Rift Protocol

Blue Print

What is it?

The RIFT Protocol is the future of the blockchain. In fact, it is an advanced evolution of it. This improvement completely solves the problem of block size and network limitations

The Reason For Its Development

The Bitcoin blockchain currently has a default size limit of 1 MB per block and the Bitcoin Cash (a crypto formed from a Bitcoin hard-fork) has a 32 MB limit. These limits do not support the actual nor the near-future service demands of Bitcoin or any similar cryptocurrency.

Imagine in the near future when all people are using digital cash systems with all the boundaries of Bitcoin: PoW, SHA256, Peer-to-Peer, Decentralized. What will happen when there are hundreds of thousands or millions of transactions occurring all around the world in a short period of time? The Bitcoin network will fail to accommodate. There will be more and more pending transactions because a mined block cannot confirm more than approximately 32 MB (Bitcoin Cash) or 1 MB (Bitcoin) of transaction data.

The Urgency For A Change

If the growth and recognition of cryptocurrencies continues to increase, cryptocurrencies will become the money of the future. The scalability problem of cryptocurrency must be solved before the ubiquity of cryptocurrency can become the norm. If not, each cryptocurrency currently facing a scaling limitation will realize a decline in its importance.

Any cryptocurrency that uses a technology which solves the scalability issue will become the more sought-after choice for its usability and transaction volume. These will become the cryptocurrencies that survive. They will have the capability to confirm as many unconfirmed transactions as are in the cloud memory pool.

