CLAIMS

1. A computer-implemented method for blockchain data storage, the method comprising:

generating a snapshot of a current state tree associated with a fixed depth Merkle tree (FDMT) during creation of a block of a blockchain, wherein the current state tree stores state information corresponding to a newest block of the blockchain, wherein the newest block of the blockchain is different than the block of the blockchain;

storing the snapshot of the current state tree;

adding, as an identifier (ID) of the snapshot of the current state tree, a block ID corresponding to the newest block;

receiving a request to retrieve the state information corresponding to the newest block;

determining, based on the ID of the snapshot of the current state tree, that a snapshot of the state information corresponding to the newest block exists; and

providing, based on the snapshot of the current state tree, the state information corresponding to the newest block.

2. The method of claim 1, wherein the FDMT includes a historic state tree that stores state information corresponding to every block of the blockchain.

3. The method of claim 2, wherein the historic state tree includes key-value pairs (KVPs), wherein a key of a KVP is a hash value of a corresponding value of the KVP.

4. The method of claim 1, wherein the current state tree includes KVPs, wherein a key of a KVP includes a node ID corresponding to a node of the current state tree and the block ID corresponding to the newest block.

5. The method of claim 1, wherein the current state tree is associated with a contract account of the blockchain, and wherein the current state tree is a tree that encodes storage content of the contract account.

6. The method of claim 5, wherein the snapshot includes a Merkle path associated with the contract account included in a world state tree associated with the newest block.

7. The method of claim 2, further comprising:

deleting the historic state tree associated with the FDMT after the snapshot is stored.

8. The method of any previous claim, wherein the snapshot is generated based on a checkpoint feature in a key-value database.

9. A system comprising:

one or more processors; and

one or more computer-readable memories coupled to the one or more processors and having instructions stored thereon that are executable by the one or more processors to perform the method of any of claims 1 to 8.

10. An apparatus comprising a plurality of modules for performing the method of any of claims 1 to 8.