METHOD AND SYSTEM FOR FACILITATING ELECTRONIC TRANSACTIONS

FIELD OF THE INVENTION

[0001] The present invention relates generally to transactions, and more particularly, to a method for facilitating transactions amongst multiple entities.

BACKGROUND

[0002] Users typically own a payment mode that is linked to an account in their home country. The payment mode may be a transaction card or an electronic wallet (e-wallet). The transaction card may be a credit card, a debit card, or the like. When a user wants to make a purchase, she typically checks for offers that are provided by a merchant on the user's payment mode. The offers may include providing provisions, such as discount on a purchase, a cashback facility on the purchase, or the like. In certain scenarios, the merchant may not provide offers on the payment mode that the user possesses but instead provide offers on a different payment mode which the user does not possess. Thus, the user loses on the offer as the user does not possess the payment mode on which the offers are applicable.

[0003] Further, when the user travels to a foreign country, the user may prefer using her home country's payment mode for making purchases. As the user does not possess any payment mode that is offered by a foreign financial institution, she is not eligible for any offers that are provided on the payment modes of the foreign financial institution. Furthermore, when the user uses her home country's payment mode (such as a first payment mode), which is in a different currency (such as a home currency) as compared to a currency of the foreign country (such as a foreign currency), for making purchases, she has to pay a settlement amount to the merchant that includes the purchase amount and fees, such as currency conversion fees and transaction fees. The user may want to know the settlement amount and its breakup in the home currency before making the purchase. It is tedious for the user to contact the financial institution that has offered the first payment mode at the time of purchase and obtain the details of the fees. Further, the currency conversion fees and transaction fees are different for different financial institutions, such that one financial institution may levy lower fees as compared to the other. Hence, if the user possesses more than one payment mode from her home country, she may have to contact each financial institution to know the corresponding currency conversion and transaction fees,

which is cumbersome for the user. Moreover, financial institutions offering payment modes to be used in a foreign country may not provide the payment modes instantly when the user requests them. Further, as stated above, the merchants in the foreign country may not provide offers on the payment modes which the user has obtained from her home country.

[0004] In light of the foregoing, there exists a need for a solution that provides an insight of a settlement amount to a user before the user makes the purchase and enables the user to procure a payment mode on a temporary basis for availing offers, without causing any inconvenience to the user.

SUMMARY

[0005] In an embodiment of the present invention, a method for facilitating transactions is provided. A first request is received by a server from a user to obtain a first payment mode associated with a first currency for a first time-period. The first request includes user details of the user and details of a second payment mode associated with a second currency. The first payment mode is provided by the server to the user based on the first request. The first payment mode is valid for the first time-period. A transaction request is received by the server from the user for performing a transaction in the first currency at a first merchant by way of the first payment mode. For the transaction, a settlement amount in the second currency is determined by the server. The determination of the settlement amount is based on at least a purchase amount associated with the transaction. The transaction is settled amongst the first merchant and issuers of the first and second payment modes by the server. The server bills the settlement amount associated with the transaction on the second payment mode for the settlement.

[0006] In another embodiment of the present invention, a system for facilitating transactions is provided. The system includes a server that further includes a processor. The processor is configured to receive a first request, to obtain a first payment mode associated with a first currency for a first time-period, from a user. The first request includes user details of the user and details of a second payment mode associated with a second currency. The processor further provides the first payment mode based on the first request to the user. The first payment mode is valid for the first time-period. The processor further receives a transaction request from the user for performing a transaction in the first currency at a merchant by way of the first

payment mode. The processor determines a settlement amount in the second currency for the transaction. The settlement amount is determined based on at least a purchase amount associated with the transaction. The processor further settles the transaction amongst the merchant and issuers of the first and second payment modes, such that the settlement amount associated with the transaction is billed on the second payment mode for the settlement.

[0007] In yet another embodiment of the present invention, a method for facilitating transactions is provided. A first settlement amount, corresponding to a first payment mode, is determined by a server for a purchase that a user wants to make at a first merchant. A second payment mode is identified by the server for which a second settlement amount for the purchase is less than the first settlement amount. The first settlement amount and details of the second payment mode are communicated to the user by the server. A first request, to procure the second payment mode having a validity of a first time-period, is received by the server from the user. The first payment mode is provided to the user by the server based on the first request. A transaction that corresponds to the purchase that is performed by the user by way of the second payment mode, is initiated by the server. The first payment mode is charged with the second settlement amount by the server to complete the transaction.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The accompanying drawings illustrate various embodiments of systems, methods, and other aspects of the invention. It will be apparent to a person skilled in the art that the illustrated element boundaries (e.g., boxes, groups of boxes, or other shapes) in the figures represent one example of the boundaries. In some examples, one element may be designed as multiple elements, or multiple elements may be designed as one element. In some examples, an element shown as an internal component of one element may be implemented as an external component in another, and vice versa.

[0009] 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:

[0010] FIG. 1 is a block diagram that illustrates a communication environment for facilitating transactions, in accordance with an embodiment of the present invention;

[0011] FIG. 2 is a block diagram that illustrates a payment network server of the communication environment of FIG. 1, in accordance with an embodiment of the present invention;

[0012] FIG. 3 is a block diagram that illustrates a first issuer server of the communication environment of FIG. 1, in accordance with an embodiment of the present invention;

[0013] FIG. 4A represents a process flow diagram for registering a payment mode of a user, in accordance with an embodiment of the present invention;

[0014] FIG. 4B represents a process flow diagram for facilitating transactions, in accordance with an embodiment of the present invention;

[0015] FIG. 5A represents a process flow diagram for registering the payment mode of the user, in accordance with another embodiment of the present invention;

[0016] FIG. 5B represents a process flow diagram for facilitating transactions, in accordance with another embodiment of the present invention;

[0017] FIGS. 6A and 6B represent a flowchart that illustrates a method for registering the payment mode of the user, in accordance with an embodiment of the present invention;

[0018] FIGS. 7A and 7B represent a flowchart that illustrates a method for facilitating transactions for purchases made by the user, in accordance with an embodiment of the present invention;

[0019] FIGS. 8A and 8B represent a flowchart that illustrates a method for registering the payment mode of the user, in accordance with another embodiment of the present invention;

[0020] FIGS. 9A and 9B represent a flowchart that illustrates a method for facilitating transactions for purchases made by the user, in accordance with another embodiment of the present invention;

[0021] FIG. 10 is a high-level flow chart that illustrates a method for facilitating transactions, in accordance with an embodiment of the present invention;

[0022] FIG. 11 is a high-level flow chart that illustrates a method for facilitating transactions, in accordance with another embodiment of the present invention; and

[0023] FIG. 12 is a block diagram that illustrates a system architecture of a computer system, in accordance with an embodiment of the present invention.

