BLOCK CHAIN APPLICATION IN BANKING SYSTEM

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Abstract

Digital technology's new disruptive power is altering business models and becoming an increasingly important global driver. In India, blockchain technology is in high demand in numerous sectors. Leaders in the industry are continually adapting the technology to a wide variety of use cases as the scope of blockchain applications expands. The next step in the decentralized application development approach is being developed using blockchain technology. The purpose of this article is to describe blockchain technology's architecture and operation. The advantages of blockchain are also discussed, in addition to the various functions it performs. Additionally, assessments of the suitability of blockchain for various banking operations and use cases have been completed. The security aspects of blockchain will also be discussed in the concluding section.

Keywords: Blockchain technology, Bitcoin

Introduction

One of the emerging technologies that is currently available on the market and is receiving a lot of attention from businesses, startups, and the media is blockchain, which is best known as the core technology behind Bitcoin. Blockchain has the potential to revolutionize a variety of industries and enhance democratic, secure, transparent, and effective processes. Every organization must effectively manage security threats and achieve significant cost savings as a large amount of data is generated every day through the digitization of records. With its promise of decentralized ownership, immutability, and cryptographic data security, the blockchain is attracting the attention of corporate executives in this area. Many cross-industry use cases are likewise investigated as everybody has begun to see the problematic capability of this innovation. Despite its infancy, financial traders are the first to adopt this technology. According to a World Economic Forum study, various blockchain prototypes will be tested by banks and regulators worldwide in 2017. Blockchain technology will soon become the norm in the financial services industry, with banks launching blockchain and distributed ledger technology (DLT) projects by 2017. Many organizations across different non-monetary administrations enterprises, for example, telecom network safety, store network the board, estimating, protection, confidential transportation, and ridesharing, distributed storage, crowdfunding, casting a ballot, administration, energy the executives, retail, land as a method for

recognizing potential use cases for blockchain, to emphatically disturb their customary plans of action or have proactively executed their utilization cases, here Block chain Pilot is used.

What is a chain?

Blockchain is a distributed, digital, immutable ledger that records transactions chronologically and almost immediately. A continuous mechanism for data manipulation, error correction, and quality control is established when the appropriate consent of the network participants (also known as nodes) is required for each subsequent transaction to be added to the ledger. It makes a computerized record of exchanges, then, at that point, permits it to be shared across a circulated organization of PCs, and keeps a consistently developing rundown of records, regularly alluded to as "blocks", shielded from altering and updating. The implementation of a blockchain consists of two types of records: both transactions and blocks a safe hash algorithm establishes a connection to the previous block after each block has been time-stamped. The fact that it uses encryption to allow multiple users to modify transactions on a secure network while each accessing their own data node is its primary advantage. A new block is added to the chain if the majority of nodes agree that the executed transaction appears to be valid and identifies information that is consistent with the blockchain's history. The type and size of the network, as well as a company's use case, are the primary factors that distinguish blockchain configurations.

Public and private blockchains are the two types. Public account books exist if:

1. Without permission from another authority, anyone can log data.
2. The data can be read by anyone without the permission of another authority. For instance, Bitcoin is designed as an "anyone can write" blockchain, which means that participants can add data to a ledger without having to get approval. No one makes the final decision, so this makes it harder to attack. As a result, the implementation of this blockchain is more expensive and complicated.

In the private blockchain network, members are known and trusted, and there is a level of secrecy. For instance, many mechanisms in a conglomerate are either not needed at all or are replaced by legally binding contracts that require each contract signer to follow the rules. The technical decisions used to construct the solution are quickly altered as a result.

The blockchain requires:

When there are so many other databases available, why use a blockchain? This is the primary concern. How significant it is in comparison to other products. Because of this, we comprehend the issue with existing systems.

The following is a summary of them:

(I) It is challenging to screen and esteem the possession and move of resources inside a confided-in corporate organization.

(ii) Slow, expensive, and delicate: It is extremely difficult to function as a result of all of these factors, which impede progress.

Blockchain offers a solution:

Blockchain, in contrast to conventional systems, is so dynamic that it has the potential to lead implementations in a market that is constantly changing. In the blockchain, the greatest advantage is that each party has a record that is kept in a record that every one of them can get to. It is a ledger that is frequently sent from one user to another, creating a shared database that is replicated for those users and accessible only with access rights. It works on consensus, lineage, immutability, and finality to make sure that all of these things work together in a good way.

