

Scientific Computing Group Support Model



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Outline

- Scientific Computing Group
- Support Model

Scientific Computing Group

- Our Group
- Our Tasks

Our Group

- Group Leader: Ricky A. Kendall
- Acting Group Leader: Bronson Messer
- >20 staff members
 - Some matrixed into our group
- >10 postdocs, postmasters
- Expertise across breadth of HPC

Our Tasks (and Task Leads)

- Acceptance (Arnold Tharrington)
- End-to-End (Scott Klasky)
- Liaison (Rebecca Hartman-Baker)
- Performance (Wayne Joubert)
- Visualization (Dave Pugmire)

Acceptance Task

- *Ensuring that new machines satisfy requirements*
- Team across OLCF groups, including ~5 Scicomper
- Very intensive testing schedule during acceptance period

End-to-End Task

- *Managing the computational inquiry lifecycle*
- Inputting jobs on the machine
- Managing jobs
- Dealing with job output

Liaison Task

- *Furthering scientific accomplishments*
- Collaborate with users to make codes run more efficiently, and produce more science
- Advocate for users on center policies

Performance Task

- *Understanding how to use the machine and how the machine is used*
- Improve performance of code
- Study usage of machine
- Inform next-generation architectures

Visualization Task

- *Enabling scientific discovery through visualization*
- Creating tools for visualization
- Developing visualizations in collaboration with users

Support Model

- Liaison and Visualization tasks most outward-facing
 - End-to-end also involves users
 - Outward-facing performance tasks performed in liaison task
- Liaison and Visualization follow similar model

Liaison Support Model

- About Liaisons
- Liaison Role

About Liaisons

- PhD-level scientists with expertise in computation
 - Astrophysics, biology, chemistry, climate, computer science, engineering, materials science, mathematics, nuclear physics, plasma physics, etc.
 - Experienced computational scientists with one thing in common
- Liaisons matched with INCITE projects based on science, mathematical, and algorithmic expertise
 - Can't always match for science first, e.g., I am not a chemist, but I am familiar with their math and algorithms
- Our motto: Whatever it takes!

Liaison Role

- Liaisons are collaborators whose unique expertise with leadership-level computers will enhance your experience and help you get more science done
- Levels of liaison support
 - Level 1: User support +
 - Level 2: Paratrooper – fix a specific problem in your code, O(1 month)
 - Level 3: Embedded member of code development team and science collaborator

Liaison Role

- Typical liaison activities
 - Profile code performance, providing feedback to code team
 - Code porting
 - Implement solutions to problems experienced by application scientists
 - Advocate for users regarding tools, libraries, etc.
 - Collaborate scientifically

Acknowledgments

- Scientific Computing group
- INCITE project participants

Questions?

