

CLAIMS

What is claimed is:

1. A blockchain-based transaction processing method, applied to a client device, wherein a Nonce list corresponding to a user account is maintained in a blockchain, the Nonce list comprises a plurality of Nonce records, the Nonce record comprises a group identifier and a Nonce value, and the method comprises:

~~obtaining, from the Nonce list, available Nonce records that comprise the same group identifier for a plurality of transactions that need to be concurrently executed and are initiated by a user through the user account;~~

- 10 ~~respectively adding the obtained available Nonce records to the plurality of transactions; and~~

~~publishing the plurality of transactions in the blockchain, so that a node device in the blockchain matches an available Nonce record in a transaction published by the client device with the Nonce record in the Nonce list, and when the available Nonce record matches any target Nonce record in the Nonce list, processes the transaction, and concurrently executes a plurality of transactions with the same group identifier in processed transactions.~~

- 15 ~~2. The method according to claim 1, wherein the plurality of transactions that need to be concurrently executed comprise a plurality of transactions of the same transaction type.~~

~~3. The method according to claim 1, further comprising:~~

~~if transactions initiated by the user through the user account comprise a plurality of transaction groups, and each transaction group comprises a plurality of transactions that need to be concurrently executed, determining an execution order of the plurality of transaction groups; and~~

- 25 ~~obtaining available Nonce records that comprise the same group identifier for each of the plurality of transaction groups from the Nonce list, wherein group identifiers of the plurality of transaction groups indicate the execution order of the plurality of transaction groups.~~

- 30 ~~4. The method according to claim 1, wherein before the obtaining, from the Nonce list, available Nonce records that comprise the same group identifier for a plurality of~~

~~transactions that need to be concurrently executed and are initiated by a user through the user account, the method further comprises:~~

in response to an initialization instruction for the client device, obtaining the Nonce list maintained in the blockchain, and maintaining the obtained Nonce list on the client device; ~~and~~

~~the obtaining (202), from the Nonce list maintained on the client device, available Nonce records that comprise the same group identifier for each of a plurality of transaction groups, wherein each transaction group comprises a plurality of transactions that need to be concurrently executed and are initiated by a user through the user account comprises:~~

~~obtaining, from the Nonce list maintained on the client device, the available Nonce records that comprise the same group identifier for the plurality of transactions that, wherein the plurality of transaction groups need to be concurrently executed and are initiated in a specific order determined by the user through the user account client device, wherein the group identifiers of the plurality of transaction groups indicate the execution order of the plurality of transaction groups, and~~

~~5. The method according to claim 4, wherein the Nonce records in the Nonce list maintained on the client device are marked as available by default; and~~

~~the method further comprises:~~

marking the available Nonce records as unavailable in the Nonce list after obtaining, from the Nonce list maintained on the client device, the available Nonce records that comprise the same group identifier for the plurality of transactions that need to be concurrently executed and are initiated by the user through the user account;

~~6. The method according to claim 5, further comprising:~~

~~respectively adding (204) the obtained available Nonce records to the plurality of transactions;~~

~~publishing the plurality of transactions in the blockchain, so that a node device in the blockchain matches (206) an available Nonce record in a transaction published by the client device with the Nonce record in the Nonce list, and when the available Nonce record matches any target Nonce record in the Nonce list, processes the transaction, and concurrently executes a plurality of transactions with the same group identifier in processed transactions;~~

determining whether a notification message indicating that the transaction is processed is received from the node device; and

if yes, monotonically increasing a Nonce value in the available Nonce record based on predetermined amplitude, and re-marking the available Nonce record as available in the Nonce list after monotonically increasing the Nonce value.

5 ~~2.7.—~~ The method according to claim 1, wherein the plurality of transactions that need to be concurrently executed comprise a plurality of transactions of the same transaction type.

10 ~~3.—~~ The method according to claim 1, wherein the client device is a multi-threaded client device, and a quantity of Nonce records in the Nonce list indicates a transaction concurrency capability of the user account.

15 ~~4.8.—~~ The method according to claim ~~7~~3, wherein the Nonce record further comprises an index identifier of the Nonce record.

