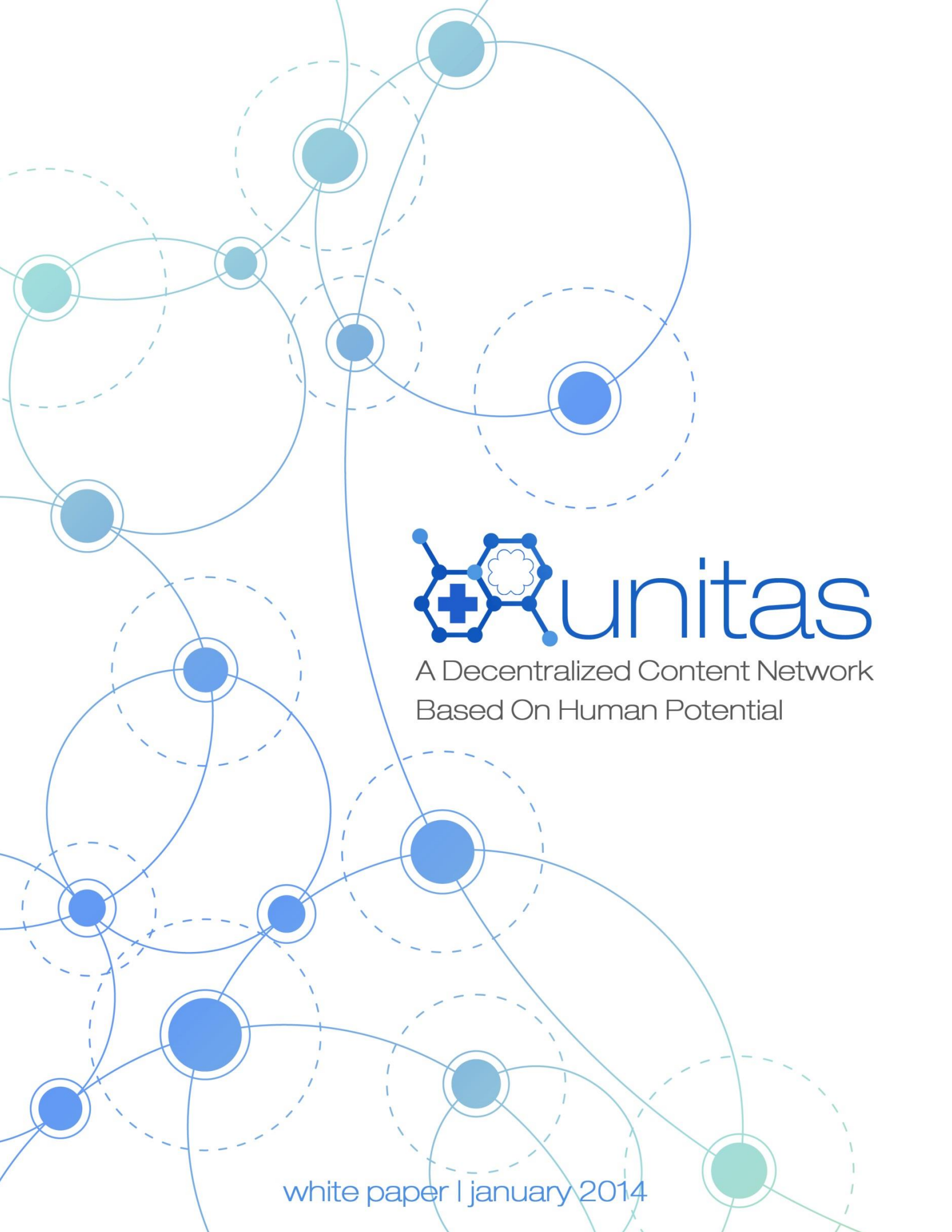

unitas

A Decentralized Content Network
Based On Human Potential

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A Decentralized Content Network Based On Human Potential

