

# CANOPIE-HPC Workshop at SC20

Executive Committee: Shane Canon<sup>1</sup> and Andrew J. Younge<sup>2</sup>

Program Co-chairs: Reid Priedhorsky<sup>3</sup> & Sanjana Sudarshan<sup>4</sup>

<sup>1</sup>**Lawrence Berkeley National Laboratory**  
National Energy Research Scientific Computing Center  
scanon@lbl.gov

<sup>2</sup>**Sandia National Laboratories\***  
Center for Computing Research  
ajyoung@sandia.gov

<sup>3</sup>**Los Alamos National Laboratory**  
HPC-Design  
reidpr@lanl.gov

<sup>4</sup>**Indiana University**  
Pervasive Technology Institute  
ssudarsh@iu.edu

## 2nd International Workshop on **C**ontainers and **N**ew **O**rchestration **P**aradigms for **I**solated **E**nvironments in **HPC**

- Principal venue for research in cutting-edge container technologies, virtualization, and OS system software as it relates to supporting High Performance Computing (HPC)
- This is our second iteration of the workshop
  - Expanded to full day
  - Including Keynote new Panel discussion
  - All proceedings to be published under IEEE TCHPC
- Thank you for participating!



# CANOPIE Committees

## Technical Program Committee

- Carlos Eduardo Arango Gutierrez, Red Hat, Inc.
  - Patrick Bridges, University of New Mexico
  - Paul Bryant, New Mexico Consortium
  - Francois Diakhate, French Alternative Energies and Atomic Energy Commission
  - Todd Gamblin, Lawrence Livermore National Laboratory
  - Ivo Jimenez, U.C. Santa Cruz and U. Sonora
  - John (Jack) Lange, University of Pittsburgh
  - Siew Hoon (Cerlane) Leong, Swiss National Supercomputing Centre
  - Anastassios Nanos, Nubificus LTD
  - CJ Newburn, NVIDIA Corporation
  - Sameer Shende, University of Oregon
  - Cory Snaveley, National Energy Research Scientific Computing Center
  - Jonathan (Bill) Sparks, Cray, Inc.
  - Joe Stubbs, Texas Advanced Computing Center
  - Sara Willis, University of Arizona
- Program Chair:**  
Reid Priedhorsky, Los Alamos National Laboratory

**Program Co-Chair:**  
Sanjana Sudarshan, Indiana University

# CANOPIE-HPC Workshop Program

~~10:00 am : Welcome/Intro~~

- 10:15 am : Phil Estes, *Keynote*: “**Wandering the Supercomputing Highway: At the Crossroads of Containers and HPC**”

*11:30 am : break*

11:45 pm : Session I

- 11:45 am : Garegin Grigoryan, Minseok Kwon, M. Mustafa Rafique, “**Extending the control plane of container orchestrators for I/O virtualization**”
- 12:10 pm : Jayjeet Chakraborty, Carlos Maltzahn, Ivo Jimenez, “**Enabling seamless execution of computational and data science workflows on HPC and cloud with the Popper container-native automation engine**”
- 12:35 pm : R. Shane Canon, “**The role of containers in reproducibility**”
- 1:00 pm : Session 1 Q&A and discussion

*1:30 pm : break/lunch (2:00–2:30 is SC Workshops common break)*

**NOTE:** All times are in Eastern Time (UTC-5)

2:30 pm : Session II

- 2:30 pm : Wael R. Elwasif, Ross Whitfield, Jin Myung Park, Mark CiANCiosa, “**Containers for massive ensemble of I/O bound hierarchical coupled simulations**”
- 2:55 pm : Joshua Hursey, “**Design considerations for building and running containerized MPI Applications**”
- 3:20 pm : Massimiliano CulpO, Gregory Becker, Carlos Eduardo Arango Gutierrez, Kenneth Hoste, Todd Gamblin, “**archsSpec: A library for detecting, labeling and reasoning about microarchitectures**”
- 3:45 pm: Session 2 Q&A and discussion

*4:15 pm : break*

4:30 pm : Lightning talks & Panel

- 4:30 pm : Carlos Eduardo Arango, “**We adopted containers, now what? A view into the next milestone for containers in HPC**”
- 4:35 pm : Maxim Belkim, “**Adapting Shifter to user needs on Blue Waters**”
- 4:40 pm: Quincy Wofford, “**Using container image layers to build portable and configurable HPC software stacks**”
- 4:45 pm : Lightning Talks Q&A
- 4:50 pm : Panel Discussion

6:00 pm : Wrap-up

**NOTE:** All times are in Eastern Time (UTC-5)

On to the Keynote!

# Welcome to CANOPIE-HPC!

*2<sup>nd</sup> International Workshop on Containers and New  
Orchestration Paradigms for Isolated Environments in HPC  
(CANOPIE-HPC) at SC20*

Workshop Program: <https://www.canopie-hpc.org/program/>

Join the slack channel: <http://bit.ly/hpccslack>



Steering Committee – Shane Canon (LBNL) & Andrew Younge (SNL)  
Program Chairs – Reid Priedhorsky (LANL) & Sanjana Sudarshan (IU)