MAZ

Metaverse Protocol

White Paper

Contents

Based on Bytom 2.0

"In a hole in the ground there lived a hobbit."

Metaverse Background

In the popular science fiction novel Snow Crash, Stephenson creates an Internet not previously imagined -- the Metaverse, a kind of holographic digital space closely connected with human civilization. Parallel to the real world, geographically isolated people can communicate and reproduce through their digital avatars (Avatar).

Nowadays, the concept of the metaverse has reignited the crypto world, which has widely built "edifices" and philosophical views with NFT as a carrier. Through NFT, countless crypto punks have established unique communication patterns and cultural styles in the crypto metaverse, and they have formed strong virtual bonds with different elements and financial modes. This not only brings a new asset type to the crypto world, but also greatly expands the application scenarios of crypto beyond finance, allowing human culture to fork, evolve, flourish and record on chain. Perhaps in many years, the NFT assets that underpin the civilization of the human metaverse will truly link the real and metaverse worlds.

What is behind the fanaticism is tide and trend. Bytom brings assets on chain as its core purpose, fully embraces NFT and the metaverse, and builds a powerful metaverse integrated protocol cluster based on the new Bytom 2.0 infrastructure. Among them, the most important is the radical trading market for NFT assets, where everything in the metaverse is based on NFT as a base level building block, and everything concerning NFT is based on trading as a cultural exchange medium. This article is in tribute to the beginning of the great metaverse era!

Radical Market Theory

In a radical market, there is no monopoly of private ownership, and everything is in a permanent state of auction, where the highest price goes to the highest bidder without end. As a result, no one can really own an item, but only keep it for the next bidder. The "temporary" owner has the right to freely define the price of an item and, in radical market theory, periodically pays a Harberger tax on that price. This

tax is the cost of defining the item's value. Therefore, if someone is willing to pay the set price for an item, there is no mechanism to prevent the execution of the transaction.

In the case of cost and the Harberger tax in radical markets, if the owner of an asset can raise the price at will without any cost, unfairness arises for subsequent bidders and prevents proper price discovery as well as value flow of the asset. The Harberger tax theory proposes a unique model of property rights in which all asset holders need to bid for their assets publicly and pay taxes on a percentage of the valuation each year. Under this model, concepts of "self-valuation", "fixed period tax", "must sell" are mandatory and effective at the same time. The balancing factor of this theory rests on the fact that the higher the bid, the more tax is paid, and the lower the bid, the easier it is for anyone to buy the asset, both of which force every rational holder to move towards a reasonable range of valuation. Instead, entering the Harberger system risks disposing of assets at a lower price than expected, because the valuation is not rational enough, leaving the holder with only "liquid ownership" to the asset.
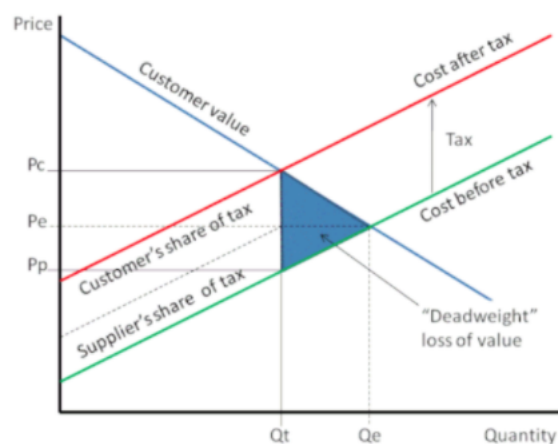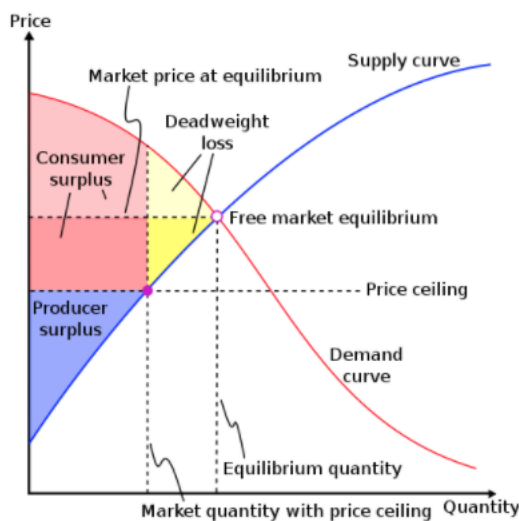
The Harberger triangle in the supply and demand chart (left) shows the "deadweight loss" of (supplier) pricing monopolies, which refers to the net economic inefficiency resulting from misallocation of resources in society (e.g., setting prices too high or too low, excessive taxes). The Harberger tax, introduced to eliminate monopolies, can reduce investment efficiency and thus improve the efficiency of

ownership distribution. On most measures, the Harberger tax achieves 70-90% of the maximum achievable distributional welfare gains, while investment losses account for only 10-20% of those gains.

The crypto economy has officially entered the era of NFT and metaverse, which also marks the beginning of the evolution of crypto assets from private to more public commodity properties, with items such as crypto artwork going mainstream. While their physical properties can be easily replicated and disseminated, the real ownership behind the consensus is unique. This aggregation of value into "ideological" objects greatly simplifies the friction of value flow, making radical trading more suitable for pricing, auctioning, trading, and circulating NFT assets. The closed-loop and contractual nature of the crypto economy provides an easy way to implement the Harberger tax on chain. Moreover, ownership of on chain assets can be enforced, giving NFT-like crypto collectibles an efficient auction that sacrifices investment efficiency for distribution efficiency, and thus enabling large welfare gains.

Radical auctions can accelerate the convergence of NFT items to reasonable prices. The removal of private attributes prevents valuable NFT items from being maliciously monopolized, giving free and equal opportunities to bidders who have perpetual demand. The introduced holding cost mechanism, similar to the Harberger tax, can also eliminate the disadvantages of malicious speculation and irrational pricing to a certain extent. Radical auctions leave NFT assets in a permanent state of global circulation, with the simplest and most powerful ground rules and consensus. This is fair to all participants and enables the real price and demand for NFT to be quickly reflected.

Excited State NFT

A new NFT standard is defined based on the Bytom chain - the excited state NFT - in which the NFT becomes a non-permanent possession asset that can only be owned "temporarily" by anyone, with the freedom and right to price the asset at will, and cannot be rejected by anyone at any time. The asset is in a state of constant global public auction, which is called an excited state. The excited state NFT protocol has the nature of automated transaction and auction, which also determines the significance of non-private ownership of asset. There is only one subject with permanent rights to assets – the Commons, the common subject of the metaverse, which lays the foundation for the basic concept of Bytom.
Given the somewhat different context from the on chain crypto world, the Harberger tax can take many forms. For example, a simplified Harberger tax has been proposed (patronage tax on capital gains) to

connect creators and communicators and streamline collaboration. In this protocol, based on the theory of the Harberger tax in radical trading markets, the Harberger tax is weakened to a margin model that accompanies NFT assets permanently, so as to realize the pricing and carrying cost of the assets. In essence, any holder must pledge a margin for the NFT assets held to complete the sale price,

$$P = D * a * 100$$

where D is the amount of the pledge margin and A is the pledge ratio (leverage factor, defined by the protocol as 10%). For example, if Holder A purchases a creator's NFT asset for $100, anyone can buy Holder A's asset thereafter for $0 if the amount deposited in the margin account is 0. If A deposits $10 into the margin account, according to the pricing formula, the asset is priced at $100 and can only be purchased by subsequent bidders who bid $100. If A deposits $10,000, the asset is priced at $100,000, which is too high and results in a much lower sale rate for the asset, which costs holder A a long time to pledge the $10,000 (in DeFi and the crypto banking system, the risk-free deposit rate remains around 10% per annum), so if the asset is not sold within the next year, a $10,000 pledge will result in a depletion cost of $1,000, which is about 1% of the price. The game equilibrium state of the Harberger tax is achieved by this loss cost, which is about 1% of the sale price, and the excessive price makes the chances of selling the asset infinitely close to the Harberger tax rate.