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Abstract

This paper introduces UNITAS, a proposed decentralized content network (DCN) that is sustained through the creation, distribution and consumption of content (text, music, images, video) with a crypto-currency layer that rewards each user within the network ecosystem for their contributions. This DCN enables a significantly larger percentage of society to participate without requiring the technical skills and understanding of a traditional crypto-currency user. Each user contributes their time and creativity through specific tasks, and the network tracks, analyses and processes these tasks, which are then fed into decentralized clusters of storage called cascading blockchains. The blockchains are fed with proof-of-value, proof-of-completion/learning and proof-of-work hashes. This requires human effort and minimal computing power as opposed to GPUs and ASIC devices that currently power most crypto-currencies. Rewards are distributed using compensation management algorithms based on a set of evolving mathematical rules. This paper will not delve into the more technical and implementation aspects of UNITAS.

Introduction

We are all born free, even if we are born into legislated systems and cultures that restrict these freedoms and rights. Everyone has the ability to reach their full potential under natural conditions. Collective human potential is unlimited when it is allowed to flow freely.

Our current systems have taken humanity on trajectories that are both extreme and out of balance with natural law. What we need is new ideas and new systems to support these ideas. UNITAS is a post-shift-platform that serves as bridge to a “participation economy” where each individual becomes an economic centre following an inevitable

“economic restart”. Albert Einstein defined insanity as doing something over and over again and expecting a different result. The current world’s monetary system has run its course and is long overdue for a “start over”.

Humanity is currently going through a metamorphosis in which old systems are fading out as new systems are being birthed to address the collective challenges that humanity faces. These new systems aren’t about saving the world from its endless challenges, but rather about building scalable systems that will work favourably for as many people as possible. Give everyone a chance. Disintermediation is now occurring in waves across all sectors and industries in society through the rise of these new systems. As these platforms materialize, we must always perform a simple litmus test. Are these platforms designed and built to serve as many people as possible or are they built to benefit and empower only a select few within society?

There is a better way, and we call it *reciprocal meritocracy*. Let the best rise, and let the best serve. Allow people to reach their full potential, and yet build mechanisms that ensure that the rewards of that full potential flow back into society.

In order for people cross over this new bridge, they will need to be educated and informed. The Macquarie Dictionary released its Word of the Year for 2013 which was “infovore”. An infovore is described as a voracious consumer of information. The fact that this word rose—in the span of one year—to the top indicates that people are investing significant time seeking, creating and consuming content.

Why do we need to cross over this new bridge? Well imagine a great road trip in a car with friends. Everyone takes turns in driving, sharing food, music and other resources. Everyone has a view and enjoys the external landscape. When there are problems each person responds according to their skill and ability. At the end of the road trip, lessons are learned, and each additional road trip adds new perspectives and layers of experience.

Humanity has been on one road trip for a very long time using cars from one type of car brand. The vast majority of humanity has been hoodwinked and coerced to be on this road trip. Blindfolded and shackled to their seats. As more and more people have gotten on the ride, the cars from this particular brand have finally exceeded their carrying and functional capacity. There are better car brands, but the manufacturers of this brand of car love to be in control and want humanity to believe that it is the best brand out there. Any serious attempts to leave the car or switch to another brand are discouraged and often terminated with extreme prejudice. Humanity has been on this ride for so long that it believes that the journey of life can only be undertaken using cars made by this brand. Many would rather stay with the old car than go with any new brand.

If the new systems we propose are not designed to empower and serve the greatest number of people, then they will not leave the old brand. Better the devil you know than the angel you don't know as the old saying goes.

Some of the "cars" from this dominant brand are called Currency, Education, Food and Energy. This paper will focus on how the proposed network creates a new type of Currency vehicle or crypto-currency based on a new car brand that is both decentralized and based on cryptographic principles.

Problem Definition

At the time of this writing there are over 150 types of crypto-currencies which are mostly derivatives or clones of the Bitcoin protocol that was released on 1 Nov 2008 by Satoshi Nakamoto.

