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DISCOVERING NEED FOR CREDIT AND FACILITATING LENDING IN REAL TIME

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**TITLE: “DISCOVERING NEED FOR CREDIT AND FACILITATING LENDING IN
REAL TIME”**

VISA

**PRASHANT JHINGRAN
ADITYA NARAYAN GOYAL**

TECHNICAL FIELD

[0001] This disclosure relates generally to the field of payment processing. More particularly, the disclosure provides automatic way to facilitate credit-based payments during a transaction failure.

BACKGROUND

[0002] Generally, various technologies focus towards providing an automatic way of facilitating credit-based payments during a transaction failure. A payment transaction may fail, if the transaction amount is exceeding the credit card limit which may be set on daily or monthly basis. Further, the payment transaction may fail when an issuing banks, or the wallet provider are unreachable and payment transaction may be declined by the issuing bank due to insufficient funds.

[0003] One of the existing technologies discloses that an end user may be provided with more options and greater flexibility regarding transactions using at least two available balances. A single card swipe is provided for the end user to make use of at least two available balances according to parameters the end user selects, where the available balances are coordinated and debited. Further, with a single card swipe it is possible for a depleted available balance to automatically yield to another available balance so seamlessly that the depleted available balance condition is absolutely invisible to the varied parties in a public point-of sale environment.

[0004] As an example, when the user wishes to purchase a product and if the payment fails due to insufficient balance in the user account, the user must stop the initiated transaction as there is no immediate action that the user can take. In other words, the user cannot process the transaction due to insufficient balance and there is no dynamic way in which the user may get the required funds to complete the transaction. Thus, payment industry is exploring means that may provide a dynamic way to facilitate credit-based payments during a transaction failure.

SUMMARY

[0005] According to some non-limiting embodiments, the present disclosure discloses an automatic way to facilitate credit-based payments during a transaction failure. The objective of the present disclosure is to automate the process of the payment via a payment network provider which may facilitate the transaction automatically. The present disclosure describes a method that may facilitate the payment transaction or credit-based payment during a transaction failure. The payment transaction may fail due to various scenarios such as peak holiday season, when a current transaction amount is exceeding the credit card limit, when issuing bank or the wallet provider is unreachable and due to insufficient funds in the issuing bank. Therefore, the present disclosure describes that during the transaction failure, the payment network providers such as Visa[®], Mastercard[®], RuPay[™], Discover[®], JCB[®], American Express[®] etc. facilitates a transaction, automatically without human intervention. The present disclosure can be further extended to the payments and settlement system providers such as National Payments Corporation of India (NPCI) in India or The Federal Reserve in the US etc.

[0006] In an embodiment, when the payment transaction fails due to insufficient funds in the issuing bank of a user, the payment network provider may inform the user that the payment was declined due to insufficient funds. Particularly, the payment network provider may avoid sending the transaction failure message to an acquiring bank associated with a merchant. Further, the payment network provider may indicate that the payment network provider may facilitate lending options via 3rd party lenders. If the user wishes to opt for one or more lending options, then the user has to provide consent to the payment network provider for sharing user's credit score with the one or more lending partners. For example, if the user wishes to purchase a product worth USD 1000 and the user initiates a transaction with the merchant. The acquiring bank associated with merchant forwards the request to the payment network provider. The payment network provider passes the request that the user wishes to make a transaction to the issuing bank associated with the user. The issuing bank checks for the available balance and confirms if the transaction requested by the user can be successfully performed or not, based on the available balance in the user's account. As an example, consider the available balance in user's account is USD 300. The payment network provider may receive a message from the issuing bank informing that there is insufficient balance in the user's account to process the requested transaction. Therefore, the payment network provider approaches the user, to check if the user is interested to opt for one or more lending options to complete the transaction. The

payment network provider may communicate with one or more lending partners either directly or indirectly via third-party broker(s). In some embodiments, the user may be allowed to opt one or more lending options by providing consent to the payment network provider to connect the user with the one or more lending partners by sharing details of the user such as Know Your Customer (KYC) details and credit score as required by the one or more lending partners. Further, based on the balance details provided by the issuing bank, the payment network provider may calculate the loan amount that may be required from the one or more lending partners. Further, the payment network provider that may be acting as a broker may communicate with the one or more lending partners to discover the one or more lending partners who are interested in providing credit to the user. Upon receiving the consent from the user, the payment network provider may share the credit score with one or more lender. Further, the one or more lending partners who may be interested in providing credit to the user may send the lending terms to the payment network provider. Thereafter, the payment network provider sorts the one or more lending partners based on different parameters such as, but not limited to, loan interest rates, fees and charges, interest free period, and repayment flexibility. The user may select one of the one or more lending partners from the sorted list provided to the user and may contact the lending partner and provide the Know Your Customer (KYC) details for completing the process. Further, the payment network provider may split the transaction amount (USD 1000 from the above example). Firstly, the issuing bank may arrange for payment based on the available balance (as an example the available balance in user's account is USD 300, hence USD 300 would be arranged from the user's account) to the acquiring bank associated with the merchant. Secondly, the selected lender partner(s) may arrange for the requested loan amount (either the balance amount USD 700 or the full transaction amount USD 1000 may be taken as the loan amount from the above example) to the acquiring bank associated with the merchant via the payment network provider. Finally, acquiring bank associated with the merchant may notify the transaction completed message. In some embodiments, the payment network provider may generate a settlement report to indicate the settlement of the transaction amount between the issuing bank, acquiring bank and the one or more lending partner(s).

[0007] The present research work provides an advantage in which the user can avail various lending options upon sharing the credit score with the payment network provider which helps the user to complete the transaction associated with the merchant. Also, the user has the choice of selecting the best lender for providing the funds to complete the transaction. As a result, this

may help the user to understand the terms and conditions associated with the one or more lending partners and based on the terms and conditions associated with the one or more lending partners, the user may choose the best option available for him/her. Further, the present disclosure enables the one or more lending partners to discover interested entities or users who are in need of funds, thereby mutually benefitting the lending partners and the users.

[0008] These and other features and characteristics of the present invention, as well as the methods of operation and functions of the related elements of structures and the combination of parts and economies of manufacture, will become more apparent upon consideration of the following description and the appended claims with reference to the accompanying drawings, all of which form a part of this specification, wherein like reference numerals designate corresponding parts in the various figures. It is to be expressly understood, however, that the drawings are for the purpose of illustration and description only and are not intended as a definition of the limits of the invention. As used in the specification and the claims, the singular form of “a,” “an,” and “the” include plural referents unless the context clearly dictates otherwise.

