

Oops, I self-hosted everything

One PC, No Static IP, No Problem

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Outline for today

- ▶ What does it mean?
- ▶ My old laptop
- ▶ My new PC, I mean server (or Both)
- ▶ Portfolio and it's quirks
- ▶ Growth of services
- ▶ Software Defined networks
- ▶ I-to-I: Instagram to Immich
- ▶ S-to-S: Shucked to Storage
- ▶ H-to-H: Home to Home Assistant
- ▶ Backups
- ▶ Second node?

Self-Hosting?

Approach

This is not a tutorial, This is how I made my decisions and my thought process with my growing needs. I am going to share how I come to the conclusions and choices and hopefully help you with a better picture than I had starting out.

Old laptop

What it looked like



Figure: The 2016 laptop I got from my dad

My new PC, I mean server (or Both)

What it looks like now

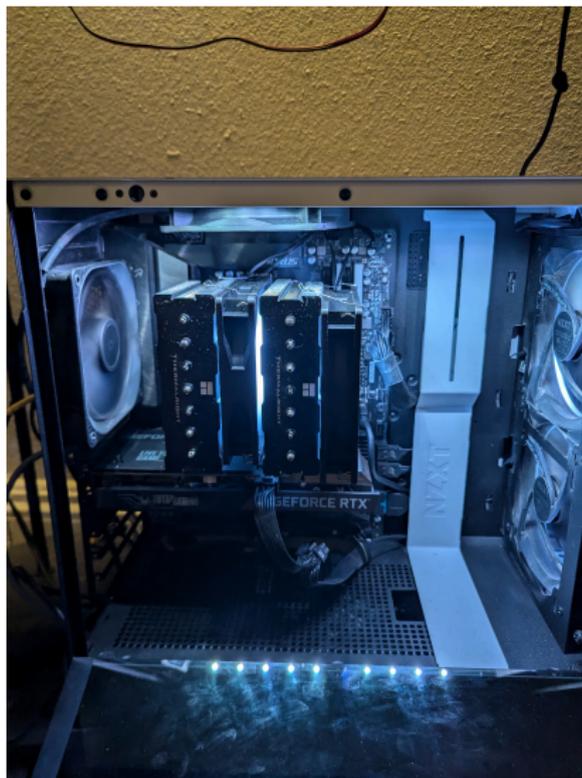


Figure: The "gaming" PC I bought off of a high school kid

Server View

Datacenter

pve

- 100 (writefreely)
- 105 (booklore)
- 106 (overleaf)
- 107 (openwebui)
- 108 (linkwarden)
- 109 (freshrss)
- 110 (homepage)
- 111 (ddc-mqtt)
- 112 (ntfy)
- 113 (keycloak)
- 114 (tianji)
- 115 (searxng)
- 116 (forgejo)
- 117 (calscheduler)
- 118 (jenkins)
- 119 (stirling-pdf)
- 120 (languagetool)
- 122 (jellyfin)
- 123 (excalidraw)
- 124 (wireguard)
- 125 (pihole)
- 126 (redmine)
- 127 (jupyternotebook)
- 128 (opencloud)
- 129 (speedtest-tracker)

Datacenter

Search

Search:

- Summary
- Notes
- Cluster
- Ceph
- Options
- Storage
- Backup
- Replication
- Permissions
 - Users
 - API Tokens
 - Two Factor
 - Groups
 - Pools
 - Roles
 - Realms
- HA
- SDN
- Zones

Type ↑	Description
lxc	100 (writefreely)
lxc	105 (booklore)
lxc	106 (overleaf)
lxc	107 (openwebui)
lxc	108 (linkwarden)
lxc	109 (freshrss)
lxc	110 (homepage)
lxc	111 (ddc-mqtt)
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lxc	114 (tianji)
lxc	115 (searxng)
lxc	116 (forgejo)
lxc	117 (calscheduler)
lxc	118 (jenkins)
lxc	119 (stirling-pdf)
lxc	120 (languagetool)
lxc	122 (jellyfin)
lxc	123 (excalidraw)

Portfolio and it's quirks

The easiest way

use github pages

That's the easiest with HTML and CSS in a
github repo

What if you would like a domain with more
flexibility?

