Accelerating Campus Research with Connective Services for Cyberinfrastructure

Rob Gardner

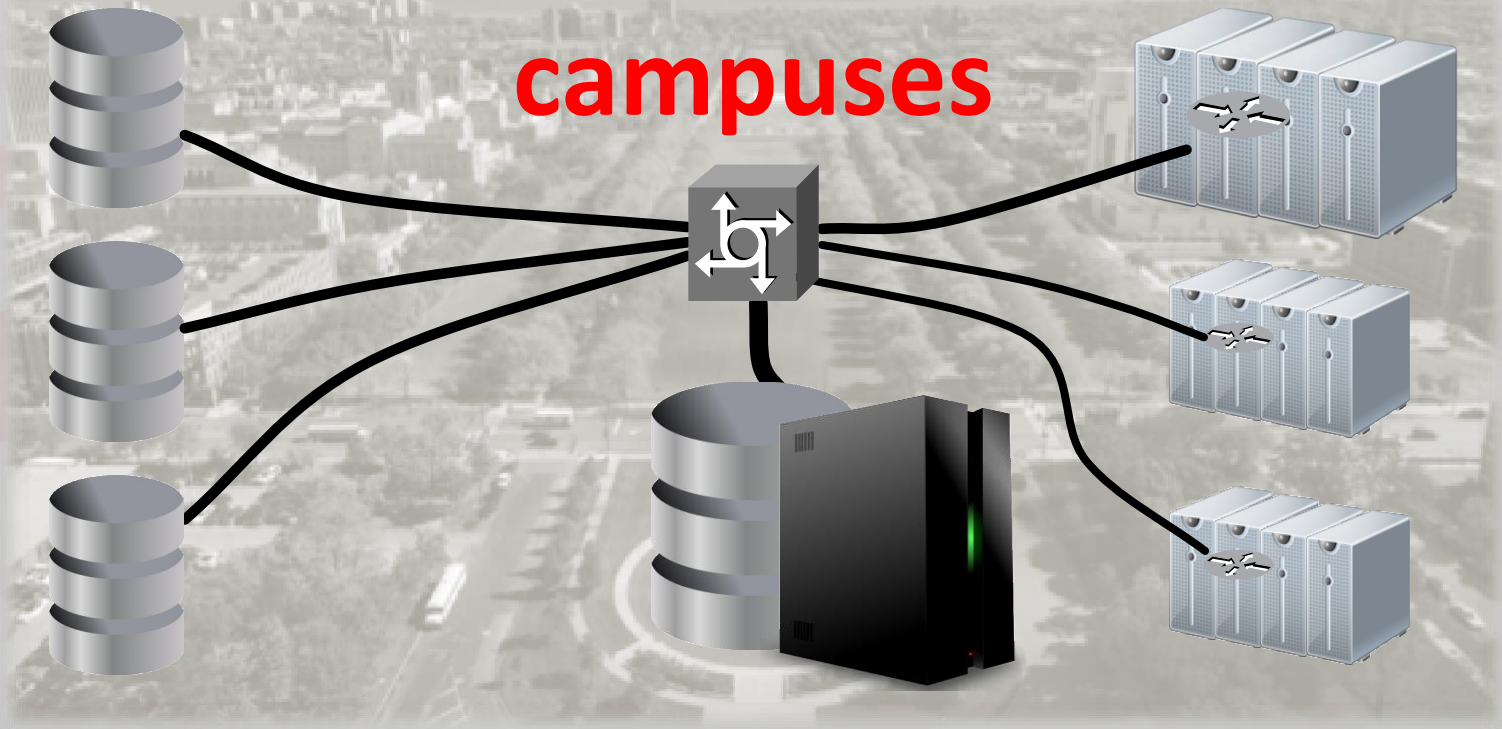
Steve Tuecke

A typical campus: distributed departments, distributed researchers, distributed resources