BRIEF DESCRIPTION OF THE DRAWINGS AND APPENDICES

[0009] Additional advantages and details of non-limiting embodiments are explained in greater detail below with reference to the exemplary embodiments that are illustrated in the accompanying schematic figures, in which:

[0010] FIG. 1 discloses an exemplary architecture that may facilitate automatic credit payment during a transaction failure according to some principles of the present disclosure;

[0011] FIG.2 discloses an exemplary sequence diagram illustrating the flow of facilitating automatic credit payment during a transaction failure, according to some principles of the present disclosure;

[0012] FIG. 3 is a block diagram of an exemplary computer system for implementing embodiments consistent with the present disclosure.

DESCRIPTION OF THE DISCLOSURE

[0013] In the present document, the word "exemplary" is used herein to mean "serving as an example, instance, or illustration." Any embodiment or implementation of the present subject matter described herein as "exemplary" is not necessarily to be construed as preferred or advantageous over other embodiments.

[0014] While the disclosure is susceptible to various modifications and alternative forms, specific embodiment thereof has been shown by way of example in the drawings and will be described in detail below. It should be understood, however that it is not intended to limit the disclosure to the particular forms disclosed, but on the contrary, the disclosure is to cover all modifications, equivalents, and alternative falling within the spirit and the scope of the disclosure.

[0015] The terms "comprises", "comprising", or any other variations thereof, are intended to cover a non-exclusive inclusion, such that a setup, device or method that comprises a list of components or steps does not include only those components or steps but may include other components or steps not expressly listed or inherent to such setup or device or method. In other words, one or more elements in a device or system or apparatus preceded by "comprises... a" does not, without more constraints, preclude the existence of other elements or additional elements in the device or system or apparatus.

[0016] The terms "an embodiment", "embodiment", "embodiments", "the embodiment", "the embodiments", "one or more embodiments", "some embodiments", and "one embodiment" mean "one or more (but not all) embodiments of the invention(s)" unless expressly specified otherwise.

[0017] The terms "including", "comprising", "having" and variations thereof mean "including but not limited to", unless expressly specified otherwise.

[0018] As used herein, the terms "communication" and "communicate" may refer to the reception, receipt, transmission, transfer, provision, and/or the like of information (e.g., data, signals, messages, instructions, commands, and/or the like). For one unit (e.g., a device, a system, a component of a device or system, combinations thereof, and/or the like) to be in communication with another unit means that the one unit is able to directly or indirectly receive information from and/or transmit information to the other unit. This may refer to a direct or indirect connection (e.g., a direct communication connection, an indirect communication

connection, and/or the like) that is wired and/or wireless in nature. Additionally, two units may be in communication with each other even though the information transmitted may be modified, processed, relayed, and/or routed between the first and second unit. For example, a first unit may be in communication with a second unit even though the first unit passively receives information and does not actively transmit information to the second unit. As another example, a first unit may be in communication with a second unit if at least one intermediary unit (e.g., a third unit located between the first unit and the second unit) processes information received from the first unit and communicates the processed information to the second unit. In some non-limiting embodiments, a message may refer to a network packet (e.g., a data packet and/or the like) that includes data. It will be appreciated that numerous other arrangements are possible.

[0019] As used herein, the term “merchant” may refer to an individual or entity that provides goods and/or services, or access to goods and/or services, to customers based on a transaction, such as a payment transaction. The term “merchant” or “merchant system” may also refer to one or more computer systems operated by or on behalf of a merchant, such as a server computer executing one or more software applications. A “point-of-sale (POS) system,” as used herein, may refer to one or more computers and/or peripheral devices used by a merchant to engage in payment transactions with customers, including one or more card readers, near-field communication (NFC) receivers, RFID receivers, and/or other contactless transceivers or receivers, contact-based receivers, payment terminals, computers, servers, input devices, and/or other like devices that can be used to initiate a payment transaction.

[0020] As used herein, the term payment card may be (e.g., a credit or debit card), a gift card, a smartcard, smart media, a payroll card, a healthcare card, a wrist band, a machine-readable medium containing account information, a keychain device or fob, an RFID transponder, a retailer discount or loyalty card, a mobile device executing an electronic wallet application, a personal digital assistant, a security card, an access card, a wireless terminal, and/or a transponder, as examples.

[0021] As used herein, the term “computing device” may refer to one or more electronic devices that are configured to directly or indirectly communicate with or over one or more networks. A computing device may be a mobile or portable computing device, a desktop computer, a server, and/or the like. Furthermore, the term “computer” may refer to any computing device that includes the necessary components to receive, process, and output data,

and normally includes a display, a processor, a memory, an input device, and a network interface. A “computing system” may include one or more computing devices or computers. An “application” or “Application Program Interface” (API) refers to computer code or other data stored on a computer-readable medium that may be executed by a processor to facilitate the interaction between software components, such as a client-side front-end and/or server-side back-end for receiving data from the client. An “interface” refers to a generated display, such as one or more graphical user interfaces (GUIs) with which a user may interact, either directly or indirectly (e.g., through a keyboard, mouse, touchscreen, etc.). Further, multiple computers, e.g., servers, or other computerized devices, such as an autonomous vehicle including a vehicle computing system, directly or indirectly communicating in the network environment may constitute a “system” or a “computing system”.

[0022] It will be apparent that systems and/or methods, described herein, can be implemented in different forms of hardware, software, or a combination of hardware and software. The actual specialized control hardware or software code used to implement these systems and/or methods is not limiting of the implementations. Thus, the operation and behavior of the systems and/or methods are described herein without reference to specific software code, it being understood that software and hardware can be designed to implement the systems and/or methods based on the description herein.

[0023] FIG. 1 discloses an exemplary architecture that may facilitate automatic credit payment during a transaction failure according to some principles of the present disclosure.

[0024] The architecture comprises, a user **101**, an issuing bank **103**, a merchant **105**, an acquiring bank **107**, a payment network provider **109** and a one or more lending partner **111_a** to lending partner **111_n** (hereinafter collectively referred as one or more lending partners **111**). For ease of understanding, the present disclosure describes a scenario when a transaction failed due to insufficient funds in the user account. The user **101** may be a person interested in transacting with the merchant **105** via a user account associated with a bank **103**. Further, the merchant **105** may be a person who may be transacting with the user **101** for selling goods or services to the user. The bank associated with the merchant **105** account may be referred as an acquiring bank **107**.

