Based on the PoW (Proof of Work) blockchain (such as bitcoin), the node (miner) pays the high cost of hardware and electricity to solve mathematical problems, so as to mint new coins and process transactions. Miners get new coins and transaction fees by maintaining network security. The decentralization of PoW not only creates great value but also brings high costs. The solution of Bytom 1.0 is that the main chain adopts PoW, which is responsible for asset issuance, and the side chain adopts PoS, which is responsible for transaction efficiency. However, this brings new problems. It needs to pay the cost for the operation of the nodes of the two chains. Each year, it needs to pay 80 million BTM to the main chain miners and 10 million BTM to the side chain nodes, which brings a heavy economic burden to the BTM ecology.

In contrast, in the PoS blockchain, the verifier provides security for the network by locking the token, thus minting new tokens and processing transactions. In fact, the security provided by the verifier depends on the value of the network itself. If a verifier does something wrong, the locked token will be confiscated, and the confiscation mechanism will encourage the verifier to comply with the protocol rules. Through the design of the economic model, the verifier can become the consistent interest person, and the network security is no less than that of PoW.

One of the reasons why POS has high security is that PoW system is vulnerable to "spawn camping" attack. If the mining hardware mastered by the perpetrators is enough to attack the PoW blockchain such as bitcoin, bitcoin will not be able to prevent the subsequent attacks, because the network will continue to be reorganized / forked, and then it will be attacked by the same group of mining hardware, so it will continue to circulate endlessly. In contrast, PoS is much better at resisting spawn camping attacks - it can fork out and forfeit the attacker's deposit.

The economic security and economic efficiency of PoS architecture also bring great convenience to the development of the upper ecology such as DeFi, and it is more conducive to MOV to play its maximum potential and forward-looking. The integration of technology architecture will bring great flexibility to the introduction of a more general smart contract system and developer ecology and is the only way to create open ecology.

Based on this, we propose the architecture concept of Bytom 2.0, combine the architecture of "one main side and one side chain" into a unified platform, and integrate the multi-asset DeFi

protocol on the unified platform, optimize the asset flow efficiency, connect the bit world and the atomic world, and better serve the vision of "putting asset on-chain". "The Vast Journey of Stars" is embellished for the "Wandering Earth" plan.

New Vision

Based on the Vapor side chain architecture and the multi-year operation and implementation of MOV open financial platform, Bytom, chose to re-examine its historical position and decided to usher in a new era of Bytom 2.0 with extraordinary significance——

- PoW Bytom blockchain evolves into PoS Bytom blockchain
- Build a united PoS Bytom blockchain on Vapor, turn the architecture of "one main side and one side chain" into a unified platform
- Build an economic model of deflation to help the BTM holders participate in the underlying construction of public chain and gather consensus
- Better focus on compatibility with external ecology and contract system to serve the open financial strategy MOV
- Fundamentally realize the mission of value capture for BTM

The first stage "Earth Engine"

Bytom 2.0 needs to complete the construction of all safety attributes and underlying functions as an independent big public chain, and become the "Earth Engine" supporting the vast journey of new Bytom blockchain.

The initial "skeleton" of " Earth Engine" includes:

- Based on a larger scale of pledge to ensure the economic security of POS, enhance the efficiency of consensus verification, and improve the supporting facilities for community participation in the construction of PoS;
- Introducing asset issuance and GAS mechanism;
- Complete the compatibility transformation of MOV platform, including wallet, cross-chain gateway system OFMF, MagnEx, FlashSwap, SuperTx and MOV JieDai;
- Improve the smart contract system and establish a more general and open developer platform;
- Improve the efficiency and economic security of cross-chain interoperability.

