Decent Land

A social network protocol built on Arweave's Permaweb

By Darwin

On May 20th 2021

Abstract

DecentLand is a social network protocol built on the Permaweb of the Arweave network. The project’s protocol aims to solidify the DAOs technical fundamentals and ecosystem by building a social experiment around it.

By aggregating DAO and NFT industry domains, DecentLand will play the role of a wrapped DAO with extended social-based functionalities. In this paper, DAO and PSC are two equivalent abbreviations. While DAO in the blockchain and web3 industry is known for Decentralized Autonomous Organization, PSC in Arweave ecosystem stands for Profit Sharing Community.

Recently, collectible, art and, gaming NFT related projects testified a big surge in terms of daily active users (DAUs) as well as Dapps volumes. However, most of those projects point to a media/art category. Therefore, a large portion of users not interested in the art industry isn't joining the new wave of the tokenized art. On the other side, DecentLand enters the NFT industry from a new door: tokenized text content.

DecentLand protocol has a DAO mechanism controlled by its users in a decentralized, fair and transparent manner. The decentralized governance policy guarantee for the project members an immutable-like protocol with the possibilities of major/manner changes through community votes (improvement proposals).

This paper brightens up the fundamentals of DecentLand protocol, its tokenomics, and its composed data protocol.

Table of Contents

I – Introduction

1. Decentralized Autonomous Organization

1.1 Definition

Decentralized Autonomous Organization or DAO is a blockchain-powered organization that can run on its own without any central authority or management hierarchy. In a DAO, all the management and operational rules are recorded on blockchain in the form of smart contracts, and the distributed consensus protocols and Token Economy Incentive are utilized to realize organizations' self-operation, self-governance, and self-evolution.

DAOs represent a radical rethink of how organisations, such as companies, can be structured and run, including changes in ownership, governance, decision-making and profit distribution. DAOs not only lower transaction costs dramatically — and transaction costs are the very reason for a firm's existence — through their use of smart contracts they can prevent laws and other rules being broken.

1.2 Characteristics

A. Distributed and Decentralized

A traditional organization follows a top–down hierarchy with centralized authority. However, there is no central authority and hierarchical architecture in DAO, the DAO's mission is achieved through bottom–up interaction, coordination, and cooperation among distributed network nodes.

Therefore, the relationships between nodes and nodes or nodes and organizations are no longer determined by administrative affiliation, but follow the principles of equality, voluntariness, reciprocity and mutual benefit, and driven by individual's resource endowment and complementary advantage.

B. Autonomous and Automated

In an ideal DAO, code is law, organization is no longer pyramidal but distributed, power is no longer centralized but decentralized, and management is no longer based on a bureaucratic system but on community autonomy. In addition, as DAO usually runs under the regulation rules and collaboration patterns defined by all stakeholders, consensus and trust within a DAO are easier to achieve, and thus the trust costs, communication costs, and transaction costs would be minimized.

C. Organized and Ordered

Relying on smart contracts, DAO's operational rules, participants' responsibility and authority, and the rewards and penalties terms are open and transparent. Through a series of efficient governance rules, rights and interests of relevant participants are accurately differentiated and dimensioned, that is, individuals who pay, contribute, and assume responsibility would be matched with corresponding powers and benefits to promote the division of labor and the unification of power, responsibilities and interests, so as to make the operation of the organization more coordinated and orderly.

1.3 History

Talking about decentralized autonomous organizations without mentioning "The DAO" is a lack history.

The Decentralized Autonomous Organization (known as The DAO) was meant to operate as a venture capital fund for the "crypto" industry.

At the beginning of May 2016, a few members of the Ethereum community announced the inception of The DAO, which was also known as Genesis DAO. It was built as a smart contract on the Ethereum blockchain.. The DAO had a creation period during which anyone was allowed to send Ether to a unique wallet address in exchange for DAO tokens on a 1–100 scale. The creation period was an unexpected success as it managed to gather 12.7M Ether (worth around $42.2B at the time of

writing this paper – ETH is trading at $3,325.00 level), making it the biggest crowdfund ever. At some point, when Ether was trading at $20, the total Ether from The DAO was worth over $250 million.

