Open Science Grid

Open Science Grid Campus and Regional Infrastructures Workshop

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Open Science Grid All Hands Meeting

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University of North Carolina – Chapel Hill

Renaissance Computing Institute

OSG Campus and Regional Infrastructures Workshop

- Welcome!
- High Performance and High Throughput Computing (HT/HPC)
  - Now a permanent feature of the research landscape
  - Cyberinfrastructure now powers many collaborative research projects
- Large scale projects (such as CMS, Atlas, and OSG)
  - Literally paving the way for broadening the impact of HT/HPC and CI
  - Building the software, processes, infrastructure for CI
  - Proving the utility of Cyberinfrastructure
- Smaller scale science collaborations benefit from your work
  - Regional and campus scale grids and CI
  - Leveraging open source software developed within OSG
  - Tremendous power of commodity hardware

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Workshop Objectives

- Discuss the current state-of-the-art and issues in running a production campus grid
- Provide a forum for groups operating (or considering building) campus and regional grids and cyberinfrastructure
- Discuss the role of the Open Science Grid as an enabler of campus and regional research cyberinfrastructure
- Share best practices, challenges, and opportunities in building a grid and cyberinfrastructure
- Network and connect with colleagues
  - Planning and proposing grids
  - Experts who can share experiences
  - Learn from each other
- Identify future activities, issues, and action items to improve the effectiveness and adoption of campus grids

Workshop Agenda and Events

- Existing Campus Grids (13:40-14:45)
  - Discussion of current state-of-the-art in campus grid and cyberinfrastructure efforts
- Existing Regional Grids (14:45 – 15:30)
  - Current work in deploying and operating regional scale grids, and impacts on scientific research
- Break and Networking (15:30 – 16:00)
  - Have a coffee, learn from colleagues
- Engaging Users (16:00 – 16:15)
  - How can we best engage the user community?
- Sharing Local Resources (16:15 – 16:30)
- Open Case Study with TAMU (16:30)

Speaker Instructions

- 12 minutes for talk, 3 minutes for questions
- Workshop chairs will flag speaker with 2 minute warning and a 0 minute remaining
- Please setup while the previous speaker is taking questions
- Big thank you to speakers who have come to share their experiences and expertise!

Why should my University facilitate (or drive) resource sharing?

Because it's the right thing to do

- Enables new modalities of collaboration
- Enables new levels of scale
- Democratizes large scale computing
- Sharing locally leads to sharing globally
- Better overall resource utilization
- Funding agencies

