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Gas Proposal: Change the Minimal Gas Price

1 Introduction

Change the minimal gas price from 10^6 wei to $2 * 10^{10}$ wei.

2 Motivation and Scope

The gas price is too low. Currently, the gas price is 10^6 wei (1 NAS = 10^{18} wei), as described¹. Given the default gas of a normal transaction is 20,000 gas, the normal transaction fee is only about $2 * 10^{-8}$ NAS, which is about $2 * 10^{-8}$ USD for now.

Changing the gas price will affect each normal transaction and each smart contract invocation. After the adjustment, the normal transaction fee is about 0.0004 NAS by default. For smart contracts, you may check the gas count matrix².

For the communities, each user needs to adjust their transaction fee for normal transaction and smart contract invocation. Nebulas wallets, exchanges and DApps are also affected.

Also, there is no impact on applications that use API (`GetGasPrice`³) to get the gas price. For applications using fixed gas price, they need to be updated.

3 Impact on the Nebulas Protocol

The gas price is set up in configuration file. And only miners need to change this behavior. No other impact on the Nebulas Protocol.

4 Design Choices

The design choice is described on Nebulas Wiki⁴.

Users want to avoid gas costs when the transaction is packaged. Like Bitcoin and Ethereum, Nebulas GAS is also used for transaction fee, with two major purposes:

- As rewards for miners, to motivate them to pack transactions. The packaging of the transaction costs the computing resources, especially the execution of the contract, so the user needs to pay for the transaction.
- As a cost to attackers. The DDOS attack is quite cheap on internet, black hackers hijack users computer to send large network volume to target server. In Bitcoin and Ethereum network, each transaction must be paid, that significantly raise the cost of attack.

¹<https://wiki.nebulas.io/en/latest/go-nebulas/design-overview/gas.html>

²<https://wiki.nebulas.io/en/latest/go-nebulas/design-overview/gas.html?#gas-count-matrix>

³<https://github.com/nebulasio/wiki/blob/master/rpc.md>

⁴<https://wiki.nebulas.io/en/latest/go-nebulas/design-overview/gas.html>

Currently, miners can't get enough rewards while attackers pay almost nothing to DDOS Nebulas, since gas price is too low.

As a referece, the gas price is about 10^9 wei on Ethereum⁵. Considering the coin value of ETH is more than 100x of NAS, the actual gas price on Ethereum is more than 100,000x of Nebulas.

As conclusion, we think it is reasonable to change the gas price from 10^6 wei to $2 * 10^{10}$ wei.

4.1 Potential Impacts

There are two potential impacts, and we should foresee them.

First, the increased gas price may lead to less activities on Nebulas.

Second, the NAS coin price may raise. This is because the community may expect that the more NAS used to pay gas, the less liquidity of trading market. As a result, the transaction fee also raises. This may also lead to less activities on Nebulas.

Currently, the transaction fee is not the major cause of the low activity on Nebulas. And we may adjust the gas price again when transaction fee becomes the bottleneck of Nebulas.

5 Acknowledgement

Community members also show their willingness to change the gas price, including but not limited on Nebulas Community forum⁶ and Twitter⁷.

⁵<https://etherscan.io/gastracker>

⁶<https://community.nebulas.io/d/190-we-need-adjust-transaction-fee-on-nebulas-mainnet/13>

⁷<https://twitter.com/nebulasio/status/1115234340403859461>