

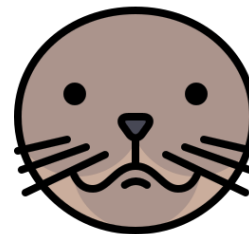
Podman Community Meeting

The boot2podman project
"rise and fall of", 2013-2020



Overview

- Containers
- Docker
- Tiny Core Linux
- Boot2podman
- Varlink
- Podman Machine



Containers?

- 1982: Chroot (Unix)
- 2000: Jails (FreeBSD)
- 2002: Zones (Solaris)
- 2005: OpenVZ (Linux)
- 2008: LXC (also Linux)

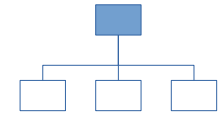
~~Virtual Private Servers~~

~~Virtual Environments~~

Now called: **Containers**

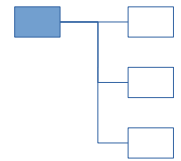
File Tree

/(root)



Process Tree

1 (init)



User

0 (root)

Group

0 (root)



Docker

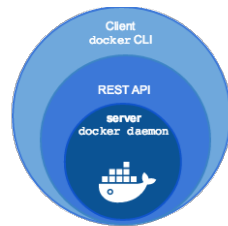
2013: Docker announced

<https://www.docker.com/>



Docker Engine

- Client (docker)
- Server (daemon)



2015: runC introduced

2016: containerd introduced

2017: Moby Project introduced

Docker Desktop

- macOS (Linux VM)
- Windows (Linux VM)

2016: Docker 1.12

- Docker for Mac
- Docker for Windows



Boot2docker

2013: boot2docker (v0.2)

“boot2docker is a lightweight Linux distribution based on Tiny Core Linux made specifically to run Docker containers.

It runs completely from RAM, weights ~38mb and boots in ~5-6s (YMMV).

It was made during the Global Docker Hack Day on Dec. 3, 2013.”

Features

- * Kernel 3.12.1 with AUFS
- * Docker 0.7
- * LXC 1.0-alpha2
- * Container persistence via disk automount
- * SSH keys persistence via disk automount

How to use

Simply boot from the ISO, and you're done.
It runs on VMs and bare-metal machines.

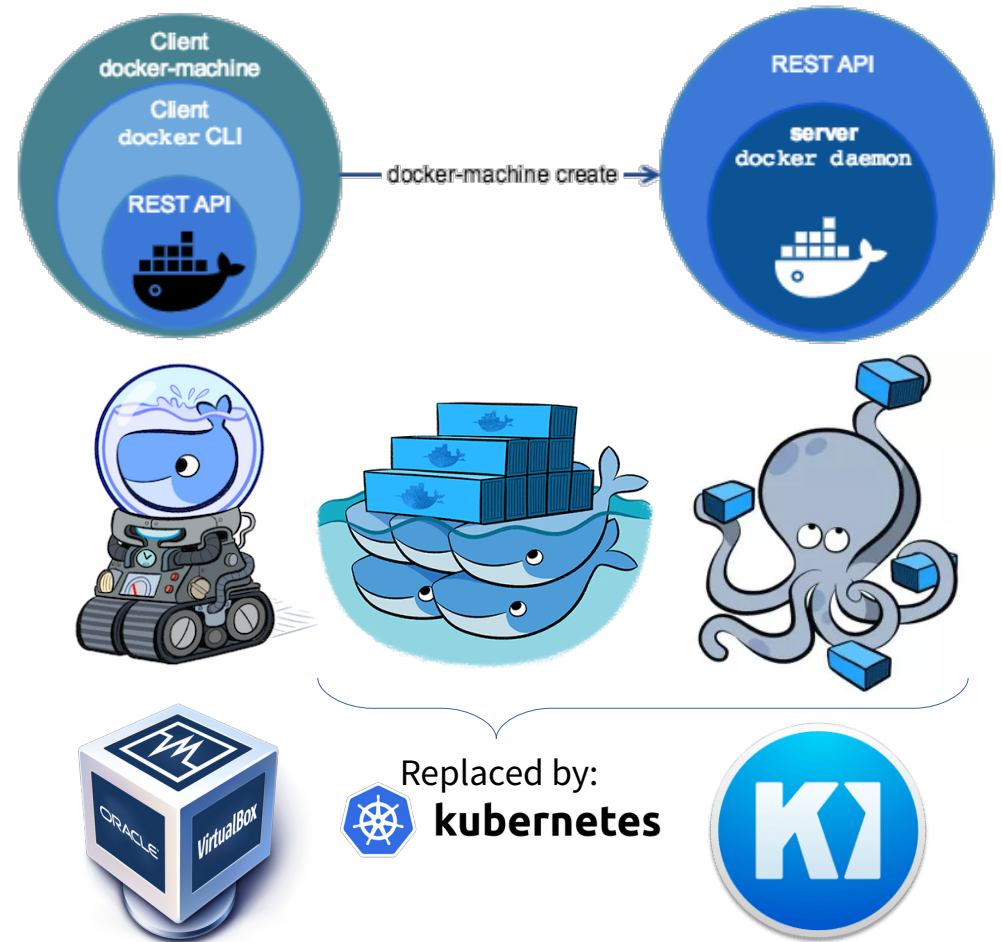
<https://github.com/boot2docker/boot2docker>



