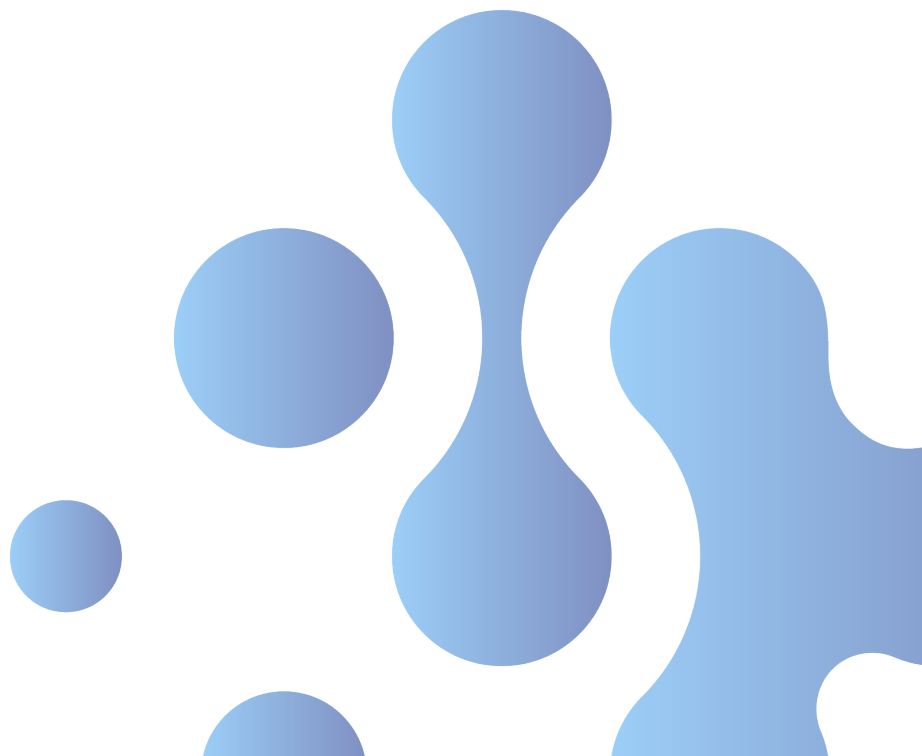




EXCRAFT PROOF OF EXISTENCE TOKEN

Trustworthy trading with a Proof of Existence Token

V1.0



Abstract

ExCraft is a cloud-native cryptocurrency exchange based in Hong Kong that implements microservices to achieve a highly secure and high-performance architecture. In order to embrace decentralization without sacrificing performance, ExCraft will issue an EXT Ethereum based ERC20 compatible token to reward traders through daily verifiable exchange volume, known as “Proof of Existence” (PoE). Additional EXT tokens will be rewarded to users who stake their tokens and to users who participate in exchange pools. Pools will craft the possibility for their community to offer unique capabilities. The EXT tokens will provide mechanisms for voting in a decentralized autonomous organization on platform and community topics. ExCraft will continue to move towards full decentralization by leveraging on-chain orders, cross-chain compatible ordering mechanisms, and implementing a dedicated mainnet built on a distributed proof of stake consensus.

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Table of Contents

Introduction	4
Centralized vs Decentralized Exchanges	5
EXT Token Distribution Overview	6
Proof of Existence Rewards	8
Proof of Stake Rewards	9
Pool Rewards	9
Decentralized Autonomous Organization	10
Representative Proof of Stake Congress	11
Representative Pool Master Senate	11
ExCraft Platform	12
Current Architecture	12
Decentralized Capabilities	12
Security	12
Infrastructure	12
Services	12
Platform	13
Team Members	14
Roadmap	15
Works Cited	16

Introduction

Only from a trade can a provable value for an asset be assigned. ExCraft was built to provide provable value for all cryptocurrencies through transparency in trades. As the world moves to embrace decentralized services we aimed to create a trading platform that focused on both security and performance. We have created a hybrid of decentralized and centralized exchange services. Our centralized services utilize a performance driven cloud-native microservices architecture, while our decentralized services will be offered in a phased approach.

The ExCraft Platform is a Hong Kong based exchange created in the Google Compute Cloud. The exchange is custom built to support both security and performance. The exchange platform is architected to be both modular and scalable by utilizing docker for encapsulating key components into a set of microservices managed by Kubernetes. These microservices are interlinked using Istio to enable gRPC mesh communication. Unlike many traditional monolithic centralized exchanges, the ExCraft architecture promote performance by allowing the exchange to quickly add additional resources and changes in functionality with minimal to no disruption to any existing trading activity. The exchange platform has been tested to support thousands of trading pairs with an overall capability to support tens of millions of transactions per second.

Additionally, a focus on security by design has influenced the infrastructure selection, platform, services, operations, and overall architecture. ExCraft delivers the best possible security through internal compliance, external validation, and transparency with regulators. The ExCraft community will participate in all future developments. As cloud, exchange, and decentralization technology improves, ExCraft will continue to make improvements while continuing to offer additional layers of security through the use of additional decentralized services.

