A Payments-Based Cryptocurrency and Incentivization Network

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Abstract

Metal is a blockchain-based system utilizing Proof-of-Processed-Payments to identify users, rewarding them for converting legacy fiat currency into cryptocurrency. It is a system similar to bitcoin but with a user-friendly interface and front-end that is similar to Venmo, Square or PayPal. Metal can act as a bridge to bitcoin or any cryptocurrency available. Many small businesses across the world prefer to only accept cash. However, in an increasingly cashless society, refusing to accept digital and card payments can be problematic. Put simply, Metal believes cash only businesses can benefit by adopting cryptocurrency as a new new form of cash, as cryptocurrencies possess many of the same properties particularly around privacy, censorship resistance and fungibility. In order to bring digital payments into a world that utilizes blockchain-based technology over some traditional banking rails, Metal expects to save consumers 4-5% on all purchases.

Introduction

Eight years after the release of bitcoin, cryptocurrency has still yet to go mainstream and achieve widespread adoption. The reasons for this can be attributed to these major problems:

(1) User experience and difficult learning curve
(2) Lack of incentive for the layperson to get involved
(3) Volatility in price
(4) Many view bitcoin with suspicion due to sensational reporting from media
(5) Questions around privacy
(6) Lack of settlement finality
(7) Legal uncertainty in the case of forks and hacks.

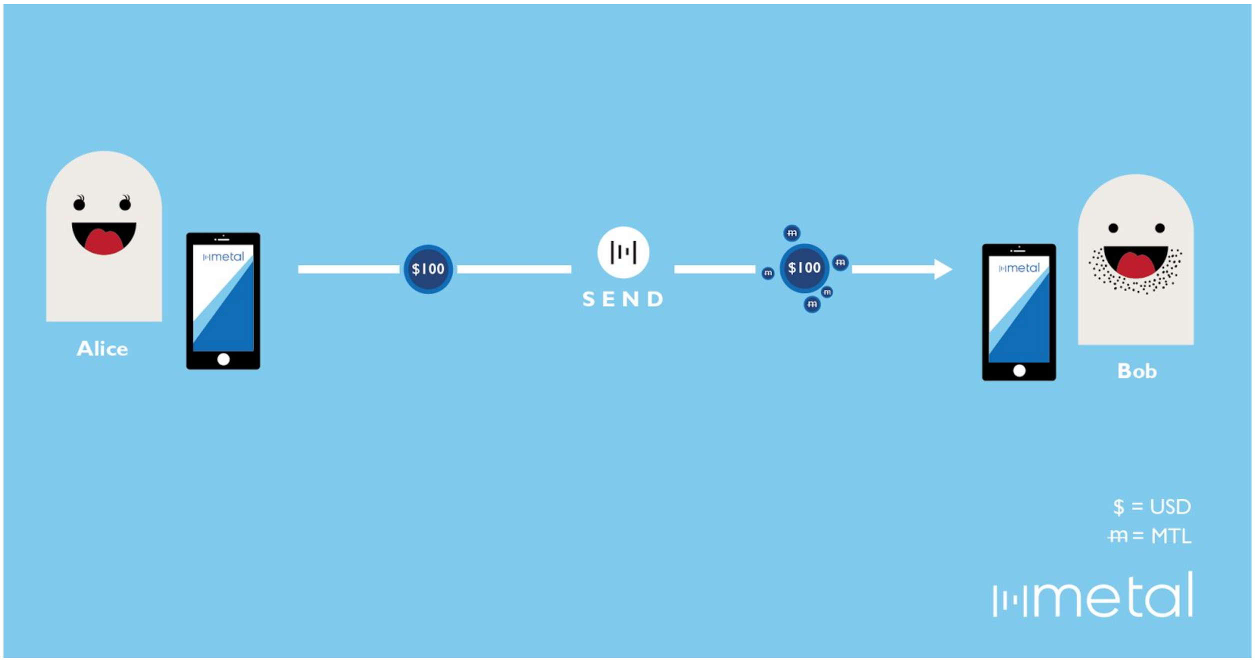
Bitcoin has shown currency can exist outside of the current financial system. It is technologically resistant to counterfeiting via blockchain technology. However, this by itself is not inherently strong enough to spark a technological payments revolution. Rather, bitcoin is exciting and motivating entrepreneurs to build a better mousetrap. One challenge is that bitcoin is extremely volatile and scares away many would-be users due to the fact it is accepted almost nowhere, including brick and mortar businesses and online. Financial institutions, for the most part, avoid bitcoin. They are creating private blockchains to identify sources of funds as well as users on these systems.

