Mobius

A Universal Protocol Suite for the Blockchain Ecosystem

Abstract

Mobius is building innovative and simple cross-blockchain protocols to connect billions of people and devices to the blockchain ecosystem. The blockchain ecosystem has soared to a market capitalization greater than $100 billion at a growth rate rivaling Facebook, yet the number of blockchain users rounds down to zero when compared to the number of internet users and devices that exist today. This gap between the internet world and blockchain world represents a multi-trillion dollar opportunity. Mobius is closing this gap through a two-sided solution creating both developer tools and a consumer DApp Store. On the developer side Mobius is creating standardized and simple universal cross-blockchain protocols APIs that will allow any developer to easily connect to the blockchain ecosystem. On the consumer sider, Mobius is creating an easy to use DApp Store that will disintermediate and decentralize the $6.3 trillion 2021 App Economy.

The blockchain is the new decentralized internet; Mobius makes it production ready for mass adoption. Strong developer communities in conjunction with open APIs have been key to the success of the internet and its ecosystem of enterprises like Facebook, Salesforce, Amazon, and Alibaba to name a few. Similarly, the success of the expanding the blockchain ecosystem requires both developers and robust API protocols. Currently, blockchain developer tools and protocols are in their infancy and analogous to primitive web development tools in the early 1990's. The open bidirectional Mobius protocol APIs turn the 18.2 million software developers in the world into blockchain developers through simple, standardized protocol APIs that make it easy to connect any application, device, or mission critical data stream to the blockchain ecosystem. The Mobius protocols define universal cross-blockchain standards for payments, login, and oracles through simple APIs, developer frameworks, and webhook callbacks. In the payment space, Mobius is analogous to Stripe, which made it easy for developers to accept any credit card. Mobius similarly makes it easy for developers to transact with any blockchain token and benefit from significantly lower transaction fees by disintermediating legacy centralized institutions. The Mobius DApp Store works in conjunction with the Mobius API to solve the consumer discovery problem and features fees that are greater than 70% lower than the centralized Apple and Google analogs.

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1. Introduction

The blockchain ecosystem is booming with cryptocurrency market capitalization soaring past $100 billion at a growth rate rivaling Facebook. However, the number of blockchain users pales in comparison when compared to the 4 billion internet users and 8 billion Internet of Things (IoT) devices that exist today. This gap between the internet world and blockchain world represents a multi-trillion dollar opportunity — the internet App Economy alone, which is a tiny sliver of the global internet economy, is predicted to be $6.3 trillion in 2021.

Mobius (MOBI) closes the gap between the internet world and blockchain world through innovative and simple protocols that introduce new standards for cross-blockchain login, payment, governance, and oracles. A strong developer community and open APIs have been key to the success of Facebook, Salesforce, and eBay and will similarly be key to the success of blockchain and expanding it to the masses. Today there are 18.2 million software developers in the world but there is an extreme shortage of blockchain developers. Mobius will make every developer a blockchain developer through standardized simple cross-blockchain and internet bridging protocols.

When developers are able to easily integrate blockchain technology into their applications and devices blockchain technology will experience exponential growth similar to the telephone system because of positive network effects and feedback loops that will develop and become stronger with each blockchain integration. At a macro level, blockchain will become the fastest growing technology of all time because it is a network system that rides on top of, and leverages, the most powerful network of all time — the internet.

Blockchain today is comparable to the internet in the early 1990s. In the early 1990s 9,600 bits per second modems were just entering the market. Today Ethereum runs at a mere ~13 transactions per second. Blockchain developer tools and protocols today are similarly comparable to web developer tools in the early 1990s before Stripe created a standardized simple protocol to accept credit card payments and Amazon AWS introduced simple cloud computing that made it easy for anyone to deploy a web application. Mobius similarly streamlines blockchain integration through a standardized set of protocol APIs that bridge the gap between blockchains and internet-connected applications.

2. The Token Economy

Today there are over 800 tokens with many created this year by organizations that have sold them to collectively raise almost $1.3 billion in the first half of 2017. Some have questioned why a company needs its token when it can accept Bitcoin. The answer is community and governance. A company can accept Bitcoin for payment but Bitcoin does not allow an organization to be run by a decentralized community with a vested interest in its success.