The better way

Duck DNS with a free domain

when you don't want to buy a domain or want
to just try out

This also gives you subdomains that you can
use for many other things.

pathname vs subdomain

priyatham.duckdns.org/freshrss

or

freshrss.priyatham.duckdns.org

Path can conflict with portfolio
subdomains are nicer with little restrictions

The best way

Buy a domain

I use porkbun because they don't nag, they are straightforward

This is the most professional, I lived for 2 years before I did this

Growth of services



San Diego, 14.9°C
Clear

3/5/26, 8:17 PM

Search...



Essentials



Proxmox
Proxmox main node

Refresh

VMS

LXC

CPU

MEM



Homepage
Your personal dashboard

Refresh



Pi-hole
DNS to block ads & trackers

Refresh

QUERIES

BLOCKED

GRAVITY



Jellyfin
Movie & TV streaming server

Refresh

MOVIES

SERIES

EPISODES

SONGS



Ntfy
Self-hosted push notifications and messaging

Refresh



Reddit

Refresh

Tools



Forgejo
Git repository hosting

Refresh

NOTIFICATIONS

ISSUES

PULL
REQUESTS



Linkwarden
Bookmark manager & archiver

Refresh



SearXNG
Privacy-first meta search engine

Refresh



Home Assistant
home assistant to control lights and systems

Refresh



Speed Tracker
Internet Speed checker and collects hourly metrics

Refresh



Key Cloak
Identity and Login Access Management

Refresh

Workbench



Jupyter Notebook
Notebooks for coding & ML

Refresh



Overleaf
LaTeX collaborative editor

Refresh



Excalidraw
Collaborative sketching tool

Refresh



Bento PDF
Edit, merge, convert PDFs

Refresh



Grafana
Telemetry dashboard and visualization

Refresh



Open Media Vault
Media servers and File Protocols

Refresh

Reddit

Alternative reddit frontend

Feed



FreshRSS

Personal RSS feed reader

UNREAD

SUBSCRIPTIONS



Tianji Analytics

Page analytics & tracking



Booklore

ebooks for reading

AI & Automation



N8N

Visual automation workflows



AI

my very own ai from open source models

Projects



Redmine

Project management & issue tracking



Deployment

Deployment and auto CI/CD for prototyping



Immich

Self-hosted photo gallery

USERS

PHOTOS

VIDEOS

STORAGE

About and Portfolio



Home

priyatham.in



Code

code.priyatham.in

Social



Linkedin

www.linkedin.com



Blog posts

priyatham.in



What do I use, how do I replace ?

The mindset

- ▶ What do I use to draw and sketch design diagrams ?
- ▶ Can I use something else, that is open source ?
- ▶ Does their community version have everything I need ?
- ▶ Do they have a way of self-hosting ?
- ▶ does it have a binary or docker ?

