JICOIN

WHITEPAPER

V.1.0

01 April 2020

Decentralising the Gulf

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ABSTRACT

As the digital finance world is poised towards the evolving emergence of cryptocurrencies, the entire ecosystem is seeing a soar in usability as well as easier accessibility of capital for businesses being unlocked. In these shifting paradigms – digital token models have become one of the most talked about phenomena of the cryptographic realm. These technological & financial advances have not only simplified the process of dealing with investors but also have secured the fundamentals of investing for an individual by enabling asset driven investments which can be liquidated at later stages – the utility or security tokens. JiCoin has created an idealistic product where the coin is impeccably backed up against - its cryptocurrency vending POS that work as a mode of purchasing/selling cryptocurrencies and tokens on the platform available at physical merchants worldwide. The POS allows a customer to buy or sell their cryptocurrency against fiat (cash)/credit or debit cards at a transaction fee of 0% to 10% (depending on the fee set by the merchant itself). This is probably the only platform on the globe that enables trading of cryptocurrency physically at

Mainstream stores through plastic cards and fiat. Not only has this but Jicoin also boasted development of a prepaid debit card which enables spending Jicoin at 70 million + merchants worldwide. Jicoin is making the first large scale crypto based wave in the world and you are welcome to be on top of it.

INTRODUCTION

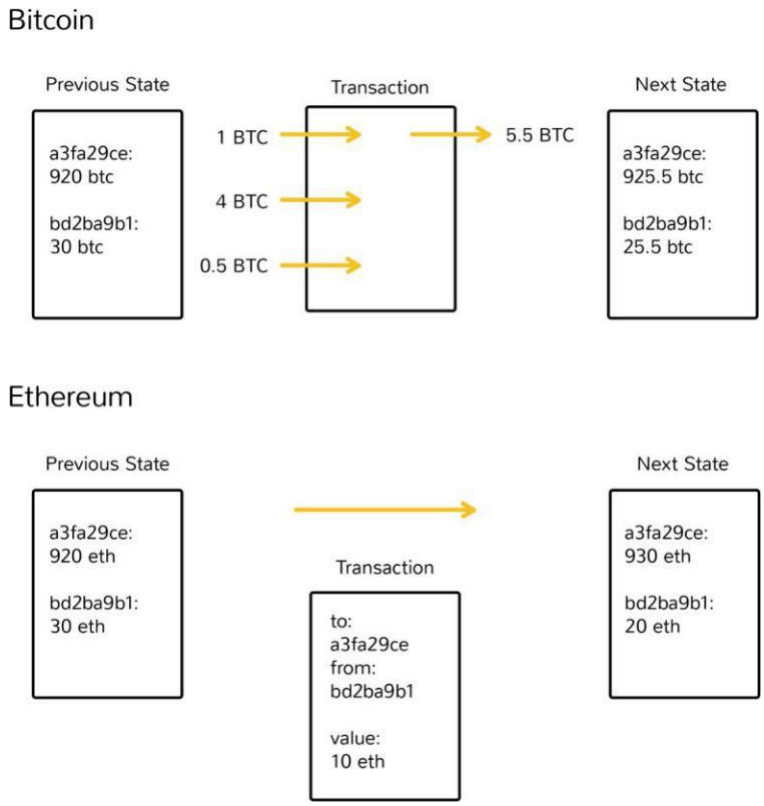
The JiCoin Whitepaper v.1.0 is an edition of a further global vision from the company itself. This Whitepaper contains brief details, landscapes, technical specifications and business models to help identify the project and explain our platform to the reader and stakeholder.

ARCHITECTURE

Block chain

JICOIN is laid on the Ethereum network and is an ERC20 token. The structure of the ethereum block chain is very similar to bitcoin's, in that it is a shared record of the entire transaction history. Every node on the network stores a copy of this history. The big difference with ethereum is that its nodes store the most recent state of each smart contract, in addition to all of the ether transactions. For each ethereum application, the network needs to keep track of the 'state', or the current information of all of these applications, including each user's balance, all the smart contract code and where it's all stored. Bitcoin uses unspent transaction outputs to track who has how much bitcoin. While it sounds more complex, the idea is fairly simple. Every time a bitcoin transaction is made, the network 'breaks' the total amount as if it was paper money, issuing back bitcoins in a way that makes the data behave similarly to physical coins or change. To make future transactions, the bitcoin network must add up all your pieces of change, which are classed as either 'spent' or 'unspent'. Ethereum, on the other hand, uses accounts. Like bank account funds, ether tokens

