



Fully customizable private blockchain platform  
[izzz.io](http://izzz.io)

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## Technical Summary

Method for block confirmation	Own development based on a hybrid PoW + PoA method - Limited Confidence Proof of Activity with a time confirmation binding
Software platform	Node.js > 8
Hashing	Filtered SHA2
Structure of the main circuit of blocks	JSON blocks with arbitrary content of up to 15 megabytes (depends on the configuration of the node)
Cross chains	JSON blocks of arbitrary content with adjustable maximum block volume
Data base	LevelDB
Smart contracts	ECMAScript 6 (JS ES6), turing complete, with extended functionality
Primary network interface	WebSocket

- Absence of mining in the main chain
- There is no big expense of computing resources due to the Limited Confidence Proof of Activity (LCPoA) algorithm with time-bound
- The possibility of using a single blockchain circuit in any project
- An anonymous messaging bus

## Blockchain

The main chain consists of JSON blocks with a structure

- SHA2 hash correspondence to network filter conditions
- Block number

- The start time of block generation
- The end time of the block generation
- Block data

### **Limited Confidence Proof of Activity (LCPoA)**

IZZIO blockchain uses its own algorithm for creation and confirmation of blocks bound to work on time, and not requiring large computing resources. The security of the blockchain network itself and the consensus is provided by the mechanism of the "limited confidence zone" with automatic creation of control points and also with checking the block generation time and checking the total network time.

At any point in time, it is possible to recheck the time spent on generating the block due to the constant minimum generation time of the block.

### **Cross-chains**

Cross-chain is a mechanism of creating additional chains of blocks, with special parameters. In this case, additional chains work on top of the main network block. Additional block chains are created using special blocks and smart contracts.

Cross-chain with limited length

For cross-chains, the chain length limitation function is available. In the event that the amount of data exceeds the recordable, two scenarios are available:

- Intentional "forgetting" of old blocks that extend beyond the length of the chain
- Ban on writing data in a chain with subsequent freezing of block generation

In the first case, the circuit can be used to stream information between network clients (eg VPN, event notification, chat rooms, etc.)

In the second case, it's like an immutable data store.

Recording in a cross-chain can also be limited to the rules of a smart contract.

### **WebSocket**

Due to the use of WebSocket as the main way of interaction with the network, it becomes possible to draft entire browser clients of our blockchain network. The WebSocket protocol itself is very common, and it has implementations in many programming languages.

The ability to work with partial or no synchronization with the network

Clients of the network can work with the network without full synchronization, provided that several nodes with a fully synchronized chain are used as data sources for the network. At the moment, this mechanism is used by one of our tools - Candy

## **Smart contracts**

Blockchain supports smart contracts written in JavaScript ES6, which are executed in an isolated environment. Contracts can use the functionality of the main and secondary blockchains, tokens, additional checks of external factors. The contract is executed only with the approval of execution by the platform, with a digital signature.

## **Bus messaging**

The messaging bus allows you to send arbitrary data to any member of the network, while the message delivery route will be unknown, as well as the delivery result. The mechanism is similar to the functionality of UDP broadcast messages.

## **Operation in browsers without extensions and plugins**

Since the block computer uses the WebSocket protocol to exchange information, it becomes possible to work with the network directly, using browser tools. For this we have developed a special open source script - Candy.

Using blockchain to store and load any information allows you to evenly distribute the load among the nodes, which makes iZ<sup>3</sup> work as a load distributor, and protect against DDoS attacks.

## **Certain possibilities of the main and cross blockchains**

- Storage of any information. Blocks of a certain type are processed only by those clients that can use them. The remaining blocks are simply transferred unchanged.
- Using blockchain to verify digital signatures as a trusted data source
- Using blockchain to organize information exchange networks
- Creation of trusted data sources with limited storage time
- Archiving data
- Creation of digital assets (tokens, assets)
- Exchange of information between the client and the server and others.

## Comparison with existing platforms

Characteristics	Waves	Bitcoin based	Ethereum	Universa	BitShares	iZ <sup>3</sup>
Main concept	Easily generated tokens	Cryptocurrency	Smart contracts performed in a common environment	A chain of smart contracts	Blockchain for the exchanges	Maximum universal platform
Any projects implementation	-	-	-	+	-	+
Tokens creation based on code	-	-	+	+	+	+
Turing full smart contracts	+	-	+	+	-	+
Cross-blockchain (network of blockchain with intersections)	-	-	-	-	-	+
The ability to use without full synchronization with the network	+ thin client	In some implementations or a thin client	+ thin client	+	-	+
Chains with length limitation	-	-	-	-	-	+
Transmission bus	-	-	-	n/a	-	+
Interaction with the browser without plug-ins and external services	-	-	-	-	-	+
Block Validation Algorithm	PoS	PoW and others	PoW	-	Delegated PoS	LC PoA
Programming language	Scala, Java	C++	C++, Go	Java	C++	Node.js