[0024] Further areas of applicability of the present invention will become apparent from the detailed description provided hereinafter. It should be understood that the detailed description of exemplary embodiments is intended for illustration purposes only and is, therefore, not intended to necessarily limit the scope of the present invention.

DETAILED DESCRIPTION

[0025] 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.

[0026] 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

[0027] Various embodiments of the present invention provide a method and a system for facilitating transactions. A user, who possesses a first payment mode (such as a first transaction card or a first e-wallet) having a first currency (*i.e.*, a home currency of the user) as its currency type, may want to travel to a foreign country. The foreign country may have a second currency as its currency type. While travelling in the foreign country, the user may want to make purchases by using the first payment mode. Since the first payment mode is not associated with the second currency that is accepted in the foreign country, a foreign transaction fee may be charged in addition to a purchase amount if the user makes any purchase using the first payment mode in the foreign country. In an example, when the first payment mode is a first transaction card, a first issuer of the first transaction card and a payment network of the first transaction card levy first and second foreign transaction fees, respectively. The user may not be aware of the first and second foreign transaction fees that may be levied on any purchase that she makes in the foreign country. Further, the user may not be aware of a current currency conversion rate that is being charged by the first issuer at the time she makes the purchase. In such a scenario, the user registers the first payment mode on a website or a mobile application hosted by a server, such that the website or mobile application provides information pertaining to the first and second foreign transaction fees and the current currency conversion rate that is being charged at the time of purchase. The server further presents a settlement amount in the first currency that the user might need to pay if she uses the first payment mode to make a purchase in the second currency. The server determines the settlement amount based on a purchase amount of the purchase, the first and second foreign transaction fees, and the current currency conversion rate.

[0028] In one scenario, few merchants may provide offers on few selected types of payment modes such that settlement amounts for such payment modes is lower than the settlement amount determined for the first payment mode. In addition, for payment modes the first and second foreign transaction fees may not be applicable and hence settlement amounts for such payment modes is also lower than the settlement amount determined for the first payment mode. The server informs the user regarding one or more payment modes for which the user requires to pay lower settlement amount for the same purchase. The user may not possess any of these payment modes suggested by the server. In such a situation, the server provides a provision

to the user by way of the website or mobile application to procure any payment mode (such as a second payment mode) suggested by the server. The server provides the second payment mode to the user based on the request of the user, such that the second payment mode is only valid for a specific time-period as defined by the user or the server. The second payment mode is associated with a second issuer, which may or may not be different from the first issuer. Further, the second payment mode has a currency type, which may or may not be different from the first currency. For example, the second payment mode has the second currency as its currency type. When the user makes any purchase by using the second payment mode, the server bills the settlement amount corresponding to the second payment mode on the first payment mode that is possessed by the user. Thus, the second payment mode only serves as a means of payment for availing a lower settlement amount as compared to the first payment mode, however the actual deduction of the settlement amount happens from an account (such as a bank account or an e-wallet account) linked to the first payment mode. The server settles the transaction among the merchant at which the user makes the purchase and the first and second issuers.

[0029] The server may be a payment network server, an issuer server, or a third-party server that implements the above-mentioned method and system for offering the mobile application or the website to the user. Thus, the server ensures that the user is made aware of any additional fee that she might incur while performing transactions in foreign countries by use of the first payment mode associated with home currency. The server further provides insight regarding other payment modes for which the settlement amount is less due to offers offered by merchants or due to non-applicability of foreign transaction fees. Thus, the method and system of the present invention is not only beneficial for users, but also for merchants, issuers, and payment networks as it increases their business.

TERMS DESCRIPTION (in addition to plain and dictionary meaning)

[0030] Server is a physical or cloud data processing system on which a server program runs. A server may be implemented in hardware or software, or a combination thereof. In one embodiment, the server is implemented as a computer program that is executed on programmable computers, such as personal computers, laptops, or a network of computer systems. The server may correspond to a merchant server, an acquirer server, a payment network server, or an issuer server.

[0031] Merchant is an entity that offers various products and/or services in exchange of payments. The merchant may establish a merchant account with a financial institution, such as a bank (hereinafter "acquirer bank") to accept the payments from several users. The merchant may be levied a merchant discount rate (MDR) fee for accepting transaction cards as a means of payment.

[0032] Issuer bank is a financial institution, such as a bank, where accounts of several users are established and maintained. The issuer bank ensures payment for authorized transactions in accordance with various payment network regulations and local legislation.

[0033] Payment networks are transaction card associations that act as intermediate entities between acquirer banks and issuer banks to authorize and fund transactions. Examples of various payment networks include MasterCard®, American Express®, VISA®, Discover®, Diners Club®, and the like. Payment networks settle transactions between various acquirer banks and issuer banks when transaction cards are used for initiating the transactions. The payment network ensures that a transaction card used by a user for initiating a transaction is authorized.

[0034] First payment mode refers to a means of payment using which a user performs transactions for various purchases. The first payment mode may be a transaction card or an e-wallet possessed by the user. The transaction card is one of a debit card, a credit card, an electronic cash card, a gift card, a promotional card, and/or other devices, such as contactless fobs or payment-enabled mobile devices. The first payment mode has user's home currency as its currency type. The first payment mode is linked to an account of the user that is maintained at an issuer bank.

