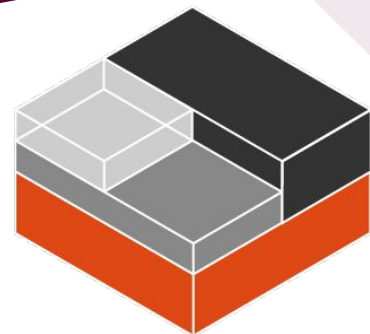


System containers at scale

An introduction to LXD clustering



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CANONICAL + ubuntu 

What are system containers?



01

They are the oldest type of containers

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

02

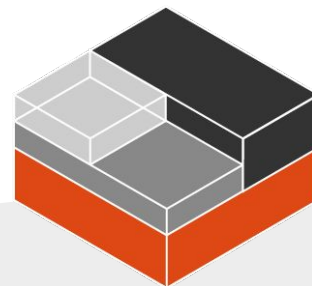
They behave like standalone systems

No need for specialized software or custom images.

03

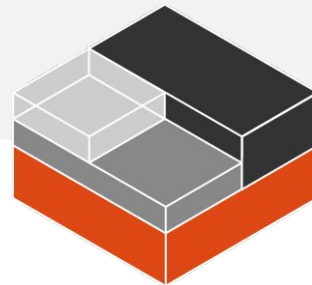
Low overhead, easy management

Thousands can be run on one system, as easy to manage as a bunch of processes.



LXD

System
container
manager



CLI

Ansible

Juju

OpenNebula

your own client?

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 ...

What LXD is



01

Simple

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

02

Fast

Image based, optimized storage & migration, direct hardware access.

03

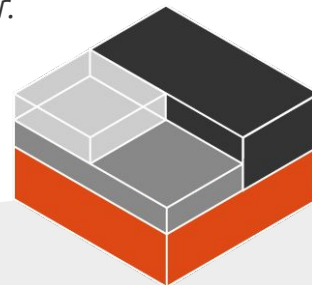
Secure

Safe by default. Combines all available kernel security features.

04

Scalable

From a single container on a laptop to tens of thousands of containers in a cluster.

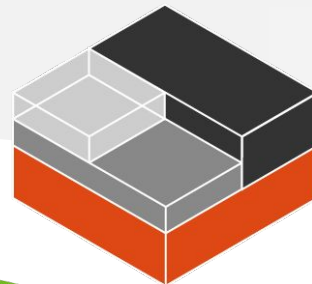


Wide
selection of
images

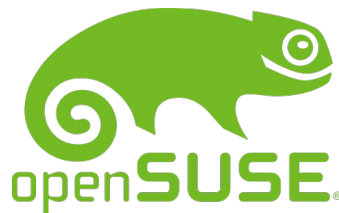
Updated daily



alpine
Linux



fedora



ubuntu



ORACLE®



CentOS



gentoo linux™



debian



Chromebooks



Installing Linux...

This process may take a few minutes. Starting the Linux container.



Cancel



Travis-CI

openssl / openssl 

[Current](#) [Branches](#) [Build History](#) [Pull Requests](#)

[More options](#)

 **Pull Request #10276** Use large enough buffer for signature in dgst.c

 #29663 failed

Chapter 21: Do not use ! to check if a pointer is NULL

 Ran for 25 min

 Commit 529905f 

 Total time 2 hrs 7 min 42 sec

 #10276: Use large enough buffer for signature in dgst.c 
























































 about 3 hours ago

 Branch master 

 nblika

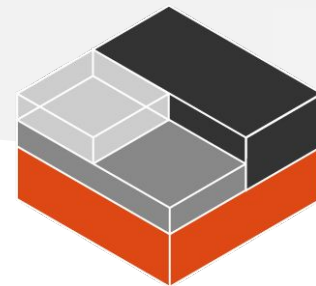
[Build jobs](#)

[View config](#)

