

A REVIEW ON ISSUES AND CHALLENGES OF BLOCKCHAIN TECHNOLOGY

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ABSTRACT

The technology that has the most impact on our lifestyles in the last decade is Blockchain. The blockchain is a favorite platform for use with cryptocurrency, smart contracts, IoT, and in many other popular domains. Blockchains are scattered ledgers that enable parties those are not believe each other for maintaining their states. The blockchain applies the protocol to verify the block those are responsible for distributing the network node. A word that often arises when talking about Blockchain is Bitcoin. Many people still confuse Blockchain with Bitcoin but they are not the same. Bitcoin is just one of many applications that use Blockchain technology. This paper, is focus on Blockchain applications and the challenges and issues involved in blockchain technology.

Keywords

Blockchain, cryptocurrency, IoT, Bitcoin, distributed network

INTRODUCTION

The introduction of cryptocurrencies, specifically Bitcoin, has brought the concept of blockchain technology into the mainstream. A blockchain is a continuously growing distributed database that protects against tampering and revision of data. Bitcoin uses blockchain to maintain its public ledger of every single transaction ever made with Bitcoin. This Merkle tree approach allows for a greater hashing mechanism to provide efficient and secure verification of large amounts of data. This information is then used by Bitcoin to enforce their transactional checks. Blockchain is not just limited to the financial system; instead, it is a great solution for almost any platform or product that requires trust, such as keyless automobile entry authentication. IBM and Samsung recently revealed a proof of concept that use blockchain as the backbone of the Internet of Things.

A blockchain is a singly LinkedList of block, with each block containing a number of transactions. It provides a decentralised, immutable data store that can be used across a network of users, create assets and act as a shared black book that records all transactions. Each transaction can be easily queried, affording greater transparency and trust to all parties involved.

With the original creator, or creators, being anonymous the true motivations behind blockchain are arguably unknown. However it has proven to be a more than adequate solution to the many issues.

- [1] Data that multiple clients (individuals or organisations) have a copy of, which in turn needs consolidating and validating
- [2] Sharing inter-organisational data
- [3] Digital asset registry
- [4] Identity management (e.g. cryptographic identification)
- [5] Significant IoT interest (interested parties could pull data from a blockchain)

CHALLENGES WITH BLOCKCHAIN TECHNOLOGY

Blockchain technology is being hailed as one of the most revolutionary and disruptive technological advances of today. The technology that underlies the digital currency bitcoin has changed our perception of what constitutes money as well as the storage and transfer of value.

Despite the large number of industries that the blockchain is impacting, there are also concerns regarding the technology that are still preventing its widespread adoption.

1. Initial Costs

The adoption of blockchain technology promises long-term benefits with regard to productivity, efficiency, timeliness and reduced costs, it is expensive to initially put it in place. The software required to run blockchain technology in organizations must typically be developed for the specific firm and is therefore expensive to purchase, acquire or develop in-house. Moreover, organizations may have to obtain specialized hardware for use with the software.

2. Integration With Legacy Systems

In order to make the move to a blockchain-based system, an organization must either completely overhaul their previous system or find a way to integrate their existing system with the blockchain solution. However, it may be difficult for blockchain solutions to handle all functions needed by organizations, initially making it difficult to completely eradicate legacy systems. Therefore, considerable changes must be made to the existing systems in order to facilitate a smooth transition. This process may take a significant amount of time, funds and human expertise.

3. Energy Consumption

The Bitcoin network, as well as the Ethereum network, both use the proof-of-work mechanism to validate transactions made on the blockchains. This mechanism requires the computation of complex mathematical problems to verify and process transactions and to secure the network. These calculations require large amounts of energy to power the computers solving the problems. In addition to the energy used to run the computers, a sizable amount of energy is also required to cool down the computers.

It should be noted, however, that the Ethereum network is planning a move to a proof-of-stake mechanism, which would require much less energy in order to function. Since most real-world blockchain applications are based on Ethereum's network, this would make the move to blockchain technology more sensible with regard to energy consumption.

4. Public Perception

The majority of the public is still oblivious to the existence and potential uses of this technology. In order for blockchain technology to make the move to the mainstream, there must first be a public buy-in to its benefits. Though the technology is revolutionizing many different industries, knowledge of the benefits of distributed ledger technology is still limited to those who are involved in the technology space and those whose industries are adopting blockchain solutions.

Presently, blockchain technology is nearly synonymous with Bitcoin. Though the value of bitcoin continues to rise to unprecedented levels, there is still an association of the cryptocurrency with the shadowy dealings of money laundering, black market trade and other illegal activities.

5. Privacy and Security

Blockchains, as in the original design, are made to be publicly visible. Take, for instance, the Bitcoin blockchain, which is designed to be accessible to all those who have made a transaction on the network.

In the case of bitcoin and other cryptocurrencies, this is an important feature. However, for governments and corporations, this creates a number of concerns. Governments and corporations have a need to be able to protect and restrict access to their data for a myriad of reasons. This means that blockchain technology cannot work in spaces with sensitive data until this challenge is met.

CONCLUSION

Blockchain has shown its potential for transforming the traditional industry with its essential properties in the form of decentralization, persistency, anonymity, and auditability. In this research, we offer a complete overview of the blockchain.

We first give an overview of blockchain technologies including blockchain architecture, and the critical characteristics of the blockchain. We then discuss some challenges and problems that would hinder blockchain development. Nowadays blockchain-based applications are springing up, and we plan to conduct an indepth investigation of blockchain-based applications in the future.

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