Services

Exalidraw, pdf tools, forgejo, jellyfin

Replacing the things I use

Once I felt it was stable, I gave it to more
people

Excalidraw

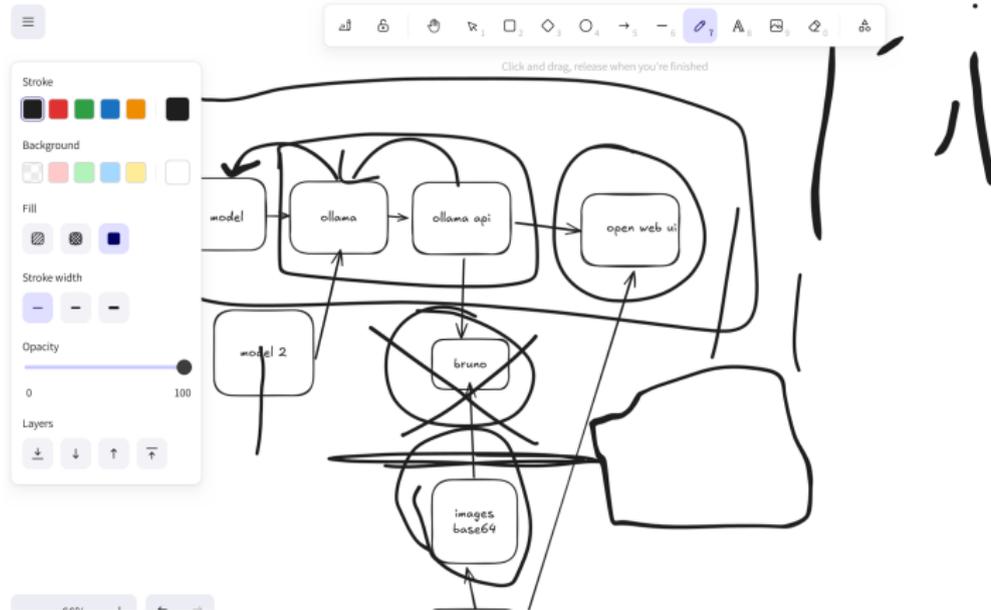
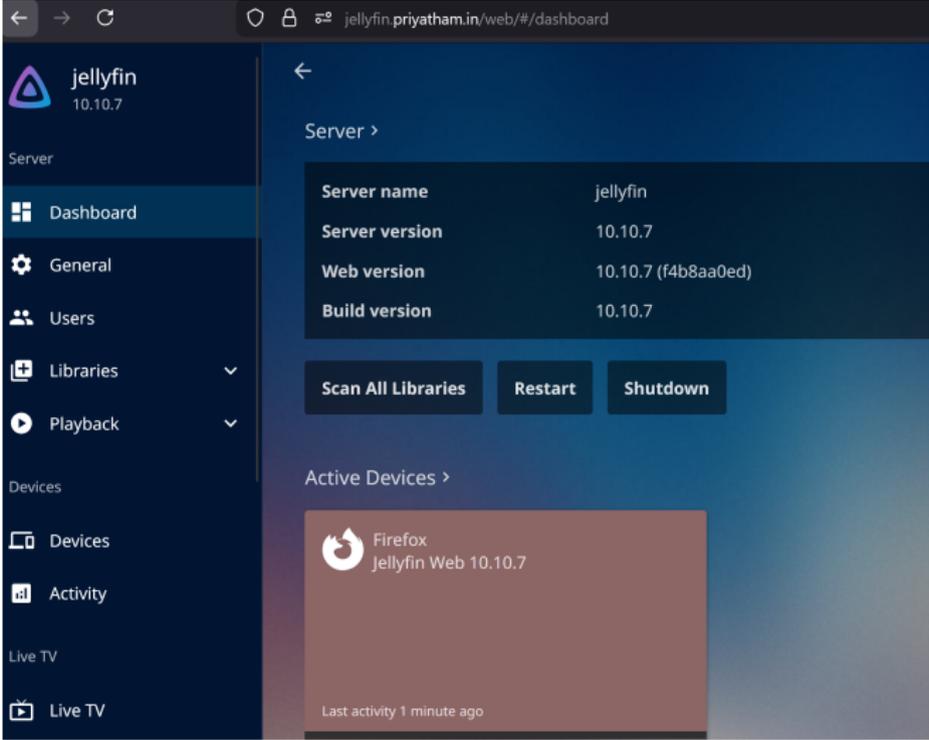


Figure: explaining to my dad on how to use my AI

Jellyfin



The screenshot displays the Jellyfin web interface. The left sidebar contains navigation options: Dashboard (selected), General, Users, Libraries, Playback, Devices, Activity, and Live TV. The main content area shows the 'Server' section with the following details:

Property	Value
Server name	jellyfin
Server version	10.10.7
Web version	10.10.7 (f4b8aa0ed)
Build version	10.10.7

Below the server information are three buttons: 'Scan All Libraries', 'Restart', and 'Shutdown'. The 'Active Devices' section shows one device: 'Firefox Jellyfin Web 10.10.7', with a note that its last activity was 1 minute ago.