Using a centralized form of Know-Your-Customer (KYC) identification and a payments platform, Metal proposes to fairly distribute cryptocurrency via Proof-of-Processed-Payments (PoPP) on top of the ethereum blockchain. Satoshi's original vision for bitcoin was to distribute miner rewards fairly through Proof-of-Work (PoW). However, we have seen mining become highly centralized in China. With a centralized group of miners, distribution of the cryptocurrency becomes highly skewed and becomes near impossible for the layperson to earn, instead forcing them to purchase through an exchange.

Without an incentive to purchase, cryptocurrency may never reach mass adoption. Metal proposes a system utilizing provable payments attached to verified identities to distribute currency. Anyone can participate to earn METAL as a reward for converting fiat to cryptocurrency.

The goal is to provide all of the financial services small to medium sized businesses (SMB) might need, but can't access currently. Typically, cash-based businesses find it hard to get credit because they have no credit history. This has led to seeking alternative financing which comes with exorbitant fees and loan financing charges. The initial target market will be high risk merchants, cash intensive merchants, and merchants who already accept or want to accept more cryptocurrency. At a later stage, it will be to acquire traditional merchants like Square, Venmo and PayPal.

Transactions



Metal will offer services through software to make transactions accessible for regular users. This strategy will prove valuable as peer-to-peer payments are incentivized to leave traditional rails, opting for an open network of cryptocurrency payments. These transactions will settle faster and provide real world value beyond traditional cash-based payments.

The size of transactional volume from the traditional incumbents is staggering. For General purpose payment cards with global brands such as American Express, Diners Club/Discover, JCB, Mastercard, UnionPay, and Visa collectively generated purchase volume of $20.422 trillion in 2015. They are projected to generate $54.891 trillion by 2025. These card-present and card-not-present payments for goods and services are generated by credit, debit, and prepaid cards. Cards issued in the United States held a 23.44% share of global brand purchase volume in 2015. That share will fall to 17.69% by 2025, even as card spending reaches $9.711 trillion, up from $4.786 trillion in 2015 [1].

The dollar volumes are massive as well. For general purpose payment cards with global brands such as Visa, Mastercard, American Express, Discover, JCB, Diners Club, and UnionPay had collectively generated 227.05 billion purchase transactions in 2015. They are projected to generate 604.10 billion purchase transactions in 2025. These card-present and card-not-present payments for goods and services are generated by credit, debit, and prepaid cards. Cards issued in the United States generated 36.35% of the global brand purchase transaction total in 2015. The U.S. market share is projected to fall to 27.63% by 2025, even as the region is expected to see transactions grow by 8.44 billion annually to reach 166.94 billion in 2025 [2].

With market capitalizations in cryptocurrency in the tens of billions today, as the industry scales and grows it will capture some of this market.

Target Markets

Beyond traditional merchants, the market potential for disenfranchised industry is worth billions of dollars. There are a number of industries that face problems accepting credit card payments. Often times this is due to the fact that processors consider particular businesses as high-risk.

In addition to traditional merchants, Metal's initial target markets will include certain underserved industries in the United States that are operating legally and are compliant with state laws. This focus will allow Metal to have reach into a multiple-billion dollar markets in payment processing volume underserved by traditional payment companies because of high-risk status. Furthermore, Metal will make cryptocurrency go mainstream for consumers through ease of use and promotion of multiple blockchains and tokens.

