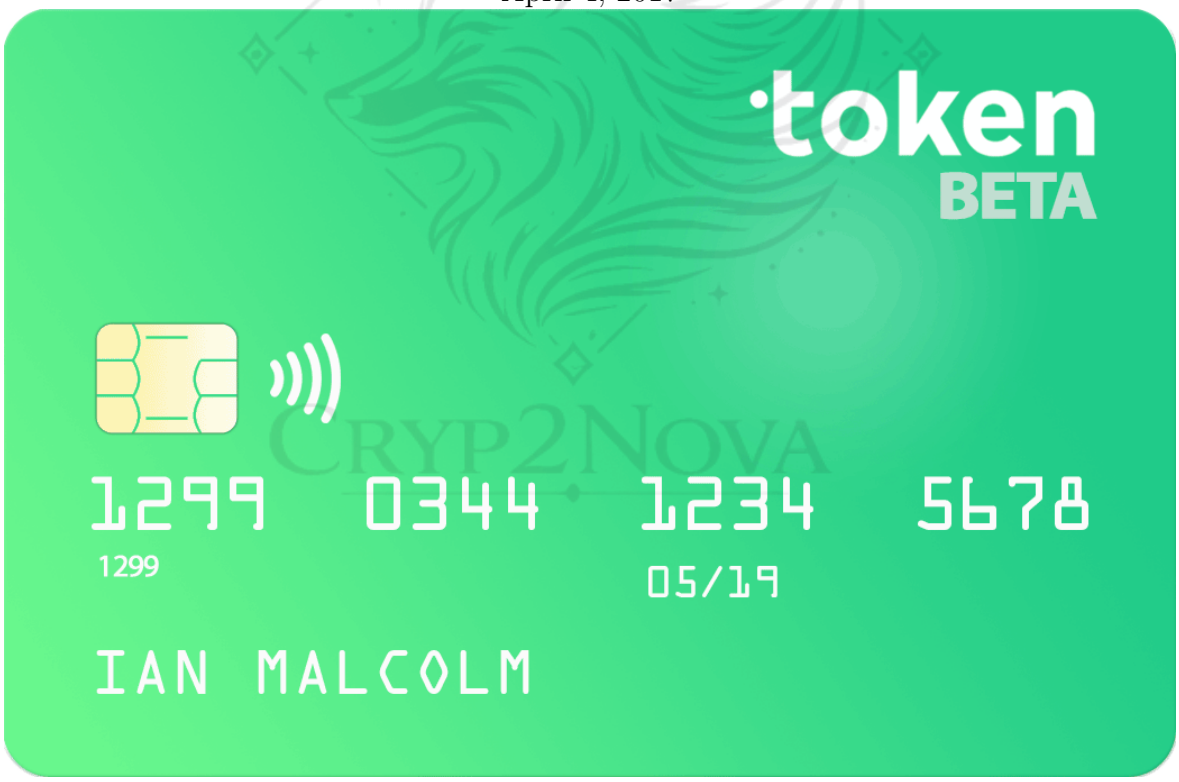
TokenCard/Token Platform Whitepaper v1.0.5

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1 TokenCard Executive Summary

1.1 The Debit Card

TokenCard is a debit card usable at payment terminals around the world, including ATMs. TokenCard customers back/fund their own card with allowances from ERC20 compatible contract wallets. At launch, TokenCard will allow users to fund their card with ETH, TKN and up to five of the following tokens that will be elected for inclusion by the community: REP, MKR, DGD, ICN, MLN, GNT, 1ST and SNGLS.

1.2 The TKN Token

TokenCard is creating the TKN tokens for a limited time. A fixed number will be created during the presale, and no more will be created thereafter. The TKN Token provides a TKN holder with the right to use the TokenCard for transaction using TKN without having to pay additional licensing fees (transaction fees charged by third party card issuers and payment system providers remain applicable). Payments made with TokenCard using tokens other than TKN is, however- in addition to the transaction fee charged by the card issuing partner – subject to the payment of a license fee as remuneration for the use of the software protocol developed as part of the TokenCard project. The TKN Asset Contract, accrues this 1% licensing fee on debit card transactions using tokens other than TKN. TKN holders can burn their TKN in return for a pro-rata share of accumulated licensing fees through a unique mechanism licensed from New Alchemy called "Cash and Burn". Fees from card swipes will be assessed in the token being used to fund the swipe. These fees will be sent directly to the TKN Asset Contract. Over time, this contract will - in a fully automated way and without any management required- accrue tokens in proportion to the tokens used by TokenCard customers around the world. For a full description of the TKN token, see section 7.

1.3 Cash and Burn

At any time, a holder of TKN can "Cash and Burn" the TKN. Thereby, a holder of TKN burns and in return receives a pro-rata share of licensing fees held by the TKN Asset Contract. The holder will irrevocably destroy the TKN, and in exchange, the TKN Asset Contract will transfer the respective tokens to the holder.

1.4 TKN Creation Event

TokenCard aims to create $4.5mm of TKN for sale in exchange for ETH and other tokens from our initial token partners. We believe so strongly in the future of the token economy that not only are we the first company to offer to create our tokens in exchange for other tokens, we will give contributions in certain tokens a discount.

For full details on the TKN Creation Event, see section 9.2. In brief, the tokens will be sold at a discount to early buyers at a rate sliding from 150 TKN : 1 ETH down to 100 TKN: 1 ETH at the $4.5mm mark. If the cap is reached, we will continue to sell and create TKN for 24 hours – this will protect those who wish to participate in the event if all tokens sell out quickly.

Those who purchase with other tokens from our approved list will receive a 2.5% - 5% TKN bonus, depending on the token.

If funds are raised to the cap and ETH is priced at $50, about 21 million tokens will be created.

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1.5 Use of Funds

The proceeds from the funds will finance development, partnership programs, float (both fiat and token), operations, regulatory and most importantly, marketing and customer acquisition.

Most of these costs are somewhat fixed. For more details read our Use of Funds section 9.7.

Because of this, any money we receive from pre-sales over our minimum will largely go to marketing and customer acquisition. This creates a value multiplier for the project: as we have more money we will be able to spend a higher percentage on customer acquisition and boost spending commensurately.

We believe issuing TokenCard in China will be critical to building the transactional volume for the card. Entering the Chinese market from the outside can be difficult and expensive; the more successful our TKN creation event, the more quickly we will be able to capture this market.

1.6 Prudence: Reserve Tokens

We have some concerns about other project's capitalization in these early days of the token economy. In particular, most projects dilute out their token holdings by 80%; this dilution isn't equity dilution, but worse – often giving away 80% of gross revenues. This may be imprudent.

Lessons from modern markets show that both debt and equity are useful tools for raising capital. Therefore we are minting an amomunt of 15% of all TKN but not offering them for sale during this presale.

These TKN will not be issued or sold during the initial pre-sale and are locked in a smart contract. If at some point it seems advisable for the TokenCard project to sell more tokens, some or all of these may be offered in an auction format or some other format that suits the capital needs of the project.

In the interim, these TKN will not be used in any way. They will not be considered as issued for Cash and Burn calculations. They will not grant anyone other usage benefits in the TokenCard system.