[0035] Second payment mode refers to a virtual means of payment that is procured by a user on an ad-hoc basis for performing transactions. The second payment mode has a specific validity period after which the second payment mode ceases to exist. The second payment mode is allotted a currency type based on a requirement of the user. The second payment mode is a standalone entity that is not linked to any account of the user. Further, any transaction that the user performs by using the second payment mode is billed on another payment mode that is actually possessed by the user and is linked to an account of the user.

[0036] Settlement amount refers to a total amount that a user has to pay for making a purchase. The settlement amount may have various components, such as a purchase amount of the purchase, foreign transaction fees, a currency conversion rate, taxes, or the like.

[0037] Transaction cards refer to cards, such as debit cards, credit cards, electronic cash cards, gift cards, promotional cards, and/or other devices, such as contactless fobs or payment-enabled mobile devices, that may hold identification information of an account. Transaction cards can be used to perform transactions, such as deposits and withdrawals, credit transfers, purchase payments, and the like. A transaction card may also be radio frequency identification (RFID) or near field communication (NFC) enabled for contactless payments.

[0038] FIG. 1 is a block diagram that illustrates a communication environment 100 for facilitating transactions, in accordance with an embodiment of the present invention. The communication environment 100 includes a user 102 in possession of a user device 104. The communication environment 100 further includes a merchant server 106, an acquirer server 108, a payment network server 110, a first issuer server 112, and a second issuer server 114. The user device 104 communicates with the merchant server 106, the payment network server 110, and the first issuer server 112 by way of a communication network 116. Further, the merchant server 106, the acquirer server 108, the payment network server 110, the first issuer server 112, and the second issuer server 114 may communicate with each other by way of the communication network 116 or through separate communication networks established therebetween.

[0039] The user 102 is an individual, who is an account holder of an account. In one embodiment, the account is a bank account maintained by a financial institution, such as a first issuer bank, and is linked to a first currency, such as a home currency of the user 102. The account is linked to a first payment mode. The first payment mode stores identification information of the account (hereinafter referred to as "account identification information of the account"). In one example, the first payment mode is a transaction card. The account identification information may be stored in the form of an electronic chip or a machine readable magnetic strip embedded in the transaction card. The account identification information may include an account number of the account, a name of an account holder (i.e., the name of the user 102), or the like. The transaction card has a unique card number, an expiry date, a card security code, a card type, and a currency type (here, the first currency) associated to it. The card number,

the expiry date, the card security code, the card type, and the currency type constitute transaction card details of the transaction card. In one embodiment, the transaction card is a physical card. In another embodiment, the transaction card is a virtual card that is stored electronically in a memory (not shown) of the user device 104. Examples of the transaction card include credit cards, debit cards, membership cards, promotional cards, charge cards, prepaid cards, gift cards, or the like. It will be apparent to a person skilled in the art that the account may be linked to more than one payment modes. In another embodiment, the account is an electronic wallet (e-wallet). The e-wallet is a digital wallet maintained by a third-party service provider. The user 102 may load the e-wallet with electronic cash. In the embodiment, the e-wallet thus serves as the first payment mode of the user 102.

[0040] The user device 104 is a communication device of the user 102. The user 102 uses the user device 104 to access a mobile application or a website of the payment network server 110 or the first issuer server 112 to avail a service that facilitates transactions. The mobile application may be installed on the memory of the user device 104. In another embodiment, the user 102 may use a browser installed on the memory of the user device 104 for accessing the website. Examples of the user device 104 include, but are not limited to, a mobile phone, a smartphone, a laptop, a tablet, a phablet, a desktop computer, a personal digital assistant, or any other communication device.

[0041] The merchant server 106 is a computing server that is associated with a merchant. The merchant may establish a merchant account with an acquirer bank, to accept payments for products and/or services purchased and/or availed by various users. The merchant may process the payments by way of the merchant server 106.

[0042] The acquirer server 108 is a computing server that is associated with a financial institution, such as an acquirer bank. The acquirer bank maintains the merchant account of the merchant that is associated with the merchant server 106. The acquirer bank processes various transactions by using the acquirer server 108. The acquirer server 108 transmits transaction requests to the payment network server 110, via the communication network 116. The acquirer server 108 credits or debits the merchant account in the acquirer bank based on the processing of the transactions that correspond to the merchant account.

[0043] The payment network server 110 is a computing server that is associated with a payment network of various transaction cards. The payment network server 110 represents an intermediate entity between the first issuer server 112 and the acquirer server 108 for authorizing and funding the transactions performed by using the transaction cards. The payment network server 110 generates credit and/or debit requests based on the transactions performed by the users, such as the user 102. The credit and/or debit requests are communicated to the acquirer and issuer servers (for example, the acquirer server 108, and the first and second issuer servers 112 and 114) for crediting and/or debiting the accounts corresponding to the transactions. The payment network server 110 further provides a facility to the user 102 for procuring a second payment mode that has a second currency as its currency type and is valid for a first time-period. The second currency may be same as the first currency or different from the first currency. The payment network server 110 further provides a facility to the user 102 to obtain a breakup of a settlement amount for a purchase to be made in the second currency by using the first or second payment mode. The payment network server 110 provides the breakup in the first currency. The payment network server 110 provides such facilities to the user 102 by hosting a mobile application or a website which is executable on the user device 104. The components and functioning of the payment network server 110 are explained in conjunction with FIGS. 2, 4A, 4B, 5A and 5B. Examples of various payment networks include MasterCard, American Express, VISA, Discover, Diners Club, or the like.

[0044] The first issuer server 112 is a computing server that is associated with the first issuer bank. The first issuer bank is a financial institution that manages accounts of multiple users (such as the user 102). Account details of the accounts established with the first issuer bank are stored in user profiles of the users in a memory of the first issuer server 112 or on a cloud server associated with the first issuer server 112. The account details may include an account balance, a credit line, details of an account holder, transaction history of the account holder, account identification information, or the like. The details of the account holder may include name, age, gender, physical attributes, registered contact number, alternate contact number, registered e-mail address, or the like of the account holder. The first issuer bank may have issued the first payment mode having the first currency as its currency type to the user 102. In another embodiment, the first issuer server 112 further provides a facility to the user 102 to procure the second payment mode that has the second currency as its currency type and is valid for the first

time-period. The first issuer server 112 further provides a facility to the user 102 to obtain a breakup of a settlement amount for a purchase to be made in the second currency by using the first or second payment mode. The first issuer server 112 provides the breakup in the first currency. The first issuer server 112 provides such facilities to the user 102 by hosting the mobile application or the website which is executable on the user device 104.