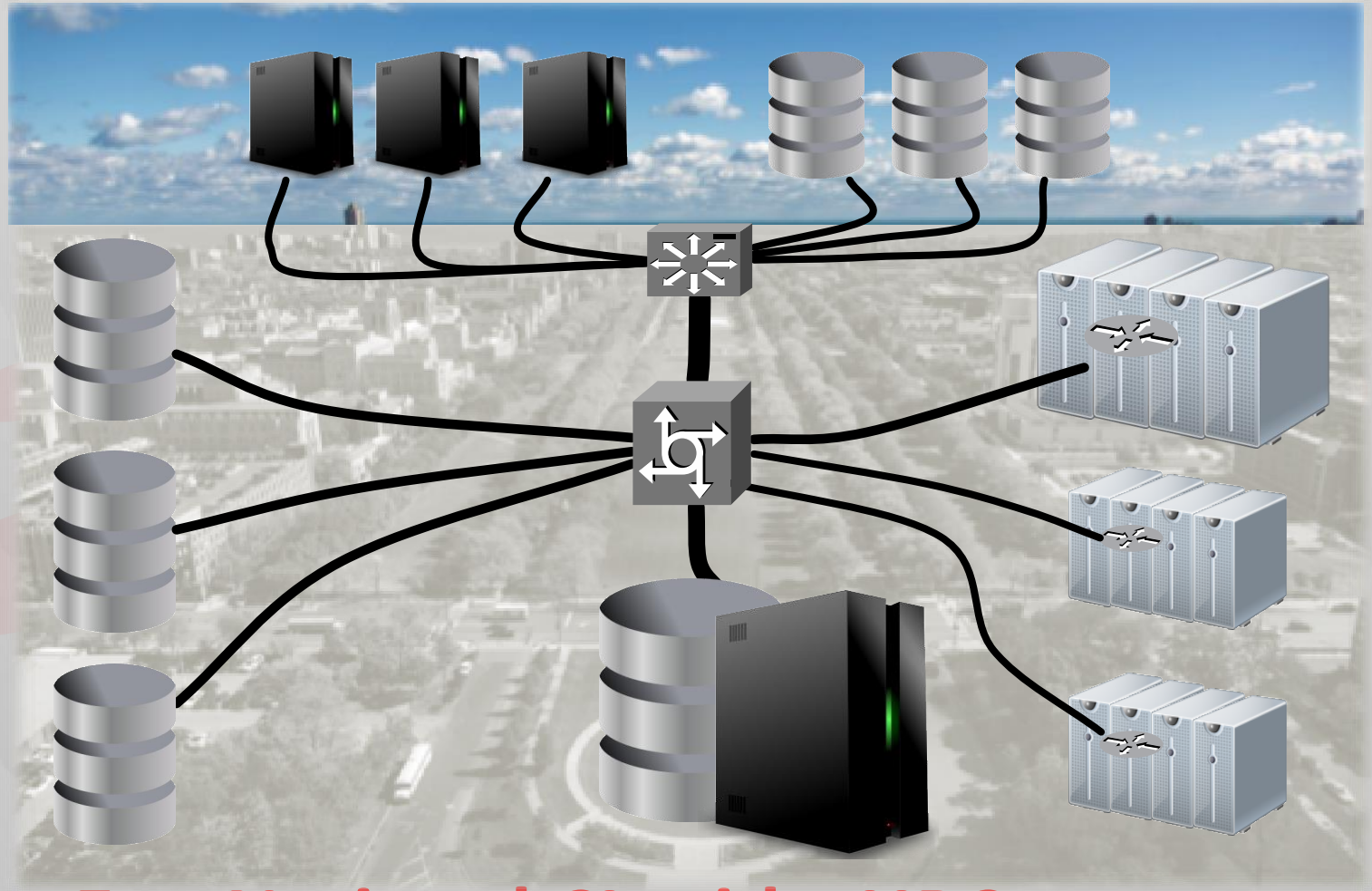
Commodification, cloud technologies, and practices achieving economies of scale drive centralization of resources on campuses, condo clusters, etc.

College-level funding discouraging "closet clusters"

Yet, for human and practical reasons there often remains a distribution of resources on campuses

