METHOD AND SYSTEM FOR PROCESSING TRANSACTIONS FOR INSTALMENTS

FIELD OF THE INVENTION

[0001] The present invention relates to a method and a system for processing electronic transactions, and, more particularly to a method and a system for processing transactions, at an automated teller machine, for instalments.

BACKGROUND

[0002] Equated monthly instalments (EMIs), or simply "instalments", are fixed payments made periodically by borrowers to lenders to pay off a loan. Instalments are currently offered on transactions that are initiated by users, from their financial accounts, at e-commerce applications (such as mobile applications, web applications, and the like) or at merchant stores by way of point-of-sale (POS) devices. Users may opt to avail an instalment facility on the transactions that allows the users to pay transaction amounts of the transactions in instalments over a period of time.

[0003] The instalment facility is offered to users based on various criteria that require pre-enrolment of the users to avail the instalment facility on transactions, agreement between issuers of the financial accounts and the merchants to offer the instalment facility on transactions, and the like. Users are inconvenienced by a need to engage in pre-enrolment formalities for availing instalments offered at various merchants. Further, if the users are not pre-enrolled, they do not have the privilege of availing the instalment facility on transactions. Furthermore, the instalment facility is currently offered on e-commerce applications or on transactions performed at the POS devices; however, they are not offered on transactions (such as cash withdrawals, bill payments, or the like) that are performed at automated teller machines.

[0004] In light of the foregoing, there exists a need for a system that does not require pre-enrolment of the users for availing the instalment facility on transactions, allows users to avail the instalment facility on transactions at ATMs, and reduces the inconvenience caused to the users.

SUMMARY

[0005] In an embodiment of the present invention, a method for processing transactions for instalments is provided. The method includes receiving, by an instalment processing server, a transaction request for a transaction initiated at an automated teller machine (ATM) by a user by using a financial account of the user. An eligibility of the user for availing an instalment facility on the transaction is determined in real-time based on a set of rules. An option to avail the instalment facility is presented at the ATM to the user based on the determination of the eligibility of the user. A set of instalment plans are generated for the user when the user chooses to avail the instalment facility. The transaction is processed for instalments based on a first instalment plan selected by the user from the set of instalment plans.

[0006] In another embodiment of the present invention, a system for processing transactions for instalments is provided. The system includes an instalment processing server that includes circuitry to perform various functions to process the transactions for instalments. The circuitry receives a transaction request for a transaction initiated at an automated teller machine (ATM) by a user from a financial account of the user. The circuitry determines, in real-time, an eligibility of the user for availing an instalment facility on the transaction based on a set of rules. The user is presented with an option, to avail the instalment facility, on the ATM based on the determination of the eligibility of the user. A set of instalment plans are generated by the circuitry in real-time when the user chooses to avail the instalment facility. The transaction is processed for instalments based on a first instalment plan selected by the user from the set of instalment plans.

[0007] In yet another embodiment of the present invention, a method for processing transactions for instalments is provided. The method includes receiving, by an automated teller machine (ATM), transaction details of a transaction initiated at the ATM by a user. A user interface (UI) screen is rendered by the ATM to the user. The UI presents an option to the user to avail an instalment facility on the transaction. If the user chooses to avail the instalment facility, the ATM presents on the UI, a set of instalment plans for the user. The ATM receives a selection of a first instalment plan by the user, from the set of instalment

plans. The transaction is processed for instalments based on the selection of the first instalment plan by the user.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] Various embodiments of the present invention are illustrated by way of example, and not limited by the appended figures, in which like references indicate similar elements, and in which:

[0009] FIG. 1 is a block diagram that illustrates a communication environment for processing transactions for instalments, in accordance with an embodiment of the present invention;

[0010] FIGS. 2A-2F collectively represent a process flow diagram that illustrates an exemplary scenario for processing transactions for instalments, in accordance with an embodiment of the present invention;

[0011] FIGS. 3A and 3B collectively illustrate user interface (UI) screens that are rendered at an ATM of the communication environment of FIG. 1, in accordance with an embodiment of the present invention;

[0012] FIGS. 4A-4E collectively represent a flow chart that illustrates a method for processing transactions for instalments, in accordance with an embodiment of the present invention;

[0013] FIG. 5 represents a high-level flow chart that illustrates a method for processing transactions for instalments, in accordance with an embodiment of the present invention;

[0014] FIG. 6 represents a high-level flow chart that illustrates a method for processing transactions for instalments, in accordance with an embodiment of the present invention;

[0015] FIG. 7 is a block diagram that illustrates an instalment processing server of the communication environment of FIG. 1, in accordance with an embodiment of the present invention;

[0016] FIG. 8 is a block diagram that illustrates an issuer server of the communication environment of FIG. 1, in accordance with an embodiment of the present invention; and

[0017] FIG. 9 is a block diagram that illustrates system architecture of a computer system, in accordance with an embodiment of the present invention.

DETAILED DESCRIPTION

[0018] The present invention is best understood with reference to the detailed figures and description set forth herein. Various embodiments are discussed below with reference to the figures. However, those skilled in the art will readily appreciate that the detailed descriptions given herein with respect to the figures are simply for explanatory purposes as the methods and systems may extend beyond the described embodiments. In one example, the teachings presented and the needs of a particular application may yield multiple alternate and suitable approaches to implement the functionality of any detail described herein. Therefore, any approach may extend beyond the particular implementation choices in the following embodiments that are described and shown.

[0019] References to "an embodiment", "another embodiment", "yet another embodiment", "one example", "another example", "yet another example", "for example", and so on, indicate that the embodiment(s) or example(s) so described may include a particular feature, structure, characteristic, property, element, or limitation, but that not every embodiment or example necessarily includes that particular feature, structure, characteristic, property, element or limitation. Furthermore, repeated use of the phrase "in an embodiment" does not necessarily refer to the same embodiment.

OVERVIEW

[0020] Various embodiments of the present invention provide a method and a system that facilitate processing transactions initiated at automated teller machines (ATMs) for instalments. A first user initiates a transaction at an ATM from a first financial account of the first user. The first financial account is maintained with an issuer. The first user is authenticated by way of authentication details of the first user and is prompted to enter transaction details of the transaction, such as a type of transaction, a transaction amount, and the like. The ATM communicates the transaction details to an acquirer of the ATM. The acquirer generates and transmits a transaction request to an instalment processing server based on the transaction details.

[0021] The instalment processing server stores account details of the first financial account of the first user, a set of rules for determining an eligibility of the first user for availing an instalment facility, and instalment parameters received from the issuer. The set of rules may indicate a minimum transaction amount, a minimum credit score and/or a minimum account balance that needs to be maintained in financial accounts (e.g., the first financial account) and/or investment accounts of the first user. The instalment processing server may receive the account details, the set of rules, and the instalment parameters from the issuer. The set of rules and the instalment parameters may be defined by the issuer. The issuer may share the set of rules, the instalment parameters, and/or the account details with the instalment processing server periodically (e.g., daily or weekly or monthly) or at the issuer's discretion. The set of rules may be common for all users associated with the issuer or different for different sets of users associated with the issuer. The instalment processing server generates an instalment qualification indicator in real-time that indicates whether the first user is eligible for availing the instalment facility. In an embodiment, the instalment qualification indicator is a flag whose value indicates whether the first user is eligible for availing the instalment facility on the transaction. In one example, the value of the flag may indicate that the first user is eligible for availing the instalment facility if a remaining account balance of the financial account after the transaction exceeds or equals a minimum account balance indicated by the set of rules. In another example, the value of the flag may indicate that the first user is not eligible for availing the instalment facility if a transaction amount of the transaction is lower than a minimum transaction amount indicated by the set of rules.

[0022] The issuer determines whether the transaction is authorized for instalments when the instalment qualification indicator indicates that the first user is eligible for availing the instalment facility. If the transaction is authorized for instalments, the ATM renders a user interface (UI) screen and displays an option on the UI for the first user to avail the instalment facility. If the first user does not opt for availing the instalment facility, the transaction is processed as a regular transaction. If the first user opts for availing the instalment facility, the acquirer generates and transmits a request to the instalment processing server for generating a set of instalment plans for the first user. The instalment processing server generates in real-time the set of instalment plans for the first user that are based on the instalment parameters and transmits the set of instalment plans to the acquirer. The acquirer transmits the set of instalment plans to the ATM for presenting to the first user. The ATM presents the set of plans to the first user. The first user selects a first instalment plan from the set of instalment

plans. The selection of the first instalment plan by the first user is shared with the acquirer, the issuer, and the instalment processing server.

[0023] Thus, the method and system of the present invention enable the first user to avail the instalment facility on transactions performed at the ATM without pre-enrolment by the first user for availing the instalment facility.

TERMS DESCRIPTION (in addition to plain and dictionary meaning)

[0024] Instalments are sums of money paid periodically by a user to an issuer, for repayment of a transaction amount of a transaction performed by the user at an automated teller machine (ATM) from a financial account of the user.

[0025] Financial account of a user is an account maintained by the user with an issuer. The user uses the financial account to perform various transactions, such as transactions at ATMs. The financial account may be one of a checking account, a savings account, or the like.

[0026] ATM is an electronic machine that aids users in performing various transactions (such as cash withdrawals, cash deposits, transfers of funds, payments of utility bills, insurance, or income tax, and the like) by using financial accounts of the users.

[0027] Set of rules includes one or more rules for determining an eligibility of the user for availing an instalment facility on a transaction initiated by the user at the ATM. The set of rules may be based on at least a transaction amount of the transaction, an account balance of a financial account of the user, a credit score of the user, or the like. The set of rules is determined by the issuer of the financial account.

[0028] Instalment plan defines a repayment structure that governs repayment of the transaction amount. The repayment structure is based on instalment parameters. The instalment parameters may include a rate of interest, a period of time to pay back the transaction amount in instalments, a fee for availing the instalment plan, and the like. The instalment parameters may be defined by the issuer of the financial account.

[0029] An instalment processing server is a physical or cloud server that determines eligibility of users for availing instalment facilities for transactions initiated by the users at ATMs from financial accounts of the users. The instalment processing server generates instalment plans for eligible users when the users choose to avail the instalment facility. The

instalment processor may be a part of, or function in conjunction with, any financial institution that is offering an instalment service. In one example, the instalment processing server is a stand-alone server working in conjunction with an acquirer, a payment network, or an issuer. In another example, functions of the instalment processing server are performed by an acquirer server of the acquirer. In another example, the functions of the instalment processing server are performed by a payment network server of the payment network. In another example, the functions of the instalment processing server are performed by an issuer server of the issuer.

[0030] Issuer is a financial institution which establishes and maintains user accounts of several users. The issuer authorizes and settles transactions in accordance with various payment network regulations and local legislation.

[0031] FIG. 1 is a block diagram that illustrates a communication environment 100 for processing transactions for instalments, in accordance with an embodiment of the present invention. The communication environment 100 depicts a first user 102, an automated teller machine (ATM) 104, an acquirer server 106, an auxiliary acquirer server 108, a payment network server 110, an instalment processing server 112, and an issuer server 114. The ATM 104, the acquirer server 106, the auxiliary acquirer server 108, the payment network server 110, the instalment processing server 112, and the issuer server 114 may communicate with each other by way of a communication network 116 or through one or more separate communication networks established therebetween.

