

Title: CloutPool and CloutLock: A P2P Hardware and Node Syndication System Untop of BitClout
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Abstract

CloutPool and CloutLock are decentralized P2P and software defined networking layers that are built to be expansions of the BitClout ecosystem. The premise of CloutPool and CloutLock as projects, is to work as a technological layer that expand pre-existing features that BitClout utilize. Some of these features can include: mining, node hosting, hardware wallets, point of sale systems, e-stores and many more. The focus is on technological infrastructure centered around software defined networking and P2P blockchain capabilities. This paper will talk about many of the technological integrations that CloutPool has in place, and will introduce CloutLock as an expansion of CloutPool through its hardware integrations.

Keywords

Social Networks, Blockchain, Software Development, Computer Architecture, P2P, Distributed Computing, Headless Computing, Computer Engineering, P2P Connectivity, Cryptography, Cryptocurrency, Nodes, Edge Computing, Multi-Cloud Systems

Purpose

Technologies like CloutPool and CloutLock will not just have the ability to make BitClout more decentralized, but will provide different usecases for how blockchains outweigh centralized databases. A reason this paper was created was not only to propose expansions on the BitClout ecosystem, but also due to the fact that lots of these expansions are possible with many underlining technologies the author or his blockchain startups have created. Therefore, it is of the best interest of the author and perhaps the rest of the BitClout community that concepts like these are developed further.

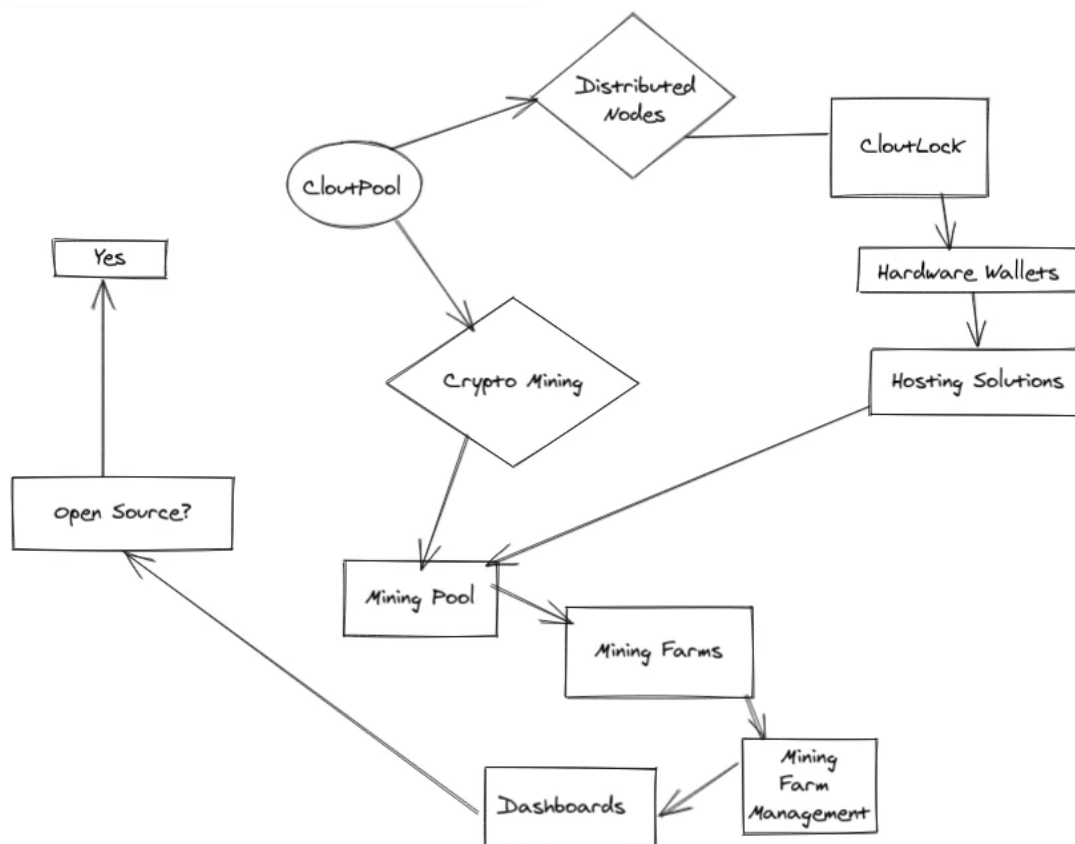
Introduction

BitClout is an up and coming social network built off of the concept of decentralizing social media. It is quite experimental in nature and the premise has been met with both support and backlash. In regards to BitClout, this paper proposes creating another layer untop of BitClout or a BitClout 2.0 if you will. This layer is a hardware and software defined networking system that should be able to expand the capabilities of BitClout through a cryptographic and usecase perspective. It also aims to make BitClout more privacy-focused in regards to cryptography, censorship-resistant and decentralized. This paper introduces two projects known as CloutPool and CloutLock, and its proposed expansions upon BitClout nodes.

