

What is claimed is:

1. A method of uploading blockchain data, from a sub-institution to a blockchain data storage area via a computer system having a corresponding sub-institution node group and a master institution node, wherein a corresponding master institution is the only one of these institutions authorized to upload data to the blockchain data storage area, characterized in that the method comprises the following steps:

- the sub-institution node group receiving a data upload request sent by the sub-institution;

- the sub-institution node group looking up a node in an idle state in the sub-institution node group according to the data upload request;

- the sub-institution node group receiving data uploaded by the sub-institution through the node in the idle state and uploading the received data to a blockchain temporary storage area; and

- the master institution node of the master institution corresponding to the sub-institution downloading the data uploaded by the sub-institution from the temporary storage area, and then uploading the downloaded data to a blockchain data storage area.

2. The method according to claim 1, wherein the sub-institution node group looking up the node in the idle state in the sub-institution node group according to the data upload request comprises:

- the sub-institution node group looking up a node in a normal working state in the sub-institution node group according to the data upload request;

- the sub-institution node group traversing the looked-up nodes in the normal working state according to a preset order; and

- if the currently traversed node in the normal working state is uploading data, the sub-institution node group continuing to traverse a next node in the normal working state according to the preset order, until the traversed node in the normal working state is in the idle state, and obtaining the node in the idle state.

3. The method according to claim 1, wherein prior to the uploading the received data to the blockchain temporary storage area, further comprising:

the sub-institution node group encrypting the data uploaded by the sub-institution by a first key, wherein the first key is generated according to a first key keycode provided by the master institution node.

4. The method according to claim 3, wherein the method further comprising:

the sub-institution node group generating a first random number;

the sub-institution node group sending a key calculation request to the master institution node of the master institution corresponding to the sub-institution;

the sub-institution node group receiving the first key keycode generated by the master institution node according to the key calculation request in accordance with a predetermined base point; and

the sub-institution node group generating the first key by the first random number and the first key keycode.

5. The method according to claim 1, wherein the master institution node of the master institution corresponding to the sub-institution downloading the data uploaded by the sub-institution from the temporary storage area, and then uploading the downloaded data to the blockchain data storage area comprises:

the master institution node of the master institution corresponding to the sub-institution detecting whether there is new data uploaded by the sub-institution node group in the blockchain temporary storage area;

when there is new data in the blockchain temporary storage area, the master institution node downloading the new data from the blockchain temporary storage area; and

the master institution node uploading the new data to the blockchain data storage area.

6. The method according to claim 5, wherein prior to the master institution node

uploading the new data to the blockchain data storage area, further comprising:
the master institution node decrypting the new data by a second key, wherein the second key is generated according to a second key keycode provided by the sub-institution node group.

7. The method according to claim 6, wherein the method further comprising:
the master institution node receiving a key calculation request sent by the node group, wherein the second key keycode generated by the sub-institution node group according to a predetermined base point is carried by the key calculation request;
the master institution node generating a second random number; and
the master institution node generating a second key according to the second key keycode and the second random number.

8. A system of uploading blockchain data from a sub-institution to a blockchain data storage area, comprising:
a sub-institution node group configured to receive a data upload request sent by a sub-institution; look up a node in an idle state in the sub-institution node group according to the data upload request; and receive data uploaded by the sub-institution through the node in the idle state, and upload data received to a blockchain temporary storage area; and
a master institution node of the master institution corresponding to the sub-institution configured to download the data uploaded by the sub-institution from the temporary storage and then upload the downloaded data to a blockchain data storage area,
wherein the corresponding master institution is the only one of these institutions authorized to upload data to the blockchain data storage area.

9. The system according to claim 8, wherein the sub-institution node group is further configured to look up a node in a normal working state in the sub-institution node group according to the data upload request; traverse the looked-up nodes in the normal working state according to a preset order; if the currently traversed node in

the normal working state is uploading data, continue to traverse a next node in the normal working state according to the preset order until the traversed node in the normal working state is in the idle state, and then obtain the node in the idle state.