[0032] The first user 102 is an individual, who is an account holder of at least one financial account. In one embodiment, the financial account is maintained by a financial institution, such as a bank (*i.e.*, an issuer of the financial account; hereinafter, "issuer"). Examples of the financial account include, but are not limited to, a checking account (*i.e.*, account for withdrawals or deposits), a savings account (*i.e.*, a deposit account), or the like. In another embodiment, the financial account is an e-wallet account that is maintained by a third-party service provider. The user may also be an account holder of investment accounts, such as a fixed deposit account, a dematerialization (*i.e.*, DEMAT) account, a brokerage account, or the like, that are maintained by the issuer.

[0033] The ATM 104, also known as a cash dispenser or an automated bank teller, is an electronic machine that aids users, such as the first user 102, in performing various transactions (such as a cash withdrawal, a cash deposit, transfer of funds, a payment of utility

bills, insurance, or income tax, and the like) by using a financial account of the first user 102. In one example, the first user 102 may use a transaction card that is associated with the financial account of the first user 102 to perform the transaction at the ATM 104. In another example, the first user 102 may input a user-id and a password that is associated with the financial account to perform the transaction. In yet another example, the first user 102 may perform the transaction by way of a user device such as a smartphone, a mobile device, a tablet, a phablet, or the like.

[0034] The ATM 104 is maintained by a financial institution such as an acquirer. In various scenarios, the issuer and the acquirer may be the same or different entities. The ATM 104 renders a user interface (UI) screen and presents an option on the UI for availing an instalment facility on transactions initiated at the ATM 104. The UI screen is rendered based on the eligibilities of the users, such as the first user 102, for availing the instalment facility when the users initiate transactions at the ATM 104. The ATM 104 further presents, on the UI screen, one or more instalment plans that the users can avail when the users choose to avail the instalment facility.

[0035] The acquirer server 106 is a computing server that is associated with the acquirer that maintains the ATM 104. The acquirer server 106 processes the transactions initiated at the ATM 104, such as the transaction initiated by the first user 102 at the ATM 104. The acquirer server 106 further communicates details of the transaction to a payment network associated with the payment network server 110 or the issuer associated with the issuer server 114. When the issuer authorizes the transaction for instalments, the acquirer server 106 requests the ATM 104 to present the option that allows the first user 102 to avail the instalment facility. The acquirer server 106 receives an acceptance by the first user 102 for availing the instalment facility when the first user 102 selects the option for paying the transaction in instalments. The acquirer server 106 generates a request that communicates the acceptance by the first user 102 to the instalment processing server 112 by way of the acquirer auxiliary server 108 and receives a set of instalment plans for the first user 102. The acquirer server 106 further communicates with the ATM 104 for presenting the set of instalment plans to the first user 102.

[0036] The auxiliary acquirer server 108 is associated with the acquirer and acts as an interface between the acquirer server 106 and the instalment processing server 112. The

auxiliary acquirer server 108 transmits the selection of an instalment plan by the first user 102 to the instalment processing server 112.

[0037] The payment network server 110 is a computing server that is associated with a payment network. The payment network server 110 represents an intermediate entity between the acquirer server 106 and the issuer server 114 for authorizing and funding the transactions performed by the users at the ATM 104. Examples of various payment networks include Mastercard, American Express, VISA, Discover, Diners Club, JCB, UnionPay, or the like.

[0038] The instalment processing server 112 determines, in real-time, the eligibility of the users (such as the first user 102) for availing the instalment facility on ATM transactions. The instalment processing server 112 determines the eligibilities of the users based on sets of rules that are defined by issuers of the financial accounts of the users. The instalment processing server 112 receives account details of financial accounts and investment accounts of the users (as shown in TABLE A), balance criteria pertaining to the financial accounts and investment accounts of the users (as shown in TABLE B), the sets of rules (as shown in TABLE C), and instalment parameters (as shown in TABLE D) from the issuers, dynamically (such as on a daily, weekly, monthly basis, or the like). The instalment processing server 112 stores the aforementioned information (hereinafter "dynamic data") in a database of the instalment processing server 112 or an external database associated with the instalment processing server 112. The instalment parameters are based on an agreement between the acquirers (such as the acquirer associated with the ATM 104) and the issuers to process the transaction for instalments. Further, the instalment processing server 112 stores a list of issuers that are registered for offering the instalment facility on ATM transactions in the database of the instalment processing server 112 or in the database associated with the instalment processing server 112. The instalment processing server 112 also stores agreements between the issuers and acquirers to offer the instalment facility on the ATM transactions.

[0039] The sets of rules are based on transaction amounts of the transactions that are initiated at the ATM 104. The sets of rules are further based on the balance criteria of the financial accounts and the investment accounts of the users, credit scores of the users, remaining balances after the transaction of at least one of the financial accounts and investment accounts of the users, and the like. In one embodiment, an issuer may define a

common set of rules for all its users. In another embodiment, the issuer may define different sets of rules for different users.

[0040] The instalment processing server 112 generates, in real-time, sets of instalment plans for the users, such as the first user 102, when the users choose to avail the instalment facility on the ATM transactions. The sets of instalment plans are generated based on instalment parameters (as shown in TABLE D) that are provided by the issuers. In the presently preferred embodiment, the instalment processing server 112 is maintained by the payment network. In another embodiment, the instalment processing server 112 is maintained by the issuer.

[0041] TABLE A illustrates the account details of the financial and investment accounts of the users of various issuers, received by the instalment processing server 112, in accordance with an embodiment of the present invention. The account details are stored in the database of the instalment processing server 112 or in an external database associated with the instalment processing server 112. The issuers may share/update the account details periodically (such as on a daily, a weekly, or a monthly basis, or the like) or at the issuers' discretion. TABLE A includes columns 118a-118f and rows 120a-120c. The columns 118a-118f represent parameters pertinent to the account details, such as a name of an issuer, an account number of a financial account (here, checking account) of a user, an account balance of the financial account (i.e., a checking account balance), an account balance of an investment account (i.e., a fixed deposit balance) associated with the checking account, an account balance of an another investment account (i.e., a brokerage account balance) associated with the checking account, and a credit score of the user, respectively. As known in the art, the brokerage account of the user is a trading account maintained by the user at the issuer or at a financial institution associated with the issuer. As known in the art, the fixed deposit account of the user is an investment account maintained by the user at the issuer or at a financial institution associated with the issuer. The credit score of the user may be determined by credit information companies (such as Equifax, TransUnion, or the like) by using various methods known in the art. In other embodiments, the account details of the users may further include an account balance of a savings account of the users.

[0042] The 120a-120c represent first through third account details. In an example, the first account details are associated with the first user 102 and the second and third account details are associated with second and third users (not shown). The first user 102 maintains a

checking account, a fixed deposit account, and a brokerage account at a first issuer (say, Bank A). An account number of the checking account is 100100 and account balances of the checking, fixed deposit, and brokerage accounts are U.S. Dollars ($) 8,000, $20,000, and $10,000, respectively. The first user 102 has a credit score of '500'. Similarly, the second user maintains a checking account that has an account number 100101 and a fixed deposit account at the first issuer (*i.e.*, Bank A). Account balances of the checking and the fixed deposit accounts are $6,000 and $10,000, respectively. The second user does not maintain a brokerage account at Bank A. The second user has a credit score of '750'. The third user maintains a checking account that has an account number 200201 at a second issuer (say, Bank B). An account balance of the third checking account is $25,000. The third user does not maintain a fixed deposit account or a brokerage account at Bank B. The third user has a credit score of '740'.

[0043] TABLE B illustrates balance criteria defined by various issuers, in accordance with an embodiment of the present invention. The balance criteria define the financial and investment accounts of the users to be taken into consideration for determining the eligibilities of the users for availing the instalment facilities on the ATM transactions. The balance criteria are stored in the database of the instalment processing server 112 or in an external database associated with the payment network server 110. The issuers may share/update the balance criteria periodically (such as on a daily, a weekly, or a monthly basis, or the like) or at the issuers' discretion. TABLE B includes columns 122a-122e and rows 124a-124d. The columns 122a-122e represent parameters pertinent to the balance criteria such as a name of an issuer, a name of an acquirer, an option to include a checking account balance of a checking account of a user, an option to include an investment account balance such as an account balance of a fixed deposit account of the user, and an option to include another investment account balance such as an account balance of a brokerage account of the user, respectively. The balance criteria may be decided by the issuers at their discretion.

[0044] The row 124a describes a scenario in which an acquirer and an issuer are the same (*i.e.*, Bank A). When a user (say the first user 102) of Bank A performs a transaction at an ATM of Bank A, the account balances of the checking, fixed deposit, and brokerage accounts of the first user 102 are taken into consideration for determining the eligibility of the first user 102 to avail the instalment facility. The second row 124b describes a scenario in which the issuer (*i.e.,* Bank A) and the acquirer (*i.e.,* Bank B) are different. When a user (say,

the first user 102) of Bank A initiates a transaction at an ATM of Bank B, the account balances of the checking and brokerage accounts of the first user 102 are taken into consideration for determining the eligibility of the first user 102 for availing the instalment facility. The account balance of the fixed deposit account of the first user 102 is not taken into consideration for determining the eligibility. The row 124c describes a scenario in which the acquirer (*i.e.*, Bank C) and the issuer (i.e., Bank B) are different. When a user (say the third user) of Bank B performs a transaction at an ATM of Bank C, account balances of the checking, fixed deposit, and brokerage accounts of the third user are not taken into consideration for determining the eligibility of the third user for availing the instalment facility. The row 124d describes a scenario in which the issuer (*i.e.*, Bank B) and the acquirer (*i.e.*, Bank A) are different. When a user (say, the third user) of Bank B initiates a transaction at an ATM of Bank A, the account balance of the checking account of the third user is taken into consideration for determining the eligibility of the third user to avail the instalment facility. The third user may maintain investment accounts with Bank B. However, the account balances of the investment accounts of the third user are not taken into consideration for determining the eligibility of the third user to avail the instalment facility.

[0045] TABLE C illustrates the sets of rules that are defined by the issuers for determining the eligibilities of the users for availing the instalment facilities on the ATM transactions, in accordance with an embodiment of the present invention. The sets of rules are stored in the database of the instalment processing server 112 or in an external database associated with the instalment processing server 112. The issuers may share/update the set of rules periodically (such as daily, weekly, monthly, or the like) or at the issuers' discretion. TABLE C includes columns 126a-126g and 128a-128d. The columns 126a-126g represent parameters pertinent to the set of rules such as a name of an issuer, a name of an acquirer, a minimum transaction amount of the transaction, an option to include the balance criteria, an option to include a credit score of the user, a minimum account balance to be maintained after the transaction (as a percentage of an existing account balance of the user), and a minimum credit score of the user, respectively.

