

Now the high costs involved must not be perceived as a flaw in the seminal work, because it isn't. Instead, it is a baby-versus-bathwater scenario. Here, the "baby" is the excellent simplicity, proven principles, and real-world performance of the seminal approach, while the "bathwater" refers to the secondary characteristics around that. So, the

fact that the seminal work describes both network and the application in the same paper, instead of in two separate papers makes it appear complex.

Another point to note is that the \$1 million per day estimate provided in the previous section is solely the cost of processing headers and not the block. We would also like to mention that the block headers sum up to 99% of the costs incurred, with block processing costs limited to only 1%¹⁵.

So, to sum it up, the only two stumbling blocks with regards to trustless blockchain networking is its high cost and the fact that 99% of that cost is incurred while processing block headers. Therefore, what we have here is a "header processing cost problem", and not anything else.

A Quick Reminder

The daily operating costs of the Bitcoin network is roughly around \$9,680, while the processing cost of block headers sums up to around a million dollars per day.

¹⁵ Using Bitcoin as an example, currently there are roughly 7,500 full-blockchain nodes. Running each one costs \$20/month. Lightweight nodes are more numerous and cheaper to operate. Assuming the cost in each case is the same we arrive at $(7,500 \times 20 \times 2) / 31,000,000 = 0.96\%$