BOILER GRID

Rosen Center for Advanced Computing

BoilerGrid - Campus Grid at Purdue
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OSG All-Hands Meeting
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- **Campus Condor Grid a central point for CI at Purdue**
  - Vehicle for federating resources across campus and state
  - Resource also available to regional (NWICG) and national grids (OSG and TeraGrid)
- RCAC Clusters are primarily scheduled with PBS
  - Condor runs on same clusters, configured to run when PBS isn't using a node
  - ~4000 cores in PBS clusters available to Condor
- Some dedicated Condor-only resources
  - Sizeable chunk of CMS Tier-2
  - 48-node GPU rendering cluster in Envision Center
    - http://teradre.rcac.purdue.edu/

Rosen Center
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Computing

- RCAC runs central manager services for campus
- Sister unit in ITaP runs instructional computing labs for students
  - ~2500 machines - available for Condor 90% of the time!
- Other academic units
  - College of Technology (new HPC curriculum)
  - Libraries (catalog terminals)
  - Physics (LSST, VERITAS)
  - Structural Biology (**major** users)
  - Now other campuses!
    - Notre Dame, Purdue Calumet today
    - Soon: IU-Purdue Fort Wayne, Purdue North Central, Indiana State

- # Science highlights:
  - – "Database of Hypothetical Zeolite Structures"
    - • TeraGrid
  - – Cryo-EM image processing (structural biology)
    - • Campus user - consumed 6M hours over last year.
    - • Now capable of using Windows cycles.. Look out..
  - – Protein folding
  - – "Football pool problem"
  - – Plus many others
    - • Distributed rendering, astrophysics, nanotechnology, hydrology, network simulation, cytometry, management

- ## User experience
  - "Just submit and go", ideally from the user's desk.

- ## Usage Tracking
  - A bit of a challenge getting job-level accounting for a job submitted from a user's desk.

- ## Storage
  - The storage load on central storage is non-trivial, a robust storage infrastructure is crucial!

- ## Engaging your campus
  - Relationship with distributed IT staff, and potential interested faculty can only help you