METROLINCE WHITEPAPER

TABLE OF CONTENTS

ABSTRACT

The real estate industry is one of the largest thriving industries in the world. However, it is riddled with bureaucratic red-tape that makes it difficult for people to invest in without relying on intermediaries. These intermediaries charge exorbitant transaction fees that are between 10-20 percent the value of the property. Tenants are also at the mercy of landlords who sometimes fail to reimburse their security deposits for dubious reasons.

Metrolince is a blockchain-based real estate start-up that seeks to provide people with the opportunity to purchase homes and obtain leases without relying on these unscrupulous intermediaries. The MLS system coalesces the property listed on multiple sites, allowing users to identify the property they are interests in with ease. All the transactions between the buyer and the seller are done through the platform. Sellers on the platform will be required to make any building repairs and ensure that the structure is up to code. Buyers can access the information on the inspection, adherence to codes and authenticity of the seller on the platform. Smart contracts ensure that both parties meet their obligations before ownership is transferred.

Additionally, tenants can enter into lease agreements with landlords when renting using the platform. The lease can stipulate what is required of the tenants and the landlord. Tenants can even request maintenance and building repairs through the platform. An additional feature is an ability for users on the platform to pool their resources to buy or construct property. Utility tokens will be created and airdropped to those participating in the project. This will allow those who cannot engage in large-scale investment projects on their own to have an opportunity to invest by pooling resources with others in a trustless system.

3

CHAPTER 1: INTRODUCTION

1.1 OVERVIEW OF THE REAL ESTATE INDUSTRY

The Real Estate industry is one of the cornerstones of modern civilization. Housing is one of the basic human need and we have evolved to create massive commercial and residential buildings to fulfil this need. As a result, the real estate industry is one of the largest markets around the world. Dwarfed only by Forex and Retail, the Real Estate industry is the third largest market in the world.

A reported recently tallied the total value of all the property around the world. This included residential, commercial, agricultural and forestry land and it amounted to a value of $217 trillion. This just shows the scale of the global real estate industry. A whopping 75 percent of the market is made up of residential property with commercial property just surpassing the 10 percent mark. This is a clear indication of how large the industry is and the tremendous role that it plays in modern society.

The real estate industry is more than 2.7 times the GDP from 2015. The study also revealed that the global real estate industry exceeds the international ale of the securitized debts and tradable equities put together. The real estate industry exceeds it by almost a third. Almost half of the value is in North America with Europe holding a quarter of the value, Australia and Asia holding 22 percent while the Middle East, Africa and South America making up the small remainder. However, it is worth noting that real estate in the Middle East has been rapidly rising. Globally, the CAGR rate in the entire industry is between 2.9 and 4% per annum.

The importance of housing is one of the main reasons why the industry keeps growing so big. Part of the dream of most people around the world is owning a home. This drives many other industries that seek to give people an opportunity to achieve this dream. As a result, there are millions around the world who rely on the industry. The real estate industry is segmented into four main types. They are:

i. **Residential real estate.** This includes the resale and the construction of new homes for people who want shelter. It includes single-family homes, condominiums and apartments where people rent out living space to others. This makes up the bulk of the industry.

ii. **Commercial real estate.** This refers to the resale and construction of buildings that are predominantly used for business. This ranges from office complexes to hotels, schools, medical centres, malls and shopping centres.

iii. **Industrial real estate.** These are buildings that are used for the manufacture of products like factories. Warehouses are also included because they serve no direct commercial purpose. Most industrial real estate projects support businesses in their functioning.

iv. **Land.** This refers to any vacant land, farms and ranches that are undeveloped. This type of real estate has the lowest value in comparison to other countries. The reason the value of land is lower in Africa, South America and the Middle East is that most of it is undeveloped land.

