

Reverse Proxies & Docker Swarm

LINUX DAYS VILLACH

Florian Kleber

17. Mai 2019

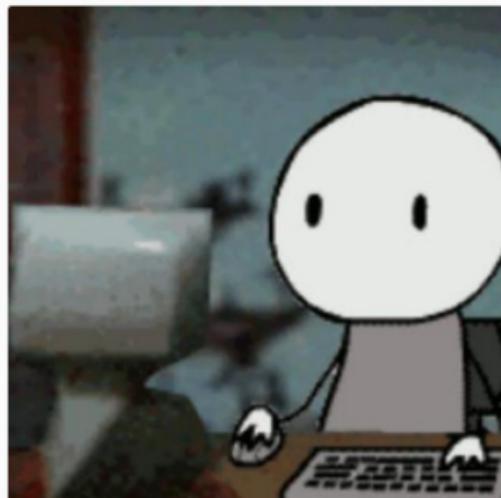
Höhere technische Bundeslehr- und Versuchsanstalt Villach



- 1** about_{me}
- 2** Motivation
 - Warum Docker?
 - Warum Reverse Proxies?
 - Warum Docker Swarm?
 - Warum Cloudflare?
- 3** Optionen
 - nginx
 - envoy
 - traefik
- 4** Beispiel
 - Theorie
 - Praxis
- 5** Résumé



about_me



having fun w/ latex xD

Florian Kleber
kleberbaum

Follow

Qualifikation:

- htl J1
- htl J2
- htl J3
- htl J4

Interessen:

- Full Stack Developement
- github
- Linux
- systemd
- DnD

Motivation



Tools:

- Warum Docker?
- Warum Reverse Proxies?
- Warum Docker Swarm?
- Warum Cloudflare?

Abb. 1: Quelle: GitHub, 2016

github.com/linux-days-villach

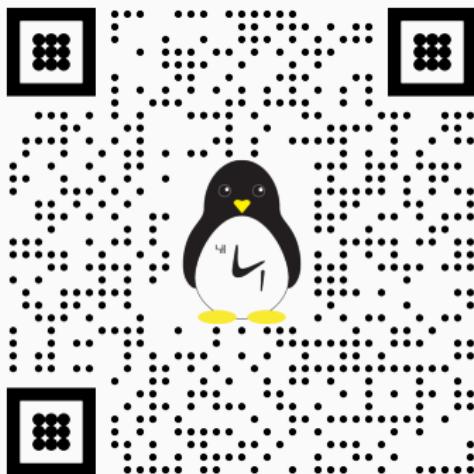


Abb. 2:

Quelle:

QRCode Monkey, Air Quality Monitoring Station, 2018



Abb. 3: Anwendungsstacks mit Docker Compose

Quelle: Medieval and Renaissance Maps von Chet Van Duzer



Tools:

- Warum Docker?
- **Warum Reverse Proxies?**
- Warum Docker Swarm?
- Warum Cloudflare?

Abb. 4: Quelle: GitHub, 2016

github.com/linux-days-villach

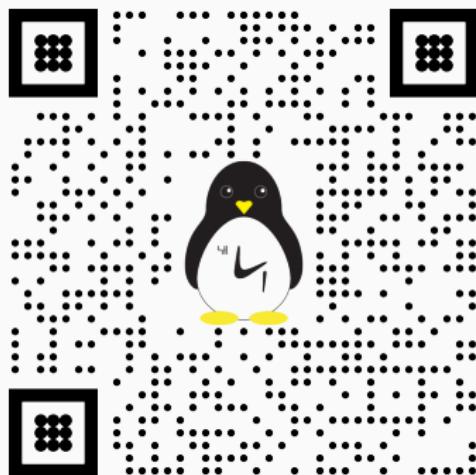


Abb. 5:

Quelle:

QRCode Monkey, Air Quality Monitoring Station, 2018



Abb. 6: Anwendungsstacks mit Docker Compose

Quelle: Medieval and Renaissance Maps von Chet Van Duzer



Tools:

- Warum Docker?
- Warum Reverse Proxies?
- **Warum Docker Swarm?**
- Warum Cloudflare?

