

Med Layer Token

An intelligent system for health

abstract

The current medical system in America is broken despite being the most expensive in the world. Life expectancy is falling short when comparing to 10 western, industrial countries[1]. This is happening when more Americans have health insurance than ever before[2]. Despite increased coverage and more access to technology like imaging, patient outcomes consistently ranked near last. Spending on health care in relation to GDP shows a corrupt health system. The inefficiencies have created a market of poor utilization of resources such as doctors, medication, and most importantly your data. The gridlock of information between patient, doctor, and insurer translates to a shorter and less healthy life. Med Layer is an intelligent system that is being trained on the subject of human health. It's a statistical model with a humanistic approach and is optimized to give users the best outcome. The user shares data, Med Layer processes it, and returns probabilities of potential problems. Automating health using computer vision and input from the user, The system has the potential to increase user longevity bridging knowledge and communication gaps. Med Layer will introduce the Med Layer Token (MLT). Built on top of the Bitcoin blockchain, MLT will enable users to securely access services. Proof of purchase is required to access the health score service and all future services. Upon successful token sale, proof of purchase will be saved to the bitcoin blockchain during the build out phase of the MLT system. This ensures that token holders will securely retain ownership of tokens before the system has been completed. To reduce risk of theft and failure, the simplified MLT proof of purchase strategy will allow users to benefit from the service while we strive to meet the core mission of improving user health outcomes.

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Value Proposition

We propose MLT as secure system of exchange to access advanced health models tailoring results specifically to users. The MLT system provides:

- Direct user access to systems typically reserved for large institutions.
- A humanistic approach with the ability to improve the lives of it's users.
- A secure way to exchange access to the services.

Introduction

Being witness to a failed health care system has been the primary motivation. Such a scene is filled with suffering and early death. This lead to early research into cutting edge data science fields like machine learning[3]. With the Wikipedia Health and Wellness dataset, we trained an older statistical modal that was able to recognize some basic connections between health

related concepts[4]. Next we researched the computer vision field of machine learning. Using an open source deep learning algorithm we began to train on a wide variety of human knowledge centering around health. With pretrained machine learning models, we created the first Med Layer service called Health Score. By trying to guess the user's age using a mathematical model and comparing it to their submitted data, we were able to get a baseline for the users physical state. All steps use computers, so full automation is possible. Using just three computers, we are able to provide the service to thousands of people a day.

The token was introduced to cover the cost of providing such a service. Profits from the token sale will support more research, new services, and continued maintenance of the platform. A simplified proof of purchase contract was created to transition Med Layer to a payment channel once the technology becomes available with bitcoin. Once complete, an MLT payment channel will operate as a secondary layer to the Bitcoin blockchain. Finally allowing tokens to be distributed using a provided wallet. This approach was favored over using a less supported blockchain system like Litecoin where the technology Med Layer is seeking, is already live[5]. In time, more blockchains will support full payment channels. The proof of purchase tokens are able to sidestep the bad timing at a small cost to record the token purchases onto the bitcoin blockchain. However, due to high cost of bitcoin transactions, a minimum purchase amount will display at order time.

The following document will serve as a proposal showing how Med Layer plans to solve the goals of the MLT payment channel and the core mission.

Roadmap

1. **Generation** - The time period when the whitepaper is created and the prerelease version of the Med Layer software is developed.
2. **The sale period** - A 30 day time period where MLT proof of purchase tokens are distributed.
3. **Development** - When the system is in a pre release stage. Token holders can access the services but not transfer tokens.
4. **Production** - Proof of purchase tokens are converted at equal value for tokens generated on the MLT payment channel. The MLT wallet will be available along with broader access to services.
5. **Maintenance** - Continued research into new areas where software can benefit users in new ways.

Proof of Purchase

A smart contract will manage the minimum financing threshold. This ensures purchasers will meet the minimum requirements before any funds are released. Once the threshold is met, the bitcoin blockchain will automatically store purchase records. Using a cryptographic hash, the system will link the tokens purchased, to the holder of a private key. Using the public ledger allows the system to track all purchases. However, there will be no means to further change the record during or after the token sale. In this way, we securely store MLT purchased while transitioning to a system allowing greater distribution of tokens. It will require a 1 to 1 copy from the proof of purchase records to the payment channel. This is possible by having a shared key post

token sale, that allows anyone to view the history of MLT proof of purchases on the blockchain.

Payment Channel

The lightning network bitcoin proposal is currently undergoing heavy testing on multiple blockchains and one bitcoin test network. The new type of transaction allows a series of transactions to happen outside of the network while keeping the root of the tree stored securely on the network's blockchain. In short, such a transaction can represent an entire off network blockchain such as the one Med Layer is seeking to build. When the technology is ready for production use on the core bitcoin blockchain, it will be the foundation to the MLT wallet. As it has proven useful in creating atomic swaps from one cryptocurrency to another, it is the best solution to creating a responsible token. However, due to it not being well supported on the core bitcoin blockchain, we will use a proof of purchase strategy.