[0046] The row 128a describes a scenario in which the acquirer and the issuer are the same (*i.e.,* Bank A). When a user (say, the first user 102) of Bank A performs a transaction at the ATM of Bank A, the eligibility of the first user 102 for availing the instalment facility on the transaction is based on a transaction amount (which must exceed or equal a minimum transaction amount of $1,000) of the transaction, the balance criteria of the account balances

of the first user 102, and the remaining account balances of the first user 102 after the transaction. As stated in the row 124a of TABLE B, the account balances of the checking, fixed deposit, and brokerage accounts of the first user 102 are considered for determining the balance criteria of the account balances of the first user 102. Thus, the transaction amount must not exceed '20%' of a sum of account balances of the checking, fixed deposit, and brokerage accounts (*i.e.*, minimum remaining account balance in the checking, fixed, and brokerage accounts should be '80%' of the current balance)). The credit score of the first user 102 is not considered for the determination of the eligibility of the first user 102 for availing the instalment facility. Thus, if the transaction amount is less than $1,000 the first user 102 is determined as ineligible for availing the instalment facility. Further, if the transaction amount is equal to or greater than $1,000 but if the transaction amount exceeds '20%' of the sum of the account balances of the checking, fixed deposit, and brokerage accounts of the first user 102, the first user 102 is determined as ineligible for availing the instalment facility. However, if the transaction amount exceeds or equals $1,000 and if the transaction amount is less than or equal to '20%' of the sum of the account balances of the checking, fixed deposit, and brokerage accounts of the first user 102, the first user 102 is determined as eligible for availing the instalment facility.

[0047] The row 128b describes a scenario in which the acquirer (*i.e.*, Bank B) and the issuer (*i.e.*, Bank A) are different. When a user (say, the first user 102) of Bank A performs a transaction at the ATM of Bank B, an eligibility of the first user 102 for availing the instalment facility is based on a transaction amount (which must exceed or equal a minimum transaction amount of $2,000) of the transaction, the balance criteria (*i.e.*, account balances of the checking and the brokerage accounts of the first user 102 (the transaction amount must not exceed '30%' of a sum of account balances of the checking and the brokerage accounts of the first user 102), minimum remaining account balances of the checking and brokerage accounts must be equal to '70%' as described in the foregoing description of TABLE B, and the credit score must exceed or equal '500' of the first user 102. Thus, if the transaction amount is less than $2,000, the first user 102 is determined as ineligible for availing the instalment facility. Further, if the transaction amount is equal to or greater than $2,000, but the transaction amount exceeds '30%' of the sum of account balances of the checking and the brokerage accounts of the first user 102 or if the credit score of the first user 102 is less than '500', the first user 102 is determined as ineligible for availing the instalment facility. However, if the transaction amount exceeds or equals $2,000, the transaction amount is less

than or equal to '30%' of the sum of account balances of the checking and the brokerage accounts of the first user 102, and the credit score of the first user 102 exceeds or equals '500', the first user 102 is determined as eligible for availing the instalment facility.

[0048] The row 128c describes a scenario in which the acquirer (*i.e.*, Bank C) and the issuer (*i.e.*, Bank B) are different. When a user (say, the third user) of Bank B performs a transaction at the ATM of Bank C, an eligibility of the third user to avail the instalment facility on the transaction is based on the transaction amount (which must exceed or equal a minimum transaction amount of $800) of the transaction and the credit score (which must exceed or equal '700') of the third user. In this scenario, the account balances of financial or investment accounts of the third user are not taken into consideration for determination of the eligibility of the third user to avail the instalment facility. If the transaction amount is less than $800, the third user is determined as ineligible for availing the instalment facility. Further, if the transaction amount is greater than or equal to $800 and if the credit score of the third user is less than '700', the third user is determined as ineligible for availing the instalment facility. However, if the transaction amount equals or exceeds $800 and if the credit score of the third user equals or exceeds '700', the third user is determined as eligible for availing the instalment facility.

[0049] The row 128d describes a scenario in which the acquirer (*i.e.,* Bank A) and the issuer (*i.e.,* Bank B) are different. When a user (say, the third user) of Bank B performs a transaction at an ATM of Bank A, an eligibility of the third user to avail the instalment facility on the transaction is based on a transaction amount (which must be equal to or exceed a minimum transaction amount of $2,500) of the transaction, the account balance of the checking account of the third user (the transaction amount must not exceed '40%' of the account balance of the checking account of the third user (*i.e.*, minimum remaining account balance of '60%')) as described in the foregoing description of TABLE B, and the credit score (which must exceed or be equal to '700') of the third user. If the transaction amount is less than $2,500, the third user is determined as ineligible for availing the instalment facility. If the transaction amount is greater than or equal to $2,500 but the transaction amount exceeds '40%' of the account balance of the checking account of the third user, or if the credit score of the third user is less than '700', the third user is determined as ineligible for availing the instalment facility. However, if the transaction amount exceeds or equals $2,500, the transaction amount is less than or equal to '40%' of the account balance of the checking

account of the third user, and the credit score of the third user exceeds or equals '700', the third user is determined as eligible for availing the instalment facility.

[0050] TABLE D illustrates the sets of instalment parameters that are provided to the instalment processing server 112 for generating the instalment plans, in accordance with an embodiment of the present invention. The instalment parameters are stored in the database of the instalment processing server 112 or in an external database associated with the instalment processing server 112. The issuers may share/update the instalment parameters periodically (such as daily, weekly, monthly, or the like) or at the issuers' discretion. Table D includes columns 130a-130g rows 132a-132c. The columns 130a-130g represent instalment parameters such as a name of an issuer, a name of an acquirer, a minimum period to pay a transaction amount of a transaction in instalments (*i.e.*, minimum instalment term), a maximum period to pay the transaction amount in instalments (*i.e.*, maximum instalment term), an instalment fee for availing the instalment facility, a fee sharing percentage between the issuer and the acquirer, and a rate of interest applicable on the transaction amount.

[0051] The row 132a represents a scenario in which the acquirer (*i.e.*, Bank A) is same as the issuer (i.e., Bank A). When a user (say, the first user 102) of Bank A chooses to avail the instalment facility on a transaction performed at an ATM of Bank A, the instalment processing server 112 may generate a set of instalment plans such that the first user 102 pays the transaction amount in instalments over a period of 2-6 months, where 2 months is the minimum instalment term and 6 months is the maximum instalment term. The one-time fee for availing the instalment facility is $20. Since the acquirer and the issuer are the same, no fee sharing percentage is applicable. Further, the rate of interest is '5%' on the transaction amount. Thus, if the first user 102 avails an instalment facility on a transaction amount of $1,000, the first user 102 is liable to pay an amount of $50 as interest over a selected instalment term (say, 4 months), $20 as a one-time fee, and $250 every month for 4 months to Bank A.

[0052] The row 132b represents a scenario in which the acquirer (*i.e.*, Bank B) and the issuer (*i.e.*, Bank A) are different. When a user (say, the first user 102) of Bank A chooses to avail the instalment facility on a transaction performed by the first user 102 at an ATM of Bank B, the instalment processing server 112 may generate a set of instalment plans such that the first user 102 pays the transaction amount in instalments over a period of 2-5 months, where 2 months is the minimum instalment term and 5 months is the maximum instalment

term. The one-time fee for availing the instalment facility is $35. The fee sharing fee sharing percentage between Bank A and Bank B is '80%/20%'. Further, the rate of interest applicable on the transaction amount is '6%'. Thus, if the first user 102 avails the instalment facility on a transaction amount of $2,000, the first user 102 is liable to pay an amount of $120 as interest over a selected instalment term (say 5 months), $35 as a one-time fee for availing the instalment facility, and $400 every month for 5 months to Bank A. Bank A receives '80%' of $35 (*i.e.* $28) and Bank B receives '20%' of $35 (*i.e.* $7).

[0053] Similarly, the row 132c represents a scenario in which the acquirer (*i.e.*, Bank A) and the issuer (*i.e.*, Bank B) are different. When a user (say, the third user) of Bank B chooses to avail the instalment facility on a transaction performed by the third user at an ATM of Bank A, the instalment processing server 112 may generate a set of instalment plans such that the third user pays the transaction amount in instalments over a period of 1-6 months, where 1 month is the minimum instalment term and 6 months is the maximum instalment term. The one-time fee for availing the instalment facility is $25. The fee sharing percentage between Bank B and Bank A is '75%/25%'. Further, the rate of interest applicable on the transaction amount is '3%'. Thus, if the third user avails the instalment facility on a transaction amount of $2,500, the third user is liable to pay an amount of $75 as interest over a selected instalment term (say 5 months), $25 as a one-time fee for availing the instalment facility, and $500 every month for 5 months. Bank B receives '75%' of $25 (*i.e.* $18.75) and Bank A receives 25% of $25 (*i.e.* $6.25).

[0054] The issuer server 114 is a computing server that credits and debits financial accounts of users based on settlement of corresponding transactions. Methods for crediting and debiting user accounts via the issuer server 114 will be apparent to persons having skill in the art and may include processing via the traditional four-party system or the traditional three-party system.

[0055] The issuer server 114 is associated with the issuer that maintains the financial accounts of the users, such as the first user 102. Account details of the financial accounts established with the issuer are stored in a memory of the issuer server 114 or on a cloud server associated with the issuer server 114. In a scenario, the issuer manages the financial account (such as a checking account) of the first user 102. Thus, the account details of the first user 102 may include an account balance of the financial account of the first user 102, a type of the financial account (*i.e.*, checking account), account balances of the investment

accounts of the first user 102, details of the first user 102, a transaction history of the first user 102, details of a transaction card linked to the checking account, or the like. Details of the first user 102 may include, but are not limited to, a name of the first user 102, an age of the first user 102, a residential address of the first user 102, contact details of the first user 102 such as an e-mail address and a contact number of the first user 102, a credit score of the first user 102, and the like. Details of the transaction card may include a card number, an expiry date, a card security code, a card type, and a currency type associated to it. The transaction card may be a physical card or a virtual card that is stored electronically in a memory (shown in FIG. 8) of the issuer server 114. Examples of the transaction card include a credit card, a debit card, a membership card, a promotional card, a charge card, a prepaid card, a gift card, or the like.

[0056] The issuer server 114 defines the set of rules for determining the eligibilities of the users of the issuer for availing the instalment facilities on the ATM transactions. The issuer may define different sets of rules for different users as illustrated for the first user 102 and the second user in TABLE C. The issuer server 114 may further define for the users of the issuer, the instalment parameters in conjunction with the acquirer server 106.

[0057] The issuer server 114 authorizes a transaction initiated by the first user 102 at the ATM 104 for instalments when the first user 102 is determined as eligible for availing the instalment facility. The instalment processing server 112 may associate an instalment qualification indicator with the transaction. The instalment qualification indicator is indicative of the eligibility of the first user 102 to avail the instalment facility. In an example, a value of the instalment qualification indicator is '0' when the first user 102 is deemed ineligible for availing the instalment facility and the value of the instalment qualification indicator is '1' when the first user 102 is deemed eligible for availing the instalment facility. If the value of the instalment qualification indicator is '0', the issuer server 114 processes the transaction as a regular transaction. However, if the value of the instalment qualification indicator is '1', the issuer server 114 determines that the first user 102 is eligible for availing the instalment facility and further determines if the transaction is authorized for instalments. If the issuer server 114 determines that the transaction is authorized for instalments, the first user 102 is presented with an option on the ATM 104 to avail the instalment facility. When the first user 102 chooses to avail the instalment facility, the issuer server 114 processes the transaction for instalments based on the instalment plan selected by the first user 102, else the

transaction is processed as a regular transaction. If the issuer server 114 determines that the transaction is not authorized for instalments, the option is not presented on the ATM 104.

