Currency Of The Internet

COTI MainNet Roadmap

Abstract

This document outlines the different components of COTI MainNet, how they interact together and integrate into other parallel operations such as COTI-X, COTI-PAY, and other exchanges.

The document specifies a course of action to deploying the Full infrastructure MainNet and outline the timeline.

Introduction

This paper introduces COTI MainNet Roadmap which once finalize offer next-generation cryptocurrency platform that achieves high transaction throughput and low fees, while being easy to manage or whitelabel and providing decentralized structures for the services users have come to expect from payment platforms, such as dispute resolution.

Components

The Base Layer Protocol

COTI is introducing an innovative DAG-based distributed ledger technology as its base layer protocol, which involves the use of Trust Scores as the key mechanism by which new, unconfirmed transactions select prior transactions to validate. Furthermore, COTI's DAG-based distributed ledger technology, the Cluster, reaches faster consensus when confirming transactions by using COTI's Trustchain Algorithm. Eventually, the Cluster will be able to validate and confirm a maximum of hundreds of thousands transactions per second (TPS).

Current Status

- TestNet released - includes most of the base layer initial support.
- MainNet initial beta version - will be released by the end of March and will consist on initial support for TrustChain protocol and the assignment of TrustScore to each entity in the system: consumers, merchants, arbitrators, node operators.
- Ability to onboard users to the system while performing KYC process in a semi-automatic manner - this process is currently working in centralized manner.

Next milestones/Objectives:

- Support decentralized governance at:
  - Arbitrator onboarding process - accept new arbitrators through decentralized governance voting.
  - KYC process - allow decentralized governance be part of the manual review of documents and user approval.

- Support for allocating of additional reserve and funds of COTI into the infrastructure supply.

Full Ecosystem

As opposed to other infrastructure which only provide application developer/organization with the infrastructure itself and a mean to deploy token (for example ERC-20 on Ethereum). The token are not accessible or usable for the users other than sending the tokens to participants there is no way in all other platforms to onboard users into the system.

So COTI is developing a revolutionary way to easily deploy a new token/stablecoin running on the COTI network with a simple wizard walkthrough that with a few clicks.

Current Status

- Released COTI-X - which is Coti internal exchange for deploying and listing of new tokens on our infrastructure.
- Deployed COTI-DIME - a stablecoin used for COTI payments used in COTI-PAY.

Next milestones/Objectives:

- Listing of new token on our exchange and propagating it to out infrastructure.
- The ability to purchase the token with other crypto or fiat money - automatically define pairs from fiat to crypto and from crypto to crypto.
- The ability to withdraw the token back to fiat.
- The ability to define a colleterization for the new token in order for it to be stabilized (most setting will be fully automatic).

TrustChain Protocol (Node Update algorithm + Events)

Trust in COTI infrastructure is based on a combination of the network participant‘s historical behavior data and objective information about them. We take this into consideration in our protocol by calculating trust using a unique machine-learning algorithm. Trust in the COTI network is used in the Trustchain Algorithm to validate and confirm transactions faster and define the amount of work and consensus each transaction is going to require from the network.

In COTI we apply trust to all entities in the network, meaning:

1. Consumer - consumer trust represent the buying power of the user as well as the time it is going to take to approve his transaction. Higher trusted users’ transaction are approved faster.
2. Merchant - the trustscore for merchant represent the ranking of that merchant based on past history of transactions and disputes.
3. Node operators - trust in this case represent the reputation of the node operator in the network and how trustworthy he is within the network.

Current Status

- ❖ Released decentralized TrustChain nodes - dedicated nodes for calculating and storing participant Trust Scores and participant KYC statuses.
- ❖ Support both initial TrustScore + update of TrustScore in the system
- ❖ Support TrustScore in PoT (Proof of Trust) algorithm and consensus.

Next milestones/Objectives:

- ➢ Support staking for node operators - to run a Trust Score Node, a user is required to stake a sum of COTI.
- ➢ Support external events sent to TrustScore nodes through 3rd parties about customers, merchants which will affect his TrustScore in the COTI Network.
- ➢ Add machine learning for identifying dishonest behavior and assess the possibility of conducting a dishonest action within the system in real time.

Proof of Trust (PoT) consensus

COTI has developed a new approach to achieving consensus between transacting parties operating on a DAG-based data structure. The Cluster is a ledger, or a record of all transactions in the network, which is based on a completely decentralized DAG that is not stored by any central authority. The Cluster achieves scalability through its use of parallel source selection and confirmation of transactions, as well as its use of COTI's Trust Scores.

Current Status

- ❖ Released initial version of PoT based on the transaction associated TrustScore.

Next milestones/Objectives:

- ➢ Enhance the PoT to accomilate and normalized several aspects when executed: Trust Score (TS) + Difficulty + Amount normalization range.

Payment Request

Payment request is Coti's unique solution for "One click payment" to merchants for consumers. It provides to consumers a "buy with Coti" button they can embed and integrate directly to merchants website without filling the details about the merchant and the purchased item. It permits purchases with COTI directly from merchants' website without filling the details about the merchant and the purchased item.

COTI Payment request is a very useful concept in several ways, not only for generating fee base transactions, but also for storing purchase history, bookkeeping, excluding sensitive data from being exposed in the public ledger, easing dispute resolution, AML monitoring and so on.

Current Status

- ❖ Released initial version of Payment Request module which allows one-click payments using cryptocurrency.

