TOKEN NETWORK

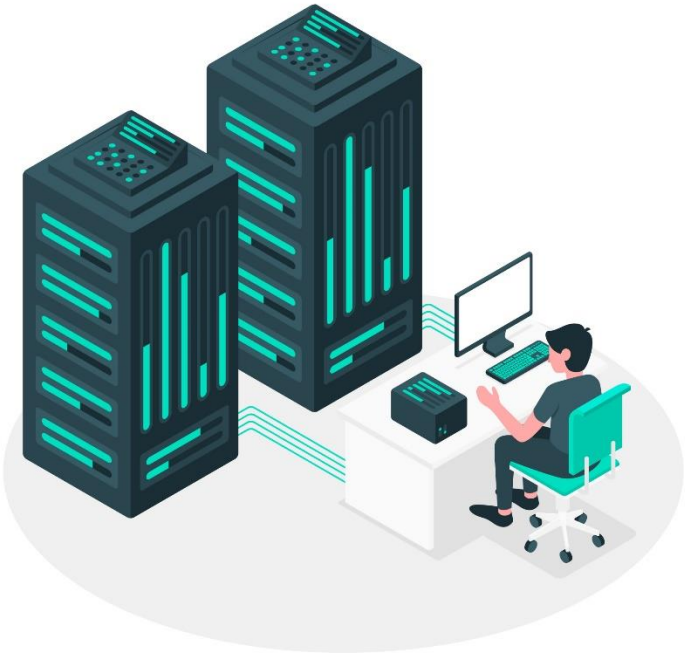

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Table of Contents

ABSTRACT 4

Section 1: SUMMARY 5

1.1 VISION AND MOTIVATION 6

SECTION 2: THE E-COMMERCE INDUSTRY 7

2.1 Introduction: 7

2.2. Industry Problems 8

2.2.1 Trust-Building 8

2.2.2 Costly & Lengthy Payment Processes 9

2.3. Blockchain Solutions 9

2.3.1 A Fair, Transparent, Incentivised Reputation System 10

2.3.2 One Step, One Fee 10

2.4 Token Network blockchain 11

SECTION 3: Partner 11

SECTION 4: Business Plan Token Trolley 12

4.1 Development Roadmap 12

Development History 13

SECTION 5: Token Trolley 14

5.1 Rating & Feedback System 14

5.2. Token Trolley Payment Gateway 15

5.3 Token Trolley Cryptocurrency Platform 16

5.4 Token Trolley - Liquidity Provider 16

SECTION 6: TOKEN NETWORK 17

SECTION 7: Ecosystem 19

SECTION 8: Token Network (TNX) Issuance 20

8.1 Using SCO to fund the project (Stake Coin Output) 21

Section 9: Terminology 22

Section 10: Token Network Team 22

Background 22

Founders 23

Team Members 23

Section 11: Contacts 24

Section 12: Disclaimer 25

ABSTRACT

The expansion and worldwide adoption of the internet has contributed considerably to changing the way consumers purchase goods and services. The global eCommerce industry has seen consistent explosive growth rates, growing from USD $1.33 trillion in 2014 to over $3.335 trillion in 2019. Mobile implementation of e-commerce stores has dramatically improved the accessibility and convenience of online shopping. Still, the industry faces several problems. These include:

- Counterfeit goods
- Expensive and lengthy payment processes
- Needless intermediaries
- Avoidable fees
- Cross-border trading difficulties due to governance
- Trust and reputation-building

When Craigslist.org launched in 1995, it revolutionized the way consumers bought products by connecting local buyers and sellers online to allow for the transfer of goods. Of course, no payments could be made online, and digital marketplaces still had a long way to go before allowing for fraud protection, online payments, and reputation systems. Platforms like eBay and Amazon improved the landscape by allowing for bidding, reputation systems, and payment processing by credit card and through PayPal. Despite the growth of the industry, it has become increasingly obvious that centralization is an issue.

Merchants pay several unnecessary fees which eat into their margins, buyers face counterfeit issues and outright scams, and information cannot be shared from one centralized source to another. Blockchain technology enables several exciting opportunities for solving these problems. Credit card fraud would essentially be eliminated as transactions on the blockchain are immutable and cannot be altered or undone, granting merchants peace of mind when they are selling their products.

A distributed ledger allows buyers and sellers to remain anonymous but enables the transfer of data that is relevant to the transaction in question. Information on the user's rating, the products' legitimacy, the transaction amount and time of the transaction, the public addresses of the parties involved, and the warranty conditions can all be recorded on the blockchain. The current system allows for customers' funds and information to change hands between several companies in the form of intermediaries and can involve up to 16 steps and 15 fees, slowing down the transaction process and increasing its cost. Using the Token Network blockchain,

virtual goods and data can be transferred seamlessly between two anonymous parties with a single fee.