Abb. 7: Quelle: GitHub, 2016

github.com/linux-days-villach

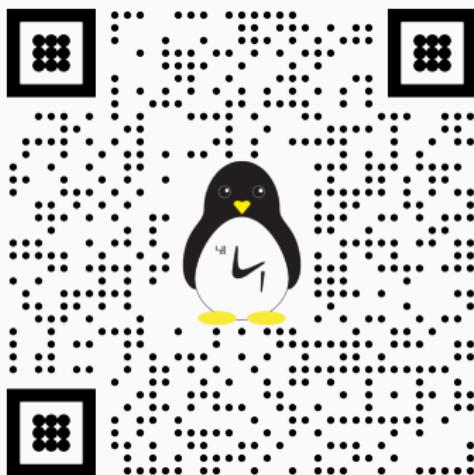


Abb. 8:

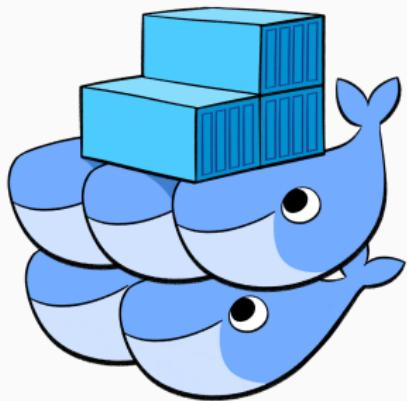
Quelle:

QRCode Monkey, Air Quality Monitoring Station, 2018



Abb. 9:

Erwartete Funktionsweise von Docker Swarm



Quelle:

<https://rominirani.com/docker-swarm-tutorial-b67470cf8872>

Warum nicht k8s?

- Kosten?
- Zielgruppe?
- Wartungsaufwand?
- Verfügbarkeit 99ish%
- Lohnt sich ein 3Node k8s?
- Warum nicht AWS?

Docker Compose?

- Failover?
- Webinterface?
- Monitoring?
- Know-how?



Cool Faktor

- Günstig
- Einfach
- Schnell
- Skalierbar

Wozu?

- CI/CD
- Load Balancing

Wo?

- Development

Vereinfachte Funktionsweise von Docker Swarm

Abb. 10: Quelle:

<https://github.com/NBISweden/LocalEGA-deploy-swarm>



Tools:

- Warum Docker?
- Warum Reverse Proxies?
- Warum Docker Swarm?
- Warum Cloudflare?

Abb. 11: s Quelle: GitHub, 2016

github.com/linux-days-villach



Abb. 12:

Quelle:

QRCode Monkey, Air Quality Monitoring Station, 2018



Cloudflare-Preise

Jede Internetanwendung kann von Cloudflare profitieren.
Suchen Sie sich einen Plan aus, der Ihre Wünsche erfüllt.

Kostenlos	Pro	Business	Enterprise
\$0/Monat	\$20/Monat pro Domäne	\$200/Monat pro Domäne	Kontakt aufnehmen
Für persönliche Websites, Blogs und jeden Benutzer, der Cloudflare testen möchte.	Für professionelle Websites, Blogs und Portfolios, die grundlegende Sicherheit und Performance benötigen.	Für kleine E-Commerce-Websites und -Unternehmen, die erweiterte Sicherheit und Performance, PCI-Compliance und Prioritäts-Support per E-Mail benötigen.	Für Unternehmen, die Sicherheit und Performance der Unternehmensklasse, vorrangigen Rund-um-die-Uhr-Support per Telefon, E-Mail oder Chat und garantierte Betriebszeit benötigen.
Mehr dazu > WEBSITE HINZUFÜGEN	Mehr dazu > PRO ERWERBEN	Mehr dazu > BUSINESS ERWERBEN	Mehr dazu > KONTAKT AUFNEHMEN

