CATNERO WHITEPAPER

NEXTGEN BLOCKCHAIN FOR PROGRAMMABLE TOKEN ECONOMY

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ACKNOWLEDGMENTS AND DISCLAIMERS

ACKNOWLEDGMENTS

Buyer acknowledges, understands and agrees to the following:

- MATTERS RELATING TO CATNERO SOFTWARE AND AERUM PLATFORM:
  1. Company is developing the Catnero software (the "Catnero Software") as further described in the Catnero Technical White Paper (as it may be amended from time to time) (the "White Paper"): Catnero Technology Ltd., incorporated in Republic of Seychelles
  2. At the end of its development stage, Company will be releasing the Catnero Software which implements Catnero Platform
  3. Catnero Platform includes the blockchain client software allowing full nodes (blockchain operators) and Delegates (authorized block creators) to operate a set of blockchains based on the Catnero blockchain protocol, the blockchain wallet software in the form of web and mobile applications allowing users to utilize any blockchain built on the Catnero blockchain protocol and exchange tokens with the Ethereum blockchain mainnet using an Atomic Swaps protocol, and CatneroBIT – Blockchain Integration Toolkit allowing for application developers and e-commerce providers to integrate their websites and applications with any Catnero blockchain.
- BINDING AGREEMENT: Buyer understands and agrees that Buyer is subject to and bound by this Agreement by virtue of Buyer's purchase of CTO Tokens.
- NO U.S. BUYERS: CTO Tokens are not being offered or distributed to U.S. persons (as defined below) unless they are accredited investors as this term is defined under the laws of the United States of America. If you are citizen, resident of or a person located or domiciled in the United States of America including its states, territories or the District of Columbia or any entity, including, without limitation, any corporation or partnership created or organized in or under the laws of the United States of America, any state or territory thereof or the District of Columbia (a "U.S. person") and not the accredited investor, do not purchase or attempt to purchase CTO Tokens.
- PURCHASES OF CTO TOKENS ARE NON-REFUNDABLE AND PURCHASES CANNOT BE CANCELED. BUYER MAY LOSE ALL AMOUNTS PAID.
- CTO TOKENS MAY HAVE NO VALUE.
- COMPANY RESERVES THE RIGHT TO REFUSE OR CANCEL CTO TOKEN PURCHASE REQUESTS AT ANY TIME IN ITS SOLE DISCRETION.
- PLEASE READ THE RISKS SET FORTH IN FOLLOWING SECTIONS CAREFULLY AND IN THEIR ENTIRETY.

ACCEPTANCE OF AGREEMENT

1. This Agreement shall be effective and binding on the Parties when Buyer: (a) clicks the check box on the official https://www.catnero.com/ website (the "Website") to indicate that Buyer has read, understands and agrees to the terms of this Agreement; or, if earlier (b) upon Company's receipt of payment from Buyer. Buyer agrees to be bound on this basis, and confirms that Buyer has read in full and understands this Agreement and the terms on which Buyer is bound.

2. Website Terms of Use. Company has established Terms of Use, as may be amended from time to time, for the Website located at https://www.catnero.com/terms-of-use, which are hereby incorporated by reference. Buyer has read, understands and agrees to those terms.

3. White Paper. Company has prepared the White Paper, which is available at CTOhttps://github.com/Catnero, describing matters relating to the Catnero Software. The White Paper, as it may be amended from time to time, is hereby incorporated by reference. Buyer has read and understands the White Paper and its contents.

4. CTO Tokens.

   a. No Purpose. In case of Catnero software launch failure CTO Tokens may not have any rights, uses, purpose, attributes, functionalities or features, express or implied. Although CTO Tokens may be tradable, they are not an investment, currency, security, commodity, a swap on a currency, security or commodity or any other kind of financial instrument.

   b. Company's Use of Proceeds. Buyer acknowledges and understands that the proceeds from the sale of the CTO Tokens will be utilized by Company in its sole discretion.

   c. Reasonable Usage of Proceeds Before Soft Cap is Reached. Buyer acknowledges and understands that reasonable operational costs may be paid for with a portion of the CTO Tokens sale before the soft cap of the Catnero Token Sale is reached, and that only a proportionate amount of the funds paid for the CTO Tokens by the Buyer may be returned to the Buyer in the event that the soft cap of the Catnero Token sale has not been reached.