ExCraft will create an initial decentralized service by rewarding users based on “Proof of Existence” (PoE). Ethereum ERC20 compatible tokens will be issued to community members through an Ethereum smart contract

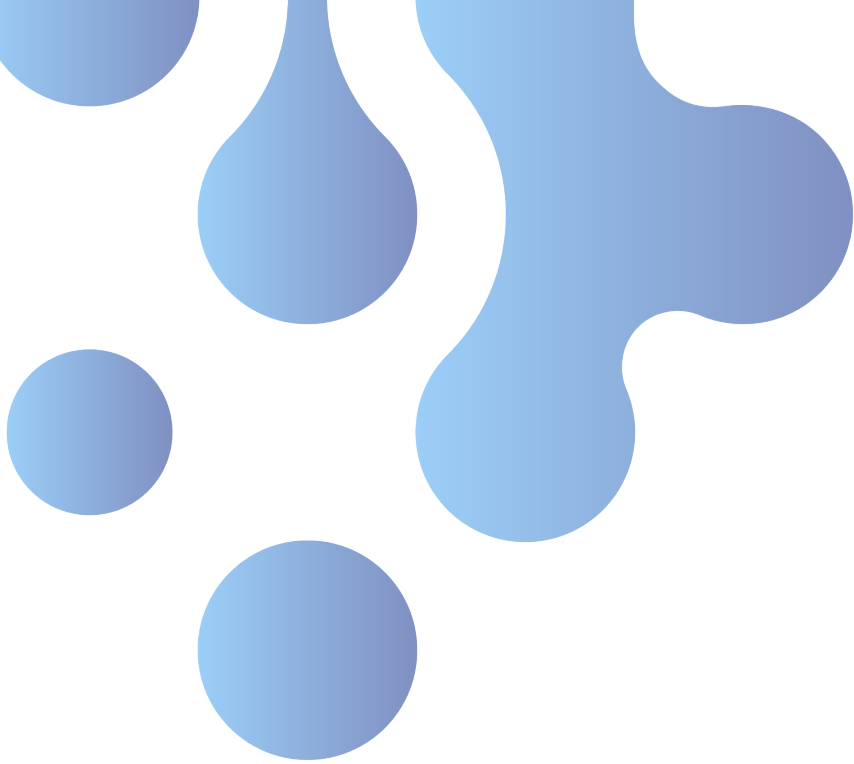
that distributes based on the Proof of Existence volume measured in the ExCraft Exchange and published to the blockchain. The PoE metric will serve multiple purposes including meritocratic voting rights of top volume representatives in a pooled decentralized autonomous organizational senate balanced against a congress of the top users staking EXT tokens.

In order to promote transparency in trade, ExCraft will reward the community with a calculated number of EXT tokens daily which are distributed based on each user’s Proof of Existence volume. The exchange will use no less than 80% of the fees collected to purchase EXT tokens from the marketplace no less than daily. These purchased EXT tokens will be sent to a permanently locked smart contract to remove them from the overall supply. Any excess fees collected from trades beyond the needs to run the exchange at cost will also be used to purchase EXT tokens from the exchange to be destroyed. In this manner, up to 100% of the trading fees collected will be returned to the community through EXT tokens.

Registered users who hold EXT tokens in the exchange or any private Ethereum wallet address registered with the exchange will be further rewarded through a Proof of Stake mechanism. The exchange will issue such rewards on a daily basis to all existing holders of tokens.

Users will have a third means by which to be rewarded EXT tokens which is to pool their PoE into “Exchange pools.” The top 101 pools will be rewarded with additional tokens which may be fairly distributed among all pool members based on their contributed PoE.

The aim of our trading platform is to provide a subsequent fully decentralized implementation that provides Proof of Existence of all trades with full support for atomic swaps, cross-chain compatible, and a community that enables flexible voting rights, without sacrificing high performance trading performance. ExCraft and its community partners are pioneering blockchain technology that will make such a mainnet possible.



