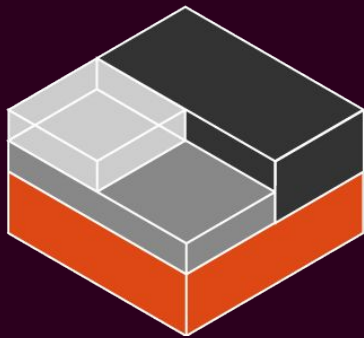


A year of LXD development

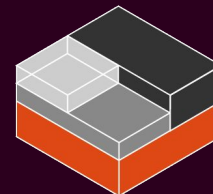


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LXD: A year of development



What it **IS**

→ Simple

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

→ Fast

No virtualization overhead so as fast as bare metal.

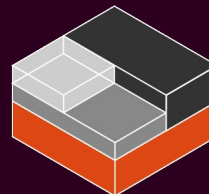
→ Secure

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: A year of development



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.

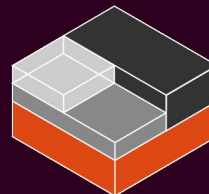
→ A fork of LXC

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.

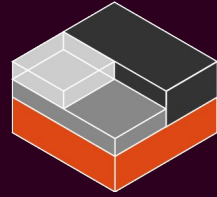
LXD: A year of development



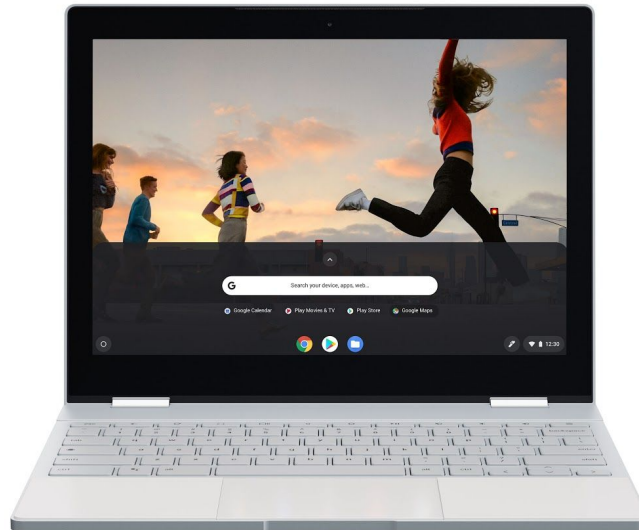
Some highlights

- Second LTS release
- 10 feature releases
- 3 bugfixes releases

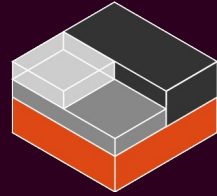
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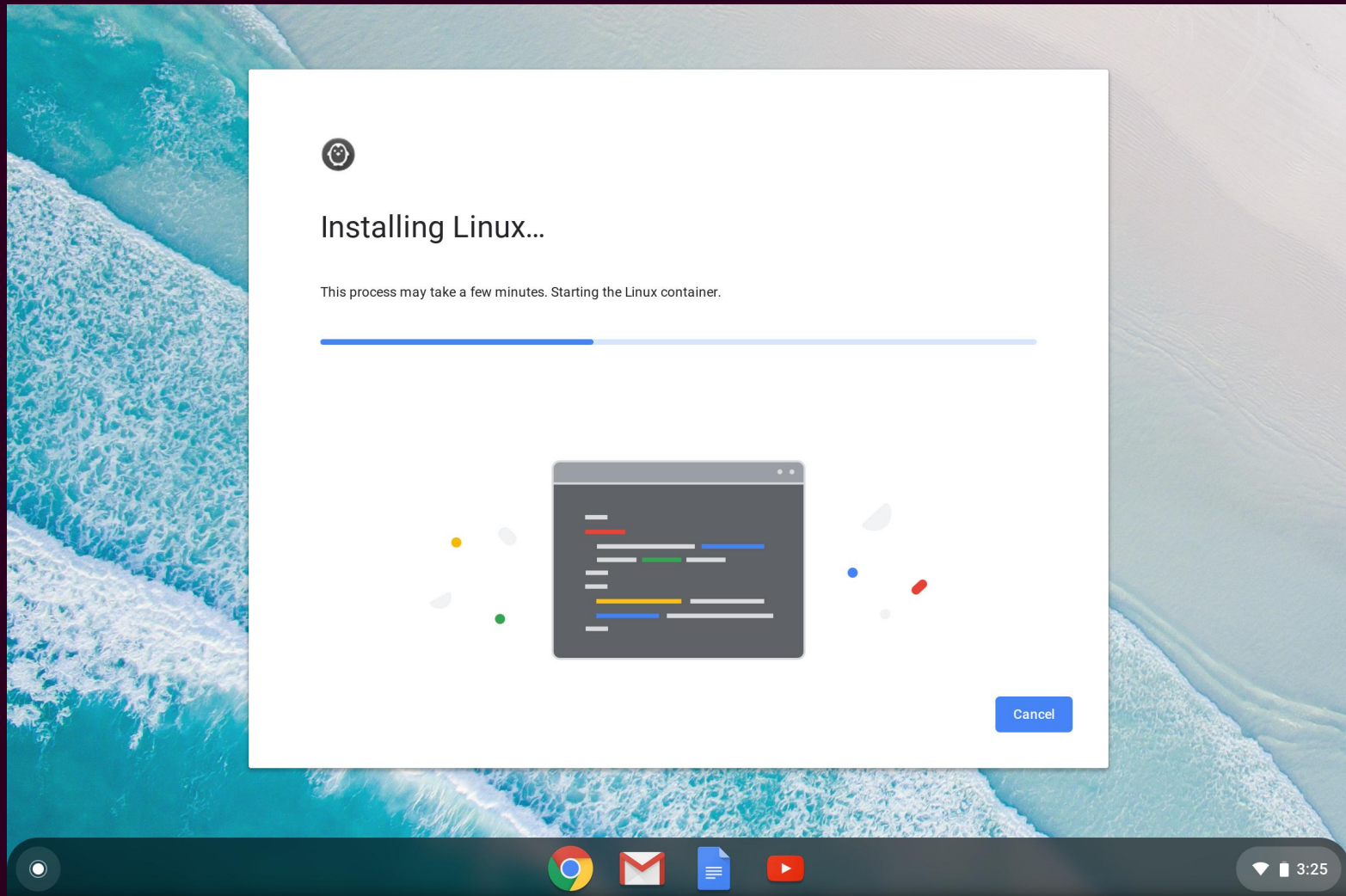
Some highlights



