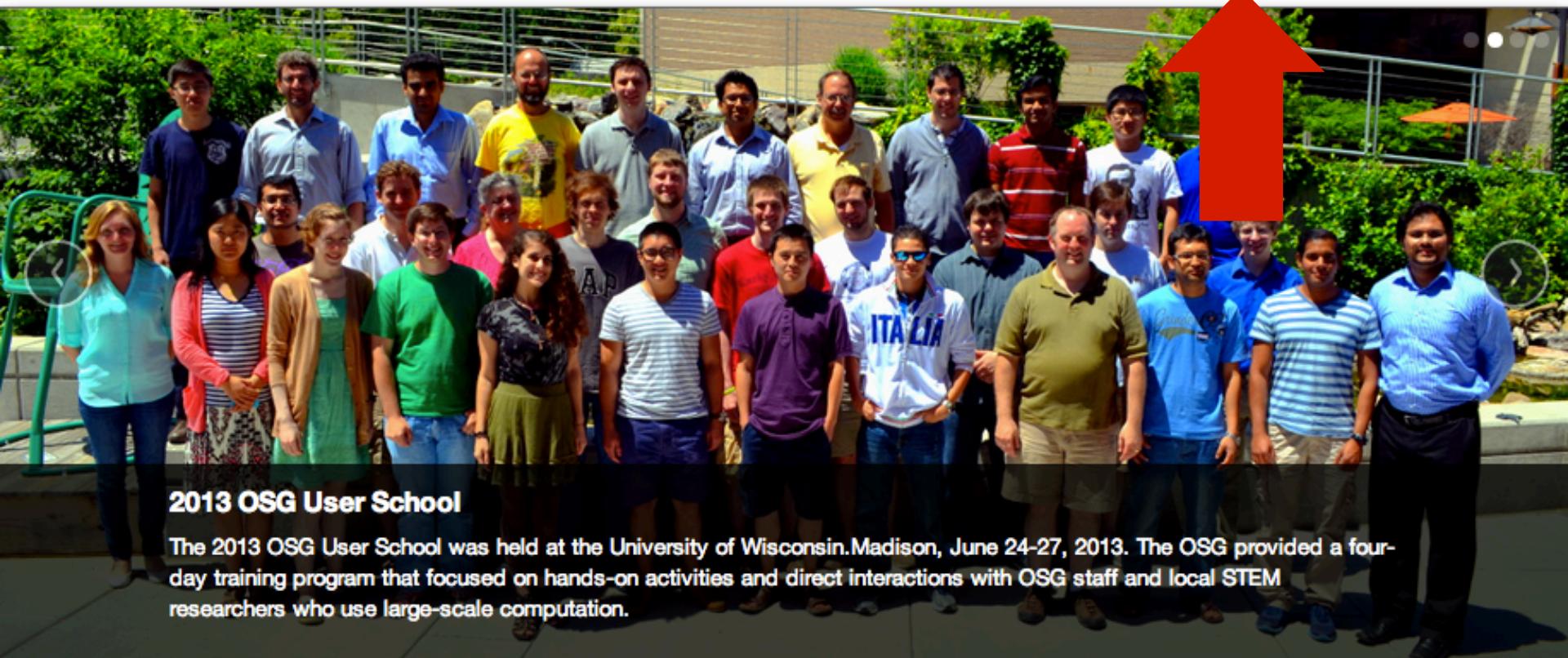
	Local VO	OSG Connect	XSEDE
Available to	users with a campus/org VO	users at CILogon campuses	users with XSEDE allocation
Cost?	unlikely	FREE	NO (but need allocation)
Limit on CPU hrs	very unlikely	NO	YES (per allocation)
Local Help	very likely (on-campus staff)	unlikely	possibly* (Campus Champion)
Online Guides	potentially	YES (OSG ConnectBook)	limited
Submit Point Type(s)	glidein server (or submit node)	glidein server	submit node to glidein server

*not all XSEDE Campus Champions will have specific experience with OSG

Virtual Organization (VO)

- institution or research project that is part of the OSG consortium
- accounts and access determined by local VO administrators
- most offer user support or specialized interfaces for their specific setup and population of users

How do I determine whether my organization is/has a VO?



