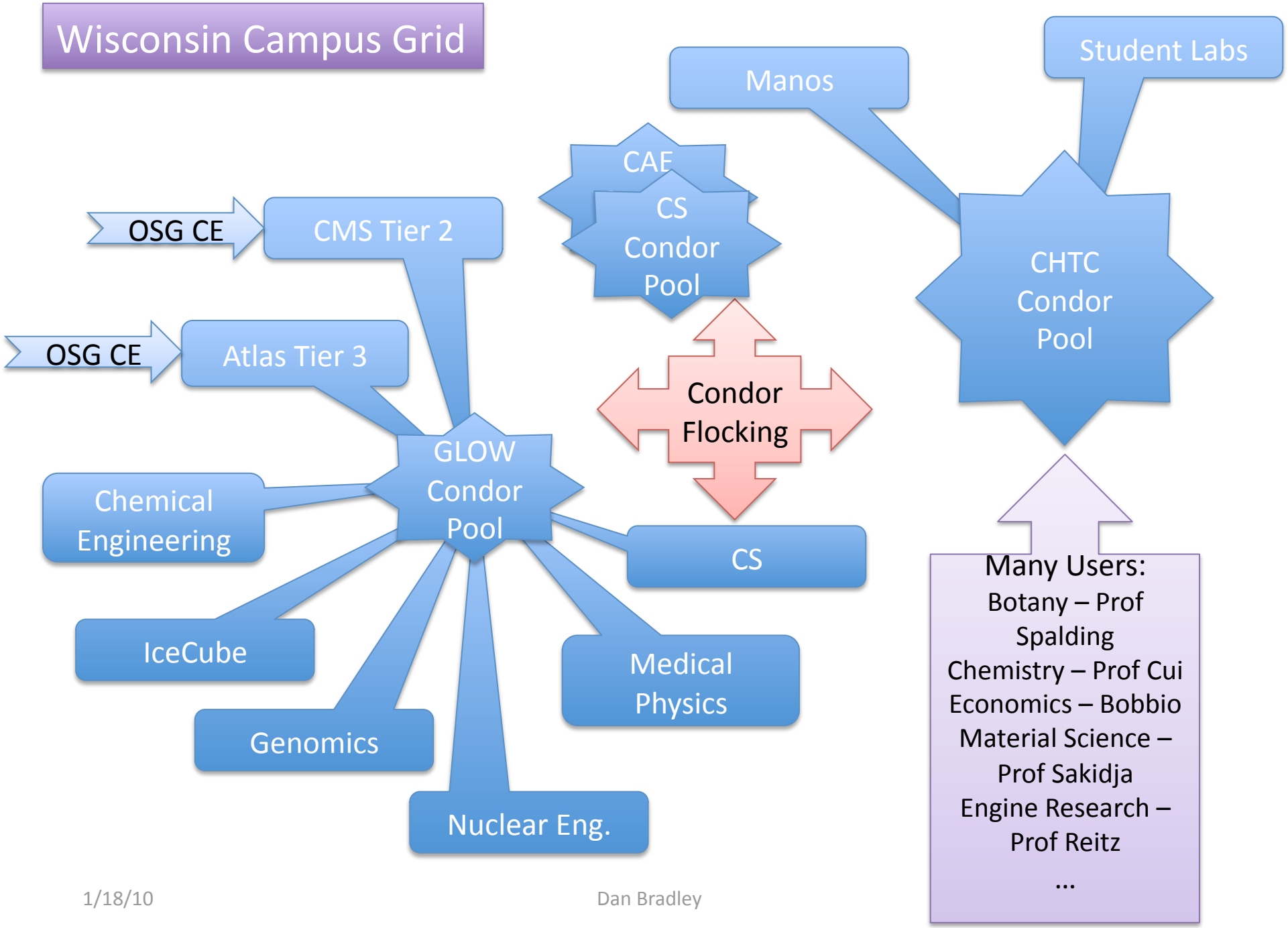
Grid Laboratories of Wisconsin

Presented to the OSG workshop on campus grids, Fermilab


Wisconsin Campus Grid
Manos
Student Labs
CAE
CS
Condor
Pool
CHTC
Condor
Pool
OSG CE
CMS Tier 2
OSG CE
Atlas Tier 3
Condor
Flocking
GLOW
Condor
Pool
Chemical
Engineering
CS
IceCube
Medical
Physics
Genomics
Nuclear Eng.
Many Users:
Botany – Prof Spalding
Chemistry – Prof Cui
Economics – Bobbio
Material Science – Prof Sakidja
Engine Research – Prof Reitz
…

System Administration

- GLOW is physically distributed
  - hardware locally managed
    - installation, power, cooling, network, maintenance
  - software centrally managed
    - kickstart → cfengine
  - Users and job submission sites managed locally
    - GLOW authorizes submit sites, not individual users
    - Jobs run as a slot user, not as submitting user
- CHTC is mostly centralized
  - Some users admin their own submit sites
  - Most use central submit site
- People:
  - Central: Ken Hahn + student
  - GLOW Sites: typically a local student + Ken
  - Technical board: meet monthly

Usage Policies

- GLOW
  - Members own specific machines
    - To be a member, must have >= 1 rack
  - Owners have immediate preemption rights
  - Otherwise, fair share
    - ~1/3 of all usage is opportunistic
    - modest hack: periodically adjust user priorities to balance relative weight of groups
- CHTC
  - Most machines not owned – opportunistic

Types of Jobs

- Condor standard universe
  - Popular with apps that can use it
- Serial (vanilla universe)
  - Most jobs
- Small MPI
  - Claim a whole-machine
- Large MPI
  - With special arrangement, must run on owner's resources

Using OSG

- Mostly, just want batch system interface
  - JobRouter
  - GlideinWMS
    - Experimenting
- Experience
  - More successful when submission to OSG is centrally managed

Storage Technologies

- AFS – convenient for user applications
- NFSLite, Condor file transfer, etc.
- Data storage managed by user groups
  - CMS: dCache
  - ATLAS: xrootd
  - IceCube: Luster
- HDFS centrally managed service in CHTC
  - still in experimental stage

Engaging Users

- ~1 FTE technical support
  - big help getting user workflows working
    - DAGMan, matlab, file staging, validation
    - average 1 new group/application per 1-2 weeks
  - periodic checkups (every few months)
- Engagement of PIs and on up
  - different game