It is possible these TKN will never be issued, however, we feel it is prudent to have some backup if needed. In any event, TokenCard will engage directly with TKN holders to seek guidance and market reaction before any of the Reserve tokens are offered.

1.7 The Future

We have big plans. Our mobile app will allow customers a number of features that they cannot easily access with other digital currency and token wallet apps. Read more in Section 4.1.

We aim over time to bring about a world which makes access to tokens far easier than it is today, far more intuitive, with far less friction.

2 Motivation

7 years after the creation of Bitcoin, one of the greatest experiments to date, we have witnessed the emergence of a new industry. Ethereum has added a Turing-complete layer into the mix, and broadened the horizon of what is possible by an order of magnitude. This in turn has facilitated the creation of a new synergistic ecosystem, one that promises to overturn the status-quo.

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Over the years numerous attempts have been made to bring cryptocurrency to the masses yet adoption is still slow and cumbersome. These companies and projects have failed to identify and address the main issues present in making mass adoption of digital assets possible. The core issues remain:

1. **Security**, storing assets is cumbersome and inevitably people choose to store their assets under a third party's control, like an exchange. This defeats one of the greatest properties of cryptocurrency, and exposes them to risks that have consistently proven to be catastrophic. **A system is needed that can securely store assets without compromise on usability.**
2. **Usability**, numerous steps are often involved in seeing real use of one's digital assets. A user needs wallets, exchanges and accounts on various services. They are required to withdraw, deposit, do KYC and even become amateur traders. **A system is needed that eliminates these steps, and offers a seamless plug-and-play experience for the uninitiated that can be integrated across platforms.**
3. **Volatility**, forcing people to use a volatile asset like Bitcoin is a no-go. The people have spoken, and it deters more than it attracts leaving only a risk-taking fringe. **A stable, more diverse asset class is needed.**

Through the game-changing power of Ethereum we now have the tools at hand to create a distributed banking replacement for the post-bank era that promises to solve these problems and in the process outperform traditional banking counterparts in flexibility, efficiency and transparency.

The Token and TokenCard platform proposed in this document strategically targets and solves these issues and will position itself at the heart of the effort to facilitate the mainstream adoption of the compelling Ethereum Ecosystem and dominate this next phase in financial history.

3 User Scenarios

3.1 Remittance to Mom

Mac lives in Florida, and his mother lives in the Philippines. Every month, Mac sends home money for her. He used to use Western Union (expensive), tried Paypal (froze funds for no reason) and then wired directly from his bank (slow and expensive).

Mac doesn't have any interest in speculation, but he does want to be able to help his mom out and make sure she stays safe and doesn't have trouble because she has too much cash at one time. He also wants to be able to get her money instantly when she needs it.

Every month he purchases enough money in a few different stable tokens, including DollarCoins and Dai - kept in his own token Wallet. He went ahead and signed his mom up for a TokenCard. She uses it at ATMs and merchants across the Philippines. If she's running low, Mac transfers her more funds.

Because the transfers happen directly on the Ethereum Blockchain, he can get his mom money in less than 15 seconds. And Mac feels happy because the fees are extraordinarily reasonable.

This problem goes away completely, and Mac doesn't worry about his mom anymore.

3.2 E-sports gamer and trader

Sonja is a European E-sports Gamer and market prediction savant. She earns her entire living beating plebes at Counterstrike using FirstBlood's e-sports betting network, and beating plebes pretending to be experts on the Augur and Gnosis prediction markets.

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Sonja is tired of moving money around between REP, 1ST and her bank account. Her bankers are confused by where she gets her money. She decides to close her bank account altogether and get a TokenCard.

She is starting to learn more about the decentralized economy and is glad she has a TokenCard; any earnings are directly available to be used in the real world. No action required. She recently uploaded a popular video to SingularDTV and can see her SNGLS balance grow steadily in the Token App. She won't look back.

3.3 Indonesian worker

Amir lives in Indonesia. He works hard and saves money for his family. In the past his savings have lost a lot of their value as a concequence of national currency fluctuations. This doesn't sit right with him, so he has been looking for solutions. Disapointingly local banks only support Indonesian Rupiah and other services are hard to apply for.

Amir was able to apply and do KYC directly from within the Token App in minutes. Astounded by the possibilities, Amir has now decided to hold his savings in a comfortable mix of Gold, Dollar and Euro tokens.

He has never heard about blockchain, bitcoin or ethereum. But the Token app gives him a curated and comfortable enviroment for him to use this technology in. Amir is convinced he has made the right choice.

3.4 San Francisco Transplant

James is a 23 year old Englishman living in San Francisco, and he has no bank account. He doesn't trust banks. Instead he uses TokenCard for most purchases. Every time he wants to buy something, he pulls out his TokenCard, swipes his card, and the merchant is paid.

James is also really worried about the US currency and its ability to hold value, so he doesn't like to have dollars in his investment portfolio. Instead he has a combination of digital currencies – ETH and DAI, and also precious metals like Digix Gold stored in his own contract wallet.

When James swipes his TokenCard, the TokenCard System sells a little bit of each of his Tokens, keeping James' asset allocation at his desired rates, and uses the proceeds to fund his purchase.

With TokenCard and the Ethereum Blockchain, James stays in control of his investments at all times – the funds only leave his wallet when he swipes, and then only if the transaction meets pre-specified requirements.

4 Token Platform Detailed Overview

4.1 Smart Contract Wallet

Upon a user joining the platform they launch their own Token Contract Wallet, or grant allowances to their existing wallets.

This Contract Wallet acts as the equivalent of a bank account that holds funds and enforces security parameters, but, crucially, it is controlled only by the user. Users run through a setup wizard and are prompted to customize settings to fit their preference, including:

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- Setting daily limits to safeguard assets
- Setting up a base currency for example ETH (any fiat deposited into this will automatically convert upon load).

Typically digital currency security is a tradeoff between usability and functionality. Users must trade security of their funds for convenience when they decide whether to hold tokens themselves or leave them at an exchange. We think we can do better.

By shifting control of user assets back into their own hands and giving them easy to manage fine-grained control of their digital assets safeguarded by the security of smart contracts, users can have better security and substantially improved usability.

4.2 Token App

The Token App is the main way a user interacts with his Token Contract Wallet and TokenCard. The Token app operates the Token Contract Wallet and gives customers a simple way to access their token portfolio and manage their debit card and security profiles.

Our roadmap for the App includes the following (**MVP/Alpha features in bold**)

4.2.1 Spending Options

- **Single (Single Asset spend)**
- Multi Asset (Splits Transaction between multiple assets)
- Portfolio Spending (Maintains a desired portfolio allocation)

4.2.2 Spending limits

- **Token denominated**
- Fiat denominated (calculated using an oracle)
- Percentage based
- Time based (Approve Transactions for a specified period of time)

4.2.3 Security functionality

- **Ability to temporarily freeze TokenCard**
- **Limit Token Contract Wallet withdrawals**
- **"Stop-the-world" drain to a secure address**

4.2.4 Card loading functionality

- Credit/Debit Card fiat to token exchange

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4.2.5 Other Items on The Roadmap

- Simple integrated token-to-token asset exchange functionality
- Automated token portfolio rebalancing

4.2.6 Charts and Dashboards

- Loading – history of how much, source
- **Spending – how much (fiat & token) and where (Starbucks)** – map (API) integration possible
- **Blockchain transaction info** (who to & how much)
- Platform earnings
- Asset income (Dividends accumulated from tokens)
- Estimated cost basis for acquired tokens

4.2.7 Top tier UI/UX

- **Accessible for non-Ethereum users (simple & intuitive)**
  - **In-app KYC**
- Financial Management tools
  - **Basic Graphs and Charts**
  - Budgeting tools
  - Payment categorization
- **Push notifications whenever a transaction is made**

4.3 Fees

As we will be working with a payments network Partner, we also are subject to their fee schedule. Fees are set by the partner and are revenue-shared with TokenCard. This is expected to be the main source of operating revenue for the company. A full fee schedule is available in the end user agreement on delivery of the card.

