

Vanillacoin: Scaling the blockchain.

Abstract

In this document I discuss the problems associated with scaling the blockchain and what Vanillacoin has done in regards to solving it in an autonomous manner.

Definitions

- Blockchain - A decentralized global ledger.

Background

Scaling the blockchain depends on many variables and constants. The time in which blocks are spaced. The maximum size of a block. The space required in memory and on disk. In order to scale a blockchain it must be done early in a cryptographic-currencies lifetime because the more integrated the coin becomes the more difficult it is to change the constants. The more people that become involved the harder this becomes.

General Overview

Vanillacoin uses a 200 second block spacing but also uses two independent proof algorithms (Work and Stake) operating on independent difficulties. Because of this the average block time is about 100 seconds. Maintaining that a block event occurs on average every one minute and forty seconds. Using the average transaction size of 300 bytes in order to fill three megabytes of memory it would take approximately 10,000 transactions. This yields a speed of 100 transactions per second. Due to the limitations of mobile devices this block timing is too close

to process quickly for storage but can be compensated for by pruning the chain and keeping memory at fixed known maximum. Since clients do not share block data they would be receiving, writing and discarding approximately 3 megabytes of data at a rate of 100 transactions per second approximately every 70 seconds. To put this into perspective Visa™ can handle 2,000 transactions every one second. In order to achieve this we need a 20 fold block increase size or about 60 megabytes. This is approximately 1 megabyte per second. By the time the 2,000 transactions mark is reached mobile devices will have to evolved in their balance management mechanisms because block headers will be all they will be capable of processing. We imagine super-peers will be one day run by dedicated individuals but peers and pruned clients will always operate on the desktop as they do now but downloading the entire blockchain would not be needed as you only need to see what you are interested in according to your transactions. It should be noted that the ZeroTime technology makes 2,000 transactions per second a reality but a severe backlog would occur if it were to happen today due to the three megabyte block size limit currently in place.

Proposal

We propose to maintain the tight block spacing in hopes to achieve a better transaction distribution per block while clearing memory quickly. Additionally we propose to have the maximum block size automatically increase approximately every 6 months by 3 megabytes. This would reach the 2,000 transaction per second mark at approximately 3.33 years.

Security Considerations

None

Conclusion

With our proposal we have satisfied the requirements which are essential for scaling the Vanillacoin blockchain.

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Public Key:

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9e487a9ad97f77d1c3b3a9e8b596796eb23a78214  
fc0a95b6a093b3f1d5e2205bd32168ac003f50f4f557
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Contact:

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BM-NC49AxAjcqVcF5jNPu85Rb8MJ2d9JqZt
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References

None