

DeRender

A New Protocol for the Lease and Transaction of Online
Service Rights, and Its Derivative Trading Market

www.derender.tech

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1 Introduction

Taking ChatGPT 4.0 as an example, many users currently require similar online technology services, necessitating a monthly fee of \$20 to access the services. To maintain access, users consistently pay \$20 each month, even though their usage might be low, resulting in significant idle time. These users are categorized as Type A. Additionally, there are users with similar needs who want to use ChatGPT 4.0 to assist with various tasks but are reluctant to bear the monthly cost of \$20, or are unable to make payments in USD due to regional restrictions, making them Type B users. A market demand emerges when Type A users seek to share the \$20 monthly cost with others, and Type B users look for low-cost and convenient access to online technology services. Consequently, a market for Type A users to rent out their service rights to Type B users develops. Similarly, this concept can extend to other online technology service platforms, video platforms, music platforms, etc.

To address the aforementioned market demand, it is necessary to establish a trading market, where the main assets traded are the account credentials associated with Type A users' online services. A crucial prerequisite is that the password of a Type A user's account can only be changed through email verification or other secure methods to ensure that,

once disclosed, it cannot be arbitrarily altered by others. However, in this market, neither Type A nor Type B users can be completely trusted. For example:

Type A users might post false account credentials to defraud Type B users.

Type A users could initially share valid account credentials, which Type B users verify and use, then pay the rental fee to Type A users. However, Type A users might change the password upon receiving the rent, preventing Type B users from accessing the service.

After obtaining the account credentials from Type A users, Type B users might want to use the service for free and falsely claim that the credentials are not working, etc.

To tackle these issues, DeRender starts by establishing a decentralized rental transaction protocol, subsequently building a decentralized rental marketplace to meet the market demands mentioned above and to address the trust issues with both Type A and B users. In the protocol, we refer to the account credentials that Type A users offer for rent as an "product".

2 Technical Architecture

2.1 Decentralized Rental Transaction Protocol Overview

1. Type A User Product Listings: When a Type A user lists a product, a security margin is required. After listing, the product is placed into a shared pool of similar product types, making it impossible for the Type A user to identify their own product.

2. Type B User Rentals: Multiple Type B users can start renting products, also requiring a security margin. Upon acquiring the rights to use the product, they must vote on its usability, casting either a "Pass" or "Fail" vote. Not to vote is automatically considered a "Pass" vote.

3. Product Expiry and Voting Outcome: At product expiry, the voting results are tallied, calculating the approval rate as the weight of approve votes divided by the total weight of all votes. An approval rate $>50\%$ classifies the Type A user as honest, returning their security margin and paying their sales revenue. An approval rate $\leq 50\%$ classifies them as dishonest, forfeiting their sales revenue and incurring a penalty as per the protocol.

4. Implications of Voting Results for Type B Users: In cases where the approval rate exceeds 50%, Type B users who voted "Pass" are

considered honest, while those who voted "Fail" are considered dishonest. Conversely, if the approval rate is $\leq 50\%$, "Pass" voters are deemed dishonest, and "Fail" voters are honest.

5. Financial Consequences for Type B Users: If the approval rate is $> 50\%$, all Type B users must pay the order cost. If the approval rate is $\leq 50\%$, none of the Type B users have to pay. Regardless of the approval rate, additional fines are levied on dishonest users. Type B users attempting to avoid payment may face not only the order cost but also a fine, incentivizing honest voting.

6. Anonymity of Listings for Type A Users: The inability of Type A users to identify their own products prevents them from falsifying votes as Type B users, ensuring authentic feedback on their listings.

2.2 Detailed Explanation of the Decentralized Rental Transaction Protocol

A distinctive feature of the products within the protocol is their time-sensitivity. Once a Type A user lists a product, Type B users begin renting it, paying per time segment. Upon the expiration of the rental period, the Type A user must change the product's password to reclaim usage rights. Thus, Type A users specify a usable duration for the product at the time of listing, such as 4 weeks. However, since multiple Type B

users may rent the product sequentially, each may have different durations of use and consequently different payment amounts.