1.2 PROBLEMS IN THE REAL ESTATE INDUSTRY

As highlighted, almost everyone around the world hopes to earn some form of real estate for themselves. This may be a simple home, some farming land or a ranch while others want a commercial property that will earn them a decent income. Unfortunately, the real estate industry is one of the most complicated industries. It has also of bureaucracy.

Buying a home from someone is not as simple as approaching them and exchanging money for the home. There are complex legal red-tape that people must navigate before a home, commercial property or land ownership can be transferred. Sellers need to hire valuers who will provide an estimated value of the property before it is listed on the market. Listing companies place the house on their websites so that potential buyers can approach them. Brokers help buyers look for houses that meet their needs and their budgets. Additionally, there are thousands or legal hurdles that lawyers need to guide the seller and the buyer before the transaction can be complete.

For most people, doing all this on your own is a hustle and they instead leave it to real estate brokers, listing services, realtors and other intermediaries who help people sell and purchase homes. This increases the number of people involves the purchase and sale transaction. The obvious result is an increase in the cost. Everyone involved requires a share of the proceeds of the house. Buyers pay realtors to search a house or sell a house on their behalf. Buyers may pay an upfront fee but sellers are sometimes required to pay a percentage of the value of the house. The average commission is 6 percent that is shared between the buyer's and seller's agents. However, this number can rise depending on the location. If lawyers are involved, the fee also increases. Real estate valuation also takes in a considerable chunk of the fee. Sometimes more 10-20 percent of the amount paid by the buyer goes to paying these intermediaries.

Another problem is the increase in the number of scams that occur in the real estate industry. Some of them include the Bait and Switch scam where nefarious individuals make phoney listings of property that does not exist or that has been grossly overexaggerated. In other cases, there are fake realtors who may push you to pay the agent fees upfront and then disappear without a trace. The number of high profile scams is quite high. Sometimes, there may not be scams but there may be some financial transparency issues. The reason for the 2008 economic slowdown was the increase in the number of adjustable mortgage rates in the market. Sometimes the rates went very higher than 20 percent when the fixed mortgage rate remained at 4 percent per annum in the national reseller. Those who chose to construct their own buildings also come across thousands of codes that they need to abide by. They also must hire different contractors who are hard to manage. The sourcing of materials and the unreliability of some contractors can skyrocket the cost of construction.

CHAPTER 2: THE METRO BLOCKCHAIN FOR REAL ESTATE

2.1 WHAT IS METROLINCE?

Metrolince is a blockchain-based start-up that seeks to revolutionize the real estate industry. The development team recognized the conundrum that exists in the industry and they created a model where blockchain technology can streamline the industry while eliminating fraud. This is all made possible by using Ethereum to tokenize aspects of the real estate industry to make it easier to buy, sell or construct residential, commercial, industrial and land real estate in key regions around the world. Initially, Metro blockchain will operate in the top three regions but it will slowly get integrated into the real estate sectors of developing countries. The development team has the vision of ensuring that the platform improves the lives of millions of homeowners and potential homeowners around the world.

2.2 HOW METROLINCE WORKS

At the heart of blockchain technology is an immutable ledger that permanently records all the information about a specific asset. The ledger can be seen by everyone in the blockchain while providing some form of confidentiality. Metro Blockchain seeks to leverage this for the cryptocurrency industry. Traditionally, when someone wants to purchase property, they must deal with transactions involving banks, regulators, title companies, insurers, lawyers, tax agencies and investors before they can complete the transaction. This took a lot of time and it was costly paying these different

intermediaries. As a result, purchasing a house took weeks even after identifying and agreeing on the price with the owner.

2.2.1 REAL ESTATE PURCHASES

Metrolince seeks to utilize blockchain technology to streamline the process. The blockchain will provide an immutable ledger where all real estate transactions can be recorded. The development team will go out of its way to add all the verified transaction details of a specific property when the seller wishes to include in the blockchain database. Once this information is added to the immutable ledger, every additional change to the property will be recorded. Whenever the valuation of the property changes, it will be added to the ledger. Whenever there is some additional construction done on the property, it will be added to the blockchain.