Next milestones/Objectives:

- ➢ Add support for payment request in popular ecommerce platform: wordpress, woocommerce, shopify etc.
- ➢ Support payment request for other platforms such as: desktop, mobile apps and POS (point of sale).

Node Manager

Coti Network is designed to be a distributed network that works in a very large scale. Since all of the network components are distributed and unrelated to each other, a mechanism of network discovery and connectivity is introduced in COTI by the employment of Node Manager. The Node Manager in the COTI network allows seemingless deployment of node operating in the COTI network and allowing anyone to join the network as a node operator and run any type of node.

Current Status

- ❖ Released initial version of Node Manager which support sending the network topology to wallet, nodes as well as validating the operator ability to participate in the network.

Next milestones/Objectives:
Build an automatic Network Discovery Algorithm (NDA) which will allow COTI to:

- Avoiding a point of centralization. This avoids questions of whether the network is truly decentralized; but, more importantly, it reduces the risks associated with having a single point of failure.
- An automatic way to discover neighboring nodes (minimizing the amount of time and effort the user would have to do to manage this manually).
- A way to intelligently avoid the risks (as much as is possible) associated with accepting data from another node, without becoming reclusive or becoming locked into cliques.

Privacy

In COTI we have implemented one-time addresses generated by one-way hash function. The general idea is to have the ability to generate a one-time addresses by one-way hash function. Transaction details are transferred directly between parties and only a hash is stored in the transaction.

The idea is that you can allocate a new address associated with your seed, balance, trustscore which can be used as a one-time address or for a specific use case. Every address, is set only for the given

transaction/or transactions and cannot be tracked back to other addresses of the same seed or to any past transaction occurring in other addresses.

Current Status

- ❖ Currently the infrastructure allows end user to generate multi-address for each transaction manually through his wallet.

Next milestones/Objectives:

- ➢ Protection of privacy for merchant - in this case a merchant will be a able to auto-generate a different address for every payment request and by that not allowing anyone to track his turnover or business insights.
- ➢ Protection of privacy between users - ability to generate a temporary address (using one time address) which won't allow anyone to track previous interaction between parties - full private transactions in the network.

Network architecture and propagation - DSP Node clusters

The DSP Nodes in COTI network will be geographically distributed to a number of clusters. All DSP Nodes in a cluster will be strongly connected to each other as before, and a specific protocol for cross-cluster synchronization will be implemented.

Current Status

- ❖ Released distributed DSP nodes which are running in 1 cluster.

Next milestones/Objectives:

- ➢ Build a protocol which will support 'bridges' between clusters:
  - Each DSP Node that receives a transaction propagate it to its strongly connected fellow DSP Nodes (in its own cluster) and to one DSP Node from each additional cluster.
  - The process in each cluster is similar to receiving the transaction in the initial receiving DSP Node. The transaction is propagated to all other DSP Nodes in that cluster and is then confirmed, signed and sent back to the original DSP Node from the first cluster.
  - Each cluster have an 'election' where the validity of the transaction is decided, and the majority of votes in each cluster will be taken into account as the bucket's verdict.
  - The cross cluster decision regarding validity will be chosen in the same manner. Each bucket's verdict will be taken into account as one vote, and the majority of buckets will rule on the verdict.
- ➢ DSPs will be evenly distribute among buckets in order to prevent small buckets from being able to influence the whole network.

DSP (Double Spend Prevention) consensus

The DSP Nodes in COTI network are geographically distributed to a number of clusters. All DSP Nodes in a cluster will be strongly connected to each other as before, and a specific protocol for cross-cluster synchronization will be implemented.

This protocol is based on 'bridges' between clusters:

- ➢ Each DSP Node that receives a transaction propagate it to its strongly connected fellow DSP Nodes (in its own cluster) and to one DSP Node from each additional cluster.
- ➢ The process in each cluster is similar to receiving the transaction in the initial receiving DSP Node. The transaction is propagated to all other DSP Nodes in that cluster and is then confirmed, signed and sent back to the original DSP Node from the first cluster.
- ➢ Each cluster have an 'election' where the validity of the transaction is decided, and the majority of votes in each cluster will be taken into account as the bucket's verdict.
- ➢ The cross cluster decision regarding validity will be chosen in the same manner. Each bucket's verdict will be taken into account as one vote, and the majority of buckets will rule on the verdict.
- ➢ DSPs are evenly distribute among buckets in order to prevent small buckets from being able to influence the whole network.

DSP (Double Spend Prevention) consensus

The COTI double spend prevention solution consists of adding a handful of highly trusted Nodes to the network with only one function: to reach consensus on whether the transaction is legitimate or a double spend. DSP Consensus consists of a majority of DSP nodes, and consensus can be achieved when a transaction has more than one half of the DSP Node signatures.

Because the transaction verification process performed by the DSP Node is quick, only the amounts involved are checked, as opposed to the signatures of a transaction. The verifications that the DSP Nodes perform are only carried out after a transaction has been attached to the Cluster.

Transactions require the signature of a DSP Node before they can be considered fully confirmed. Any detected double-spending attempts are flagged and refused, while valid transactions receive signatures from DSP Nodes. Valid transactions are required to receive a number of signatures defined by the consensus in order to continue as confirmed. The DSP Nodes are load balanced to ensure that the verifications that prevent double-spending are efficient.

Current Status

- ❖ Released distributed DSP nodes.

Next milestones/Objectives:

- ➢ Support full consensus protocol between DSP nodes.

- ➢ Support validation of transactions in DSP nodes.

