Gustav Spiker

2017 iMac Linux Server Project

Introduction

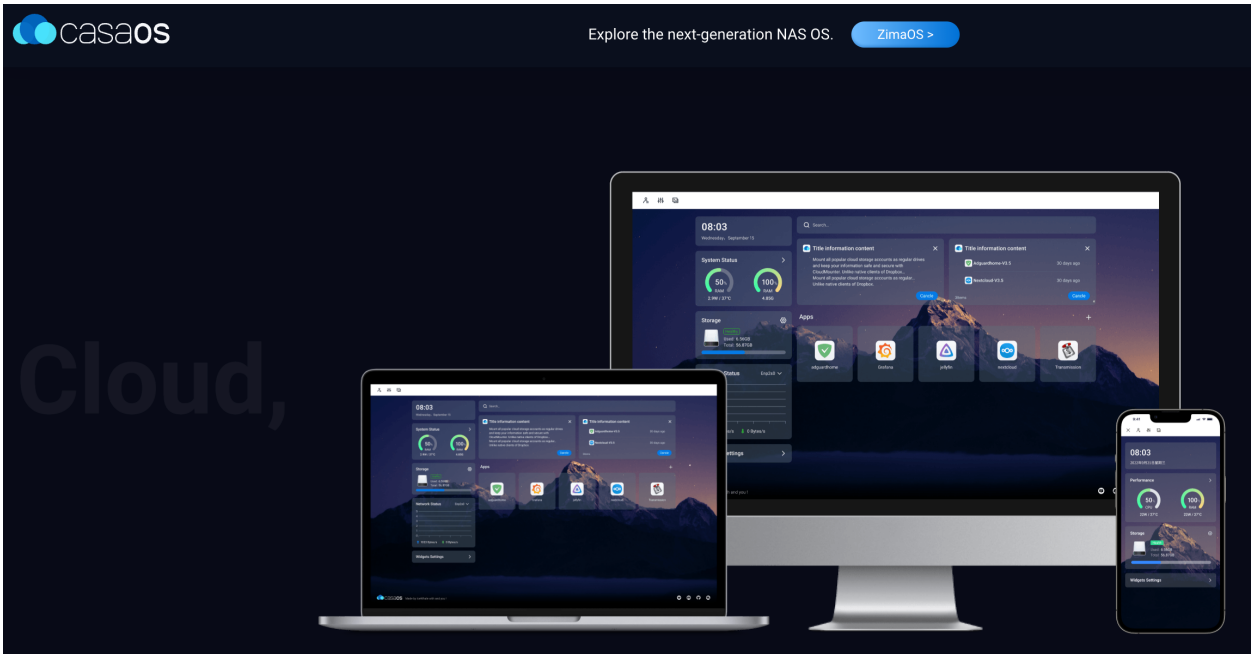
The objective of this project was to repurpose legacy hardware into a versatile, high-functioning home server. By transitioning from macOS to a Linux-based environment, the system was optimized to host a secure, private cloud platform. This infrastructure supports centralized file sharing, web hosting, media streaming, and containerized application management, providing an efficient alternative to commercial cloud services.

Hardware Overview

The foundation of this server infrastructure is a 2017 Apple iMac equipped with a Fusion Drive. Repurposing this specific machine effectively extends its lifecycle, leveraging its robust display and storage architecture to handle continuous server workloads. Moving away from the native operating system allows the hardware to operate with lower overhead, maximizing the performance of the Fusion Drive for data retrieval and storage.

Software Architecture The software stack was selected for its balance of user-friendly interfaces and powerful underlying Linux capabilities:

- Operating System (Zorin OS): Zorin, an Ubuntu-based Linux distribution, was installed as the host operating system. It provides a stable, Debian-based environment ideal for server operations while maintaining a highly accessible graphical user interface.
- Application Platform (CasaOS): CasaOS was deployed on top of Zorin OS. Operating as a Docker-based personal cloud platform, it simplifies the management of containerized applications. This allows for rapid deployment and scaling of services like media servers, web hosts, and file management tools from a unified dashboard.