We also charge a 1% licensing fee that accrues to TKN holders. This fee is billed in the underlying token being sold and is smart contract enforced, 100% of these fees will be sent to the TKN Asset Contract. TKN holders have the possibility to burn TKN and in return collect a pro-rata share of the TKN Asset Contract, i.e. to 'cash and burn' rather than merely hold TKN.

TKN tokens themselves are not subject to the licensing fee. TKN is described in greater detail in the 'TKN' section - 7.

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4.4 Credit Card/Debit Card Purchase

Sending tokens directly to the Token Contract Wallet works for people who are already familiar with Ethereum. However, as our objective is to allow non-Ethereum users to access the platform, we need other solutions. The first is a simple debit card or credit card purchase of tokens through our app. For certain assets with enough liquidity, we can provide a simple fiat to crypto exchange service. This is a relatively simple financial service to offer, however it may require regulatory approval and adequate fraud mitigation, and as such will be a feature not available in the MVP release, but most likely in a later release instead.

4.5 Agent Network Deposits

The vision for Token is to enable users to cancel their bank account, and to provide a solution to users without one. Loading your Token wallet using a credit/debit card is only sufficient for those who already are served by some level of banking.

To reach a larger audience, we may integrate with agent networks such as Western Union and PayPoint, which allow for cash or check deposits with their agents. These agent deposits would remit to TokenCard, which would convert to tokens and allows us to credit the user's Token Wallet, without the need for a credit/debit card.

5 TokenCard at a glance

5.1 Control

TokenCard users are able to store and transfer tokenized assets securely, without introducing a third party. By retaining control, users never subject themselves to centralized risks, whilst benefiting from the efficiency and cost reduction that comes with eliminating a third party.

5.2 Community

The project will focus on initially providing a solution for the Ethereum community, with a smart contract powered debit card that can spend Ether and other ERC20 compliant tokens and allows for various spending modes that support the lifestyles of those who wish to transact primarily in tokens.

5.3 General Public

Moving forward, the project will shift focus to the general public. By using our debit card as an introduction to this transformative technology, we aim to provide a familiar user interface (a plastic card and app) where users retain all the benefits of Ethereum without having to master them.

5.4 Synergy

TokenCard directly benefits from the powerful products currently being developed on Ethereum like asset-backed tokens, stable coins and other tokenized assets and strongly supplements their value proposition. By providing a way for these projects to become useful to people outside of the community through TokenCard, they can expand their market dramatically.

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TokenCard makes every token better

5.5 Standard Wallet

TokenCard is capable of working directly with the standard ERC20 contract wallets (Ethereum Foundation/Consensys/Parity). These token wallets are relatively secure, but not as widely used as hoped. We believe the improved usability and focus on real-world transactional security needs will make the Token Contract Wallet a desirable first-class wallet solution for most token holders.

5.6 Gateway

TokenCard allows for mass adoption of consumer-facing Ethereum platforms like Singular and First-Blood that greatly benefit from the streamlining of the user experience. With TokenCard integration users can seamlessly start reaping the benefits of Ethereum dapps without needing to perform complicated actions.

5.7 Token Agnostic

The platform is **token agnostic** – users are given freedom to chose how to hold value and transact. With TokenCard, regular users will have an expanding pool of assets at their fingertips within the Token App.

5.8 Innovative spending options

Users will be able to pay in multiple assets at the same time while keeping their portfolio balanced. This is a world first; customers will be able to keep all of their assets fully invested at all times, and not worry about manual reallocation when they wish to spend.

6 Market

Our current roadmap focuses on several distinct markets and user-bases where TokenCard is best positioned to excel. In general, we have the underlying Ethereum community, platform specific markets and general public banking replacement.

6.1 Ethereum Community

Providing a payment solution for the underlying Ethereum community is the most basic use-case for this market. However, it should not be underestimated. With a rapidly growing market cap among Ether and ERC20 tokens, there is an accompanying need for payment utility of assets on the network.

The Market Cap for Ether alone currently sits close to $3,000,000,000[1] dollars. We expect to spearhead and capture the bulk of the payments market on Ethereum as TokenCard offers solutions to systematic problems in the space and is native to Ethereum. We expect substantial transactional volume with TokenCard and this will scale with the Ethereum/Token economy.

[1] coinmarketcap.com

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6.2 Platform Specific Markets

The most exciting use-cases for TokenCard are within the many different markets that are being tapped into by other projects in the space. We are actively integrating TokenCard with these native Ethereum platforms, giving TKN holders direct access to diversified markets while providing connections to a major payment rail for the platform's underlying user-base.

We believe that this is where TokenCard's true role in the ecosystem lies, with integration benefitting: TokenCard, the integrated platform, and most importantly, the end users themselves. This also suggests strong growth prospects for TKN; the success of integrated platforms translates directly across to TKN holders.

TokenCard makes every partnered project with a token far, far better. We believe there will be rapid uptake by token holders worldwide.

6.3 Ditching Banks Altogether

Sentiment and expectation towards what 'banking' is and what it should be, is rapidly changing. 94% of consumers under 35 years old are active users of online banking, and another 27% would consider a branchless digital bank. 33% of millennials believe they won't need a bank in five years, and 33% are also open to switching banks in the next 90 days. A final 71% would rather go to the dentist than listen to what banks say.[2] With a growing distrust and detachment between banks and consumers, it is fair to say that there is a tech savvy market open to innovation.

TokenCard more than qualifies as a candidate for regular users looking to get rid of their bank altogether, offering not only a top-tier UI/UX experience, but also providing genuine innovation through Ethereum.

Low-cost immediate network transfer of assets, access to the token economy, complete control of ones assets and exposure to an ecosystem of innovators will more than appeal to current and forthcoming generations.

6.4 Chinese Market

We will be able to issue TokenCards into the Chinese market at launch. We believe this is a massive opportunity. Tokens are popular in China already, and experience shows there will be rapid innovation in the Chinese market – some will filter to the West quickly, and some may not. Either way, TKN holders will get access to this innovation at the same time Chinese customers get the benefits of the card.

6.5 Marketing/Product Strategy

6.5.1 Ethereum / Token Market

Our initial target market will be token holders of other projects and the Ethereum community in general. This is not a numerically large group, but it is extraordinarily wealthy, and strongly demands this product.