Business Landscape

Machine learning is currently underutilized in health care. The three areas the advanced technology is used in are predictive analysis, chatbots, and predictive tracking[6]. In nearly all cases, a top down approach is used to capture data from hospitals and physicians and the benefit is seen in cost reductions for the medical organizations.

Competition

- Verily Life Sciences - A well funded Alphabet organization formerly Google Life Sciences[7].
- Health Catalyst - An organization promoting machine learning use in hospitals[8].
- Orion Health - Clinical software developer utilizing machine learning[9].

Despite the appearance of strong competition, the intersection of health care and machine learning has unrealized potential. The advantage of Med Layer is speed and timing. Our system is able to sidestep the bureaucracy of working under a failed health care system. Instead, our priority is focused on the user first. The narrow focus is necessary to truly improve user outcomes. Using a token sale, we are able to fund independent research to offer exciting new services.

Planned Services

In deep learning, what is possible is largely dictated by the data, the models, and the compute resources. In this way, the services we find valuable are not always the ones we set out to find. We look forward to a bright future where a whole suite of services are available. However, without making assumptions we plan to develop and optimize the following services during the development phase.

- Health score - A starting point to understanding a user. A picture is worth more than a thousand words. Using computer vision, we can detect many conditions and symptoms.

- Nutrient levels - Using vast datasets on human knowledge we can cross reference symptoms and find links to deficiencies. When an undiagnosed problem persists symptoms often present as deficiencies in nutrients.
- Symptom tracking - Viewing problems over time can provide valuable insights for both users and their health care providers. If users opt-in to anonymous data sharing, it will further grow the ability to link symptoms to conditions.

Modernizing Medicine

The technology for Med Layer to exist is maturing, in both regards to machine learning and blockchain technology. Utilizing the open source technology available, we are able to provide a service unlike any before it. By interfacing directly with users, the process of asking them information repeatedly can be skipped. Instead, the system will work for users to deliver the best possible outcome for them. Using computer vision and input from the user, Med Layer will provide useful insights about the user's state. If successful, the system would reduce the burden on current medical systems. The promise of mankind, machine, and medicine is within sight. The time to modernize health is now and Med Layer is well positioned to overcome the challenges.

Token Launch

Our goal is to sale a maximum of roughly \$100 million in MLT and a minimum of \$1 million in MLT. These numbers will vary as the exchange rate between USD and BTC changes.

- **Minimum financing** - 151.8 BTC
- **Maximum financing** - 15,180 BTC
- **Launch date** - The sale will begin when mining starts on bitcoin block 503,860, Expected day is January 18 2018.
- **Token launch time-frame** - About 30 days.
- **Token launch completion** - will end when mining begins on bitcoin block 508,240, expected day is January 17 2018 or when the cutoff of 15,180 BTC is reached.

Token Distribution

There will be 2 pools for distributing tokens for a sum of 101+ million tokens.

- Company pool - 1 million MLT
- Public pool - 100+ million MLT

Early Adopters Rates

To reward early adopters, there will be an early adopter rate. Purchases of MLT on the first day (24 hours) of the token launch will give purchasers half off the final rate. The second 24 hour time frame will give purchasers a rate of 25% off. After that, the rate will remain at 0.0001514 BTC per MLT with a minimum purchases amount. Due to the early adopter rates, the public pool will remain uncapped and will depend on the amount of early adopter MLT sold.



The company pool will be allocated for two purposes. First, to compensate early adopters, employees, and contractors. Second, to promote the use of the services through a user growth fund.



Use of Proceeds

Engineering team and Staff (58% of proceeds). This item will support continued development and refinement of Med Layer technology including the payment channel and services. This includes the wallet and other possible value-added services.

Contractors (13% of proceeds). This item will focus on third-party engineering, promotional work, growth hacking, public relations, and affiliate program partnerships.

Marketing (12% of proceeds). This budget item will be used for marketing to expand awareness and adoption of the Platform, including the Med Layer

system and MLT, among users, providers, and insurance companies. It will also be used for broader development, growth and maintenance of the Med Layer community.

Administration (estimated 10% of proceeds). This budget item will entail legal, accounting and other professional services fees; physical infrastructure and security costs; and other associated administration costs.

Contingency (estimated 7% of proceeds). This budget item is intended as a reserve to address unforeseen costs.



Purchasing Tokens

- Start by creating an account at [Med Layer](#).
- Choose a secure password and write it down. There is no recovery option yet and it serves as a secret key to access the service and MLT tokens.
- Take the time to read and agree to the [Terms](#).
- Unless the token sale is active, wait until the launch date. Ensure you have some bitcoin in an updated wallet. Some exchanges may not allow multi-signature transactions that Med Layer uses.
- Once the sale is active, login to the Med Layer account and deposit the minimum BTC amount listed on the profile page. This page will also contain the input address where the BTC must be sent to. If the sending wallet allows adjustable fees, make sure the fee is high enough to cover the transaction in a timely manner.
- Finally, you will be provided with 2 keys after purchase. These will allow you to refund yourself in the event of system failure during the token launch.

Reference

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