Ways to Connect to OSG

Tuesday, Wrap-Up

Lauren Michael, CHTC

Open Science Grid

Overview

- Types of OSG submit points

- OSG Virtual Organizations

  (members of OSG consortium)

- Other OSG submit points
  - OSG Connect
  - OSG Connect Client
  - OSG via XSEDE

Overview

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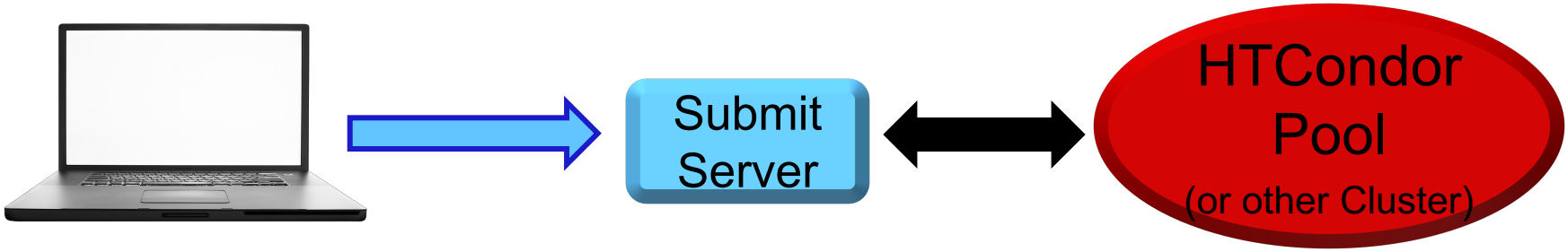
HTC Submit Point



HTC Submit Point

OSG Submit Point: Direct

Submit Server

HTCondor Pool (or other Cluster)

OSG entry point

specific to VO

OSG (>120 sites)

OSG Submit Point: Flock to Overlay

Submit Server

HTCondor Pool (or other Cluster)

Submit Server

OSG entry point

specific to VO

OSG

(>120 sites)

OSG Submit Point: Flock to Overlay

Submit Server

HTCondor Pool
(or other Cluster)

Submit Server
osg-learn.chtc.wisc.edu

OSG entry point
specific to VO

OSG
(>120 sites)

OSG School Submit (1yr access)

learn.chtc.wisc.edu

Submit Server

HTCondor Pool (or other Cluster)

Submit Server

osg-learn.chtc.wisc.edu

OSG entry point

UW VO

OSG

(>120 sites)

At UW-Madison's CHTC

Submit Server

HTCondor Pool (or other Cluster)

OSG entry point

UW VO

OSG (>120 sites)

