Use of Blockchain Technology

for Back-End

Restructuring

US Bancorp Case Study

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**Introduction**

The internet has changed our lives drastically over the past decades. We can accomplish tasks that is extremely convenient for us. We have movies, food, music available to us just a click away. There are however industries that still lag in their own industries when it comes to technology. The front end of operations look great to the customer and innovative technology has helped with this. However, the backend of technology especially in the financial industries are up for a revamp. Why is it that it takes so long to transfer money across borders? Why are institutions spending so much money in middleman transactions that aren’t efficient to begin with? Why is our data on central servers that can be tampered with by hackers? Why are asset ownership documents not entirely secure? These are the back-end problems that have not been discussed or given enough attention to. It is simply because it lacks the glitz and glamour of the front-end solutions that tailor to the customer such as two-day shipping, uber drivers around the corner, or connecting to people on the other side of the world in a matter of seconds (Facebook). The technology companies such as Amazon, Facebook, Uber all have one thing in common, they connect the consumer with their needs (producer). However, the reason that these companies can accomplish these amazing tasks are because of their sturdy technologically advanced foundations. The banking industry has been using dressed up technology such as Legacy for over 35 years now. “If it ain’t broke don’t fix it” is the belief. There is a transition of banks using Cloud-based technology for their data needs. This is a temporary solution when looking into the future. Although Cloud-based storage allows for seamless access to data it lacks in terms of security when compared to Blockchain Technology. Blockchain Technology is still in proof of concept phase when coming to large enterprise use but it is moving at a rapid pace. Soon there will be a hybrid of Blockchain and the Cloud that gives corporations the optimal solution that will be scalable for many years to come.

**Background of Blockchain Technology**

Explained simply Blockchain works as a shared chain of data that can be extended through writing new data (adding onto the chain). The chain is shared among certain or all participants depending weather the Blockchain is private or public, but validation of new data is performed by all participants (the nodes).

A few essentials that make the Blockchain:

* It has a store of data which can vary from peer to peer transactions, asset ownerships, or other forms of documentation
* The data on the Blockchain is replicated among multiple systems rather than a central source. These systems can be referred to as the nodes
* There is no central party that writes the data onto the chain, rather nodes come to a consensus of what is added to the chain
* Each block has with it a digital signature generated by cryptography
* Once a block is added to the chain it is immutable (Tamper Proof)

Blockchain offers benefits to many industries in the future through the collection of data, immutability of data, transparency, and access to the data. The collection of data does not only have to be associated with settlement transactions in the form of money such as most crypto currencies are doing. The data collection put on the Blockchain can vary from money, documents, and other assets. This is useful because it gets rid of the clutter of data being spread on multiple servers and instead is available on one Blockchain. Immutability of the data put on the Blockchain is incredibly useful. Once a new block is added to the Blockchain it is not possible to tamper with it. This is because all of the nodes on the network have updated copies of the Blockchain and if one node tries to change something in a past block they must change that same block in every other nodes system as well. This reassurance of immutability goes along with the transparency of the system as well. Blockchain technology is transparent in that certain information can be seen by designated parties when regarding a private Blockchain. A private Blockchain allows only permissioned parties to have access (read/write data) to the information on the Blockchain. A privately formatted Blockchain is ideal for enterprises because it allows for all the benefits of Blockchain Technology but has control over the transparency of it. A public Blockchain will allow all participants using the technology the ability to access the Blocks. The most important benefit to Blockchain Technology is ease of access to the data needed. Rather than distributing different types of data in different areas Blockchain Technology allows it to be written on one chain.

Since being at its early stages there are areas in Blockchain that needs to grow such as; scalability due to slower transaction speeds and the need for data storage. Blockchain runs into scalability because for a Block to be created, it requires the majority of the network nodes to agree that the information being added to the chain is correct, which causes for a longer time in building the Blockchain. The need for both computing power and space is another task ahead in Blockchain Technology. The Blockchain when handling larger sets of data rather than cryptocurrencies will require data storage where the information will be held.

**How Blockchain can be incorporated within Corporations**

When speaking of Blockchain there is the idea of a system that deals with value transactions. However, there’s a more crucial role Blockchain will play in the future of many industries such as healthcare, government, and especially the financials. It is a multipurpose technology for the industry of finance. Yes, Blockchain can be used to settle peer to peer or business to business transactions. However, Blockchain may find a better use internally within corporations. This use is in optimizing how corporations manage their internal data. This applies to its accounting data, customer information, employee information, essentially any type of documentation that the corporation holds internally. A large corporation will have important and large amounts of data that are distributed across many different branches. Blockchain Technology can help consolidate all data tied to a corporation on a single chain.

No matter what technological break through that has the glitz and the glamour that appeals to the consumer base is developed every business should have a solid foundation that supports any new technology. This foundation includes data from Accounting, Finances, Regulatory Compliance requirements etc.… These departments may not sound exciting, yet they are key parts to any business. What these components of the business require the most is efficiency, correctness, and access. Currently large businesses have different branches that store separate data for these fields on separate servers. When time comes such as Tax season or end of any quarter this data will be necessary for the corporation to evaluate itself. This is where the process of obtaining all the required data is inefficient. There can be countless errors from each branch from user errors to data loss that effect the corporation. The solution to this is having a corporate blockchain that updates real-time of any new documentation. There will be no need to hire centralized teams to read and write files from each branch and send it over to a pool for calculations to be done. The private blockchain system will have all data necessary within the chain which can be accessible by the necessary parties.

IBM is currently working on a Distributed Ledger Technology that is implementing these types of changes. It will be a third-party ecosystem with multiple corporations within it. Unlike Bitcoin or Ethereum it is not a public blockchain but private. This means that there is control of which parties in the ecosystem have access to the Blockchain. It is called a permissioned Blockchain which has strict privacy controls. This gives the benefits of Blockchain such as immutable data, smart contracts, and real time data while adding privacy which is important to corporations.

Having an ecosystem of corporations using blockchain will change how business is done. It gives the corporation a level of convenience to have all their necessary data a click away regardless how far each branch is. It lowers the risk of user error of the data acquired by shortening the number of hoops the information must travel to get to its’ destination. It also creates a level of trust between governments and other corporations because of both the transparency and immutability of the data.

A simple example where this type of system is beneficial is when it comes to acquisitions. This process will be much simpler if your corporation and the company being acquired were a part of the blockchain ecosystem. This is because through blockchain technology there is confidence that all the data that represents the corporation such as revenues, debt, loans, assets and many other parameters are reliable sources of data due to the immutable nature of Blockchain. So, when doing business with others within the system there is an inherent level of trust due to the immutable nature of blockchain technology.

**Scaling for the future (AI, IOT)**

Business in the future through Blockchain Technology will revolutionize how data is configured and distributed. It ultimately builds a foundation based on security for corporations. Such a foundation is necessary when large technological advancements in AI are in store. The necessity of Artificial Intelligence is that it is a powerful technology only if it has access to large amounts of data. Currently this is possible through cloud technology, but the key question remains of how secure is that data? Through Blockchain technology that data is tamper proof and would provide of use in developing AI’s to machine learn properly. In a technologically advancing society the data being analyzed must be nonfraudulent or it will lead to misinterpretation.

**Conclusion**

Many corporations are scaling at a large pace due to the increase in technological advancements. However, it is still important to be conscious weather that scaling is larger than what your corporate foundation can hold. Blockchain technology provides effective use in making sure corporations are sound internally through having secure fundamental data. The future will consist of seamless communication between not only customer bases but also through other corporations. In an environment which is growing heavily dependent on data there must be execution such that the data is both correct and secure.

**References:**

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