2013 OSG User School

The 2013 OSG User School was held at the University of Wisconsin-Madison, June 24-27, 2013. The OSG provided a four-day training program that focused on hands-on activities and direct interactions with OSG staff and local STEM researchers who use large-scale computation.

User/Host Certificate

OSG provides services to issue user and host certificates for your resources. [Link](#)

OSG Operations

OSG Operations / Grid Operations Center at Indiana University provides operations service to the OSG. [Link](#)



OVERVIEW

Introduction

Organization

Research Highlights

Links

Join the Science Grid

What we do

The OSG provides common service and support for resource providers and scientific institutions using a distributed fabric of high throughput computational services. The OSG does not own resources but provides software and services to users and resource providers alike to enable the opportunistic usage and sharing of resources. The OSG is jointly funded by the Department of Energy and the National Science Foundation.

The Open Science Grid (OSG) supports science such as..

- High Energy Physics: CMS and ATLAS
- Nanoscience: NANOHUB
- Structural Biology: SBGrid
- Community VO (multiple sciences): Engage

What OSG is for

The OSG is primarily used as a high-throughput grid where scientific problems are solved by breaking them down into a very large number of individual jobs that can run independently. The most successful opportunistic applications run on the OSG share the following characteristics:

- The application is a Linux application for the x86 or x86_64 architecture.
- The application is single- or multi-threaded but does not require message passing.
- The application has a small runtime between 1 and 24 hours.
- The application can handle being unexpectedly killed and restarted.
- The application is built from software that does not require contact to licensing servers.
- The scientific problem can be described as a workflow consisting of jobs of such kind.
- The scientific problem requires running a very large number of small jobs rather than a few large jobs.

More about OSG

Please see <https://twiki.opensciencegrid.org/> for more information regarding the OSG.



OVERVIEW

[Introduction](#)

Organization

[Research Highlights](#)

DOCUMENTATION

[Links](#)[Join Open Science Grid](#)

The OSG Consortium builds and operates the OSG. Consortium members contribute effort and resources to the common infrastructure, with the goal of giving scientists from many fields access to shared resources worldwide.

OSG Council



Executive Team



Software Team



Security Team



Virtual Organizations



ATLAS VO



Engage



XYZ VO



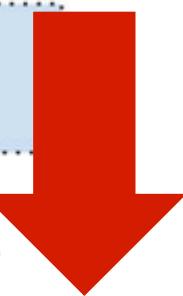
CMS VO

Operations Team



Please see [List of Virtual Organizations](#).

The Council governs the consortium ensuring that the OSG benefits the scientific mission of its stakeholders.



Please see [List of Virtual Organizations](#).

The Council governs the consortium ensuring that the OSG benefits the scientific mission of its stakeholders.

The Executive Team manages the OSG project, which is organized into technical team areas.

The OSG is made up of Member Organizations who register with the OSG Operations Center and works with many Partner Organizations.

Virtual Organization

A Virtual Organization (VO) is a set of groups or individuals defined by some common cyber-infrastructure need. This can be a scientific experiment, a university campus or a distributed research effort. A VO represents all its members and their common needs in a grid environment. A VO also includes the group's

If you don't know what VO you belong to or should belong to, please contact the [Grid Operations Center](#) for help.

for contracting individually with each other for guaranteed access to resources.

Many VOs in the OSG address the specific requirements of their users with their own user support that provides more in-depth help than the OSG does. Additionally some VOs provide dedicated resources to the OSG that provide preferred access to their members. Some VOs provide a problem specific user interface to their members.

The OSG assumes that each user is preferably supported by their membership VO. Each VO is expected to register with the OSG and provide support for their members. OSG support is maintained through a VO representative for each VO rather than a member of a VO.

