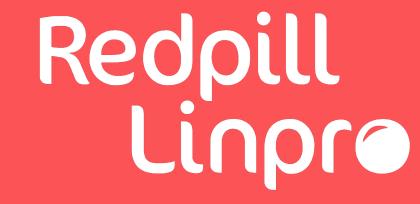


Emerging container technologies

Talos Linux

one (immutable) OS to rule them all

Pip Oomen Platform engineer Kubestronaut



What is Talos Linux?

Talos is built for running Kubernetes

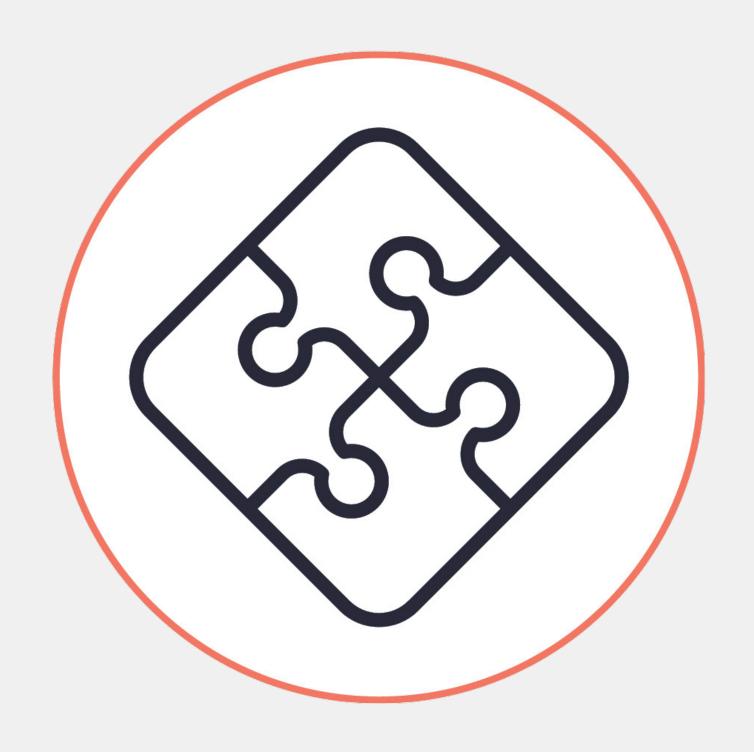
- Minimal
- Immutable
- Secure
- gRPC API w/mTLS





Designed for Kubernetes

- Do one thing, and do it very, very well
- There is only the cluster
- Self-healing
- Replace misbehaving parts
- Noflake (né cattle) computing FTW







Not based on X distro

- Not Yet Another Linux Distribution (YALD)
- 2nd generation container optimised OS
- Userspace rewrite from scratch in GoLang
- Published as a signed and versioned image
- machined replaces systemd (PID 1)

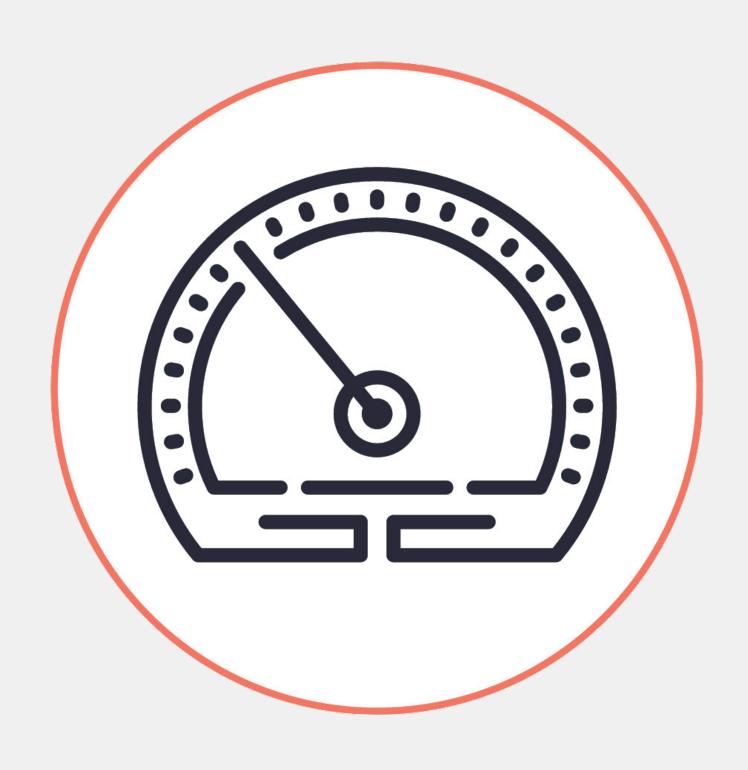






Minimal

- Built from scratch
- No shell
- No SSH
- No GNU utilities
- Only 80MB, 12 executables (as of v1.7.0)!