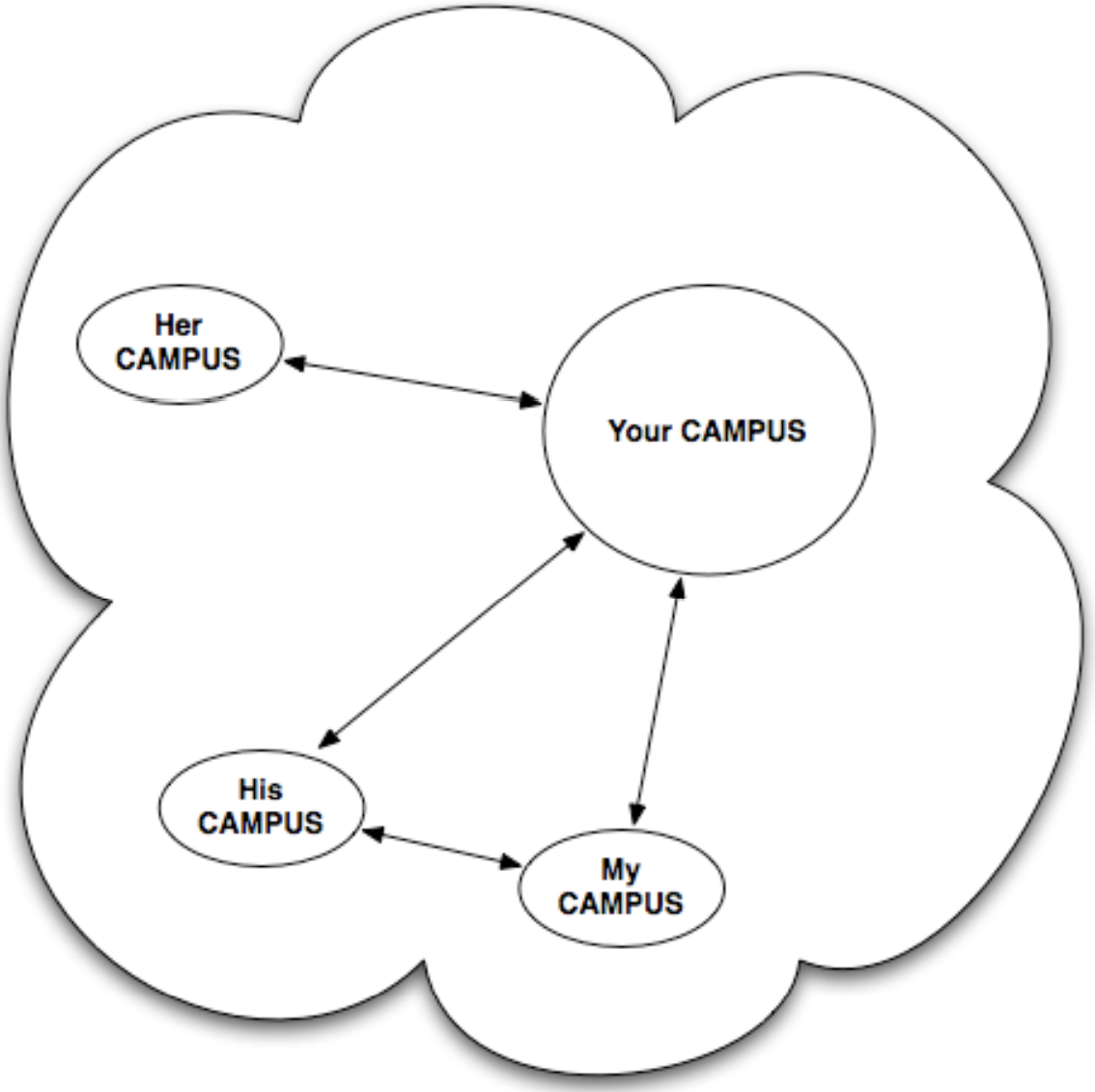
> •*At the heart of the cyberinfrastructure vision is the development of a cultural community that supports peer-to-peer collaboration and new modes of education based upon broad and open access to leadership computing; data and information resources; online instruments and observatories; and visualization and collaboration services.*
>
> - Arden Bement
> CI Vision for 21st Century introduction

Open Science Grid

Campus Grids

- They are a fundamental building block of the OSG
  - The multi-institutional, multi-disciplinary nature of the OSG is a macrocosm of many campus IT infrastructure coordination issues.
- Currently OSG has three operational campus grids on board:
  - Fermilab, Purdue, Wisconsin
  - Working to add Clemson, Harvard, Lehigh
- Elevation of jobs from Campus CI to OSG is transparent
- Campus scale brings value through
  - Richness of common software stack with common interfaces
  - Higher common denominator makes sharing easier
  - Greater collective buying power with venders
  - Synergy through common goals and achievements