On June 17th 2016, a hacker found a loophole (recursive call exploit) in the coding that allowed him to drain funds from The DAO. In the first few hours of the attack, 3.6 million ETH were stolen. However, Since then, a series of DAOs have been proposed, e.g. DigixDAO, Aragon, Steemit, etc.

2. Arweave's Implementation

2.1 Profit Sharing Community

Profit-Sharing Community or PSC is the implementation of DAO terminology in Arweave's ecosystem.

Arweave based PSCs provide for the Dapp that they belong for a new sustainable economic structure by integrating the decentralized autonomous organization governance model with Profit Sharing Tokens (PSTs).

Profit-sharing communities allow PST holders to vote to mint more PSTs. For example, members of a profit-sharing community can vote to mint PSTs as a reward for those who contribute to a community's success in any number of ways. This, combined with the tip distribution mechanism of PSTs themselves and PSC's governance capabilities, results in a combination that empowers and incentivizes PSC members while affording them greater control over a community's development.

2.2 Profit Sharing Tokens

Profit-Sharing Tokens or PSTs let the Dapp developer monetize themselves as well as their DAO users with each interaction with the Dapp's user interface.

Once an App gets deployed in the Arweave network, it will be permanently accessible and immutable. No once, including the App developers can mutate its code or behavior.

Therefore, the token holders can be sure that they will be incentivized as long as they hold the PST tokens in their Arweave wallet. That's because the Applications built on Arweave live theoretically forever.

2.3 SmartWeave

SmartWeave is one of the most scalable smart contracts protocols available at the time of writing. SmartWeave contracts Use lazy-evaluation to move the burden of contract execution from network nodes to smart contract users.

Currently, the SmartWeave protocol still in its prototype version (V0.4), but it's gaining real traction, having implemented on its technology, many real-world use-cases.

In a traditional smart contract system (like TRON, EOS, and Ethereum V1), every node will execute every transaction, rejecting those that contain invalid operations. SmartWeave takes a different approach: instead of requiring network nodes to execute smart contract code, a system of "lazy evaluation" is employed, pushing the computation of transaction validation to users of the smart contract.

SmartWeave supports JavaScript, using the client's unmodified execution engine.

II – DecentLand Protocol

Since most traditional social media platforms are centralized, the emerging decentralized social media platforms promise a different way of data production and control. Most importantly, it enables users to have full control over their data with no limits, and that's what decent land will provide.

1. DecentLand As a Word

DecentLand is a composed name that consists of two words:

- ***"decent"***: nodding to decency and decentralization at the same time.

- ***"Land"***: indicating the set of Tribuses (communities) created over the protocol.

2. Protocol's Inspirations

decent land is hybrid of several ideas and protocols combined into one merger protocol.

2.1 Reddit

Reddit is a community-determined aggregator of content. It is a social platform where users submit posts that other users 'upvote' or 'downvote' based on if they like it. It's the self-proclaimed "front page of the internet"

Inspired features are:

- Communities as forums
- Subreddits
- Diversity in subject's discussions: philosophy, science, technology, politics, etcetera.
- Karma points.

DecentLand will try to fix:

- Skeptical fan base and the Reddit system's negative feedback option.
- Community centralization: owned (centralized power) by admins/moderators.
- Classifying users basing on their Karma regardless their content.
- Unclear rules to join a community or to guarantee admin's allow on posts sharing.

2.2 KarmaDAO

According to Andrew Lee's Medium article, Karma DAO is the first "*token-permissioned networking chat group on Telegram"* based on the Ethereum blockchain.

Inspired features are:

- Token-Permissioned DAO
- Decentralized social network
- Community Ownership Economy

DecentLand will try to fix:

- the act of using centralised third party in DAO's core Protocol: Telegram
- User experience
- Protocol's non unification
- Permanent archiving of user's content

2.3 PublicSquare Protocol

After Twitter suspend of Trump's account POTUS, and the mysterious privacy policy of Twitter foundation, Sam Williams announced in a tweet about a data protocol for an unbiased public square based on Arweave network.

