

MULTIPLE LEVEL PROCESSING USING MACHINE-READABLE CODE

CROSS-REFERENCES TO RELATED APPLICATIONS

[0001] None.

BACKGROUND

- 10 **[0002]** Existing infrastructure for conducting transactions with machine-readable code tends to cause barriers to entry for the use of such technology (e.g., additional account creation, registrations, costs, etc.). Further, existing implementations that use machine-readable codes for conducting transactions for resources tend to not have much configuration ability.
- 15 **[0003]** Embodiments of the disclosure address these problems and other problems individually and collectively.

BRIEF SUMMARY

- [0004]** One embodiment of the invention includes techniques comprising capturing, by the user device comprising a transfer application, a machine-readable code, the
- 20 machine-readable code encoding primary account data associated with a main resource provider and secondary account data associated with a subordinate resource provider. The techniques further comprise decoding, by the user device, the machine-readable code to obtain the primary account data associated with the main resource provider and the secondary account data associated with the
- 25 subordinate resource provider. The techniques further comprise generating, by the user device, a transaction request message comprising a transaction amount, the primary account data associated with the main resource provider, and the secondary account data associated with a subordinate resource provider. The techniques further comprise transmitting, by the user device, the transaction request message to
- 30 an application server computer associated with the transfer application. The

application server computer initiates a first transfer of a first interaction value from a user account associated with the user device and maintained by a first account management computer to a main resource provider account associated with the main resource provider. The main resource provider account is managed by a
5 second account management computer. The main resource provider subsequently initiates a second transfer of a second interaction value from the main resource provider account to a subordinate resource provider account managed by a third account management computer.

[0005] One embodiment of the invention includes techniques comprising receiving
10 a transaction request message from a user device comprising a transfer application, the transaction request message comprising a transaction amount, primary account data associated with a main resource provider and secondary account data associated with a subordinate resource provider. The techniques further comprising initiating a first transfer of a first interaction value from a user account associated
15 with the user device and maintained by a first account management computer to a main resource provider account associated with the main resource provider. The main resource provider account is managed by a second account management computer, and the main resource provider subsequently initiates a second transfer of a second interaction value from the main resource provider account to a subordinate
20 resource provider account managed by a third account management computer.

[0006] These and other embodiments are described in further detail below.

TERMS

[0007] A “machine-readable code” may be any encoded image readable by a communication device or any other computing device. The machine-readable code
25 can be read by a device by, e.g., scanning the code with a camera device that is part of, or attached to, the device. An example of a machine-readable code is a quick response code (QR code).

[0008] A “user device” may be a device that is operated by a user. Examples of user devices may include a mobile phone, a smartphone, a laptop computer, a
30 desktop computer, a server computer, a vehicle such as an automobile, a thin-client device, a tablet PC, etc. Additionally, user devices may be any type of wearable technology device, such as a watch, glasses, etc. The user device may include one

or more processors capable of processing user input. The user device may also include one or more input sensors for receiving user input and/or reading a machine-readable code. As is known in the art, there are a variety of input sensors capable of detecting user input, such as accelerometers, cameras, microphones, etc. The user
5 input obtained by the input sensors may be from a variety of data input types, including, but not limited to, audio data, visual data, or biometric data. The user device may comprise any electronic device that may be operated by a user, which may also provide remote communication capabilities to a network. Examples of remote communication capabilities include using a mobile phone (wireless) network,
10 wireless data network (e.g., 3G, 4G, or similar networks), Wi-Fi, Wi-Max, or any other communication medium that may provide access to a network such as the Internet or a private network.

[0009] A “user” may include an individual. In some embodiments, a user may be associated with one or more personal accounts and/or mobile devices. The user
15 may also be referred to as a cardholder, account holder, or consumer in some embodiments.

[0010] A “resource” can be something of value to a user. A resource, for example, can include digital items and/or physical items. A resource can be an obtainable item. A resource can be owned by an entity. A resource can be a physical item
20 such as goods. A resource can be a service that is provided by a merchant. A resource can be a digital item such as non-fungible tokens, secure data, etc. Another example of a resource is access to a secure or otherwise access-controlled location.

BRIEF DESCRIPTION OF THE DRAWINGS

25 **[0011]** FIG. 1 shows a block diagram of a system, according to an embodiment.

[0012] FIG. 2 shows a block diagram of a resource provider device, according to an embodiment.

[0013] FIG. 3 shows a block diagram of a user device, according to an embodiment.

30 **[0014]** FIGS. 4A-C show a machine-readable code being generated by a main resource provider for a subordinate resource provider, according to an embodiment.

[0015] FIG. 5 shows a point of sale device displaying a machine-readable code usable in a payment transaction, according to an embodiment.

[0016] FIG. 6 shows a block diagram of information included in a machine-readable code, according to an embodiment.

5 **[0017]** FIG. 7 shows a block diagram of a relationship between a main resource provider and subordinate resource providers, according to an embodiment.

[0018] FIG. 8 shows a flow diagram illustrating generation of a machine-readable code and use of the machine-readable code, according to an embodiment.

DETAILED DESCRIPTION OF THE INVENTION

10 **[0019]** As described above in the Summary, embodiments of the present disclosure are directed to techniques that enable a subordinate resource provider to use a machine-readable code that is associated with the account of the subordinate resource provider and a main resource provider so that the subordinate resource provider may conduct transactions with users.

15 **[0020]** FIG. 1 shows a block diagram of a system 100, according to an embodiment.

[0021] System 100 includes a main resource provider device 102, a subordinate resource provider device 104, a machine-readable code 106, a user device 108, an application server computer 112, a first account management computer 114, a
20 processing computer 118, a second account management computer 116, a third account management computer 120, and a user 110.

[0022] The main resource provider device 102 may be associated with a main resource provider, and the subordinate resource provider device 104 may be associated with a subordinate resource provider. The main resource provider could
25 be an organizer that operates a physical marketplace such as a food court, while the subordinate resource provider can be a vendor such as a restaurant that operates in the food court.

[0023] Each of the devices and computers may be in operative communication with each other. For simplicity of illustration, a certain number of components are shown

in system 100. It is understood, however, embodiments of the invention may include more or less components that are illustrated shown in system 100.

[0024] The devices and computers in the system 100 can communicate with one another using a communication network or line (not pictured). The communication
5 network or line can take any suitable form, and may include any one and/or the combination of the following: a direct connection or interconnection; the Internet; a Local Area Network (LAN); a Metropolitan Area Network (MAN); an operating Missions as Nodes on the Internet (OMNI); a cellular network, a secured custom connection; a Wide Area Network (WAN); a wireless network (e.g., employing
10 protocols such as, but not limited to a Wireless Application Protocol (WAP), I-mode, and/or the like); and/or the like. Messages between the computers and devices in system 100 may be transmitted using a communication protocol such as, but not limited to, File Transfer Protocol (FTP); Hypertext Transfer Protocol (HTTP); Secure Hypertext Transfer Protocol (HTTPS); Secure Socket Layer (SSL), ISO (e.g., ISO
15 8583) and/or the like.

