A Survey on Recent Trends in Blockchain Security

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Abstract

The blockchain industry is running towards digital transactions all over the world, In India, online transactions are rising to their highest possibilities, so most of the senders are receivers of payment and need internal trust to build among many of the users. Hence, most of the users are running towards the betterment of the system by providing feedback to the developers of the technology about the developments that might be helpful for the development of blockchain technology. The current study has successfully provided data related to the effectiveness of blockchain technology and its future sources to provide in the commercial sector so of the world including India.

Keywords: Blockchain technology, cyber security, data security, commercial use

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Introduction

Blockchain technology is a particular method for securing data related to different organizations or people related to their different transactions or others. It is developed like a ledger where the user can keep daily updates of data. However, the user does not have permission to delete any data from the ledger. The entire data in the blockchain industry is mainly protected with different cryptographic primitives and protocols, like digital signatures or hash protocols etc.

Aim and objectives

This article aims to find out the current trends of using blockchain fatality in most of the commercial platforms related to different sectors in India.

Objectives

a. To find out the exact technology behind the technology.

b. To check the ability of the technology of blockchain security to handle the security of the vast data present in the Indian commercial sector.

c. To find out the proper possible applications of blockchain technology in the industrial sector.

Overview of the Blockchain Industry

In 1982, Chaum was the first person to coin the term blockchain with proper descriptions in his thesis paper about the block chain protocol, however, it was only the approach to keep the daily data safe and secure with high security. However, in 2008 Bit coin was introduced by Nakamoto with the application of a simple peer-to-peer network (Andoni et al.2019). Similarly, the bit coin industry used the blockchain method as the distributed ledger behind all the transactions of Bit coin. In 2013 the bit coin industry evolved as the ledger keeper of different transactions of a particular industry where the daily transaction limit is extremely high and the entire amount entering the sector is not an easy task to perform.

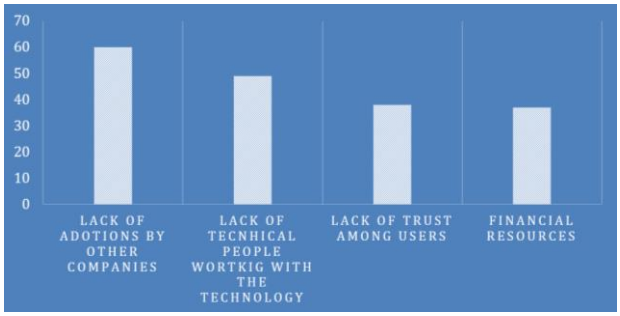

Figure 1: various challenges of block chain method

(Source: Dutta et al.2020, p.13)

In the trustless industry of the economical sector all over the world, where every individual doesn't have a little bit of trust before paying every single transaction to the sender, blockchain security provides the abets security about the sender and receiver of the amount, the online ledger is extremely secure and cannot be deleted by any user, thus the data related to every transaction gets secured properly (Dutta et al.2020). Blockchain security has increased the usage of digital transactions to the highest number of users. In the recent five years, India has evolved to its highest place in digital transactions with the involvement of blockchain security in various online payment apps.

	Public blockchain	Private blockchain
Authority	decentralized	Can be centralized
Access	Public have access	Entry by invitation
Transactions per second	Less	More
Speed	Slow	Fast

Table 1: Differnce between public and private blockchain use

(Source : Ali et al.2020,p.23)

Technology regarding the Blockchain

The main factor behind the technology of blockchain security is mainly based on building trust between the sender and receiver of the money through online media. In an online ledger secured by blockchain security the process to provide security and assurance about the genuineness of most of the senders is next to impossible generally, but the blockchain security method does it by validating every user involved in the same ledger (Ali et al.2020). The blockchain system develops blockchain management by the main method of having the entire process according to the users or the blocks in the chain. The system of blockchain security is developed with consensus algorithms where every block in the chain gets secured with an individual asset of honesty record. It is found that the greatest number of users in blockchain technology want to keep the ledger honest with the maintenance of the users and the security of the accounts.

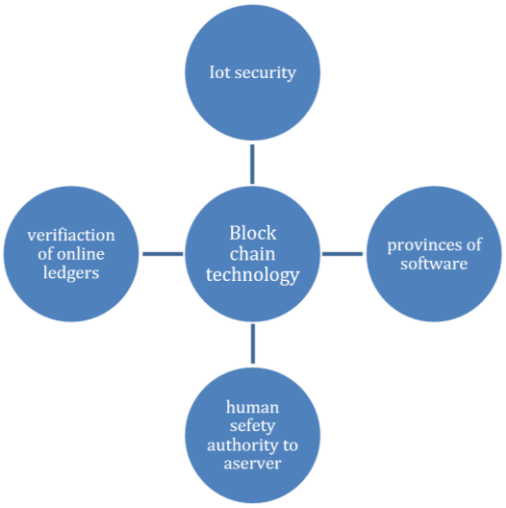

Figure 2: various use of blockchain method

(Source: Ali et al.2020, p.43)

Blockchain technology is extremely beneficial to get things clear and most of the users must provide major details about their identities and bank account details to get access to the ledger (Alam 2022). This detail makes the ledger trustable to most of the users in terms of having the trust upon them and the new users show interest to get involved in the ledger without having to any doubt, so the entire sector of the country gets evolved to its highest possibility.

