



# katacontainers

## **Build Secure Container Infrastructure with Kata Container**

Yusuf Al Afid  
Cloud Engineer  
PT Boer Technology



# Outline

- Container Overview
- Introduction of Kata

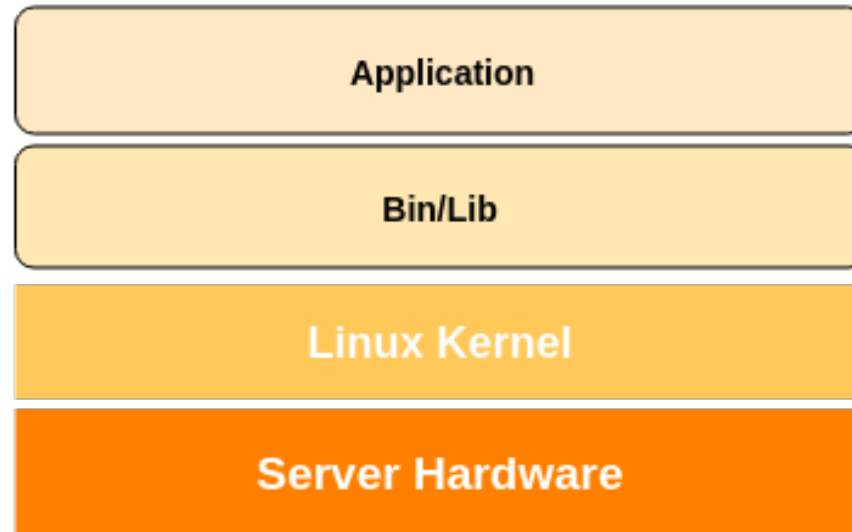




# Overview



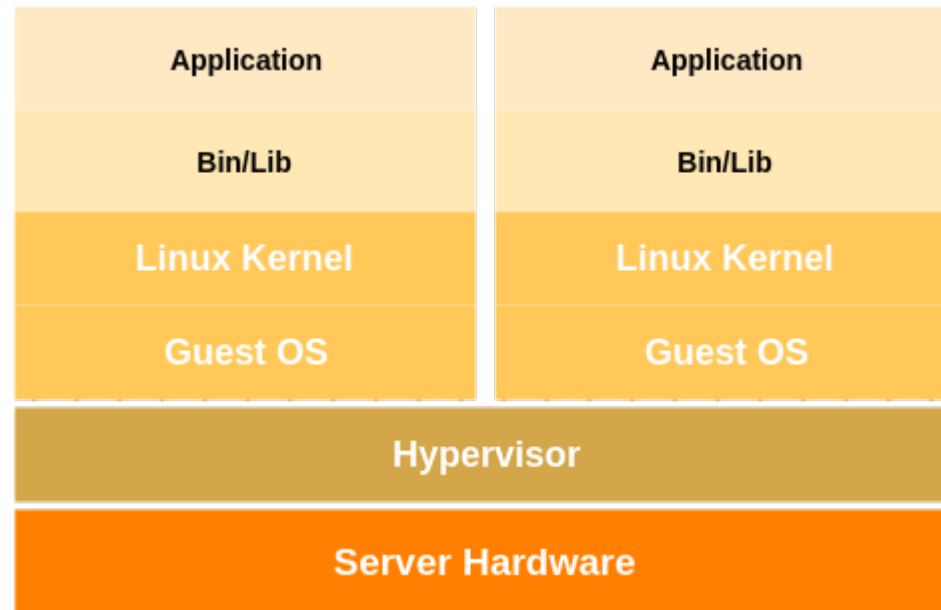
# Traditional Ways



One Machine One Service



# Virtualization



Virtualization Era



# Virtualization Types

- **Hardware Level**

VMWare, Qemu, Oracle Virtualbox, KVM, HyperV, etc.

- **Operating System Level (OS Container)**

LXC, Openvz, etc.

- **Application Level (Application Container)**

Docker, RKT, etc.



# Container

A light, stand-alone, executable package of a piece of software that includes everything needed to run it: code, runtime, system tools, system libraries, setting.



