

BigTangle

Cryptocurrency Protocol
for the Internet of Value



A scalable evolution of blockchains

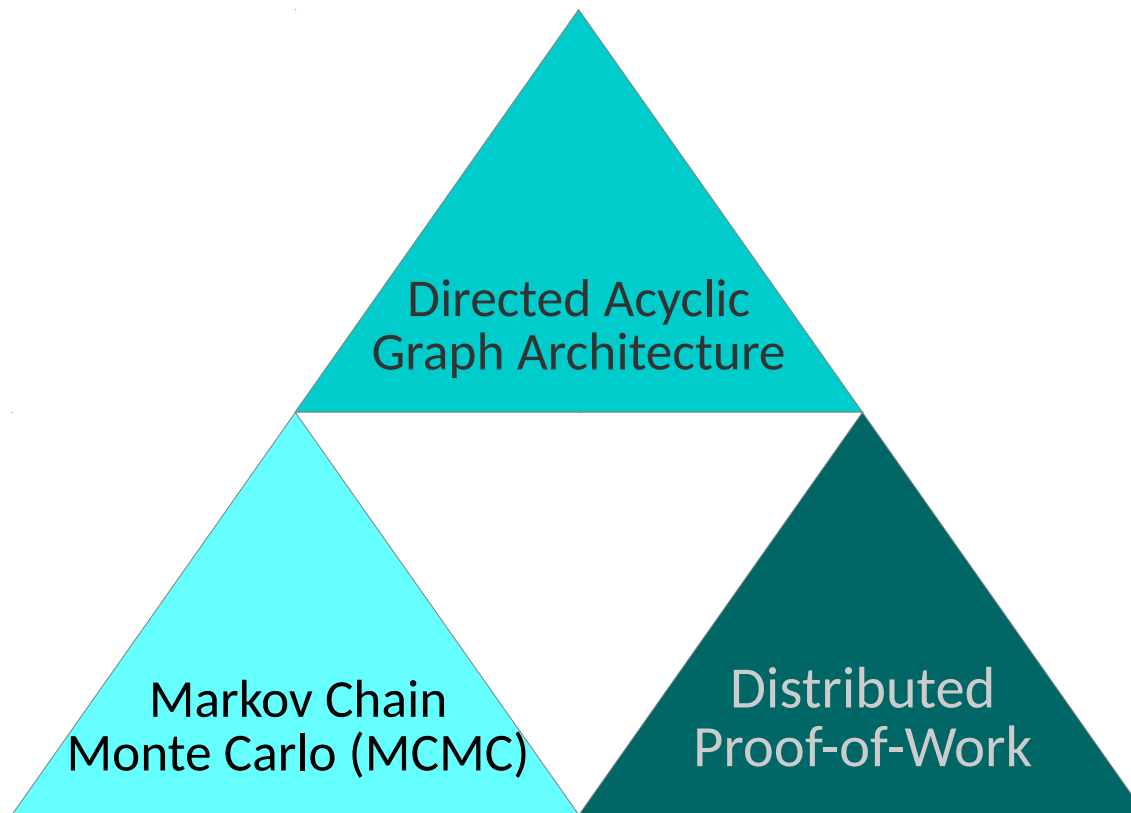
BigTangle is a cryptocurrency network extending the directed acyclic graph architecture with Markov Chain Monte Carlo (MCMC) as a consensus algorithm and the distributed Proof-of-Work.

Through the use of industry standard big data technology in conjunction with the parallelizable architecture, BigTangle is a successor to conventional block chains in the sense that it generalizes existing blockchain and smart contract architectures and makes them usable on a global scale as well.

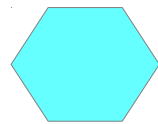
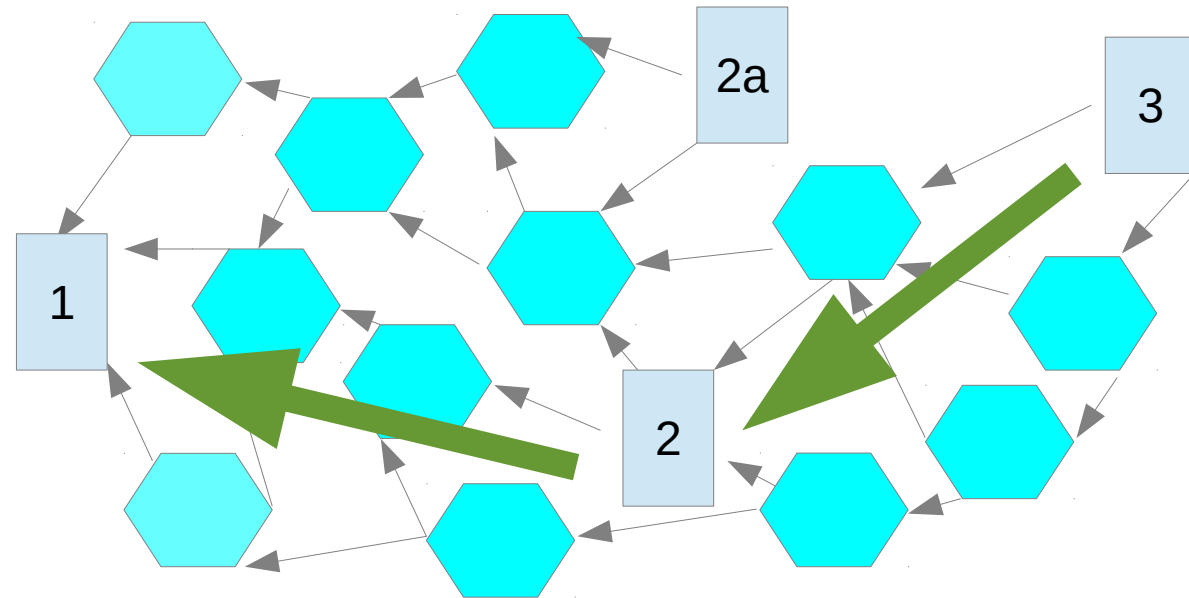
BigTangle focuses on economically important key use cases. Custom token issuances, market exchanges, mining and smart contracts are supported.