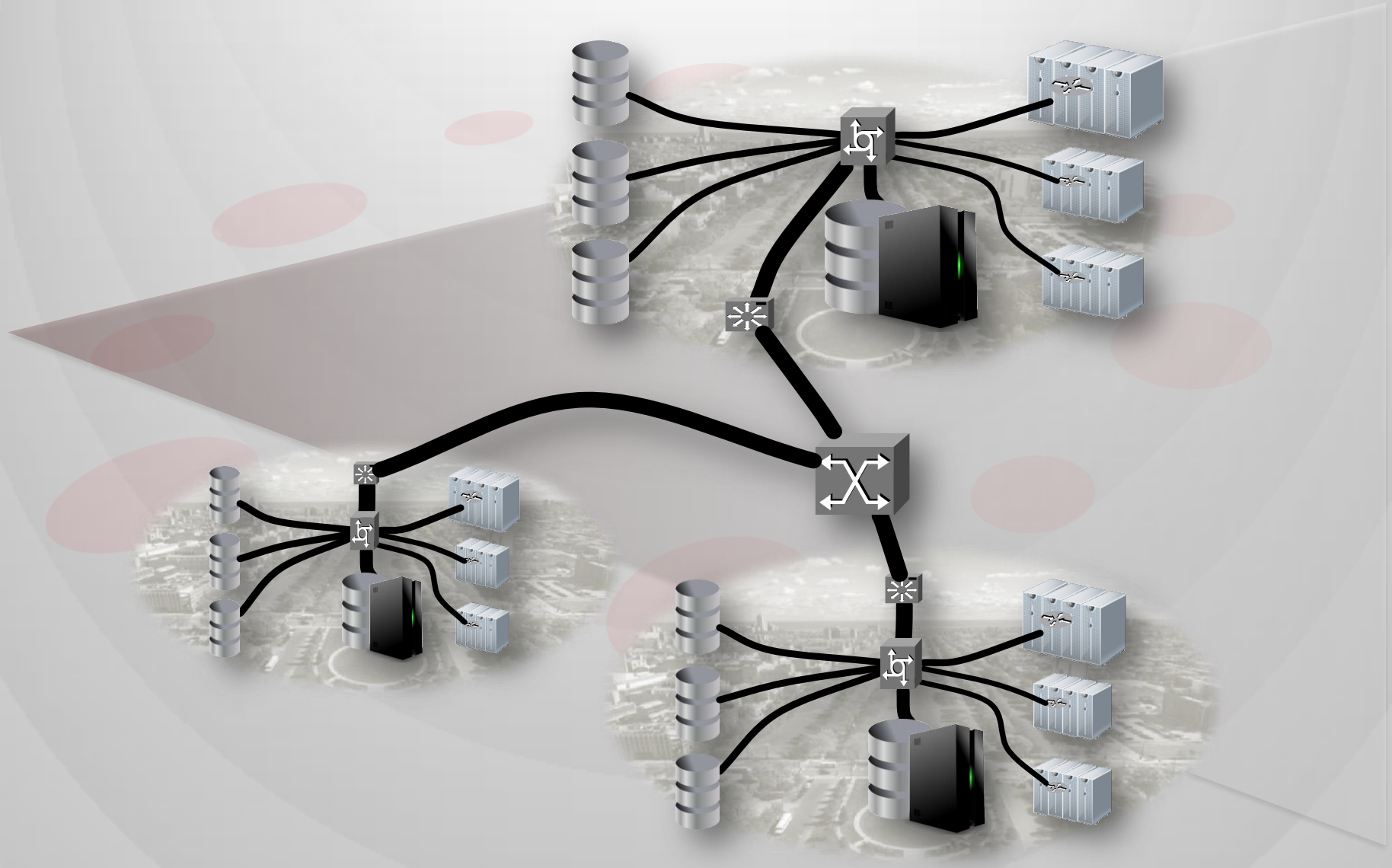


And off-campus too…

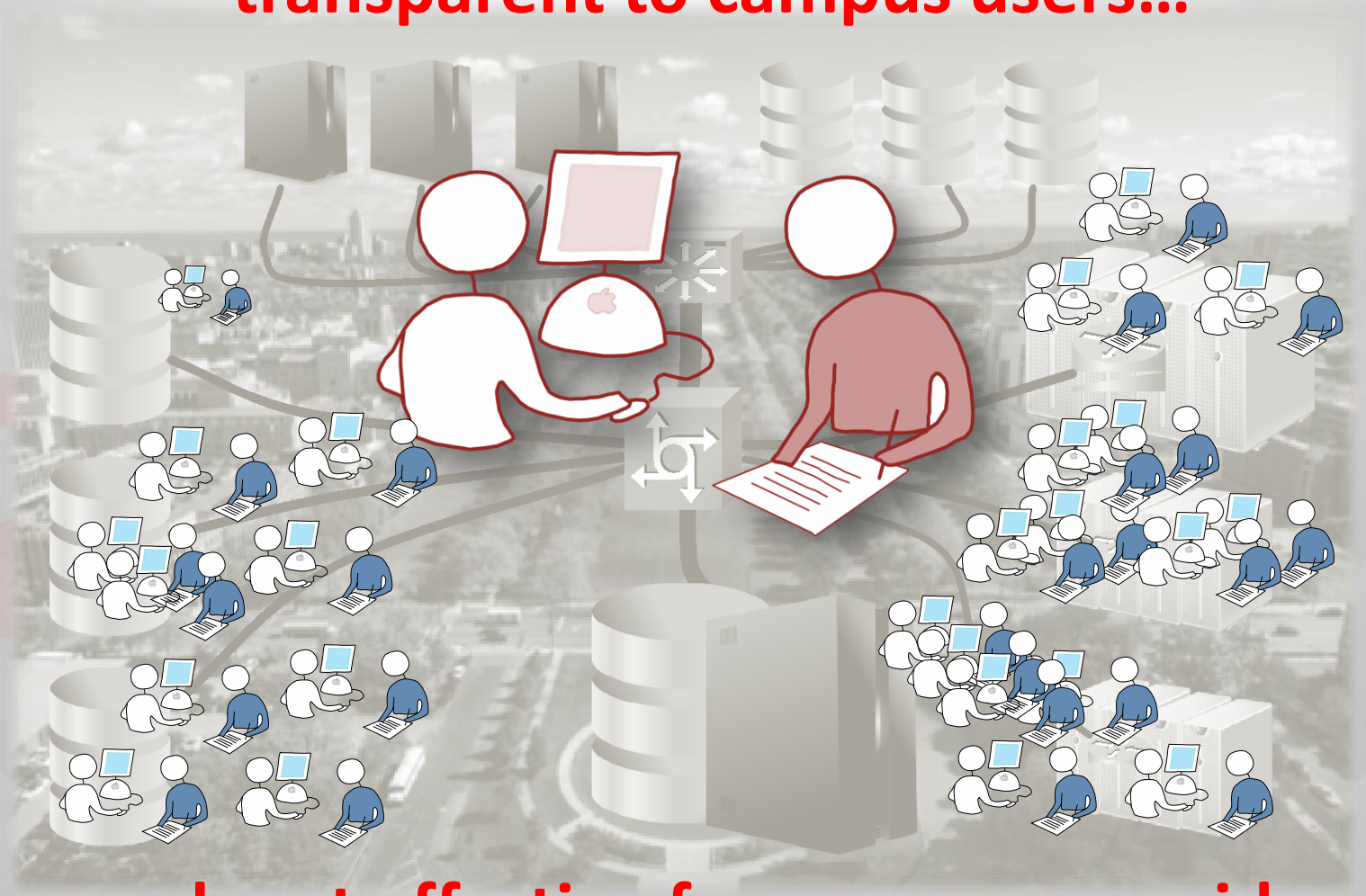


E.g. National CI grids, HPC centers, commercial clouds, science clouds …

Bridged Campus Cyberinfrastructures



Needed: services to make distributed resources transparent to campus users…