Consider a simple comparison of the cost of this agreement's margin model with the traditional Harberger tax model. The actual Harberger tax rate formula is defined as follows:

Effective Harberger tax rate = actual turnover rate * Sub-price to first price ratio

Based on preliminary calculations for the crypto NFT market, the current turnover rate of mainstream NFT art assets is 5%, and the general sub-price to first price ratio is 30% to 50%, which can be calculated as an effective Harberger tax rate of 1.5% to 2.5%. In contrast, the margin model has a similar Harberger tax rate of only 1%, a slightly lower cost in exchange for increased investment efficiency, while the loss of allocation efficiency is lower than the increase in investment efficiency.
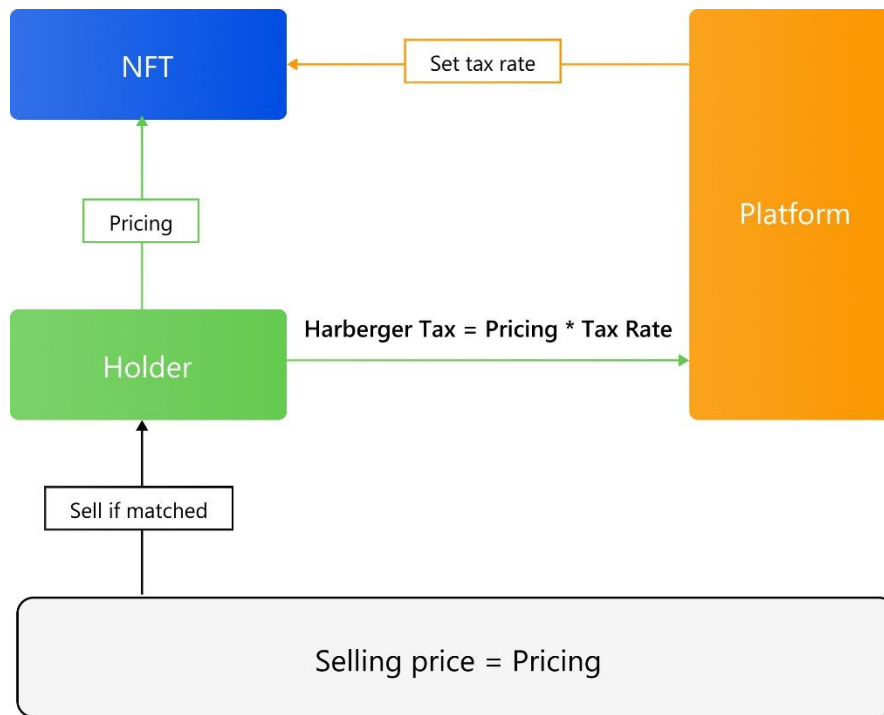
In the basic protocol design, according to the risk-free deposit interest rate and Harberger tax theoretical model of the crypto financial system, the margin rate (i.e., margin rate) is set as a static 10%, and in fact, the dynamic margin rate can also be set according to the particularity of the on chain financial behavior. An NFT Holder, for example can initially pledge $5 at a margin rate of less than 10% (e.g.5%) to obtain the same bid price of $100, but this margin rate cannot permanently maintain the pricing of $100 as there is a decay function control. For example, the pledge cost of $5 will be depleted after a six months cycle, as the system requires the holder to deposit a higher margin rate again (e.g.15%) to continue to maintain the pricing of $100, otherwise the price is automatically reduced and there is a risk that it will be acquired by other bidders at any time at the floor price. In this regard, a natural exponential decay function model adopted by the protocol is presented.

$$\alpha_t = (\alpha_0 - 1)\exp(-\beta \times tT) + 1$$
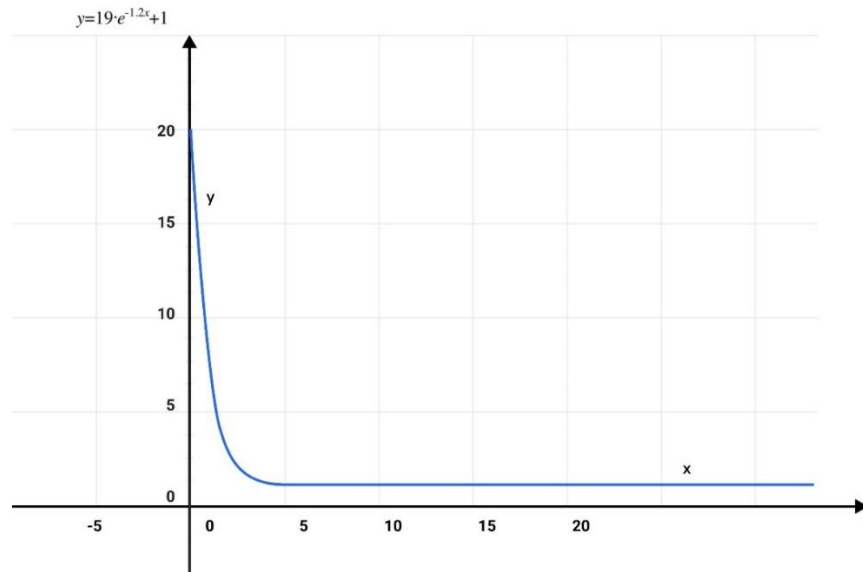
Where a0 is the initial leverage multiple (in this case 5% pledge ratio, corresponding to a 20x leverage multiple), and the new leverage multiple that decays exponentially as the period t increases, with a six-month period in which the holder needs to increase the pledge ratio to 14.9% after six months, to 36.8% after one year, and so on. This continues until 100% margin rate.
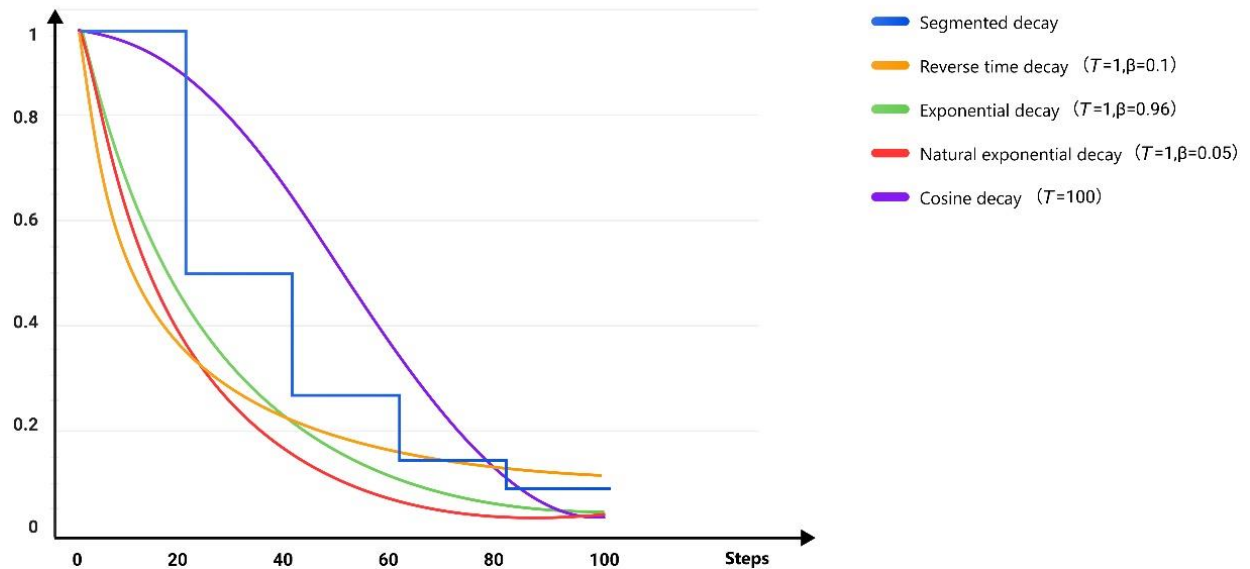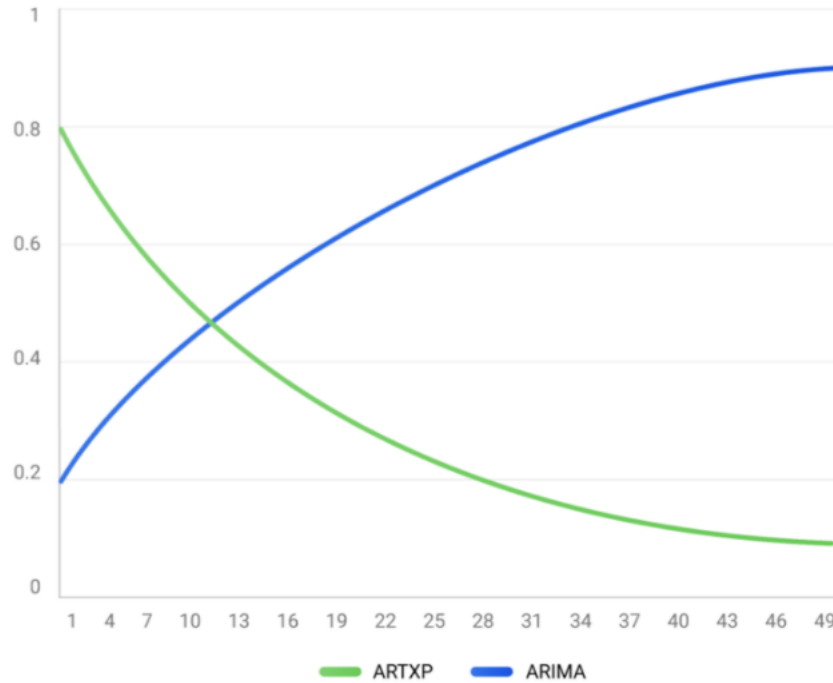
$$R=R_0e\lambda t$$

R is margin rate, R0 is initial margin rate, λ is inflation constant, and t is time.

(decay)

The definition of bid price and bid price cost of excited NFT can stimulate the development of NFT assets to the optimal price and smoothen the relationship between supply and demand, allowing those with real demand to become holders, and facilitating the efficient circulation of NFT assets. The lower margin rate incorporates the Harberger tax equilibrium theory while also lowering the threshold and cost for active user participation, and in the process of continuously converging to a reasonable price, the liquidity of the asset will be optimal, maximizing the cost and benefit of holding. In this regard, the radical market can bring game equilibrium to NFT pricing and flow.