The OSG welcomes researchers that are not associated with a VO! They are welcome to join the OSG or Engage VO. The OSG VO is inviting all users who don't need support running their application on the OSG. The Engage VO provides strong support for scientists who wish to bring their applications to the grid but who are unfamiliar with grid technologies.

If you don't know what VO you belong to or should belong to, please contact the [Grid Operations Center](#) for help.

Using OSG through a VO

1. Determine whether there is a local VO for your institution/organization.
2. Contact the administrators and get an account on their glidein server (or submit node tied to a glidein server).
3. Follow site-specific guides and/or otherwise submit HTCondor jobs as you have been at the OSG School.

- XSEDE is a consortium of HPC clusters and other computational services available to academics in the U.S.
- free accounts, but usage requires a requested allocation of compute hours
- limited guide information specific to OSG-XSEDE, but similar submission to the OSG School

1. Sign up for an XSEDE account.
2. Use the XSEDE User Portal to request a startup (or long-term) allocation of compute hours.
3. Follow XSEDE's guides for connecting to the OSG submit node.
4. Submit jobs as you have been at the school, making sure to indicate your XSEDE project name (allocation code).

XSEDE | USER PORTAL

Extreme Science and Engineering
Discovery Environment

Search XSEDE...

SIGN IN

MY XSEDE

RESOURCES

DOCUMENTATION

ALLOCATIONS

TRAINING

USER FORUMS

HELP

ABOUT

Systems Monitor Remote Visualization Software Queue Prediction Science Gateways Scheduled Downtimes

Enter the Portal

USER NAME

PASSWORD

SIGN IN

REMEMBER ME

[CREATE ACCOUNT](#) [VERIFY ACCOUNT](#) [FORGOT PASSWORD](#)

FORGOT USERNAME

Welcome to The XSEDE User Portal (XUP), the home on the web for XSEDE users! The XUP provides XSEDE users access to view and manage their accounts and allocations, as well as find information about and access the XSEDE services and resources.

Here's a few of the things you can do here without even logging in



[See XSEDE resource and service status](#)



[View user news and upcoming events](#)



[Find and register for training classes](#)

Log in or create an account to get started!

MY XSEDE

RESOURCES

DOCUMENTATION

ALLOCATIONS

TRAINING

USER FORUMS

HELP

ABOUT

> Summary

> Systems Monitor

> Get Started

> Overview

> Overview

> Forums

> Overview

> Welcome

> Allocations/Usage

> Access

> Allocation Policies

> Course Calendar

> Help Desk

> Portal Password

XSEDE|USER PORTAL

Extreme Science and Engineering
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MY XSEDE

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DOCUMENTATION

ALLOCATIONS

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ABOUT

[Overview](#) [Allocation Policies](#) [Request Steps](#) [Submit/Review Request](#) [Successful Requests](#) [ECSS Justification](#) [Manage Allocation](#)

Overview

[Allocation Types](#)

[Startup Allocations](#)

[Startup Allocation Limits per Resource](#)

[Education Allocations](#)

[Research Allocations](#)

[Research Allocation Deadlines](#)

[Writing and Submitting Allocation Proposals](#)

Overview

An XSEDE allocation provides access to computing, visualization, and/or storage resources as well as extended support services at XSEDE service provider (SP) sites. An allocation is allotted to a researcher who serves as the principal investigator (PI) of an approved project. An account is the specific method through which an individual (or community, in the case of science gateways) logs in to a resource to utilize the allocation.

- Computational Resources:** XSEDE SPs offer a variety of high-performance computing (HPC) and high-throughput computing systems for allocation. Computing platforms include clusters, scalable-parallel systems, and shared-memory systems with various CPU, memory, communication, and storage configurations. It is important that the platform you choose is a good match for your computational plans.
- Visualization Resources:** SPs provide a variety of visualization resources and software services to the XSEDE user community. These systems provide a powerful way to interact with and analyze data at any scale. For complete information on available visualization resources, visit [XSEDE Visualization](#).
- Storage Resources:** Several XSEDE SPs host storage platforms providing services such as data management, data collections hosting, and large-scale persistent storage. XSEDE will provide storage allocations both in support of compute/visualization usage and storage independent of those.