…and cost effective for resource providers, wherever those resources are provisioned.

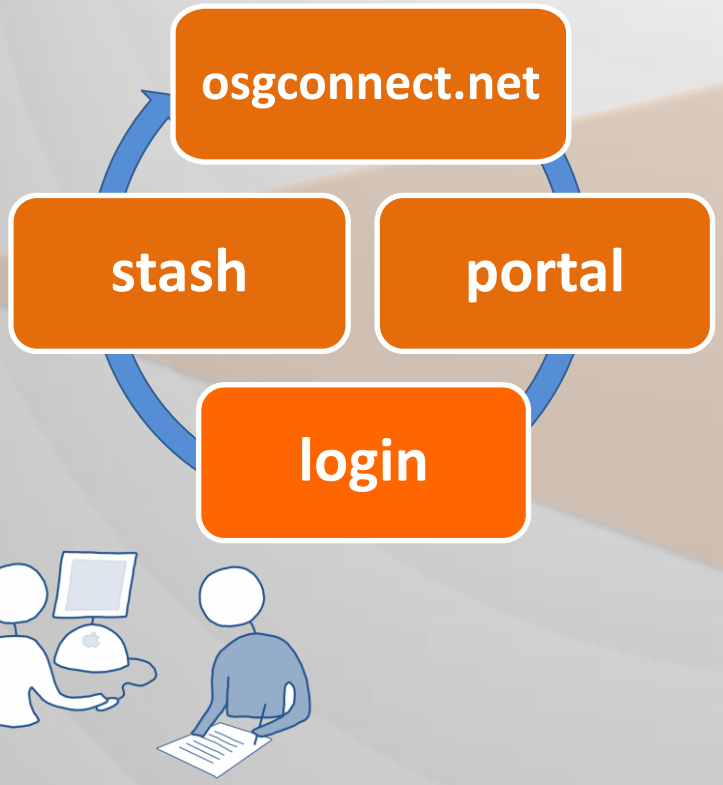
CI Connect Vision

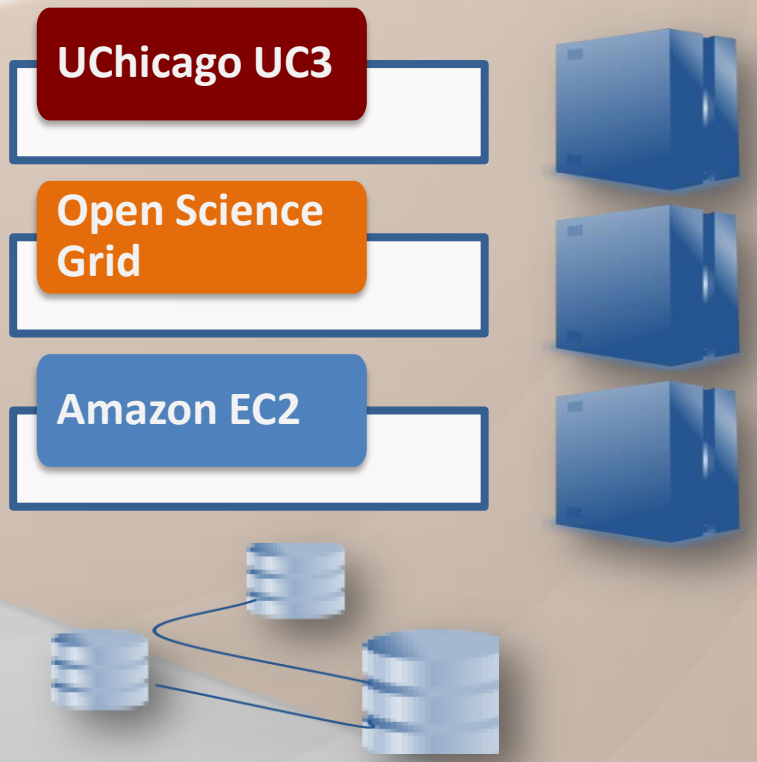
Accelerate research on campus by providing connective services for local, cloud and national cyberinfrastructure