In conclusion, with the excited state NFT as the carrier, there are two core underlying logics compared with the Bytom radical trading market:

1.Being auctioned continuously for 24 hours a day, with no fixed auction place (platform).

1.There is a cost to the asset holder (margin) and the margin rate needs to be consistent for all (fairness).

Radical Trading Protocol

In the context of excited state NFT, the specific trading mode is shown in Figure 1:

1. The original NFT user deposits a certain amount (equivalent to the 10% sale price) into the margin account, and NFT is in a state of public auction, which is triggered at any time;
2. New users seeking to purchase need to make a one-time "payment" + "new deposit" to the NFT deposit account;
3. The original user will receive the payment from the new user, the original margin will be returned to the original user, and the NFT assets will be transferred to the new user;
4. The NFT assets acquire new excited states that are triggered by new user deposits, generating new bid prices and waiting for subsequent bidders.
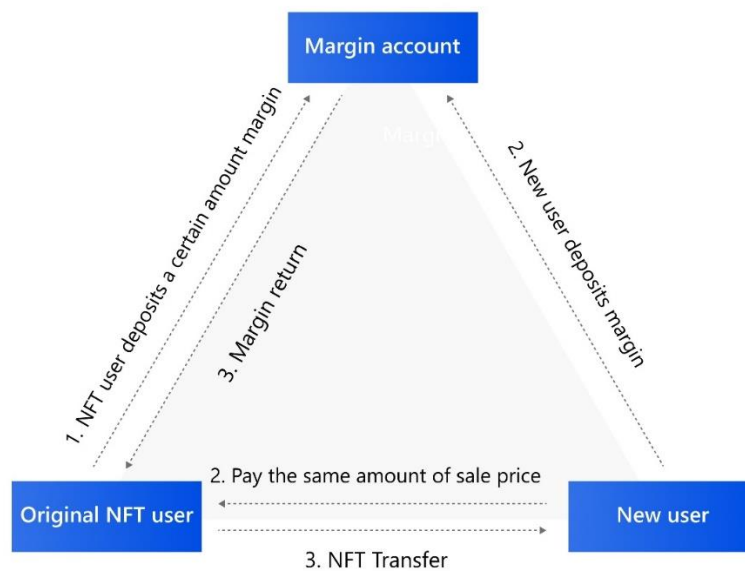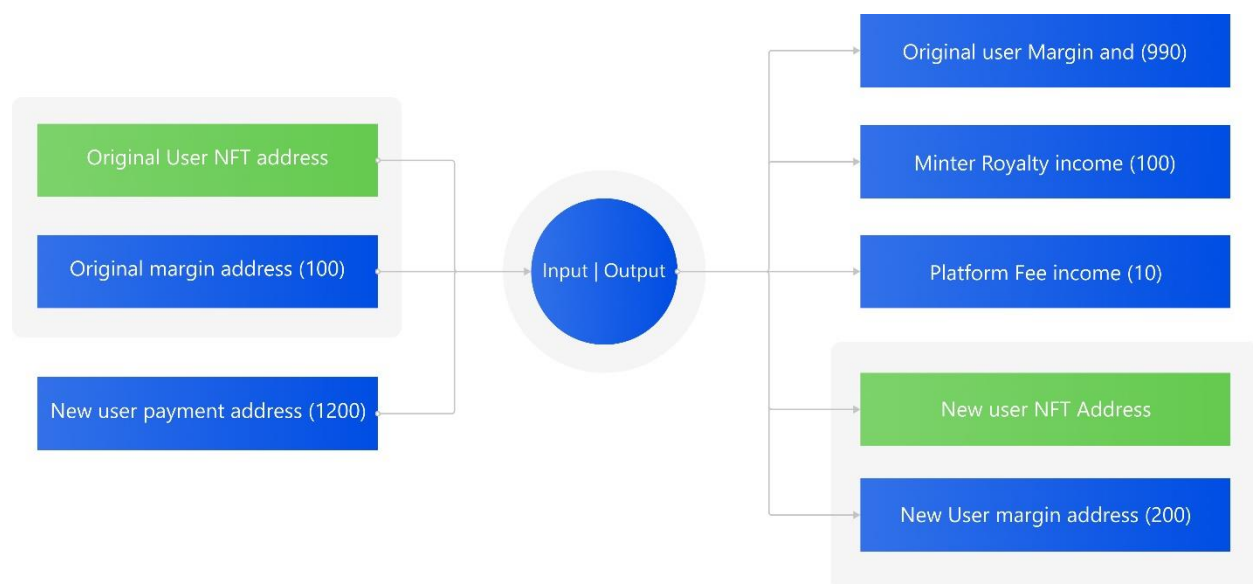

Figure 1.Radical trading model

In addition, in the specific transaction process, in order to stimulate the interests of creators and further achieve a balanced game, the concepts of royalty and platform commissions are introduced respectively, in which the royalty proportion is 10% of the current sale price, and the platform commission proportion is 1% of the current sale price (including gas fee). For example, as shown in Figure 2, assuming that the original user deposits $100, the price will be $1000, and the new user will deposit $1200 at a time, among which:

- $1000 out of $1200 is regarded as the payment amount of normal purchase. According to the agreement fee model, $100 out of $1000 is classified as royalty income, which is automatically distributed to the original minter.
- $10 out of $1,000 is classified as platform fee income;
- The remaining $890 (consideration) was all attributed to the income of the original user, plus the security of $100 pledged before, a total of $990 was returned to the original user.
- The additional $200 of the $1,200 is considered as the margin pledged by the new user for new pricing, which according to the formula is $2,000.

**Figure.2 Specific process of radical trading**

The radical trading protocol can exist with multiple sub-protocols, such as the above for the most basic model that defines the basic roles and buy-sell relationships, constructs a Harberger-like tax system - a

margin model that alleviates trading conflicts. The margin model can be the basis for further derivatives and instruments for the intricate crypto-finance system. As shown in figure 3, the margin model can be divided into closed and open models. The above is the most basic closed model, which is limited to NFT holders who pledge margin independently. If holders do not have enough principal to pledge to form new pricing, they can choose the open margin model - attracting other users to join in the margin pledge to jointly form new pricing, for which other users pay the cost of pledging and raise the valuation. In this scenario, if the asset can be successfully sold, the proceeds will be distributed to these pledging users in proportion. Depending on the situation and the threshold, open margin can be further derived into three models: free advance, interest collection advance and zero dollar purchase advance, which will be explained.
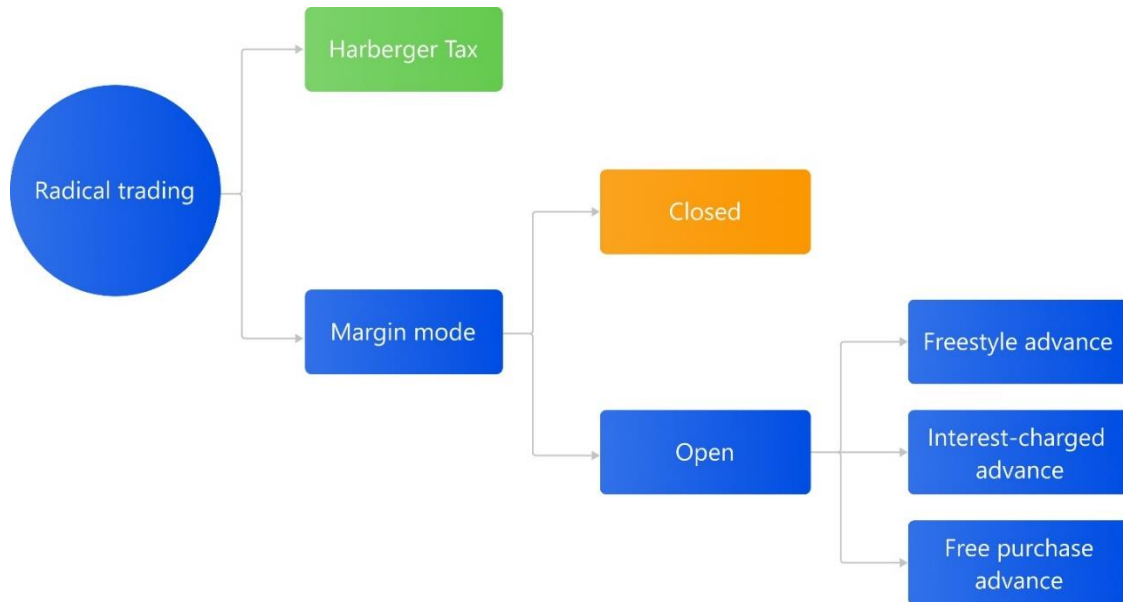
Figure 3. Radical trading Harberger system

- **Free advance**: If the holder chooses the open margin model, the investor can advance the margin for the holder, x (%) of the additional earnings generated after the sale of NFT will be returned to the holder, and the investor will receive (1-x) of the income. If the NFT has not been sold, the gain is zero for both parties. The investor's advance can be withdrawn at any time.

