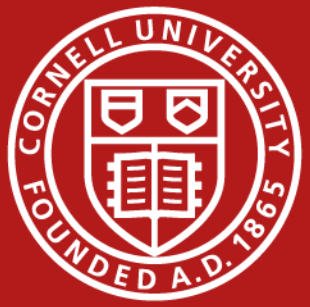


Cornell University
Center for Advanced Computing

Cornell University
Center for Advanced Computing

Welcome!

Parallel Computing on Stampede
Introductory and Advanced Topics

October 23, 2013
October 30, 2013

Center for Advanced Computing (CAC)

- Mission:
  - *To Enable the Success of Cornell Researchers, Collaborators, and Supporters whose Work Demands Advanced-Computing Solutions*

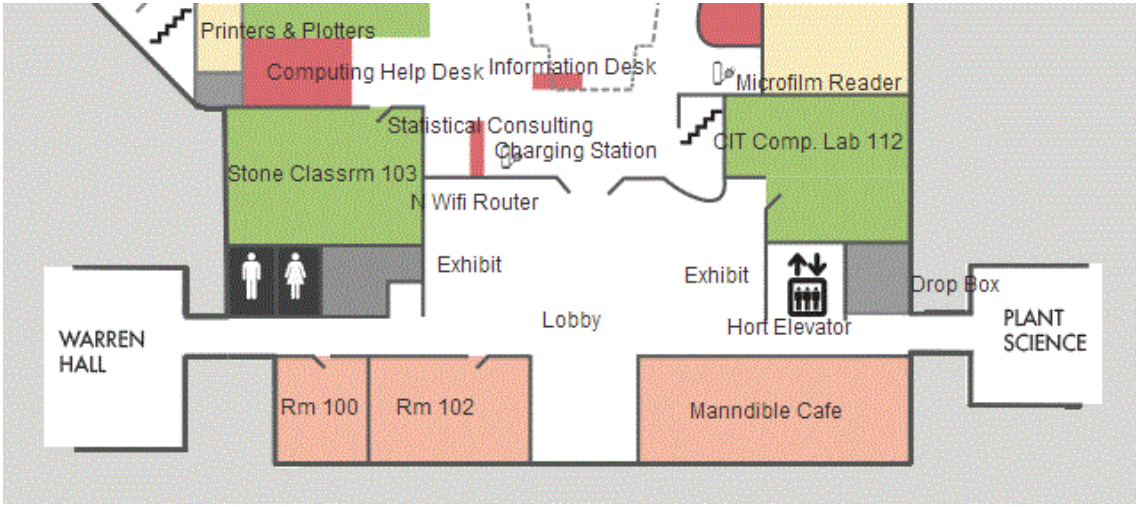
- Organization:
  - Cornell core facility
  - Staff of expert consultants, systems administrators & programmers
  - CAC Director reports to the Vice Provost for Research-
  - CAC has a Faculty Oversight Committee, chaired by VPR
    - Includes leaders in the fields of engineering, life sciences, social sciences, computer science, & business