CI Connect for research projects

- OSG Connect is a service for connecting users and project Groups to the national-scale Open Science Grid
- Provisioned as a service, using the CI Connect platform

osg connect





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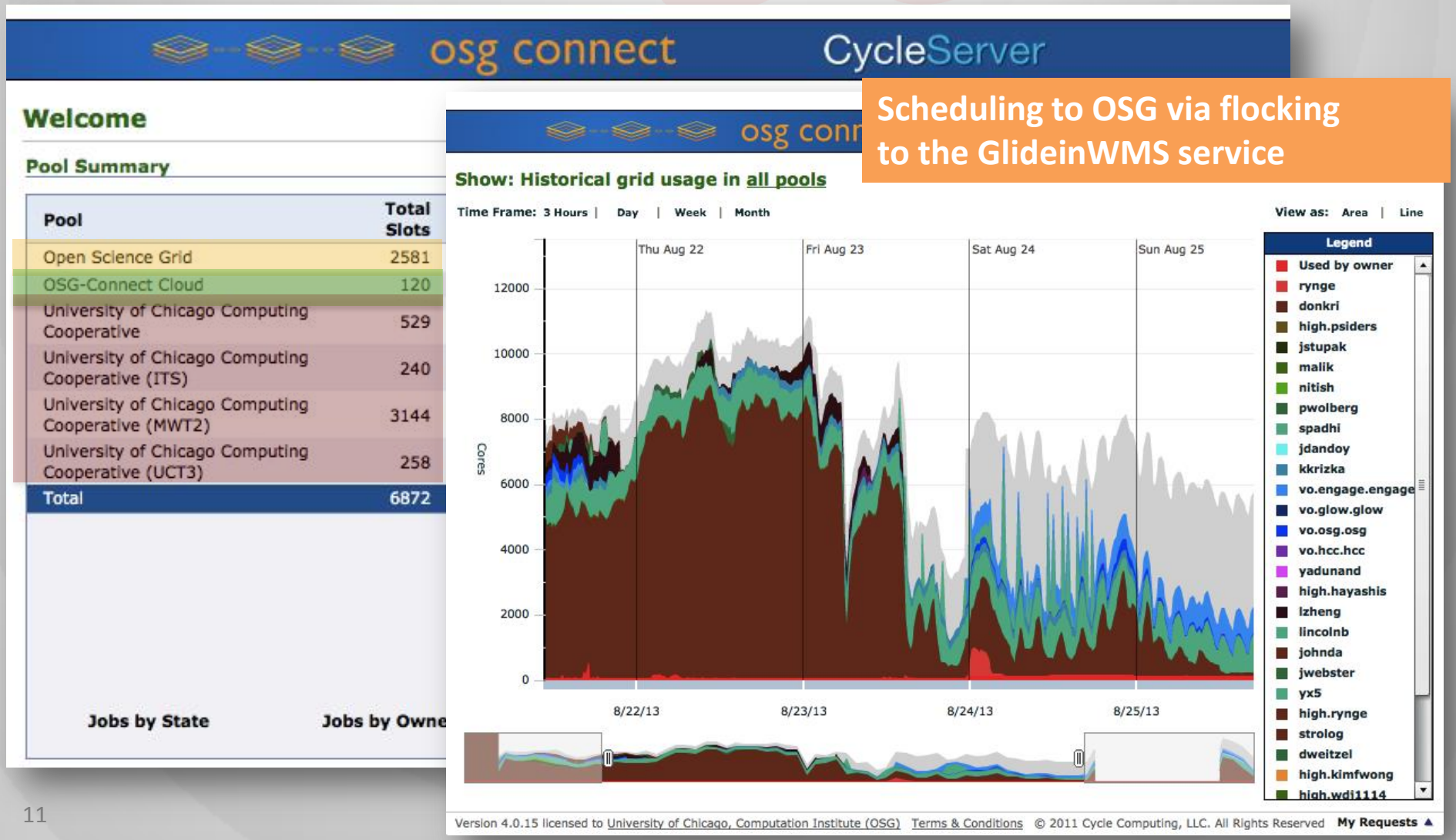
