Ants Planet White Paper

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Background

It has been 12 years since the 'The 2009 DARPA Red Balloon Challenge' . And we were also very impressed the surprising efficiency by the 'Recursive Motivation Model' used by the Massachusetts Institute of Technology (MIT) team to aggregate bits of information across millions of people in just 9 hours. Inspiring by the significant result, the team Ants Network Labs (Labs for short) has been insisting on the study about how to adopt sociological theory integrated with blockchain, and the integration will not only be adopted in study on social mobilization.

PancakeSwap exploded in March 2021, and the dual staking model of depositing LP Token gained a lot of popularity in the market, which once again proved the importance of achieving multiple wins and reaching a consensus. The core model of PancakeSwap lies in pledge staking. The dual staking model requires the LP or CAKE Token to be locked into the contract to ensure that participants are credible during the staking process. This is a bit contrary to the concept that Labs have been studying. The hard connection model of

PancakeSwap connects people and machines, and machines are just a communication tool amid people. However, weak ties can connect tens of thousands of people in a short period of time, and can also form a huge and complex network of relationships and social circles. (Weak tie theory is the proposition that acquaintances are likely to be more influential than close friends, particularly in social networks.) Ants Network Labs wants to highlight the connections not only between a person and the machine, but also among different people. As a result, the value of weak ties is even greater in Labs' view.

After much discussion, Labs have designed an experimental project that incorporates Pancake's staking model with enhanced human behavioral values, and conducts the experiment through token incentives and behavioral constraints. A new concept of 'weak tie staking' has been introduced to verify whether humans can perform Credible behavior under the weak tie model. The design of the whole model and economy part is not perfect enough, but don't worry, this is just the beginning to test whether humans can do Credible behavior with incentives, and because of its incompleteness, there are more potential to expand its border.

Introduction

Ants Planet is an experimental project. Ants Network Labs hopes to connect human beings through a simple and efficient model with weak relationships (weak relationships may arise in many real-world situations, such as when two relationships are connected by a time sequence). And the Credit is the bridge that connects people to each other and conducts transactions. Therefore, Credit plays a very important role as the basis for forming social attributes.

Labs focus on experimenting whether humans can restrain their desire to investment markets under an incentive system in the first version. You will need to deposit a specified number of tokens in a wallet connected to Ants Planet, and Labs require you to hold the tokens for specified time with the rules (not pledge them in a contract). When you start following above rules, it will be regarded as you have accepted the experiment, and the NPT-BEP20 (Credit Token) will be released every day according to a set growth curve. To ensure that human beings can accept the Credit with the rules, Labs have established a severe penalty system that the provided tokens could not be withdrawal for 7 days. If a participant withdraws or transfers the pledged tokens within the specified time, it will be considered as a violation of the Ants Planet agreement, and the system will directly destruct all the locked credit tokens and disqualify

the participant from the program for 7 days.

In the experimental stage, Ants Planet will pledge FIL to gain Binance Smart Chain (BSC) token NPT, so it can be regarded as a Filecoin project on BSC. In the sight of Ants Network Labs, human's weak ties cannot be separated from data storage, and individuals need to carry private data to form data islands, which can be arranged and combined in any way through weak tie to form a huge and intricate network with infinite possibilities. The BSC is a pretty good public chain with low fees and fast processing speed to meet Labs' further experimental requirements. Cross-chain design is also weak tie, so there will be more valuable public chains and tokens in the future to comply with the Credit agreement.

Be Credible

As mentioned earlier, participants need to comply with the Credit Agreement within specified time. The penalty system designed three key numbers: 21, 90 and 180, which means 21 days to build up a habit, 90 days to keep it, and 180 days to complete the agreement. These numbers are designed with human nature to better develop self-restraint.

