

# **Blockchain as Reverse Approach From Centralized To Decentralized Database**

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## **Abstract**

A blockchain acts as public transaction that can be accessed by each and everyone but there is no any central authority having control on blockchain. It enables the various sophisticated technology for professionals as well as for companies to collaborate with trust and transparency. There are various applications that are related with blockchain but the best known applications of blockchains are the cryptographic currencies such as Bitcoin, but many other applications are also possible. Blockchain technology is examined as driving force of the next fundamental revolution in information technology. In this paper blockchain approach related centralized to Decentralized database is discussed.

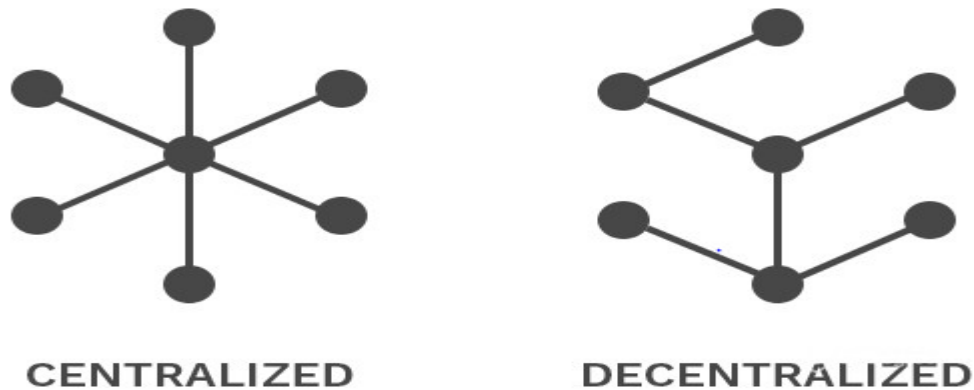
**Keywords** Blockchain, Centralized, Decentralized, Load-Balancing, Privacy, Security

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## **Introduction**

The paper focuses on centralized and decentralized database which is used to store the information for future used. Database acts as an organized collection of the data that acts as central ledger which is controlled by administrator. Database can be centralized and decentralized.

Centralized database means data stored in one location as single database that acts as server host but Decentralized database in which different type of information is stored in different physical locations that are controlled by Local database server. Example: University Database that is used by different users such as faculty, Student, Admin staff, Librarian, Accountant etc. which is maintained centralized and Blockchain is Decentralized Database.



**Figure 1:Blockchain Technology**

Blockchain is a data structure and Decentralized Database that maintains the records of transactions. Each and Every transaction in blockchain is secure with the help of digital signature.

### **Challenges in Centralized Database over Decentralized Database**

Centralized database has only single Location/Server where all the information is stored that makes it inefficient and there are many issues with this system.

- 1. Storage Limitation:** Storage space limit is main issue in centralized database. A very popular word “can’t scale up” the database it means storage space of the database is very limited it can’t be increase easily. Due to this, it becomes very difficult to handle the Load of the large amount of users. If that central server damaged, all the data will be lost.
- 2. Privacy Constraints:** As Central database is using only single database due to which information is accessible from anywhere at any time that lose the security of information. If there is any information which is private for organization will become also accessible for the user. If multiple users will try to access the database at same time it will create a problem that will reduce the efficiency of the database. Example: In banking system it is very easy to access the account detail from any location.
- 3. Communications:** Communication is the main issue in centralized database as it increase the communication cost between client and server.

4. **Unstructured Data:** In centralized system, data is stored in unstructured form which is not understandable. Unstructured data comes from social media, in the form of audio, video and images. Such type of data is difficult to understand and analyze. From central location, Searching becomes challenge. Where as in decentralized database, data is stored in different location that makes it easy to maintain and easily accessible.
5. **Computational Cost:** The blockchain solution is not much better in all technologies. Process take relatively high computational costs as well as it are bit,” said Weidmann in a statement made in Frankfurt on Wednesday.

### **Benefits of Blockchain**

In today era various fields’ researchers as well as vendors are taking the advantage of blockchain technology. It is considered as secure method in every filed such as business sector, industry, healthcare sectors as well as in finance. Blockchain technology is considered as decentralized and trustless as a result it leads to new opportunities. The following are the benefits of blockchain technology:

1. **Decentralized:** Blockchain act as ledger which is not stored in single location means not centralized. There is no single authority who can handle. Due to decentralize it can be easily verified as well as can be modified. In this technology servers and clouds are interchange with nodes across the globe. As a result it become easy to verify without the interaction of third party.
2. **Transparent:** Blockchain ledger provides the accessibility to authenticate users and participants only that can make the changes in the information. Thus data on the blockchain become consistent, accurate and transparent.
3. **Secure:** After the approval of transactions, they are encrypted and linked with previous transactions. Thus is become more compromises for the intruders to attack on the information. Blockchain has an opportunity to make the information as complex as to make it secure from frauds and unauthorized access.
4. **Speed:** Transaction processing speed become faster due to no payment. Rapid process of transaction increases its speed as well as its reliability.

### Areas using Blockchain Technology

Due to security and transparency, blockchain technology is being used by various sectors which are:

**Financial Sectors:** In financial fields, blockchain technology has taken its own space due to security, transparency and simplicity. Hence finance business taking the benefit of this.

**Government:** Due to security blockchain technology is used to keep the records secretly as well for authentic purpose Such as voting records.

**Healthcare:** Blockchain technology is widely used in health sectors also. Hospitals authority used this technology to keep the record of patient authentic as well as private. Hence it cannot be used by third-party without approval of authority.

**Educations:** Nowadays, mostly education institutes' even universities are also using the blockchain technology to keep the record of document private as well as to process them easily.



### Conclusion

Decentralization is a technique that is used everywhere rather than computers and network. It involves businesses and people for the purpose of authentication and privacy of the data. However, the entire

decentralization may be very hard to accomplish and it might take time for the Blockchains to turn out to be in reality decentralized, in the event that they intend to achieve this. It will now not simplest involve Blockchain Technology but additionally synthetic intelligence algorithms that might update humans to cast off biases.

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