[0025] In some embodiments, the payment network provider **109** such as Visa[®], Rupay[™], Mastercard[®], Discover[®], JCB[®], American Express[®] may act as payment facilitator to facilitate

transactions between two entities such as user **101** and merchant **105** in an electronic transaction scenario. The payment network provider **109** may communicate with the user **101** and the corresponding issuing bank **103**, merchant **105** and the corresponding acquiring bank **107** and the one or more lending partners **111**. Further, when the user **101** wishes to process the payment transaction and if the payment transaction fails, then the payment network provider **109** may be configured to communicate with the issuing bank **103** to check for available balance in the user **101** account and informs user **101** and the merchant **105** about the transaction failure that may be due to insufficient funds. Further, upon receiving user's approval to proceed with the transaction through one or more lending partners **111** and share the details such as credit history and credit score, the payment network provider **109** may share the details of user **101** with the one or more lending partners **111**. In an alternative embodiment, the payment network provider **109** may get the details of the user **101** and the credit score details from the user **101** itself or can be obtained from the issuing bank **103**. In yet other alternative embodiment, details of the user **101** and the credit score details of the user **101** may be obtained from the database like Equifax, TransUnion, Experian, CIBIL, FICO etc. which may adhere to Fair Credit Reporting Act (FCRA) or similar acts.

In some embodiments, the one or more lending partners **111** may be third-party users who can facilitate lending options and funds to the user **101** when there are insufficient funds in the user **101** account. When the payment network provider **109** shares the details of the user **101** and the credit score of the user **101**, the one or more lending partners **111** who may be interested in providing funds (either partial or full) may send term and condition policy to the payment network provider **109**. The payment network provider **109** further sorts the best lending options for the user **101** and displays the topmost lending options to the user. When the user **101** selects one of the one or more lending partners **111**, the one or more lending partners **111** seeks for the user's details and KYC details in order to push the funds to the issuing bank **103** of the user **101** or to the merchant acquiring bank via the payment network provider. In some embodiments, the payment network provider **109** may send the KYC details to the one or more lending partners **111** by seeking the details of the user **101** from the issuing bank **103**. In some other embodiments, the payment network provider **109** may send the KYC details to the one or more lender partners **111** by seeking the details of the user **101** from the user **101**.

[0026] In FIG.1, the architecture discloses a scenario when the user **101** initiates a transaction to buy a product or a service from a merchant **105** when there is insufficient balance

or funds in the user account. Upon receiving the request from the user **101**, the merchant **105** acquiring bank **107** forwards the user's request to the payment network provider **109**. The payment network provider **109** may pass the user request to the issuing bank **103** associated with the user **101**. The issuing bank **103** checks for the available balance and informs the available balance details to the payment network provider **109**. The payment network provider **109** who facilitates a transaction informs the user **101** about the transaction failure as there is no sufficient funds in the user's account. The payment network provider **109** does not send transaction failure message to the acquiring bank **107** of the merchant **105**, instead network providers **109** seek permission of the user **101** to facilitate the one or more lending options. Based on the available balance details provided by the issuing bank **103**, the payment network provider **109** may calculate the loan amount that is required from the one or more lending partners **111**. Thereafter, the payment network provider **109** may communicate with one or more lending partners **111** to discover the one or more lending partners **111** who are interested to credit the loan amount to the user **101**. The loan amount can be either the balance amount or the full transaction amount required to fulfill the transaction. As an example, the one or more lending partners **111** may include, but not limited to, Buy Now Pay Later (BNPL), Non-Banking Financial Company (NBFC), other issuing banks **103**, and Crypto Currency Exchanges. In some embodiments, the loan amount may be credited by one or more than one or more lending partners **111** as per the selection of the user **101**. As an example, the lending partner (BNPL) may credit X amount and the lending partner (NBFC) may credit the rest of the balance loan amount.

[0027] In some embodiments, the payment network provider **109** may take consent from user **101** to share the credit history or credit score with the one or more lending partners **111** along with the consumer details such as name, phone number, email Id, and the like. In some embodiments, the payment network provider **109** may get the details of the user **101** and the credit score of the user **101** from the issuing bank **103**. In an alternative embodiment, the payment network provider **109** may get the details of the user **101** and the credit score details from databases associated with the payment network provider **109** such as Equifax, TransUnion, Experian, Credit Information Bureau (India) Limited (CIBIL), Fair Isaac Corporation (FICO) etc., which adheres to Fair Credit Reporting Act (FCRA) (not shown in FIG.1). The payment network provider **109** may only share the details of the user **101** and the credit score with one or more lending partners **111** and hence the sensitive data associated with the user **101** is not disclosed which eliminates the risk of fraud or hacking. Upon receiving user

details and credit score details of the user **101**, the one or more lending partners **111** who may be interested in funding the user **101** may send the terms and conditions policy to the payment network provider **109**. Further, the payment network provider **109** sorts the best lending partner using an algorithm and displays the sorted the one or more lending partners **111** list to the user **101**. In some embodiments, the payment network provider **109** may sort the best lending partner to user **101** based on parameters that may include, but not limited to, loan interest rates, fees and charges, interest free period and repayment flexibility. Since the one or more lending partners **111** are sorted, the user **101** may select the best feasible option from the sorted list and share the required details to complete the Know Your Customer (KYC) process. In an alternative embodiment, the KYC process may be performed by the one or more lending partners **111** by receiving the user details from the issuing bank **103** or from the merchant's acquiring bank **107**. In other alternative embodiments, the one or more lending partners **111** may receive the user **101** details to complete the KYC process through the payment network provider **109** such as Visa[®], Mastercard[®], RuPay[™], Discover[®], JCB[®], American Express[®] etc.

[0028] In an embodiment, upon completing the KYC process by the user, the payment network provider **109** may split the payment transaction bills into two forms. Firstly, the payment network provider **109** may push the transaction amount from the available balance of the user **101** to the acquiring bank **107** associated with the merchant **105**. Thereafter, the lending partner **111** may arrange for the requested loan amount to the acquiring bank **107** associated with the merchant **105**. Thereafter, the payment network provider **109** may send an acknowledgement to the acquiring bank **107** that the amount has been transferred successfully to the merchant's account. Finally, the payment network provider **109** may create settlement reports indicating the split among different payment entities to all the entities involved in the transaction i.e., the issuing bank **103**, BNPL/NBFC/other issuing banks, Crypto Currency Exchanges, or loan provider and the acquiring bank **107**.