[0058] Examples of the acquirer server 106, the auxiliary acquirer server 108, the payment network server 110, the instalment processing server 112, and the issuer server 114 include, but are not limited to, computers, laptops, mini-computers, mainframe computers, any non-transient and tangible machines that can execute a machine-readable code, cloud-based servers, distributed server networks, a network of computer systems, or a combination thereof.

[0059] The communication network 116 is a medium through which content and messages are transmitted between the ATM 104, the acquirer server 106, the auxiliary acquirer server 108, the payment network server 110, the instalment processing server 112, the issuer server 114, and other entities that are pursuant to one or more standards for the interchange of transaction messages, such as the ISO8583 standard. Examples of the communication network 116 include, but are not limited to, a wireless fidelity (Wi-Fi) network, a light fidelity (Li-Fi) network, a local area network (LAN), a wide area network (WAN), a metropolitan area network (MAN), a satellite network, the Internet, a fiber optic network, a coaxial cable network, an infrared (IR) network, a radio frequency (RF) network, and combinations thereof. Various entities in the communication environment 100 may connect to the communication network 116 in accordance with various wired and wireless communication protocols, such as Transmission Control Protocol and Internet Protocol (TCP/IP), User Datagram Protocol (UDP), 2nd Generation (2G), 3rd Generation (3G), 4th Generation (4G), 5th Generation (5G) communication protocols, Long Term Evolution (LTE) communication protocols, or any combination thereof.

[0060] FIGS. 2A-2F represent a process flow diagram 200 that illustrates an exemplary scenario for processing transactions for instalments, in accordance with an embodiment of the present invention. The process flow diagram 200 depicts the ATM 104, the acquirer server 106, the auxiliary acquirer server 108, the payment network server 110, the instalment processing server 112, and the issuer server 114. For the sake of ongoing discussion and without limiting the scope of the invention, it is assumed that the instalment processing server 112 is implemented by the payment network associated with the payment network server 110. In another embodiment, the instalment processing server 112 may be implemented by the issuer associated with the issuer server 114.

[0061] The issuer server 114 transmits the dynamic data (account details, balance criteria, the set of rules, and the instalment parameters) of the users of the issuer to the instalment processing server 112 (as shown by arrow 202). The instalment processing server 112 stores the dynamic data in the database of the instalment processing server 112 or on a cloud server associated with the instalment processing server 112 (as shown by arrow 204). As described in the foregoing description of FIG. 1, the first user 102 may initiate a transaction at the ATM 104 by way of one of her transaction card, her user-id and password, or her user device (such as a smartphone, a tablet, a phablet, or the like). For the sake of simplicity and without deviating from the scope of the invention, it is assumed that the first user 102 uses her transaction card at the ATM 104 for initiating the transaction. It is further assumed that the first user 102 has a financial account with Bank A and the ATM 104 is maintained by Bank B.

[0062] For initiating the transaction, the first user 102 swipes the transaction card of the first user 102 at the ATM 104. The ATM 104 thus receives the transaction card details of the transaction card. On receiving the transaction card details, the ATM 104 prompts the first user 102 to input authentication details (such as a personal identification number (PIN) associated with the transaction card). The first user 102 thus provides the authentication details. The ATM 104 receives the authentication details (as shown by arrow 206) and communicates the authentication details and the transaction card details by way of authentication information to the acquirer server 106 (as shown by arrow 208). Based on the transaction card details, the acquirer server 106 identifies a payment network associated with the transaction card. In the embodiment, the identified payment network is associated with the payment network server 110. The acquirer server 106 thus generates and transmits an authentication request to the payment network server 110 (as shown by arrow 210). The authentication request includes the transaction card details of the transaction card and the authentication information. The payment network server 110 receives the authentication request, identifies the issuer of the transaction card (*i.e.* the issuer associated with the issuer server 114) (as shown by arrow 212), and transmits the authentication request to the issuer server 114 (as shown by arrow 214). The issuer server 114 receives the authentication information from the authentication request and performs an authentication to authenticate the first user 102 by comparing the authentication information provided by the first user 102 with the authentication information of the first user 102 stored in a memory of the issuer server 114 (as shown by arrow 216).

[0063] Based on a result of the comparison, the issuer server 114 transmits an authentication response to the payment network server 110 (as shown by arrow 218a). In an example, the authentication response indicates a successful authentication when the issuer server 114 determines that the received authentication information of the first user 102 matches the stored authentication information of the first user 102. In another example, the authentication response indicates an unsuccessful authentication when the issuer server 114 determines that the received authentication information of the first user 102 does not match the stored authentication information of the first user 102. The payment network server 110 receives and transmits the authentication response to the acquirer server 106 (as shown by arrow 218b). The acquirer server 106 receives and transmits the authentication response to the ATM 104 (as shown by arrow 218c). If the authentication response indicates that the authentication is successful, the ATM 104 prompts the first user 102 to enter transaction details of the transaction. However, if the authentication response indicates that the authentication is unsuccessful, the ATM 104 communicates the failure of the authentication to the first user 102 and may further prompt the user 102 to re-enter the authentication information.

[0064] Upon successful authentication, the first user 102 may enter transaction details of the transaction. The ATM 104 receives the transaction details provided by the first user 102 (as shown by arrow 220a). For the sake of simplicity and without limiting the scope of the invention, it is assumed that the transaction is a cash withdrawal from the ATM 104. In other embodiments, the transaction may be a bill payment such as a payment of a utility bill. The transaction details include a type of transaction (such as a cash withdrawal), a transaction amount of the transaction, and the like.

[0065] The ATM 104 transmits the transaction details to the acquirer server 106 (as shown by the arrow 220b). Based on the transaction details, the acquirer server 106 generates and transmits a transaction request to the payment network server 110 (as shown by arrow 222a). The transaction request may include an acquirer identifier code along with an approval request for processing the transaction for instalments based on the transaction details. The payment network server 110 receives the transaction request and transmits the transaction request to the instalment processing server 112 (as shown by arrow 222b).

[0066] The instalment processing server 112 receives the transaction request and retrieves the transaction amount from the transaction details (as shown by arrow 224a). The

instalment processing server 112 identifies the acquirer from the acquirer identifier code and the issuer from the transaction details (as shown by arrow 224b). The instalment processing server 112 checks whether the issuer is registered for offering the instalment facility to the users of the issuer based on the list of registered issuers that is stored in the database of the instalment processing server 112 or in the database associated with the instalment processing server 112 (as shown by arrow 224c). In an embodiment, the instalment processing server 112 determines that the issuer is registered for offering the instalment facility to the users of the issuer. The instalment processing server 112 thus checks whether there exists an agreement between the issuer and the acquirer of the ATM 104 to process the transaction for instalments, based on the list of acquirers and issuers that have agreed to process the transactions initiated at the ATM 104 for instalments (as shown by arrow 224d). In an embodiment, the instalment processing server 112 determines that there exists an agreement between the issuer and the acquirer. On determining that the agreement exists, the instalment processing server 112 further determines if the account details of the financial account of the first user 102 are included in its database or in a database associated with the instalment processing server 112 (as shown by arrow 226). In an embodiment, the instalment processing server 112 determines that the account details of the first user 102 are included in the database of the instalment processing server 112. Thus, the instalment processing server 112 retrieves the set of rules stored in the database of the instalment processing server 112 (as shown by arrow 228). The instalment processing server 112 determines, in real-time, the eligibility of the first user 102 based on the set of rules retrieved from the database (as shown by arrow 230). The determination of the eligibility of the first user 102 is explained in conjunction with TABLE E.

[0067] The instalment processing server 112 generates an instalment qualification indicator (*i.e.*, a flag) whose value indicates whether the first user 102 is eligible for availing the instalment facility on the transaction (as shown by arrow 232). In an example, the value of the flag is '1' when the first user 102 is eligible for availing the instalment facility. In another example, the value of the flag is '0' when the first user 102 is determined to be ineligible for availing the instalment facility. In the embodiment, the instalment processing server 112 determines that the first user 102 is eligible for instalments and hence flags the transaction for processing for instalments by way of the instalment qualification indicator, *i.e.*, the value of the instalment qualification indicator is '1'. The instalment processing server 112 transmits the instalment qualification indicator to the payment network server 110 (as

shown by arrow 234). The payment network server 110 receives the instalment qualification indicator and adds the instalment qualification indicator to the transaction request to generate an instalment eligible transaction request (as shown by arrow 236). The payment network server 110 transmits the instalment eligible transaction request to the issuer server 114 (as shown by arrow 238). In another embodiment, if the first user 102 is ineligible for availing the instalment facility on the transaction, the payment network server 110 adds the instalment qualification indicator to the transaction request to generate an instalment ineligible transaction request and transmits the instalment ineligible transaction request to the issuer server 114 for processing as a regular transaction. In yet another embodiment, if the first user 102 is ineligible for availing the instalment facility, the payment network server 110 may not add the instalment qualification indicator to the transaction request and may the transmit the transaction request to the issuer server 114 for processing as a regular transaction.

[0068] The issuer server 114 receives the instalment eligible transaction request and authorizes the transaction for instalments (as shown by arrow 240) based on the eligibility of the first user 102. It will be apparent to a person skilled in the art that if the first user 102 is determined ineligible for availing the instalment facility on the transaction, the issuer server 114 receives at least one of the instalment ineligible transaction request or the transaction request for processing as a regular transaction. The issuer server 114 may re-check the eligibility of the first user 102 for availing the instalment facility. Since, the account details, the balance criteria, and the set of rules are dynamic data that is transmitted periodically with the instalment processing server 112, the issuer server 114 may possess updated account details, updated balance criteria, and updated set of rules that may not be stored in the database of the instalment processing server 112. The issuer server 114 may further change the value of the instalment qualification indicator based on a result of the re-checking of the eligibility of the first user 102. In the embodiment, the issuer authorizes the transaction for instalments and generates and transmits a transaction response (that is inclusive of the instalment qualification indicator) to the payment network server 110 (as shown by arrow 242a). The transaction response is indicative of the authorization of the transaction.

[0069] The payment network server 110 receives the transaction response and transmits the transaction response to the acquirer server 106 (as shown by arrow 242b). The acquirer server 106 determines whether the transaction is authorized for instalments based on the instalment qualification indicator. If the instalment qualification indicator indicates that the transaction is authorized for instalments, the acquirer server 106 sends a first message to

the ATM 104, instructing the ATM 104 to present an option to the first user 102 for availing the instalment facility on the transaction (as shown by arrow 244). The ATM 104 presents the option (as shown by arrow 246) to the user on a UI screen (shown in FIG. 3) rendered by the ATM 104. The first user 102 may choose to accept or decline the option by inputting a response. If the first user 102 declines the option for availing the instalment facility, the transaction is processed as a regular transaction. If the first user 102 accepts the option, the transaction is processed as an instalment transaction. In the embodiment, the first user 102 accepts the option.

