

What is claimed is:

1. A system for storing blockchain data, comprising a memory database and a magnetic disk database, wherein
the memory database and the magnetic disk database respectively receive blockchain data written by a blockchain node, and store the blockchain data; and
when a node reads the blockchain data, the node first reads the blockchain data from the memory database, and if the reading fails, the node reads the blockchain data from the magnetic disk database, and synchronizes the read blockchain data to the memory database, wherein the magnetic disk database comprises a primary magnetic disk database and a secondary magnetic disk database, to effectively improve the reading and writing performance of the magnetic disk database,
wherein writing of the blockchain data is performed in the primary magnetic disk database and reading of the blockchain data is performed in the secondary magnetic disk database.
2. The system according to claim 1, further comprising a first memory mapping file, wherein
when writing of the blockchain data into the memory database fails, the node acquires the first memory mapping file and writes the blockchain data into the first memory mapping file; and
after the memory database is restored, the node writes the blockchain data into the memory database through the first memory mapping file.
3. The system according to claim 1, further comprising a second memory mapping file, and
when writing of the blockchain data into the magnetic disk database fails, the node acquires the second memory mapping file and writes the blockchain data into the second memory mapping file; and
after the magnetic disk database is restored, the node writes the blockchain data into the magnetic disk database through the second memory mapping file.
4. The system according to claim 1, wherein the blockchain data is written into the primary magnetic disk database for storage, and synchronization of the blockchain data between the primary magnetic disk database and the secondary magnetic disk database is maintained; and
when the node reads the blockchain data, the blockchain data is read from the secondary magnetic disk database.

5. The system according to claim 4, wherein a plurality of primary magnetic disk databases are provided, and the node performs reading and writing in the plurality of primary magnetic disk databases through a magnetic disk database interface layer, a data routing, a sharding middleware and a primary database connection pool.

6. The system according to claim 4 or 5, wherein a plurality of secondary magnetic disk databases are provided, and the node performs reading in the plurality of secondary magnetic disk databases through a magnetic disk database interface layer, a data routing, a sharding middleware and a secondary database connection pool.

7. The system according to claim 1, wherein after the node is restarted, the node first reads the blockchain data from the magnetic disk database and loads the read blockchain data into the memory database, and synchronization between the magnetic disk database and the memory database is performed at a predetermined frequency.

8. A method for storing blockchain data, comprising:
acquiring blockchain data;
writing the blockchain data into a memory database and a magnetic disk database for storage, respectively; and
reading the blockchain data first from the memory database during reading of the blockchain data, and reading the blockchain data from the magnetic disk database if the reading fails, and synchronizing the read blockchain data to the memory database,
wherein the magnetic disk database comprises a primary magnetic disk database and a secondary magnetic disk database, to effectively improve the reading and writing performance of the magnetic disk database,
wherein writing of the blockchain data is performed in the primary magnetic disk database and reading of the blockchain data is performed in the secondary magnetic disk database.

9. The method according to claim 8, wherein the memory database has a corresponding first memory mapping file; the method further comprises:
acquiring the first memory mapping file when writing of the blockchain data into the memory database fails, and writing the blockchain data into the first memory mapping file; and
writing the blockchain data to the memory database through the first memory mapping file after the memory database is restored.

10. The method according to claim 8, wherein the magnetic disk database has a corresponding second memory mapping file, the method further comprises:

acquiring the second memory mapping file when writing of the blockchain data into the magnetic disk database fails, and writing the blockchain data into the second memory mapping file; and

writing the blockchain data to the magnetic disk database through the second memory mapping file after the magnetic disk database is restored.

11. The method according to any one of claims 8 to 10, the method further comprises:

writing the blockchain data into the primary magnetic disk database for storage; maintaining synchronization of the blockchain data between the primary magnetic disk database and the secondary magnetic disk database; and

reading the blockchain data from the secondary magnetic disk database during reading of the blockchain data.

12. A blockchain data storage device, comprising

an acquisition module configured to acquire blockchain data;

a storage module configured to write the blockchain data into a memory database and a magnetic disk database for storage, respectively;

an access module configured to first read the blockchain data from the memory database during reading of the blockchain data, and if the reading fails, to read the blockchain data from the magnetic disk database and synchronize the read blockchain data to the memory database,

wherein the magnetic disk database comprises a primary magnetic disk database and a secondary magnetic disk database, to effectively improve the reading and writing performance of the magnetic disk database,

wherein writing of the blockchain data is performed in the primary magnetic disk database and reading of the blockchain data is performed in the secondary magnetic disk database.