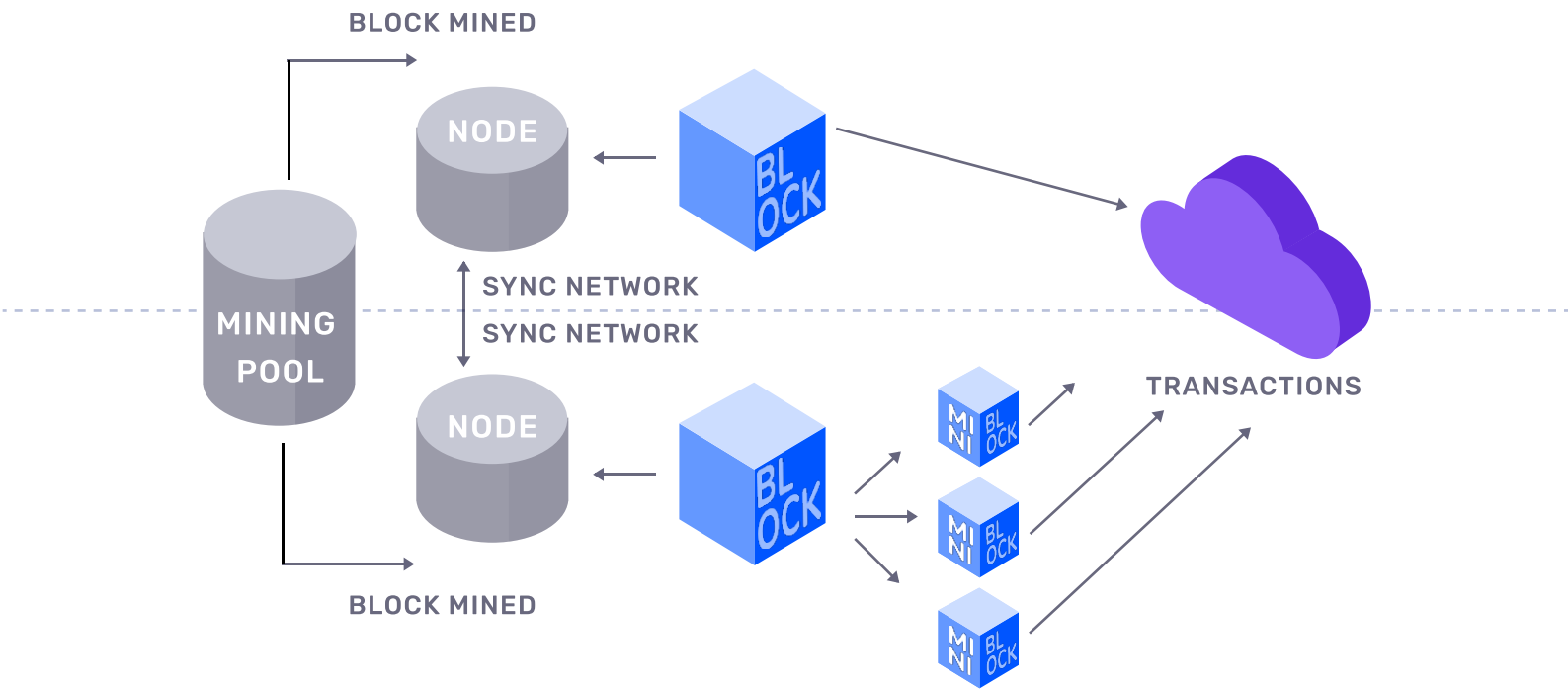
The Solution

A solution has been created to put an end to the scalability issue: RIFT Protocol.

This protocol has a potentially unlimited network size. The mined Block contains Mini-Blocks, and Mini-Blocks contain transactions. The mined Blocks use a reference to the Mini-Blocks, and the Mini-Blocks have a reference to the transactions. Yet, the Mini-Blocks are not mined. This results in a self-contained block which mirrors down identically to how fractals replicate.

This new tier sub-level in the middle of the network makes this blockchain evolution potentially unlimited and capable of supporting the service demand of the near future.

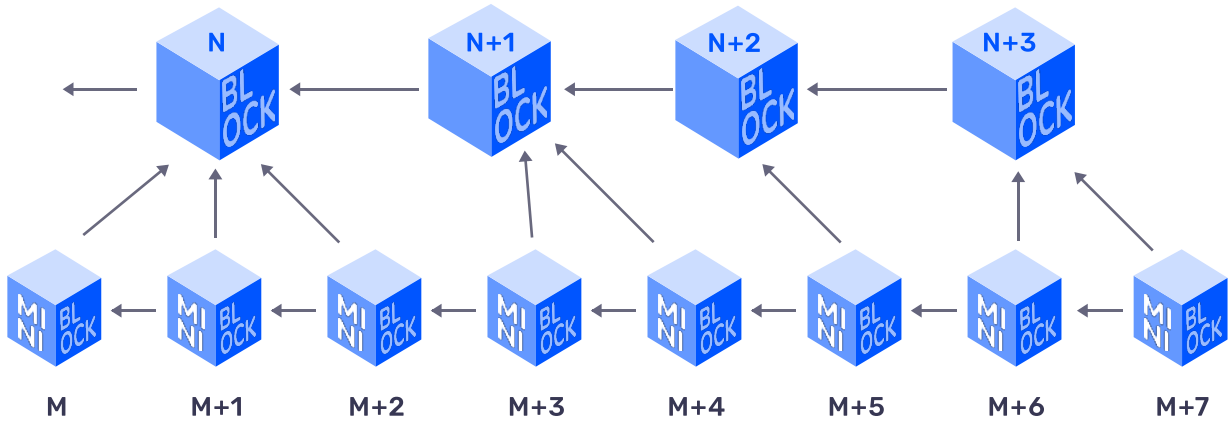
Traditional SHA-256 Network



RIFT Protocol Functionality

RIFT Protocol defines a second layer blockchain called Mini-Blocks. This new second blockchain layer has its own block numeration which points to the last Mini-Block and to its parent Block

Block Layer: points to the ancestor Block



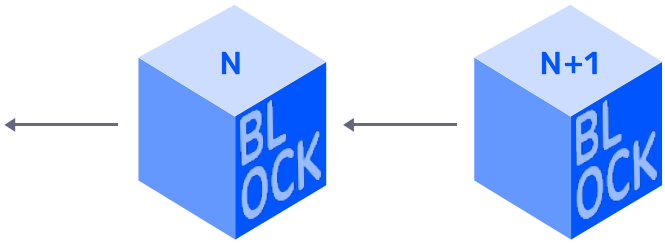
Mini-Block Layer: points to the ancestor Mini-Block and parent Block

RIFT is a multi-layered solution. The first layer is the common layer that covers the index of the normal Blocks, this is the “Block Layer”.