Inspired features are:

- Open protocol, anyone can join the network.
- Unbiased, rules less & simple.
- Permanent storage of discussions.
- On-chain user activity

DecentLand will try to fix:

- Presence of protocol's dashboard: UI
- Monetizing the social protocol by a PSC

According the pros and cons mentioned above, decent land will be a "better" hybrid built totally on-chain**.**

3. Hierarchical Main Protocol

In the intention to create a hierarchical tags-based protocol, a global tag will be used to identify decentland-related transactions from the network.

Also, protocols and user interface versions will be recorded in additional tags. It follows SamVer versioning.

DecentLand users are open to choose which version they want to use. Each version's release is immutable once it gets deployed (recorded, indexed) in the Arweave network. Users are free to use which version they like and trust.Whatever every last version release will contain and support the latest protocol's features (MINOR or MAJOR releases).

DecentLand main protocol is split into two implementations: hierarchical tagging protocol, and SmartWeave contracts. Both implementations and linked to each other in the underlying infrastructure.

4. Tribus Architecture

Communities created over DecentLand protocol are called “Tribuses”. The word Tribus is derived from “tribe”, which means a group of persons having a common character, occupation, or interests.

Each Tribus is characterized by two main identifiers: tribus-name and tribus-id.While the tribus-name be duplicated, tribus-id is equal to the PSC creation transaction ID (which is equivalent to the PSC ID).

The Tribuse is created/updated through interactions with one of DecentLand SmartWeave contracts. The smart contract ensures privacy validation and anti-tampering tries.

Also, the logic of the SmartWeave contract allows only for the DAO creator to create a Tribus for his/her DAO.

4.1 Tribus Structure

Tribus structure will be similar to Merkle Patricia Trie or "Merkle Root" in Ethereum blockchain as the following:

- Entry trie: Tribus
- Sub-node: post in a Tribus
- Reply: post's reply(ies)

4.2 Tribus Ownership Economy

Before creating a Tribus (community), the creator, which is the DAO creator, defines a minimum held and staked (locked) amount of the DAO token by the user to be eligible to post in that community (post’s visibility and membership entry).

Regardless of who's the user, his content, or what he's going to post, there is no way to restrict his right to publish in that Tribus other than minimum held and locked DAO’s PST token.

4.3 Tribus Entries

To be a user with the right of posting in a Tribus, the individual has to meet two requirements: membership entry and post visibility. Those Tribus entries are pre-defined by the Tribus owner at the time of creation, and they can be updated later by interaction with the corresponding SmartWeave contract.

A- Membership entry:

To be able to “join” a Tribus and have the right to post in it, the user has to be a member of it first of all. And it’s simple, the user has to lock (stake) more than or equal to the amount assigned to membership entry of the Tribus he/she wants to be a member of. This process – in case the user hasn’t locked PSTs - requires using CommunityXYZ community page to lock from its PSTs.

B- Post visibility:

To keep his/her posts visible in Tribus instance (page), the user has to hold their Arweave wallet more than – from the PSTs of the PSC’s Tribus- or equal to the post visibility condition.

Therefore, a functional membership of a Tribus is tradable: buy to join, sell to leave.

4.4 Anti-spam Mechanism

Online forums are not free from unwanted user behavior. And when it happens, it can be resolved by two methods:

The first method is a fast reaction that can be taken by the community’s founders (admins/moderators) which have a centralized authority to ban any user and delete any post.

The second method requires a longer period and a lot of effort to achieve a reaction (not guaranteed). It’s when the forum or community admins didn’t take any action, hence the members start to report the spam-post or the user (or both) to the system they are using (e.g. Facebook). Then they have to wait a good amount of time awaiting the validation

of the report by the system's algorithm or privacy policy violation rules.

However, in DecentLand, there is only a single simple decentralized method for the anti-spam or FUD mechanism. When a Tribus member sees a post-content that violate the Tribus ethics, he/she can create a voting proposal in the DAO of the Tribus, which, the vote proposes to slash the user's membership (unlock his tokens) or hide his posts (burn his held amount of PSTs to less than the min. post's visibility value). When the voting period ends (according to the DAOs vote length), the winning decision will take action: democracy.