Traditional crypto-currencies have tokens that are generated using mining processes based on various hashing algorithms and are typically accessible to only those with the resources and skills to participate within this new ecosystem. Participation has largely been made up of geeks, enthusiasts, investors and other players that are drawn in out of curiosity. The technical and financial barriers to entry have also made it a club that excludes even those who are informed and interested in participating. The outcome of

this is that we now have a 1% Crypto Elite in almost every crypto-currency who control over 80% of the tokens issued and ultimately control the market. This comes at a time when crypto-currencies have not yet reached maturity or achieved the desired market penetration goals. Crypto-currencies and their underlying protocols were envisaged to provide financial disintermediation to a world predominantly controlled by a Financial Elite called the One-Percent.

It has led to the proliferation of hundreds of alternative coins or “altcoins” with miners rushing in to have the first mover advantage or creators of altcoins pre-mining for themselves. This is not only diluting the crypto-currency ecosystem, but it is also diverting vital human resources away from enhancing the core Bitcoin protocol. There has been very little innovation in the design of most crypto-currencies since Bitcoin was released five years ago and most altcoins are merely tweaks to variables that define how the block hashing algorithms work within the altcoin.

This has also created an “arms race” that only allows a limited number of people to access a finite set of mining hardware, which becomes near obsolete within a short space of time as the mining difficulty grows exponentially. Incredible amounts of energy have been used up through these “mining rigs”, and there have been numerous lawsuits, missed delivery dates and frustration. By 2015 mining will almost exclusively become an industrial operation with mining shares and contracts being sold to participants.

This consolidation of mining will also create a new threat to the ecosystem as we have witnessed with operations like GHash.IO that have come close to controlling the majority of the Bitcoin network’s mining capacity. If these industrial operations are taken down by hackers, legislation or other event, it will practically threaten the existence of the crypto-currencies that rely on them. The networks will no longer be decentralized as it was originally intended. There are certain crypto-currencies such as DOGECOIN that have capitalized on popular Internet memes and lifted the limits on the amount of the tokens to be issued. By introducing this subtle and comical human layer through a

meme, DOGECOIN has risen to become the fourth largest crypto-currency by market cap, and the second most popular in terms of community within the space of two months.

There are now what is being referred to as Bitcoin 2.0 solutions that are coming to market such as the Invictus Innovation Protoshares, MasterCoin, ColoredCoins and Ethereum. These create a whole new layer of exciting opportunities and experience, but some of the fundamental problems still remain. A few people control the majority of the tokens issued within these new layers, and some of the Bitcoin 2.0 solutions are built on blockchains whose majority of tokens are owned by a very small percentage of people. Late comers have to work harder and spend more than those who joined the network early. If HTTP, SMTP and TCP/IP protocols were designed this way, then there would hardly be anyone using the Internet today. This is unfortunately why many who are new to crypto-currencies have often called them Ponzi schemes and won't join the party.
It does not have to be so.

There is the middle way which allows those who work hard to benefit and those who come late to the party to also get a slice of the pie. We are seeing signs of this middle way within the Bitcloud whitepaper which proposes a proof-of-bandwidth algorithm in its solution.

We have another proposal for this middle way, but first we ask, ***why must mining only be performed by specialized and hard-to-get hardware? Why can't voluntary human effort and time become the miner? Why must the difficulty factor be designed in such a way that in penalizes new entrants seeking to join and secure the network? Why can't we use cascading blockchains to make the network more secure?***

