

WHAT IS CLAIMED IS:

1 1. A method comprising:
2 receiving, by a data processing computer from a network processing
3 computer, an authorization request message for an interaction initiated using a
4 communication device operated by a user, the authorization request message
5 comprising a user device identifier, which is associated with the communication device
6 and with a first token to be used for the interaction among a plurality of tokens
7 associated with the user device identifier, addition method data for the interaction, and
8 an amount for the interaction, the plurality of tokens being stored at the communication
9 device and being respectively associated with a plurality of interaction types different
10 from one another, wherein the user device identifier having been determined by the
11 network processing computer using the first token associated with a first interaction type
12 of the plurality of interaction types and with a set of predetermined addition methods
13 comprising a first addition method indicating to use a user account maintained by the
14 data processing computer or an authorizing entity computer and a second addition
15 method indicating to use an additional account maintained by a computer different from
16 the data processing computer;
17 verifying, by the data processing computer, the user device identifier, by
18 comparing the user device identifier with a stored user device identifier stored in a
19 database of the data processing computer and determining that the user device
20 identifier matches the stored user device identifier;
21 based on the verifying the user device identifier, determining, by the data
22 processing computer using the addition method data, to use the first addition method;
23 determining, by the data processing computer, whether the user account
24 includes a stored amount that exceeds the amount; and
25 performing, by the data processing computer, one from among:
26 if the stored amount exceeds the amount, applying the
27 amount to the user account, and
28 if the stored amount does not exceed the amount,
29 determining that the second addition method is to be used and applying at
30 least a portion of the amount to the additional account.

1 2. The method of claim 1, wherein the stored amount exceeds the
2 amount, the first addition method indicates to use the user account maintained by the
3 data processing computer, and the method further comprises:

4 authorizing, by the data processing computer, the interaction.

1 3. The method of claim 2, further comprising:
2 generating, by the data processing computer, an authorization response
3 message comprising the user device identifier; and

4 providing, by the data processing computer, the authorization response
5 message to the network processing computer as a response to the authorization
6 request message.

1 4. The method of claim 1, wherein the stored amount exceeds the
2 amount, wherein the first addition method indicates to use the user account maintained
3 by the authorizing entity computer, wherein the authorization request message is a first
4 authorization request message, and wherein the method further comprises:

5 based on the first addition method, obtaining, by the data processing
6 computer, a second token associated with the user device identifier, wherein the second
7 token is obtained from a database;

8 generating, by the data processing computer, a second authorization
9 request message comprising the second token and the amount; and

10 providing, by the data processing computer, the second authorization
11 request message to the network processing computer.

1 5. The method of claim 4, further comprising:
2 inserting, by the network processing computer, the user device identifier
3 into the second authorization request message;

4 transmitting, by the data processing computer, the second authorization
5 request message to the authorizing entity computer, wherein the authorizing entity
6 computer determines whether or not to authorize the interaction, generates an
7 authorization response message comprising an indication of whether or not the

8 interaction is authorized, and provides the authorization response message to the data
9 processing computer; and
10 receiving, by the data processing computer, the authorization response
11 message from the authorizing entity computer.

1 6. The method of claim 1, wherein the authorization request message
2 is a first authorization request message and wherein the method further comprises:
3 based on the first addition method, obtaining, by the data processing
4 computer, a second token associated with the user device identifier, wherein the second
5 token is obtained from a database;
6 generating, by the data processing computer, a second authorization
7 request message comprising the second token and the amount; and
8 providing, by the data processing computer, the second authorization
9 request message to the network processing computer.

1 7. The method of claim 1, wherein the stored amount does not
2 exceed the amount and the method further comprises:
3 based on the second addition method, obtaining, by the data processing
4 computer, an additional account number using the user device identifier, the additional
5 account number identifying an originating account maintained by the computer in an
6 exchange network on behalf of the user, the originating account being the additional
7 account;
8 obtaining, by the data processing computer, a receiving account number
9 that identifies a receiving account maintained by the data processing computer on
10 behalf of the user;
11 generating, by the data processing computer, an exchange request
12 message comprising the amount, the receiving account number, and the additional
13 account number;
14 providing, by the data processing computer, the exchange request
15 message to the exchange network; and
16 receiving, by the data processing computer, an exchange response
17 message indicating whether or not the interaction is authorized.

1 8. The method of claim 7 further comprising:
2 generating, by the data processing computer, an authorization response
3 message comprising an indication of whether or not the interaction is authorized; and
4 providing, by the data processing computer, the authorization response
5 message to the network processing computer.

1 9. The method of claim 1, wherein the user device identifier is an
2 interaction card number.