Centralized vs Decentralized Exchanges

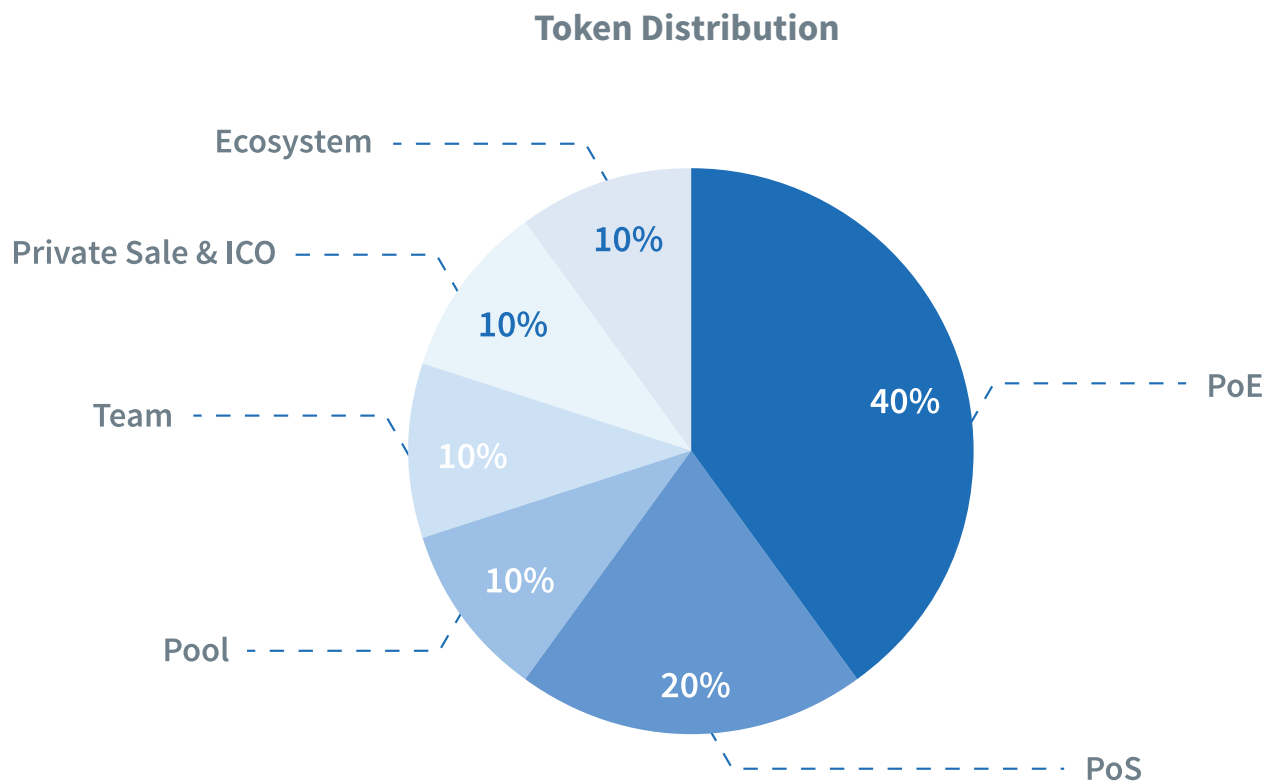
The market is moving to embrace decentralized exchanges due to their benefits in unstoppable implementations, privacy features, and provable fairness in execution. Unfortunately, these features currently come with a heavy price in exchange performance. As decentralized ledger technologies necessary to create these blockchain-based services is relatively new, the performance of these technologies requires long delays, often measured in “seconds or minutes”, before verifiable confirmations of actual state can be determined (BitShares, 2018) (Komodo, 2018). Comparatively, high frequency trading in the world’s premiere exchanges, is measured on the order of microseconds or less. Most cryptocurrency traders are not needing trades at microseconds speed. Exchanges that are

unable to process high volumes of transactions cause a shift of volume to other exchanges that are able to do so.

The difference in performance between decentralized and centralized databases are too different to dismiss, but the pace at which the gap is closing is quickening. Through internal security, external compliance, community involvement, ExCraft will lead traders to a decentralized exchange in a phased manner. ExCraft will phase in support 0x Project protocol of order fulfillment to facilitate on-blockchain orders of ERC20 compatible coins (0xProject, 2018). The ExCraft platform will phase in support of the Kyber exchange network with the Gormos mainnet for full on-chain exchanges (Kyber Network, 2018).

EXT Token Distribution Overview

The ExCraft Exchange will create ten billion EXT tokens which will be distributed to a variety of groups through a smart contract managing the ERC20/ERC223 compatible token on the Ethereum blockchain. The token distribution is allocated with 70% for rewarding the community and 30% for internal purposes. Of the total supply in respect to community rewards, 40% will go to Proof of Existence rewards, 10% to Pool rewards, and 20% towards. Proof of Stake rewards. The remaining 30% for internal purposes will be evenly distributed with 10% towards the ecosystem projects, the team, and private sale & ICO.



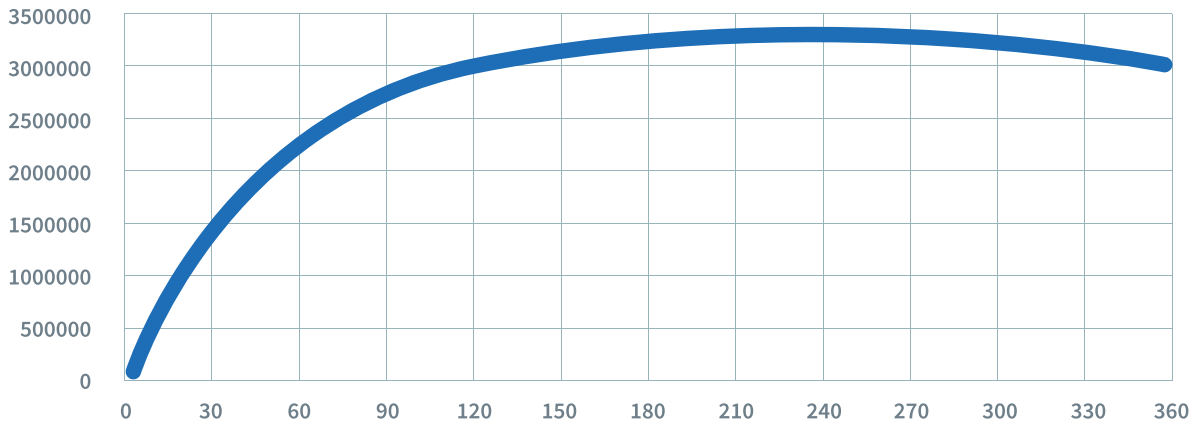
The Proof of Existence, Proof of Stake, and Pool rewards Ethereum smart contract will reward tokens every 5760 Ethereum blocks designed to disperse all rewards for 74,037 reward cycles. As Ethereum averages 15 seconds per block, we can consider this reward as approximately daily for approximately 202 years.

