

CLAIMS

1. A computer-implemented method for executing a service, the method comprising:
 - receiving (S101), by a service platform and from each of multiple end-user devices, a
 5 respective qualification acquisition request for execution of the service;
 - randomly grouping, by the service platform, the qualification acquisition requests received
 from each of the multiple end-user devices into multiple batches;
 - for each batch in the multiple batches and based on the qualification acquisition requests
 in the batch, returning (S102), from the service platform and at a specified time interval for the
 10 batch, i) a qualification acquisition rule and ii) a result generation rule to end-user devices
 corresponding to the batch, wherein
 - a) a batch of end-user devices that first receive the qualification acquisition rule and
 result generation rule from the service platform i) generate a to-be-verified result corresponding to
 the result generation rule, ii) perform consensus processing on a preprocessing block that includes
 15 the to-be-verified result and a user identifier, and iii) write the preprocessing block as a blockchain
 block to a blockchain after a consensus is reached, and
 - b) subsequent batches of end user devices generate to-be-verified blocks according
 to the result generation rule and based on blocks generated by a previous batch of end-user devices,
 wherein blocks generated by each batch of end-user devices comprise header hashes of blocks
 20 generated by a previous batch of end-user devices;
 - in response to determining that the service satisfies a predetermined condition, obtaining
 (S103), by the service platform, a blockchain from at least one of the multiple end-user devices;
 - selecting (S103), by the service platform and from the blockchain, at least one block that
 satisfies the qualification acquisition rule; and
 - 25 executing (S104), by the service platform, the service for a user that corresponds to a user
 identifier included in the at least one block.

2. The method according to claim 1, wherein determining that the service satisfies a
 predetermined condition comprises either
 - 30 a) determining that the service satisfies the predetermined condition in response to
 determining that a specified time of the service arrives, or

b) obtaining the blockchain corresponding to the service from the at least one end-user device, determining the number of blocks included in the blockchain, and determining that the service satisfies the predetermined condition in response to determining that the number of blocks included in the blockchain is not less than the number of blocks that is specified for the service.

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3. The method according to claim 1, wherein selecting at least one block that satisfies the qualification acquisition rule comprises:

selecting a main chain from the blockchain; and

selecting the at least one block that satisfies the qualification acquisition rule from the main

10 chain.

4. The method according to claim 3, wherein selecting a main chain from the blockchain comprises selecting the longest chain in the blockchain as the main chain.

15 5. The method according to claim 1, wherein the selecting at least one block that satisfies the qualification acquisition rule comprises:

determining a location of each block in the blockchain; and

determining that a block satisfies the qualification acquisition rule in response to determining that the location of the block in the blockchain is specified in the qualification
20 acquisition rule.

6. The method according to claim 1, wherein the preprocessing block comprises a generation time of the to-be-verified result; and

wherein the selecting at least one block that satisfies the qualification acquisition rule from
25 the blockchain comprises i) determining, based on a generation time of a to-be-verified result included in each block in the blockchain, one or more blocks generated in a time period specified for the service and ii) selecting the at least one block that satisfies the qualification acquisition rule from the determined one or more blocks.

30 7. The method according to claim 1, wherein the method further comprises publishing the user identifier included in the at least one block.

8. A method for executing a service, the method comprising:

sending, by an end-user device and to a service platform, a qualification acquisition request for executing the service;

5 receiving, by the end-user device and from the service platform, a qualification acquisition rule and a result generation rule, wherein

i) the qualification acquisition rule and result generation rule are returned by the service platform based on the sent qualification acquisition request for execution of the service, and

10 ii) the qualification acquisition rule and result generation rule are received from the service platform in response to the service platform receiving multiple qualification acquisition requests for execution of the service from multiple end-user devices, randomly grouping the qualification acquisition requests into multiple batches, and returning the qualification acquisition rule and result generation rule to end-user devices in each batch of the multiple batches at a
15 specified time interval for the batch;

generating, by the end-user device, a corresponding to-be-verified result according to the result generation rule;

generating, by the end-user device, a preprocessing block that includes the to-be-verified result and a user identifier;

20 sending, from the end-user device, the preprocessing block to another end-user device, wherein the other end-user device performs consensus processing on the preprocessing block;

writing, by the end-user device, the preprocessing block as a blockchain block to a blockchain of the end-user device in response to determining that the other end-user device reaches a consensus on the preprocessing block, wherein the blockchain block comprises header hashes of
25 blocks generated by a previous batch of end-user devices; and

in response to receiving qualification confirmation information sent by the service platform, sending the blockchain from the end-user device to the service platform, wherein the service platform selects at least one block that satisfies the qualification acquisition rule from the blockchain and executes the service for a user that corresponds to a user identifier included in the
30 at least one block.

