

CLAIMS

What is claimed is:

1. A method for cross-blockchain interaction, the method comprising:
determining, by a blockchain node in a first blockchain, a message generated by a second contract in a second blockchain by using a cross-blockchain interaction end between the first blockchain and the second blockchain and by using a subscribing client corresponding to the blockchain node, the subscribing client being configured to maintain a plurality of message queues that are in a one-to-one correspondence with a plurality of blockchain nodes, to perform mapping to a corresponding blockchain node by using a message queue (102); and
calling, by the blockchain node, a first contract in the first blockchain to trigger a corresponding contract operation when the message generated by the second contract satisfies a subscription condition of the blockchain node (104).
2. The method according to claim 1, wherein determining the message comprises:
initiating, by the blockchain node, a subscription request to the cross-blockchain interaction end, wherein the subscription request is used to indicate the subscription condition to the cross-blockchain interaction end, so that the cross-blockchain interaction end obtains the message that satisfies the subscription condition and is generated by the second contract, and adds the message to a message queue maintained by the subscribing client corresponding to the blockchain node; and
determining, by the blockchain node, that the second contract has generated the message that satisfies the subscription condition when the message queue comprises the message that satisfies the subscription condition.
3. The method according to any one of claims 1 or 2, further comprising:
receiving, from the subscribing client, the message that triggers the blockchain node to call the first contract in the first blockchain (204).
4. The method according to claim 3, further comprising:
receiving, from the subscribing client, a queue status of the message queue to the

cross-blockchain interaction end, so that the cross-blockchain interaction end obtains a message that satisfies the subscription condition and is generated by the second contract in the second blockchain when determining that the message queue does not comprise a message that satisfies the subscription condition based on the queue status.

5. The method according to claim 4, wherein the subscribing client receives a status query request initiated by the cross-blockchain interaction end, so as to return the queue status to the cross-blockchain interaction end in response to the status query request.

6. The method according to claim 4, wherein the receiving the message comprises:
adding, by the subscribing client, the message to the message queue; and
triggering, by the subscribing client, an arrival event of the message in the first blockchain, so as to trigger the blockchain node to consume the message queue.

7. The method according to any one of claims 1 to 6, wherein the subscribing client is configured to perform operations comprising:

performing a verification on the message provided by the cross-blockchain interaction end by using a pre-anchored verification root, so as to provide the message to the blockchain node when the subscribing client determines that the message provided by the cross-blockchain interaction end is from the second blockchain.

8. The method according to claim 7, wherein performing the verification comprises:
determining, by the subscribing client, whether the message comprises a signature of an oracle client; and determining, by the subscribing client, that the oracle client has verified that the message actually exists in the second blockchain after the signature is verified by the subscribing client; or

actively verifying, by the subscribing client, whether the message actually exists in the second blockchain.

9. The method according to any one of claims 4 to 8, wherein the obtaining the message that

satisfies the subscription condition comprises:

connecting, by the cross-blockchain interaction end, to predetermined storage space in the second blockchain through bridging by using a publishing client, wherein the predetermined storage space is used to store a message generated by the second contract;

querying, by the cross-blockchain interaction end, whether the predetermined storage space comprises a message that satisfies the subscription condition by using a query interface provided by the publishing client; and

initiating, by the cross-blockchain interaction end, a message acquisition request to the publishing client, so that the publishing client obtains a message that satisfies the subscription condition from the predetermined storage space and returns the message to the cross-blockchain interaction end.

10. The method according to claim 9, wherein the predetermined storage space comprises at least one of the following:

a third contract in the second blockchain and a predetermined blockchain data structure in the second blockchain.

11. An apparatus for cross-blockchain interaction, the apparatus comprising a plurality of modules configured to perform the method of any one of claims 1 to 10.