2.2.1 Protocol Rules on Product Definitions

(1) Listing Duration: At the time of listing, a product can be specified with a "maximum usable duration," only defined in weeks, such as: up to 4 weeks, 3 weeks, 2 weeks, or 1 week.

(2)Duration Reduction: After listing, as transactions occur, the "maximum usable duration" begins to reduce over time, decreasing weekly, e.g., from 4 weeks to 3 weeks, then 2 weeks, and finally 1 week.

(3)Pricing by Duration: When listing, the price corresponding to the "maximum usable duration" can be set, such as \$5 for 4 weeks—termed as the "highest price." Prices for reduced durations can also be specified, e.g., \$4 for 3 weeks, \$3 for 2 weeks, \$2 for 1 week, with a stipulation that the highest price > price for 3 weeks > price for 2 weeks > price for 1 week.

(4)Week Approximation: In the protocol, the term "week" is an approximation and not strictly bound to 7 days. For instance, 26-30 days is termed as 4 weeks, 19-25 days as 3 weeks, 12-18 days as 2 weeks, and 5-11 days as 1 week. The last four days are a cooldown period where the product is not for sale, awaiting settlement.

30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15

(5)Maximum Shareability: Each type of product has a "maximum shareable quantity" limit, indicating how many people can simultaneously rent the product.

(6)Product Status: The product status transitions from "listed" (when a Type B user places an order) to "on sale" (upon expiration) to "pending settlement" (automatic system settlement) to "settled".

These protocols ensure a structured and efficient management of rental transactions in a decentralized environment, allowing for transparent and dynamic adjustments based on usage and time.

2.2.2 Protocol Rules for Listing Products by Type A Users

(1) Stake Amount Requirement: When Type A users list products, they must stake a security amount ranging from **the highest price multiplied by half of the "maximum shareable quantity"** to the **highest price multiplied by the "maximum shareable quantity"**. For example, if the maximum shareable quantity is 9, the stake amount would range from **highest price * 4.5** to **highest price * 9**. The larger the stake amount is, the better the promotional ranking at the same price. Additionally, if the approval rate is over 50%, the stake amount may earn a staking reward

under the protocol's mining mechanism, similar to POS mining. Details of these rewards can be found in the token distribution mechanism section.

(2) **Irrevocability of Listings:** Once a transaction occurs, the listed product cannot be withdrawn by a Type A user.

(3) **Withdrawal of Listings:** If no transactions occur, a Type A user may withdraw their listing. If the product has been listed for at least three days, they can receive a staking reward under the protocol, although the reward percentage differs from that in scenarios where transactions occur. Details can be found in the token distribution mechanism section.

(4) **Settlement upon Listing Expiry:** When a product listing expires, the protocol automatically settles the account, calculating the product's approval rate. If the approval rate is over 50%, the user's security margin is refunded, the revenue from the product order is transferred, staking rewards are issued, and transaction fees are collected. If the approval rate is equal to or less than 50%, penalties are first deducted, then any remaining security margin is refunded to the user. In this case, no staking rewards, order revenues, or transaction fees are given. Details can be found in the token distribution mechanism section.

(5) **Early Settlement:** If the protocol calculates an approval rate of $\leq 50\%$ early, Type A users are permitted to initiate settlement early to minimize their losses. This provision is designed to prevent organized

groups of Type B users from using Type A user's products for free.

2.2.3 Protocol Rules for the Shared Pool in the Trading Market

In the trading market, products of the same type are grouped together in what is referred to as a "shared pool". Once a Type A user lists a product, it is placed in the shared pool of the same type, ensuring that the Type A user cannot identify their own listed product.

(1)Uniform Product Descriptions: Within the shared pool, the descriptions of the products are uniform. For example, for products of the type ChatGPT4, all descriptions will only relate to ChatGPT4 and contain no specific information about any individual product.

