

CLAIMS

1. A computer-implemented method, ~~the method~~ comprising:
 - receiving a storage request for a transaction request ~~stored in a request stream~~ by a ledger server, the transaction request being stored in a request stream, the storage request comprising storage information of the transaction request in the request stream and authentication information of a transaction corresponding to the transaction request;
 - storing the storage information of the transaction request in an index of an index stream by the ledger server;
 - storing the authentication information of the transaction request in a storage element of a storage stream by the ledger server, the storage stream being associated with but different from the index stream, the storage element corresponding to the index; and
 - returning an index identifier of the index for the transaction request by the ledger server.

2. The computer-implemented method of claim 1, wherein the storage request comprises a public key calculated based on the authentication information of the transaction,
 - the method further comprising:
 - verifying whether the public key in the storage request is authorized to access the index stream and the storage stream by the ledger server.

3. The computer-implemented method of claim 2, wherein storing the storage information of the transaction request and the authentication information of the transaction is in response to verifying that the public key is authorized.

4. The computer-implemented method of claim 3, further comprising:
 - storing the public key, together with the authentication information of the transaction, in the storage element of the storage stream by the ledger server.

5. The computer-implemented method of any of claims 2 to 4, wherein verifying whether the public key in the storage request is authorized to access the index stream and the storage stream comprises:

verifying whether the public key in the storage request matches with an authenticated public key associated with the index stream and the storage stream.

6.The computer-implemented method of any preceding claim, further comprising:

verifying whether a second public key in a second storage request corresponding to a second transaction request is authorized to access a second index stream and a second storage stream that correspond to the second transaction request by the ledger server; and

in response to verifying that the second public key is not authorized, returning an error message by the ledger server.

7.The computer-implemented method of any preceding claim, comprising:

receiving a plurality of storage requests for a plurality of transaction requests ~~stored in the request stream~~ by the ledger server, the plurality of transaction requests being stored in the request stream, each storage request comprising storage information of a respective transaction request in the request stream and authentication information of a transaction corresponding to the respective transaction request; and

storing the storage information of the plurality of transaction requests in a plurality of indices in the index stream and the authentication information of the transactions corresponding to the plurality of transaction requests in a plurality of storage elements in the storage stream by the ledger server,

wherein a storing order of the plurality of indices in the index stream is same as a storing order of the plurality of storage elements in the storage stream.

8.The computer-implemented method of claim 7, wherein a storing order of the plurality of transaction requests in the request stream is different from the storing order of the plurality of storage elements in the storage stream.

9.The computer-implemented method of any preceding claim, wherein the storage element has a unique storage identifier among the storage stream, and the index has a unique index identifier among the index stream, the unique storage identifier being identical to the unique index identifier.

10. The computer-implemented method of any preceding claim, wherein storing the storage information of the transaction request in the index of the index stream is concurrent with storing the authentication information of the transaction in the storage element of the storage stream.

11. The computer-implemented method of any preceding claim, wherein the ledger server is associated with a plurality of ledgers, each ledger comprising a respective index stream and a respective storage stream associated with the respective index stream,

wherein the index identifier of the index comprises:

an identifier of the index stream among the respective index streams of the plurality of ledgers, and

a unique identifier of the index stored in the index stream.

the computer-implemented method

~~12. The computer-implemented method of claim 11,~~ further comprising:

selecting a ledger including the index stream and the storage stream from the plurality of ledgers based on the storage request by the ledger server.

12. The computer-implemented method of any preceding claim, further comprising:

generating a block in a blockchain that is different from the storage stream and the index stream, the block comprising a series of sequential storage elements in the storage stream, without a series of sequential indexes in the index stream, the series of sequential storage elements respectively corresponding to the series of sequential indexes.

13. The computer-implemented method of any preceding claim, further comprising:

retrieving content information of the transaction from the request stream according to the index of the index stream by the ledger server, the transaction request comprising the content information of the transaction and the authentication information of the transaction that are stored in the request stream.

14. A system for managing trust points in a ledger 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 one of claims 1 to 13.

15. An apparatus for managing trust points in a ledger system, the apparatus comprising a plurality of modules for performing the method of any one of claims 1 to 13.