

Computing on the edge

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6.8.2023 @ FrOSCon

cat /etc/motd

- Einführung
- Recap: Android, Container, k8s
- Projektumgebung
- Beispielapplikation
- Demo
- Zusammenfassung & Ausblick
- Q & A

whoami

- Promotion über reflektive Betriebssysteme
- Linux: seit Kernel 0.95
- Tech Support + mehr @ FraLUG
- Podcaster
- Hobbies u.a.:
 - SDLC
 - IT Sicherheit und andere schwarze Kunst
 - Anderer Leute Computer
 - Beratung

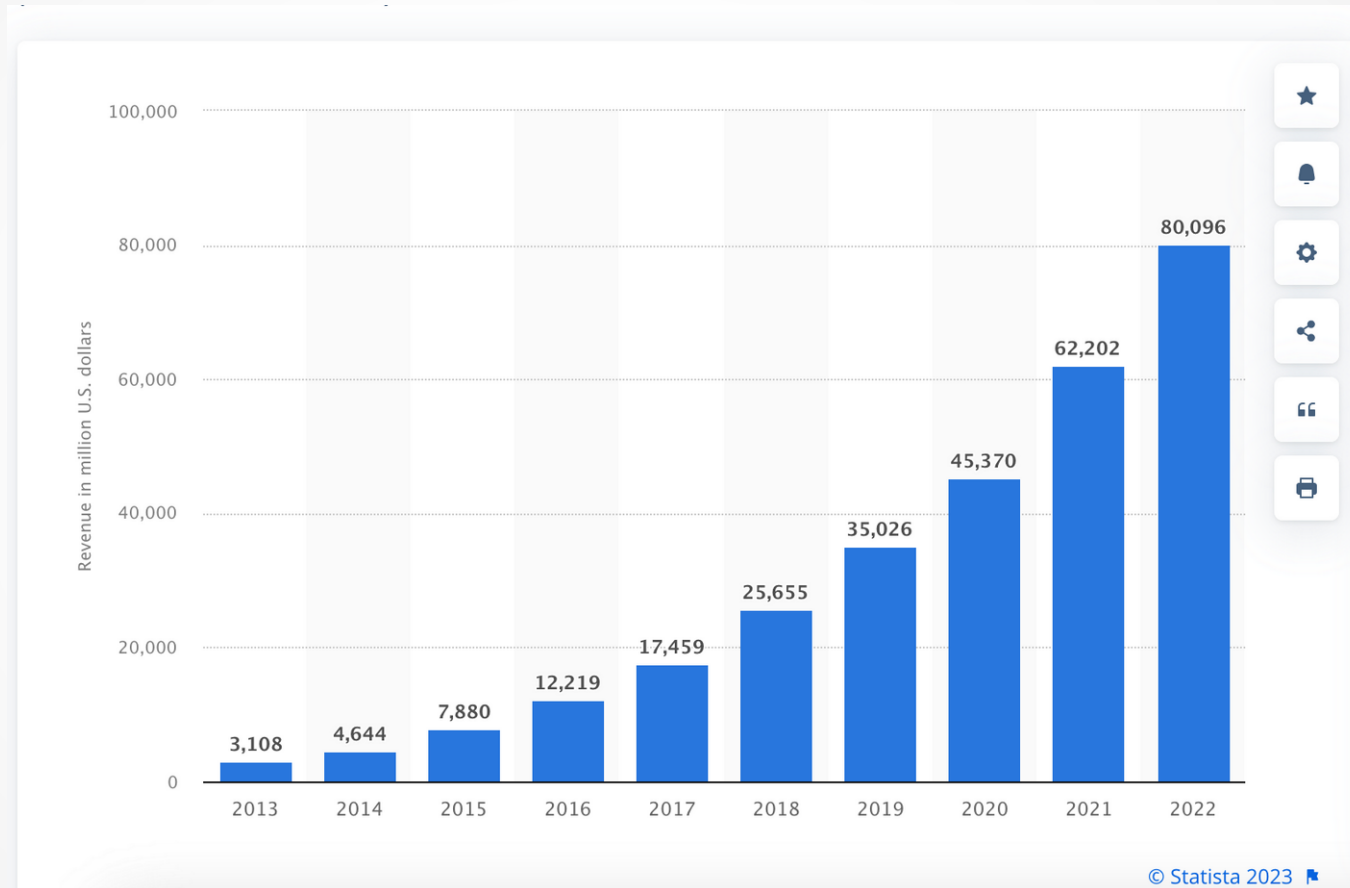


linuxinlaws.eu

man why (ff.)

