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Homepod Servers: Self-Hosted NAS File Server with Global Access and File Sharing

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Abstract: *With the increasing dependence on centralized cloud platforms, individuals and small organizations face challenges related to high subscription costs, limited control over data, and privacy concerns. Commercial cloud solutions often require continuous internet access and recurring payments, making them unsuitable for personal and small-scale use. This paper presents the design and implementation of a Homepod Server, a lightweight personal server system developed using a laptop-based infrastructure to provide local cloud functionalities. The proposed system enables users to host files, and services within a private environment while allowing controlled remote access. The system architecture leverages Node.js for backend service management, local storage integration, and secure network access mechanisms. Performance evaluation demonstrates that the Homepod Server can efficiently handle small-scale workloads with minimal resource consumption. This solution offers a cost-effective, portable, and privacy-preserving alternative to traditional cloud services, making it suitable for students, developers, and small teams..*

Keywords: Homepod Server, Personal Cloud, Laptop Server, Local Hosting, Private Cloud Infrastructure

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