[0070] The ATM 104 receives the response inputted by the first user 102 (as shown by arrow 248). The ATM 104 thus conveys an acceptance by the first user 102 to avail the instalment facility on the transaction by transmitting the response to the acquirer server 106 (as shown by arrow 250). Upon receiving the response, the acquirer server 106 generates and transmits a first application peripheral interface (API) request message to the auxiliary acquirer server 108 (as shown by arrow 252a). The first API request message is a request for generation of instalments plans for the first user 102. The auxiliary acquirer server 108 receives and transmits the first API request to the instalment processing server 112 (as shown by arrow 252b). The instalment processing server 112 receives the first API request and retrieves the instalment parameters from the database of the instalment processing server 112 (as shown by arrow 254). The instalment processing server 112 generates, in real-time, the set of instalment plans (as shown by arrow 256). The set of instalment plans are generated based on the instalment parameters provided by the issuer server 114. The instalment parameters (as described in the foregoing description of TABLE D) include a period of time to pay the transaction amount in instalments, a one-time fee associated with availing an instalment plan, a fee sharing percentage between the issuer and the acquirer, and a rate of interest applicable on the transaction amount.

[0071] The instalment processing server 112 transmits the set of instalment plans to the auxiliary acquirer server 108 by way of a first API response message (as shown by arrow 258a). The auxiliary acquirer server 108 further transmits the first API response message to the acquirer server 106 (as shown by arrow 258b). Based on the first API response message, the acquirer server 106 sends a message to the ATM 104, requesting the ATM 104 to present the set of instalment plans on the ATM 104 (as shown by arrow 260). The ATM 104 thus presents the set of instalment plans to the first user 102 (as shown by arrow 262).

[0072] The first user 102 may select a first instalment plan from the set of instalment plans presented on the ATM 104 (as shown by arrow 264). When the first user 102 selects the first instalment plan, The ATM 104 receives the selection by the first user 102 of the first instalment plan. The ATM 104 conveys the selection of the first instalment plan to the acquirer server 106 (as shown by arrow 266). The acquirer server 106 generates and transmits a second API request message to the instalment processing server 112 by way of the auxiliary acquirer server 108, requesting the instalment processing server 112 to store the selection of the first instalment plan by the first user 102 (as shown by arrows 268a and 268b). Based on the second API request message, the instalment processing server 112 saves the selection of the first instalment plan associated with the first user 102 in the database of the instalment processing server 112 (as shown by arrow 270). Thus, the transaction is processed for instalments based on the selected instalment plan. The instalment processing server 112 transmits a second API response message to the acquirer server 106 by way of the auxiliary acquirer server 108, indicating that the first instalment plan is stored in the database of the instalment processing server 112 (as shown by arrows 272a and 272b). The acquirer server 106 receives the second API response message and instructs the ATM 104 to dispense an amount of cash equal to the transaction amount (as shown by arrow 276). The ATM 104 thus dispenses the amount of cash to the first user 102 (as shown by arrow 276). The instalment processing server 112 shares the selection of the first instalment plan by the first user 102 with the payment network server 110 (as shown by arrow 278). The payment network server 110 shares the selection of the first instalment plan with the acquirer server 106 and the issuer server 114 (as shown by arrows 280 and 282, respectively). The payment network server 110 may share the selection of the first instalment plan by way of a global file transfer and a batch process system.

[0073] In another embodiment, when the issuer associated with the issuer server 114 implements the instalment processing server 112, the issuer server 114 adds the instalment qualification indicator generated by the instalment processing server 112 to the transaction request. Further, all the other processes performed by the entities remain the same.

[0074] In yet another embodiment, the payment network server 110 may be enhanced to perform functions performed by the instalment processing server 112 (*i.e.*, there is no standalone instalment processing server 112). In this embodiment, the payment network server 110 may receive dynamic data, such as the account details of users, the balance criteria, the sets of rules, and the instalment parameters, from issuers (such as the issuer

associated with the issuer server 114). Further, the payment network server 110 determines eligibilities of the users to avail the instalment facilities on the transactions performed by the users at the ATMs, generates instalment plans for the users based on the eligibilities of the users for availing the instalment facility, and store the selection of the instalment plans by the users in a database associated with the payment network server 110.

[0075] In yet another embodiment, the issuer server 114 may be enhanced to perform functions performed by the instalment processing server 112 (*i.e.*, there is no standalone instalment processing server 112). In this embodiment, the issuer server 114 stores dynamic data, such as account details of users of the issuer associated with the issuer server 114, balance criteria, sets of rules, and instalment parameters in a database in a memory of the issuer server 114. Further, the issuer server 114 determines eligibilities of the users of the issuer to avail an instalment facility on transactions performed by the users at ATMs, generates instalment plans for the users based on the eligibilities of the users, and stores the selection of the instalment plans by the users in the database associated with the issuer server 114.

[0076] In yet another embodiment, the acquirer server 106 may be enhanced to perform functions performed by the auxiliary acquirer server 108 (*i.e.*, there is no standalone auxiliary acquirer server 108). In this embodiment, the acquirer server 106 communicates directly with the instalment processing server 112. The acquirer server 106 transmits the API requests to the instalment processing server 112 and receives the API responses from the instalment processing server 112. Further, the acquirer server 106 stores the instalment plans selected by users in a memory of the acquirer server 106.

[0077] It will be apparent to those of skill in the art that processing of transactions, initiated at point-of-sale, point-of-interaction, point-of-purchase devices, or the like, for instalments may take place in a similar manner.

[0078] TABLE E illustrates the determination of the eligibilities of the users based on the sets of rules, and the sets of instalment plans based on the instalment parameters, in accordance with an embodiment of the present invention. TABLE E is explained in conjunction with TABLES A-D. Table E includes columns 284a-284i and rows 286a-286c. The columns 284a-284i represent an account number of a financial account of a user, a name of an issuer, a name of an acquirer, a transaction amount of the transaction, a result of a determination of an eligibility of the user for availing the instalment facility, a remark

regarding the eligibility, an interest amount payable by the user, an issuer fee share, and an acquirer fee share, respectively. The row 286a describes the scenario where the first user 102, who is a user of Bank A, performs a transaction at the ATM of Bank B. When the first user 102 (who maintains the checking account with the account number 100100 at Bank A) initiates a transaction at the ATM of Bank B, the instalment processing server 112 checks whether Bank A is registered for offering the instalment facility to the first user 102, whether there exists an agreement between Bank A and Bank B for processing the transaction for instalments, and whether the account details of the first user 102 are available in the database of the instalment processing server 112.

[0079] If aforementioned conditions are satisfied, the instalment processing server 112 determines the eligibility of the first user 102 for availing the instalment facility on the transaction. In the current embodiment, Bank A is registered for offering the instalment facility to the first user 102, there exists an agreement between Bank A and Bank B process the transaction for instalments, and the account details of the first user 102 are available in the database of the instalment processing server 112. Further, the transaction is a cash withdrawal of $2,000 initiated by the first user 102 at the ATM of Bank B. When the first user 102 performs a transaction at the ATM of Bank B, eligibility of the first user 102 for availing the instalment facility is based on a transaction amount (which must exceed or equal a minimum transaction amount of $1,000) of the transaction. As the transaction amount exceeds the minimum transaction amount, the balance criteria, the minimum remaining account balance of '70 %')) and the credit score (which must exceed or equal '500') of the first user 102 are considered. The transaction amount ($2,000) as a percentage of the sum ($8,000 + $10,000 = $18,000) of the checking and the brokerage accounts is '11 %' (*i.e.*, less than 30% of the sum of the checking and brokerage account balances of the first user 102). The credit score of the first user is equal to '500'. Therefore, the first user 102 is eligible for availing the instalment facility on the transaction.

[0080] The first user 102 may be offered an option at the ATM 104 to avail the instalment facility on the transaction. If the first user 102 chooses to avail the instalment facility, she may be offered a set of instalment plans based on the instalment parameters described in the foregoing description of TABLE D. Thus, the first user 102 is liable to pay '6%' of the transaction amount as interest (here, $120) over a selected instalment term (say, 5 months) and $35 as a one-time fee if the first user 102 selects an instalment plan from the set of instalment plans. Based on the fee sharing percentage (*i.e.*, '80 %/20%'), Bank A receives

'80%' of $35 (*i.e.* $28) and Bank B receives '20%' of $35 (*i.e.* $7). Further, the first user 102 has to pay an amount of $400 every month for the selected instalment term (here, 5 months).

[0081] The row 286b describes a scenario where the second user, who is a user of Bank A, performs a transaction at the ATM of Bank A. When the second user (who maintains the checking account with the account number 100101 at Bank A) initiates a transaction at the ATM of Bank A, the instalment processing server 112 checks whether Bank A is registered for offering the instalment facility to the first user 102 and whether the account details of the second user are available in the database of the instalment processing server 112. In this scenario, the instalment processing server 112 does not check for an agreement between acquirer and issuer since the acquirer and issuer are the same (*i.e.*, Bank A).

[0082] If Bank A is registered for offering the instalment facility to the second user and if the account details of the second user are available in the database of the instalment processing server 112, the instalment processing server 112 determines the eligibility of the second user for availing the instalment facility on the transaction. In this scenario, Bank A is registered for offering the instalment facility to the second user and the account details of the second user are available in the database of the instalment processing server 112. Hence, the instalment processing server 112 determines the eligibility of the second user for availing the instalment facility. For example, the transaction is a utility bill payment of $2,000 to a merchant. The transaction is initiated by the second user from the ATM of Bank A. When the second user performs the transaction at the ATM of Bank A, the eligibility of the second user for availing the instalment facility is based on a transaction amount (which must exceed or equal a minimum transaction amount of $1,000) of the transaction. The transaction amount ($2,000) exceeds the minimum transaction amount of $1,000. Further, account balances of the checking and the fixed deposit accounts of the second user are considered. The transaction amount must not exceed '20%' of a sum of account balances of the checking and the fixed deposit accounts of the second user (*i.e.*, minimum remaining account balance of '80%'). The transaction amount ($2,000) as a percentage of the sum ($6,000 + $10,000 = $16,000) of the checking and the fixed deposit accounts is '12.5 %' (*i.e.*, less than '20%' of the sum of the account balances of the checking and fixed deposit accounts of the second user). Therefore, the second user is eligible for availing the instalment facility on this transaction.

[0083] The second user may be offered an option at the ATM 104 to avail the instalment facility on the transaction. If the second user chooses to avail the instalment facility, she may be offered a set of instalment plans based on the instalment parameters described in the foregoing description of TABLE D. Thus, the second user is liable to pay '5%' of the transaction amount as interest (here, $100) over a selected instalment term (say, 4 months) and $20 as a one-time fee if the second user selects an instalment plan from the set of instalment plans. Fee sharing is not applicable in this case since the acquirer and the issuer are the same (*i.e.*, Bank A). Further, the second user has to pay an amount of $500 every month for the selected instalment term (here, 4 months). When the second user chooses to avail the instalment facility on the transaction, the issuer pays the transaction amount to the merchant whereas the second user pays the transaction amount in instalment to the issuer in the period of 4 months. Bank A receives '100%' of $20 (*i.e.* $20).

