Smart Contracts with Blockchain

Redefining Trust with ZolonTech

Abstract

Ever since mankind invented fire, it has fueled mankind's advancement and has become the stepping stone for the greatest civilization to ever evolve in the known universe. There are many great inventions that complement our evolution from the wheel, invented roughly around 3,500 B.C. to the Internet in 1983 that completely revolutionized how we communicate with each other. In this perpetual race for a better life we have never stopped seeking solutions to our problems. And the time has come to solve the next biggest challenge in mankind's history.

Right now you might all be thinking, what is our next big challenge? Sometimes, the hardest things in life are unnoticed, until a better way comes along of doing the same thing. If not for Steve Jobs and the IPhone, most of us would still be working with our huge beefy laptops and computers, with little or no complaints. It isn't until we started using a mobile computer device in the palm of our hands, we noticed that this could make our lives a lot easier, and could never settle for anything less.

This new invention solves one of the greatest challenges we have ever faced. It is something that we have struggled since we first started dealing with one another and the idea of trade was born. The core concept of trade is to trust in one another, **if I give you this, how can I trust you in giving me this in return?** A problem that is so simple, yet it could lead the world in disarray with devastating consequences, such as the wipe out of $78 billion in the stock market due to accounting fraud of Enron- an energy company that was to bankrupt in 2001. It's high time that we fix such a simple yet complex issue by implementing a robust system in place that cannot be tampered with and is 100% reliable in getting the job done, consistently. Zolon Tech Inc. (ZTI), is bringing Smart Contracts backed by Blockchain technology that is able to close this gap. Learn more how ZTI uses Blockchain technology to provide secure transactions by implementing Smart Contracts in your organization in this whitepaper.

Contents

What is Blockchain?

The core technology that smart contracts are built on is blockchain. Blockchain as the name suggests, is actually a chain of blocks connected sequentially and chronologically. All these blocks are stored in an immutable public ledger that is shared among the participating individuals. Each and every participant will have this ledger and any update to the blockchain will be automatically be updated in each and everyone's ledger. The blocks in a blockchain is in an individual storage data point that consists of a set of transactions, a hash of the previous block, timestamp and any other information which the block was programmed to execute. Based on the instructions coded into the block, the blockchain automatically processes the information stored in a block. After a block is executed the next block in the chain will be executed, this block is identified by a unique hash code which is a reference to the block that was executed prior. Without the right hash, a block cannot be considered valid and hence cannot be processed. Since every block contains a hash of the previous block, it creates a chain of blocks linked with each other. At any given point of time only one block is executed in a blockchain. This unique capability of blockchain opens the door for solutions that mankind has struggled to solve ever since the information revolution. At ZTI we have harnessed the complete potential of Blockchain capabilities in delivering innovative and successful solutions to solve your organizations biggest challenges.

How Does Blockchain work?

The underlying principle of the working of Blockchain is a decentralized ledger that is immutable. Meaning no single individual, party or an organization is in control of the process and the task of keeping secure records that are nearly impossible to tamper with.

Let's drill down to what it means, starting with no single individual, party or an organization is in control of the process. Anyone of the participating member can create a block and send it in the blockchain system. Once this block enters the system, no one can view or edit the block and the task which was programmed in the block to execute will be executed automatically in the blockchain once it has been verified. The verification, execution and the record keeping is automatically done by the blockchain system. In this process the individual initiating the block has never met any other individual to process their block. For example, let us consider money transfer, usually if I were to transfer money to a friend, I write a check from the book which my bank has provided. Money will be transferred only after the check has then submitted to the bank, by my friend where the identity of the person and the authenticity of check is validated. Here, the controlling authority is the bank, the bank may wish to transfer the money or not, and sometimes take a fee for transferring. In a blockchain, all I do is specify the amount and a unique identifying number to identify my friend and the money is automatically verified and send to my friend without involving any intermediary like the bank.