Anatomy of the Blockchain

Blockchain architecture is made up of several fundamental ideas like decentralization, digital signature, mining, and data integrity.

(i) Separation of powers: The blockchain distributes control to all peers in the transaction chain, as opposed to one central authority dominating others in the ecosystem.

(ii) Digital Signature: Through the mechanism of a unique digital sign, i.e. H., a decryption key that is known to everyone in the world, a network, and private keys that are only known to the owner, the blockchain makes it possible to exchange the value of a transaction using public keys.

iii) Mineralogy: Each user in a distributed system copies and mines data, which is then analyzed according to cryptographic rules and credited to the miners for confirming transactions.

(iv) Information Respectability: The integrity of the agreed-upon transaction data is guaranteed by user agreements and complex algorithms. The blockchain's data reduces the likelihood of fraud and serves as a single version of the truth for all parties.

How the Blockchain Works?

A blockchain is nothing more than a publicly accessible, distributed, decentralized public ledger, as previously stated. It is thought to be a robust and unchangeable data structure. Data replication is at the heart of the most well-known application of the blockchain to date. The Bitcoin transaction list is the same for everyone on the network. In the blockchain, we determine whether the majority of network participants can verify the ledger. The majority of Bitcoin network participants are replaced by key members, or validators, in the networks. After that, these validation nodes block the data, verify payments, and transfer them. The Bitcoin system is typically decentralized, which means that it is not entrusted to a single authority for control to maintain the essence of the blockchain philosophy.

Benefits 0f Blockchain

As previously mentioned, the design and architecture of the blockchain provide the industry with several inherent advantages that it has long sought. The blockchain's distributed nature makes processing very transparent and eliminates the need for manual verification and authorization. The following are the main features of the blockchain:

Almost immediately: Blockchain empowers recorded exchanges to be comfortable and close to constant, dispensing with contact and lessening risk.

No Third Parties: Blockchain technology permits two parties to transact directly without the need for a trusted third party because it relies on cryptographic proof rather than trust.

The Dispersed Ledger: The history of public transactions is recorded by a distributed peer-to-peer network. The blockchain is widely accessible and distributed. The blockchain typically only stores proof of the transaction, not the identities of the parties or the transaction data.

Immutability and Reversibility: Every transaction that is carried out is recorded in a dependable and observable manner on the blockchain. This stops previous blocks from being changed, which in turn stops double spending, fraud, abuse, and transaction manipulation.

Intelligent Contract: stored procedures that run on a blockchain to process predefined business steps and finish a transaction that is legally and financially enforceable without the help of an intermediary.

Display of Blockchain Games

Throughout the nation, banks have collaborated successfully with Fintech and/or consulting firms to develop proofs of concepts and investigate a variety of potential use cases. It demonstrates the seriousness with which banks view blockchain technology and their willingness to comprehend how blockchain can address a variety of current process issues.

Major issues that Indian banks face today rising operating costs, an increased risk of fraudulent attacks on centralized servers, and transparency issues are some of the issues that Indian banks face today. This is primarily because the majority of banking transactions, from opening customer accounts to global payments, necessitate extensive manual processing and documentation, involve costly intermediaries, and can be time-consuming due to the requirement that these transactions be approved by various participants at various times, resulting in delays. Resulting in a real-time solution that is almost non-fraud-proof.

What are the criteria banks use?

To ensure the profitability of their operations, provide transparency to customers and regulators, and improve customer service, banks are constantly looking for new ways to process transactions more quickly.

Due to its inherent ability to eliminate middlemen, maintain an immutable ledger, and facilitate real-time transactions, blockchain may provide banks with a solution. The TAT for banking transactions could be cut down, costs associated with manual labor could be reduced, and customer service and satisfaction could rise as a result. For banks to realize the block blockchain's full value, selecting the appropriate "use case" is just as important as it is for any other sector.

Blockchain Match Scoreboard

A blockchain assessment framework has been developed to determine whether a particular process or use case is suitable for a blockchain solution. This framework is based on the above discussion of current issues in the banking industry and the benefits of blockchain. The majority of the framework's questions must be answered in the affirmative for a process or use case to be considered blockchain-ready. As you can find in the system, every one of the assessment factors uncovers an issue in the present status of the cycle that can be settled by the highlights of the blockchain arrangement.

