

The invention claimed is:

1. A method, comprising:

determining, by a processor, a pending request set, the pending request set including pending consensus requests of a blockchain consensus network;

obtaining, by the processor, the pending consensus requests from the pending request set to form a plurality of subsets, wherein each of the subsets comprises one or more respective pending consensus requests that are obtained from the pending request set, wherein at least one of the subsets comprises a plurality of pending consensus requests that are obtained from the pending request set;

determining, by the processor, a number of the subsets that are in a consensus stage in the blockchain consensus network; and

when the number of the subsets that are in the consensus stage is less than a preset concurrent number of the blockchain consensus network, issuing, by the processor, a consensus proposal for a new subset of the subsets to the blockchain consensus network to cause the new subset to enter the consensus stage to process the new subset's pending consensus requests, wherein the preset concurrent number is an upper limit of the number of the subsets that are permitted to be simultaneously in the consensus stage in the blockchain consensus network.

2. The method in claim 1, wherein after obtaining the pending consensus requests from the pending request set to form the subsets, the method further comprises:

assigning, by the processor, serial numbers to the subsets, wherein the serial numbers are continuously and monotonically increasing natural numbers.

3. The method in claim 2, wherein determining the number of the subsets that are in the consensus stage comprises:

determining, by the processor, a first serial number based on the serial numbers of the subsets that have completed the consensus stage;

determining, by the processor, a second serial number based on the serial numbers of the subsets that have entered the consensus stage; and

determining, by the processor, the number of the subsets that are in the consensus stage based on the first serial number and second serial number.

4. The method in claim 3, wherein:

determining, by the processor, the first serial number includes: determining the largest serial number of the serial numbers of the subsets that have completed the consensus stage to be the first serial number;

determining, by the processor, the second serial number includes: determining the largest serial number of the serial numbers of the subsets that have entered the consensus stage to be the second serial number; and

determining, by the processor, the number of the subsets that are in the consensus stage includes: determining a difference between the first serial number and the second serial number to be the number of the subsets that are in the consensus stage.

5. The method in claim 4, wherein issuing the consensus proposal for the new subset includes:

determining, by the processor, the new subset and a serial number of the new subset based on the second serial number.

6. The method in claim 5, wherein determining the serial number of the new subset includes:

incrementing, by the processor, the second serial number by one to serve as the serial number of the new subset.

7. The method in claim 5, wherein determining the new subset and the serial number of the new subset includes:

incrementing, by the processor, the second serial number by one to serve as the serial number of the new subset; and

determining, by the processor, the new subset based on the serial number of the new subset.

8. The method in claim 1, further comprising:

after issuing the consensus proposal for the new subset to the blockchain consensus network, re-determining, by the processor, the number of the subsets that are in the consensus stage.

9. The method in claim 1, wherein after issuing the consensus proposal for new subset to the blockchain consensus network, the method further comprises:

performing a consensus process for the new subset's pending consensus requests; and

when one or more preset conditions are satisfied, writing consensus results of the new subset's pending consensus requests into a blockchain to conclude the consensus stage.

10. The method in claim 9, wherein the one or more preset conditions are satisfied when the subsets with serial numbers less than a serial number of the new subset have completed the consensus phase.

11. The method in claim 9, further comprising:
after writing the consensus results, re-determining the number of the subsets that are in the consensus stage.

12. The method in claim 9, wherein writing the consensus results includes:
writing the consensus results into the blockchain according to a time sequence in which the new subset's pending consensus requests are received.

13. The method in claim 1, wherein the processor is associated with a primary node of the blockchain consensus network, and wherein the blockchain consensus network including the primary node and a plurality of replica nodes implements byzantine fault tolerance state machine replication.

14. A method, comprising:
determining, by a processor, a pending request set, the pending request set including pending consensus requests;
receiving a consensus proposal for a new subset, the new subset comprising one or more pending consensus requests;
after receiving the consensus proposal for the new subset, determining, by the processor, whether a number of subsets that are in the consensus stage is less than a preset concurrent number of the blockchain consensus network, wherein each of the subsets comprises one or more respective pending consensus requests obtained from the pending request set, wherein at least one of the subsets comprises a plurality of pending consensus requests that are obtained from the pending request set; and
if the number of the subsets that are in the consensus stage is less than the preset concurrent number of the blockchain consensus network, entering, by the processor, the new subset to the consensus stage to process the new subset's pending consensus requests.

15. The method in claim 14, wherein before determining whether the number of the subsets that are in the consensus stage is less than the preset concurrent number of the blockchain consensus network, the method further comprises:

determining, by the processor, the number of the subsets that are in the consensus stage.

16. The method in claim 14, wherein entering the new subset to the consensus stage to process the new subset's pending consensus requests includes:

performing a consensus process for the new subset's pending consensus requests; and

when one or more preset conditions are satisfied, writing consensus results of the new subset's pending consensus requests into a blockchain to conclude the consensus stage.

17. The method in claim 16, wherein the one or more preset conditions are satisfied when the subsets with assigned serial numbers less than an assigned serial number of the new subset have completed the consensus phase.

18. The method in claim 14, wherein the processor is associated with at least one of a plurality of replica nodes of the blockchain consensus network, wherein the blockchain consensus network including a primary node and the plurality of replica nodes implements byzantine fault tolerance state machine replication, and wherein when the number of the subsets that are in the consensus stage is greater than the preset concurrent number, the method comprises executing a view change protocol to change the primary node of the blockchain consensus network.

19. A system comprising a processor and a non-transitory computer-readable storage medium storing instructions that, when executed by the processor, cause the processor to perform a method, the method comprising:

determining a pending request set, the pending request set including one or more pending consensus requests of a blockchain consensus network;

obtaining the pending consensus requests from the pending request set to form a plurality of subsets, wherein each of the subsets comprises one or more respective pending consensus requests that are obtained from the pending request set, wherein at least one of the subsets comprises a plurality of pending consensus requests that are obtained from the pending request set;

determining a number of the subsets that are in a consensus stage in the blockchain consensus network; and

when the number of the subsets that are in the consensus stage is less than a preset concurrent number of the blockchain consensus network, issuing a consensus proposal for a new subset of the subsets to the blockchain consensus network to cause the new subset to enter the consensus stage to process the new subset's pending consensus requests, wherein the preset concurrent number is an upper limit of the number of the subsets that are permitted to be simultaneously in the consensus stage in the blockchain consensus network.

20. The system in claim 19, wherein after obtaining the pending consensus requests from the pending request set to form the subsets, the method further comprises:

assigning serial numbers to the subsets, wherein the serial numbers are continuously and monotonically increasing natural numbers.