RIFT Protocol defines a necessity for a new second layer to hold the Mini-Blocks’ indexes. We call this second layer the “Mini-Block Layer.” This new Mini-Block Layer has a reference to the parent Block (from the Block Layer) and another reference to the last Mini-Block (in the Mini-Block Layer).

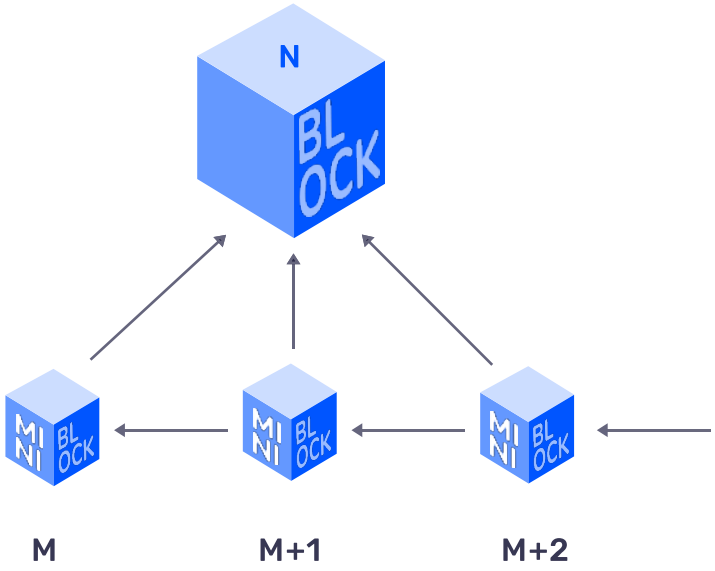
Block layer

a. Each Block in the chain references the last block in the Block Layer.
b. Contains physical reference to the Block and its size.



Mini-Block Layer

a. Each Mini-Block in the chain references the parent Block in the Block Layer.
b. Each Mini-Block in the chain references the last block in the Mini-Block Layer.
c. Contains a physical reference to the Mini-Block and its size.