Figure: Showing admin dashboard because I don't want to show my collection

Software Defined Networks

What's your ip

192.168.1.x isn't good enough

We could be randomly assigned for our services

It's not secure to have them in the home network, best to contain them

Rough overview of networks

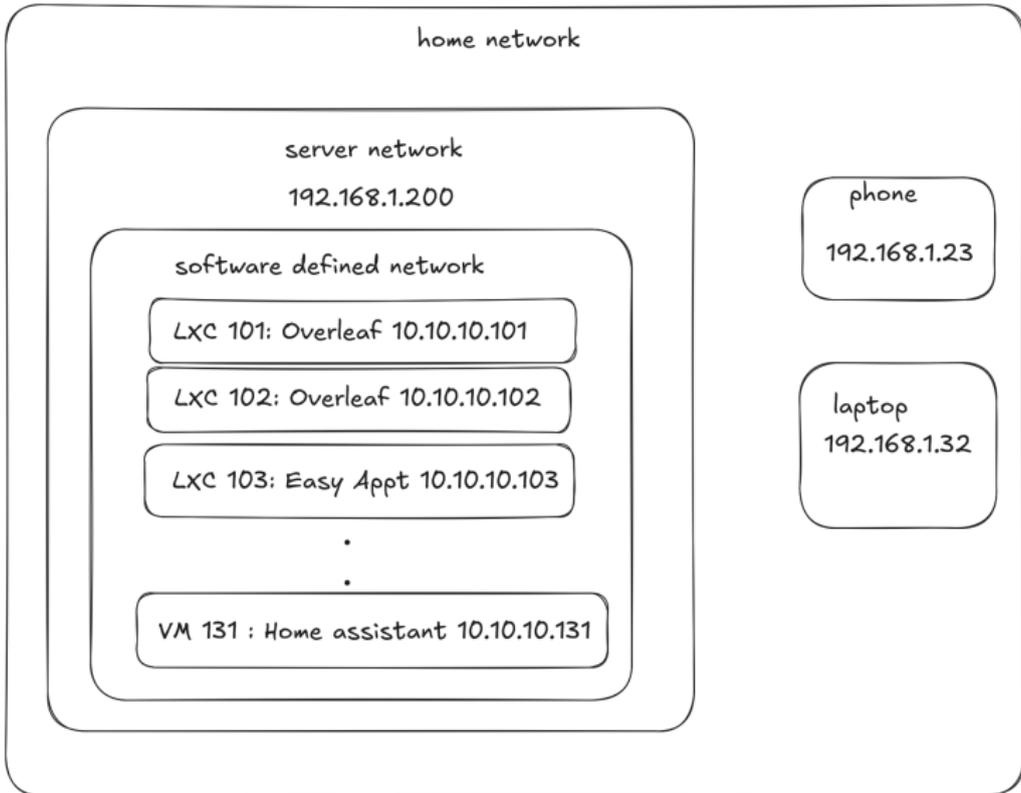


Figure: The home i.e. router and the rest of the SDN

I-to-I: Instagram to Immich

Instagram to Immich

Instagram Saved posts are 80% of my humor

But Instagram doesn't let you download them

I let my open-source AI write a script to download the files then I upload them to immich album.

I-to-I steps

- ▶ Open logged in Instagram saved page
- ▶ run the script to get post IDs
- ▶ copy over the IDs
- ▶ run another script to download posts
- ▶ upload to Immich

Downloading shortcodes

```
◆ code-for-cons... ◆
1
2 // put this in the insta user-name/saved-posts folder console using inspect.
3 let distance = 1000; // pixels to scroll each time
4 let delay = 500; // delay between scrolls (ms)
5
6 function scrollToBottom() {
7   return new Promise(resolve => {
8     let totalHeight = 0;
9     let timer = setInterval(() => {
10      window.scrollBy(0, distance);
11      totalHeight += distance;
12      // If we've reached the bottom:
13      if ((window.innerHeight + window.scrollY) >= document.body.scrollHeight) {
14        clearInterval(timer);
15        resolve();
16      }
17    }, delay);
18  });
19 }
20
21 // Scroll to bottom, then extract links
22 scrollToBottom().then(() => {
23   const anchors = Array.from(document.querySelectorAll('a'));
24   const postlinks = anchors
25     .map(a => a.href)
26     .filter(href => href.match(/instagram\.com\/p\/[A-Za-z0-9_-]+\//));
27   console.log(postlinks.join('\n'));
28 });
```

Figure: Very bad js

The post shortcodes

```
shortcodes-ne...
1 DTYSLLHAf0r
2 DRIOUuok7Ed
3 DSzwz52gYi7
4 DTsJAIZAW7u
5 DUBoBaFjAxj
6 C8uB0DoJer_
7 DT0CisCASuc
8 DTw08eLEqqt
9 DTjll73cilJ9
10 DTjgfy4Dxnu
11 DTf1jxTDXcI
12 DTbsS1BiPCv
13 C0lnPcLLG0
```

Figure: Copy pasted shortcodes

Download the posts

```
bulk-insta-po... ♦
#!/bin/bash
while read url; do
    # For photo and video posts, you may want to check
    # both .jpg and .mp4
    if ls insta-saved/${url}*.jpg 1> /dev/null 2>&1 || ls \
        insta-saved/${url}*.mp4 1> /dev/null 2>&1; then
        echo "Skipping $url (already downloaded)"
    else
        instaloader --no-metadata-json --no-captions --no-compress-json \
            --no-video-thumbnails --dirname-pattern='insta-saved'
            \--filename-pattern='{shortcode}' -- -$url
    fi
done < shortcodes-new.txt
```

