Welcome to the Containerization2023 Event!

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Event Website: https://sites.google.com/view/containerization2023/home

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How many of us are familiar with such scenarios?

- A software becomes dysfunctional right before an important deployment on a new system because there is a newer version of an underlying software dependency that just got released which is not backward compatible

- You recently ported and deployed your code on an HPC or cloud computing platform, and you just came to know that the system is slated for retirement in a few months

- You are a tool developer and your target audience is using a variety of different hardware platforms, and hence you constantly get multiple queries on troubleshooting the installation of your tool or software on different platforms

- You are a researcher who is interested in disseminating your research results along with the software, data, test cases, output, all packaged together in a single unit, but do not have sufficient staff working on your team to support such activities

Is there a remedy for the issues mentioned in aforementioned scenarios?

- The solution to the issues in such scenarios lies in containerization and tools that support containerization
- The "containerization" of software and data products future-proofs them, helps in their long-term preservation, makes them portable across different hardware platforms, ensures reproducible results, and makes them convenient to disseminate
- Docker and Singularity are two popular options for the containerization of scientific software and data products

What is the purpose of this event?

- Spark conversations on challenges, opportunities, and use cases for containerization, especially using Docker and Singularity

- Connect colleagues who are interested in providing tools and services for containerizing software and data products and the potential communities who need such services

- Gather input for preparing a report on the need and impact of containerization on the dissemination, deployment and management of scientific applications and workflows on HPC and cloud computing platforms

What is the agenda for the rest of the day? (1)

- Introductions and form working groups: 9:15 AM to 9:30 AM
- Each working group prepares a list of challenges and opportunities related to the containerization of applications using Docker and Singularity, discusses and documents test cases, and prepares a presentation summarizing their findings: 9:30 AM - 11:30 AM
- Walk to the DoubleTree hotel for lunch, talks, and the rest of the sessions: 11:30 AM - noon

What is the agenda for the rest of the day? (2)

- Lunch and Talks: 12:00 - 2:05 PM
- Container-native HPC and AI Platform with Data Services by Frank Lee, IBM
- Sciunit: Reproducible Containers for Scientific Computing by Tanu Malik, DePaul University
- Experiences Containerizing the JETSCAPE/X-SCAPE Code by Joe Latessa, Wayne State University
- Introduction to Basil Semi-Automatic Containerization System by Ritu Arora, Wayne State University

What is the agenda for the rest of the day? (3)

- Each working group prepares a list of challenges and opportunities related to the containerization of applications using Docker and Singularity, discusses and documents test cases, and prepares a presentation summarizing their findings: 2:05 PM to 4 PM

- Presentations from the working groups: 4 PM to 5 PM

Introductions of workshop participants and ice-breaker

- As we will be working in small groups throughout the day to create knowledge useful for the community, let us get to know each other a little bit

- Let us introduce ourselves to each other
  - What is your name?
  - Which organization are you affiliated to and what is your role?
  - First question: If you could only eat one thing for the rest of your life, what would that be?
  - Second question: If you are without electricity and do not have your electronic devices with you for 3 hours, what would you do with your time?

Form Groups - 4-5 people in each group

- Each group has a moderator and notes-taker (could be the same person or a different person)
- The moderators will ensure that each person in the group gets a chance to contribute and the group stays on track with time management
- One member from each group will present the discussions during the afternoon session
- All presentations can be deposited in the GitHub repo created for this event or in a shared Google drive:
  - GitHub repo: https://github.com/ritua2/containerization2023
  - Google drive: https://drive.google.com/drive/folders/12eIGKBi32h8tvN9TfEzp9IsmRAFtWlB2?usp=sharing
    - TinyURL: https://tinyurl.com/bdf6tncj

What are we brainstorming on today?

1. Opportunities related to the containerization of applications using Docker and Singularity
    1. Are there opportunities for building new tools and best practices?
    2. What are the opportunities for community development?
    3. What are the resources that are needed?

2. Challenges related to the containerization of applications using Docker and Singularity

3. Documentation of use-cases on containerization

4. Are there any use-cases on which support is needed for containerization? If so, please list those with the name and email of the contributor. We will follow-up with those needing help to provide assistance.

5. What are the current best practices around containerization?

We are very grateful to our event sponsors!

- This event has been generously sponsored by the
  - National Science Foundation
  - IBM
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Thanks!

Any Questions, Comments, or Concerns?

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