13. A blockchain node, comprising a memory and one or more processors, the memory having computer-readable instructions stored therein which, when executed by the processor, causing the one or more processors to perform the steps of:

acquiring blockchain data;

writing the blockchain data into a memory database and a magnetic disk database for storage, respectively; and
reading the blockchain data first from the memory database during reading of the blockchain data, and reading the blockchain data from the magnetic disk database if the reading fails, and synchronizing the read blockchain data to the memory database,
wherein the magnetic disk database comprises a primary magnetic disk database and a secondary magnetic disk database, to effectively improve the reading and writing performance of the magnetic disk database,
wherein writing of the blockchain data is performed in the primary magnetic disk database and reading of the blockchain data is performed in the secondary magnetic disk database.

14. The blockchain node according to claim 13, wherein the memory database has a corresponding first memory mapping file; and the computer-readable instructions, when executed by the processor, cause the one or more processors to further perform the steps of:
acquiring the first memory mapping file when writing of the blockchain data into the memory database fails, and writing the blockchain data into the first memory mapping file; and
writing the blockchain data to the memory database through the first memory mapping file after the memory database is restored.

15. The blockchain node according to claim 14, wherein the magnetic disk database has a corresponding second memory mapping file; and the computer-readable instructions, when executed by the processor, cause the one or more processors to further perform the steps of:
acquiring the second memory mapping file when writing of the blockchain data into the magnetic disk database fails, and writing the blockchain data into the second memory mapping file; and
writing the blockchain data to the magnetic disk database through the second memory mapping file after the magnetic disk database is restored.

16. The blockchain node according to any one of claims 13 to 15, wherein the magnetic disk database comprises a primary magnetic disk database and a secondary magnetic disk database; and the computer-readable instructions, when executed by the processor, cause the one or more processors to further perform the steps of:
writing the blockchain data into the primary magnetic disk database for storage; maintaining synchronization of the blockchain data between the primary magnetic disk database and the

secondary magnetic disk database; and

reading the blockchain data from the secondary magnetic disk database during reading of the blockchain data.

17. One or more non-transitory computer-readable storage medium having computer-readable instructions stored thereon which, when executed by one or more processors, causing the one or more processors to perform:

acquiring blockchain data;

writing the blockchain data into a memory database and a magnetic disk database for storage, respectively; and

reading the blockchain data first from the memory database during reading of the blockchain data, and reading the blockchain data from the magnetic disk database if the reading fails, and synchronizing the read blockchain data to the memory database,

wherein the magnetic disk database comprises a primary magnetic disk database and a secondary magnetic disk database, to effectively improve the reading and writing performance of the magnetic disk database,

wherein writing of the blockchain data is performed in the primary magnetic disk database and reading of the blockchain data is performed in the secondary magnetic disk database.

18. The storage medium according to claim 17, wherein the memory database has a corresponding first memory mapping file; and the computer-readable instructions, when executed by the processor, cause the one or more processors to further perform the steps of:

acquiring the first memory mapping file when writing of the blockchain data into the memory database fails, and writing the blockchain data into the first memory mapping file; and

writing the blockchain data to the memory database through the first memory mapping file after the memory database is restored.

19. The storage medium according to claim 17, wherein the magnetic disk database has a corresponding second memory mapping file; and the computer-readable instructions, when executed by the processor, cause the one or more processors to further perform the steps of:

acquiring the second memory mapping file when writing of the blockchain data into the magnetic disk database fails, and writing the blockchain data into the second memory mapping file; and

writing the blockchain data to the magnetic disk database through the second memory mapping

file after the magnetic disk database is restored.

20. The storage medium according to any one of claims 17 to 19, wherein the magnetic disk database comprises a primary magnetic disk database and a secondary magnetic disk database; and the computer-readable instructions, when executed by the processor, cause the one or more processors to further perform the steps of:

writing the blockchain data into the primary magnetic disk database for storage; maintaining synchronization of the blockchain data between the primary magnetic disk database and the secondary magnetic disk database; and

reading the blockchain data from the secondary magnetic disk database during reading of the blockchain data.