CLAIMS

1. A method of storing a record of a copyright event in a blockchain through an agent, a consortium blockchain network of the blockchain including a plurality of member nodes, the plurality of member nodes including at least one agenting member node, and each agenting member node having a right to agent copyright event record storage for a non-member node corresponding to the agenting member node; and

the method comprising:

receiving, by a target agenting member node, a copyright event record-storing request initiated by a target non-member node corresponding to the target agenting member node for storing a record for a target copyright event, the target copyright event being generated based on a work-related service of the target non-member node, and the work-related service of the target non-member node being a work-related service performed by a server of a work service provider that controls the target non-member node;

constructing a copyright event-related transaction based on the copyright event record-storing request; and

broadcasting the copyright event-related transaction to the consortium blockchain network for each member node to add the copyright event-related transaction to the blockchain based on a consensus mechanism.

2. The method according to claim 1, wherein the target non-member node corresponding to the target agenting member node is a non-root node in a tree structure in which the target agenting member node is a root node; and

the copyright event record-storing request is transmitted through a target path between the target non-member node and the target agenting member node in the tree structure.

3. The method according to claim 1, wherein the consortium blockchain network is constructed as follows:

invoking, by a to-be-connected node, a deployed smart contract, the smart contract being configured to execute node connection-related logic;

determining, by the to-be-connected node, through the smart contract, whether a member node exists in the consortium blockchain network;

in response to no member node existing in the consortium blockchain network, activating, by the to-be-connected node, membership right of the to-be-connected node through the smart contract to become a member node of the consortium blockchain network;

in response to at least one member node existing in the consortium blockchain network, sending, by the to-be-connected node, a connection request to the at least one existing member node in the consortium blockchain network by using the smart contract;

invoking, by each of the at least one existing member node in the consortium blockchain network, the deployed smart contract, to determine, through the smart contract, whether a connection condition in the smart contract is satisfied with respect to the to-be-connected node; and

in response to determining, through the smart contract, that each of the at least one existing member node reaches a consensus that the connection condition is satisfied, activating, by the to-be-connected node, the membership right of the to-be-connected node to become a member node of the consortium blockchain network.

4. The method according to claim 3, wherein,

the smart contract provides a plurality of work types, and for each work type of the plurality of work types, the smart contract provides a type identifier and a threshold and a cumulative value corresponding to the type identifier;

the connection request includes at least one specified type identifier and a weight value corresponding to each specified type identifier, and a work type corresponding to each specified type identifier matches a work-related service of the to-be-connected node;

the connection condition specifically includes:

for each specified type identifier included in the connection request, a sum of a

weight value corresponding to the specified type identifier and a cumulative value corresponding to the specified type identifier is not greater than a threshold corresponding to the specified type identifier; and

in response to that the connection condition is satisfied, the method further comprises:

for each specified type identifier included in the connection request, obtaining, by each member node through the smart contract, the sum of the weight value corresponding to the specified type identifier and the cumulative value corresponding to the specified type identifier as an updated cumulative value corresponding to the specified type identifier.

5. The method according to claim 3, wherein,

the smart contract provides a plurality of work types, and for each work type, the smart contract provides a type identifier and a threshold and a cumulative value corresponding to the type identifier of the work type;

the connection request includes at least one specified type identifier and a weight value corresponding to each specified type identifier, and a work type corresponding to each specified type identifier matches a work-related service of the to-be-connected node;

the connection condition specifically includes:

for each specified type identifier included in the connection request, a cumulative value corresponding to the specified type identifier is less than a threshold corresponding to the specified type identifier; and

in response to that the connection condition is satisfied, the construction method further includes:

for each specified type identifier included in the connection request, determining, by each member node through the smart contract, a difference between the threshold and the cumulative value corresponding to the specified type identifier;

determining, through the smart contract, whether a weight value corresponding to the specified type identifier is greater than the difference;

in response to that the weight value corresponding to the specified type identifier is greater than the difference, obtaining, through the smart contract, a sum of

the difference and the cumulative value corresponding to the specified type identifier as an updated cumulative value corresponding to the specified type identifier; or

in response to that the weight value corresponding to the specified type identifier is not greater than the difference, obtaining, through the smart contract, the sum of the weight value corresponding to the specified type identifier and the cumulative value corresponding to the specified type identifier as the updated cumulative value corresponding to the specified type identifier.

