

# Super Power Labs Infrastructure Plan

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## Project Summary

This document outlines the infrastructure and planning for SuperPower Labs' self-hosted server network. The system spans Hostinger cloud services and a home network, featuring Dockerized applications, native installs, automated backups, monitoring, and secure connectivity via Tailscale.

## Server Specifications

- KVM8: 8 vCPU, 32GB RAM, 400GB NVMe, 32TB bandwidth
- KVM8: 8 vCPU, 32GB RAM, 400GB NVMe, 32TB bandwidth
- KVM2: 2 vCPU, 8GB RAM, 100GB NVMe, 8TB bandwidth
- The Beast (Workstation): Specs TBD

## Infrastructure Overview by Network

### Hostinger Network

- Cloudflare DNS and Hostinger firewall settings per VPS
- KVM8-A: BigBlueButton (native), Docker, Portainer, Tailscale, Cockpit
- KVM8-B: PostgreSQL, Moodle, n8n, NGINX Proxy Manager, Portainer, Docker, Tailscale, Cockpit
- KVM2: Monitoring (Grafana, Prometheus), Dashy/Homer, Docker, Portainer, Cockpit, Tailscale

## Home Network

- AT&T Fiber Gateway (1Gbps up/down)
- Synology NAS: Backup destination (rsync or Active Backup)
- Optional Raspberry Pis for media server, DNS, automation
- The Beast: Local workstation, LAN connected

## Setup Phases

- Phase 1: OS & Security - SSH keys, firewall, Tailscale, Cockpit
- Phase 2: Docker Infrastructure - Docker, Portainer, folder structure
- Phase 3: Reverse Proxy - NGINX Proxy Manager with Cloudflare
- Phase 4: App Deployment - BBB (native), Moodle, PostgreSQL, n8n (Docker)
- Phase 5: AI Stack - LLMs (Ollama, LLaMA) on KVM8-B or KVM2
- Phase 6: Monitoring/Backups - Netdata, Watchtower, rsync to Synology
- Phase 7: Scalability - Portable Docker, `.env` secrets, optional Docker Swarm

## Risk Areas & Planning

- Permission issues (UID/GID mismatches)
- Reverse proxy config and SSL cert delays
- BigBlueButton port conflicts
- Container dependency timing (Postgres before Moodle)
- DNS propagation and SSL failures
- Resource contention (BBB and LLMs need isolation)