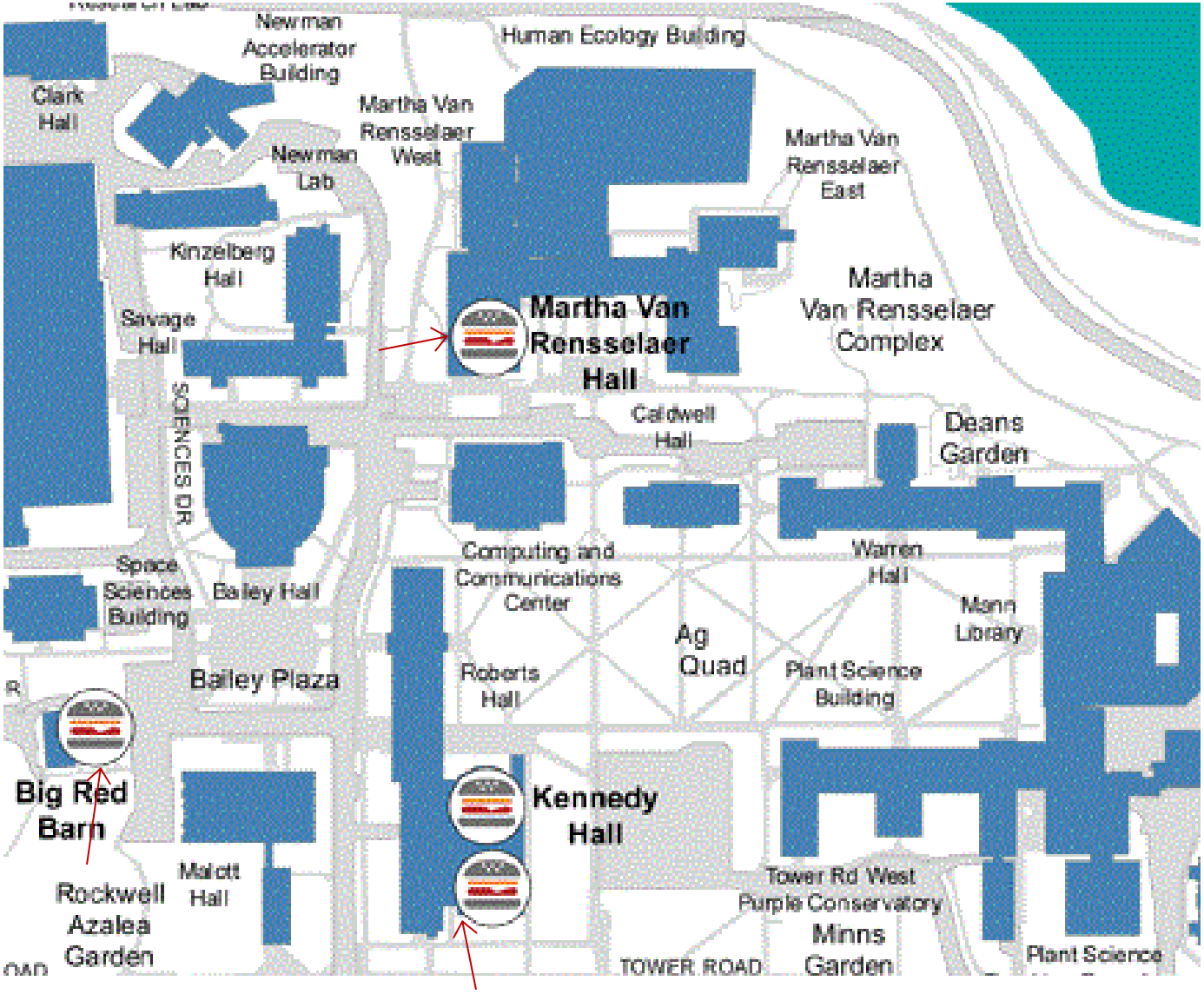
CAC Services

- Maintenance and support of general-purpose, high-performance computing systems
  - http://www.cac.cornell.edu/services/HPCsystemsList.aspx
  - Faculty and research group assistance in the preparation of proposals
- Research project participation and consulting
  - Parallel code development/optimization/extensive debugging or development
  - Database design, implementation and maintenance
  - Develop pipelines for data intensive research

Workshop Logistics

- Refreshments
  - Morning break provided
  - No food or beverages permitted in training room
  - Lunch on your own
- Room access
- Restrooms




Newman Accelerator Building
Human Ecology Building
Clark Hall
Martha Van Rensselaer West
Newman Lab
Martha Van Rensselaer East
Kinzelberg Hall
Martha Van Rensselaer Hall
Martha Van Rensselaer Complex
Savage Hall
SCIENCES DR
Caldwell Hall
Deans Garden
Computing and Communications Center
Warren Hall
Space Sciences Building
Bailey Hall
Mann Library
Ag Quad
Bailey Plaza
Roberts Hall
Plant Science Building
Big Red Barn
Kennedy Hall
Malott Hall
Rockwell Azalea Garden
Tower Rd West
Purple Conservatory
Minns Garden
TOWER ROAD
Plant Science

