



Block Chain Based Disk Space Rental System

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Project Title

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ABSTRACT

Now a days electronic devices such as computers, smartphones and cameras produce enormous volumes of data each day, which require more and more storage resources. In order to fulfill this necessity, cloud storage renting systems were created. Cloud storage renting disk space allows people to expand their storage capacity without having to buy and maintain additional hardware. It can help users save money on hardware and reduce the need for physical space in their home or office. It can also be used to store large amounts of data in a secure and cost-effective manner. Renting disk space also allows for easier sharing of data between multiple users, making collaboration easier and faster. But here One of the main problems with cloud storage is lack of transparency and control over stored data. In other words, users are unaware of the exact location where their data is being stored, how and when it is processed or even whether their data has been lost or compromised. Another issue with such systems is lack of trust.

To overcome these problems we use block chain technology in disk rental system. This system is designed to be a peer-to-peer services where users can rent out disks to each other without the need for a third party immediately. We use the smart contracts which automate the rental process and answer that all parties involved follow the predefined values and regulator and also utilize the decentralized storage system to store rental contracts that all data is secure and unchangeable. Here we used Proof-of-Work (PoW) consensus algorithm. This algorithm is used to verify transactions and add new blocks to the chain and also solve complex mathematical problems. If this system is implemented it Enhance security, Transparency, Lower cost, Automation, and improved efficiency. Finally the system also provides a renting system to ensure that users are able to easily identify and reliable disk rental.

INTRODUCTION

Blockchain-based disk rental system is a distributed system that enables peer-to-peer (P2P) disk rental transactions. It uses the blockchain technology to record and manage the rental transactions of disks over a network. This system helps to create a secure and transparent environment for disk rental transactions. It enables users to rent disks securely and easily without the need for any third-party intermediaries. It also allows users to track their rental transactions and maintain records of all their disks. Furthermore, the system also provides a secure platform to store data and information related to the disk rental transactions. This system enables users to securely and efficiently manage their disk rental transactions and also make payments in a secure and transparent way.

LITERATURE SURVEY

S.no	Title	Author&Year	Description	Inference
1.	A Block chain-Based Data Storage System for Cloud Storage Security	Abhijeet S. Kulkarni, Sangeeta S. Deshmukh, Gaurav M. Kulkarni 2020	Cloud storage is becoming increasingly popular due to its cost-effectiveness and flexibility. However, it has some security issues due to its distributed nature. The authors discuss various methods used to secure data stored on the cloud such as data encryption, data partitioning, and distributed storage.	This survey provides a comprehensive overview of the current research on block chain-based data storage systems for cloud storage security.
2.	A Block chain-Based Disk Rental System for Enhancing Transparency and Accessibility	SumeetKaur, Vijay Bhaskar 2020	This paper provides a review of recent developments in the area of block chain-based disk rental systems. The authors describe the advantages of using a block chain-based system, including enhanced security, improved transparency, and increased accessibility. They also discuss the challenges associated with its implementation, as well as potential solutions.	This paper provides an overview of block chain-based disk rental systems, highlighting the benefits and challenges associated with their implementation. It also suggests potential solutions to address existing challenges and outlines potential areas of future research.
3.	Block chain-Based Disk Rental System	M.M. Hossain and M.A. Sattar 2021	The authors discuss the experiences of prominent disk rental businesses and the challenges they have faced in integrating block chain technology into their systems. They also analyze the benefits of using block chain-based disk rental systems, such as increased security, improved scalability, and data privacy	This paper provides an overview of the current state-of-the-art in block chain-based disk rental systems, as well as the advantages and challenges associated with them. It also provides insight into the potential improvements and applications of block chain technology to the industry.