[0025] The user 110 may operate the user device 108 to obtain a resource from a subordinate resource provider that provides a machine-readable code 106 to the user 110. The user device 108 may be running a transfer application (e.g., banking app, digital wallet, etc.). The user device 108 can read the machine-readable code
20 106 presented by a subordinate resource provider (e.g., the machine-readable code 106 is printed on a piece of paper) or a subordinate resource provider device 104 (e.g., the machine-readable code 106 is displayed on a screen of the subordinate resource provider device 104). The user device 108 may capture the machine-readable code 106 using a camera or scanning device of the user device 108.
25 Further, the user device 108 may decode the machine-readable code 106 to obtain transaction information. The user device 108 may use the transaction information to generate a transaction request message. The transaction request message may include a first interaction value (e.g., currency amount, cryptocurrency amount, etc.), primary account data associated with the main resource provider, and/or secondary
30 account information associated with the subordinate resource provider.

[0026] The user device 108 may transmit the transaction request message to an application server computer 112. The application server computer 112 may be associated with the transfer application running on the user device 108.

5 **[0027]** The application server computer 112 may initiate a first transfer of the first interaction value from a user account associated with the user device 108 (e.g., associated with the user 110 of the user device 108, associated with the transfer application running on the user device 108) and maintained by first account management computer 114 (e.g., user's 110 bank computer) to a second account management computer 116 via a processing computer 118.

10 **[0028]** The second account management computer 116 may manage a main resource provider account associated with the main resource provider.

[0029] The processing computer 118 may be communicatively coupled to the first account management computer 114, the second account management computer 116, and a third account management computer 120. The second account
15 management computer 116 may be configured to initiate a transfer transaction to the third account management computer 120 via the processing computer 118.

[0030] The main resource provider device 102 may initiate (e.g., subsequent to a transaction from the first account management 114) a second transfer of a second interaction value from the main resource provider account (e.g., maintained by the
20 second account management computer 116) to the third account management computer 120 via the processing computer 118.

[0031] The processing computer 118 could comprise a computer that is part of a payment processing network). The payment processing network may include data processing subsystems, networks, and operations used to support and deliver
25 authorization services, exception file services, and clearing and settlement services. An exemplary payment processing network may include VisaNet™. Payment processing networks such as VisaNet™ are able to process credit card transactions, debit card transactions, and other types of commercial transactions. VisaNet™, in particular, includes a VIP system (Visa Integrated Payments system) which
30 processes authorization requests and a Base II system which performs clearing and settlement services. The payment processing network may use any suitable wired or wireless network, including the Internet.

[0032] The third account management computer 120 may manage the subordinate resource provider account.

[0033] In some embodiments that do not involve financial transactions, the system 100 can allow a user 110 of the user device 108 to access files or a secure physical location. In such embodiments, the user device 108 may request access to a resource (e.g., a resource of the subordinate resource provider) by using the at least a portion of the information included in the machine-readable code 106. The main resource provider may be provided with information about the user 110 accessing the resource and the main resource provider may share all or a portion of that data with the subordinate resource provider. Such an embodiment may allow for a main resource provider to act as a data broker or a trusted party for the collection of data.

[0034] FIG. 2 shows a block diagram of a resource provider device 202, according to an embodiment.

[0035] The resource provider device 202 may be a device associated with a main resource provider or a subordinate resource provider. The resource provider device 202 may be capable of generating and/or displaying a machine-readable code.

[0036] In some embodiments, a main resource provider generates a machine-readable code using the resource provider device 202 and displays the machine-readable code using the resource provider device 202. In some embodiments, a main resource provider generates a machine-readable code using a first resource provider device 202 for a subordinate resource provider to display on a second resource provider device 202 that is different from the first resource provider device 202. In some embodiments, the main resource provider generates a machine-readable code using the first resource provider device 202 and the subordinate resource provider alters (e.g., add price information or other transaction information) the generated machine-readable code using the second resource provider device 202 before the machine-readable code is displayed (e.g., displayed using the second resource provider device 202).

[0037] The resource provider device 202 includes a processor 204, a display 206, an input device 208, a speaker 210, a memory 212, and a computer-readable medium 214.

[0038] Processor 204 may be any suitable processor operable to carry out instructions on the resource provider device 202. The processor 204 is coupled to other units of the resource provider device 202 including the display 206, the input device 208, the speaker 210, the memory 212, and the computer-readable medium 214.

[0039] The display 206 may be any device that displays information to a user. Examples may include an LCD screen, CRT monitor, or seven-segment display.

[0040] The input device 208 may be any device that accepts input from a user. Examples may include a keyboard, keypad, mouse, or microphone. In the case of a microphone, the microphone may be any device that converts sound to an electric signal. In some embodiments, the microphone may be used to capture one or more voice segments from a user.

[0041] The speaker 210 may be any device that outputs sound to a user. Examples may include a built-in speaker 210 or any other device that produces sound in response to an electrical audio signal. In some embodiments, speaker 210 may be used to request the user for a voice sample for purposes of authentication.

[0042] The memory 212 may be any magnetic, electronic, or optical memory. It can be appreciated that the memory 212 may include any number of memory modules. An example of memory 212 may be dynamic random access memory (DRAM).

[0043] The computer-readable medium 214 may be any magnetic, electronic, optical, or other computer-readable medium. The computer-readable medium 214 may comprise any combination of volatile and/or non-volatile memory such as, for example, buffer memory, RAM, DRAM, ROM, flash, or any other suitable memory device, alone or in combination with other data storage devices. Computer-readable medium 214 includes a mobile application 216 and a machine-readable code generation module 218.

[0044] Mobile application 216 can be any application executable by processor 204 on the resource provider device 202. In some embodiments, the mobile application 216 can be a secure application for facilitating payment transactions using the resource provider device 202. For example, the mobile application 216 can be a

digital wallet application. The mobile application 216 may be capable of interfacing with an application server computer.

5 **[0045]** The mobile application 216 may be used at least to obtain subordinate resource provider account information, obtain main resource provider account information, generate a machine-readable code, alter a machine-readable code, create a subordinate resource provider profile, transmit a machine-readable code to a subordinate resource provide, and/or decode a machine-readable code.

10 **[0046]** The mobile application 216 may also be configured to obtain the account information of an account associated with the resource provider device 202 from the memory of the resource provider device 202. As an example, a main resource provider may be using the resource provider device 202 to generate a machine-readable code and therefore, the resource provider device 202 may have the account information for the main resource provider stored in memory 212 of the resource provider device 202. Similarly, the subordinate resource provider account
15 information may be stored in the memory 212 of the resource provider device 202 that the subordinate resource provider is using.

20 **[0047]** Subordinate resource provider account information and/or main resource provider account information may be obtained via the input device (e.g., keyboard, chip reader, etc.) or requesting the information from an account management computer.