When a company creates its own token it creates a cryptographically secure decentralized organizing utility upon which it can self-govern and moderate its platform through an open community of members. For example, an organization with its own token can hold secure community votes in which each token represents one vote. If the organization relied on Bitcoin it would open its proposal voting to all Bitcoin holders, the vast majority of which would have no vested stake or interest in the organization and its platform. When an organization creates its own token, the holders of the token have a specific vested interest in the organization and platform and therefore a token acts as a form of proof of membership to ensure that only people that are a part of the community can vote.

The concept of token based voting can be broadened and used for additional vested proof of stake required micro-actions throughout a platform. For example, Wikipedia could require that editors have some tokens at stake before editing an article. Such a proof of stake requirement can help reduce spam and other unwanted behavior. This concept could additionally be broaded to reward community members who contribute positively to the community and additionally penalize members that harm the community by taking away some of their at-stake tokens. This type of decentralized self-governance and moderation is revolutionary and will result in significant value creation and disintermediation.

3. Universal Blockchain Payment Protocol

Today's legacy global payment infrastructure is centralized, convoluted, and expensive. Accepting credit and debit cards involves a three step authorization, clearing, and settlement process that depends on payment gateways, terminals, merchant banks, credit card associations, cardholder banks, and other stakeholders resulting in high fees and slow payment finalization. Legacy payments are also expensive often costing approximately $0.30 + 2.9% per transaction.

Source: https://www.pathwaypayments.com/processing-diagram.html
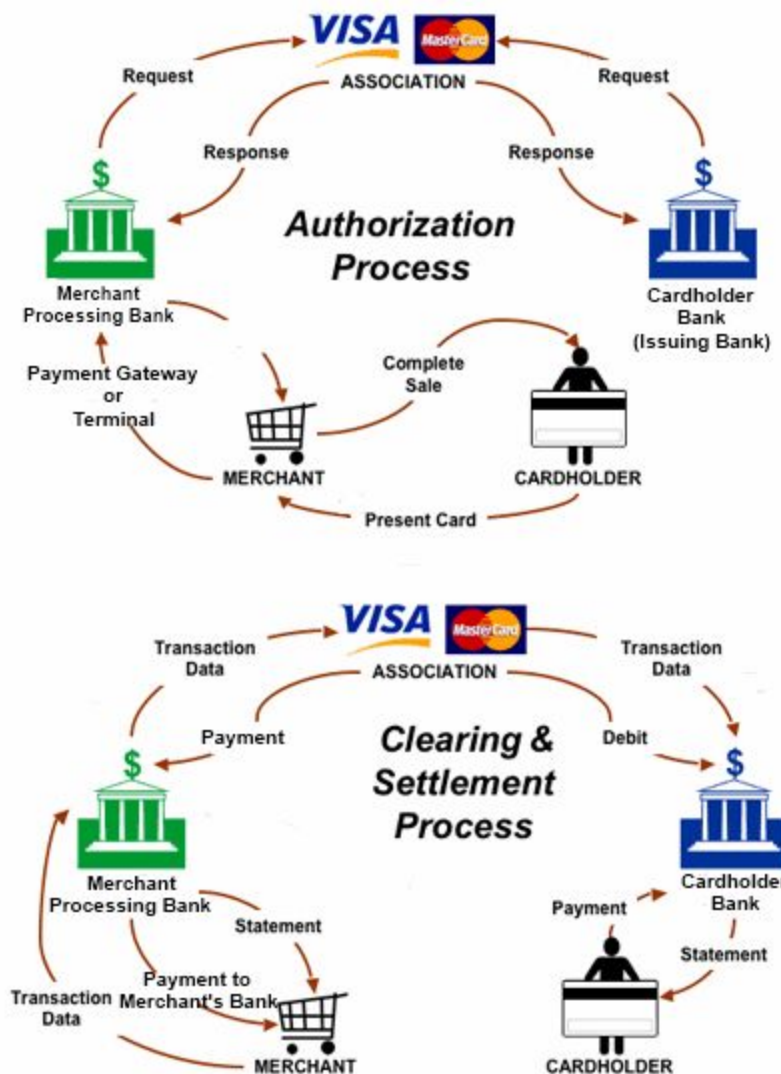
Blockchain technology has the potential to revolutionize and simplify global payments by disintermediating large financial institutions and thus significantly reducing transaction costs. However, current blockchain developer APIs and frameworks are in their infancy and are very