Once the individual or business wants to sell the property, they can list it on the platform where potential buyers will be able to view it. If a buyer is interested in a specific property, they can simply request for the specific details to be sent to him or her for a small fee. This takes seconds and the buyer can make an informed decision. The platform will be advanced enough that people can simply purchase the property using Metro Tokens of an equivalent value. A digital contract will show that the property has changed ownership and the buyer can simply get the title deed and keys from the seller to complete the transaction. Already, the buyer will be aware of the state of the house. Sellers will be required to get a valuation of the house and upload documents on the structural inspection of the property before they can sell it on the platform. The inspection covers everything from the physical, electrical and environmental aspects of the business.

One additional feature would be tokenizing of the shares in some commercial and residential properties to allow multiple investors to purchase a specific property. The tokens will act as shares and proof of ownership of the property. In such a case, the title deed and documents will be held by the Metro blockchain development team. The beauty of this feature is that it allows people who do not have the money to purchase an entire house to own shared a property. An inbuilt chat feature allows investors with a specific property to deliberate on decisions that need to be made about the property. This is the first time that property investment becomes affordable to those who do not have the assets to invest in a house or property on their own.

There is also an auctioning feature where sellers can place the property on the market and wait for the buyers to bid among themselves. The bidding can give the seller an opportunity to sell the property at a higher value. However, they still hold the option of agreeing or rejecting a specific agreement.

2.2.2 TENANT-LANDLORD AGREEMENTS

The Metrolince also understands that the bulk of people around the world chose to rent as the main lifestyle choice. A study by Harvard University found that by 2030, 59 percent of new households will prefer renting instead of purchasing property when presented with the opportunity. Metro blockchain seeks to eliminate the agent or broker model that is currently in place. Instead, the tenant and the landlord will enter into a peer-to-peer agreement where each of their roles and responsibilities will be clearly written in a smart contract that they both sign.

The tenant will be required to pay rent promptly each month and they should also renew their lease when the time comes. On the other hand, landlords will be required to ensure that all the maintenance and repairs are done effectively. Tenants can use the platform to request landlords to make specific repairs. It will also prevent cases where landlords refuse to give tenants their security deposits using dubious reasons. It also allows tenants who are sharing the house with each of them individually interact with the landlord.

Users on the platform will easily be able to view the available houses for rent since Metro blockchain aggregates the details from multiple listing services (MLS). All the information will be available in the transparent MLS system allowing everyone to view the available listings based on their search requirements.

2.2.3 BUILDING PROPERTY

The process of building residential and commercial property is quite difficult. Sometimes the contractors are unwilling to follow the set budget and timelines leading to the ballooning of the costs and delay of the completion time. Metro Blockchain seeks to streamline this by creating a platform where contractors, architects and others stakeholders can interact to plan and complete a building. Investors simply need to acquire land where they want the construction to be made.

The investor can them seek the services of architects from the platform. The agreements made between the client and the architect will all be added to the blockchain. This ensures that there is

accountability by both parties. Once the model for the house is created, the investor can add contractors who will make bids for construction of the property. The bidding will reduce costs and the agreements between the contractor and the investor will be immutably recorded in the blockchain. Specific deliverables will be set based on the timeline agreed. If the contractors meet the goals the funds will be released once a specific project deliverable is completed on time. If the deliverable is not completed on time, the investors will get a discount from the contractor already pre-agreed. This provides the incentive for contractors to complete construction without delay and without exceeding the budget.

At every stage, inspectors will ensure that the building is being constructed according to code. By the time the building will be completed, all the essential details on structure and adherence to local codes will be added to the blockchain. One additional feature that has not been stated is the opportunity for investors to pool their resources on the platform to construct real estate projects. Investors who may be unable to pay for the costs or an entire project can pool their resources with others. The amounts invested will be stored in the form of Metro Tokens that will be used to pay for the land. The remaining amount will be used to pay for the building designs, contractors and inspection before the entire project is completed. The beauty is that the title deed and the important information will be held by Metro Blockchain.