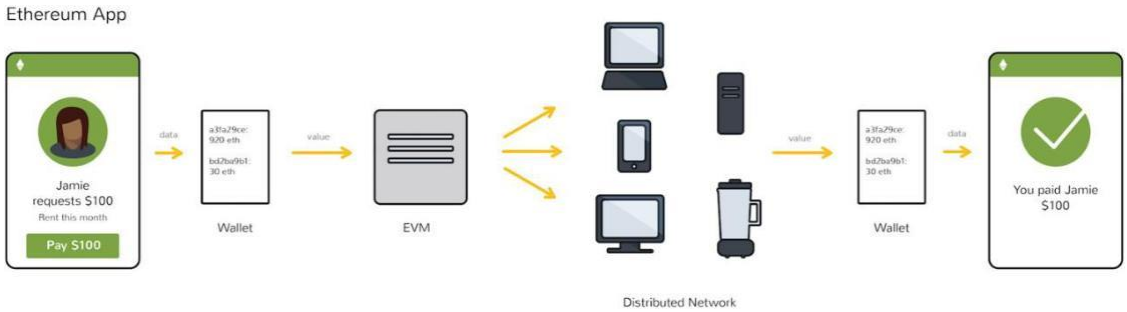
Appear in a wallet, and can be ported (so to speak) to another account. Funds are always



Somewhere, yet don't have what you might call a continued relationship.

With ethereum, every time a program is used, a network of thousands of computers processes it. Contracts written in a smart contract-specific programming languages

Are compiled into 'byte-code', which a feature called the 'ethereum virtual machine'



(EVM) can read and execute. All the nodes execute this contract using their EVMs.

Remember that every node in the network holds a copy of the transaction and smart contract history of the network, in addition to keeping track of the current ‘state’. Every time a user performs some action, all of the nodes on the network need to come to agreement that this change took place. The goal here is for the network of miners and nodes to take responsibility for transferring the shift from state to state, rather than some authority such as PayPal or a bank. Bitcoin miners validate the shift of ownership of bitcoins from one person to another. The EVM executes a contract with whatever rules the developer initially programmed. Actual computation on the EVM is achieved through a stack-based byte-code language (the ones and zeroes that a machine can read), but developers can write smart contracts in high-level languages such as Solidity and Serpent that are easier for humans to read and write.

- Sharding Enhancements

Currently, every single node running the Ethereum network has to process every single transaction that goes through the network. This gives the block chain a high amount of security because of how much validation goes into each block, but at the same time it means that an entire block chain is only as fast as its individual nodes and not the sum of their parts. Currently, transactions on the EVM are not parallelizable, and every transaction is executed in sequence globally.

The scalability problem then has to do with the idea that a block chain can have at most 2 of these 3 properties:

- Decentralization
- Scalability
- Security

If we have scalability and security, it would mean that our block chain is centralized and that would allow it to have a faster throughput. Right not, Ethereum is decentralized and secure.