4.	Block chain-Based File Storage System	M.M. Hossain and M.A. Sattar 2021	The authors discuss the experiences of prominent disk rental businesses and the challenges they have faced in integrating block chain technology into their systems.	This paper provides an overview of the current state-of-the-art in block chain-based disk rental systems, as well as the advantages and challenges associated with them.
5.	A Survey of Block chain-Based Storage Systems	S. Thakur and S. Gupta, 2021	This paper presents a survey of existing block chain-based storage systems, focusing on their architectures, applications, and security and privacy issues. The authors also discuss the potential for block chain-based storage systems to be used for cloud storage, distributed storage, and peer-to-peer storage.	This paper provides an in-depth review of existing block chain-based storage
6.	Block chain Based Disk Rental System	Salman Akhtar, Rakesh Kumar, and K. P. Choudhary 2020.	This survey paper provides an overview of the current state of block chain-based disk rental systems. It discusses the various aspects of such systems, including their architecture, their advantages, their challenges, and their possible applications	This survey paper provides a comprehensive overview of the current state of block chain-based disk rental systems. It demonstrates the potential of such systems and highlights the research challenges that need to be addressed in order to make them more efficient and secure.

7.	Block chain Based Storage System	A. Al-Shabani and M. Al-Omari 2020.	This paper provides a comprehensive review of existing block chain-based storage systems and their applications, along with a detailed discussion of the advantages and challenges of using block chain technology in storage systems. The authors also discuss various aspects of the architecture of block chain-based storage systems, such as distributed storage, consensus algorithms, smart contracts, and data privacy and security.	This paper provides a valuable overview of the current state of block chain-based storage systems, highlighting their advantages and challenges, as well as their architecture. It is an excellent resource for those looking to learn more about the potential of block chain technology for storage systems
8.	Block chain-based Disk Rental System	Chao Zhang, Bing Jiang, JiaGao, and Lei Wang, 2020	This article provides a survey of block chain-based disk rental system applications. The article discusses the various components of a block chain-based disk rental system, such as the block chain network, smart contracts, and distributed storage. It also provides a comparison of different block chain-based disk rental systems .	The article finally offers a summary of the advantages and potential applications of block chain-based disk rental systems.

EXISTINGSYSTEM

- In existing system The Vulnerability of Modern Cloud Storage system has been implemented
- RSA based scheme has been implemented in existing model
- Cloud Security Alliance (CSA) scheme has been employed in existing system
- Merkle Tree scheme has been employed in existing model system

Disadvantages:

- Less secure
- Less reliability
- Data leakage.