The future of e-commerce is on the blockchain, and Token Trolley is leading the way in building a decentralized e-commerce economy by leveraging Token Network's smart contract technologies in a proven online marketplace with active users already. Unlike most blockchain projects, Token Trolley is integrating the blockchain onto an existing marketplace to jumpstart the e-commerce ecosystem.

Recognizing the immense benefits for the e-commerce industry, Token Trolley intends to transfer its existing business onto the blockchain and process transactions online through Token Trolley Tokens (TT) which will be the token built on the Token Network token (TNX). This stores relevant transaction data and allows for the secure, quick and cost-effective transfer of monetary value and data from one party to another. Token Trolley Tokens (TT) is a cryptocurrency designed primarily for the Token Trolley marketplace.

TNX (Token Network Token) benefits for holders and early investors include:

- Incentives to community members for rating merchants and services
- Discounts on transactions within the marketplace, and more.
- Enabling merchant's faster liquidity for their income
- Consumers or merchants can become part of the network by staking their coins and holding nodes.
- The ability for businesses to issue their tokens on top of the Token Network.
- Ecommerce and online business will be able to issue an STO on our Token Network Chain.

Section 1: SUMMARY

The Token Network is an open-source project developed by a group of companies which involve TOL Enterprises and The Web Company in conjunction with using tools from existing open source project Nuls. We are using Nuls Blockchain's chain factory to build this blockchain network. Token Network will be governed by the entity TOL Enterprises which is one of the entities that is developing this network together with its partners. Token network is fully open source and developers can use this to build decentralized applications and merchant stores on the chain.

Token Network TNX Token is planned to be a "master token" to fund and empower new e-commerce applications and projects, similar to how ETH is used for the current generation of ICOs. Throughout the network development, TOL Enterprises will be

assisting the governance of the decentralized platform, with strong involvement by members of the ecosystem. Our vision for the future is a public network that provides secure and trusted business services for its members, by its members. Token Trolley plans to gradually migrate its sellers and buyers, as the first group of users, onto the decentralized network.

In other words, Token Trolley's marketplace platform will be one of the first environments to utilize the network as a back-end service and jumpstart the ecosystem. Once the network reaches a critical mass, its network effects, strengthened by incentives provided by the Token Network Token ("TNT"), are expected to be applied to other partner platforms and marketplaces, driving Token Network development as a market-leading blockchain protocol for e-commerce and online retail applications.

1.1 VISION AND MOTIVATION

Vision

Token Network's vision is to build a platform for e-commerce entrepreneurs and developers to build their business with fewer intermediaries, allowing them to maximize their revenue. We want e-commerce entrepreneurs to delight their customers with a transparent and fair base system and deliver the best services to them with all transparency.

Mission

Our mission is to bring global trading on the blockchain system. We want to bring borders together and make it easier for businesses to trade globally without resistance and provide virtual governance for globalization.

Motivation

About 4 years ago, we saw the rise of cryptocurrency and universal currency being formed as Bitcoin. It was then that we started seeing and researching more on blockchain technology which we believe brings borders together and enables businesses to incorporate in other countries like Estonia where e-residency is available. At Token Network, we bring a fair system and the ability to trade anywhere, anytime, with anyone. We are building a trusted system that is not ruled by centralized governance.

SECTION 2: THE E-COMMERCE INDUSTRY

2.1 Introduction:

E-Commerce

Trade has existed since before the innovation of modern-day currency. It is as old as human communication itself and dates to prehistoric times where people exchanged goods and services without the facility of a monetary system. It is estimated that long-distance commerce has been around approximately 150,000 years. Throughout this time, innovation has consistently contributed to the facilitation of trade, allowing for the rapid growth and expansion of one of the largest industries in the world: e-commerce.

"Location, Location, Location" is a saying of the past, or at least it is for the hundreds of thousands of online retailers and merchants participating in the global marketplace and choosing to do all, or most, of their business online.

Even the smallest retailers, those who opened last week and have less than 50 products for sale are able to conduct their business with virtually anyone, anywhere in the world. It is estimated that by the end of 2018, over 2.5 billion people will have purchased a product online. E-commerce sales have increased considerably and consistently, as several industries now receive more than half of their revenue online.