INTRODUCTION

WHAT IS A BLOCKCHAIN?

Blockchain is a new way of storing and transferring information using an extremely secure, distributed network of computers. A blockchain keeps track of changes in value over time — transactions usually, but not necessarily (simple explanation here). Since a blockchain is a computational network, automated processes and applications can be programmed to run on a blockchain. These applications and processes, called "smart contracts," perform some action once certain conditions are met. For example, a simple smart contract might be one that plays Blackjack with you and either gives you a pay-out or takes your money if you lose.

Importantly, because of smart contracts, the need for third-party moderation can be drastically reduced or eliminated when dealing with a wide range of industries. By automating via smart contracts what previously required expensive third-party services, many financial services (insurance, lending, P2P payments) can be offered at a lower cost. This shift will disrupt those industries and many others — basically any that have potential for P2P trade.

It is commonly acknowledged that regulation already has a lot of catching-up to do when it comes to these P2P applications of the blockchain. However, when it comes to blockchain use-cases that relate to finance and banking, there are quite a lot of legal hurdles that must be overcome. In many blockchain start-ups there is often a palpable contempt for regulation, but this can be counterproductive. Regulators are not antagonists who only wish to stifle innovation at all costs, though stifling innovation is something that regulation sometimes unfortunately does.

We believe that blockchain adoption is changing the way we do things on a global scale for a number of industries. While bitcoin was designed as a purely financial solution, Ethereum became viable proof as a boilerplate for a number of new concepts, most notably the ERC20 token standard, the most adopted token standard utilized by various decentralized governance organizations such as the Aragon project.

MARKET NICHE

FinTech is an industry of financial technologies where technological breakthroughs and innovation pave the way for simplification of economic relationships between people, companies, and institutions. However, as innovative as it is, FinTech itself is ready to be disrupted by emerging technologies such as blockchain.

No longer an obscure technology, different blockchains are being used for a wide variety of purposes by large corporations, nimble start-ups, and small collaborative groups alike. The P2P economy has always been around, but with such a dramatic increase in capability and efficiency that blockchain provides, we can expect to see a significant reconfiguration in the economy as we know it as individuals increasingly use this technology to transact directly with each other in just about every industry or niche.

We envision the following segments of FinTech as major benefactors of the innovation blockchain is bringing along:

- P2P payments and remittance
- P2P insurance
- P2P lending
- Prediction markets and betting
- Gaming and e-Sports

P2P PAYMENTS AND REMITTANCE

This is a huge and rapidly growing market, with the following sub-segments already producing colossal rates of growth:

- Mobile payments – expected to record $1,000 Billion in 2019
- Remittance – recorded $466 Billion in 2017 and growing
- P2P payments – forecast to record $65 Billion in 20121

Blockchain will provide decentralized, trustless payment solutions for all these market segments, disrupting a stronghold of traditional players such as mobile operators charging fees as high as 30-50% of the transaction for using their mobile wallets when paying for services, or money transfer companies such as MoneyGram or Western Union, where commissions can be up to 8-10% of transaction, especially for smaller transfers typical for remittance payments. Blockchain will provide a huge reduction in the cost of transactions and execution time. A number of prominent companies are already solving a last mile problem by incorporating blockchain technologies into this market.

P2P INSURANCE

Blockchain could also reduce the costs of running P2P insurance networks by increasing transparency, reducing fraud, and cutting administrative costs. P2P insurance already exists — companies like the Germany-based Friendsurance offer P2P insurance. Lemonade offers P2P property insurance, and there are a few others. By adding blockchain, component insurance can become a lot simpler and cheaper for customers. There are start-ups like Dynamis that are trying this format. There is a lot of potential here. By using a blockchain, it is possible for localities and communities to offer insurance within a relatively small social network and then leverage social dynamics to reduce insurance costs — by increasing preventative care, for instance.

