ANKR vs PAI POUW

A comparative study

Computation environment

ANKR: SGX enclaves

PoUW: any computing device

ANKR computations can only take place in dedicated SGX hardware. On the other hand, PoUW can run anywhere on any platform. PoUW ensures the total democratization of useful computing on the blockchain.

Verification of useful work

ANKR: The system simply trusts the computation that takes place in SGX.

PoUW: The system requires delegated verification and re-running the computation.

ANKR has a speed advantage over PAI PoUW, but their system is severely limited to SGX hosts. PoUW is universal and that's why re-running the same computation is required.

Network

ANKR: Centralized and built upon Kubernetes and cloud technologies.

PoUW: Decentralized and based on the classical Bitcoin P2P network.

PoUW is using a simpler and more privacy-oriented approach. ANKR is cloud and container-based. PoUW offers full decentralization, while ANKR is a centralized system.

Blockchain structure

ANKR: Multiple side-chains (Plasma).

PoUW: Single chain.

ANKR uses multiple side-chains and has a complex data architecture. PoUW is more efficient because it relies on a single chain and it incentivises actors to store data by themselves, while preserving just some hashes.

Identities

ANKR: Actors must authenticate and their identities are known.

PoUW: No authentication required.

PoUW ensures total anonymity and it is a permissionless environment. ANKR requires known identities.

Task allocation

ANKR: An algorithm called WDRF allocates the tasks based on resources, price and reputation.

PoUW: Task allocation is random, but takes into account the desired type and capabilities of the miner.

ANKR selection algorithm is more complex, yet it is still centralized. PoUW employs cosine similarity and matches miners to tasks based on preferences.

Consensus

ANKR: Proof of Service Level and Stake Byzantine Fault Tolerance.

PoUW: Relies on the classical Bitcoin protocol and verifiable computing.

PoUW's consensus protocol is based on battle-tested algorithms, while ANKR is using a rather unusual consensus algorithm.

Smart contract support

ANKR: Uses smart-contracts (Ethereum) with code compiled to WebAssembly 1.0.

PoUW: No smart-contracts, all is done through staking and voting.

PoUW's computation is directed through a series of special tickets that allow participants to mine, supervise, verify and evaluate results. ANKR is a platform that supports ERC20 tokens for payment and regular smart-contract execution.

Staking

ANKR: Requires staking a specific amount of tokens to be able to participate in the network.

PoUW: Requires to buy tickets (staking) in order to participate in computational tasks. There are different types of tickets for each role.

ANKR is following the approach of the PoS systems, while PoUW is bringing in separation of stake types based on roles in the environment.

Financials

ANKR: It's a marketplace where the supply side consists of enterprise-grade customers that send in excess computational tasks to ANKR and regular edge owners (e.g. home-users equipped with SGX hardware). The demand side is made of infrastructure consumers and app end-users. The revenue model is complex, based on more than 10 variables for each side (supply/demand).

PoUW: A marketplace with no differentiated consumers and processors. The revenue model is built around the classical Bitcoin model, with stakes added and a client fee for the task.

ANKR is employing a more business-oriented approach, while PoUW is agnostic to producers and consumers. On the other hand, PoUW compensation schema is more straightforward and easier to understand.

Enterprise edition

ANKR: has an enterprise version

PoUW: no enterprise version

ANKR provides solutions to the enterprise and has important customers such as Binance. PoUW doesn’t have this in plan yet.