Key Features: Ease of Use, Completely Feeless, Real-Time Transaction Confirmation, Infinite Scalability, Smart Contracts, Permissionless, Trustless, Decentralized App, Distributed Proof of Work and Quantum Security.

Triple security, decentralization, scalability concept



Maximum security, decentralization, scalability by integration into a genealogical tree



Block with Transactions. Transactions are usually independent except for double spends. The MCMC consensus algorithm performs the selection process to solve conflicts.



Mining Reward Blocks are blocks with coinbase transactions only. Mining reward block must be in a chain over the Tangle. In the example above, blocks 1, 2 and 3 are such a chain. Let blocks 2 and 2a be in conflict. The MCMC consensus algorithm will solve this conflict by (in this case) having selected block 2 due to higher rating.

Comparison with other cryptocurrencies

BigTangle is a successor to Bitcoin and Ethereum with blockchains as a platform.

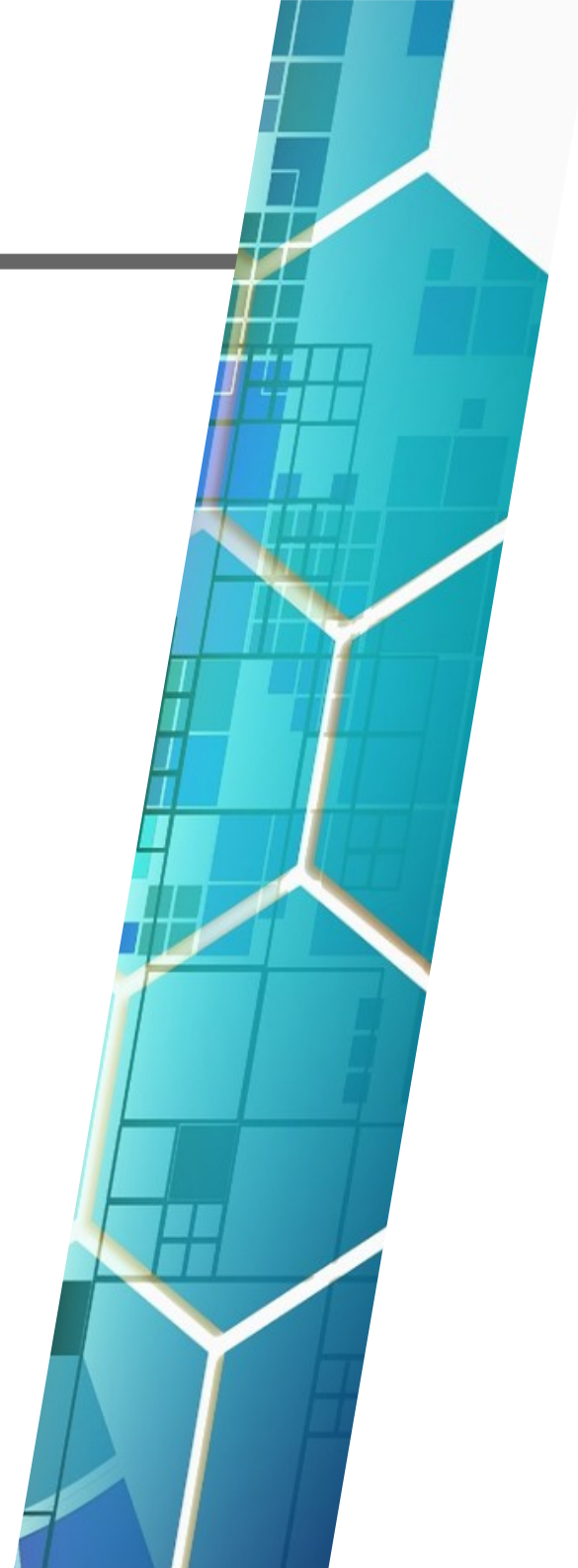
BigTangle inherits all functionalities provided by Bitcoin and Ethereum. That are the special cases of BigTangle. The multidimensional BigTangle can be reduced to a blockchain by disallowing multiple block predecessors. The implementation of BigTangle shares a common base with Bitcoin, UTXOs, Script stack language and ECKeys.