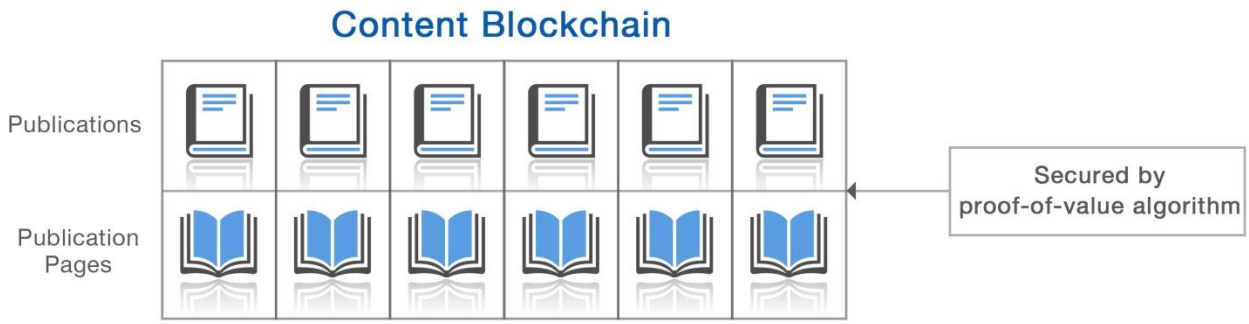
High-Level Solution

Instead of building a solution that is simply valued because of its protocol, currency layer and network, let us build a solution that also includes layers for learning,

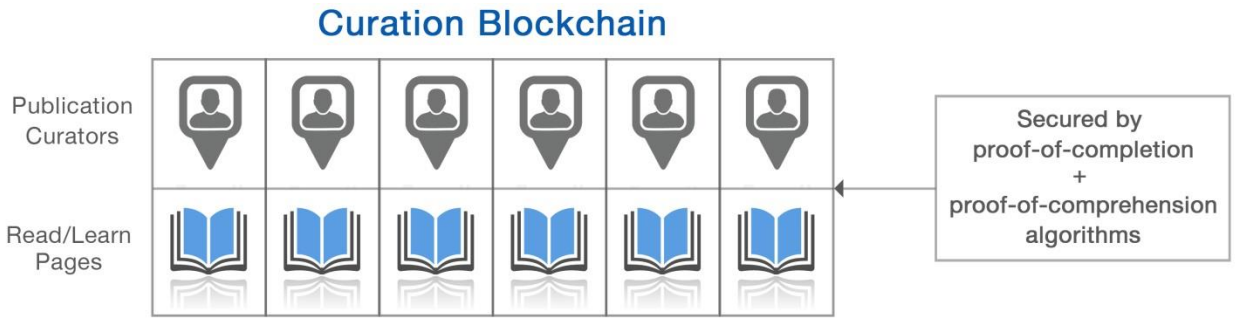
comprehension, creativity, collaboration and sharing. These new layers will require real human interaction whereby human intelligence is supported by machine intelligence. By introducing a human element, we will create new value and also attract a significantly wider diversity of participants. This solution also eliminates any limit on the amount of tokens to be issued. This helps us to better address the issues of inflation vs deflation, weeding out speculation and coming up with a better price-stabilization mechanism for the currency layer. As Ripple's David Schwartz stated, "*A fixed supply that can't respond to demand is a bad thing. Money, like every commodity, works best when the supply can adjust efficiently to the demand. (The people who don't like this are primarily people who want to make other people act against their own interests just so that they personally can make a large profit by not doing anything but holding money.)*"

Solution Details

We propose what we call cascading blockchains which come in minimum sets of three. The first blockchain stores and tracks content that is created by a human. In this example, we will focus on books that are published directly into the blockchain. Different types of platforms, software clients and APIs can be created to push this content into the first blockchain. The actual structure of this blockchain is reserved for a more technical paper. There is a reward for the content creator or author, but this reward is only issued when the proof-of-value algorithms validate the content that has been created. Think bloggers and authors hosting their content on a blockchain. Now they have a new revenue stream and can be sure that their content is now decentralized.