There are three primary types of e-commerce:

- B2B (Business-to-Business)
- B2C (Business-to-Consumer)
- C2C (Consumer-to-Consumer)

Typical retailers' function in a B2C environment, while e-commerce giants such as eBay and Alibaba facilitate B2B, B2C, and C2C transactions. With the progression of technological advancement in developing countries and the continued mass adoption of mobile commerce (m-commerce), the outlook of the e-commerce industry is incredibly positive. B2C e-commerce sales worldwide are expected to total USD $3.9 trillion in 2020.

While the industry is currently massive, there is room for even more growth as consumers are expected to continue to carry out much of their retail spending online. The mobile commerce share of e-commerce spending has been growing consistently from 1.8% in 2010 to 13% at the end of 2014, and today over 49%. Mobile

commerce is one of the main proponents pushing the growth of the e-commerce industry.

Accessibility and convenience currently outweigh the potential problems involved with having your mobile device store and transfer information such as your credit card details and current location. As the industry evolves and matures, these problems will need to be resolved to allow for even greater market penetration of mobile commerce activities around the world.

2.2. Industry Problems

Over the past decade, several problems have arisen in the e-commerce industry, most of which have the potential to be solved through blockchain technology.

2.2.1 Trust-Building

One of the most troubling problems in the industry for the end-consumer is the trust factor. When people exchange goods or services in person, all parties can confirm that the merchant, product, money, and all other aspects of the transaction are legitimate.

Customers are much more likely to purchase from trusted merchants when given similar products and prices. This means merchants are focused more than ever on maximizing their reputation, so they attract and build a loyal customer base. Based on surveys from multiple sources, customers have decisively indicated that their buying decisions are influenced by online reviews; as 62-90% of users (depending on the survey), indicate that ratings play a heavy role in decision-making for online purchases.

When trust and reputation are governed by central marketplaces, a merchant's transaction history is typically not recorded for all to see as only the customer reviews can be shown. Customer reviews can be heavily manipulated by bribing customers, appealing a negative review, deleting an account with negative reputation and starting again, or leaving the centralized marketplace altogether.

For a merchant to build trust he must either have a long track record of successful transactions or spend a lot of money on advertising and/or promotional activities. The current structure allows only for the reputation to be built on centralized platforms such as Amazon, eBay or Alibaba. This means that the merchants must follow and abide by the rules of that central governing body as trust cannot be transferred.

2.2.2 Costly & Lengthy Payment Processes

Currently, transactions conducted in online marketplaces run through a complex network of vendors, including payment processors, banking institutions, and credit card networks. Money bounces around, changing hands between several companies and institutions before the money lands in the merchant's wallet from the consumer. Not only is this process long and expensive, but it also exposes the buyer and merchant's personal information.

Data and money transferring in a centralized manner have a long way to go before being impenetrable to hack attempts and fraud.

It has been estimated that online transaction processes could include up to 16 steps and 15 fees to process. There are multi-billion-dollar companies that exist for the sole purpose of guaranteeing that money moves hands when an action occurs online, such as a product being purchased or delivered. The most common example is PayPal, the payment processing giant that holds much of the current market share. PayPal offers solutions whereby the refunding of a transaction is possible if there is a claim of fraud or misrepresentation. This process is lengthy for the buyer, is not guaranteed to be successful, and it places additional pressure on merchants to perfectly display the properties of the product they are offering, or they run the risk of needing to provide a refund.

Fees could include transaction fees, terminal fees, annual or monthly fees, cross-border fees, incidental fees, chargeback fees, and much more, all of which are passed onto the merchant or the buyer. The buyer often bares much of the expense. Due to the sheer amount of parties and middlemen involved, transactions can take anywhere from one day to two weeks to process. The potential for chargebacks, and the length of time it takes to process international transactions muddy the process. Cash flow problems arise for merchants who can't effectively manage and predict when and where their cash is coming from. Current payment processes are extremely inefficient for all parties involved.

2.3. Blockchain Solutions

E-commerce on the blockchain is the future of online spending. The simple acceptance of digital currencies on traditional centralized marketplaces is not the focus here. This has been done. What is proposed is a decentralized marketplace that integrates the blockchain right into its very fabric, allowing a new digital economy that leverages properties of the blockchain to improve existing models. The blockchain offers

solutions to each of the problems identified that are plaguing the e-commerce industry.

