

# Self-Hosted Home Lab (ZimaOS) — Topology & Architecture Overview

## Environment Summary

Single-node bare-metal home lab running **ZimaOS** as the hypervisor/host platform. Services are deployed as individual Docker containers and managed through **Portainer**. Two virtual machines (Windows 11 and Ubuntu) are hosted alongside containers for isolated testing and workload separation.

## High-Level Network & Service Flow



## Core Components

- **ZimaOS Host:** Bare-metal platform running containers and VMs.
- **Portainer:** Container lifecycle management and service visibility.
- **Plex:** Media streaming with router port-forwarding and static IP configuration.
- **Immich:** Self-hosted photo management (local-first storage).
- **Ollama:** Local LLM runtime for experimentation.
- **Cloudflare:** Secure tunneling / access tooling (deployment-specific).
- **Windows 11 VM:** Application testing and Windows-only workflows.
- **Ubuntu VM:** Linux experimentation, scripting, and service testing.

## Operational Notes

To maintain reliability and accessibility, the lab uses static IP assignments for key services (e.g., Plex) and router port-forwarding where required. Secrets, credentials, and any public-facing details are intentionally excluded from the repository documentation.