The equation for the “daily” rewards tokens will be:

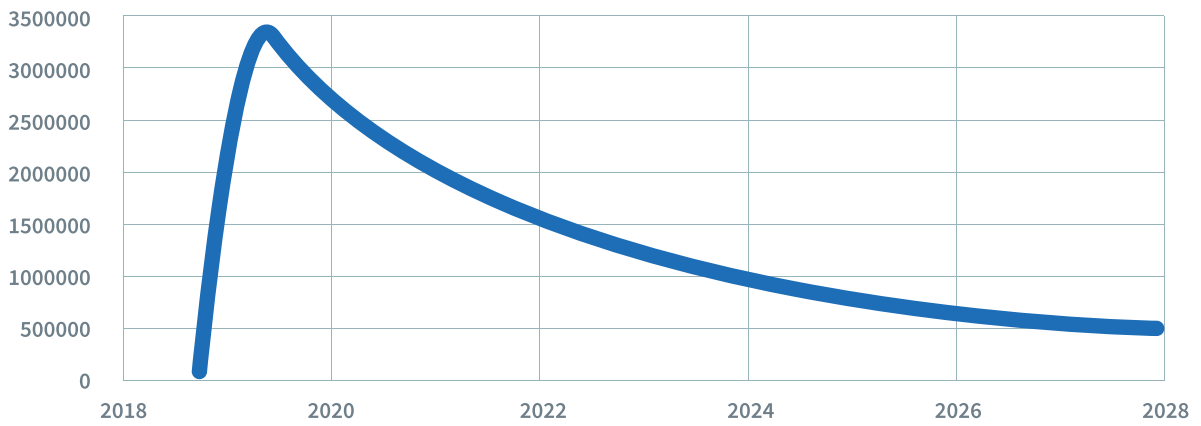
$$y(x) = 3293005.88008333 * e^{-\left(\frac{\ln\left(\frac{x+5}{365}\right)+0.5}{2}\right)^2}$$

This equation is designed to release a significant number of tokens within the first ten years of the exchange, but allow a full potential lifetime of expected usage.

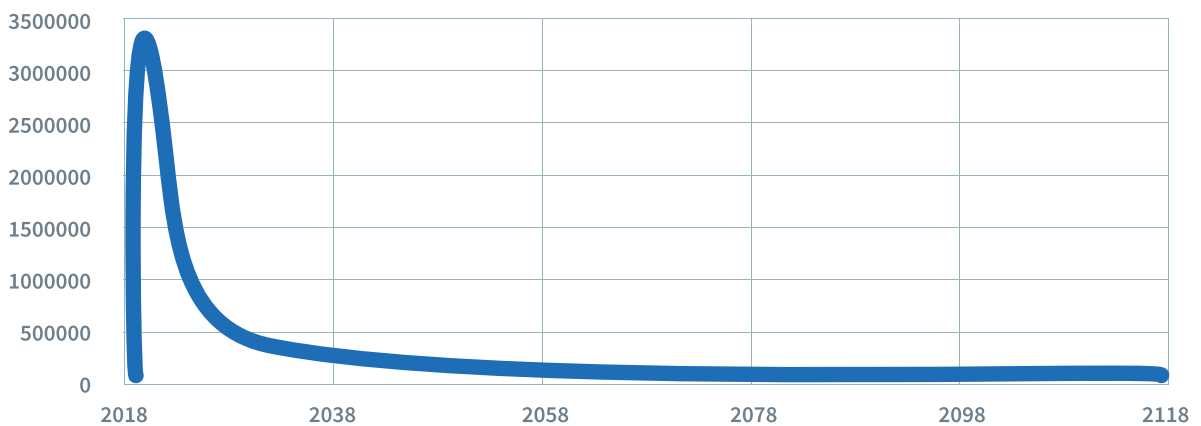
“Daily” Rewards Tokens Released (First Year)



“Daily” Rewards Tokens Released (First Ten Years)



“Daily” Rewards Tokens Released (First Hundred Years)



Tokens can be purchased on the ExCraft exchange by those selling their EXT community rewards or internal tokens.



Proof of Existence Rewards

Any trade which allows any buyer to purchase from a seller a transfer of assets involving the disclosed exchange fees is considered a fair Proof of Existence. ExCraft will elect to publish these results in “no less than once a day” and intend to use the Ethereum blockchain period to commit the latest results exactly every 5760 blocks.