Monitoring network behavior

In the COTI network, Trust Scores are a universal concept that are applicable not only to users, but also to Nodes. During Node creation, the Initial Trust Score value is set according to the owner's Trust Score with a scaling coefficient. After initialization, these Trust Scores become independent of one another.

Node Trust Scores are computed in a similar way to users, but with different parameters. The primary set of parameters consists of transaction generation frequency, transaction propagation flow, transaction confirmation frequency and other load parameters. The more work a Node does for the COTI network, the greater its Trust Score.

Current Node Trust Score calculations are carried out similarly to that of users, but utilizing various contribution functions, weights and decays. Node Trust Scores are updated using copies of all processed transactions received by the Trust Score Nodes simultaneously with the participant's Trust Scores. Node Trust Scores are used to define COTI network topology and to help users select the most suitable Full Node. Less trusted DSP Nodes, TS Nodes and History Nodes are banned from network operations and cannot collect any fees.

Current Status

- ❖ Released Node Manager + TrustScore + DSP nodes first version which allows simplified monitoring of network behavior.

Next milestones/Objectives:
Implement a more sophisticated and efficient monitoring algorithms in the network:

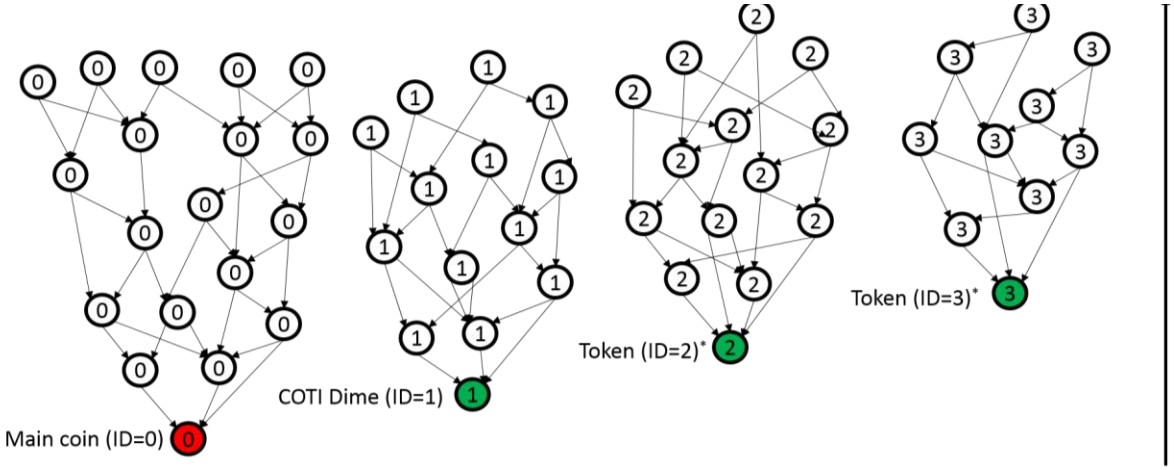
1. The TS is no longer considered static. Notably nodes monitor the information they receive from one another and report any wrongdoing to the Trust Score (TS) server. The TS server penalizes the TS of misbehaving nodes accordingly.
2. Nodes will no longer simply categorized into "good" and "evil", but a number of behaviors will be considered and implemented.
3. A Node's behavior will no longer determined purely by its TS.

MultiDAG

COTI is not bound to one instance of DAG. The same infrastructure of nodes permits the creation of multiple DAGs for different originators and purposes. There can be voucher tokens, stablecoins of varying nature, dedicated tokens for global companies, or scalability tokens to speed up settlements in other blockchains.

COTI will use several independent clusters that each support one token, which will make the whole network efficient and adjustable. The COTI MultiDAG ecosystem is similar to Ethereum, as a common decentralized infrastructure is the basis for a multitude of different tokens and smart contracts and one main coin for paying fees.

Figure N: Multiple clusters (DAGs) within the same infrastructure



** - These tokens can be stablecoins, dedicated coins, etc., according to wallets or smart contract logic.*

Current Status

- ❖ Not yet implemented.

Next milestones/Objectives:

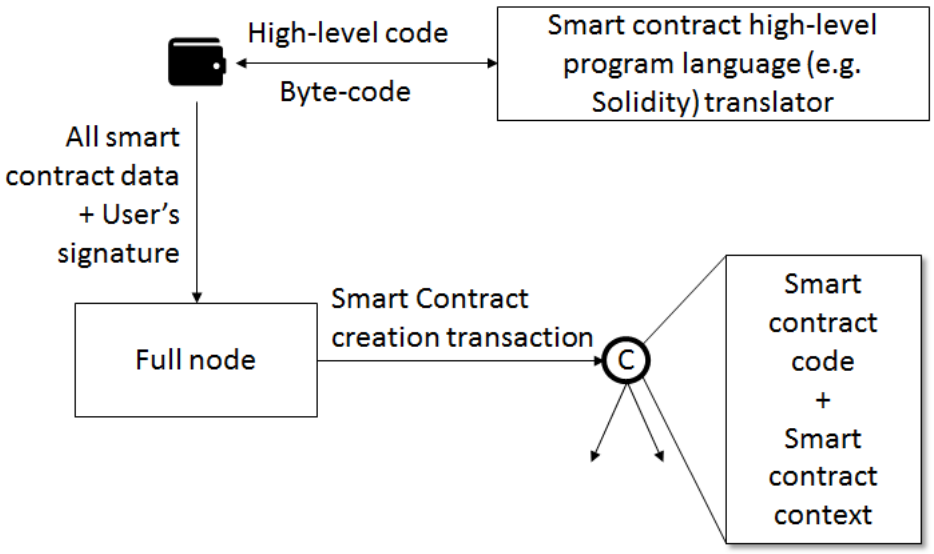
- ➢ Implement multiDAG support in the infrastructure
- ➢ Integrate multiDAG with COTI-X for allowing seemingless deployment of new token on the network.
- ➢ Ability to support external events retrieved through COTI-X and propagated to the network and to the proper cluster.