The second stage, "stop rotation"

In a certain time channel in the future, the process of 2.0 alternation will be started, and the original BTM token will be irreversibly migrated from the PoW Bytom (called "historical

PoW Bytom") to the new PoS Bytom (called "Bytom 2.0"). BTM token migrated to Bytom 2.0 is the original value carrier of Bytom in the true sense, and is recognized and circulated by all major trading platforms as always. How to deal with the historical PoW Bytom and its historical token——
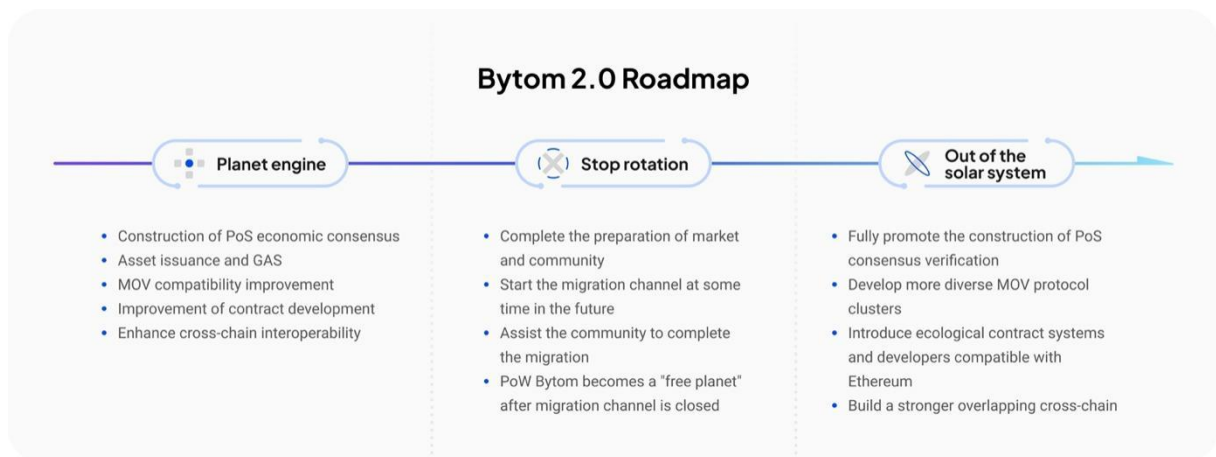
（1）If there is a successor receiver (which can be any community or miners' interest group) in the historical PoW Bytom, the future direction and planning of PoW Bytom, as well as the subsequent circulation and pricing of BTM, will be decided by the receiver independently. It is suggested to be named "Bytom Classic";

（2）If the community and interest groups agree to the 2.0 process and jointly migrate from POW Bytom to POS Bytom 2.0, and there is no successor, then POW Bytom and the remained BTM will completely withdraw from the stage of history.

The specific implementation steps of this stage are as follows:

- Deal with the market, investor relations, exchange, community, let everyone know, handle and resolve objections;

- Start BTM migration channel at a certain date in the future;

- Finally, the historical POW Bytom will become a "free planet" after the deadline, Bytom official will no longer carry out maintenance and endorsement.

The third stage "driving out of the solar system"

- Fully start the pledge operation and transaction consensus of PoS Bytom;

- In order to better implement the MOV open financial strategy, develop more diversified MOV protocol clusters, and obtain the value capture of BTM token by the development dividend of DeFi;

- Bytom 2.0 will fundamentally reform its own smart contract system and developer ecology, introduce or be compatible with Ethereum contract system, so as to facilitate the migration of its projects and developers;

- With a more powerful overlapping cross-chain system, MOV can be widely recognized outside Bytom's ecology.

Bytom 2.0 Roadmap

Planet engine

- Construction of PoS economic consensus
- Asset issuance and GAS
- MOV compatibility improvement
- Improvement of contract development
- Enhance cross-chain interoperability

Stop rotation

- Complete the preparation of market and community
- Start the migration channel at some time in the future
- Assist the community to complete the migration
- PoW Bytom becomes a "free planet" after migration channel is closed

Out of the solar system

- Fully promote the construction of PoS consensus verification
- Develop more diverse MOV protocol clusters
- Introduce ecological contract systems and developers compatible with Ethereum
- Build a stronger overlapping cross-chain

This unprecedented 2.0 process has been implemented in three stages. It will also bring profound influence to the new Bytom blockchain and new BTM from the following four aspects: new economy, new consensus, new platform and new MOV.

New Economy

New economy is not only a new economic model but also a new economic value.