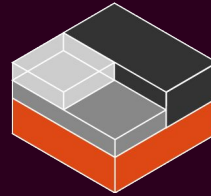
LXD: A year of development



Some highlights



LXD: A year of development



Some highlights

```
chronos@localhost:~ x +
Terminal | chrome-extension://nkoccljplnhpfnfajclkommmmlphnl/html/crosh.html
Welcome to crosh, the Chrome OS developer shell.

If you got here by mistake, don't panic! Just close this tab and carry on.

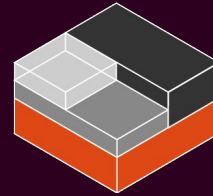
Type 'help' for a list of commands.

If you want to customize the look/behavior, you can use the options page.
Load it by using the Ctrl+Shift+P keyboard shortcut.

crosh> vmc start termina
(termina) chronos@localhost ~ $ lxc list
To start your first container, try: lxc launch ubuntu:18.04

+-----+-----+-----+-----+-----+-----+
| NAME   | STATE | IPV4      | IPV6 | TYPE   | SNAPSHOTS |
+-----+-----+-----+-----+-----+-----+
| penguin | RUNNING | 100.115.92.199 (eth0) |  | PERSISTENT | 0          |
+-----+-----+-----+-----+-----+-----+
(termina) chronos@localhost ~ $
```