25 **[0048]** Machine-readable code generation module 218 may be configured to generate a machine-readable code such as a QR code. The machine-readable code generation module 218 may be configured to interface with the mobile application 216 to generate and/or alter a machine-readable code that can be scanned by a user device.

30 **[0049]** For example, the generated machine-readable code can include the subordinate resource provider account information, the main resource provider account information, and/or an indication of the subordinate resource provider profile, as obtained by the mobile application 216. The generated machine-readable code may further include other any other information pertinent to a transaction (e.g., a transaction amount (e.g., \$1, 1 Bitcoin, etc.), a cryptogram).

[0050] The mobile application 216 may further comprise a trusted service manager to manage the relationships between a main resource provider and one or more subordinate resource providers.

[0051] In certain embodiments, the computer readable medium may include a machine-readable code reader module 324. The machine-readable code reader module 324 may be configured to read and interpret a machine-readable code. The machine-readable code reader module 324 may be configured to interface with a device camera (not shown in the illustrated resource provider device 202 embodiment) or data representing a machine-readable code stored in the memory 212 of the resource provider device 202. The machine-readable code reader module 324 may be capable of reading a machine-readable code that has been generated previously (e.g., by a main resource provider and for the subordinate resource provider) so that the machine-readable code generation module 218 may alter the machine-readable code by editing information included in the machine-readable code. For example, a resource provider device 202 used by a subordinate resource provider may use a machine-readable code generated by a main resource provider and add additional or change transaction information capable of being represented by the machine-readable code, such as a transaction amount (e.g., a currency amount, a random number).

[0052] A random number or cryptogram may be included in the machine-readable code generated by a main resource provider and/or subordinate resource provider to verify that certain information encoded in the machine-readable code has not changed impermissibly.

[0053] FIG. 3 shows a block diagram of a user device 302, according to an embodiment.

User device 302 includes a processor 304, a camera 306, a display 308, an input device 310, a speaker 312, a memory 314, a computer-readable medium 320, and a secure element 316.

[0054] The processor 304 may be any suitable processor operable to carry out instructions on the user device 302. The processor 304 is coupled to other units of the user device 302 including camera 306, display 308, input device 310, speaker 312, memory 314, computer-readable medium 320, and the secure element 316.

- [0055]** Camera 306 may be configured to capture one or more images via a lens located on the body of the user device 302. The captured images may be still images or video images. The camera 306 may include a CMOS image sensor to capture the images. Various applications (e.g., mobile application 322) running on processor 304 may have access to camera 306 to capture images. It can be appreciated that camera 306 can continuously capture images without the images being stored within the user device 302. Captured images may also be referred to as image frames. In some embodiments, camera 306 may be configured to capture images of a machine-readable code (e.g., a QR code).
- [0056]** Display 308, input device 310, speaker 312, and memory 314 may behave similarly to how they were described with respect to the resource provider device 202.
- [0057]** Computer-readable medium 320 may be any magnetic, electronic, optical, or other computer-readable medium. Computer-readable medium 320 may comprise any combination of volatile and/or non-volatile memory such as, for example, buffer memory, RAM, DRAM, ROM, flash, or any other suitable memory device, alone or in combination with other data storage devices. Computer-readable medium 320 may include a mobile application 322, a machine-readable code reader module 324, and/or a cryptogram generation module 326.
- [0058]** The secure element 316 may be a secure, tamper-resistant, storage and execution environment that stores various payment assets such as financial credentials 318.
- [0059]** Mobile application 322 can be any application executable by processor 304 on the user device 302. In some embodiments, the mobile application 322 can be a secure application for facilitating payment transactions using the user device 302. For example, the mobile application 322 can be a digital wallet application. The mobile application 322 can interface with the secure element 316 to obtain the financial credentials 318 associated with the user. The mobile application 322 may include the following core pieces a payment library including code for enabling payments including selecting and presenting the secure element 316 to an application server computer.

[0060] The machine-readable code reader module 324 may be configured to read and interpret a machine-readable code. The machine-readable code reader module 324 may interface with camera 306 to capture or “scan” a presented machine-readable code (e.g., presented by a resource provider device, presented on a printer
5 piece of paper, presented on a display 308, etc.). Upon capturing or scanning the presented machine-readable code, the machine-readable code reader module 324 can interpret the machine-readable code and convert it to useful information. For example, the machine-readable code reader module 324 can interpret a machine-readable code captured from a display 308 of a device (e.g., a point of sale device, a
10 resource provider device, etc.) and determine the relevant transaction information associated with the transaction (e.g., transaction amount, primary account data associated with a main resource provider, secondary account data associated with a subordinate resource provider, coupon information, random number, etc.).

[0061] FIGS. 4A-C show a machine-readable code being generated by a main
15 resource provider for a subordinate resource provider, according to an embodiment.

[0062] FIG. 4A illustrates a first user interface 402 of a main resource provider device 102. The main resource provider device 102 may be a resource provider device configured to generate a machine-readable code 412. The generated machine-readable code 412 may be used and/or altered by a subordinate resource
20 provider to carry out a transaction between the subordinate resource provider and a user.

[0063] The first interface that may be displayed on a display of the main resource provider device 102 may include fields for a subordinate resource provider name, a subordinate resource provider ID, a list of existing subordinate resource providers
25 and/or a button for adding another subordinate resource provider to be associated with the main resource provider that is using the main resource provider device 102.

[0064] In the illustration shown in FIG. 4A, the main resource provider may input details into the subordinate resource provider name field and/or the subordinate resource provider ID field to identify a resource provider to be associated with the
30 main resource provider that is associated with the main resource provider device 102.

[0065] As an example, the subordinate resource provider name may be a username or a legal name of a subordinate resource provider. The subordinate resource provider name may be assigned by the main resource provider or may be generated by another system and/or the subordinate resource provider before being
5 obtained by the main resource provider for entering at the first user interface 402. Further, the subordinate resource provider name may be a unique name (e.g., unique to an application server computer, unique compared to the other subordinate resource provider accounts already associated with a main resource provider).

[0066] The subordinate resource provider ID may be assigned by the main
10 resource provider or may be generated by another system and/or the subordinate resource provider before being obtained by the main resource provider for entering at the first user interface 402. Further, the subordinate resource provider ID may be a unique ID (e.g., unique to an application server computer, unique compared to the other subordinate resource provider accounts already associated with a main
15 resource provider).

[0067] In the example depicted in FIG. 4A, once at least one of the subordinate resource provider name or the subordinate resource provider ID is input into the first user interface 402 of the main resource provider device 102 and the add button 404 is pressed, a second interface may be displayed.

20 **[0068]** FIG. 4B illustrated an embodiment of the second interface that may be displayed after the identifying information of the subordinate resource provider is entered into the first user interface 402.

[0069] The second user interface 406 may display a message that indicates that the subordinate resource provider that was being added during the display of the first
25 user interface 402 was added successfully.