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hard to use. Blockchain developer technology today is similar to payment developer frameworks before Stripe. For example, below is an example of the Authorize.Net Merchant Web Services Simple Object Access Protocol (SOAP) CreateCustomerProfile request data structure:

```xml
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://
www.w3.org/2001/XMLSchema">
<soap:Body>
<CreateCustomerProfile
xmlns="https://api.authorize.net/soap/v1/">
<merchantAuthentication>
  <name>API Login ID here</name>
  <transactionKey>Transaction Key here</transactionKey>
</merchantAuthentication>
<profile>
  <merchantCustomerId>Merchant Customer ID
here</merchantCustomerId>
  <description>Profile description here</description>
  <email>customer profile email address here</email>
<paymentProfiles>
<CustomerPaymentProfileType>
  <customerType>individual</customerType>
    <payment>
      <creditCard>
        <cardNumber>Credit card number here</cardNumber>
        <expirationDate>Credit card expiration date
here</expirationDate>
      </creditCard>
    </payment>
</CustomerPaymentProfileType>
</paymentProfiles>
</profile>
<validationMode>liveMode</validationMode>
</CreateCustomerProfile>
</soap:Body>
</soap:Envelope>
```

https://www.authorize.net/content/dam/authorize/documents/CIM_SOAP_guide.pdf

The Authorize.net API is verbose, cumbersome, and hard to use. Below are the equivalent Stripe REST API calls:

```
$ curl https://api.stripe.com/v1/tokens    \
    -u sk_test_BQokikJ0vBiI2HlWgH4olfQ2: \
    -d card[number]=4242424242424242 \
    -d card[exp_month]=12 \
    -d card[exp_year]=2018 \
    -d card[cvc]=123
```
https://stripe.com/docs/api/curl#create_card_token

```
$ curl https://api.stripe.com/v1/tokens    \
    -u sk_test_BQokikJ0vBiI2HlWgH4olfQ2: \
    -d description = "Customer for
anthony.white@example.com" \
    -d source=tok_189gK92eZvKYlo2CLeB0l8KA
```
https://stripe.com/docs/api/curl#create_customer

The Stripe API is simple, elegant, and easy to use. Stripe leveraged complicated payment developer infrastructure to turn its developer-first, easy to use API into a company that has raised more than $440 million and is valued at over $9 billion. Mobius is solving the exact same problem except for the emerging Blockchain Economy.

The Mobius API provides a universal interface to accepting any blockchain token analogous to how Stripe provides a universal interface to accepting different credit cards such as Visa, Mastercard, Discover, and American Express. Currently it is very complicated to accept, manage, and secure tokens. For example, if a video game developer creates an Ethereum ERC20 token that acts as their in-game credits, it is complicated to move tokens between the Ethereum network and their backend accounting system.

Current Token Developer Process:
1. Run a full Ethereum node
2. Create a unique Ethereum address for each user
3. Monitor every user Ethereum address for incoming token transactions
4. Secure the private keys
5. Manage credit accounting in their backend

The Mobius API simplifies all this by providing a modern easy to use REST API that returns JSON and uses secure webhooks to alert developers of incoming token transfers.

The Mobius API currently works with any ERC20 token such as Golem, Augur, Iconomi, Bancor, Storj, Status, Credo, etc. There are plans to expand the API to support other blockchains and tokens besides Ethereum and ERC20.

4. Universal Token Login Protocol

Tokens can be used to represent membership to a service and can be used as a login mechanism. Any service that uses tokens as a login mechanism will have similar technical infrastructure needs analogous to token payment infrastructure. Mobius will provide a simple REST API that abstracts low-level blockchain development required to verify token ownership at time of login and facilitate verified login.

Using a token to represent a subscription provides several benefits including increased anonymity, lower transaction fees, and the potential for an independent secondary market to develop providing greater value for subscribers and incentive to purchase a subscription or membership early. The secondary market will allow people to anonymously buy and sell their membership without ever transacting over centralized financial institutions such as credit cards, debit cards, or bank accounts allowing for completely anonymity assuming an anonymous protocol such as PIVX is used.

Multiple tiers of membership can also be represented through tokens by requiring a different number of tokens to access different levels. For example, a basic membership might only require one token to login while the plus membership might require five tokens to login.