[2] First Data 2015

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Because TokenCard makes every other token project better, it will grow rapidly whenever *any one* of the other token projects sees growth. We forecast massive growth in the token ecosystem over the next two years, and will be there to provide real value to each token issuer.

We will be granting the top 500 pre-purchasers of TKN with a complementary special edition TokenCard and access to the Beta/MVP.

6.5.2 Broader Market

Our strategy to capture the general public will start with social media, and likely extend to partnerships and traditional media. We'll be working closely with a dedicated marketing team to construct campaigns and strategies to attract a broader user to the platform.

Strategies that tap into network effects, for example, by recommending friends and family to the platform in exchange for a free card, will be key to growing the platform. TokenCard's role within the Ethereum ecosystem offers sufficient innovation to capture interest from larger media outlets, which will complement our marketing effort.

We believe we will be able to capture significant ROI on Customer Lifetime Value vs. Acquisition cost in many markets, and plan to spend a significant portion of the token sale proceeds on growing this customer base, while remaining judicious and careful.

7 TKN In Depth

TKN is a special kind of Ethereum token. It is the base currency of the TokenCard and provides advantageous usage rights and benefits to its holder with regard the TokenCard : Whereas transactions in other tokens using the debit card pay a 1% smart contract enforced licensing fee, such licensing fee does not apply to transactions in TKN. TKN holders can in addition burn their TKN an in return collect a pro-rata share of licensing fees accumulated in the TKN Asset Contract through a unique mechanism called "Cash and Burn".

7.1 DGX Purchase Example

A TokenCard customer holds DGX (A gold-backed token) and prefers to conduct her affairs in gold.

She has dinner at her local bistro, and the cost totals $50. This $50 equates to roughly 1.2 DGX. She swipes her TokenCard.

TokenCard's servers immediately withdraw 1.2DGX plus the Licensing fee from her Token Contract Wallet. The Licensing fee is 1%, so she pays in total 1.212DGX. 1.2DGX is exchanged by TokenCard for USD. These USD will be swept into TokenCard's debit card account as float for the next card swipe.

The remaining 0.012DGX is sent directly to the TKN Asset Contract.

Since fees are paid in the token transacted in, the most popular tokens used for transacting will accumulate respective licensing fees to the TKN Asset Contract.

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7.2 Cash and Burn

A TKN holder can burn his TKN and in return collect a current pro-rata share of licensing fees accumulated in the TKN Asset Contract by calling TKN's burn function. Doing so will permanently destroy the TKN.

7.2.1 Definitions

There are TKN_T TKN issued.

There are TKN_h units of TKN held by a certain holder of TKN.

There are m distinct tokens held in the TKN Asset Contract.

The TKN Asset Contract holds T_m tokens for the mth token contract.

Then the holder of TKN, if he decides to trigger the "Cash and Burn" function and thereby relinquish its TKN, will receive the following pro-rata share of licensing fees accumulated in the TKN Asset Contract:

Received:

$$[T_1, T_2, \ldots, T_m] * \frac{\text{TKN}_h}{\text{TKN}_T}$$

7.3 Cash and Burn Example 1

A TKN holder has 500TKN, the current TKN supply is 10000TKN.

The TKN Asset Contract holds 10DAI, 100ETH, 500DGX and 250REP.

His pro-rata share of licensing fees accumulated in the TKN Asset Contract equals:

$$[10DAI, 100ETH, 500DGX, 250REP] * \frac{500}{10000}$$

If he burns his TKN, he will receive

$$\frac{500}{10000} = 5.00\%$$

of the held tokens, giving him:

$$[0.5DAI, 5ETH, 25DGX, 12.5REP]$$

After 'burning' his TKN, the remaining supply of TKN will now equal:

$$10000 - 500 = 9500$$

This means that remaining TKN holders, if they decide to trigger the 'Cash and Burn' function, will recieve a higher pro-rata share of the licensing fees per TKN than before the burn. A separate TKN holder who also held 500 TKN would now have a pro-rata share equal to:

$$\frac{500}{9500} = 5.26\%$$

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7.4 Cash and Burn Example 2

If the TKN supply is 1,000,000 and a certain user has 100 TKN, and the Asset Contract holds DGX, DGD, REP and SNGLS in the following ratios, then the User's pro-rata share of the licensing fees would be as follows:

Token	Number Held	1 TKN's Share	User's Share
DGX	10,000	0.01	1.0
DGD	20,000	0.02	2.0
REP	55,000	0.055	5.5
SNGLS	1,000,000	1.0	100.0

The user with 100 TKN wants to burn is TKN and collect his pro-rata share of the licensing fees accumulated in the TKN Asset Contract. He burns the 100 TKN, and receives 1 DGX and 2 DGD, 5.5 REP and 100.0 SNGLS.

All the other TKN are still backed by 0.01 DGX, 0.02 DGD and etc. per TKN.

7.5 Economic Consequences of The TKN Model

The TokenCard platform will over time grow to support tokens from most, if not all projects. This is likely to grow to a staggering number of unique tokens. If a specific token becomes valuable or popular its proportional use with TokenCard will go up and as such will accrue to the Asset Contract.

Burning reduces the total pool of TKN in circulation and proporionally increases the stake of future licensing fees to remaining TKN holders. We expect TKN burning to be rare, but to the extent it occurs, TKN holders who do nothing will gain a proportional increase in the share of future fees.

7.6 TKN Fee Reduction

As the base currency of TokenCard, transactions using TKN pay no licensing fee for the TKN amount of the fee. If a user transacts purely in TKN, he pays no licensing fee. If a transaction involves multiple currencies the fee for the portion paid in TKN is voided.

7.6.1 Portfolio Spending Example

Let's go back to our first example where a user is paying for a $50 meal at a restaurant. Let's say now she decides to pay for the meal half in DGX and the other half in TKN. Essentially this would be two transactions: $25 each in DGX and TKN.

The licensing fee paid will only be on the $25 DGX transaction, and would equate to half of the original fee of 0.012 DGX, in total 0.006DGX for the same transaction.

8 Technology Roadmap

We have spent the bulk of our time on product planning. There is too much to encapsulate in this whitepaper, but we encourage interested participants to engage with us over email mel@monolith.ventures) or our slack channel

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8.1 Contract Wallet

The Token Contract Wallet is a smart contract that governs a user's tokens and secures them within its code. The Token Contract Wallet's main function is to host to the users digital assets in a secure manner and allows for various functionality integrated directly into the system. It serves as the foundation for the rest of the platform's features.

Users will not need a contract wallet to try out the system, instead they can grant an allowance. However, the Token Contract Wallet will allow fine-grained security features, and we anticipate users will either migrate to the wallet, or "wrap" their preferred wallet with the Token Contract Wallet in general.

8.2 Contract Wallet Access

Access to the systems can be achieved by:

1. The **Token App** – Provides a refined and user friendly experience with a setup wizard, and simple ability to integrate with user's existing Token wallet.
2. **Blockchain Browser** – Third party Ethereum browser tools like Mist, Parity and MetaMask can give access to TokenCard systems. TokenCard smart contracts will be created with Web3 support in mind, and Web3 support will be considered for all frontend TokenCard applications.

8.3 Allowance

TokenCard has access to withdraw funds from the user's Token Contract Wallet and is constrained by these user set options. We plan an array of awesome features over time, and will start with basic security features in the MVP.