1 10. A data processing computer comprising:
2 a processor; and
3 a computer-readable medium coupled to the processor, the computer-
4 readable medium comprising code executable by the processor for implementing
5 operations comprising:
6 receiving, from a network processing computer, an authorization request
7 message for an interaction initiated using a communication device operated by a user,
8 the authorization request message comprising a user device identifier, which is
9 associated with the communication device and with a first token to be used for the
10 interaction among a plurality of tokens associated with the user device identifier,
11 addition method data for the interaction, and an amount for the interaction, the plurality
12 of tokens being stored at the communication device and being respectively associated
13 with a plurality of interaction types different from one another, wherein the user device
14 identifier having been determined by the network processing computer using the first
15 token associated with a first interaction type of the plurality of interaction types and with
16 a set of predetermined addition methods comprising a first addition method indicating to
17 use a user account maintained by the data processing computer or an authorizing entity
18 computer and a second addition method indicating to use an additional account
19 maintained by a computer different from the data processing computer;
20 verifying the user device identifier, by comparing the user device identifier
21 with a stored user device identifier stored in a database of the data processing

22 computer and determining that the user device identifier matches the stored user device
23 identifier;
24 based on the verifying the user device identifier, determining, using the
25 addition method data, to use the first addition method;
26 determining whether the user account includes a stored amount that
27 exceeds the amount; and
28 performing one from among:
29 if the stored amount exceeds the amount, applying the
30 amount to the user account, and
31 if the stored amount does not exceed the amount, determining that
32 the second addition method is to be used and applying at least a portion of the
33 amount to the additional account.

1 11. The data processing computer of claim 10, wherein the stored
2 amount exceeds the amount, the first addition method indicates to use the user account
3 maintained by the data processing computer, and the operations further include:
4 authorizing the interaction;
5 generating an authorization response message comprising the user
6 device identifier; and
7 providing the authorization response message to the network processing
8 computer as a response to the authorization request message.

1 12. The data processing computer of claim 10, wherein the stored
2 amount exceeds the amount, wherein the authorization request message is a first
3 authorization request message, and wherein the operations further include:
4 based on the first addition method, obtaining a second token associated
5 with the user device identifier, wherein the second token is obtained from a database;
6 generating a second authorization request message comprising the
7 second token and the amount;
8 providing the second authorization request message to the network
9 processing computer;

10 inserting the user device identifier into the second authorization request
11 message;
12 transmitting the second authorization request message to the authorizing
13 entity computer; and
14 receiving an authorization response message comprising an indication of
15 whether or not the interaction is authorized from the authorizing entity computer.

1 13. The data processing computer of claim 10, wherein the stored
2 amount does not exceed the amount and the operations further include:
3 based on the second addition method, obtaining an additional account
4 number using the user device identifier, the additional account number identifying an
5 originating account maintained by the computer in an exchange network on behalf of
6 the user, the originating account being the additional account;
7 obtaining a receiving account number that identifies a receiving account
8 maintained by the data processing computer on behalf of the user;
9 generating an exchange request message comprising the amount, the
10 receiving account number, and the additional account number;
11 providing the exchange request message to the exchange network;
12 receiving an exchange response message indicating whether or not the
13 interaction is authorized;
14 generating an authorization response message comprising an indication of
15 whether or not the interaction is authorized; and
16 providing the authorization response message to the network processing
17 computer.

1 14. The data processing computer of claim 13, wherein the exchange
2 network is a blockchain network and wherein the exchange response message includes
3 an indication of whether or not data representing the interaction is included in a block
4 that is added to a blockchain maintained by the exchange network.

1 15. The data processing computer of claim 14, wherein the data
2 processing computer is a node in the blockchain network.

1 16. The data processing computer of claim 10, wherein the user
2 device identifier is a user account number that identifies the user account maintained by
3 the data processing computer on behalf of the user of the communication device
4 performing the interaction with a resource provider computer.

1 17. The data processing computer of claim 10, wherein the
2 authorization request message includes interaction data created by a resource provider
3 computer.

1 18. A method comprising:
2 receiving, by a service provider application on a communication device, a
3 selection of a user device identifier to conduct an interaction from a user, wherein the
4 user device identifier is associated with the communication device and with a first token
5 to be used for the interaction among a plurality of tokens associated with the user
6 device identifier;
7 presenting, by the service provider application, options for the user of the
8 communication device to select an interaction type from a plurality of interaction types;
9 receiving, by the service provider application, a selection of a first
10 interaction type from the user, the first interaction type being included in the plurality of
11 interaction types;
12 presenting, by the service provider application, a plurality of addition
13 methods associated with the first interaction type, the plurality of addition methods
14 comprising a first addition method indicating to use a user account maintained by a data
15 processing computer and a second addition method indicating to use an additional
16 account maintained by a computer different from the data processing computer; and
17 receiving, by the service provider application, a selection of the first
18 addition method associated with the first interaction type,
19 wherein the data processing computer receives an authorization
20 request message for the interaction, the authorization request message
21 comprising the user device identifier, addition method data indicating to use the
22 first addition method, and an amount for the interaction, verifies the user device

23 identifier, by comparing the user device identifier with a stored user device
24 identifier stored in a database of the data processing computer and determining
25 that the user device identifier matches the stored user device identifier,
26 determines whether the user account includes a stored amount that exceeds the
27 amount, and performs one from among:

28 (1) if the stored amount exceeds the amount, the data processing
29 computer applies the amount to the user account, and

30 (2) if the stored amount does not exceed the amount, the data processing
31 computer determines that the second addition method is to be used and applies at least
32 a portion of the amount to the additional account.

1 19. The method of claim 18, wherein after receiving the first addition
2 method associated with the first interaction type, the method further comprises:
3 retrieving, by the service provider application, the first token associated
4 with the first interaction type from a memory of the communication device.

1 20. The method of claim 18, wherein the service provider application is
2 programmed to use the plurality of addition methods in a particular order.