Metal may complement its traditional merchant portfolio to include select niche industries such as:

eSports - a form of legal competition facilitated by video games. The US economy for esports (online advertising, sponsorships, media rights, merchandise, tickets) was estimated at $175 million for 2016, a 43% increase over 2015 [7].

Nutraceuticals - the sale of legal pharmaceutical-grade, standardized nutrients. Domestic (US) total annual revenue for the nutraceutical industry totals $74 Billion (2015), comprising almost 40% of the global market [3].

Adult - the sale of legal adult store and online products, which also includes various forms of entertainment media. Adult products are estimated at $15b, [5] while entertainment is roughly $10 billion [6] in the US.

Metal is also exploring other promising markets as well. This includes the gig or "sharing" economy. A study by Intuit predicts that by 2020, 40% of American workers will be independent (gig) contractors [8]. In the developed world today, the total amount of gig workers is ~134,000,00 [9].

In addition, Metal will be attractive to cash intensive small businesses like bars and restaurants as well as the nascent DAO/DAPP economy.

Reward vs. Penalty

The current state of cryptocurrency is a penalty over a reward. In order to enter cryptocurrency one must have a fundamental understanding of the software that it runs on, the best security practices, ability to get in and out, avoid fluctuation and find the lowest possible fees. In addition, even armed with these skills, many users are forced to wait days for their payments to clear before they have coins on-chain. In the case of Metal, payments are approved or declined immediately and displayed as spendable off-chain credit until they settle on chain. This makes the entire experience unusable for the layman. Proof of Processed Payments (PoPP) changes the experience from an unpleasant penalty, to a simple reward. Earn crypto when you spend money, earn crypto when you receive money. Through PoPP and the Metal platform we are incentivizing usage and adoption of cryptocurrency and building an ecosystem for users and merchants.

Incentives

Metal does everything traditional payment apps can do. This includes peer-to-peer transfer and real-time invoicing. With cryptocurrency integration and PoPP, Metal users will earn cryptocurrency for making normal payments. PoPP is a mechanism to incentivize people to leave fiat money for crypto currency. It gives people an opportunity to be a part of the financial system by giving them a financial history, which can enable them to open bank accounts and access other services.

Merchants may purchase platform credit with METAL which will entitle them to a discount on all associated payment processing fees and a discount on merchant services. The use of the METAL token by merchants and individuals will drive adoption and thus usage beyond platform-based services provided by Metallicus Limited, the parent company of Metal. Merchants may also receive an additional 5% off payment processing fees for offering a discount when paying with METAL.

Many merchants will find it advantageous to offer the METAL discount to save on traditional credit and debit card processing fees. Due to the ability to save merchants on processing fees, consumers utilizing the platform will receive significant discounts when making purchases.

Owners of Metal will receive significant benefits in the form of discounts:

1) Discounts for Metal merchants
2) Discounts for customers paying with METAL
3) Discounts for consumers in the form of heavy discounts on pay features

Underlying Technology

To implement a provably fair distribution model, Metal uses the public ethereum blockchain [10]. It uses Ethash as its Proof-of-Work for security. In an attempt to keep cryptocurrency distributed, the Ethereum Foundation chose an ASIC-resistant scheme [11], however this still does not make mining accessible to the layman. Proof-of-Work merely slows down the inevitable: centralization and the inability to participate with consumer hardware.

Metal aims to be blockchain agnostic and recognizes the need for multiple cryptocurrencies. If cryptocurrency adoption is to take off it must utilize multiple blockchains. For example, many users wish to see the currency in terms of United States Dollars or Euros. For this reason Metal is using financial instruments that will offer stability. Metal recognized the need for Interoperability and Metal will use inter-blockchain exchanges to transfer between multiple cryptocurrencies and cryptoassets.

