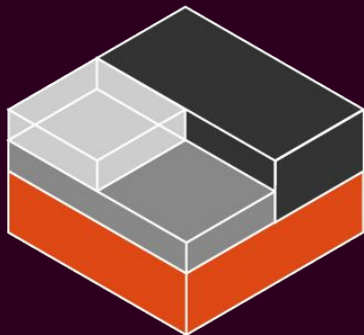


Getting started with LXD



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System containers

What are they?

→ The oldest type of containers

BSD jails, Linux vServer, Solaris Zones, OpenVZ, LXC and LXD.

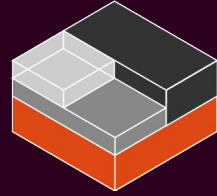
→ Behave like standalone systems

No need for specialized software or custom images.

→ No virtualization overhead

They are containers after all.

LXD: the container lighter-visor



What it IS

→ Simple

Clean command line interface, simple REST API and clear terminology.

→ Fast

No virtualization overhead so as fast as bare metal.

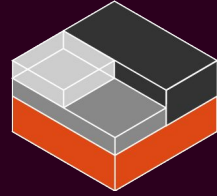
→ Secure

Safe by default. Combines all available kernel security features.

→ Scalable

From a single container on a developer's laptop to thousands of containers per node in a datacenter.

LXD: the container lighter-visor



What it **ISN'T**

→ Another virtualization technology

LXD tries to offer as similar a user experience as that of a virtual machine but it doesn't itself virtualize anything, you always get access to the real hardware and the real native performance.

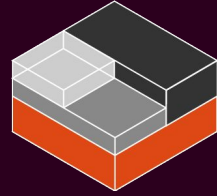
→ A fork of LXC

LXD uses LXC's API to manage the containers behind the scene.

→ Another application container manager

LXD only cares about full system containers and doesn't care about what runs inside the container.

LXD: the container lighter-visor



What it IS

nova-compute-lxd

command line tool

your own client/script ?

LXD REST API

LXD

LXC

Linux kernel

Host A

LXD

LXC

Linux kernel

Host B

LXD

LXC

Linux kernel

Host C

LXD

LXC

Linux kernel

Host D

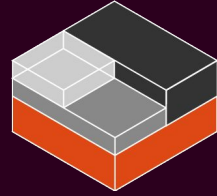
LXD

LXC

Linux kernel

Host ...

LXD: the container lighter-visor



Main components

→ Containers

The containers themselves, their configuration, devices and snapshots.

→ Images

The source of all containers.

→ Profiles

A convenient way to share configuration with multiple containers.

→ Networks (LXD 2.3+)

Creation and management of bridges, tunnels and DHCP/DNS options.

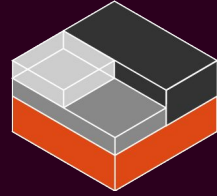
→ Storage pools and volumes (LXD 2.9+)

Container and image storage as well as custom storage volumes.

→ Clustering (LXD 3.0+)

Create and manage a virtual giant LXD instance.

LXD: the container lighter-visor



Clustering

→ Built-in clustering support

No external dependencies, all LXD 3.0 or higher installations can be instantly turned into a cluster.

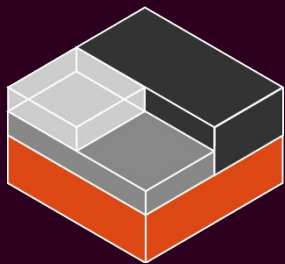
→ Same API as a single node

Clients that aren't clustering aware just see it as a very large LXD instance.

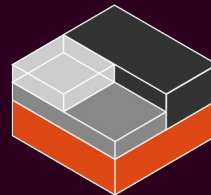
→ Scales to thousands of containers on dozens of nodes

Uses a built-in distributed database and cross-connections between the nodes to offer a consistent view to clients and load-balance containers.

Demo time!



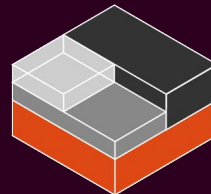
LXD: the container lighter-visor



Daily images

- Alpine
- ArchLinux
- CentOS
- Debian
- Fedora
- Gentoo
- OpenSUSE
- Oracle
- Plamo
- Sabayon
- Ubuntu

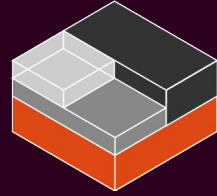
LXD: the container lighter-visor



LXD is available on

- Alpine Linux
- Arch Linux
- CentOS
- Debian
- Elementary
- Fedora
- Gentoo
- OpenSUSE
- Manjaro
- Solus
- Ubuntu

LXD: the container lighter-visor

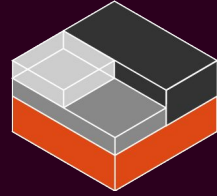


LXD itself

- Written in Go
- Fully translatable
- API client in Go and python
- Apache2 licensed
- No CLA

```
git clone https://github.com/lxc/lxd
```

LXD: the container lighter-visor



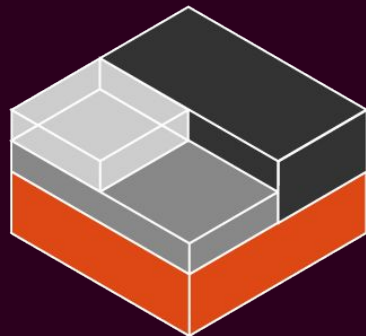
Let's recap

- Runs system containers created from images
- Safe by default (unprivileged containers)
- Similar resource control as virtual machines
- Support for device passthrough
- Extremely low overhead (typically identical to metal)
- Low level access to any devices supported by Linux
- Simple REST API with language bindings
- Clustering support
- Production ready

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<https://linuxcontainers.org/lxd>
<https://github.com/lxc/lxd>

Questions?

Now it's your turn!

