CLAIMS

What is claimed is:

1. A graph data processing method, performed by computer devices distributed on computing nodes in a distributed computing node cluster, and comprising:

obtaining subgraph data divided from to-be-processed graph data;

performing a computation task on the subgraph data to obtain corresponding global data and local data;

writing the global data to a blockchain network, the global data in the blockchain network being updated by the distributed computing node cluster;

obtaining latest global data from the blockchain network; and

iteratively performing, according to the obtained latest global data and the local data, the computation task on the subgraph data, wherein a computation result obtained through the iterative computation converges to a stable value and until an iteration stopping condition is met;

wherein the method further comprises:

obtaining a first quantized value corresponding to a completed computation task of which corresponding blockchain data has been formed, wherein the first quantized value is a resource circulated and exchanged in the blockchain network;

obtaining second quantized values corresponding to completed computation tasks of which corresponding blockchain data is not formed, wherein a second quantized value is used for measuring a computing capacity of a computing node;

determining third quantized values corresponding to uncompleted computation tasks in the subgraph data, wherein a third quantized value is used for measuring a load status of a computing node;

obtaining a first sum of current second quantized values of the subgraph data, obtaining a second sum of current third quantized values of the subgraph data, and determining a contrast value of the second sum relative to the first sum;

when the contrast value is less than a minimum value of a specified range, exchanging the first quantized value of a current computing node for a corresponding graph node of a non-current computing node, to keep the contrast value within the specified range, wherein the subgraph data comprises graph nodes, and a graph node is used for representing a subject in the subgraph data;

when the contrast value is greater than a maximum value of the specified range, exchanging a graph node of the current computing node for a corresponding first quantized value of the non-current computing node, to keep the contrast value within the specified range.

2. The method according to claim 1, wherein the obtaining subgraph data divided from the to-be-processed graph data comprises:

obtaining task information that corresponds to the to-be-processed graph data and that is broadcast in the blockchain network; and

reading, according to the task information, a corresponding task-executable file and the subgraph data that is divided from the to-be-processed graph data; and

wherein the performing the computation task on the subgraph data to obtain the corresponding global data and the local data comprises:

performing the task-executable file, to perform the computation task on the subgraph data to obtain the corresponding global data and the local data.

3. The method according to claim 2, wherein the obtaining task information that corresponds to the to-be-processed graph data and that is broadcast in the blockchain network comprises:

regularly detecting the task information that corresponds to the to-be-processed graph data and that is broadcast in the blockchain network;

determining a load status of the current computing node in a case that the task information is detected; and

pulling the task information in a case that the load status of the current computing node meets a preset load condition.

4. The method according to claim 1, wherein the writing the global data to the blockchain network comprises:

creating a new block;

writing the global data to the created new block; and

adding, after the new block is verified by the blockchain network, the new block to the blockchain network.

5. The method according to claim 4, wherein the writing the global data to the created new block comprises: writing the global data and a corresponding computation task execution log to the new block; and

the method further comprises:

determining a faulty computing node and corresponding lost data according to the computation task execution log in the blockchain network;

determining a computing node participating in reconstructing the lost data;

obtaining, from the determined computing node, local data related to the faulty computing node; and

reconstructing the lost data according to the obtained local data.

6. The method according to claim 5, the method further comprising:

searching for local data related to the faulty computing node; and

sharing the found local data to the computing nodes participating in reconstructing the lost data, the shared local data being used for reconstructing the lost data.

7. The method according to claim 1, wherein the obtaining latest global data from the blockchain network comprises:

regularly detecting a quantity of blocks in the blockchain network;

obtaining, in a case that the quantity of blocks is increased, global data recorded in a new block; and

updating global data buffered locally according to the obtained global data.

8. The method according to claim 1, wherein a control node

obtains task information corresponding to the to-be-processed graph data;

creates a new block;

writes the task information to the new block;

adds, after the new block is verified by the blockchain network, the new block to the blockchain network; and

broadcasts the task information in the blockchain network.

