MATHEMA

My Journey to Selfhosting & Homeserve

Patrick Drechsler

Motivation

- Privacy / Enshittification
- Learning: networks, operations, IaC, etc.
- Saving money?

Disclaimer

- I am new to selfhosting
- This is my learning experience
- slowly reaching status "Enough to be dangerous" 😈

Cloud or Homeserver?

🏠 Homeserver

Pros

- ✅ full control
- ✅ privacy: all data is yours
- ✅ no vendor lock-in
- ✅ low running costs

Cons

- ⛔ initial hardware investment costs
- ⛔ maintenance of all infrastructure
- ⛔ availability / scaling

☁️ Cloud

Pros

- ✅ Dedicated machine OR
- ✅ PaaS / SaaS solutions
- ✅ availability / scaling
- ✅ no hardware investment
- ✅ easier setup

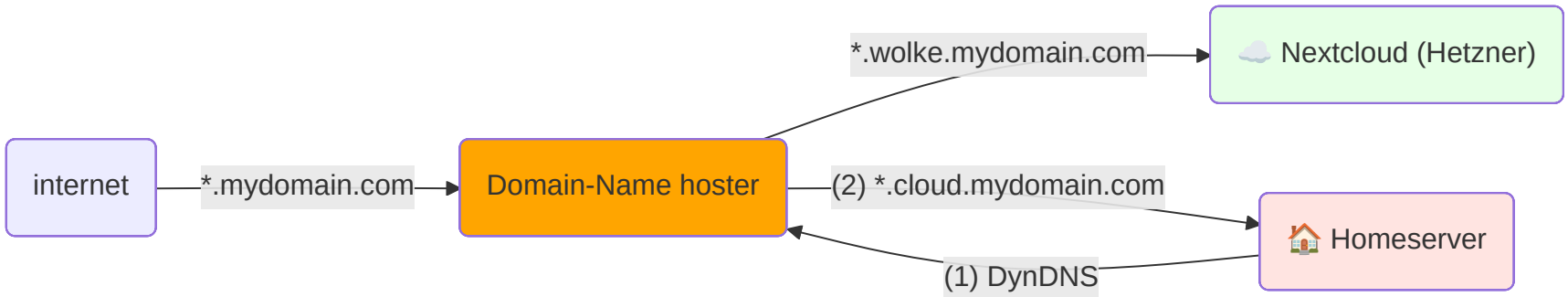
Cons

- ⛔ vendor lock-in
- ⛔ running costs are difficult to predict
- ⛔ trust issues

Typical Applications

app	"before"	"after"
📅 calendar	Google Calendar	☁️ Nextcloud (Hetzner)
☁️ file sharing	Google Drive	☁️ Nextcloud (Hetzner)
🖼️ photos	Google Photos	🏠 immich
🧑‍💼 document management	private git	🏠 Paperless-NGX
🤔 read-it-later	Pocket (Mozilla)	🏠 Readeck
👨‍🍳 cooking recipes	bookmarks, Chefkoch, etc	🏠 Mealie, Tandoor

Domain Hosting (current state)