In its most basic form the proof-of-value is determined by the number of humans that acquire this newly created content and read it. This set of human activity that interacts with the content is stored and tracked in a second blockchain that references the first blockchain using a reference key similar to those used with relational databases. If say 1,000 different humans read the published content to completion, then the content now has proof-of-value. At that point the content creator gets issued 50 tokens. More tokens are issued as new thresholds are reached for the same content. In order for the 1,000 users to be counted, each user's reading experience will be validated with a proof-of-completion and proof-of-comprehension algorithm. At the end of each reading process, the user will be issued X amount of tokens. This bidirectional human/machine interaction becomes the mining process. It could be as simple as using tactile feedback when swiping a reading page on your smartphone or tablet, or as complex as completing a set of tasks after reading content which is then validated by the proof-of-comprehension algorithms. The fiat value of these tokens will be determined by the market. There is no fixed value or limit.



Anytime a token is issued either to a content creator or content user, the tokens are then stored and tracked in a third blockchain which references the owner of the token(s) issued. This third blockchain is similar to traditional crypto-currency blockchains and is also secured through the mining process. The difference is that the only reward for this third blockchain is the transaction fees which are relatively low. It will be possible to mine on this blockchain using mobile devices or standard computer CPUs. We propose this approach to protect the third blockchain from specialized application specific integrated circuit (ASIC) hardware that is both limited in supply and can be used to

create an unfair advantage over the rest of the community. The mining for this third blockchain will be based on a proof-of-work algorithm and could run in the background.

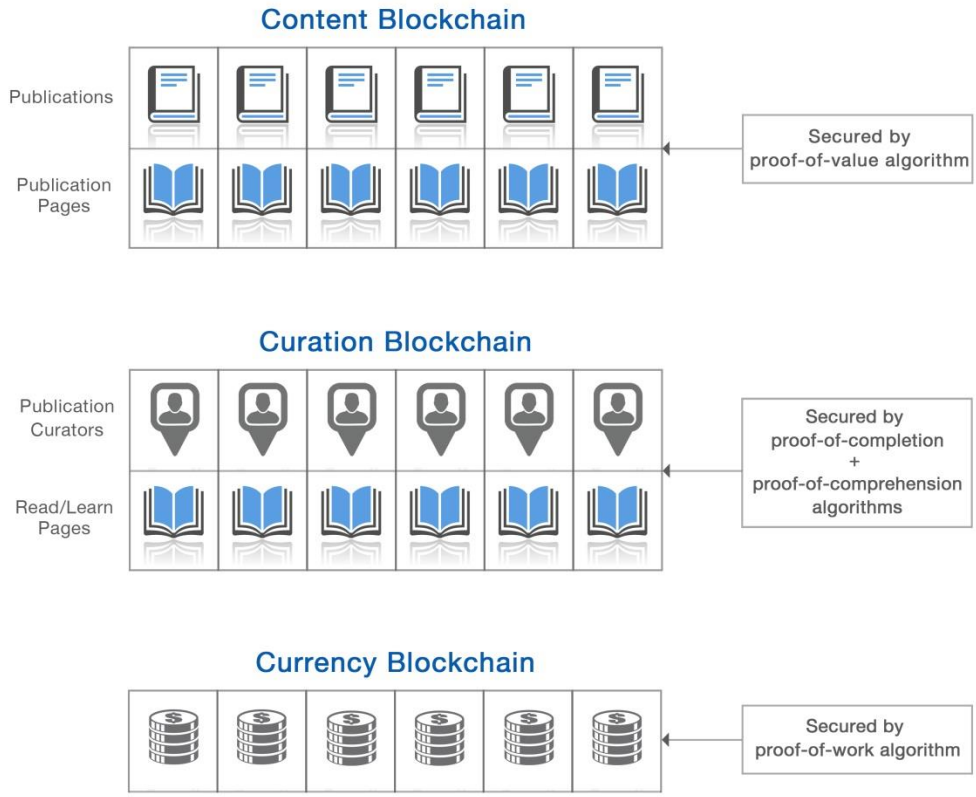
These three blockchains collectively create a symphony of moving parts, and also provide a lot more security than mining on a single blockchain. The first blockchain has no value without the second blockchain. The third blockchain cannot exist unless value is created and proven within the first two blockchains. The first two blockchains rely on the third blockchain to take this value worldwide as a medium of exchange. Each blockchain is in essence both sovereign and integral to the whole.