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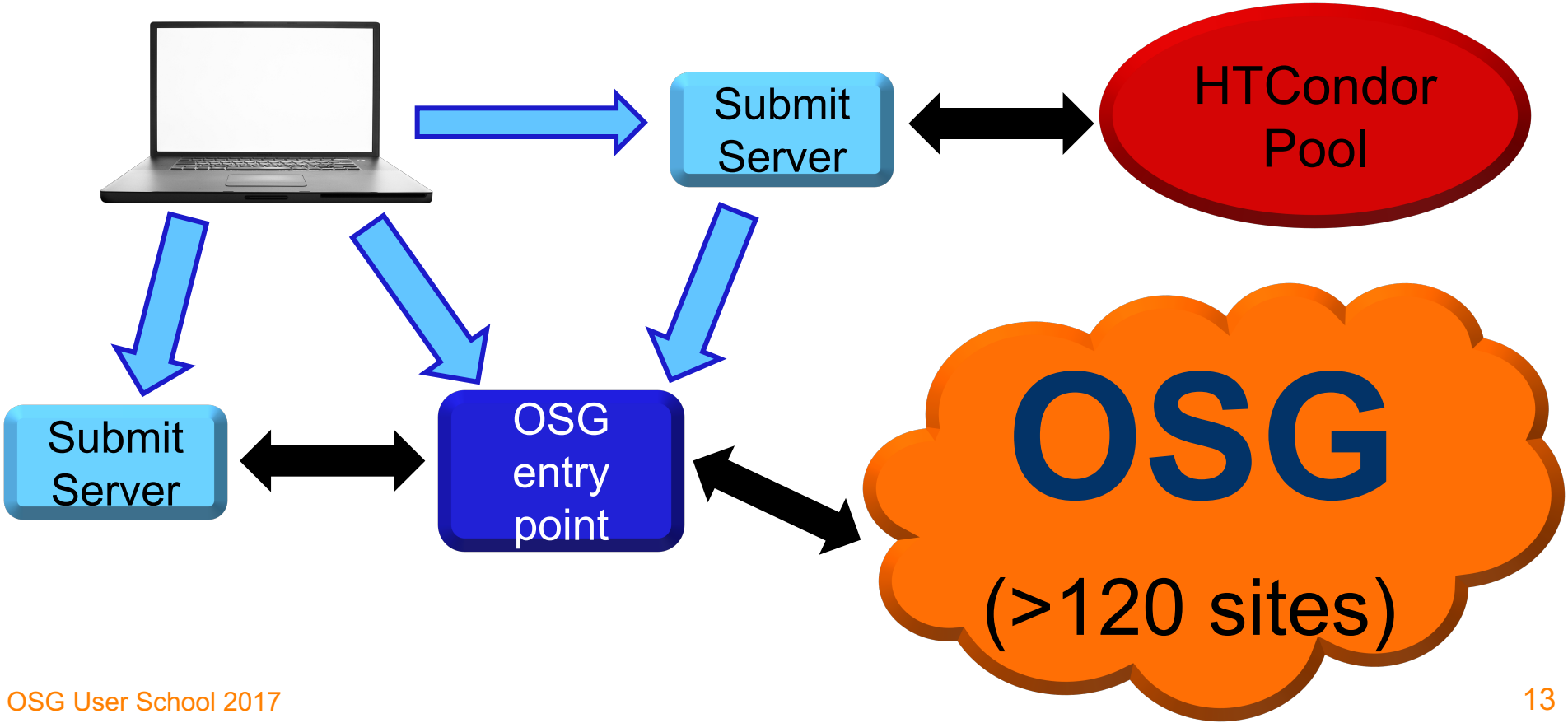
Accessing an OSG Submit Point – 3 Ways

1. Local Virtual Organization (VO)
   - campus, national lab, or research organization that is part of the OSG consortium (OSG School through the “GLOW” VO)
2. OSG Connect
   - an OSG VO and submit server for academics no local VO

   OSG Connect Client
   - software that allows users to remotely submit to OSG Connect from a home cluster
3. XSEDE
   - collection of HPC clusters available to U.S. academics via allocations of compute hours

Access Methods: Local VO



Other Access Methods:

Submit Server

HTCondor Pool

(or other type of Cluster)

XSEDE

Submit Server

OSGConnect

OSG entry point

OSG

(>120 sites)

Accessing an OSG Submit Point – 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	**very unlikely**	**FREE**	very 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)**	**direct OSG entry server**	cluster submit node to OSG entry server	submit node to OSG entry server