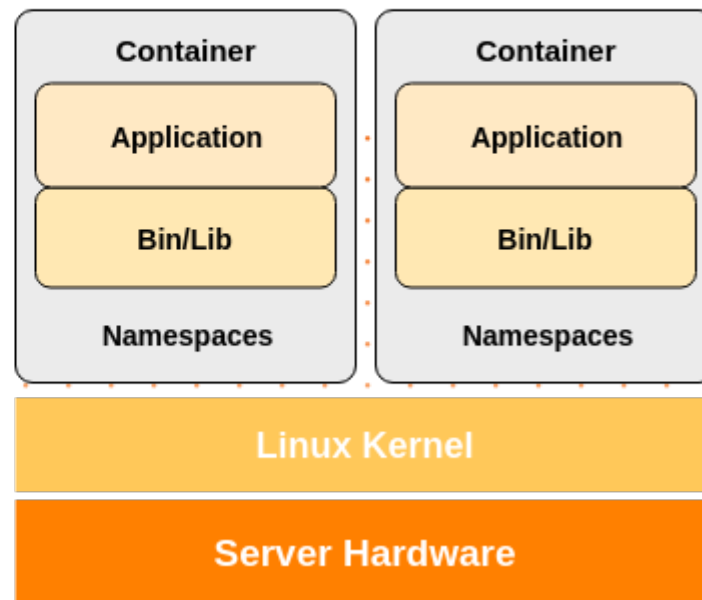
# Container Nowadays







# Container in the Cloud Today

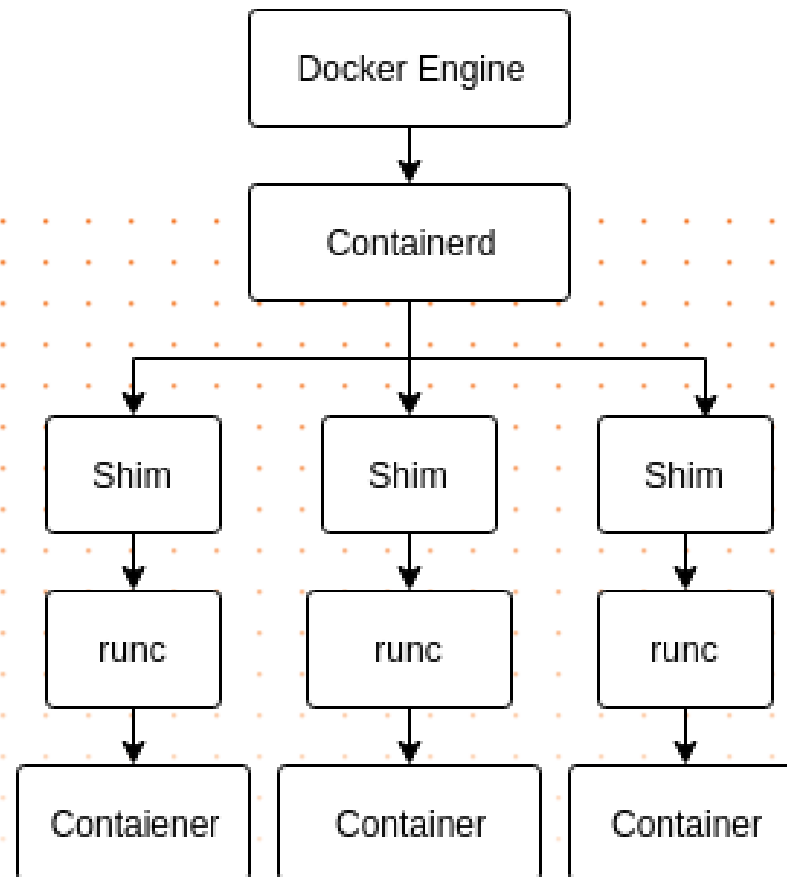


Shared kernel, Isolation within namespace



# Docker

## Docker + Runc





katacontainers



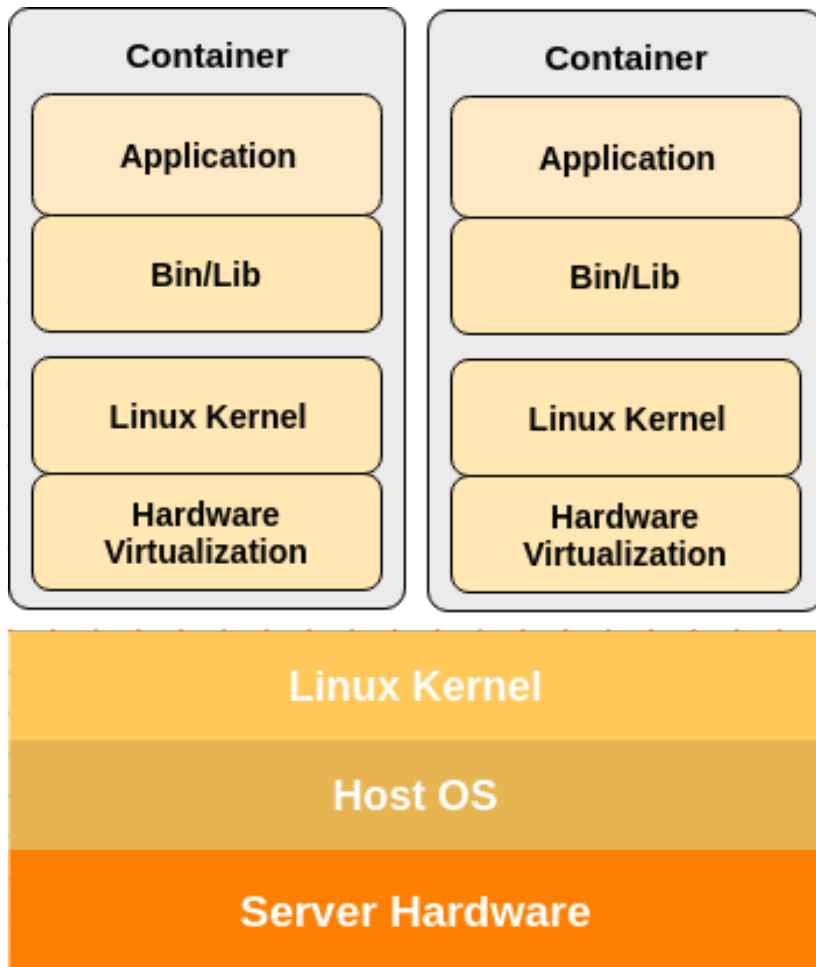


## >history

- Launch in December 2017.
- Builds lightweight virtual machines that seamlessly plug into the containers ecosystem.
- Kata Containers combines technology from Intel® Clear Containers and Hyper runV to provide the speed of containers with the security of virtual machines.