(2)Pricing in the Shared Pool: The prices of the products within the shared pool are not the prices set by Type A users but rather the security margin amounts that Type B users need to pay. This security margin is calculated as the price set by the Type A user multiplied by a random number between 1.5 and 2.0. This ensures that Type B users do not overpay on security margin while also making it difficult for Type A users to locate their own listed products.

(3)Price Monitoring and Regulation: The protocol system automatically monitors the average price of similar products. When a

Type A user lists a product, the price must not deviate significantly from this average, ensuring that the listing prices of Type A users fall within a certain range. This approach also allows prices to adjust in response to average price movements. Concentrating the prices in this way makes it even harder for Type A users to distinguish which product they have listed.

2.2.4 Protocol Rules for Renting Party Type B Users

(1) **Order Placement by Type B Users:** When Type B users place an order, they pay a security margin rather than making an immediate payment transfer.

(2) **Order Verification:** After placing an order, Type B users must verify that the rights account associated with their order is functional. They then cast their vote within the system as either "Pass" or "Fail". If no vote is cast, it is automatically counted as an "Pass" vote.

(3) **Settlement of Products:** At product settlement, if the approval rate is over 50%, all Type B users pay the order fee. Those who voted "Pass" receive a staking reward, while those who voted "Fail" do not receive a staking reward and must pay an additional penalty. Conversely, if the approval rate is 50% or less, no Type B users pay the order fee; however, those who voted "Pass" must pay an additional penalty, and those who voted "Fail" receive a staking reward.

(4) **Restrictions for Type A Users:** Type A users are not allowed to place orders for their own products within the protocol system.

(5) **Order Restrictions for Type B Users:** Within the protocol system, if Type B users have already placed an order for a product of the same type, they are not allowed to place another order for the same type of product before the expiry of the existing product and unless they have cast a "Fail" vote.

2.2.5 Voting Approval Rate Calculation Rules

Taking the maximum shared quantity of 10 as an example, the corresponding weight parameter set is: {0.990, 0.992, 0.994, 0.996, 0.998, 1.00, 0.999, 0.997, 0.995, 0.993}

(1) **Ordering of Votes:** Votes are sorted based on the order placement time of Type B users. Unvoted entries are counted as approve votes, with earlier orders taking precedence over later ones.

(2) **Vote Mapping:** 'Pass' votes are mapped to 1, and 'Fail' votes are mapped to 2.

(3) **Weight Assignment:** The voting results are matched with the weight parameter set, with priority given to the central values in the set.

- If there is only one vote in the voting result set, i.e., a single sale {1}, the central value from the parameter set is selected.

{0.990 0.992 0.994 0.996 **0.998** 1.00 0.999 0.997 0.995 0.993}

- If there are two votes in the voting result set, i.e., two sales {1, 1}, the central values from the parameter set are selected.

{0.990 0.992 0.994 0.996 **0.998 1.00** 0.999 0.997 0.995 0.993}

- If there are three votes in the voting result set, i.e., three sales {1, 1, 2}, the central values from the parameter set are selected.

{0.990 0.992 0.994 **0.996 0.998 1.00** 0.999 0.997 0.995 0.993}

- If there are four votes in the voting result set, i.e., four sales {1, 2, 1, 1}, the central values from the parameter set are selected.

{0.990 0.992 0.994 **0.996 0.998 1.00 0.999** 0.997 0.995 0.993}

- Each instance prioritizes weights from the center of the parameter set to ensure that the votes of each participant are appropriately weighted according to their timeliness and order.

Similarly, the approval rate= the weight of approve votes/total weight.

