

# OSG Roadmap for Connecting Science to Cycles and Data

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**OSG**CAMPUS  
**INFRASTRUCTURES**

**Workshop at Duke University**

**Aug 27-28, 2013**

# Outline

- ✿ Background – the Open Science Grid and Campus Grids
- ✿ Vision for connecting connecting science to cycles and data
- ✿ Setup for the workshop

# Open Science Grid

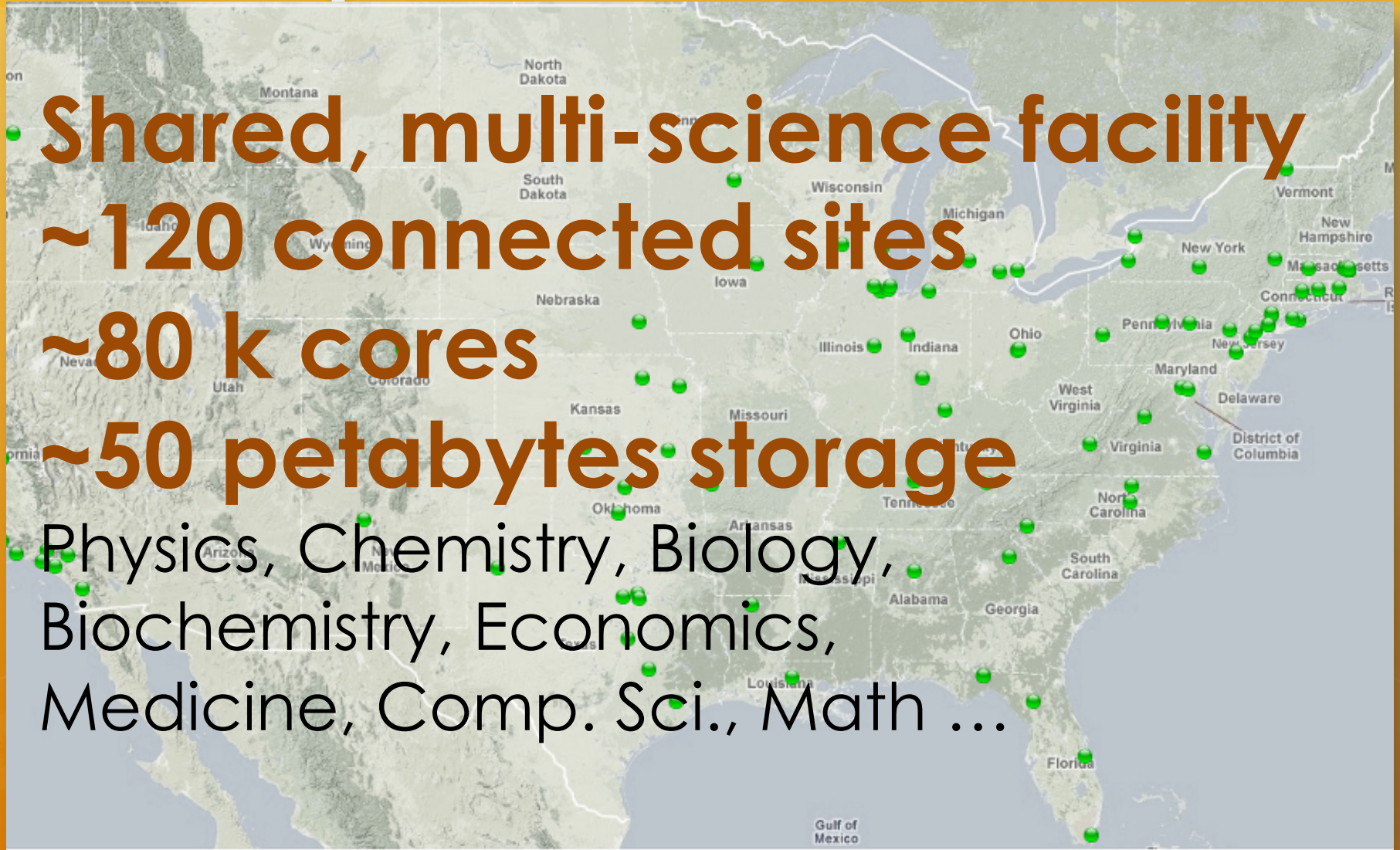
**Shared, multi-science facility**

**~120 connected sites**

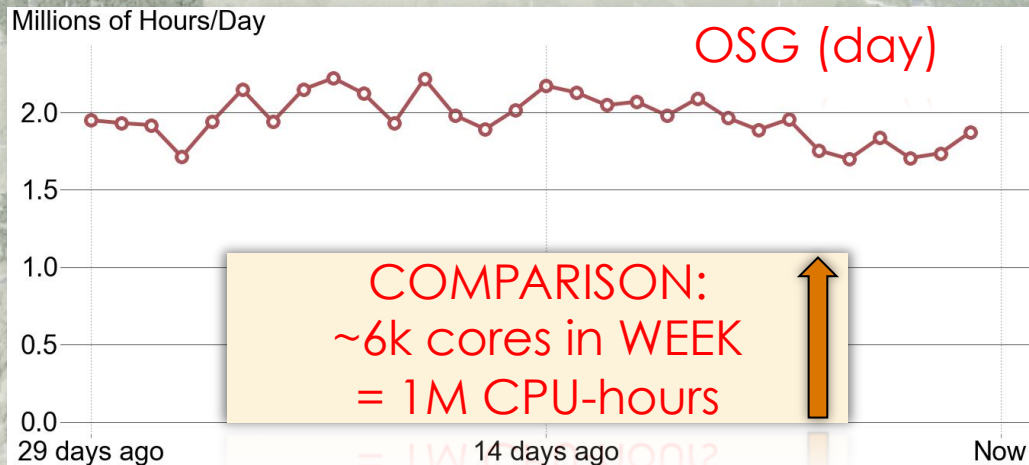
**~80 k cores**

**~50 petabytes storage**

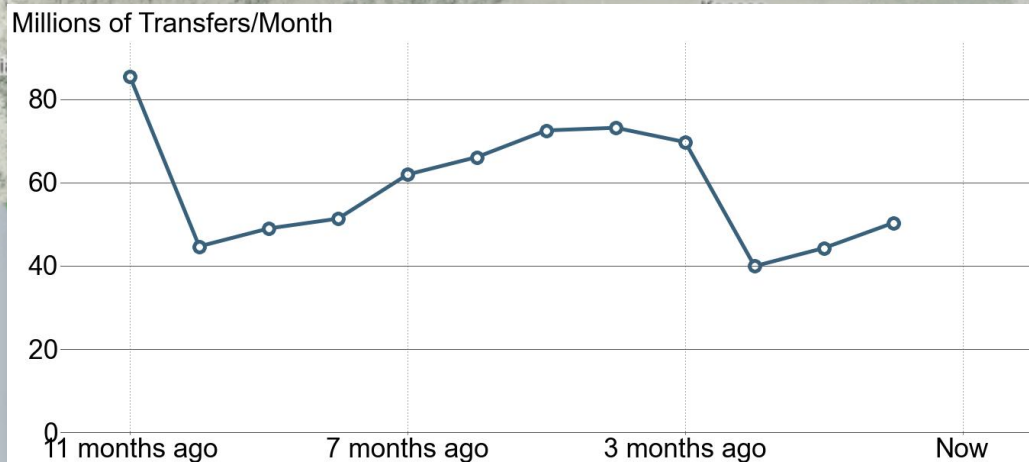
Physics, Chemistry, Biology,  
Biochemistry, Economics,  
Medicine, Comp. Sci., Math ...