Smart contracts

COTI is introducing on-chain smart contracts for the DAG, which is a first of its kind. Similar to Ethereum smart contracts, COTI smart contracts provide a Turing-complete computational model. Unlike most other high-performance projects, where smart contracts are executed off-chain using specialized servers or nodes in quasi-decentralized manner, COTI smart contracts are executed on-chain and are decentralized. All smart contract execution steps are recorded in the dedicated Cluster of the COTI MultiDAG and are verified several times by various Full Nodes before complete confirmation.

COTI smart contracts are created and signed by a COTI user from the wallet application. Smart contracts are coded using specialized high-level program language (e.g. Solidity) and translated to low-level VM-executable language (byte code). Smart contracts are stored as a transaction in the smart contract Cluster with an address specifying the execution context.

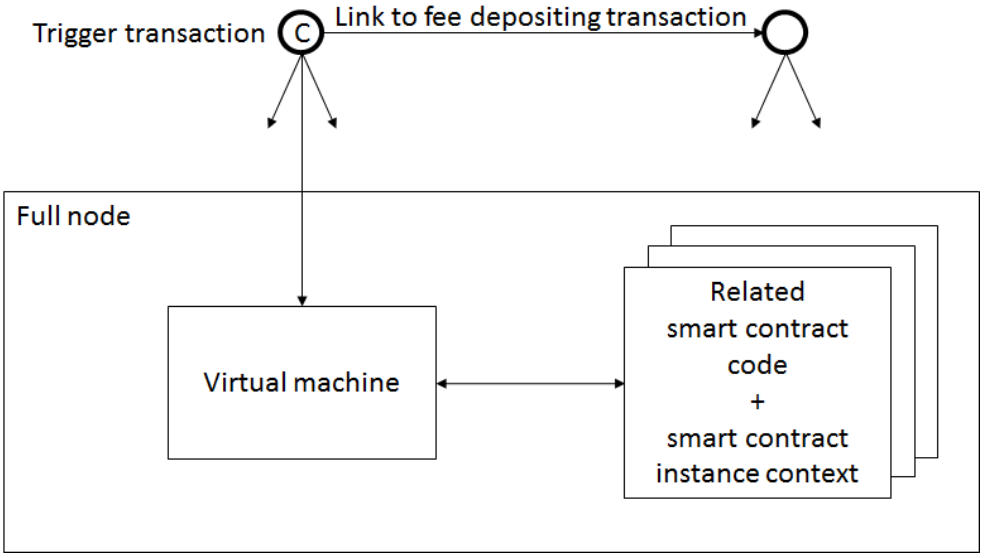
Figure N: COTI smart contract creation



For simplicity, all fees are omitted above.

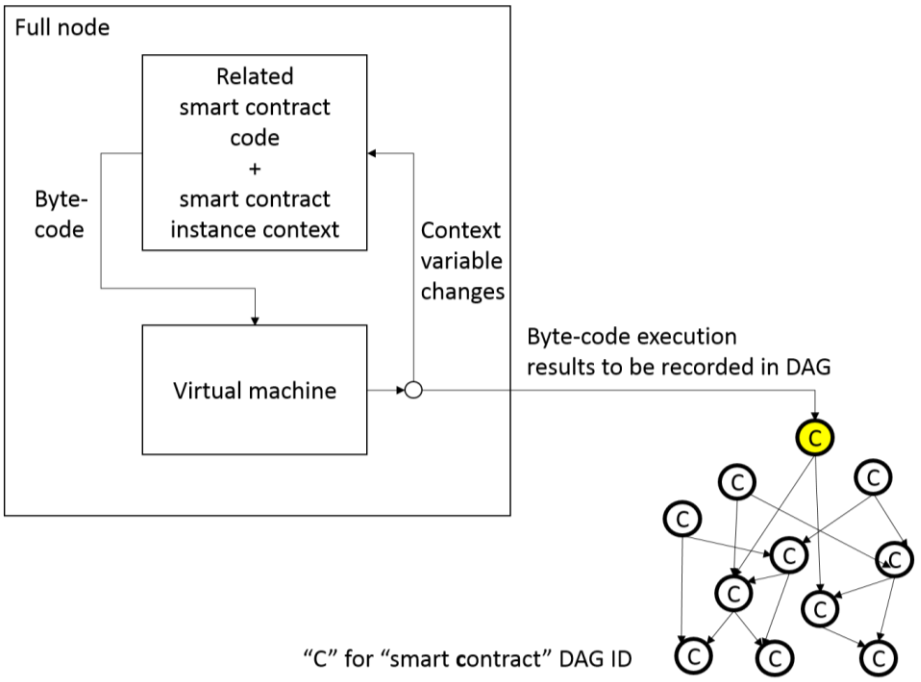
To be re-enterable, created smart contracts are executed by a trigger transaction, which defines the particular instance of a launched smart contract. Trigger transactions also provide a link (hash) to the transaction depositing COTI coins in order for the smart contract fee to be paid.

