Research Computing Committee

9 January 2009
• Administrative Advisory Committee
  – advising Vice Chancellor for Information Technology

• Scope
  – Office of Information Technology (OIT) services and policies related to research computing
  – coordination of OIT research computing services with university goals and other research computing services (internal and external)
Members

• Appointed by
  – VC for Finance and Business
  – VC for Research and Graduate Studies
  – VP and Director of Libraries
  – College Deans
  – Academic IT Directors committee
Questions

• Are there other areas that should be represented by member - if so what are they and how should the members be selected?
Questions

• Length of member terms? Can members be reappointed? If so how many times?
Questions

• How often should committee meet?
Questions

• Chair
• length of term
• re-selection
High Performance Computing
Why provide HPC services?

- Computation is important part of practice and research for many disciplines
- Many problems require more capability that desktop computer
- Centralization - increases effectiveness of campus HPC investments - pool resources to create greater capability
- Increase research group productivity
- Attract and retain computational researchers
- Increase competitiveness of computational grant requests
- Produce graduates skilled in use of computational methods
What HPC services does OIT offer?

• Intermediate level capability to address needs between the desktop level and national center type capability
  – Linux cluster - distributed memory system for parallel jobs up to ~128 processors and 256GB memory
  – Shared memory system for parallel job up to 8 processors and 32GB memory
  – Both also include
    • storage (home, scratch, and mass)
    • system and application software
    • user support and training
    • consulting and collaboration
Who can use OIT HPC services?

- Any NC State faculty member can obtain an HPC project with access to either or both distributed memory and shared memory compute resources.
- Faculty member can authorize access under their project to any active Unity ID.
- Jobs are scheduled based on fair share priority:
  - all projects start with same base fair share
  - as jobs are run fair share is used - so priority decreases
  - partners have additional share based on the resources they have purchased
- Projects are asked to renew annually.
How have OIT HPC services been funded?

• 2003 agreement between Chancellor, Provost, and VC Research set a base HPC budget of $800K
  – $110K from an existing ITD position
  – $345K each from Provost Office and Research Office

• Funding - other than the ITD (now OIT) position has to date not been from recurring funds and Research Office funding has been both higher and lower than the target

• Base funding has been leveraged to attract participation from faculty partners - partner funding has exceeded $500K each of past two years
Who are current OIT HPC users/partners?

• For calendar year 2008 OIT HPC users
  – 360 unique users
  – 107 projects (as of 12/2007 ~$125M active grants ~$30M annualized)
  – from 25 departments 6 colleges

• OIT HPC Partners
  – 28 partners
  – from 15 department 4 colleges
Questions

- Is the HPC strategy developed in 2003 (OIT provision of intermediate level HPC capability) still appropriate strategy for NC State?
Questions

• Storage
  – How should computational research data be managed?
  – What policies should we implement to encourage the desired data management?
  – How should this be funded?
Questions

• Resource Management and Scheduling
  – Is fair share scheduling of compute resources best policy?
  – Is first come management of storage best policy?
  – Is first come management of user support and consulting resources best policy?
Questions

• Funding
  – Is base funding level appropriate?
  – Are there opportunities for additional funding?
  – What additional information does committee need to form an informed opinion?
Questions

• Services
  – Are there other research computing services needed that are not being provided?
  – If so, how do they rank in importance with current service offerings (should a current service be replaced with something more valuable)?