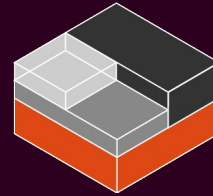
LXD: A year of development



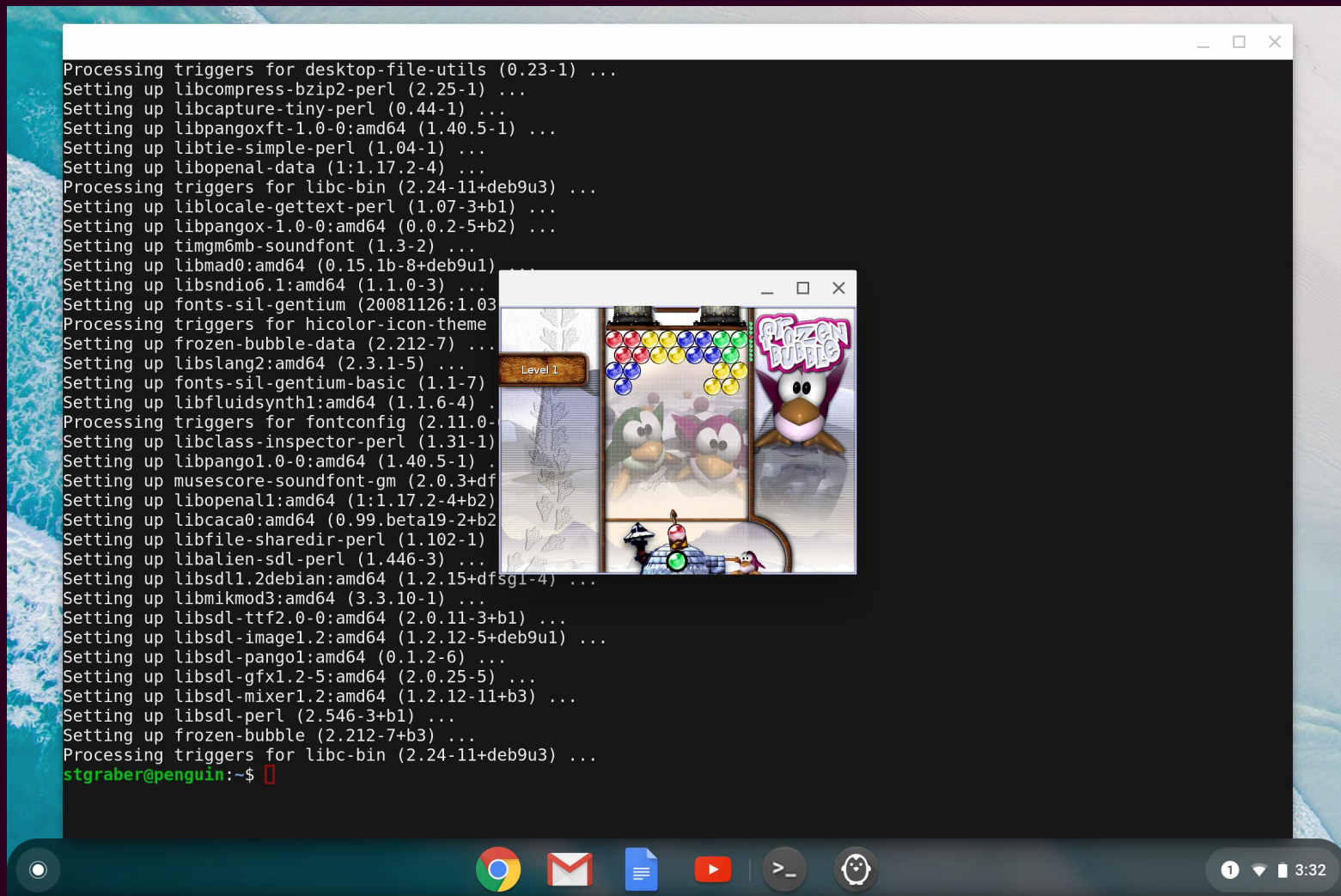
Some highlights

```
root@c1: ~  
Terminal | chrome-extension://nkoccljplnhpfnfiajclkommmmlphnl/html/crosh.html  
If you got here by mistake, don't panic! Just close this tab and carry on.  
Type 'help' for a list of commands.  
If you want to customize the look/behavior, you can use the options page.  
Load it by using the Ctrl+Shift+P keyboard shortcut.  
  
crosh> vmc start termina  
(termina) chronos@localhost ~ $ lxc list  
+-----+-----+-----+-----+-----+-----+  
| NAME | STATE | IPV4 | IPV6 | TYPE | SNAPSHOTS |  
+-----+-----+-----+-----+-----+-----+  
| penguin | RUNNING | 100.115.92.199 (eth0) | | PERSISTENT | 0 |  
+-----+-----+-----+-----+-----+-----+  
(termina) chronos@localhost ~ $ lxc launch ubuntu:18.04 c1  
Creating c1  
Starting c1  
(termina) chronos@localhost ~ $ lxc launch images:centos/7 c2  
Creating c2  
Starting c2  
(termina) chronos@localhost ~ $ lxc launch images:alpine/edge c3  
Creating c3  
Starting c3  
(termina) chronos@localhost ~ $ lxc list  
+-----+-----+-----+-----+-----+-----+  
| NAME | STATE | IPV4 | IPV6 | TYPE | SNAPSHOTS |  
+-----+-----+-----+-----+-----+-----+  
| c1 | RUNNING | 100.115.92.200 (eth0) | | PERSISTENT | 0 |  
+-----+-----+-----+-----+-----+-----+  
| c2 | RUNNING | 100.115.92.201 (eth0) | | PERSISTENT | 0 |  
+-----+-----+-----+-----+-----+-----+  
| c3 | RUNNING | 100.115.92.202 (eth0) | | PERSISTENT | 0 |  
+-----+-----+-----+-----+-----+-----+  
| penguin | RUNNING | 100.115.92.199 (eth0) | | PERSISTENT | 0 |  
+-----+-----+-----+-----+-----+-----+  
(termina) chronos@localhost ~ $ lxc exec c1 bash  
root@c1:~#
```