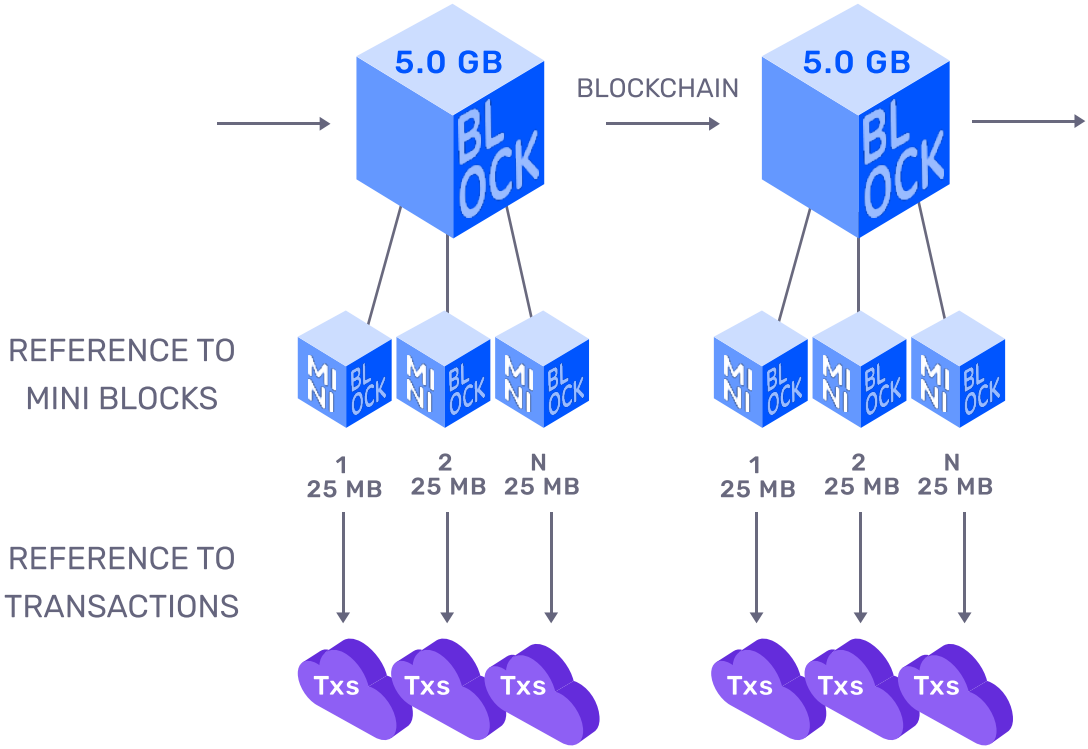


As a result, RIFT has two chains (one of Blocks and a second one of Mini-Blocks); all connected with the references defined above.
Having these two layers in harmony implies a complete redesign of the blockchain; maintaining the principal boundaries of being decentralized and having peer-to-peer synchronization. This achievement is done by the RIFT Protocol.

RIFT Protocol maintains and supports decentralization. Transactions need not exist outside of the Blockchain; they are, in fact, within the second layer – the Mini-Block Layer. This achievement is remarkable because the scalability problem is solved. The opportunity to process a huge amount of transactions can only be made possible with RIFT.

Mini-Blocks: More Information

Mini-Blocks are the same as the traditional Blocks except they are not mined. Mini-Blocks are self-contained inside the traditional Blocks by way of a reference system. Within the Mini-Blocks are references to transactions. A Mini-Blocks' hash is generated automatically by the code; thus, eliminating the need for them to be mined. The only block which needs to be mined is the traditional Block.

