Plater

A next generation decentralized infrastructure for confidential information flow and data protection.

Whitepaper 2.0

Table of contents

List of tables & figures 3
Disclaimer 3
Abstract 3
Introduction 3
Problem 4
Solution 4
Plater Network design 4
    Plater Information Flow System 4
    Data security layer and collateral protection 6
System architecture 8
Main features 8
    Peer-to-peer network 8
    Permanent and immutable 9
    Surveillance and censor resistant 9
    Fast and secure 9
    Open source 9
    Cost effective 9
Algorithm and governance 9
    Sender 9
    Receiver 9
    Validator 9
    Plotting 9
    Mining 10
    Storage nodes 10
Plater Token 10
Investment opportunity 12
Tokenomics 13
Conclusion 14
References 15

List of tables & figures

Figure 1.0 - Plater Network transaction design

Figure 1.2 - Plater Ecosystem Functioning

Figure 1.3 - Data encryption

Figure 1.4 - Plater Network Architecture

Figure 1.5 - Scoop graph

Figure 1.6 - Tokenomics

Table 1.0 - Tokenomics

Disclaimer

Nothing in this White Paper is an offer to sell, or the solicitation of an offer to buy, any tokens. Plater Network is publishing this White Paper solely to receive feedback and comments from the public. If and when Plater Network offers for sale any tokens (or a Simple Agreement for Future Tokens), it will do so through definitive offering documents, including a disclosure document and risk factors. Those definitive documents also are expected to include an updated version of this White Paper, which may differ significantly from the current version. If and when Plater Network makes such an offering in the United States, the offering likely will be available solely to accredited investors. Nothing in this White Paper should be treated or read as a guarantee or promise of how Plater Networks business or the tokens will develop or of the utility or value of the tokens. This White Paper outlines current plans, which could change at its discretion, and the success of which will depend on many factors outside Plater Networks control, including market-based factors and factors within the data and cryptocurrency industries, among others. Any statements about future events are based solely on Plater Networks analysis of the issues described in this White Paper. That analysis may prove to be incorrect.

Abstract

The present White Paper aims to introduce and explain the idea behind Plater Network project and the company itself. It shows results of the research carried out by the team and explains how blockchain technology and decentralized network will improve data safety and privacy of information. During the examination of the privacy and protection of the information, it was found that most of information flowing through the centralized network is being processed and/or influenced by the third-party authorities. This study shows how application of the alternative, efficient and innovative consensus algorithm of blockchain may secure the information flow, increase the data-protection, and minimize the risk of losing/manipulating/intercepting the data flowing through the network and how it is being executed by Plater Network.

Introduction

In the current world of massive data flow on the Internet the actual privacy and protection became a big issue. On every website and application users must agree on the number of “Privacy policies” and “Terms of use”, which essentially show how the data is being collected or used by the service users

decide to avail. This process shows that centralized authorities and companies exploit data of their users for a better development or other factors that are solely profitable for the company. What is more, the current data protection solutions are not sufficient to provide an appropriate protection. Many manipulations, interceptions, losing, and data leaks are being observed, which proves the problem existence. In the present document the research team shows how Plater Network aims to implement blockchain technology for data-sharing security and overall improvement of information flow ecosystem using diffused network.

Problem

As being said, a lot of people around the world are exposed to the risk of losing, intercepting and manipulating their data. It is caused by the centralized nature of a network that almost everyone uses for data transfer. Centralized network is a platform governed by a single authority that is responsible for all the information that flows through this network. As an example, the most popular social media platforms may be mentioned. Every message, document, file, or any other form of information that is sent using one of these platforms can be accessed by the owner of network, or authority who will get this access (i.e., hacker, third-party entity, staff). Therefore, the data transfer is not as secure as it could be and also data protection is not sufficient.

Solution

It was therefore considered to apply the blockchain network design and its incredibly efficient functionality to secure, protect, and improve the information flowing through the decentralized network. It may be done by designing and implementing severe consensus algorithm, developing, and designing solid smart contracts, and the proper security layers which would add to the data protection.