	# 29663.1			</> Compiler: gcc Xcode: xcode9.3 C	 CONFIG_OPTS="" DESTDIR="_install"	 5 min 30 sec
	# 29663.2			</> Compiler: gcc Xcode: xcode9.3 C	 CONFIG_OPTS="no-asm -Werror --debug no-afalgeng no-shared enable-crypto-mdebug"	 19 min 29 sec
	# 29663.3			</> Compiler: gcc Xcode: xcode9.3 C	 CONFIG_OPTS="no-asm no-makedepend enable-buildtest-c++ --strict-warnings -D_DEFINES"	 2 min 18 sec
	# 29663.4			</> Compiler: clang Xcode: xcode9.3 C	 CONFIG_OPTS="" DESTDIR="_install"	 15 min 15 sec
	# 29663.5			</> Compiler: clang Xcode: xcode9.3 C	 CONFIG_OPTS="no-asm -Werror --debug no-afalgeng no-shared enable-crypto-mdebug"	 24 min
	# 29663.6			</> Compiler: clang Xcode: xcode9.3 C	 CONFIG_OPTS="no-asm no-makedepend enable-buildtest-c++ --strict-warnings -D_DEFINES"	 7 min 34 sec
	# 29663.7			</> Compiler: gcc Xcode: xcode9.3 C	 CONFIG_OPTS="--strict-warnings"	 20 min 1 sec
	# 29663.8			</> Compiler: clang Xcode: xcode9.3 C	 CONFIG_OPTS="--strict-warnings -D__NO_STRING_INLINES"	 9 min 10 sec
	# 29663.9			</> Compiler: gcc Xcode: xcode9.3 C	 CONFIG_OPTS="--strict-warnings" COMMENT="Move to the BORINGTEST build when in"	 4 min 34 sec
	# 29663.10			</> Compiler: clang Xcode: xcode9.3 C	 CONFIG_OPTS="--strict-warnings -D__NO_STRING_INLINES no-deprecated"	 1 min 34 sec
	# 29663.11			</> Compiler: clang Xcode: xcode9.3 C	 CONFIG_OPTS="--strict-warnings -D__NO_STRING_INLINES no-deprecated" BUILDONL	 1 min 50 sec
	# 29663.12			</> Compiler: i686-w64-mingw32-gcc Xcode: xcode9.3 C	CONFIG_OPTS="no-stdio" BUILDONLY="yes"	6 min 29 sec

LXD

Main components



Certificates

Cluster

Events

Images

Aliases

Instances

Snapshots

Backups

Networks

Operations

Projects

Storage pools

Storage volumes

Snapshots

LXD clustering



01

Built-in clustering support

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

02

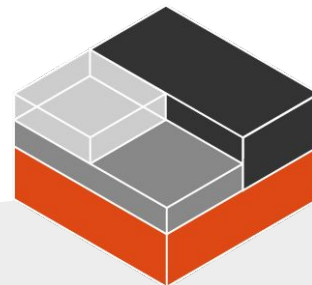
Same API as a single node

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

03

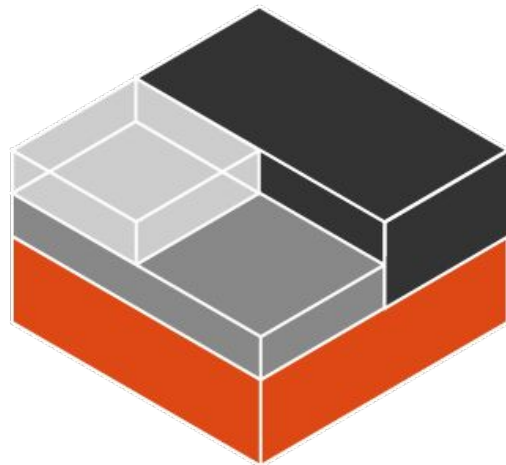
Scales to thousands of containers on dozens of nodes

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 everywhere



Linux

snap install lxd

requires snapd on a supported Linux distribution

Native packages

available for some releases on Alpine, ArchLinux, Fedora, Gentoo, OpenSUSE and Ubuntu

On your Chromebook

Search for "Terminal" in your app launcher

MacOS

brew install lxc

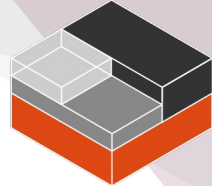
requires Homebrew on current MacOS

Windows

choco install lxc

requires Chccolatey on current Windows 10

Contributing to LXD



01

Written in Go

With low level logic in C through a variety of libraries.

02

Fully translatable client

An easy way to contribute to LXD, translate our CLI in your language!

03

API client libraries

Official ones for Go and Python
Additional ones in Ruby, Node, Java, Haskell, ...

04

Apache2 licensed

Re-use and improve any of our Go packages in your own projects.

05

No copyright assignment

Easy contributions, no legal paperwork, just send a pull request.

06

Online user community

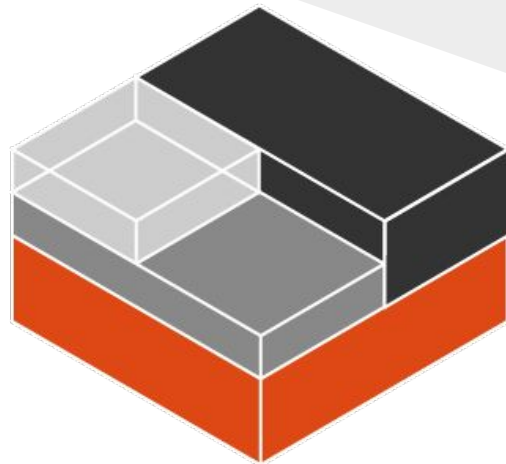
Very active discussion forum with active experts in container networking, security and more.

git clone <https://github.com/lxc/lxd>



Questions ?

Website: <https://linuxcontainers.org/lxd>
Code: <https://github.com/lxc/lxd>
Online demo: <https://linuxcontainers.org/lxd/try-it>



We have stickers, come
get them in front!

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