

blockchain-based data processing method and device, to solve a problem of how to share medical data.

[0006] The following technical solutions are adopted in the implementations of the present disclosure.

5 **[0007]** An implementation of the present disclosure provides a blockchain-based data processing method, including: receiving, by a blockchain node, service data to be stored, and determining a data attribute of the service data; and if the data attribute of the service data is a text type, encrypting, by the blockchain node, the service data by using a private key in a predetermined public-private key pair corresponding to a user
10 identifier included in the service data; or if the data attribute of the service data is an image type, determining, by the blockchain node, a digest of the service data, and encrypting the digest by using a private key in a predetermined public-private key pair corresponding to a user identifier included in the service data. The method further includes: storing the encrypted service data in a blockchain network comprising the
15 blockchain node; or if the data attribute of the service data is an image type, establishing, by the blockchain node, a mapping relationship between a digest and a data identifier of the service data; and storing the service data in a service database based on the mapping relationship.

[0008] An implementation of the present disclosure provides a blockchain-based
20 data processing method, including: receiving, by a blockchain node, service data to be stored, and determining a data attribute of the service data, wherein the service data is medical data; and processing, by the blockchain node, the service data based on a configured processing rule corresponding to the data attribute, and sending a processing result to another blockchain node in a blockchain network, so that the
25 processing result is stored in the blockchain network comprising the blockchain node. The processing, by the blockchain node, the service data based on a configured processing rule corresponding to the data attribute includes: if the data attribute of the medical data is a text type, encrypting the medical data by using a private key in a predetermined public-private key pair corresponding to a user identifier included in
30 the medical data; if the data attribute of the medical data is an image type, determining a digest of the medical data, and encrypting the digest by using a private key in a predetermined public-private key pair corresponding to a user identifier included in the medical data; or if the data attribute of the service data is an image type, establishing, by the blockchain node, a mapping relationship between a digest

and a data identifier of the service data, and storing the service data in a service database based on the mapping relationship.

[0009] An implementation of the present disclosure further provides a blockchain-based data processing device, including: a receiving unit, configured to receive service data to be stored, and determine a data attribute of the service data; and a processing unit, configured to: if the data attribute of the service data is a text type, encrypt the service data by using a private key in a predetermined public-private key pair corresponding to a user identifier included in the service data; or if the data attribute of the service data is an image type, determine a digest of the service data, and encrypt the digest by using a private key in a predetermined public-private key pair corresponding to a user identifier included in the service data; and store the encrypted service data in a blockchain network comprising the blockchain node; or if the data attribute of the service data is an image type, establish, by the blockchain node, a mapping relationship between a digest and a data identifier of the service data; and store the service data in a service database based on the mapping relationship.

[0010] An implementation of the present disclosure further provides a blockchain-based data processing device, including: a receiving unit, configured to receive service data to be stored, and determine a data attribute of the service data, wherein the service data is medical data; and a processing unit, configured to process the service data based on a configured processing rule corresponding to the data attribute, and send a processing result to another blockchain node in a blockchain network, so that the processing result is stored in the blockchain network comprising the blockchain node. The processing unit processes the service data based on a configured processing rule corresponding to the data attribute, includes: if the data attribute of the medical data is a text type, encrypting the medical data by using a private key in a predetermined public-private key pair corresponding to a user identifier included in the medical data; if the data attribute of the medical data is an image type, determining a digest of the medical data, and encrypting the digest by using a private key in a predetermined public-private key pair corresponding to a user identifier included in the medical data; or if the data attribute of the service data is an image type, establishing, by the blockchain node, a mapping relationship between a digest and a data identifier of the service data, and storing the service data in a service database based on the mapping relationship.

CLAIMS

What is claimed is:

1. A blockchain-based data processing method, comprising:

receiving, by a blockchain node, service data to be stored, and determining a data
5 attribute of the service data;

in response to determining that the data attribute of the service data is a text type, encrypting, by the blockchain node, the service data by using a private key in a predetermined public-private key pair corresponding to a user identifier comprised in the service data; or

10 in response to determining that the data attribute of the service data is an image type, determining, by the blockchain node, a digest of the service data; and encrypting the digest by using a private key in a predetermined public-private key pair corresponding to a user identifier comprised in the service data; and

storing the encrypted service data in a blockchain network comprising the
15 blockchain node; or

in response to determining that the data attribute of the service data is an image type, establishing, by the blockchain node, a mapping relationship between a digest and a data identifier of the service data; and storing the service data in a service database based on the mapping relationship.

20 2. The data processing method according to claim 1, wherein the method further comprises:

in response to determining that the data attribute of the service data is a text type, determining, by the blockchain node, a check value of a first block comprising the user identifier based on the user identifier comprised in the service data; and

25 storing, by the blockchain node, the check value and the service data in a second block; and storing the second block in a blockchain where the first block is located.

3. The data processing method according to either of claims 1 and 2, wherein the method further comprises:

receiving, by the blockchain node, a service data query request, wherein the
30 service data query request comprises a digital signature of a user who initiates a query and a queried user identifier;

authenticating, by the blockchain node, the user who initiates the query based on

the digital signature; and

sending, by the blockchain node, service data corresponding to the queried user identifier to the user who initiates the query when the authentication succeeds.