Part of the reason BitClout has been met with controversy, has largely been how the network started. The idea of some accounts being pre-reserved for celebrities or large creators and brands without their consent, was considered a growth hack. More then likely this issue can be tackled in the future with integrations of staking for those who have invested their said amount (if they decide to still utilize this concept), or the profiles can simply just be removed as a code commit. Likely, there may need to be some sort of soft fork in order for this commit to rally across nodes. For sake of simplicity, this is something being overlooked in regards to the development of this paper. However, it is important to point out that this technological usecase for kickstarting the network's popularity, obviously wasn't privacy-preserving.

The main concern this paper will focus on is pushing privacy-focused concepts in regards to security, how data is stored, and interconnected peers and data over centralized databases. If BitClout wants to survive in the future, it likely needs to integrate a degree of higher transparency. It also needs to be against any forms of surveillance capitalism if it truly wants to fulfill the role of a decentralized social network.

Protocols



CloutPool wants to be broken into two parts: mining and distributed nodes. For cryptomining, CloutPool wants to target the mining pools and mining farms. This involves both pool hosting and the release of open source mining software. The mining software involved would likely be in the categories of regular mining integrations (pools and protocols) and open source software for enterprises such as mining farm management software. However, what is more important then these integrations are the distributed node architecture and node hosting. Through a hardware perspective, this is where CloutLock comes into play.

The CloutLock project which isn't only a project for the basis of open-source hardware wallets, also works on mobile node syndication. This may not seem like a big thing, but when taking into account running nodes on P2P stores, the potential of Crypto ATMs, Point of Sale systems, etc., CloutLock can bridge the gap between BitClout and many disruptive business models. Most of these business models are centered around mass adoption beyond just a social networking app. It is also important to note that the author utilizes lots of the same concepts in the blockchain architecture of his own projects and crypto projects he has worked on. This is because these models bring about the usecases that a blockchain is truly about.

Mining

As of the writing of this paper, BitClout is yet to release its mining compatibility. Once it is released, it is of the author's opinion that it would likely be something close to Blake2b or utilize some variation of the BLAKE hash functions. CloutPool aims to go beyond just hosting a mining pool, but also release mining pool software and different protocols as an extension to BitClout's chosen algorithm. This may include virtual machines with mining pre-configured in it or variations of multi-cloud infrastructures to support large scale mining farms.

P2P Stores

A simple technological implementation for further expanding BitClout's ecosystem can be P2P stores. This can be done with something as simple as an OpenBazaar fork, and later become more complex like a p2shop module of interconnected P2P shopping carts w/ the decentralized-internet SDK. Something like that would utilize grid computing and offline data syncing capabilities. In regards to P2P stores, is the ability to not just sell things in a privacy-preserving setting, but also redefine the shopping experience. You can configure local places where you might pickup an online order such as drive-through centers within peers. There is an ability to do this in a privacy-preserving way such as adding peers to your "local network" that you might transact with.

Ghost Kitchens

Another concept or technological implementation could be the introduction of virtual restaurant and open franchise type concepts. The virtual restaurant concept have been around for a while, and so has the OpenFranchise model which is different. Applications like BitClout and different technological integrations, can allow for a P2P point of sale system that offers a more decentralized variation of the traditional food delivery model. The ability to launch virtual restaurant brands already exists, but taking it a step further with no centralized database and cutting out the middleman for the virtual brands can make this even more open.

Crypto ATMS

Crypto ATMs are another technological implementation that can either expand BitClout's ecosystem or even be utilized as part of a node distribution system. The simplest crypto ATM can be a fork of Open Bitcoin ATM or other similar projects. One thing to take into account is that likely in the beginning, this would be for demonstration purposes only. This is in part due to need of money transmitting licenses and regulatory aspects. However, over time as more regulatory hurdles are worked through, more and more people may be in the capacity to build pre-configured crypto ATM systems.

BLE Payments

A project to take into consideration, is the utilization of a potential privacy-focused BLE and NFC gateway for BitClout or creator coins like CloutLock. Firstly, it is important to note that this is something also considered experimental. In regards to the technological implementation, likely it would implement something close to the NTAG215 or other similar system. The idea is simple, create cards that implement your seed phase. Then run nodes that call in BitClout's identity API for specific functions that enable you to pay in or transfer BitClout. It would need to be done in a privacy-preserving way that doesn't enable tracking and doesn't store your private information in its system. Likely this can be done with an application interface that works as some sort of authenticator with what you are trying to purchase.

Soft Fork Proposal

Once the code is likely audited and released, comes the possibility of expanding BitClout's ecosystem with direct soft forks to the blockchain. A potential soft fork that the author of this paper has thought of, is the integration of offline browsing compatibility or P2P data transfers for nodes. This goes beyond the BlueGUI protocol or interconnected bluetooth devices for data transferring. Infact, this soft fork proposal actually integrates the decentralized-internet SDK.

