

Knight Foundation School of Computing and Information Sciences

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Cloud Backup System

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PROBLEM

Small businesses are at high risk of losing important data because they usually don't have reliable or automated backup systems. When accidents like system crashes, file deletions, or cyberattacks happen, they have no easy way to recover their information. This can cause major downtime, financial loss, and serious disruptions to their business.

SYSTEM DESIGN

- A system where users can backup files, restore data, check connections
- Supports multiple cloud providers and selects the best & cost efficient one
- Built using Streamlit(UI) with python functions
- Backup files are saved and read using AWS 3 API
- uses AWS 3

VERIFICATION

- Manual testing on various devices(laptops and PC's)
- Reviewed code to check for errors and clean formatting
- Ran basic testing to make sure backups and restores ran correctly
- Ran testing to ensure sharing features are functional.

CURRENT SYSTEM

Small businesses usually rely on costly cloud services or manual local backups like USB drives. These options are either too expensive or not reliable enough, leaving businesses without a simple and affordable way to protect their data.

OBJECT DESIGN

- Records
 - User access list
 - Backup records
- System Services
 - Log of backup history
- Controls
 - share info between employees
 - restore and backup control
 - backup history lists

SUMMARY

Our system is a cloud-based backup and disaster recovery platform designed to maintain business continuity and quickly recover from disruptions. It integrates automated backups, data replication and failover strategies to minimize downtime and reduce data loss. Overall it provides a secure, reliable and cost effective approach to disaster recovery ensuring minimal disruption and long-term operational resilience.

REQUIREMENTS

- Easy to use interface
- Backup and restore functionality
- Local cloud storage support
- Backup history list
- Connection test feature
- Responsive design for mobile and computer
- Basic error messages for failed actions
- Sharing and downloading features.

IMPLEMENTATION

Implementation works by first setting up a secure cloud storage space, that includes risk analysis, recovery goals and design. The system is designed to replicate data, automate backups and store information for redundancy. The system encrypts and uploads data to distributed cloud environments improving resilience. Regular testing and monitoring is conducted to ensure security standard and validate recovery performance.

REFERENCES

[Streamlit](#)

[Python](#)