Figure N: The start of COTI smart contract execution



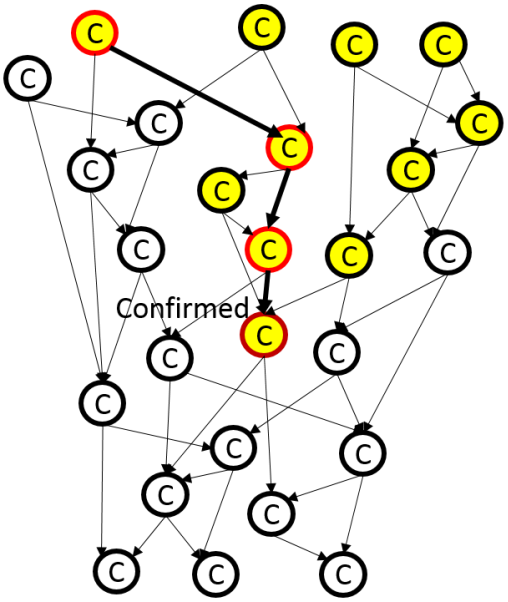
The COTI smart contract virtual machine is part of the standard COTI Full Node code (to be implemented in the advanced TestNet). Upon executing the smart contract bytecode, the VM changes smart contract context variables internal to each Full Node and records the result as a new transaction in the smart contract Cluster.

Figure N: COTI smart contract execution cycle



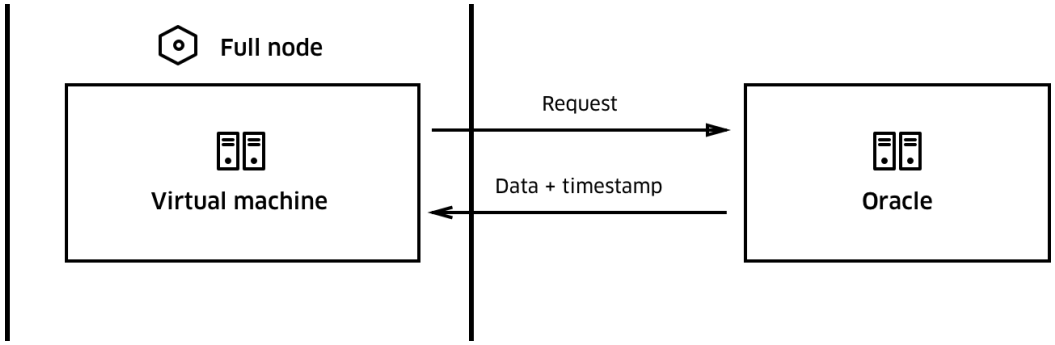
Smart contract bytecode is executed in parallel by all Full Nodes. For a new transaction to be attached to the smart contract Cluster, Full Nodes have to verify two previous transactions. The same applies for all Cluster transactions, as a smart contract execution transaction is considered to be confirmed after the heaviest path from the transaction to the Cluster's fringe reaches the confirmation threshold (see "The Trust Chain Algorithm" section above for details). If the transaction for the bytecode instruction is already attached, the Full Node checks the results and adds its signature. Full Node smart contract transaction verifications affect the Full Node's Trust Score.

Figure N: Smart contract Trust Chains



To make decentralized consensus on smart contract execution possible, it should be completely deterministic. This entails that smart contracts only be used for on-chain data. Any real world data should be supplied to the calculation process only using oracles while providing data with the corresponding timestamp.

Figure N: Requesting data from an oracle



Due to COTI's blockless structure (DAG), the network doesn't require gas conception. Fees for COTI smart contract execution are fixed to be minimal and economical. The execution fee for bytecode instructions belongs to the Full Node attached to the transaction and includes the execution fee. As for transaction network fees, they must be transferred to the Network Pool.

Current Status

- ❖ Not yet implemented.

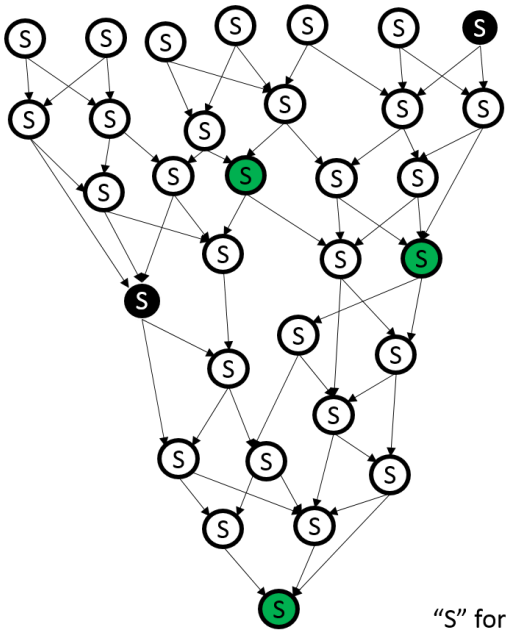
Next milestones/Objectives:

- ➢ Implement Smart Contract over COTI multiDAG.
- ➢ Ability to deploy smart contract over COTI infrastructure and for each multiDAG cluster.

Stablecoin framework

The COTI MultiDAG, together with COTI smart contracts and the possibility of multiple genesis transactions, allows for the creation of high-performance stablecoins. In COTI, each stablecoin's transactions consist of a stablecoin's own Cluster and its own confirmation rules. All stablecoin Clusters are organized according to a transaction sender's Trust Scores.