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

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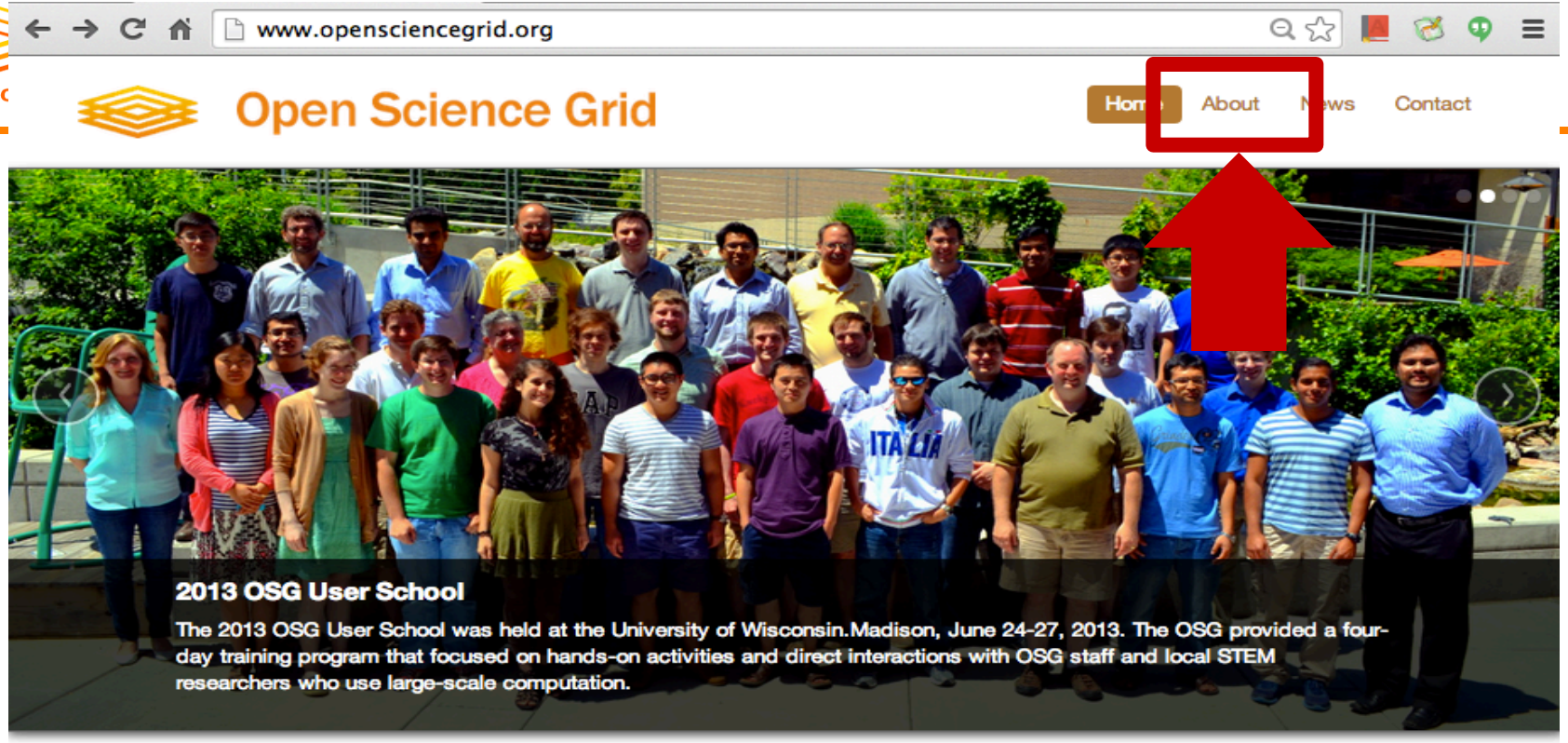
Virtual Organization (VO)

- 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 institution is/has a VO?



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

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.

Please see Documentation for more details regarding available documentation.

