

CLAIMS

1. A blockchain system, comprising a distribution center, a non-consensus subsystem, and a plurality of consensus subsystems, wherein

the non-consensus subsystem comprises a plurality of non-consensus nodes, and each of the consensus subsystems comprises a plurality of consensus nodes;

a non-consensus node of the plurality of non-consensus nodes sends a transaction request to the distribution center;

the distribution center receives the transaction request from the non-consensus subsystem, determines a consensus subsystem corresponding to the transaction request based on transaction data comprised in the transaction request, and forwards the transaction request to the determined consensus subsystem; and

the consensus subsystem receives the transaction request forwarded by the distribution center, and sends the transaction request to all consensus nodes in the consensus subsystem for consensus validation; if the validation is successful, generates a corresponding block according to the transaction request and stores the block into a consortium blockchain corresponding to the consensus subsystem.

2. The blockchain system according to claim 1, wherein the consensus subsystem is further configured to: if the validation is successful, send the block corresponding to the transaction request to the non-consensus subsystem;

wherein the non-consensus subsystem receives the block and stores the block into a public blockchain corresponding to the non-consensus subsystem.

3. The blockchain system according to claim 2, wherein the consensus subsystem is further configured to: generate a transaction digest corresponding to the block based on the transaction data corresponding to the block, and sending the transaction digest to the non-consensus subsystem;

wherein the non-consensus subsystem stores the transaction digest into the public blockchain such that the transaction digest is available for search by the non-consensus nodes.

4. The blockchain system according to claim 1, wherein the non-consensus subsystem further comprises:

a data browser configured to receive a search request for transaction data from the non-consensus node, determine search permission of the non-consensus node according to the search

request; and return, according to the search permission, transaction data corresponding to the search permission to the non-consensus node.

5. The blockchain system according to claim 4, wherein the search permission of the non-consensus node is determined in the following manner:

for each non-consensus node, determining a type of the non-consensus node; and

according to the type of the non-consensus node, assigning search permission to the non-consensus node.

6. The blockchain system according to claim 4, wherein the data browser obtains, according to the search permission, transaction data corresponding to the search permission from a consensus subsystem corresponding to the search request and returns the obtained transaction data to the non-consensus node.

7. A data storing method, wherein a blockchain system comprises a distribution center, a non-consensus subsystem, and a plurality of consensus subsystems, the non-consensus subsystem comprises a plurality of non-consensus nodes, and each of the consensus subsystems comprises a plurality of consensus nodes, the method comprising:

receiving, by the consensus subsystem, a transaction request forwarded by the distribution center, the transaction request comprising transaction data, wherein the transaction request is sent by a non-consensus node of the plurality of non-consensus nodes to the distribution center;

sending the transaction request to all consensus nodes in the consensus subsystem for consensus validation;

if the validation is successful, generating a corresponding block according to the transaction request and storing the block into a consortium blockchain corresponding to the consensus subsystem.

8. The method according to claim 7, further comprising:

if the validation is successful, sending the block corresponding to the transaction request to the non-consensus subsystem, causing the non-consensus subsystem to store the block into a public blockchain corresponding to the non-consensus subsystem.

9. The method according to claim 8, wherein, if the consensus nodes reach a consensus that the transaction request is legitimate, the method further comprises:

generating a transaction digest corresponding to the block based on the transaction data corresponding to the block; and

sending the transaction digest to the non-consensus subsystem, causing the non-consensus subsystem to store the transaction digest into the public blockchain such that the transaction digest is available for search by the non-consensus nodes.

10. The method according to claim 7, further comprising:

receiving an obtaining request for transaction data from the non-consensus subsystem; and
returning, according to the obtaining request, transaction data corresponding to the obtaining request to the non-consensus subsystem.

11. The method according to claim 10, wherein the obtaining request comprises search permission of a non-consensus node, and the search permission is determined by the non-consensus subsystem according to a search request for the transaction data sent by the non-consensus node; and

the returning, according to the obtaining request, transaction data corresponding to the obtaining request to the non-consensus subsystem comprises:

determining, according to the search permission, transaction data corresponding to the search permission from transaction data stored in the non-consensus subsystem.

12. A data storing method, wherein a blockchain system comprises a distribution center, a non-consensus subsystem, and a plurality of consensus subsystems, the non-consensus subsystem comprises a plurality of non-consensus nodes, and each of the consensus subsystems comprises a plurality of consensus nodes, the method comprising:

receiving, by the distribution center, a transaction request sent by the non-consensus subsystem, the transaction request comprising transaction data;

determining a consensus subsystem corresponding to the transaction request based on the transaction data comprised in the transaction request; and

forwarding the transaction request to the determined consensus subsystem, causing the consensus subsystem to perform consensus validation on the transaction request, and store a block corresponding to the validated transaction request into a consortium blockchain corresponding to the consensus subsystem.

13. A data storing method, wherein a blockchain system comprises a distribution center, a non-consensus subsystem, and a plurality of consensus subsystems, the non-consensus subsystem comprises a plurality of non-consensus nodes, and each of the consensus subsystems comprises a plurality of consensus nodes, the method comprising:

sending, by the non-consensus subsystem, a transaction request to the distribution center, the transaction request comprising transaction data, causing the distribution center to forward, based on the transaction data, the transaction request to a consensus subsystem corresponding to the transaction data, wherein the transaction request is for consensus validation.

