

## **Next Generation of Decentralized Finance**

The next generation of decentralized finance is composed of three parts, the infrastructure layer blockchain GeneChain, DeFi ecosystem application, and cross-chain assets.

### **GeneChain**

#### **High Performance**

GeneChain has integrated and optimized the DPoS consensus on the basis of Ethereum to achieve a new set of ribose consensus that well balances decentralization and performance. Compared with Ethereum, GeneChain has a shorter block production interval, bigger block size, and faster performance tuning speed. Therefore, its performance can easily exceed 100 times that of Ethereum. When the network is congested, the performance tuning speed can be up to 16 times faster than Ethereum, and the peak TPS tested can exceed 2,000.

#### **Smart Contract**

GeneChain is fully compatible with EVM smart contracts and can best be suited to the current DeFi developer ecosystem. Developers can migrate to GeneChain at zero cost.

### **Economic Model**

#### **Native Token RNA**

RNA is GeneChain's built-in currency which can be used to pay fees and mortgage selected validation nodes. The network charges fees based on the complexity of the transaction, and users can increase the transaction fees independently for priority packaging.

Twenty million RNAs will be pre-issued before the network starts, of which 50% or 10 million are purchased with VBC in the pre-sale stage at an expected price of 1:100. All VBC raised will be locked and injected into GeneChain to

provide initial liquidity. The 15% or 3 million is retained by the team with a four-year lockup period and 1/16 released every quarter for core technology R&D, network maintenance and ecosystem support. After the network is started, the remaining 35% or 7 million will be injected into the swap pool of VBC/RNA in ecosystem applications together with the pre-sale VBC as the initial liquidity.

Whereafter, two more RNAs will be issued for each block as the block production reward. The reward will be halved every two years until the total reaches 100 million. The additional issuance rate of each year is about 100%, 50%, 16.6%, 14.2%, 6.25%, 5.88%, 2.77%, 2.7%, 1.3%, 1.29%, 1.02%, 1.02%.

### **Validator Mortgage Weighting Factor ARM**

ARM can be used to weigh the RNA mortgaged by the validator. For details on the weighting algorithm, see Mortgage Weight Calculation. ARM can only be obtained by mortgaging VBC at a fixed rate of 1:1. The VBC mortgaged for ARM will be locked, but it can be included in the mortgagor balance for the purpose of calculating issuance proceeds in the original RADR network. The ARM obtained by mortgaging can be circulated in ecosystem applications such as trading in the swap pool and depositing in the lending pool to earn interests, thereby provide an accelerator for other users without VBC. Only the mortgagor can redeem the VBC locked by the mortgage via returning ARM.

### **DPoS Consensus**

GeneChain produces blocks with the selected 21 validation node. It produces a block every 3 seconds, which is about 10.512 million blocks a year.

### **Validator**

Anyone can sign up for an account as a validator by calling the system contract, and only the validator account can accept mortgage in the system contract and run for active validators.

## **Stake**

Anyone can increase the mortgage weight for any invalidator by staking their RNA and ARM or one of them at any time. For the weight algorithm, see Mortgage Weight Algorithm. Users can also withdraw their mortgage to get their RNA and ARM back. However, the mortgage needs a lockup period to stabilize the network. It is tentatively set as 86,400 blocks, which is about 72 hours.

## **Candidate**

The system contract will record the top 50 validators with total mortgage weight as candidate validators. To ensure that the candidate validator remains active, a validator can be included in the candidate list only when its total mortgage weight changes. Hence, when a validator is removed from the candidate list, other validators must initiate a mortgage to win a place in candidate validators.

## **Active Validator**

The system selects the top 21 candidate validators as active validators every 200 blocks (10 minutes). Active validators shall ensure that the mining node is bound and running, and the mining nodes with active validators will take turns to produce blocks and get rewards. If it disconnected or produced wrong blocks, other active validators will take its place to produce blocks and record its error value. When this active validator correctly produces a block again, the error value is lowered. The active validator might be removed and its mining proceeds might be forfeited once the error value reaches a specific level.

## **Validation Node**

The mining node with the active validator account bound

## **Candidate Node**

The mining node with candidate validator bound

## Reward Distribution

To ensure network decentralization, GeneChain encourages users to increase the mortgage weight for validators they support. In return, 90% of the reward will be distributed to users who support active validators. The reward algorithm is as follows:

1. Mark the supporter weight as  $W_{n,a}$ , the total weight of nodes as  $W_{node}$ , and the accumulated rewards obtained by the node during the period when the user supports the node as  $P_{node}$
2. Then user rewards  $P_a = \frac{P_{node}}{W_{node}} \times W_{n,a}$
3. If the total weight  $W_{node}$  changes during the user support, the reward liquidation will be carried out, and the reward will be re-accumulated based on the new weight.

## Mortgage Weight Algorithm

1. The calculation of validator's total mortgage weight: summing all mortgage weights that the validator receives from all accounts,  $W_{node} = \sum W_{node,account}$
2. The mortgage weight that the validator receives from users:

1. Mark the amount of RNAs mortgaged by users for the validator as  $V_{RNA}$  and the amount of mortgage weighting factor ARM as  $V_{ARM}$
2. The mortgage weight that users adds to the validator is

$$W_{node,account} = \begin{cases} V_{RNA} \times \ln V_{ARM}, & V_{ARM} \geq 3 \\ V_{RNA}, & otherwise \end{cases}$$

## DeFi APPs Ecosystem Applications

### Swap Exchange and Liquidity Mining

Users can exchange different tokens in Swap and provide liquidity to earn fee proceeds.

## **Lending and Deposit Returns**

Users can save VBC or other tokens to earn deposit interests or take them as mortgages to borrow other tokens.

## **Synthetic Assets**

Users can mortgage VBC to synthesize other assets that can be synthetic stock assets pegged to stock price, synthetic gold assets pegged to the gold price, or synthetic stablecoin pegged to foreign exchange.

Synthetic assets can be exchanged in swap or deposited in the lending market to earn interest.

## **Other Applications**

Such as oracle, NFT, FARMing, financial derivatives, etc.

## **Cross-chain Asset Conversion**

Users can exchange assets on the GeneChain and other chains via cross-chain channels, such as BTC, ETH, USDT, etc., making it easier to achieve cross-chain asset transfer.

Based on the HashLocking technology that has been proven to be safe for a long time, cross-chain asset conversion can be achieved with a decentralized solution. In other words, the user's assets are 100% secure and all cross-chain assets are corresponding to 100% asset lock. For example, when a user transfers USDT from Ethereum to GeneChain, the USDT on the Ethereum network will be locked and no one can withdraw it, then get USDT on GeneChain. The locked USDT on the Ethereum network cannot be withdrawn until someone transfer USDT from GeneChain back to the Ethereum network. The security and decentralization in these processes will be guaranteed by HashLocking technology.

To maintain a decentralized cross-chain asset conversion service, a certain amount of handling fees must be paid for the conversion, and anyone can mortgage VBC to be a cross-chain service provider to provide services and

earn fees. Furthermore, in order to encourage service providers to be active, if a service provider fails to complete the conversion service in time, other service providers can complete the conversion service instead and charge a certain amount of VBC as a fine.