Block relay protocol

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1 What is the block relay protocol?

The block relay protocol is a simple alternative protocol for relaying Bitcoin blocks and transactions. Its purpose is to reduce the information transferred when a block is found on the network. It accomplishes this by remembering which transactions are already known by the remote party and replacing them with indexes. This avoids re-transmitting already known data.

It is typical for the relay protocol to transfer a 1MB block using less than 4 kilobytes. Because modern Bitcoin node software caches transaction validation the redundant transmission of transactions is the vast majority of the time normally taken to process a block.

This protocol does not replace the traditional Bitcoin protocol and can only be used in parallel with it, because it can only relay tip-of-the-chain blocks and does not currently handle reorganizations. Bitcoin nodes will use the information from the relay protocol whenever it arrives faster.

2 How is the relay protocol implemented?

The relay protocol is free software available at `https://github.com/TheBlueMatt/RelayNode`. The software acts as a proxy the speaks the traditional Bitcoin protocol on one side and the relay network protocol on the other.

3 Why was the relay protocol developed?

As block sizes increased miners outside of the largest pools experienced high orphaning rate. This resulted in pressure to consolidate more and more mining at the largest pools. The relay network and protocol were developed to help level the playing field and reverse the rapid movement of bitcoin hashrate to the control of a single party.

4 What is the relay network?

The relay network is a donation funded collection of geographically well distributed servers which speak the relay protocol run by Corallo. Having an collection of publicly accessible servers allows

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people to get started with the relay protocol right away.

5 Does the relay protocol centralize Bitcoin communications?

The relay protocol transmits blocks more efficiently by not sending data which has already been sent.

In theory, and apparent practice, the protocol has improved the decentralization of the Bitcoin network by reducing the latency disadvantage of small participants.

The protocol cannot be used except additively with the traditional Bitcoin P2P protocol.

6 Does the relay network centralize Bitcoin communications?

Bitcoin nodes and, especially, miners have long manually peered with well known widely connected nodes in order to reduce the effective network diameter (e.g. `https://en.bitcoin.it/wiki/Fallback_Nodes`). The relay network is just a collection of well maintained public nodes which speak a more efficient protocol.

References