6. The method according to claim 1, wherein for each agenting member, a work-related service of the agenting member node is consistent with a work-related service of a non-member node corresponding to the agenting member node.

7. The method according to claim 2, further comprising:

receiving, by the target agenting member node, a copyright event record query request initiated by the target non-member node, the copyright event record query request being transmitted via the target path; and

returning a query result based on the copyright event record query request to the target non-member node via the target path.

8. The method according to claim 2, wherein a parent node on the target path receives a copyright event record-storing request transmitted by a specified child node based on a pre-configured storage permission type corresponding to the specified child node, the specified child node being a child node of the parent node on the target path.

9. The method according to claim 7, wherein a parent node on the target path receives a copyright event record query request transmitted by a specified child node based on a pre-configured query permission type corresponding to the specified child node, the specified child node being a child node of the parent node on the target path.

10. An apparatus of storing a record of a copyright event in a blockchain

through an agent, a consortium blockchain network of the blockchain including a plurality of member nodes, the plurality of member nodes including at least one apparatus, and the apparatus having a right to agent copyright event record storage for a non-member node of the apparatus; and

the apparatus comprising:

a receiving module, configured to receive a copyright event record-storing request initiated by a target non-member node of the apparatus, a target copyright event being generated based on a work-related service of the target non-member node, and the work-related service of the target non-member node being a work-related service performed by a server of a work service provider that controls the target non-member node;

a transaction construction module, configured to construct a copyright event-related transaction based on the copyright event record-storing request; and

a broadcasting module, configured to broadcast the copyright event-related transaction to the consortium blockchain network for each member node to add the copyright event-related transaction to the blockchain based on a consensus mechanism.

11. A system of storing a record of a copyright event in a blockchain through an agent, comprising a consortium blockchain network and a plurality of non-member nodes; wherein

the consortium blockchain network of the blockchain includes a plurality of member nodes, and the plurality of member nodes include at least one agenting member node; each agenting member node has a right to agent copyright event record storage for a non-member node corresponding to the agenting member node;

a target agenting member node receives a copyright event record-storing request initiated by a target non-member node corresponding to the target agenting member node for storing a record for a target copyright event, the target copyright event being generated based on a work-related service of the target non-member node, and the work-related service of the target non-member node being a work-related service performed by the server of the work service provider that controls the target non-member node; constructs a copyright event-related transaction based on the

copyright event record-storing request; and broadcasts the copyright event-related transaction to the consortium blockchain network; and

each member node adds the copyright event-related transaction to the blockchain based on a consensus mechanism.

12. 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, and the processor implementing the method according to any one of claims 1 to 9 when executing the program.

13. A method, comprising:

constructing a consortium blockchain network through acts including:

invoking, by a to-be-connected node, a smart contract;

determining, by the to-be-connected node, through the smart contract, whether a member node exists in the consortium blockchain network;

in response to no member node existing in the consortium blockchain network, activating, by the to-be-connected node, a membership right of the to-be-connected node through the smart contract to become a member node of the consortium blockchain network;

in response to at least one member node existing in the consortium blockchain network, sending, by the to-be-connected node, a connection request to the at least one existing member node in the consortium blockchain network by using the smart contract;

invoking, by each of the at least one existing member node in the consortium blockchain network, the smart contract, to determine, through the smart contract, whether a connection condition in the smart contract is satisfied with respect to the to-be-connected node; and

in response to determining, through the smart contract, that each of the at least one existing member node reaches a consensus that the connection condition is satisfied, activating, by the to-be-connected node, the membership right of the to-be-connected node to become a member node of the consortium blockchain network;

receiving, by a target agenting member node of the consortium blockchain network, a copyright event record-storing request initiated by a target non-member node corresponding to the target agenting member node for storing a record for a target copyright event on a blockchain, the target copyright event being generated based on a work-related service on a work of authorship performed by a server of a work service provider that controls the target non-member node;

constructing a copyright event-related transaction based on the copyright event record-storing request;

broadcasting the copyright event-related transaction to the consortium blockchain network for each member node to add the copyright event-related transaction to a respective copy of the blockchain based on a consensus mechanism of the consortium blockchain network; and

adding the copyright event-related transaction to a copy of the blockchain of the target agenting member node.