[0045] The first issuer server 112 receives various credit and debit requests from the payment network server 110. Based on the credit and debit requests, the first issuer server 112 credits or debits the accounts of the users (also referred to as user accounts). Methods for crediting and debiting accounts via the first issuer server 112 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. The components and functioning of the first issuer server 112 are explained in conjunction with FIGS. 3, 4A, 4B, 5A, and 5B.

[0046] The second issuer server 114 is a computing server that is associated with a second issuer bank. The second issuer bank is different from the first issuer bank. In one embodiment, the second issuer server 114 generates the second payment mode that is valid for the first time-period and has the second currency as its currency type, when it receives a request from the payment network server 110. In another embodiment, the second issuer server 114 permits the payment network server 110 to generate the second payment mode on its behalf, when the second issuer server 114 receives the request from the payment network server 110. The second issuer server 114 further provides the second payment mode to the payment network server 110.

[0047] Examples of the merchant server 106, the acquirer server 108, the payment network server 110, the first issuer server 112, and the second 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, or a network of computer systems.

[0048] The communication network 116 is a medium through which content and messages are transmitted between various entities, such as the user device 104, the merchant server 106, the acquirer server 108, the payment network server 110, the first issuer server 112,

and the second issuer server 114. 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.

[0049] FIG. 2 is a block diagram that illustrates the payment network server 110 of the communication environment 100 of FIG. 1, in accordance with an embodiment of the present invention. The payment network server 110 includes a first processor 202, a first memory 204, and a first transceiver 206 that communicate with each other via a first bus 208.

[0050] The first processor 202 includes suitable logic, circuitry, and/or interfaces to execute instructions stored in the first memory 204 for performing various transaction processing operations. The first processor 202 initiates a credit or debit of an amount in the account of the user 102 and handles various requests that are received from one or more entities, such as the user device 104, the acquirer server 108, and the first and second issuer servers 112 and 114. Examples of the first processor 202 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. The first processor 202 includes an authorization manager 210, a first location-tracking manager 212, a first settlement-amount manager 214, and a first payment-mode manager 216 to perform the transaction processing operations.

[0051] The first memory 204 includes suitable logic, circuitry, and/or interfaces to store user profiles of multiple users. A user profile of a user may include registered contact information, login details (such as a login-id and a password), and details of various payment modes of the user 102 that are registered with the payment network server 110. The first memory 204 further stores a set of computer readable instructions for hosting the mobile application or

the website that is executable on the user device 104. Examples of the first memory 204 include a random-access memory (RAM), a read-only memory (ROM), a removable storage drive, a hard disk drive (HDD), and the like. It will be apparent to a person skilled in the art that the scope of the invention is not limited to realizing the first memory 204 in the payment network server 110, as described herein. In another embodiment, the first memory 204 may be realized in the form of a database server or a cloud storage working in conjunction with the payment network server 110, without departing from the scope of the invention.

[0052] The first transceiver 206 transmits and receives data over the communication network 116 using one or more communication network protocols. The first transceiver 206 transmits/receives various requests and messages to/from the user device 104, the acquirer server 108, and the first and second issuer servers 112 and 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 206 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.

[0053] The authorization manager 210 includes suitable logic and/or interfaces for authorizing various transactions performed by the user 102 by way of the first and second payment modes, when the first and second payment modes are transaction cards. The authorization manager 210 receives authorization requests from at least one of the acquirer server 108, the first issuer server 112, or the second issuer server 114 for authorizing the transactions. Each authorization request includes the payment mode details of a payment mode (such as the first and second payment modes) used for performing the corresponding transaction. Thus, based on an authorization request if the authorization manager 210 determines that the payment mode details match the payment mode details that are stored in the first memory 204, the authorization manager 210 authorizes the transaction for further processing. The authorization manager 210 further authenticates the user 102, when the user 102 accesses the mobile application or the webpage hosted by the payment network server 110 on the user device 104. For example, when the user 102 accesses the mobile application or the webpage and provides the login details, the authorization manager 210 compares the login details provided by the user 102 with the login details included in the user profile of the user 102. In a scenario, if the

authorization manager 210 determines that the login details provided by the user 102 match the login details included in the user profile of the user 102, the authorization manager 210 authenticates the user 102. In an alternate scenario, if the authorization manager 210 determines that the login details entered by the user 102 do not match the login details included in the user profile of the user 102, the authorization manager 210 does not authenticate the user 102. The authorization manager 210 performs authorization and authentication by implementing various authorization and authentication techniques known in the art.

[0054] The first location-tracking manager 212 includes suitable logic and/or interfaces for determining a geo-location of the user device 104 of the user 102. The first location-tracking manager 212 may determine the geo-location of the user device 104 based on location information received from the user device 104, when the user 102 accesses the mobile application or the website hosted by the payment network server 110. Based on the geo-location, the first location-tracking manager 212 provides information on merchants that are in the vicinity of the geo-location of the user device 104 and that may provide one or more offers on a purchase that the user 102 wants to make. The offers may include a discount in a purchase amount of the purchase, cashback on the purchase, reward points for the purchase, or the like. In one example, the user device 104 is in an area 'X' where the merchant associated with the merchant server 106 is providing more offers as compared to other merchants in the vicinity. In such a scenario, the first location-tracking manager 212 provides a list of merchants in the vicinity of the user device 104 and places the offers offered by the first merchant at the top of the list. The vicinity not only includes near-by places of the user device 104 but also a geographical state or a country from where the user 102 can perform online shopping.

