

First Progression Review Questions

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1 Dr. Jie Zhang

- 1.1 section 2.7, "... are for life." Does it mean that once a NFT-type domain is purchased on Unstoppable Domains, the user can keep it forever? I know it is the case for NFTs, but for domain names this would completely overturn the practice?**

Unstoppable Domains are built on the Crypto Name Service (CNS), a set of Ethereum smart contracts that determines how blockchain domains are created and utilized. Every CNS domain is issued as an ERC-721 token (NFT standard) [1]. The use of the ERC-721 standard makes it easy for users to manage their crypto domain ownership from compatible cryptocurrency wallets, exchanges, and marketplaces.

CNS is composed of two smart contracts: the Registry contract and the Resolver contract. The Registry contract manages the minting of new crypto domains and subdomains, and the ownership of domains. The Registry contract does not have an administrator, which means that no entity including Unstoppable Domains can manage or transfer domains without permission. The Resolver contract is used for resolving domains, or translating the human-readable name into a cryptocurrency address, and for storing domain records.

At their simplest form, NFT domains are a digital name that exist as NFTs on the blockchain and stored in wallets.

- 1.2 You said that those Blockchain DNS do not support other DNS-zone because of possible collisions. I still do not get this. I do not think that this is difficult to resolve. My gut feeling is that they just want to expand their own business and hope to dominate the market.**

From a commercial perspective, maintaining their own zones sounds reasonable, and I will firmly agree with your statement. However, from a technical perspec-

tive, DNS collisions is an already existing issue [2] and some existing blockchain DNS mention is as the main reason of maintaining their own zones [3].

2 Dr. BooJoong Kang

2.1 how can we improve any blockchain-core-functionality if we based on Ethereum? so forking

I know I mentioned in the presentation that forking Ethereum will be a good idea, however I have to recall. It would be better in terms of functionality to implement HyperDom as an Ethereum DApp with ERC-721 standards and gradually adding our own functionalities. ERC-721 will give us the ability of generating our own token, registering new domains as well as managing them (revoking, editing etc). We don't need to reinvent the wheel for essential operations, which will give us enough time to focus on the implementation of other functionalities like DNS record mirroring and interconnection with other DNSs. Also, generating an ERC-721 DApp doesn't require any kind of permission, and we also make sure that the DApp take advantage of all the Ethereum main net properties (consensus algorithm, miners etc.)

2.2 explanation of Web3.0 use cases?

Not sure if I'm getting your question.

2.3 robustness to something else?

Currently, robustness describes the ability of our system to remain available and resilient to blockchain-based attacks. However, implementing HyperDom as an ERC-721 DApp, will also strengthen robustness in terms of ownership as ERC-721 is immutable, transparent in ownership and security, and can't be divided and represents a single asset that is in interchanged.

2.4 transaction fees for HyperDom's requests to other B-DNS?

This is something that we have to work out once we find out the way we are going to interconnect HyperDom blockchain with external blockchains.

2.5 other solutions to scalability?

Ethereum scaling is divided in two categories. On-chain scaling and Off-chain scaling. Sharding, which is the scaling solution I mentioned in my report, is the only on-chain solution Ethereum is working on, and the one that they mainly focus and made progress. By choosing sharding we are mainly focussing on the blockchain storage and the way nodes synchronize the blockchain.

However, there are some of-chain (layer-2) scaling solutions we can take advantage of. Layer 2 is a set of solutions designed to help scale applications by handling transactions off the Ethereum Mainnet (layer 1), as transaction speed suffers when the network is busy, making the user experience poor for certain types of DApps. Also, as the network gets busier, gas prices increase as transaction senders aim to outbid each other.

Most layer 2 solutions are centered around a server or cluster of servers. Depending on the implementation, these layer 2 nodes may be run by the individuals, businesses, or entities that use them, or by a 3rd party operator, or by a large group of individuals (similar to Mainnet). Transactions are submitted to these layer 2 nodes instead of being submitted directly to layer 1. For some solutions, the layer 2 instances then batches them into groups before anchoring them to layer 1, after which they are secured by layer 1 and cannot be altered.

References

- [1] Ethereum, “Erc-721 non-fungible token standard,” June 23, 2022. [Online]. Available: <https://ethereum.org/en/developers/docs/standards/tokens/erc-721/>
- [2] ICANN, “Name collision resources information.” [Online]. Available: <https://www.icann.org/resources/pages/name-collision-2013-12-06-en>
- [3] EMERDNS, “Emerdns documentation.” [Online]. Available: <https://emercoin.com/en/documentation/blockchain-services/emerdns/emerdns-introduction/>