Figure: How it looked before

Upload to immich

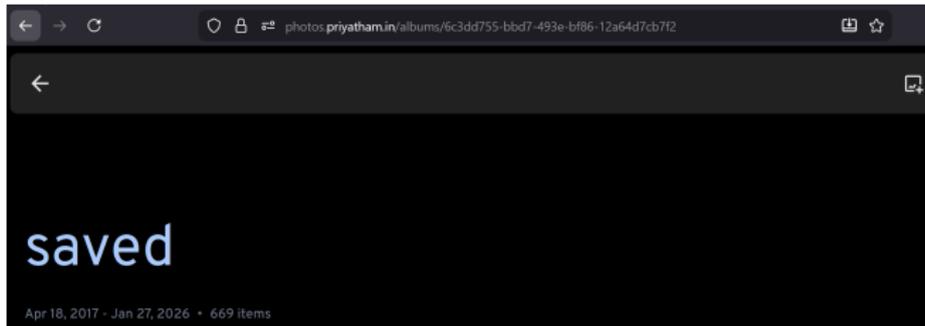


Figure: How it looked after

S-to-S: Shucking to Storage

Shuck to Storage

I am a media archiver (Borderline Data Hoarder)

Drives aren't cheap, I don't know much about enterprise drives

I shucked a consumer hard drive and added to ZFS with a SSD as cache

S-to-S: What I need

- ▶ I need a big drive to store all my family photos, memes, screenshots
- ▶ I need to be able to add more drives for a pool of storage
- ▶ Be able to replicate or do some RAID in future
- ▶ Be able to mount separate folders to separate containers
- ▶ Be able to look through inside the directories

The actual seagate



Figure: How it looked before

The drive itself



Figure: Testing it out before adding as official ZFS Drive

Drive in Proxmox

Status: seagate-media

Reload

Health ● ONLINE

Scan scrub repaired 0B in 01:16:28 with 0 errors on Sun Feb 8 01:40:29 2026

Status Some supported and requested features are not enabled on the pool. The pool can still be used, ...

Action Enable all features using 'zpool upgrade'. Once this is done, the pool may no longer be accessibl...

Errors No known data errors

Devices

Name	Health	READ	WRITE	CKSUM	Message
seagate-media	● ONLINE	0	0	0	
└─ /dev/disk/by-id/ata-ST26000D...	● ONLINE	0	0	0	
cache					
└─ /dev/disk/by-id/ata-Inland_SS...	● ONLINE	0	0	0	