3 Tokenomics

3.1 \$DeRD Token, the unity token of DeRender

\$DeRD is a token issued on the Solana Network, with a total supply of 2,022,113,000, to mark the milestone of OpenAI's official launch of ChatGPT to the public on November 30,2022. Its primary functions are to facilitate payments and staking within the DeRender marketplace. The market value and price of DeRD fluctuate with the trading volume of the market. In the DeRender trading market under the DeRender protocol, \$DeRD is the exclusive currency for payments, staking, and other financial activities.

The minting address is `HyhvsbDoxNPJYcMUHUopDWeU2ip6FxRatvrYMH6W7UjM`.

The rights to issue more tokens or freeze them have been relinquished, allowing for public review and supervision of \$DeRD's distribution and usage.

3.2 Token Allocation Policy

Category	Locked period (Months)	Vesting Period (Months)	%Allocation	Total Number of Tokens	% Unlocked at Genesis (TGE)
Sharing Reward	1	48	10.00%	202,211,300	0
Mining Reward(PoS)	0	48	30.00%	606,633,900	0
Advisors	4	12	10.00%	202,211,300	0

Core Contributors	12	12	15.00%	303,316,950	0
Ecosystem Growth Fund	1	36	15.00%	303,316,950	10.00%
Angel Round	1	9	10.00%	202,211,300	15%
Public Sale	0	0	10.00%	202,211,300	100%
Total			100.00%	2,022,113,000	13.00%

As shown in the table above, to mark the milestone of OpenAI's official launch of ChatGPT to the public on November 30, 2022, we set the total supply of \$ DeRD at 2,022,113,000. Moreover, the DeRD tokens will not be issued in any form in the future.

Below are some definitions of terms from the table above:

The "Locked Period" is defined as the time during which investors or holders are prohibited from selling or transferring their assets. This period is intended to restrict the liquidity of assets to fulfill specific management purposes. Reasons and objectives for establishing a Locked Period include:

Market Stability: To prevent the massive sell-off of newly issued tokens at the onset of listing, which could lead to price fluctuations.

Increased Commitment: To ensure that investors and project participants are committed to the enterprise or project over the long term.

Supply Management: To control the quantity of tradable assets in the market, avoiding devaluation due to excess supply.

The "Vesting Period" refers to the duration during which investors,

employees, or project founders must wait before they fully own the assets (tokens) they have been granted or purchased. This concept is used to secure long-term commitment to the project or company and to minimize short-term impacts on the market. Key points regarding the Vesting Period include:

Incentive Retention: The Vesting Period encourages employees or project participants to remain with the company or project long-term, as they can only fully acquire their assets after a certain period.

Prevention of Premature Selling: Particularly in cryptocurrency projects, the Vesting Period can prevent early participants from selling their tokens immediately upon receipt, an action that could rapidly decrease token value.

Risk Management: By delaying the complete ownership of assets, the Vesting Period helps manage market supply and avoid market instability due to the sudden release of a large volume of assets.

Token Generation Event (TGE)