[0070] The subordinate resource provider may have been added successfully if the application running on the main resource provider device 102 was able to use the identifying information of the subordinate resource provider (e.g., the subordinate resource provider name, the subordinate resource provider ID) to obtain account
30 data associated with the subordinate resource provider (e.g., account number). Such account data may be capable of being obtained after the subordinate resource provider links their account to the subordinate resource provider name and/or

subordinate resource provider ID. In some embodiments, the account data may be capable of being obtained after the subordinate resource provider grants permissions for the main resource provider to be associated with the subordinate resource provider account.

- 5 **[0071]** In an embodiment, when the subordinate resource provider has failed to be added, a message may be presented on the second user interface 406 that displays a message with details about the failure of the subordinate resource provider being associated with the main resource provider. The error message may detail that the action failed. The error may include further details such as why the action failed
- 10 (e.g., no network connection, subordinate resource provider does not exist, subordinate resource provider has not finished account set up, subordinate resource provider has not accepted the necessary permissions, subordinate resource provider not in same region as main resource provider, etc.).

- [0072]** In certain embodiments, the second interface may further include a code generation button 408 that when pressed generates a machine-readable code 412 and/or presents a machine-readable code 412 that was generated for a subordinate resource provider by the main resource provider device 102 (e.g., the machine-readable code 412 may be generated locally on the device or may use a remote machine-readable code generation system to generate the machine-readable code
- 15 412).
- 20

[0073] An example of the machine-readable code 412 that may be generated by the main resource provider is illustrated in FIG 4C where the main resource provider device 102 presents a third user interface 410.

- [0074]** The third user interface 410 may present the generated machine-readable code 412. The third user interface 410 may also display other information such as information about the subordinate resource provider. Such information may be useful to help a main resource provider manage the subordinate resource providers that have accounts associated with the main resource provider account. In the illustrated embodiment, the main resource provider may view the subordinate
- 25 resource provider name, the subordinate resource provider ID, and other information associated with the subordinate resource provider (e.g., the name of the subordinate
- 30

resource provider's business, the type of business of the subordinate resource provider, etc.).

5 **[0075]** The machine-readable code 412 displayed by the third user interface 410 of the main resource provider device 102 may be the machine-readable code 412 that was generated after the main resource provider added a subordinate resource provider in the first user interface 402. For example, the machine-readable code 412 may be generated by the main resource provider device 102 after the main resource provider has taken actions to associate a primary account data associated with the main resource provider with a secondary account data associated with the subordinate resource provider.

10 **[0076]** The machine-readable code 412 may include information such as the primary account data associated with the main resource provider and the secondary account data associated with the subordinate resource provider. In some embodiments, the machine-readable code 412 may include a transaction amount, a random number, and/or a cryptogram.

15 **[0077]** In certain embodiments, the machine-readable code 412 may be configured to be altered, at least partially, by the subordinate resource provider that is associated with the secondary account (e.g., using a mobile application running on a resource provider device of the subordinate resource provider). Alterations to the machine-readable code 412 generated by the main resource provider may be capable of allowing the subordinate resource provider to add price information (e.g., transaction amount information) to the machine-readable code 412 generated by the main resource provider.

20 **[0078]** Information that may be included in the machine-readable code 412 is described in further detail herein.

25 **[0079]** In the illustrated embodiment, the main resource provider may be able to select a view details button 414 to view further detail associated with the third user interface 410. For example, the main resource provider device 102 may display larger text of the same information, additional information related to the subordinate resource provider, interactions between the subordinate resource provider and the main resource provider (e.g., transaction history and details thereof), view middle man fees that the main resource provider will take from the interaction values

received from users for the subordinate resource provider (e.g., 1% of an interaction value paid by a user to the subordinate resource provider), etc.).

[0080] FIG. 5 shows a point of sale device 502 displaying a machine-readable code 506 usable in a payment transaction, according to an embodiment.

5 **[0081]** In certain embodiments, the point of sale device 502 is communicatively coupled with a resource provider device or is part of the resource provider device.

[0082] A resource provider device (e.g., a subordinate resource provider device) may include a display device configured to display the machine-readable code 506 and various other prompt to users.

10 **[0083]** As described herein, the machine-readable code 506 may be generated by a main resource provider and displayed by a subordinate resource provider (e.g., by the point of sale device screen 504 of the point of sale device 502). Further, the machine-readable code 506 may have been generated by the main resource provider, altered by the subordinate resource provider (e.g., adding transaction
15 information such as a transaction amount), and then displayed by the subordinate resource provider.

[0084] Once the machine-readable code 506 has been generated and possibly altered, the machine-readable code 506 may be displayed (e.g., by the subordinate resource provider). In some embodiments, a display that presents the machine-
20 readable code 506 may also present prompts to a user that indicate the total transaction amount (e.g., \$123.00), a request for the user to scan the machine-readable code 506, a request for the user to scan the machine-readable code 506 using a specific mobile app of the user device, etc.

[0085] Upon a successful capture or "scan" of the machine-readable code 506 by
25 the user's user device, the user device may let the user know that the scan was successful. The user may be presented with a message that indicates further input is needed (e.g., confirming transaction amount, confirming transaction, asking for a transaction amount to be input, asking for authentication of the user, asking for biometric authentication, etc.).

30 **[0086]** In certain embodiments where the user of the user device enters a transaction amount after capturing the machine-readable code 506, a subordinate

resource provider using a subordinate resource provider device may need to confirm that the transaction amount is correct (e.g., correct transaction amount that the subordinate resource provider is offering a resource for) or acceptable (e.g., fair value for a resource). In certain embodiments where the user of the user device enters a transaction amount, a subordinate resource provider using a subordinate resource provider device may be capable of causing the transaction amount of a transaction to be transmitted back (e.g., from a third and/or second account management computer) to the first account management computer (e.g., such as when the transaction amount transferred from the user is the wrong amount).

10 **[0087]** In certain embodiments, after the machine-readable code 506 has been captured by a user device, the user device decodes the machine-readable code 506 to obtain a primary account data associated with a main resource provider and a secondary account data associate with the subordinate resource provider. As mentioned above, in certain implementations, the machine-readable code 506 may
15 also include a transaction amount and therefore the user device may obtain the transaction amount from the machine-readable code 506. In certain embodiments, the user device decodes the machine-readable code 506 and determines that a value should be input by the user of the user device.

[0088] The user device may use the decoded information and/or user input to
20 generate a transaction request message comprising a transaction amount, the primary account data associated with the main resource provider, and the secondary account data associated with the subordinate resource provider.

[0089] The primary account data may include at least one of: a PAN, a CVV, a routing number, an account name, or a digital wallet address associated with the
25 main resource provider. The secondary account data may include at least one of: a PAN, a CVV, a routing number, an account name, or a digital wallet address associated with the subordinate resource provider.

[0090] The user device may then transmit the transaction request message to an application server computer associated with the mobile application running on the
30 user device (e.g., the mobile application may be a transfer application).

[0091] FIG. 6 shows a block diagram of information included in a machine-readable code, according to an embodiment.

