Broadening the Reach 2014

Identifying Research Projects

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Identifying Research Projects (Neeman)
Broadening the Reach Workshop, Kansas City, MO
02/17/14 – 02/19/14
Outline

• How to Find Researchers
• How to Find Research Projects
How to Find Researchers
Where are the CDESE Researchers?

1. Go to your institution’s website.
2. Click on Academics.
4. On each departmental website, find the list of faculty (the link is usually “Faculty” or “People”).
5. Read their research descriptions.
Keywords to Look For

- Computational
- Numerical
- Parallel (especially in CS)
- Informatics
- For Chemistry, look for Physical Chemists and Biochemists.

There are plenty of others – over time you’ll develop a feel for it.
Contact Them!

• Contact those faculty.
• Tell them what your role is.
• If it’s for a proposal, tell them:
  – what the program is;
  – what the due date is;
  – how much money is on the table.
• Ask them what their computational/network/whatever needs are.
Go to New Faculty Meet-n-Greets

• Does your institution have events for new faculty?
• Go to them!
Visit Them!

- Make an appointment to visit with them.
  - Even better, offer to take them to lunch.
- Ask them questions:
  - At a high level, what’s your research about?
  - What are the computing- and/or data-intensive aspects of your research?
  - If you had an infinitely large, infinitely fast computer, what research would you want to do?
Specific, Open-Ended Questions

These are questions whose answers you don’t really care about – but they’ll lead to useful discussions.

• What language is your software written in?
• Is it parallelized?
• Who wrote it?
• What operating system(s) has it been run on?
• Briefly describe the science problem it's used for.
• Briefly describe the numerical method or algorithm.
Questions cont’d

• How big is the memory footprint when running?
• How many timesteps/iterations do you plan to run per experiment?
• How many such experiments do you plan to run per year?
• Does it have no input, a little bit of input or a lot of input?
• Does it have a little bit of output or a lot of output?
• etc …
How to Find Researcher Projects
Know Their Research

• If you’ve already talked to the researchers, you probably have a pretty good idea of who’s got big data needs.

• Now you need to find out what their cyberinfrastructure capacity needs are.

• You can always ask, but you’ll get more information if you’re writing an equipment proposal.
Equipment Proposal Questions #1

• How much funding does your research currently have? How much is pending? Planned?

• How many faculty, staff, postdocs, grad students and undergrads on your team will be served by this equipment?

• What makes your research transformational?

• What are the broader impacts?
Equipment Proposal Questions #2

• How much of this resource (CPU hours, storage, bandwidth, whatever) do you expect to need over the next N years?

• How did you calculate this amount?

• Please give me a one page summary of your research that incorporates these issues.
CC*IIE Questions #1

(a) What is the expected typical size of each dataset being transferred?

(It would be helpful to know expected growth rate: are you expecting it to stay roughly the same over the next several years, or to double every two years, or what?)
CC*IIE Questions #2

(b) Where are such datasets originating, and where are they being transferred to?

(c) Why do such datasets need to be transferred between these endpoints?

That is, what requirement do these data transfers address for your team’s research?
CC*IIE Questions #3

(d) What is the time window for transferring each such dataset?

(e) Why does each such dataset need to be transferred during that specific time window?

That is, what's the negative impact of the transfer taking (i) marginally longer and (ii) much longer?

(f) How often do you expect to have such a data transfer need?
Thanks for your attention!

Questions?