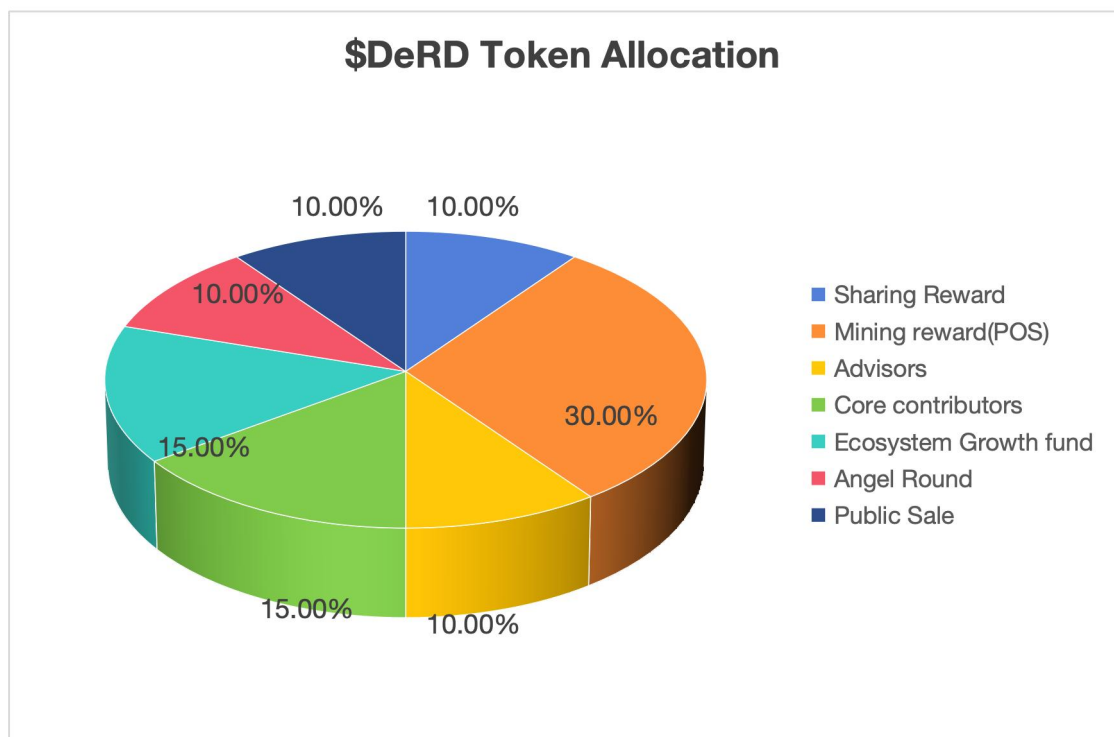
Definition: A TGE is the event where a blockchain project creates and initially distributes its cryptocurrency or tokens. This marks the official entry of the tokens into the market and trading platforms.

Purpose: Through the TGE, the project can raise funds, while community members and investors gain access to the project tokens, enabling them to participate in the project ecosystem or invest.

Unlocked at Genesis

Meaning: Typically, blockchain projects set various token lock-up and release mechanisms at the TGE. "Unlocked at Genesis" indicates that a portion of the tokens is entirely unlocked at the time of the TGE, allowing holders to immediately use these tokens for trading, investing, or other activities.

Purpose: Allowing partial token availability at launch increases liquidity and incentivizes early users or investors.



Token distribution will be carried out according to the basic principles outlined in the chart above, to implement maximal decentralization and prevent centralization. Specifically,

Sharing Rewards:10%.

Mining Reward(PoS): 30%.

Advisors:10%.

Core Contributors: 15%.

Ecosystem Growth Fund: 15%.

Angel Round: 10%.

Public Sale: 10%.

The "Ecosystem Growth Fund" is a common funding mechanism in the technology sector, especially in blockchain and cryptocurrency projects, designed to support and accelerate development and innovation within the ecosystem. Established by the project's founding team or core organization, the purpose of this fund is to foster the overall growth and prosperity of the project by providing funding to developers, startups, partners, and other groups or individuals who may contribute to the DeRender ecosystem, particularly after the project achieves decentralization.

Key Features and Uses

Goals and Objectives: Increase the activity and diversity of the ecosystem, enhance technology adoption, expand the user base, and ultimately drive the market value and technological prospects of the entire ecosystem.

Management and Distribution: The management of the fund is usually transparent, with allocation decisions made through community voting or

by a dedicated committee, ensuring that funds are used for the most impactful projects.

Ecosystem Growth Funds have played a crucial role in many successful blockchain projects. These funds not only provide financial support but also often include technical support, marketing, networking resources, and more to comprehensively support the development of the recipients.

In summary, the Ecosystem Growth Fund is a strategic tool designed to promote the healthy development and expansion of the DeRender technology platform and community by providing financial and resource support.