The calculation for this Proof of Existence value will be determined on the fair market value of each asset based on the closing price at the end of this period multiplied by the amount of each trade. This will then be used to calculate an individual’s trade activity and committed to the blockchain with a unique identifier that masks the user’s privacy. Included in these metrics will be the total number of buys and sells per registered user address so as to provide transparency to the community.

Users may elect not to publicly participate in these metrics by not registering a wallet address in the platform.

However, all users with unregistered wallets will be unable to participate in community DAO voting.

Proving an exchange occurred will be a result of tallying the number of buys and sells per market and seeing the union of these two sets encompasses all possible trades. We can then ensure the ExCraft exchange fulfills its daily promise of committing 80% of the trade fees by inspecting the trades of the exchange itself on the blockchain against the EXT marketplace to see that in fact at least 80% of the published trade fees daily are sent back into purchases of the EXT token. ExCraft uses a falsification verification method for proving reward fairness. Each individual user will be able to view their own trading volume from the exchange using their ID and the associated rewards based on their activity. All users will be able to see a masked representation of other user’s daily activity and see the associated rewards to verify the exchange is rewarding trade volume.

Proof of Stake Rewards

Users will have the opportunity to hold the tokens and appreciate their increase in value. Users who are holding tokens in their registered wallet associated with their user identity will be issued additional daily rewards for holding the token.

While the supply of tokens will remain fixed, ExCraft will purposefully spend excess trading fees beyond the exchange operations costs to purchase EXT tokens at the current market rate. These tokens will be sent to a locked smart contract to decrease the immediate total token supply and inflate the price of the exchange token for the entire community.

Pool Rewards

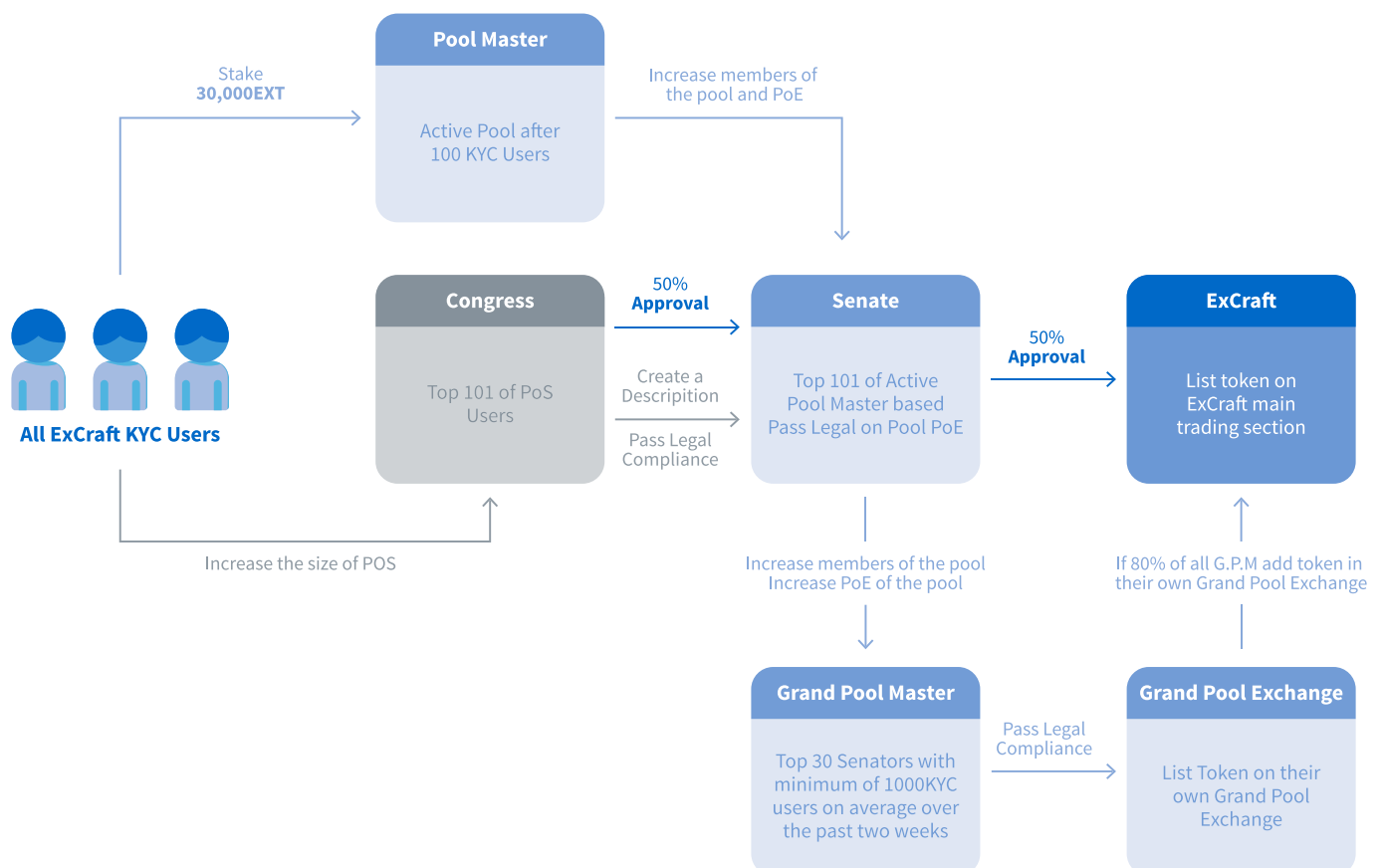
Users will be able to join Exchange pools of other users to increase their chance of receiving a larger portion of the daily token distribution. Any user may stake 30,000 EXT tokens to create their own pool and become designated a Pool Master. Any user may then join the pool and have their PoE counted towards the total pool PoE. A pool will be considered eligible for pool rewards if it is among the top 101 pools as measured by the combined PoE of all their members and contains at least 100 KYC users. The pool rewards will be automatically distributed among all pool members based on their contributed PoE, however, the Pool Master can elect to retain a percentage of the reward. Through each user's own actions of trade or encouraging other users to trade under their pool, users will increase their EXT portfolio supply and ultimate valuation.