2.3.1 A Fair, Transparent, Incentivised Reputation System

Token Network's smart contracts allow for far more than just the efficient transfer of monetary value or digital assets. They also allow customers and merchants to review and rate each other. Due to the blockchain's immutable nature, the information and data stored in these contracts cannot be manipulated or altered in any way, allowing customers to make far more informed decisions that would not have been available through centralized authorities. Trust ratings will be calculated through algorithms which assign value for specific properties and aspects of a transaction. Once a transaction is completed and processed, the smart contract will automatically update the merchant and customer's trust rating.

Additionally, changes to the trust ratings can only be made after a real transaction has been processed. This system allows merchants to build a reputation system that is independent of one centralized source. Envision a world where a merchant joins an online marketplace for the first time and can proudly display and carry over his blockchain-stored trust rating from activities in other marketplaces for all to see. A merchant will be able to verify the legitimacy of a buyer's interest, thus aiding in avoiding the potential for common problems such as chargebacks.

2.3.2 One Step, One Fee

The days of middlemen eating into a merchant's margins, and buyer's data and personal information being bounced around from company to company, are over. Companies that exist solely to ensure that money moves from one party to another are no longer needed, and those 2.5%+ credit card fees never need to be paid again as the e-commerce industry moves away from centralization and onto the blockchain.

Blockchain allows for programmable money, which means that certain guarantees can be made and tasks such as payment processing can be completed using just a few lines of simple code. At the Global E-Commerce Summit, it was stated that cryptocurrencies, coupled with blockchain technology are the future of online payments. Using digital wallets and digital currencies in an online marketplace allows for transactions to be processed in one step, charging one fee. Business transactions that run through a complex network of vendors (credit card networks, payment processors, banks) are inefficient in terms of time and cost. Blockchain addresses this, removing the middleman from the transaction, and allowing for cheap, quick and

reliable peer-to-peer transactions. Buyers will be able to load their digital wallets with digital assets and conduct purchases in a secure, transparent, and efficient manner.

The various stakeholders who play a part in e-commerce transactions unnecessarily complicate and elongate the payment process. The involved parties slow down the process through a series of departmental steps. A decentralized approach allows transactions between two parties to process within minutes, and without the potential for fraudulent transactions due to blockchain's immutable nature.

2.4 Token Network blockchain

Using Nul's adaptable blockchain infrastructure, we are creating our very own public chain called Token Network. This will be used by merchants to create their own decentralized applications as well as giving them the ability to raise capital by issuing their own tokens based on our chain. However, fundraising and issuance of token come at a later stage. We are more focused on providing business a better, faster and cheaper alternative which will enable them to maximize their profits.

SECTION 3: Partner

Token Network and Token Trolley is proudly backed and fully supported by TWC. TWC is a Swiss Army Knife when it comes to web application services and has been in business since 2004, winning awards along the way. Over the past 15 plus years, the company has grown by offering unique and superior software-related services to customers domestically and internationally. It's the collected experience of their entire team of twenty-six that provides them with over 100 years of combined specialist knowledge to ensure all solutions are intuitive, user-friendly and effective.

Their New Zealand software developers made their name in creating bespoke software that fixes real business issues and offers tangible benefits on a day-to-day basis. From basic database management systems to business-critical, end-to-end trading systems, they create bespoke software that focuses on usability. TWC software developers ensure all our solutions are intuitive, user-friendly, and effective.

TWC provides services both domestically (New Zealand wide) and internationally. Their current export markets are North America and Australia, with regular inquiries from Europe and the UK.

The director and founder of TWC is Patrick Howard. Patrick and his team's expertise in technology and excellent leadership ensure the company's ongoing success.

Awards:

2015 Finalist – Westpac Auckland Business Awards - Excellence in Strategy and Planning
2014 Finalist - NetGuide Web Awards
2014 Winner - AUT Excellence in Business Support Awards – Technology
2013 Finalist - NetGuide Web Awards
2010 Finalist – Westpac Waitakere Business Awards - Employer of Choice Award
2010 Finalist - Vero Business Excellence Support Awards
2009 Winner – Westpac Business Awards - Best Mid-Sized Business Awards

SECTION 4: Business Plan Token Trolley

Token Trolley will have a multi-layered revenue stream. The majority of revenue will

come from fees charged on transactions processed on the platform. It is crucial for Token Trolley to have diverse sources of income due to the magnitude of the project. With existing users already, and the adoption of Token Network blockchain technology incoming, the marketplace will need to support hundreds of users at any given time.

