Early Experiences with Charliecloud for HPC
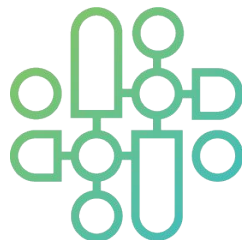
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CANOPIE-HPC, 5th International Workshop

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Best Practices for Images

- Know your image formats. Both are needed!

Image format	Mode	Speed	Storage location	Purpose
Directory	read/write	slow	local filesystem (nvme)	Editing images
Squashfs	read-only	fast	network filesystem (Lustre)	Executing software

```
ch-convert image /tmp/$USER/image/
ch-run --write /tmp/$USER/image/ -- bash #edit image
ch-convert /tmp/$USER/image/ $HOME/image.sqfs
ch-run $HOME/image.sqfs -- bash #execute software
```
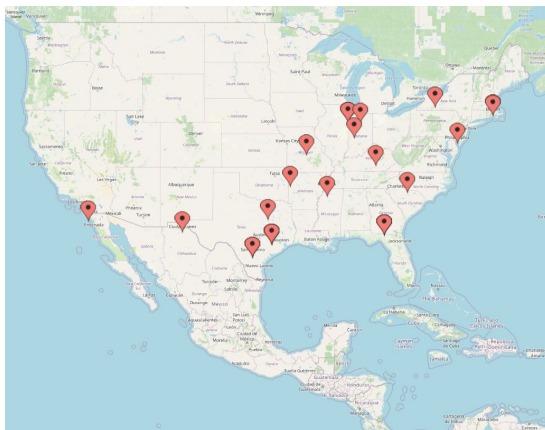
Applications

- We containerized popular scientific research softwares and tested them on our local HPC technologies
- Charliecloud performed correctly on all tested combinations
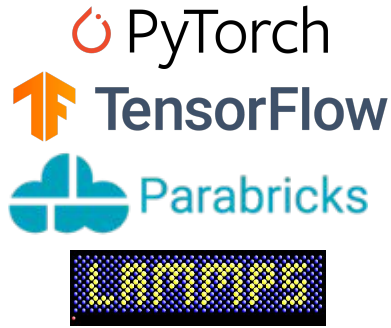
Software	Technologies
Pytorch, Tensorflow	Infiniband, Intel CPU, NVIDIA GPU, Intel GPU, DDN Lustre
Clara Parabricks	NVIDIA GPU, DDN Lustre
LAMMPS	NVIDIA GPU, Intel GPU

User Training

Participants said:
- "Great tutorial"
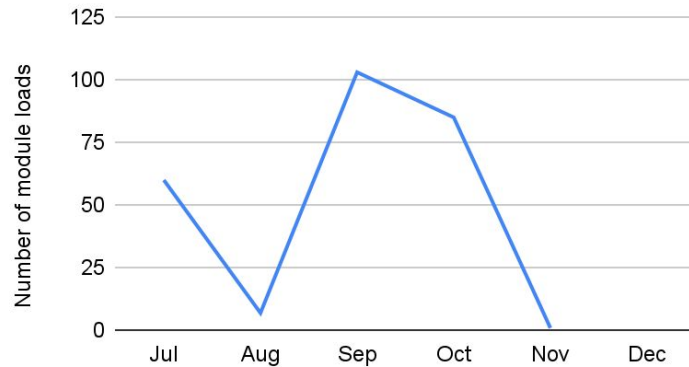- "Easy to understand"
- "Everything just worked"

Date	Instructors	Learning Objectives	Audience	Attended
Feb 2023	LANL	Expertise	TAMU staff	-
July 2023	LANL + TAMU	Expertise + Research	early ACES users	18
Sep 2023	TAMU	Research	ACCESS community	16
Oct 2023	TAMU	Fundamentals	ACCESS community	22

developed for ◆ACCESS ■ Support

Usage

- Usage is correlated to training events
- Persistent user base not yet established

Acknowledgements