[0092] A machine-readable code may be a first machine-readable code generated by a main resource provider (e.g., a main resource provider machine-readable code 602) or may be a second machine-readable code generated by a subordinate resource provider (e.g., a subordinate resource provider machine-readable code 608) using the first machine-readable code that was originally generated by the main resource provider.

[0093] The main resource provider machine-readable code 602 is a machine-readable code may be used by a main resource provider to conduct transactions between a user and the main resource provider. Thus, the main resource provider machine-readable code 602 may include information that identifies primary account data 604 associated with the main resource provider. The primary account data 604, in a decoded state, may allow for a transaction to be initiated with the primary account data 604. For example, a user, mobile application, and/or system may cause a transaction of an interaction value to be sent to the primary account associated with the primary account data 604 that is associated with the main resource provider. The primary account data 604 may include at least one of: a PAN, a CVV, a routing number, an account name, or a digital wallet address.

[0094] The main resource provider machine-readable code 602 may further include other main resource provider information 606. The amount (e.g., bits) of information that may be encoded within the other main resource provider information 606 portion of the main resource provider machine-readable code 602 may be based on the total amount of information capable of being represented by the main resource provider machine-readable code 602 and the amount taken up by encoding the primary account data 604.

[0095] The other main resource provider information 606 may include any information (e.g., related to a transaction), that may fit within the remaining portion of information able to be encoded by the main resource provider machine-readable code 602. Examples of other main resource provider information 606 that may be included in the main resource provider machine-readable code 602 may be a random number, a cryptogram, a resource label, a location, an interaction fee amount, secondary account data 612 associated with a subordinate resource provider (e.g., identification information for the subordinate resource provider), etc.

[0096] FIG. 6 illustrates blank areas in the main resource provider machine-readable code 602 for the simplicity of illustration to represent fields of the machine-readable code may be used to further encode other main resource provider information 606.

- 5 **[0097]** The main resource provider machine-readable code 602 may additionally, or alternatively, have information added to the other main resource provider information 606 field. The information may configure the main resource provider machine-readable code 602 to be used to conduct transactions between a user and the main resource provider, while also keeping track of the subordinate resource provider that
- 10 the transaction is related to. Thus, in certain embodiments, the machine-readable code may include information such as secondary account data 612 associated with the subordinate resource provider.

- [0098]** In the case where the main resource provider machine-readable code 602 is altered to have secondary account data 612 added to the other main resource
- 15 provider information 606 field, the altered machine-readable code may be considered a "subordinate resource provider machine-readable code 608." In certain embodiments, the main resource provider may add the secondary account data 612 to the other main resource provider information 606 field of the main resource provider machine-readable code 602 to generate a subordinate resource
- 20 provider machine-readable code 608, the secondary account data 612 associated with a subordinate resource provider. In certain embodiments, a subordinate resource provider may be associated with secondary account data 612 and add the secondary account data 612 to the other main resource provider information 606 field of the main resource provider machine-readable code 602 to generate a
- 25 subordinate resource provider machine-readable code 608. In certain embodiments, the main resource provider configures a flag in the main resource provider machine-readable code 602 and/or in a system capable of managing the main resource provider machine-readable code 602 that signals that a subordinate resource provider may add their associated secondary account data 612 to the main resource
- 30 provider machine-readable code 602 other main resource provider information 606 field to generate a subordinate resource provider machine-readable code 608.

[0099] In certain embodiments, any subordinate resource provider may add their secondary account data 612 to a main resource provider machine-readable code 602. In certain embodiments, certain subordinate resource providers may add their associated secondary account data 612 to a main resource provider machine-readable code 602. For example, the main resource provider may configure a flag in a system capable of managing the main resource provider machine-readable code 602, the flag indicating that one or more specified subordinate resource providers (e.g., identified by a subordinate resource provider ID, subordinate resource provider name, or other identifier) are on an allow-list for adding their secondary account data 612 to the main resource provider machine-readable code 602. In certain embodiments, the main resource provider may configure a deny-list of subordinate resource providers that will not be capable of using the main resource provider machine-readable code 602 to generate a subordinate resource provider machine-readable code 608.

[0100] The addition of secondary account data 612 to the machine-readable code is illustrated in FIG. 6 by showing additional dark areas in the subordinate resource provider machine-readable code 608 compared to the main resource provider machine-readable code 602. However, the addition of dark areas is only for the sake of illustration. One of ordinary skill in the art with the benefit of the present disclosure would recognize the ways in which a machine-readable code may visually change as different information is encoded to be represented by a machine-readable code.

[0101] By including the secondary account data 612 information in the other main resource provider information 606 field, the information encoded in the subordinate resource provider machine-readable code 608 may represent the identity of a subordinate resource provider associated with the secondary account information. Further, other information may be added by the subordinate resource provider into at least a portion of the other main resource provider information 606 field (e.g., portions that were unused by the main resource provider machine-readable code 602 and/or portions that the main resource provider indicated as being available to the subordinate resource provider for alteration). The addition of information to the machine-readable code, other than the secondary account data 612, is also depicted in FIG. 6.

[0102] FIG. 6 illustrates that the subordinate resource provider machine-readable code 608 generated using the main resource provider machine-readable code 602 includes secondary account data 612 and other subordinate resource provider information 614 (e.g., transaction amount information (e.g., price)). In certain
5 embodiments, the secondary account data 612 and the other subordinate resource provider information 614 fields encode as much information as constrained by the other main resource provider information 606 field. In certain embodiments, the secondary account data 612 and the other subordinate resource provider information 614 fields encode information that uses a subset of the encoding ability of the other
10 main resource provider information 606 field.

[0103] After a subordinate resource provider machine-readable code 608 is generated, the subordinate resource provider machine-readable code 608 may encode at least the primary account data 604 (e.g., information capable of identifying the main resource provider) associated with the main resource provider and the
15 secondary account data 612 (e.g., information capable of identifying the subordinate resource provider) associated with the subordinate resource provider. As a result, when the machine-readable code is captured and decoded by a user device, the primary account data 604 and the secondary account data 612 may be obtained by the user device and subsequently used to generate a transaction request message
20 comprising at least the primary account data 604 and the secondary account data 612.

[0104] The transaction request message may be transmitted by the user device to an application server computer associated with a mobile application running on the user device (e.g., transfer application) to initiate a first transfer (e.g., a credit card
25 transaction, a checking account transfer, etc.) of a first interaction value (e.g., \$20, 0.01 Bitcoin) from a user account associated with the user device and maintained by a first account management computer (e.g., user's bank computer, first authorizing entity computer) to a main resource provider account associated with the main resource provider. The main resource provider account may be managed by a
30 second account management computer (e.g., main resource provider's bank computer, transport computer, acquirer computer). Further, the main resource provider may subsequently initiate a second transfer (e.g., OCT/AFT transaction) of a second interaction value (e.g., \$20 or less) from the main resource provider

account to a subordinate resource provider account managed by a third account management computer (e.g., subordinate resource provider's bank, issuer computer, authorizing entity computer). Further details of the transaction are described herein.