There will be some utility tokens created for the specific business project that will tokenize the ownership of the property. People can sell the tokens for the percentage value of the house. This gives investors an opportunity to invest in multiple real estate projects even though they do not have the funds to purchase or construct a house of their own. Investors can decide to build apartments where the monthly rent will be shared based on the percentage of shares that are owned. If a specific investor or investor group wishes to acquire the property, they can buy the shares. Once all shares are held by the individual or the investment group, the title deed and other important aspects will be signed over to them.

Ultimately, the aim of Metrolince is to ensure that regardless of whether you are leasing for rent, purchasing an existing house or investing in a real estate construction project, you can do it all on the platform without the risk of swindlers. This will make the real-estate industry safer for investors while opening it up to small-scale investors who wish to pool their resources with others in a trust-less system.

CHAPTER 3: FEATURES OF METRO BLOCKCHAIN

3.1 THE INDUSTRY AS CONSTITUTED

Currently, anyone seeking to lease or buy a property has to firm search an online portal of a listing company. They will be promoted to pay some high annual membership fee and several other additional fees before they can get adequate details about a property. Thereafter, they can use a broker to engage with the seller or the realtors in charge of the house on the listing price.

Once they agree on a specific price for the purchase, the buyer and seller have their lawyers draft, edit and finalise the purchase and sale agreement. The agreement has several specific requirements that should be met before the transaction can be completed. The buyer gets some time where he uses an intermediary to conduct structural inspections, electrical inspections, roof inspections, environment inspections, queries and surveys. If the buyer is using a lender to provide him or her with a mortgage, additional time will be taken to conduct mortgage origination, appraisal and a title search by the financial institution. Meanwhile, the seller will be obliged to make building repairs and obtain a certificate of occupy. This is quite a laborious process with multiple people involved.

3.2 FEATURES

Metrolince is based on blockchain technology and this gives it some unique features that set it apart from other centralized platforms in the real estate industry. They include:

i. **It is secure.** Since it is based on blockchain technology, the Metrolince is cryptographically encrypted. Hackers will find it difficult to breach the network because they will not have the required computational capabilities. Security protocols are also handled by Ethereum giving the platform the backing of one of the major blockchains in the entire industry.

ii. **It is transparent.** Everyone on the platform will be able to look at the distributed ledger. The benefit is that it guarantees that there can be no internal or external fraud. Swindlers will not be able to use any details on the platform to steal from unsuspecting home buyers.

iii. **It is confidential.** Unlike most real estate listing sites where the names are capriciously available to everyone, Metrolince uses pseudonyms to protect the identity of homeowners and sellers until they are ready to make an actual purchase or to sell their property. This protects the users in the platform from identity theft.

iv. **It has detailed information.** Most of the existing listing companies only provide limited information and the buyers or tenants are supposed to seek additional information on their

own. However, Metrolince will have all the details on a specific property. We prompt property owners on the platform to update the details every few months. This includes providing a valuation of the property, any maintenance done on the property or any changes in the financing of the property. As a result, we are a one-stop-shop for anyone looking to buy a home or lease.

v. **The algorithms included ensuring that the transactions are foolproof.** All the transactions that happen in the blockchain are governed by smart contracts and algorithms that replace legal contracts. Therefore, any payments made or exchanges made are bound by the legal requirements of the region. As a result, they can be used in litigation if there is a disagreement. Ultimately, it gives users on the platform peace of mind that all the transactions are verifiable and supportable should there be any problems.

vi. **It has an inbuilt dispute resolution protocol.** We understand that dealing with property can sometimes become quite hectic. As a result, we have an inbuilt dispute resolution platform were any disagreements between tenants and landlords, property owners and contractors or buyers and sellers can be resolved. Evidence from the contracts and transactions between the different parties are reviewed before a group of peers votes on how to resolve the dispute. However, this will be uncommon because most of the transactions will be verified before they are executed by the smart contracts. This is just a cautionary measure.

