Chapter 9

Consequent Formation in Security With Blockchain in Digital Transformation

Shanthi Makka
https://orcid.org/0000-0002-0387-3160
Birla Institute of Technology, Ranchi, India

Gagandeep Arora
ITS Engineering College, India

B. B. Sagar
Birla Institute of Technology, Mesra, India

ABSTRACT

Blockchain technology makes use of a centralized, peer-to-peer (P2P) network of databases, also called nodes, to validate and record digital transactions between individual users located anywhere across the globe. These transactions often take place through the exchange of cryptocurrencies such as bitcoins, Ethereum, and Ripple, etc. The security and transparency that is inherently present in digital transactions place blockchain technology in high demand across various industrial applications. Each node updates its database in real-time as and when transactions occur. The transaction gets authorized only when a majority of the nodes in the network validate the transaction. Once the verification is complete, a block, consisting of hash and keys, is generated for each new transaction and is linked to previous transactions in every database. Every node updates its database with the new block. A hacker would have to break down every node in the system to commit fraud. Blockchain could play a major role in maintaining the cyber security of digital transactions in the future.

DOI: 10.4018/978-1-6684-7132-6.ch009

INTRODUCTION

This chapter deals with how Blockchain Technology guarantees security in digital transformation. Blockchain technology create consume of a centralized, peer-to-peer (P2P) collaborate of databases is called nodes, to validate and record digital transactions between individual users located anywhere across the globe. These transactions often take place through the exchange of Cryptocurrencies such as bit-coins, Ethereum and ripple etc. A Cryptocurrency (or crypto currency) is a integral advantage outline to pursue as a midway of trade that benefit powerful cryptography to protect commercial transactions, force the establishment of further units, and confirm the dispatch of credit.

The security and transparency that is in inherently present in the digital transactions place Blockchain technology in high demand across various industrial applications. Each node updates its database in real-time as and when transactions occur. The validation of transaction is depends upon the criteria that majority of nodes in network gives approval. Once the verification is completed the hash address and keys will be generated for the new transaction and further it linked to previous nodes in database and all nodes in network will get updated with this new block of values. If any hacker wants to commit any fraud activity he or she has to breakdown all the nodes in network and all the nodes are located globally and it is visible to everyone in the network would increase difficulty to commit fraud Blockchain could hit a considerable act in maintaining cyber security of digital bond in the future.

WHAT IS BLOCKCHAIN?

Blockchain is an open-source, scattered ledger proficient of reporting and accumulate facts that is then achieve by unique crypto graphical designs. This unique and innovative design makes Blockchain a safe space for data and the data cannot be deleted, modified, manipulated, or misused in any way. Another crucial form of Blockchain technology is that it is consensus-oriented which further reduces the possibility of data being manipulated or misused. Its design is such that a large number of computers (nodes) are connected over a network.

So, whenever the Authors wish to enumerate a transaction to a Blockchain, The Authors must clarify or clarify a mathematical test, the outputs of which are communal with every machine linked to the network. Only when all other computers on the network reciprocally acknowledge with the output, then only user can the add transactions to the chain. Moreover, in Blockchain, data is never gathered (Yaga, D., et al., 2019) at one peculiar location, which makes cybercriminals to access the data all most impossible.

Blockchain is, hence, the first technology that expedites the pass on of digital proprietorship in a decentralized manner. All these aspects make Blockchain so imploring to the capitalist of the technical world. As the name proposes, the Blockchain framework is made up of various ‘blocks,’ each of which contains the transaction data, a timestamp, and the link (cryptographic hash) to the previous block. A Blockchain is a collection of documents that are known as blocks. These blocks of records are covered and obtain by cryptography. Blocks in database (Lindman, J., 2017) connect stable and include information from other blocks, deal data, and time space.