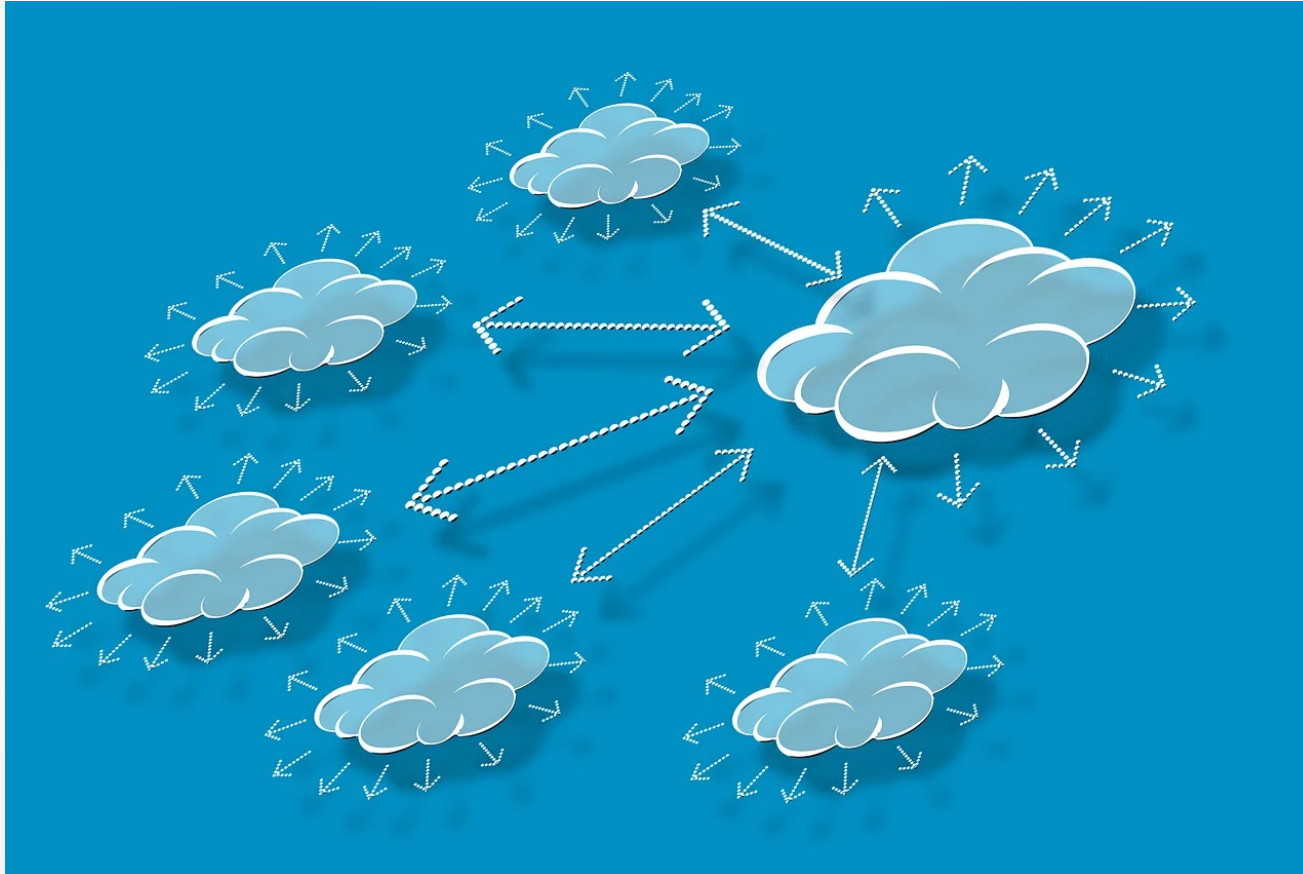


Jährlicher AWS-Umsatz 2013-2022 (in MUSD)



Quelle: <https://www.statista.com/statistics/233725/development-of-amazon-web-services-revenue/>

