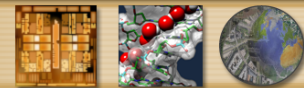


CRC 2009-2013

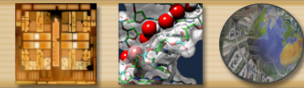
Successes, Challenges, Opportunities and Lessons Learned

Jarek Nabrzyski
CRC Director
naber@nd.edu



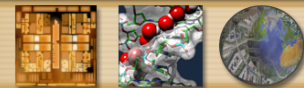
April 2009

- 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



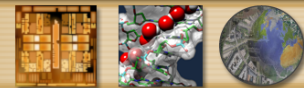
University of Notre Dame

- 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



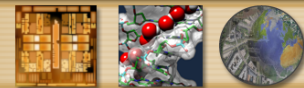
Initial Vision

- 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

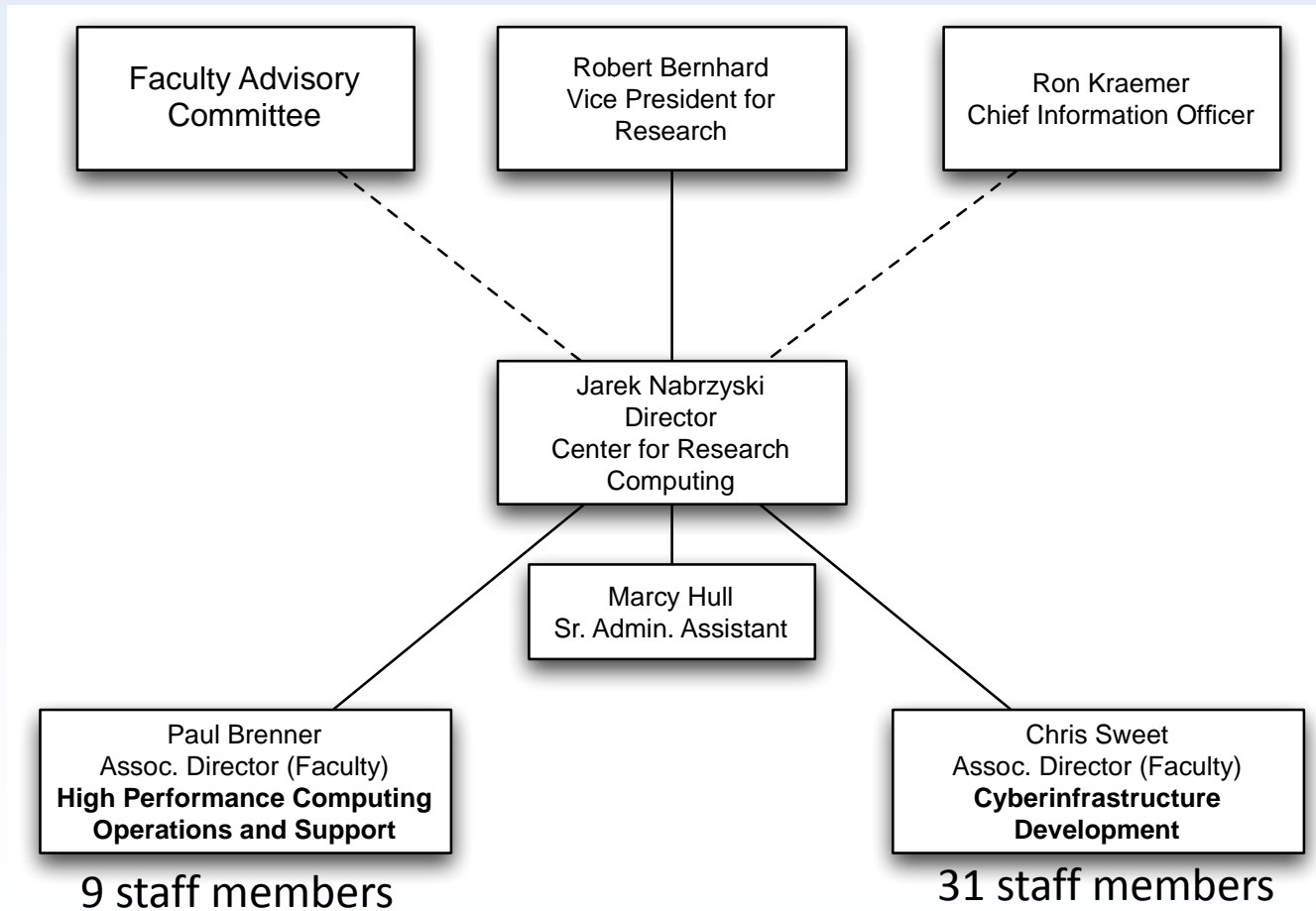


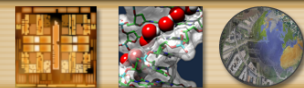
How?

- 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.



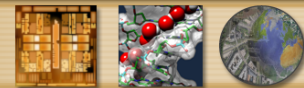
Organization Chart (2013)





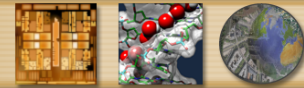
CRC in Numbers (2013)

- 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