Docker Machine

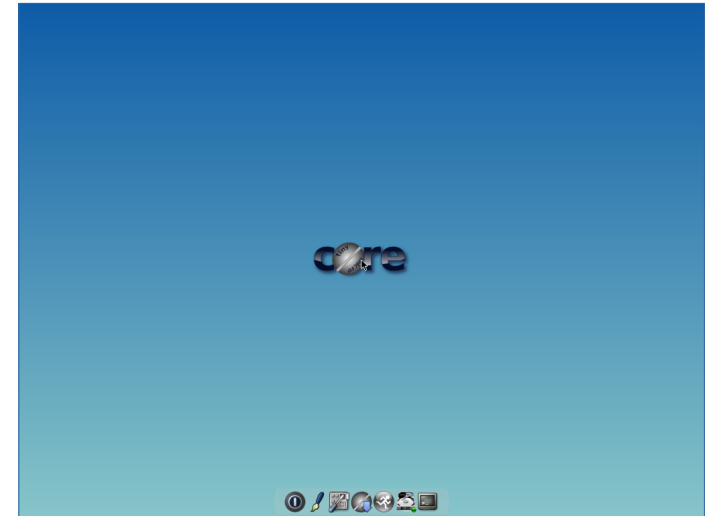
2014: Docker Toolbox

- (Boot2Docker ISO)
- Docker Machine
- (Oracle VirtualBox)
- Docker Swarm
- Docker Compose
- (Kitematic – a GUI)



Base: Tiny Core Linux

- Kernel (4.14)
- Initrd (9.4M!)
- Multiple Arch
 - Pure64 = x86_64
- Desktop (Tiny)
 - X11 with FLWM
- Packages (.tcz)
- Containers (8.2M!)



15M CorePure64-9.0.iso
28M TinyCorePure64-9.0.iso

Bonus Feature: “Boot2Docker with X11 desktop” (55M)
<https://github.com/boot2docker/boot2docker/pull/1289>

<https://github.com/tatsushid/docker-tinycore>
docker.io/tatsushid/tinycore:9.0-x86_64



Add: boot2podman

- **Custom kernel**
 - vmlinuz64
- **Add-on initrd**
 - corepure64.gz
 - boot2podman.gz
- **Build Tools**
 - Compile TC
 - Go compiler



boot2
podman



From scratch

- **Kernel**

- cgroupfs
- overlayfs

- **Build**

- compiletc
- git

- **Other**

- cgroupfs-mount
- ssh

- **Packages**

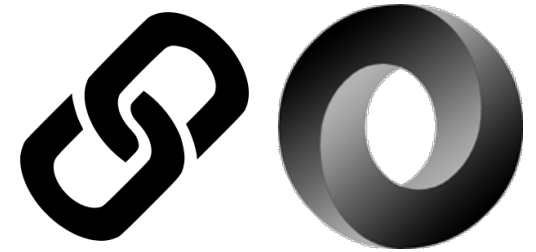
- Go
- Podman
 - runc
 - conmon
 - cni-plugins
- Varlink
- Rootless
- Buildah
- Skopeo



Varlink (podman v1)

- Varlink tool (`varlink`)

- <https://github.com/varlink/libvarlink>



- Varlink resolver (`/run/org.varlink.resolver`)

- <https://github.com/varlink/org.varlink.resolver>

```
$ sudo varlink info unix://run/podman/io.podman
Vendor: Atomic
Product: podman
Version: 1.9.3
URL: https://github.com/containers/libpod
Interfaces:
  org.varlink.service
  io.podman
```

```
$ sudo varlink resolve io.podman
unix:/run/podman/io.podman;mode=0600
```

```
$ sudo varlink call io.podman.GetVersion
{
  "built": "2020-09-18T23:49:21Z",
  "git_commit":
    "5d44534fff6877b1cb15b760242279ae6293154c",
  "go_version": "go1.11.13",
  "os_arch": "linux/amd64",
  "remote_api_version": 1,
  "version": "1.9.3"
}
# --bridge="sudo varlink -A \
  'podman varlink \${VARLINK_ADDRESS}' bridge"
```



Podman-machine

Adopted from github.com/docker/machine:

“Machine lets you create *Podman* hosts on your computer. It creates servers with *Podman* on them, then configures the *Podman* client to talk to them.”

- Docker to Podman conversion
- Drop support for Swarm
- Add the driver for QEMU (KVM)
- Drop support for Cloud

```
$ podman-machine create box
$ podman-machine ssh box

tc@box:~$ sudo podman

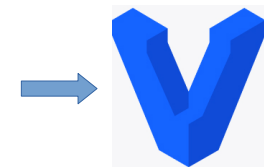
$ eval $(podman-machine env box)
$ podman-remote version
```

<https://podman.io/blogs/2019/01/14/podman-machine-and-boot2podman.html>



Deprecated 2020

- **Docker Machine (boot2docker) deprecated**
 - “As has been obvious for some time now, we’ve slowly stopped implementing or accepting new features for the project.”
 - “Boot2Docker is officially deprecated and unmaintained. It is recommended that users transition from Boot2Docker over to Docker Desktop instead (especially with the new WSL2 backend, which supports Windows 10 Home).” (also available for macOS)
- **Podman Machine (boot2podman) deprecated**
 - The Fedora image was popular than the custom ISO
 - Podman v2 replaced the varlink API with a REST API



Demo – podman



Questions?

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For more info on boot2podman:
<https://boot2podman.github.io/>