[0084] The row 286c describes a scenario where the third user, who is a user of Bank B, performs a transaction at the ATM of Bank A. When the third user (who maintains checking account with the account number 200201 at Bank B) initiates a transaction at the ATM of Bank A, the instalment processing server 112 checks whether Bank B is registered for offering the instalment facility to the third user, whether an agreement exists between Bank B and Bank A for offering the instalment facility when the third user performs a transaction at the ATM of Bank A, and whether account details of the third user are available in the database of the instalment processing server 112.

[0085] In this scenario, If Bank B is registered for offering the instalment facility to the third user, if the agreement between Bank B and Bank A for offering the instalment facility exists, and if the account details of the third user are available in the database of the instalment processing server 112, the instalment processing server 112 determines the eligibility of the third user for availing the instalment facility on the transaction. In the current embodiment, Bank B is registered for offering the instalment facility to the third user, there is an agreement between Bank B and Bank A for offering the instalment facility, and the account details of the third user are available in the database of the instalment processing server 112. Hence, the instalment processing server 112 determines the eligibility of the third user for availing the instalment facility. For example, the transaction is a cash withdrawal of $800 by the third user from the ATM of Bank A. When the third user performs the transaction at the ATM of Bank A, the eligibility of the third user for availing the instalment facility is based on a transaction amount (which must exceed or equal a minimum transaction

amount of $2,500) of the transaction. The transaction amount ($800) is lower than the minimum transaction amount (*i.e.*, $2,500). Therefore, the third user is not eligible for availing the instalment facility. The transaction may be processed as a regular transaction. The rule related to account balance of the checking account of the third user is not considered as the rule for the minimum transaction amount is not satisfied.

[0086] FIGS. 3A and 3B, collectively, illustrate first through sixth UI screens 302-312 (hereinafter, referred to as UI screens 302-312), that are rendered at the ATM 104, in accordance with an embodiment of the present invention. The UI screen 302 is presented when the first user 102 initiates the transaction at the ATM 104. It will be apparent to a person skilled in the art that the UI screen 302 will be also be rendered at the ATM 104 when the second and third users initiate transactions at the ATM 104.

[0087] As described in the foregoing description of FIG.1, the first user 102 may initiate the transaction by way of her user-id and password, her transaction card, or her user device. For the sake of simplicity and without limiting the scope of the invention, it is assumed that the first user 102 uses her transaction card at the ATM 104 for performing the transaction. In other embodiments, the first user 102 may use her user-id and password or her user device for performing the transaction.

[0088] The first user 102, who is a user of Bank A, approaches the ATM 104 maintained by Bank B to initiate the transaction by using her transaction card. Upon initiating the transaction at the ATM 104, the ATM 104 renders the UI screen 302, prompting the first user 102 to enter her authentication details (such as a PIN of her transaction card) by way of a first field 314 on the UI screen 302. The UI screen 302 further includes a first submit button 316. The first user 102 thus enters the PIN in the first field 314 and clicks on the first submit button 316. An authentication information (*i.e.*, the authentication details and transaction card details of the transaction card) of the first user 102 are thus transmitted from the ATM 104 to the acquirer server 106. The acquirer server 106 generates an authentication request based on the authentication information and transmits the authentication request to the issuer server 114 by way of the payment network server 110. The issuer server 114 authenticates the first user 102 based on stored authentication information. The issuer server 114 transmits the authentication response that includes a result of the authentication to the ATM 104 by way of the acquirer server 106 and the payment network server 110. If the authentication is a failure, the ATM 104 may display a message, indicating an authentication failure (not shown). If the

authentication is successful, the ATM 104 renders the UI screen 304. The UI screen 304 displays first through fourth selectable options 318-324. The first through fourth selectable options 318-324 represent 'Account summary', 'Cash Withdrawal', 'Bill payment', and 'Deposit', respectively. For the sake of simplicity and without deviating from the scope of the invention, it is assumed that the first user 102 selects the second selectable option 320 (*i.e.*, 'Cash Withdrawal'). In various embodiments, the first user 102 may select any of the first, third, or fourth selectable option 318, 322, or324.

[0089] The ATM 104 renders the UI screen 306 when the first user 102 selects the second selectable option 320. The UI screen 306 prompts the first user 102 to enter the transaction amount of the transaction. The UI screen 306 includes a second field 325a for the first user 102 to enter the transaction amount. The UI screen 306 further includes a second submit button 325b. The first user 102 selects the second submit button 325b after entering the transaction amount (here, $2,000) in the second field 325a. When the first user 102 selects the second submit button 325b, the ATM 104 transmits transaction details, such as a type of transaction (here, cash withdrawal) and the transaction amount of the transaction, to the acquirer server 106. The acquirer server 106 generates a transaction request based on the transaction details and transmits the transaction request to the instalment processing server 112 by way of the payment network server 110.

[0090] The instalment processing server 112 determines the eligibility of the first user 102 to avail an instalment facility on the transaction (as described in the foregoing descriptions of FIGS. 2A-2F and TABLE E). Process of determining the eligibility of the first user 102 is described in detail in the foregoing descriptions of FIGS. 2A-2F and TABLE E. The issuer server 114 authorizes the transaction for instalments based on the eligibility of the first user 102. The issuer server 114 generates the transaction response based on the eligibility of the first user 102 (as described in the foregoing descriptions of FIGS. 2A-2F) and transmits the transaction response to the acquirer server 106. The acquirer server 106 transmits the first message to the ATM 104, requesting the ATM 104 to display the UI screen 308 screen based on the transaction response. On the UI screen 308, the first user 102 is presented with a choice to avail the instalment facility on the transaction. The UI screen 308 includes fifth and sixth selectable options 326 and 328 for the first user 102. In one embodiment, the first user 102 accepts the instalment facility by selecting the fifth selectable option 326. In one embodiment, the first user 102 declines the instalment facility by selecting

the sixth selectable option 328. In the current embodiment, the first user 102 chooses to avail the instalment facility which is communicated to the acquirer server 106 by the ATM 104.

[0091] The acquirer server 106 transmits the second API request to the instalment processing server 112 by way of the auxiliary acquirer server 108. The instalment processing server 112 generates the set of instalment plans and transmits the set of instalment plans to the acquirer server 106 by way of the auxiliary acquirer server 108. The acquirer server 106 transmits the set of instalment plans to the ATM 104. The ATM 104 renders the UI screen 310 based on the set of instalment plans received from the acquirer server 106. The ATM 104 displays seventh through ninth selectable options 330, 332, and 334. The seventh through ninth selectable options 330, 332, and 334 represent instalment plans 1, 2, and 3, respectively, from the set of instalment plans. When the first user 102 selects the first instalment plan (*i.e.*, instalment plan 1) by selecting the seventh selectable option 330, the ATM 104 renders the UI screen 312 and displays a confirmation message on the UI screen 312, indicating the selection of the instalment plan 1 by the first user 102. The transaction is processed by way of the first instalment plan as explained in the foregoing description of TABLE E.

[0092] FIGS. 4A-4E, collectively, represent a flow chart 400 that illustrates the method for processing transactions initiated at ATMs for instalments, in accordance with an embodiment of the present invention. At step 402, the instalment processing server 112 receives the dynamic data at periodic intervals from at least one issuer server, such as the issuer server 114. For the sake of ongoing discussion and without deviating from the scope of the invention, it is assumed that the first user 102 initiates a transaction at the ATM 104 of $4000 (transaction amount) from her financial account that is maintained at the issuer associated with the issuer server 114. The first user 102 is thus authenticated based on the authentication details of the first user 102. Upon successful authentication, the first user 102 enters the details of the transaction. It is assumed that the transaction is a cash withdrawal. The acquirer server 106 thus receives the transaction details from the ATM 104 and transmits the transaction request to the instalment processing server 112 by way of the payment network server 110. It is further assumed that the payment network maintains the instalment processing server 112.

[0093] At step 404, the instalment processing server 112 receives the transaction request. The transaction request includes at least transaction details of the transaction. The transaction details include at least a transaction amount of the transaction. At step 406, the

instalment processing server 112 retrieves the transaction amount from the transaction details of the transaction request. At step 408, the instalment processing server 112 identifies the acquirer of the ATM 104 and the issuer of the financial account of the first user 102 from the transaction request. At step 410, the instalment processing server 112 checks whether the issuer associated with the issuer server 114 is registered for offering the instalment facility on ATM transactions. If at step 410, it is determined that the issuer is not registered for offering the instalment facility on ATM transactions, step 412 is performed. At step 412, the instalment processing server 112 communicates a first notification to the payment network server 110 that indicates that the transaction is to be processed as a regular transaction. However, if at step 410, the instalment processing server 112 determines that the issuer is registered for offering the instalment facility on ATM transactions, step 414 is performed. At step 414, the instalment processing server 112 determines whether the issuer of the financial account and the acquirer associated with the ATM 104 are in agreement to process the transaction for instalments. If at step 414, it is determined that the issuer and the acquirer are not in agreement to process the transaction for instalments, step 412 is performed. However, if at step 414, it is determined that the issuer and the acquirer are in an agreement to process the transaction for instalments, step 416 is performed. At step 416, the instalment processing server 112 determines whether the account details of the financial account of the first user 102 are included in the database. At step 416, if it is determined that the account details of the financial account of the first user 102 are not included in the database, step 412 is performed. However, if at step 416, it is determined that the account details are included in the database, step 418 is performed. At step 418, the instalment processing server 112 retrieves the set of rules from the database for determining the eligibility of the first user 102. At step 420, the instalment processing server 112 determines, in real-time, the eligibility of the first user 102 based on the set of rules retrieved for the first user 102. The set of rules for the first user 102 are defined in TABLES C and E.

[0094] At step 422, the instalment processing server 112 determines whether the transaction amount is greater than or equal to the minimum transaction amount set by the issuer of the financial account. If at step 422, it is determined that the transaction amount is greater than or equal to the minimum transaction amount, step 424 is performed.

[0095] At step 424, the instalment processing server 112 determines if the credit score of the first user 102 needs to be considered for determining eligibility. If at step 424, it is determined that the credit score needs to be considered for determining the eligibility, step

426 is performed. At step 426, the instalment processing server 112 determines if the credit score of the first user 102 is greater than or equal to the minimum credit score. If at step 426, it is determined that the credit score of the first user 102 is greater than or equal to the minimum credit score, step 428 is performed. Also, if at step 424, it is determined that the credit score need not be considered, step 428 is performed.

[0096] At step 428, the instalment processing server 112 determines if the balance criteria need to be considered for determining eligibility. If at step 428, it is determined that the balance criteria need to be considered for determining the eligibility, step 430 is performed. At step 430, the instalment processing server 112 determines if the remaining account balance of the financial account of the first user 102 is greater than or equal to the minimum account balance. If at step 430, it is determined that the remaining account balance of the financial account of the first user 102 is greater than or equal to the minimum account balance, step 432 is performed.

[0097] Also, if at step 428, it is determined that the balance criteria need not be considered for determining the eligibility of the first user 102, step 432 is performed. At step 432, the instalment processing server 112 determines that the first user 102 is eligible for availing the instalment facility and generates the instalment qualification indicator with a value of '1'.