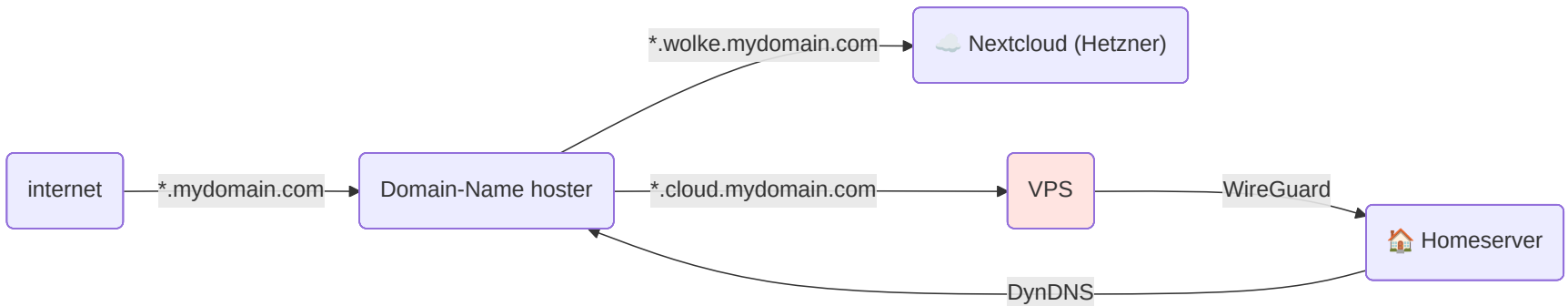


I learned something about

- `CNAME` entries
- `A` entries
- wildcards

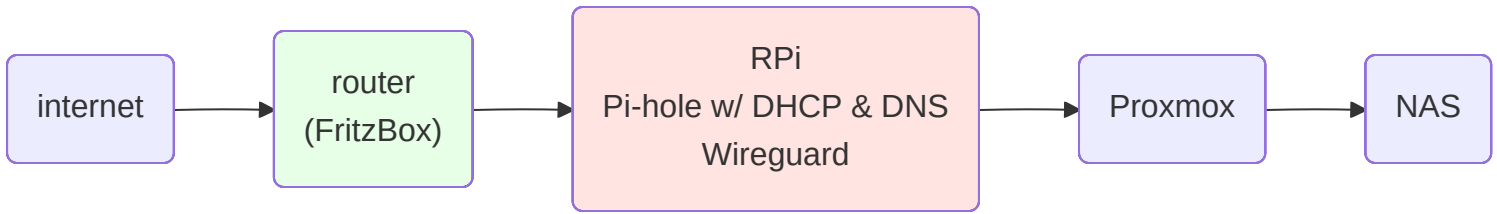
Domain Hosting (alternative)

Use a Virtual Private Server (VPS) to access Home server



- on my "needs more research" list, maybe overkill?
- Safer, but might involve extra costs

Home infrastructure: Bird's eye view



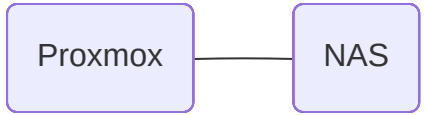
router (FritzBox)

- I try to keep the router as dumb as possible
- disabled DNS & DHCP
- enabled DynDNS
- Let's Encrypt: port 80/443 is open ⚠️
- wireguard port is open
- configs are easy to backup & restore

RPi

- Raspberry Pi 2 Model B (!) 😎
- Pi-hole: DNS & DHCP
- WireGuard (via PiVPN)
- configs are easy to backup & restore

Home infrastructure



Hardware: Let’s talk about money…

Hardware (1/2): NAS

My old Synology (from 2014)...

- 4 HDDs
- costs (mainly the HDDs): 1000 EUR
- effective storage capacity: 8TB
- Synology's "RAID-5"

YMMV, but you want something solid & tested.

Hardware (2/2): Server

- costs: 320 EUR
- CPU: Intel Alder Lake N95
- RAM: **32GB**
- SSD: **1TB (max 8TB)**

DreamQuest Mini PC 195 Processor 32GB +1TB SSD Mini Desktop PC 4K@60Hz/Gigabit Ethernet Suitable for Daily Office Use

Visit the DreamQuest Store

3.5 ★★★½☆ (53)

