NIRD Service Platform

Csaba Anderlik
Scientific Computing, IT-division, UiB

UNIVERSITY OF BERGEN

National e-Infrastructure for Research Data (NIRD)

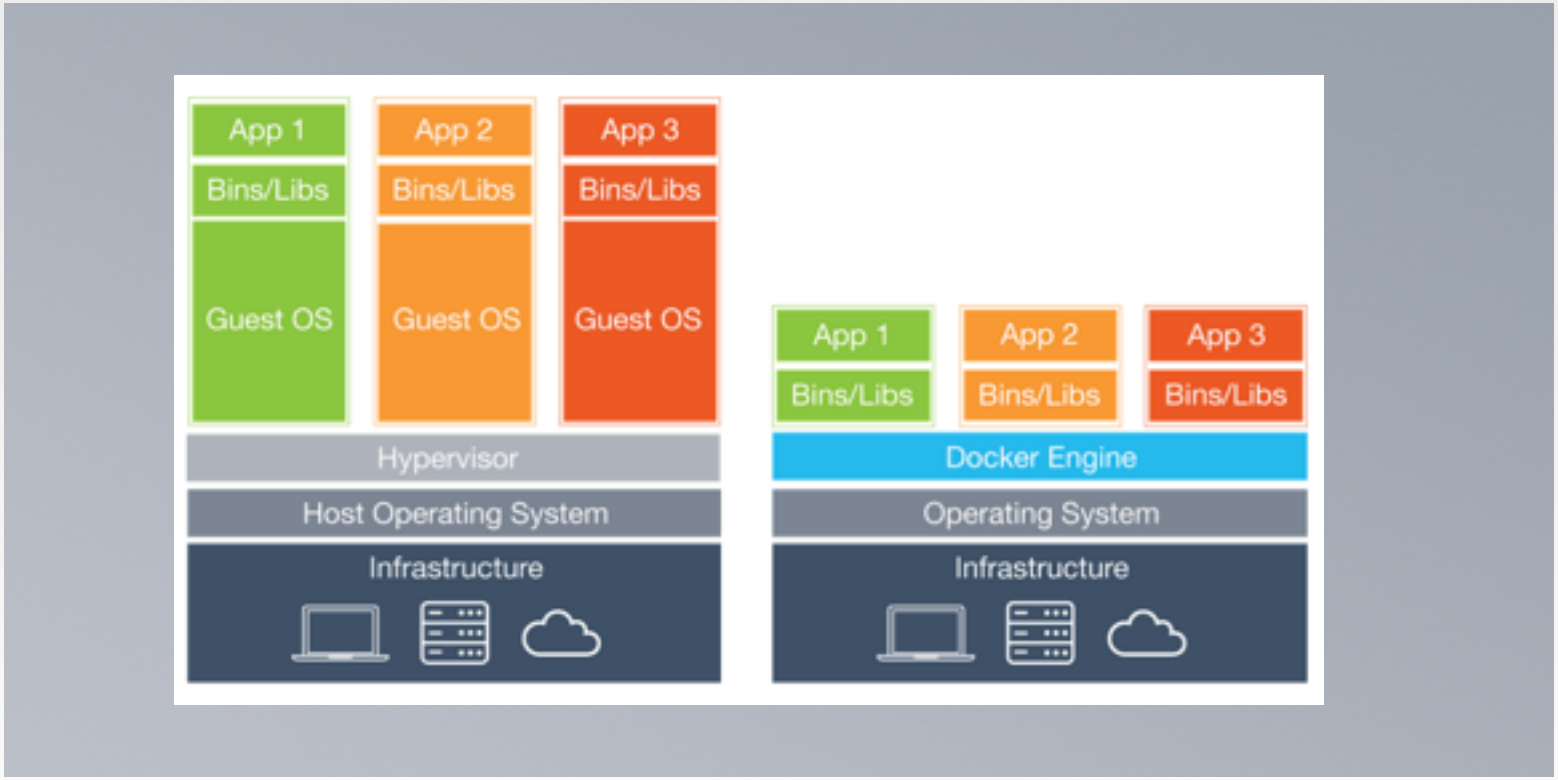
- provides storage and high level services for data management, archive, search, visualisation, etc.
- Service Platform is the computational resource for the above services
- Operated by the Metasenter: (NTNU, UiB, UiO, UiT) and managed by UNINETT Sigma2 (Maria Francesca Iozzi)
- platform is operational, existing Norstore services are being migrated

Current Setup

- Kubernetes cluster using Docker containers
- 3 master nodes: 16 CPUs/64GB RAM, 2x 10Gbps
- 7 worker nodes: 64 CPUs/256GB RAM, 4x 10Gbps
- authentication using Dataporten

What is a container?

What is different from classical virtualisation?



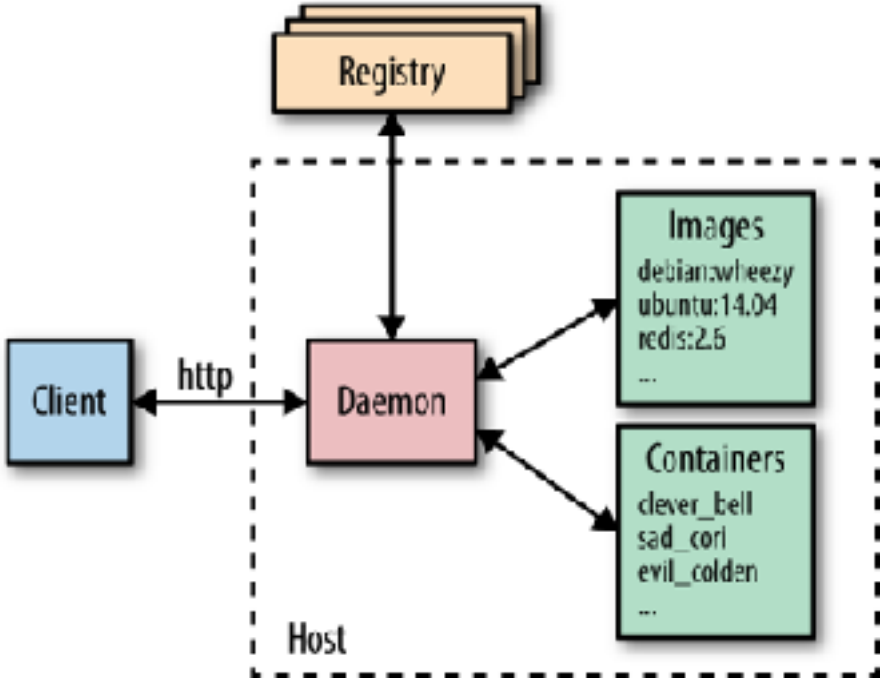
https://blog.netapp.com/blogs/containers-vs-vms/

Benefits of containers

- containers are very efficient, little or no overhead compared to native
- containers are highly portable
- lightweight -> one can run many at the same time

Docker

- Docker daemon: managing containers, images; run by the OS
- Docker client, communicates with Docket daemon via HTTP; well defined API also available -> programs can interface directly
- Docker registry -> store and distribute images -> Docker hub or local



3rd party tools

- ***Networking***: Weave and Calico
- ***Service discovery***: Consul, Registrator, SkyDNS, and etcd.
- ***Orchestration and cluster management***: Kubernetes from Google, Marathon (a frame-work for Mesos), CoreOS's Fleet
- ***Storage***: Flocker, GlusterFS

Kubernetes

- open platform to orchestrate containers:
  - deploy
  - scale
  - operate
- based on a project started by Google in 2014

DEMO