CLAIMS

What is claimed is:

1. A method for multi-level storage of block data, the method comprising:

receiving latest block data of a blockchain;

storing the latest block data in a first-level storage system in a multi-level storage system, wherein the latest block data of the blockchain is stored in the multi-level storage system interconnected to the blockchain, the multi-level storage system comprising the first-level storage system configured to store the latest block data of the blockchain, and at least one lower-level storage system configured to archive block data stored in the first-level storage system;

determining that a block data migration event for the first-level storage system is triggered; and

if in response to determining that the block data migration event for the first-level storage system is triggered, migrating at least a part of block data stored in the first-level storage system to the lower-level storage system, wherein the latest block data of the blockchain between different storage systems in the multi-level storage system is unidirectionally migrated.

2. The method according to claim 1, wherein a first storage performance of a first storage medium corresponding to the first-level storage system is higher than a second storage performance of a second medium corresponding to the lower-level storage system.

3. The method according to claim 1, wherein storage performance of storage media corresponding to various levels of storage systems in the multi-level storage system decreases in a gradient from the first-level storage system.

4. The method according to claim 1, further comprising:

determining whether any one of lower-level storage systems receives the at least a part of block data migrated from an upper-level storage system;

if yes, determining whether a block data migration event for the any one of lower-level storage systems is triggered; and

if yes, continuing migrating at least a part of block data stored in the any one of lower-level storage systems to a lower-level storage system of the any one of lower-level storage systems.

5. The method according to claim 1, wherein the block data migration event for the first-level storage system comprises:

a data capacity of the block data stored in the first-level storage system exceeds a predetermined threshold; or

a capacity ratio of the data capacity of the block data stored in the first-level storage system to a total data capacity of the first-level storage system exceeds a predetermined threshold.

6. The method according to claim 4, wherein the block data migration event for the any one of lower-level storage systems comprises:

a data capacity of block data stored in the any one of lower-level storage systems exceeds a predetermined threshold; or

a capacity ratio of the data capacity of the block data stored in the any one of lower-level storage systems to a total data capacity of the any one of lower-level storage systems exceeds a predetermined threshold.

7. The method according to claim 1, wherein the blockchain comprises a peer-to-peer network.

8. The method according to claim 1, wherein block data stored in the blockchain is backed up based on a plurality of consensus mechanisms.

9. The method according to claim 8, wherein the plurality of consensus mechanisms comprises a Proof of Work, a Proof of Stake, a Delegated Proof of Stake, or a Practical Byzantine Fault Tolerance.

10. An apparatus for multi-level storage of block data, the apparatus comprising a plurality of modules configured to perform the method of any one of claims 1 to 9.