Meanwhile, loyalty-based tokens that merchants can create will be on the ethereum network as well as METAL the token. Metal also recognizes the need for privacy-based tokens like DASH, Monero and Zcash, which will also be supported. Bitcoin is the underlying currency powering all transactions and purchases. However, this may change at a later time with sufficient volume to switch to METAL, ethereum or something different entirely.

Proof-of-Processed-Payments

Proof-of-Processed-Payments (PoPP) acts as a provable way of identifying users and distributing new currency into the system. At the same time, it rewards users who convert fiat currency into cryptocurrency.

For this identity-based, volume-dependent distribution network, Metal first identifies a user through a social security number or passport ID with identification software. Second, Metal gets a photograph on file, either a selfie or picture of identifying documents. Third, Metal can link a credit or debit card number in preparation for processing a payment. If no credit/debit card is available, a user can sign up with only an email address and invoice credit/debit/ach accounts into cryptocurrency. Provided all data points check out and the registered name on the identification matches the name on the credit or debit card, Metal initiates a payment using proprietary anti-money-laundering (AML) and anti-fraud technology. The payment typically declines or accepts in under one minute. The pending payment notification shows on the transaction list for the receiver of funds.

When the payment is completely settled and the bank transfer or cryptocurrency issued, a portion of the gross amount of the payment is returned in METAL tokens. This is 5% of the volume of the transaction at trading value for MTL in either direction (sender/receiver). As an example, $100 in MTL is sent. It is trading $1/MTL. Both sender and receiver would both get 5 MTL.

In order for the receiver to claim the additional METAL, they must go through the KYC process and be identified as a separate person receiving the payment. If a user wishes to simply top-up their account with a crypto balance, they are eligible for a discount of the purchase price of the transaction in METAL, the parent company of Metal, collects fees for processing payments.

Additional Features

Plugins
Platform (like Wordpress and Drupal) plugins to add Metal functions to websites and apps.

Loyalty
Loyalty issuance in the form of blockchain and closed loop tokens for merchants.

Split Payments
Paying with friends is always better. Create an event and start a split payment, invoice the group and watch as you approach the goal.

Escrow
Escrow-based multisignature wallet used for marketplace or auction purposes.

Ecommerce platform
Shopify-style ecommerce with Metal rewards as the key market differentiator.

Loan product
Lending platform tied to escrow offering. Borrowers can be rated based on Metal rewards.

Microtransactions
Sending very small amounts of money, which current payment processors do not support.

Branded payment card
Metal merchants will be able to cultivate loyalty with specific branded payment options.

Blockchain identity management
Proof-of-Processed-Payments (PoPP) ID system. Discourages money laundering practices.

Hardware NFC payment terminal
Raspberry Pi hardware terminals and NFC cards that make tap to pay possible anywhere Metal is accepted. In addition, NFC integrated wearables such as FitBit bracelets and phone cases.

These features will be unlocked with MTL micropayments for consumers. Once a customer in the app is earning MTL these features are unlocked like a game. This can be done by achieving certain milestones (eg. transactional volume) using PoPP or by simply paying for them.