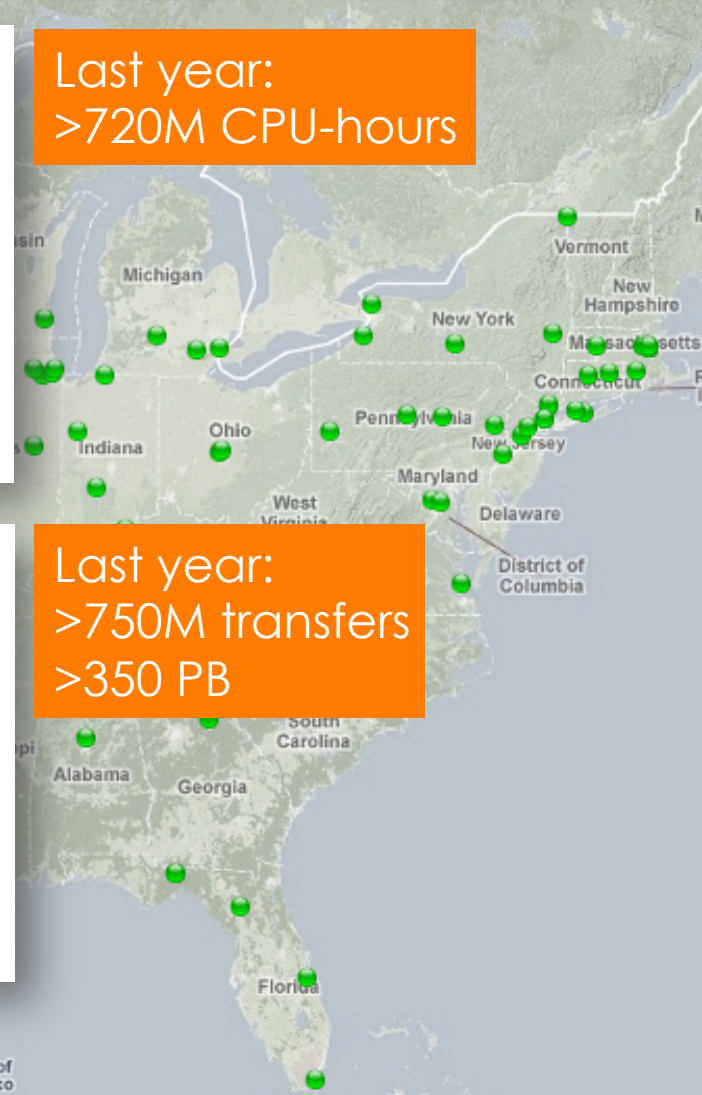
# Open Science Grid - Scale



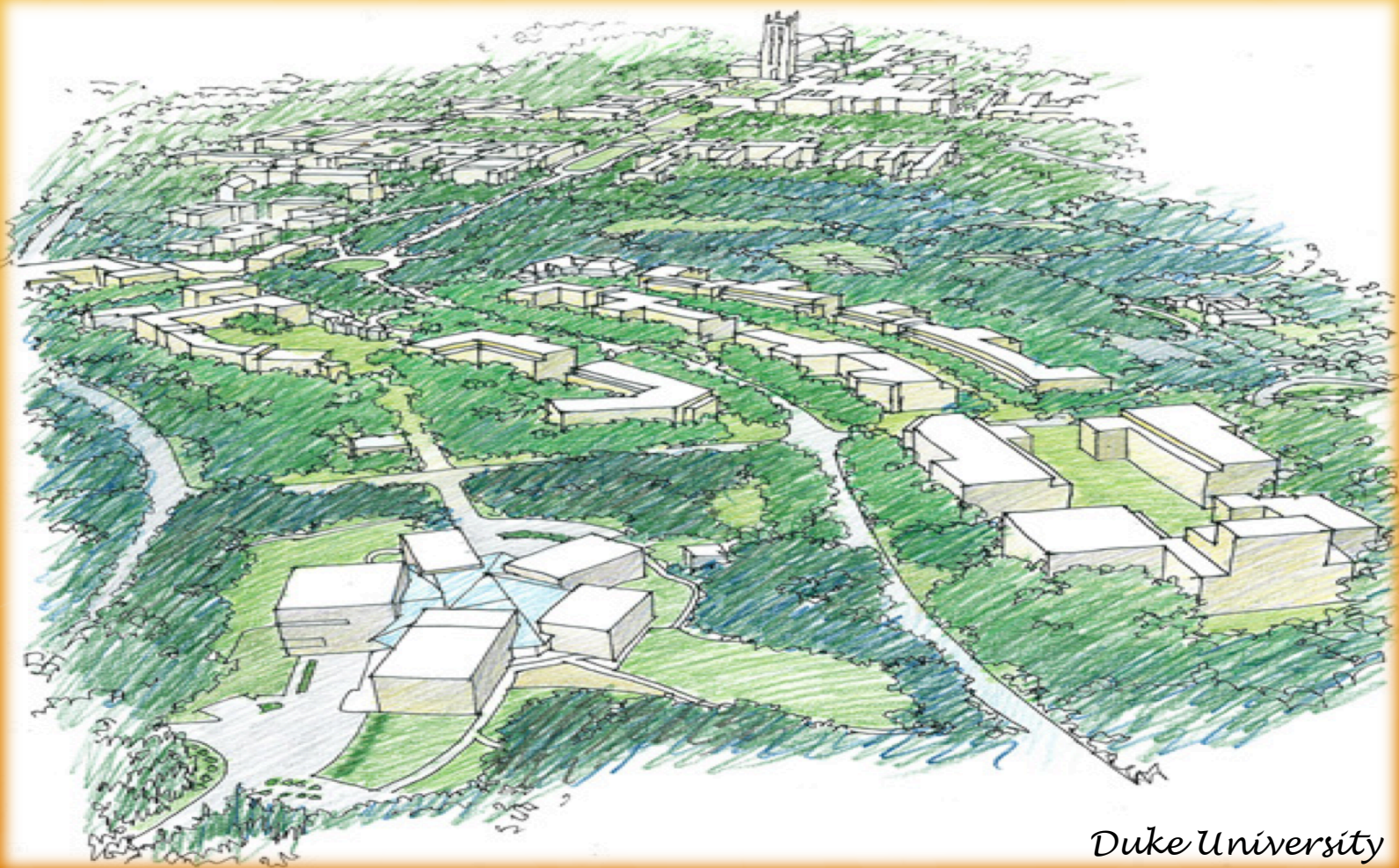
Last year:  
>720M CPU-hours



Last year:  
>750M transfers  