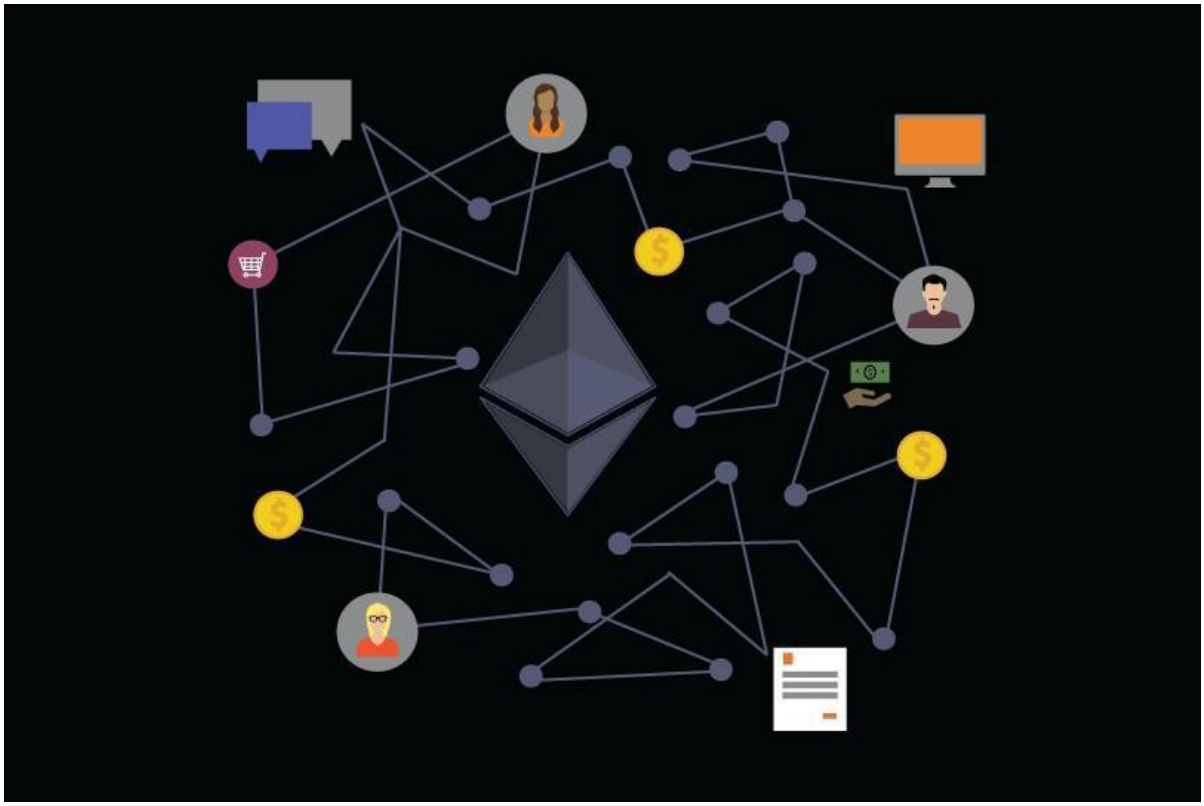
How can we break this trilemma to include scalability in the current model? Well can’t we just increase the block size, or in Ethereum’s case, the GAS_LIMIT, to increase throughput? While in theory this can be a right approach, the more we keep increasing it, the more mining will be centralized around nodes running on supercomputers that would bring a higher barrier to entry into the system.

A smarter approach is the idea of block chain sharding, where we split the entire state of the network into a bunch of partitions called shards that contain their own

Independent piece of state and transaction history. In this system, certain nodes would process transactions only for certain shards, allowing the throughput of transactions processed in total across all shards to be much higher than having a single shard do all the work as the main-chain does now.

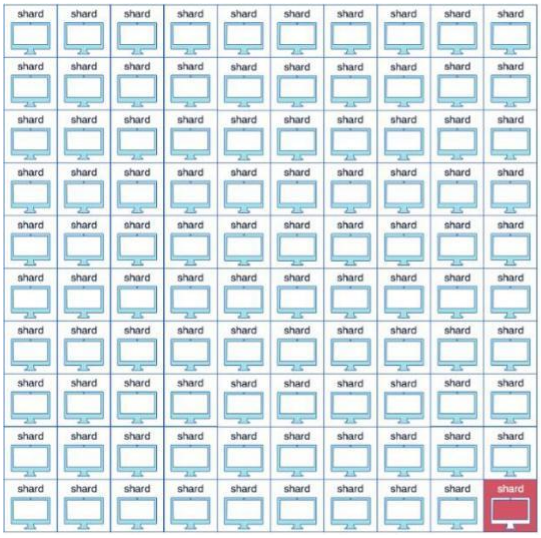
Before we dive into how a sharded block chain actually works, let's go over some important vocabulary:

- State: the entire set of information that describes a system at any point in time. In Ethereum, this is the current account set containing current balances, smart contract code, and nonces at a given moment. Each transaction alters this state into an entirely new state.
- Transaction: an operation issued by a user that changes the state of a system
- Merkle Tree: a data structure that can store a large amount of data via cryptographic hashes. Merkle trees make it easy to check whether a piece of data is part of the structure in a very short amount of time and computational effort.
- Receipt: a side-effect of a transaction that is not stored in the state of the system but is kept in a Merkle tree so that its existence can be easily verified to a node. Smart contracts logs in Ethereum are kept as receipts in Merkle Trees, for example.