FigureN: Stablecoin Cluster



"S" for "stablecoin" DAG ID

Current Status

- ❖ Not yet implemented.

Next milestones/Objectives:

- ➢ Implement stability framework.
- ➢ Integrate stability framework in COTI-X.
- ➢ Ability to define pairs of crypto-crypto, fiat-crypto as collateralization in COTI-X and communicate it to infrastructure.
- ➢ Support API for COTI-X and stability framework.

Arbitration Process

COTI has developed a unique Arbitration Service that offers a dispute resolution system, consisting of a decentralized collective of highly trusted network participants who vote on dispute rulings. This allows the network to offer decentralized human-input services to its participants in cases of fraud or any other dispute related matter.

The Arbitration Service creates a rolling reserve for each merchant to cover possible claims and a system-wide Reserve Credit Fund (RCF) to guarantee it. Both funds are maintained in COTI's native currency. The required merchant rolling reserve is calculated based on the merchant's Trust Score.

COTI's Arbitration Service is a decentralized application built atop the COTI Trustchain that works as a decentralized third party to arbitrate disputes between buyers and sellers. It relies on game theoretic

incentives for jurors to correctly rule cases. The result is a dispute resolution system that renders ultimate judgments in a fast, inexpensive, reliable and decentralized way.

Current Status

- ❖ First version was released in TestNet.

Next milestones/Objectives:

- ➢ Support staking of arbitrators as part of the arbitration process voting.
- ➢ Build supportive decision support systems - Decision support systems supplement human knowledge management skills with computer-based means for managing knowledge. They accept, store, use, receive and present knowledge pertinent to the decisions being made. Decision support tools help decision makers improve their performance whilst decision-making tools automate the process, leaving a minimal role for the user.

    - Tools that have been used to develop intelligent negotiation support systems include:
    - Rule-based reasoning: where the knowledge of a specific legal domain is represented as a collection of rules of the form 'if then action/conclusion'.
    - Case-based reasoning: uses previous experience to analyze or solve a new problem, explain why previous experiences are or are not similar to the present problem and adapts past solutions to meet the requirements.
    - Machine learning: where the AI system attempts to learn new knowledge automatically.
    - Neural network: consists of many self-adjusting processing elements cooperating in a densely interconnected network. Each processing element generates a single output signal that is transmitted to the other processing elements. The output signal of a processing element depends on the inputs to the processing element. Each input is gated by a weighting factor that determines the amount of influence the input will have on the output. The strength of the weighting factors is adjusted autonomously by the processing element as data is processed.

ClusterStamp

To prevent the growing Cluster from becoming unmanageable in storage size, COTI has implemented the Clusterstamp, which consists of two phases:

1. The last fully confirmed transactions (having both Trustchain consensus and DSP consensus) for each account have been found. The 'last' transaction means that there are no fully confirmed transactions confirming it. These transactions then become the genesis transactions in the next generation of the Cluster.

2. All other confirmed transactions are excluded from the working DAG kept by Full Nodes. All non-confirmed transactions are kept in the working DAG. The Clusterstamp process is performed automatically.

Following the creation and verification of a Clusterstamp, it is stored in the COTI History Nodes. History nodes are receiving copies of all propagated transactions together with confirmation states, for this reason we don't need to copy any transaction data during the Clusterstamp. The Clusterstamp is not applicable to the smart contracts Cluster. Besides keeping the DAG operational as a data structure, the Clusterstamp has more benefits for the COTI network. The Clusterstamp provides a useful reference point and an opportunity for performing a system-wide audit to ensure that there are no inconsistencies or possible fraud.

Current Status

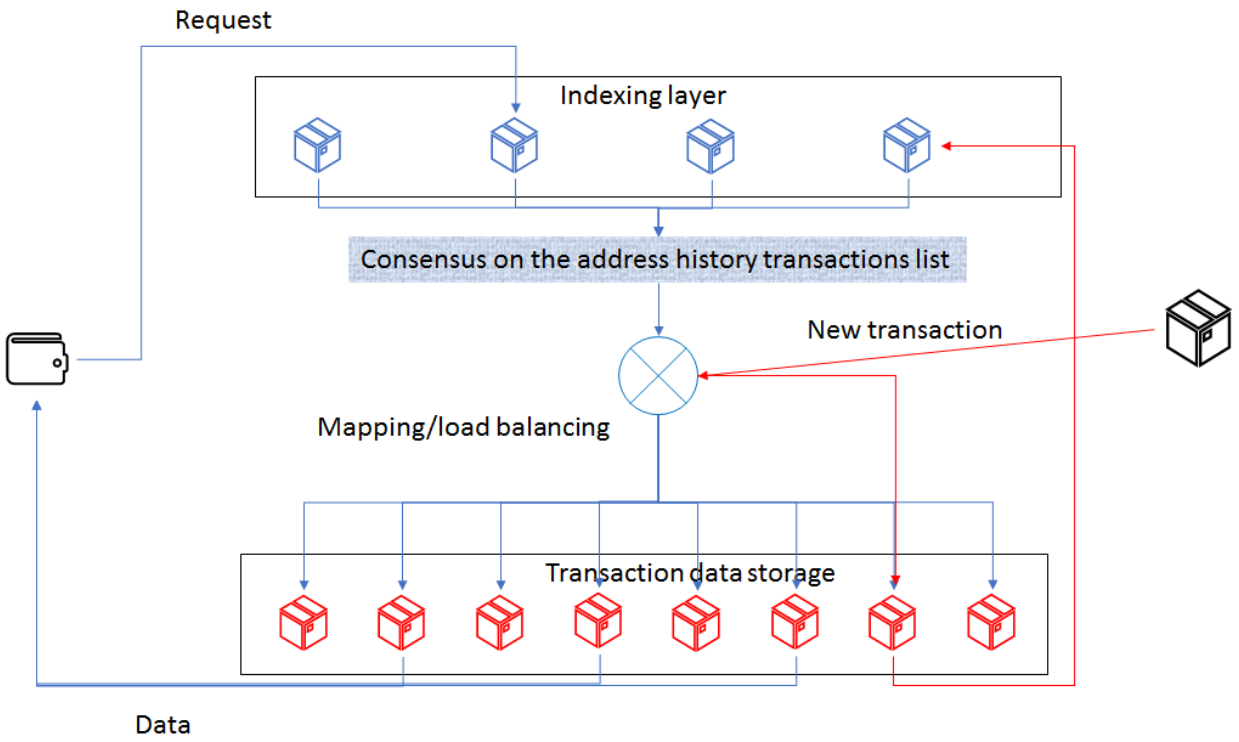
- ❖ Started working on specification and implementation of first version of clusterstamp.