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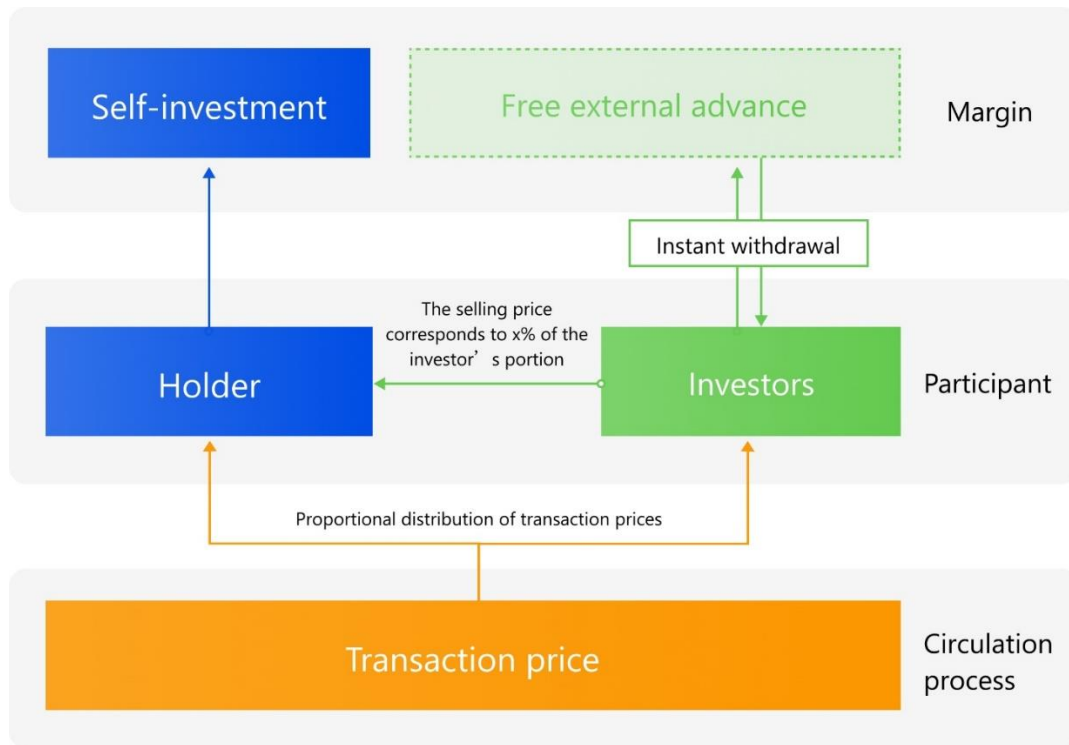
Figure 4 Free advance

An NFT owner can open the advance function, where ordinary users can invest in the NFT owner's margin to raise the price of NFT.   When the price is raised and the NFT is sold, the advancer gets the revenue share of the raised price part according to the proportion. The open advance default has a maximum limit and so does the proportion of additional revenue share.

Initial parameters:

1.The maximum amount of advance capital is 1 times of the margin (i.e., the maximum amount of advance capital is the amount of margin)

2.Dividend of 80% of proceeds (80% to the advancer and 20% to the owner)

For example: the current NFT margin is $10 (the selling price is $100), the royalty ratio is 10%, the platform fee is 1%, the NFT owner sets the maximum limit of $15, and the additional revenue share is 80%. If A, B, C invest $1, $5, $6 respectively, the price of the NFT changes from $100 to $220, when the NFT is successfully sold:

The original NFT owner income = (100-100 * 1% - 100 * 10%) + (220-100-120 * 1% - 120 * 10%) * (1-80%)

A returns to NFT advancers =(220-100-120*10%-120*1%)*80%*1/12

B returns to NFT underwriters =(220-100-120*10%-120*1%)*80%*5/12

C returns to NFT underwriters =(220-100-120*10%-120*1%)*80%*6/12

Note: The maximum amount of advances set by the holder cannot be exceeded, and if the number of transactions exceed the limit (contract) an error will be reported.

Costs for open margin advancers: amount of advances (redeemable at any time), gas fees at the time of advance.

Note in particular that if a user makes an advance, but the NFT owner actively accepts a lower price for the sale, the proceeds are distributed according to the real price corresponding to the sale price and the margin of the NFT owner, e.g. a holder with a margin of $100 means that the sale price is $1000, and if a total advance of $200 is made with other users, it means that NFT sale price is $3000, and the NFT sells with the following scenario:

Selling price = $3000, with a gain for the advancer.

**The holder actively accepts a selling price < $1000 and no gain for the advancer.**

$1000 < Holders actively accept sell price < $3000, advancers have gains.

- Interest collection advance: the advancer helps the holder to advance funds in order to receive interest paid by the holder.
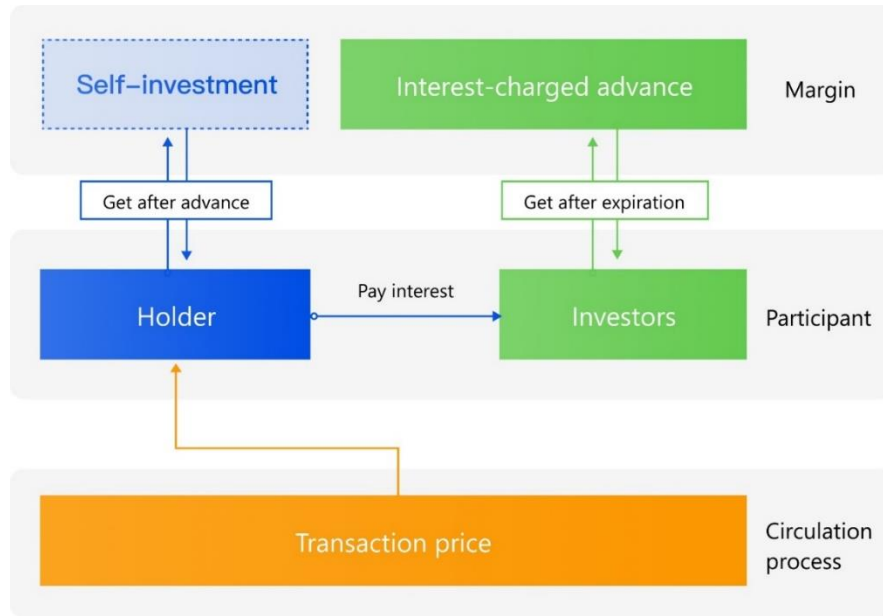
Figure 5 Interest collection advance

- Zero dollar purchase advances: The advancer advances funds to the holder to obtain another NFT, and the advances are locked in for a certain time period.The shorter the lock-in period, the larger the advance, and the longer the lock-in period, the smaller the advance.
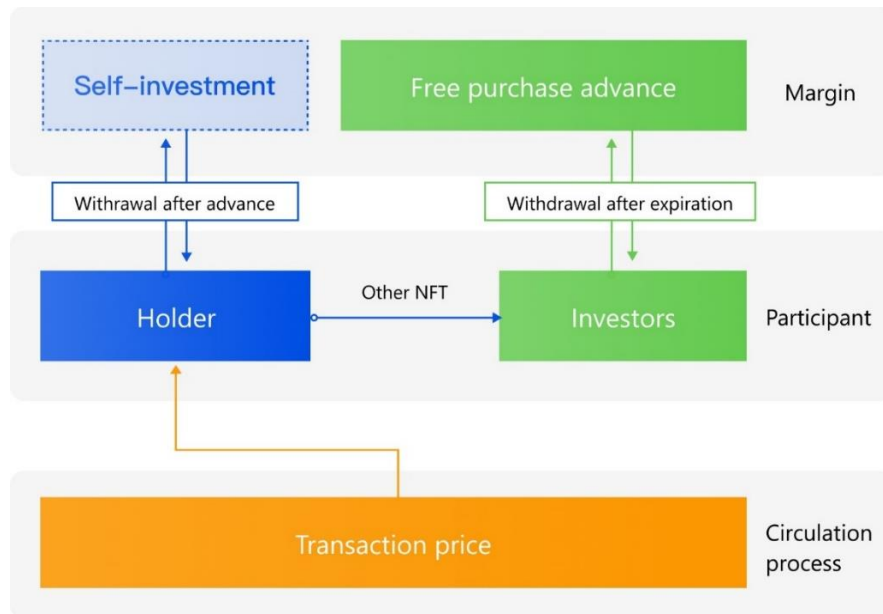
FIG.6 Zero dollar purchase advance

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These three models are similar to tranche hierarchy designs, where free-floating advances are similar to the "Junior Tranche", where investors can maximize returns but also bear the risk of unsaleable pledged costs; interest-collection advances are similar to the "Senior Tranche", where investors receive a fixed amount of interest paid from the holder. Although they cannot compete with the maximization of free Tranche, they achieve risk-free returns on the whole; zero dollar purchase advances are mezzanine (Mezzanine Tranche), where the investor receives a fixed amount of other NFT assets from the holder and, in turn, has a lower risk to itself or can rely on the NFT assets received in exchange for a higher return.

