Intro to rkt

What is rkt and how do I use it?

Derek Gonyeo
Josh Wood

Outline

- What are containers?
- What is rkt?
- How do I get rkt?
- How do I use rkt?
- How does rkt compare to docker?
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- mount namespaces let an application have different mounts than its host
- Also UTS/IPC/cgroup/user namespaces

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- A way to package your applications and their dependencies into an image.
- An easy way to share these container images between machines (via centralized repositories).
- A way to run your applications in an isolated and consistent environment.

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- Simple cli interface
- Has well-defined operations
- No central privileged long-running components
- Has separate privileges for different operations

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- Fedora
- Arch
- Gentoo
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There's also a `Vagrantfile` in the rkt repo!

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How do I use rkt?

Let's start out with an interactive alpine container:

```
rkt run quay.io/coreos/alpine-sh -interactive
```

How do I use rkt?

`rkt list` will show you all of your exited and running pods.

How do I use rkt?

`rkt image list` will show you all of your stored images.

How do I use rkt?

To remove old containers: `rkt gc`
To remove old images: `rkt image gc`

How do I use rkt?

rkt supports docker images! You can refer to them using the `docker://` prefix.

```
rkt run docker://ubuntu -interactive -exec=bash
```

How do I use rkt?

A non-interactive example...

```
rkt run coreos.com/etcd:v3.0.3
rkt list
rkt enter hash /etcdctl cluster-health
```

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Answer: yup! Use your init system to manage rkt processes, same as any long-running process.
Use Ctrl+] three times to kill rkt.

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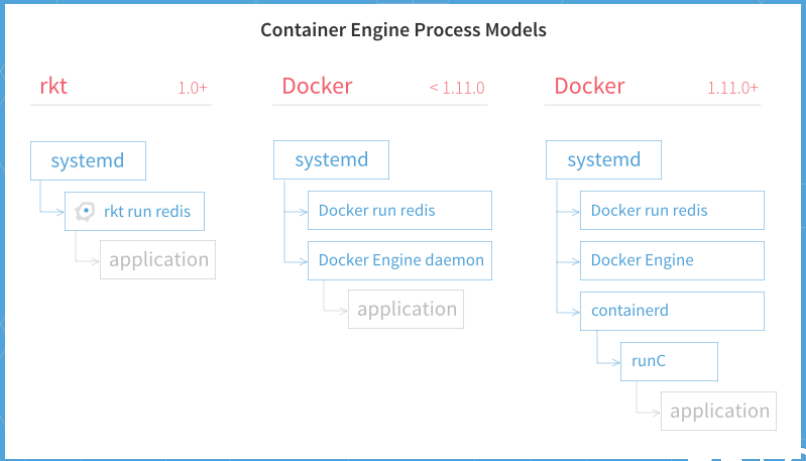
How does rkt compare to docker?



CoreOS

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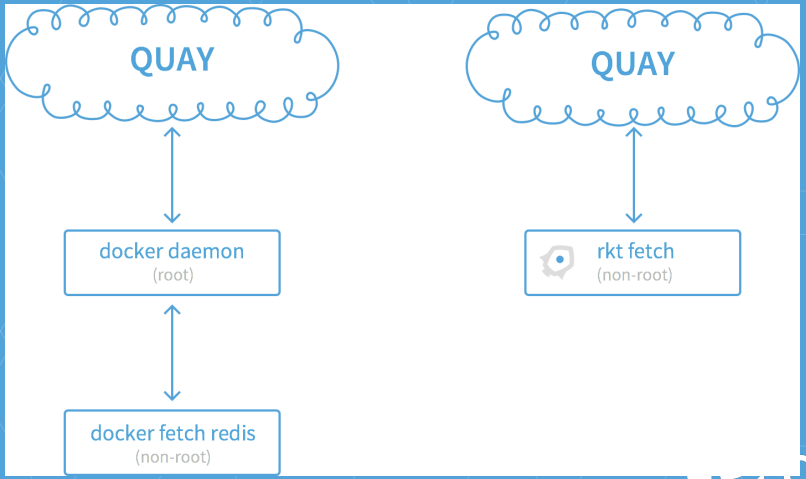

CoreOS

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- The docker spec
- The AppC spec
- The OCI image spec

How does rkt compare to docker?

rkt was designed with pods in mind.

- Running an image is running a pod with one app
- rkt can also accept pod manifests

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How does rkt work?

When a pod is run with rkt, there are three stages to this.

How does rkt work?

stage0:

- fetches images
- verifies images
- manages the image store
- manages overlayfs mounts

How does rkt work?

stage1:

- sets up isolation
- manages application mounts
- manages application networks
- starts application hypervisor

How does rkt work?

stage2:

- Your app!

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- Can create and modify ACIs

How do I build rkt containers?

Example 1: a static go binary

How do I build rkt containers?

Example 2: nginx

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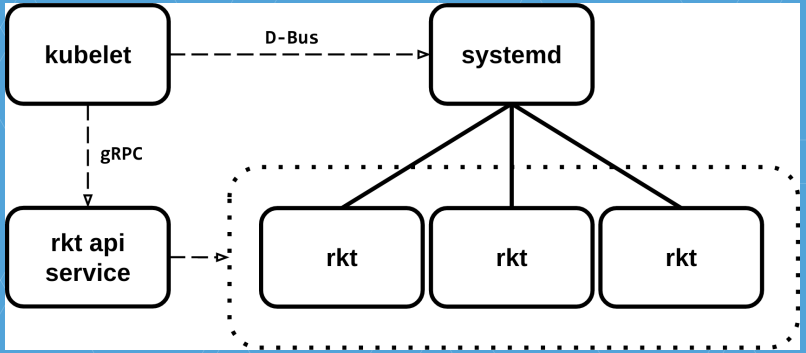

CoreOS

Questions?