Bytom will change from POW to POS, from the architecture of "one main side and one side chain" into a unified platform. The most direct impact is that it will fundamentally change the underlying economic model and BTM value system of Bytom.

The existing PoW Bytom carries more than 2.1 billion BTM, and there are more than 400 million BTM to be mined by miners in the future, resulting in annual inflation of about 80 million new BTM. At the same time, as Bytom focuses its ecological strategy on MOV and Vapor side chain, the role of PoW on ecological construction and BTM value capture is more and more marginalized than the main chain of Bytom.

In addition, in order to take into account the simultaneous operation of the Vapor side chain, the POS incentive mechanism running on it will also bring about an annual inflation rate of about 10 million new BTM. The double issue of BTM with an annual value of nearly 100 million brings great challenges to value capture.

Bytom 2.0 will thoroughly reform the economic model, gather new consensus from the basic perspective of deflation economic model, and improve the efficiency of value capture, which is embodied in the following three aspects——

（1）**Reduction of total amount**——after changing from POW Bytom to POS Bytom 2.0, there will be no mining reward of about 80 million BTM per year in the future, and the total amount of new BTM will be reduced from 2.1 billion to about 1566 million BTM.

（2）**Reduction of total circulation volume**——assuming that all or most of the 1.566 billion BTM in circulation are migrated to the Bytom 2.0, since the new Bytom blockchain adopts the PoS mechanism, in order to achieve sufficient system security boundary, the verifier group needs to carry a large number of BTM to participate in the long-term lock-in pledge, so as to meet the high pledge rate, a large part of the total amount of 100 million will not be in circulation (the amount will be far more than the current amount of Vapor verification pledge). The successful implementation of PoS will further reduce the total market circulation of BTM.

（3）**The scale of annual additional issuance gets smaller**——compared with the original chain 2.0, although the theoretical total amount is reduced and the total amount of free circulation is reduced in a real sense, it does not mean that there is no additional issuance. In order to maintain the continuous operation of PoS, the verifier group still needs a certain amount of BTM additional issuance as a reward and needs to maintain an appropriate annual income. However, Bytom 2.0 guarantees that the annual additional issuance of BTM will be far less than about 90 million at the present stage, with an upper limit of 30 million. The verifier group is more consistent with the collective interests of the public chain ecology, and is the most solid long power of the underlying token.
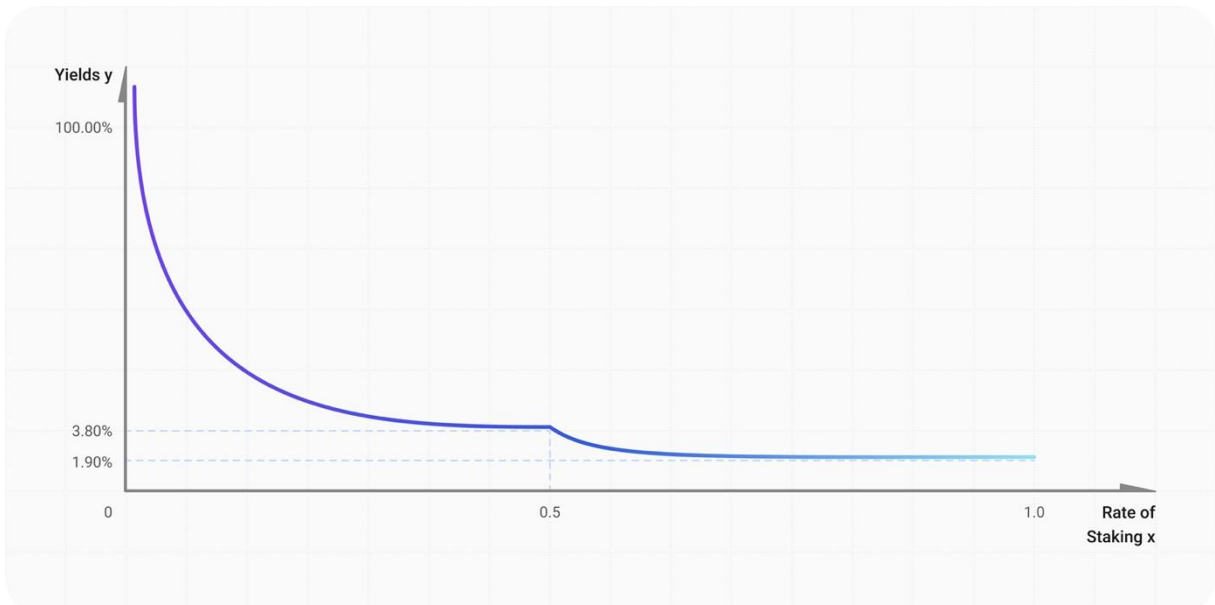
The specific relationship of additional issuance is as follows:

