

1 Hardware

1.1 Compute

One of the biggest priorities of this project was to reduce the cost of physical hardware. The cheapest way to do this was to buy used thinkpads (to which I am preferential anyway). Two of the secondary nodes are used thinkpad T410s and the master node is a cheap fanless computer. I decided to go with a new fanless computer for the master node to increase reliability a bit more. The thinkpads fail often, and I want to increase reliability by one metric.

These thinkpads have been semi-reliable for the last year during the formation of this cluster. I highly recommend them in your projects. You can also look into removing the Intel ME as well as installing coreboot if you have a computer that is old enough. You can also go as far as removing the display with little issues (I did not do this however, as I prefer to keep the display for debugging).

1.2 Storage

I removed all the hdds that the nodes had as I understandably did not want to deal with spinning disks. In it's place, I have installed ssds for both the boot and storage drive of all the nodes. I do this more for reliability than speed.

2 Networking

2.1 Tailscale

This is the barebones of the project. One of the biggest restrictions that I had when creating this cluster is that I can't use port forwarding in apartment currently. This meant that I needed another way to expose my cluster to the public internet. There are a ton of ways to do this. One such way is to use ngrok or something similar. However, I realized quite quickly that Tailscale could also afford me some privacy measures in addition to allowing me to expose traffic to the public internet.