Below are links to each resource's user guide. Each guide provides information and instructions on system access, computing environment and running jobs specific to that resource. Resources are listed alphabetically within each resource type: [High Performance Computing](#), [High Throughput Computing](#), [Visualization](#), [Storage systems](#), [Special Purpose systems](#), [Testbeds](#) and [Software](#)

XSEDE is committed to providing quality, useful documentation to its users. Please feel free to leave your suggestions and comments at the bottom of each user guide.

High Performance Computing

[Blacklight](#) (PSC)

[Darter](#) (NICS) **New!!**

[Gordon](#) (SDSC)

[Gordon ION](#) (SDSC)

[Keeneland](#) (Georgia Tech) *offline Dec., 2014*

[Mason](#) (IU)

[Lonestar](#) (TACC) *offline Dec., 2014*

[Stampede](#) (TACC)

[SuperMIC](#) (LSU) *coming June, 2014*

[Trestles](#) (SDSC)

High Throughput Computing

[Open Science Grid](#)

Software Guides

[Job Management with GRAM5](#)

Scientific Visualization

[Maverick](#) (TACC) **New!!**

[Nautilus](#) (NICS)

Storage Systems

[Data Supercell](#) (PSC)

[HPSS](#) (NICS)

[Data Oasis](#) (SDSC)

[Ranch](#) (TACC)

[XSEDE Wide File System](#) (XSEDE)

Special Purpose Systems

[Quarry](#) (IU Gateway Web Services Hosting System)

Testbeds

[FutureGrid](#) (distributed)