Revenues collected by Token Trolley in the short term include, but are not limited to:

- Transaction Fees
- Advertisement Revenue
- Verified Merchant Subscription Fee
- Escrow Fees
- *Membership for faster delivery and other benefits

4.1 Development Roadmap

2018 – 2019 Summary

The core team of token network achieved developing the marketplace called token trolley and the idea behind token trolley was to build a decentralized marketplace for business to consumer sales, more like Alibaba model but a decentralized store. The team initially wanted to develop this solution on top of an existing chain like ethereum or Tron. However, as the team members spent time in R&D, they saw a need to build a blockchain specifically for eCommerce and the retail business sector. With the R&D outcomes we decided to move towards Nuls blockchain as this will enable us to speed our development as well as help capture market share quickly. With Nuls Chain Factory we can also reduce our cost of development.

Q1 2020

In Q1 we will be completing our IEO and SCO capital rollout and will be listed on exchanges for trading. We will also be opening our alpha version of the block chain and test environment for blockchain.

Q2 2020

We will be launching our blockchain to main net and will be testing the network with proof of credit consensus ready to launch. With Main net launch we won't be having smart contract features enabled on this stage of the blockchain, however we will have block chain with transaction ability. Master nodes go live in Q3.

Q3 2020

We will begin our token network swap process from NCR-20 to TNT-20 standard and also the foundation will be launching the smart contract feature to allow merchants and business to start creating tokens as well use features for their ecommerce transactions.

Q4 2020

Token network 1.0 with smart contracts will be ready to use by business and developers for their ecommerce transaction. Token network will be working with other chains to develop an ecosystem for one stop data and allowing business to get the tools they need on their fingertips. Scale and adaptability are an important part of our blockchain ecosystem

Development History

Stage 1 (completed)

With stage 1, we did the initial ideation scope of the blockchain solution and validation with customers and user base that our partners have. While we were working on this customer validation, we saw an opportunity to be working with Nuls Blockchain ecosystem to develop a blockchain network for eCommerce and retail business that can be utilized for our partners and also making this open-source tool that anyone can use this anywhere and anytime.

Stage 2 (Completed)

With stage 2, we tried early-stage development of chain factory and Nuls 2.0. We were also announced one of the early partners for the nuls2.0 alpha test environment, and this gave us the opportunity to move quickly with our blockchain architecture.

Stage 3

Stage 3 involves the further development of the network and building our community to support the network. We are seeking the opportunity for doing an SCO (Staked Coin Output). This new model of fundraising will help us to build our community as well.

Stage 4

We will be building the full transactional chain with basic/ready to go modules to test this with our community members. The second step provides a smart contract module to allow the business to create their own tokens and issue to their customers. We have plans to integrate a voting system where the community decides which business should be going ahead with their raise.

SECTION 5: Token Trolley

DECENTRALISATION: Token Trolley Blockchain Implementation

Since Token Trolley is already an established marketplace with existing web client users, we will be releasing a mobile-based application for better user experience. This will be reskinned on Token Network blockchain first and then will be moved to Token Network which is our network with proof of credit consensus.

In the Token Trolley marketplace, customers will transact between each other. Digital goods and physical products can be placed for sale by any registered user. Users can price their items in any fiat currency, and Token Trolley will automatically convert the price in real-time to the accepted payment methods according to current fiat and digital currency market prices.

For example, a user places a bike for sale on Token Trolley. He enters USD $35 as the price, and the listing will automatically convert the price to 0.00468 BTC, 0.117053 ETH, and 24.2018 TT.

5.1 Rating & Feedback System

Token Trolley will help to solve the trust issue in the e-commerce industry by implementing a rating and feedback system on the TT marketplace. Whenever a

transaction is made, the two or three parties to the transaction (buyer, seller, and arbiter) can rate each other. The blockchain will record the time of the transaction and expected time of delivery, buyer and seller addresses, and any other necessary information.

The stored information on the blockchain will serve as the basis for the rating and feedback system and community-based conflict resolution. User ratings can only be updated after a transaction is processed and cannot be altered after submission. User ratings will be attached to the user's TNX wallet address, providing an effective way to store the information on the blockchain. The ability for merchants and consumers to communicate directly through the chat system coupled with the rating and feedback system will contribute to building a transparent and engaged community. These functions will also serve to discourage fraud, misrepresentation, dishonesty, and scams.

5.2. Token Trolley Payment Gateway

With implementing smart contract technology, Token Trolley offers a decentralized payment solution on the Token Network blockchain, allowing users to make secure and quick payments in a decentralized economy. Payments for goods purchased can be made in Token Network Token, Nuls, and Bitcoin. Buyers in the marketplace are incentivized to make purchases with Token Network Token, the internal digital currency of Token Trolley because transaction fees will be lowest. The Token Trolley platform will operate and grow by accumulating capital in the form of fees. A buyer on the Token Trolley marketplace who pays for a product using Token Network or Bitcoin will pay a $0.50 service fee per transaction plus a 2.3% transaction fee. The merchant pays a 1% success fee on a completed and processed transaction. In the commercial marketplace, merchants bear the transaction fee, and buyers can purchase products at a 0% fee. The blockchain eliminates the need for any other fee, or step, in the transaction, offering a cheaper solution that processes thousands of times faster than typical payment gateways currently available in the e-commerce industry.