Immutable

- Runs from SquashFS
- Image delivery through single and versioned files
- Reproducible builds
- Highly controlled write points







Secure

- Signed images
- No passwords
- Encrypted and authenticated networking
- Short lived certificates
- Enforced Kubernetes PKI

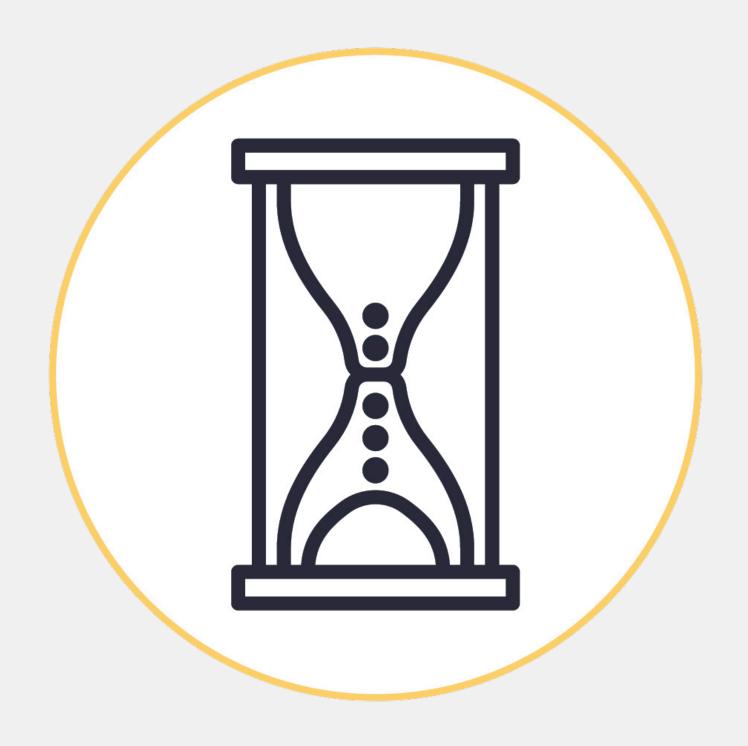






Ephemeral

- Read only
- Replicated
- Reconstructable

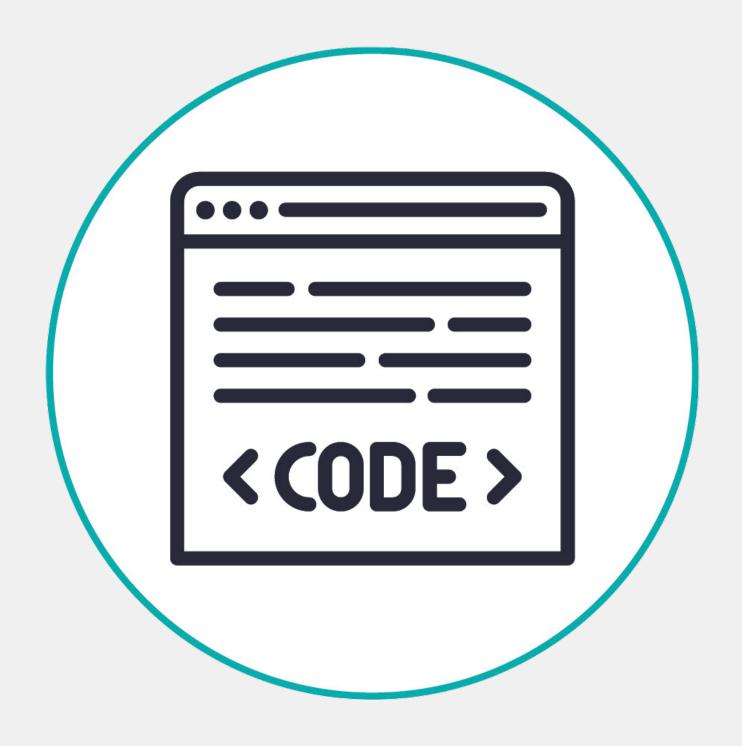






Declarative

- No scripting
- No procedural steps
- No imperative configuration







Distributed

- High available dataplane
- Ad-hoc etcd cluster (w/o sacrificing security)
- Workloads intended to be distributed
- Preventing SPoFs







Where to run Talos Linux?

- Bare metal
- Virtualised
- Cloud
- Local
- Single board





Demo

Creating clusters

- Cloud cluster on OpenStack
- Local cluster on Podman







Configuration

```
% talosctl gen secrets
% talosctl gen config openstack \
> https://k8s.talos.rlnc.eu:6443 --with-secrets secrets.yaml
% ls -1 *.yaml
controlplane.yaml
secrets.yaml
worker.yaml
```



Virtual machines

```
% openstack server create controlplane-0 \
> --flavor gXcd.small --image talos-1.6.6 --user-data controlplane.yaml
% openstack server create worker-0 \
> --flavor gXcd.small --image talos-1.6.6 --user-data worker.yaml
```