Network

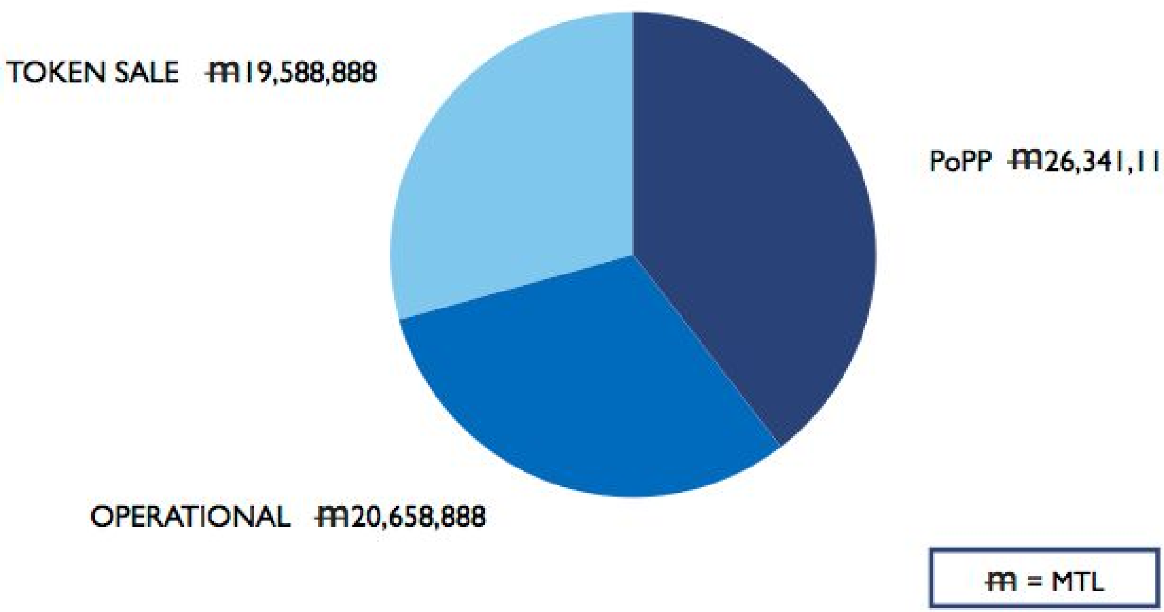
A total of 66,588,888 METAL tokens will be created at the genesis. The Metal token will be ERC20 compliant which means that a stakeholders addresses can be linked to a name or tag, or fetched by an identity security provider [128].

A 31% initial amount of METAL tokens will be saved from the cap of 66,588,888 METAL, which is 20,658,888. This will be deducted from the total amount available for distribution through PoPP (26,341,112) and locked up for 12 months, leaving 19,588,888 METAL for the token sale.

A portion of the company reserve will be set aside 3,378,000 METAL will be broken down to 1,000,000 METAL each for the initial two co-founders; whereas 200,000 METAL will be distributed among each of the first five employees and 40,000 METAL will be distributed each for nine advisors (3,360,000 total).

METAL tokens will vest every month for twelve months until fully vested with co-founders, first employees and advisors. If for any reason a founder, employee or advisor ceases to be with the company during their vesting period, all vesting will cease and be returned to the Metallicus Limited operational pool.