9. The method according to claim 8, wherein generating a preprocessing block that includes the to-be-verified result and a user identifier comprises:

generating the corresponding to-be-verified result according to the result generation rule;
and

5 generating the preprocessing block that includes the to-be-verified result, the user identifier, and a generation time of the to-be-verified result.

10. The method according to claim 8, wherein sending the preprocessing block to another end-user device comprises:

10 obtaining an address of the other end-user device from the service platform, wherein the address of the other end-user device is obtained from the other end-user device in response to the service platform receiving a qualification acquisition request for execution of the service sent by the other end-user device; and

15 sending the preprocessing block to the other end-user device based on the obtained address of the other end-user device.

11. The method according to claim 8, wherein the method further comprises:

obtaining at least one user identifier published by the service platform; and

20 verifying, based on the blockchain and the qualification acquisition rule, whether a user corresponding to the at least one user identifier is qualified to execute the service.

12. The method according to claim 8, wherein

25 a) when the other end-user device performs consensus processing on the preprocessing block, in response to determining that a consensus is reached on the preprocessing block, the other end-user device ignores or deletes preprocessing blocks sent by end-user devices and the other end-user device in the process of consensus processing on the preprocessing block instead of writing the preprocessing block as a blockchain block to the blockchain corresponding to the service and

30 b) the end-user device and other end-user device i) generate new to-be-verified results according to the result generation rule obtained from the service platform, ii) add the to-be-verified results to newly generated preprocessing blocks, and iii) send the newly generated processing

blocks to each end-user device in the consensus network for a consensus.

13. A device for executing a service, the device comprising:

a receiving module configured to receive, from each of multiple end-user devices, a
5 respective qualification acquisition request for execution of the service;

a return module configured to return, to end-user devices in each batch of multiple batches
of randomly grouped qualification acquisition requests and at a specified time interval for the batch,
a qualification acquisition rule and a result generation rule based on the qualification acquisition
request, wherein

10 a) a batch of end-user devices that first receive the qualification acquisition rule and
result generation rule from the service platform i) generate a to-be-verified result corresponding to
the result generation rule, ii) perform consensus processing on a preprocessing block that includes
the to-be-verified result and a user identifier, and iii) write the preprocessing block as a blockchain
block to a blockchain after a consensus is reached, and

15 b) subsequent batches of end user devices generate to-be-verified blocks according
to the result generation rule and based on blocks generated by a previous batch of end-user devices,
wherein blocks generated by each batch of end-user devices comprise header hashes of blocks
generated by a previous batch of end-user devices;

an acquisition module, configured to:

20 in response to determining that the service satisfies a predetermined condition,
obtain a blockchain from at least one of the multiple end-user devices; and

select, from the blockchain, at least one block that satisfies the qualification
acquisition rule; and

an execution module, configured to execute the service for a user that corresponds to a user
25 identifier included in the at least one block.

14. An end-user device comprising:

a sending module configured to send, to a service platform, a qualification acquisition
request for execution of a service;

30 a first receiving module configured to receive a qualification acquisition rule and a result
generation rule that are returned by the service platform based on the qualification acquisition

request, wherein the qualification acquisition rule and result generation rule are received from the service platform in response to the service platform receiving multiple qualification acquisition requests for execution of the service from multiple end-user devices, randomly grouping the qualification acquisition requests into multiple batches, and returning the qualification acquisition rule and result generation rule to end-user devices in each batch of the multiple batches at a specified time interval for the batch;

5 a result generation module configured to generate a corresponding to-be-verified result according to the result generation rule;

10 a preprocessing block generation module configured to generate a preprocessing block that includes the to-be-verified result and a user identifier, and send the preprocessing block to another end-user device, wherein the other end-user device performs consensus processing on the preprocessing block;

15 a write module configured to write the preprocessing block as a blockchain block to a blockchain comprised in the device in response to determining that the other end-user device reaches a consensus on the preprocessing block, wherein the blockchain block comprises header hashes of blocks generated by a previous batch of end-user devices; and

20 a second receiving module configured to, in response to receiving qualification confirmation information sent by the service platform, send the blockchain from the end-user device to the service platform, wherein the service platform selects at least one block that satisfies the qualification acquisition rule from the blockchain and executes the service for a user that corresponds to a user identifier included in the at least one block.