Talking about Filecoin gas fees and the current status of mining

FileCoin (https://learnblockchain.cn/tags/FileCoin)

Filecoin miner (https://learnblockchain.cn/tags/Filecoin%E7%9F%BF%E6%9C%BA)

IPFS (https://learnblockchain.cn/tags/IPFS)

IPFS mining (https://learnblockchain.cn/tags/IPFS%E6%8C%96%E7%9F%BF)

Filecoin (http://ipfs.cn) gas is a "hot word" that has been discussed recently. The reason why it has attracted so much attention is that it has soared from 100 atto FIL on November 7 to 3.601 nanoFIL today (nano is 10 to the minus 9 power, atto is 10 to the minus 18 power), only one...

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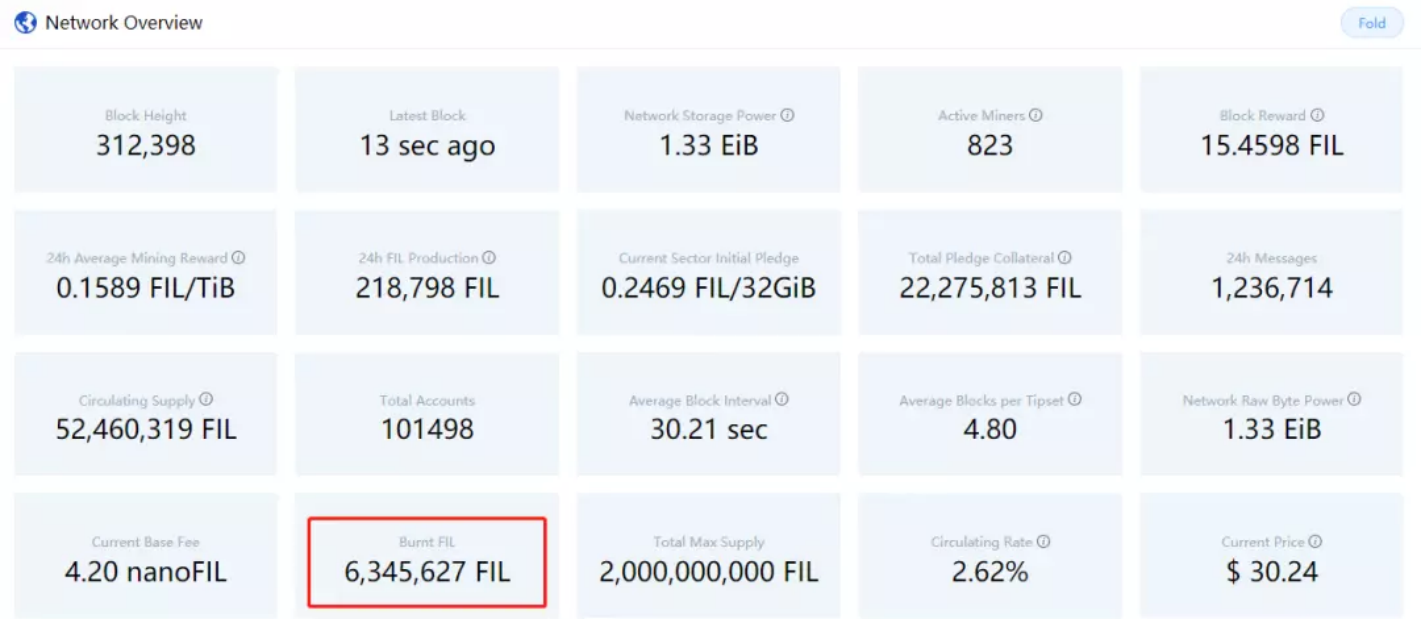
On the browser, we can see the status of Filecoin's entire network in real time. The entire network produced 218,798 FIL in 24 hours, of which 25% was directly released, that is, 54935 FIL was directly released, plus the linear release part, the release of the entire network in one day was less than 100,000 ; And the current amount of FIL burned

has reached 6345627FIL. Due to the recent increase in gas, this will cause the burned amount to be higher than the released amount, which means that the miners may not make ends meet after digging for a day.



When it comes to (http://ipfs.cn) the gas fee of Filecoin (http://ipfs.cn) , we have to mention Ethereum, because Filecoin currently uses the gas mechanism of Ethereum EIP1559, which is a set of mechanisms proposed by V God that has not yet been fully implemented on the Ethereum public chain. The design is relatively simple and reasonable, so the Filecoin team decided to use EIP1559 first. According to EIP1559, the gas cost consists of two parts, namely the basic fee + surcharge.