OSG Connect

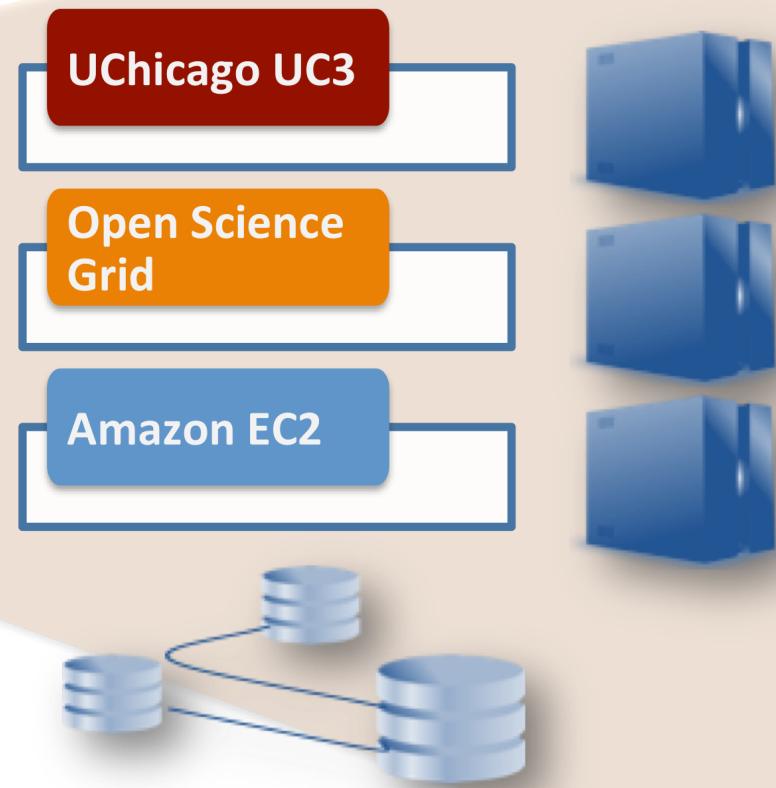
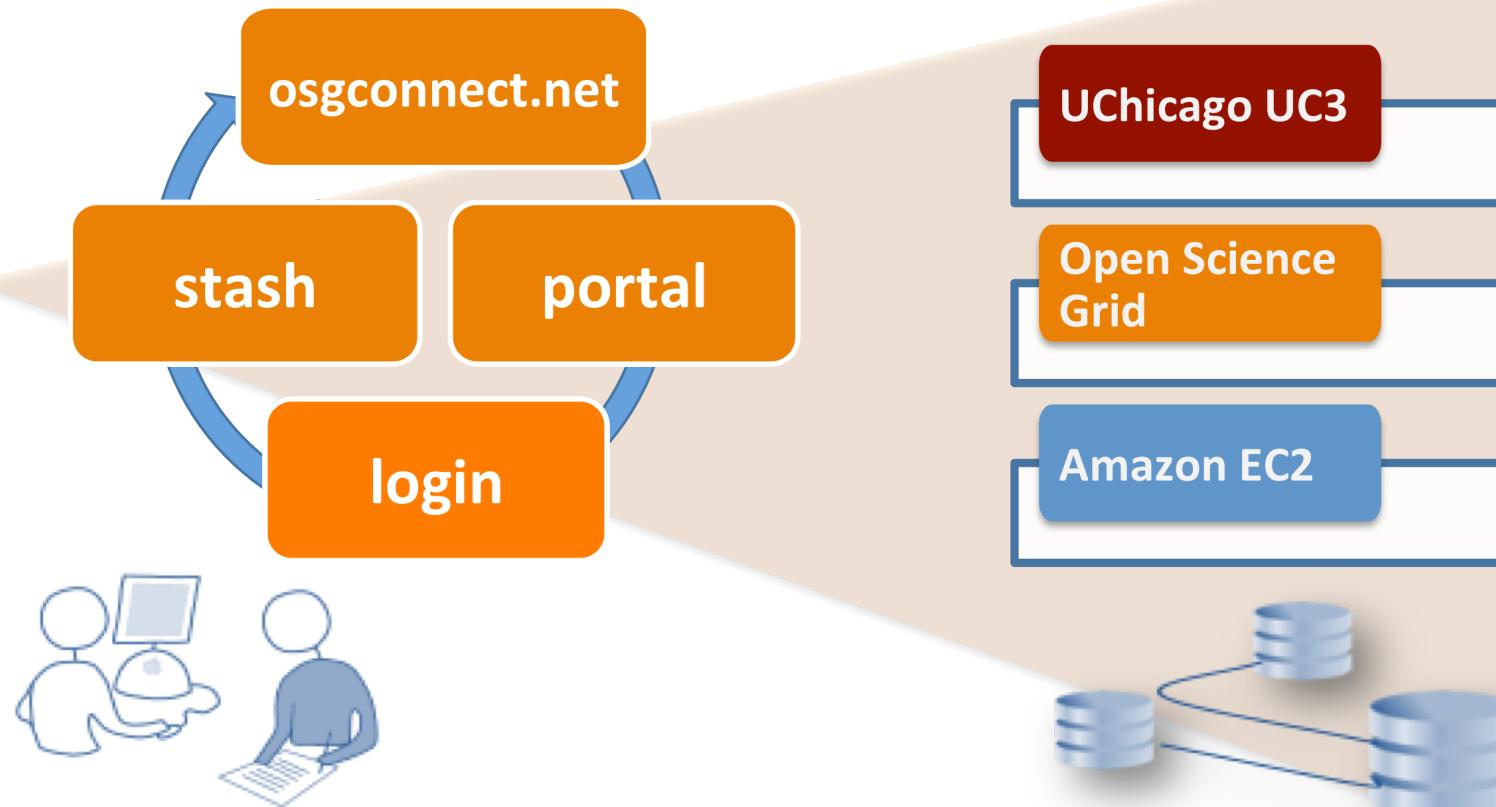


osg connect

- OSG Connect is essentially a VO available to those without a Local VO
- Free accounts and usage for individuals at a CILogon institution
- In lieu of local support, OSG Connect offers the OSG ConnectBook of guide information, and other contact information for getting help