20 ~~5.9.—~~ A blockchain-based transaction processing method, applied to a node device in a blockchain, wherein a Nonce list set is maintained in the blockchain, the Nonce list set comprises Nonce lists corresponding to several user accounts, the Nonce list comprises a plurality of Nonce records, the Nonce record comprises a group identifier and a Nonce value, and the method comprises:

receiving a transaction that is initiated by a user through a user account and sent by a client device, wherein an available Nonce record obtained from a Nonce list that corresponds to the user account and is maintained in the blockchain is added to the transaction;

25 ~~matching the available Nonce record in the received transaction with a Nonce record in the Nonce list that corresponds to the user account and is maintained in the blockchain; and~~

30 ~~if the available Nonce record matches any target Nonce record in the Nonce list, processing the transaction, and concurrently executing a plurality of transactions with the same group identifier in processed transactions.~~

35 ~~10. The method according to claim 9,~~ wherein transactions sent by the client device comprise a plurality of transaction groups, each transaction group includes a plurality of transactions with the same group identifier, and group identifiers in available Nonce records added by the client device to the plurality of transaction groups indicate an execution order of the plurality of transaction groups; ~~and~~

~~the method further comprises:~~

matching the available Nonce record in the received transaction with a Nonce record in the Nonce list that corresponds to the user account and is maintained in the blockchain;

5 if the available Nonce record matches any target Nonce record in the Nonce list,
processing the transaction, and concurrently executing a plurality of transactions with
the same group identifier in processed transactions, wherein if the transactions sent by
the client device comprise the plurality of transaction groups, and each transaction
group comprises a plurality of transactions with the same group identifier, executing
the plurality of transaction groups in the execution order indicated by the group
10 identifiers of the plurality of transaction groups;

~~11. The method according to claim 9, further comprising:~~

if the available Nonce record matches the any target Nonce record in the Nonce
list, monotonically increasing a Nonce value in the target Nonce record based on
predetermined amplitude; and

15 returning a notification message indicating that the transaction is processed to the
client device.

~~12.~~

6. The method according to claim ~~11~~5, wherein the Nonce record further comprises
an index identifier of the Nonce record.

20 ~~13. A blockchain-based transaction processing apparatus, applied to a client device,~~
~~wherein a Nonce list corresponding to a user account is maintained in a blockchain, the~~
~~Nonce list comprises a plurality of Nonce records, the Nonce record comprises a group~~
~~identifier and a Nonce value, and the apparatus comprises:~~

~~an acquisition module, configured to obtain, from the Nonce list, available Nonce~~
25 ~~records that comprise the same group identifier for a plurality of transactions that need~~
~~to be concurrently executed and are initiated by a user through the user account;~~

~~an addition module, configured to respectively add the obtained available Nonce~~
~~records to the plurality of transactions; and~~

~~a publication module, configured to publish the plurality of transactions in the~~
30 ~~blockchain, so that a node device in the blockchain matches an available Nonce record~~
~~in a transaction published by the client device with the Nonce record in the Nonce list,~~
~~and when the available Nonce record matches any target Nonce record in the Nonce list,~~
~~processes the transaction, and concurrently executes a plurality of transactions with the~~
~~same group identifier in processed transactions.~~

35 ~~14. The apparatus according to claim 13, wherein the plurality of transactions that~~

~~need to be concurrently executed comprise a plurality of transactions of the same transaction type.~~

~~15. The apparatus according to claim 13, wherein the acquisition module is further configured to:~~

5 ~~if transactions initiated by the user through the user account comprise the plurality of transaction groups, and each transaction group comprises a plurality of transactions that need to be concurrently executed, determine an execution order of the plurality of transaction groups; and~~

10 ~~obtain available Nonce records that comprise the same group identifier for each of the plurality of transaction groups from the Nonce list, wherein group identifiers of the plurality of transaction groups indicate the execution order of the plurality of transaction groups.~~

~~16. The apparatus according to claim 13, wherein the acquisition module is further configured to:~~

15 ~~before obtaining, from the Nonce list, the available Nonce records that comprise the same group identifier for the plurality of transactions that need to be concurrently executed and are initiated by the user through the user account, in response to an initialization instruction for the client device, obtain the Nonce list maintained in the blockchain, and maintain the obtained Nonce list on the client device; and~~

20 ~~obtain, from the Nonce list maintained on the client device, the available Nonce records that comprise the same group identifier for the plurality of transactions that need to be concurrently executed and are initiated by the user through the user account.~~

~~17. The apparatus according to claim 16, wherein the Nonce records in the Nonce list maintained on the client device are marked as available by default; and~~

25 ~~the acquisition module is configured to:~~

~~mark the available Nonce records as unavailable in the Nonce list after obtaining, from the Nonce list maintained on the client device, the available Nonce records that comprise the same group identifier for the plurality of transactions that need to be concurrently executed and are initiated by the user through the user account.~~

30 ~~18. The apparatus according to claim 17, wherein the acquisition module is further configured to:~~

~~determine whether a notification message indicating that the transaction is processed is received from the node device; and~~

~~if yes, monotonically increase a Nonce value in the available Nonce record based~~

on predetermined amplitude, and re-mark the available Nonce record as available in the Nonce list after monotonically increasing the Nonce value.