Next milestones/Objectives:

- ➢ Implement and release clusterstamp

History Nodes

Successful payment systems are supposed to process ~ 1 Bln transactions per year. Having transaction size ~5 KB, it means that after one year payment system generates several terabytes of transaction data. It is not reasonable to compel a standard full node to store all these data, mostly unrelated to its operations. History nodes provide the service to store it. This service can be provided by a single powerful node, but, even using an industrial-grade servers, it may be good idea to split such database to shardes and apply load balancing.



The main use case for transaction history keeper is retrieving the history of operations for an account (in full, in part, for a group of accounts), including the justification of the current balance from the operations.

1. Given the storage to be non-SQL, key-value database with key = hash(Tx), it means that an “index” is required, allowing to retrieve transactions list by an address (a transactions consists of base transactions, each changing one address, so a transaction has several addresses to be included in the index).
2. The possible infrastructure of history nodes (with sharding only, replication is omitted for simplicity):
3. The mapping/load balancing here is not a specialized service, it is just a set of

Current Status

- ❖ Started working on specification and implementation of first version of history node.

Next milestones/Objectives:

- ➢ Implement and release history nodes
- ➢ Allow anyone with high trustscore to upgrade his node to history node operator.

COTI Cross-Chain Solution

In order to address the problem of blockchain interoperability, software reference architectures for blockchain interoperability should be set up. However, the majority of existing technologies trying to

connect DLTs defines a standard of interoperability within their platform, but not outside. The integration with legacy or other DLTs is challenging and difficult to implement. Choosing the correct technology becomes crucial because it's hard to foresee which will be the most suitable, even in the short term, without the uncertainty presented by other external factors such as technologies forking, becoming insecure, or being abandoned altogether.

In the development of blockchain applications, the choice of the underlying blockchain technology can't be easily undone. Migrations aren't always possible because the transactions only have scope on their blockchain address space. For example, Blockstack, an open-source project to create, manage and use decentralized apps on a blockchain, decided to move from Namecoin to Bitcoin because the first technology was considered less secure. The migration of applications is a problem that can soon apply to those running on Ethereum. This is an endless problem and the solution can't be merely designing better and smarter blockchains. Front-end technologies of today will become obsolete in a few years, due to planned and unplanned obsolescence.

To solve these issues, COTI presents the following solutions:

4. Communication among different DLTs for cross-ledger operations
5. Adaptable technology that can change to meet newer sector-specific requirements and regulation
6. COTI abstracts ledger dependent technology to overcome the bound of different architectures regardless of addresses, ledger implementation and consensus mechanisms.
7. Build apps on COTI ecosystem using any other infrastructure.
8. Ability to easily add support for any other infrastructure and integrate with any payment and stable coins apps.
9. Seemly integrate some of COTI services to enrich other infrastructure network, e.g: arbitration, kyc and trustscore.

Current Status

- ❖ Not yet implemented.

Next milestones/Objectives:

- ➢ Implement and release a cross chain gateway

TimeLine

Overall development work timeline is based on the current team force and takes into consideration safe thresholds for deployments of any component into the network. For every component we have also added the amount of time required for QA, bug fixes required prior for the successful deployment of each component.

Component	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022
MainNet initial beta version	V												
Arbitrators - decentralized governance					V								
KYC process - decentralized governance							V						
Release of addition reserve - decentralized governance								V					
Listing of new token on our exchange		V											
Ability to purchase the token with other crypto or fiat money					V								
Ability to withdraw the token back to fiat		V											
Ability to define a colleterization						V							
Support staking for node operators						V							
Support external events sent to TrustScore nodes							V						
Add machine learning for identifying dishonest behavior										V			
Enhance the PoT to accomilate and normalized several aspects				V									
Add support for payment request in popular ecommerce platform							V						
Support payment request for other platforms - desktop, mobile apps								V					