[0029] As an example, consider the user **101** wishes to purchase a product worth USD 1000 and the user **101** initiates a transaction with the merchant **105**. The acquiring bank **107** associated with merchant **105** forwards the request to the payment network provider **109**. The payment network provider **109** passes the request that the user **101** wishes to make a transaction to the merchant **105** to the issuing bank **103** associated with the user **101**. The issuing bank **103** checks for the available balance and confirms if the transaction requested by the user can be successfully performed or not, based on the available balance in the user's account. As an

example, consider the available balance in user's account be USD 300. The payment network provider **109** may receive a message from the issuing bank **103** informing that there is insufficient balance in the user's account to process the requested transaction. Therefore, the payment network provider **109** approaches the user, to check if the user is interested to opt for one or more lending options to complete the transaction. In some embodiments, the user **101** may be allowed to opt one or more lending options by providing consent to the payment network provider **109** to connect the user **101** with the one or more lending partners **111** by sharing details of the user such as Know Your Customer (KYC) details and credit score as required by the one or more lending partners **111**. Further, based on the balance details provided by the issuing bank **103**, the payment network provider **109** may calculate the loan amount that may be required from the one or more lending partners **111**. Further, the payment network provider that may be acting as a broker may communicate with the one or more lending partners **111** to discover the one or more lending partners **111** who are interested in providing credit (either for the balance amount or full transaction amount) to the user. Upon receiving the consent from the user, the payment network provider **109** may share the credit score with one or more lender. Further, the one or more lending partners **111** who may be interested in providing credit to the user **101** may send the lending terms to the payment network provider **109**. Thereafter, the payment network provider **109** sorts the one or more lending partners **111** based on different parameters such as, but not limited to, loan interest rates, fees and charges, interest free period, and repayment flexibility. The user **101** may select one of the one or more lending partners **111** from the sorted list provided to the user **101** and may contact the lending partner and provide the Know Your Customer (KYC) details for completing the process. Further, the payment network provider **109** may split the transaction amount (USD 1000 from the above example). Firstly, the issuing bank **103** may arrange for payment based on the available balance (as an example the available balance in user's account is USD 300, hence USD 300 would be arranged from the user's account) to the acquiring bank **107** associated with the merchant **105**. Secondly, the selected lender partner(s) may arrange for the requested loan amount (either the balance amount USD 700 or the full transaction amount USD 1000 from the above example) to the acquiring bank **107** associated with the merchant **105** via the payment network provider **109**. Finally, acquiring bank **107** associated with the merchant **105** may notify the transaction completed message. In some embodiments, the payment network provider **109** may generate a settlement report to indicate the settlement of the transaction amount between the issuing bank **103**, acquiring bank **107** and the lending partner(s). In the present disclosure the one or more lending partners **111** are expected to take care of settling the loan amount

directly with the consumer as they would do in normal circumstances based on the agreed terms and conditions without the intervention of the payment network provider. As a result, the present disclosure eliminates both risk and liability from payment network provider **109**.

[0030] FIG.2 discloses an exemplary sequence diagram illustrating the flow of facilitating automatic credit payment during a transaction failure. Please note that, the figure is split into two pages to explain the steps in detail. Steps 1-14 are explained in FIG 2 (continued) and steps 15-24 are explained in FIG.2, according to some principles of the present disclosure.

[0031] At step 1, when the user **101** wishes to purchase a product or wishes to receive any service from the merchant **105**, the user **101** may initiate a transaction request with the merchant **105**.

[0032] At step 2, the requested transaction may be routed to an acquiring bank **107** via the merchant portal or a merchant device via which the user **101** initiated the transaction.

[0033] At step 3, the acquiring bank **107** may further forward the transaction request (also referred as user request) to the payment network provider **109**.

[0034] At step 4, the payment network provider **109** may forward the transaction request to the issuing bank **103**.

[0035] At step 5, the issuing bank **103** may check the available balance in the user's account and share the available balance details to the payment network provider **109**, to indicate if the transaction can be processed or not. In this scenario, consider the balance of the user **101** is less than the amount required to process the transaction. Therefore, the issuing bank **103** may indicate that the transaction cannot be processed.

[0036] At step 6, the payment network provider **109** may share the message to the user **101** stating there is insufficient balance in the user account, to process the transaction.

[0037] At step 7, the payment network provider **109** may then calculate the loan amount based on the available balance in the user's account.

[0038] At step 8, the payment network provider **109** may ask user **101** if he/ she wishes to seek funds (credit/loan amount) from the one or more lending partners **111**. Further, the payment network provider **109** may take consent to share the credit history and credit score

with the one or more lending partners **111**. The user **101** may choose to opt out and decline credit / loan or may opt for credit but may decline to provide consent to share required details with the lending partners **111**. The payment network provider **109** would then decline the transaction stating the user **101** insufficient funds with the issuing bank **109**.

[0039] At step 9, the user **101** may provide the consent to the payment network provider **109** to contact one or more lending partners **111**.

[0040] At step 10, the payment network provider **109** may then communicate with one or more lending partners **111**. In some embodiments, the one or more lending partners **111** may include, but not limited to, authorized Buy Now Pay Later (BNPLs), NBFCs, Crypto Currency Exchanges, other issuing banks **103**, or any other loan aggregators.

[0041] At step 11, the payment network provider **109** may then request the user **101** to provide the user details such as name, phone number and email Id and also to provide credit history and credit score details to the payment network provider **109**. In an alternative embodiment, the payment network provider 109 may fetch user details, credit history and credit score from database like Equifax, TransUnion, Experian, CIBIL, FICO etc. which adheres Fair Credit Reporting Act (FCRA).

[0042] At step 12, the user **101** may provide the requested details to the payment network provider **109**.

[0043] At step 13, the payment network provider **109** may share the credit history, credit score and other user details obtained by the user 101 to the one or more lending partners **111**.

[0044] At step 14, the one or more lending partners **111** who are interested in providing credit to the user **101** may communicate with the payment network provider **109** by sharing the terms and conditions policy.

[0045] At step 15, the payment network provider **109** sorts the one or more lending partners **111** based on parameters such as the interest rate, fees and charges and the like.

[0046] At step 16, the payment network provider may send the top sorted list of one or more lending partners **111** to the user **101**.

[0047] At step 17, the user **101** may select at least one among the one or more lending partners **111** from whom he/she wants to opt the credit from, based on the top sorted list received from the payment network provider **109**.

[0048] At step 18, the user **101** may share the user **101** details with the one or more lending partners **111** to complete the KYC process. In some embodiments, the one or more lending partners **111** may receive the user **101** details from the issuing bank **103** directly to complete the KYC process.

[0049] At step 19, the payment network provider **109** may split the bill amount based on the funds present in the account of the user **101**. For instance, if the total amount to be paid to purchase the product is USD 1000 and the user's account has USD 300, then the bill amount would be split as follows: USD 300 to be paid from the user's account and USD 700 to be paid by the one or more lender partners **111**. However, the lender partners (at their sole discretion based on user **101** credit score and other parameters), may choose to provide an option to the user **101** to step up the loan amount to the full transaction amount, example USD 1000 (instead of USD 700). The user **101** may opt to receive either the balance loan amount or the full transaction amount as the loan amount to fulfill the transaction.

[0050] At step 20, the lending partners may send the requested loan amount to the user **101**.

[0051] At step 21, the issuing bank **103** associated with the user **101** may push the available balance amount to the acquiring bank **107** associated with the merchant **105**.