10. A computer system comprising a sub-institution node group and a master institution node of a master institution corresponding to the sub-institution, wherein the master institution is the only of these institutions authorized to upload data to a blockchain data storage area;

the sub-institution node group comprises a plurality of nodes, the plurality of nodes comprises a first memory and one or more first processors, the first memory has computer-readable instructions stored therein characterized in that these computer-readable instructions,, when executed by the one or more first processors, cause the one or more first processors to perform:

receiving a data upload request sent by a sub-institution;

looking up a node in an idle state in the sub-institution node group according to the data upload request; and

receiving data uploaded by the sub-institution through the node in the idle state and then uploading the received data to a blockchain temporary storage area;

the master institution node of the master institution corresponding to the sub-institution comprises a second memory and one or more second processors, the second memory has computer-readable instructions stored therein which, when executed by the one or more second processors, cause the one or more second processors to perform:

downloading the data uploaded by the sub-institution from the temporary storage area, and then uploading the downloaded data to the blockchain data storage area.

11. The computer system according to claim 10, wherein the looking up the node in the idle state in the sub-institution node group according to the data upload request provided by the first processor when executing the computer-readable instructions

comprises:

- looking up a node in a normal working state in the sub-institution node group according to the data upload request;

- traversing the looked up nodes in the normal working state according to a preset order; and

- if the currently traversed node in the normal working state is uploading data, continuing to traverse a next node in the normal working state according to the preset order, until the traversed node in the normal working state is in the idle state, and obtaining the node in the idle state.

12. The computer system according to claim 10, wherein prior to uploading the received data to the blockchain temporary storage area provided by the first processor executing the computer-readable instructions, further comprising:

- encrypting the data uploaded by the sub-institution by a first key, wherein the first key is generated according to a first key keycode provided by the master institution node.

13. The computer system as claimed in claim 12, wherein the first processor further executes the computer-readable instructions to provide:

- generating a first random number;

- sending a key calculation request to the master institution node of the master institution corresponding to the sub-institution;

- receiving the first key keycode generated by the master institution node according to the key calculation request in accordance with a predetermined base point; and

- generating the first key by the first random number and the first key keycode.

14. The computer system according to claim 10, wherein the downloading the data uploaded by the sub-institution from the temporary storage area, and then uploading the downloaded data to the blockchain data storage area provided by the second

processor executing the computer-readable instructions comprises:

- detecting whether there is new data uploaded by the sub-institution node group in the blockchain temporary storage area; and

- when there is new data in the blockchain temporary storage area, downloading the new data from the blockchain temporary storage area; and

- uploading the new data to the blockchain data storage area.

15. The computer system according to claim 14, wherein prior to uploading the new data to the blockchain data storage area provided by the second processor executing the computer-readable instructions, further comprises:

- decrypting the new data by a second key, wherein the second key is generated according to a second key keycode provided by the sub-institution node group.

16. One or more non-transitory computer-readable storage medium having computer-readable instructions stored therein which, when executed by one or more first processors, causing the one or more first processors to perform an upload of blockchain data from a sub-institution to a blockchain data storage area via a computer system having a corresponding sub-institution node group and a master institution node, wherein a corresponding master institution is the only one of these institutions authorized to upload data to the blockchain data storage area, characterized in that the upload process comprises the following steps:

- receiving a data upload request sent by a sub-institution;

- looking up a node in an idle state in the sub-institution node group according to the data upload request; and

- receiving data uploaded by the sub-institution through the node in the idle state and then uploading the received data to a blockchain temporary storage area;

- when executed by one or more second processors, the computer-readable instructions cause the one or more second processors to provide:

downloading the data uploaded by the sub-institution from the temporary storage area, and then uploading the downloaded data to a blockchain data storage area.

17. The storage medium of claim 16, wherein the looking up the node in the idle state in the sub-institution node group according to the data upload request provided by the first processor executing the computer-readable instructions comprises:

- looking up a node in a normal working state in the sub-institution node group according to the data upload request;

- traversing the looked up nodes in the normal working state according to a preset order; and

- if the currently traversed node in the normal working state is uploading data, continuing to traverse a next node in the normal working state according to the preset order, until the traversed node in the normal working state is in the idle state, and obtaining the node in the idle state.