Abb. 13: Cloudflare-Preise

Quelle: <https://www.cloudflare.com/plans/>

Optionen

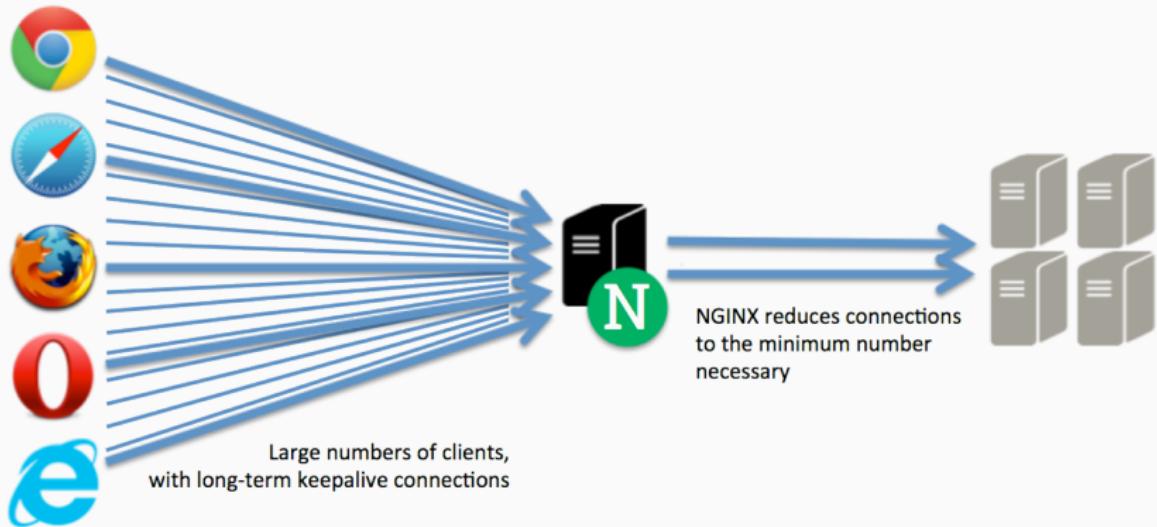


Abb. 14: Nginx Reverse Proxies

Quelle: <https://www.nginx.com/blog/load-balancing-with-nginx-plus-part2/>



USED BY

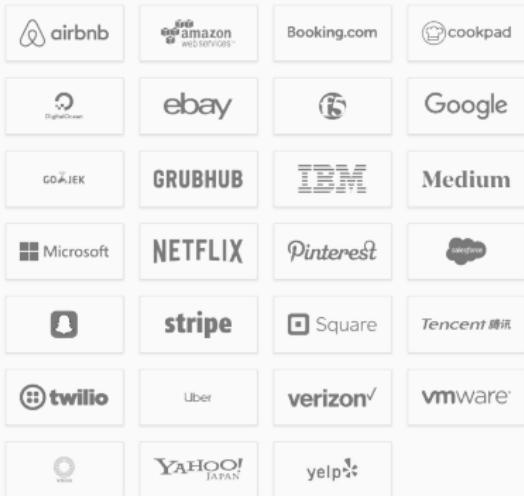


Abb. 15: Envoy Portfolio

Quelle: <https://www.envoyproxy.io/>