5 **[0105]** FIG. 7 shows a block diagram 700 of a relationship between a main resource provider and subordinate resource providers, according to an embodiment.

10 **[0106]** The block diagram 700 illustrates that a single main resource provider 702 may have a relationship with any number (e.g., zero or more) of subordinate resource providers. Such a relationship is represented by subordinate resource provider A 706, subordinate resource provider B 710, through subordinate resource provider N 714.

15 **[0107]** Further, block diagram 700 illustrates that because of relationships that the main resource provider 702 may have with any number of the subordinate resource providers, the main resource provider machine-readable code 704 may be used to generate any number of subordinate resource provider machine-readable codes.

20 **[0108]** Thus, in an embodiment, at least one subordinate resource provider machine-readable code may be generated for each subordinate resource provider that has a relationship with the main resource provider 702. In an example, each subordinate resource that has a relationship with the main resource provider may have a single subordinate resource provider machine-readable code that the subordinate resource provider may use (e.g., to be captured by users to conduct transactions).

25 **[0109]** In a second example, each subordinate resource that has a relationship with the main resource provider 702 may have more than one subordinate resource provider machine-readable code (e.g., the subordinate resource provider generates a subordinate resource provider machine-readable code during each transaction that takes place between the subordinate resource provider and a user). The second example may allow subordinate resource providers to encode transaction amounts into each subordinate resource provider machine-readable code that is to be captured by a user and may eliminate the need for a user to enter a transaction amount and/or another value after capturing the subordinate resource provider machine-readable code.

30

[0110] FIG. 8 shows a flow diagram 800 illustrating generation of a machine-readable code and use of the machine-readable code, according to an embodiment.

[0111] Flow diagram 800 illustrates how a user device 802, a main resource provider device 804, a subordinate resource provider device 806, an application server computer 808, a first account management computer 810, a second account management computer 812, and a third account management computer 814 may communicate to generate a machine-readable code (e.g., for a main resource provider and/or a subordinate resource provider) and/or decode a machine-readable code, according to an embodiment.

10 **[0112]** At step S820, a main resource provider may use the main resource provider device 804 to request primary account data from the second account management computer 812 that manages a main resource provider account associated with the main resource provider. The primary account data may be associated with the main resource provider account. The second account management computer 812 may be
15 referred to as a transport computer and/or an acquirer computer.

[0113] Further, the main resource provider device 804 may be running a mobile application that transmits the request for the primary account data to the second account management computer 812. The mobile application running on the main resource provider device 804 may be a banking app, digital wallet, etc.

20 **[0114]** At step S822, after the request made in S820, the second account management computer 812 may transmit the primary account data to the main resource provider device 804. The primary account data may have been obtained by the second account management computer 812 by using an identifier associated with the primary account data that was received from the main resource provider
25 device 804 (e.g., the main resource provider device 804 being used to make the request, the account being used with the mobile application running on the main resource provider device 804 that made the request, or other account identifying information that the second account management computer 812 can use to look up the primary account data to transmit to the main resource provider device 804.

30 **[0115]** In certain embodiments, once the main resource provider device 804 obtains the primary account data, the main resource provider device 804 may

generate a main resource provider machine-readable code that includes the primary account data. In some embodiments, the main resource provider machine-readable code may further include populated or unpopulated other main resource provider information, as discussed above.

5 **[0116]** At step S824, the subordinate resource provider device 806 may request secondary account data from the third account management computer 814. The third account management computer 814 may manage a subordinate resource provider account and the subordinate resource provider account may be associated with the secondary account data. The third account management computer 814 may
10 be referred to as an authorizing entity computer or an issuer computer. For example, the third account management computer 814 may be operated by the banking institution that the subordinate resource provider is banked with.

[0117] Further, the subordinate resource provider device 806 may be running a mobile application that transmits the request for the secondary account data to the
15 third account management computer 814. The mobile application running on the subordinate resource provider device 806 may be a banking app, digital wallet, etc.

[0118] At step S826, after the request made in S824, the third account management computer 814 may transmit the secondary account data to the subordinate resource provider device 806. The secondary account data may have
20 been obtained by the third account management computer 814 by using an identifier associated with the secondary account data that was received from the subordinate resource provider device 806 (e.g., the subordinate resource provider device 806 being used to make the request, the account being used with the mobile application running on the subordinate resource provider device 806 that made the request, or
25 other account identifying information that the third account management computer 814 can use to look up the secondary account data to transmit to the subordinate resource provider device 806.

[0119] At step S828, the subordinate resource provider device 806 may transmit the secondary account data to the main resource provider device 804. The
30 subordinate resource provider device 806 may transmit the secondary account data

to the main resource provider device 804 in response to receiving the secondary account data from the second account management computer 812.

[0120] In certain embodiments, the subordinate resource provider does not request the secondary account data from the third account management computer 814. In certain embodiments, the main resource provider device 804 requests the secondary account data associated with the subordinate resource provider device 806 from the third account management computer 814. The main resource provider device 804 may be capable of requesting the secondary account data from the third account management computer 814 using information that identifies the subordinate resource provider's account (e.g., subordinate resource provider name, subordinate resource provider ID, and/or other information capable of identifying the subordinate resource provider's account). In certain embodiments, the subordinate resource provider must give permission (e.g., using the subordinate resource provider device 806) to the third account management computer 814 to share the secondary account data with the main resource provider device 804.

[0121] At step S830, the main resource provider device 804 may generate a machine-readable code. The machine-readable code may be a main resource provider machine-readable code and/or be a subordinate resource provider machine-readable code.

[0122] As mentioned above, in certain embodiments, once the main resource provider device 804 obtains the primary account data, the main resource provider device 804 may generate a main resource provider machine-readable code that includes the primary account data. In some embodiments, the main resource provider machine-readable code may further include populated or unpopulated other main resource provider information, as discussed above.

[0123] In certain embodiments the main resource provider device 804 may generate a subordinate resource provider machine-readable code using at least the primary account data and the secondary account data (e.g., obtained using a request to the third account management computer 814 or from the subordinate resource provider device 806).

[0124] At step S832, the main resource provider device 804 may transmit the machine-readable code (or data representing the machine-readable code) to the subordinate resource provider device 806.

5 **[0125]** In certain embodiments, the machine-readable code transmitted to the subordinate resource provider device 806 is a subordinate resource provider machine-readable code. In such embodiments, the subordinate resource provider device 806 may then display the code as-is or may alter the subordinate resource provider machine-readable code (e.g., by adding other subordinate resource provider information (e.g., transaction amount information)).

10 **[0126]** In certain embodiments, the machine-readable code transmitted to the subordinate resource provider device 806 is a main resource provider machine-readable code. In such embodiments, the subordinate resource provider may alter the main resource provider machine-readable code to generate a subordinate resource provider machine-readable code. The subordinate resource provider
15 device 806 may at least add the secondary account data obtained from the third account management computer 814 to the main resource provider machine-readable code to generate the subordinate resource provider machine-readable code. In certain embodiments, the subordinate resource provider device 806 may further add other subordinate resource provider information (e.g., a random number, store
20 location, etc.).