5. Universal Governance Protocol

Many organizations that create a token and plan to use it for platform governance will have similar use cases. For example, if Wikipedia and Reddit each create a token they are likely to have similar governance and proof of stake platform integration needs. On the governance side, both organizations may allow token holders to vote on proposals that dictate how the

communities develop. On the platform integration side, both may require advanced users such as editors or moderators to have some vested tokens at stake in order to reduce spam and harmful community behavior. Both organizations may also want to reward community members that improve the community and add value. These similar use cases can be abstracted much as web frameworks and databases, the building blocks of web applications, have been abstracted. The vast majority of developers do not create their own web framework such as Ruby on Rails or their own database server such as PostgreSQL. Instead they use one of the existing web frameworks or database servers to save time. Blockchain based governance will follow the same model and be offered to developers by Mobius via standard protocols and APIs that they can use to facilitate token based voting and vested at-stake micro-actions that result in token rewards or penalties based on community feedback.

6. Decentralized App Economy

One of the biggest problems hindering mass adoption of DApps and cryptocurrencies as fiat replacement is consumer discovery and adoption. Currently there is no widely used DApp Store. Mobius is creating a universal DApp Store that will be similar to the Apple App Store and Google Play Store. Any app that accepts the Mobius Token will be listed in the DApp Store. The DApp Store will also integrate the Mobius Token for a universal decentralized credit system that has significantly lower fees than the Apple App Store or Google Play Store. The DApp Store fee will only be 10%. The 10% fee is only charged if tokens are used through the DApp Store credit system - if the developer uses the API to receive tokens there is only a 1% fee.

The App Economy is predicted to [grow](#) [to](#) [$6.3](#) [trillion](#) [by](#) [2021](#). Apple and Google App Store fees and credit card fees will take a meaningful percent of this revenue creating significant deadweight loss. Mobius will make it easy for developers to transition to the decentralized lower cost blockchain economy. Mobius fees are up to ~70% cheaper than existing centralized payment solutions.

DApps will be incentivized to accept the Mobius Token in the DApp Store because of the network effects of the DApp Store. The Mobius Token will experience similar network effects to the Internet in which the token becomes more valuable as more people use it. This is in parallel to a developer having its own token primarily for governance reasons. A developer that has its own token will still want to accept the easiest to use and cheapest form of payment from transient users so they are not turned away. Simultaneously, a developer with its own token will want to limit governance and at-stake based micro-actions to users with a vested stake in their community and platform. The DApp Store and Mobius Network provide a platform to easily support both use cases.

If the DApp Store only captures a mere 1.0% of the 2021 global App Economy projection, then it would put approximately $63 billion worth of value in MOBI - more than Bitcoin's market capitalization today.
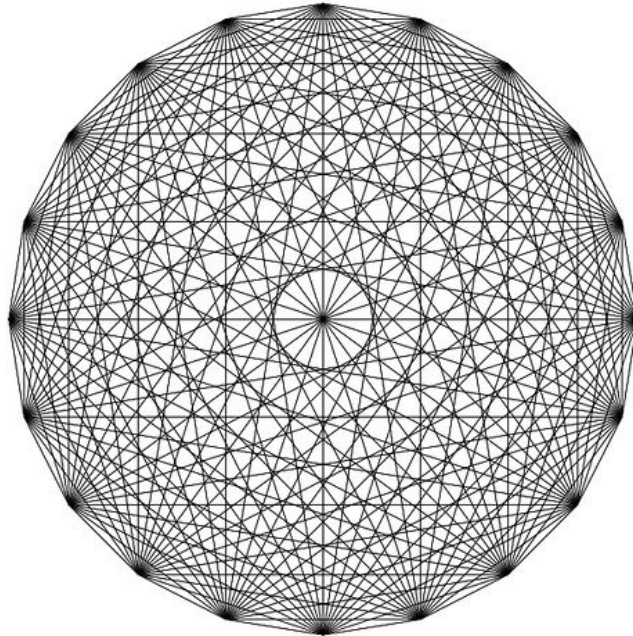
Source: https://en.wikipedia.org/wiki/Network_effect

7. Mobius Governance

Mobius aims to democratize its platform by giving community members the power to vote on important proposals for the network's developmental roadmap. Legacy commerce and social network ecosystems disenfranchise their existing user base, both developers and end users. Instead, these centralized networks of the old internet often leverage user generated data for profit using targeted-ads. As a result, virtually none of the value created by the user is shared with them. That said, blockchain governance can provide utilitarian outcomes if deployed cautiously and strategically.