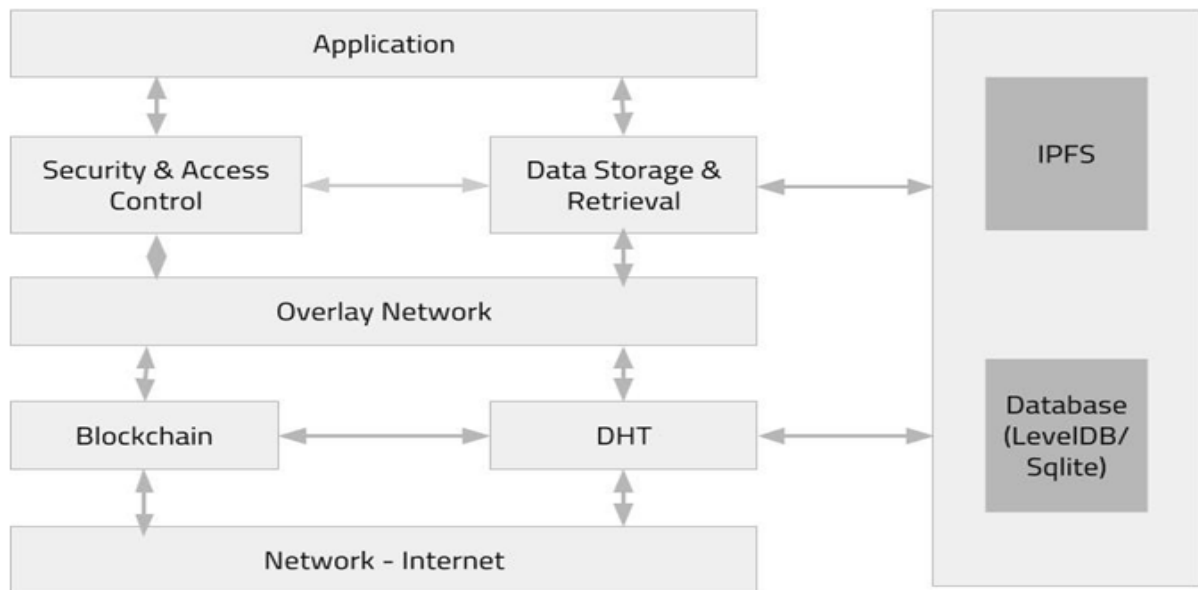
PROPOSEDSYSTEM

- The proposed scheme block chain based scheme is implemented for disc space Implementation.
- Increased security in hostile environments is just one of the many advantages that Blockchain technology offers in a wide range of industries.
- Blockchain is a linked list that employs Hash Pointers rather than regular pointers. This allows each blockchain node to not only locate the next node but also verify whether the data in that node has changed

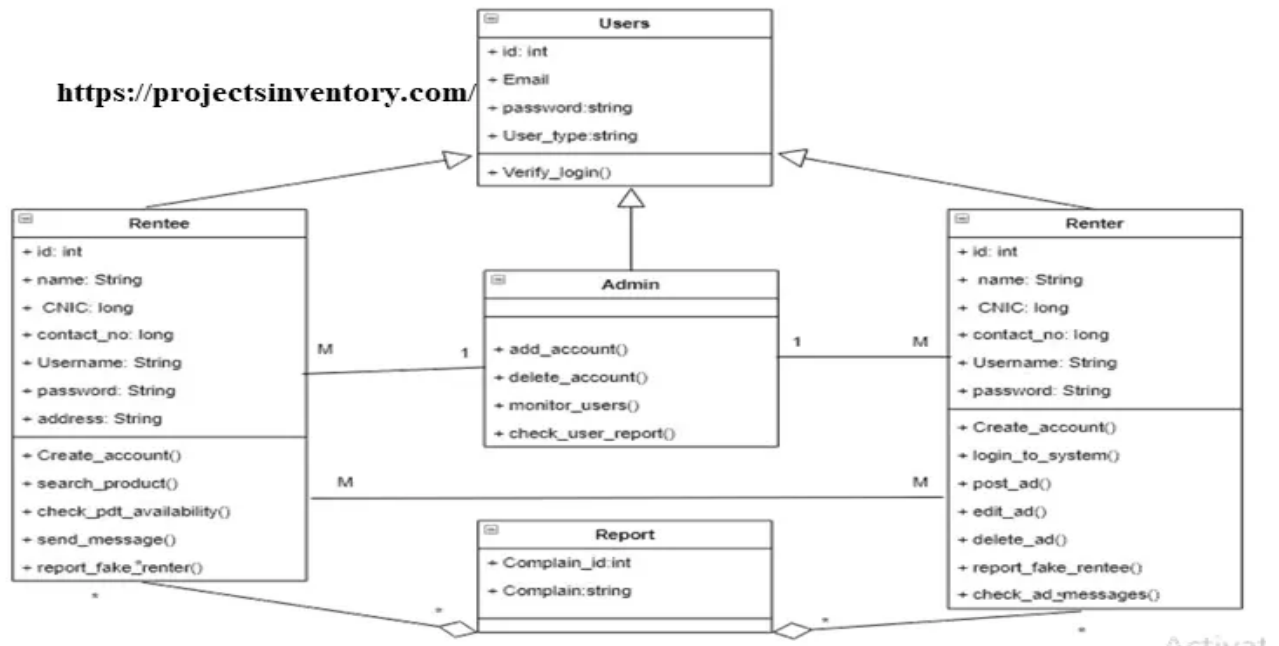
Advantages:

- High secure
- Blockchain data structures harden network security by reducing single-point-of-failure risk,making a database breach difficult.
- It prevents data tampering.
- Blockchain eliminates unauthorized access, each user in the blockchain has their key