[0052] At step 22, the lending partners **111** chosen by the user **101** may push the loan amount selected by the user **101**, to the acquiring bank **107** associated with the merchant **105** via the payment network provider **109**. For instance if the total amount to be paid to purchase the product is USD 1000 and the user's account has USD 300, following two scenarios may happen: a) If the user **101** opts for loan amount as USD 700, then the bill amount would be split as follows: USD 300 to be paid from the user's account and USD 700 paid by the one or more lender partners **111** to the acquiring bank **107** associated with the merchant **105** b) If the user **101** opts for loan amount as full transaction amount, then USD 1000 would be paid by the one or more lender partners **111** to the acquiring bank **107** associated with the merchant **105**.

[0053] At step 23, the acquiring bank **107** associated with the merchant **105** may send an acknowledgement to the payment network provider **109** about the completion of the transaction associated with the user **101**.

[0054] At step 24 and 25, the payment network provider **109** may create a report indicating the bill amount that was paid from the user account and the loan amount received from the one or more lending partners **111** and shares it with the user **101** and the one or more lender partners **111** selected by the user **101**. The payment network provider **109** also shared reports with the acquiring bank **107** and the issuing bank **103** associated with the merchant **105**.

[0055] In an alternative embodiment, the payment network provider **109** may inform a credit bureaus, such as Equifax, TransUnion, Experian, CIBIL, FICO etc. about the loan availed by the user **101**. Further, the lending partners **111** would then be obligated to report credit repayment (whether positive or default) related to the loan disbursed to the user **101**. This would aid credit bureaus to make more informed decisions while calculating user's **101** credit score, thus preventing the user **101** from getting into potential debt trap and reducing credit defaults.

[0056] FIG. 3 is a block diagram of an exemplary computer system for implementing embodiments consistent with the present disclosure.

[0057] In some embodiments, FIG. 3 illustrates a block diagram of an exemplary computer system **300** for implementing embodiments consistent with the present disclosure. In some embodiments, the computer system **300** may be a payment network provider **109** and may include a central processing unit ("CPU" or "processor") **302** that is associated with issuing bank **103**, acquiring bank **107** and the lending partners **111** to provide automatic way to facilitate credit-based payments during a transaction failure. The processor **302** may include at least one data processor for executing program components for executing user or system-generated business processes. A user may include a person, a person using a device such as those included in this disclosure, or such a device itself. The processor **302** may include specialized processing units such as integrated system (bus) controllers, memory management control units, floating point units, graphics processing units, digital signal processing units, etc.

[0058] The processor **302** may be disposed in communication with input devices **311** and output devices **312** via I/O interface **301**. The I/O interface **301** may employ communication

protocols/methods such as, without limitation, audio, analog, digital, stereo, IEEE-1393, serial bus, Universal Serial Bus (USB), infrared, PS/2, BNC, coaxial, component, composite, Digital Visual Interface (DVI), high-definition multimedia interface (HDMI), Radio Frequency (RF) antennas, S-Video, Video Graphics Array (VGA), IEEE 802.n /b/g/n/x, Bluetooth, cellular (e.g., Code-Division Multiple Access (CDMA), High-Speed Packet Access (HSPA+), Global System For Mobile Communications (GSM), Long-Term Evolution (LTE), WiMax, or the like), etc.

[0059] Using the I/O interface 301, the computer system **300** may communicate with the input devices **311** and the output devices **312**.

[0060] In some embodiments, the processor **302** may be disposed in communication with a communication network **309** via a network interface **303**. The network interface **303** may communicate with the communication network **309**. The network interface **303** may employ connection protocols including, without limitation, direct connect, Ethernet (e.g., twisted pair 10/100/1000 Base T), Transmission Control Protocol/Internet Protocol (TCP/IP), token ring, IEEE 802.11a/b/g/n/x, etc. Using the network interface **303** and the communication network **309**, the computer system **300** may communicate with issuing bank **103**, acquiring bank **107** and the lending partners **111**. As an example, the one or more data sources **313** may include an issuing bank **103** and any other external source comprising client data. The communication network **309** can be implemented as one of the different types of networks, such as intranet or Local Area Network (LAN), Closed Area Network (CAN) and such. The communication network **309** may either be a dedicated network or a shared network, which represents an association of the different types of networks that use a variety of protocols, for example, Hypertext Transfer Protocol (HTTP), CAN Protocol, Transmission Control Protocol/Internet Protocol (TCP/IP), Wireless Application Protocol (WAP), etc., to communicate with each other. Further, the communication network **309** may include a variety of network devices, including routers, bridges, servers, computing devices, storage devices, etc. In some embodiments, the processor **302** may be disposed in communication with a memory **305** (e.g., RAM, ROM, etc. not shown in FIG.3) via a storage interface **303**. The storage interface **303** may connect to memory **305** including, without limitation, memory drives, removable disc drives, etc., employing connection protocols such as Serial Advanced Technology Attachment (SATA), Integrated Drive Electronics (IDE), IEEE-1393, Universal Serial Bus (USB), fibre channel, Small Computer Systems Interface (SCSI), etc. The memory drives may further

include a drum, magnetic disc drive, magneto-optical drive, optical drive, Redundant Array of Independent Discs (RAID), solid-state memory devices, solid-state drives, etc.

[0061] The memory 305 may store a collection of program or database components, including, without limitation, a user interface 306, an operating system 307, a web browser 308 etc. In some embodiments, the computer system 300 may store user/application data, such as the data, variables, records, etc. as described in this disclosure. Such databases may be implemented as fault-tolerant, relational, scalable, secure databases such as Oracle or Sybase.

[0062] The operating system 307 may facilitate resource management and operation of the computer system 300. Examples of operating systems include, without limitation, APPLE[®] MACINTOSH[®] OS X[®], UNIX[®], UNIX-like system distributions (E.G., BERKELEY SOFTWARE DISTRIBUTION[®] (BSD), FREEBSD[®], NETBSD[®], OPENBSD, etc.), LINUX[®] DISTRIBUTIONS (E.G., RED HAT[®], UBUNTU[®], KUBUNTU[®], etc.), IBM[®] OS/2[®], MICROSOFT[®] WINDOWS[®] (XP[®], VISTA[®]/7/8, 10 etc.), APPLE[®] IOS[®], GOOGLE[™] ANDROID[™], BLACKBERRY[®] OS, or the like. The User interface 306 may facilitate display, execution, interaction, manipulation, or operation of program components through textual or graphical facilities. For example, user interfaces may provide computer interaction interface elements on a display system operatively connected to the computer system 300, such as cursors, icons, checkboxes, menus, scrollers, windows, widgets, etc. Graphical User Interfaces (GUIs) may be employed, including, without limitation, Apple[®] Macintosh[®] operating systems' Aqua[®], IBM[®] OS/2[®], Microsoft[®] Windows[®] (e.g., Aero, Metro, etc.), web interface libraries (e.g., ActiveX[®], Java[®], Javascript[®], AJAX, HTML, Adobe[®] Flash[®], etc.), or the like.

