

WEBATHON

Presented by: The Walking Dev

PS8 - Decentralized Cloud Storage Platform: Your Data, Your Control

Meet The Team(Crew)



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Problem Statement and Its Solutions

The Vulnerability of Centralized Data

- **Data Vulnerability**
Centralized servers are prime targets for breaches, compromising privacy.
- **Lost Control**
Providers dictate terms, restricting or deleting your files without recourse.
- **Systemic Downtime**
Single points of failure lead to widespread outages and disruptions.

Our Vision: True Data Sovereignty

Inspired by the robustness of IPFS and Filecoin, our Decentralized Cloud Storage Service fundamentally redefines data ownership.

- **Distributed Network:** Files are fragmented and stored across a global web of nodes, eliminating any single point of failure.
- **Client-Side Encryption:** You alone hold the keys to your data, ensuring unparalleled privacy.
- **Content Hashing:** Every file's integrity is verifiable, protecting against tampering and unauthorized changes.
- **Secure Access Tokens:** Granular, permission-based sharing for ultimate control.
- **Version Control:** Track and manage file updates over time.

Building the Future: Tech Stack & Seamless Workflow

Robust Tech Stack

- **Frontend:** React + Next.js, TailwindCSS, Zustand
- **Backend:** Node.js, Supabase (Auth & APIs), NeonDB (Postgres)
- **Storage Layer:** IPFS + Filecoin/Arweave, Supabase bucket, Pinata/Web3.Storage (optional)
- **Security:** AES (encryption), RSA/ECDSA (keys), JWT (access control)
- **Deployment:** Vercel (frontend), Github Actions

Intuitive Workflow

Our system ensures a smooth, secure, and transparent user experience from upload to access:

1. User encrypts file with AES.
2. File is split and distributed across IPFS nodes.
3. Content hashing verifies integrity.
4. Access controlled via token-based authentication.

Our Edge: USPs & Pathways to Growth

Unique Selling Points

- **True Data Ownership:** Users hold encryption keys, guaranteeing ultimate control.
- **High Transparency:** Content hashing provides verifiable authenticity for every file.
- **Censorship Resistance:** Decentralized nodes prevent unauthorized data removal.
- **Global Accessibility:** A borderless platform open to all users, everywhere.
- **Crypto Rewards:** A dynamic, incentivized ecosystem driving storage growth and adoption.

Navigating Limitations

- **Network Adoption:** Scalability depends on widespread user engagement.
- **Potential Latency:** Decentralized architecture may introduce minor delays vs. centralized systems.
- **Crypto Literacy:** Requires some user familiarity with cryptocurrency for seamless interaction.
- **Node Availability:** File persistence is linked to the active participation of storage nodes.

We are actively developing solutions to mitigate these limitations, ensuring a robust and accessible platform.

Experience the Future: Project Prototype

This project is still in the building stage. You can check out the current prototype here: file-crews.vercel.app