The idea is simple. Firstly, the NGINX servers will be upgraded to or replaced with decentralized database capabilities. Then the rest of the SDK which integrates P2P grid and shared computing capabilities through systems like BOINC or peer discovery, will be utilized as the main protocol for node sync, distribution and data transfer. If this can be implemented in the code without dramatically effecting the main architecture design or its hash functions, then this might be possible with a soft fork. Once enough peers are interconnected with small enough distance for peer discovery (which happens over time), then the SDK now provides a backbone for a large scale offline-centric network.

Node Syndication Services

Outside of mining, CloutPool also aims to introduce various node syndication services and hosting services. This can be done both through software offerings and actual hosting services as well. The software can be things such as open-source virtual machines, multi-node VMs, pruned node syncs, and even node libraries. The idea is to have as many nodes hosted the regular way as possible in the beginning.

Open Source Hardware Wallets

The main capabilities of CloutLock revolves around various open source hardware wallets and different levels of hardware integrations or compatibilities. Some examples can even include wallets that can run or sync on variations of the Raspberry Pi, such as the Pi W. It may even be possible to use lightweight variations of Docker or prune nodes to make this more efficient. An even better integration of the same thing, is just running a simple authenticator or a variation of the identity API that stores your seed phrase i.e. (no actual synced node required). You might even be able to run keys with multiple levels of encryption before actually connecting to the contents in the wallet. Outside of trying to run in out of the box hardware, there may be things in the future such as lightweight PCB designs or designs of PCBs that implement software specifically meant for doing single delegated tasks. Other hardware integrations can include headless computers being build for the sole purpose of getting BitClout up and running.

Impact

Eventually, all these technological integrations can create a full-scale decentralized ecosystem. Technologies such as offline networks are already possible with many of the pre-existing open-source technological tools described in this paper. BitClout can also benefit from many of these technologies because these are emerging trends within today's time period. These include areas like e-commerce, smart supply chains, and even disruptive business models. BitClout has the ability to go from a new monetization concept for creators to that and much more. Transactional speed and low fees will also be a plus in the future as more and more people sync nodes and technological implementations become increasingly complex.

Key Milestones

There are a series of key milestones to take into account regarding this paper and its proposals. Milestones such as building the early stages of CloutPool and CloutLock has already been implemented. CloutPool has some research behind it in regards to its software strategy and expected releases. The same applies to CloutLock which is working on early variations of different concepts to run on the Raspberry Pi Model 3B and Pi W. After BitClout makes mining available, this is an early step towards the first phase which is introductory. The second series of milestones will be how these technologies are further developed. Lastly, is how the future look likes.

Milestone #1

The first milestones are centered around the rather simple technological integrations and what has been done so far. These are the early usecases of CloutLock, and a series of tutorials to run on out of the box hardware. There are also the early examples of CloutPool. The focus would not just be running some mining pool in a VPS, but rather an emphasis on different variations of mining software. Milestone #1 is being implemented already and about to finish implementations in the early stage software releases that will follow mining compatibility releases.

Milestone #2

The second series of milestones are centered around how many of the technological integrations being developed will further expand. First and foremost, CloutPool aims to create various custom control panels for mining farms, work on node ecosystem expansion technology, and really establish many of the usecases presented in this paper. Things such as early stage offline-networking capabilities may be introduced depending on consensus. Technologies such as large scale P2P shopping, hardware point of sale systems, and many software-defined networking implementations should be in place as well.

Future Milestones

There are many milestones in regards to how CloutPool and its technologies will expand and the further phase developments. Future milestones include city implementations or partnerships. Generally, the author of this paper has an idea of some small cities for demo pilots that can take place. Massive adoption by vendors is also a huge thing. BitClout being used as another use-case of offline-networking capabilities by the technologies powering it can potentially become promising. Technologies to come to fruition include the large scale adaption of mining and hardware nodes.

Cryptographic Mechanisms

There are a series of technologies that implement certain cryptographic mechanisms that may be compatible with BitClout. The focus here will be on the shielding techniques utilized for protecting the seed phase for custom software and hardware. It is also important to note the possibility of a cryptographic soft fork in the future. Since BitClout utilizes some form of paraphrase generation, likely it may be able to implement a variation of Quantum diceware in the future. Generating words through randomization done through Quantum random numbers, may be the simplest form of high entropy cryptographic protection in the future.

Summary

The novel usecases presented in this paper, are many. Even in the event that mining may not be available in the near future, already comes lots of possibilities for CloutPool with node hosting and various software integrations. The same applies to CloutLock with various hardware integrations. Overall, this paper serves as a good overview of CloutPool and CloutLock as well as what is in store.

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Disclaimer

Please note any usage or investments you make on BitClout is at your own risk. This paper is solely on technology and not to meant to solicit financial advice or advice on the validity of any said platform.