CRC 2009-2013
Successes, Challenges, Opportunities and Lessons Learned

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• A middle sized effort in terms of no. of FTEs (7), supported by the OIT, OVPR, colleges, with some space to grow.

• Tight budget. Some startup funds.

• One larger centrally funded cluster plus several faculty funded clusters in a collocation facility.

• Many small clusters located on campus

• 80% of resources are centrally funded

• No other kinds of research computing support
University of Notre Dame

- Great undergraduate education
- Growing research university
- Long term goal is to be among world’s top research universities
- Investing in strategic programs and hires
- e.g. Advancing Our Vision program aims at hiring 30+ new faculty over next 2 years
  - 20 computational
Initial Vision

• Support both, ND computational science community, and less supported humanities and social sciences (Arts and Letters)
• Build partnerships with all departments which have a need, but also create new needs; show what is possible with advanced CI
• Both to enhance Notre Dame’s research
How?

• Create two teams (Cyber and HPC), which should work together for various support and research projects

• Hire computational scientists (RAPs) in key areas with the goal of building new research programs with faculty (limited financial resources)
  – 50/50 service/research funding model
  – Do not compete with departments! Partner!

• Hire research programmers for CI development
  – 100% project/grant funded (soft money)

• Deliver new and enhance existing services to support campus research computing needs.

• Faculty/grad students/undergrad satisfaction is number 1 priority.

• Use available instruments to deliver some services based on fees.
Organization Chart (2013)

- Faculty Advisory Committee
- Robert Bernhard
  Vice President for Research
- Ron Kraemer
  Chief Information Officer
- Jarek Nabrzyski
  Director
  Center for Research Computing
- Marcy Hull
  Sr. Admin. Assistant
- Paul Brenner
  Assoc. Director (Faculty)
  High Performance Computing Operations and Support
- Chris Sweet
  Assoc. Director (Faculty)
  Cyberinfrastructure Development

9 staff members

31 staff members
CRC in Numbers (2013)

- 8 computational scientists (65% soft money), 20 research programmers (100% soft), 9 HPC engineers (20% soft) plus administrative staff, grad students, postdocs, interns.
- 30% of computational resources are centrally funded
- ~50% of the budget comes from grants and re-charge services
- PI/co-PIs on grants and contracts
  - ~$12M annual research expenditures (12.9% of the ND total)
- 1450 active users (350 faculty, 700 grad students)
- Dozens of CI projects of various size supported over last two years
- ~19,000 computing cores (25,000 by December)
- 4x more computational resources since 2009
- 5x more users since 2009
Opportunities

• Endless...
• Many faculty to outreach to...
• Same with departments
Instruments

• 9% F/A return to CRC from all “affiliated” grants
• Broad interests rather than focused on HPC only
• Diversity in picking funding agencies
• Research growth of the University
• Partnership programs for computing and storage, startup package negotiations through CRC
• Good sense of reading people
• Willingness to take the risk