Sealing and Ground state NFT

Review the definition of excited state: meets radical market conditions, is traded 24/7, costs to hold, and cannot be owned forever (monopoly). In a metaverse architecture, in addition to the excited state NFT, there exists another state of NFT - the ground state NFT - that can be owned in perpetuity, costs nothing to hold, and requires a specific platform and duration for trading. Solving the problem of implementing the ground state NFT in a metaverse built on the basis of the excited state NFT requires the introduction of a special "medium" - the seal.

Seals can be understood as a basic special NFT asset constructed on Bytom. In essence, it also belongs to the ground state NFT, which has similar attributes and states as NFT issued on Ethereum, and is not priced and traded in the radical market. Users of the Bytom metaverse can actively seek or trade sealed NFT, and can use the seal to convert the excited state NFT they have into the ground state NFT, leaving the radical trading market -- excited state NFT + seal = ground state NFT (not for sale).

The core principle stems from the fact that the prices and transaction of excited state NFT are inspired via margin. Any bidder who can pay the starting price can transfer ownership of the asset at any time. However, if the margin of an excited state NFT is deposited in a unique NFT asset, no one else can obtain the same NFT to complete the payment for the purchase. Therefore, excited state NFT with such NFT as margin are also realized. This kind of special NFT is called metaverse "seal" in the metaverse, and the source of the seal NFT is only generated automatically and continuously by the built-in algorithm of the metaverse, without manipulation by anyone. The specific generation mode is as follows:

Seals are issued in a joint curve manner. Seals can be regarded as public goods in the radical market of Bytom. The joint curve is widely used in the auction of public goods. Continuity means that token supply and price are continuous on the curve, but for seals, the curve is actually discrete, because a seal is an integer quantum asset (see the following article).

1. All seals are cast through the joint curve
2. The curve is monotonically increasing
3. Unlimited supply
4. The supply is controlled by the curve price
5. The buy and sell curves are the same

$$y = m(1 + a\%)^{log_c^x} + b$$
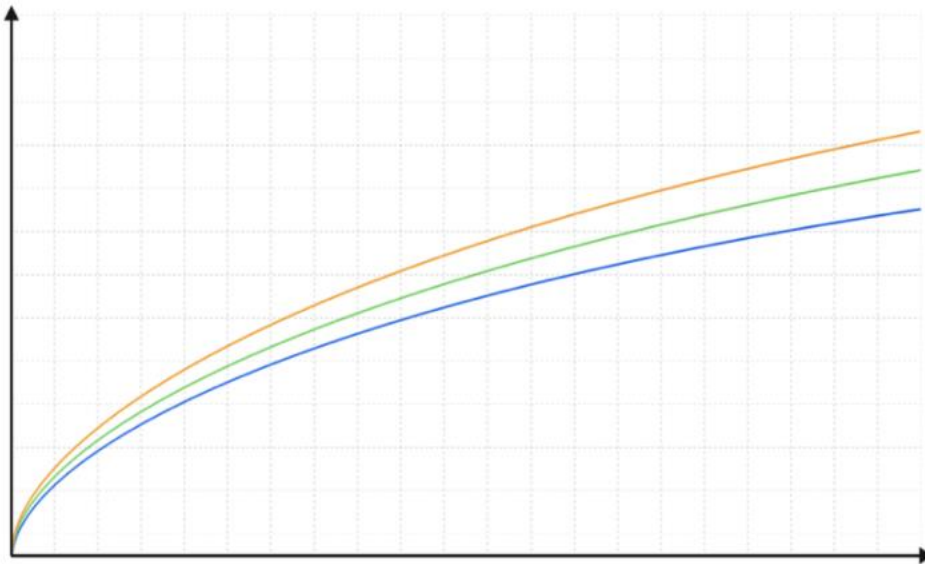
Where a and c represent the price increase of a% when the seal supply is doubled by c, and m and b are function parameters to adjust the intercept and slope.

This leads to a more specific type of asset called quantum assets. Traditional NFT is non-fungible and therefore indivisible and uncountable. The protocol creates a new asset type based on the UTXO model:

the quantum asset, which is not fungible (indivisible), but at the same time fungible (countable). This should be regarded as a non-fungible asset, as shown in the following details:

- Integer UTXO: a series of assets can be issued with the same asset ID but different asset serial numbers, with a minimum unit of 1.
- Seals: also a quantum asset, all seals are actually the same asset type, but they are not homogenous.
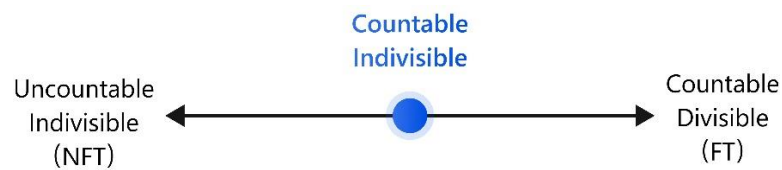
At this point, the prototype of the basic assets of the Bytom metaverse has been revealed, which can be roughly divided into the following types of assets according to two coordinate dimensions:

1. Fungible & ground state: traditional crypto assets, such as BTC, ETH, and BTM.
2. Non-fungible & ground state: Traditional NFT, such as NFT on Ethereum, the seala of Bytom metaverse, etc., named gNFT;
3. Non-fungible & excited states: Excited state NFT of Bytom metaverse, named eNFT.


*gNFT: ground state NFT, eNFT: excited state NFT

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Broad asset types such as these as can create a multidimensional metaverse, and protocols can derive more radical trading patterns based on seals:

- Seal lease: for use as a security deposit for its NFT , the holder of an excited state NFT seals the NFT by paying rent to lease a seal owned by the investor, thereby returning the NFT seal to the investor after the lease expires, the NFT is unsealed.
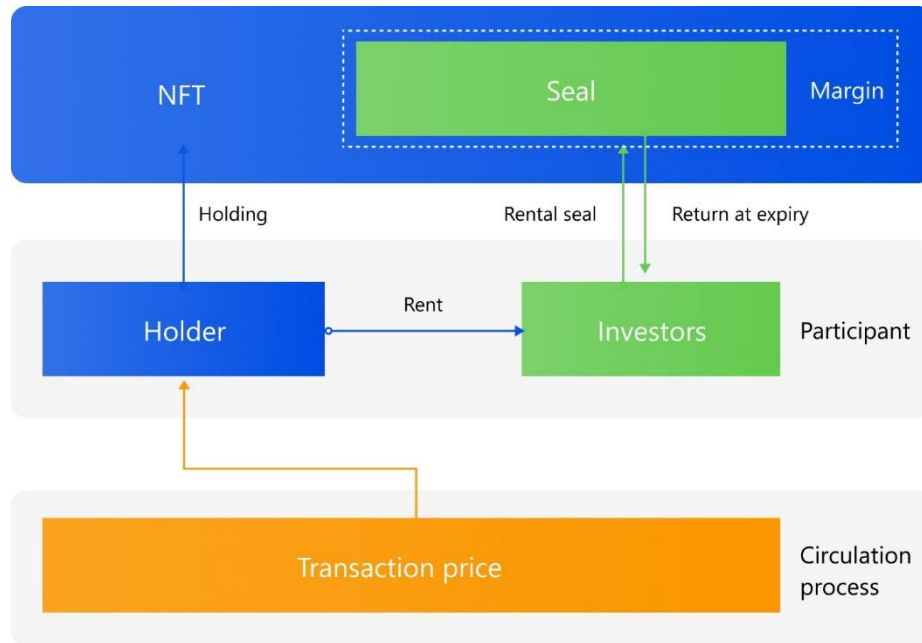
- Zero dollar lease seal: The holder of an excited state NFT transfers other NFTs to an investor in order to have the right to use the seal for a certain period of time, which is used as the margin of NFT, thereby sealing the NFT. At the end of the lease period the seal is returned to the investor and the NFT is unsealed.
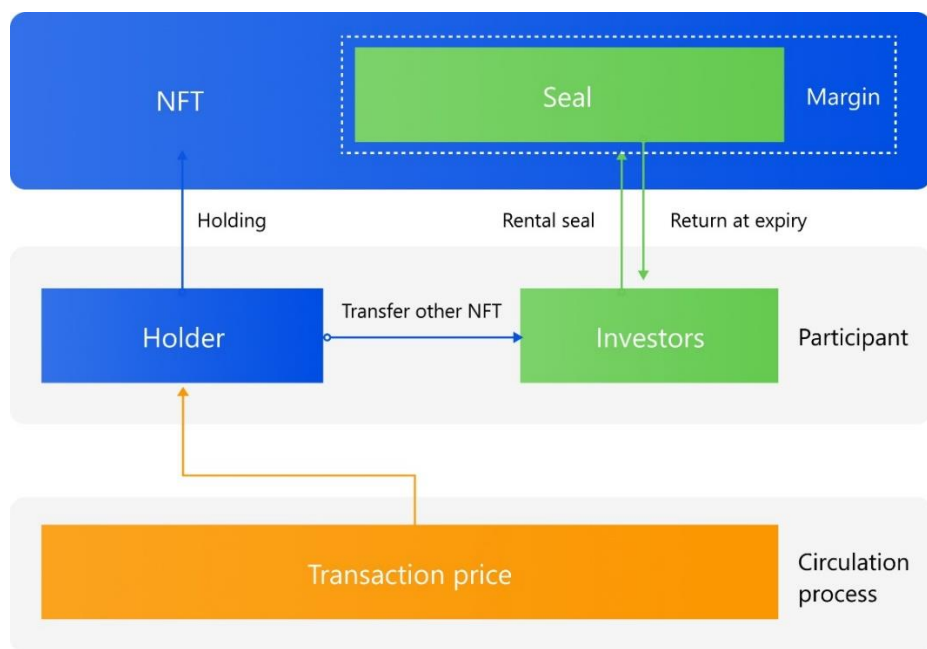
In conclusion, under the action of the three basic assets, there are a total of six radical trading modes. The table below shows the comparison of all the radical trading modes.