€319.00

Or €108.12 per month (3 months)
with 10,01% APR Select plan

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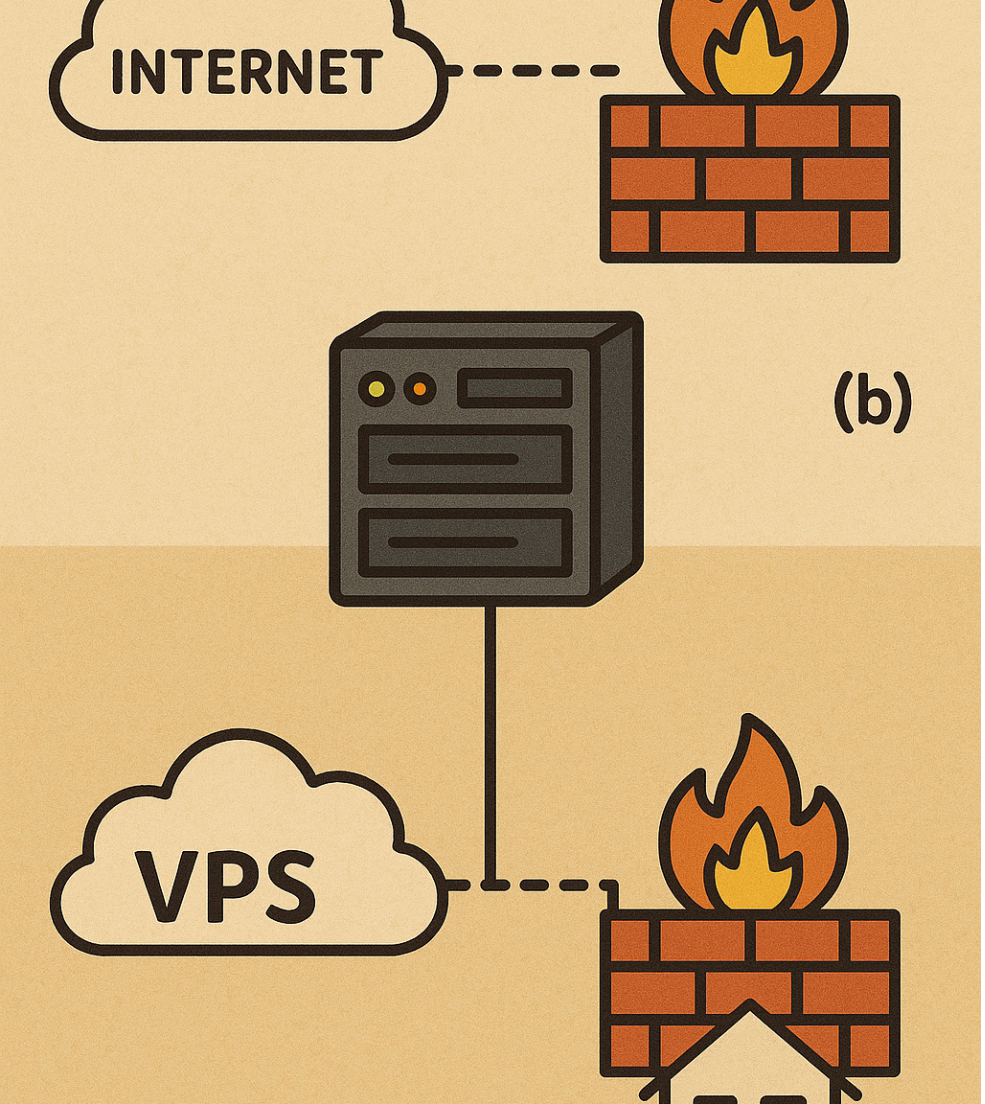
Prices for items sold by Amazon include VAT. Depending on your delivery address, VAT may vary at Checkout. For other items, please see details.

Want to recycle your product FREE of charge?

Brand	DreamQuest
Operating system	One Size
CPU model	Celeron
CPU speed	3.4 GHz
Cache size	1 TB
Graphics card	Integrated



Accessing Homeserver

- VPN / Wireguard
- Public access (w/ Geoblocking)

