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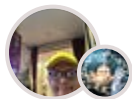
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Understanding Blockchain Mining



Nova Novriansyah · Follow

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What is Mining?

Imagine blockchain as a big, secure digital book where transactions are recorded. Mining is like adding new pages to this book. It's not just about making money; it's about making the system work.

What Does Mining Do Technically?

When someone makes a transaction on the blockchain, like buying or selling cryptocurrency, that transaction needs to be verified. Miners are like the auditors of these transactions. They collect all the transactions that have happened recently and put them into groups, called “blocks.” Then, they compete to solve a complex mathematical problem. This problem is like a puzzle, and the first miner to solve it gets to add their block of transactions to the blockchain.

The Puzzle: Understanding Hash Functions

The puzzle that miners solve is based on something called a hash function. A hash function is like a mathematical shortcut that takes an input (like a bunch of transactions) and turns it into a fixed-size string of numbers and letters. This string is unique to that input, so even a tiny change in the input will produce a completely different string.

Miners have to find a specific string of numbers and letters that meets certain criteria. This criteria is set by the network and is designed to make the puzzle hard to solve but easy to verify. Miners do this by repeatedly changing a small part of the input, running it through the hash function, and checking if the output meets the criteria. They have to do this over and over again until they find the right string, which can take a lot of time and computational power.

Example: Finding the Winning Hash

Let's say a group of miners is trying to solve a puzzle where they have to find a hash that starts with a certain number of zeros. They start by taking a block of transactions and adding a random number to it, called a nonce. Then, they run this through the hash function to get a string of numbers and letters. If the string doesn't start with the required number of zeros, they change the nonce and try again. They keep doing this until they find a string that meets the criteria.

Once a miner finds the winning hash, they announce it to the rest of the network, along with the block of transactions they used to find it. The other miners can then quickly verify that the hash is correct by running the same block of transactions through the hash function. If everything checks out, the new block is added to the blockchain, and the miner who found the winning hash gets a reward.

Why Mine?

People mine for money, yes, but also to keep the blockchain safe from cheats. Miners use powerful computers to solve puzzles and make sure transactions are real. This stops people from spending the same money twice.

How Does It Work?

Mining needs serious computer power, not just regular PCs. Miners either work alone or join groups called pools to solve puzzles faster. When a puzzle is solved, the miner or the pool gets a reward in cryptocurrency.

Types of Mining: Proof-of-Work and Proof of Stake

Proof-of-Work (PoW) is like solving a hard puzzle by trying every possible answer. It's tough and uses a lot of energy. Proof of Stake (PoS) is a newer way that's kinder to the planet. Here, people with lots of coins keep the system safe.

Who Can Participate?

Anyone with the right equipment and knowledge can become a miner. You don't need special permission or a lot of money to start mining. As long as you have a powerful computer and access to the internet, you can join the mining community. Some cryptocurrencies even allow people to mine using just their regular computers or smartphones.

Why Does It Matter?

Without mining, blockchain wouldn't work. It's key to many industries, from banking to healthcare. As more people use blockchain, more miners are needed to keep it running smoothly. And with rewards for miners, it's not just good for the system, it's also an opportunity for individuals to earn cryptocurrency.

