

CONTAINER STANDARDS ON THE HORIZON

Vincent Batts @vbatts

```
$> finger $(whoami)
```

```
Login: vbatts
```

```
Name: Vincent Batts
```

```
Directory: /home/vbatts
```

```
Shell: /bin/bash
```

```
Such mail.
```

```
Plan:
```

```
OHMAN
```

```
$> id -Gn
```

```
devel opencontainers docker appc redhat golang slackware
```



SO, CONTAINERS?



STANDARDS!

STANDARDS!

Standard

/ˈstændəd/

noun

something used as a measure, norm, or model in comparative evaluations

STANDARDS!

Areas to Standardize:

STANDARDS!

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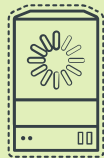
- Packaging



STANDARDS!

Areas to Standardize:

- Packaging
- Runtime



STANDARDS!

Areas to Standardize:

- Packaging
- Runtime
- Networking



STANDARDS!

Areas to Standardize:

- Packaging
- Runtime
- Networking
- Cloud



RUNTIME - IMPLIED STANDARDS

LXC

- 2008
- lxc specific config

Docker

- 2013
- Docker specific config and APIs

RUNTIME - SPECIFICATIONS

Application Container Spec (github.com/appc/spec)

- December 2014
- Specification
- App Container Executor (ACE)
- Several implementations, with rkt as the flagship

RUNTIME - SPECIFICATIONS

OpenContainer Runtime-Spec

(github.com/opencontainers/runtime-spec)

- June 2015
- Specification
- Several Implementations, with runc as flagship
- Currently v1.0.0-rc3

NETWORK

Container Networking Interface

([CNI - github.com/containernetworking/cni](https://github.com/containernetworking/cni))

- December 2014
- Specification and Library
- Simple to integrate with a process based workflow
- Used by RKT, kubernetes, OpenShift, Kurma, Cloud Foundry, RancherOS, usable with runC, and more

NETWORK

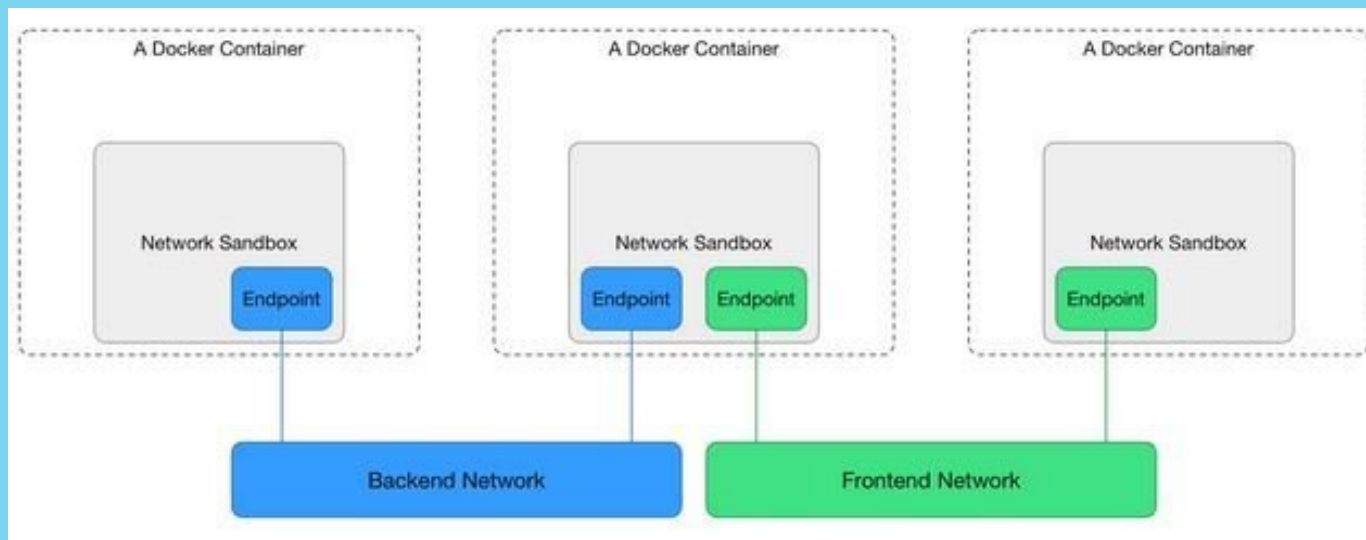
Container Network Model
(CNM - Docker libnetwork)