Workshop Web Page

http://www.cac.cornell.edu/education/training/StampedeOct2013.aspx

- Agenda
- Lecture slides
- Links
- Evaluation survey will come from XSEDE

1. Orientation

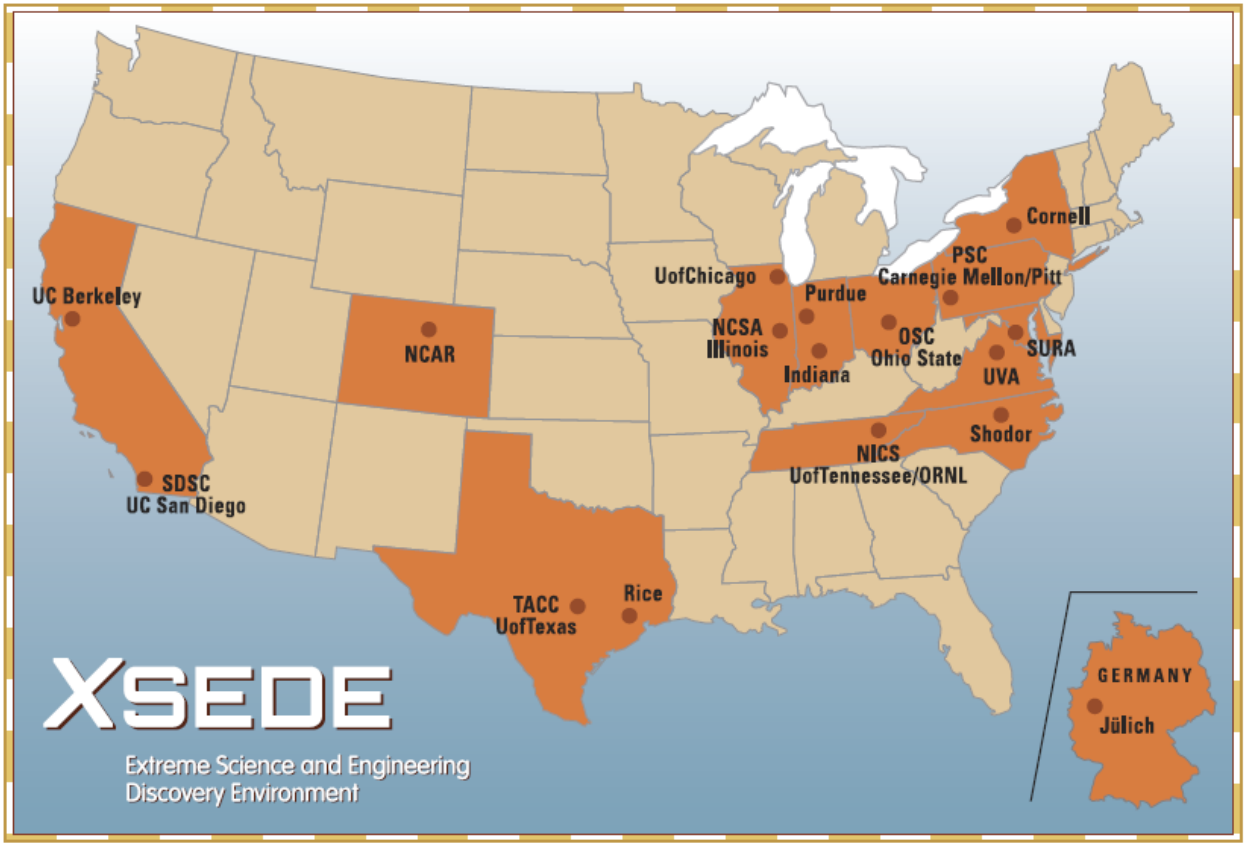
Orientation

- XSEDE – Extreme Science and Engineering Discovery Environment
  - Cyber infrastructure funded by NSF; a single virtual system
  - ~15 supercomputers & high-end visualization and data analysis resources. See list and availability.
  - 17 partner institutions