Figure: Drive with cache in ZFS pool

H-to-H: Home to Home Assistant

Home to Home Assistant

Switching off lights is hard

Don't want to buy Philips lights or use Alexa

Found Sonoff switches that I could flash to
give MQTT commands

The switch itself

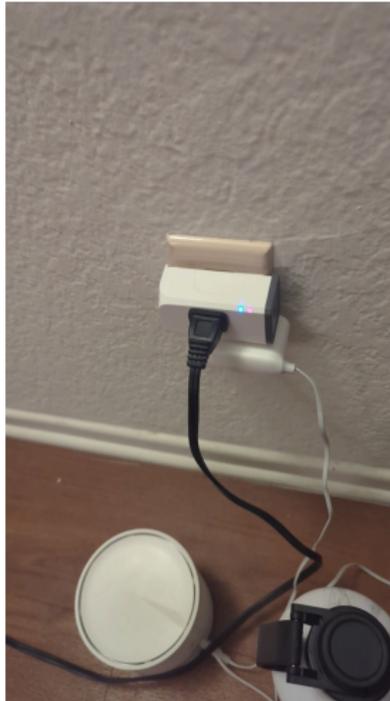


Figure: How it looked before

The switch flashed

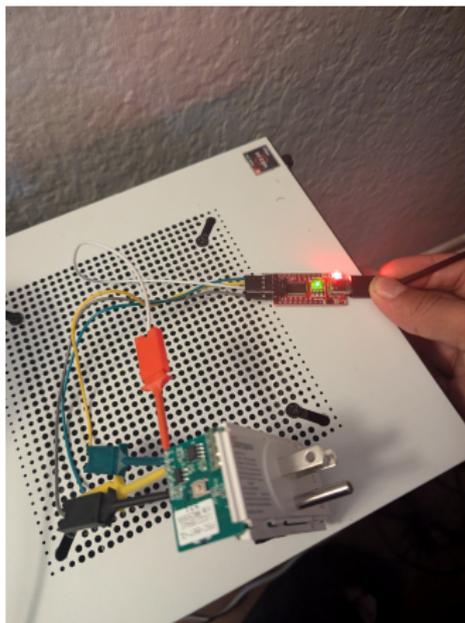


Figure: Process of flashing with Tasmota

The Home assistant dashboard

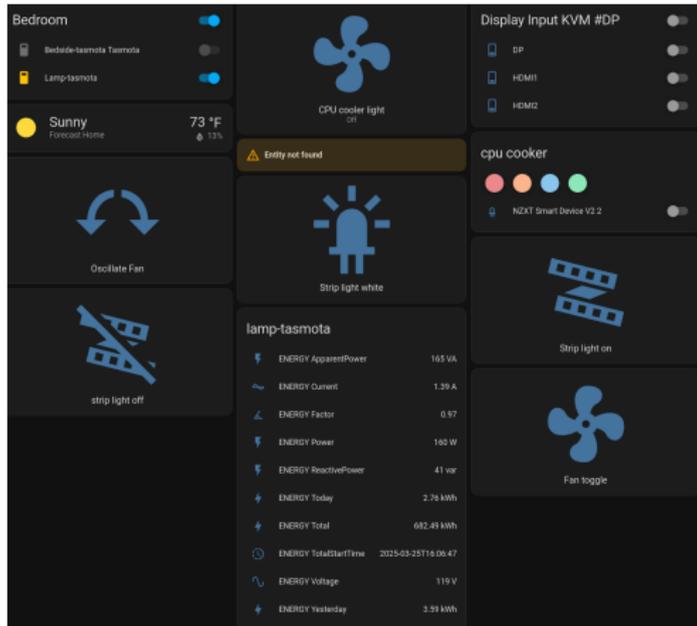


Figure: The final dashboard with watt stats

Backups

How many are too many ?

3-2-1

3 Backups, 2 different types, 1 copy off site
That's what we want, but I couldn't do it.

Realities of Backups

3-2-1

3 zip files, 2 drives, 1 pendrive

That's all I could do

Future, second node ?

Two different nodes

The screenshot displays the Proxmox Datacenter Manager 1.0.2 interface. The top navigation bar includes the Proxmox logo, the title 'Datacenter Manager 1.0.2', and a search bar with the text 'Search (Ctrl+Space / Ctrl+Shift+F)'. A left sidebar contains a menu with items: Dashboard, Views, Notes, Configuration (with sub-items: Access Control, Certificates, Subscription), Administration (with sub-item: Shell), SDN (with sub-item: EVPN), and Remotes. The main content area shows a 'Last refresh' timestamp of '2026-03-07 10:59:31'. It features four summary cards: 'Remotes' with a green checkmark and the text 'Could reach all remotes.'; 'Virtual Environment Nodes' with a green checkmark and '2 nodes online'; 'Linux Container' with a list of states: 'running' (35), 'stopped' (13), and 'All' (48); and 'Backup Server Datasets' with a list of statuses: 'Online' (0), 'Under Maintenance' (0), 'High usage' (0), 'Unknown' (0), and 'All' (0).

Category	Item	Count
Linux Container	running	35
	stopped	13
	All	48
Backup Server Datasets	Online	0
	Under Maintenance	0
	High usage	0
	Unknown	0
	All	0

Figure: Datacenter to manage both

Support the communities

r/selfhosted & c/selfhosted

Please support all the FOSS projects mentioned and people on reddit and Lemmy/Piefed **I owe them a lot**

Thank you! And Questions ?



Website



Linkedin

Gaming setup

GPU Passthrough

GPU PCIe passthrough to Windows VM

Using the GPU with HDMI for Windows and
integrated GPU with Debian **babel**

FOSS Licenses

Which license you should have ?

AGPL > GPL > MIT

when picking one

None of these are bad, but few are better than
the rest

Logging

Grafana, Loki, InfluxDB, Prometheus

I am learning how to use alloy
I fixed it to influxdb and grafana for now



**When I took up my CS
degree, they said I can't get
laid**



**Jokes on them I just got laid
off**

**(this is a cry for help I need
to feed my family)**