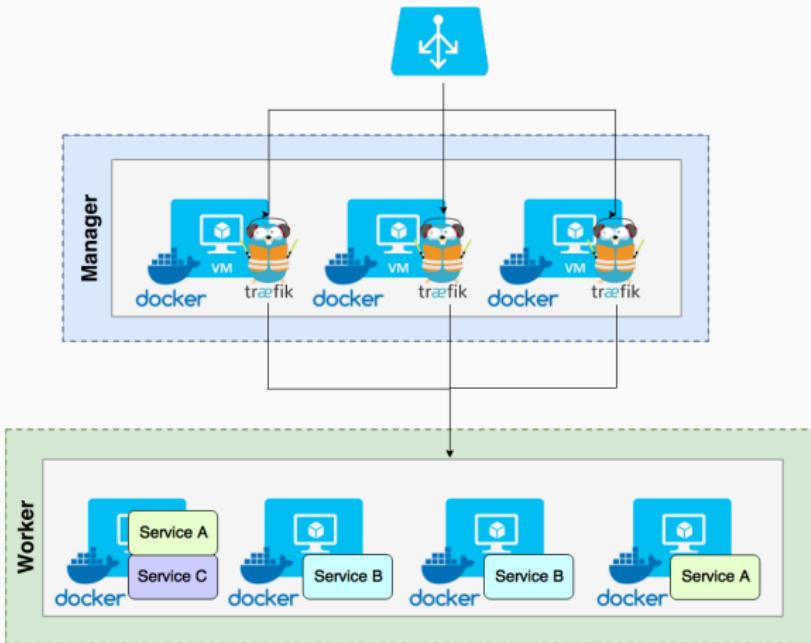


Abb. 16: traefik Reverse Proxies

Quelle: <https://jmaitrehenry.ca/2017/12/15/using-traefik-with-docker-swarm-and-consul-as-your-load-balancer/>

Beispiel

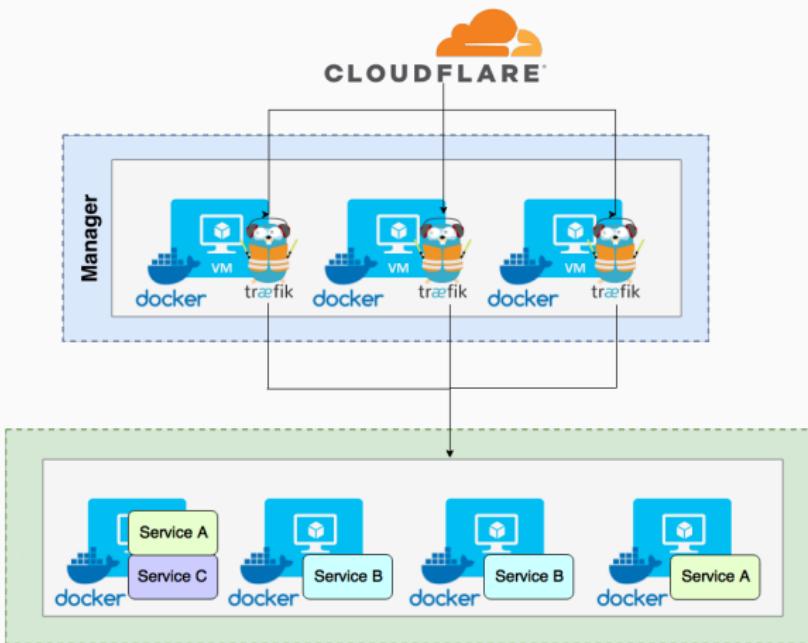


Abb. 17: HA traefik Beispiel

Quelle: <https://serverfault.com/questions/919349/how-to-setup-traefik-for-ha-need-a-reverse-proxy-in-front-of-traefik>