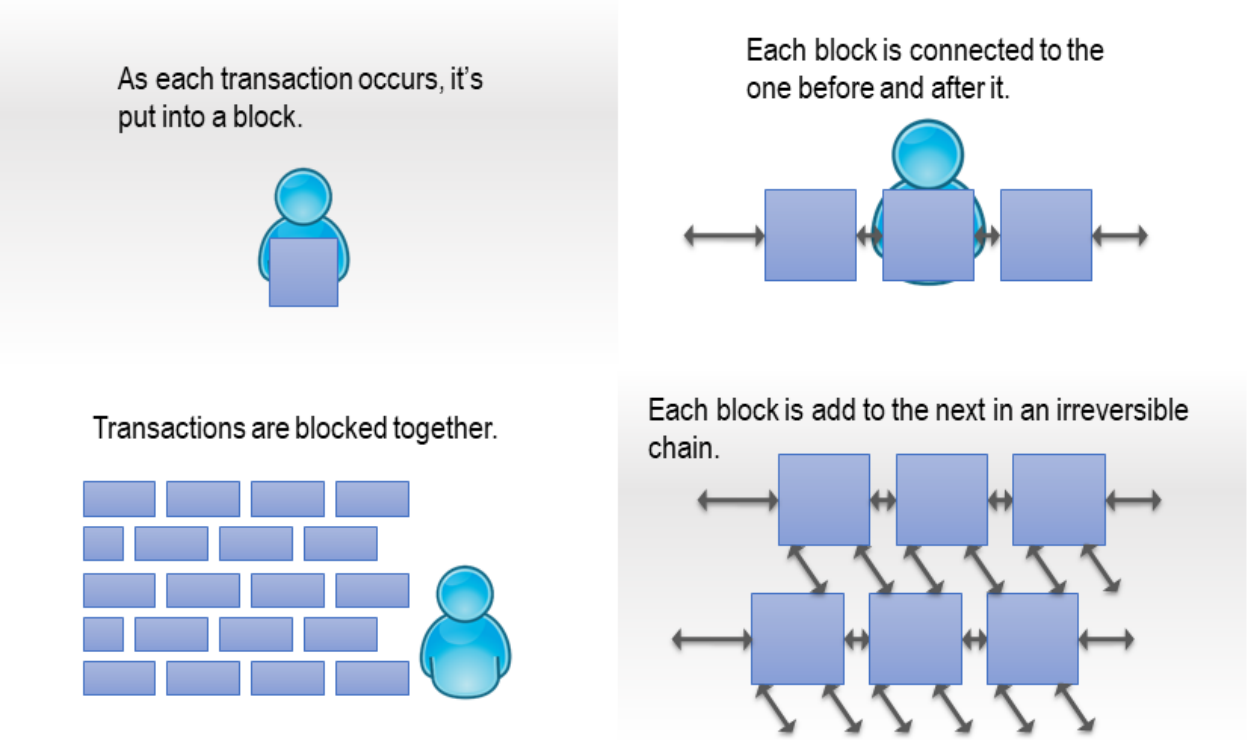

Figure 1 Concept of Blockchain

After a block has been executed it will be updated in each and every ledger of the participating individuals. Since Blockchain is a decentralized ledger there will be a permanent record of the fact that I have transferred x amount of dollars to my friend in all the ledgers. Even if I have altered mine and my friend's ledger, there will be many more ledgers which will have my record, and with the completion of each block every ledger is automatically updated. To access all the ledgers at once and tampering them would require access to all the participating member computers and their private passwords to access them, before the completion of a block would be impossible. Thus making the system immutable. This is just one example to the immense possibilities that a blockchain can provide. The potential of this technology may surprise you in a way that has never even been imagined before.

The Centre of Excellence (COE) team at ZTI is always on the lookout for new and emerging technologies that provide security, integrity and a peace of mind to our customers. ZTI-COE is bringing Blockchain technology to your organization today that enables the creation of programmable, scalable, distributed, trust infrastructure which facilitates smart contracts. By leveraging the potential of distributed public ledger system, ZTI is capable of using blockchain technology in government institutions like public notary systems, land registrations, citizen identification services, marriage certificates, voting systems etc. By providing secure solutions for various business opportunities and implementing programmable smart contracts we can create a new dimension for self-executing applications.