14. A system of storing a record of a copyright event in a blockchain, comprising a consortium blockchain network and a plurality of non-member nodes, wherein:

the consortium blockchain network includes a plurality of member nodes, the plurality of member nodes include at least one agenting member node, and the consortium blockchain network is constructed through acts including:

invoking, by a to-be-connected node, a smart contract;

determining, by the to-be-connected node, through the smart contract, whether a member node exists in the consortium blockchain network;

in response to no member node existing in the consortium blockchain network, activating, by the to-be-connected node, a membership right of the to-be-connected node through the smart contract to become a member node of the consortium blockchain network;

in response to at least one member node existing in the consortium blockchain network, sending, by the to-be-connected node, a connection request to the at least one existing member node in the consortium blockchain network by using the smart contract;

invoking, by each of the at least one existing member node in the consortium blockchain network, the smart contract, to determine, through the smart contract, whether a connection condition in the smart contract is satisfied with respect to the to-be-connected node; and

in response to determining, through the smart contract, that each of the at least one existing member node reaches a consensus that the connection condition is satisfied, activating, by the to-be-connected node, the membership right of the to-be-connected node to become a member node of the consortium blockchain network;

a target agenting member node of the at least one agenting member node receives a copyright event record-storing request initiated by a target non-member node of the plurality of non-member nodes corresponding to the target agenting member node for storing in the blockchain a record for a target copyright event generated based on a work-related service performed by a server of a work service provider that controls the target non-member node; constructs a copyright event-related transaction based on the copyright event record-storing request; and broadcasts the copyright event-related transaction to member nodes of the consortium blockchain network; and

each member node of the consortium blockchain network adds the copyright event-related transaction to a respective copy of the blockchain based on a consensus mechanism of the consortium blockchain network.

15. A computer device, comprising a memory, a processor, and a computer program that is stored in the memory and executable on the processor, and the processor implementing acts when executing the program, the acts including:

constructing a consortium blockchain network, the constructing the consortium blockchain network including:

invoking, by a to-be-connected node, a smart contract;

determining, by the to-be-connected node, through the smart contract, whether a member node exists in the consortium blockchain network;

in response to no member node existing in the consortium blockchain network, activating, by the to-be-connected node, a membership right of the

to-be-connected node through the smart contract to become a member node of the consortium blockchain network;

in response to at least one member node existing in the consortium blockchain network, sending, by the to-be-connected node, a connection request to the at least one existing member node in the consortium blockchain network by using the smart contract;

invoking, by each of the at least one existing member node in the consortium blockchain network, the smart contract, to determine, through the smart contract, whether a connection condition in the smart contract is satisfied with respect to the to-be-connected node; and

in response to determining, through the smart contract, that each of the at least one existing member node reaches a consensus that the connection condition is satisfied, activating, by the to-be-connected node, the membership right of the to-be-connected node to become a member node of the consortium blockchain network;

receiving, by a target agenting member node of the consortium blockchain network, a copyright event record-storing request initiated by a target non-member node corresponding to the target agenting member node for storing a record for a target copyright event on a blockchain, the target copyright event being generated based on a work-related service on a work of authorship performed by a server of a work service provider that controls the target non-member node;

constructing a copyright event-related transaction based on the copyright event record-storing request;

broadcasting the copyright event-related transaction to the consortium blockchain network for each member node to add the copyright event-related transaction to a respective copy of the blockchain based on a consensus mechanism of the consortium blockchain network; and

adding the copyright event-related transaction to a copy of the blockchain of the target agenting member node.