Users may elect to join different pools at any time, but for purposes of accounting their PoE will be locked to a single pool for up to 24 hours. In this way, we wish to encourage Pool Master to provide fair distribution of rewards while encouraging pool members to reward Pool Master with their total PoE.

A Pool Master can delete their pool and have their stake returned within a 24-hour period. This process can be performed either by forcing all their members to become outside a pool or alternatively to move their pool members automatically into any existing pool.

Decentralized Autonomous Organization

The Proof of Existence based on real trades will allow smart contract voting to be based on both verified user accounts from our Know Your Customer (KYC) system, as well as a meritocratic voting system based on single or pooled user trade volume. Users will be able to vote on listing new projects to be sponsored in the exchange. The ExCraft community values all users input as well as those who trade most frequently. As such, all votes will be subjected to a Congress and a Senate vote.



Representative Proof of Stake Congress

The representative proof of stake congress will be a meritocracy based on the top 101 users holding EXT tokens as determined by a smart contract. Any current representative of the congress may bring an issue to vote. All other users must contact a current member of congress to have any new issues brought to vote.

Users may vote using a dApp web interface where using their registered public key they can sign their vote to the

smart contract using a Metamask browser plugin or other suitable blockchain client. Upon completion of the vote, the results will be displayed in the ExCraft Exchange or easily verified from the blockchain signatures.

Each vote must be implemented in a “pass” or “not pass” manner. If a bill passes the congress, it is passed to the Senate for a second vote.

Representative Pool Master Senate

The ExCraft platform is unsustainable without Proof of Existence trades. Those who either directly commit PoE or have unified with others in a pool represent a stakeholder that cannot be ignored, even if they are in the minority. All votes that pass Congress will be submitted to the Senate in a new smart contract. The Senate will be formed by the Pool Masters of the top 101 pools containing the most PoE across their pool members.

This second phase process will form a balance where the Senate with the ability to pass legislation must work with the democracy which is necessary to propose it for approval. Conversely, the people with only a single vote must convince the pools of senators with Proof of Existence to approve the legislation they have passed. If the Senate should fail to pass legislation, the members of the Congress are free to switch pools and shift their PoE voting power to a new pool during the next round of voting.

A smart contract for the Senate will track the PoE of all whitelisted pools available at the start of the vote. Once the vote begins, no further pool creations will be considered for the purposes of the vote. Each day, the PoE for each pool will be committed to the vote. Each pool operator will be allowed to vote based on the amount of PoE they have available across their pool at the day in which the issue is brought to a vote. Each vote must be implemented in a “pass” or “not pass” manner. If a bill passes the Senate with

a 50% approval, then the bill will be implemented by the exchange for the entire community.

The top 30 Senators who have at least 1000 KYC users on average over the past two weeks will be automatically designated as a Grand Pool Master. Their Grand Pool Master status will expire 180 days after they drop out of the top 30 senators. In addition to all rights as a Pool Master and Senator, a Grand Pool Master will have the decision-making rights to request ExCraft to list custom tokens to their pool members only without requiring a full DAO vote. These custom token pairs can be accessed through their Grand Pool Exchange Page. While this request process will still require ExCraft centralized token review and implementation approval, it will provide Pool Masters an option to list new tokens faster than the rest of the exchange. If a Grand Pool Master term expires, all custom listed tokens will cease trading until either the DAO approves the token for the entire ExCraft community, the Grand Pool Master is reinstated, or the former Grand Pool Master joins a Grand Pool Master operated pool which may optionally list the existing custom tokens.

If 80% of all Grand Pool Masters (24) list a custom token, the token will be automatically and permanently approved for use for all ExCraft exchange users without requiring a DAO vote.

ExCraft Platform

Current Architecture

The ExCraft Exchange Platform is implemented in Google Compute Platform using docker container microservices managed by Kubernetes as a means of achieving scale and reliability. This cloud-native approach will allow ExCraft to overcome traditional scalability problems resulting from a monolithic architecture bound to colocation platform specific hardware. A variety of languages are utilized in the exchange platform including Python, Go, and C.