[0127] At step S834, the subordinate resource provider code may be displayed. In certain embodiments, once the subordinate resource provider device 806 obtains the subordinate resource provider machine-readable code (e.g., from the main resource provider device 804 or by generating it using the subordinate resource provider
25 device 806), the code may be displayed. In certain embodiments, the subordinate resource provider device 806 displays the subordinate resource provider machine-readable code. In certain embodiments, the subordinate resource provider machine-readable code is displayed using a piece of paper, or other method of displaying the subordinate resource provider machine-readable code, that does not display the
30 subordinate resource provider machine-readable code on the display of a subordinate resource provider device 806.

[0128] At step S836, the subordinate resource provider machine-readable code may be captured (e.g., by pointing a camera of the user device 802 at the subordinate resource provider machine-readable code). The subordinate resource provider machine-readable code may be capture by a user device 802. The user
5 may desire to conduct a transaction with the subordinate resource provider to obtain a resource. The user device 802 may comprise a transfer application (e.g., banking app, digital wallet, etc.).

[0129] At step S838, the subordinate resource provider machine-readable code that was captured at step S836 may be decoded. The decoding may be performed
10 by the user device 802 and/or a mobile application running on the mobile device. Responsive to decoding the subordinate resource provider machine-readable code, the user device 802 may obtain the primary account data associated with the main resource provider and the secondary account data associated with the subordinate resource provider. In certain embodiments, the user device 802 may further obtain
15 other subordinate resource provider information (e.g., a random number, a transaction amount, etc.). In embodiments where the transaction amount is not obtained from decoding the machine-readable code, the user of the user device 802 may input the transaction amount into the user device 802 and used for generating the transaction request message.

[0130] At step S840, a transaction request message may be generated. The
20 transaction request message may be generated by the user device 802 directly or by causing an application server computer 808 to do so. The transaction request message may include the primary account data, the secondary account data, and/or the transaction amount.

[0131] At step S842, the transaction request message may be transmitted. The
25 transaction request message may be transmitted from the user device 802 to the application server computer 808 associated with the mobile application (e.g., transfer application) running on the user device 802.

[0132] At step S844, the application server computer 808 may transmit a request to
30 the first account management computer 810 that maintains the user account associated with the user device 802. The user account may be identified using the

secondary account data. The request may initiate a first transfer (e.g., starting a credit card transaction, starting a checking account transfer, etc.) of a first interaction value (e.g., a currency amount, a cryptocurrency amount, etc.). The first interaction value may correspond (e.g., be equal to) the transaction amount that the application server computer 808 received from the user device 802. The request may initiate a first transfer of a first interaction value to the main resource provider account associated with the main resource provider, as identified by the primary account data.

10 **[0133]** At step S846, the first account management computer 810 may transfer the first interaction value from the user account associated with the user device 802 to the second account management computer 812 that manages the main resource provider account.

15 **[0134]** The transfer of value from the first account management computer 810 to the second account management computer 812 can take place using a OCT transaction process. For example, the first account management computer 810 can generate and transmit an OCT message comprising a transaction amount, at least the primary account data, and optionally the secondary account data to a processing computer (e.g., processing computer 118) in FIG. 1. The processing computer can then determine that the account management computer associated with the primary account data is the second account management computer 812 using a directory.

20 The processing computer can then transmit the OCT message to the second account management computer 812. Upon receiving the OCT message, the second account management computer 812 can credit the amount to the main resource provider account managed by the second account management computer 812.

25 **[0135]** After the first interaction value has been transferred to the second account management computer 812, the main resource provider account associated with the primary account data may be reflect additional value (e.g., additions equal to the received first interaction value). For example, the funds held by the main resource provider account may have risen from \$100 to \$120 if the first interaction value was

30 \$20.

[0136] In certain embodiments, after the second account management computer 812 receives the transfer of the first interaction value from the first account management computer 810, the main resource provider associated with the main resource provider account and/or the subordinate resource provider associated with the subordinate resource provider account are alerted of the transfer. In certain
5 embodiments, the subordinate resource provider and/or the main resource provider device 804 are alerted of details of the transfer (e.g., how much was transferred and/or other transaction information). In certain embodiments, an alert is generated before or after the transaction request message is transmitted, or after the main
10 resource provider initiates the second transfer of the second interaction value. The alert may be transmitted to at least one of the main resource provider or the subordinate resource provider.

[0137] At step S848, the main resource provider device 804 may initiate a second transfer of a second interaction value from the second account management
15 computer 812 to the third account management computer 814. The second transfer may be a second transfer from the main resource provider account managed by the second account management computer 812 to the subordinate resource provider account that is managed by the third account management computer 814. The main resource provider may initiate the second transfer after receiving input from a main
20 resource provider device 804 confirming the initiation of the second transfer. In certain embodiments, the second interaction value may be a currency amount or a cryptocurrency amount.

[0138] In certain embodiments, step S848 does not occur and step S850 occurs responsive to step S846 occurring or based on other conditions (e.g., a certain time
25 passing after step S846 occurred).

[0139] At step S850, the second transfer occurs from the second account management computer 812 to the third account management computer 814. In certain embodiments, the second transfer is an OCT/AFT transaction. In certain
30 embodiments, the second interaction value of the second transfer is less than or equal to the first interaction value. For example, the first interaction value may have been \$20 and the second interaction value may be \$19. The second interaction value may be less than the first for various reasons. One reason that the second

interaction value may be less than the first interaction value is due to transfer fees. Another reason that the second interaction value may be less than the first may be due to the main resource provider retaining a portion of the first transaction as a fee (e.g., \$1 fee per transaction, 1% fee per transaction, etc.) for helping the subordinate resource provider receive payments by way of the main resource provider accepting the payments.

[0140] In some embodiments, the transfer of value from the second account management computer 812 to the third account management computer 814 can take place using a OCT transaction process. For example, the second account management computer 812 can generate and transmit an OCT message comprising a transaction amount, at least the secondary account data to a processing computer (e.g., processing computer 118) in FIG. 1. The processing computer can then determine that the account management computer associated with the secondary account data is the third account management computer 814 using a directory. The processing computer can then transmit the OCT message to the third account management computer 814. Upon receiving the OCT message, the third account management computer 814 can credit the amount to the secondary resource provider account managed by the third account management computer 814.

[0141] In some embodiments, the transfers illustrated by S844 and S846 can occur sequentially and automatically using OCT messages. For example, the first OCT message passing from the first account management computer 810 to the second account management computer 812 can include an amount, the primary account data, the secondary account data, a flag indicating that automatic processing is to occur, and a variable indicating how much (e.g., 90 percent) of the amount is to be transferred to the secondary resource provider account. Upon receiving the first OCT message, the second account management computer can automatically generate a second OCT message including an adjusted amount and the secondary account data. The second OCT message can be transmitted as noted above.