19. The apparatus according to claim 13, wherein the client device is a multi-threaded client device, and a quantity of Nonce records in the Nonce list indicates a transaction concurrency capability of the user account.

20. The apparatus according to claim 19, wherein the Nonce record further comprises an index identifier of the Nonce record.

21. A blockchain-based transaction processing apparatus, applied to a node device in a blockchain, wherein a Nonce list set is maintained in the blockchain, the Nonce list set comprises Nonce lists corresponding to several user accounts, the Nonce list comprises a plurality of Nonce records, the Nonce record comprises a group identifier and a Nonce value, and the apparatus comprises:

a receiving module, configured to receive a transaction that is initiated by a user through a user account and sent by a client device, wherein an available Nonce record obtained from a Nonce list that corresponds to the user account and is maintained in the blockchain is added to the transaction;

a matching module, configured to match the available Nonce record in the received transaction with a Nonce record in the Nonce list that corresponds to the user account and is maintained in the blockchain; and

an execution module, configured to: if the available Nonce record matches any target Nonce record in the Nonce list, process the transaction, and concurrently execute a plurality of transactions with the same group identifier in processed transactions.

22. The apparatus according to claim 21, wherein transactions sent by the client device comprise a plurality of transaction groups, each transaction group includes a plurality of transactions with the same group identifier, and group identifiers in available Nonce records added by the client device to the plurality of transaction groups indicate an execution order of the plurality of transaction groups; and

the execution module is further configured to:

if the transactions sent by the client device comprise the plurality of transaction groups, and each transaction group comprises a plurality of transactions with the same group identifier, execute the plurality of transaction groups in the execution order indicated by the group identifiers of the plurality of transaction groups.

23. The apparatus according to claim 21, wherein the execution module is further configured to:

~~if the available Nonce record matches the any target Nonce record in the Nonce list, monotonically increasing a Nonce value in the target Nonce record based on predetermined amplitude; and~~

~~return a notification message indicating that the transaction is processed to the client device.~~

~~24. The apparatus according to claim 23, wherein the Nonce record further comprises an index identifier of the Nonce record.~~

~~25.—~~

~~7. An electronic device, comprising:~~

~~a processor; and
a memory, configured to store a machine-executable instruction, wherein
by reading and executing the machine-executable instruction that is stored in the memory and corresponds to blockchain-based transaction processing control logic, the processor is promoted to perform the following operations:~~

~~obtaining, from a Nonce list that corresponds to a user account and is maintained in a blockchain, available Nonce records that comprise the same group identifier for a plurality of transactions that need to be concurrently executed and are initiated by a user through the user account, wherein the Nonce list comprises a plurality of Nonce records, and the Nonce record comprises a group identifier and a Nonce value;~~

~~respectively adding the obtained available Nonce records to the plurality of transactions; and~~

~~publishing the plurality of transactions in the blockchain, so that a node device in the blockchain matches an available Nonce record in a transaction published by the client device with the Nonce record in the Nonce list, and when the available Nonce record matches any target Nonce record in the Nonce list, processes the transaction, and concurrently executes a plurality of transactions with the same group identifier in processed transactions.~~

~~26. An electronic device, comprising:~~

~~a processor; and~~

~~a memory, configured to store a machine-executable instruction, wherein
by reading and executing the machine-executable instruction that is stored in the memory and corresponds to blockchain-based transaction processing control logic, the processor is promoted to perform the following operations:~~

~~receiving a transaction that is initiated by a user through a user account and sent~~

~~by a client device, wherein an available Nonce record obtained from a Nonce list that corresponds to the user account and is maintained in a blockchain is added to the transaction, the Nonce list comprises a plurality of Nonce records, and the Nonce record comprises a group identifier and a Nonce value;~~

5 ~~matching the available Nonce record in the received transaction with a Nonce record in the Nonce list that corresponds to the user account and is maintained in the blockchain; and~~

~~if the available Nonce record matches any target Nonce record in the Nonce list, processing the transaction, and concurrently executing a plurality of transactions with the same group identifier in processed transactions.~~
10 ~~a method according to any one of the preceding claims.~~