I/We Claim:

1. A method for processing a blockchain transaction for executing a smart contract of a distributed application (dApp), comprising:

at a blockchain node of a blockchain for processing the blockchain transaction, receiving a transaction request from a management device, the transaction request indicating at least a transaction initiator, transaction content and a blockchain address of the smart contract, wherein the transaction request is a request for at least one function to be executed by the smart contract;

computing, based on the transaction content, a transaction fee for processing the transaction;

determining whether the transaction initiator is a sponsored user of the smart contract, wherein determining whether the transaction initiator is a sponsored user comprises at least one of:

determining whether the transaction request includes signature information that indicates a sponsored relationship between the transaction initiator and the smart contract preexists the transaction request, wherein the signature information is generated and added to the transaction request by the management device; and

determining whether the sponsored relationship between the transaction initiator and the smart contract is recorded on the blockchain; and

in response to determining that the transaction initiator is a sponsored user of the smart contract, determining a payment account for the smart contract from which the transaction fee is deducted based on the sponsored relationship, wherein the payment account was specified by an owner of the dApp.

2. The method according to claim 1, wherein determining whether the transaction initiator is a sponsored user of the smart contract includes determining whether the transaction request includes the signature information, further wherein the signature information is generated and added to the transaction request by the management device by signing the transaction content with a private key corresponding to the blockchain address of the smart contract in response to determining that the transaction initiator is a sponsored user of the smart contract based on a sponsor relationship between the transaction initiator and the smart contract stored at the management device or on the blockchain.

3. The method according to claim 2, wherein determining whether the transaction initiator is a sponsored user of the smart contract includes determining whether the transaction request includes the signature information

further wherein the signature information is generated and added to the transaction request by the management device

further in response to determining that a credit balance of the transaction initiator is greater than or equal to the transaction fee.

4. The method according to claim 1, further comprising:

in response to determining that the transaction initiator is not a sponsored user of the smart contract, determining whether a balance of a first account of the transaction initiator is greater than or equal to the transaction fee; and

in response to determining that the balance of the first account of the transaction initiator is greater than or equal to the transaction fee, determining the first account of the transaction initiator as the payment account.

5. The method according to claim 1, wherein determining a payment account from which the transaction fee is deducted comprises:

determining whether there is a sponsor account associated with the smart contract;

in response to determining that there is a sponsor account associated with the smart contract, determining whether a balance of the sponsor account is greater than or equal to the transaction fee; and

in response to determining that the balance of the sponsor account is greater than or equal to the transaction fee, determining the sponsor account as the payment account.

6. The method according to claim 5, wherein determining a payment account from which the transaction fee is deducted further comprises:

in response to determining that there is not a sponsor account associated with the smart contract or in response to determining that the balance of the sponsor account is less than the transaction fee, determining whether a balance of a second account of the smart contract is greater than or equal to the transaction fee; and

in response to determining that the balance of the second account of the smart contract is greater than or equal to the transaction fee, determining the second account of the smart contract as the payment account.

7. The method according to claim 6, wherein determining a payment account from which the transaction fee is deducted comprises:

in response to determining that the balance of the second account of the smart conttract is less than the transaction fee, determining whether balance of a first account of the transaction initiator is greater than or equal to the transaction fee; and

in response to determining that the balance of the first account of the transaction initiator is greater than or equal to the transaction fee, determining the first account of the transaction initiator as the payment account.

8. The method according to claim 7, further comprising:

in response to determining that the transaction content indicates a transfer transaction to transfer a transfer amount of cryptocurrency from the transaction initiator to a transaction recipient, determining whether balance of a third account of the transaction initiator is greater than or equal to the transfer amount; and

in response to determining that the balance of the third account of the transaction initiator is greater than or equal to the transfer amount, transferring the transfer amount of cryptocurrency from the third account of the transaction initiator to a fourth account of the transaction recipient.

9. The method according to claim 8, wherein the first account and the second account correspond to a first type of cryptocurrency, the third account and the fourth account correspond to a second type of cryptocurrency, and the first type is different from the second type.

10. The method according to claim 7, further comprising:

in response to determining that the transaction content indicates a transfer transaction to transfer a transfer amount of cryptocurrency from the transaction initiator to a transaction recipient, determining whether balance of the first account of the transaction initiator is greater than or equal to the transfer amount; and

in response to determining that the balance of the first account of the transaction initiator is greater than or equal to the transfer amount, transferring the transfer amount of cryptocurrency from the first account of the transaction initiator to the second account of the transaction recipient, wherein the first account, the second account and the transfer amount of cryptocurrency corresponding to a first type of cryptocurrency.