Mobius gives its community of developers and end users the inalienable right to actively participate, propose, and vote on the future development of the underlying software. Any developer or end user in the Mobius community can submit a proposal for other community members to vote on. In order to generate a proposal for community consideration a minimum of 8,888 Mobius is required. The rationale behind a minimum required amount of MOBI is to incentivize a vested stake in the network's long term vitality.
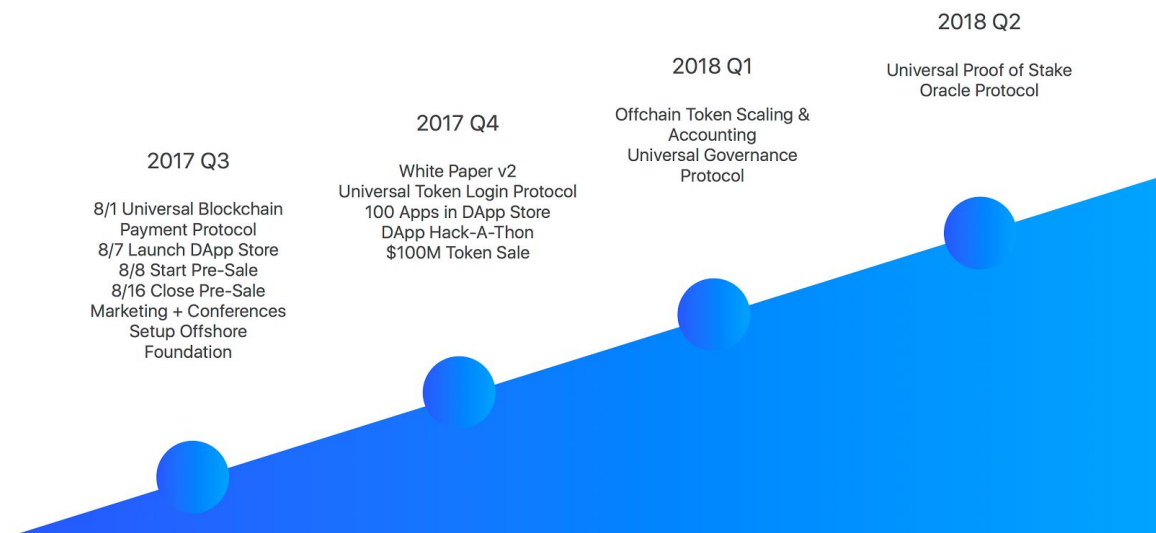
The amount of token a community member holds is directly proportional to their voting power at any given time. It does not cost Mobius to exercise a vote for proposals. The community shall define the cadence for proposal calls and votes. Overall, Mobius is a community driven effort. Where the voting power favors members (developers and end users alike) who accumulate MOBI, which can then decide on Mobius' product development roadmap.

8. Development Progress

Mobius was entirely self-funded prior to the Pre-Sale.

The first version of the Mobius Universal Blockchain Payment Protocol is in beta. If you are interested in using it please email beta@mobius.network.

9. Roadmap

2017 Q3

8/1 Universal Blockchain
Payment Protocol
8/7 Launch DApp Store
8/8 Start Pre-Sale
8/16 Close Pre-Sale
Marketing + Conferences
Setup Offshore
Foundation

2017 Q4

White Paper v2
Universal Token Login Protocol
100 Apps in DApp Store
DApp Hack-A-Thon
$100M Token Sale

2018 Q1

Offchain Token Scaling &
Accounting
Universal Governance
Protocol

2018 Q2

Universal Proof of Stake
Oracle Protocol

10. MOBI Allocation Summary

In the MOBI Smart Contract Token Generation 888,000,000 MOBI will be created. The majority of MOBI will be sold to the public or reserved for the community to incentivize network growth and reward contributors.The remaining tokens will be held by the company.