Plater Network design

Plater Information Flow System

Plater Information Flow System being designed as an internal algorithm that is being used to distribute, flow, and share the data with use of blockchain technology. It involves all the aforementioned and the further mentioned concepts that will be the foundation for a seamless process of data and information flow within Plater Network. Understanding the transaction functioning and design is crucial, and was therefore explained below in a graphical method. Plater Information Flow System (PIFS) is simplified and minimizes the risk of data leaks. It ensures reinforced data protection thank to the use of compounded hashing and encryption methods. What is more, the decentralized nature of the network adds to the protection and provides a robust network that assures a liquid flow of information.

The transaction process involves a few governance roles and nodes. The concept of Plater Network and its information flow system works as follows: User1 of the network decides to send the information to User2. User1 uploads files (documents, information etc.) to the network. Thanks to the plotting and mining, the storage is secured and cannot be used in other purposes than data transfer. Nodes have unique addresses. Therefore, the transaction can be requested. The validator accepts the request, and the transaction can be settled. It gets encrypted to ensure the highest security, and the information hash is assigned. User2 successfully receives the information directly to his claimed hardware storage, and then it may be safely opened locally on the device. Please, see the diagram below for better understanding of the functionality.

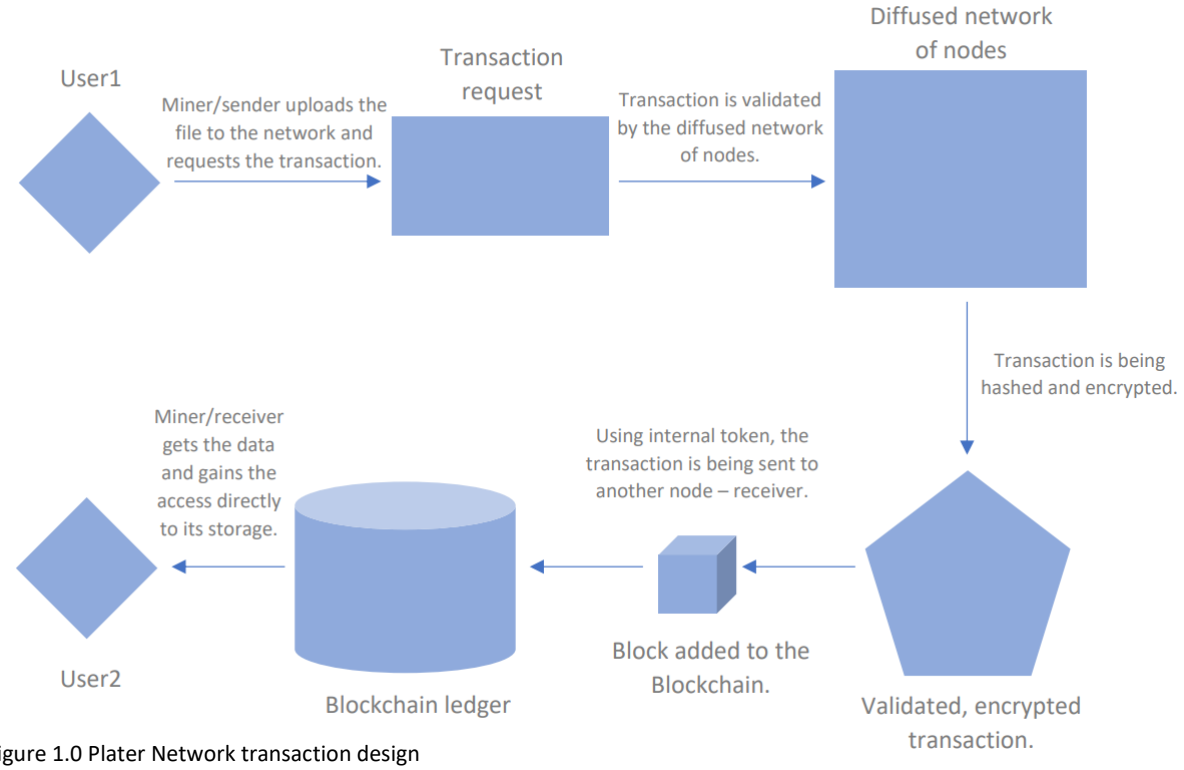

Figure 1.0 Plater Network transaction design

As it sates above the transaction process plays role of the data sharing protocol which is being executed involving Plater Network, Plater Information Flow System, and nodes. Therefore, the transaction itself is a minor, yet fundamental part of the Plater Ecosystem, which integrates and joints all the parts to make the operation possible. Below, the Plater Ecosystem can be viewed in a form of a graphical content:

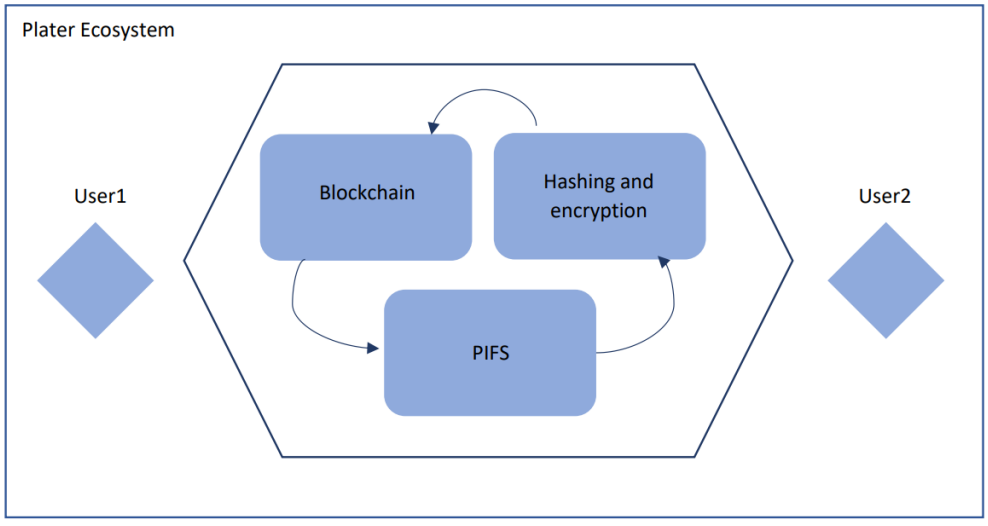

Figure 1.2 Plater Ecosystem Functioning

Data security layer and collateral protection

Plater Network will enhance the security of the data flowing through its ecosystem by combining several hashing algorithms and add collateral protection layer based upon the well-known Merkle Tree hashing compound. The combination of Proof-of-Stake and Proof-of-Capacity consensus algorithms will assure an outstanding safety of data and high-end tokenization of the information that appear in the network. The typical SHA3 hashing algorithm used in Solidity programming language will be reinforced with encryption provided by the Proof-of-Capacity algorithm, which can be viewed below in the Plotting subsection of the present paper.

SHA3 installation procedure

```
$ npm install --save solidity-sha3
```

Usage example

```
import sha3  from 'solidity-sha3'
sha3('a') // 0x3ac225168df54212a25c1c01fd35bebfea408fdac2e31ddd6f80a4bbf9a5f1cb
sha3('0x0a') // 0x0ef9d8f8804d174666011a394cab7901679a8944d24249fd148a6a36071151f8
sha3(1) // 0xb10e2d527612073b26eecdfd717e6a320cf44b4afac2b0732d9fcbe2b7fa0cf6
sha3(-1) // 0xa9c584056064687e149968cbab758a3376d22aedc6a55823d1b3ecbee81b8fb9
```