Smart Contracts

Although Nick Szabo first theorized Smart contracts in the late 1990s, it took 20 years before the true potential and benefits of them were truly appreciated. Smart contracts are described by Szabo as follows: "*A smart contract is a computerized transaction protocol that executes the terms of a contract. The general objectives are to satisfy common contractual conditions (such as payment terms, liens, confidentiality, and even enforcement), minimize exceptions both malicious and accidental, and minimize the need for trusted intermediaries. Related economic goals include lowering fraud loss, arbitrations and enforcement costs, and other transaction costs*."

Let's break it down,

- Smart Contracts are basically self-executing programs designed to fulfill a request if certain conditions are met. This involves enforcing rules, consequences and computation over every transaction happening in the blockchain, automatically.
- It provides a secure approach using the blockchain technology where agreements are automatically executable and enforceable.
- Since smart contracts underlying technology is blockchain, therefore it is capable of harnessing the complete benefits of it by providing immutable data storage to safeguard all the records entered into the blockchain without the need of an intermediary.

Join ZTI today, as we bring forward the world's most secure and robust technology, which is capable of fast and secure transactions that avoids the delays and expenses incurred by physical contracts and without the influence of any external entities.

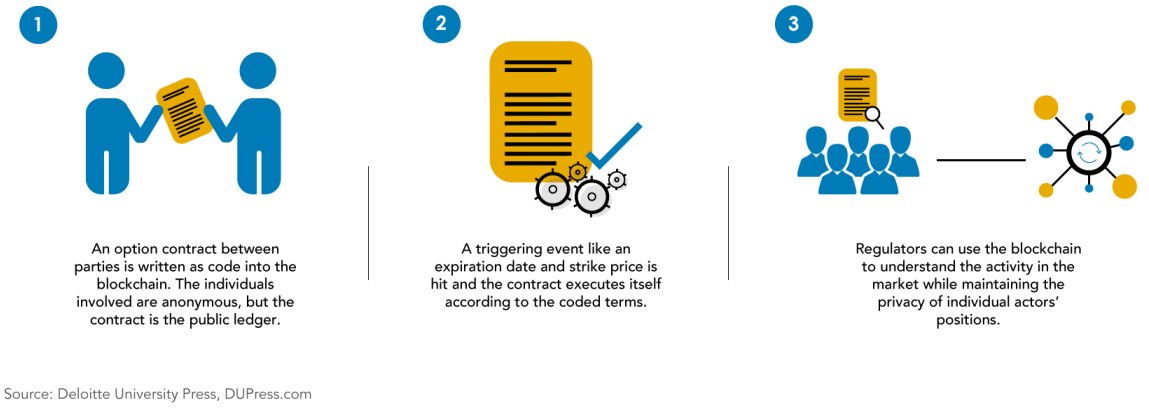

Figure 2 Working of Smart Contracts

Why use Smart Contracts?

Have you ever been in a situation where you were promised one thing by an individual or an organization that you have trusted and they have failed to uphold that promise? If your answer is yes, let me tell you that you are not alone. Even with a written voluntary agreement between two or more parties creating certain obligations enforceable by law, promises are being broken between known and unknown individuals in an unfair manner. One could say aren't there consequences that individuals or organizations face for when they break their contract? Well, there are, but at what extent of your resources? Circling around courts and other legal hassles, not only burn your pockets but they take up a lot of time, which could've been otherwise used in a productive manner. How much trouble are you willing to go through to get something which should've been yours as soon as you fulfilled your promise?

Most contracts encompass lots of data that is critical to the agreement, and we at ZTI are no strangers to the complexities and the elaborate details of a contract. With ZTI's implementation of smart contracts we are able to incorporate the power of physical contracts into the computing world, and by doing so we are capable of completely removing all the troubles and hassles associated with traditional contracting. At ZTI we have designed the smart contracts solution keeping in mind the traditional legal contract or agreement, and have incorporated every possible consequence and outcome of a transaction behavior that can occur in real life and output that to the blockchain, which is capable of taking actions to be taken for each scenario. Implementing Smart contracts with ZTI will reduce and even eliminate the chances of fraud and overhead costs of many transactions.