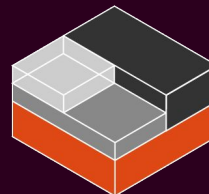
LXD: A year of development



Some highlights



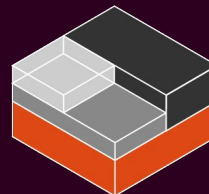
LXD: A year of development



LXD 3.0 LTS

- Clustering support
- LXD-P2C
- NVIDIA runtime integration
- Hotplug of UNIX char/block devices
- Local and remote migration of storage volumes
- Proxy device
- Event API through `/dev/lxd`

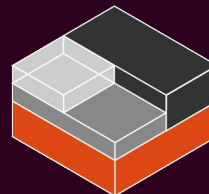
LXD: A year of development



LXD 3.1

- Backup support
- Automatic FAN networking for clusters

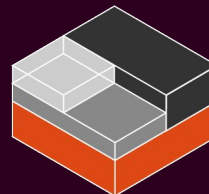
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LXD 3.2

- Container migration between storage pools
- Unix, UDP and port ranges support for proxy
- Single query cluster join API

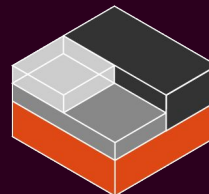
LXD: A year of development



LXD 3.3

- Image sharing with nested containers
- New implementation of lxc-to-lxd
- API to query host networking details
- Container deletion protection
- HAProxy protocol in proxy device
- uid/gid/mode control for UNIX in proxy device
- Built-in debugging/profiling API

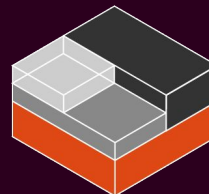
LXD: A year of development



LXD 3.4

- Shared DNS on FAN bridges in cluster
- API bulk queries for containers
- File capabilities support

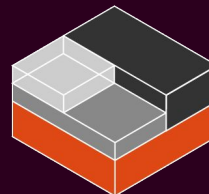
LXD: A year of development



LXD 3.5

- Improved Candid support
- Synchronised cluster upgrades

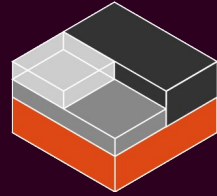
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LXD 3.6

- Projects
- Snapshot for custom storage volumes
- Extended support for NVIDIA runtime
- Minimal CGroupV2 support
- Supported for encrypted certificates
- Uevent injection for USB devices
- Optimized network info retrieval

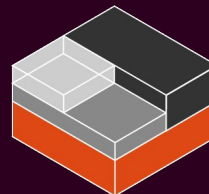
LXD: A year of development



LXD 3.7

- Incremental container copies (refresh)
- Switched to EC keys
- Extra exec metadata

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LXD 3.8

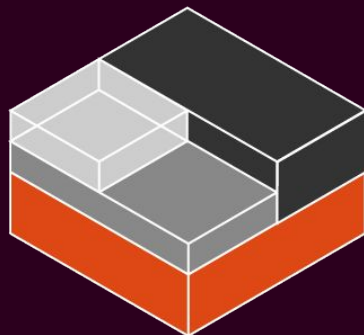
- Automated container snapshots
- Copy/move between projects
- Cluster image replication
- Seperate cluster address
- Shift protection
- Improved USB passthrough
- Improved migration negotiation (ZFS compression)

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



Questions?

Try LXD at: <https://linuxcontainers.org/lxd/try-it>
Stickers are available in front!