We will call this new token a UNITAS, with a three-letter currency code, UNI. It represents human capital supported by machine intelligence all working in unity.

Noun

ūnitās *f* (genitive ūnitātis);

1. oneness, unity; state of being one or undivided
2. sameness, uniformity
3. agreement, concord



Some of the new Bitcoin 2.0 protocols have introduced the concept of contracts which can be used to create the type of solution that we propose. These contracts however, still rely on foundations that have issues that we have already outlined. We believe that a cascading blockchain type architecture that introduces a human element has a better chance for widespread adoption and provides added security.

Most human creations start with and are communicated through the written word such as this white paper, novels or articles. We create millions of these publications on a daily basis and in all languages. This spontaneity and randomness of generation will provide a steady stream of curated works into the content blockchain to help seed this concept. In order to take this cascading blockchain down, one would have to stifle all of human creativity. Text is also easier to compress than other content formats like video, audio and images, but we have to look to the future where network speeds, storage costs and densities are improving to support these additional forms of content. The

decentralization of the cascading blockchain means that each node or super node can now carry the equivalent of a Library of Alexandria, albeit one that won't be so easily burnt down. Devices or platforms that do not wish to fully download the cascading blockchains can directly interface with the super nodes, which are cloud servers that help to keep the network alive and synchronize with the with other nodes. These devices or platforms will work like the Electrum client for Bitcoin that doesn't require the user to download the entire blockchain.

Addressing the Mining Difficulty

Traditional difficulty is a measure of how difficult it is to find a hash during the mining process. This is a global difficulty that affects the entire network and increases or decreases based on the total network hash rate over a specific period of time. Since this tends to trend upwards it becomes harder and harder to get the token rewards. This is also what creates a major barrier to entry for new participants and the primary reason for the mining hardware arms race.

In order to address this issue, we propose a Personal Value Index (PVI), and a Community Value Index (CVI). A PVI a difficulty factor that is unique to each user within the network. Think of it as a credit score that measures and tracks the user's participation within the network. If two users anywhere in the world perform exactly the same tasks, they will be rewarded with exactly the same number of tokens. It doesn't matter if the user joined the network in 2014 or in the year 2020. This PVI will taper off after a certain score is reached that is set by the network. This PVI also has decay built into it so if there is no activity over a certain period of time, it starts to drop until it reaches a fixed minimum set by the network. This drop doesn't affect the number of tokens that a user currently holds in their account(s). A higher PVI will allow the user to earn bonus tokens. The difference being that these bonus tokens are held in "savings mode" and are then released over time and added to the user's account balance.

The time to release the tokens held in "savings mode" is also determined by the Community Value Index (CVI). The CVI is the mean of all PVIs within the network. If the

CVI is approaching its highest value then the PVIs are programmed to release the tokens held in “savings mode” over a much longer period of time. If the CVI drops due to low participation, then PVIs will release the tokens held in “savings mode” at a much faster rate in order to create more liquidity and stimulate more participation in the network. We envisage this network having a large and strong “middle class” of PVIs over time and a smaller percentage among the highly passionate (elite) and laggard (poor) groups. Think of a PVI as a personal credit score set by credit reporting bureaus such as Experian, Equifax, and TransUnion and a CVI as a nation’s credit score set by Standard & Poor's (S&P), Moody's, and Fitch Group. These PVIs and CVIs with the UNITAS network are set by the compensation algorithms built into the network.

Benefits

Just like we have Internet Explorer, Firefox, Chrome, Thunderbird, Outlook and Yahoo mail all sitting on top of protocols, anyone can build and monetize platforms that surf on this new UNITAS protocol. A host of APIs will be built to interface with the blockchains and these new platforms will allow for content readers and collaborators to have a stake within their platforms. The most popular Internet platforms today generate their massive valuations because of their innovations and more important because of their users. What if users could get a piece of the pie? After all it is the user generated content that makes these platforms valuable in the first place. Platforms like Medium, Sumbola, Blogger, Tumblr, etc can easily be repurposed to interface with the UNITAS network and create added value for their community of users. Additional features and user experiences can be built on these external platforms. Sumbola (www.sumbola.com) has built a transmedia publishing platform and user interface that is ripe for interfacing with the UNITAS network.