[0098] If at step 422, it is determined that the transaction amount is less than the minimum transaction account, step 434 is performed. If at step 426, it is determined that the credit score of the first user 102 is less than the minimum credit score, step 434 is performed. If at step 430, it is determined that the remaining account balance of the financial account of the first user 102 is less than the minimum account balance, step 434 is performed. At step 434, the instalment processing server 112 determines that the first user 102 is not eligible for availing the instalment facility and generates the instalment qualification indicator with a value of '0'.

[0099] At step 436, the instalment processing server 112 transmits the instalment qualification indicator with a value of '1' to the payment network server 110. The issuer thus authorizes the transaction for processing for instalments based on the instalment qualification indicator. The first user 102 is presented with an option on the ATM 104 to avail the instalment facility based on the authorization by the issuer server 114.

[00100] At step 438, the instalment processing server 112 receives the first API message from the auxiliary acquirer server 108 when the transaction is authorized for processing for instalments and the first user 102 opts to avail the instalment facility. At step 440, the instalment processing server 112 retrieves the instalment parameters for the first user 102 from the database. At step 442, the instalment processing server 112 generates the set of instalment plans for the first user 102 based on the instalment parameters. At step 444, the instalment processing server 112 transmits the set of instalment plans (*i.e.*, the first API response message) for the first user 102 to the acquirer server 106 by way of the auxiliary acquirer server 108. The set of instalment plans are presented to the first user 102 at the ATM 104. The first user 102 may select the first instalment plan from the set of instalment plans. The acquirer server 106 transmits the second API request by way of the auxiliary acquirer server 108 to the instalment processing server 112 for storing the selection of the instalment plan. At step 446, the instalment processing server 112 receives the second API request. the At step 448, the instalment processing server 112 stores the selection of the first instalment plan by the first user 102 in the database. Thus, the transaction is processed for instalments based on the selection of the first instalment plan. At step 450, the instalment processing server 112 transmits the second API response message to the auxiliary acquirer server 108. Upon receiving the second API response message, the acquirer server 106 instructs the ATM 104 to dispense an amount of cash equal to the transaction amount. The ATM 104 thus dispenses the cash to the first user 102. At step 450, the instalment processing server 112 shares the selection of the first instalment plan by the first user 102 with the payment network server 110. The payment network server 110 shares the selection of the first instalment plan with the acquirer server 106 and the issuer server 114.

[00101] FIG. 5 represents a high-level flow chart 500 that illustrates the method for processing transactions for instalments, in accordance with an embodiment of the present invention. The first user 102 initiates the transaction at the ATM 104 from her financial account that is maintained by the first user 102 at the issuer associated with the issuer server 114. At step 502, the instalment processing server 112 receives the transaction request for the transaction initiated at the ATM 104 by the first user 102 from her financial account. At step 504, the instalment processing server 112 determines an eligibility in real-time of the first user 102 for availing the instalment facility on the transaction based on the set of rules. An option to avail the instalment facility is presented on the ATM 104 based on the determination of the eligibility of the first user 102. At step 506, the instalment processing

server 112 generates in real-time the set of instalment plans for the first user 102 when the first user 102 chooses to avail the instalment facility. The transaction is processed for instalments based on a first instalment plan selected by the first user 102 from the set of instalment plans.

[00102] FIG. 6 represents a high-level flow chart 600 that illustrates the method for processing transactions for instalments, in accordance with another embodiment of the present invention. At step 602, the ATM 104 receives transaction details of the transaction initiated by the first user 102 at the ATM 104. The transaction is initiated by the first user 102 from her financial account. The transaction details include a transaction amount of the transaction. At step 604, the ATM 104 renders a UI screen that presents an option to the first user 102 to avail an instalment facility on the transaction based on an eligibility of the first user 102 to avail the instalment facility. At step 606, the ATM 104 presents the set of instalment plans determined by the instalment processing server 112 at the ATM 104 for the first user 102 when the first user 102 chooses to avail the instalment facility. At step 608, the ATM 104 receives the selection of the first instalment plan by the first user 102 from the set of instalment plans. The transaction is processed for instalments based on the first instalment plan.

[00103] FIG. 7 is a block diagram that illustrates the instalment processing server 112, in accordance with an embodiment of the present invention. In one embodiment, the instalment processing server 112 is implemented by the payment network. In another embodiment, the instalment processing server 112 is implemented by the issuer. The instalment processing server 112 includes a first processor 702, a first memory 704, and a first transceiver 706. The first processor 702, the first memory 704, and the first transceiver 706l communicate with each other by way of a first communication bus 708. The first processor 702 includes a first eligibility evaluator 710 and an instalment plan generator 712.

[00104] The first processor 702 includes suitable logic, circuitry, and/or interfaces to evaluate the eligibility of the first user 102 for availing the instalment facility on the transaction initiated by the first user 102 at the ATM 104 by using her financial account. The first processor 702 determines the set of instalment plans for the first user 102 if the first user 102 chooses to avail the instalment facility. The first processor 702 receives the dynamic data from the issuer server 114 and stores the dynamic data in the database of the instalment processing server 112. The first processor 702 receives a transaction request from the

acquirer server 106 when the first user 102 enters the transaction details of the transaction. Based on the transaction request, the first processor 702 determines the eligibility of the first user 102 in real-time to avail the instalment facility. The first processor 702 further generates, in real-time, the set of instalment plans for the first user 102 based on the eligibility of the first user 102 for availing the instalment facility. The functioning of the first processor 702 is explained in detail in the descriptions of the the first eligibility evaluator 710, and the instalment plan generator 712. Examples of the first processor 702 include, but are not limited to, an application-specific integrated circuit (ASIC) processor, a reduced instruction set computing (RISC) processor, a complex instruction set computing (CISC) processor, a field-programmable gate array (FPGA), and the like. It will be apparent to a person skilled in the art that first user evaluates the eligibilities of multiple users for availing instalment facilities on ATM transactions.

[00105] The first eligibility evaluator 710 determines the eligibility (as described in the TABLE E) of the first user 102 for availing the instalment facility based on the set of rules. Before determining the eligibility, the first eligibility evaluator 710 checks whether the issuer of the financial account is registered for providing the instalment facility on ATM transactions. Further, the first eligibility evaluator 710 identifies whether an acquirer of the ATM 104 and the issuer of the financial account are in agreement to process the transaction for instalments. If the first eligibility evaluator 710 determines that the acquirer and the issuer are in agreement, the first eligibility evaluator 710 determines whether the account details of the financial account are included in the first memory 704. The first eligibility evaluator 710 determines the eligibility when the account details are included in the first memory 704.

[00106] The first eligibility evaluator 710 generates the instalment qualification indicator whose value indicates the eligibility of the first user 102 for availing the instalment facility. The instalment qualification indicator may be a flag whose value indicates the eligibility of the first user 102 for availing the instalment facility. For example, a value '0' of the instalment qualification indicator may indicate that the first user 102 is ineligible for availing the instalment facility and a value of '1' of the instalment qualification indicator may indicate that the first user 102 is ineligible for availing the instalment facility.

[00107] The instalment plan generator 712 generates the set of instalment plans for the first user 102 when the instalment processing server 112 receives the first API request message. The generation of the set of instalment plans is based on the instalment parameters

stored in the database in the first memory 704. The instalment plan generator 712 transmits, by way of the first transceiver 706, the set of instalment plans to the acquirer server 106 as part of the first API response message.

[00108] The first memory 704 includes suitable logic, circuitry, and/or interfaces to store a database. The database may be a relational database that uses query language for storing, modifying, updating, and accessing data. The database stores the account details of users of various issuers, the balance criteria, the set of rules, and the instalment parameters. As described in the foregoing description of FIG. 1, the issuers may share/update the account details, the balance criteria, the set of rules, and the instalment parameters periodically or at the issuers' discretion. Further, the first memory 704 stores a list of issuers that are registered for offering the instalment facility on transactions initiated at ATMs, and a list of issuers and acquirers that have agreed to offer the instalment facility on transactions initiated at the ATMs of the acquirers. The first memory 704 further stores the selection of the first instalment plan by the first user 102.

[00109] The first transceiver 706 transmits and receives data over the communication network 116 using one or more communication network protocols. The first transceiver 706 transmits/receives various requests and messages to/from the acquirer server 106, the auxiliary acquirer server 108, the payment network server 110, and the issuer server 114, or other entities that are pursuant to one or more standards for the interchange of transaction messages, such as the ISO8583 standard. Examples of the first transceiver 706 include, but are not limited to, an antenna, a radio frequency transceiver, a wireless transceiver, a Bluetooth transceiver, an ethernet port, a universal serial bus (USB) port, or any other device configured to transmit and receive data.

[00110] FIG. 8 is a block diagram that illustrates the issuer server 114, in accordance with an embodiment of the present invention. The issuer server 114 includes a second processor 802, a second memory 804, and a second transceiver 806. The second processor 802, the second memory 804, and the second transceiver 806 communicate with each other by way of a second communication bus 808. The second processor 802 includes an authentication manager 810, an instalment manager 812, and a transaction manager 814.

[00111] The second processor 802 includes suitable logic, circuitry, and/or interfaces to authenticate the first user 102 when she initiates a transaction at the ATM 104. The second processor 802 further authorizes the transaction for instalments. The second processor 802

further determines the instalment parameters for generating the set of instalment plans for the users when the users are determined as eligible for availing the instalment facility.

[00112] The second processor 802 may transmit the dynamic data to the instalment processing server 112 periodically or at the issuer's discretion. As described in the foregoing description of FIG. 2A, the second processor 802 authenticates the first user 102 based on an authentication request received from the payment network server 110. The second processor 802 further transmits an authentication response to the ATM 104 by way of the payment network server 110 and the acquirer server 106. As described in the foregoing description of FIG. 8, the second processor 802 may authorize the transaction for instalments based on a transaction request (such as an instalment eligible transaction request or an instalment ineligible transaction request) received from the payment network server 110. The second processor 802 transmits a transaction response to the acquirer server 106, indicating whether the transaction is eligible for instalments.

[00113] The authentication manager 810 authenticates users (such as the first user 102) who perform transactions at the ATM 104. The authentication manager 810 verifies whether authentication information (such as the PIN of the transaction card of the first user 102) provided by the first user 102 is valid. In an embodiment, the authentication manager 810 determines that the authentication information provided by the first user 102 matches the authentication information stored in the second memory 804. The authentication manager 810 thus communicates the success of the authentication of the first user 102 by way of the authentication response. In another embodiment, the authentication manager 810 determines that the authentication information provided by the first user 102 does not match the authentication information stored in the second memory 804. The authentication manager 810 thus communicates the failure of the authentication of the first user 102 by way of the authentication response. The authentication manager 810 validates the authentication information by using various validation and verification techniques known in the art.

[00114] The instalment manager 812 determines the set of rules for various users of the issuer to determine the eligibility of the users to avail the instalment facility on ATM transactions. The instalment manager 812 further determines the instalment parameters for generating the set of instalment plans. The instalment manager 812 further determines whether the transaction is authorized for instalments when it receives the instalment eligible transaction request.