P2P LENDING

Peer-to-peer (P2P) lending is a new type of “sharing economy”. P2P lending platforms help connect investors with borrowers without the bank acting as an intermediary. Between 2014 and 2015 the value of global P2P lending was expected to rise to a value seven times what it was in 2014 – from 9 billion to 64 billion U.S. dollars. By 2050 the value is expected to be close to one trillion U.S. dollars.

In the United States, 26 percent of people admitted that they used peer-to-peer payments. The value of mobile P2P payments in the U.S. amounted to around nine billion U.S. dollars in 2014 and it was predicted to increase to 86 billion U.S. dollars in 2018. Also, the number of mobile peer-to-peer payment users in the United States was predicted to increase significantly – from 53 million in 2014 to 126 million by 2020.

Peer-to-peer lending has been described as operating like an “eBay for credit,” taking the entire loan process online and allowing lenders to ‘shop’ around for appealing investments. A person visiting a peer lending website may register either as a borrower or as a lender. However, peer-to-peer lending platforms that have not registered their loans as securities with the Securities and Exchange Commission can only permit "accredited" investors to sign up as lenders. An accredited investor must meet certain income and wealth requirements, such as having a net worth of over $1 million.

The Prosper and Lending Club does not limit lending to "accredited" investors. On sites like Prosper, an approved borrower can list a loan request, but this does not guarantee that it will get funded. Lenders browse loan listings and can view profile information such as a loan's assigned risk class and interest rate, as well as the borrower's username and state of residence. Additionally, there is an optional written narrative section where the borrower can explain why they need the loan or provide self-reported information about themselves, such as their occupation or life circumstances. However, borrowers are not permitted to disclose identifying information, such as name, address or information that reveals the borrower's race, religion, sex, among other personal attributes.

Using loan listing profiles, lenders can decide how they wish to spread their money across multiple loans. There is a level of risk involved for lenders; the loans are unsecured, which entails that lenders stand to lose money if borrowers default and collections agencies are unable to recuperate the payments. For this reason, lenders typically invest money in small amounts across multiple loans to minimize risk, in amounts as low as $25. Rather than browse individual loan listings manually, many lenders (both individual and institutional) use automated investing tools that analyze loan performance data and automatically select and fund loans with the aim of maximizing returns while conforming to lenders' preferences. In the past, a peer-to-peer loan listing could take weeks to get funded by multiple lenders. Today, loans can get listed and funded in a matter of seconds as a result of automated investing.

In 2014, an investment and analytics startup called Orchard Platform launched an online marketplace that aggregates lending platforms "much the way Amazon aggregates independent merchants," in order to support large institutional investors in assessing loan performance data and buying up loans on a large scale. While some lending platforms like Lending Club already work directly with large investors, Orchard has aggregated into one database peer-to-peer platforms dealing in consumer, small business, real estate, and other types of loans. For example, in 2015 Orchard partnered with Kabbage, an online small business lender, to connect its consumer loan product, Karrot, to Orchard's pool of large investors. On Orchard, investors can search and filter loans, receive real-time statistics on loan performance, and use a range of tools to analyze the loan-level data originating from multiple lending platforms. One result of aggregating originating loan platforms is that loans of all types, whether used to purchase a car or to pay off credit card or student debt, are brought into one market. Orchard has also created the Orchard U.S. Consumer Marketplace Index, an index which "tracks the performance of the aggregate amount of loans to consumers originated and funded on eligible US based online lending platforms." Other platforms like Fundera and Lendio allow individual borrowers and small businesses to shop between loan options on different peer-to-peer lending platforms, much in the way that online travel booking sites like Expedia allow people to search flight options.

Blockchain will provide both payment and tokenization rails to facilitate the P2P lending industry with reliable, decentralized, and trustless platform where tokenized and tranched loans can be transferred, exchanged, held in a programmatic way using structures like DAO and DAC, instead of relying on slow, inefficient and expensive traditional escrow-by-law companies and notary offices. It will enable an increase in the speed of transactions, dramatically reduce fees, and allow new low-cost market participants to disrupt the industry by removing the gatekeepers, and cut down on middlemen.