16. A non-transitory storage medium having computer-executable instructions stored thereon, wherein the computer-executable instructions, when

executed by one or more processors, enable the one or more processors to implement acts comprising:

constructing a consortium blockchain network through acts including:

invoking, by a to-be-connected node, a smart contract;

determining, by the to-be-connected node, through the smart contract, whether a member node exists in the consortium blockchain network;

in response to no member node existing in the consortium blockchain network, activating, by the to-be-connected node, a membership right of the to-be-connected node through the smart contract to become a member node of the consortium blockchain network;

in response to at least one member node existing in the consortium blockchain network, sending, by the to-be-connected node, a connection request to the at least one existing member node in the consortium blockchain network by using the smart contract;

invoking, by each of the at least one existing member node in the consortium blockchain network, the smart contract, to determine, through the smart contract, whether a connection condition in the smart contract is satisfied with respect to the to-be-connected node; and

in response to determining, through the smart contract, that each of the at least one existing member node reaches a consensus that the connection condition is satisfied, activating, by the to-be-connected node, the membership right of the to-be-connected node to become a member node of the consortium blockchain network;

receiving, by a target agenting member node of the consortium blockchain network, a copyright event record-storing request initiated by a target non-member node corresponding to the target agenting member node for storing a record for a target copyright event on a blockchain, the target copyright event being generated based on a work-related service on a work of authorship performed by a server of a work service provider that controls the target non-member node, the consortium blockchain network having a plurality of member nodes that include the target agenting member node;

constructing a copyright event-related transaction based on the copyright event

record-storing request;

broadcasting the copyright event-related transaction to the consortium blockchain network for each member node to add the copyright event-related transaction to a respective copy of the blockchain based on a consensus mechanism of the consortium blockchain network; and

adding the copyright event-related transaction to a copy of the blockchain of the target agenting member node.

17. A method for constructing a consortium blockchain network, comprising:

invoking, by a to-be-connected node, a smart contract;

determining, by the to-be-connected node, through the smart contract, whether a member node exists in the consortium blockchain network;

in response to no member node existing in the consortium blockchain network, activating, by the to-be-connected node, a membership right of the to-be-connected node through the smart contract to become a member node of the consortium blockchain network;

in response to at least one member node existing in the consortium blockchain network, sending, by the to-be-connected node, a connection request to the at least one existing member node in the consortium blockchain network by using the smart contract;

invoking, by each of the at least one existing member node in the consortium blockchain network, the smart contract, to determine, through the smart contract, whether a connection condition in the smart contract is satisfied with respect to the to-be-connected node; and

in response to determining, through the smart contract, that each of the at least one existing member node reaches a consensus that the connection condition is satisfied, activating, by the to-be-connected node, the membership right of the to-be-connected node to become a member node of the consortium blockchain network.

18. A computer device, comprising a processor and a memory having executable instructions stored thereon, the executable instructions, when executed by

the processor, enabling the processor to implement acts including:

invoking, by a to-be-connected node, a smart contract;

determining, by the to-be-connected node, through the smart contract, whether a member node exists in a consortium blockchain network;

in response to no member node existing in the consortium blockchain network, activating, by the to-be-connected node, a membership right of the to-be-connected node through the smart contract to become a member node of the consortium blockchain network;

in response to at least one member node existing in the consortium blockchain network, sending, by the to-be-connected node, a connection request to the at least one existing member node in the consortium blockchain network by using the smart contract;

invoking, by each of the at least one existing member node in the consortium blockchain network, the smart contract, to determine, through the smart contract, whether a connection condition in the smart contract is satisfied with respect to the to-be-connected node; and

in response to determining, through the smart contract, that each of the at least one existing member node reaches a consensus that the connection condition is satisfied, activating, by the to-be-connected node, the membership right of the to-be-connected node to become a member node of the consortium blockchain network.

19. A storage medium having executable instructions stored thereon, the executable instructions, wherein the executable instructions, when executed by the processor, enable the processor to implement acts including:

invoking, by a to-be-connected node, a smart contract;

determining, by the to-be-connected node, through the smart contract, whether a member node exists in a consortium blockchain network;

in response to no member node existing in the consortium blockchain network, activating, by the to-be-connected node, a membership right of the to-be-connected node through the smart contract to become a member node of the consortium blockchain network;

in response to at least one member node existing in the consortium blockchain network, sending, by the to-be-connected node, a connection request to the at least one existing member node in the consortium blockchain network by using the smart contract;

invoking, by each of the at least one existing member node in the consortium blockchain network, the smart contract, to determine, through the smart contract, whether a connection condition in the smart contract is satisfied with respect to the to-be-connected node; and

in response to determining, through the smart contract, that each of the at least one existing member node reaches a consensus that the connection condition is satisfied, activating, by the to-be-connected node, the membership right of the to-be-connected node to become a member node of the consortium blockchain network.