The main problems of blockchains are low confirmation speed and scalability. The reason for this is the mixing of coinbase (mining rewards) and user transactions in one block, even though user transactions are highly parallelizable due to their independence from each other.

Indeed, the mining rewards must be a chain to allow for reward and difficulty adjustments as well as ensure a game-theoretically stable consensus. Here, classical blockchains use the simplest consensus algorithms: the longest blockchain wins and chains are mutually exclusive to each other.

Instead, BigTangle splits user transaction blocks from mining rewards and allows parallel conflict-free user transaction blocks to be unified in the consensus. To achieve this, BigTangle allows blocks to have two predecessors and uses the MCMC algorithm to rate and build new blocks, thereby establishing consensus without forcing parallel blockchains to be mutually exclusive.

BigTangle therefore generalizes existing blockchain and smart contract architectures and makes them usable on a global scale.



Comparison with other cryptocurrencies

BigTangle is a successor to Bitcoin and Ethereum with blockchains in regards to scalability, finality and decentralization.

Scalability:

1) BigTangle is a cryptocurrency network extending directed acyclic graph architectures with Markov Chain Monte Carlo (MCMC) as a consensus algorithm, that allows for blocks created in parallel to be unified later.

2) BigTangle is implemented with Big Data technologies: Kafka, Spark and Hbase.

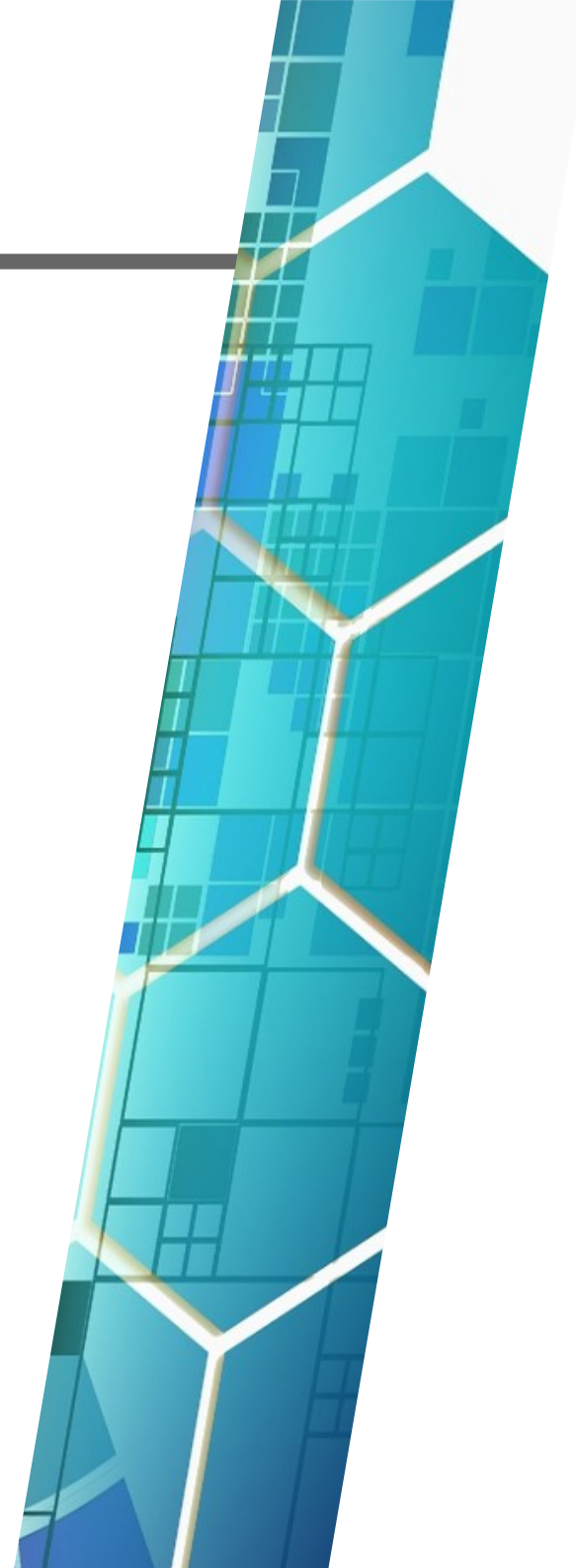
In our cluster with 5 server nodes, more than 1 million transactions per seconds (TPS) can be achieved. Big Data and blockchain parallelization is the only solution to get significant TPS at affordable costs.

Finality and Confirmation:

Assume that the network is synchronous, then BigTangle can achieve confirmation for finality in real time. MCMC ensures that when the network hash power has voted on a transaction, it will continue to stay in the consensus with extremely high probability. Bigtangle is a client and server architecture and enables the clients to make transactions and check balances on different servers.

Distributed POW Mining

BigTangle is inherently a client and server architecture. There is no need for Pools, since the PoW-Mining is of low variance (almost all of the blocks are rewarded) and significantly reduces the need for pooling, while conventional blockchains exhibit a winner-takes-it-all reward scheme.



