

CLAIMS

What is claimed is:

1. A method for recording data based on a plurality of blockchain networks,
~~wherein a data recording system comprises at least two first type blockchain networks~~
5 ~~and one second type blockchain network, and the method comprises:~~
~~when in response to~~ obtaining data to be stored, constructing, by ~~any~~ any node in a
~~each~~ first-type blockchain network, a first-type blockchain transaction comprising the
obtained data to be stored, and broadcasting the ~~constructed~~ first-type blockchain
transaction to the first-type blockchain network;
10 ~~when needing to write data to a blockchain, packaging, by each node in the first-~~
type blockchain network based on a consensus algorithm, ~~several~~ a plurality of first-
type blockchain transactions into a first-type recording block and writing the first-type
recording block into a blockchain of the node itself;
calculating, by ~~any~~ the node in the first-type blockchain network, a transaction
15 hash of each first-type blockchain transaction in the first-type recording block, and
sending the transaction hash of each first-type blockchain transaction to a target node
in the second-type blockchain network;
sending, by a first-type blockchain network, to the user, the transaction hash of a
first-type blockchain transaction comprising the data to be stored;
20 constructing, by the target node for each received transaction hash, a second-type
blockchain transaction comprising the transaction hash;
broadcasting, by the target node, the second-type blockchain transaction
corresponding to each transaction hash to the second-type blockchain network; ~~and~~
~~when needing to write data to a blockchain, packaging, by each node in the second-~~
25 type blockchain network based on the consensus algorithm, ~~several~~ a plurality of
second-type blockchain transactions into a second-type recording block and writing the
second-type recording block into a blockchain of the node itself; and
receiving, from the user and by the second-type blockchain network, a query based
on the transaction hash of the first-type blockchain transaction, wherein the first-type
30 blockchain transaction is written into the first-type blockchain network if in response
to determining that a second-type blockchain transaction comprising the transaction

hash of the first-type blockchain transaction exists in the blockchain of the second-type blockchain network.

2. The method according to claim 1, wherein the sending the transaction hash of each first-type blockchain transaction to a target node in the second-type blockchain network specifically comprises:

successively sending the transaction hash of each first-type blockchain transaction to the target node in the second-type blockchain network based on a sequence of first-type blockchain transactions in the first-type recording block; and

the broadcasting, by the target node to the second-type blockchain network, the second-type blockchain transaction corresponding to each transaction hash specifically comprises:

successively broadcasting, by the target node, the second-type blockchain transaction corresponding to each transaction hash to the second-type blockchain network based on a sequence of receiving the transaction hashes.

3. The method according to claim 1, wherein the data recording system further comprises at least one third-type blockchain network;

at least one node in each third-type blockchain network is managed by a designated manager, and at least one node in the second-type blockchain network is managed by the designated manager; and

the method further comprises:

~~when obtaining data to be stored,~~ constructing, by any node in each third-type blockchain network, a third-type blockchain transaction comprising the obtained data to be stored, and broadcasting the ~~constructed~~ third-type blockchain transaction to the third-type blockchain network;

~~when needing to write data to a blockchain,~~ packaging, by each node in the third-type blockchain network based on the consensus algorithm, ~~several~~ a plurality of third-type blockchain transactions into a third-type recording block and writing the third-type recording block into a blockchain of the node itself; and

obtaining, by any node managed by the designated manager in the second-type blockchain network, the third-type recording block and calculating a transaction hash of each third-type blockchain transaction in the third-type recording block; and constructing, for each third-type blockchain transaction, a second-type blockchain transaction comprising a transaction hash of the third-type blockchain transaction, and

broadcasting each second-type blockchain transaction to the second-type blockchain network.

4. The method according to claim 3, wherein the broadcasting, by any node managed by the designated manager in the second-type blockchain network, each second-type blockchain transaction to the second-type blockchain network specifically comprises:

successively broadcasting, by any node managed by the designated manager in the second-type blockchain network, the second-type blockchain transaction corresponding to each third-type blockchain transaction to the second-type blockchain network based on a sequence of the third-type blockchain transactions in the third-type recording block.

5. The method according to claim 1, wherein the method further comprises:

~~when obtaining data to be stored,~~ constructing, by any node in the second-type blockchain network, a second-type blockchain transaction comprising the obtained data to be stored, and broadcasting the ~~constructed~~ second-type blockchain transaction to the second-type blockchain network.