[0142] Any of the software components or functions described in this application may be implemented as software code to be executed by a processor using any suitable computer language such as, for example, Java, C, C++, C#, Objective-C, Swift, or scripting language such as Perl or Python using, for example, conventional

or object-oriented techniques. The software code may be stored as a series of instructions or commands on a computer readable medium for storage and/or transmission, suitable media include random access memory (RAM), a read only memory (ROM), a magnetic medium such as a hard-drive or a floppy disk, or an optical
5 medium such as a compact disk (CD) or DVD (digital versatile disk), flash memory, and the like. The computer readable medium may be any combination of such storage or transmission devices.

[0143] Such programs may also be encoded and transmitted using carrier signals adapted for transmission via wired, optical, and/or wireless networks
10 conforming to a variety of protocols, including the Internet. As such, a computer readable medium according to an embodiment of the present invention may be created using a data signal encoded with such programs. Computer readable media encoded with the program code may be packaged with a compatible device or provided separately from other devices (e.g., via Internet download). Any such
15 computer readable medium may reside on or within a single computer product (e.g. a hard drive, a CD, or an entire computer system), and may be present on or within different computer products within a system or network. A computer system may include a monitor, printer, or other suitable display for providing any of the results mentioned herein to a user.

20 **[0144]** The above description is illustrative and is not restrictive. Many variations of the invention will become apparent to those skilled in the art upon review of the disclosure. The scope of the invention should, therefore, be determined not with reference to the above description, but instead should be determined with reference to the pending claims along with their full scope or equivalents.

25 **[0145]** One or more features from any embodiment may be combined with one or more features of any other embodiment without departing from the scope of the invention.

[0146] As used herein, the use of "a," "an," or "the" is intended to mean "at least one," unless specifically indicated to the contrary.

30

WHAT IS CLAIMED IS:

- 1 1. A method comprising:
2 capturing, by a user device comprising a transfer application, a
3 machine-readable code, the machine-readable code encoding primary account data
4 associated with a main resource provider and secondary account data associated
5 with a subordinate resource provider;
6 decoding, by the user device, the machine-readable code to obtain the
7 primary account data associated with the main resource provider and the secondary
8 account data associated with the subordinate resource provider;
9 generating, by the user device, a transaction request message
10 comprising a transaction amount, the primary account data associated with the main
11 resource provider, and the secondary account data associated with the subordinate
12 resource provider; and
13 transmitting, by the user device, the transaction request message to an
14 application server computer associated with the transfer application, wherein
15 application server computer initiates a first transfer of a first interaction value from a
16 user account associated with the user device and maintained by a first account
17 management computer to a main resource provider account associated with the
18 main resource provider, wherein the main resource provider account is managed by
19 a second account management computer, and wherein the main resource provider
20 subsequently initiates a second transfer of a second interaction value from the main
21 resource provider account to a subordinate resource provider account managed by a
22 third account management computer.
- 1 2. The method of claim 1, wherein the second transfer of the
2 second interaction value comprises a transmission of an OCT message from the
3 second account management computer to the third account management computer.
- 1 3. The method of claim 1, wherein the transfer application is a
2 banking application or a digital wallet.
- 1 4. The method of claim 1, wherein the first interaction value is a
2 currency amount or a cryptocurrency amount.

1 5. The method of claim 1, wherein the primary account data or the
2 secondary account data comprises at least one of: a PAN, a CVV, a routing number,
3 an account name, or a digital wallet address.

1 6. The method of claim 1, wherein the main resource provider
2 initiates the second transfer of the second interaction value subsequent to receiving
3 input from a second device, the input confirming the initiation of the second transfer.

1 7. The method of claim 1, wherein the second interaction value is
2 less than the first interaction value.

1 8. The method of claim 1, wherein an alert is generated before or
2 after the transaction request message is transmitted, after the main resource
3 provider account receives the first transfer of the first interaction value, or after the
4 main resource provider initiates the second transfer of the second interaction value.

1 9. The method of claim 8 wherein the alert is transmitted to a
2 second user device, the second user device associated with at least one of: the main
3 resource provider or the subordinate resource provider.

1 10. The method of claim 1, wherein the machine-readable code
2 further encodes the transaction amount.

1 11. The method of claim 1, wherein the first interaction value is
2 obtained from user input received by the user device.

1 12. The method of claim 1, wherein the machine-readable code is
2 generated by a first device associated with the main resource provider or a second
3 device associated with the subordinate resource provider.

1 13. The method of claim 1, wherein machine-readable code is
2 generated using a first machine-readable code of the main resource provider.

1 14. A user device comprising:
2 a processor; and
3 a computer readable medium comprising code, executable by the
4 processor, for performing operations comprising:

5 capturing, by the user device comprising a transfer application, a
6 machine-readable code, the machine-readable code encoding primary account data
7 associated with a main resource provider and secondary account data associated
8 with a subordinate resource provider;
9 decoding, by the user device, the machine-readable code to obtain the
10 primary account data associated with the main resource provider and the secondary
11 account data associated with the subordinate resource provider;
12 generating, by the user device, a transaction request message
13 comprising a transaction amount, the primary account data associated with the main
14 resource provider, and the secondary account data associated with the subordinate
15 resource provider; and
16 transmitting, by the user device, the transaction request message to an
17 application server computer associated with the transfer application, wherein
18 application server computer initiates a first transfer of a first interaction value from a
19 user account associated with the user device and maintained by a first account
20 management computer to a main resource provider account associated with the
21 main resource provider, wherein the main resource provider account is managed by
22 a second account management computer, and wherein the main resource provider
23 subsequently initiates a second transfer of a second interaction value from the main
24 resource provider account to a subordinate resource provider account managed by a
25 third account management computer.

1 15. A method comprising:
2 receiving a transaction request message from a user device comprising
3 a transfer application, the transaction request message comprising a transaction
4 amount, primary account data associated with a main resource provider and
5 secondary account data associated with a subordinate resource provider; and
6 initiating a first transfer of a first interaction value from a user account
7 associated with the user device and maintained by a first account management
8 computer to a main resource provider account associated with the main resource
9 provider, wherein the main resource provider account is managed by a second
10 account management computer, and wherein the main resource provider
11 subsequently initiates a second transfer of a second interaction value from the main

12 resource provider account to a subordinate resource provider account managed by a
13 third account management computer.

1 16. The method of claim 15, wherein the second transfer of the
2 second interaction value comprises a transmission of an OCT message from the
3 second account management computer to the third account management computer.

1 17. The method of claim 15, wherein the main resource provider
2 subsequently initiates the second transfer of the second interaction value after
3 receiving input from a second device, the input confirming the initiation of the second
4 transfer.

1 18. The method of claim 15, wherein the second interaction value is
2 less than the first interaction value.

1 19. The method of claim 15, wherein the first interaction value is
2 obtained from user input received by the user device.

1 20. The method of claim 15, wherein an alert is generated before or
2 after the transaction request message is transmitted, after the main resource
3 provider account receives the first transfer of the first interaction value, or after the
4 main resource provider initiates the second transfer of the second interaction value.
5