Comparison with other cryptocurrencies

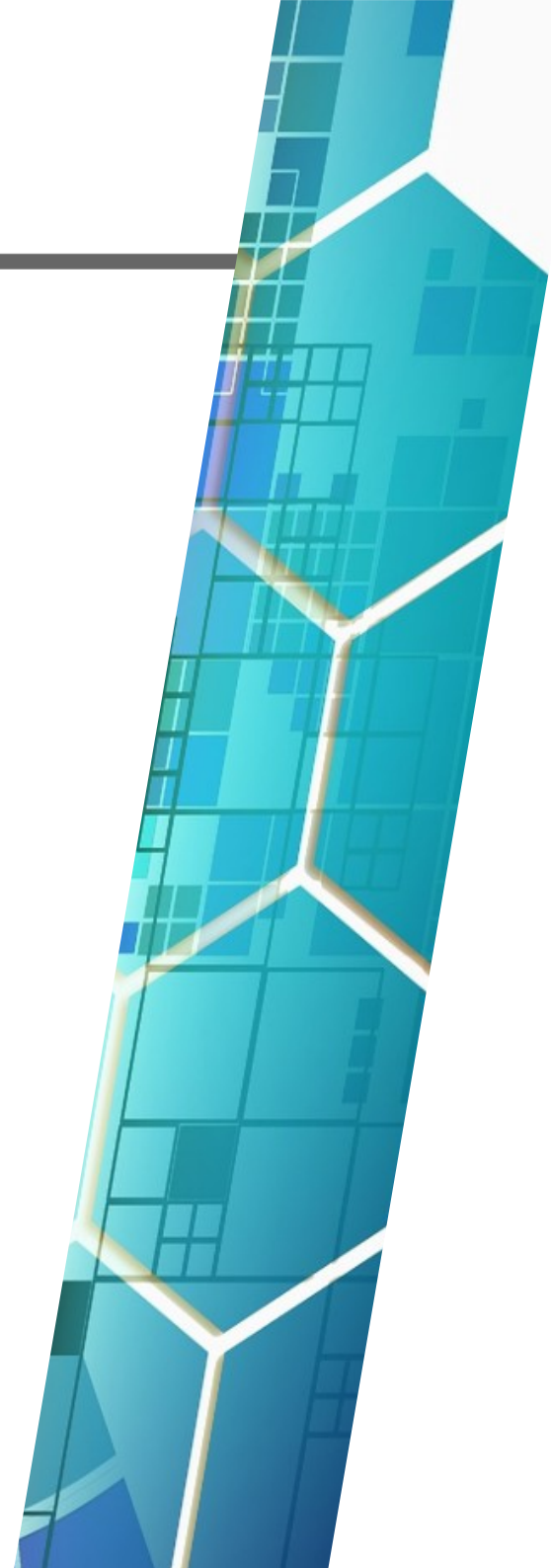
BigTangle is a successor to Bitcoin and Ethereum with blockchains in regards to functionality.

BigTangle natively implements a protocol for self-issuing custom tokens. Users can issue custom tokens and use them on BigTangle to serve their needs.

BigTangle implements container technology for smart contracts written in many computer languages, e.g. Ethereum VM.

BigTangle realizes a variety of economically important key use-cases: Beyond the decentralization of payment processing, the network can be used as a base service layer for the decentralization of markets in general, transfer and ownership management, authenticity proofs for assets of any kind or supply chains and ownership management.

As a protocol for the internet of value, The BigTangle software can be deployed in private or other permissioned environments, allowing one to run private, owned BigTangle networks with different rule sets. BigTangle defines a protocol and interface for value transfers from private BigTangles to the public or other private BigTangles and vice versa.





Focus on economically important use cases

Practical use cases allow the token to derive value and mainly include the substitution of various currently costly and trust-based technical processes.

In the following, some important use cases are presented as part of BigTangle's holistic interpretation of the Internet of Value.