- April 2015
- Hard to integrate into existing system
- Used by Docker Engine

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PACKAGING - IMPLIED STANDARD

Docker Image

- Docker specific format
- Tight coupling with daemon version
- Signing requires Docker notary integration
- Image naming is Docker specific and bound to registries

PACKAGING - SPECIFICATION

Application Container Spec (github.com/appc/spec)

- December 2014
- App Container Image (ACI)
- A number of independent tooling
- Addresses Fully-Qualified-Naming, image discovery, signing, content addressability, and versioned schema

PACKAGING - SPECIFICATION

OpenContainer Image-Spec

(github.com/opencontainers/image-spec)

- April 2016
- Originated from Docker-1.10 and Registry v2 format
- Content addressibility
- Signable. Possibility to have naming and discovery.
- Currently releasing v1.0.0-rc3
- Gaining support from rkt, flatpak, skopeo, cri-o, docker, docker-registry and more

CLOUD

Cloud Native Computing Foundation
(<https://cncf.io>)

- Kubernetes orchestration donated by Google
- Prometheus monitoring donated

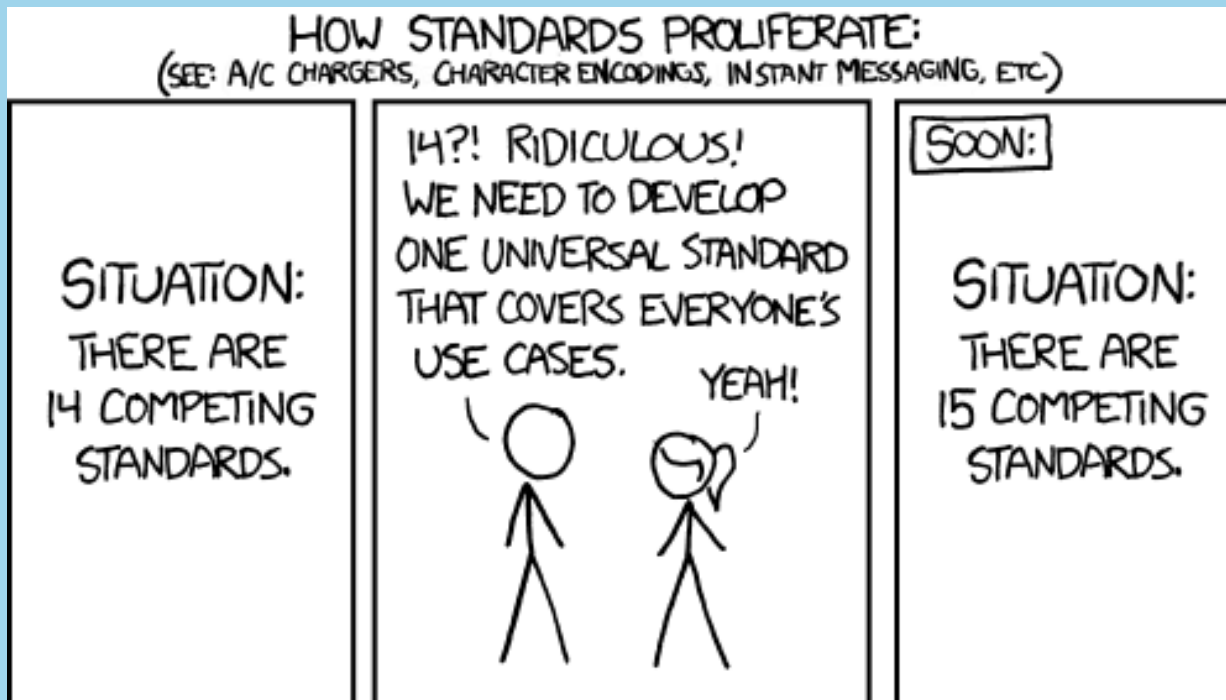
Why More Standards?!