Fog / Mist Computing



cat k8s android



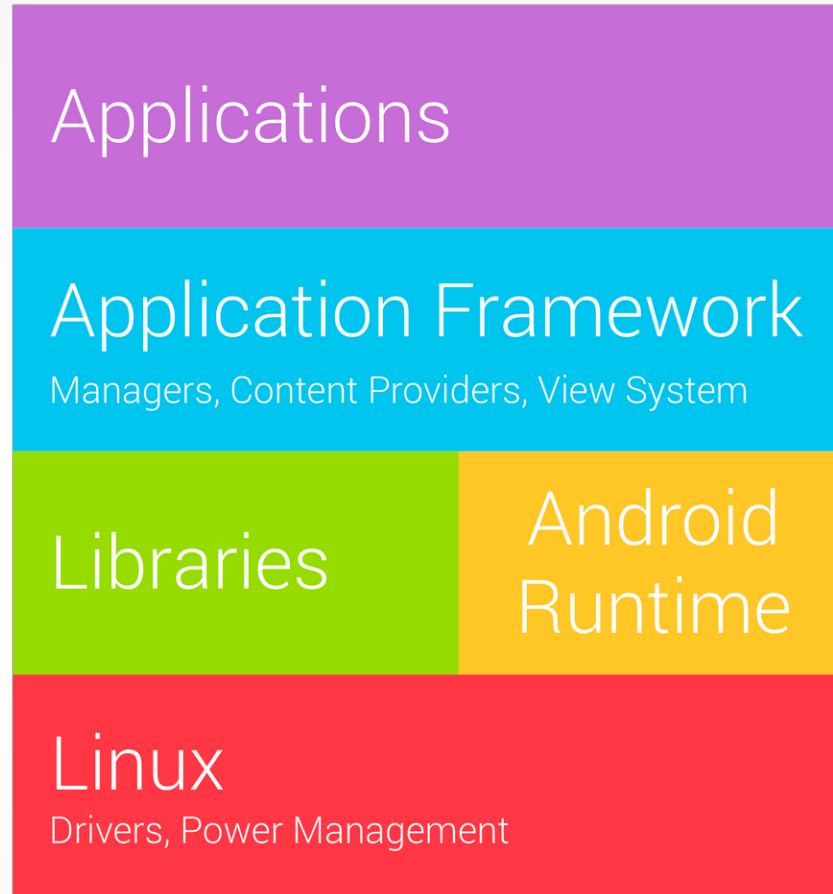
+



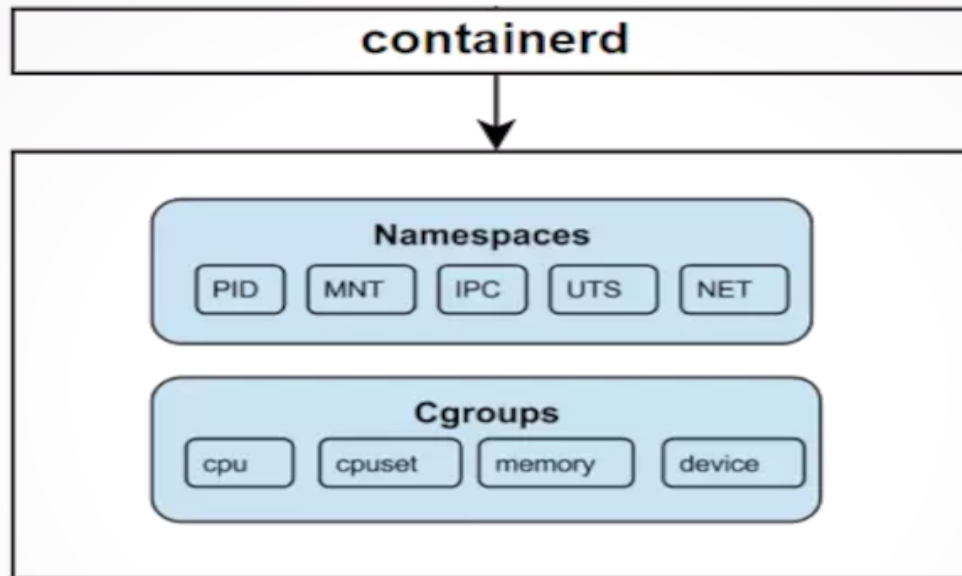
cat .android_history

- 2003: Gründung (A. Rubin, R. Miner, N. Sears, C. White)
- 2005: Akquisition durch Google
- 2008: HTC Dream
- 2013: A. Rubin => S. Pichai
- 2019: Android Q(10) != Nachtisch
- 2019: Java => Kotlin
- 2023: Container, k8s & Android :-)