Proof of hashing (SHA3) in Solidity and Merkle Tree application

```
function verifyCalldata(
    bytes32[] calldata proof,
    bytes32 root,
    bytes32 leaf
) internal pure returns (bool) {
    return processProofCalldata(proof, leaf) == root;
}
function processProofCalldata(
    bytes32[] calldata proof,
    bytes32 leaf,
) internal pure returns (bytes32) {
    bytes32 computedHash = leaf;
    for (uint256 i = 0; i < proof.length; i++) {
        computedHash = _hashPair(computedHash, proof[i]);
    }
    return computedHash;
}
function _hashPair(bytes32 a, bytes32 b)
```

```
    private
    pure
    returns(bytes32)
{
    return a < b ? _efficientHash(a, b) : _efficientHash(b, a);
}
function _efficientHash(bytes32 a, bytes32 b)
    private
    pure
    returns (bytes32 value)
{
    assembly {
        mstore(0x00, a)
        mstore(0x20, b)
        value := keccak256(0x00, 0x40)
    }
}
```

If the function is created to verify the data assigned it can be checked by authenticating the root which is the data stored within the smart contract and the proof being the external information (off-chain). The way the data is encrypted can be presented graphically in a form of Merkle Tree that involves assigning the hashing algorithm for data protection.

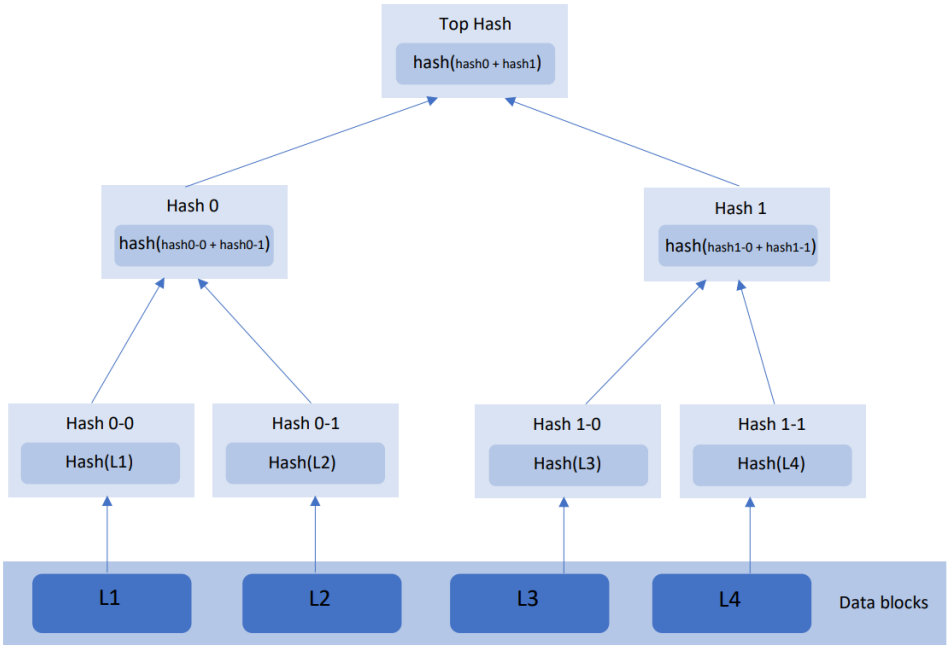

Figure 1.3 Data encryption

System architecture

Plater's ecosystem was designed to make the best use of blockchain technology for secure and safe data flow within the network. Blockchain data flow is based upon the proper encryption and hashing that ensures highest data protection that is being uploaded to the diffused network. It can be viewed as a seamless and automated process where everything takes place automatically and the algorithm takes care of major actions.