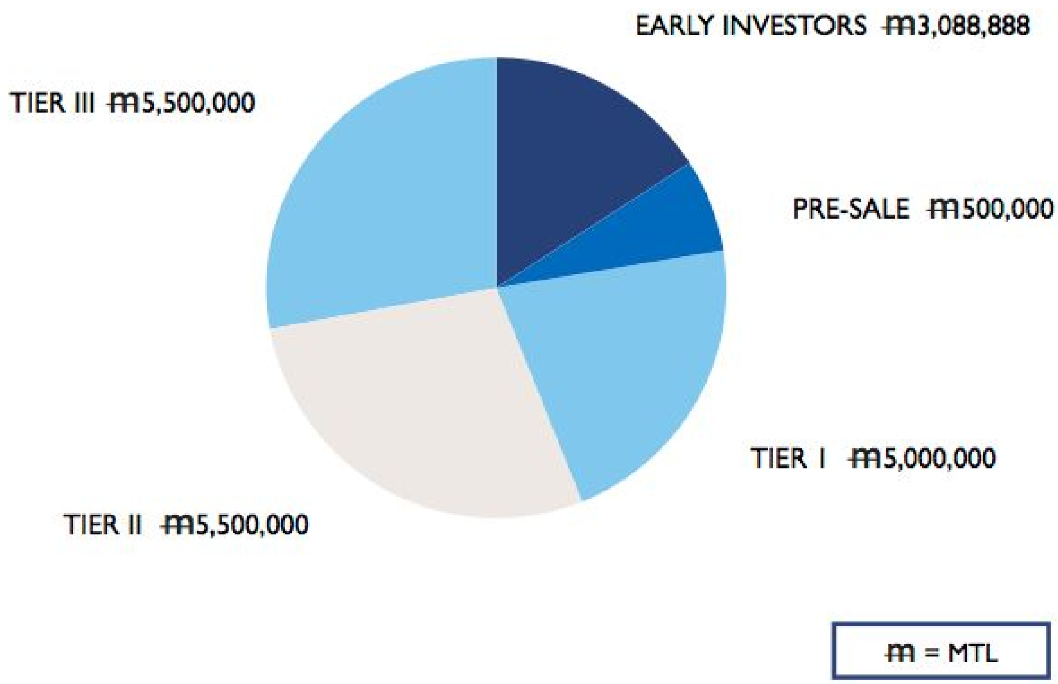
TOTAL CIRCULATION ₥66,588,888



This leaves an additional 12,448,888 METAL in Metallicus Limited operational pool to be used at the company's discretion. The operational pool may not be drawn from by Metallicus Limited for up to twelve months from the completion of the token sale. The Metallicus Limited operational pool may be used for such efforts but not limited to: Attracting top talent to the company, marketing purposes and performance-based bonuses for employees.

Equity investors in Metal are entitled to the average token sale price of METAL at $0.18, for their equity investment to be matched in METAL tokens. This financing of $556,000 in private equity takes exactly 3,088,888 METAL from the initial token sale amount, reducing it to 16,500,000 METAL available at the start of the token sale.

TOKEN SALE OFFERED ₥19,588,888



The token sale will be distributed over the course of 30 days until all of the coins are sold (16,500,000 METAL). Any coins that are not sold during the three tiers of the token sale will be dissolved into a proof of burn address via ethereum contract in Solidity.

Metal will list what cryptocurrency will be accepted in the crowdsale based on coins meeting particular liquidity thresholds. The coins will be sold in the following order with additional bonuses for payment in ethereum:

	Early Investor Funding	**Pre-Sale**	**Pre-Sale Tier 1**	**Pre-Sale Tier 2**	**Pre-Sale Tier 3**	**Tier 4**
Price	n/a	$0.05	$0.10	$0.16	$0.18	$0.18
Amount available	3,088,888	500,000	5,000,000	5,500,000	5,500,000	5,500,000

Distribution Within Platform

Over time, 26,341,112 METAL tokens will be created through Proof-of-Processed-Payments, bringing the eventual circulation to 66,588,888 METAL. The coin will be redeemed by Metallicus Limited for merchant services, including merchant processing fees as well as premium features on the platform at a discount from trading value at redemption.