3.3 Current Token Distribution Details within the System

1. 40% of the total token supply is allocated for free distribution to the market. If the total supply is represented as **20G**, then **8G** is designated for free distribution, covering the following aspects:

- (1) Registration Rewards
- (2) Promotion Rewards

(3) Staking Interests (PoS Mining)

Remaining Quantity Range (A)	Annual Yield from Staking Interest (PoS Mining)	Registration Reward Amount	Referral Reward	Promoter Reward
$4G < A \leq 8G$	96%	10000	2000	5000
$2G < A \leq 4G$	48%	5000	1000	2500
$1 < A \leq 2G$	24%	0	0	0
$0.5 < A \leq 1G$	12%	0	0	0
.....	0	0	0
As the remaining quantity is halved, the staking interest is also halved.				

After the remaining quantity falls below 2G, registration and promotion rewards will be halted (specific amounts to be determined).

2. Penalties for Staking.

Staking penalties are considered system income and are injected into the free market distribution portion for use in the market.

(1) Seller Staking Penalty Calculation: Set the pass rate as rate%.

A penalty is imposed on the seller when $\text{rate\%} \leq 50\%$.

- Normal Settlement: Penalty Amount = Staked Amount * (1 - rate%).
 - Early Settlement: Penalty Amount = Staked Amount * (1 - rate%) * (Actual Sale Days / Product Cycle Days).

(2) Buyer Staking Penalty Calculation: $\text{Order Price} * 50\%$.

3. Transaction Fees

Transaction fees during the centralized verification platform stage are injected into the free market distribution part for use in the market. The current rate is one-thousandth of the actual order revenue.

Upon transitioning to the decentralized platform phase, fees are allocated to contribute to node rewards.

Note: The development team ensures that the total amount for free distribution remains unchanged at 50% of the total supply. However, the details above may be adjusted after entering the decentralization phase to adapt to actual conditions, possibly increasing the allocation to node rewards. The right to interpret these details is reserved to the DeRender development team.

4 Trustworthy Ecosystem- DeRender DAO

As the DeRender Ecosystem expands, we are actively facilitating a smooth transition from a centralized architecture to a decentralized framework leveraging blockchain technology. Traditional centralized organizational structures are slow to integrate new solutions, such as those involving revenue distribution based on user contributions.

Moreover, the processes of power decentralization and decision democratization are often sluggish, which constrains the pace of innovation and expansion.

- Adopting a semi-decentralized architecture can offer an optimal governance model for the DeRender Ecosystem, not only accelerating the decision-making process but also motivating all stakeholders. Under the DeRender Protocol, key decisions such as ecosystem sustainability fees, non-operational revenues, and general development strategies can be decentralized.
- With the collective participation of the DeRender community, token holders will have the ability to directly influence the future direction of the ecosystem. Participation activities include:
 - Voting to determine new developmental roadmaps or modify existing ones.
 - Engaging in decision-making votes related to tokens.

- Voting on projects applying for support from the DeRender DAO fund.
- This decentralized mode of participation will ensure that the DeRender Ecosystem remains open and transparent while rapidly adapting to market shifts and community needs.

5 Roadmap

The DeRender Ecosystem focuses on the continuous improvement of software and services across all levels of the ecosystem, including trading markets, applications, communities, and services. The development milestones of DeRender primarily concentrate on achieving equitable revenue distribution and functional growth, as well as transitioning from centralized to decentralized infrastructures to establish a transparent and fault-tolerant value chain. Following is the roadmap of the project.

2023.10

- DeRender core team found the project.
- Proposed the plan to establish the DeRender protocol.

2023.12

- Complete the first edition of DeRender protocol rules .
- Propose the verification plan.
- For better user experience, firstly establish the centralized platform for a period of extensive verification, and then release the decentralized version.

2024.4

- Release DeRender Extensive Verification System (DeRender Market preview version).

- Issue DeRD tokens.
- Initiate the development of a decentralized version.
- Develop decentralized version and receive feedback from the extensive validation system proceed simultaneously.

2024.12

- Release the official decentralized version of DeRender.

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