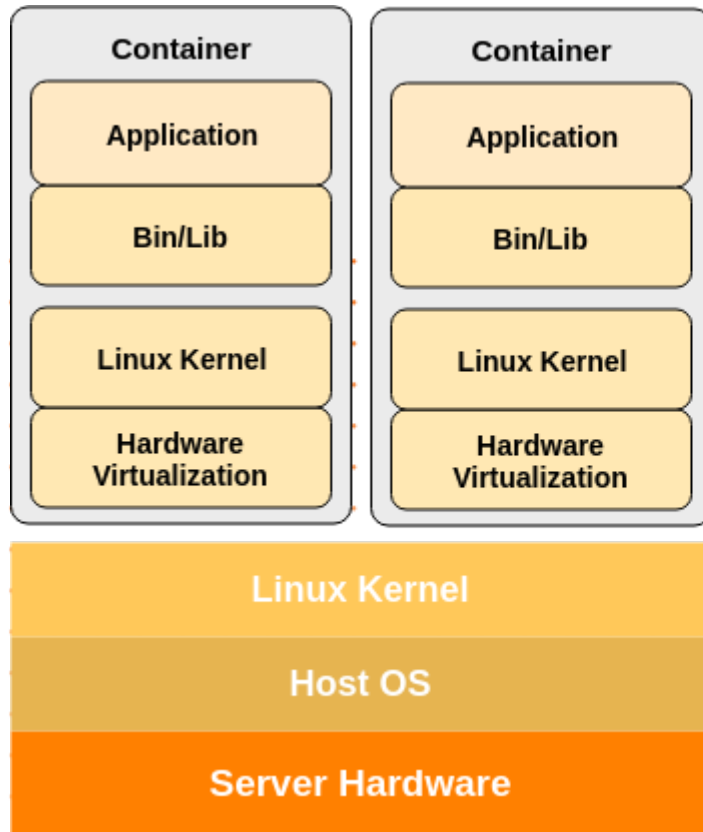
# Kata Container



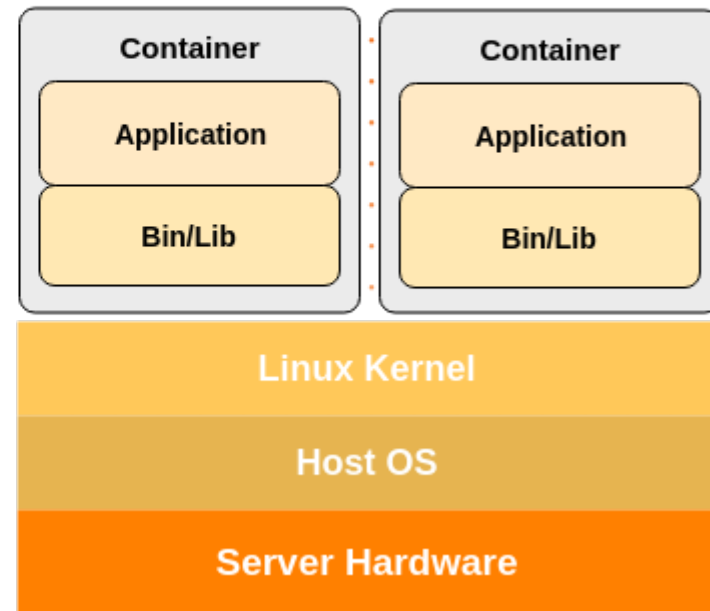
Each container/pods using hardware virtualization, to provide the speed of containers with the security of virtual machines (VMs).