6. The method according to claim 1, wherein the constructing, by the target node for each received transaction hash, a second-type blockchain transaction comprising the transaction hash specifically comprises:

constructing, by the target node for each received transaction hash, a second-type blockchain transaction comprising the transaction hash and a network identifier of the first-type blockchain network.

7. The method according to claim 3, wherein the constructing, for each third-type blockchain transaction, a second-type blockchain transaction comprising a transaction hash of the third-type blockchain transaction specifically comprises:

constructing, for each third-type blockchain transaction, a second-type blockchain transaction comprising a transaction hash of the third-type blockchain transaction and a network identifier of the third-type blockchain network.

8. The method according to any one of claims 1 to 7, wherein each node in the second-type blockchain network is managed by the designated manager.

9. A blockchain system, comprising:
one or more computers; and
one or more computer memory devices interoperably coupled with the one or more
computers and having tangible, non-transitory, machine-readable media storing one or
5 more instructions that, when executed by the one or more computers, perform one or
more operations comprising:~~at least two first type blockchain networks and one~~
~~second type blockchain network, wherein~~
~~when in response to obtaining data to be stored, constructing, by any node in each~~
~~any first-type blockchain network, a first-type blockchain transaction comprising the~~
10 ~~obtained data to be stored, and broadcasting the constructed first-type blockchain~~
~~transaction to the first-type blockchain network; when needing to write data to a~~
~~blockchain,—~~
packaging, by each node in the first-type blockchain network based on a consensus
algorithm, ~~several~~ a plurality of first-type blockchain transactions into a first-type
15 recording block and writing the first-type recording block into a blockchain of the node
itself; calculating, by any node in the first-type blockchain network, a transaction hash
of each first-type blockchain transaction in the first-type recording block, and sending
the transaction hash of each first-type blockchain transaction to a target node in the
second-type blockchain network;
20 returning, by a first-type blockchain network, to the user, the transaction hash of a
first-type blockchain transaction comprising the data to be stored;~~and~~
constructing, by the target node in the second-type blockchain network for each
received transaction hash, a second-type blockchain transaction comprising the
transaction hash; broadcasting the second-type blockchain transaction corresponding to
25 each transaction hash to the second-type blockchain network; ~~and when needing to~~
~~write data to a blockchain,—~~
packaging, by each node in the second-type blockchain network based on the
consensus algorithm, ~~several~~ a plurality of second-type blockchain transactions into a
second-type recording block and writing the second-type recording block into a
30 blockchain of the node itself; and
receiving, from the user and by the second-type blockchain network, a query based
on the transaction hash of the first-type blockchain transaction,
wherein if a second-type blockchain transaction comprising the transaction hash
of the first-type blockchain transaction exists in the blockchain of the second-type

blockchain network, it is indicated that the first-type blockchain transaction has been written into any of the first-type blockchain networks.

10. A blockchain subsystem, comprising:

a plurality of nodes, ~~wherein;~~

5 a data recording system ~~comprises~~ comprising at least two first-type blockchain networks and the blockchain subsystem;

for each received transaction hash, a target node in the blockchain subsystem constructs a second-type blockchain transaction comprising the transaction hash; and broadcasts the second-type blockchain transaction corresponding to each transaction hash to the blockchain subsystem; and

10 ~~when needing to write data to a blockchain,~~ each node in the blockchain subsystem packages, based on the consensus algorithm, ~~several~~ a plurality of second-type blockchain transactions into a second-type recording block and writes the second-type recording block into a blockchain of the node itself; wherein

15 each transaction hash received by the target node in the blockchain subsystem is a transaction hash that is sent by any node in any first-type blockchain network and that is of each first-type blockchain transaction in the first-type recording block, each first-type blockchain transaction in the first-type recording block comprises data obtained by a user, to be stored, and the first-type recording block has been written by any of the first-type blockchain network into a blockchain thereof,

20 wherein the blockchain subsystem receives, from the user, a query based on a transaction hash of the first-type blockchain transaction,

wherein if a second-type blockchain transaction comprising the transaction hash of the first-type blockchain transaction exists in the blockchain subsystem, it is
25 indicated that the first-type blockchain transaction has been written into any of the first-type blockchain networks.

11. A computer device, comprising a memory, a processor, and a computer program that is stored in the memory and that can run on the processor, wherein when executing the program, the processor performs the method according to any one of
30 claims 1 and 8.