

CLAIMS

1. A storage system comprising:
 - a first tier storage device with a first performance characteristic, wherein the first tier storage device stores a first data log file that comprises first blockchain data generated by a blockchain network; and
 - a second tier storage device with a second performance characteristic inferior to the first performance characteristic, wherein the second tier storage device stores a second data log file that comprises second blockchain data generated by the blockchain network at an earlier time than the first blockchain data.
2. The storage system of claim 1, wherein the first performance characteristic comprises one or more of an access speed, an access bandwidth, or an access latency.
3. The storage system of claim 1, wherein the first tier storage device further stores an index log file that comprises index data indicating physical storage locations of the first blockchain data in the first data log file in the first tier storage device and the second blockchain data in the second data log file in the second tier storage device.
4. The storage system of claim 3, wherein the index log file is an append-only file.
5. The storage system of claim 1, wherein the first data log file and the second first data log file are append-only files.
6. The storage system of claim 1, wherein the first blockchain data comprises one or more of a block, a transaction, or a history state generated by the blockchain network at a first time instance, and the second blockchain data comprises one or more of a block, a transaction, or a history state generated by the blockchain network at a second time instance earlier than the first time instance.
7. The storage system of claim 1, wherein:

the first tier storage device comprises one or more of a cloud-based storage device;
and

the second tier storage device comprises one or more of a network attached storage (NAS) or an object storage service (OSS) device.

8. The storage system of claim 1, further comprises a third tier storage device with a third performance characteristic slower than the second performance characteristic, wherein the third tier storage device stores a third data log file that comprises third blockchain data generated by the blockchain network at a later time than the second blockchain data.

9. The storage system of claim 1, wherein the second blockchain data was migrated from the first tier storage device to the second tier storage device.

10. The storage system of claim 1, wherein the first tier storage device stores a fourth data log file that comprises fourth blockchain data generated by the blockchain network, and the fourth blockchain data is accessed more frequently than the second blockchain data in the second data log file in the second tier storage device.

11. The storage system of claim 1, wherein the fourth blockchain data was migrated from the second tier storage device to the first tier storage device.

12. A network node of a blockchain network comprising a storage system of any one of claims 1 to 11.

13. A blockchain network comprising:
a plurality of consensus nodes, wherein each of the plurality of consensus nodes comprises a storage system of any one of claims 1 to 11.