The basic fee is automatically calculated by the network and cannot be changed. At the same time, the basic fee is directly destroyed; the surcharge can be understood as a tip, and the amount of the surcharge is determined by the user. The higher the value, the faster the response, the better the service , Just like VIP service, this part of the fee is charged by the miner*** (We have a previous article that analyzed the gas fee and surrounding terms in detail, click on the picture below to read it)***.

Many people will ask, the gas cost is so high, is Filecoin official ignore it.

In fact, the official has also established a FIP-5 proposal, which is dedicated to removing expensive miner reward attribution calculations from PreCommitSector and ConfirmSectorProofsValid, thereby effectively reducing gas consumption, releasing chain bandwidth and reducing miner costs. In fact, on November 25, after the Filecoin network was upgraded to Lotus v1.2.0, the gas fee was indeed effectively reduced, but the good times did not last long. About five days later, the gas fee began to soar and set a new high.

Jennifer 1:39 AM

‼️ 🚀 Lotus v1.2.0 is live and available for download! This is a mandatory release, and if you haven't upgraded since v1.1.2, then you will be happy to see many exciting improvements for all stakeholders, including node operators, miners and clients! 👏

This is a consensus-breaking update, so it is **NOT OPTIONAL**. You must upgrade before epoch **265200** (**Tuesday Nov 24 at ~11:55PM UTC** | 3:55pm PDT | 7:55am CST on Wednesday Nov 25), or you will lose sync with the chain. 🙈😱

Despite 1.2.0 being a consensus-breaking release, you do NOT need to delete your Lotus repo. Simply shut down your node (both miner & daemon), get the latest code, and build afresh! (See Upgrade in Place for instructions on how to upgrade safely.)

> Note: You **SHOULD** update your Go version to v1.15.5.

Upgrade Highlights:

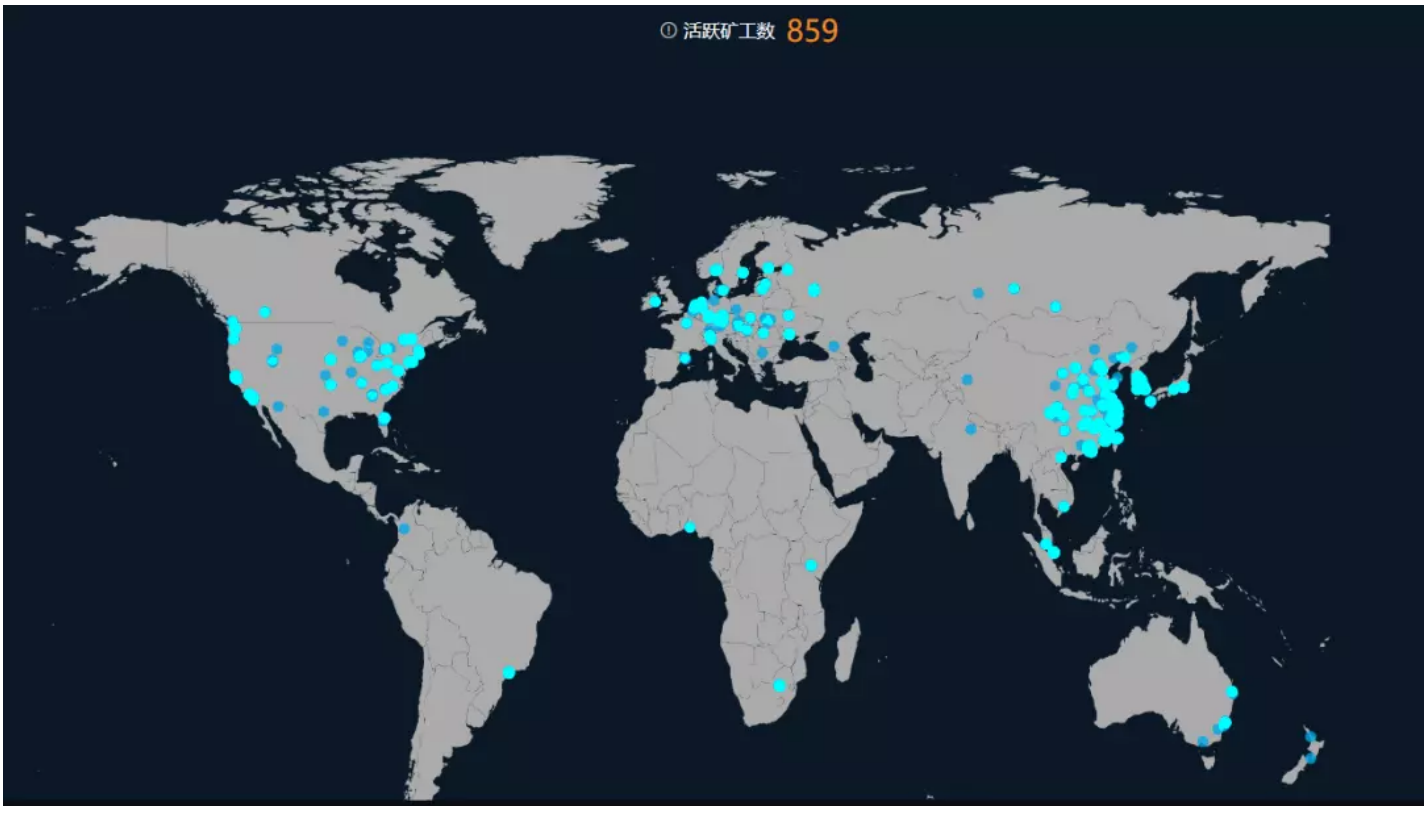
- Includes FIP-5: This change removes the expensive calculation of miner reward vesting from the `PreCommitSector` and `ConfirmSectorProofsValid` methods, leaving it to the deadline cron. This will reduce the gas consumption of these methods substantially, freeing up chain bandwidth and reducing costs. ⚡
- Updates to spec-actors v2.3.2
- Updates to proofs v5.4.0
- Retuning gas costs: This reduces cost of WindowPoSt by up to 200M gas.
- Not picking invalid(terminated, removed..) sectors for winning PoSt, #4770.