osg connect



Using OSG Connect

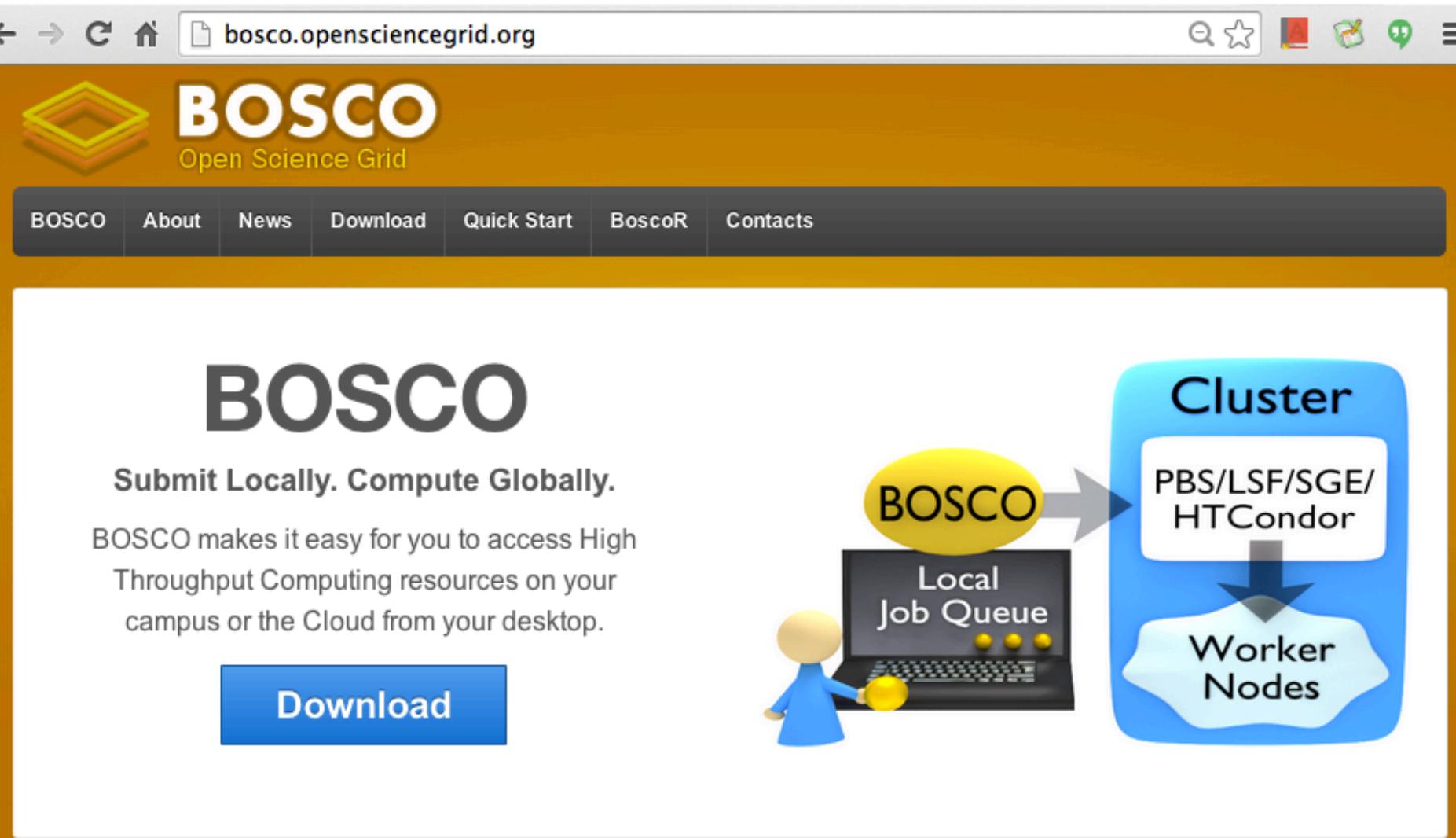
1. Sign up for an OSG Connect account
2. After account confirmation, SSH to login.osgconnect.net
3. Use OSG ConnectBook for submission help and otherwise submit just as you have at the school.