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Mining



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Written by Nova Novriansyah

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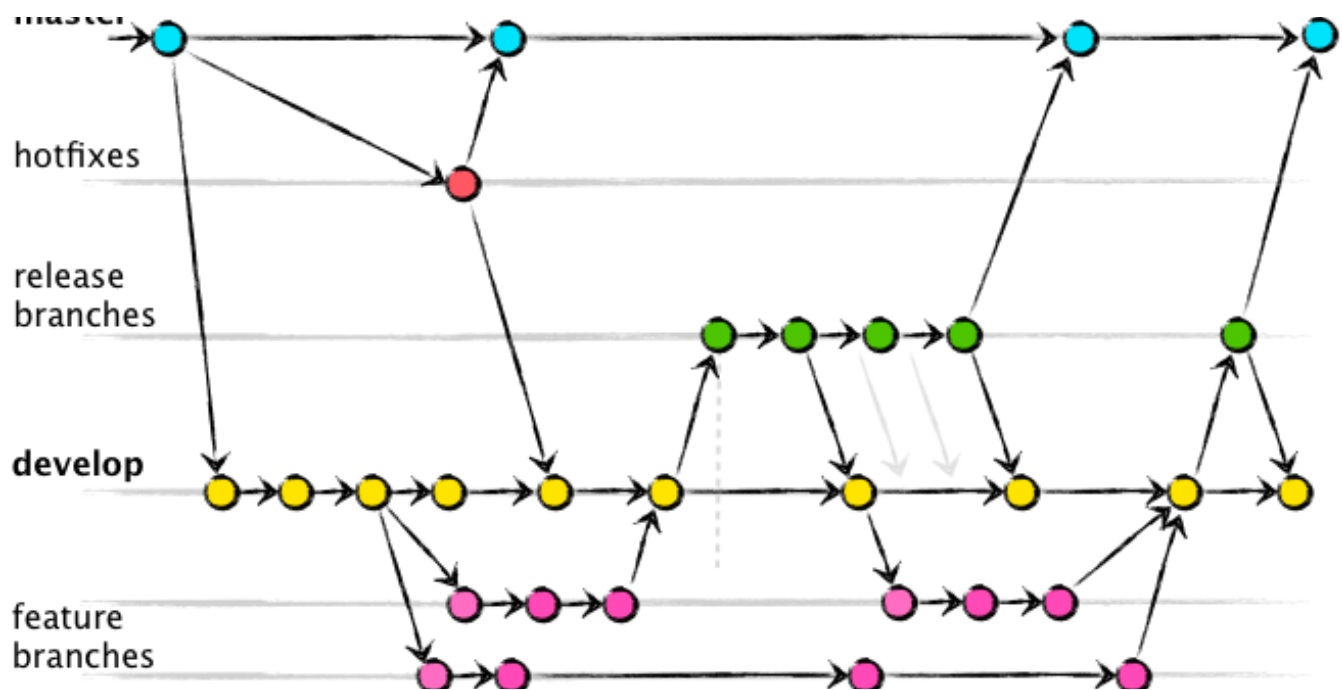
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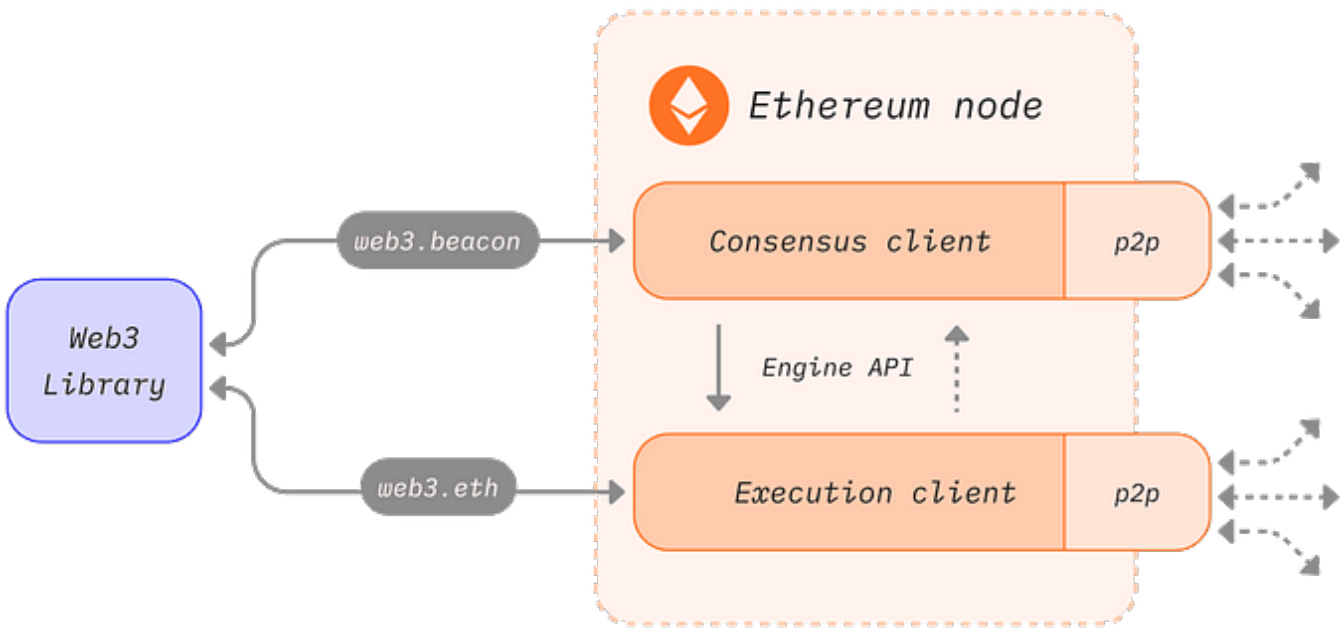