Why is the gas fee difficult to drop?

Filecoin is (http://ipfs.cn) expected to become the underlying infrastructure of the blockchain (http://ipfs.cn) . Overseas Chinese connect with the major public chains to solve the data storage problem of the blockchain. Therefore, we always compare Filecoin to a highway; using the highway as an analogy, the miners are on the Filecoin highway. Driving by car, when there are more and more miners, roads will become more and more congested. Windy, rainy, foggy weather and poor road conditions will inevitably be blocked and congested.

Turn off the flame for a while, start the ignition for a while, or the car is always on but the tortoise is moving at a fast speed. This situation is often the most fuel-consuming, and it is also the time when the gas cost is the highest.

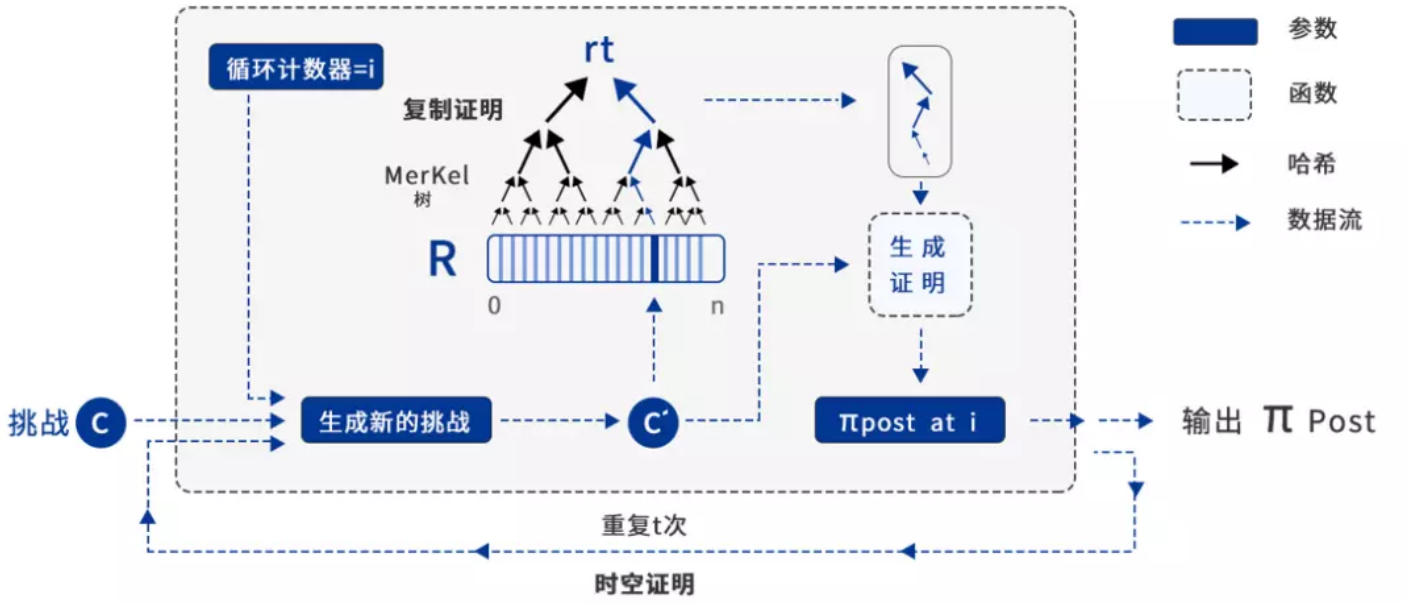
From the above, in essence, the high gas cost is because there are too many miners, especially active miners, on the Filecoin network. Not only are old miners working hard, but also batches of new miners enter the site almost every day. The more miners, the more congested the network and the higher the gas cost.