Users who conduct transactions on the marketplace utilizing Token Network (TNX) will have the $0.50 service fee waived completely and will only be required to pay a single 2% fee. Currently, online transaction fees range from 2% to 6% (credit card fees alone can average 2.9%) with additional fees for chargebacks, and cross-border transactions. Presently, transactions can take days, and even weeks to process as the information and funds flow from client to payment processor, to credit card network, to the client's bank, to the merchant's bank, credit card network, and payment processor, before landing in the hands of the merchant. Although many payment gateways do not disclose the exact fee structure for merchants, it is estimated that

merchants accepting payment from customers can pay up to 15 different types of fees. The blockchain allows for far cheaper and quicker transactions, and eliminates the need for intermediaries, enabling two parties to conduct a transaction securely and quickly.

Users of Token Trolley's payment gateway need not worry about their sensitive information being bounced around between the complex network of intermediary players.

Transactions will be conducted securely and safely, using only the addresses of the participant's wallets. No potential for stolen information, no potential for chargebacks, no potential for fraud or manipulation. Immutable, efficient, and quick.

Note: Our transactions fees and pricing will change on the Dapp according to the marketplace competition. However, with our Token network Chain, we set fee's initially on which is immutable, and only hard fork will be able to make these changes happen.

5.3 Token Trolley Cryptocurrency Platform

Token Trolley will have a feature whereby users can exchange several different cryptocurrencies for Token Network TNX, the native digital currency of the Token Trolley marketplace.

Since Token Network TNX will likely be the most commonly used payment method on Token Trolley due to its lower fees, buyers will require a system whereby they can exchange their popular cryptocurrencies for Token Network TNX at market prices. If a user who only holds Litecoin wishes to purchase 10,000 TT to place into his wallet to conduct purchases on the marketplace, they would simply enter that amount of TT in the designated field, and the platform will automatically calculate the amount of LTC required to purchase 10,000 TT. Fiat transactions processed through credit cards will also be available as Token Trolley is already partnering with banks to allow for the quick and easy exchange of fiat into Token Network TNX on the platform.

In order to support the TT Cryptocurrency Platform, liquidity and available supply are of the utmost importance. The Token Network TNX reserve available on the platform will be governed at the discretion of the Token Trolley Team.

5.4 Token Trolley - Liquidity Provider

One of the key areas where merchants find difficulty is the withdrawal and funds retrieval to the account. For example, when a merchant receives BTC or other

cryptocurrencies, there is high fees and it takes time for them to convert to fiat currency. Therefore, we have built a stable coin called Bpay coin which will be integrated into our marketplace natively. Bpay coin is used against the volatility of the cryptomarkets. Bpay coin will be applied to a separate app and API to be used by other third-party services as well the merchants who wish to use them.

SECTION 6: TOKEN NETWORK

Token Network is a proof of credit consensus blockchain that is built for the e-commerce and retail industry. In the previous section, we discussed the Token Network's blockchain network's potential applications in e-commerce. That is the sweet spot of Token Trolley and is how Token Trolley can help TOL Enterprises drive forward the network with existing users from token trolley. However, we aim to make the Token Network's solutions capable of supporting many kinds of business transactions beyond e-commerce and retail. The Token network could act as an outsourced provider of a variety of business services including IT, finance, customer service, and community management. Building on the Token Trolley team's extensive expertise in business execution, the Token Network team has identified the following significant business categories contracts we could potentially automate.

Automatic Escrow

Most current business transactions require trust. The blockchain network's main feature is its ability to operate in a trustless environment. For example, one of the primary functions of an Ethereum based smart contract is an escrow to hold and release assets automatically when certain conditions are met. In many application scenarios outlined in this white paper, the network would need to hold certain escrow or pledged TNX from multiple parties until a certain outcome occurs. This level of automation can make escrow much more prevalent and widely used in our society.

For example, in a sales transaction, the smart contract could release the TNX in escrow to the seller when the seller's shipping carrier sends back a delivery confirmation to the network. Alternatively, the escrow condition may be when the buyer inspects the product and agrees to accept it. If the buyer does not accept it, the automated arbitration process begins.