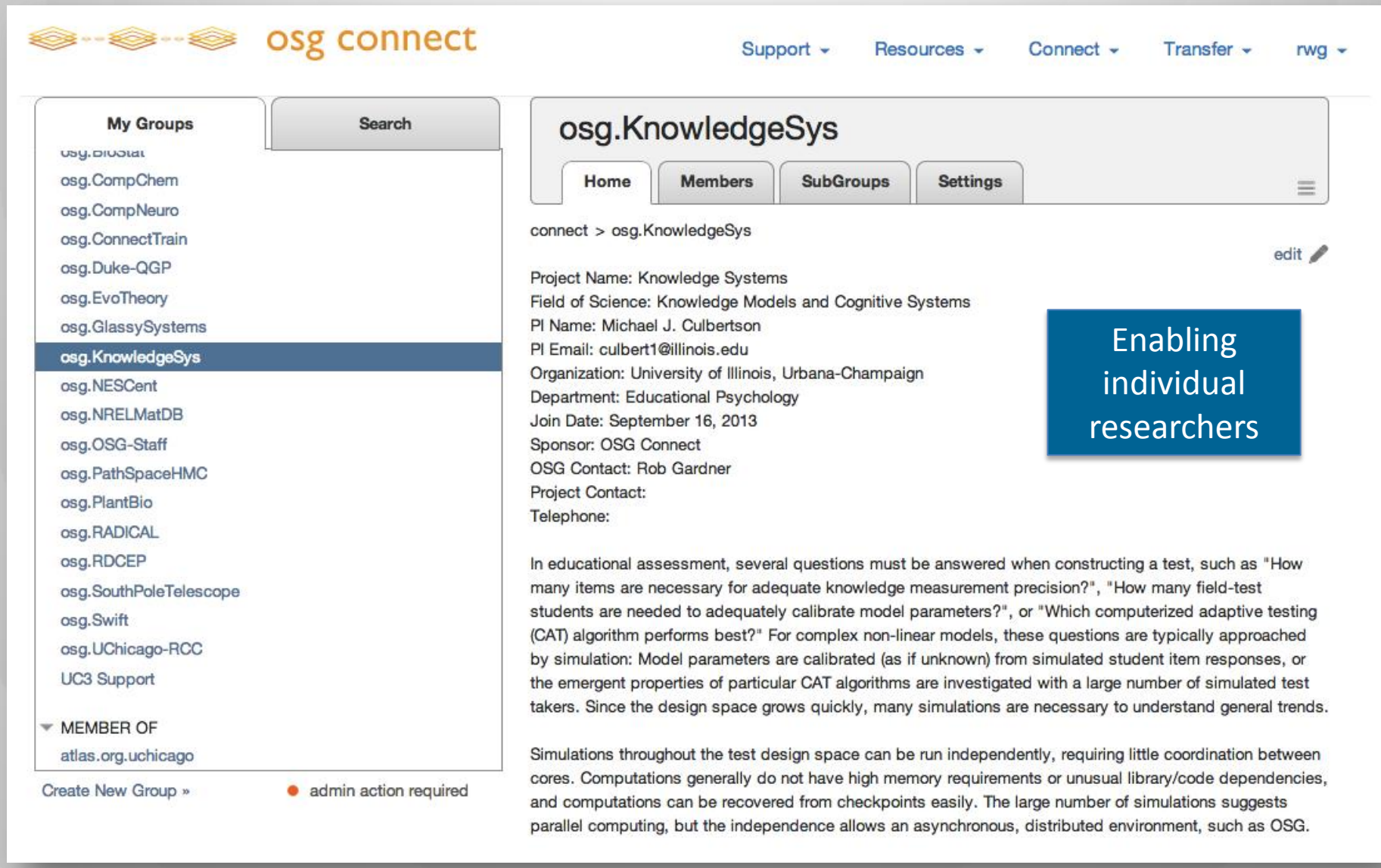
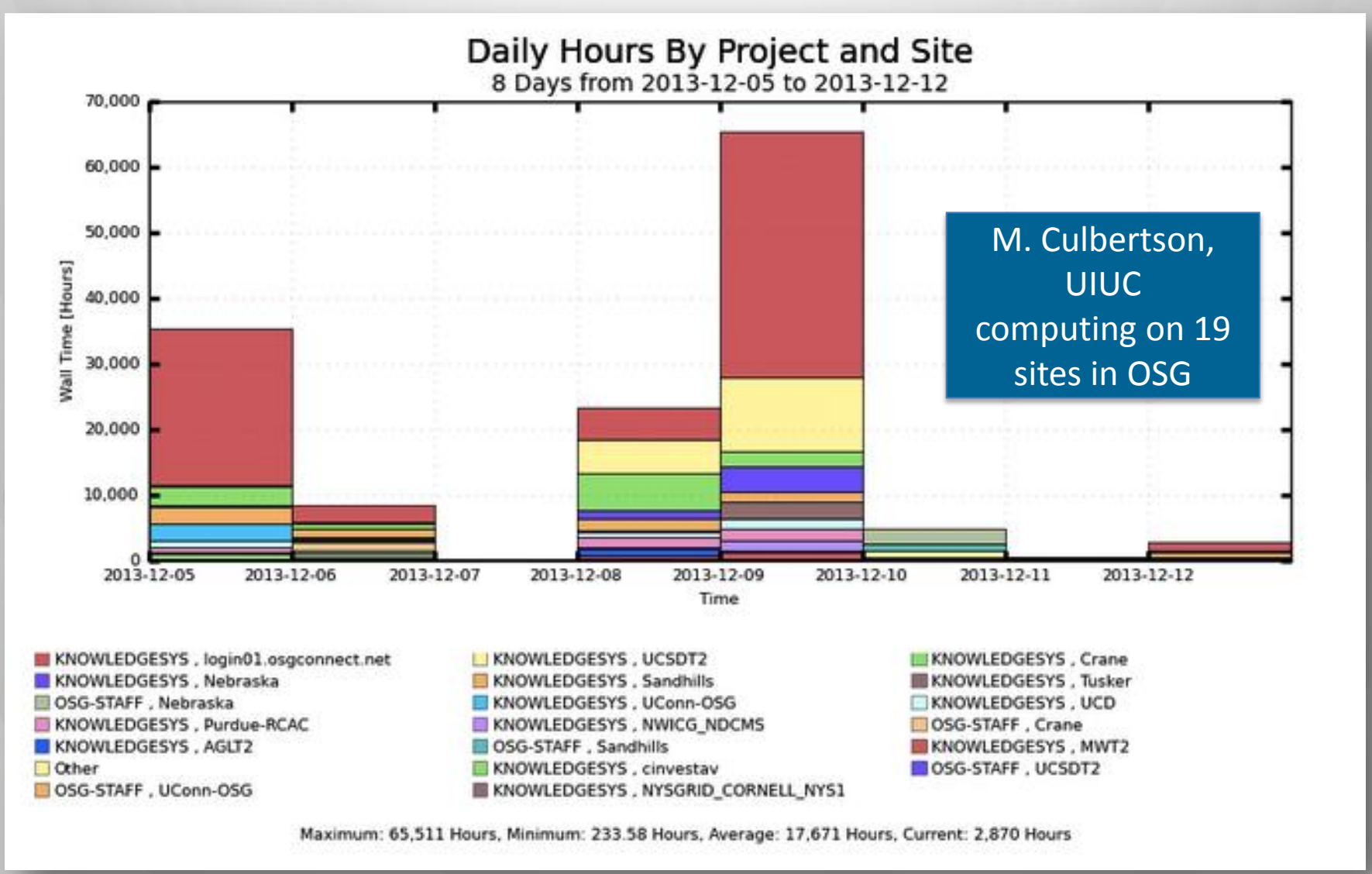
OSG Connect resources: campus grid, opportunistic OSG, & Amazon cloud in one place – integrated with identity and research data management services