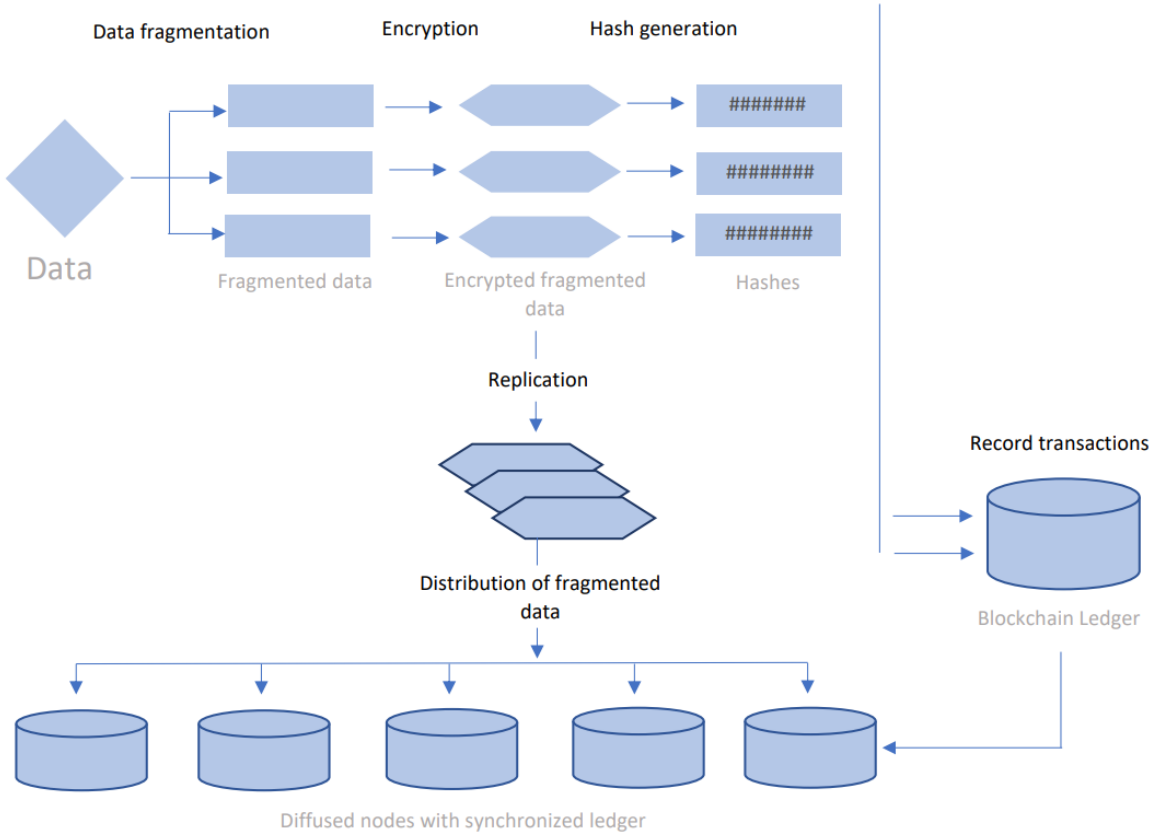

Figure 1.4 Plater Network Architecture

Main features

The main features of Plater Network Protocol were described to give a better overview of the benefits that users can enjoy from using these services.

Peer-to-peer network

The use of distributed network enables users to directly send data, files, and documents between each other. This means that information sent is not stored in any physical place but held by each network user (node). Each file has its unique cryptographic hash. When a user from requests to share/receive data the network finds the nodes holding a perfect match to the unique hash or hashes and the transaction is successful.

Permanent and immutable

Usage of a decentralized network across multiple users provides immutable and permanent transaction because when the transaction is approved (validated by other users of the network) the data cannot be changed.

Surveillance and censor resistant

The core objective of Plater Network is to exclude third-party services from personal transactions as it takes place now. It will help to send confidential information without any influence or interference of out-of-network entities and improve the reliability of the information.

Fast and secure

The transactions are highly secure and time effective. Transactions are quickly verified by the other nodes. Then, additionally linked to the previous block and secured with 1024-bit key encryption and 7 tokenization, which makes it almost impossible to hack or manipulate. Because the transactions are being settled between nodes the whole process is very fast.

