Quantitative Investigation

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What does it mean to be properly decentralized? What percentage of a network's governance (that consists of approximately 50 nodes) should be given to the bottom 50% of the network? Currently, the numbers are as follows:

The bottom 50% of validators in terms of delegation control ≅ 0.6% of the network. The top 50% of validators control 99.41%. The bottom 87% of validators in terms of delegation (40/46 nodes) control 39.35% of governance control.

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Finally, an important quantitative value to examine is the number of validators that are needed to reach a successful vote of > 50%. With the current setup, the top 4/46 active validators (Quiet monkey mind, secretnodes.org, ChainofSecrets.org, Mario) collectively own 52.61% of delegation on the Secret Network. In addition, the top 5 own 60.65%, and the top ten own 85.59% of delegation.

These numbers will continue to be updated every month, tracking the progression towards decentralization or centralization on a month to month basis. Secure Secrets also wants to acknowledge in this report that there is a large amount of SCRT that has not been swapped by both Enigma MPC as well as holders of ENG that currently value liquidity more than burning ENG for SCRT. This large number of potential SCRT will make a big difference in distribution of the network. It is our job as members of the Secret Network to continue to quantitatively track the change of distribution of delegation, and to generate discussion as time progresses.

The goal of this monthly update published by Secure Secrets.network

is to better track and understand how the Secret Network is evolving in terms of distribution of delegation and governance power.

Decentralization is the critical component of blockchain. Without proper decentralization of the network, the incentives of any given individual actor may not align with the best interests compared to the network as a whole. From a pure governance perspective, lack of distribution discourages dissenting opinions if proposals are only accepted if an actor is of significant power and connection.

Simultaneously, it would be foolish to treat actors that have unwittingly, without a hint of malevolence or self-interest, moved towards a position of power and consolidation. This is entirely understandable, and it's not fair to paint those with significant control of the network as something evil. There must be a careful distinction made:

Anyone can contribute significantly to the Secret Network, and this is not contingent upon the amount of SCRT you own. And yet, those with a significant amount of SCRT are usually those who have invested the most capital and time into moving the network forward.

The real danger comes when those who own a significant portion of the network (in relation to total delegated SCRT) are not progressing the network forward as much as their governance portion represents .

Let us picture the following game theory scenario to illustrate:

Player A controls 50% of the network tokens. Player B controls 25% tokens. Player C controls 25% tokens. Let us assume

that player A progresses the network forward by 40% (40/50 = 80% “token to progress ratio” a.k.a TPR), and Player B & C collectively progress the network by 50% (50/50 = 100% TPR). If token growth as a function of progress represents the total network value (TNV) in this arbitrary example, then the following occurs:

A(50 + 50 X 80%) + B(25 + 25 X 100%) + C(25 + 25 X 100%) = 90 + 50 + 50 = 190 TNV

This is in contrast to if B and C owned 10% more of the network tokens (5% of control split between these two players, 10% subtracted from A). With this new distribution favoring actors that are more efficient with contributing to the network when more governance is granted to them by delegators, then the following scenario occurs:

A(40 + 40 X 80%) + B(30 + 30 X 100%) + C(30 + 30 X 100%) = 72 + 60 + 60 = 192 TNV

In scenario #1

there is an economic inefficiency where if Player B and C were given more capital and control, they could progress the network forward more than with the current distribution. Obviously, this is an arbitrary example trying to assert a simple point.

Proper decentralization is not just about distributing governance, it’s also about properly incentivizing the progression of the network with as many efficient actors as possible by properly distributing resources, control, and capital.

There is a balancing act where as a decentralized community one must not intend to discourage those with a significant historical

amount of capital, intellectual contribution, and time from continued contribution. Therefore, it is critical that as network we continue to discover and incorporate active

value creation equitability —

the fair distribution of governance control contingent upon your total contribution to the Secret Network, with a bias towards present contribution versus the past.

It is the goal of every blockchain network to maximize total network value (TNV). Centralization of power within the current stage of the project may very well be the best way to maximize TNV. At some point in time, this will no longer be true — that is the ethos of blockchain that we all believe to be true. If you don’t believe in the value of decentralization then you disagree with the fundamental property of blockchain that makes it valuable in the first place.

It is under this assertion that we began a quantitative analysis of the Secret Network and the distribution of governance control within the protocol. This will be done on a monthly basis on the 30th day of each month using a snapshot of https://puzzle.report/ (courtesy of Secret Nodes) using the top 50 active

validators. Linked is the publicly accessible spreadsheet of all calculations used in the quantitative investigation using a snapshot of August 30th, 2020.