In behavioral psychology, it takes at least 21 days for a person to form a new habit or idea, which is called the 21-day effect. This means that if a behavior or idea is repeated for 21 days, it will become a habitual action or thinking. Therefore, human beings go through the following stages in the process of developing Credit:

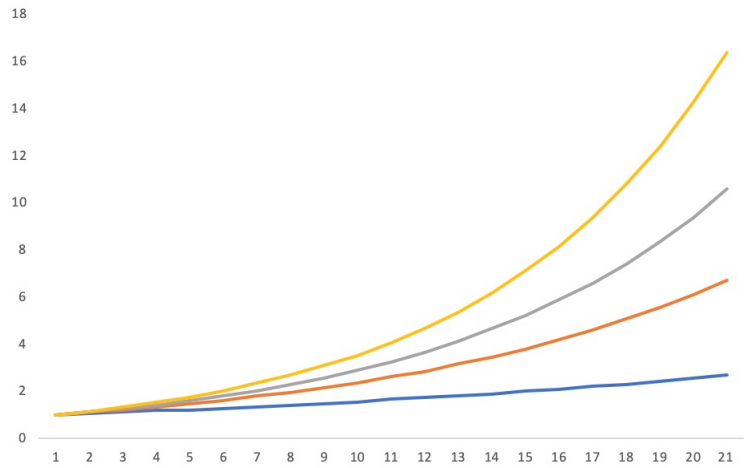
0 to 21 days, humans need to control themselves by their consciousness to be credible.
21 to 90 days, humans can enforce the agreement without self-control.
After >90 days, humans have fully kept this credible behavior.

For this reason, Labs hope that during the 21-day progress, participants would receive a non-linearly increasing incentive each day, and the incentive would stop growing after 21 days. In the incentive model, $baseRatio$ representatives a pre-set constant value between 1.05 and 1.15 (later we will explain why it is in this range). $dayRewardRatio_{Max}$ representatives the incentive base will no longer increase with the number of days when it is greater than 21 days, but will remain.

$$dayRewardRatio = baseRatio^{day-1} \quad (0 \leq day \leq 21)$$

$$dayRewardRatio = dayRewardRatio_{Max} \quad (180 \geq day > 21)$$

As shown in the figure below, the four curves are the $baseRatio$ with values from 1.05 to 1.15. The longer the curve is, the higher the incentive will be. And the possibility of this model losing control will increasing when improving the numerical of baseRation. On the 21st day, the incentive could be several times to tens of times of the previous days, according to the Logarithmic reciprocal model. In the process of Credit, as the 21-day effect approaches, the closer human is to form a habit, the higher the cost and the easier it is to shake the Credit. Ants Network Labs would like to provide a high amount of incentives in the most difficult moments, and encourage the newly joined participants to keep their Credit.



Chain Dissemination

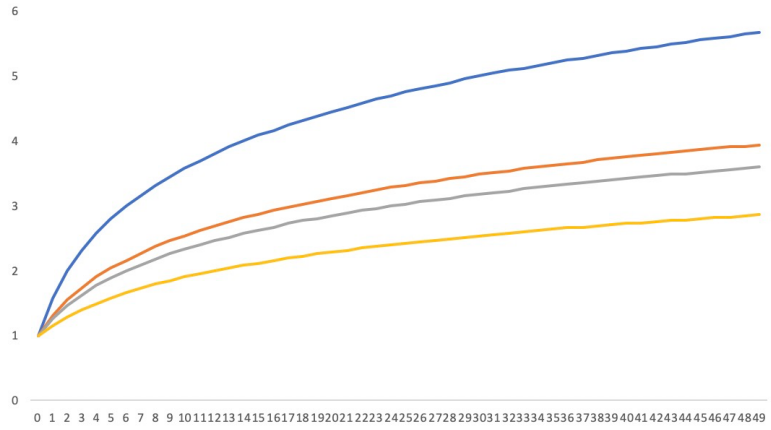
When it comes to the chain dissemination, it is important to repeat the Recursive Motivation Model, which has been mentioned at the beginning of this article. This model represents a weak tie that can connect millions of people in just a few hours. The Red Balloons Challenge, aka. the Balloon Competition, organized by the Defense Advanced Research Projects Agency (Darpa), which was won by a team of researchers from MIT and provided a new solution to a large-scale social problem, is a very successful example. It used a decreasing 1/2 incentive model, where the person who finds the balloon got 1/2 of the total incentive, and the person who introduced him got half of the 1/2 incentive, and so on, until there were no other introducers. In addition, the participants did not know which branch of the whole dissemination path they were on the way of finding the balloon, so the incentive quantity would become unknown.