www.opensciencegrid.org/about/organization/

Open Science Grid

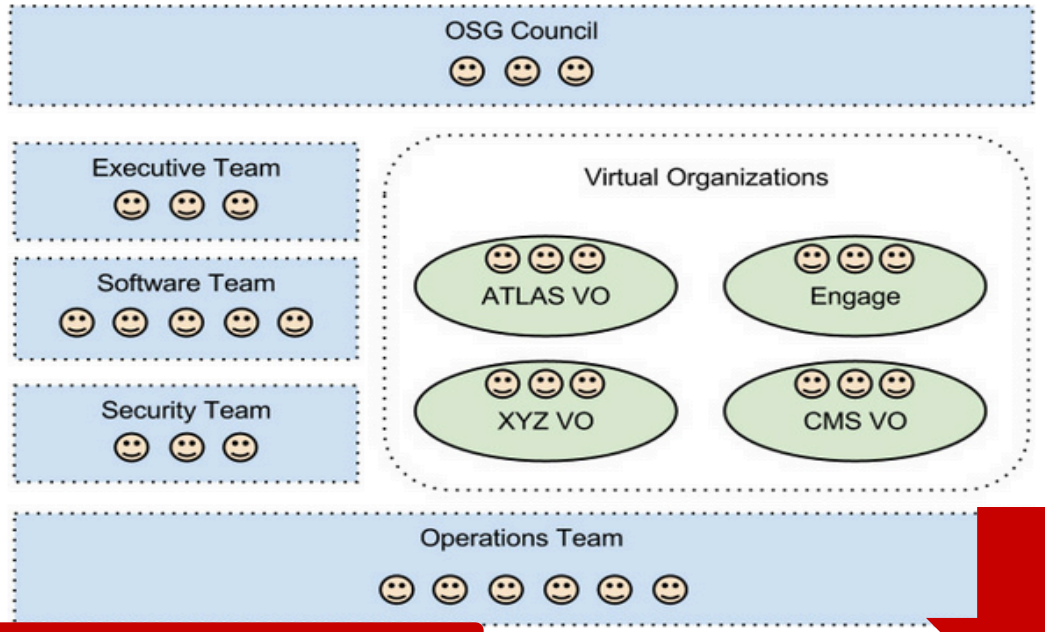
Home | About | News | Contact

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.



Please see List of Virtual Organizations.

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

www.opensciencegrid.org/about/organization/

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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. Get an account

   Contact the administrators to get an account on their glidein server (or submit node tied to a glidein server).
3. Submit jobs

   Follow site-specific guides and/or submit jobs as you have been at the OSG School.

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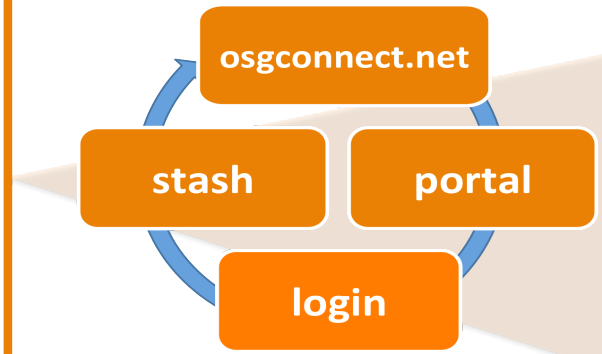
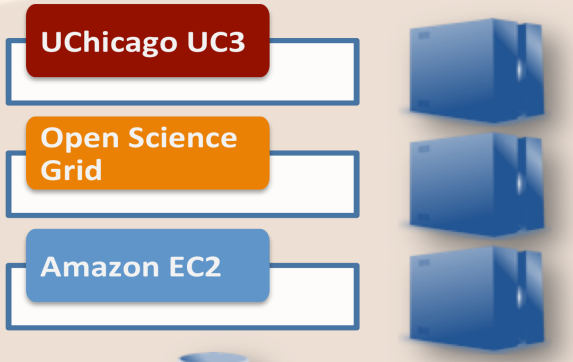
OSG Connect

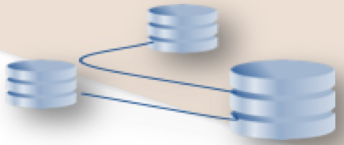
osg connect

- Essentially, a VO available to those without a *Local VO*
- Free for affiliates/partners of U.S. research institutions
- Submit from OSG Connect server or use Connect Client on another cluster (e.g. Clemson)
- Online guides, software support, and contact info

osg connect







globus ci connect

osg connect

Details and hands-on exercises on Thursday morning!

globus ci connect

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OSG via XSEDE

Extreme Science and Engineering Discovery Environment

- **XSEDE**:

