

# Homelab Projects

This page goes over few major applications running on my Homelab

## RustDesk

RustDesk is an open-source remote desktop solution that I host locally on Akamai and Linode cloud platforms. This setup ensures secure, private, and encrypted communication channels, making it ideal for assisting family and friends with technical issues. By hosting RustDesk locally, I retain full control over the server, minimizing reliance on third-party services while offering a highly reliable and secure alternative to commercial remote desktop solutions.

## Kasm Workspace

Kasm provides "Browser as a Service," allowing me to spin up isolated containers for securely running a browser of my choice. This is especially useful for safely opening suspicious or malicious links. Kasm functions as a hypervisor, capable of creating containers with preconfigured images for various use cases. These include browsers, lightweight Linux desktop environments, or specific standalone applications. It's perfect for one-time, quick sessions with software I don't need installed permanently on my PC. The isolation provided by Kasm ensures that any risky or experimental activity is contained, safeguarding the rest of my system.

## Searxng

Searx is a self-hosted, open-source search engine designed for privacy and customizability. It runs on my server, giving me complete control over my search data and ensuring a safe browsing experience. Searx uses unique, non-identifiable profiles to query multiple search engines simultaneously, consolidating results into a single page. This setup provides diverse results while removing trackers and ensuring that all links returned are free of invasive tracking mechanisms. Searx empowers me with private and efficient searches without compromising on security or functionality.

## Home Assistant

Home Assistant is my go-to open-source home automation platform that acts as the central hub for managing and monitoring all my smart devices within my homelab. It plays a vital role in my setup by integrating with various services and systems, providing me with real-time monitoring and alerts for my infrastructure. I have it collecting data from my Proxmox virtualization environment, network devices, and other core services, which keeps me informed about the status of my machines, including temperature monitoring and uptime notifications. As I look to expand my homelab, I plan to enhance Home Assistant to support IoT devices, like Zigbee-enabled smart lights and sensors. This will not only streamline the management of my homelab but also create a more interconnected and automated living space, making it easier for me to monitor and control my environment efficiently.

## Future Ideas

**Zero Trust Service-** With Pangolin already providing tunneling service for my application, exposing them securely without port forwarding, I plan to replace the traditional VPN with a zero trust service like Netbird or Tailscale with Headscale is an exciting step towards enhancing your network security and flexibility. By implementing a zero trust architecture, you can ensure that every device and user is authenticated and authorized before accessing your resources, significantly reducing the risk of unauthorized access.

**Expanding server pool-** Potentially adding additional mini pc to my server pool as another Proxmox environment creating cluster for redundancy and high availability.

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