

# ELEUTHEROS AND GENERALIZATION INTO A “MANY NETWORKS PROTOCOL”

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We had previously discussed the three aspects of the Bitcoin protocol that enables Eleutheros to simplify from a “tall” one-network protocol to a “narrow” many-networks protocol. Let us now discuss each of those three aspects a little more elaborately.

### **1. The layer isolation mechanism → Enables a clean separation of the network and the application**

While discussing Bitcoin’s layer isolation — which isolated the block headers from the contents — it seems like the perfect framework. However, when you implement it, you begin to realize that many aspects of this isolation mechanism are ambiguous and have nothing to do with the processing of the block headers or the blocks. However, the framework defined by Eleutheros is laser-focused on aspects that are directly related to the creation and verification of block contents.

Therefore, Eleutheros’ application is only concerned with processes that produce a file with a Merkle root, which should be included in the header to enable a yes or no validation. Now that could be something as sophisticated as Bitcoin-the-application to a system that produces random .jpeg files and verifies files to produce a yes or no decision regarding whether they are indeed jpeg files. Now you might wonder why we are giving you such an extreme example, but that’s the whole point — GPdom to innovate.

Beyond this, there are certain other interactions between the network and the application, which may broadly be defined as “services the network provides to the application”. Some examples of such services include access to node-to-node communications, maintenance of the local blockchain file, managing collisions where two or more valid sets of header+block simultaneously propagate across the P2P network and cause the blockchain to “spontaneously fork”, providing new nodes with a reliable copy of the historical blockchain file, etc...

These “network-provided services” are used by Bitcoin-the-application in specific ways. For instance, the node-to-node communications are used