When 0< x<=0.5 $$y = (x + 0.5) * \frac{0.3}{x*z}$$

When 0.5< x<=1 $$y = \frac{0.3}{x*z}$$

x is the proportion of staking, z is the total issuance amount, and y is the yield of staking.

The initial value of z is about 1.566 billion. After taking into the above formula, the yield curve is drawn as follows:

Note: Assuming that 30 million BTM are issued every year for DPOS incentive, different rates of yields are set according to different collateral rates, and the rest of the incentive is classified into the foundation for project operation when there is a surplus.

（4）Users will hold two kinds of BTM at the same time, but the team will only hold one. BTM upgrade will take the way of snapshot migration in a certain block. Since the miners of the original chain (bytomclassic, aka BTMC) may continue to maintain mining, the bytomclassic can continue to exist with the support of decentralized computing power. The team will permanently burn all BTMC after upgrading, and only hold new BTM. But users may hold the two tokens at the same time after upgrading.

Finally, if the public chain ecology business has been developed rapidly, the PoS system can even achieve theoretical deflation. First, because PoS (Proof of Stake) avoids high power consumption and hardware industry costs, the number of bonus and issuance will be far less than PoW, so it can meet the normal operation of the verifier group. Then, with the boom of transaction volume, the capture of GAS mechanism, the transaction fees of underlying token will be constantly burnt, and the supply will be reduced.

In addition, the application scenario of BTM will consider continuous expansion, including but not limited to the following aspects:

- **Voting governance**

  BTM holders can use BTM to vote and participate in the governance of important matters at the public chain level of bytom2.0.

- **Purchasing basic services**

  When external projects request to use basic services such as Oacle on Bytom, it is required to pay by BTM. Service-related parties such as Oracle nodes need to collateral a certain number of BTM to prevent evil.

- **Consensus node election**

  Users holding a certain number of BTM can participate in the consensus node election, and all BTM holders can vote on the alternative nodes.

- **Participate in the mining of other public chains**

  In cooperation with other projects, BTM participates in the mining of Ethereum and other public chain projects through cross chain

- **Airdrop**

  When issuing new certificates in Bytom ecology, we may conduct airdrop to a certain number of BTM holders or users who have participated in Bytom-related products in

a certain period of time.

- **Lock mining**

  When issuing new token in Bytom ecology, it is considered to distribute some new tokens to users who participate in BTM locking, that is, lock mining.

- **Trading fee discount**

  According to the number of BTM held by users in Bycoin and Byone, different levels of trading fee discounts for various products in MOV are provided.

- **Collateral & lending**

  BTM can be used as collateral assets for MOV stablecoin and lending products to lend stablecoin or other assets.

New Consensus

New consensus is a new consensus mechanism, a new brand consensus, and a new BTM consensus.

Based on the Vapor, the system of PoS economy is comprehensively constructed, making it a more solid and reliable consensus system for new BTM. On the one hand, DPoS+BFT, the existing Vapor consensus algorithm, needs to be strengthened and improved on the level of economic pledge, on the other hand, a more detailed reward and punishment mechanism is needed to qualitatively reward and punish legal and evil behaviors. Thanks to the mature operation of vapor for many years, the process of building a new consensus will be smooth.

