Combined Research and Systems-Facing call, 2024-08-15 @ 1p ET/ 12p CT/ 11a MT/ 10a PT

Topic: PEARC ‘24 Recap

PEARC ‘24 offered many solutions for problems faced by our tracks, as well as future forward perspectives. Not everyone from our community was able to attend, and some of these topics warrant a deep dive. Please join us for a recap of some of our favorite PEARC ‘24 topics, as well as some discussion around which topics or themes we should dedicate more focus to. This includes:

- Conversational AI interfaces for HPC
- Hardware and cloud capacity procurement strategies
- Rootless containers as the default software environment
- Graphical interfaces for HPC
- Ephemeral computing (e.g., Magic Castle)
- The student workforce supporting systems and hardware
- Research data infrastructure and support
- And other topics of your choice

We’d like to invite those who attended PEARC to come prepared to share their summaries, as well as what they would like to discuss more.

For those who did not attend, this is your chance to hear more about the conference from others in a systems-facing capacity, and offer your perspectives - and where this community should be exploring further.

Presented by: CaRCC Systems-Facing Steering Committee

Slides & Links:

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Announcements:

- SC24 ACM SIGHPC SYSPROS Workshop
- https://pearc.acm.org/pearc24/ - Full conference proceedings are posted!

YouTube Link To Meeting Recording: TBD

CaRCC YouTube Channel: https://www.youtube.com/carcc

CaRCC YouTube Channel Systems-Facing Playlist:
https://www.youtube.com/playlist?list=PLV-SC0CHLTwehApeMg_fJ5VbYndETh3yT

CaRCC YouTube Channel Data-Facing Playlist:
https://www.youtube.com/playlist?list=PLV-SC0CHLTwdrPXN8zdres6aovVAoEJIq

CaRCC Code of Conduct: https://carcc.org/about/carcc-code-of-conduct/

Join the CaRCC Slack Workspace:
https://join.slack.com/t/carcc/shared_invite/zt-9lhv4cfm-wy7RpbNI7V9qLJcvtzq8hA

Zoom Meeting Room:

https://utah.zoom.us/my/carcc?pwd=TjFuR3VVM2d5eE5zWnEvWWxDTFBCUT09
Meeting ID: 824 051 8198
Password: 31415926

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Join by Skype for Business
https://utah.zoom.us/skype/8240518198

NOTE: **We will be recording today's meeting via Zoom**.

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Call cnt: 36

Discussion Questions & Notes:
This is a joint call between the Systems-facing and Researcher-facing groups on the PEARC 24 Conference.

Topics:

- **Conversational AI** – Some pilots of language models to provide targeted information on HPC/Research Computing. Command line interfaces that can talk to the user and walk them through topics like Bash scripting. There was a workshop on Monday about this.
    - https://nowlab.cse.ohio-state.edu/convohpc_prog/
    - 5% of their user base actually uses this model
    - OSU talked about how to support these models on many types of platforms, even in the absence of GPUs. How can we help our users use these models when many of them are new to AI/ML? What is the most appropriate platform for your model/research?
- **AI Resource Procurement**
    - What are the challenges to procurement? Availability. Cost. Big players are consuming all the newer ones.
    - What about NAIRR resources? There was some talk about hte NAIRR pilots nad availability of test pilots/machines.
    - Cloud resources are expensive, but the NSF sponsored NAIRR pilot in the US might alleviate some of that cost. Canada has a similar shared resources program.
    - NIST has new guidelines for AI Research See: https://nvlpubs.nist.gov/nistpubs/ai/nist.ai.100-1.pdf

    - See NAIRR CaRCC special presentation: https://carcc.org/2024/03/18/carcc-special-presentation-the-national-artificial-intelligence-research-resource-nairr-by-katie-antypas/
- **Containers**
    - Discussions about Containers to manage a scientific software stack.
    - Using NVIDIA Cloud containers is a solution. Researchers don't want to know about containers.
    - How do people store the containers (which can be quite large) and move them around and make them available.
        - We have a bunch of apptainer images in a shared filesystem.
        - A series of containers for Neuroscience
    - Suggestion for a container management infrastructure.
    - Future topic: How are researchers using containerized environments? AND How do we as systems facing folks support those researchers?
- **Graphical Users Interfaces: OpenOnDemand and others**
    - OOD seems to have increasing support
    - Vanderbuilt uses Thinlinc to provide things like CryoEM environments to their researchers
    - Globus Compute? Sept 12 Researcher facing will have a call with Globus. They can likely
    - CryoSPARC environment is a good science gateway for CryoEM environments.
    - GenAI gateways, MLflow?
- **Ephemeral Computing Resources**
    - Magic Castle (OSS) – HPC Syspros workshop – Spinning up/down whole HPC environments on Cloud Computing environments.
        - In Canada we've used it for creating an ephemeral training environment in an OpenStack or Cloud Computing environment. We use it to simulate our on-prem environment for training. It allows non-systems folk to quickly spin up a training/simulation environment.
        - We've used a similar thing on JetStream2 to set up an instructional environment for our students.
- **Students as HPC and Research Computing Support Staff**
    - How is it funded?
        - Grad Assistantships?
        - Undergraduate workers? Work/Study
    - We've used them to try some projects where our full-time staff just doesn't have the time.
- **Research Data and Infrastructure Support**
    - PEARC had a BoF and a workshop on Research Data Management
    - Support the Research Data Lifecycle.
    - Where the data should go based on data classification?

Q&A

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Upcoming Presentation Plans:

- **No meeting in July (with PEARC24 we will take the month off)**

Suggested future topic for a systems facing call (Feel free to add one):

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