Hello esteemed Super Validators,

First, a big thank you to our founding Super Validator core who are the first to commit to operate Super Validators for the Canton Network. Without everyone's direct participation, we would not be able to bring this full vision to life.

Given the current market conditions, filling the first Super Validator tier has proven to be a bit trickier than we had hoped at the outset and so we are proposing evolving the Super Validator Tiers to support a healthy and robust Canton Public Domain launch.

This will be some of the first important votes for the SV Collective and I'm excited to be able to bring these three Canton Improvement Plans (CIP) for your consideration. Given we are entering the holiday season, I kindly request a response of your intention to support each of the CIPs by no later than Jan 15, 2024. As a reminder, during the TestNet, failure to respond will be considered as supporting the CIPs.

The CIPS below propose modifying when Tiers can begin operating a Super Validator (CIP 0001), fine tuning some of the tokenomics (CIP 0002), and creating an additional behavioral incentive in the Network (CIP 0003).

As a quick reminder, the current expected coin earnings per SV Tier is

- Tier 1 : ~1.45%
- Tier 2 : ~0.45%
- Tier 3 : ~0.15%

This assumes that we fully allocate each tier. These numbers also assume there is exactly 6 months delay from the launch of Network to the launch of Tier 2 and 12 months delay from the launch of the Network to the launch of Tier 3.

CIP 0001 :

Summary

- Replace the SV tranche time delays with a weighted reward

Motivation

Given a smaller population of entities which can operate a SV under the current environment, it would be beneficial to increase the pool of potential SVs which can participate on Day 1 of the Network. Launching with only 5-10 SVs is possible but doesn't leave a lot of breathing room for node failures in the consensus protocol.

Increasing the number of SVs on Launch towards the original goal of 16 would improve the health of the Network from its very outset.

Rationale

There is demand to participate at a lower Tier commitment but those participants would have to wait at least a year to be able to start to operate an SV which is detrimental to us all given we don't have a fully allocated Tier 1 at the moment.

Proposed Changes

Summary

- Remove the time delay to launching SVs
- All Tiers of SVs can begin operating at the time they qualify
- Introduce a reward weighting mechanism ('Weight') to the Tiers

Proposed New Fully-Allocated Tier Table

	Count	Weight per SV	Weight in Tier	% of SV Reward	% of all CC	Exp Earnings per SV at Tier
Tier1	16	10	160	66.67%	23.33%	1.46%
Tier2	16	3	48	20.00%	7.00%	0.44%
Tier3	32	1	32	13.33%	4.67%	0.15%
Total	64		240	100%	35%	

For the initial 6 months of the Network, DA will not allocate more than 16 SVs in total. Further, DA will not allocate more T3 Nodes than T1 in the first tranche.

An SV may qualify for multiple tiers. Each qualifying tier entitles that SV the right to operate a node provided the total number of nodes does not exceed 25% of the total. To limit

concentration risk of the BFT, the number of nodes per SV is capped so that no single SV controls more than 25% of voting power at the BFT. If there are #SVs supervalidators, the cap is V = floor (#SVs / 4) nodes.

However, any such cap on nodes does not affect the rewards. Any SV will have the right to run a minimum of one node with their total weight of reward.

CIP 0002 :

Summary

- Minor adjustments to the Tokenomics variables to fine tune BME tokenomics

Motivation

As we are learning more in the TestNet, we are proposing a few tweaks in the tokenomics model to improve performance and capture more of the economic utility of the Network.

Rationale

These are a collection of optimizations based on what we are seeing from early use and potential first users of the Public Domain and Canton Coin.