PoW chain and PoW Bytom will face the monopoly from miner group, and the cartel type pool group is the only consensus of theoretical physical decentralization. It not only restrains the value capture of Bytom / BTM and the rapid iteration of the upgrading of the underlying chain, but also is not conducive to the formation of a favorable situation in which the community (the real BTM interest holders) participate in the consensus. As a result, the community groups that really care about the interests of BTM can only participate in the protocol construction and Governance (such as MOV) at a higher level. However, compared with the significant effect of the underlying chain itself on BTM value capture, the application at the upper level needs a longer time and a larger growth of external ecological user groups.

Bytom 2.0 can change the previous pattern from the underlying chain consensus level, let the real BTM interest holders enjoy the rights and interests of the underlying chain consensus construction, form the BTM value alliance, build up a long-term belief, and the community will better participate in the bottom-up ecological construction. Community is the most important support for public chain ecology and underlying token. If the community can not participate in consensus building well, the most important support will not become the backbone of value capture. Therefore, the essence of the new consensus is to enable the community, trading platform and even the original miner group to reach a consensus on the PoS-based Bytom 2.0 based on Vapor, to actively participate in the consensus verification group with BTM, to obtain a considerable annualized rate of return, and to enjoy the rights and interests of the collective construction of the underlying chain. It is believed that POS at the level of independent public chain will from the security level, the "Economic Finality" introduced by PoS system can resist the super attack on the underlying chain more. Even if

51% attacks are encountered, compared with PoW, POS can recover to normal as soon as possible. Moreover, the cost and benefits paid by the evil group are far from equal, and the actual operation level is not feasible.

Bytom 2.0, compared with the historical PoW-based Bytom, it will surpass the original chain in three aspects: decentralization, security, scalability (efficiency and upgrading), which can better serve the implementation of MOV strategy and support better application and assets.

Back to the upgrade and transformation of Vapor and the consensus of new brands. Since Bytom 2.0 was officially launched, Vapor will no longer exist as a layer-2 concept, but will completely upgrade and transform into a completely independent large public chain structure, and become a new brand representing Bytom 2.0. Since then, Bytom will have only the chain structure of Bytom 2.0. All supporting facilities, including official wallet, browser, plug-in, developer tools, cross-chain system OFMF, will be redirected to Bytom 2.0. bring a new round of BTM lock-in staking, which will be beneficial for a long time.

Vapor will maintain the existing main structure of DPoS + BFT consensus. In order to improve the security of the public chain, it will expand the verifier group and flexibly support POS attributes such as dynamic join, election, and exit. DPoS ensures the decentralization and non collusion of consensus groups, BFT ensures the final certainty of each round of consensus (confirmed by different verifiers over $\frac{2}{3} * n + 1$), prevents fork attacks, and improves consensus efficiency and cross-chain efficiency. In addition, it will continue to improve the upgrade economic punishment mechanism to restrict all verifier behaviors, such as Byzantine behaviors like double signature and node instability.

The existing Vapor needs to have the ability to issue assets. Therefore, compared with the original chain, the only asset issuance responsibility of pow will be transferred to the upgraded vapor smoothly. For future users and developers to carry out MOV application construction, saving cost and improving efficiency. The team's development power will also be more concentrated to improve the efficiency of product delivery.

The establishment of a new consensus is inseparable from the establishment of a new BTM value consensus. Bytom 2.0, its network security largely depends on the price of the new BTM token. The price of the new BTM token may fluctuate greatly, and whether the 2.0 network has enough flexibility to maintain economic stability and security and avoid attackers' rapid expansion of attack capability is also the key design in the process of Bytom

2.0 construction.