>350 PB

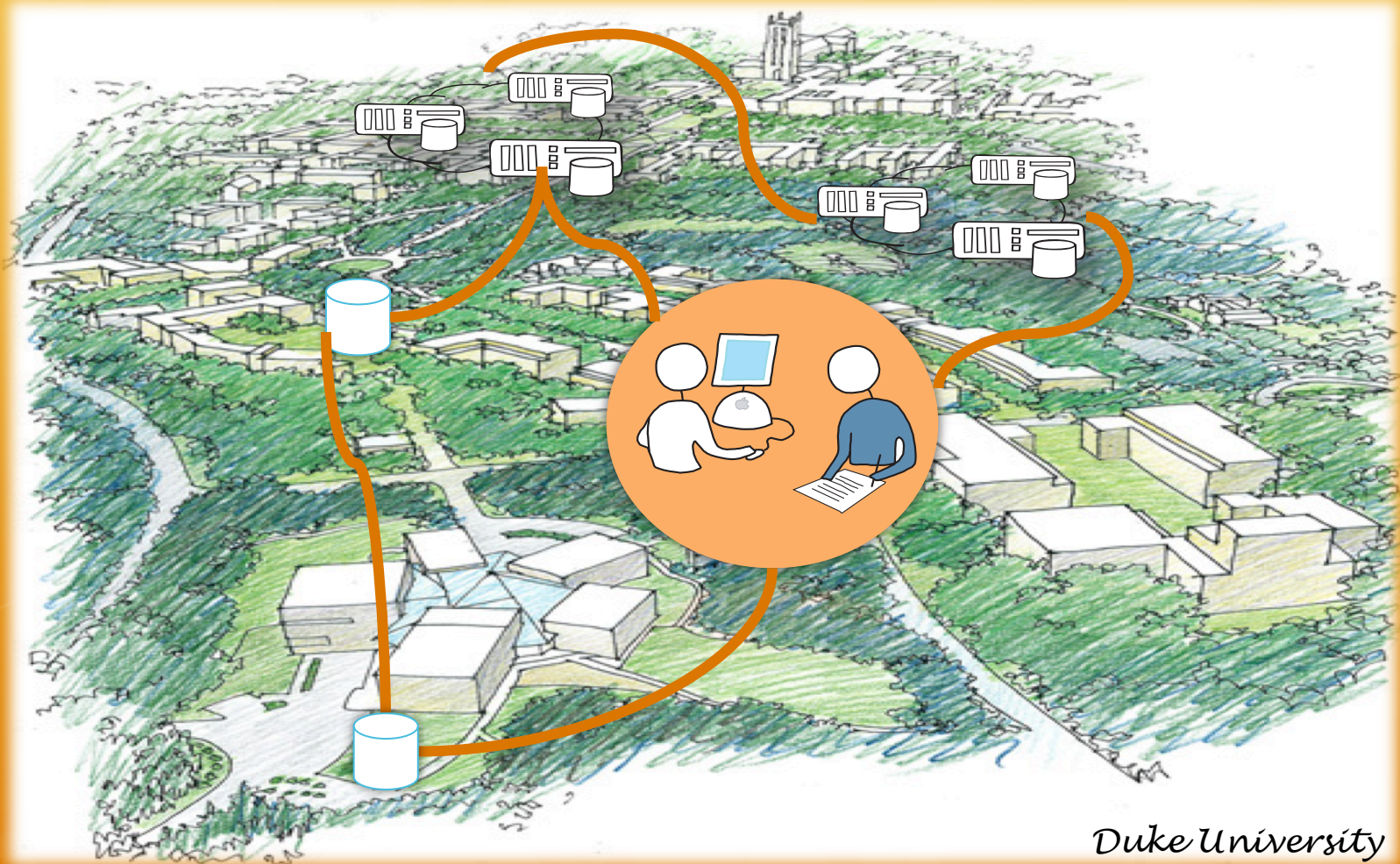


# Campuses – where science happens

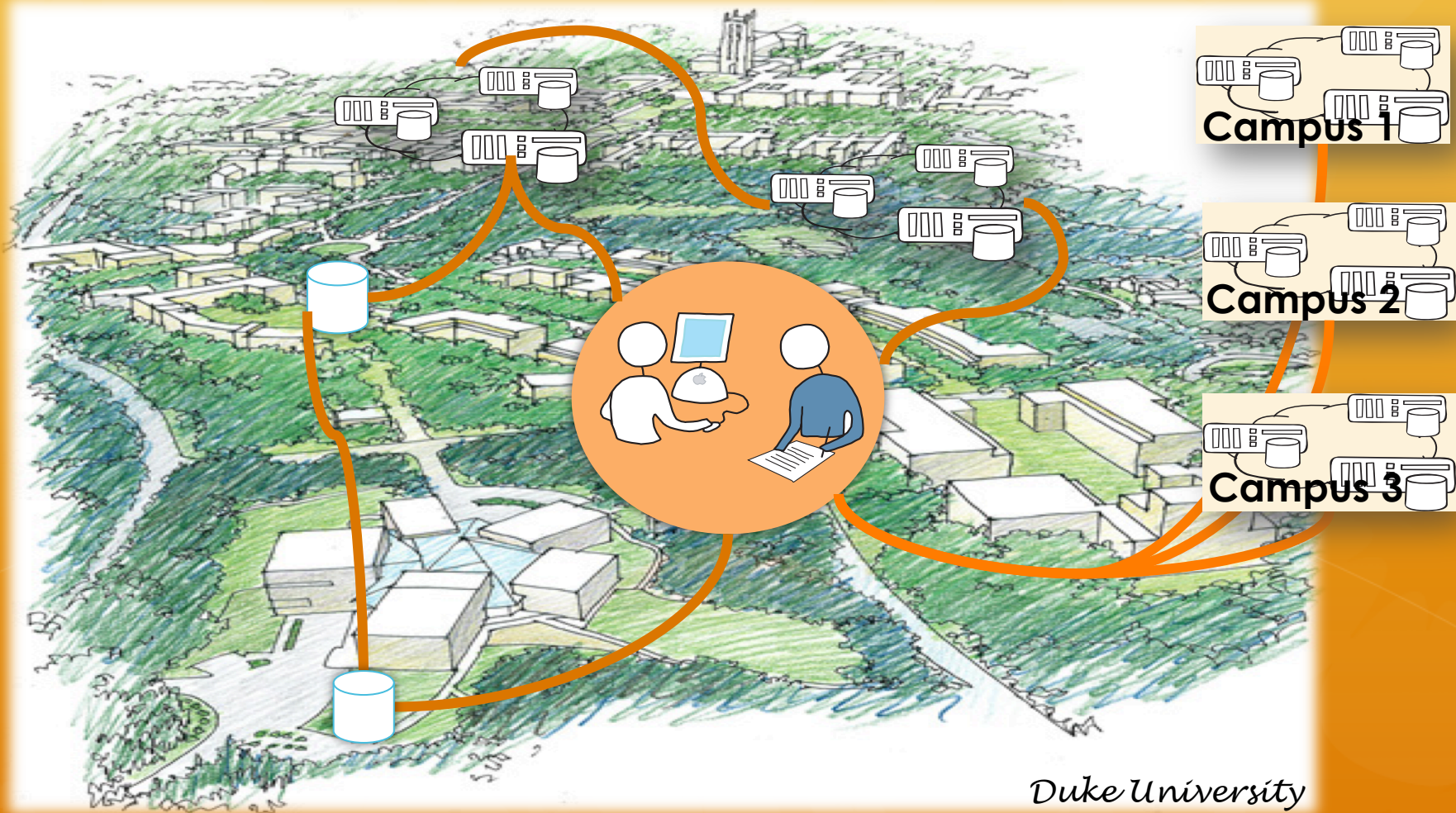


*Duke University*

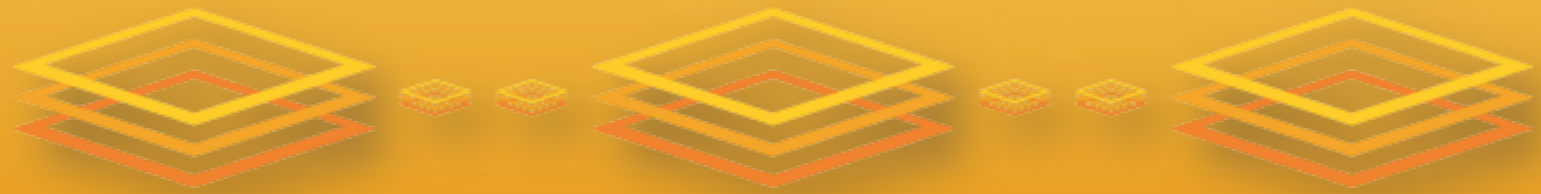
# Campus Grid – a high throughput system that connects science to cycles and data...



# ...including off-campus resources



How do we make  
'connecting' simple?