Options are *not* mutually exclusive; more than one could be active at any time.

- **Daily Fiat Limits** - Uses an oracle to calculate fiat amount and sets a cap based on that. Will initially use a TokenCard-maintained oracle until reliable third party options become available in the community.

Example: $1000 equivalent in tokens can be spent per day.

- **Daily Token Limits** - A fixed number of tokens per day are allowed to be withdrawn.

Example: 20 ETH per day.

- **Percentage Limits** - A fixed percentage of Tokens per given time period allowed to be withdrawn.

Example: 2% of each spendable tokens per day are allowed to be withdrawn.

- **Time based Limits** - Opening up withdrawals for a specified amount of time.

Example: 1h long allow up to large $10k spends – this would be triggered by a button in the app marked something like "GO BIG".

8.4 Additional Security Features

There are a number of security scenarios we are workshopping now. Some will likely be supported in the final app.

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1. **User set limits** A user could set daily contract withdrawal limits on their own side to prevent losses in the event a third party gains access to their private key and password. Alternatively the user could limit the specific addresses the contract could withdraw to.

This could be combined with an Emergency Contract Migration, as defined below, and would significantly mitigate the risk of catastrophic loss of tokens.

2. **Emergency Contract Migration** A user could preemptively allow TokenCard to send all tokens to a pre-specified 'safe' destination in case of emergency. Could be called by either party in case of an ongoing attack.

Example: A user with poor personal security has lost access to his Token Contract Wallet, but did grant TokenCard the right to do an emergency sweep if something bad happens. Limits on his own side prevent a third party attacker from withdrawing more than $100 per day.

One day the Token app gives him a push notificaiton of a $100 withdrawal he did not authorize. He contacts TokenCard support to initiate an emergency contract migration to a predefined safe sweep address that he controls. TokenCard remains functional throughout the process, and the user has minimized losses.

3. **Temporary Card freeze** – Pauses card use in the case of misplacement. Can be re-enabled at any time.

8.5 Card Spending Modes

With TokenCard we are able to pioneer a number of flexible and unique ways to manage spending. The main spending modes planned are:

- **Single asset spending** - A single asset is selected to be made available to be spent with TokenCard. Other assets can be added to the queue to give an order of priority.

Example: A $100 swipe is payed for in ETH.

- **Multi asset spending** – A user can pay with multiple assets at a time. He can select up to 5 different assets, giving each a percentage and distributing the payment between them. This allows unprecedented control of personal portfolio allocation.

Example: A user has set up his TokenCard to pay with 50% ETH, 30% REP and 20% DGX. When she pays for a $500 utility bill, the equivalent of $250 of ETH, $150 of REP and $100 of DGX are withdrawn simultaneously from her Token Contract Wallet.

- **Dynamic portfolio spending** - Spending is based on fiat weighting of assets. Users give target portfolio weightings and withdrawals are optimized to maintain the user given weightings.

Example: A user targets a portfolio value of 20% DGX and 80% ETH. Recently the value of DGX has gone up and now represents a larger percentage of the portfolio. This means a card swipe will now withdraw proportionally more DGX to bring the percentage closer to the set target.

- **Other spending modes** – tax efficient, illiquid proxy asset and other spending modes are being explored to aid users in specific scenarios.

8.6 Multi-User management

Wallet holders may attach specific allowances or other rules to multiple cards. These could have many features: from family budget management to expense account reimbursement rules. Watch-only accounts may be set up to monitor expenses.

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8.7 Token App (iOS/Android)

The Token App (Android & iOS) is the primary interface customers will use to interact with the platform. The Token App is designed to give best-in-class functionality with a top-tier UI design.

8.8 Set-up Wizard

Upon first launch the users run through a setup wizard and are prompted to customize settings to fit their preference. The process includes the following steps:

1. A user downloads the app
2. User can create new contract/key or import key.
3. Puts in password and is prompted to make a backup of key.
4. Contract launches/loads (TokenCard pays for gas)
5. Choose express or advanced setup wizard.
6. User chooses his base currency from a ranked/curated list
    - Likely a list of 'stable' currencies and other assets, like DGX or DAI.
    - The base token is what the Token Contract Wallet is loaded with if fiat is sent to fund the wallet.

Example: A user sets his base currency as DGX. He sends money to TokenCard through a bank transfer. TokenCard credits his account in the transfer equivalent of DGX.

7. Finally, he puts in his name to complete his account and profile picture.

He now has a Token Contract Wallet, can send and receive from others and make use of various services like the token-to-token exchange. Once users get acquainted with the system they can **apply for the TokenCard** itself. This launches a TokenCard application setup wizard:

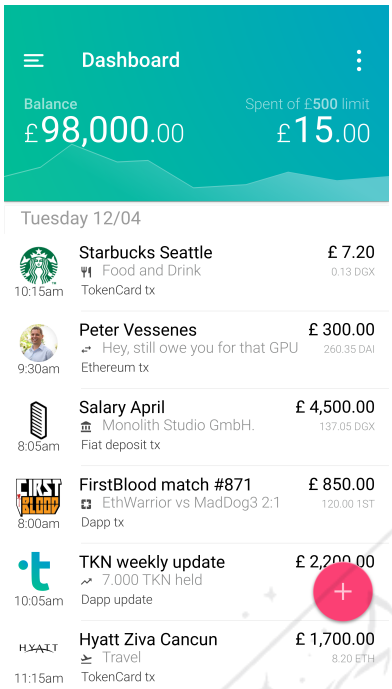
1. Pay for TokenCard (if sufficient balance on Token Contract Wallet)
2. Next fill out a standard form with KYC/AML details that get forwarded to TokenCard. All required KCY/AML can be done inside the app in the span of a few minutes.
3. TokenCard gets delivered to their home address.

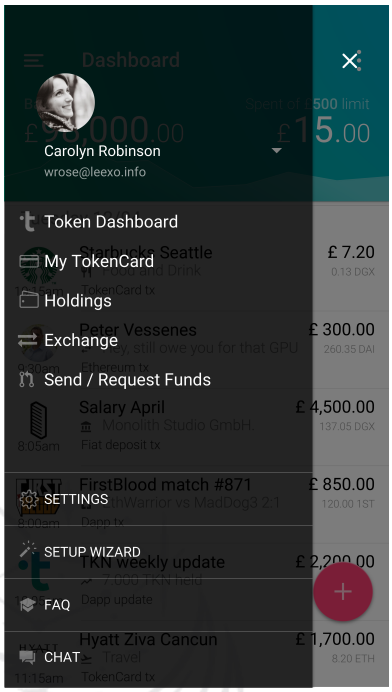
8.9 Wireframes, Usability Studies

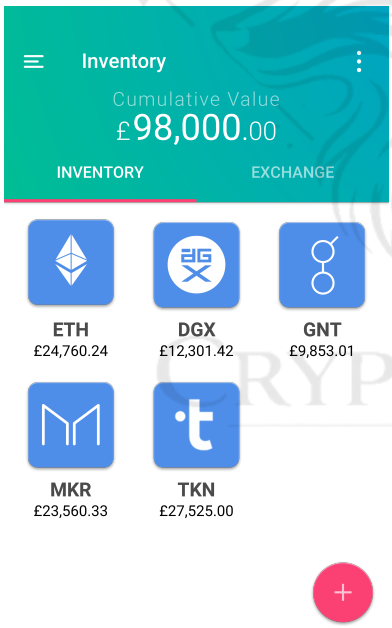
We have over 80 page states and hundreds of transitions diagrammed and designed. These are a sample of our current thinking, and not final.

