CLAIMS

[Claim 1] A computer-implemented method for providing transaction data to a blockchain system for processing, the method comprising:

monitoring the transaction data in a computer system; and

based on the monitoring, asynchronously uploading the transaction data to the blockchain system,

wherein the transaction data include single-transaction data and multiple transaction data, and the method further comprises:

monitoring a status of the blockchain system; and

determining whether to upload the single-transaction data or the multiple transaction data based on the status of the blockchain system.

[Claim 2] The method of claim 1, further comprising:

determining a time for uploading the transaction data to the blockchain system.

[Claim 3] The method of any preceding claim, further comprising:

generating an aggregation of the multiple-transaction data when it is determined to upload the multiple-transaction data.

[Claim 4] The method of claim 3, wherein the generating the aggregation of the multiple-transaction data comprises:

removing a repeated feature of the multiple-transaction data.

[Claim 5] The method of claim 1, wherein monitoring the status of the blockchain system comprises:

monitoring at least one of a size of a data block of the blockchain system, a frequency of data uploading in the blockchain system, or a number of transactions processed by the blockchain system during a predetermined time period.

[Claim 6] The method of any preceding claim, further comprising:

receiving, from the blockchain system, a verification result that the transaction data is accurate, wherein the transaction data is verified by another computer system by obtaining the transaction data from the blockchain system and comparing the transaction data with its own transaction data.

[Claim 7] The method of claim 6, further comprising:

marking the transaction data as being verified in the computer system.

[Claim 8] The method of any one of claims 6 or 7, further comprising:

receiving, from the blockchain system, verified transaction data to generate bill information and payment information relating to the verified transaction data, wherein the bill information and the payment information are recorded in the blockchain system.

[Claim 9] The method of any preceding claim, wherein the blockchain system implements a consortium blockchain.

[Claim 10] A device for providing transaction data to a blockchain system for processing, comprising:

one or more processors; and

one or more computer-readable memories coupled to the one or more processors and having instructions stored thereon that are executable by the one or more processors to perform the method of any of claims 1 to 9.

[Claim 11] An apparatus for providing transaction data to a blockchain system for processing, the apparatus comprising a plurality of modules for performing the method of any of claims 1 to 9.

[Claim 12] A non-transitory computer-readable medium having stored therein instructions that, when executed by a processor of a device, cause the device to perform the method of any of claims 1 to 9.