

What Is Claimed Is:

1. A computer-implemented method for managing access to an account in a blockchain system, comprising:

receiving, by a node of the blockchain system, a request from a first account of the blockchain system to access a second account of the blockchain system, wherein the node implements a virtual machine that operates a permission fence and a smart contract, wherein the smart contract comprises an interface related to a function of the smart contract, wherein the first and second accounts are assigned account levels, and wherein the second account is associated with an account condition for accessing the second account;

determining, by the permission fence, an account level of the first account based on the request;

determining, by the permission fence, an account level of the second account;

determining, by the permission fence, an interface level of the interface;

determining, by the permission fence, whether the account level of the first account satisfies an account condition associated with the second account by determining whether the account level of the first account is higher than or equal to the account level of the second account and whether the account level of the first account is higher than or equal to the interface level of the interface; and

based on a determination, by the permission fence, that the account level of the first account satisfies the account condition associated with the second account, authorizing, by the permission fence, access from the first account to access the second account by permitting the first account to call a function through the interface.

2. The method of claim 1, wherein the request for accessing the second account further comprises a request for accessing the interface of the smart contract.

3. The method of claim 2, further comprising:

based on a determination, by the permission fence, that the account level of the first account is not higher than or equal to the interface level of the interface, denying the request for accessing the interface of the smart contract.

4. The method of claim 3, wherein the smart contract comprises a first interface having a first interface level and a second interface having a second interface level, the request for accessing the interface of the smart contract further comprises a first request for accessing the first interface and a second request for accessing the second interface, and the method further comprises at least one of:

based on a determination, by the permission fence, that the account level of the first account is higher than or equal to the account level of the second account and the account level of the first account is higher than or equal to the first interface level of the first interface, authorizing, by the permission fence, the first request access to the first interface of the smart contract; and

based on a determination, by the permission fence, that the account level of the first account is not higher than or equal to the account level of the second account or the account level of the first account is not higher than or equal to the second interface level of the second interface, denying the second request for accessing the second interface of the smart contract.

5. The method of claim 2, further comprising:

after a determination that the account level of the first account is higher than or equal to the account level of the second account, performing the determining whether the account level of the first account is higher than or equal to the interface level of the interface; and

based on a determination that the account level of the first account is higher than or equal to the interface level of the interface, authorizing, by the permission fence, access to the interface of the smart contract.

6. The method of claim 1, wherein

the account level of the first account comprises a public level, a protected level, or a privileged level; and

the account level of the second account comprises the public level, the protected level, or the privileged level.

7. The method of claim 6, wherein

the interface level comprises the public level, the protected level, or the privileged level.

8. The method of claim 7, wherein
the account level of the second account is the public level by default; and
the interface level is the public level by default.
9. The method of any proceeding claim, wherein the determining, by the permission fence,
the account level of the first account based on the request comprises:
determining an identity of the first account based on the request; and
determining the account level of the first account based on the determined identity.
10. A device for managing access to a smart contract in a blockchain system, the device 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.
11. An apparatus for managing access to a smart contract in a blockchain system, the
apparatus comprising a plurality of modules for performing the method of any of claims 1 to 9.
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.