With this in mind, let's take a look at how Ethereum 2.0 would work. We will create a side-chain known as a random beacon chain that stores hashes to main chain blocks in its own blocks. This side-chain will be a full Proof of Stake system implementing Casper FFG and will provide a source of distributed randomness that will allow us to build a sharding system on top of it.

The problems with sharded block chains become more apparent once we consider that possible attacks on the network. A major problem is the idea of a Single-Shard Takeover Attack, where an attacker takes over the majority of collators in a single shard to create a malicious shard that can submit invalid collations. How do we solve this problem?



1% Attack

"In 100 shards system, it takes only 1% of network hash rate to dominate the shard."

he Ethereum Wiki's Sharding FAQ suggests random sampling of validators on each shard. The goal is so these validators will not know which shard they will get in advance. Every shard will get assigned a bunch of validators and the ones that will actually be validating will be randomly sampled from that set.

To begin, we will deploy a contract on the main chain called the Validator Registration Contract, where people will burn 32ETH in exchange for becoming a validator in this side-chain. The beacon chain will periodically check for registered validators and consequently queue up those that have burned ETH into the contract. This beacon chain will serve as a coordination device for a sharding system, as it will allow for distributed pseudo-randomness that will be critical for selecting committees of validators on shards. The source of randomness needs to be common

to ensure that this sampling is entirely compulsory and can't be gamed by the validators in question.

On each shard, we would have nodes called proposers that would be tasked with creating a cross-link on the beacon chain, which is a specific structure that encompasses important information about the shard in question.
These cross-links are like mini-descriptions of the state and the transactions on a certain shard.

A typical cross-link would tell us the following information:

- Information about what shard the collation corresponds to (let's say shard 10).
- Information about the current state of the shard before all transactions are applied.
- Information about what the state of the shard will be after all transactions are applied.
- Signatures from at least 2/3 of all collators on the shard affirming shard blocks were legitimate.

What about if a transaction happens across shards? For example, what if I send money from an address that is in shard 1 to an address in shard 10? One of the most important parts of this system is the ability to communicate across shards, otherwise we have accomplished nothing new.

An initial idea is use the concept of receipts for this system to work.
Raul (Address on Shard 1) Wants to Send 100 ETH to Jim (Address on Shard 10)

- A transaction is sent to Shard 1 that reduces Raul's balance by 100 ETH and the system waits for the transaction to finalize.
- A receipt is then created for the transaction that is not stored in the state but in a Merkle root that can be easily verified.
- A transaction is sent to Shard 10 including the Merkle receipt as data. Shard 10 checks if this receipt has not been spent yet.
- Shard 10 processes the transaction and increases the balance of Jim by 100 ETH. It then also saves the fact that the receipt from Shard 1 has been spent.
- Shard 10 creates a new receipt that can then be used in subsequent transactions.

This Sounds So Complex for Solidity Devs and Ethereum Users to Understand! How Will We Educate Them on Sharding?

They don't need to. Sharding will exist exclusively at the protocol layer and will not be exposed to developers. The Ethereum state system will continue to look as it currently does, but the protocol will have a built-in system that creates shards, balances state across shards, gets rid of shards that are too small, and more. This will all be done behind the scenes, allowing devs to continue their current workflow on Ethereum.

Beyond Scaling: Super-Quadratic Sharding and Incredible Speed Gains

To go above and beyond, it is possible that Ethereum will adopt a super-quadratic sharding scheme (which in simple English means a system built from shards of shards). Such complexity is hard to imagine at this point but the potential for scalability would be massive. Additionally, a super-quadratic ally-sharded block chain will offer tremendous benefits to users, decreasing transaction fees to negligible quantities and serving as a more general-purpose infrastructure for a variety of new applications.