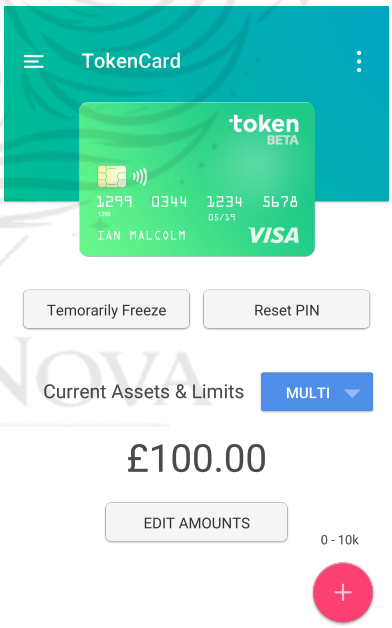
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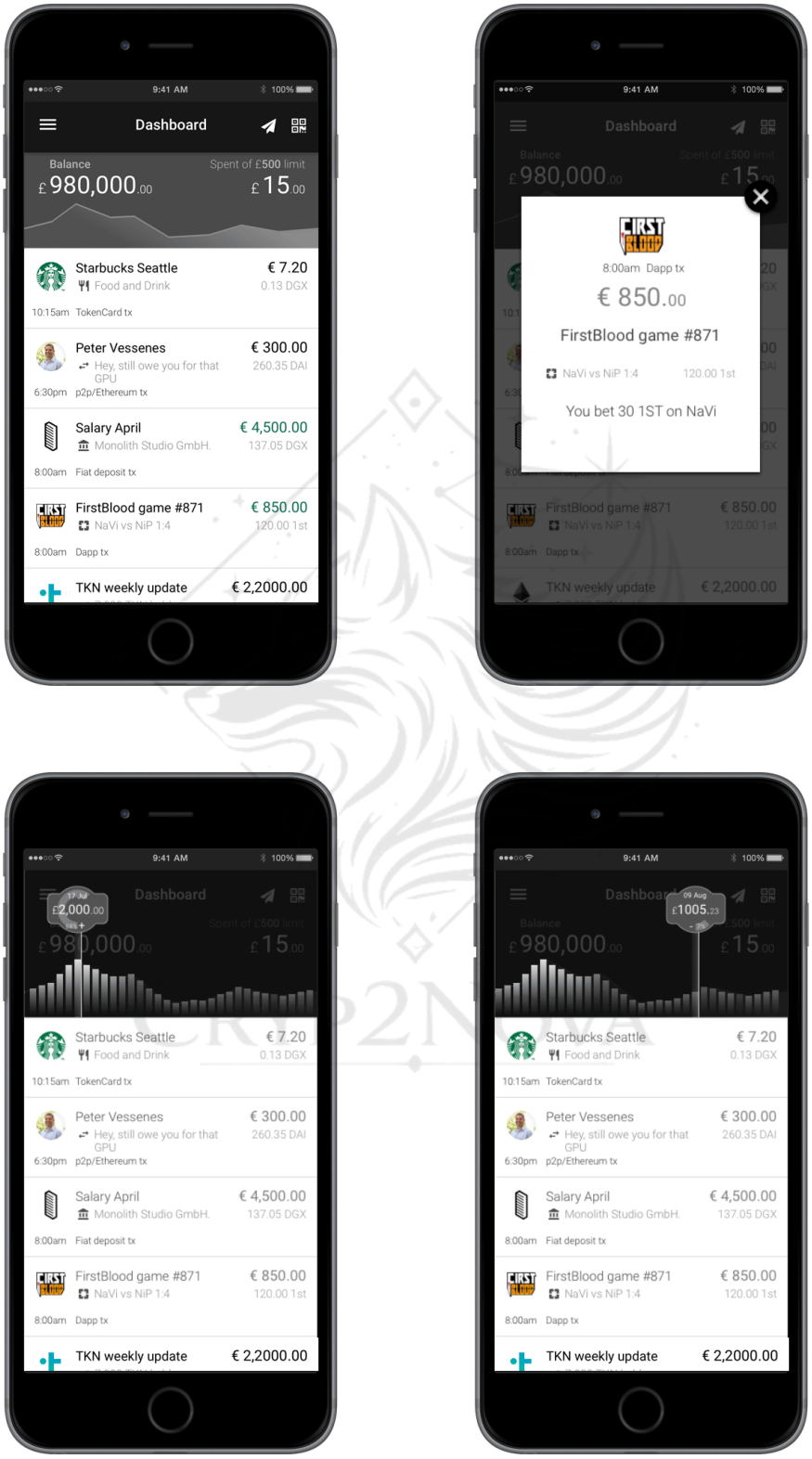






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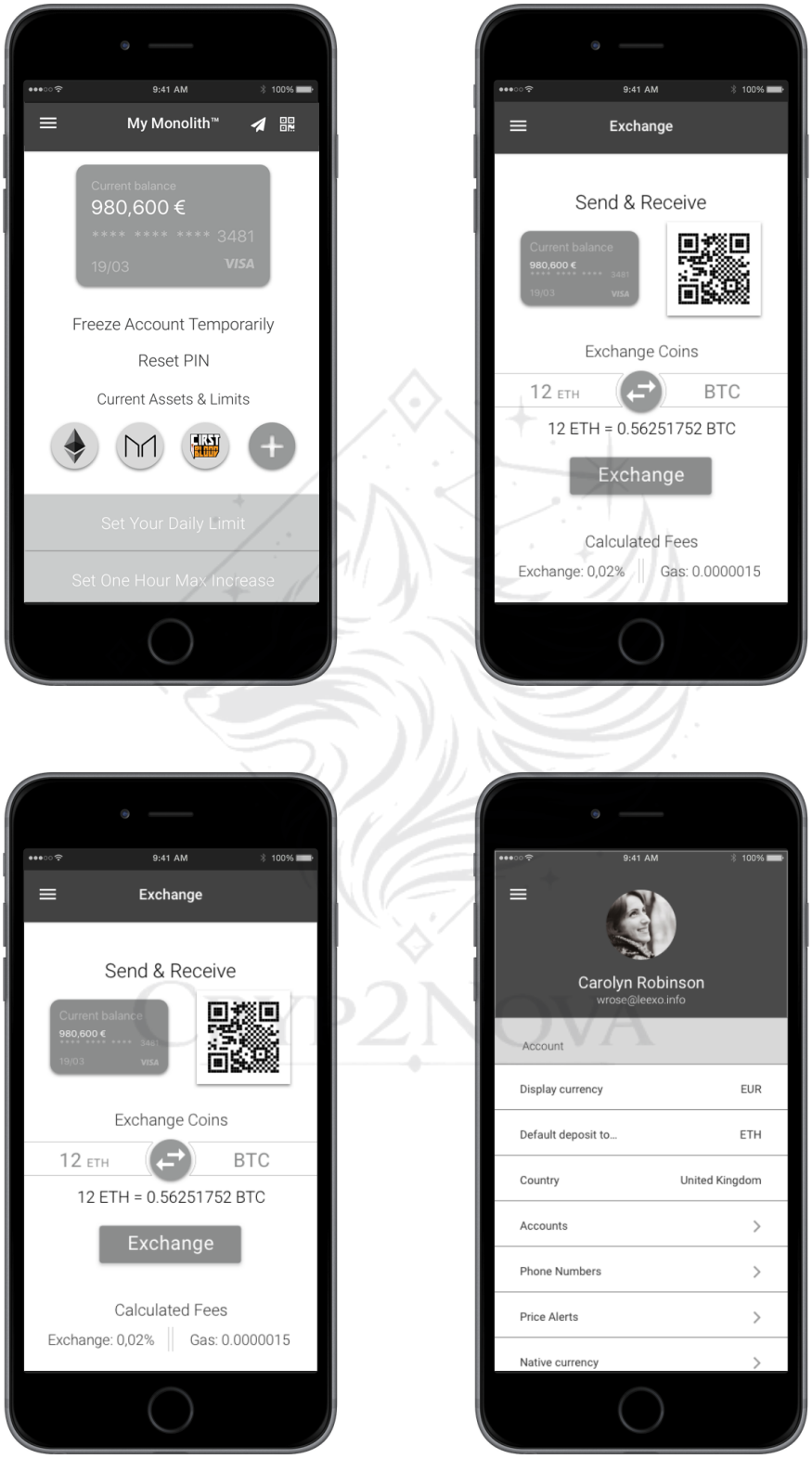