Open source

All the information and documentation give a clear overview of the technology and enables other people to use it without any restrictions. All the new updates and changes will always be publicly available. Plater's open-source software will be always public and accessible to everyone. It increases transparency, scalability, and expansion of the network.

Cost effective

The company will charge a small fee for using its software. However, Plater Network guarantees the best price on the market and all the charges have algorithmic nature. The token which will give access to the network. It may be acquired through the exchange or by staking.

Algorithm and governance

Sender

A node that addresses the information to another user of the network. Senders can upload their files using our internal Plater Information Flow System (PIFS), which also enables data storage within the network.

Receiver

A network contributor receives the information sent by addressee. Receivers get the information after transaction settlement and verification of both nodes: sender and receiver. The information will be encrypted. It ensures that the receiver node is the only one peer in a network that has the access to the data sent together with the transaction.

Validator

9 Nodes that are responsible for validating the transaction. They secure the chain by staking Plater Token ($PLATER). When the validator node approves the transaction, it is settled, and information can be sent between the peers.

Plotting

When you plot your hard drive or create the plot files, you are producing nonces. This is slightly different from the Bitcoin nonce in that it is generated from the plot file. You will continually hash your data including your particular ID until you have solved the nonce. Each of the nonces will contain 8,192 hashes and these are bundled together into a number of pairs that are termed “scoops”. In total

there will be 4,095 scoops that will each be assigned that unique number. Below is a graphical example of the scoops.

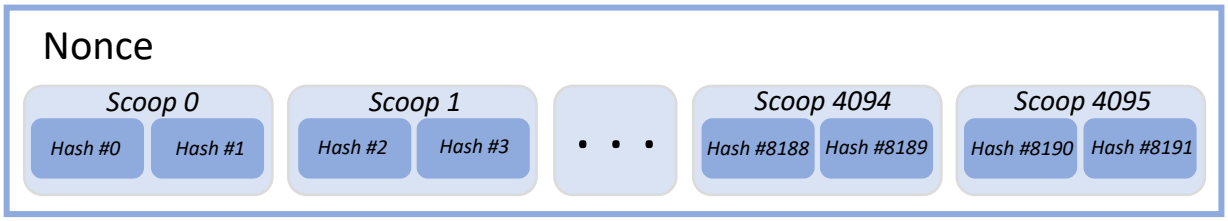

Figure 1.5 Scoop graph

Mining

One of the results of the calculation will be the scoop number. This scoop number will be between 0 and 4,095. The resulting scoop number and the corresponding nonce will be used to calculate a unit of time called the “deadline”. This will be completed for all of the nonces that are on your hard drive and you will then select the shortest deadline. This minimum deadline is the amount of time that will pass since the last block was created until you can produce a new one. If the deadline that you are able to produce is shorter than those of the other miners, then you are allowed to create the new block and you will be entitled to the block reward.

Storage nodes

The storage node’s role is to store and return data. Aside from reliably storing data, nodes should provide network bandwidth and appropriate responsiveness. Storage nodes are users of the 10 network that wish to upload the files to the platform. Because no data are restricted, each user may become a storage node by giving its own hardware storage space. In return for their service, nodes are rewarded.

Plater Token

Below the technical information can be found in regard to the Plater Token and major details concerning the smart contract built to develop the token of Plater Network. It can be used to check the correctness and methodology behind our technology. For more specific information, kindly visit our Github Depository.

NOTES:

- The following specifications use syntax from Solidity **0.5.16** (or above)
- Callers MUST handle false from returns (bool success). Callers MUST NOT assume that false is never returned!

1. Methods

1.1 name

```
    function name() public view returns (string)
```

- Returns the name of the token – In this case: "Plater".

1.2 symbol

```
function symbol() public view returns (string)
```

- Returns the symbol of the token. In this case: “PLATER”.

