Stratos：build "convenience store" network for decentralized storage

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The bias is people predict that decentralized storage will ultimately replace centralized storage and they always emphasize the centralization risks of the latter: such as higher costs caused by the surge of data volume, server downtime, privacy and security of personal data.

The relationship between the two is pretty like the one between convenience stores to large supermarkets. They complement each other and will coexist in the long term.

For example, the current centralized data center is like supermarkets located in each corner of the city, and the bandwidth is like a road. Although supermarkets can meet the needs of all urban residents, people are still very likely to get stuck on the road because of insufficient bandwidth or they will spend so much time to reach their destination because of the long distance. To cater to the needs of residents, it is necessary to build 711s located in the neighbourhood to make the round-trip more convenient. In terms of decentralized storage, 711s are like tons of nodes. These nodes will provide certain data storage (the size of supermarket) and bandwidth (the width of the road) to meet the needs of 90% of residents for storing / reading and sharing data. The remains with high requirements for data processing capacity will still drive to supermarkets.

In the era of Web 2.0, the storage of "supermarkets" is big enough to meet the needs of residents. Turning to Web3.0, when the engagement among people becomes more frequent and IOT has mass adoption, the "convenience store" mode will be added. Take the CDN service as an example. The operation logic of CND is that users do not need to go through long distances to reach the source server, otherwise they can access information conveniently through a closer cache server. In the past, even if we had the memberships of CDN services, there was still a delay in downloading and playing videos on Bitorrent. In the future, the decentralized CDN services built on the improved infrastructure will help people easily download, play and share data.

As far as IoT is concerned, the needs from individuals and businesses for edge computing will also lead to the mass adoption of decentralized solutions. If smart-home devices (coffee maker, refrigerator, light and curtain) needs to handle more complex calculations, it needs to be connected to the nearest cloud servers. Undoubtedly, the mode of "convenience store" is more in line with edge computing. Secondly, What edge computing requires is not only about storage, but also database and computing. Take the intelligent coffee maker as an example, it needs to store historical data of daily operation and personalized music. It needs to keep the user's profile (personal information and daily schedule) into the database. It also needs to calculate how to make coffee and how much time of doing so.

To sum up, the decentralized solution (not limited to storage) is undoubtedly the road and bridge to Web3.0. If the infrastructure has not been built yet, even if the supermarket branding as "Web3.0" opens, it will still be closed because no one visits.

In fact, there are a few projects corresponding to decentralized storage crowded in the market, and actually, they are stuck. The common dilemma of such projects is that they are unusable and cannot support mass adoption of traditional businesses. For example, NFT projects commonly choose Arweave as storing solutions, but the problem is it is easy to store data but hard to fetch it. As a result, they have no choice but to save one copy on Arweave and another one on the centralized system, then pay double storage costs. As the uniqueness is the key component of NFT , when the only digital file is stored separately; if one copy is altered and another not altered, which copy should be used? This will cause concerns from both costs and management aspects.

The introduction of Stratos network

Compared with similar projects, the original intention of building the Stratos network is more like tangling the difficulties of traditional Internet companies. It envisions building a "convenience store" infrastructure network worldwide, including four modules: decentralized storage, decentralized CDN, decentralized database, and decentralized computing. Just as the human world needs air, water, and soil to maintain its operation, any application to be built must have storage, database, and computing resources. Stratos is to become the underlying infrastructure of all applications.

The Stratos framework is divided into three layers: the first layer is the blockchain layer, the second layer is the metadata layer, and the third layer is the resource layer. They play different roles: the metadata layer is responsible for matching the user's service requests with the nodes of the resource layer empowered by algorithm. After receiving the task, the resource layer provides storage or computing services. Finally, the blockchain layer acts as the settlement layer to calculate the workload of the metadata layer and the resource layer through particular mechanism and then distribute rewards to the

resource layer.

Therefore, the resource layer is completely decentralized and extremely scalable. Meta nodes in need whitelists are ultimately voted by the community. Like most POS chains, the blockchain layer forms an efficient network according to the voting weight of each added verification node.

In terms of consensus mechanism, Stratos innovatively adopts the mechanism of POT (Proof of Traffic), which is used to track and calculate the resources (storage, calculation, and traffic) used by each participant of the network. Through the traffic calculation method of different modules, it will calculate the expenses incurred by users and distribute rewards to network-resource providers.

This mechanism requires good comprehensive performance (bandwidth, CPU, and memory) of resource layer nodes. In addition, the node does not need to pay attention to the workload and how much data needs to be stored, which avoids storing invalid data. On the contrary, the node needs to pay attention to the response speed and bandwidth. If the node always slowly responds to customers and the user service level drops, the tasks assigned to the node will be reduced, and the revenue will be reduced as well.

In addition, the distributed nodes in the Stratos network are resource layer nodes, which provide users with data storage and related services. This node needs to meet the following requirements: 100 megabytes of bandwidth, Intel quad-core CPU above i5, 16G to 32G of memory and two-T hard disks. The threshold is not high, and the data centers in big cities can always meet these requirements. In addition, nodes need to be more dispersed around the world, but it takes long time for nodes to fulfill the goal.

The roadmap of Stratos network

At present, the official roadmap is shown in the figure below:

Launch the Stratos blockchain test chain in Q2, which has been done

Stratos storage test chain launched in Q3

Will launch incentive test chain in Q4

The main network of storage and blockchain will be launched in In 2022, Q1

The partners will then integrate the mainnet

Next, the decentralized database function and decentralized computing function will follow up step by step.

Due to the prominent storage pros, Stratos has built cooperation with many NFT and gamefi projects, because such projects actually need the infrastructure carrying multimedia storage, rather than the one storing cold data. At present, these blockchain partners are still waiting in line for Stratos decentralized storage main network to be launched. We can expect that many dapps will make network effects after deploying the mainnet, and finally verify that the network is effective and feasible, then traditional Internet will be convinced to adopt Stratos network.

To sum up, decentralized storage and related solutions are promising in the future. Secondly, with the advent of Web 3.0, nodes will be deployed all over the world, bringing more convenient and efficient solutions to most scenarios. The original intention of Stratos is to establish a "convenience store" in the data world. By using idle resources, Stratos will weave the large network of decentralized cloud services, paving the way for the future Web 3.0.