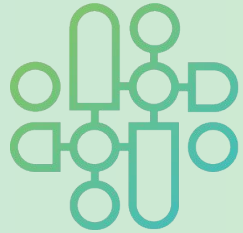

SC23
Denver, CO | i am hpc.

Welcome to CANOPIE-HPC!

The 5th *International Workshop on Containers and New Orchestration Paradigms for Isolated Environments in HPC*

Steering Committee:

Andrew J. Younge (Sandia), R. Shane Canon (LBNL/NERSC)

Program Chairs:

Alberto Madonna (CSCS), Laurie Stephey (LBNL/NERSC)

Welcome to CANOPIE-HPC

5th International Workshop on **C**ontainers **a**nd **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 fifth iteration of the workshop
  - Premier half-day SC23 workshop
  - All proceedings published by ACM and already available! https://dl.acm.org/doi/proceedings/10.1145/3624062

- Thank you for participating!

This workshop is possible only with a great Technical Program Committee!

The committee received **7** paper and **13** lightning talk submissions and
accepted **4** papers for final publication in the proceedings and **10** lightning talks for presentation

- Subil Abraham, Oak Ridge National Laboratory
- Carlos Eduardo Arango Gutierrez, NVIDIA Corporation
- Abdulrahman Azab, University of Oslo; PRACE
- Carlos Jaime Barrios Hernandez, SCALAC, Industrial University of Santander (Colombia)
- David Brayford, HPE
- Patrick Bridges, University of New Mexico
- Taylor Childers, Argonne National Laboratory
- Felipe A. Cruz, Swiss National Supercomputing Centre
- Marco De La Pierre, Seqera
- Francois Diakhate, CEA-DAM
- Daniel Fulton, Lawrence Berkeley National Laboratory
- Holger Gantikow, Atos, Plymouth University
- Christian Kniep, QNIB Solutions
- John Lange, Oak Ridge National Laboratory, University of Pittsburgh
- Claudia Misale, IBM
- Fawzi Mohamed, Swiss National Supercomputing Centre
- Anastasios Nanos, Nubificus Ltd
- CJ Newburn, NVIDIA Corporation
- Henrik Nortamo, CSC
- Megan Phinney, Los Alamos National Laboratory
- Reid Priedhorsky, Los Alamos National Laboratory
- Nathan Rini, SchedMD LLC
- Sameer Shende, University of Oregon
- Cory Snavely, Lawrence Berkeley National Laboratory
- Joe Stubbs, Texas Advanced Computing Center
- John Quincy Wofford, Los Alamos National Laboratory

CANOPIE-HPC Part 1

Start	Duration	Title	Speaker	Type
09:00		Start		
09:00	10min	CANOPIE-HPC - Introduction and welcome	Madonna, Stephey, Canon, Younge	
09:10	25min	Survey of adaptive containerization architectures for HPC	Mujkanovic, Durillo, Hammer, Müller	Paper
09:35	5min	HPC Container Conformance	Kniep	Lightning
09:40	5min	Kubeflow as-a-service on HPC clusters – first experiences	Shaikh, Hussain, Elmas, Feki	Lightning
09:45	5min	Preemptive Scheduling of Stateful GPU Intensive HPC Applications in Kubernetes	Stoyanov, Reber, Armour	Lightning
09:50	5min	Enabling Performance for NGC Containers on the Slingshot 11 Interconnect	Madonna	Lightning
09:55	5 min	Lightweight Isolation for HPC applications	Chadha	Lightning
10:00	30min	Coffee Break		

CANOPIE-HPC Part 2

10:00	30min	Coffee Break		
10:30	25min	Charliecloud's layer-free, Git-based container build cache	Priedhorsky, Ogas, Davis IV, Hounshel, Lee, Stormer, Goff	Paper
10:55	5min	New root emulation mode for Charliecloud using seccomp	Phinney	Lightning
11:00	5min	eBPF-based Performance Fingerprint of containerized HPC applications	Hoeb	Lightning
11:05	25min	Understanding Energy Performance of Containers Deployment on HPC-Based post-Moore Platforms	Rojas, Barrios Hernandez, Steffenel	Paper
11:30	25min	Perspectives and Experiences Supporting Containers for Research Computing at the Texas Advanced Computing Center	Ferlanti, Allen, Lima, Wang, Fonner	Paper
11:55	5min	Early Experiences with Charliecloud for HPC	Lawrence	Lightning
12:00	5min	Computing-as-a-Service Infrastructure for Accelerating Digital Engineering	Ho, Pedretti	Lightning
12:05	5min	The Story of Spin: Five Years Supporting Science with Container-Based Services at NERSC	Lasiewski, Snavely	Lightning
12:10	20min	CANOPIE-HPC Community Discussion/Open Q&A	Madonna, Stephey	
12:30		End		

Join the HPC-Containers Slack channel

On to the first session!

Workshop Program (Before break)

Start	Duration	Title	Speaker
09:00	10 min	CANOPIE-HPC - Introduction and welcome	Worskhop organizers/chairs
09:10	25 min	**Paper #1**: Survey of adaptive containerization architectures for HPC	Nina Mujkanovic (HPE)
09:35	25 min	**Lighting Talks #1**	
		HPC Container Conformance	Christian Kniep (QNIB)
		Kubeflow as-a-service on HPC clusters – first experiences	Mohsin Ahmed Shaikh (KAUST)
		Preemptive Scheduling of Stateful GPU Intensive HPC Applications in Kubernetes	Radim Stoyanov (Univ. Oxford)
		Enabling Performance for NGC Containers on the Slingshot 11 Interconnect	Alberto Madonna (CSCS)
		Lightweight Isolation for HPC Applications	Mohak Chadha (TUM)
10:00AM	30min	Coffee Break	

Workshop Program (After break)

Start	Duration	Title	Speaker
10:00AM	30min	Coffee Break	
10:30	25 min	**Paper #2**: Charliecloud's Layer-Free, Git-Based Container Build Cache	Reid Priedhorsky (LANL)
10:55	10 min	**Lighting Talks #2**	
		New Root Emulation Mode for Charliecloud Using seccomp	Megan Phinney (LANL)
		eBPF-Based Performance Fingerprint of Containerized HPC Applications	Maximilian Hoeb (LMU Munich)
11:05	25 min	**Paper #3**: Understanding Energy Performance of Containers Deployment on HPC-Based Post-Moore Platforms	P. Rojas (UIS), C. J. Barrios Hernandez (UIS), L. Steffenel (Univ. Rennes)
11:30	25 min	**Paper #4**: Perspectives and Experiences Supporting Containers for Research Computing at the Texas Advanced Computing Center	Yinzhi Wang (TACC), John M. Fonner (TACC)
11:55	15 min	**Lighting Talks #2**	
		Early Experiences with Charliecloud for HPC	Richard Lawrence (TAMU)
		Computing-as-a-Service Infrastructure for Accelerating Digital Engineering	Eric Ho (Sandia National Labs)
		The Story of Spin: Five Years Supporting Science with Container-Based Services at NERSC	Stefan Lasiewski (LBNL/NERSC), Cory Snavely (LBNL/NERSC)
12:10	20 min	**Community discussion**	
12:00PM	90min	Lunch Break