[0063] In some embodiments, the computer system 300 may implement the web browser 308 stored program components. The web browser 308 may be a hypertext viewing application, such as MICROSOFT[®] INTERNET EXPLORER[®], GOOGLE[™] CHROME[™], MOZILLA[®] FIREFOX[®], APPLE[®] SAFARI[®], etc. Secure web browsing may be provided using Secure Hypertext Transport Protocol (HTTPS), Secure Sockets Layer (SSL), Transport Layer Security (TLS), etc. Web browsers 808 may utilize facilities such as AJAX, DHTML, ADOBE[®] FLASH[®], JAVASCRIPT[®], JAVA[®], Application Programming Interfaces (APIs), etc. In some embodiments, the computer system 300 may implement a mail server stored program component. The mail server may be an Internet mail server such as Microsoft Exchange, or the like. The mail server may utilize facilities such as Active Server Pages (ASP), ACTIVEX[®], ANSI[®] C++/C#, MICROSOFT[®], .NET, CGI SCRIPTS, JAVA[®], JAVASCRIPT[®], PERL[®],

PHP, PYTHON[®], WEBOBJECTS[®], etc. The mail server may utilize communication protocols such as Internet Message Access Protocol (IMAP), Messaging Application Programming Interface (MAPI), MICROSOFT[®] exchange, Post Office Protocol (POP), Simple Mail Transfer Protocol (SMTP), or the like. In some embodiments, the computer system 300 may implement a mail client stored program component. The mail client may be a mail viewing application, such as APPLE[®] MAIL, MICROSOFT[®] ENTOURAGE[®], MICROSOFT[®] OUTLOOK[®], MOZILLA[®] THUNDERBIRD[®], etc.

[0064] Furthermore, one or more computer-readable storage media may be utilized in implementing embodiments consistent with the present disclosure. A computer-readable storage medium refers to any type of physical memory on which information or data readable by a processor may be stored. Thus, a computer-readable storage medium may store instructions for execution by one or more processors, including instructions for causing the processor(s) to perform steps or stages consistent with the embodiments described herein. The term “computer-readable medium” should be understood to include tangible items and exclude carrier waves and transient signals, i.e., non-transitory. Examples include Random Access Memory (RAM), Read-Only Memory (ROM), volatile memory, non-volatile memory, hard drives, Compact Disc (CD) ROMs, Digital Video Disc (DVDs), flash drives, disks, and any other known physical storage media.

[0065] Finally, the language used in the specification has been principally selected for readability and instructional purposes, and it may not have been selected to delineate or circumscribe the inventive subject matter. Accordingly, the disclosure of the embodiments of the disclosure is intended to be illustrative, but not limiting, of the scope of the disclosure.

[0066] With respect to the use of substantially any plural and/or singular terms herein, those having skill in the art can translate from the plural to the singular and/or from the singular to the plural as is appropriate to the context and/or application. The various singular/plural permutations may be expressly set forth herein for sake of clarity.

[0067] 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++ or Perl 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, such as a random-access memory (RAM), a read only

memory (ROM), a magnetic medium such as a hard-drive or a floppy disk, or an optical medium such as a CD-ROM. Any such computer readable medium may reside on or within a single computational apparatus and may be present on or within different computational apparatuses within a system or network.

[0068] The above description is illustrative and is not restrictive. Many variations of the invention may become apparent to those skilled in the art upon review of the disclosure.

[0069] 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.

[0070] A recitation of "a", "an" or "the" is intended to mean "one or more" unless specifically indicated to the contrary.

[0071] All patents, patent applications, publications, and descriptions mentioned above are herein incorporated by reference in their entirety for all purposes. None is admitted to be prior art.

[0072] Although the invention has been described in detail for the purpose of illustration based on what is currently considered to be the most practical and preferred embodiments, it is to be understood that such detail is solely for that purpose and that the invention is not limited to the disclosed embodiments, but, on the contrary, is intended to cover modifications and equivalent arrangements that are within the spirit and scope of the invention. For example, it is to be understood that the present invention contemplates that, to the extent possible, one or more features of any embodiment can be combined with one or more features of any other embodiment.

ABSTRACT

DISCOVERING NEED FOR CREDIT AND FACILITATING LENDING IN REAL TIME

The present disclosure describes method that may facilitate the payment transaction or credit-based payment during transaction failure. When payment transaction fails due to insufficient funds in issuing bank of a user, the payment network provider may inform user that payment was declined by the issuing bank due to insufficient funds. The payment network provider may facilitate lending options via one or more lending partners. If user wishes to opt for lending options, then user has to provide consent to the payment network provider for sharing user's credit score with the one or more lending partners. Upon receiving approval from the user, network provider may get user details to fetch credit score and share the credit score with lender partners. Further, one or more lender partners who may be interested in providing the funds may send the lending terms to the payment network provider. The user may select one or more of the lender partners from the sorted list provided to the user and may contact the one or more lending partner and provide the Know Your Customer (KYC) details for receiving the credit to complete the transaction.