4. The data processing method according to claim 3, wherein the sending, by the
5 blockchain node, service data corresponding to the queried user identifier to the user who initiates the query comprises:

determining, by the blockchain node, service data access permission of the user who initiates the query; and

selecting, by the blockchain node, service data satisfying the access permission
10 from the service data corresponding to the queried user identifier; and sending the selected service data to the user who initiates the query.

5. The data processing method according to claim 3, wherein the sending, by the blockchain node, service data corresponding to the queried user identifier to the user who initiates the query comprises:

15 in response to determining that a data attribute of the queried service data comprised in the data query request is an image type, determining, by the blockchain node, a digest of the queried service data; and sending the digest to the service database; and

receiving, by the blockchain node, service data that is corresponding to the digest
20 and that is returned by the service database; verifying the received service data based on the digest; and sending the received service data to the user who initiates the query when the verification succeeds.

6. A blockchain-based data processing method, comprising:

receiving, by a blockchain node, service data to be stored, and determining a data
25 attribute of the service data, wherein the service data is medical data; and

processing, by the blockchain node, the service data based on a configured processing rule corresponding to the data attribute, and sending a processing result to another blockchain node in a blockchain network, so that the processing result is stored in the blockchain network comprising the blockchain node, wherein

30 the processing, by the blockchain node, the service data based on a configured processing rule corresponding to the data attribute comprises:

in response to determining that the data attribute of the medical data is a text type, encrypting the medical data by using a private key in a predetermined public-private key pair corresponding to a user identifier comprised in the medical data;

in response to determining that the data attribute of the medical data is an image type, determining a digest of the medical data; and encrypting the digest by using a private key in a predetermined public-private key pair corresponding to a user identifier comprised in the medical data; or

5 in response to determining that the data attribute of the service data is an image type, establishing, by the blockchain node, a mapping relationship between a digest and a data identifier of the service data; and storing the service data in a service database based on the mapping relationship.

7. A blockchain-based data processing device, comprising:

10 a receiving unit, configured to receive service data to be stored, and determine a data attribute of the service data; and

a processing unit, configured to: in response to determining that the data attribute of the service data is a text type, encrypt the service data by using a private key in a predetermined public-private key pair corresponding to a user identifier comprised in
15 the service data; or

in response to determining that the data attribute of the service data is an image type, determine a digest of the service data; and encrypt the digest by using a private key in a predetermined public-private key pair corresponding to a user identifier comprised in the service data; and

20 store the encrypted service data in a blockchain network comprising the blockchain node; or

in response to determining that the data attribute of the service data is an image type, establish, by the blockchain node, a mapping relationship between a digest and a data identifier of the service data; and store the service data in a service database
25 based on the mapping relationship.

8. The data processing device according to claim 7, wherein the data processing device further comprises a storage unit, wherein

the storage unit is configured to: in response to determining that the data attribute of the service data is a text type, determine a check value of a first block comprising
30 the user identifier based on the user identifier comprised in the service data; and

store the check value and the service data in a second block, and store the second block in a blockchain where the first block is located.

9. The data processing device according to either of claims 7 and 8, wherein the data processing device further comprises a verification unit and a sending unit,

wherein

the receiving unit is configured to receive a service data query request, wherein the service data query request comprises a digital signature of a user who initiates a query and a queried user identifier;

5 the verification unit is configured to authenticate the user who initiates the query based on the digital signature; and

the sending unit is configured to send service data corresponding to the queried user identifier to the user who initiates the query when the authentication succeeds.

10 10. The data processing device according to claim 9, wherein that the sending unit sends the service data corresponding to the queried user identifier to the user who initiates the query comprises:

determining service data access permission of the user who initiates the query; and

15 selecting service data satisfying the access permission from the service data corresponding to the queried user identifier; and sending the selected service data to the user who initiates the query.

11. The data processing device according to claim 9, wherein that the sending unit sends the service data corresponding to the queried user identifier to the user who initiates the query comprises:

20 in response to determining that a data attribute of the queried service data comprised in the data query request is an image type, determining a digest of the queried service data; and sending the digest to the service database; and

25 receiving service data that is corresponding to the digest and that is returned by the service database; verifying the received service data based on the digest; and sending the received service data to the user who initiates the query when the verification succeeds.

12. A blockchain-based data processing device, comprising:

a receiving unit, configured to receive service data to be stored, and determine a data attribute of the service data, wherein the service data is medical data; and

30 a processing unit, configured to process the service data based on a configured processing rule corresponding to the data attribute, and send a processing result to another blockchain node in a blockchain network, so that the processing result is stored in the blockchain network comprising the blockchain node, wherein

that the processing unit processes the service data based on a configured

processing rule corresponding to the data attribute comprises:

in response to determining that the data attribute of the medical data is a text type, encrypting the medical data by using a private key in a predetermined public-private key pair corresponding to a user identifier comprised in the medical data;

5 in response to determining that the data attribute of the medical data is an image type, determining a digest of the medical data; and encrypting the digest by using a private key in a predetermined public-private key pair corresponding to a user identifier comprised in the medical data; or

10 in response to determining that the data attribute of the service data is an image type, establishing, by the blockchain node, a mapping relationship between a digest and a data identifier of the service data; and storing the service data in a service database based on the mapping relationship.