Abb. 18: HA traefik Beispiel
Quelle: <https://docs.traefik.io/basics/concepts>



```
fish /root
Welcome to fish, the friendly interactive shell
Type help for instructions on how to use fish
root@iblis ~# docker node ls
ID           HOSTNAME  STATUS  AVAILABILITY  MANAGER STATUS
om6a1fdbibfcabj9a99qdwzs  muse    Down   Active
oz9ak1l20zu6ww336txrvw5a * iblis     Unknown  Active      Leader
root@iblis ~# systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; vendor preset: disabled)
   Active: active (running) since Thu 2019-05-16 23:01:06 UTC; 1min 17s ago
     Docs: https://docs.docker.com
Main PID: 931 (dockerd)
   Tasks: 19
      Memory: 243.5M
      CGroup: /system.slice/docker.service
              └─ 931 /usr/bin/dockerd
                  ├─1144 docker-containerd -l unix:///var/run/docker/libcontainerd/docker-containerd.sock --metrics-interval...
May 16 23:02:16 iblis dockerd[931]: time="2019-05-16T23:02:16.368563712Z" level=error msg="error removing task ...orker"
May 16 23:02:17 iblis dockerd[931]: time="2019-05-16T23:02:17.819734290Z" level=error msg="error removing task ...orker"
May 16 23:02:18 iblis dockerd[931]: time="2019-05-16T23:02:18.144255844Z" level=error msg="error removing task ...orker"
May 16 23:02:18 iblis dockerd[931]: time="2019-05-16T23:02:18.437347791Z" level=error msg="error removing task ...orker"
May 16 23:02:19 iblis dockerd[931]: time="2019-05-16T23:02:19.274577228Z" level=error msg="error removing task ...orker"
May 16 23:02:19 iblis dockerd[931]: time="2019-05-16T23:02:19.651963426Z" level=error msg="error removing task ...orker"
May 16 23:02:20 iblis dockerd[931]: time="2019-05-16T23:02:20.545213872Z" level=error msg="error removing task ...orker"
May 16 23:02:21 iblis dockerd[931]: time="2019-05-16T23:02:21.9137489801Z" level=error msg="error removing task ...orker"
May 16 23:02:21 iblis dockerd[931]: time="2019-05-16T23:02:21.913839314Z" level=error msg="error removing task ...orker"
May 16 23:02:24 iblis dockerd[931]: time="2019-05-16T23:02:24.040610256Z" level=error msg="error removing task ...orker"
Hint: Some lines were ellipsized, use -l to show in full.
root@iblis ~# docker node ls
ID           HOSTNAME  STATUS  AVAILABILITY  MANAGER STATUS
om6a1fdbibfcabj9a99qdwzs  muse    Down   Active
oz9ak1l20zu6ww336txrvw5a * iblis     Down   Active      Leader
root@iblis ~# docker swarm leave --force
Error response from daemon: context deadline exceeded
root@iblis ~# yes "welp, shit happens \_\_(-)\_\_/"
```

Abb. 19: HA traefik Beispiel

Quelle: Bei mir Daham, Gestan am Obend



Abb. 20: HA traefik Beispiel

Quelle: Bei mir Daham, Gestan am Obend



Abb. 21: HA traefik Beispiel

Quelle: Bei mir Daham, Gestan am Obend



DNS Records

A, AAAA, and CNAME records can have their traffic routed through the Cloudflare system. Add more records using this form, and click the cloud next to each record to toggle Cloudflare on or off.

⚠ An A, AAAA or CNAME record was not found for the **www** subdomain. The [www.wetter.host](#) subdomain will not resolve.

⚠ An MX record was not found for your root domain. An MX record is required for mail to reach [@wetter.host](#) addresses.

Search DNS records				
Type	Name	Value	TTL	Status
A	api	points to 5.230.24.244	Automatic	X
A	p	points to 5.230.25.119	Automatic	X
A	wetter.host	points to 5.230.24.244	Automatic	X

Advanced ▾ API ▾ Help ▾

Abb. 22: HA traefik Beispiel

Quelle: Bei mir Daham, Gestan am Obend



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A	wetter.host	points to 5.230.24.242	Automatic	X

Advanced ▾ API ▾ Help ▾

Abb. 23: HA traefik Beispiel

Quelle: Bei mir Daham, Gestan am Obend

Résumé



„Livedemos san a bissl risky“ - Florian Kleber