Use Cases or Processes where Blockchain can play a Key Role

The following are some specific use cases in which we believe blockchain can be of significant assistance to Indian banks and financial institutions in achieving significant benefits.

Underwriter businesses take on a lot of big projects, like building roads, railway systems, airports, factories, and new shopping malls, which necessitate significant financial resources. To acquire such substantial funds, institutions must join a consortium and share the financial risks with its members. The bank will be able to limit its exposure to either party by participating in the loan. In turn, the head of the bank or partners might do work that has to do with checking and verifying securities.

To give the credit system more flexibility and make it easier for credit to flow smoothly, the Reserve Bank of India withdrew several regulatory recommendations regarding syndicate, multibank, and syndicate operations in October 1996. However, in light of the most recent syndicated/multiple bank scams, the Central Supervisory Commission of the Government of India has raised concerns regarding the functioning of the Lending and Multiple Banking Arrangements consortium in the banking system. The Commission primarily attributed the fraud to the ineffective exchange of information among the various banks regarding the creditworthiness of borrowers and account management.

Payments The Indian banking industry thrives on innovation and strives to improve the banking system by introducing and implementing electronic payments. While electronic payments are not far behind, paper transactions have always dominated Indian payment systems. The banking industry in India has experienced unprecedented expansion since the introduction of electronic payment methods.

It is challenging to keep track of cash flow due to the nature of the payment processing services offered today. Although new "True Ownership" rules in the United States may make this easier, it can be difficult to associate a name in a bank account with an identifiable person or entity even with the current "Know Your Customer" rules. S. Banks are prohibited from disclosing financial information about their customers to foreign regulators by data protection laws in some nations.

Next Questions Relating to Blockchain Implementation

The integration question refers to solutions provided by blockchain applications that necessitate significant modifications or the complete replacement of existing systems. To achieve change, monetary establishments need to foster a progress system.

Control, Security, and Privacy Despite the existence of a private or permissioned blockchain and robust cryptography, there are still cybersecurity concerns that must be resolved before the general public places their data in the hands of a blockchain solution.

(i) Security at the ledger level: Only participants who have completed the necessary verification should be eligible to join the blockchain. In contrast to home users, who can opt-out, institutions with actual legal authority are typically members.

(ii) Safety at the network level: Beyond the blockchain software, blockchain systems typically consist of numerous subcomponents, some of which may include traditional shadow databases, messaging services, and other services. From a network perspective, it is recommended to secure communication between the components of the various nodes. Multiple attack vectors, both internal and external to the network, must be able to break down the network.

(iii) Security at the Transaction Level: Security at the transaction level is crucial for financial institutions. The transactions' accuracy and immutability are determined by the company's books and records. The PKI concept should be used to encrypt the relevant transaction details to prevent their disclosure to third parties.

(iv) Safety of the Contract: The terms of a contract are pre-programmed, self-executable, and self-executable files in smart contracts, which are also referred to as self-executable contracts, blockchain contracts, or digital contracts. Execution. Programming languages like C++, JavaScript, Java, Go, Python, and others are used to write smart contracts. It is possible for the developer of a contracted program to intentionally or otherwise create a flawed program that could introduce security flaws into contracted resources, just like it is the case with any other computer program.

Regulatory status is uncertain If the status of government regulatory status remains unregulated, blockchain will face the obstacle of widespread adoption by financial institutions.

In the emerging/experimental phase while the majority of banks have begun experimenting with blockchain or developing proofs of concepts, there has not been a significant breakthrough in blockchain applications in the truest sense of the term.

Cultural Reception The blockchain is a complete move toward a decentralized network that requires user and operator consent.

Costs of acquisition Although the blockchain offers significant cost and transaction time savings, banks are particularly concerned about the high initial cost of capital, which may act as a deterrent.

Conclusion

Even though it is widely acknowledged that the potential of blockchain is comparable to that of the early commercial Internet, banks need to be aware of the technology's key features and how it can address today's business challenges. Blockchain, on the other hand, can exchange values, whereas data exchange over the internet is possible. Banks need to find opportunities, test the proof of concept, and determine its viability and impact.

However, specific discussions and participation in the deliberations of the relevant regulators are required to address regulatory issues. They concluded that regulators ought to get involved, get in early, and influence innovation. They can comprehend the technology, evaluate the risks, and tailor solutions to specific obstacles as a result of this.

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