denet

Storage. Hosting. Computing.

Overview

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Decentralized competitors

Storj

- *No mining - only Ethereum token*

  Storj is not using own blockchain. In DeNet we can use blockchain in order to reduce collateral costs and provide more flexible mining.

- *Unsubstantiated rating system*

  Storj has very rough and unsubstantiated reputation system with constant penalties and rating rewards. In DeNet we are developing reputation algorithm to provide the best platform for contributors (miners) and users. Each rating changing calculations will be based on the huge amount of parameters.

- *Centralized*

  Storj is using central node to manage the system that contradicts main decentralization and blockchain principles. DeNet is developing the completely decentralized system to work without any human interaction and regulations.

Filecoin

- *Nothing available today*

  Filecoin earned record-breaking $250 mln, but after half a year they haven't still shown anything related to project implementation. DeNet is showing up every development milestone.

- *Users need to care about file replication*

  Filecoin delegates file safety problem on users. Of course, there are may exist multiple interface implementation, but on the other side, DeNet is developing both developers API and user-friendly interface.

- *Unknown redundancy, routing and reputation system*

  There is no clear explanation how redundancy, routing and reputation system will work. This is the main reliability parameters and DeNet's first priority.

Sia

- *Low demand*

  By information on project site, we can see that there is a lot of free space on the network. And the demand is very low. Therefore current price of storing data on Sia is too low for miners, who want to make some money via this project.

- *Mining, own blockchain*

  The Sia is really decentralized. It uses their own blockchain and everyone who provides his storage also is mining their coins. But there is a danger of 51% attack because their blockchain doesn't have many hashrate.

- *Speed*

  In Sia network File transferring is very slow, therefore it's good only for cold data. Also, they claim that they will support hot data, but there is no information about how it will be implemented.

Substratum

- *It has nothing except a white paper and a very strange alpha which changes your DNS server address to another (not their).*

  This project earned $13.8 mln. and released a one-button simple application that changes DNS server in computer preferences. More than half a year passed and the most of functions are still unimplemented. As mentioned above DeNet already has a simple implementation with basic functionality. Of course, it still requires a lot of work, but we can definitely say, that our development is a lot effective than Substratum.

Summary

Summing up we can definitely say that none of mentioned projects could provide hot data storage. Moreover, all of them have limitations that DeNet doesn't. Storj is centralized, Filecoin still has no implementation, Sia is very slow, because of blockchain architecture, Substratum has a very weak development.

Classic services

- *Economic and scalability*

  On the other side, our main advantage over old-fashioned "centralized" services (like Dropbox or Google Drive) is that system can scale without any human interruption. Also, there is no need to build data-centers and we don't retain the operational costs on management.

- *Security and availability*

  Currently, popular cloud storages keep file security keys within themselves. It means that if someone has high-level access rights (government or other third parties) he is able to see your private data. The same story with data centers which might include your applications, sites, or any your personal data.

  We want to change current concepts of storing data. On our systems, your data will be encrypted and stored by people, on their computers that are located in their homes. Only you can have private keys and only you can have access to your data.

- *Human factor*

  One of the important features in DeNet is that in contrast to classic services we are free from the human factor and everything depends on community consensus and based on mathematical rules embedded in the system. In particular, there are no third parties in DeNet that can sell your data to intruders.

- *GDPR and similar laws and regulations*

  The EU's General Data Protection Regulation (GDPR) affects every company that works with European users. Also, similar laws are now working or being developed in other countries and regions. These regulations obligate companies that work with user's private data to provide users full control over this data, including complete removal and usage reports. This additional functionality implies additional costs. Particularly, big corporations like Google and Amazon are analyzing data and they now need to provide full information about how private data is processing and "unlearn" artificial neural networks when a user wants to delete it.

  DeNet does not fall under such kind of laws, because we don't identify users, and private data cannot be used by DeNet, because there is no central authority.

- *Ecology*

  Large data centers consume an enormous amount of energy, a significant part of which does not have a payload. Also, cooling systems of the most of data centers work by using such chemical compounds as freon, halocarbon, chlorofluorocarbons which are highly toxic and may cause ozone depletion. In addition to the abovementioned, a large number of computing units that have failed are not subject to any recycling. As a result, they become garbage that pollutes the nature.

DeNet research

In order to examine current network behavior in detail and build reliable and reasonable system, we are carrying out research. Right now we are developing DeNet.Storage beta version to determine optimal network topology, rating and reward systems.

Why build new technology?

We build own technology because there is still no decentralized/distributed platform that supports real hot data storage and executable services. For example, IPFS can't be used for hot data, Ethereum is not suitable for site-hosting, etc.

Our platform consists of modules (*Storage, CDN, Script, Hosting*) based on DeNet.Core. DeNet.Core is main self-managing service that defines workflow of the whole system.

Why don't we use IPFS?

IPFS routing has no optimizations to provide fast and reliable service for hot data, that implies long latency and uncertain uptime. Also, data in IPFS is available for everyone – if someone will find out your address, he will be able to get all your data. In addition, files are undeletable from IPFS, there are put (store file) and get (retrieve file) functions only.

From the other side, IPFS has no economic model – everything is free and there is no financial motivation to store other users' data.

In DeNet we want to build more flexible and reasonable system.

Why master nodes?

Our system implementation supposes masternodes usage (or supernodes) as the layer between the user and the decentralized network. At the beginning, masternodes will be launched on our servers and on servers of our partners (Giga-Watt, Daplie, Eggs, etc.), and later every sub-node will be able to become a master node if it has good performance and high rating for a long time. Also, masternodes will control work of the system by setting tasks for sub-nodes, giving challenges and checking proof correctness.

It needs to be mentioned that masternodes are not authority parties. They also follow all the decentralization principles. Almost every blockchain has masternodes, for example, there are mining pools in BitCoin. In fact, mining pools are very powerful nodes, but in BitCoin, they exist for economic reasons, but in DeNet masternodes are made for optimization reasons.

Proof of storage

To ensure that node is working and storing data we introduce proof of storage algorithm. As a proof for challenge node must provide the hash of a part of a file. Challenge is a tuple (*file, L, R*), where file is the name of the *file* to check, L– left bound of the part to be hashed, R– the right bound. Nodes that don't provide proof for a challenge will be penalized according to the rating system and will have no reward for storing this file.

Rating system

We use reputation system as a heuristics to reduce the overhead on checking files consistency and reliability. Reputation is to be developed according to statistics gathered during DeNet.Storage tests.

DeNet future

Besides technology, DeNet has a 5-year economic model for 10 main markets, where we will launch and start DeNet scaling. Our main market is Asia. We have a 3-year detailed development roadmap. Our code is on private repository so far, but the final aim is a decentralized open source service platform.

All above-mentioned info can be shared under NDA agreement.