Decentralized Capabilities

As the ExCraft team continues to develop a mainnet implementation, our goal is to shift key trading platform services from a centralized implementation to a decentralized architecture that will continue to provide the same level of reliability and scale without risking security or performance. This mainnet will be cross-chain compatible and, for supported currency pairs, will offer atomic swaps via smart contracts without the need for a third-party involvement. Additionally, users will be able to be in full control of all private keys which will remove privacy and risk concerns.

Security

The security of a trading platform is paramount to its users trusting the service. If users cannot trust the underlying platform execution, they can simply trade elsewhere resulting in a lack of liquidity and ultimately a lack of competitiveness. While this paper does not serve a complete description of all the security policies and implementations, ExCraft was designed with a security model that employs trust throughout the entire infrastructure, services, platform, operations, and overall architecture.

Infrastructure

At an infrastructure level, the Google cloud provides a highly reliable and trustworthy physical infrastructure abstracted into a platform of secure cloud services. The ExCraft relies upon many of these physical and base infrastructure services to secure many aspects including datacenter compliance, encryption at rest, private key management, intrusion detection and prevention, global load balancing, and disaster recovery zones for alternative site selection (Google, 2017). We also partner with CloudFlare as a means to prevent Denial of Service, enforce external encryption in flight with strong ciphers and key strengths, and blocking attacks (CloudFlare, 2017).

Services

Within our services we have utilized docker not just as a means to bring operational efficiencies but also to reduce security risky by compartmentalizing critical services through network isolation and resource management (RedHat, 2017). Should a vulnerability be found in one service, we have used hardened docker containers with Kubernetes to enforce “deny by default” to reduce the possibility of an attacker using a compromised service from accessing another service.

Platform

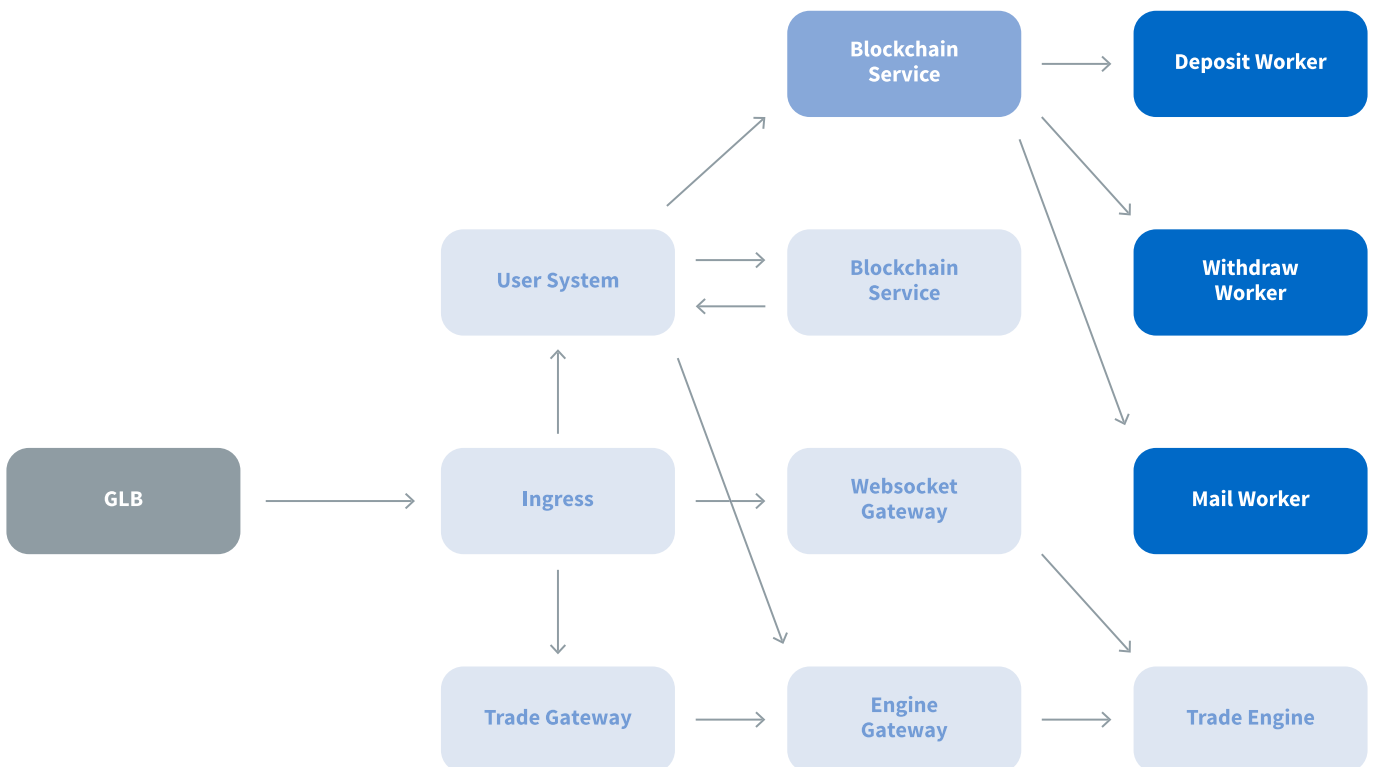
The ultimate combination of our underlying infrastructure and purpose-built services results in a platform that is connected using lightweight process integration with Istio and GRPC communication.