Hash functions of blockchain technology to counter the challenges

Hash functions are majorly used as the key to enter the blockchain technology to get access to the ledger that is been established by the users to keep data. The hash functions are running very effectively in every sector in India. The reason for this success of the hash function is due to the five important properties of cryptography. They are as followed:

- **Fixed-sizeze factor:** The hash function can send and receive every data with the fixed size of the dat. Thus, every data of the transactions needs to be condensed in a fixed size so that the entire job gets completed so early with proper security (Sedlmeir et al.2020). It is mainly used for digital signatures.

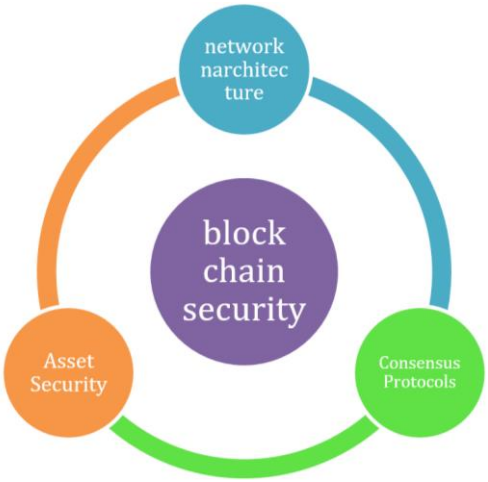

Figure 3: The use of block chain method

(Source : Saberi et al.2019,p.93)

- **Preimage resistance:** The pre-imaging of any data means to make the data back to its original before that was mathematically calculated to its exact output from the hash functions is not able to make the data back to its previous form.
- **2nd Preimage resistance:** Even the majority of the data calculated by the mathematical valuation is next to impossible to make the data refer back to the data that was previously installed for the calculator (Saberi et al.2019). Hence, the entire process is not easy to complete.
- **Collision resistance:** The hash input section also can stop any similar input to create a duplicate copy of any entry without following the serial numbers or the data and time.
- **Big change**: If the data is changed among input then the entire data in the result gets changed immediately.

high	substitution	transformation
low	**Single use**	**Localization**
	low	**high**

Table 2: Degree of coordination ion block chain method

(Source : Saberi et al.2019,p.33)

Methodology

The entire study is developed with the method of secondary data collection for the different types of journals, research papers, and books published on the same topic. The majority of the data that was collected was taken from the established writer after checking tier publishing dates. Outdated data are not included properly (Ali et al.2021). Even the data that is not in the English language got rejected from getting included in the study. The exclusion method was also implemented in the sorting of the data that was gathered for the usage of the study.

Data analysis and findings

The data analysis method of the current study is developed with qualitative data analysis. The analysis is very effective to discuss data the quality of the data to get the exact view of data and the relevance of the data to the topic (Abu-Elezz et al.2020). Even qualitative data analysis helps to develop an internal analysis of the data which is been used in the study. The secondary data analysis is very helpful to review past research on the same topic. The majority of the collected data gets reviewed and irrelevant ones get rejected thus other writers get another view about the upgradation of their data. So it is very effective to get data about any topic related to the topic.

Findings: The findings of the current study are quite effective to have the exact view of blockchain technology. The study has celery identified the exact working method of blockchain technology (Xiong et al.2020). The blocks and their working method to develop the chain of different blocks to make the entire chain effectively connected and data that is been shared multiple times suggest securely safe in the ledger been developed by the entire method of block chain technology. The hash method of securing the gateway of the blockchain security is also developed with the best understanding of the data.

Conclusion

After going through the study it is clear that blockchain security is one of the most effective online ledgers to keep all the data safe and secured. The majority of the data related to the

development of blockchain security is described with statistical information. Os the system might be very helpful for the upcoming researchers on the same topic; Even the blockchain development researchers might get information about upgradation in the future developments of the model of the blockchain technology.

Future scope

Blockchain technology might be very useful to be used in every sector and every transaction in India where every transaction is mainly in the unorganized sector of the industry. So the government might get help to get data about the entire transactions being occurring all over the country. The majority of block chain technology development companies might get critical information to implement in the next version of the block chain industry. However, the current version o block chain industry is very effective to get it done within time.

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