SYSTEM ARCHITECTURE



CLASS DIAGRAM



MODULES

- 1. User Authentication Module:** This module will be responsible for authenticating users and allowing them to access the network. It will verify the user's identity and ensure that the user is who they claim to be.
- 2. Storage Rental Module:** This module will be responsible for managing the rental of disk space on the blockchain. It will track the rental agreements between the renters and the storage providers and ensure that payments are made in a timely manner.
- 3. Storage Management Module:** This module will be responsible for managing the disk space on the blockchain. It will be responsible for allocating disk space to renters, tracking usage and setting up billing.
- 4. Security Module:** This module will be responsible for protecting the data stored on the blockchain. It will be responsible for implementing encryption, firewalls and other security measures to ensure the data is kept safe.
- 5. Payment Processing Module:** This module will be responsible for processing payments between the renters and the storage providers. It will ensure that payments are made in a timely manner and that the correct amounts are paid.
- 6. Monitoring Module:** This module will be responsible for monitoring the performance of the disk space rental system. It will track usage, performance and other metrics to ensure the system.

ALGORITHM&TECHNIQUES

Algorithm :

- 1. Proof of Work (PoW):**This is the algorithm used to validate transactions and generate new blocks in the blockchain. It requires miners to solve a complex mathematical problem in order to add a new block to the blockchain.
- 2. Consensus Algorithm:**This is an algorithm used to ensure that all nodes in the network agree on the state of the blockchain. Examples of consensus algorithms include Proof of Work, Proof of Stake, and Delegated Proof of Stake.

Techniques :

- 1. Encryption:**Encryption is used to protect the data stored in the blockchain by encrypting it with a cryptographic key. This ensures that only authorized users can access the data in the blockchain.
- 2. Smart Contracts:**Smart contracts are self-executing contracts that are written in code and stored in the blockchain. They are used to execute transactions automatically when certain conditions are met.
- 3. Multi-Signature:**This is a technique used to secure access to funds in the blockchain.

CONCLUSION

The Block-chain based disk space rental system is the perfect solution to the issues of disk space rental. It provides a secure, reliable and efficient system of renting disk space without the need for any middleman. The data stored on the system is encrypted, making it secure and unalterable. The system is also cost-effective, with minimal transaction fees. In addition, it provides greater visibility and transparency in the rental process. All in all, the block-chain based disk space rental system is an excellent way to rent disk space securely and cost-effectively.

REFERENCES

1. <https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=8400511>
2. <https://www.deac.eu/news/blog/disk-space-rental-risks-and-advantages/en/>
3. <https://github.com/AndriianChestnykh/fsmp#:~:text=Main%20purpose%20of%20the%20system,provide%20disks%20for%20that%20purpose.>

SAMPLE CODE IMPLEMENTATION

```
2     <div class="row">
3         <form class="form-inline">
4             <div class="form-group">
5
6             </div>
7         </form>
8     </div>
9 </div-->
10
11 <h1 class="text-center">Accounts</h1>
12 <h4 class="text-center">Total balance:
13     <span class="text-info">
14         {{ctrl.totalBalance | number:2}} ETH
15     </span>
16 </h4>
17 <table class="table table-condensed">
18     <tr>
19         <th>Current</th>
20         <th>Balance
21             <currency-label category="inEther"></currency-label>
22         </th>
23     </tr>
24     <tr ng-repeat="account in ctrl.accounts"
25         ng-class="{
26             'success': account.number === ctrl.currentAccount
27         }">
28         <td class="ellipsis">
29             <span uib-popover="{{account.number}}" popover-placement="top-left">
30                 {{account.number}}
31             </span>
32         </td>
33         <td>
34             <span ng-show="ctrl.inEther">
35                 {{account.balance | number:2}} ETH
36             </span>
37             <span ng-hide="ctrl.inEther">
38                 {{account.balance * ctrl.etherPrice| number:2}} $
39             </span>
40         </td>
41         <td>
42             <button class="btn btn-default"
43                 ng-class="{
44                     'btn-success': account.number === ctrl.currentAccount
45                 }"
46                 ng-disabled="account.number === ctrl.currentAccount"
```