14. The method according to claim 13, further comprising:

receiving a block from the consensus subsystem; and

storing the block into a public blockchain corresponding to the non-consensus subsystem.

15. The method according to claim 14, further comprising:

receiving a transaction digest corresponding to the block from the consensus subsystem; and

storing the transaction digest into the public blockchain such that the transaction digest is available for search by the non-consensus nodes.

16. The method according to claim 13, further comprising:

receiving a search request for transaction data from a non-consensus node of the plurality of non-consensus nodes, determining search permission of the non-consensus node according to the search request, and returning, according to the search permission, transaction data corresponding to the search permission to the non-consensus node.

17. The method according to claim 16, wherein the search permission of the non-consensus node is determined in the following manner:

for each non-consensus node, determining a type of the non-consensus node; and

according to the type of the non-consensus node, assigning search permission to the non-consensus node.

18. The method according to claim 16, wherein the returning, according to the search permission, transaction data corresponding to the search permission to the non-consensus node comprises:

obtaining, according to the search permission, transaction data corresponding to the search permission from a consensus subsystem corresponding to the search request and returning the obtained transaction data to the non-consensus node.

19. A data storing apparatus, wherein a blockchain system comprises a distribution center, a non-consensus subsystem, and a plurality of pieces of the apparatus, the non-consensus subsystem comprises a plurality of non-consensus nodes, and each piece of the apparatus comprises a plurality of consensus nodes, the apparatus comprising:

a receiving module configured to receive a transaction request forwarded by the distribution center, the transaction request comprising transaction data, wherein the transaction request is sent by a non-consensus node of the plurality of non-consensus nodes to the distribution center;

a validation module configured to send the transaction request to all consensus nodes in the consensus subsystem for consensus validation; and

a storing module configured to, if the validation is successful, generate a corresponding block according to the transaction request and store the block into a consortium blockchain corresponding to the consensus subsystem.

20. The apparatus according to claim 19, further comprising:

a sending module configured to, if the validation is successful, send the block corresponding to the transaction request to the non-consensus subsystem, causing the non-consensus subsystem to store the block into a public blockchain corresponding to the non-consensus subsystem.

21. The apparatus according to claim 20, further comprising:

a generating module configured to, if the consensus nodes reach a consensus that the transaction request is legitimate, generate a transaction digest corresponding to the block based on the transaction data corresponding to the block, and send the transaction digest to the non-consensus subsystem, causing the non-consensus subsystem to store the transaction digest into the public blockchain such that the transaction digest is available for search by the non-consensus nodes.

22. The apparatus according to claim 19, further comprising:

a transaction data management module configured to receive an obtaining request for transaction data from the non-consensus subsystem, and return, according to the obtaining request, transaction data corresponding to the obtaining request to the non-consensus subsystem.

23. The apparatus according to claim 22, wherein the obtaining request comprises search permission of a non-consensus node, and the search permission is determined by the non-consensus subsystem according to a search request for the transaction data sent by the non-consensus node; and

the transaction data management module determines, according to the search permission, transaction data corresponding to the search permission from transaction data stored in the non-consensus subsystem.

24. A data storing apparatus, wherein a blockchain system comprises the apparatus, a non-consensus subsystem, and a plurality of consensus subsystems, the non-consensus subsystem comprises a plurality of non-consensus nodes, and each of the consensus subsystems comprises a plurality of consensus nodes, the apparatus comprising:

a receiving module configured to receive a transaction request sent by the non-consensus subsystem, the transaction request comprising transaction data;

a determining module configured to determine a consensus subsystem corresponding to the transaction request based on the transaction data comprised in the transaction request; and

a forwarding module configured to forward the transaction request to the determined consensus subsystem, causing the consensus subsystem to perform consensus validation on the transaction request, and store a block corresponding to the validated transaction request into a consortium blockchain corresponding to the consensus subsystem.

25. A data storing apparatus, wherein a blockchain system comprises a distribution center, the apparatus, and a plurality of consensus subsystems, the apparatus comprises a plurality of non-consensus nodes, and each of the consensus subsystems comprises a plurality of consensus nodes, the apparatus comprising:

a sending module configured to send a transaction request to the distribution center, the transaction request comprising transaction data, causing the distribution center to forward, based on the transaction data, the transaction request to a consensus subsystem corresponding to the transaction data, wherein the transaction request is for consensus validation.

26. The apparatus according to claim 25, further comprising:

a first storing module configured to receive a block from the consensus subsystem and store the block into a public blockchain corresponding to the non-consensus subsystem.

27. The apparatus according to claim 26, further comprising:

a second storing module configured to receive a transaction digest corresponding to the block from the consensus subsystem and store the transaction digest into the public blockchain such that the transaction digest is available for search by the non-consensus nodes.

28. The apparatus according to claim 25, further comprising:

a search module configured to receive a search request for transaction data from a non-consensus node of the plurality of non-consensus nodes, determine search permission of the non-

consensus node according to the search request, and return, according to the search permission, transaction data corresponding to the search permission to the non-consensus node.

29. The apparatus according to claim 28, wherein the search permission of the non-consensus node is determined in the following manner:

for each non-consensus node, determining a type of the non-consensus node; and

according to the type of the non-consensus node, assigning search permission to the non-consensus node.

30. The apparatus according to claim 28, wherein the search module obtains, according to the search permission, transaction data corresponding to the search permission from a consensus subsystem corresponding to the search request and returns the obtained transaction data to the non-consensus node.