9. The method according to claim 8, wherein the control node

receives a task adding instruction;

displays a task editing interface according to the task adding instruction; and

obtains the task information that corresponds to the to-be-processed graph data and that is

inputted to the task editing interface.

10. A graph data processing apparatus, comprising:

a computation management module, configured to obtain subgraph data divided from to-be-processed graph data, and perform a computation task on the subgraph data to obtain corresponding global data and local data; and

a communication module, configured to write the global data to a blockchain network, the global data in the blockchain network being updated by the distributed computing node cluster, and obtain latest global data from the blockchain network,

wherein the computation management module is further configured to iteratively perform, according to the obtained latest global data and the local data, the computation task on the subgraph data, wherein a computation result obtained through the iterative computation converges to a stable value and until an iteration stopping condition is met;

wherein the graph data processing apparatus further comprises:

a scheduling management module, configured to obtain a first quantized value corresponding to a completed computation task of which corresponding blockchain data has been formed, wherein the first quantized value is a resource circulated and exchanged in the blockchain network; obtain second quantized values corresponding to completed computation tasks of which corresponding blockchain data is not formed, wherein a second quantized value is used for measuring a computing capacity of a computing node; determine third quantized values corresponding to uncompleted computation tasks in the subgraph data, wherein a third quantized value is used for measuring a load status of a computing node; obtain a first sum of current second quantized values of the subgraph data, obtain a second sum of current third quantized values of the subgraph data, and determine a contrast value of the second sum relative to the first sum; when the contrast value is less than a minimum value of a specified range, exchange the first quantized value of a current computing node for a corresponding graph node of a non-current computing node, to keep the contrast value within the specified range, wherein the subgraph data comprises graph nodes, and a graph node is used for representing a subject in the subgraph data; when the contrast value is greater than a maximum value of the specified range, exchange a graph node of the current computing node for a corresponding first quantized value of the non-current computing node, to keep the contrast value within the specified range.

11. A distributed graph computing system, comprising a computing node and a control node, wherein

the control node is configured to: obtain task information corresponding to to-be-processed graph data; create a new block; write the task information to the new block; add, after the new block is verified by a blockchain network, the new block to the blockchain network; and broadcast the task information in the blockchain network; and

wherein the computing node is configured to: obtain the subgraph data divided from the to-be-processed graph data; perform the computation task on the subgraph data to obtain corresponding global data and local data; write the global data to the blockchain network, the global data of the blockchain network being updated by a distributed computing node cluster; obtain latest global data from the blockchain network; and iteratively perform, according to the obtained latest global data and the local data, the computation task on the subgraph data without obtaining the computation result until an iteration stopping condition is met; obtain a first quantized value corresponding to a completed computation task of which corresponding blockchain data has been formed, wherein the first quantized value is a resource circulated and exchanged in the blockchain network; obtain second quantized values corresponding to completed computation tasks of which corresponding blockchain data is not formed, wherein a second quantized value is used for measuring a computing capacity of a computing node; determine third quantized values corresponding to uncompleted computation tasks in the subgraph data, wherein a third quantized value is used for measuring a load status of a computing node; obtain a first sum of current second quantized values of the subgraph data, obtain a second sum of current third quantized values of the subgraph data, and determine a contrast value of the second sum relative to the first sum; when the contrast value is less than a minimum value of a specified range, exchange the first quantized value of a current computing node for a corresponding graph node of a non-current computing node, to keep the contrast value within the specified range, wherein the subgraph data comprises graph nodes, and a graph node is used for representing a subject in the subgraph data; when the contrast value is greater than a maximum value of the specified range, exchange a graph node of the current computing node for a corresponding first quantized value of the non-current computing node, to keep the contrast value within the specified range.

12. A computer-readable storage medium, storing a computer program, the computer program, when executed by a processor, causing the processor to perform operations of the method according to any one of claims 1 to 9.

13. A computer device, comprising a memory and a processor, the memory storing a computer program, the computer program, when executed by the processor, causing the processor to perform operations of the method according to any one of claims 1 to 9.