By implementing smart contracts with ZTI, your organization is able to automate the enforcement of contractual promises without any intermediaries or trusted-third parties. By doing so we can guarantee a significant increase in transparency in your organization that is secure to the core. All contract transactions are stored in the blockchain that is immutable and in a chronological order which allows for greater ease of use to access the information anytime along with the complete audit trail of events. With ZTI by your side and blockchain as your backbone, one can live a peaceful life, knowing that all the information stored is immutable and is impossible to tamper with. Also, be assured that the participating individuals or entities in a smart contract have to adhere to the agreement which is automatically fulfilled by the blockchain. In a situation where the participating party fails to honor the contract, you do not need to bring in a team of legal experts to face them, the blockchain is capable of handling failsafe programs that if dishonored will automatically execute and make the individuals or organizations accountable. Not only does this ensure you are trading with only the most trusted parties, but also make the process go a lot faster than traditional contracts.

Consider an example of the voting system. The election commission is writing up a contract for its upcoming election. In the contract they mention some prerequisites that makes a person eligible for voting along with the options. Let's say in this case the commission wants proof of identity and citizenship by providing a valid driver's license number and a birth certificate or a valid passport, if a person qualifies these conditions they receive the next contract, that is voting among the choices provided, after selecting and submitting the selection the contract is closed and sent to the blockchain waiting to be proceed for authentication. After the contract is programmed the commission sends the contract to all the local residents through a blockchain. An individual receives this contract and provides proof of identity and citizenship which is validated through the blockchain and once validated the individual automatically receives the next contract of voting, once the selection is made the vote is sent into the blockchain and the ledger is updated. Since this is all done in a blockchain, NO individual or an organization is capable of changing the ledger or tampering with it, hence making it secure and robust. Also, Blockchain is decentralized, so if any one node fails the data obtained is never lost as the data is stored among many several nodes.

In a nut shell, this process can be said as "If This Then That" logic. If a contract is made in the blockchain and the law of that contract states if this individual is able to prove their identity then he/she is eligible to vote, in most convenient and secure way possible. Having such a convenient voting system could result in higher voter turnout encouraging people to vote at their home or workplace instead standing in long lines at a far off location.

Next Steps

Technology is everywhere, and new technologies emerge almost on a daily basis, but what technology is worth the investment or what technology can bring real tangible change to your organization? Even with so many new technologies why are we still facing so many challenges in protecting our data and to do fair trade? There must be something wrong in what we are doing, or something which we are not seeing? Don't say maybe this problem has no solution. We, at ZTI are strong believers, and we believe in what's right and we will move heaven and earth to bring a solution that solves your problem. The time has come for that one technology that can change everything and redefine trust in a whole new level. Believe it or not, Blockchain is the next big thing, and in a decade, it'll be the underlying technology in all major industries. Get in the game early with Zolon Tech Inc., embrace security and reliability

Conclusion

With millions of transactions happening each day, trusting in each other has never been so important. The thrive for human civilization to advance so much is that we always want the best things in life. The best house, best car, best clothes. But we all tend to compromise on trust, we trust in intermediaries to buy a house from a real estate agent, a car from a car dealer, clothes from reseller. It's because our choices are limited and sometimes it's the only way to obtain those products. How do we know if the house has a damaged staircase? Or if the car had a broken window? That cloth is made of 100% cotton? If the intermediary says so we believe him, because they show us a ledger. A ledger that is again maintained by a third party organization that can easily be altered. Through smart contracts we are able to eliminate these intermediaries and increase transparency through a shared ledger that is impossible to alter.

At ZTI we never settle for something less or that is not trustworthy, and on the same principal we expect our customers to never settle for something less too. That is why we have built a solution that takes trust in each other to the next level. Implement smart contracts to your organization today, and we guarantee that you'll never look back.

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