In conclusion, "Admins" or Tribus creators have zero power against the members of the Tribus unless more than or equal to the required "yays" percentage of the DAO's support value.

5. Usernames Scarcity System

DecentLand's usernames represent a unique limited type of tokens. To preserve usernames uniqueness and minter's username ownership across the DecentLand ecosystem, the logic of this system(sub-protocol) is implemented in a SmartWeave contract.

5.1 Supported Characters

Username's characters are lower-case alphabetical only. In other words, from a to z, or from character code 97 to 122.

5.2 Token-Type

Each token (typeof username) has a limited supply to ensure usernames rarity. The supply of each type is determined by the following formula: $x \hat{} y$ (p-list) where x represents the alphabetic characters number (fixed value, 26); and y evaluates to the number of username's length (1 to 7).
Therefore, this is the list of each token's type and its total supply:

- "ichi": 26
- "ni": 626
- "san": 17,576.00
- "shi": 456,976.00
- "go": 11,881,376.00
- "roku": 308,915,776.00
- "shichi": 8,031,810,176.00

Token ticker's name signify the Japanese translation of the username's minimum length (e.g. "ichi" signify one)

5.3 Minting Stages

There are three usernames minting stages based on Arweave's network blockHeight (ALPHA, BETA, and GAMMA). All the stages start simultaneously, but in the end, only one stage will last, which is GAMMA (where usernames are common, less scarce).

Each stage defines the allowed minimal username's length. For each username's length, there is a type of tokens, and because the minimal username length is one, and the maximal is seven, it means there are seven types of tokens (listed on 5.2 Token-Type).

The ALPHA minting stage allows, the minimal username length to be 1 or 2 (Ichi or ni tokens). Anything higher is allowed if it still available in the supply. In the BETA stage, the minimal length increases to 3 (san tokens). Then, in the last minting stage GAMMA, the least allowed username's length will be 4 characters (shi tokens).

The special minting stages are limited by time (blockHeight) and tokens' available supply. For that reason, all the minting stages start simultaneously. When a minting stage ends (limited by the Arweave network's blockHeight), the minimal username's length will be set to the value of the next stage.

Regardless of all the stage's tokens have been minted or not, the minimum allowed username's length will increase to the value of the following stage. The un-minted tokens (token will available supply greater than zero) will be locked forever in the contract.

If a stage's available supply ends (totally minted) before it reaches the blockHeight level's split, users can start minting a new username according to the next stage limits (all stages start simultaneously, but ends separately).

Usernames “tokens” are the only piece of data under the Decentland protocol. It’s not in direct relation with the DLT token. The usernames mining SmartWeave contract is only available on testnet to eliminate the Pre-minting phenomena and start it with a fair launch.

5.4 Signup and Mint Functionalities

A- Signup:

When a new user wants to interact with DecentLand’s protocol functionalities, they only require having an Arweave wallet to create an account. When creating a new account, the user enters the username he would like to own (mint), the bio (biography), and an Arweave transaction ID for a profile picture (can be any type of media: JPEG, GIF, PNG, etc.). If the username he’s trying to mint is available, the account creating transaction will succeed; otherwise, it will fail to several possible restrictions.

B- Mint:

The signup transaction includes the action of minting a username. Each wallet can perform the registration once, after that, the registered user can mint a new username also for one time. Therefore, each wallet can acquire a maximum of two usernames.

5.5 Transfer Username

Usernames under DecentLand protocol are transferable tokens. It can be only transferred from and to registered (signed up) wallets. Users can transfer usernames from their wallets when they have more than one acquired username. The “CurrentUsername” which is the displaying username of a user cannot be transferred.

5.6 Switch Username

When a user has more than one username, he/she can switch amongst the usernames available in the wallet. In other words, the “CurrentUsername” can be switched.

6. Profile Actions

After creating an account in DecentLand protocol, users have the ability to perform on-chain profiles-actions through a SmartWeave contract.

6.1 Follow & Unfollow

Similar to the traditional social networks, user A can follow user B to keep tracking his/her activity over the protocol in the timeline. Unfollow revert the action.

6.2 Block & Unblock

As same as stated before, any user can block someone else (either being a following or not) to prevent him/her from following them, or tracking their activity. Blocked users are removed from the Friendzone list if they existed.