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Really great question. Thought you might ask ...

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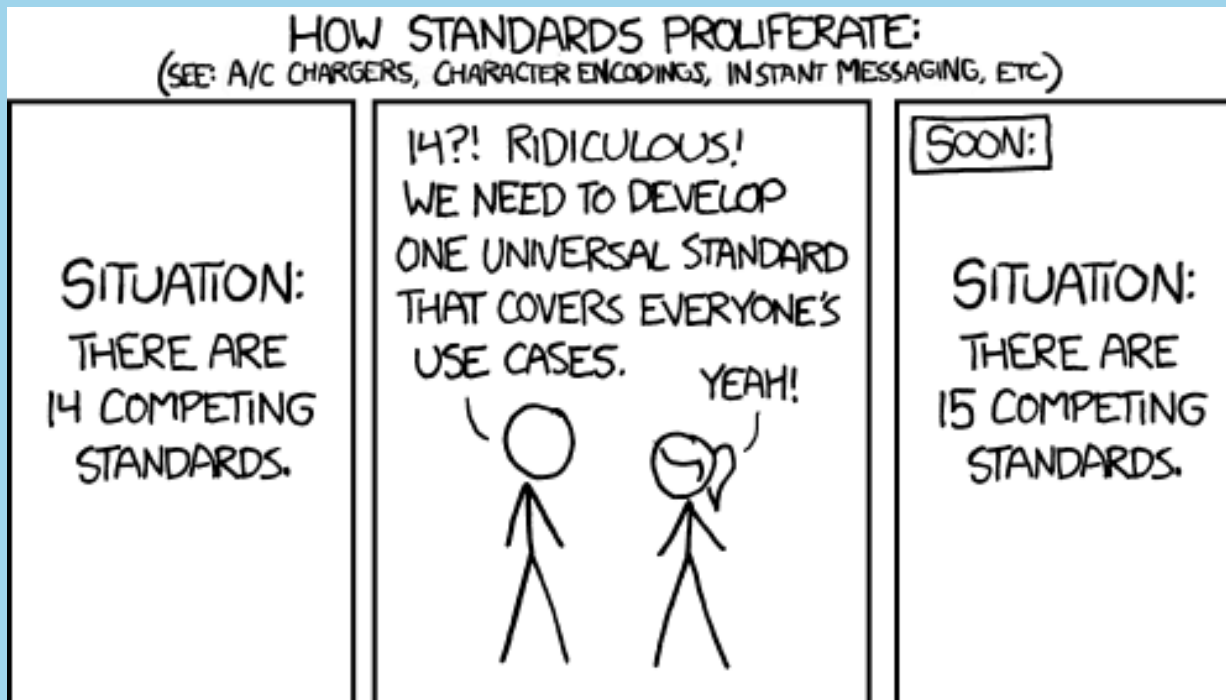
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Why More Standards?!

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The package wars of deb vs rpm set back the broad adoption of Linux



HORIZON

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Verification and certification of integrations/implementations

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Tooling to further signing, distribution and discovery

HORIZON

Continued adoption

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Increasing number of container runtimes

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Continued adoption

Verification and certification of integrations/implementations

Tooling to further signing, distribution and discovery

Increasing number of container runtimes

Increasing number of kubernetes distributions

WISHES

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- Image Distribution

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- Image Distribution
- Image Signing

WISHES

- Image Distribution
- Image Signing
- Orchestration

WISHES

- Image Distribution
- Image Signing
- Orchestration
- CNI (networking) to be in OCI

Call to Action!

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Define your use-cases **first**

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Get involved in the conversations

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Ensure your container integration touchpoint stay generic,
to avoid lock-in to a particular platform.

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PoC tooling for your integration

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THANKS!