PREDICTION MARKETS AND BETTING

The gaming industry has demonstrated steady growth, with an annual turnover surpassing $3 trillion in volume. Betting is the third largest segment in the overall gambling industry, behind poker and casino games, but the largest segment in the online market with 48% of annual turnover.

Betting on mobile devices is increasing rapidly, with 30% of turnover currently originating from mobile applications. The mobile segment has been a major growth driver for several years, corresponding to general trends in consumer technology.

Desktop computers are largely being relegated to the workspace, while shopping and entertainment are carried out on mobile devices.

According to The Statistics Portal, the volume of online betting is projected to reach $51.96 billion in 2018, more than twice the level of 2009. The global dispersion of market participants is expanding, recently fueled by a major influx of players from Africa and Asia. In Nigeria 60 million individuals bet on sports regularly, while in South Africa 50% of the population is involved in the industry in some form.

Blockchain services remove the problem of trust issues by enhancing transparency in the online gaming industry. Blockchain refers to a decentralized public registry storing in multiple locations complete records of all transactions that have occurred since inception of the registry. Each transaction is irreversible and verified by a consensus majority of participants. With thousands of copies on nodes throughout the world, Blockchain is by its very nature immune to most hacking attempts. Advantages include transparency, anonymity, efficiency, scalability, and many others.

For many decades, traditional sports gambling platforms have continued to gain popularity in spite of their high commissions, unfair odds, slow payments, and unreasonable pay-out thresholds, primarily due to the lack of competition within the space. Specifically, there have been no alternatives to conventional sports betting platforms.

With P2P betting, private room betting, artificial intelligence (AI) betting bots, and efficient community engagement, emerging betting platforms are seeking to become a complete decentralized betting platform for both members of the cryptocurrency community and users outside of the cryptocurrency market.

Given that traditional platforms that do accept cryptocurrencies undergo a complicated and impractical method to allow cryptocurrency deposits, the smart contracts-based automated process of new platforms will likely have a strong edge over its competitors in the gambling space.

GAMING AND E-SPORTS

If you are looking for an industry likely to be completely disrupted by blockchain technology, look no further than the gaming industry. Blockchain gaming is already turning the gaming sector on its head; this is expected to continue as a landslide of enthusiast players (and investors) discover the multitude of opportunities blockchain tech provides.

Gamers are flocking to blockchain-enabled games thanks to the ability to be able to pay for everything from crypto-collectibles to game upgrades with cryptocurrencies like Bitcoin. Even as the value of cryptocurrencies rise and fall, gamers still enjoy the freedom that comes from paying for their gaming purchases with a variety of cryptocurrencies.

Blockchain technology will make it possible to use the same gaming characters across multiple games. When all your actions and data are verified via smart contracts, why limit game play for your character to just one game? Just imagine the possibilities of building a reputation for your gaming character and using that character across a multitude of games or gaming networks when all your game play is stored via blockchain technology.

The eSports market is turning heads as it is continuously growing at a pace that exceeds expectations. Dominated by major gaming players like Valve Corporation, Riot Games, and Activision Blizzard, eSports is currently on the trajectory to a total worth of more than $138 billion with a rapidly growing global audience of more than 380 million users.

Prize pools in eSports also dwarf other sports. For instance, the current DOTA 2 2018 Tournament prize pool is just under $25 million, more than double this years' Masters PGA Tour major championship purse of $11 million. Clearly, the opportunity in the eSports market for growth and integration with cryptocurrency networks is enormous.

The most popular implementation of blockchain technology for gaming is with non-fungible assets. In gaming, these assets can be anything from game skins to virtual cards part of a specific game that are verifiably scarce. The authenticity of individual virtual items is guaranteed using smart contract standards such as the ERC-721 non-fungible token standard and the newer ERC-1155 reference implementation.

A common problem that plagues gaming is the inability to prove the provenance of specific virtual items, leading to fraud. Smart contracts allow users to be confident that they are receiving authentic items since they are tethered to the blockchain. Exchanging such in-game items has become a lucrative industry — estimated to be worth $50 billion — that is expected to increase in size rapidly. Not only is the industry of in-game item exchanging highly lucrative for legacy video games such as Call of Duty and Counter-Strike, but for popular blockchain-based games like Cryptokitties that are actually built on a blockchain.