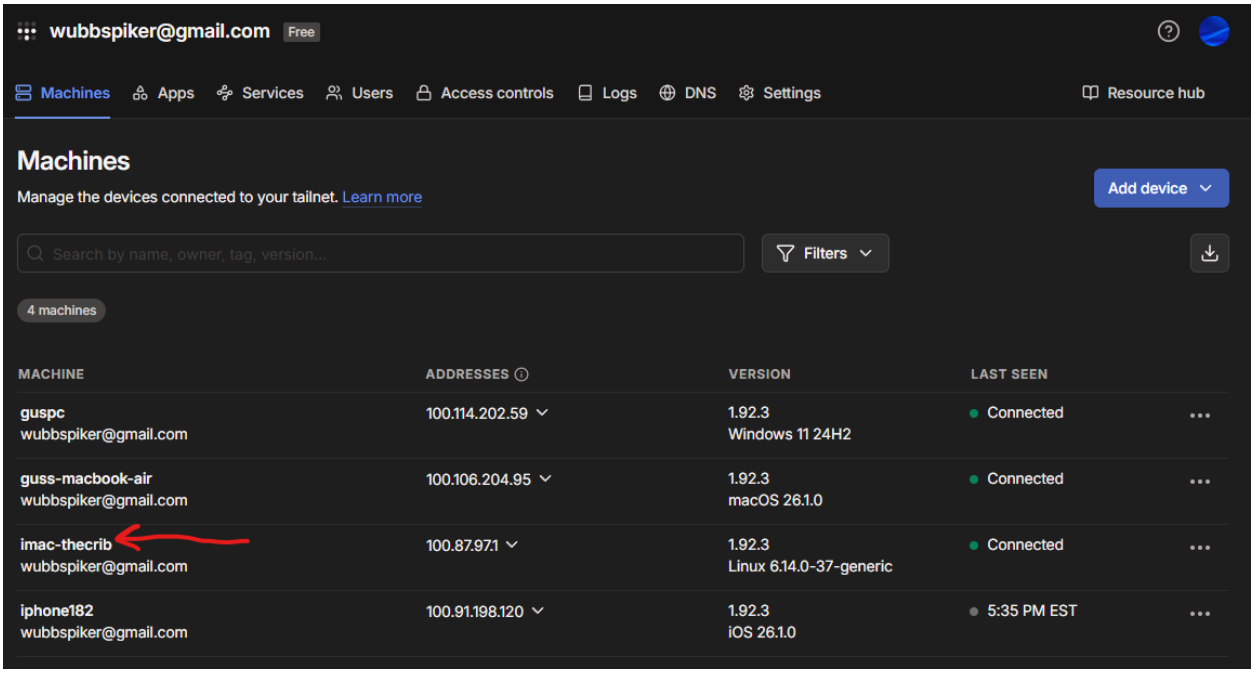


Networking and Security

To ensure secure, global access to the server without exposing open ports to the public internet, Tailscale was implemented.

- VPN Mesh Network: Tailscale utilizes the WireGuard protocol to create a secure, peer-to-peer Virtual Private Network (VPN).