1.3 decimals

```
function decimals() public view returns (uint8)
```

- Returns the number of decimals the token uses - e.g. 8, means to divide the token amount by 100000000 to get its user representation.

1.4 totalSupply

```
function totalSupply() public view returns (uint256)
```

- Returns the total token supply. The token flows across BNB Smart Chain only therefore, the number will never be multiplied.

1.5 balanceOf

```
function balanceOf(address _owner) public view returns (uint256 balance)
```

- Returns the account balance of another account with address `_owner`.

1.6 getOwner

```
function getOwner() external view returns (address);
```

- Returns the Plater Token owner.

1.7 transfer

```
function transfer(address _to, uint256 _value) public returns (bool success)
```

- Transfers `_value` amount of tokens to address `_to`, and MUST fire the Transfer event. The function SHOULD throw if the message caller’s account balance does not have enough tokens to spend.

1.8 transferFrom

```
function transferFrom(address _from, address _to, uint256 _value) public returns (bool success)
```

- Transfers `_value` amount of tokens from address `_from` to address `_to`, and MUST fire the Transfer event.
- The transferFrom method is used for a withdraw workflow, allowing contracts to transfer tokens on your behalf. This can be used for example to allow a contract to transfer tokens on your behalf and/or to charge fees in sub-currencies. The function SHOULD throw unless

the `_from` account has deliberately authorized the sender of the message via some mechanism.

1.9 approve

```
function approve(address _spender, uint256 _value) public returns (bool success)
```

- Allows `_spender` to withdraw from your account multiple times, up to the `_value` amount. If this function is called again, it overwrites the current allowance with `_value`.

1.10 allowance

```
function allowance(address _owner, address _spender) public view returns (uint256 remaining)
```

- Returns the amount which `_spender` is still allowed to withdraw from `_owner`.

2. Events

2.1 Transfer

```
event Transfer(address indexed _from, address indexed _to, uint256 _value)
```

- **MUST** trigger when tokens are transferred, including zero value transfers.
- A token contract which creates new tokens SHOULD trigger a Transfer event with the `_from` address set to 0x0 when tokens are created.

2.2 Approval

```
event Approval(address indexed _owner, address indexed _spender, uint256 _value)
```

MUST trigger on any successful call to `approve(address _spender, uint256 _value)`.

Investment opportunity

A blockchain is getting noticed in the world, even by regular people. More and more companies are preparing to implement blockchain-based solutions into their current services. Many new start-ups entirely rely on decentralized technology and grow in unbelievable quick time. Plater Network is also a part of this group. It is one of the companies that decided to make the most of blockchain technology to provide the real solution that solves a worldwide problem. Cryptocurrencies and tokens market rockets rapidly and continues to expand its cap. According to the Market Sand Markets (n.d.), the cryptocurrency market may reach USD 1.40 billion in 2024, growing at a CAGR of 6.18% during the forecast period. It is a great opportunity, and Plater Network will not stop. Many industries that can be improved by the Plater solution. File sharing is just the beginning while many partnerships, improvements, and betterment may be executed in the future.