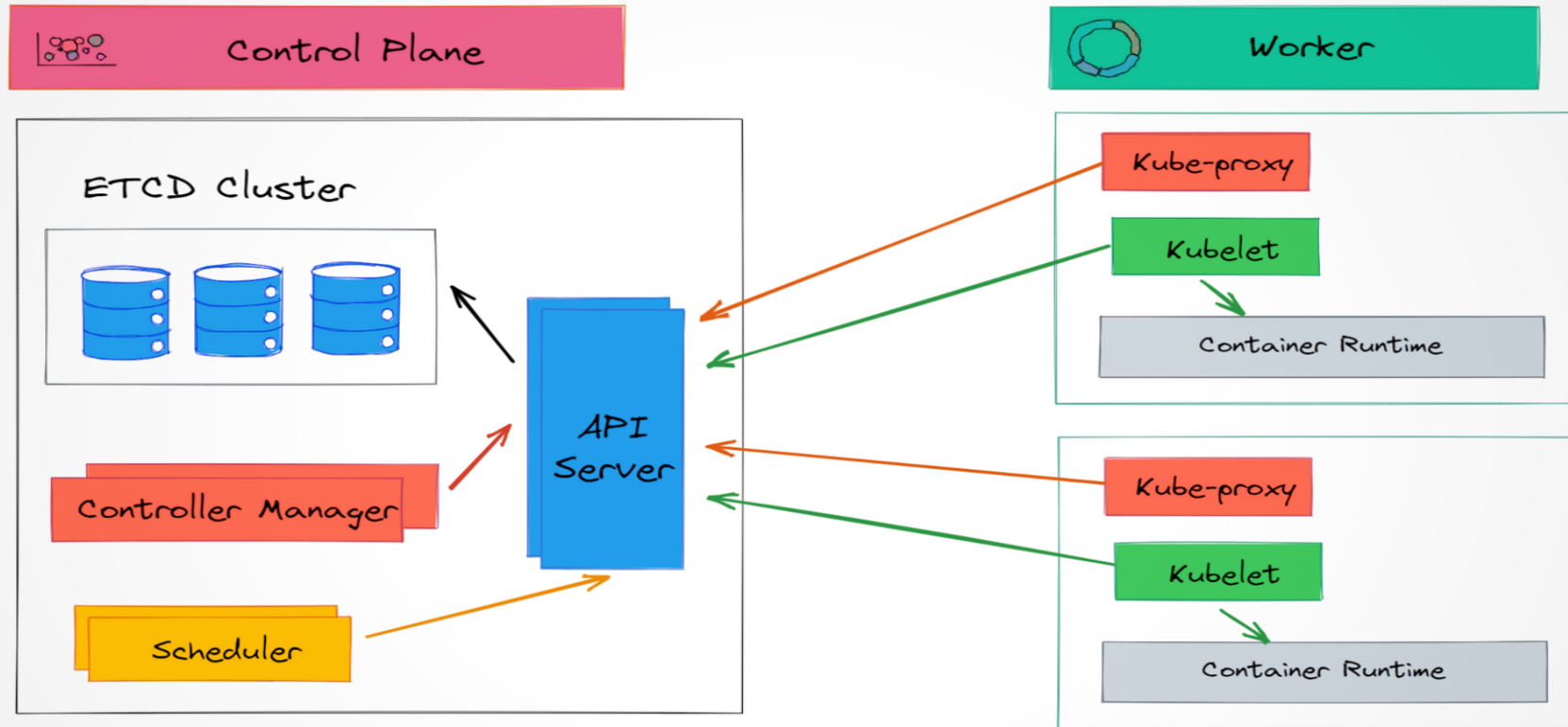
man android



man containerd



man k8s



zcat /proc/conf.gz

- Kernel-Konfiguration:

```
CONFIG_CGROUPS=y
```

```
# CONFIG_CGROUP_DEBUG is not set
```

```
CONFIG_CGROUP_FREEZER=y
```

```
# CONFIG_CGROUP_PIDS is not set
```

```
# CONFIG_CGROUP_DEVICE is not set
```

```
CONFIG_CGROUP_CPUACCT=y
```

```
CONFIG_CGROUP_SCHEDTUNE=y
```

```
# CONFIG_CGROUP_PERF is not set
```

```
CONFIG_CGROUP_SCHED=y
```

```
CONFIG_BLK_CGROUP=y
```

```
# CONFIG_DEBUG_BLK_CGROUP is not set
```

```
CONFIG_CGROUP_BPF=y
```

```
CONFIG_CGROUP_WRITEBACK=y
```

```
CONFIG SOCK_CGROUP_DATA=y
```

```
# CONFIG_NETFILTER_XT_MATCH_CGROUP is not set
```

```
# CONFIG_NET_CLS_CGROUP is not set
```

```
# CONFIG_CGROUP_NET_PRIO is not set
```

```
# CONFIG_CGROUP_NET_CLASSID is not set
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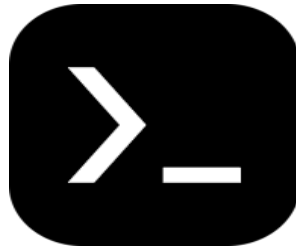
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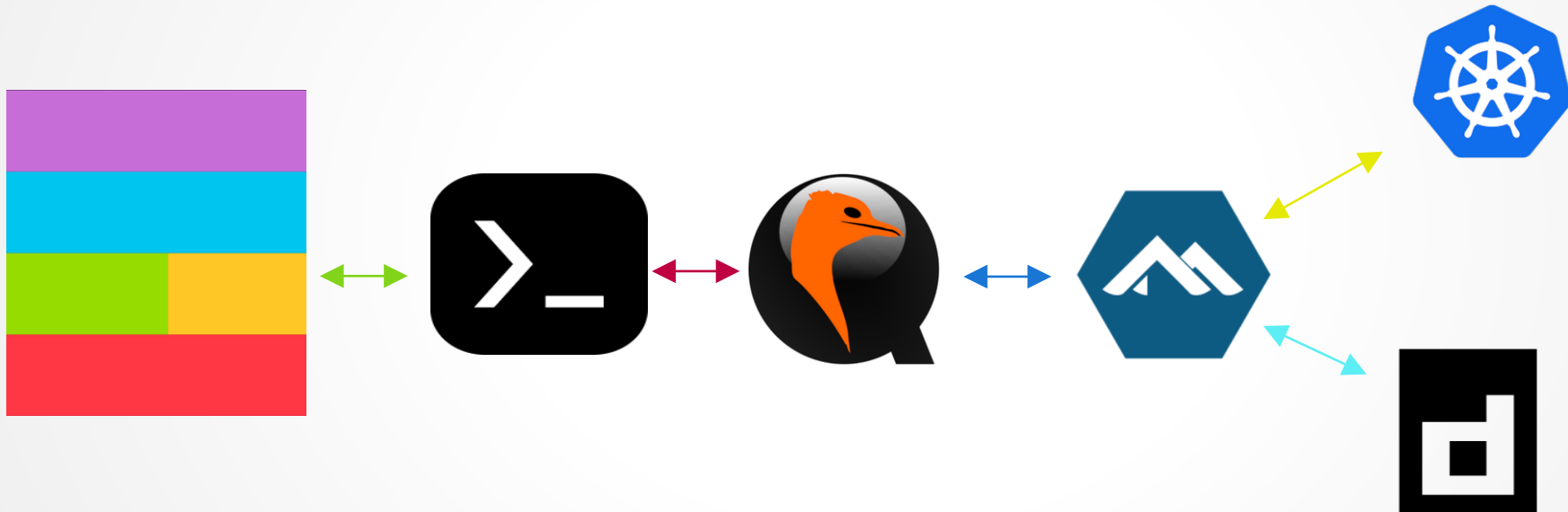
```
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```





`https://termux.dev`

cat /proc/cpuinfo



cat /usr/share/ingredients (ff.)

- Neuere Android (≥ 11.0)
- Quad-/Octa-Core aarch64 (z. B. neuere Snapdragons)
- ≥ 4 GB Hauptspeicher
- ≥ 4 GB freier Flash o.ä.