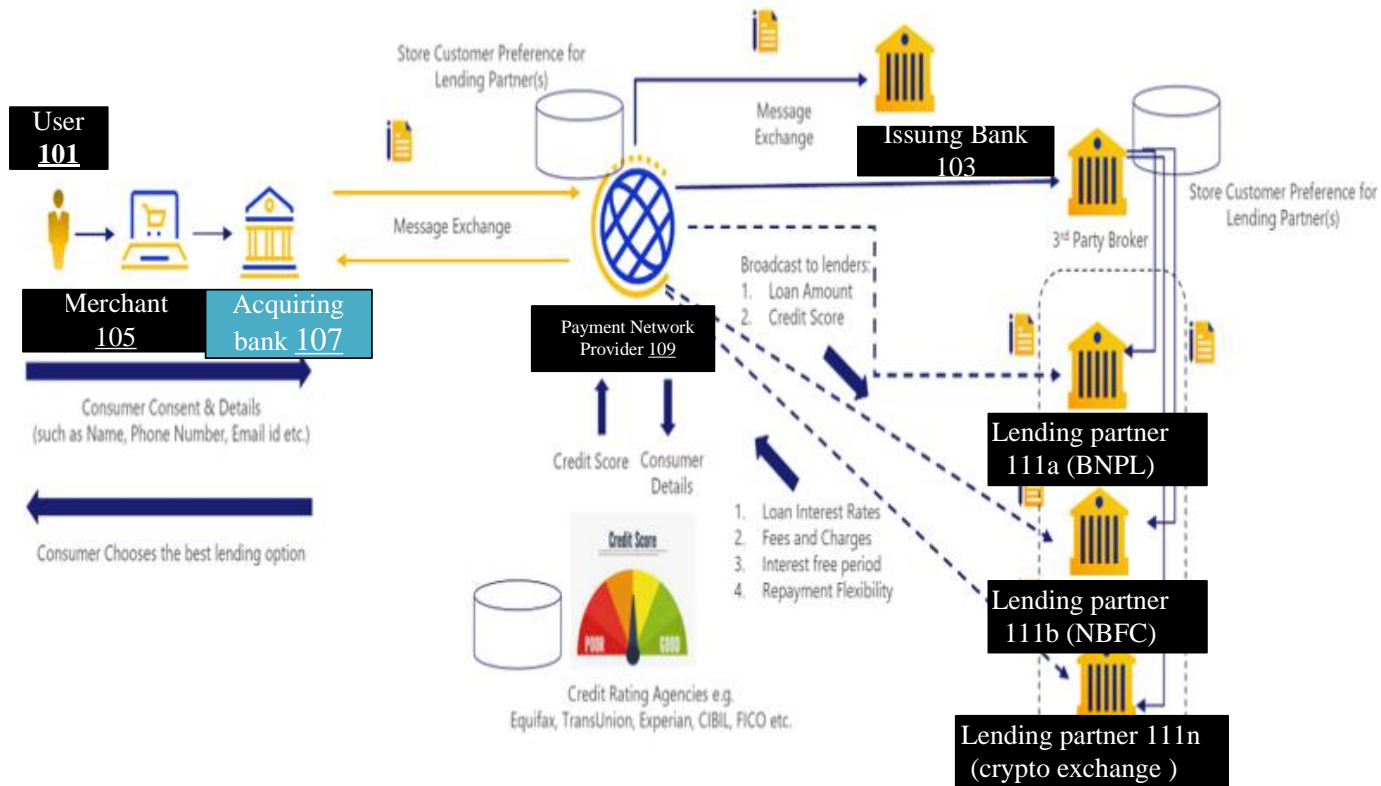


FIG .1

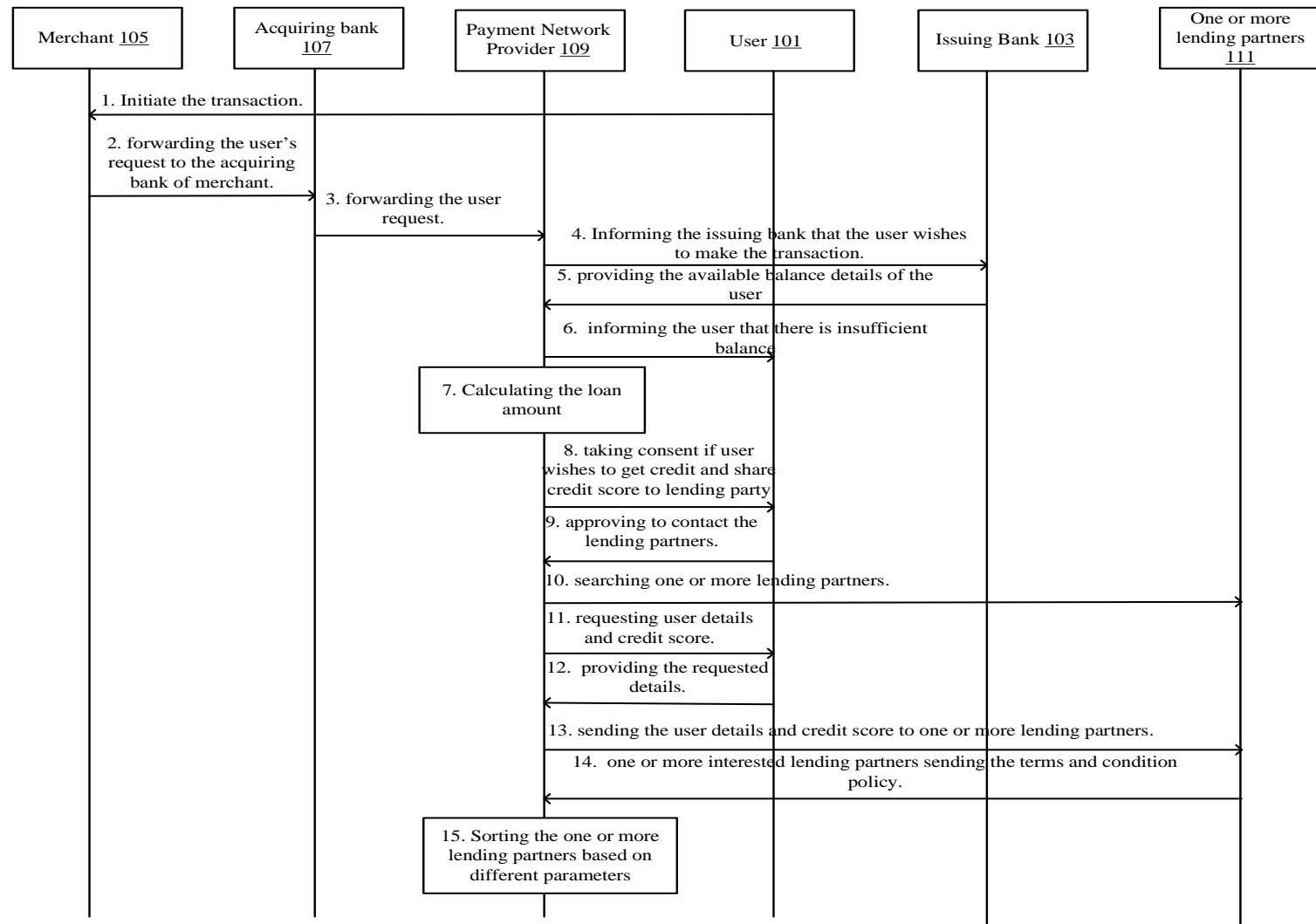


FIG.2 (Continued)