OSG Connect projects



Knowledge Synthesis Studies enabled by d-HTC



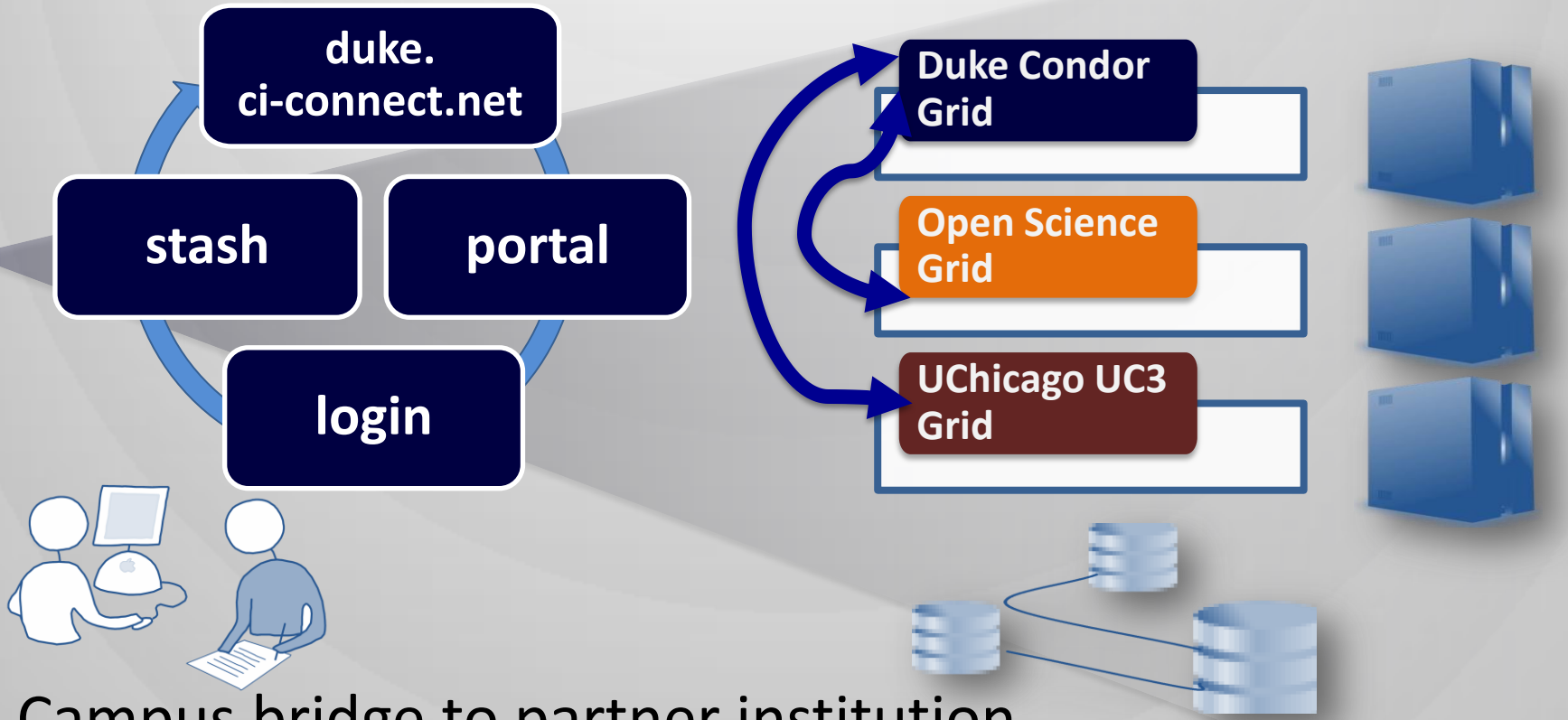
CI Connect Campuses

- An HTCondor-based job submission environment connecting local campus cluster resources, the OSG, bridged campuses, or optionally Amazon cloud resources
- Offered as a service (PaaS model)
- Deployed Duke University as the first branded CI Connect campus
- Deployments in progress for the University of Chicago
- Discussions with University of Michigan