Build an automatic Network Discovery Algorithm								V					
Protection of privacy for merchant		V											
Protection of privacy between users		V											
Build a protocol which will support 'bridges' between clusters									V				
Support full consensus protocol between DSP nodes				V									
Support validation of transactions in DSP nodes				V									
Implement a more sophisticated and efficient monitoring algorithms in the network						V							
Implement multiDAG support in the infrastructure								V					
Integrate multiDAG with COTI-X									V				
Ability to support external events retrieved through COTI-X										V			
Implement Smart Contract over COTI multiDAG											V		
Ability to deploy smart contract over COTI infrastructure											V		
Implement stability framework												V	
Integrate stability framework in COTI-X												V	
Ability to define pairs for stability												V	

Support API for COTI-X and stability framework													V
Support staking of arbitrators as part of the arbitration process voting			V										
Build supportive decision support systems								V					
Implement and release clusterstamp					V								
Implement and release history nodes						V							
upgrade node to history node operator						V							
Implement and release a cross chain gateway										V			

The Base Layer Protocol:

- MainNet initial beta version - End of Q1 2019
- Support decentralized governance at:
  - Arbitrator onboarding process - accept new arbitrators through decentralized governance voting - End of Q1 2020
  - KYC process - allow decentralized governance be part of the manual review of documents and user approval - End of Q3 2020
  - Support for allocating of additional reserve and funds of COTI into the infrastructure supply - End of Q4 2020

Full Ecosystem

Next milestones/Objectives:

- Listing of new token on our exchange and propagating it to our infrastructure- - End of Q2 2019

- The ability to purchase the token with other crypto or fiat money - automatically define pairs from fiat to crypto and from crypto to crypto - End of Q1 2020
- The ability to withdraw the token back to fiat - End of Q2 2019
- The ability to define a colleterization for the new token in order for it to be stabilized (most setting will be fully automatic) - End of Q2 2020

TrustChain Protocol (Node Update algorithm + Events)

Next milestones/Objectives:

- Support staking for node operators - to run a Trust Score Node, a user is required to stake a sum of COTI - End of Q2 2020
- Support external events sent to TrustScore nodes through 3rd parties about customers, merchants which will affect his TrustScore in the COTI Network - End of Q3 2020
- Add machine learning for identifying dishonest behavior and assess the possibility of conducting a dishonest action within the system in real time - End of Q2 2021

Proof of Trust (PoT) consensus

Next milestones/Objectives:

- Enhance the PoT to accomilate and normalized several aspects when executed: Trust Score (TS) + Difficulty + Amount normalization range - End of Q4 2019

Payment Request

Next milestones/Objectives:

- Add support for payment request in popular ecommerce platform: wordpress, woocommerce, shopify - End of Q3 2020
- Support payment request for other platforms such as: desktop, mobile apps and POS (point of sale) - End of Q4 2020

Node Manager

Next milestones/Objectives:

Build an automatic Network Discovery Algorithm (NDA) - End of Q4 2020

Privacy

Next milestones/Objectives:

- Protection of privacy for merchant - in this case a merchant will be a able to auto-generate a different address for every payment request and by that not allowing anyone to track his turnover or business insights - End of Q2 2019
- Protection of privacy between users - ability to generate a temporary address (using one time address) which won't allow anyone to track previous interaction between parties - full private transactions in the network - End of Q2 2019

Network architecture and propagation - DSP Node clusters

Next milestones/Objectives:

- Build a protocol which will support 'bridges' between clusters - End of Q1 2021

DSP (Double Spend Prevention) consensus

Next milestones/Objectives:

- Support full consensus protocol between DSP nodes - End of Q4 2019
- Support validation of transactions in DSP nodes - End of Q4 2019

Monitoring network behavior

Next milestones/Objectives:
Implement a more sophisticated and efficient monitoring algorithms in the network - End of Q2 2020

MultiDAG

Next milestones/Objectives:

- Implement multiDAG support in the infrastructure - End of Q4 2020
- Integrate multiDAG with COTI-X for allowing seemingless deployment of new token on the network - End of Q1 2021
- Ability to support external events retrieved through COTI-X and propagated to the network and to the proper cluster - End of Q2 2021

Smart contracts

Next milestones/Objectives:

- Implement Smart Contract over COTI multiDAG - End of Q3 2021

- Ability to deploy smart contract over COTI infrastructure and for each multiDAG cluster - End of Q3 2021

Stablecoin framework

Next milestones/Objectives:

- Implement stability framework - End of Q4 2021
- Integrate stability framework in COTI-X - End of Q4 2021
- Ability to define pairs of crypto-crypto, fiat-crypto as collateralization in COTI-X and communicate it to infrastructure - End of Q4 2021
- Support API for COTI-X and stability framework - End of Q1 2022

Arbitration Process

Next milestones/Objectives:

- Support staking of arbitrators as part of the arbitration process voting - End of Q3 2019
- Build supportive decision support systems - End of Q4 2020

ClusterStamp

Next milestones/Objectives:

- Implement and release clusterstamp - End of Q1 2020

History Nodes

Next milestones/Objectives:

- Implement and release history nodes - End of Q2 2020
- Allow anyone with high trustscore to upgrade his node to history node operator - End of Q2 2020

COTI Cross-Chain Solution

Next milestones/Objectives:

- Implement and release a cross chain gateway - End of Q2 2021

Conclusion

By finalizing the development of the outline roadmap we believe that COTI's innovative technology will revolutionize crypto adoption by becoming the infrastructure upon which future

decentralized payment services and stablecoins are built. COTI's platform combines infrastructure, services and application layers to create a holistic solution that is modular and fully customizable ecosystem. Our end-to-end solution has been designed for use by decentralized payment apps, stablecoins, merchant, enterprises, developers and more.