- Linux/BSD Host

cat requirements.txt

- Web Server Setup: [openSUSE Conference 2023](#)
- Installation & Konfiguration: [Tübix 2023](#)
- Einrichten von lokalem Image Registry
- adb Port / k8s proxy/port Konfiguration

cat requirements.txt



https://github.com/monochromec/k8s_android

cat /etc/issue

- Alpine:
 - musl vs. glibc
 - Installation: DNS-Auflösung (s. Tübix-Vortrag)
- Image Registry: adb Reverse Forward + Alpine-GW in /etc/hosts
- Minimale k3s-Installation (kein Traefik, etc.)

md5sum

- k8s zum Mitnehmen auf Standard-HW
- VM vs. Geschwindigkeit
- ~~#~~
- Status: Experimentell / Work in Progress
- Todo:
 - Custom Kernel mit vollständiger Container-Unterstützung?
 - Cluster mit mehreren Android-Geräten
 - Hybride k8s-Cluster (shipper/admiralty?)

cat /usr/share/doc/etc.txt

- https://github.com/monochromec/k8s_android
- Termux: <https://termux.dev>
- k3s: <https://docs.k3s.io>
- Alpine:
<https://docs.alpinelinux.org/user-handbook/0.1a/index.html>
- Shipper: <https://github.com/bookingcom/shipper>
- Admiralty: <https://github.com/admiraltyio/admiralty>
- Ursprüngliche Inspiration:
<https://gist.github.com/FreddieOliveira/efe850df7ff3951cb62d74bd770dce27>

F & A

Danke!

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