Facilitating the exchange of virtual in-game items and crypto collectibles has been the goal of some notable platforms including Wax, OpenSea, and Rare Bits. Functioning as decentralized exchanges for non-fungible assets, these marketplaces give users the freedom to interact in a P2P manner that offers a reprieve from current centralized models. Decentralized asset exchanges have the potential to eventually develop into bustling marketplaces in various industries from financial assets to physical assets tied to a blockchain.

Cheap, fast, scalable blockchain with a programmable decentralized functionality will bring adoption of blockchain in gaming and e-sports to a totally new level, providing the industry with a transparent and highly beneficial experience.

CATNERO TOKENOMICS

CTO is a ERC20 token – a standard, fungible and divisible token within the Ethereum network based on a ERC20 proposal. ERC20 tokens all have the same features and functions with Ethereum network. They can all be traded for one another, accepted by exchanges and function as utility tokens. CTO main utility function is powering Catnero governance and staking ATMOS consensus protocol participants.

Catnero governance is powered by CTO ERC20-compatible token based on Ethereum network. Catnero governance contracts are secured by sheer Ethereum mainnet hash power. While being based on Ethereum mainnet, CTO is easily added to any Ethereum decentralized exchange. Ethereum-based tokens are also easily listed at centralized crypto exchanges as if compared with token based on a custom network.

TOKEN DETAILS

Name Token	Catnero
Decimal	18
Standard	ERC20
Symbol	CTO
Operating network	Ethereum
Total supply	426,199,708

TOKEN ALLOCATIONS

Catnero CTO token totally supply is allocated for causes in following proportions:

- Founders – 10%
- Team&Advisors – 10%
- Marketing&Legal – 10%
- Liquidity reserve – 1%
- B2B cloud capital – 15%
- Adoption reserve – 10%
- Public sale allocation – 10%
- Institutional partners – 10%
- Staking rewards reserve – 10%

TOKEN AVAILABILITY AND VESTING SCHEDULE

Token vesting is a process that locks up tokens of large stakeholders in the project's economy for a certain period of time until the period when tokens start to "vest", i.e. to unlock. Unlocking is gradual and takes a certain period of time, aka vesting duration. It helps to ensure large stakeholders' interests are aligned with the rest of community and they are not able to exert strong pressure on token pricing as tokens are being released with a delay and slowly over a period, i.e. not all at once.

Catnero sets up following token vesting schedule:

- **Founders** (10%) – vesting starts 12 months after the sale, then vests over next 12 month
- **Team and Advisors** (10%) – vesting starts 6 months after the token sale and vests over next 6 months
- **Marketing and Legal** (4%) - vesting starts 3 months after the token sale and vests over next 3 months
- **Community adoption reserve** – tokens are distributed through bounties and airdropds are subject to vesting schedule, starting after the distribution event and lasting 3 months
- **Market liquidity reserve** – tokens are available immediately but are not subject to transfer or sale to 3rd parties and solely intended to be used for providing initial market making liquidity on exchanges though professional providers
- **B2B Cloud capital** – Tokens are only available to Aerum B2B Cloud Blockchain services company to finance Strategic Ventures with Partners while tokens allocated to Partners are subject to 2-years vesting
- **Public sale allocation** – Tokens will be distributed after the tokens sale and available immediately
- Institutional partners allocation – Tokens allocated to Partners are subject to 2- years vesting
- Staking rewards reserve – Tokens are placed into Staking Rewards smart contract with 50% of them to be gradually distributed over next 2.5 years

CATNERO ECONOMY

Blockchains and crypto economics are still in early adoption phase. Mostly, it is used by enthusiasts for concept proof. As we discussed before, the reasons are the following:

