The PIVX Datachain : A Masternode-Based Data Storage System

Introduction
The PIVX Datachain would be a new secondary blockchain built on top of the PIVX network for the specific purpose of storing data. Users would pay a fee to store files in the PIVX Datachain for a specified amount of time. New PIVX Masternodes, known as Datanodes, would store the PIVX Datachain. Users would be permitted to upload files to the PIVX Datachain by sending an automatically calculated amount of PIV to a PIVX burn address. The amount would be based on the amount of data that they upload, and on how long they want the PIVX network to store the data. Once the contract period expired, the data would be automatically be pruned from the database. Alternatively, the user could opt to renew the contract, or to create a new contract.

The upload contract would work as follows:
- The user sends an automatically calculated amount of PIV to a PIVX burn address.
- The amount would be based on how much data they want to store, and on how long they want the PIVX network to guarantee its storage.
- If the uploaded data is going to be stored un-encrypted on the network, there might be a preview mechanism where the Datanode operators can preview the data before opting-in on storing and hosting it (for example, a particular Datanode operator might not want to host un-encrypted pornographic content).
- Data could be stored encrypted with a clause that it will be automatically decrypted when certain conditions are met (e.g. the user receives a specified amount of PIV. See Case Study A below). A preview function could allow the Datanode operators to preview the un-encrypted version of the data shortly before the conditions are met. They could then opt-in or opt-out on continuing to store the data after it is unlocked.
- As the contract neared its end, the user could renew it by sending more PIV to the burn address. The user could also opt to create a completely new contract with different terms (e.g. a longer or shorter storage time).

Characteristics of the PIVX Datachain
The PIVX Datachain would have the following characteristics:
- 52,560,000 blocks (approximately 1,000 years at 10 minutes per block)
- block time: 10 minutes
- block reward: 1 PIVX Datacoin
- Cost to to start 1 PIVX Datanode: 10,000 PIV
- Datanode weighting factor: a Datanode holding 50% of the Datachain has half the probability of receiving a block reward when compared to one holding 100%.
- Smart Contract-Ready: data can be optionally unlocked based on time, and/or on PIV sent to a PIV address.

PIVX Datanodes
PIVX Datanodes would store the PIVX Datachain in exchange for a chance to earn newly minted PIVX Datacoins. The odds of a Datanode winning a Datachain block reward would increase with the percentage of the Datachain that they stored. Most Datanode operators would probably choose to store all encrypted data, but they could optionally choose to not store certain data. For example, a Datanode operator may choose to not store/host un-encrypted data that they find objectionable, or presenting a legal liability. Un-encrypted data is equivalent to unlocked data as described in Case Study A below.

Datachain Case Study A: Beyonce's New Album
Beyonce records a new album at her home studio and uploads it to the PIVX Datachain. The album consists of 10 songs in the FLAC loss-less compression format. She sends 100 PIV to a burn address to have the PIVX Datanodes host her album for 1 year. The Datanodes that host her album increase their odds of earning PIVX Datacoins as block rewards. Beyonce wants to make a profit on her album, so she sets the album to unlock automatically when 1,000,000 PIV are sent to her address by her fans. Once the 1,000,000 PIV threshold is met, the album will be unlocked automatically, and available for download by anyone using the PIVX download software suite.