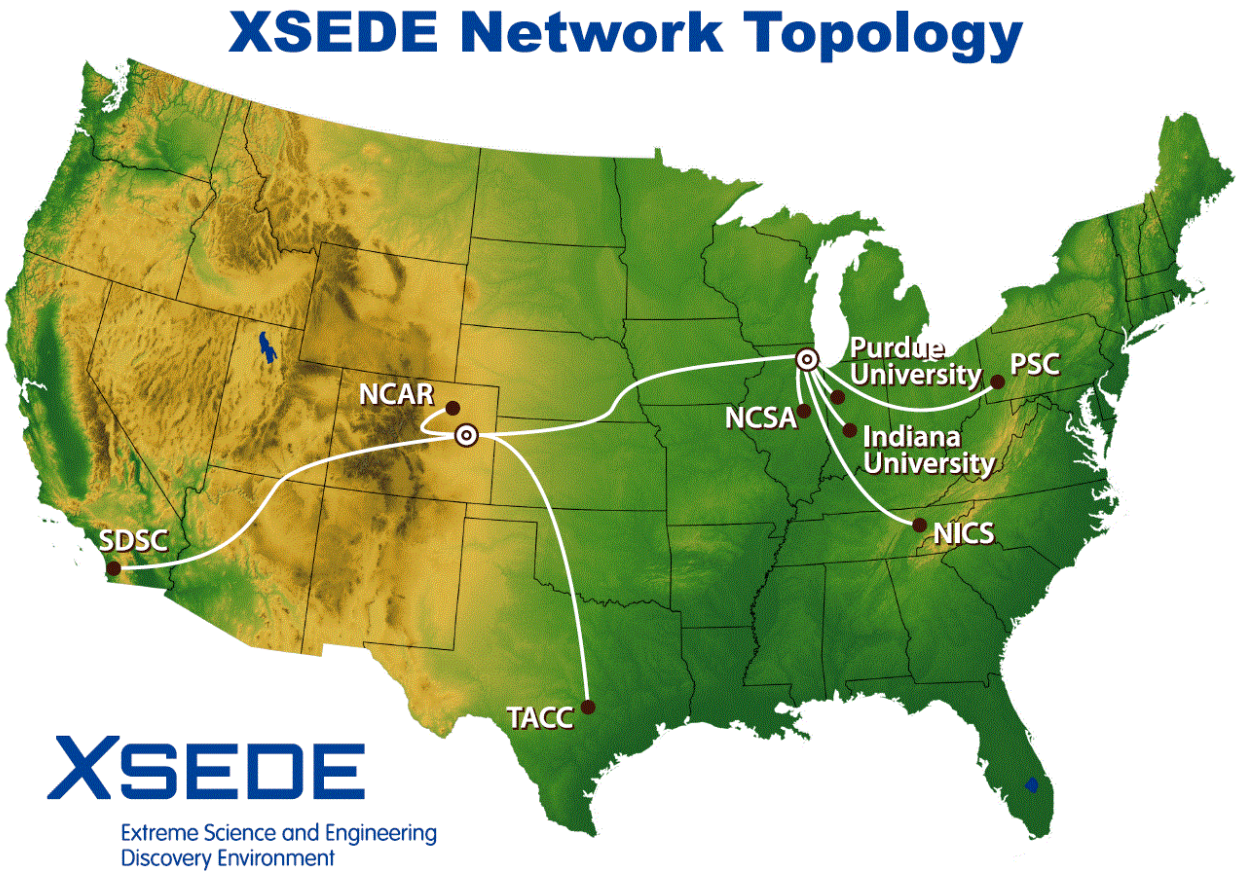
- TACC – Texas Advanced Computing Center
  - Stampede – Dell Linux cluster
  - Longhorn – Dell Visualization Cluster
  - Lonestar – Dell Power Edge Cluster with Intel Xeon Phi coprocessors

- CAC – Cornell Center for Advanced Computing
  - HPC Systems – general use and private clusters
  - Red Cloud – on-demand research computing service

XSEDE Partner Institutions



XSEDE Network Topology



XSEDE Resources at TACC/UT Austin

RESOURCE NAME	MANUFACTURER / PLATFORM	PEAK TERAFLOPS	DISK SIZE (TB)	AVAILABILITY
Stampede	Dell Dell Power Edge C8220 Cluster with Intel Xeon Phi coprocessors In production since January 2013. It is an NSF Track2 HPC acquisition.	9000	14336	Production through 2017-01-06
Lonestar	Dell PowerEdge Westmere Linux Cluster	302	1000	Production through 2014-01-31
Longhorn	Dell / NVIDIA Visualization & Data Analysis Cluster	20.7	210	Production through 2013-07-31

2. Accounts and Allocations

Computing Accounts

- Workshop/training accounts
  - Access to stampede.tacc.utexas.edu
  - ssh required
  - Account will be deleted after one week

- CAC Services
  - PI may set up projects for
    - compute time
    - consulting time
    - Maintenance
    - Storage
    - Red Cloud
  - http://www.cac.cornell.edu/services/