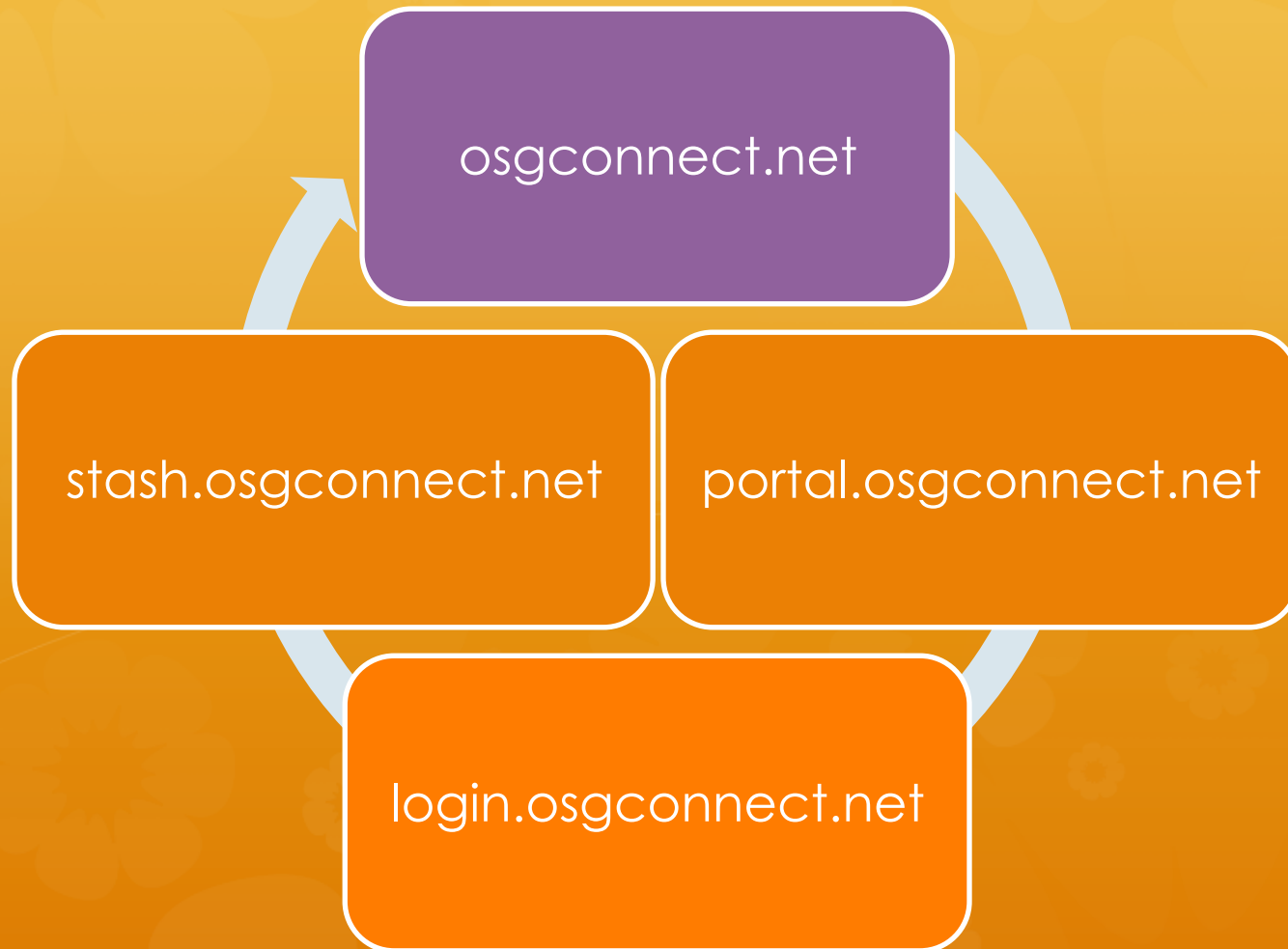
osg connect



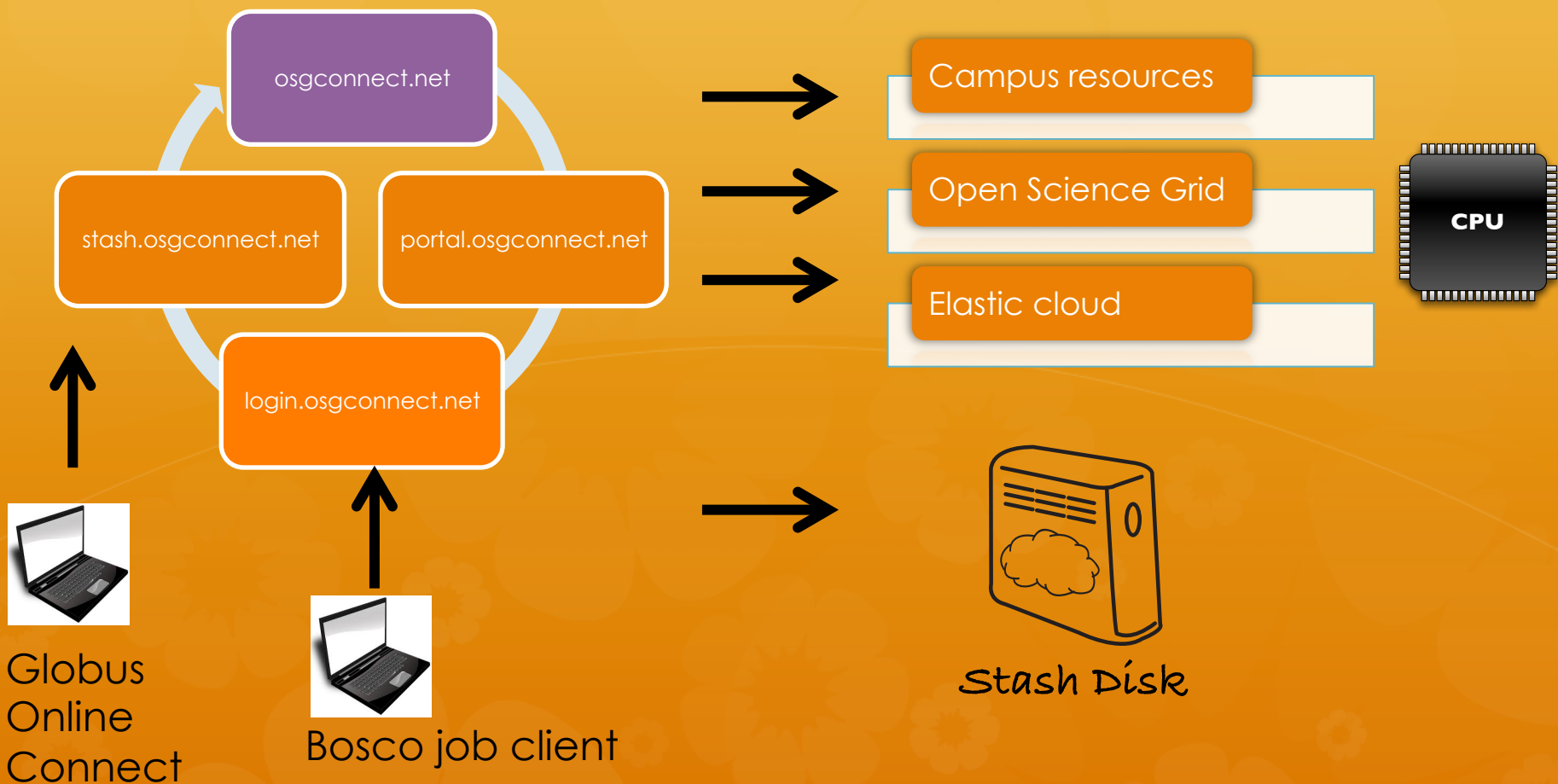
# Our Vision

- ❁ Efficiently connect science to cycles and data
- ❁ Leverage proven distributed high throughput tools and infrastructure that have delivered large scale science results over shared, federated compute and data resources
- ❁ A 'holistic' approach
  - ❁ The end-user student, postdoc, scientist, fellow
  - ❁ The project PI
  - ❁ The providers: departments, campus-wide IT
- ❁ Provide as a service (for a user **or a campus**) with simple client software