Vulnerability Management

ExCraft utilizes third party providers to actively scan for security threats using a combination of commercially available and purpose-built in-house tools, intensive automated and manual penetration efforts, quality assurance processes, software security reviews and external audits. The security team is responsible for tracking and following up on vulnerabilities with development. Once a vulnerability requiring remediation has been identified, it is logged, prioritized according to severity, and assigned an owner. The vulnerability management team tracks such issues and follows up frequently until they can verify that the issues have been remediated. ExCraft also maintains relationships and interfaces with members of the security research community to track reported issues in ExCraft services and open-source tools.

Monitoring

ExCraft utilizes a robust suite of active and passive solutions to gather metrics, insight, and vulnerabilities from internal trade systems. The analysis of this data includes both commercial and open-source tools for parsing and automated notifications. When threats or operational issues are uncovered we have automated and manual processes which notify relevant operational and security team staff.



Team Members



Roy Lam kt

CEO

Roy Lam kt is an early Bitcoin investor, Investment Fund Manager and the member of the world's top high IQ association - Mensa Member. He is well known to the world, because he is the team leader in "Super brain" China TV show, which is a brain research program of China's ratings champion. And he is known as "The Cleverest Man in Hong Kong" and won the title of "Top Asian Record Holder" in 2010 Memory Championships "Random Words (english)". He is also a TEDx speaker.

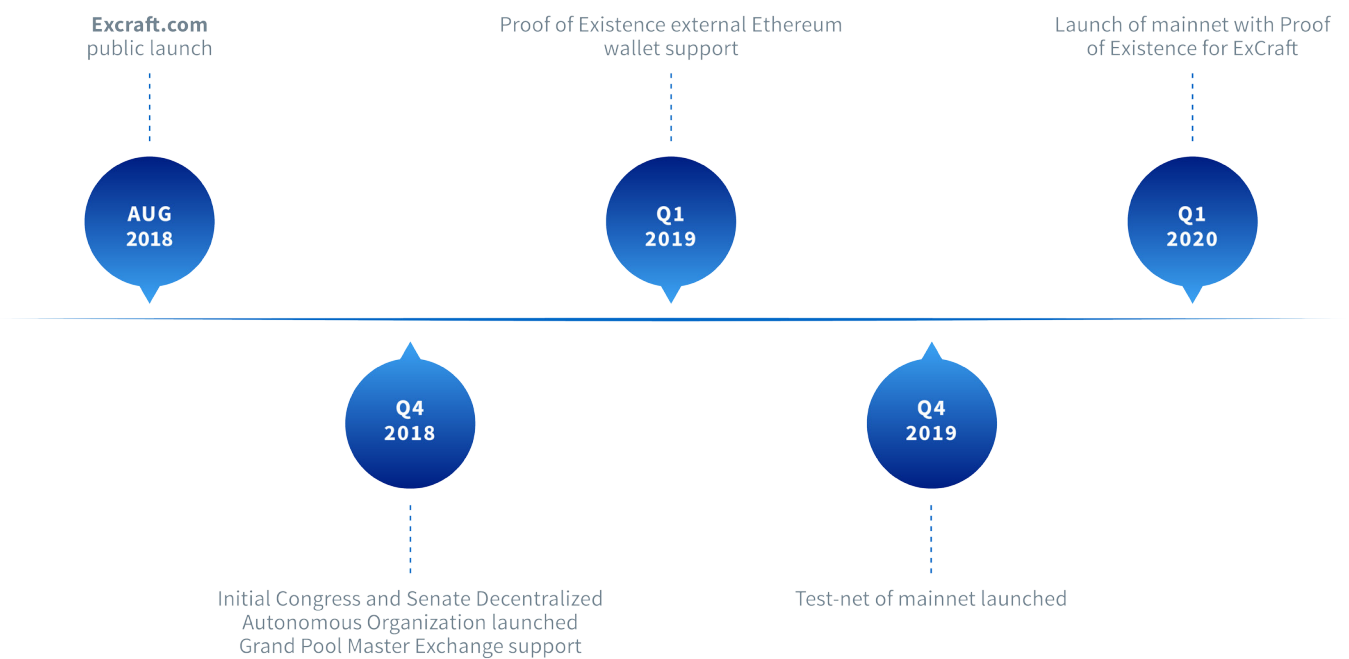
Benjamin Chodroff

CTO

Benjamin Chodroff is CTO of ExCraft and oversees all technical and strategic project direction. He has over a decade of experience and multiple patents while working as Senior IT Architect at IBM and CTO at ClearObject for IoT and cloud solution development. He has been working with distributed ledger technologies since 2013 and first became interested in Bitcoin in 2010. He received his BS in Computer Engineering from Case Western Reserve University.



Roadmap



1. August, 2018 – ExCraft.com public launch
2. 2018 Q4 – Initial Congress and Senate Decentralized Autonomous Organization launched
3. 2018 Q4 – Grand Pool Master Exchange support
4. 2019 Q1– Proof of Existence external Ethereum wallet support
5. 2019 Q4 – Test-net of mainnet launched
6. 2020 Q1 – Launch of mainnet with Proof of Existence for ExCraft

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