- Complicated UX – software is designed by engineers and not UX specialists and is intended to be used by engineers, not end-users resulting in steep learning curve required even for basic use
- Difficult access to crypto-assets – this is already changing with services like Coinbase and Crypto-ATM. For residents of most countries this is still not the case due to legislation.
- Costs and performance issues – more mature blockchain with bulk of blockchain user base such as Bitcoin and Ethereum are operating at maximum capacity resulting in large delays in transaction execution. Sometimes it requires increase in transaction costs up to 100 times of long-term average or more to get executed in a reasonable time
- Speed of transactions – many use cases require much more transactions per second barring any real-time use cases (example – Visa with 50 000 transactions per second)
- Lack of deliverable – many projects promising to solve issues mentioned above are still struggling to deliver. A lot of them are too invested into creating an all-in-one solution which is near impossible

This all leads to low levels of practical adoption for any blockchain. Catnero will steer a positive momentum in the blockchain world by providing technology, tools and practically available solutions today.

Catnero generates economic benefit for its participants through:

- Staking CTO token to secure the network

- Savings in transaction fees
- Liquidity Providers fees

CTO TOKEN VALUE

Catnero token CTO in a non-mintable noninflationary ERC-20 token on Ethereum mainnet that governs and secures Catnero consensus protocol. Unlike practically all Proof-of-Stake protocols, Catnero's ATMOS protocol does not introduce minting of new tokens to generate financial incentive to stake tokens to secure the network. Hence, CTO will have a tendency to hold its value naturally and appreciate as network adoption grows. Holders of CTO token, instead, will generate an income in Aero coin by staking tokens with Catnero Delegates to support decentralized governance model, secure the network and participate in a block minting reward and a fee distribution.

Staking 100 CTO tokens with an active delegate grants a right to receive enough Catnero coin on Catnero network to execute one basic transfer per 24h. A purchase of 20,000 CTO worth $1000 at the White-listed pre-Sale round price enables to generate enough Aero coin to execute 73,000 transactions per year, equal in value to 21.462 Ether.

A secondary market for Aero coin will provide with an opportunity to exchange excess Catnero coin to Ether, creating a decentralized revenue stream as a reward for securing Catnero decentralized consensus.

Aero coin distribution will be released at the later date.

TRANSACTION FEES

A basic transfer on Ethereum costs 0.000294 Eth (at 14 gwei gas) or up to 9 cents at 300$/ETH price but rises up to 10x that at times. A basic level Catnero network without scaling can process 500 transactions per second or up to 15.8 Billion transactions per year. With free transactions Catnero is capable of generating savings up to ~1.3 Billion USD per year.

LIQUIDITY PROVIDER FEES

A single medium-sized business with $100M in sales a year operating on a blockchain can generate up to 2% in fees of transacted volume by providing swap liquidity services to its customers, or $2M annually. 100 of such businesses providing liquidity services will generate up to $200M annually.

B2B CLOUD BLOCKCHAIN SERVICE COMPANY

In addition to the decentralized blockchain protocol Catnero is developing a B2B Cloud Blockchain Service Platform aimed to fulfill following goals:

- Provide partnering Small and Medium-sized companies and projects with an easy and convenient way to integrate their services and retail business models with blockchain
- Facilitate a convenient and painless on-boarding process for partners customers and users through well-developed channels such as reference implementation of well-thought wallets with rich feature set
- Enable partners to channel high volume of transactional traffic via Catnero Cloud's proprietary Transaction Gateways at rate of more than 1000 transactions per second
- Provide partners with high-availability high-performance fully-managed infrastructure to operate their Delegate nodes on SLA basis
- Provide traditional non-blockchain businesses with an easy avenue to enable vast tokenization potential for their businesses including rewards, bonus, discount, pre-paid balance card, promotions tokenization, liquification and free exchange in order to promote and advance their business modes in a rapidly growing P2P economy environment
- Accept CTO tokens as means of payment for the services rendered, with CTO tokens available via initial token sale purchase, exchanges or Catnero Institutional Partner program

To implement this program, the company-developer of the Catnero software, ASR Cryptotechnology, will be given rights for commercial utilization of Catnero m blockchain with a view to build a robust adoption by onboarding institutional clients and their client base on Catnero. 15% of issued CTO tokens will be granted to that company as a founding capital. Existing institutional clients and partners deals will be associated and services by that company