New Platform

The new platform is not only a new smart contract platform but also a new ecological platform for developers.
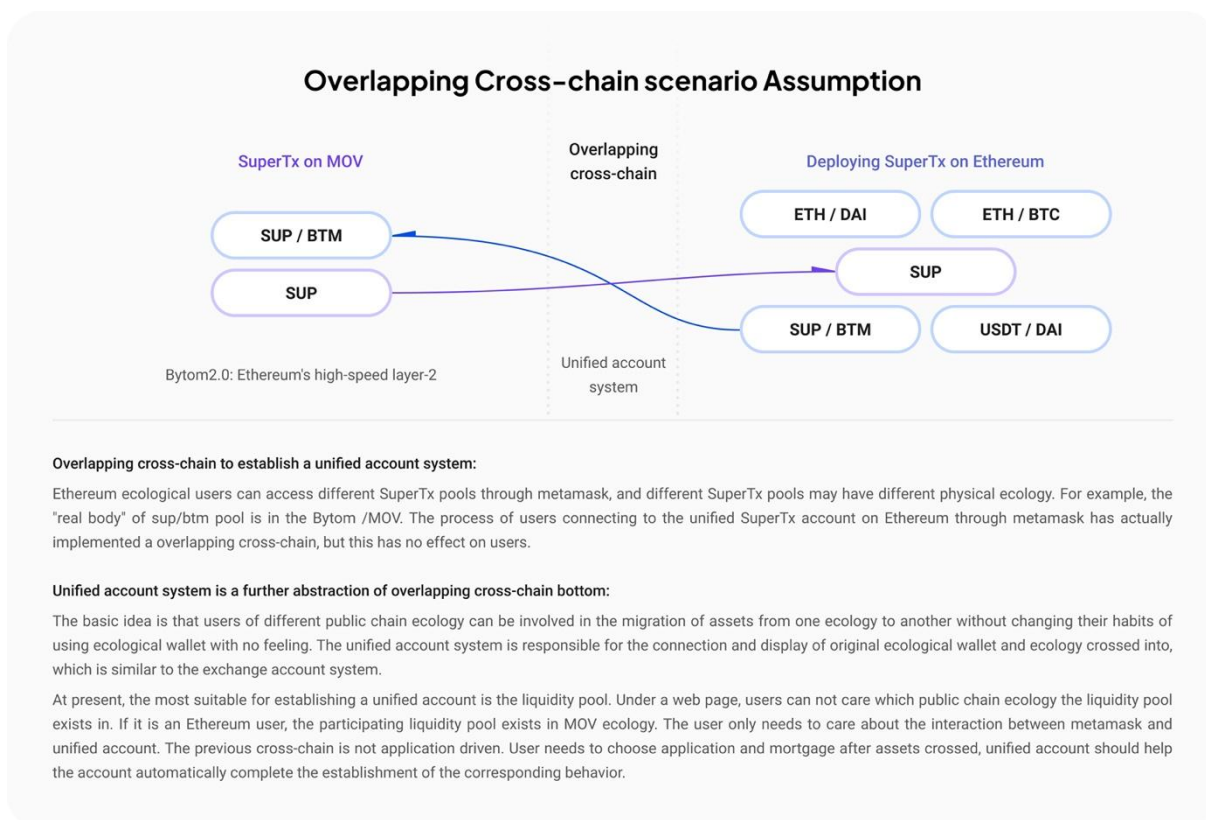
To be more successful, Bytom 2.0 will not only build a successful economic model and consensus model, reshape the BTM value from the internal cause, but also build a more general intelligent contract platform and a developer and application ecology that seamlessly connects with the mainstream ecology such as Ethereum, so as to thoroughly revitalize MOV, let MOV go out with the value of BTM, and truly realize BTM value consensus from the essence of circulation.

Therefore, Bytom 2.0, is a brand-new platform strategy and a deep reflection and reform of its own development ecology. When the dual chain fusion becomes a "unified platform", the new Bytom blockchain removes the previous multi-channel barriers for developers and applications, and is more friendly to new developers and reduces learning costs than the original chain. In the process of realizing interoperability with other public chain ecosystems, the underlying architecture is more concise and the operation is more efficient. One of the core missions of Bytom 2.0 is how to better deal with the developer group and cooperation with the external ecology. Only by jointly building MOV can it become the masterpiece of a domestic open financial platform, making many advanced designs of MOV known and quoted by the world's DeFi ecology.

In the specific Roadmap, since the implementation of MOV strategy, it has put forward high requirements for the development of its own smart contract. Therefore, it is a very important part of the 2.0 RoadMap to improve the maturity of Vapor and the smart contract of Bytom 2.0 than the original chain to better support the development of applications such as DeFi. Based on the existing smart contract of Vapor, it will be continuously improved to develop all product lines and protocol clusters proposed by MOV, so that developers in their communities can be allowed to enter and jointly build an open MOV ecology in the early stage of operation of Bytom 2.0.