In addition to the fundamental reason, there is another reason that can not be ignored. It starts with EIP1559. In the design mechanism of EIP1559, Gas=basic fee + surcharge.

The surcharge refers to the tip that the user gives to the miner. If you give it more, the miner will give you the priority.

If you have to ask why you want to tip and why you want miners to pack messages, it is because Filecoin is a storage type blockchain, which has a consensus mechanism called "Proof of Space and Time". Proof of Space and Time means every half an hour. The miner must prove to the network that I am storing data for the client, and I did not run away. Please do not punish my pledge.



In addition to the time and space proof level messages, there are many other types of messages. In short, no matter what type of message, as long as you want to be processed first, you have to pay a surcharge. Therefore, the surcharge is actually more like a bidding mechanism.

24h Gas 数据

消息类型	Gas Premium	平均Gas限额	平均Gas消耗	平均手续费	手续费合计/占比	消息数合计/占比
全部	0.01 nanoFIL	48,752,523	39,974,035	0.1071 FIL	128,259.007544 FIL / 100.00%	1213525 / 100.00%
ProveCommitSector	0.01 nanoFIL	63,348,675	52,353,896	0.1402 FIL	81,353.846705 FIL / 63.43%	586950 / 48.37%
PreCommitSector	0.01 nanoFIL	24,622,219	19,934,782	0.0528 FIL	30,417.187570 FIL / 23.72%	584191 / 48.14%
SubmitWindowedPoSt	0.02 nanoFIL	442,224,957	356,808,084	0.9725 FIL	15,471.199243 FIL / 12.06%	16127 / 1.33%
PublishStorageDeals	0.01 nanoFIL	76,290,463	59,893,911	0.1670 FIL	784.912859 FIL / 0.61%	4761 / 0.39%
DeclareFaultsRecovered	1,333,501 attoFIL	36,397,098	26,905,129	0.0825 FIL	79.040794 FIL / 0.06%	959 / 0.08%

封装时产生的GAS 1TiB有效算力需要的GAS=（0.1402+0.0528）*32=6.176FIL

提交时空证明参与区块奖励时产生的GAS，1TiB有效算力需要消耗=32/2349*0.9725=0.013FIL

How to treat gas and Filecoin mining?

Filecoin is a distributed network designed to store important information of human society. It is the incentive layer of the IPFS interplanetary file system. IPFS has been issued for 5 years. Huawei Cloud, Alibaba Cloud, and Amazon Cloud lay out the IPFS ecosystem, and the IPFS network capacity has increased geometrically; IPFS, as the

underlying infrastructure for building Web3.0, conforms to the development trend of the times, and is moving in a higher, stronger, and more ambitious direction Continuous development.

The Roman Empire was never built in a day. The Great Wall is also famous for its majestic stretch of thousands of miles and it is extremely difficult to build. The Filecoin mainnet has only been online for more than a month, and it currently has 1.33EB of effective computing power, which is equivalent to the entire Internet archive. 25 copies, 3.86 million 1080P movies, can hold nearly 6000 Wikipedia capacity, a Filecoin that was born less than two months ago can achieve such great results, it is commendable.

Viewed horizontally as a ridge with peaks on the side, the distances are different. Although high gas costs directly led Filecoin (http://ipfs.cn) destruction of the growing amount that can be Filecoin total liquidity and declining, but the destruction of one of the mechanisms of gas consumption costs of actually Filecoin. According to the law of conservation of energy, under the condition of constant value, the less data, the higher the price. Therefore, to some extent, the destruction of FIL is expected to increase the price of FIL.

Investors who want to learn more about IPFS and Filecoin can follow the official website of the IPFS Chinese community: http://ipfs.cn (http://ipfs.cn) and the official website of Space Cloud Technology: http://yunos.io (http://yunos.io)

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