Claims

1. A method for executing a plurality of transactions in a blockchain network, wherein the blockchain network comprises a plurality of network nodes, the method comprising:

receiving, by a network node of the blockchain network, a plurality of transactions to be executed in a blockchain network;

for each of the plurality of transactions, determining that the transaction is a first-type transaction or a second-type transaction;

dividing, by the network node, the plurality of transactions into one or more groups of transactions based on one or more accounts affected by executing the first-type transaction for each first-type transaction and one or more accounts affected by pre-executing the second-type transaction for each second-type transaction;

arranging, by the network node, each of the one or more groups of transactions that affect the one or more accounts by executing the first-type transactions into a first-type transaction group and each of the one or more groups of transactions that affect the one or more accounts by executing the second-type transactions into a second-type transaction group;

arranging, by the network node, the first-type transaction group and the second-type transaction group in a parallel execution order so that the one or more accounts affected by each of the plurality of transactions in the first-type transaction group are not affected by the one or more accounts affected by each of the plurality of transactions in the second-type transaction group; and

executing the plurality of transactions by executing, in parallel, the one or more groups of transactions.

2. The method of claim 1, further comprising:

prior to executing the plurality of transactions, for each second-type transaction, recording the one or more accounts affected by the pre-executing the second-type transaction for performing consensus of the one or more accounts affected by the pre-executing the second-type transaction.

3. The method of claim 1, wherein the plurality of transactions are executed by the network node in a same order as the plurality of transactions are executed by any other network node of the plurality of network nodes of the blockchain network.

4. The method of claim 1, wherein:

each group of transactions comprises one or more transactions that affect a common transaction entity; and

between each two different groups of transactions, any transaction in one group does not affect any common transaction entity with any transaction in another group.

5. The method of claim 4, wherein the common transaction entity comprises a transferee, a transferor, an account of a transferee, or an account of a transferor associated with a transaction.

6. The method of claim 1, wherein:

a transaction for which all accounts affected by executing the transaction is deterministic before executing the transaction is a first-type transaction, and

a transaction for which one or more accounts affected by executing the transaction is not deterministic before executing the transaction is a second-type transaction.

7. The method of claim 1, wherein a non-smart-contract transaction is a first-type transaction and a smart contract transaction is a second-type transaction.

8. The method of claim 1, wherein pre-executing the second-type transaction comprises pre-executing the second-type transaction, by the network node, when one or more processors of the network node is idle.

9. A non-transitory, computer-readable storage medium storing one or more instructions executable by a computer system to perform operations for executing a plurality of transactions in a blockchain network, wherein the blockchain network comprises a plurality of network nodes, the operations comprising:

receiving, by a network node of the blockchain network, a plurality of transactions to be executed in a blockchain network;

for each of the plurality of transactions, determining that the transaction is a first-type transaction or a second-type transaction;

dividing, by the network node, the plurality of transactions into one or more groups of transactions based on one or more accounts affected by executing the first-type transaction for

each first-type transaction and one or more accounts affected by pre-executing the second-type transaction for each second-type transaction;

arranging, by the network node, each of the one or more groups of transactions that affect the one or more accounts by executing the first-type transactions into a first-type transaction group and each of the one or more groups of transactions that affect the one or more accounts by executing the second-type transactions into a second-type transaction group;

arranging, by the network node, the first-type transaction group and the second-type transaction group in a parallel execution order so that the one or more accounts affected by each of the plurality of transactions in the first-type transaction group are not affected by the one or more accounts affected by each of the plurality of transactions in the second-type transaction group; and

executing the plurality of transactions by executing, in parallel, the one or more groups of transactions.

10. The non-transitory, computer-readable storage medium of claim 9, the operations further comprising: prior to executing the plurality of transactions, for each second-type transaction, recording the one or more accounts affected by the pre-executing the second-type transaction for performing consensus of the one or more accounts affected by the pre-executing the second-type transaction.

11. The non-transitory, computer-readable storage medium of claim 9, wherein the plurality of transactions are executed by the network node in a same order as the plurality of transactions are executed by any other network node of the plurality of network nodes of the blockchain network.

12. The non-transitory, computer-readable storage medium of claim 9, wherein:

each group of transactions comprises one or more transactions that affect a common transaction entity; and

between each two different groups of transactions, any transaction in one group does not affect any common transaction entity with any transaction in another group.

13. The non-transitory, computer-readable storage medium of claim 12, wherein the common transaction entity comprises a transferee, a transferor, an account of a transferee, or an account of a transferor associated with a transaction.

14. The non-transitory, computer-readable storage medium of claim 9, wherein:

a transaction for which all accounts affected by executing the transaction is deterministic before executing the transaction is a first-type transaction, and

a transaction for which one or more accounts affected by executing the transaction is not deterministic before executing the transaction is a second-type transaction.

15. The non-transitory, computer-readable storage medium of claim 9, wherein a non-smart-contract transaction is a first-type transaction and a smart contract transaction is a second-type transaction.

16. The non-transitory, computer-readable storage medium of claim 9, wherein pre-executing the second-type transaction comprises pre-executing the second-type transaction, by the network node, when one or more processors of the network node is idle.

17. A computer-implemented 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 more instructions that, when executed by the one or more computers, perform one or more operations for executing a plurality of transactions in a blockchain network, wherein the blockchain network comprises a plurality of network nodes, the operations comprising:

receiving, by a network node of the blockchain network, a plurality of transactions to be executed in a blockchain network;

for each of the plurality of transactions, determining that the transaction is a first-type transaction or a second-type transaction;

dividing, by the network node, the plurality of transactions into one or more groups of transactions based on one or more accounts affected by executing the first-type transaction for each first-type transaction and one or more accounts affected by pre-executing the second-type transaction for each second-type transaction;

arranging, by the network node, each of the one or more groups of transactions that affect the one or more accounts by executing the first-type transactions into a first-type transaction group and each of the one or more groups of transactions that affect the one or more accounts by executing the second-type transactions into a second-type transaction group;

arranging, by the network node, the first-type transaction group and the second-type transaction group in a parallel execution order so that the one or more accounts affected by each of the plurality of trans-actions in the first-type transaction group are not affected by the one or more accounts affected by each of the plurality of transactions in the second-type transaction group; and

executing the plurality of transactions by executing, in parallel, the one or more groups of transactions.

18. The computer-implemented system of claim 17, the operations further comprising:

prior to executing the plurality of transactions, for each second-type transaction, recording the one or more accounts affected by the pre-executing the second-type transaction for performing consensus of the one or more accounts affected by the pre-executing the second-type transaction.

19. The computer-implemented system of claim 17, wherein the plurality of transactions are executed by the network node in a same order as the plurality of transactions are executed by any other network node of the plurality of network nodes of the blockchain network.

20. The computer-implemented system of claim 17, wherein:

each group of transactions comprises one or more transactions that affect a common transaction entity; and

between each two different groups of transactions, any transaction in one group does not affect any common transaction entity with any transaction in another group.