In the future route, we will build a more powerful comprehensive contract system, which is compatible with the Ethereum contract system. We will implement EVM / eWASM and other

mainstream virtual machine architectures on the basis of UTXO account model, so that most of the Ethereum's DiFi applications, ecosystem components and tools will be Bytom 2.0 compatible, no modification or only small changes are needed to drive two ecological developers and protocol applications to implement two-way interoperability, so as to truly turn the overlapping cross chain ecological idea proposed by MOV into reality (as follows, it is a kind of assumption proposed earlier than Bytom / MOV, but it puts forward very high requirements for the bottom chain, and believes that it is capable of turning it into reality than Bytom 2.0).

Overlapping Cross–chain scenario Assumption

SuperTx on MOV

Overlapping cross-chain

Deploying SuperTx on Ethereum

SUP / BTM

SUP

ETH / DAI   ETH / BTC

SUP

SUP / BTM   USDT / DAI

Bytom2.0: Ethereum's high-speed layer-2

Unified account system

Overlapping cross-chain to establish a unified account system:

Ethereum ecological users can access different SuperTx pools through metamask, and different SuperTx pools may have different physical ecology. For example, the "real body" of sup/btm pool is in the Bytom /MOV. The process of users connecting to the unified SuperTx account on Ethereum through metamask has actually implemented a overlapping cross-chain, but this has no effect on users.

Unified account system is a further abstraction of overlapping cross-chain bottom:

The basic idea is that users of different public chain ecology can be involved in the migration of assets from one ecology to another without changing their habits of using ecological wallet with no feeling. The unified account system is responsible for the connection and display of original ecological wallet and ecology crossed into, which is similar to the exchange account system.

At present, the most suitable for establishing a unified account is the liquidity pool. Under a web page, users can not care which public chain ecology the liquidity pool exists in. If it is an Ethereum user, the participating liquidity pool exists in MOV ecology. The user only needs to care about the interaction between metamask and unified account. The previous cross-chain is not application driven. User needs to choose application and mortgage after assets crossed, unified account should help the account automatically complete the establishment of the corresponding behavior.

The new platform should also be a sound platform, including——

- Introduce and improve the basic mechanisms of great significance to the construction of DeFi, such as open asset issuance, GAS mechanism, etc;

- The cross-chain system can also have more powerful scalability, and can quickly add other ecology and token. It can also improve the efficiency of witnessing and testing cross-chain events on different chains by an order of magnitude, establish a more powerful cross-chain gateway node group, and strengthen the cooperation. The further implementation and external output of MPC / threshold signature is no longer limited to the services that are more ecological than the original chain. For example, it

can easily realize the functional positioning of RenVM/renBTC on Ethereum, or output BBTC to Ethereum's DeFi Ecology (migrated BTC from Bytom 2.0);