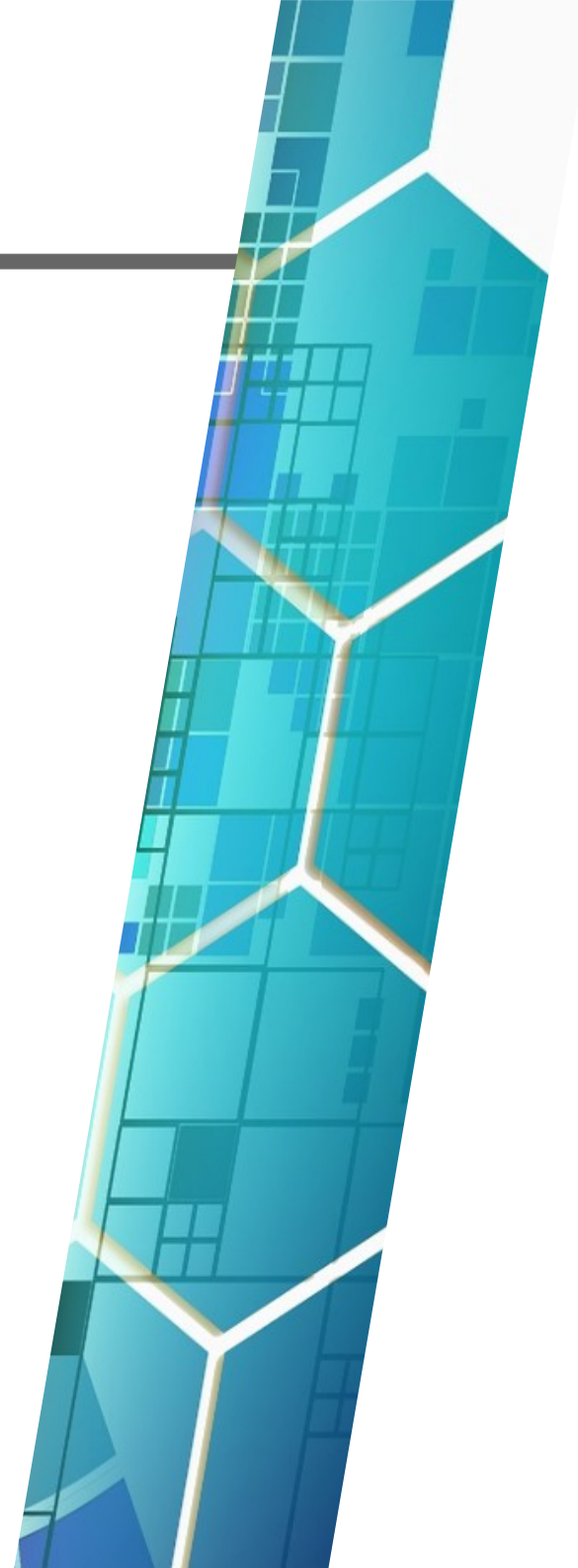
Highly valuable use cases

A. Payment

A simple and important use case is payment processing. By providing scalable infrastructure, BigTangle enables the global transaction volume to be processed in one network.

Most importantly, this offers infrastructural cost advantages by eliminating complex and costly processes of traditional payment processing for banks, companies and general populace. BigTangle is the only custom token for companies and banks that enables the transfer of value and Fiat currencies on a global scale.

Worldwide, payments worth \$180 trillion are made each year, with the total cost of processing exceeding \$1.7 trillion per year. Using BigTangle with adequate confirmation times on a global scale, these costs can be reduced immensely.



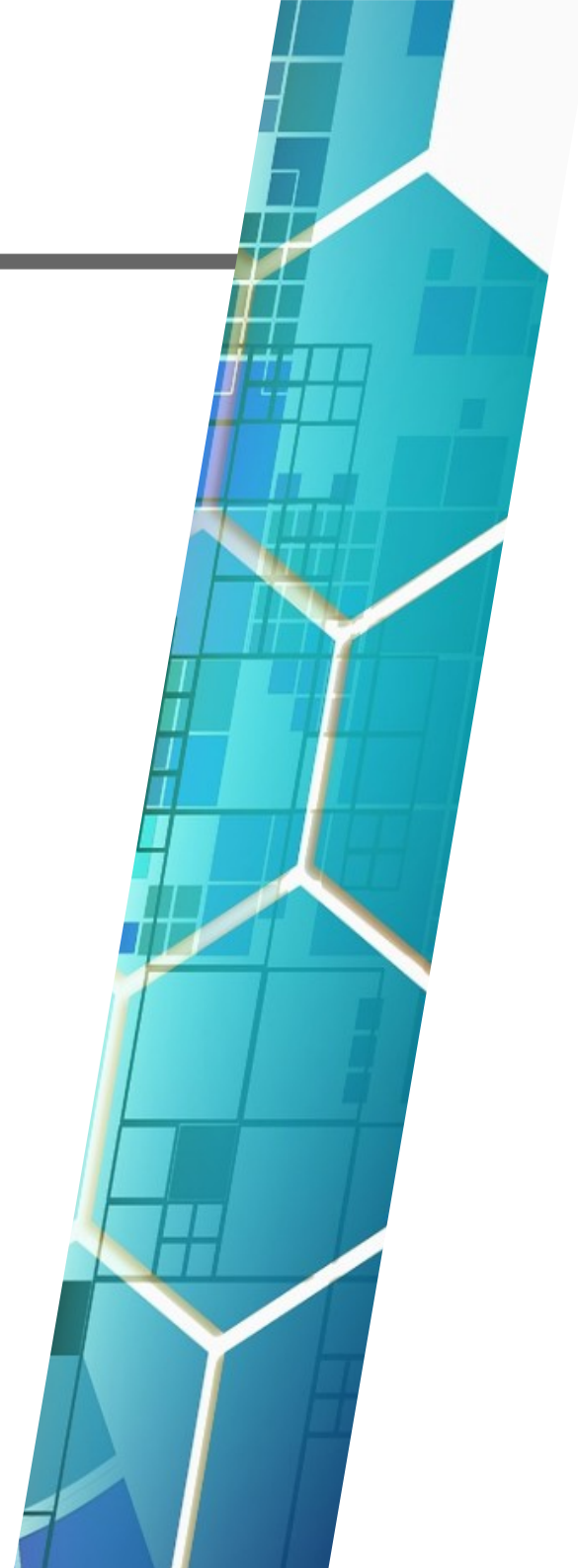
Highly valuable use cases

B. Stock Markets

Markets for stocks, bonds etc. can easily be realized by creating new token equivalents.