Tokenomics

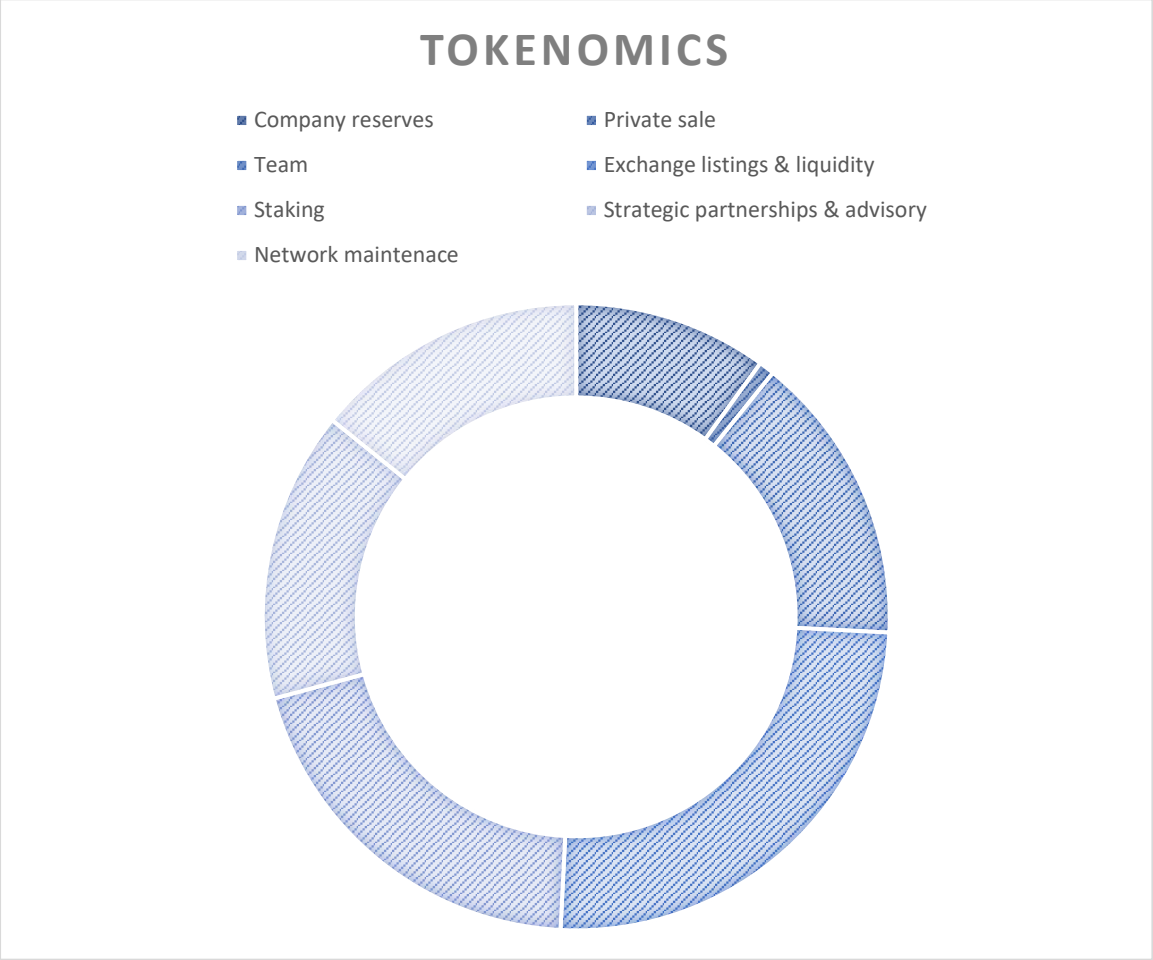

Figure 1.6 Tokenomics

The maximum total supply of $PLATER is 120,000,000 tokens. The tokenomics are split according to the below.

Company reserves	12.000.000 $PLATER
Team	18.000.000 $PLATER
Strategic partnerships & advisory	18.000.000 $PLATER
Network maintenance	17.040.000 $PLATER
Private sale	960.000 $PLATER
Exchange listings & liquidity	30.000.000 $PLATER
Staking	24.000.000 $PLATER

Table 1.0 Tokenomics

Conclusion

The potential of the diffused network is huge, and it is just a beginning. For now, the blockchain industry is focused on decentralized finance and entertainment. However, it is going to be disrupting more and more branches of economy and our lives as it expands, and new technologies are being discovered. Plater Network narrowed its focus to data protection and security, which is going to be another major innovation within the cryptocurrency and blockchain industries. What is more, increasing number of companies and individuals require futuristic and uncommon safety solutions as the world is moving to the digital sphere. Considering this, Plater Network is taking an initiative to build and provide the world with enhanced and reinforced security and protection of vulnerable information to shape the better future.

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