[00115] The transaction manager 814 includes suitable logic and/or interfaces for initiating transactions, based on the authorization performed by the instalment manager 812. The transaction manager 814 performs settlement with the acquirer server 106. The settlement involves sharing a percentage of the instalment fee that is levied on the first user 102 for availing the instalment facility on ATM transactions. Further, based on the availed instalment plan by the first user 102, the transaction manager 814 may auto-debit a partial transaction amount along with the applicable rate of interest from the financial account of the first user 102 on a monthly basis till the validity of the instalment term.

[00116] The second memory 804 includes suitable logic, circuitry, and/or interfaces to store a database. The database may be a relational database that uses query language for storing, modifying, updating, and accessing data. The database stores account details of users of the issuer associated with the issuer server 114, the balance criteria, the set of rules, and the instalment parameters. The second memory 804 may also store in the database, the selection of the first instalment plan by the first user 102.

[00117] The second transceiver 806 transmits and receives data over the communication network 116 using one or more communication network protocols. The second transceiver 806 transmits/receives various requests and messages to/from the acquirer server 106, the payment network server 110, and the instalment processing server 112, or other entities that are pursuant to one or more standards for the interchange of transaction messages, such as the ISO8583 standard. Examples of the second transceiver 806 include, but are not limited to, an antenna, a radio frequency transceiver, a wireless transceiver, a Bluetooth transceiver, an ethernet port, a universal serial bus (USB) port, or any other device configured to transmit and receive data.

[00118] The communication environment 100 allows the users (such as the first user 102) to avail an instalment facility on transactions performed at ATMs (such as the ATM 104) from financial accounts of the users. Further, the determination of the eligibilities of the users to avail the instalment facility on ATM transactions and the generation of the instalment plans for the users are performed in real-time. Thus, pre-enrolment of the users for availing the instalment facility is eliminated. Further, the facility is provided on ATMs whose acquirer(s) have entered into agreements with issuers of the financial accounts of the users. Thus, the method and system does not require merchants to enter into agreements with issuers. Financial institutions such as issuers, acquirers, and payment networks can boost

their business by offering the instalment facility on ATM transactions. Issuers may charge the users nominal fees for availing the instalment facility, resulting in increased business for the issuers. Acquirers can partner with the issuers for offering the instalment facility and can increase business by entering into fee-sharing agreements with the issuers. Payment networks can also increase their business by partnering with the issuers and acquirers for a fee.

[00119] FIG. 9 is a block diagram that illustrates system architecture of a computer system 900, in accordance with an embodiment of the present invention. An embodiment of the present invention, or portions thereof, may be implemented as computer readable code on the computer system 900. In one example, the ATM 104, the acquirer server 106, the auxiliary acquirer server 108, the payment network server 110, the instalment processing server 112, and the issuer server 114 of FIG. 1 may be implemented in the computer system 900 using hardware, software, firmware, non-transitory computer readable media having instructions stored thereon, or a combination thereof and may be implemented in one or more computer systems or other processing systems. Hardware, software, or any combination thereof may embody modules and components used to implement the methods of FIGS. 4A, 4B, 5, and 6.

[00120] The computer system 900 includes a processor 902 that may be a special purpose or a general purpose processing device. The processor 902 may be a single processor, multiple processors, or combinations thereof. The processor 902 may have one or more processor "cores." Further, the processor 902 may be connected to a communication infrastructure 904, such as a bus, a bridge, a message queue, the communication network 116, multi-core message-passing scheme, and the like. The computer system 900 further includes a main memory 906 and a secondary memory 908. Examples of the main memory 906 may include RAM, ROM, and the like. The secondary memory 908 may include a hard disk drive or a removable storage drive (not shown), such as a floppy disk drive, a magnetic tape drive, a compact disc, an optical disk drive, a flash memory, and the like. Further, the removable storage drive may read from and/or write to a removable storage device in a manner known in the art. In an embodiment, the removable storage unit may be a non-transitory computer readable recording media.

[00121] The computer system 900 further includes an I/O port 910 and a communication interface 912. The I/O port 910 includes various input and output devices that are configured to communicate with the processor 902. Examples of the input devices may

include a keyboard, a mouse, a joystick, a touchscreen, a microphone, and the like. Examples of the output devices may include a display screen, a speaker, headphones, and the like. The communication interface 912 may be configured to allow data to be transferred between the computer system 900 and various devices that are communicatively coupled to the computer system 900. Examples of the communication interface 912 may include a modem, a network interface, *i.e.,* an Ethernet card, a communications port, and the like. Data transferred via the communication interface 912 may be signals, such as electronic, electromagnetic, optical, or other signals as will be apparent to a person skilled in the art. The signals may travel via a communications channel, such as the communication network 116 which may be configured to transmit the signals to the various devices that are communicatively coupled to the computer system 900. Examples of the communication channel may include, but are not limited to, a cable, fiber optics, a phone line, a cellular phone link, a radio frequency link, a wireless link, and the like.

[00122] Computer program medium and computer usable medium may refer to memories, such as the main memory 906 and the secondary memory 908, which may be a semiconductor memory such as dynamic RAMs. These computer program mediums may provide data that enables the computer system 900 to implement the method illustrated in FIG. 5. In an embodiment, the present invention is implemented using a computer implemented application. The computer implemented application may be stored in a computer program product and loaded into the computer system 900 using the removable storage drive or the hard disc drive in the secondary memory 908, the I/O port 910, or the communication interface 912.

[00123] A person having ordinary skill in the art will appreciate that embodiments of the disclosed subject matter can be practiced with various computer system configurations, including multi-core multiprocessor systems, minicomputers, mainframe computers, computers linked or clustered with distributed functions, as well as pervasive or miniature computers that may be embedded into virtually any device. For instance, at least one processor, such as the processor 902, and a memory, such as the main memory 906 and the secondary memory 908, implement the above described embodiments. Further, the operations may be described as a sequential process, however some of the operations may in fact be performed in parallel, concurrently, and/or in a distributed environment, and with program code stored locally or remotely for access by single or multiprocessor machines. In addition, in some embodiments, the order of operations may be rearranged without departing from the

spirit of the disclosed subject matter. Techniques consistent with the present invention provide, among other features, systems and methods for processing transactions for instalments. Unless stated otherwise, terms such as "first" and "second" are used to arbitrarily distinguish between the elements such terms describe. Thus, these terms are not necessarily intended to indicate temporal or other prioritization of such elements. While various exemplary embodiments of the disclosed system and method have been described above it should be understood that they have been presented for purposes of example only, not limitations. It is not exhaustive and does not limit the invention to the precise form disclosed. Modifications and variations are possible in light of the above teachings or may be acquired from practicing of the invention, without departing from the breadth or scope.

What is claimed is:

1. A method for processing transactions for instalments, the method comprising:

periodically receiving, by an instalment processing server, dynamic data corresponding to data of a first plurality of users from a first issuer server;

periodically receiving, by the instalment processing server, dynamic data corresponding to data of a second plurality of users from a second issuer server;

receiving, by the instalment processing server, a transaction request for a transaction initiated at an automated teller machine (ATM) by a user from a financial account of the user, the user being one of the first plurality of users or one of the second plurality of users;

determining in real-time based on a set of rules and dynamic data corresponding to the user, by the instalment processing server, an eligibility of the user for availing an instalment facility on the transaction, and wherein an option to avail the instalment facility is presented on the ATM based on the determination of the eligibility of the user; and

generating in real-time, by the instalment processing server, a set of instalment plans for presenting on the ATM when the user chooses to avail the instalment facility, wherein the transaction is processed for instalments based on a first instalment plan selected by the user from the set of instalment plans.

2. The method of claim 1, wherein the transaction request includes a transaction amount of the transaction.

3. The method of claim 2, wherein the set of rules are based on the transaction amount.

4. The method of claim 2 or claim 3, wherein each instalment plan from the set of instalment plans includes a period of time to pay the transaction amount in instalments, an instalment fee associated with each instalment plan, and a rate of interest associated with the transaction amount.

5. The method of any of claims 1 to 4, further comprising:

identifying, by the instalment processing server, whether an acquirer of the ATM and an issuer associated with the first issuer server or the second issuer server and the financial account are in agreement to process the transaction for instalments; and

determining, by the instalment processing server when there is an agreement between the acquirer and the issuer, whether account details of the financial account are included in a database associated with the instalment processing server, wherein the instalment processing server determines the eligibility of the user when the financial account is included in the database.

6. The method of claim 5, further comprising:

receiving, by the instalment processing server, from the acquirer, the selection of the first instalment plan by the user; and

storing, by the instalment processing server in the database, the selection of the first instalment plan by the user.

7. The method of claim 5 or claim 6, further comprising:

receiving, by the instalment processing server, the set of rules from the issuer; and

storing, by the instalment processing server, the set of rules in the database.

8. The method of any of claims 5 to 7, further comprising:

generating, by the instalment processing server, an instalment qualification indicator that indicates the eligibility of the user to avail the instalment facility, wherein the issuer determines whether the transaction is authorized for instalments based on the instalment qualification indicator, and wherein the option is presented on the ATM when the transaction is authorized for instalments.

9. A system for processing transactions for instalments, the system comprising:

an instalment processing server comprising circuitry configured to:

periodically receive dynamic data corresponding to data of a first plurality of users from a first issuer server;

periodically receive dynamic data corresponding to data of a second plurality of users from a second issuer server;

receive a transaction request for a transaction initiated at an automated teller machine (ATM) initiated at an automated teller machine (ATM) by a user from a financial account of the user, the user being one of the first plurality of users or one of the second plurality of users;

determine in real-time based on a set of rules and dynamic data corresponding to the user, an eligibility of the user for availing an instalment facility on the transaction, wherein the set of rules comprise dynamic data, and wherein an option to avail the instalment facility is presented on the ATM based on the determination of the eligibility of the user; and

generate in real-time a set of instalment plans for presenting on the ATM when the user chooses to avail the instalment facility, wherein the transaction is processed for instalments based on a first instalment plan selected by the user from the set of instalment plans.

10. The system of claim 9, wherein the transaction request includes a transaction amount of the transaction.

11. The system of claim 10, wherein the set of rules are based on the transaction amount.

12. The system of claim 10 or claim 11, wherein each instalment plan from the set of instalment plans includes a period of time to pay the transaction amount, an instalment fee associated with each instalment plan, and a rate of interest associated with the transaction amount.

13. The system of any of claims 9 to 12, wherein the circuitry is further configured to:

identify whether an acquirer of the ATM and an issuer associated with the first issuer server or the second issuer server and the financial account are in agreement to process the transaction for instalments; and

determine when there is an agreement between the acquirer and the issuer, whether account details of the financial account are included in a database associated with the instalment processing server, wherein the circuitry determines the eligibility of the user when the financial account is included in the database.

14. The system of claim 13, wherein the circuitry is further configured to:

receive from the acquirer, the selection of the first instalment plan by the user; and

store, the selection of the first instalment plan by the user.

15. The system of claim 13 or claim 14, wherein the circuitry is further configured to:

receive the set of rules from the issuer; and

store the set of rules in the database.

16. The system of any of claims 13 to 15, wherein the circuitry is further configured to:

generate an instalment qualification indicator that indicates the eligibility of the user to avail the instalment facility, wherein the issuer determines whether the transaction is authorized for instalments based on the instalment qualification indicator, and wherein the option is presented on the ATM when the transaction is authorized for instalments.