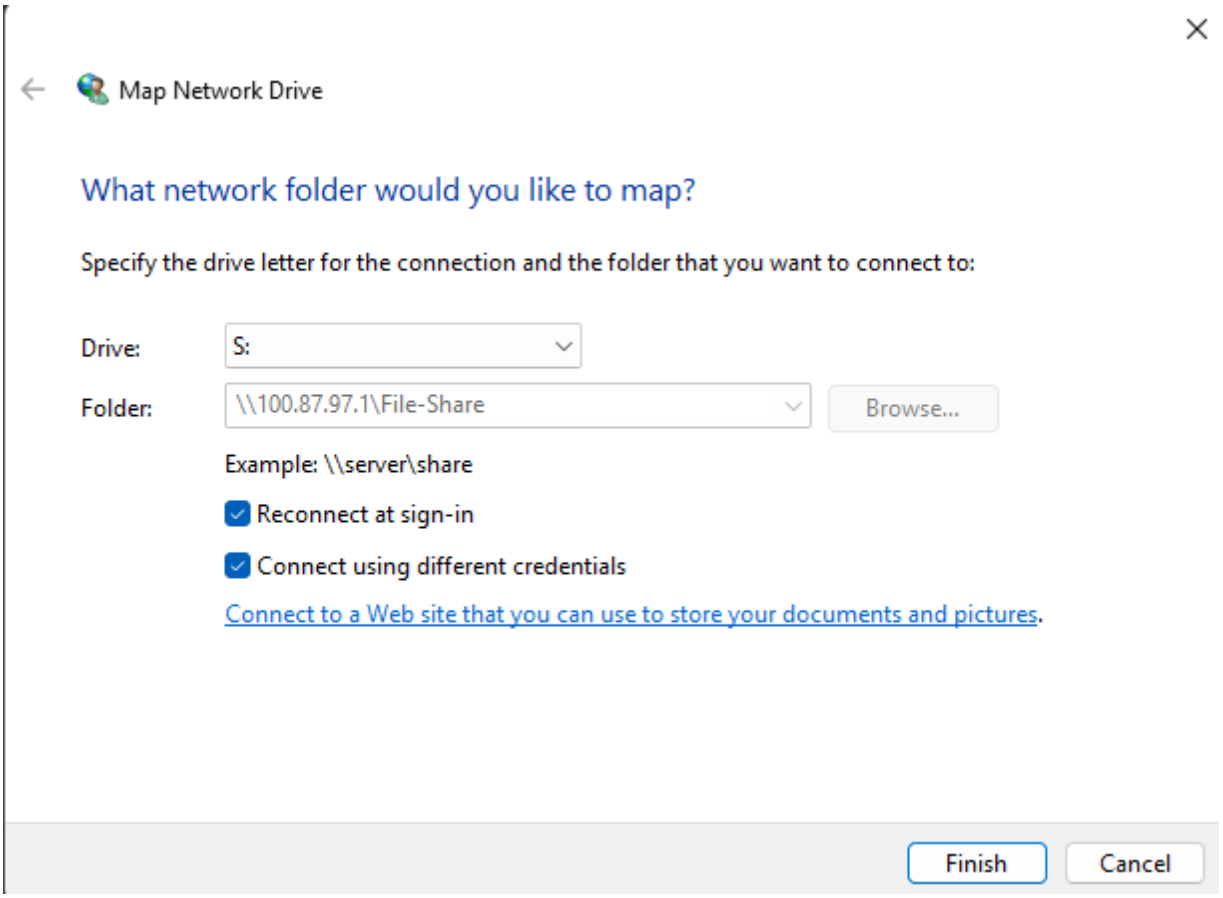
- Node Configuration: The iMac server was successfully registered on the Tailnet under the hostname imac-thecrib with the dedicated internal IP address 100.87.97.1.
- Cross-Platform Integration: The administration console confirms successful, secure connections across various personal devices, including Windows desktop environments (guspc), macOS laptops (guss-macbook-air), and iOS mobile devices (iphone182).



File Sharing Implementation

A primary objective of the CasaOS deployment was establishing a reliable, remote-accessible network attached storage (NAS) system. Utilizing the secure Tailscale tunnel, local network mapping was successfully achieved on remote client machines. The directory \\100.87.97.1\File-Share was permanently mapped as a network drive (Drive S:) on a remote Windows system, allowing seamless read/write access to the server's storage

as if it were a local disk.



Conclusion

The conversion of the 2017 iMac into a Linux-based CasaOS server was successful. The integration of Zorin OS, Docker, and Tailscale resulted in a secure, highly capable home cloud environment. The system efficiently handles network-wide file sharing and provides a scalable foundation for future web hosting and self-hosted application deployments.