Collaboration between Scalable Computing Center at Duke University and the Computation Institute at UChicago

http://duke.ci-connect.net

Duke UNIVERSITY | CI CONNECT



Campus bridge to partner institution

Connection to OSG

Access controlled by Duke SCC

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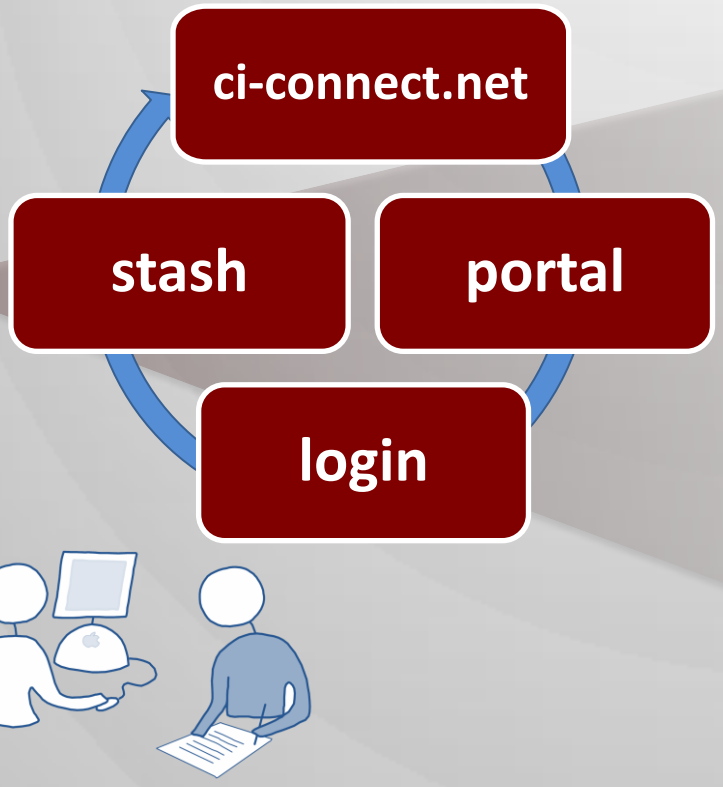
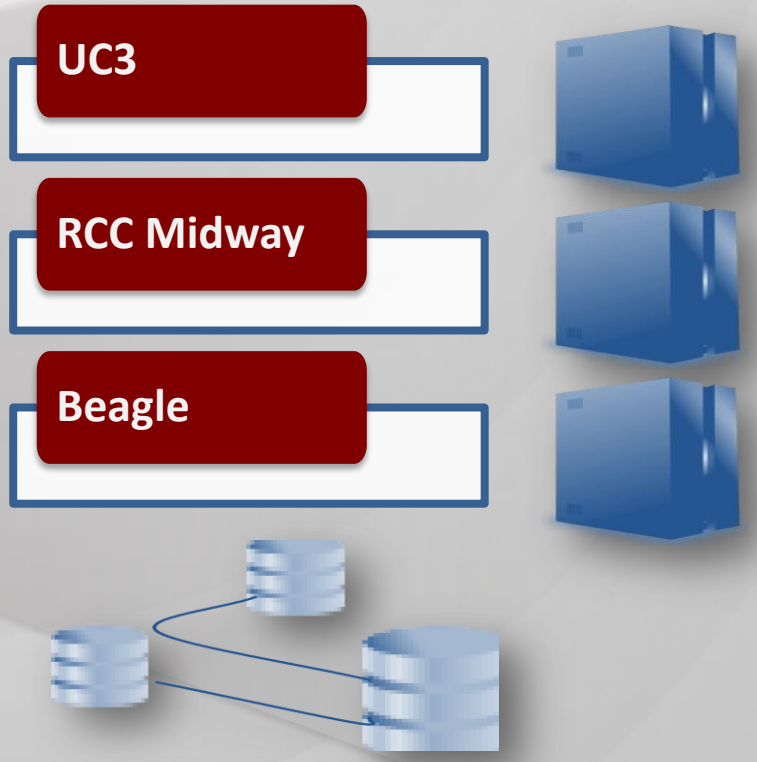
CI CONNECT





Will set this up for UChicago Computation and Enrico Fermi Institutes
(Tier3 users will migrate to ATLAS Connect)

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CI Connect Summary

- CI Connect offers a way to bring more CPU into users home environment without deploying IT
- Offers a means to share resources on and off campus with non-physics groups
- Integrated Globus for data management
- Instances deployed for:
  - OSG
  - Duke Scalable Support Center (Duke Grid)
  - ATLAS
- Started discussion with U Michigan
- Interest from XSEDE campus bridging