[0055] The first settlement-amount manager 214 includes suitable logic and/or interfaces for determining a settlement amount for a purchase that the user 102 wants to make. The settlement amount is determined based on a purchase amount of the purchase and transaction fees associated with the purchase. The first settlement-amount manager 214 determines the settlement amount in the first currency (*i.e.*, the home currency of the user 102) and further provides the breakup of the settlement amount to the user 102. The first settlement-amount manager 214 further initiates and settles a transaction if the user 102 proceeds to make the purchase.

[0056] The first payment-mode manager 216 provides a payment mode (such as the second payment mode) that has the second currency as the currency type and is valid for the first time-period to the user 102. The first payment-mode manager 216 further stores details of the second payment mode (hereinafter referred to as "second payment mode details") in the first memory 204. The second payment mode details include a unique transaction card or a unique e-wallet number of the second payment mode, user details of the user 102 (such as a name of the user 102, a contact number of the user 102, a residential address of the user 102, an e-mail address of the user 102, and the like), a currency type of the second payment mode, and a time-period for which the second payment mode is valid.

[0057] The functions performed by the authorization manager 210, the first location-tracking manager 212, the first settlement-amount manager 214, and the first payment-mode manager 216 are explained in conjunction with FIGS. 4A and 4B.

[0058] FIG. 3 is a block diagram that illustrates the first issuer server 112 of the communication environment 100 of FIG. 1, in accordance with an embodiment of the present invention. The first issuer server 112 includes a second processor 302, a second memory 304, and a second transceiver 306 that communicate with each other via a second bus 308.

[0059] The second processor 302 includes suitable logic, circuitry, and/or interfaces to execute instructions stored in the second memory 304 for performing various transaction processing operations. The second processor 302 initiates a credit or debit of an amount in the account of the user 102 and handles various requests that are received from one or more entities, such as the user device 104 and the payment network server 110. Examples of the second processor 302 include, but are not limited to, an ASIC processor, a RISC processor, a CISC processor, an FPGA, and the like. The second processor 302 includes an authentication manager 310, a second location-tracking manager 312, a second settlement-amount manager 314, and a second payment-mode manager 316 to perform the transaction processing operations.

[0060] The second memory 304 includes suitable logic, circuitry, and/or interfaces to store user profiles of multiple users. The second memory 304 further stores a set of computer readable instructions for hosting a mobile application or the website that is executable on the user device 104. Examples of the second memory 304 include a RAM, a ROM, a removable

storage drive, an HDD, and the like. It will be apparent to a person skilled in the art that the scope of the invention is not limited to realizing the second memory 304 in the first issuer server 112, as described herein. In another embodiment, the second memory 304 may be realized in the form of a database server or a cloud storage working in conjunction with the first issuer server 112, without departing from the scope of the invention.

[0061] The second transceiver 306 transmits and receives data over the communication network 116 using one or more communication network protocols. The second transceiver 306 transmits/receives various requests and messages to/from the user device 104 and the payment network server 110, 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 306 include, but are not limited to, an antenna, a radio frequency transceiver, a wireless transceiver, a Bluetooth transceiver, an ethernet port, a USB port, or any other device configured to transmit and receive data.

[0062] The authentication manager 310 includes suitable logic and/or interfaces for authenticating the user 102 and authorizing various transactions performed by the user 102 by way of the first and second payment modes that are issued by the first issuer server 112, when the first and second payment modes are transaction cards. The authentication manager 310 receives authorization requests from the payment network server 110 for authorizing the transactions performed by the user 102. Each authorization request includes the payment mode details of a payment mode (such as the first and second payment modes) used by the user 102 for performing the corresponding transaction. Thus, based on an authorization request if the authentication manager 310 determines that the payment mode details match the payment mode details that are included in the user profile of the user 102, the authentication manager 310 authorizes the transaction for further processing. The authentication manager 310 further authenticates the user 102, when the user 102 accesses the mobile application or the webpage hosted by the first issuer server 112 on the user device 104. For example, when the user 102 accesses the mobile application or the webpage and provides the login details, the authentication manager 310 compares the login details provided by the user 102 with the login details included in the user profile of the user 102. In a scenario, if the authentication manager 310 determines that the login details provided by the user 102 match the login details included in the user profile

of the user 102, the authentication manager 310 authenticates the user 102. In an alternate scenario, if the authentication manager 310 determines that the login details entered by the user 102 do not match the login details included in the user profile of the user 102, the authentication manager 310 does not authenticate the user 102. The authentication manager 310 performs authentication by implementing various authentication techniques known in the art.

[0063] The second location-tracking manager 312 includes suitable logic and/or interfaces for determining a geo-location of the user device 104 of the user 102. The second location-tracking manager 312 may determine the geo-location of the user device 104 based on location information received from the user device 104, when the user 102 accesses the mobile application or the website hosted by the first issuer server 112. Based on the geo-location, the second location-tracking manager 312 provides information on merchants that are in the vicinity of the geo-location of the user device 104 and that may provide one or more offers on a purchase that the user 102 wants to make. In one example, the user device 104 is in an area 'X' where the merchant associated with the merchant server 106 is providing more offers as compared to other merchants in the vicinity. In such a scenario, the second location-tracking manager 312 provides a list of merchants in the vicinity of the user device 104 and places the offers offered by the first merchant at the top of the list.

[0064] The second settlement-amount manager 314 includes suitable logic and/or interfaces for determining a settlement amount for a purchase that the user 102 wants to make. The settlement amount is determined based on a purchase amount of the purchase and transaction fees associated with the purchase. The second settlement-amount manager 314 determines the settlement amount in the first currency (*i.e.*, the home currency of the user 102) and further provides the breakup of the settlement amount to the user 102. The second settlement-amount manager 314 further initiates and settles a transaction if the user 102 proceeds to make the purchase.

[0065] The second payment-mode manager 316 provides a payment mode (such as the second payment mode) that has the second currency as the currency type and is valid for the first time-period to the user 102. The second payment-mode manager 316 further stores the second payment mode details in the second memory 304.

[0066] The functions performed by the authentication manager 310, the second location-tracking manager 312, the second settlement-amount manager 314, and the second payment-mode manager 316 are explained in conjunction with FIGS. 5A and 5B.