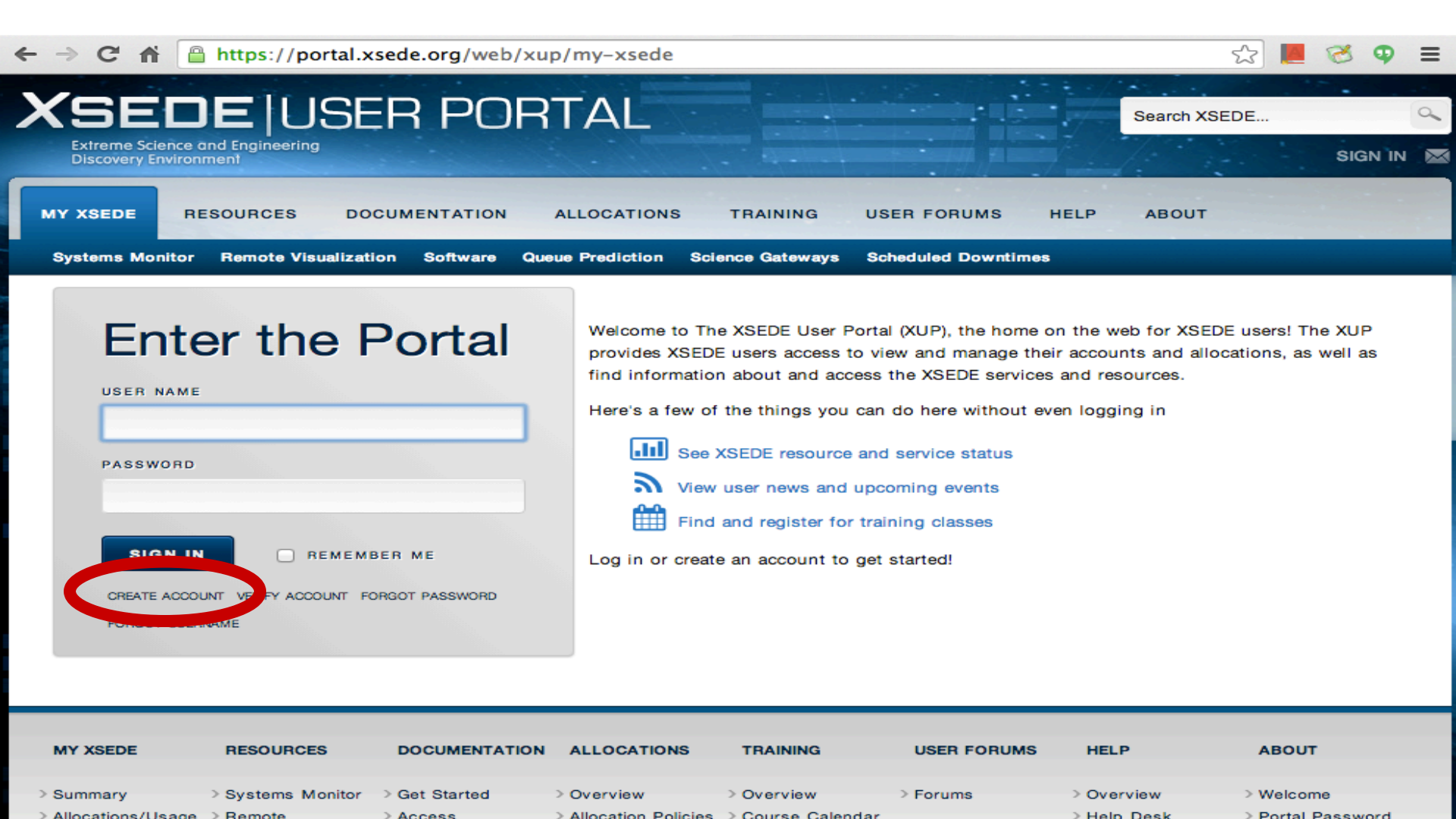
  a consortium of HPC clusters and other computational services available to academics in the U.S.
- free accounts, but you must request an XSEDE allocation of compute hours
- limited online guides specific to OSG-XSEDE, but similar to submission via osg-ss-glidein-submit

Using OSG via XSEDE

Extreme Science and Engineering Discovery Environment

1. Sign up for an XSEDE account.
2. Request an OSG allocation

   via the XSEDE User Portal to request a startup (or long-term) allocation of compute hours for OSG.
3. Follow XSEDE's guides for connecting to and using the XSEDE submit server.
4. Submit jobs as you have been at the school, making sure to indicate your XSEDE project name (allocation code).


https://portal.xsede.org/web/xup/my-xsede
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
FORGOT PASSWORD
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
Summary
RESOURCES
Systems Monitor
DOCUMENTATION
Get Started
ALLOCATIONS
Overview
TRAINING
Overview
USER FORUMS
Forums
HELP
Overview
ABOUT
Welcome

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

https://portal.xsede.org/user-guides

MY XSEDE | RESOURCES | DOCUMENTATION | ALLOCATIONS | TRAINING | USER FORUMS | HELP | ABOUT

Get Started | Access Resources | Manage Data | User Guides | News | Usage Policy | Knowledge Base | File Management Downloads

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

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)

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Questions?

- Feel free to contact me:
  - lmichael@wisc.edu

- Next: Evaluate today!
- More on Thursday:
  - Learn more about OSG Connect and supported software