

Merkle root, incorporate that in the header, and re-start the search for a valid Proof-of-work in that header. With regards to the header processing, the content of that file or how that is calculated is irrelevant. The only requirement is that it must simply be a file that is produced on demand and whose Merkle root can be calculated.

2. The Network SW demands that application validates a file received from another node.

This usually happens when a block header and block contents file is received from another node in the network. After validating the Proof-of-work in the header, the Merkle root referencing, and other validations, the result is derived. The result of this process is a simple yes or no answer and if the block is valid then it is appended to the blockchain, else it is discarded.

Thus, at the most basic level, the interface between the network and the application is quite simple and straightforward. The complexity lies in the “other services” that the network provides to the application, like access to node-to-node communications, managing collisions when two or more valid blocks are found at the same time.

As mentioned earlier, Eleutherus/GP is a blockchain protocol that simply defines how the block files must be produced and verified. Everything else is up to the developer who can come up with something as complex as Bitcoin-the-application or somethings else that is even more innovative.

As you may have figured out, blockchain applications can literally be anything and there is no limit to what a developer can do with this technology. With that said, let us now discuss some of the core challenges involved in using the blockchain network.

A. Establishing clean, well-defined, and useful application interfaces that developers may use to easily access the various functionalities provided to them by the network layer like the node-to-node communications and several others.

B. Catering to varying needs, like for instance, some applications may require very large or very small block sizes. Likewise, the requirements could differ based on how frequently new blocks would be added to the historical blockchain, etc...