[0067] FIG. 4A represents a process flow diagram 400A that illustrates a process for registering a payment mode of the user 102, in accordance with an embodiment of the present invention. The process flow diagram 400A illustrates the user device 104, the payment network server 110, and the first issuer server 112.

[0068] The user 102 accesses a mobile application or a website of the payment network server 110 that facilitates transactions (as shown by arrow 402) for purchases that the user 102 wants to make. The user 102 accesses the mobile application or the website to register the first payment mode with the payment network server 110 for availing the service that facilitates transactions on the first payment mode. The user 102 initiates a registration request for providing registration details to the payment network server 110 (as shown by arrow 404). The registration details include login details (such as a login-id and a password), a phone number of the user 102, an e-mail address of the user 102, a residential address of the user 102, and the like. The first transceiver 206 receives the registration request from the user device 104. Based on the registration request, the authorization manager 210 registers the user 102 (as shown by arrow 406) and stores the registration details in a user profile of the user 102 in the first memory 204. The authorization manager 210 further notifies the user 102 that registration is successful. The authorization manager 210 further prompts the user 102 through the mobile application or the webpage to provide details of a payment mode, which the user 102 wants to register. The user 102 thus inputs the details of the first payment mode by way of the user device 104 (as shown by arrow 408). In this scenario, it is assumed that the first payment mode is a first transaction card. Thus, the details of the first transaction card include a transaction card number of the first transaction card, a card security code, an expiry date of the first transaction card, a currency type of the first transaction card, and the like. In an example, the currency type of the first transaction card is the first currency (for example, Indian Rupee (INR)). It will be apparent to a person having ordinary skill in the art that the user 102 may input details of as many payment modes that the user 102 possesses and that are linked to the payment network.

[0069] The first transceiver 206 receives the details of the first transaction card from the user device 104 (as shown by arrow 410). Based on the details of the first transaction card, the authorization manager 210 initiates an authorization of the first transaction card of the user 102 (as shown by arrow 412). To authorize the first transaction card, the authorization manager 210 determines whether the first transaction card is valid or invalid. The authorization manager 210 determines that the first transaction card is valid, when the details of the first transaction card match with the first transaction card details stored in the first memory 204. In a scenario, when the first transaction card details provided by the user 102 does not match the first transaction card details stored in the first memory 204, the authorization manager 210 determines that the first transaction card is invalid and does not register the first transaction card. The authorization manager 210 then notifies the user 102 to provide the details of the first transaction card again. In another scenario, when the first transaction card details provided by the user 102 matches the first transaction card details stored in the first memory 204, the authorization manager 210 determines that the first transaction card is valid and registers the first transaction card (as shown by arrow 414). In another scenario, the authorization manager 210 may ask the first issuer bank that had issued the first transaction card to the user 102 to authorize the first transaction card. The authorization manager 210, in conjunction with the first transceiver 206, notifies the user 102 that the registration of the first transaction card is successful by way of a registration notification (as shown by arrow 416). Examples of the registration notification may include a short message service (SMS) on the phone number of the user 102, an e-mail on the e-mail ID of the user 102, an interactive voice response (IVR) call on the phone number of the user 102, a push notification presented through the mobile application or the webpage, or the like.

[0070] In one scenario, the user 102 may be travelling to a foreign country for a second time-period, where transactions are processed in the second currency. For example, the second currency is Singapore Dollar (SGD). Thus, the user 102 may want to know a currency conversion rate and a foreign transaction fee which may be levied if the user 102 uses the first transaction card to perform transactions in the foreign country, *i.e.*, Singapore. In order to know the currency conversion rate and the foreign transaction fee that may be levied on the use of the first transaction card in the foreign country during the second time-period, the user 102 accesses the mobile application or the website of the payment network server 110 on the user device 104 and submits a rate request to the payment network server 110 (as shown by arrow 418). In one

embodiment, the user 102 provides information of the second time-period, such as April 30th, 2018 to May 10th, 2018 or the date as May 10th, 2018, in the rate request. In another embodiment, the user 102 may not provide the information of the second time-period in the rate request. In such a scenario, the second time-period is the date on which the user 102 initiates the rate request to determine the currency conversion rate and the foreign transaction fee. The rate request may further include the details of the first transaction card that the user 102 had registered and details of the foreign country where the user 102 is travelling. The first transceiver 206 receives the rate request from the user device 104.

[0071] Based on the details of the first transaction card in the rate request, the first settlement-amount manager 214 determines the currency type of the first transaction card. The first settlement-amount manager 214 further determines the currency type (*i.e.*, the second currency) used in the foreign country based on the details of the foreign country included in the rate request. The first settlement-amount manager 214, in conjunction with the first transceiver 206, then transmits a provision request to the first issuer server 112 (as shown by arrow 420) to receive information pertaining to the provisions or facilities associated with the registered first transaction card. The provisions or facilities may include reward points for transactions, cashback facility, international usage facility, and the like. The provisions further include a first foreign transaction rate that is levied by the first issuer bank for international transactions made in the second currency by the use of the first transaction card. The second transceiver 306 receives the provision request.

[0072] Based on the provision request, the second settlement-amount manager 314 retrieves the provisions (as shown by arrow 422) associated with the first transaction card. The second settlement-amount manager 314 may retrieve the currency conversion rate and the first foreign transaction rate from the second memory 304. In an example, the currency conversion rate for May 02, 2018 is 1 SGD = 49.94 INR and the first foreign transaction rate that is levied by the first issuer bank is 2% of a purchase amount of a transaction. The second settlement-amount manager 314, in conjunction with the second transceiver 306, provides the retrieved provisions through a provision response (as shown by arrow 424) to the payment network server 110. On receiving the provision response, the first settlement-amount manager 214 determines whether the first transaction card can be used in the foreign country where the user 102 is

travelling. When the first settlement-amount manager 214 determines that the first transaction card can be used for performing transactions in the foreign country, the first settlement-amount manager 214 retrieves the currency conversion rate from the provision response as provided by the first issuer bank (as shown by arrow 426). The first settlement-amount manager 214 further retrieves the first foreign transaction rate from the provision response (as shown by arrow 426).