An ICO platform for e-commerce

With a Smart Contract platform specifically tailored for e-commerce, and common data services such as personal identify and credit history on the blockchain, the Token Network blockchain is ideally suited for many types of e-commerce applications. If a

blockchain application is going to be built on the Token Network blockchain, it will utilize the Token Network TNX as its means to pay for the execution of Smart Contracts and settlement of financial transactions. The application could also issue its tokens in an initial coin offering to support its unique features and community. Just as Ethereum-based applications use the ETH as the basis to issue ERC20 tokens in ICOs, e-commerce applications could use the TNX as the basis (i.e. master token) to issue their own ICO tokens.

One of the things we envision is that our service enables business and stores to release their tokens, and instead of doing equity sale, merchants and business can create tokens and sell to their consumers. An example we see is in businesses planning to expand global operations and struggling to raise capital. They can use Token Network's Smart Contract feature to create their tokens and issue for a token sale. These tokens can be swapped between e-commerce stores, so the consumers get access to many store tokens.

For example, if I want to buy something at Walmart but I only have tokens for Target, on the decentralized exchange I will able swap Target tokens to Walmart ones.

When a merchant does ICO or Token Sale on our platform, they get access to global wealth not just bounded by one jurisdiction. ICO's are IPO 2.0.

Token Trolley does have plans to build an STO (Security Token Platform) on top of Token Network, similar to how Polymath is being built on the Ethereum Network.

Token Network STO Standard

Token network blockchain will be providing a platform for business to issue their very own security token.

A more efficient supply chain

Since Token Network will have cross-chain communication, we have plans to use Vechain, which is blockchain network that is disrupting the supply chain management industry. This will speed up our development time and will be able to offer these solutions to our consumers on Token Trolley or any other marketplace that wishes to build on Token Network.

In an e-commerce ecosystem, the seller needs to procure products from suppliers and then ship to buyers. In the process, the product changes hands multiple times. In a traditional system, the transactions along the supply chain must be settled using fiat currencies, which creates significant friction and cost.

However, in a token-based system, transactions amongst community members may be recorded instantly and securely using digital tokens. The parties would only convert any excess tokens into other assets from time to time on an "as needs basis", limiting transaction costs.

Token Network Consensus

Token Network is using Nuls Blockchain ecosystem to create a sub-chain with proof of credit consensus. Token Network is utilizing Nuls chain factory module to build our blockchain for eCommerce. It works like Proof of Stake where a certain number of tokens will need to be locked before the user can run a node on the network. When a user wants to stop running a node, they can immediately unlock their tokens

Yellow Card Alert

When a user generates a block during an internet disconnection, computer crash, or when experiencing network issues, this will not be considered as a violation of the rules of the network. However, because this will affect the entire system, a warning will be given with the coins frozen for a period (e.g. 72 hours), and the credit ratio downgraded.

Red Card Alert

In the case of hostile attacks, double-spend attacks, attempts at forking the system or deliberately trying to attack the system, the Token network will be able to detect and protect from vulnerabilities and exploits. Any hostile nodes will have their coins frozen for a longer period (e.g. 1 month), and their credit ratio will be downgraded again meaning they are no longer able to meet the minimum amount to participate in the network.

SECTION 7: Ecosystem

The Token Network ecosystem is envisioned to be a community of partners, including blockchain node operators, validators, service providers, marketplace operators, businesses, and end-users. They could provide or utilize the network services and exchange TNX (Token Network (TNX) on the Token Network platform.

The governing body for Token Network is TOL enterprises that maintains and facilitates democratic governance for the members of this ecosystem. Token network is an open source block chain network that allows developers and community members to build and use the network for their business transactions.

TOL Enterprises mission is to empower the e-commerce business, entrepreneurs, and developers by leveraging our token network into their existing business. We want to build an e-commerce and marketplace ecosystem without intermediaries which will reduce the cost of business.

TOL Enterprises mandate is to grow an open ecosystem of digital services that consumers can easily explore and find value in while giving developers an open and sustainable platform to develop, deliver, and enhance those services and attract users.

SECTION 8: Token Network (TNX) Issuance

Token Network proposes to initially generate and issue 100 million TNX, however over time; this may expand and be capped at 500 million TNX. Further information about when and to whom TNX are proposed to be allocated can be found below.

Upon the completion of the proposed Token Network token contribution ("Token Contribution") for 100 million TNX, there will be a total of 100 million TNX in circulation.