vii. **Bidding or auctioning feature.** An individual can choose to sell his property through an auction. Buyers can make bids based on what they are comfortable paying for the property. This is an effective way for sellers to increase demand for their property. Additionally, those constructing their own property can receive bids from contractors that show the time and the amount required to build. It allows the property developers to reduce the cost of construction by leveraging the competition between contractors.

viii. **Reputation score.** Contractors, landlords and tenants will all have reputation scores that will be given by others. Tenants will provide a rating of their landlord based on how fast they address maintenance issues and how good they are. On the other hand, landlords will provide a rating of the tenants based on whether they disturb others, damage the house or make timely payments. The decisions will help others in future who will interact with them. Contractors will be rated based on the cost-effectiveness and their ability to meet project deliverables during a construction project.

ix. **It is accessible to small-scale investors**. Metrolince allows those who do not have the money to purchase or construct entire real estate property on their own to pool their resources with other like-minded individuals in the construction industry. This eliminates the capital barrier that prevents most people from investing in the real estate industry. People can pool their resources to purchase houses, condominiums and other properties. They can even construct new properties. Utility shares for these types of properties will be created based on the funding and they can be traded on the platform.

x. **Low-transaction costs.** Metrolince will feature very low transaction costs. Unlike the current system where the intermediaries take up between 10-20 percent of the amount paid for the house. Instead, we only charge when users want to view the details of a property. This is a very small amount that is not comparable to the annual membership that most realtors and listing agencies charge buyers and sellers. Additionally, we only charge a 5 percent transaction fee when purchases are made. The 5 percent will be used for operations of the platform and to pay stakers who provide consensus to the platform.

xi. **Real-time transactions.** Metrolince will have a fast transaction speed. The actual transaction can take just a few minutes and within a few days, the buyer will already have the necessary documents. Tenants can also immediately pay for their lease and move to their new premises as fast as possible.

xii. **Censorship resistant.** The crypto economics built into the blockchain model provides incentives for the participants to continue validating blocks, reducing the possibility of external influencers to modify previously recorded transactions.

xiii. **It is trustless**. Blockchain technology is based on cryptographic proof, allowing any two parties to transact directly with each other without the need for a trusted third party. The peer-to-peer distributed network records a public history of transactions. The blockchain is distributed and highly available; it also retains a secure source of proof that the transaction occurred.

CHAPTER 4: TECHNICAL ASPECTS

a. Architecture

Instead of using a Mainnet that is expensive and difficult to create, Metro blockchain will be based on an existing platform. It will rely on the Ethereum parent chain to provide the security features while executing transactions on the platform. As a result, the Metro token will be an ERC20 token. The reason for this is to ensure that the blockchain can support the initial and future plans without any scalability issues. The blockchain will rely on KECCAK256 hashing algorithms. This is more advanced than the SHA256 and SHA3 variants used in Bitcoin and other blockchains. This has more hash functions making it harder to hack. As an ERC20 token, Metro tokens will rely on the Ethereum Virtual Machine as the basic runtime environment for execution of transactions.

b. **Language and smart contracts**

Since Metrolince relies on the Ethereum Virtual Machine, the transactions are completed using smart contracts. These smart contracts are commands written using Solidity to complete transactions that are based on if-this-then-that logic. Solidity as the programming language makes it easy to improve the platform because it is an integration of JavaSript. Any new features introduced to the Ethereum Virtual Machine (EVM) will be easily added to the Metro blockchain without extensive coding. Members of the community can complete transactions by confirming them using his or her private key with the public key of the specific store. This approves the conditions necessary to transfer the funds. The ingenuity of the smart contract is that it ensures that transactions are only completed once both parties remit the services or goods for money.