11. The method according to claim 1, wherein determining a payment account from which the transaction fee is deducted further comprises:

determining whether a credit balance of the transaction initiator is greater than or equal to the transaction fee based on credit information of the transaction initiator recorded on the blockchain or stored at the management device; and

in response to determining that the credit balance of the transaction initiator is greater than or equal to the transaction fee, determining the payment account from which the transaction fee is deducted.

12. The method according to claim 3 or 11, wherein the credit information indicates at least a credit limit and a used credit, and the credit balance is determined by

credit balance = credit limit – used credit.

13. The method according to claim 12, wherein the credit information further includes a credit restoring rate and a height of blocks, the credit restoring rate indicating an amount of credit to be restored by each block being passed, the height of blocks indicating a number of blocks passed from last time that the transaction recipient pays the transaction fee for the transaction initiator, and the credit balance is determined by

credit balance = credit limit – used credit + height of blocks * credit restoring rate.

14. The method according to claim 3 or 11, wherein the credit information indicates at least a credit payment number limit and a used credit payment number and the credit balance is determined by

credit balance = credit payment number limit – used credit payment number.

15. A method for managing a blockchain transaction for executing a smart contract of a distributed application (dApp), comprising:

at a management device for managing the blockchain transaction, receiving a request from a transaction initiator of the transaction, the request indicating at least the transaction initiator, transaction content and a blockchain address of the smart contract, wherein the transaction request is a request for at least one function to be executed by the smart contract;

determining whether the transaction initiator is a sponsored user of the smart contract, wherein determining whether the transaction initiator is a sponsored user of the smart contract comprises retrieving information, stored prior to the request, that indicates that a sponsored relationship exists between the transaction initiator and the smart contract; and

in response to determining that the transaction initiator is a sponsored user of the smart contract, forming a transaction request by generating and adding signature information to the received request, the signature information indicating that a transaction fee for a blockchain node of a blockchain processing the blockchain transaction is allowed to be deducted from a payment account associated with the smart contract, wherein the payment account was specified by an owner of the dApp.

16. The method according to claim 15, wherein determining whether the transaction initiator is a sponsored user of the smart contract comprises:

determining, based on a sponsor relationship between the transaction initiator and the smart contract stored at the management device, whether the transaction initiator is a sponsored user of the smart contract.

17. The method according to claim 15, wherein forming a transaction request by generating and adding the signature information to the received request comprises:

determining whether a credit balance of the transaction initiator is greater than or equal to the transaction fee based on credit information of the transaction initiator stored at the management device or recorded on the blockchain; and

in response to determining that the credit balance of the transaction initiator is greater than or equal to the transaction fee, generating and adding the signature information to the received request by signing the transaction content with a private key corresponding to the blockchain address of the smart contract.

18. The method according to claim 17, wherein the credit information indicates at least a credit limit and a used credit, and the credit balance is determined by

credit balance = credit limit – used credit.

19. The method according to claim 18, wherein the credit information further includes a credit restoring rate and a height of blocks, the credit restoring rate indicating an amount of credit to be restored by each block being passed, the height of blocks indicating a number of blocks passed from last time that the transaction recipient pays the transaction fee for the transaction initiator, and the credit balance is determined by

credit balance = credit limit – used credit + height of blocks * credit restoring rate.

20. The method according to claim 17, wherein the credit information indicates at least a credit payment number limit and a used credit payment number, and the credit balance is determined by

credit balance = credit payment number limit – used credit payment number.

21. A device for processing a blockchain transaction, the device comprising:

a memory configured to store one or more programs; and

a processing unit coupled to the memory and configured to execute said one or more programs to cause the device to perform the method according to any one of claims 1-14.

22. A device for managing a blockchain transaction, the device comprising:

a memory configured to store one or more programs; and

a processing unit coupled to the memory and configured to execute said one or more programs to cause the device to perform the method according to any one of claims 15-20.

23. A non-transitory computer readable storage medium on which machine executable instructions are stored, the machine executable instructions, when executed, causing a machine to perform the method according to any one of claims 1-20.

24. A computer program product which is tangibly stored on a non-transient computer readable medium and comprises machine executable instructions, the machine executable instructions, when executed, causing a machine to perform steps of the method according to any of claims 1-20.