



CONTAINER TECHNOLOGIES @ JSC HPC RESOURCES

2019-11-14 | BENEDIKT VON ST VIETH

CONTAINER TECHNOLOGIES IN USE

- Admins:
 - Linux Containers (LXC v3)
 - Encapsulate services, e.g. slurmctld
 - Docker
 - Deploy monitoring/metering services, e.g. Elasticsearch/Prometheus
- Users:
 - Singularity

ADMINS: LXC V3

- Container images created beforehand
- Container configuration files templated via Ansible
- Replace heavy „Master“ nodes via container encapsulation („Microservices“)
 - Container failover via pcs
- Split fat compute nodes in smaller containers
 - Only because we currently do not provide Slurm native node sharing
- SRIOV for InfiniBand devices and GPUs
- JUWELS: SSH Access (Logins) are containers

USERS: SINGULARITY 3.X

- Under evaluation
- Singularity provided via Easybuild (*module load Singularity/3*)
- Images stored on parallel filesystem path
 - Whitelisting for container images via path
 - Might be changed to whitelisting based on image signatures
- Image build system under development
 - Give your Dockerfile, we create the Singularity Image File (SIF)
 - Command line interface to images
 - Avoid support overhead by on a first hand only actively supporting EL

POINTS FOR DISCUSSION

- Any site providing HPC via Docker? Kubernetes?
- Experience with RedHat EL8
 - podman/buildah
- Experience with Singularity Enterprise?
 - WebUI
 - Build containers using Kubernetes