c. **Latency and API clusters**

The most important feature for any cryptocurrency that will be involved in payment processing and remittance is the need for low latency. Metro tokens have a low latency that gives it the ability to execute a large volume of transactions at high speed. This makes the transactions almost instantaneous. The Solidity language used in the source code will enable the creation of API clusters that can easily accommodate live data streams to give the perception of a love exchange. The low latency APIs will allow high-frequency transactions on the platform. This will prevent any delays since thousands of transactions can be handled every millisecond. The API will also give the e-wallet data visualization capabilities.

d. **KYC and AML integration**

Inbuilt into the system will be some AML and KYC layers. These two layers are specifically built to prevent money laundering through the blockchain. The KYC will ensure that user information of the members is recorded when their user accounts are created. The Anti-Money Laundering function will be inbuilt into the source code to ensure that it adheres to the current and future regulations that are being introduced by governments around the world. This means that members of the community will have full confidence that they will be interacting with legitimate people.

e. E-Wallet and Mobile integration

Metrolince is based on ERC20 technology and therefore the inbuilt wallet will support ERC20 tokens. Additionally, the tokens can be held in e-wallets that support ERC20 tokens with ease. They include MyEtherWallet, Trezor, MetaMast, Mist, Parity, Trust and Exodus. Metro blockchain also has plans of introducing a web-based application that can be accessed through Windows, Android or iOS operating systems. The software will be easy to use and it can be customized according to the user's preferences.

f. Dual tokens

Most of the altcoins in the market only rely on one type of token. However, Metro blockchain will rely on both security and utility tokens. Security tokens are not pegged on any specific asset. They can be used for payments and speculation. Metro token will be a security asset that will be listed on the major exchanges around the world. On the other hand, there will be some utility tokens produces that will show ownership of shares in a specific real estate property. When investors pool their resources on the platform, they will receive utility tokens based on the amount they contributed. The utility tokens can be traded with others on the platform.

CHAPTER 5: ICO

5.1 ICO GOALS

The main goal of the ICO is to raise funds for the development of the platform and for marketing it to potential buyers and sellers once it is completed. As a result, there will be a great reliance on marketing and the bounty program. The specific cap placed on the number of coins will be XXX coins. Since it is limited, as demand increases the value of the coins Metro tokens will increase.

The ICO will be subdivided into two. The first will be a pre-sale and the second will be the main ICO. The pre-sale will only sell 10 percent of the coins at a 25 percent discounted rate. The ICO will be subdivided

into four segments where each segment will have an early bird bonus. The first segment will have a 15 percent discount, the second a 10 percent discount, the third a 5 percent discount and in the final segment there will be a 3 percent discount. Early adoption is the best way to earn a discount.

5.2 ICO PARTICULARS

Token Name: BPM

Token type: ERC20

Total supply:

Effective supply:

Retain:

Hard Cap:

Soft Cap:

Price/Token:

PRE-ICO:

1st Phase:

2nd Phase:

3rd Phase:

4th Phase:

5.3 ALLOCATION AND PROCEEDS

CHAPTER 6: ROADMAP

Currently, it is the second quarter of 2018 and the roadmap is as follows. The website, whitepaper and initial smart contracts will be created during the second quarter of 2018. The bounty program will be launched at the beginning of the third quarter. The reason for this is to create a buzz in the cryptocurrency community. Those who participate in the bounty program will be paid in Metro tokens once the platform is launched. This creates a buzz while improving the smart contracts, providing translations and running the signature campaign. The Pre-ICO will be held in the quarter and a month later the main ICO will start. The ICO will end at the start of the fourth quarter. Thereafter, the fourth quarter of 2018 will be for the development of the platform, debugging and making the initial additions to the platform. The MLS system will be implemented for both tenants and those who want to purchase the property.

The platform will be launched in January 2019. The Metro tokens will be listed on the major exchanges around the world. We will concentrate on America, Europe and Asia first and then slowly we will expand to these other markets.