

# Containers in HPC



<http://arc-ts.umich.edu/>

# Hardware

**FLUX** (Traditional **HPC** cluster)

~27,000 cores across ~1300 nodes interconnected w/ Infiniband

**Yottabyte** Research Cloud

Private cloud environment with 1100 cores, 20TB RAM interconnected w/ 40Gb ethernet

**Cavium ThunderX** Cluster

Big data Hadoop/Spark offering with 3840 cores, 20TB RAM, 3PB of storage, interconnected w/ 40Gb ethernet



# HPC

**Singularity** available on our primary cluster (Flux) with primary use from labs in neuroimaging.

Experimenting with Docker to create **ephemeral edge/login nodes** (with some success)

Running **Elasticsearch** and **Grafana** within Docker to facilitate **job support** and management



<http://arc-ts.umich.edu/software/singularity/>

# Data Science / Services

Hosting containers for ephemeral services supporting faculty

- Provisioning databases **on the fly** for faculty
- Hosting **faculty-developed** applications (and full stacks)
- Currently using mixed **Rancher / Kubernetes** for **orchestration**

Experimentation being done with Kubernetes / Spark on ARM