		Closed	Free advance	Free purchase advance	Interest-charged advance	Seal lease	Free rent seal
Holder	Cost	Contribution margin	Capital contribution margin (partial), transfer other NFT	Capital contribution margin (partial), Pay interest	Pay interest	Pay rent	Transfer other NFT
	Interest	Selling price of NFT	Initial selling price, partial upsell income	Initial selling price, upsell income	Initial selling price, upsell income	Seal NFT	Seal NFT
investor	Cost	Not applicable	Capital contribution margin (partial)	Capital contribution margin (partial)	Capital contribution margin (partial)	Rental seal	investor
	Interest	Not applicable	Partial upsell income (1-X)	Assign other NFTs	Earn interest	Get rent	Assign other NFTs
Scenes		Holders can provide sufficient margin	Holders can only provide partial guarantees; investors can make up the margin, but hope to deposit and withdraw at any time, and get part of the interest from the upsell	Holders are willing to sell other NFTs to increase the amount of margin; investors intend to hold other NFTs	Holders are willing to pay a certain amount of interest to increase the amount of margin; investors prefer the mode of depositing coins and earning interest	The holder obtains the right to use the seal for a certain period of time by paying rent, and the seal lessor obtains the rent	The holder obtains the right to use the seal for a certain period of time by transferring other NFTs, and the seal lessor transfer other NFTs

# Crypto Artwork Operations and Status

The excited state NFT that best matches the radical trading market are art-based NFT assets created by crypto artists. In the specific protocol design, the status and operations of such assets are as follows:

|	Unminted	Minted but not in circulation	circulation
definition	The artist has not released the NFT yet, and the NFT is in the editorial review stage	The artist has released the NFT, but it needs to meet certain conditions before it can enter the circulation state.	Has entered the radical market, NFT is in a state of excited state
type	Editing phase	Sale: The artist sets the NFT price. At this time, there is no need to deposit a deposit for the NFT. The buyer pays and deposits the deposit.	Radical transaction
	Review stage	Reservation: The artist has set the price, transaction period and deposited a deposit (twice the price), but the NFT has not been uploaded, the booker pays the deposit in advance. If the artist fails to upload the NFT within the specified time, the deposit will be compensated to the booker .	Inquiry transaction
	\	Mystery box: The artist publishes an invisible NFT (document and asset ID is encrypted). After the purchaser pays, he needs to decrypt it with his own private key to see the NFT and asset ID. After the Mystery box is decrypted, it becomes an ordinary NFT.	\

- Three categories of states

1. Unmint: Artist has not yet issued NFT;
2. Minted but not in circulation: The artist has issued the NFT but needs to meet certain conditions (purchase) to enter circulation;
3. Circulation: has entered the radical market, NFT is in an excited state;

- Operation process of NFT asset life cycle

After the artist has set the title, description, original (image, audio, video) and minting tax (custom, range 0 to 50%) of the artwork, it can enter circulation in the following operation modes——

1. **Sale:** the artist sets the NFT price, and no margin is required for the NFT. The buyer pays and deposits the margin. This is a normal example of radical trading.

Minted & uncirculated stage   Circulation stage
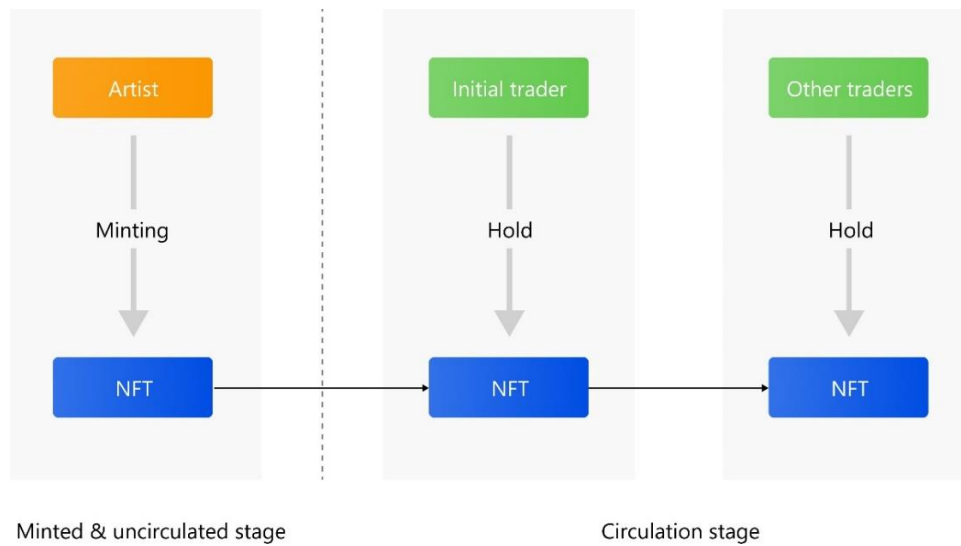
2. **Booking:** if the artist has set a price, a transaction period and deposited a margin (twice the price), but has not uploaded the NFT, the depositor pays the deposit in advance. If the artist fails to upload the NFT within the specified time, the deposit will be reimbursed to the depositor. This is the inquiry trading mode (see the following article).
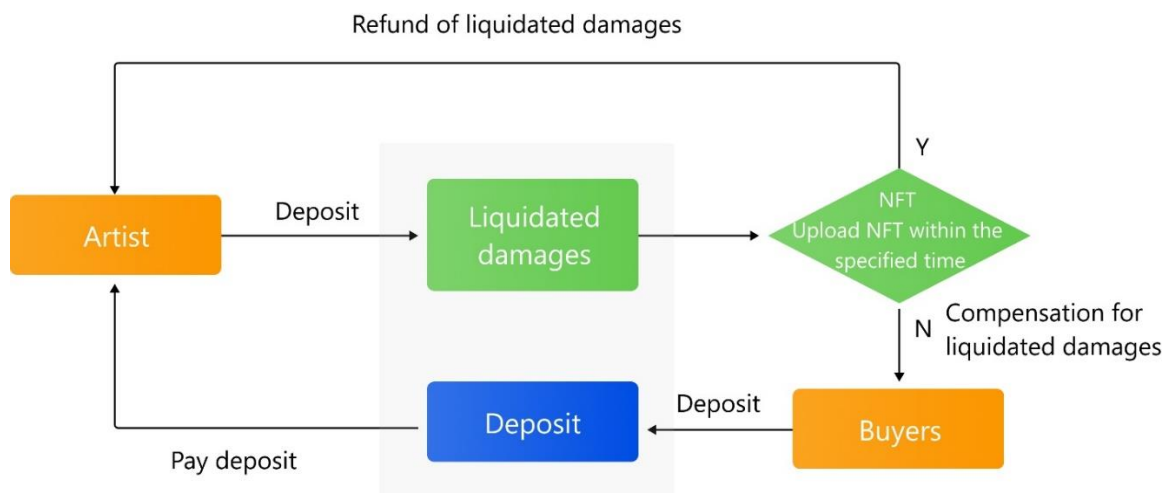