The ultimate ideology of educating Jicoin's stakeholders and readers is to make them understand the level of architecture and our technical strength in terms of the block chain that we currently have within our system. Ethereum to Ethereum 2.0 will only enhance the block chain and make it a robust and fast processing block chain in the universe.

- ERC Elements

In 2015, Ethereum issued technical specifications for tokens on the Ethereum block chain. Tokens that conform to these specifications are known as ERC20 tokens. (ERC stands for Ethereum Request for Comments.) In essence, ERC20 tokens are smart contracts that run on the Ethereum block chain. While ERC20 tokens function within the framework set by the Ethereum team, the framework is broad enough to simultaneously allow developers considerable flexibility in the design and function of the tokens.

The ERC20 standard has 6 functions and 2 events. The standard was created to enable interoperability across applications, exchanges, and interfaces. The functions describe how tokens can be transferred and how token-related data can be accessed. The events lay out formatting guidelines for transfers and approvals. Smart contracts on Ethereum, including all ERC20 contracts, are written in Solidity.

```
contract ERC20 {

        // 1. Gets the total token supply
    function totalSupply() constant returns (uint totalSupply);

        // 2. Gets the account balance of the account identified by 'address_owner'
    function balanceOf(address _owner) constant returns (uint balance);

        // 3. Sends '_value' amount of tokens to the '_to' address
    function transfer(address _to, uint _value) returns (bool success);

        // 4. Sends '_value' amount of tokens from the '_from' address to the '_to'
        // address
    function transferFrom(address _from, address _to, uint _value) returns (bool
    success);

        // 5. Approves '_spender' to withdraw the '_value' amount from your account, this
        // function can be called multiple times until the value of your account is 0, each
        // time this function is called it overwrites the current allowance with '_value'
    function approve(address _spender, uint _value) returns (bool success);

        // 6. Returns the amount that '_spender' is allowed to withdraw from '_owner'
    function allowance(address _owner, address _spender) constant returns (uint
    remaining);

        // 7. This event is triggered whenever tokens are transferred
    event Transfer(address indexed _from, address indexed _to, uint _value);

        // 8. This event is triggered whenever 'approve (address _spender, uint _value)'
        // is called
    event Approval(address indexed _owner, address indexed _spender, uint _value);

}
```

Description of the 8 various components that make up the ERC-20 token smart contract. Each contract includes 6 functions and 2 events.

Customizations:

ERC20 tokens can be customized to enable to following features:

1. Automatic buying and selling: you can peg the token's value to that of another token or currency by creating a fund that automatically buys or sells tokens to maintain the balance.

2. Auto refill: transactions on the Ethereum block chain require payments to miners in ‘gas’. You can program your token to auto-refill gas for future transactions once if it falls below a certain level.

3. Adding a central mint that can change the number of tokens in circulation: this could be useful if your token mirrors or simulates government currencies.

4. Freezing tokens: if instructed to do so by a regulatory body, you can freeze the tokens owned by that user and unfreeze them when required.

5. Proof of work: you can tie your token supply to the supply of Ether by programming a contract to run “merged mining” with Ethereum. A miner who finds a block in Ethereum then also gets a predetermined number of your tokens as a Block Reward.

Demand based Incline

The distribution of the JICOIN token will start at a private sale exclusive price of USD $1-this will periodically vouch an incline which would be solely based upon the demand and the pace of engagement towards the trading of the tokens. The price is pegged to different lots in the token distribution protocol, the selling price of the token will eventually incline after a set batch (number of tokens) have been distributed and circulated successfully - these batches would be based again on the demand of the token. Therefore, the starting price and the final price as we approach the public exchanges would be highly differential from that of the private sale value.

