CLAIMS

1. A method of transmitting messages, applied to a relay node in a blockchain relay communication network, wherein the relay node comprises two or more message queues, and a same message queue is used for storing blockchain messages having a same priority identifier, the priority identifier represents a priority of a message to be transmitted, wherein the priority identifier is configured for a blockchain message based on a user configuration instruction; and

the method comprises:

determining, when a blockchain message is received, a priority identifier of the blockchain message;

adding the blockchain message to a message queue of blockchain messages having the same priority identifier;

obtaining a to-be-transmitted blockchain message from the message queues based on a message transmission policy, the message transmission policy is configured to transmit a high-priority blockchain message first;

obtaining identifier information comprised in the to-be-transmitted blockchain message, and determining, based on the identifier information, a blockchain node corresponding to the identifier information as a target blockchain node corresponding to the to-be-transmitted blockchain message;

generating a routing table for recording a blockchain node set to which each blockchain node pertains and a connection relationship between each blockchain node and the relay nodes, wherein the routing table is in the form of a tree-type routing table;

determining, by querying the routing table, a target relay node connected to the target blockchain node in the blockchain relay communication network;

transmitting, based on the identifier information, the to-be-transmitted blockchain message to the target blockchain node through the target relay node, wherein when the relay node is not directly connected to the target relay node, the relay node determines a transmission path between the relay node and the target relay node, and sends the to-be-transmitted blockchain message to a relay node at a next hop in the transmission path.

2. The method of transmitting messages according to claim 1, wherein obtaining the to-be-transmitted blockchain message from the two or more message queues based on the message transmission policy, comprises:

obtaining the to-be-transmitted blockchain message from a non-empty message queue having a highest priority, a priority of any message queue is consistent with a priority of a blockchain message stored in the any message queue; or

obtaining the to-be-transmitted blockchain message from each of the message queues based on respective message transmission frequencies set for the message queues, the respective message transmission frequencies are positively correlated with respective priorities of corresponding message queues.

3. The method of transmitting messages according to claim 1, wherein the identifier information comprises a set identifier; and

determining the target blockchain node comprises:

determining a blockchain node set corresponding to the set identifier, and determining a blockchain node pre-registered to the blockchain node set as the target blockchain node.

4. The method of transmitting messages according to claim 1, wherein transmitting, based on the identifier information, the to-be-transmitted blockchain message to the target blockchain node through the target relay node, comprises:

transmitting the to-be-transmitted blockchain message to the connected target blockchain node; and/or,

transmitting the to-be-transmitted blockchain message to the target relay node, for the target relay node to forward the to-be-transmitted blockchain message to the connected target blockchain node.

5. An apparatus for transmitting messages, applied to a relay node in a blockchain relay communication network, wherein the relay node comprises two or more message queues, and a same message queue is used for storing blockchain messages having a same priority identifier, the priority identifier represents a priority of a message to be transmitted, wherein the priority identifier is configured for a blockchain message based on a user configuration instruction; and

the apparatus comprises:

a determining unit, configured to determine, when a blockchain message is received, a priority identifier of the blockchain message;

an addition unit, configured to add the blockchain message to a message queue of blockchain messages having the same priority identifier;

a first obtaining unit, configured to obtain a to-be-transmitted blockchain message from the message queues based on a message transmission policy, the message transmission policy is configured to transmit a high-priority blockchain message first;

a second obtaining unit, configured to obtain identifier information comprised in the to-be-transmitted blockchain message, and determine, based on the identifier information, a blockchain node corresponding to the identifier information as a target blockchain node corresponding to the to-be-transmitted blockchain message;

a routing table generation unit, configured to generate a routing table for recording a blockchain node set to which each blockchain node pertains and a connection relationship between each blockchain node and the relay nodes, wherein the routing table is in the form of a tree-type routing table;

a relay-node determining unit, configured to determine, by querying the routing table, a target relay node connected to the target blockchain node in the blockchain relay communication network and, when the relay node is not directly connected to the target relay node, determine a transmission path between the relay node and the target relay node; and

a transmission unit, configured to transmit, based on the identifier information, the to-be-transmitted blockchain message to the target blockchain node through the target relay node, wherein when the relay node is not directly connected to the target relay node, the transmission unit is configured to send the to-be-transmitted blockchain message to a relay node at a next hop in the transmission path.

6. An electronic device, comprising:

a processor; and

a memory configured to store processor executable instructions, wherein

the processor executes the executable instructions to implement the method according to any one of claims 1 to 4.

7. A computer-readable storage medium, storing computer instructions, wherein the instructions are executed by a processor to implement the steps in the method according to any one of claims 1 to 4.