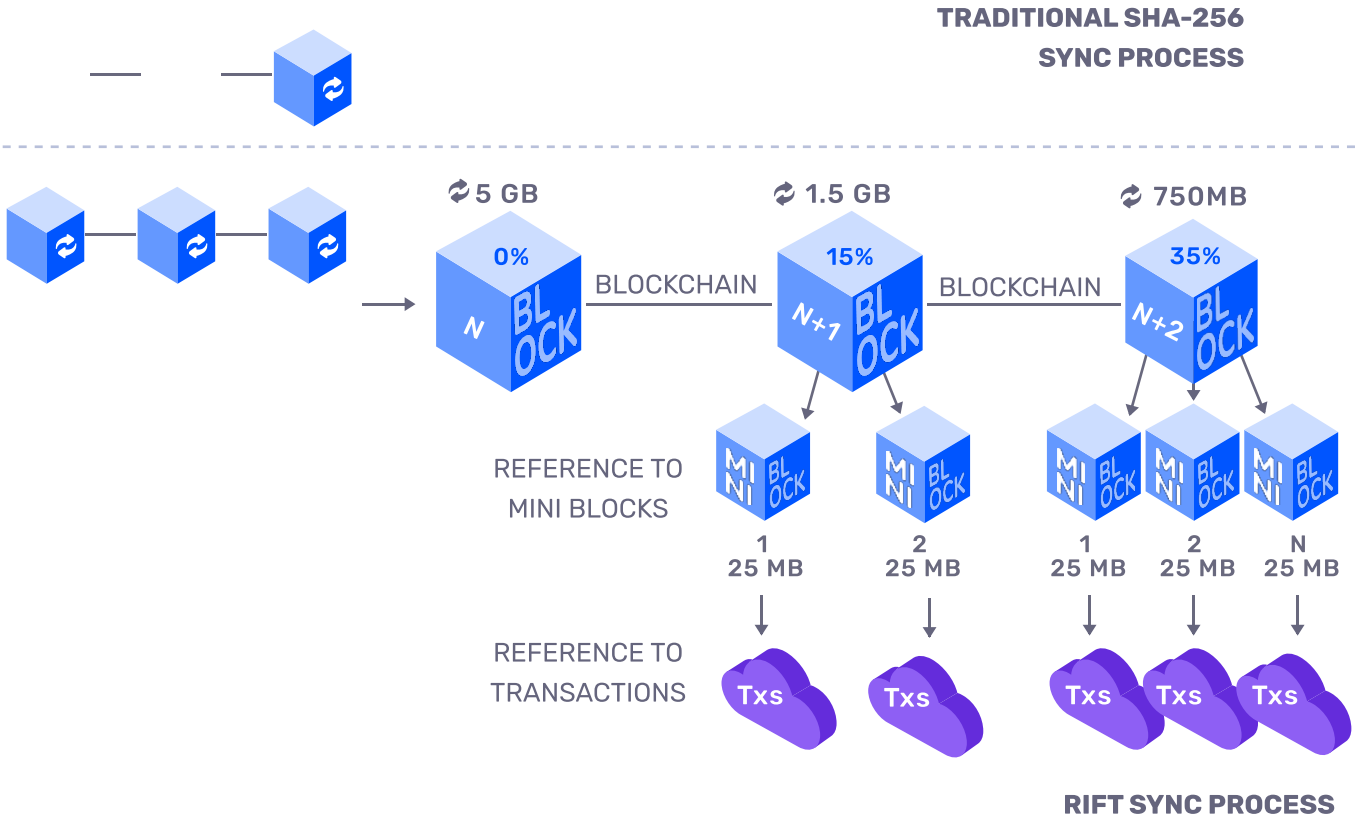


Syncing Large Amounts Of Data

Syncing large amounts of data is a challenging task. Imagine we must sync a Block (5.0 GB in total with the Mini-Blocks). In this scenario, the synchronization will take at least a few hours to accomplish with normal computational power, but we have found a solution. The RIFT Protocol will have blocks synchronizing even if there are other blocks that are still being synchronized. The Blocks and Mini-Blocks sync asynchronously. Even if a Block is syncing, the transactions will already be confirmed. However, the transactions will take some time to update and arrive to nodes other than the Master RIFT nodes. This time lapse is no different than the Bitcoin network as there is also a delay for many of the nodes to have the updated blockchain information. One important thing to mention: one mined block will have an enormous capacity for large amounts of data.

We have thoroughly tested the technology and have a stable block size of 5.0 GB with RIFT Protocol.

This technology has the potential to completely solve the upcoming challenges of the blockchain service demand, but it will take some time to prove itself Live as the demand grows. It is worthy to note, once we arrive at the point where the demand is great, the infrastructure will also grow due to more usage and the synchronization will become faster.



How Mini-Block are built

Traditional blocks in a blockchain are built by calling an RPC function that returns the template of the Block in JSON format and includes an array of transactions pending confirmation. According to the source code rules, consensus, and policies, it returns as many transactions as possible ordering the Memory Pool by the Fee Rate.

RIFT Protocol now adds two new RPC functions: RPC Blockprotocol and RPC Mini-Block protocol

1. RPC Blockprotocol

a. Returns the template of the Rift's Network Block.

b. Does not include the transactions but includes an empty array to fill later with Mini-Block Hashes.

c. This Block is the Parent of the Mini-Blocks.

2. RPC Mini-Block protocol

a. Returns the template of the Rift's Network Mini-Block.

b. Receives a parameter indicating the index to start getting transactions.

c. Includes as a return the index of the last transaction in the Mini-Block, this way the Mining Pool software will know where to start the index of the next call.

d. Order the list of transactions of the memory pool by the Entry Time. This is when the transaction has arrived at the Memory Pool. This differs from traditional Blocks that order the Memory Pool list of transactions by the Fee Rate. This is also to avoid double including transactions and leaving transactions behind while building the Mini-Blocks.

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