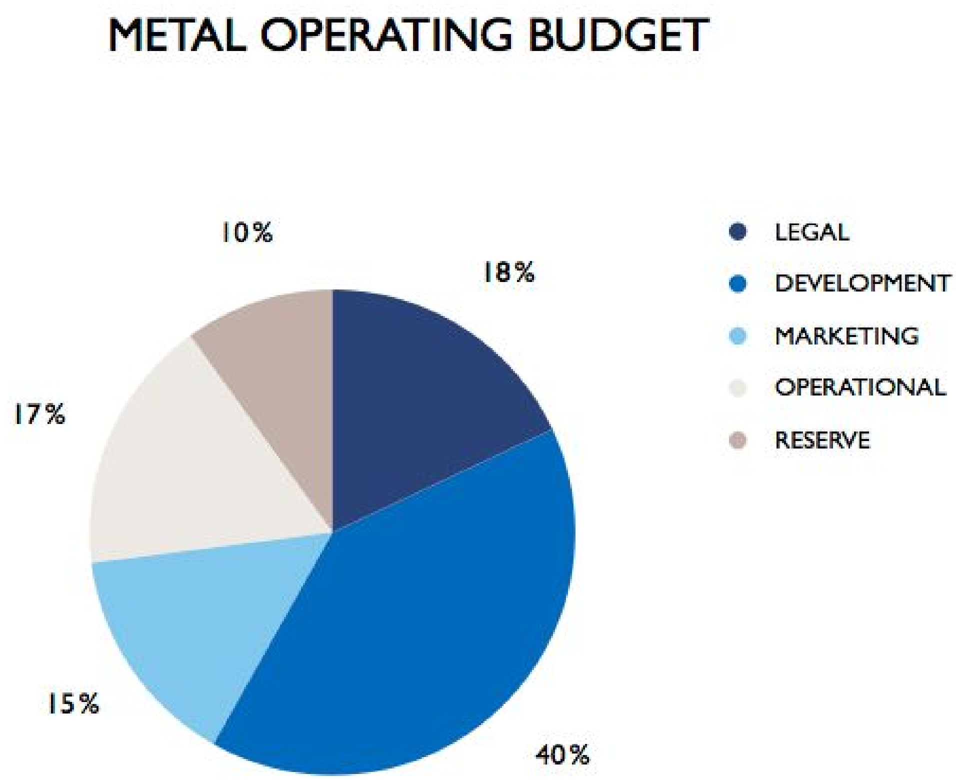
Smart Contract Escrow

The operational budget of funds raised during the initial token sale will be held in 2-of-3 escrow between the Chief Executive Officer, Chief Compliance Officer. In order to move Metal company funds signatures must be obtained from two of the three parties. Metal will unlock tokens with a majority approval from the board of directors after a minimum period of 12 months from the completion of the token sale date. The presale tokens are to be distributed separately as they will be allocated at the beginning of the token sale to the aforementioned multi-sig wallet to be distributed by the Metal team.

The Smart Contracts for the crowdsale are being audited by Smart Contract Solutions (also known as Zeppelin). The smart contract code will be publicly released prior to the crowdsale for purposes of transparency.

Metal Operating Budget

Metal projects $2,951,000 will provide over two years of operating expenses with a team of ten people. Furthermore, Metal expects to be revenue positive in its first year. Additionally, Metal has raised $556,000 in equity from venture firms Alphabit Fund, G2 Ventures, Gateway, Erik Voorhees, Andrew Lee, among others. This funding was completed prior to the token sale, which has allowed Metal to make crucial hires and expenditures.


METAL OPERATING BUDGET
10%
18%
17%
15%
40%
LEGAL
DEVELOPMENT
MARKETING
OPERATIONAL
RESERVE

Timeline


SPRING 2017
SUMMER 2017
FALL 2017
BETA
BANKING
MERCHANTS

Spring 2017: Beta Launch. Multi-signature, multi-cryptocurrency wallet. Merchant credit/debit invoicing capability for blockchain rails.

Summer 2017: Banking Rollout. Metal bank account with prepaid debit cards integrated. Use Metal anywhere credit cards are accepted.