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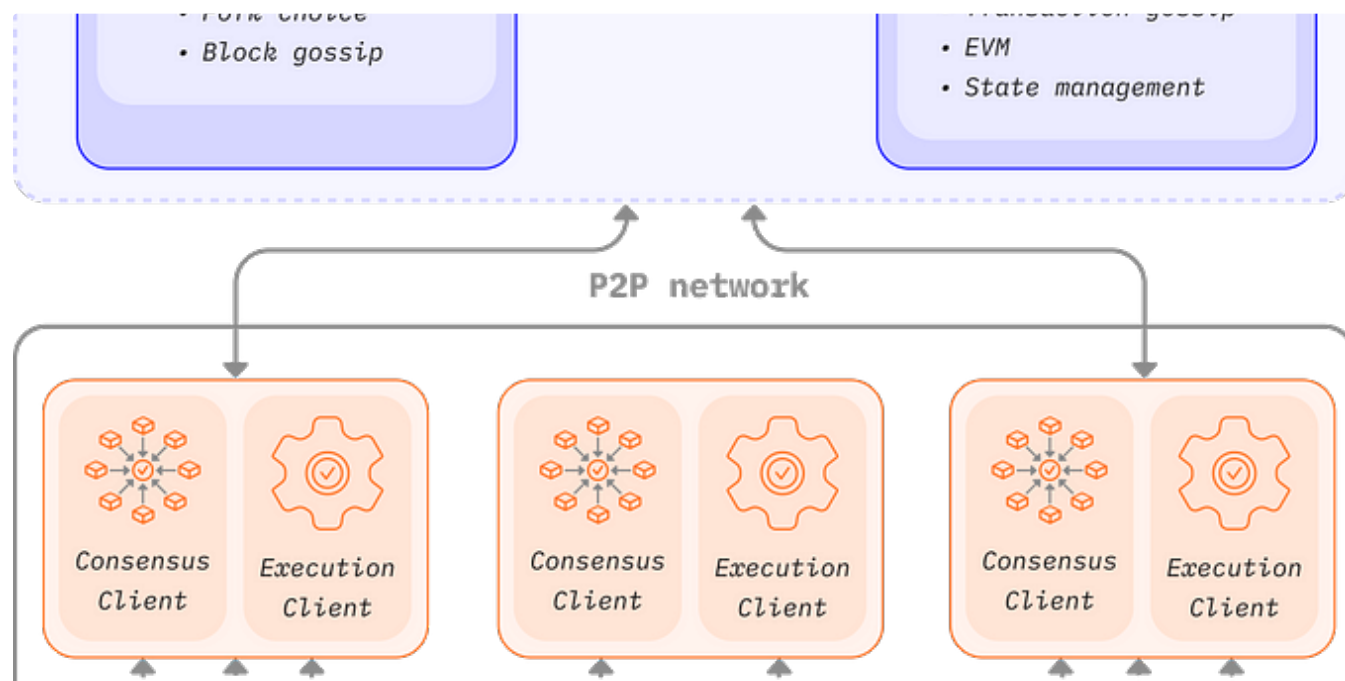


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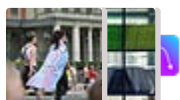
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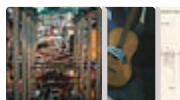


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