**Details and hands-on exercise
after this talk!**

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Submit from YOUR workstation with Bosco



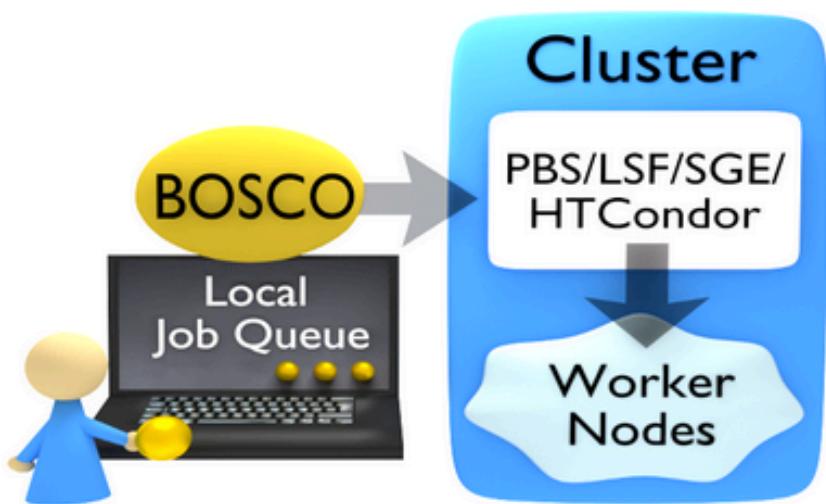
The screenshot shows the official website for BOSCO, which is part of the Open Science Grid. The URL in the browser bar is `bosco.opensciencegrid.org`. The page features a yellow header with the BOSCO logo and navigation links for BOSCO, About, News, Download, Quick Start, BoscoR, and Contacts. Below the header, there's a large "BOSCO" title and the tagline "Submit Locally. Compute Globally." A paragraph explains that BOSCO allows users to access High Throughput Computing resources from their desktop. A prominent blue "Download" button is visible. To the right, a diagram illustrates the BOSCO workflow: a user interacts with a "Local Job Queue" on their computer, which then connects via an arrow to a "Cluster" containing "PBS/LSF/SGE/ HTCondor" resources, which further connect to "Worker Nodes".

BOSCO

Submit Locally. Compute Globally.

BOSCO makes it easy for you to access High Throughput Computing resources on your campus or the Cloud from your desktop.