Ants Network Labs hope to learn from The Red Balloons Challenge to spread quickly and effectively, and to cultivate Credit agreement under the weak tie model. Some adjustments to the model and incentives are also made to be more conducive to the current social communication. The $inviteNumber$ represents the number of participants who are invited to the current Credit experiment, LOG_N represents the coefficient growth rate of the number of invitees, and

N in parentheses represents the offset. And regardless of the value of N, $baseRewardRatio$ is 1 when no one is invited. The $baseRewardRatio$ representatives the incentive coefficient corresponding to the number of invitations, which will jointly affect the number of incentives obtained per day with the $dayRewardRatio$.

$$baseRewardRatio = LOG_N(inviteNumber + N) \quad (inviteNumber \geq 0)$$

The incentive coefficient $baseRewardRatio$ is not growing linearly with the number of invitations. Ants Network Labs expect participants to spontaneously disseminate information, but does not want an excessive number of invited participants to cause an imbalance in the incentive coefficient. As can be seen from the figure, inviting large numbers of people to the same address is not an optimal solution, and its growth coefficient is gradually slowing down, but it is indeed the most convenient one. For example, if a participant spreads his address to the network, other people who expect to participate in the experiment will need an existed address as an invitation code to join, as the result, the participant will get large numbers of invitations.



Token Economics

The maximum supply of NPTtokens is 10 billion, which can only be earned through the Credit Agreements. The NPT generated by the participants through the Credit Agreement will be divided into three parts.

85% to the participants.

10% to investors through the cooperative DEFI/Staking pools.

5% to Ants Network Labs for development and maintenance costs.

The initial daily supply of NPT tokens is 10w NPT , and the share is allocated based on the factor *personRewardRatio* of the participant's invitation factor *baseRewardRatio* and daily incentive factor *dayRewardRatio*. Therefore, when there are fewer participants, participants will get a higher incentive, and the daily incentive *personRewardRatio* allocated to individuals is affected by both the

daily incentive coefficient $dayRewardRatio$ and the invitation coefficient $baseRewardRatio.$ The earlier the participants join, the higher the incentive will be allocated.

$$personRewardRatio = baseRewardRatio * dayRewardRatio$$

$$personReward = \frac{personRewardRatio}{\sum_{0}^{TotalNumber} personRewardRatio} * TotalReward_{Daily}$$

As the number of participants increases, the incentive allocated to users will become small, in order to ensure that participants can comply with the Credit Agreement under sufficient incentive, the daily supply of NPT tokens will be dynamically adjusted with the number of participants, and the supply of NPT tokens provided for each additional number of participants will be increased by K from the initial supply. $StageNumber$ is the preset ladder number, if the current ladder is one for every 10w participants and the growth factor K is 20%, then the supply of NPT tokens will be adjusted upward by 20% for each additional 100,000 participants. After repeated calculations, there is still a good incentive in the case of too many participants, and at the same time, it will not cause over-inflation of NPT tokens.

$$TotalReward_{Daily}$$

$$= InitialReward * (1 + K * floor\left(\frac{TotalNumer}{StageNumber}\right))$$

About Destruction

The 7-day incentive deducted from the participant's penalty will be destroyed directly to the 0x0000000000000000000000000000000000000000 black hole address. The rest of the specific destruction rules will be reflected and explained in detail in the second experiment.

Exit Penalty

Ants Network Labs believes that Credit is the core of human civilization. As mentioned previously, the daily incentive factor increases exponentially over time, which means that the longer you keep your Credit, the higher number of incentives you will have. If a participant transfers tokens and drops out of the Credit Agreement early, Ants Planet will not remove the participant immediately, but check at a random time each day to see if all participants have enough tokens in their addresses and conduct exit penalty. If a participant only temporarily transfers tokens and replenishes them quickly, the program may not be able to detect it, but at the same time it is taking a very high risk. Once the penalty is removed, in

addition to losing 7 days of incentive, you will lose all the number of invitations and will not be able to join again for 7 days. If you want to rejoin the experiment after being penalized, you will have to wait for the penalty to end up itself and start again.

The conventional period of one Credit is 90 to 180 days, and the termination of Credit will depend on the participant himself. If you keep the tokens held in your tied wallet account, the reward will continue to be paid until the 180th day. When you have participated for 90 days, you will no longer be affected by the 7-day lockout and all incentives will become unlocked and can be withdrawn at any time, and the program will stop issuing incentives. After you exits in compliance with all rules, you can join the experiment again at any time with the same rules.

Milestone

Ants Network Labs will design 10 chapters in the next 10 years to experiment and build digital society models and NPT token economic system from different dimensions. In future, each chapter is independent as an experiment but also related to solve problems in sociology to achieve the goal that to build an efficient global network for digital society.