XSEDE Allocations

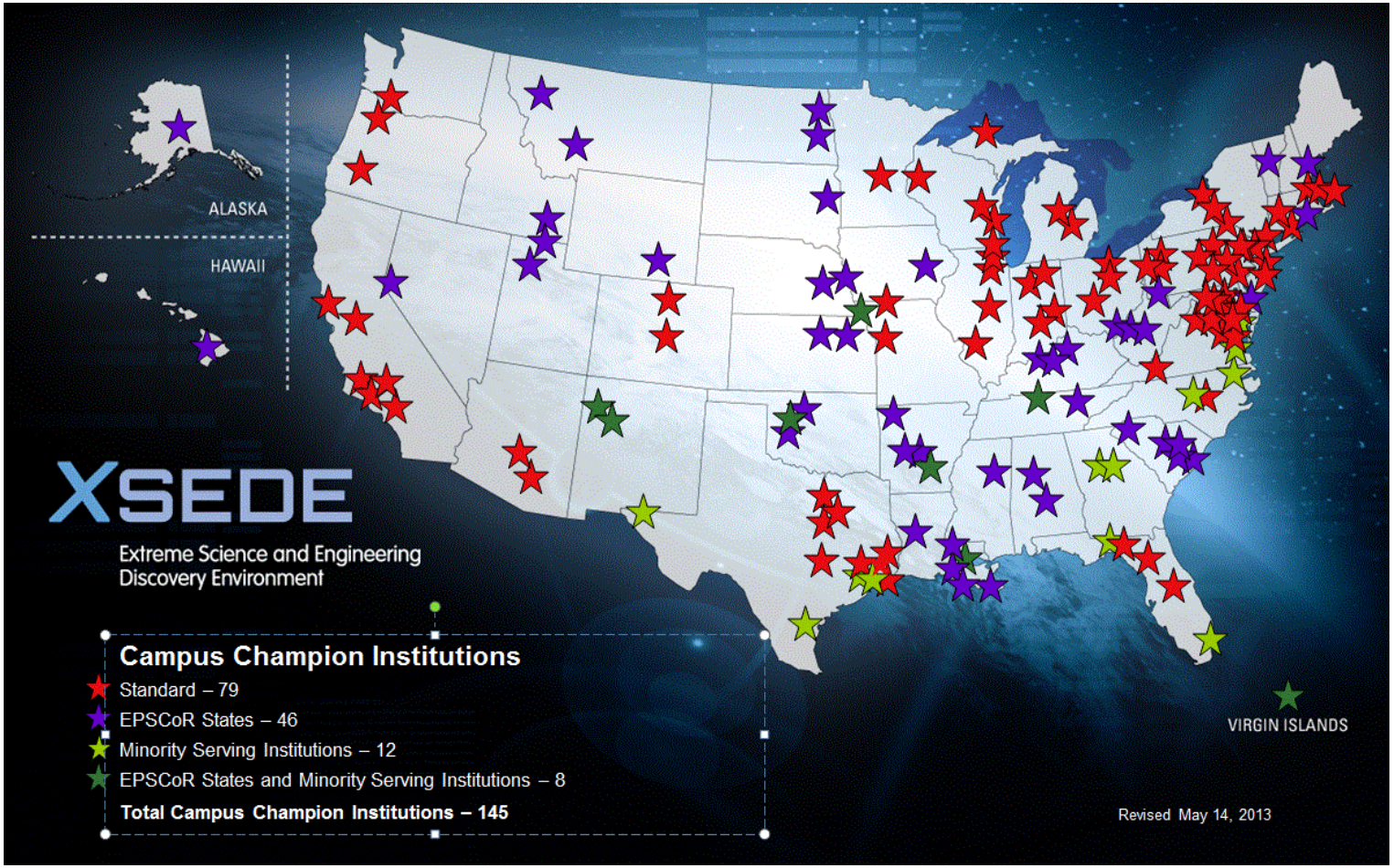
Allocations provide computing, storage, and support services.
https://portal.xsede.org/web/guest/allocations

- Startup – for testing and preparing allocation request
  - Up to 200,000 core-hours, for 1 year
  - Submit Abstract, Awarded every 2 weeks
- Research – usually for funded research project
  - No specific limit of core-hours you can request, for 1 year
  - 10 page Request, Awarded quarterly
  - Form only available during open submission period
- Education – for classroom instruction and training sessions
  - Up to 200,000 core-hours, for 1 year
  - Submit CV and abstract, Awarded/2 weeks

Campus Champions

- The Campus Champions program supports campus representatives as a local source of knowledge on XSEDE resources.
- Contact your Campus Champion for
  - Trial allocation
  - Information on XSEDE and cyberinfrastructure resources

https://www.xsede.org/campus-champions

Contact Susan Mehringer at shm7@cornell.edu

Campus Champions