CLAIMS

1. A computer-implemented method comprising:

receiving, by a storage system, a plurality of write requests for storing a respective plurality of blockchain data in the storage system, wherein each of the plurality of the blockchain data comprises:

a value of one or more of a block, a transaction, or a state of a blockchain network, and

a key corresponding to the value;

appending, by the storage system, the plurality of the blockchain data to a data log file according to a chronological order of the plurality of the blockchain data;

refraining from sorting the plurality of the blockchain data in the data log file according to respective keys of values in the plurality of the blockchain data;

generating, by the storage system, indexes indicating respective physical storage locations of the plurality of the blockchain data in the data log file; and

writing, by the storage system, the indexes in a first-tier storage device of a multi-tier storage subsystem of the storage system that comprises a plurality of tiers of storage devices, wherein the first-tier storage device has a highest access speed among the plurality of tiers of storage devices.

2. The computer-implemented method of claim 1, wherein the key comprises a hash value corresponding to the value.

3. The computer-implemented method of claim 1, wherein the data log file is an append-only file.

4. The computer-implemented method of claim 1, further comprising:

determining respective migration priorities of the plurality of the blockchain data according to the chronological order of the plurality of the blockchain data; and

migrating the plurality of the blockchain data stored in the first-tier storage device into a second-tier storage device according to the respective migration priorities, wherein the second-tier storage device has a lower access speed than the first-tier storage device.

5. The computer-implemented method of claim 4, wherein a migration priority of older blockchain data is higher than a migration priority of newer blockchain data.

6. An apparatus for data processing and storage, the apparatus comprising a plurality of modules for performing the computer-implemented method of any one of claims 1 to 5.

7. A storage 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 computer-implemented method of any one of claims 1 to 5.