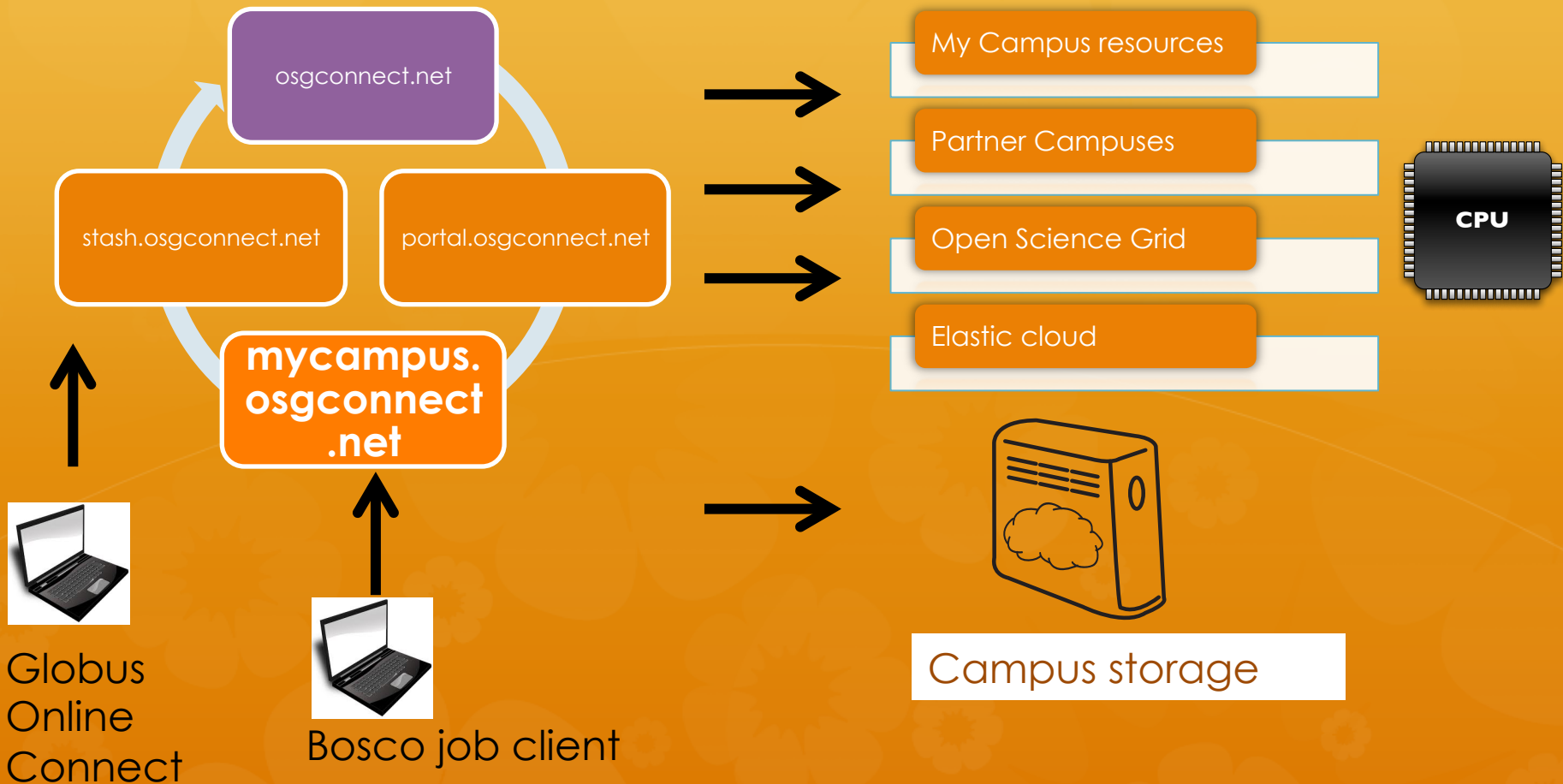
# OSG Connect Services



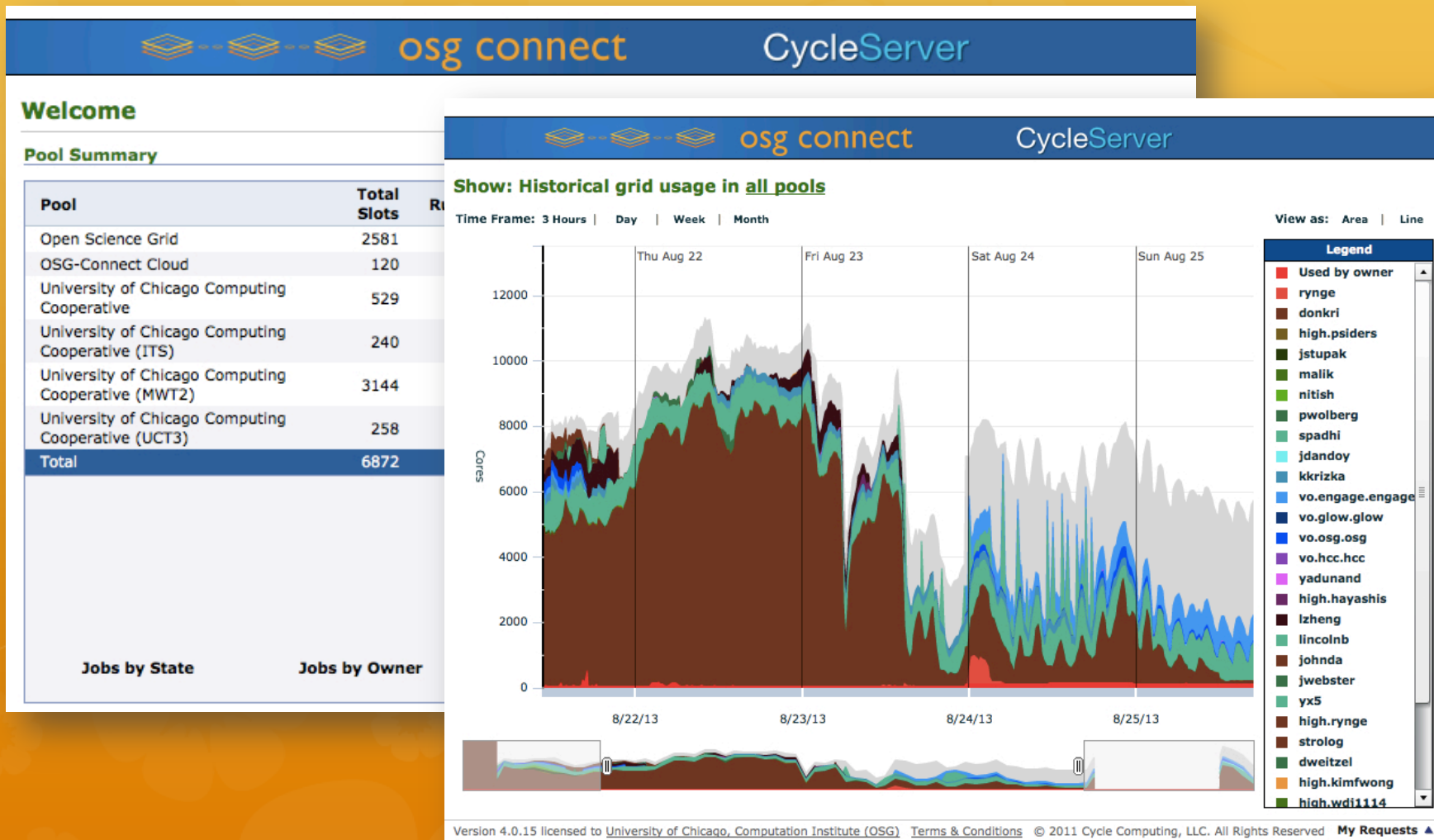
# Generic Access Modes



# Campus Bridging Modes



# OSG Connect resources for the workshop: campus grid, opportunistic OSG, & Amazon cloud



# Our goals

- ❁ Introduce approach to connecting to resources you have available on campus and off
- ❁ With distributed high throughput computing, new resources but requiring some new capabilities to access them
- ❁ Goal is to simplify this as much as possible with behind the scenes services
- ❁ Lots of material this PM and tomorrow – only meant to illustrate and trigger thinking about your application on a distributed HTC system

# OSG Connect Summary

- ✿ Connecting science to cycles and data
- ✿ Simple and efficient means to access high throughput computing resources
- ✿ Campus resources, grid resources, OSG resources
- ✿ Design this to fit **your vision** of scientific computing

# Forward: OSG CIC today



We have monthly and bi-weekly in-depth technical forums to share experience with distributed high throughput campus grid tools and methods, see <http://campusgrids.org>

**OSG**CAMPUSINFRASTRUCTURECOMMUNITY



# Final thought!

- ✿ Science is our passion, and its fun!
- ✿ So should be the computing to do it!