LXD - The container lighter-visor

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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 host in a datacenter.*
LXD: the container lighter-visor

What it IS

nova-lxd command line tool your own client/script?

LXD REST API

LXD LXC Linux kernel

Host A Host B Host C Host D Host ...
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.*
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LXD in the Enterprise

- Integrates with Ubuntu OpenStack
- Easy to interface/interact with
- Perfect for idle workloads
- Direct hardware access
- Negligible overhead
- Fine grained resource limits
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Checkpoint/restore (with CRIU)

→ Container live-migration
  Transfer running state as well as the container filesystem

→ Stateful snapshots
  Store the container state as part of a snapshot, allows for rollback of container state.

→ Stateful stop/start
  Stop the container right after storing its state, effectively suspend-to-disk for containers.
Demo time
LXD: the container hypervisor

Let’s recap

➔ Simple but powerful REST API to manage infrastructure containers
➔ Image based
➔ Trustable containers
➔ Scalable
➔ Designed with developers and enterprise in mind
LXD: the container hypervisor

Contributing

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

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

Try it yourself at: https://linuxcontainers.org/lxd/try-it
LXD 2.0 tutorial available at: https://www.stgraber.org