Companies can publish stocks and use the BigTangle Network, essentially substituting costly stock exchange processes by the feeless BigTangle processing network. Examples for the largest segments that will be affected are Bonds, Swaps, Derivatives, Commodities, Unregistered and Registered securities, Over-the-counter markets, Collateral management, Syndicated loans, Warehouse receipts, Repurchase markets etc.

This results in an value of multiple billions per year.



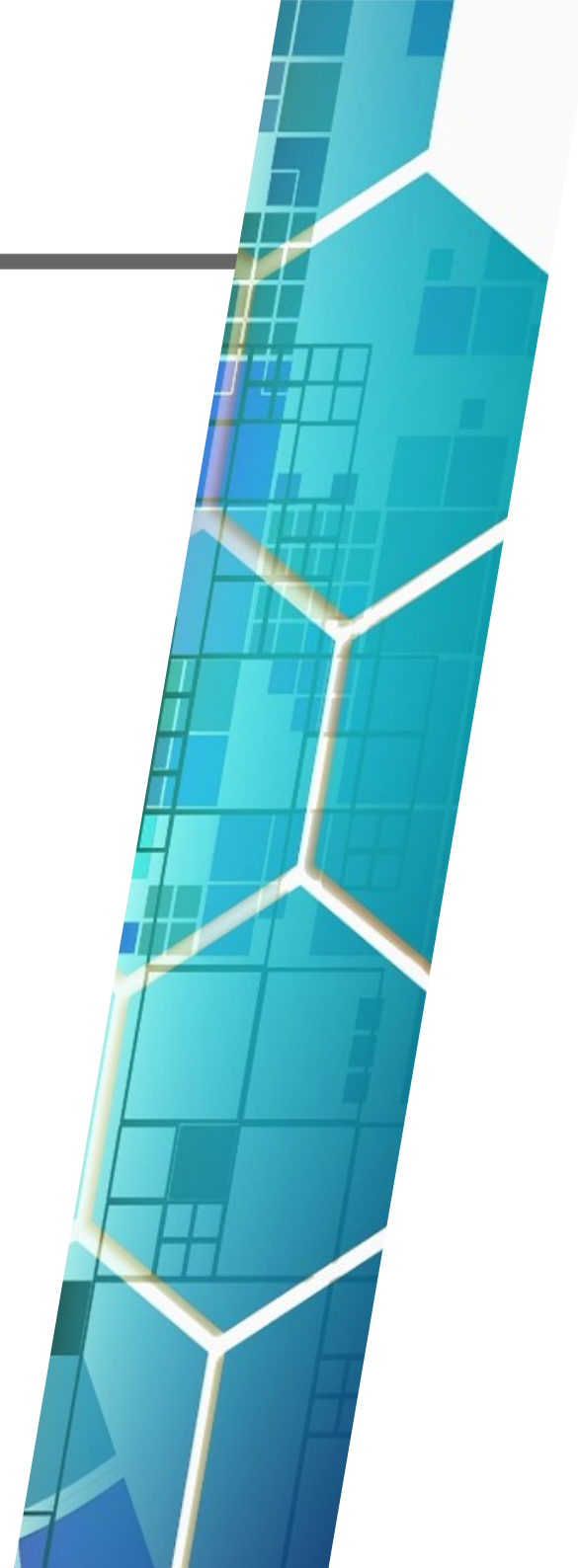
Highly valuable use cases

C. Fiat Money

The token issuance protocol can be used to issue bank-backed tokens denoting conventional fiat money.

Since the issuance and usage requires no participation in the network, BigTangle is a low cost solution for all parties.

Fiat money transactions can then feasibly be processed trustlessly within seconds on a global scale.