[0073] On retrieving the currency conversion rate and the first foreign transaction rate, the first settlement-amount manager 214 retrieves a second foreign transaction rate (as shown by arrow 428) that is levied by the payment network when the user 102 performs the transaction in the foreign country using the first transaction card. In an example, the second foreign transaction rate is 2% of a purchase amount of a transaction. The first settlement-amount manager 214, in conjunction with the first transceiver 206, thus communicates the currency conversion rate and the first and second foreign transaction rates to the user 102 by way of a rate notification (as shown by arrow 430).

[0074] In one embodiment, the first issuer bank may not provide the currency conversion rate and the first foreign transaction rate in the provision response. In such a scenario, the first settlement-amount manager 214 retrieves historical currency conversion rates and historical first foreign transaction rates that have been used in past for converting the second currency to the first currency by the first issuer bank. The first settlement-amount manager 214 may retrieve the historical currency conversion rates and the historical first foreign transaction rates from the first memory 204, or a cloud server that is maintained by the payment network server 110, or an external database maintained by a third-party organization. In another embodiment, the provision response may include the historical currency conversion rates and the historical first foreign transaction rates. The first settlement-amount manager 214 thus predicts an indicative currency conversion rate and an indicative first foreign transaction rate based on at least the historical currency conversion rates and the historical first foreign transaction rates. The first settlement-amount manager 214, in conjunction with the first transceiver 206, thus communicates the indicative currency conversion rate, the indicative first foreign transaction rate, and the second foreign transaction rate to the user 102 by way of the rate notification (as shown by arrow 430).

[0075] In another embodiment, the user 102 may want to know a settlement amount that she might need to pay for purchasing a first product by using the first transaction card in the

foreign country during the travel period (*i.e.*, the second time-period). Thus, the user 102 submits the rate request that includes details pertaining to the travel period, the second currency, a purchase amount of the first product in the second currency, geographical area of a merchant that sells the first product, and the first transaction card which the user 102 wants to use for making the purchase. As explained in the foregoing, the first settlement-amount manager 214 retrieves the currency conversion rate and the first foreign transaction rate that is levied by the first issuer bank by communicating the provision request to the first issuer server 112. Based on the currency conversion rate, the first and second foreign transaction rates, and the purchase amount, the first settlement-amount manager 214 determines the settlement amount that the user 102 might need to pay for purchasing the first product by using the first transaction card and communicates it to the user 102 by way of the rate notification. In another embodiment, the first settlement-amount manager 214 may predict an indicative settlement amount based on the purchase amount, the indicative currency conversion rate, the indicative first foreign transaction rate, and the second foreign transaction rate.

[0076] In one embodiment, the first settlement-amount manager 214 may communicate details of other payment modes (such as other transaction cards or e-wallets) for which the settlement amount is less in comparison to the first transaction card of the user 102 in the rate notification. The user 102 may or may not possess the other payment modes. Thus, the payment network server 110 enables the user 102 to procure one or more of the other payment modes (as explained in FIG. 4B) for making the purchase by way of the mobile application or the website. The process involved in the purchase of the first product through the mobile application or the website by using the first transaction card or one of the procured payment modes is explained in detail in FIG. 4B.

[0077] It will be apparent to a person skilled in the art that first transaction card is used an example of the first payment mode. In another scenario, the first payment mode can be a first e-wallet of the user 102 without deviating from the scope of the disclosure. In such a scenario where the first payment mode is the first e-wallet the first issuer server 112 is an e-wallet server.

[0078] FIG. 4B represents a process flow diagram 400B for facilitating transactions, and illustrates the user device 104, the merchant server 106, the acquirer server 108, the payment

network server 110, the first issuer server 112, and the second issuer server 114, in accordance with an embodiment of the present invention.

[0079] The user 102 may want to purchase the first product, such as cosmetics. The user 102 may login to the mobile application or the website of the payment network server 110 to inquire about nearby merchants that sell the first product and offers offered by those merchants on the sale of the first product. In one scenario, the first location-tracking manager 212 determines a geo-location (as shown by arrow 432) of the user device 104 to identify the nearby merchants. In another scenario, the user 102 requests the payment network to provide the offers offered by merchants in a specified geographical area. To inquire about the offers from the nearby merchants, the first payment-mode manager 216 transmits offer requests to the merchant servers of corresponding merchants based on the geo-location. On receiving responses to the offer requests, the first payment-mode manager 216 presents the offers on the sale of the first product to the user 102 through the user device 104 (as shown by arrow 434). The presented offers may include offers on the registered payment mode (for example the first transaction card) of the user 102. The presented offers may further include offers on other payment modes (such as a second payment mode) that are not possessed by the user 102.

[0080] In a scenario the user 102 is in India and has the registered transaction card (*i.e.*, the first transaction card) which has INR as its currency type. Further, the user 102 wants to make the purchase of the first product from Singapore. In such a scenario, the first payment-mode manager 216 presents the offers that are offered by the merchants in Singapore. Exemplary offers provided by a first merchant "M1" is presented by the first payment-mode manager 216 on the user device 104 and illustrated in Table A of FIG. 4C. The first payment-mode manager 216 may further provide offers (not shown) offered by a second merchant "M2". The first and second merchants "M1" and "M2" may not provide any offers on the first transaction card as the currency type of the first transaction card is INR and the first and second merchants "M1" and "M2" are in Singapore. However, the first merchant "M1" may provide a first offer "offer-1" on the purchase of the first product by using the second payment mode that is not possessed by the user 102. The second payment mode corresponds to the second issuer bank, and may be one of a transaction card, an e-wallet, or the like. For the sake of simplicity, it is assumed that the second payment mode is a second transaction card that corresponds to the second issuer bank. The first

offer "offer-1" indicates a 10% discount on the purchase of the first product that amounts to 100 SGD if the purchase is performed by using the second transaction card.

