



# What are containers ?

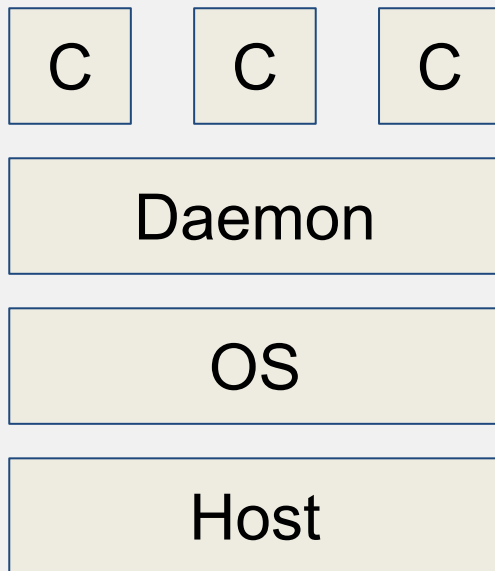
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# But First...

Why this this guy talking about  
containers at a networking conference?

In the future a lot of internal and external traffic will be generated by/on these containers.

# Quick introduction to containers



# What it actually looks like

```
$ top
```

PID	USER	%CPU	%MEM	COMMAND
1204	root	43.3	3.4	dockerd
4313	root	23.7	0.2	python
4682	root	12.8	2.9	python
2930	root	10.0	3.1	kubelet

# Containers

vs

# VMs

```
$ top
```

PID	USER	%CPU	%MEM	COMMAND
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VM

VM

VM

Hypervisor

OS

Physical Hardware

- Containers are just processes

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- Attached to namespaces

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- Controlled by cgroups

# Namespaces

Namespaces are the feature that make the container look and feel like it is an entirely separate machine.

## **cgroups**

How much resources can our process get?

## **What are containers good at?**

stateless applications (ephemeral, short lived processes)  
i.e. a frontend process serving requests

## **What are containers good at?**

Containers are also portable.

You do not have to worry about dependencies

**What are containers good at?**

Disaster recovery

## **What are containers bad at?**

stateful applications  
i.e. databases



## **You can't just deploy containers**

Containers need friends

Containers these days is a vast ecosystem of vendor solutions

## **Plan for answering these questions:**

- Dev Setups (Dockerfile, buildah)
- Orchestration (kubernetes, docker swarm)
- Lifecycle Management (openshift)
- Networking (envoy, cilium, linkerd, istio, calico)

## Simple dockerfile:

```
FROM centos:7
RUN yum -y update && \
yum -y install httpd && \
yum clean all
COPY data/httpd.conf /etc/httpd/conf/httpd.conf
ADD data/html.tar.gz /var/www/html/
EXPOSE 80
ENV HOME /root
WORKDIR /root
ENTRYPOINT ["ping"]
CMD ["google.com"]
```



## Further reading

How to create a container using docker <https://docs.docker.com/develop/develop-images/baseimages/>

How to create a container using buildah

<https://github.com/containers/buildah/blob/master/docs/tutorials/01-intro.md>

Podman is a daemonless container engine

[https://github.com/containers/libpod/blob/master/docs/tutorials/podman\\_tutorial.md](https://github.com/containers/libpod/blob/master/docs/tutorials/podman_tutorial.md)

Container monitoring [https://prometheus.io/docs/introduction/first\\_steps/](https://prometheus.io/docs/introduction/first_steps/)

Container management <https://docs.openshift.com/container-platform/4.1/welcome/index.html>

Kubernetes training <https://www.cncf.io/certification/training/> (Free)

# QUESTIONS?

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