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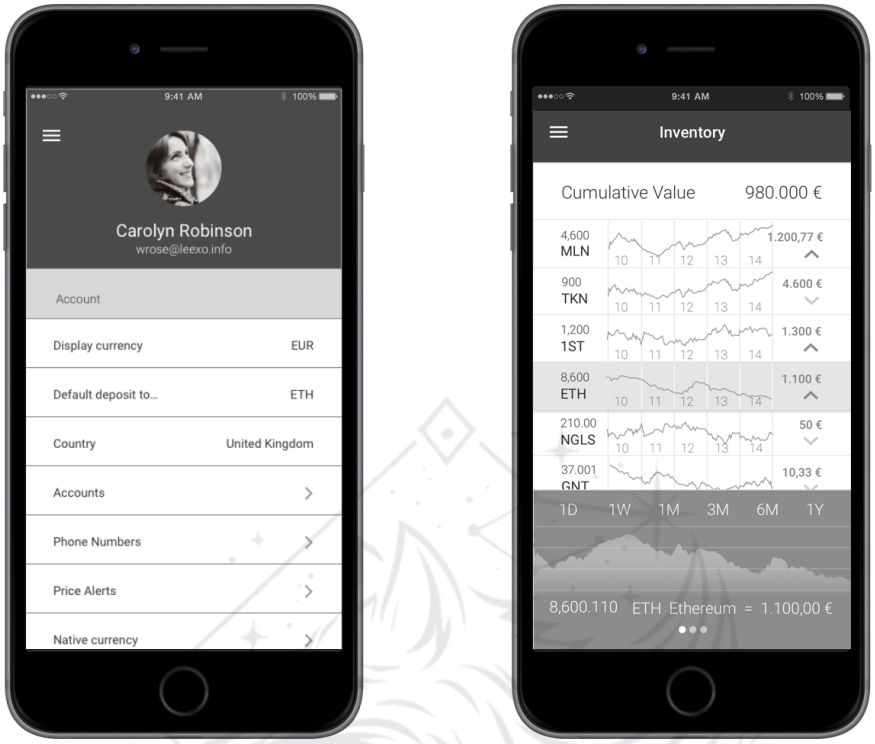
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8.10 TokenCard Transaction Walkthrough

With TokenCard, balances are stored in the user's contract wallet, therefore we implement a unique model where cards are effectively "empty" up until the moment they are used, known as a **0-balance method**.

The process goes as follows:

1. A user attempts a transaction.
2. A spend request API call from payments network comes in. Lists type, amount, CardID etc.
3. Database lookup on CardID to see what Token Contract Wallet address is associated with it.
4. Load Ethereum state and read Token Contract Wallet for settings: available balance, spending modes, allowance etc.
5. Generate transaction specific payment profile. (100$: 80%ETH 20%DGX)
6. Evaluate an order book and calculate amount(s) to be used.
7. Perform sell
8. Initiate withdrawal from Token Contract Wallet
9. API call to load specific card with amount needed.
10. Confirm tx request.
11. User completes transaction and receives live push notification.

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8.11 Server Specifications

8.11.1 Scale

The TokenCard system will support at launch 1,000 transactions per minute with maximum lag of 1 second at load, and "Four Nines" reliability worldwide.

8.11.2 Performance

The backend servers for TokenCard will be able to:

1. Accept a request from the debit network
2. Access a smart contract's functions on the Ethereum Blockchain
3. Post a transaction on the Ethereum Blockchain
4. Respond to the debit network

All of these must be accomplished within 300ms in order to get a sub-one-second full latency from card swipe to approval. As Ethereum scales, this will become easier to do without risk. In the beginning, TokenCard will take some risk from double spending as it functions at the necessary speeds.

8.11.3 Backups and Failover

1. The TokenCard systems will be architected to achieve "four 9s" reliability: 4 minutes per month or less of downtime.
2. Backups: TokenCard systems will be able to relaunch from a backup in under 1 minute.
3. Failover: The TokenCard systems will be able to failover successfully between regional datacenters.

8.12 Release schedule:

We expect TokenCard will take years to mature into our full vision. To get there, the team has committed to a 120-day major release cadence.

Our first release will be an MVP in limited release.

8.12.1 Minimum Viable Product – 120 days

This MVP is aimed at users with some basic technical knowledge of Ethereum and gives access to the core features: Token Contract Wallet, PoS/ATM payments debit card and payment support for tokens like ETH, DGX, REP, 1ST, SNGLS and MKR. This phase will consist of a limited 500 card run and will give priority access to early contributors.

We will release the MVP product and cards at a launch party exclusive to purchasers of TKN in the Token Creation Event.

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8.12.2 v1 Release - 240 days

The 1.0 release of the TokenCard platform consists of delivering the technology detailed in this document – primarily the Token App, instant in-app token exchange, advanced security options and the initial asset management suite.

9 Finances

As we plan out the TokenCard future, we have put some time into projecting out business and TKN values. These projections are necessarily flawed – we don't know what will happen. Despite the *highly* speculative nature of these projections, we are offering them to help those participating in the Token Creation Event to understand different levers and possible outcomes for the project.

Since January 2017, Ethereum and the Token market have grown at a value-weighted average of about 300,000% annually (or 6.7x per three months). We do not believe this growth rate will continue over the next two years. We have therefore taken a range of growth from 20% to 100% per *six month period* as our range for projections.

9.1 Rough TKN Projections

Below are some rough projections of TKN performance under different conditions semi-annually over four periods. We have made several assumptions described below and hypothetical context for the scenarios is given.