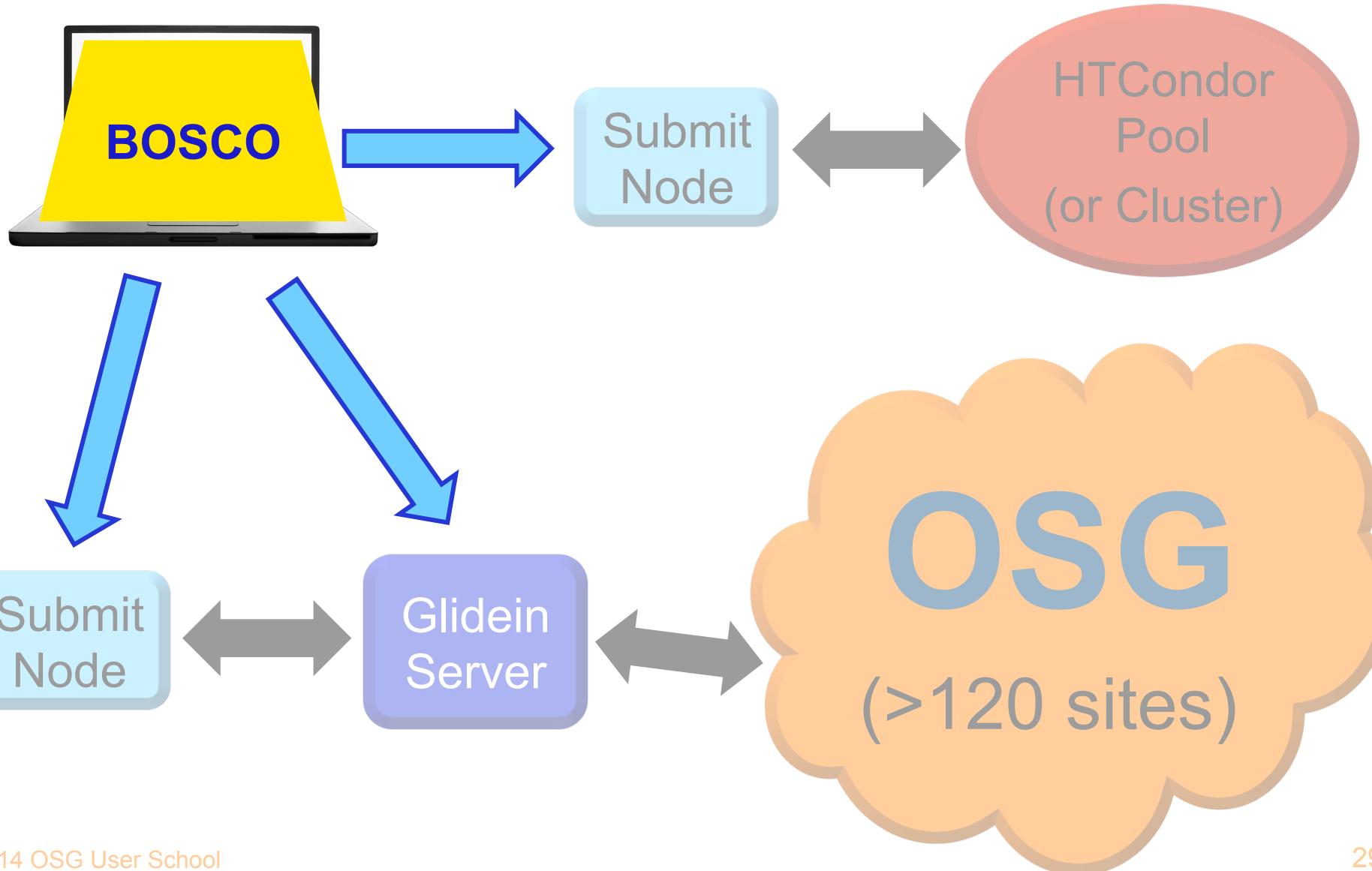
[Download](#)



More on Bosco

- Allows submission of jobs from your workstation to one or more clusters and/or a glidein server
- Developed for Linux and Mac; not extensively tested with CygWin for Windows (but could work)
- HTCondor-style job submission (including DAGMan), but can run jobs on non-HTCondor clusters

Submit From Laptop



Click to go back, hold to see history

BOSCO

Open Science Grid

BOSCO About News Download Quick Start BoscoR Contacts

BOSCO

Submit Locally. Compute Globally.

BOSCO makes it easy for you to access High Throughput Computing resources on your campus or the Cloud from your desktop.

[Download](#)

Cluster
PBS/LSF/SGE/
HTCondor
Worker
Nodes

Workflow Management
Handles complex job dependencies

Multiple Clusters
Runs on LSF, PBS, SGE, and HTCondor

Simple Setup
Installed as non-root, simple config

Why/When to use Bosco

- set up data on your laptop, desktop, or server
- submit HTC work to multiple clusters
(including OSG via glidein), even if these clusters have different schedulers installed

Be aware:

- 1000s+ of jobs with large files may be bad
- Bosco installed on a machine already running HTCondor will cause problems

**Check out today's BONUS exercise
on Bosco!**

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Questions?

- Feel free to contact me:
 - lmichael@wisc.edu
- Next: OSG Connect
 - 3:45-4:15pm, Intro by Lincoln
- Then:
 - 4:15pm-5:15pm, Using OSG Connect (hands-on)
 - End, Day 2