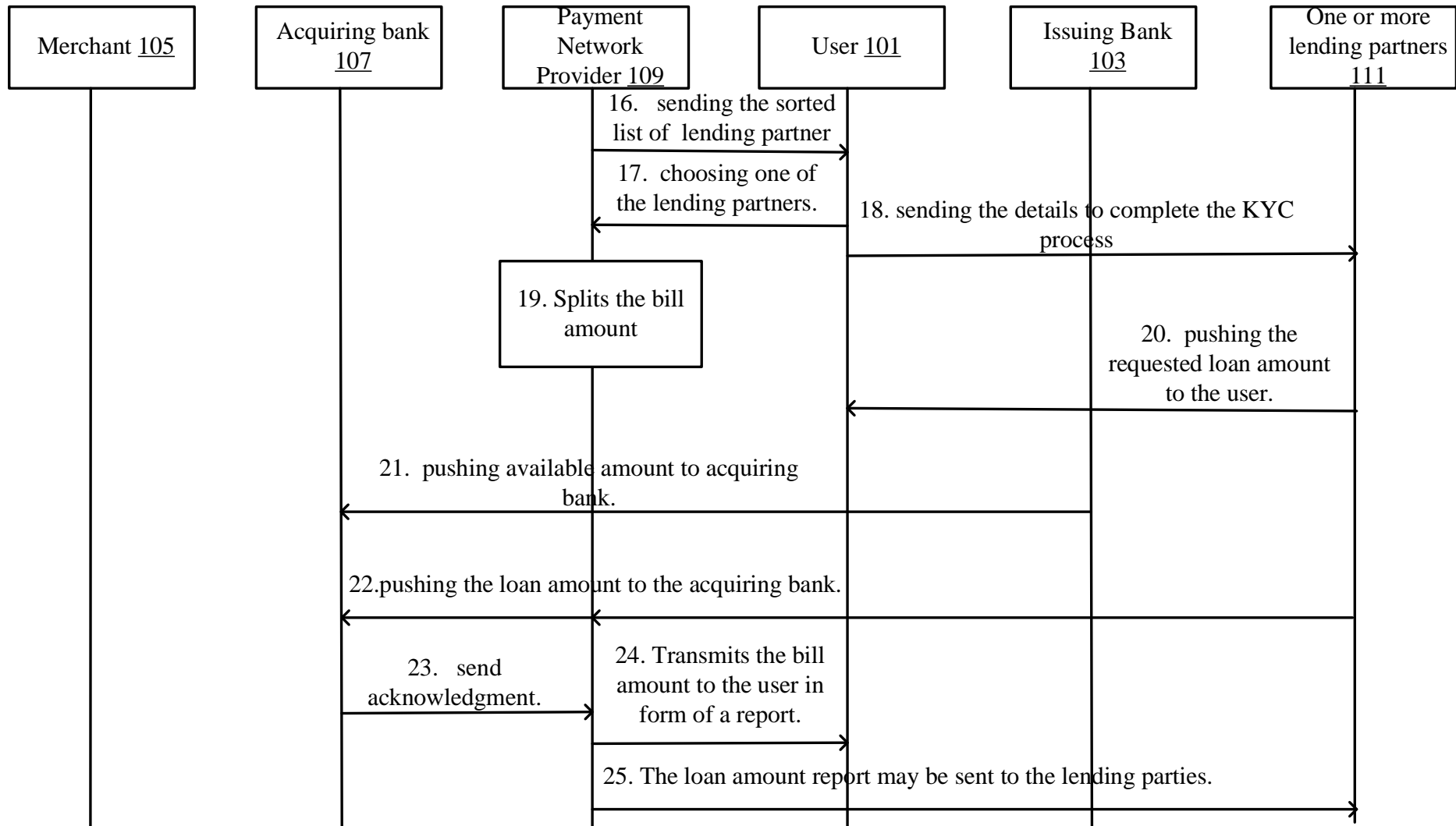


FIG.2.

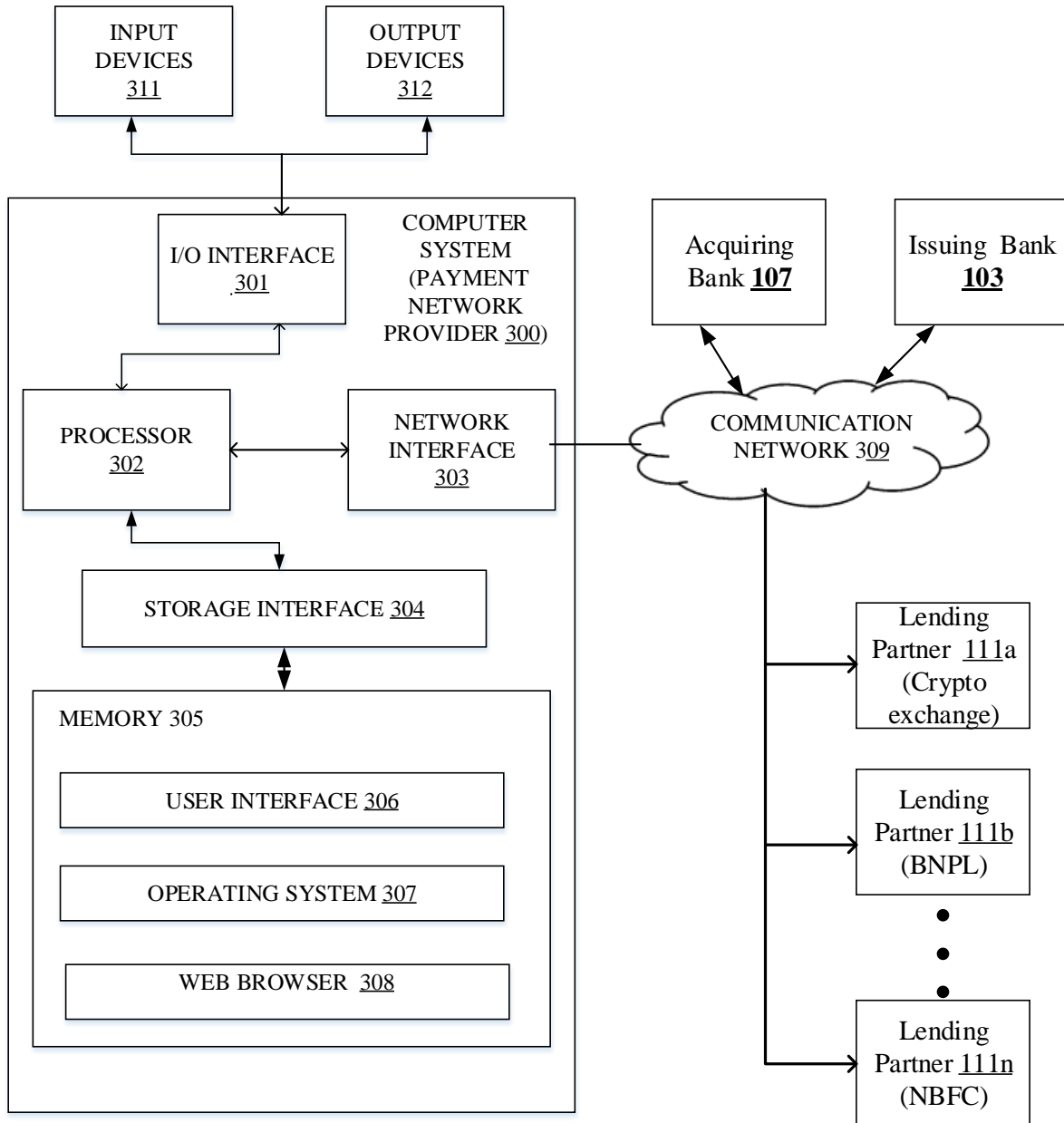


FIG.3.