Token Contribution Usage

The proceeds raised from the initial Token Contribution are intended to be used for the following purposes:

1) Fund the development and establishment of the Token Network blockchain protocol;

2) Marketing and operating expenses related to the expansion and migration of Token Trolley's platform to the Token Network blockchain network.

3) Research and development costs incurred by TOL Enterprises in developing the Token Network platform.

Allocation of Token Network Token (TNX)

Token Network proposes to initially generate and issue 100 million TNX, however over time, this may expand and be capped at 500 million TNX. Further information about when and to whom TNX are proposed to be allocated can be found below. We will be using proof of credit consensus

	Allocation	Vesting Period	Release Mechanism
Token Network team (Advisors and team members)	30 million	1.5 years	15% per quarter
Airdrop and community building including bounties	10 million		25% per month
Private and Institutional Scale investors/OTC sales.	50 million	3 months per investor from sale of token. I.e. investors won't be able to sell for 3 months.	
SCO (Stake Coin Output)	10 million		

8.1 Using SCO to fund the project (Stake Coin Output)

While working with our partners Nuls over the cause of 8 months, they recently discovered a new and better funding alternative that gives a project like ours a better community base and thus kickstarting our project with community support behind it.

There will be only 10 million TNX token issue for SCO, and no more will be allocated for SCO, once the SCO is finished the other way to participate in the network is using our private investors and OTC sales pool of allocated tokens.

Below outlines some key information on how the stake coin output will work.

Token Network token to Nuls ratio

For every 1 nuls stake per day, there will be 2 TNX issued out. So, in an event where 10,000 nuls are staked for a month based on current market conditions, there will be roughly 20,000 TNX given out.

Section 9: Terminology

Address/Wallet

An address or wallet consisting of account credentials on the TNX network are generated by a key pair, which consists of a private key and a public key, the latter being derived from the former through an algorithm. The public key is usually used for session key encryption, signature verification, and encrypting data that could be decrypted by a corresponding private key

Block

Blocks contain the digital records of transactions. A complete block consists of the magic number, block size, block header, transaction counter, and transaction data

Asset

Asset in TNX documents, asset is the same as token, which is also denoted as TNX-10 token

Dapp

Dapp Decentralized Application is an App that operates without a centrally trusted party. An application that enables direct interaction/agreements/communication between end users and/or resources without a middleman.

Section 10: Token Network Team

Background

Our Global team of business and technology experts are committed to blockchain, decentralisation and community-building. Token network team is backed by some of the industry pioneers in both blockchain and traditional web business as well. We are backed by The Web company.

Founders

Patrick Howard – CEO and Co-Founder

Patrick Howard (CEO and Co-Founder) who believes in empowering people and following the notion that the sum of many is greater than the sum of one. 30+years' experience. Also, the CEO of Token Trolley, Bpay and TOL Enterprises.

Ashutosh Sharma – CTO and Co-Founder

Ashutosh Sharma (CTO and Co-Founder) is the high-tech executive at Token Network and many other companies. His love and passion for technology and innovation is incomparable. Prior to founding token network, he has founded many companies since the age of 13 and has been developing software and applications since the age of 10. Ashutosh is also an alumni from the famous draper university which is now known as the centre for Blockchain and token sale space.

Team Members

Rex Yu – Web Developer

Rex Yu (Web developer) is a passionate web developer at Token Network. He loves the latest trend on the technology. He started his programming life during his university time. He loves photography and beautiful graphics as well. He believes that the technology can change everything positively.

Ashit Rathore – Web Developer

Ashit Rathore, software developer at Token Network, is an experienced web and mobile application developer. He is a self-starter and solution-oriented person. He is a key player in analyzing the business requirements and implementing the technology.

Section 11: Contacts

Site URL: tokennetwork.global

Social Networks

Facebook: @tokennetworkfoundation *Instagram: @token_network*

Linkedin: linkedin.com/company/token-network/

Direct Contacts

Email: support@tokennetwork.global

Address: Pärnu maantee 141, 11314 Tallinn, Estonia

Section 12: Disclaimer

When making a purchase using Cryptocurrencies, be extremely careful. If mistakes are made during the transaction, namely if the address of the receiver's wallet is incorrectly specified, the funds will be lost without any possibility of their recovery. The information presented in this document is not exhaustive and does not imply any elements of a contractual relationship. The document is solely advertising and fact finding. The content is not legally binding for the initiating company. The document is not a public offer. This document is a translation of the English version of the Whitepaper. It is regularly updated, but, for natural reasons, may not always contain 100% up-to-date information. For current information, please read the English version of the Whitepaper.