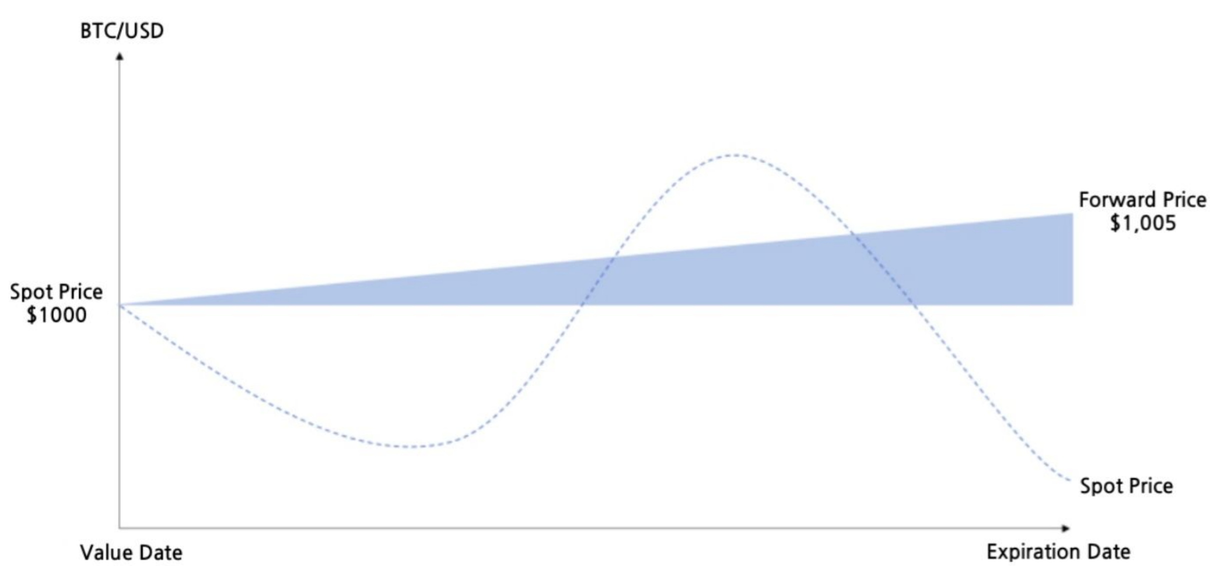
Fall 2017: Merchant Adoption Features. Shopify-style integrations, plugins for online businesses, integrated NFC hardware tap-to-pay terminal, and much more.

Managing Cryptocurrency Volatility

Metal recognizes moving between cryptocurrency and cash will result in price volatility. Initially derivatives will be used until other options become available in the ecosystem. Metal will partner with an over-the-counter(OTC) derivatives dealer in order to manage currency volatility.

By utilizing bitcoin as a store of value and using a derivative to lock the value offers several benefits. One is there is no bank account to manage. In addition, the value of the collateral (i.e. BTC) can be publicly audited on the blockchain. The biggest risk to this is theft or loss of private keys. The second issue is counterparty risk. Metal mitigates counterparty risk by having a true up of profit and loss on a regular interval and if BTC deviates more than a certain percentage.

The biggest operating risk is how much a derivative forward price deviates from the spot market price. Normally the forward price will be equal to or higher than the current price of bitcoin (premium). As long as it is at a premium, Metal can make money hedging.



For example: The spot price of BTC is $1000. A short swap is initiated, expiring at a forward rate of $1005. When necessary Metal's partner OTC derivatives dealer can advise Metal when the right time to roll hedges will be to make sure that risk is mitigated.

Metal will be ramping up users and merchants slowly, so the partner OTC dealer will be able to maintain keep pace. The process will begin by, Metal putting up some of its own bitcoin to hedge which goes off Metal's books and to Metal's clients as they onboard.

Company Structure

Metallicus Inc is a Delaware company with a traditional structure with a board of directors, CEO, CTO, COO and CCO (also later a CFO).

Metallicus Limited is a Hong Kong based company created to manage the currency (same governance as Metallicus Inc.).

Network Governance

In order to join and participate in the network, actors need to be known and have their identity established. Metal will use proprietary anti-money-laundering (AML) and anti-fraud technology. This is done to onboard these otherwise high risk actors into the financial system and begin using a cryptocurrency and blockchain payments platform for their business requirements.

Conclusion

There is a huge need for a digital payments system to rival the incumbent payment processing regime in place today. By utilizing blockchain technology, Metal can save merchants money on electronic payment processing costs. By merchants passing on savings to consumers, people will have more choices than ever to make payments. By building a simplified system similar to Square, PayPal or Venmo, Metal takes advantage of the opportunities bitcoin offers in terms of creating an entirely new payment rail system that is transparent, redundant and efficient.

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