Highly valuable use cases

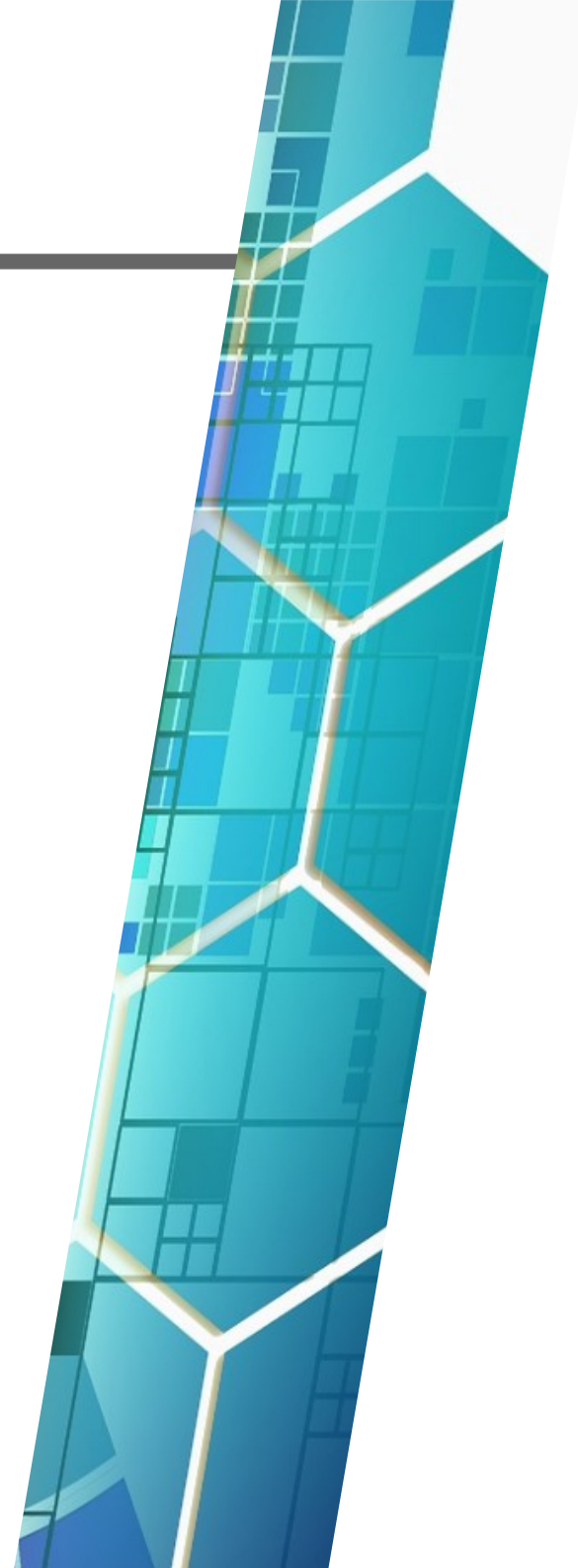
D. Micro Transaction

Service fees can now be charged in microdollar range or alternatively via seconds of hashing power due to the departure from winner-takes-it-all, allowing for new business models, e.g. online newspapers with alternatives to commercial advertisement.

E. Supply Chain and E-commerce

Assuming suppliers issuing authenticity tokens, it is trivial to track product authenticity via token transfers.

This use case extends into classic supply chain management, allowing the trustless tracking of inventories in supply chains.



Outstanding expertise in all specialist areas



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+ Bitcoin



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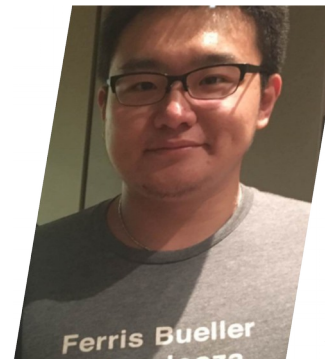
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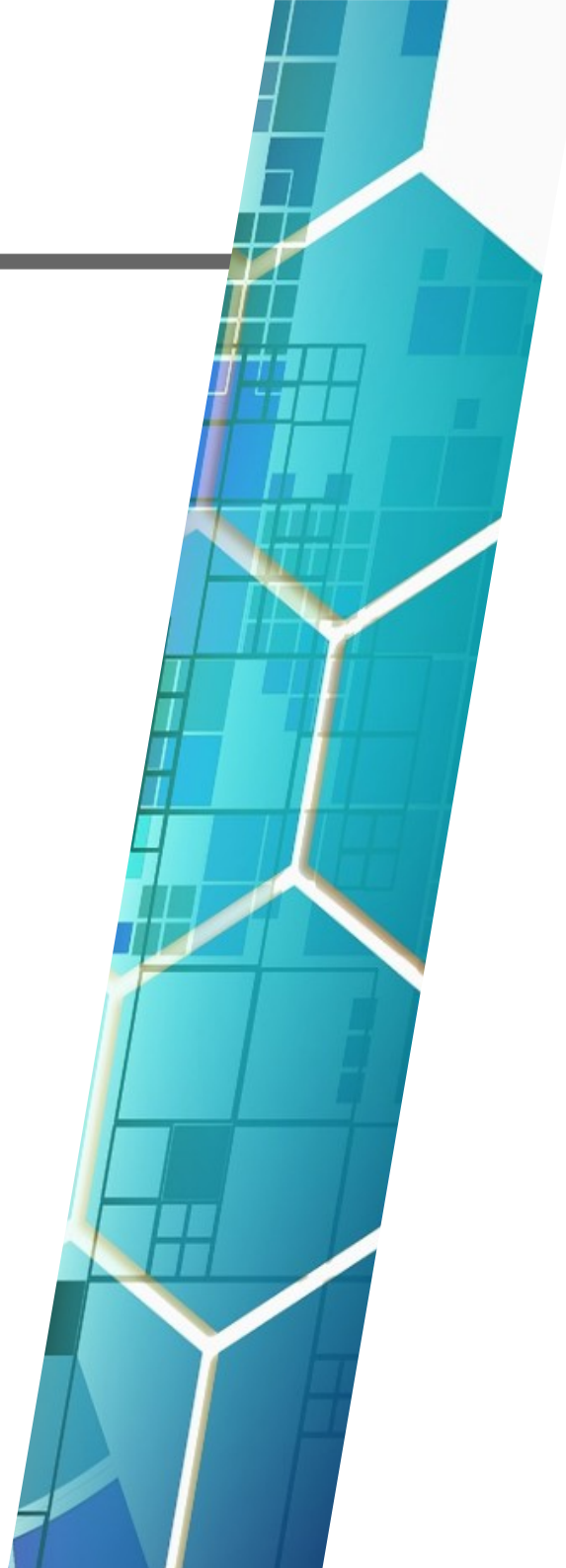