3. **Blind box:** the artist releases an invisible NFT (the file and asset ID are encrypted) and the purchaser pays for it and needs to decrypt it with their private key to see the NFT and asset ID. Once the blind box is decrypted, it becomes a normal NFT.
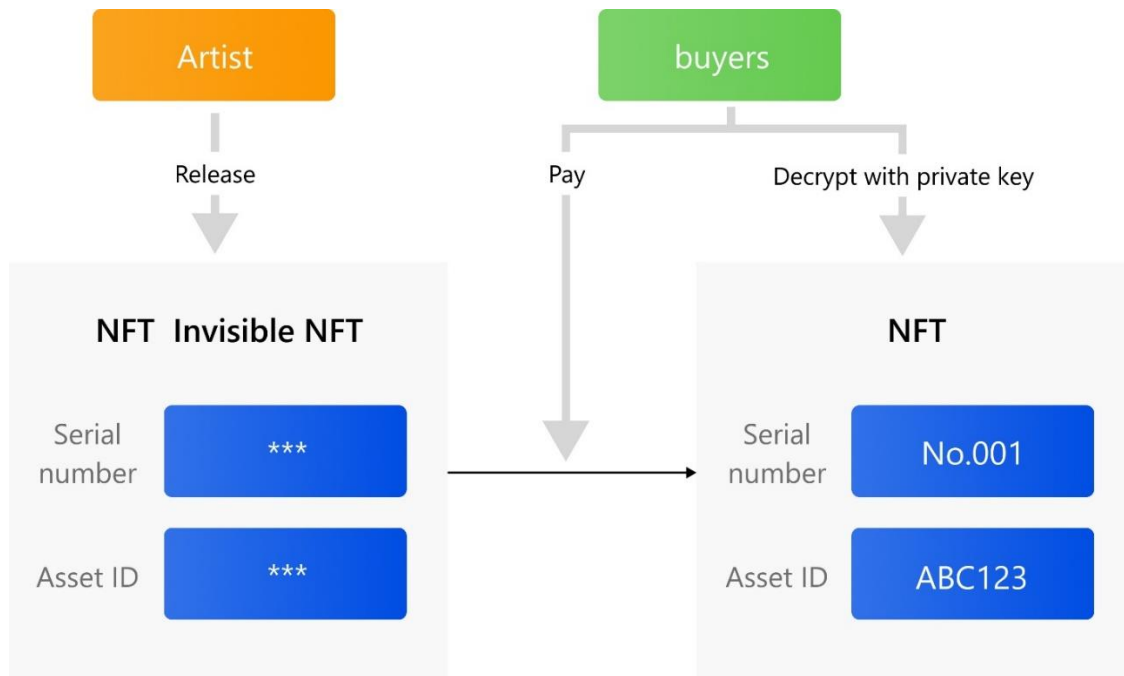
4. **Recreate:** NFT can be recreated within the preset range. A royalty($10\backslash\%^{\{1/2\}}$) is paid to the original artist during the transaction, and the recreator himself receives the premium portion ($1\text{-}10\backslash\%^{\{1/2\}}$). If the NFT is recreated N times, the artist obtains the premium ($10 \backslash \% \char94 1/2\} \{+ 10 \backslash \% \char94 + 1/3 \{\} \backslash cdots + 10 \backslash \% \char94 \{1 / N\}$).
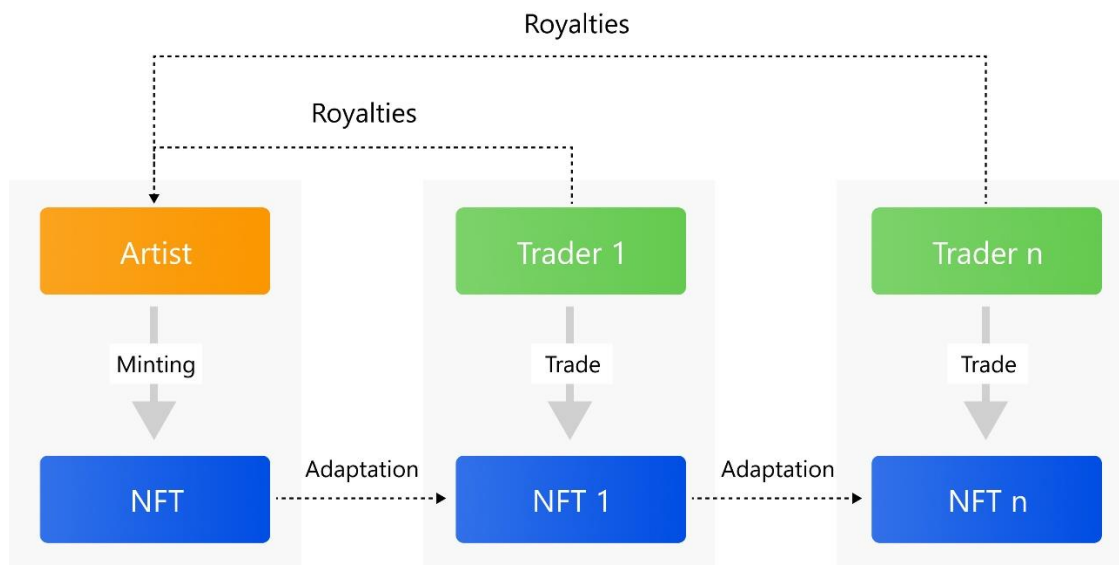
5. **Inscription:** each NFT holder will have one opportunity for an inscription of up to 500 words, and NFT will have the option to rotate inscriptions as pop-ups on the display page.
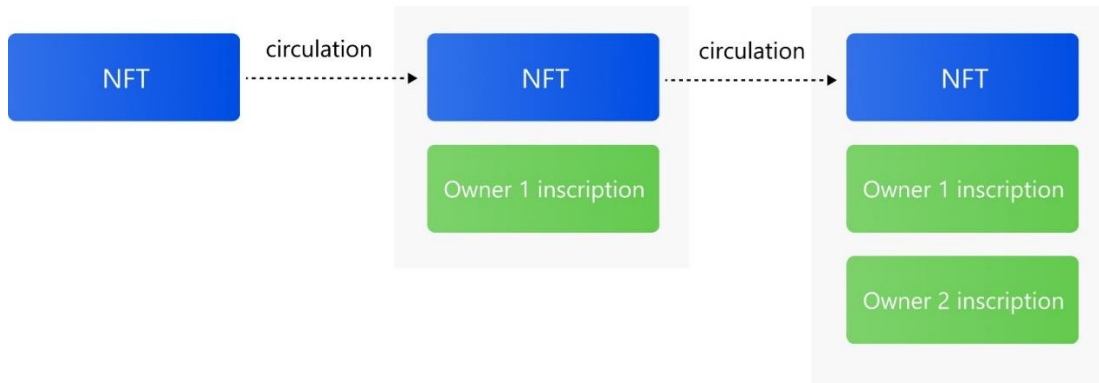
6. **Authenticity verification**

Sender A:

- First, the plaintext to be sent is abstracted using the Hash algorithm.
- Then, encrypt the abstract with its own private key to form A's signature;
- Send the plaintext and signature to B.

Receiver B:

1. B handles the received content in two parts:

   For the signature received, the public key of A is used to decrypt, and the abstract 1 is obtained.

   For the received content, extract the abstract using the same abstract Hash algorithm as A, and obtain abstract 2.

2. By comparing whether abstract 1 and 2 are the same, we can ensure whether the information received by B is the information that A wants to send.
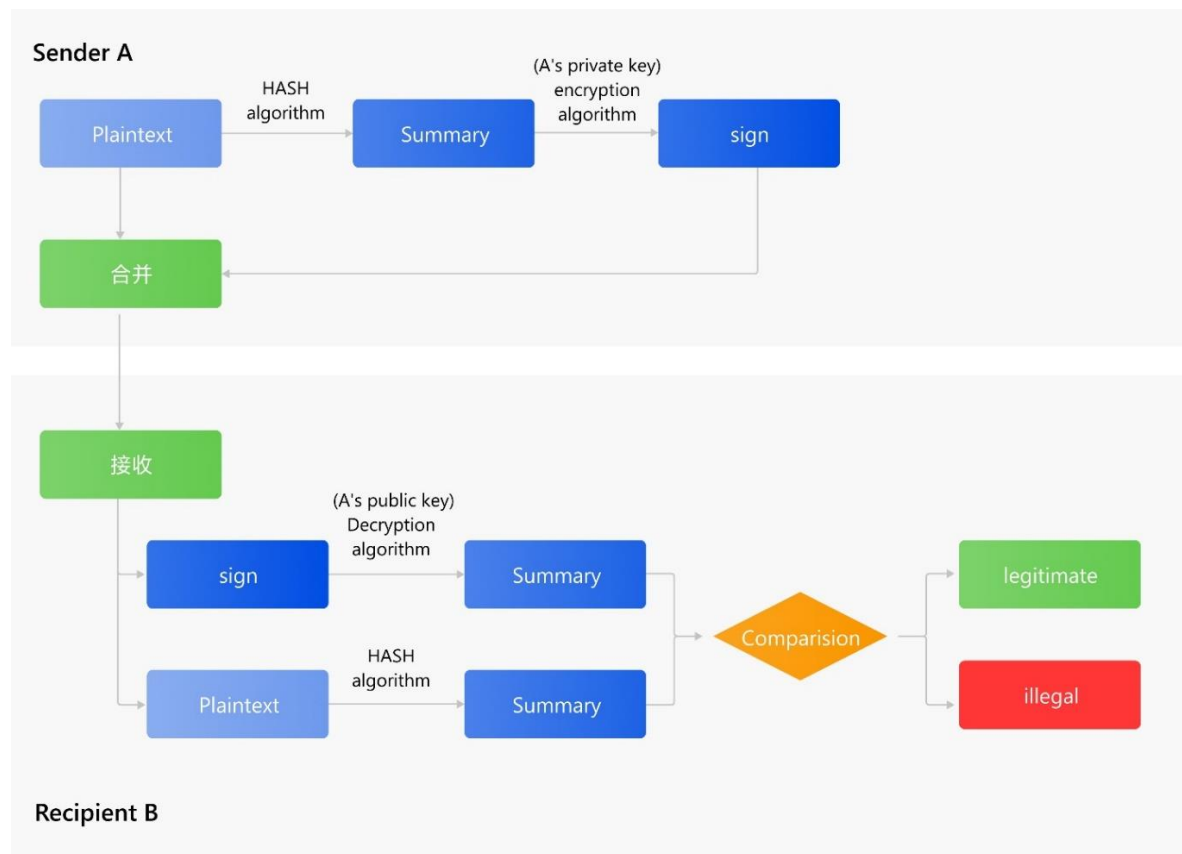
By introducing the above six specific operation modes in the radical market, the agreement will better serve artists needs and the transaction of art assets.