Simplified View



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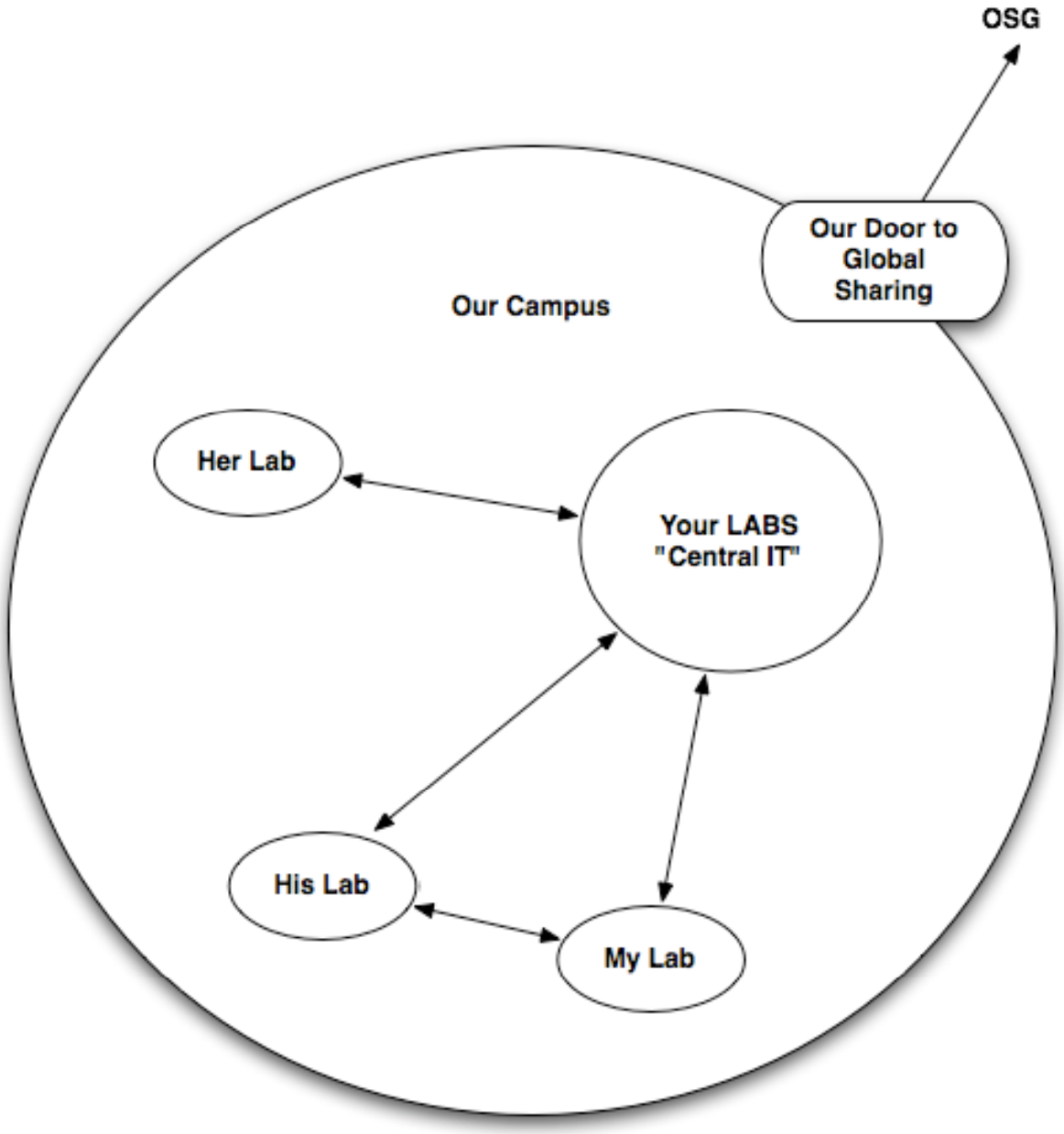

Open Science Grid

Classification

- Single Owner/Operator
- Multiple Owners/Operator
- Single location
- Multiple locations

- Clemson: SOML
- Purdue: MOML, but mostly MOSL
- UCSB: MOML
- Can we refine this and define solutions ?

Campus Grids

- **Current Initiatives**
  - Campus Grid workshop at OSG AHM
  - Contacted Emory University deputy CIO
  - Invited to UTEP to talk about Condor deployment and applications
  - Will meet with Russ Hobby about UC Davis
  - RIT reported a 1,000 node Condor pool campus wide
  - Buffalo reported plans to deploy Condor campus wide in the spring.
  - Early contact with TAMU
  - Contact with LSU
  - Texas Tech University (TTU) reports 800 node campus wide pool