*Max Zhang

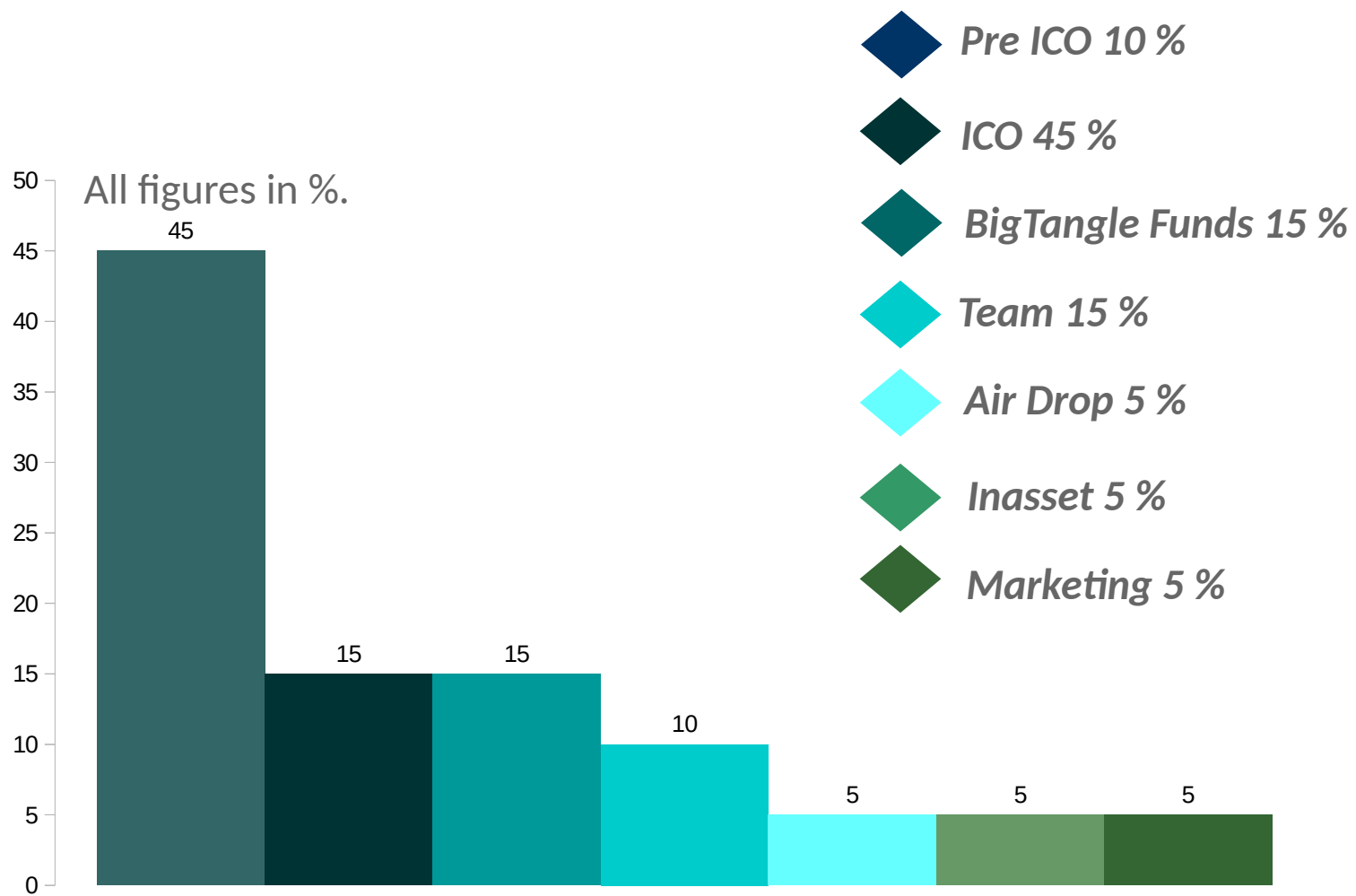
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Distribution of initial coin supply





ICO (proposal)

The ICO takes place on the Ethereum Blockchain.
The design complies with widely used token implementation standards.
This makes it easier to use existing solutions such as Ethereum Wallet or Metamask.

The total initial offering consists of 1 trillion BigTangle tokens, 45% of which are available during the ICO.

The currently proposed hard cap is 30 million.



Usage of ICO

01. The majority of crowdsale funds and unsold tokens will be used for the further development of BigTangle, public nodes, marketing and use cases.
02. Binding information on the ICO is available on the website <https://www.bigtangle.net/>.
03. Following the introduction of the BigTangle Mainnet, approximately 2% of total coins are proposed to be issued each year as mining rewards.

Roadmap, *BigTangle* started on May, 2017

Q3 2018

Start of internal testnet,
Going public and building community,
PRE-ICO: up to 10% BIG
are prepared for initial investors

Late Q3 2018

Simulation tests: Running test agents for automated tests
with large numbers of clients. frequent updates for test clients
and server nodes Performance, load and attack tests,
GraphX implementation

Q4 2018

Release of Testnet with GraphX implementation.
Source will be made available in Github.
Public ICO for BIG on Ethereum is started.

Q4 2018

Production Test: Production software release
for testing in Testnet

Late Q4 2018

Mainnet launch