6.3 Introducing Friendzone

Friendzone is DecentLand developed and one of its key features.

When two users are following each other, they will be considered "friendzoned" when each user, A, and B, add the other to his/her `Friendzone`. Therefore, when both users are friendzoned, they will be incentivized, each, by the others' likes fees. (E.g. when user C likes user A post, user B will get a % from the fees sent to user A -- and vice-versa).

The user decides the percentage he/she would like to share with the Friendzone list members on the account’s registration (and it can be modified later). The sharing percentage can be any value between 10% and 90% distributed on a pro-rata basis.

7. DecentLand Posts

7.1 Posts Content-Type

Any post on DecentLand Tribuses has a content-type of text/plain. The post itself represents a data transaction on the Arweave network. And the posted evaluates to the transactionID.

And because the post is a transaction on the permaweb, therefore, DecentLand posts live theoretically forever.

7.2 Posts As NFT: Eco-Friendly

DecentLand takes advantage of a community-developed invention on the Arweave ecosystem called “atomic NFTs”.

Atomic NFT is eco-friendly because it’s issued on the Arweave network which uses Proof of Access (recently upgraded to Succinct Proof of Random Access - SPoRA) as a consensus algorithm. SPoRA, unlike PoW based networks, consumes much less energy, hence, it reduces the CO2 emissions and the global warming phenomena.

However, DecentLand uses this new technology to issue user’s posts as NFT tokens. In other words, when a user publishes a post in a Tribus, he/she will at the same time issue an NFT tokenizing the post.

7.3 Tradable Posts

Because the user’s posts are plain-text NFT, it means that the post is a token, then, it can be circulated in the network (trading).

This is another highlight of the DecentLand platform where the user can generate passive income from his written words.

8. Re-enforcement for PSCs

DecentLand Protocol re-enforces every PSC that creates a Tribus over the protocol. When the PSC (DAO) creator decides to create a Tribus for his/her PSC, the social experiment generated on the Tribus will re-enforce the tokenomics of the corresponding PSC due to the Tribus entry requirements.

As mentioned before, a Tribus valid user has to meet both the membership entry and post visibility requirements. Hence, the social experiment will result in more PST holders and PST stakes of that PSC.

III- Tokenomics

1. DLT Token Metrics

Decent Land Token (ticker: DLT) is a PST token on the Arweave network.

DLT represents the token of DecentLand DAO and the protocol at the same time.

Only 10,000,000.00 (10M) DLT tokens can ever exist.

A separate document will be shared later detailing DLT token metrics (token allocation, lockups, and more).

2. Token Use-Cases

2.1 Governance Token

DecentLand essentially is a DAO, and DLT is its token. DLT is used as a governance token to share the protocol-generated fees with the token holders.

Each interaction with the platform’s user interface requires paying a fee in AR token. The fee is dynamic and changes with AR volatility.

Generated fee distribution is done on a pro-rata basis (DLT held per user’s wallet).

2.2 Utility Token

All of DecentLand SmartWeave contracts require having a DLT token in the caller’s wallet to execute the logic of the contract (functions).

IV- Conclusion

DecentLand, the land of DAOs will create an all-new incentivized social experiment based on a governance mechanism.

Both individual and Arweave PSC, benefit from the experiment, or users' activity on DecentLand protocol.

DecentLand aims to solidify the DAOs ecosystem of the Arweave network. As well as creating a

whole new vision of how data protocols can be composed.

References

[1] The Story of The DAO and Its History and Consequences https://medium.com/swlh/the-story-of-the-dao-its-history-and-consequences-71e6a8a551ee

[2] Decentralized Autonomous Organizations: Concept, Model, and Applications https://www.researchgate.net/publication/335800811_Decentralized_Autonomous_Organizations_Concept_Model_and_Applications

[3] Profit Sharing Communities: A Deep Dive By Arweave https://coinmarketcap.com/alexandria/article/profit-sharing-communities-a-deep-dive-by-arweave#toc-how-do-profit-sharing-communities-work-

[4] SmartWeave https://github.com/ArweaveTeam/SmartWeave#smartweave