We expect a good start to user growth with our platform, and expect to capture a substantial portion of the Ethereum community and see success from launching in China. We also expect to see several successful Ethereum platforms and tokens drive users to TokenCard.

We have based our average user spend on debit card reports that give an average spend of $9,291 per year in the U.S.[3] In general, there will be average higher user spend in earlier periods as adoption will primarily consist of the underlying Ethereum community who hold substantial wealth. Average user transaction spend declines as we expand to other markets.

Licensing fees are calculated simply as 1% of transaction volume and we have also taken into account growth in users transacting in TKN.

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9.1.1 Good

In a good scenario, we see quick adoption from the Ethereum community and expansion to other markets happens successfully. We enter the Chinese market 12 months after launch, and some Ethereum platforms and tokens see success outside of the community.

Year	0.5	1	1.5	2
TokenCard Users	20,000	100,000	250,000	500,000
Average user spend	6,000	5,000	4,000	3,500
Transaction Volume	120,000,000	500,000,000	1,000,000,000	1,750,000,000
Transactions in TKN	10%	15%	20%	25%
Licensing fees accrued (USD)	1,080,000	4,250,000	8,000,000	13,125,000

[3] 2015 Debit Issuer Study – Pulse Netwo

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9.1.2 Better

In a better scenario, we have very good initial uptake from the underlying Ethereum community. We expand to China successfully before the end of the first year with the help of marketing and customer acquisition campaigns. We see success as a remittance solution, and certain Ethereum platforms and tokens begin to see adoption by the general public, which also boosts our user-base.

Year	0.5	1	1.5	2
TokenCard Users	35,000	150,000	300,000	600,000
Average user spend	6,000	6,000	4,000	4,000
Transaction Volume	$210,000,000	$900,000,000	$1,200,000,000	$2,400,000,000
Transactions in TKN	10%	15%	20%	25%
Licensing fees accrued (USD)	1,890,000	$7,650,000	$9,600,000	$18,000,000

9.1.3 Great

In the "great" scenario, marketing and customer acquisition strategies see very strong uptake initially. We are able to expand to China quickly and secure several synergetic partnerships that help reach other markets. Integration with successful innovative Ethereum platforms and tokens help expand our user base even further. Customers spend less TKN because value is rising so quickly. Customer acquisition strategies remain successful and adoption is fast.

Year	0.5	1	1.5	2
TokenCard Users	50,000	250,000	500,000	750,000
Average user spend	6,000	6,000	4,000	4,000
Transaction Volume	300,000,000	1,500,000,000	2,000,000,000	$3,000,000,000
Transactions in TKN	10%	10%	10%	10%
Licensing fees accrued (USD)	$2,700,000	$13,500,000	$18,000,000	$27,000,000

9.2 Token Creation Details

Token creation will commence May 2nd 2017.

- Ether, Fiat and Tokens can be contributed and turned into TKN
- The creation will be capped upon receipt of $4.5mm.
- The Token Creation period will last seven days.
- If the cap is reached before the end of seven days, additional contributions will be accepted for 24 hours in case users missed a very short window for TKN creation.
- No more TKN will be created after this period.

9.2.1 TKN Creation Ratios

Early contributers will create more TKN than later ones, per ETH.

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Cumulative Amount committed in USD	TKN per ETH rate
0-750,000	150
750,000-1,500,000	140
1,500,000-2,250,000	130
2,250,000-3,000,000	120
3,000,000-3,750,000	110
3,750,000-4,500,000	100
(possible 24 hr period)	100

9.2.2 Token Bonus

Contributors can contribute in certain tokens instead of ETH. Instructions and supported tokens will appear on our website before the TKN Token Creation.

Tokens will have a per-token cap based on the trading volumes and value of the token.

Tokens that are partnered with TokenCard will receive a 2.5%-5% bonus in TKN; all details will appear on our site before the Token Creation.

9.3 Additional TKN

Additional TKN will be created for the Capital Reserve, Monolith Studio, advisors and early investors as follows.

9.3.1 Monolith Studio, and Advisors

- 20% of TKN created during the creation event will be created for Monolith Studio, locked in a smart contract for 18 months. We wish to benefit only if the project is operationally successful.
- 5% of TKN created during the creation event will be created for and granted to advisors.

9.3.2 Capital Reserve

15% of the TKN supply will be credited to the reserve, **but not issued**. These TKN will be available as an additional fundraising mechanism for the TokenCard project, but may never be issued, depending on circumstances in the future. For more, read our section “Prudence”.

9.3.3 Example

During the Token Creation event, we imagine exactly 5 million TKN are created in response to incoming payments.

After the Token Creation event ends, the following TKN are created:

- 1,666,667 TKN for Monolith Studio
- 416,666 TKN for advisors
- 1,250,000 TKN for the Reserve

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In total, 7,083,333 TKN are 'issued' and 1,250,000 TKN are held in reserve.

If at some point, $7.08mm worth of tokens are held in the Token Asset Contract, and no TKN have been burned. Each TKN would receive $1 worth of tokens if burned.

9.4 Funding Breakdown

Funds raised during the TKN Creation Event will be used solely for the development and benefit of the Token platform. The level of funding received dictates the distribution of funds, however, our TKN reserve structure allows us to reduce the variability in what can be achieved. Funding breakdown in a $4.5mm funding scenario is discussed below.

9.5 Core Development – 30%

Core development will involve the building of the technology as described in this document. This includes: the Token App, smart contract systems, payments network integration, server-side code and exchange integration.

9.6 Operational – 25%

This covers the necessary costs incurred for a functional platform. This includes: sufficient individual ERC20 token exchange balances, sufficient fiat counterpart balances covering 5 day transactional volume, separate payments network costs, staffing, management and other related expenses.

9.7 Marketing – 40%

Marketing spend will be split into partnership spend and direct consumer marketing.

9.7.1 Partnerships and Ecosystem Integration – 15%

Ecosystem integration is an important component of our long-term plan for TokenCard. This long term plan involves integrating projects and platforms with TokenCard, and exploring synergies that return success for both parties. Part of this budget will also be allocated jointly with DigixGlobal, through a partnership to access a broader user base.

9.8 Direct Sales and Marketing – 25%+

Sales and Marketing will drive this business, and the value of TKN. We intend to put as much money and time into these as we possibly can in order to maximize the value of TokenCard and TKN and dominate this post-bank era. Extra money contributed during Token Creation will be largely allocated here as well.

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9.9 Legal and Compliance – 5%

There are legal costs that go along with setting up an international financial services operation. Certain services planned for the TokenCard platform, such as a 'fiat to token' exchange, may require proper regulatory approval and licenses in some jurisdictions. Although these licenses are not typically difficult to acquire, they incur costs: bonding, capital and operational.

10 Contact

10.1 TokenCard

To reach us, please email Mel Gelderman at mel@monolith.ventures.

10.2 New Alchemy – Token Ecosystem Services

New Alchemy provided a wide range of services critical to the success of TokenCard, from technology to strategy to writing and marketing. Contact Paige Freeman at hello@newalchemy.io to learn more about New Alchemy helps companies interested in the Token ecosystem.

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