

Research Computing Advisory Committee

Minutes Dec 5, 2016 (taken by Erik Deumens)

Present: Paul Avery, Peter Barnes, Erik Deumens, Ana Conesa, Richard Hennig, Lauren McIntyre, Alberto Riva, Laurie Taylor, Plato Smith

Updates

- The SSERCA strategic plan for 2016-2020 is attached to these minutes
- The FLR-SSERCA Invitation to Negotiate on active archival storage is in the final stages. There were 6 proposals from various vendors offering solutions at or below \$25/TB/year.
- Elias Eldayrie, VP & CIO, gave the committee that task to find ways to make HiPerGator visible to the broader public in a form that would put universities, their computers, and their students and faculty in some competition.
 - o This was the main topic of discussion.

Discussion

Many ideas were discussed. The discussion continued by email after the meeting, with the highlights captured here.

- Richard Henning: Outside of competition, highlight faculty and their research.
 - o This is being done, with a few faculty being interviewed and stories written.
- Ana Conesa suggested to work with Manuel Tardaguila, who is a science standup comedian.
 - o Manuel has been put in touch with Tracy Gale at the UFIT Coomunications Office to work on something around HiPerGator
- Alberto Riva: On the topic of large-scale astrophysics simulations that also generate cool movies, I recently found out about the Illustris project <http://www.illustris-project.org/>. Basically they were able to simulate the large-scale structure of the universe over 14 billion years, and they have very cool movies of its evolution. All their data is publicly available, and their code *may* also be public (I'm not 100% sure about this, but they'd probably be interested in running it on something like HiPerGator).
- Alberto Riva: Of course choosing a problem that researchers here are interested in would be good because it would give them motivation to work on it... but if the idea is simply to have HiPerGator compete against other supercomputers, then it would probably be fair to choose a well-known, basic problem that is very computationally hard, and have the contest be about pure number-crunching. In that case one of the big unsolved problems in mathematics could fit the bill (https://en.wikipedia.org/wiki/Millennium_Prize_Problems). I'm not suggesting that we should try to *solve* them, but e.g. see how far you can go towards a solution with computational brute force... provided that makes sense.
- Alberto Riva: If you want a "moonshot" type project: simulate a whole cell. I probably still have a document written by Leonid Moroz a few years ago in which he was proposing to do it. We're nowhere near close to being able to do it, but again, the

goal would be to see how far we can get. Or even just simulating a well-known, fundamental biochemical pathway.

- The CISE department has a competition called “SwampHacks” that attracts a lot of attention and is very popular with students.
- HiPerGator supported the SAE Gator Motorsport team in their formula 1 build and design competition last summer.
- Ana Conesa: As you know, I am developer of bioinformatics applications, that I frequently set at some server to let the scientific community use them.
 - o Since I am at UF, I have developed a new tool that now can be accessed from UF and we are working with Alex to install another one. I have like 4-5 other tools in Spain that at some point I would like to move to UF.
 - o However, these are isolated developments. I am not sure if other faculty does similar things, but my feeling is that there are other examples on campus.
 - o I think it would be great if we could create a unified HiPerGator portal to access all these tools. It does not need to be anything really physical, but just an entrance point where the HiPerGator resource is clearly evident. This will create visibility not only of the computational research done at UF, but also of HiPerGator.
- Erik Deumens: The business model that is in place does support for such a service; it does not have to be uniform for all cases; it must be consistent.
 - o Simple access to download data stored on HiPerGator is easy to fund and requires only \$250 per year for the webserver.
 - o A research project can buy resources to be dedicated to provide back-end storage and computation as part of the original funding and the service can be for 5 years after the project ends.
 - o The access to the resources can be restricted in a number of ways to be only available to registered users with defined criteria for who is eligible.
 - o A research project can charge a subscription fee or membership fee to support the storage and compute costs for providing the service to a community or group of users.
- A meeting to discuss this in detail may be of value.

Organization

Next meeting will be on Monday January 9, 2017 in the smaller conference room in NPB 2304 from 1:30 – 2:30 pm. The February meeting will be on Feb 6 in NPB 2165 and will feature a presentation by the Digital Humanities Working Group.

SSERCA Strategic Plan 2016-2020

Vision statement

SSERCA is **the** research computing organization for Florida to facilitate the use of technology in research.

