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.

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**