- Establish and improve Bytom 2.0 random number and Oracle system. Based on the SeqPow mechanism, a random number generation mechanism better than VRF is built. With the consensus structure of Bytom 2.0, all PoS verifiers can participate in the decentralized random number generation process, and can be elected as 2.0 ecological Oracle service nodes based on the random number mechanism, and send data to MOV and external DeFi ecology provides decentralized Oracle services and gains additional benefits (as shown in the figure below).
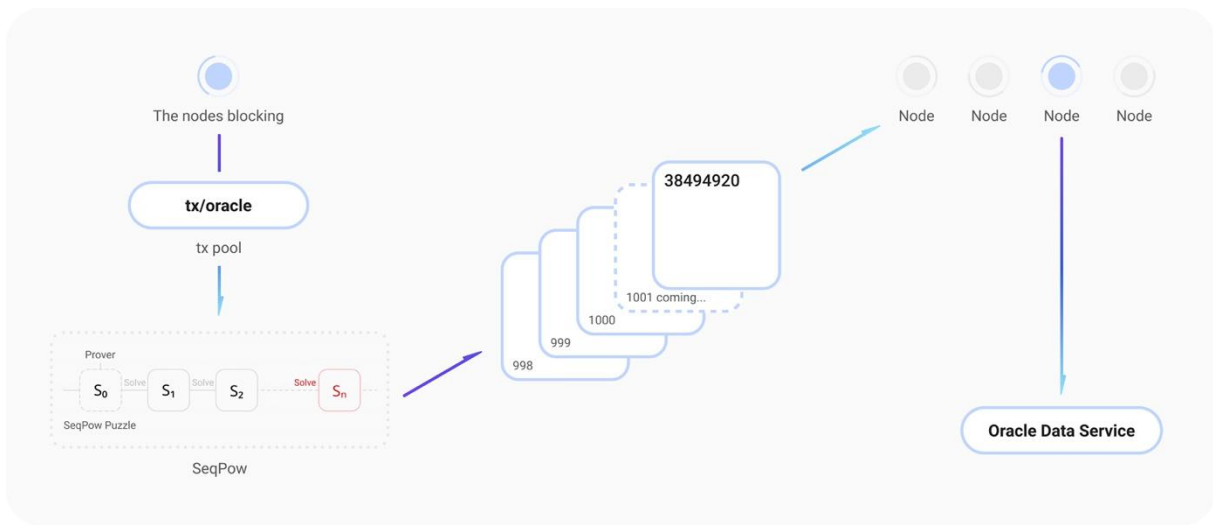
New MOV

New MOV is the MOV of Bytom 2.0, and it is also a MOV moving towards the outer ecology.

The new platform is powerful enough to make MOV gain new vitality. The new MOV is not only the MOV of Bytom 2.0, but also other the MOV of other ecology .

For Bytom 2.0, MOV strategy is still regarded as the first position. In the past few years, all construction of MOV has not been in vain, but will radiate more powerful vitality.——

- More powerful interoperability: Bytom 2.0 will re-establish a cross-chain gateway system, so that the external public chain ecosystem can directly interoperate with MOV, without the need to transit through the PoW Bytom chain, which greatly improves the efficiency of interoperability and promotes crossover Cross-chain really applicated. Therefore, Bytom 2.0 will have more powerful cross-chain interoperability with the Ethereum ecosystem, and also serve as the functional positioning of Ethereum Layer-2, and actively embrace Ethereum's spillover DeFi projects, such as custom networks that can be connected to MetaMask. API, add the Bytom 2.0 network to the user network list and present it to users as Ethereum Layer-2.

- More powerful composability: MOV superconducting and MOV lending, and later MOV stablecoins, with the support of Bytom 2.0, will be able to achieve better combination interoperability, and BTM can also participate in each transaction more smoothly. The pledge and fee payment of an agreement further promote the practical value of the basic token BTM and improve the capital utilization efficiency of various assets.

- Stronger openness: The current MOV is still in its early stage, and is subject to the shackles of the underlying infrastructure and the dispersion of technical power. It cannot practice the open features of DeFi well. It is attracting mainstream assets, new assets, and official assets. External applications and developers are at a disadvantage. Even if the MOV concept is advanced, it cannot compete with the Ethereum ecosystem in terms of speed and network effects. Therefore, in Bytom 2.0 and the new MOV stage, strong openness will become a core element. After achieving strong cross-chain interoperability and composability, openness will become a reality, assets will increase, and users will increase Will participate, and other ecological

applications will migrate over.

The new MOV will insist on completing the construction of the three major DeFi infrastructures of exchange, lending and stablecoin, and open the three major services in an interface and composable way to Bytom 2.0 ecological developers and Ethereum and other external ecological applications, making The community can develop more exciting decentralized financial scenarios based on the three official infrastructures, and bring derivative innovations such as structured finance and decentralized futures option pools.

Maybe we can make a bold idea: Blockchain, or a public chain, to obtain proof of value, may not be the solidified thinking before—that is, it must go deep into the physical industry to implement the national economy and the people's livelihood. On the contrary, if one public chain can start from the fundamental concepts/mechanisms of the blockchain to complete all aspects of its own construction and perfection, then its original token is valuable, and its community consensus and community ecology are also valuable, and ultimately will be widely recognized by people.