# Kata & Docker



Docker with Kata Container

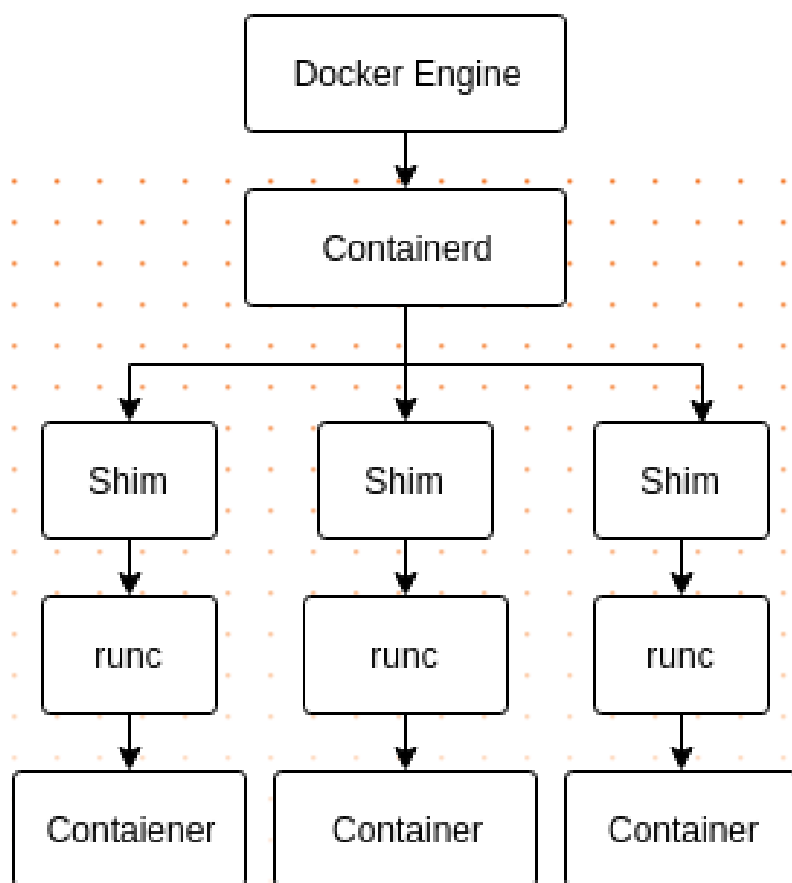


Docker without kata

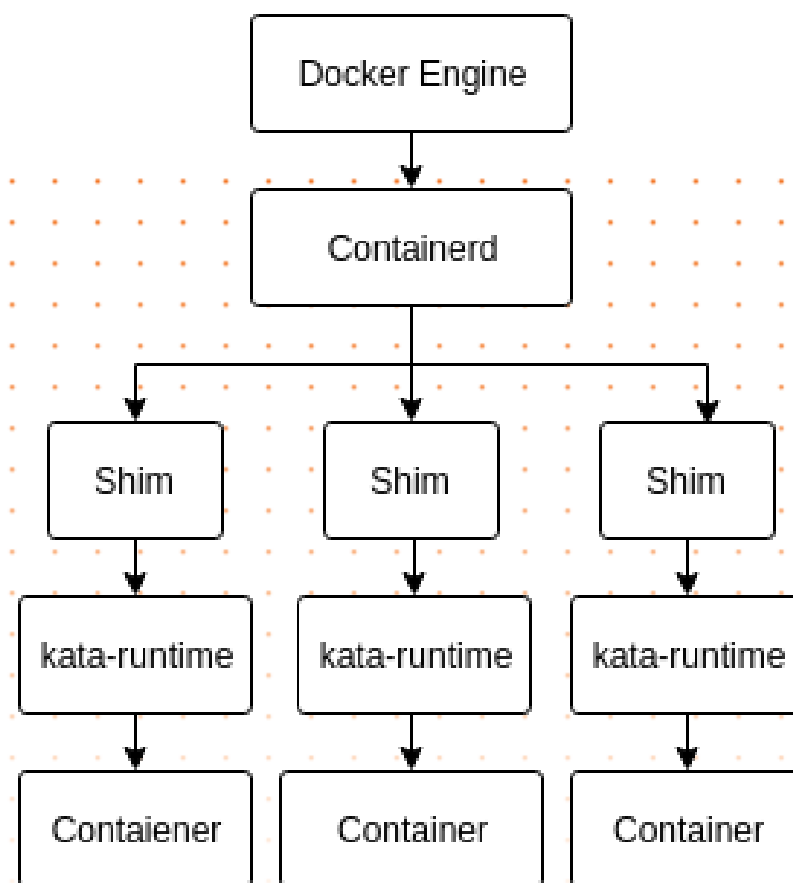


# Kata & Docker

**Docker + Runc**



**Docker + Kata Container**





# Docker Process

```
ubuntu@docker-staging:~$ ps fxa | grep docker -A 3
21476 pts/0    S+      0:00      \_ grep --color=auto docker -A 3
22056 ?        Ss      0:00 /sbin/lvmetadata -f
   586 ?        Ssl    11:49 /usr/bin/containerd
  3041 ?        Sl      0:36 \_ containerd-shim -namespace moby -workdir /var/lib/containerd
```

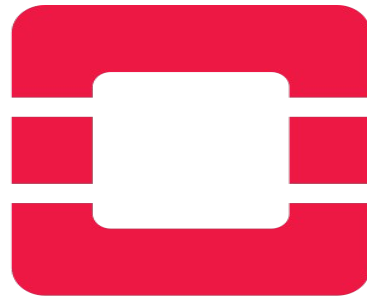




# Docker & Kata Process

```
ubuntu@kata:~$ ps fxa | grep docker -A 3
17314 pts/0    S+      0:00      \_ grep --color=auto docker -A 3
22059 ?        Ss      0:00 /sbin/lvmetad -f
 1531 ?        Ssl    24:36 /usr/bin/containerd
13404 ?        Sl      0:12 \_ containerd-shim -namespace moby -workdir /var/lib/containerd...
13442 ?        Sl      7:13 \_ /usr/bin/qemu-vanilla-system-x86_64 -name sandbox-9a3...
13450 ?        Ssl     1:09 \_ /usr/libexec/kata-containers/kata-proxy -listen-socket...
13465 ?        Sl      0:00 \_ /usr/libexec/kata-containers/kata-shim...
```





# openstack®

<https://t.me/openstackindo>

# Any Question?