Proposed Changes

- Increase reward round time to 10 minutes
    - Longer reward rounds improve Coin throughput
    - Longer reward rounds improve smoothing of rewards & faucets
- Start with a fixed $0.005 CC Oracle price
    - Broadly aligned with Prysm analysis for early network
- Increase domain fees for a standard CC transfer to $1
    - Transactional, cross-application updates doesn't exist in the real world today
    - The value of the Global Domain is enabling those types of transactions
    - 'Real price' of doing this today entails all the cost of reconciliation, error, fraud, and much more
    - This introduces a meaningful fee for using applications that do not use CC
    - The 20% validator rewards on these burns introduce a strong incentive for users to self-host validators
    - In combination with CIP-3, an average validator can cover this cost from the validator faucet until the network runs at about 0.3 TPS
    - Can be changed by the SVs at any time once live
- Burn CC when acquiring Credits
    - Canton Coin is currently transferred to the SVs in exchange for Credits and the fees associated with the transfer are burned
    - The full amount of CC should be burned when acquiring Credits
    - This, together with the increased domain fees significantly increases the amount of CC burned and thus increases the speed of finding equilibrium through BME
- Calibrate the Free Tier to allow users without any balance to collect rewards and buy domain traffic. Free tier transaction rate is 110% of what's needed to claim rewards and purchase extra traffic every round.
    - If Free Tier is too small, impossible to bootstrap a Validator

    - If Free Tier is too large, disincentivize acquiring Credits
- Remove Coin -> Domain Traffic transaction from the App Rewards calculation
    - Canton Coin is an app provided by the SVs but it shouldn't be part of the App Reward pool since they are already rewarded through their SV reward allotment
- Include approximate domain fees in the calculation for app rewards for featured apps by adding $1 per CC transfer to the app reward calculation.
    - Gives a boost to rewards for apps that receive CC.
    - Transactions across the Global Domain that include Coin are more valuable to the Network
    - In order to transfer Coin, the user must spend ~$1 in Domain Traffic
    - The reward algorithm should include the cost of Credits in its calculation when a transaction includes Canton Coin
    - Reduces effective cost of domain for CC transfers to featured apps or potentially even makes them profitable. As long as fewer rewards are claimable than the reward pools permit, 20% are recovered by the Validator as Validator Rewards at the time of purchase, and up to 100x recovered by the App Operator at the time of spend.

CIP 0003 :

Summary

- Distribute Canton Coin rewards to any Validator on the Network which is live and can claim its rewards quickly
- Any rewards not claimed in a timely manner demonstrates a non-responsive Validator and those rewards are added to the unclaimed reward pool controlled by the Foundation
- During Mainnet Launch, participation will be invite only and limited to 200 Validators

Motivation

We have a classic bootstrapping problem with Canton Coin; no one has coin to use and the reward structure is designed to reward those who use the Coin. To get around this supply issue, I am proposing an incentive structure that rewards parties operating live, connected, and responsive Validator nodes.

Rationale

Networks are two-sided marketplaces and benefit from both ‘things to do’ (aka apps) and ‘parties to do things’ (aka users). The current reward structure implies coins have been distributed to users in some way. Similarly, the Super Validator allocation process has targeted application operators, not application users. A temporary user reward would encourage early participation in the Network and incentivize them to run highly available Validator nodes.

Proposed Changes

All figures in this section are based on the parameter changes in CIP-2.

- Grant every active Validator a reward coupon valued at up to $2.85 worth of CC every round
    - Active means that a validator is online to claim and redeem their coupon before the redemption period closes (within 30 minutes of the coupon issuance)
    - These coupons are exactly the same as Validator Rewards coupons earned for sending Canton Coin and are drawn from the same pool used for calculating the regular Validator Reward, but regular Validator Rewards take precedence over the Active Validator Reward.
    - As Canton Coin traffic increases over time, this will crowd out the Active Validator Reward. This happens at approximately 1.5 TPS.
- Assuming CIP 0002 is approved and using the issuance curve of the first 6 months:
    - The total amount of CC issued to the whole set of Validators remains the same as specified in the issuance curve.
    - The total size of the validator reward pool per round is $190 per round. The validator reward for purchasing $1 of domain traffic and then transferring a minimal amount of CC using that domain traffic is 20% * $1.10 = $0.22, so the

validator rewards are fully spoken for once there are about 900 CC transfers per round, or equivalently 1.5 CC transfers per second.
    - The Active Validator Rewards per validator are capped at $2.85 per round, or equivalently $150000 per year at 10 minute round cadence.
    - Assuming $d <= $190 worth of regular validator rewards in a round, and N active validators, each active validator will receive roughly min ($2.85, ($190 - $d)/N) as Active Validator Rewards for that round.