Prior to the token sale, up to 5% of MOBI out of the community portion will be distributed to DApp Store Apps. The distribution process will take place by giving users that sign-up for the DApp Store prior to the token sale credits in the DApp Store than can be deposited into Apps. After the token sale, any credits that a developer has earned through their Apps will be converted

into MOBI on a 1 to 1 basis. This distribution will bootstrap the DApp Store and get many Apps into the DApp Store prior to the token sale demonstrating its real-world value and use.

MOBIUS TOKEN DISTRIBUTION
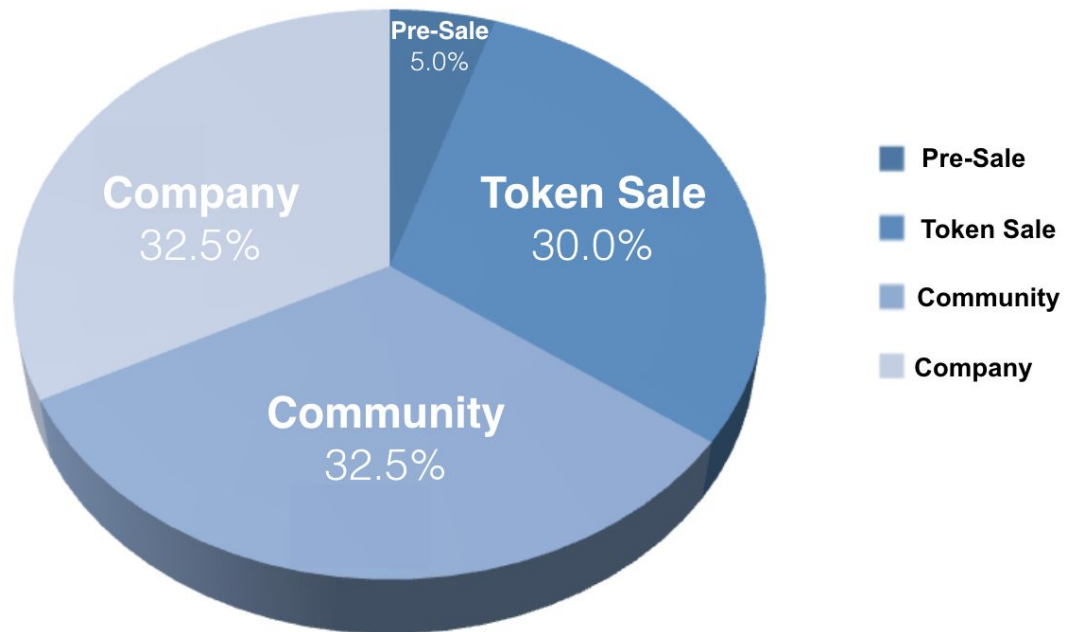
5.0% of MOBI will be sold in a pre-sale at a discounted rate to the token sale.

30.0% of MOBI will be sold in the token sale.

32.5% of MOBI will be reserved for the community to grow the network and reward contributors.

32.5% of MOBI will be reserved by the company for growth and employee incentivization.

11. MOBI Token Sale Details

MOBI will first be sold in a Pre-Sale that opens to the public on August 8, 2017. Prior to August 8, 2017 tokens will be sold to individuals at a further discount (if interested please contact tokens@mobius.network). It is possible all MOBI will be sold before August 8, 2017 and there will not be a public pre-sale. The public pre-sale price will be approximately $0.03 per MOBI. There will be a hard cap of $1,332,000 in the Pre-Sale and the Pre-Sale will remain open for at most 8 days.

The token sale will take place later in the year tentatively in November. There will be a soft cap of $25 million and a hard cap of $100 million. The token sale will run for at most 14 days. If the soft cap is reached the token sale will last for at most an additional 48 hours after which it will close.

12. Team

Founder

Founder

David S. Gobaud
- Stanford CS
- Harvard Law
- White House
- Y Combinator

Kurosh S. Khajvandi
- Stanford University
- Credo & Bitbounce Advisor
- Early Crypto Investor
- NSF & HHMI Researcher

Advisor

Jackson Palmer
- Creator of Dogecoin

13. Supporting Documents & Links

Important Information

Website: https://mobius.network

Email: http://eepurl.com/cWcydr

Blog: https://medium.com/mobius-network

Community

Twitter: https://twitter.com/mobius_network

Slack: http://mobius-slack-invite.herokuapp.com/