More Trading Models

The radical trading mode is a large underlying infrastructure, in which there are a variety of auxiliary trading types, roughly as follows:

1.   **Stamp collecting trading**

A special type of radical transaction in which the holder may set the exchange terms at [N NFT trading 1 NFT]. In this mode, it is a pure barter transaction, and no fee can be charged, but the gas fee can be increased.
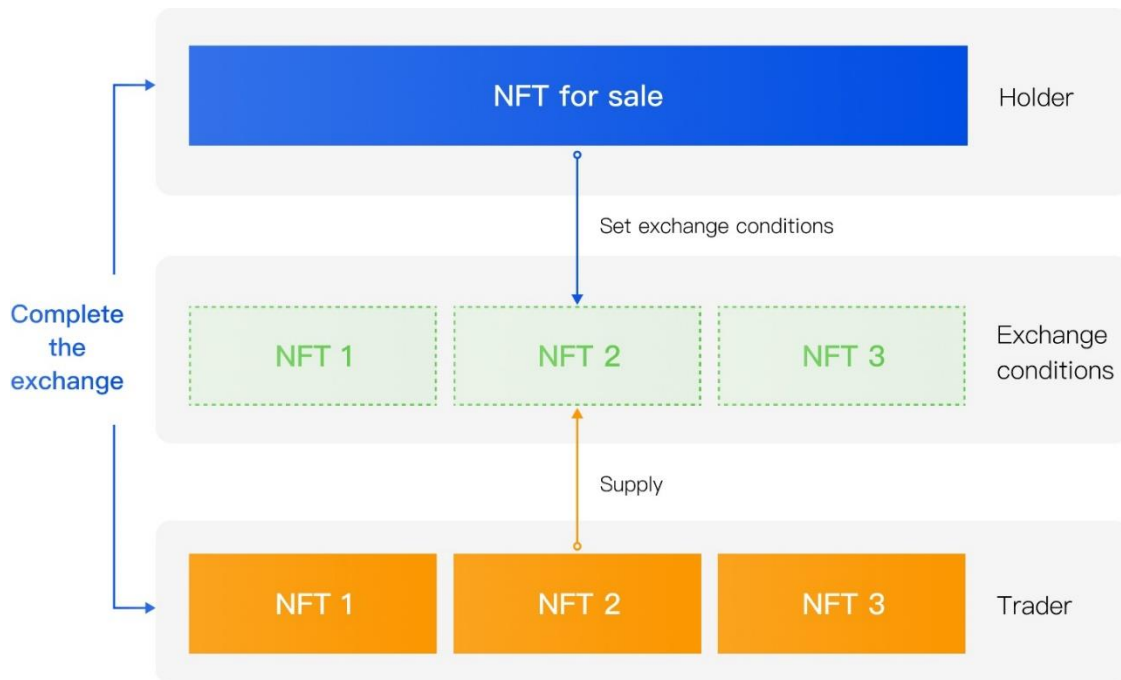
2.   **Inquiry trading**

Similar to the traditional order book model, the purchaser can initiate a request for quotation from the collector, constantly testing the collector's psychological bottom price, which can be specifically divided into the following two types of inquiries -

- Use cryptocurrency (FT) to buy goods (NFT), the inquiry list is sorted according to the amount, and the fee (including gas fee) is charged.

- Barter goods A(gNFT, eNFT) for goods B(gNFT,eNFT) cannot be ordered according to price, but can only be sorted by time. No fee is charged, but gas fee charges can be increased.

The transfer of excited state NFT is specifically mentioned here, which is actually a special inquiry transaction. Holder A hopes to transfer his NFT asset to his friend B. Friend B only needs to initiate an inquiry transaction with price zero to A, and A takes the initiative to choose B's zero offer to complete the transfer of the NFT asset.

3. **Ring trading**

In the barter inquiry transaction, there is a special way of transacting called a ring inquiry transaction. For example:

Bob uses A to buy B from Tom, Tom uses B to buy C from Lucy, and Lucy uses C to buy A from Bob. Bob doesn't exchange Lucy's C, Tom doesn't want to exchange Bob's A, and Lucy doesn't want to exchange Tom's B. In this case, the system can make the transaction happen, so Bob gets Tom's B, Tom gets Lucy's C, and Lucy gets Bob's A.

Demand flow ⸱⸱⸱▸   NFT transfer flow ⟶
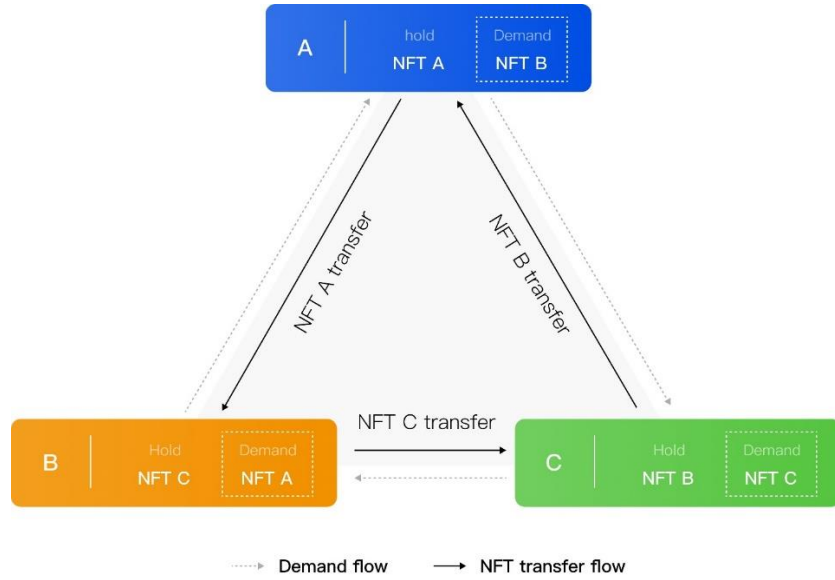
Further complex ring transactions can be derived:

- Requested functions B_{Bob}, B_{Tom}, B_{Lucy}......
- Sell functions S_{Bob}, S_{Tom}, S_{Lucy}......

A cyclic transaction can occur by simply $(B\_\{Bob\} + B\_ \{Tom\} + B\_\{Lucy\}) \setminus in\ S\_(\{Bob\} + S\_\{Tom\} + S\_\{Lucy\})$.

Such as:

B_{Bob} = (a, b), S_{Bob} = (d, e), B{Tom} = (e), S{Tom} = (b, c), B_{Lucy} = (d), S_{Lucy} = (a)

There are

(B_{Bob} + B_{Tom} + B_{Lucy}) = (a, b, e, d)

(S_{Bob} + S_{Tom} + S_{Lucy}) = (d, e, b, c, a)

The former belongs to the latter, so the ring transaction occurs, and Tom does not need to pay C.

Metaverse Chemical Elements

The metaverse has a unique feature: all assets (quantity M) and all applications (N) have a fully connected network relationship. Any asset can enter any application, forming a large and constantly updated M * N matrix. This metaverse matrix constantly breeds new elements (assets and applications) and the same matrix will also be interconnected, laying the basic principle for realizing the interconnection of the Metaverse. NFT assets are called "metaverse elements" in a larger framework of the Bytom metaverse. Metaphorically, this foundational element will give rise to countless metaverse substances and create endless stories and veins that will be the source of creation, overriding and transcending any sub-protocol or sub-application in the metaverse. As it evolves, the value of these foundational elements is reinforced and strengthened, creating an increasingly powerful network effect that allows the metaverse to evolve rapidly and eventually become a "natural truth".

All 118 real chemical elements in the real world will be "incarnated" as the basic NFT assets of the Bytom metaverse, and become the basic "chemical elements" upon which to build the complex and diverse substance in the metaverse. All the incarnated elements will be discovered, minted and possessed in the metaverse world according to the laws of the physical world, and new elements and substances will be synthesized according to the laws of real elemental synthesis. At the same time, a super trading pool has been established to build a trading relationship between the 118 elements, so that users of the metaverse can quickly synthesize the elements and substances they need for the creation of NFT and other scenes in the metaverse.

In closing

"No snowflake in an avalanche ever feels responsible." In order to better embrace the new mainstream assets like NFT, a stronger and more reasonable transaction model is needed. By combining radical market theory with NFT asset attributes, the Bytom metaverse protocol provides a new idea and practice for the efficient circulation and pricing of NFT assets. In the subsequent broader metaverse architecture, each public chain will form its own unique base elements and relationships, building a diverse crypto metaverse civilization.