Products driven Ecosystem

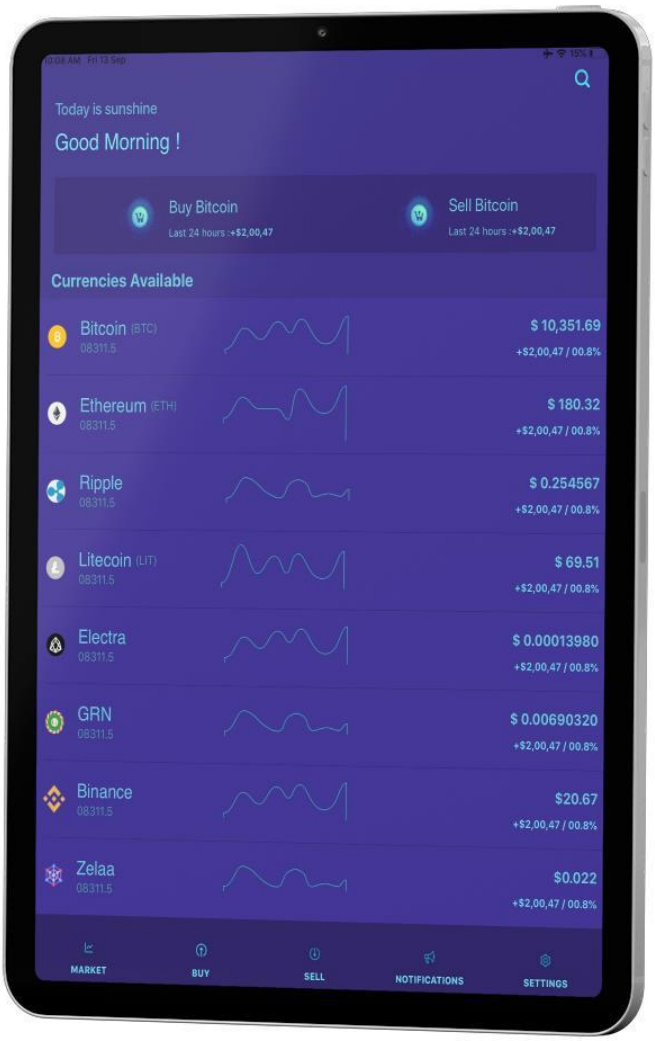
Approach

At JiCoin, we are building products and platforms that transform your crypto- assets into cryptocurrencies. We call it “crypto-assets” because major use of virtual currencies today is not mainstreamed to a global extent and therefore is often traded on exchanges to earn ROI. Transforming it into a cryptocurrency is basically when we make your virtual currencies usable and spendable across the world so that it has increased utilities and you not only keep it as an asset but as a mode of payment in daily use.

JiCoin Crypto Vending POS Device

A Simple Platform for Customers

Anybody can buy/purchase crypto/tokens on our physical POS platforms at retail Stores/cafes/hotels etc. using cash or card.



- Select from a wide range of curated cryptocurrencies to purchase or sell on the platform. Bitcoin, Ethereum, Lite coin, JiCoin, BNB and more.

- As we build a large network of our POS platform, we make it more accessible to the customers by being available at top public places globally.

- Fast processing and almost instant credit of cryptocurrencies and tokens in your wallet at the time of purchase.

- Users need very basic identity proof such as a driving license or a passport to perform a quick Know-Your-Customer formality at the POS.

The platform works by a decentralized admin panel that is offered to every operator on which the operator connects a hot wallet and sets a transaction fee which is synced real-Time on the JICOIN Crypto Vending Kiosk platform for that specific device.

JiCoin KIOSK capitalizes cash collection by making the merchant a cash point/receiver. We accept online card payments through a undisclosed payment processor which credits funds into our crypto-friendly banking accounts.

ECONOMICS

JiCoin is one of the most realistic private sale presently available. The holders also get vast opportunities to become a part of the ecosystem which is more than just a coin. JiCoin Token distribution is now in a completely public phase. As when someone buys a JiCoin - they not only hold and wait for a cryptocurrency to pump but are involved deeply into the ecosystem from day one that they can start using.

Token Information

For investors, JiCoin tokens will be available for purchase at the fixed price of USD $1. JiCoin is accepting investments till it's hard cap of 150 Million USD is achieved. Post which the sale will be formally closed.

The platform accepts payments in ETH, BTC, LTC, BNB, Fiat, and Bank Wires & Assets during our private sale period.

MARKET ADOPTION

The most important factor for making the project successful is to understand the target customers. The initial idea can be tested through various crypto seminars, conferences & events. Forums like Reddit.com and Bitcointalk.org helps to build the community where the opportunities with token economies can be explained. To make tokens successful, the company must have support of the renowned promoters and partners which JiCoin has.

Decentralizing the World economy

www.JICOIN.io