Short-term goals

1. Make researchers in Florida more competitive in getting grants and contracts by providing advanced consulting, services, and infrastructure.
 - a. Create a (social) network of research computing facilitators¹ who have weekly calls and share consulting, training materials, and tools with each other
 - b. Make the technical support for research more efficient
 - c. Assist researchers to carry out their funded projects by coordinating the various administrative offices and service providers, thus avoiding that their research gets stuck for reasons outside of their control
 - d. Explore and develop pre-approved policies, procedures, services, and environments for researchers to make use of in their projects.
2. Put together a plan to increase institutional and state² recognition of the value SSERCA brings to member institutions.
 - a. The world has changed in two ways relevant to the mission of research universities.
 - i. Technology has advanced and is much more complex to manage. Researchers can no longer properly manage infrastructure with a small-fraction part-time effort.
 - ii. The budget of research grants has not increased to cover the added cost mostly in people resources, to discover, explore, learn, and use existing technology effectively.
 - b. Clarify the business case for the research computing facilitation function to VP for Research, VP for Government Relations, Provost, Board of Trustees so that they see it for what it is, as a strategic investment to grow the research portfolio of the institution, and not a cost of providing a service.

Long-term goals

1. Facilitate K-16 and workforce education in STEAM³ and advanced computing.
 - a. This is a complex but very important issue.
 - b. Detailed goals to be provided later when the short-term goals have been implemented, at least partially.
2. To continually explore ways to support and ease 'the cost of entry' for faculty directed research.
3. Explore mechanisms to secure external support for research computing.

¹ Research Computing facilitators are people who help researchers use advanced cyber infrastructure, see the definition below.

² The reputation of SSERCA in the US and the World is now higher than in the state.

³ STEAM = Science Technology Engineering Arts Mathematics

Research Computing Facilitators

Research Computing Facilitators are people who help researchers use advanced cyber infrastructure and software to accomplish their research goals.

Facilitators are not systems administrators, although they know a lot about systems, they are not application developers, although know a lot about applications, they are not researchers although know the languages of research disciplines.

They have strong interpersonal skills to communicate with researchers and find solutions and support for them.

The Educause ECAR Research Bulletin May 2016 article⁴ “Research Computing Facilitators: The Missing Link in Needs-Based Research Cyberinfrastructure” by Lauren Michael and Bruce Maas provides a great overview of what RC Facilitators do and the value they bring to the institution.

Organizational changes

1. Each member needs to name (a real person with email address) a facilitator on their campus
 - a. Participates in regular calls of the facilitator network
 - b. Contributes to the quarterly report on research facilitation activities of the team submitted to the SSERCA management committee
 - c. Contributes artifacts to the collective store of training, documentation, tools
2. Reduce SSERCA membership levels to a single level, only members, no more affiliates
 - a. There can be temporary steps to make the transition from affiliate to member without causing undue financial burden on any institution
3. The management committee now has the HPC center directors. That group needs to be changed to the list of management people who are not necessarily directors. It is up to the institution to name someone, it can be the facilitator.
4. Extend the agreement with FLR
 - a. from providing financial support (as it does now)
 - b. to provide some administrative support
 - i. Assist planning of meetings, coordinate making the agenda, etc.
 - ii. Assist in producing the reports and other deliverables
 - iii. Scope and duties need to be clearly specified
5. Plan regular meetings
 - a. Annual meeting with CIOs at one of the FLR meeting dates, e.g. the day after. There will be reporting to CIOs at every FLR meeting.
 - b. Three quarterly meetings for SSERCA
 - c. Vendor technical briefing day once every year.
 - d. Members are expected to send representative(s) to meetings

Increase awareness

1. Create a white paper or report documenting what value SSERCA brings to increase funding rate

⁴ <https://library.educause.edu/resources/2016/5/research-computing-facilitators-the-missing-human-link-in-needs-based-research-cyberinfrastructure>

2. Run workshops with NSF, DoD, DoE funding
3. Attend other conferences than Supercomputing and represent SSERCA

Action items

Strategic plan 2016-2020

- The strategic plan is the first two pages of this document.
- Complete by Nov 7 to present to FLR at Summit.

Change the bylaws

- Reflect the new membership structure.
- Remove the requirements for membership regarding providing HPC resources.

Change email lists

- Need to change "directors" to "management".
- Need to create "facilitators".

White paper

- Write a white paper with examples of how facilitators make researchers more successful in delivering on projects and in getting funding for proposals.

Background material

Planning meeting

Meeting on Oct 10, 2016 at UCF.

Present: Dan Majrchzak, Brian Goldiez, Paul van der Mark, Erik Deumens, Rhian Resnick, Anu Chirinos, Robert Grillo, called in: David Cantrell, Jeff Durfee, Joel Zysman, Mike Kirgan

The meetings in Feb 2016 and May 2016 focused on tactical issues. This meeting needs to focus on long-term vision and strategy. Then the tactical issues can be addressed in that framework.

Strategic Plan writing

First round of review was completed Oct 21, 2016 and produced version 2 of the plan document.