Thoughts? 🤔

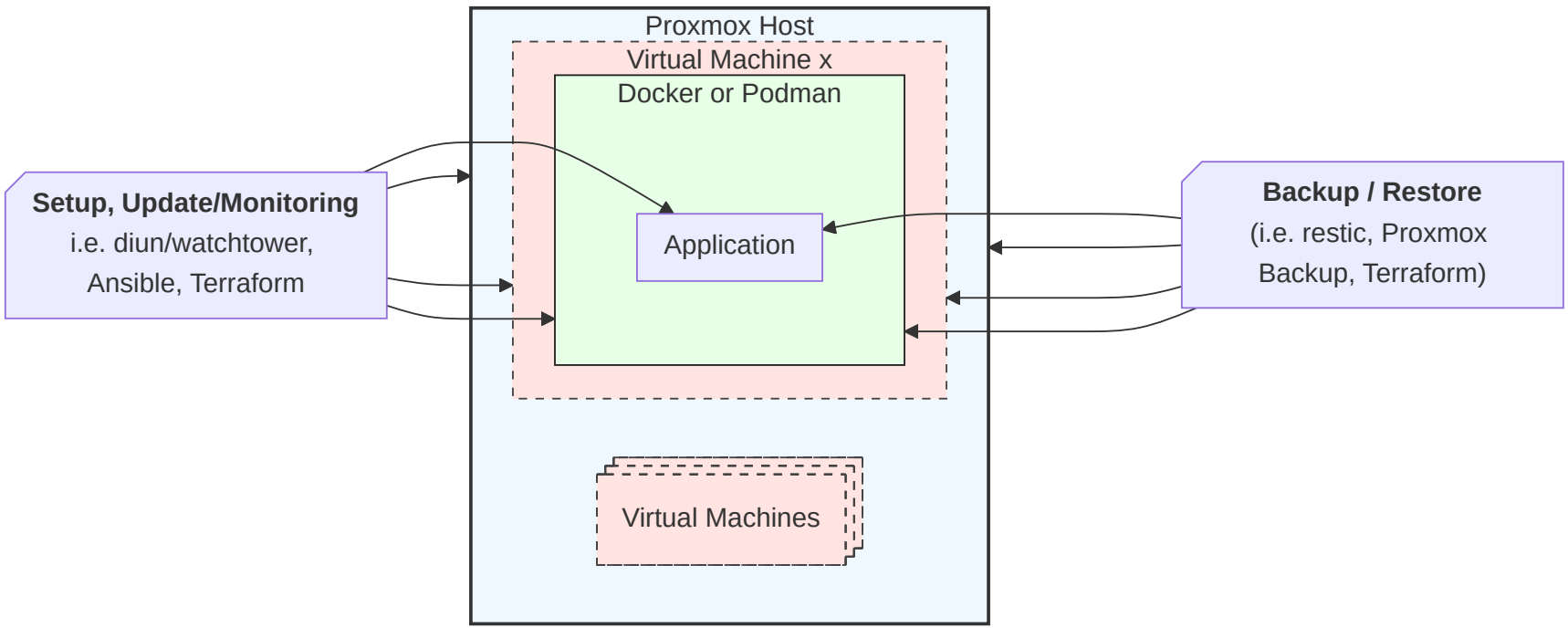
Why Proxmox VMs?

I am not an expert: The more contained my experiments are, the safer I feel.

- VMs: **containment** → safety feature
- builtin **backups**
- VMs can be **orchestrated** with
  - **Ansible** (inside the VM)
  - **Terraform** (spinning up the VM)

Alternatives (for pros): kubernetes, nix-os

Server: Overview



Outlook

TODOs

- Setup VMs w/ Terraform
- Add `fail2ban` to public facing `caddy`
- Centralized logging
- Centralized Monitoring
- Research Virtual Private Server (VPS) - esp. costs

We can have a look at details

- Proxmox (live)
- Ansible scripts
- anything else in my network!

Let’s talk!

Thank You!

- patrick.drechsler@mathema.de
- https://github.com/draptik
- https://draptik.github.io/talks/
- https://floss.social/@drechsler
- https://bsky.app/profile/drechsler.bsky.social
- https://www.linkedin.com/in/patrick-drechsler-draptik/

Slides 👇

- QR Code or
- https://draptik.github.io/2025-09-socrates-at-selfhosting/