Summary

We face extraordinary challenges today and these are the result of scarcity and the uneven distribution of resources that are vital to sustaining normal societies. Crypto-currencies have given us a window of opportunity to reposition and redefine currency.

Without lowering the barriers to entry, we're all simply rearranging deck chairs on the Titanic. Let's build a true Carpathia.

Some of the key benefits of UNITAS:

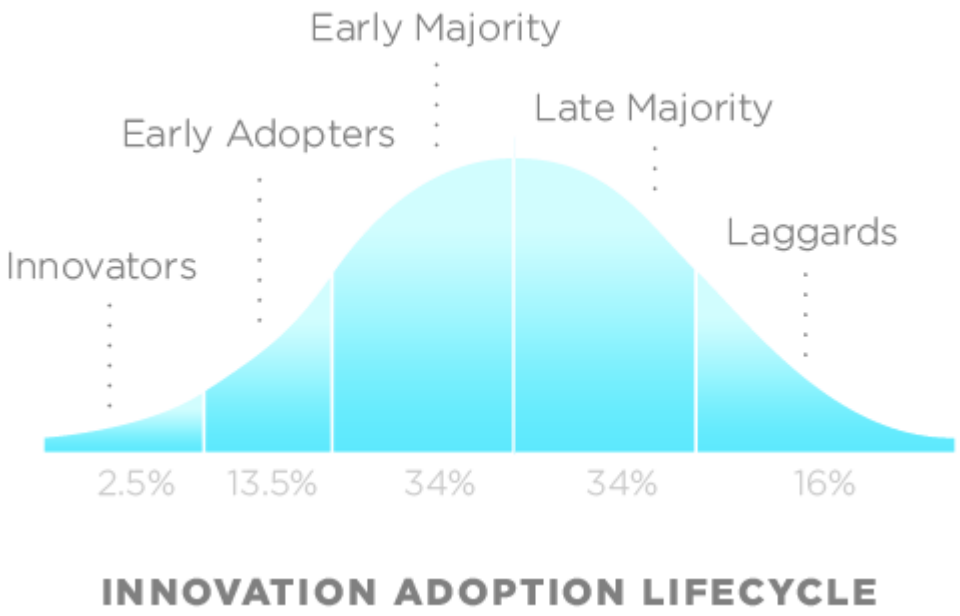
i. An global, transparent, all-digital, device agnostic, open source platform
ii. A solution for learning, comprehension, creativity, collaboration and sharing
iii. Bidirectional human/machine interaction that becomes the mining process
iv. A fair and equitable reward and mining difficulty implementation
v. A network that is not under the control of any central authority or fractional group
vi. It is focused on content creation and consumption as the mining principle
vii. No need to worry about a pre-mine

Call to Action

We are all in this together and we're looking for all the creative talent out there to help us build this new protocol. This concept, once built will be released as an Open Source project.

Conclusion

In his book called Diffusion of Innovations, Everett M. Rogers described how new ideas and technologies are propagated within society using a technology adoption lifecycle model which identified five groups of people. These were the innovators, early adopters, early majority, late majority and laggards. Within our current crypto-currency ecosystem the benefits of these innovations aren't serving the full spectrum of society. Unless significant changes are made to the existing architecture for greater decentralization and distribution, most of the popular crypto-currencies may become footnotes in history as new solutions rise to fill in the void created by their existing deficiencies. We realize that there will be many who will question the feasibility and scalability of such a protocol. We will also be the first to admit that our proposal isn't perfect, so we're putting this out there as a blueprint and to solicit comments and feedback from the global community.



Source: http://en.wikipedia.org/wiki/File:DiffusionOfInnovation.png

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