[0081] The user 102 may want to know the settlement amount in INR for the first transaction card, which she might need to pay if she uses the first transaction card for purchasing the first product from the first merchant "M1". The user 102 may further want to know the settlement amount in INR if the second transaction card is used for purchasing the first product from the first merchant "M1". Thus, the user 102 communicates the rate request by way of the mobile application or the website on the user device 104 to the payment network server 110 (as shown by arrow 436) to inquire about the settlement amounts in INR for purchasing the first product by way of the first and second transaction cards. In an example, the purchase amount of the first product is 200 SGD. Thus, the rate request is to apprise the settlement amount in INR for the purchase amount of 200 SGD.

[0082] The first transceiver 206 receives the rate request. The first payment-mode manager 216 determines that the first payment mode has INR as its currency type, thus the currency conversion rate, and the first and second foreign transactions fees may be levied on a purchase made in a foreign currency, such as SGD, by using the first transaction card. The first and second foreign transaction fees are fees based on the first and second foreign transaction rates and are levied by the first issuer bank and the payment network of the first transaction card, respectively. The first payment-mode manager 216 thus initiates a provision request to contact the first issuer bank in order to retrieve the currency conversion rate and the first foreign transaction rate for the purchase to be made using the first transaction card. The first payment-mode manager 216 further determines that the second transaction card has SGD as its currency type, thus no transaction fee is levied on a purchase made in SGD by using the second transaction card. As no transaction fee is levied on the purchase made in SGD, the first payment-mode manager 216 need not contact the second issuer bank that corresponds to the second transaction card.

[0083] The first payment-mode manager 216 transmits the provision request (as shown by arrow 438) to the first issuer server 112 of the first issuer bank that had issued the first transaction card to the user 102 to receive the provisions associated with the first transaction card. The second transceiver 306 receives the provision request. The second payment-mode

manager 316 retrieves the provisions of the first transaction card (as shown by arrow 440) and determines whether the first transaction card has any provision to be used for making purchases in the foreign country (for example, Singapore). When the second payment-mode manager 316 determines that the first transaction card has the provision to be used for making purchases in the foreign country, the second settlement-amount manager 314 retrieves the current first foreign transaction rate and the currency conversion rate, which is levied for making purchases in SGD by using the first transaction card, from the second memory 304. The second payment-mode manager 316, in conjunction with the second transceiver 306, thus communicates the first foreign transaction rate and the currency conversion rate to the payment network server 110 by way of the provision response. The first transceiver 206 receives the first foreign transaction rate and the currency conversion rate by way of the provision response (as shown by arrow 442). The first settlement-amount manager 214 further retrieves the second foreign transaction rate (as shown by arrow 444) from the first memory 204 or a cloud server that is maintained by the payment network server 110 or an external database that is maintained by a third-party government organization. The first settlement-amount manager 214 thus determines the settlement amount for the first transaction card based on the purchase amount (i.e., 200 SGD), the first and second foreign transaction fees, and the currency conversion rate. In the example, the first foreign transaction fee is 4 SGD as the first foreign transaction rate is 2 % of the purchase amount, the second foreign transaction fee is 2 SGD as the second foreign transaction rate is 1% of the purchase amount, and the currency conversion rate is 1 SGD = 49.95 INR. Thus, the first settlement-amount manager 214 determines the settlement amount (as shown by arrow 446) as 200 SGD + 4 SGD + 2 SGD = 206 SGD = 10289.92 INR for the first transaction card. The first settlement-amount manager 214 further determines the settlement amount for the second transaction card based on the purchase amount (i.e., 200 SGD) and the currency conversion rate charged by the payment network server 110. Since the second transaction card has its currency type as SGD and the purchase amount is also in SGD, no first foreign transaction fee is charged by the second issuer bank on the purchase by using the second transaction card. Since the first settlement-amount manager 214 is facilitating the currency conversion from SGD to INR for the user 102, it may charge a specific currency conversion rate and/or the second foreign transaction fee for this conversion. The first settlement-amount manager 214 may retrieve the currency conversion rate charged by the payment network from the first memory

204. In the example, the currency conversion rate is 48.54 and the second transaction fee is 2 SGD. Thus, the first settlement-amount manager 214 determines the settlement amount (as shown by arrow 446) as 200 SGD (with a 10% discount) = 180 SGD (without the second foreign transaction fee) + 2 SGD = 182 SGD (with the second foreign transaction fee) = 8737.2 INR (without the second foreign transaction fee) or 9091.08 INR (with the second foreign transaction fee) for the second transaction card. The first settlement-amount manager 214 thus communicates the settlement amounts in INR for both the first and second payment modes to the user device 104 by way of a first notification (as shown by arrow 448). In one embodiment, the payment network server 110 may provide automatic suggestions to the user 102 for various payment modes that have lower settlement amount as compared to the first transaction card of the user 102.

[0084] The user 102 thus has a comparison of the settlement amounts for the first and second transaction cards and opts for the transaction card with the lowest settlement amount. In this example, the transaction card with the lowest settlement amount is the second transaction card. Since the user 102 does not possess the second transaction card, she initiates a first request to the payment network server 110 for providing the second transaction card that is valid for a first time-period (as shown by arrow 450). The first time-period is based on at least one of the validity of the offer, the duration for which the user 102 stays in Singapore, or the like. In another embodiment, the second issuer server 114 or the payment network server 110 may determine the first time-period for associating the user 102 with the second transaction card. The first request includes the details of the user 102, the user account details of the user 102, the details of the first transaction card, the first time-period, an amount to be blocked from the user account linked to the first transaction card, the currency type of the second transaction carde, and the like.

[0085] The first transceiver 206 receives the first request. In one embodiment, the first payment-mode manager 216 contacts the first issuer bank to block the amount in the user account linked to the first transaction card by initiating a block request. The first issuer server 112 of the first issuer bank then blocks the amount from the user account, when the user 102 approves the blocking of the amount and notifies the payment network server 110 and the user 102 that the amount is blocked. To provide the second transaction cardto the user 102, the first

payment-mode manager 216, in conjunction with the first transceiver 206, then transmits the first request to the second issuer server 114 that corresponds to the second transaction card (as shown by arrow 452). The second transceiver 306 receives the first request. The second issuer server 114 checks the validity of the details of the user 102 based on the first request. In one embodiment, when the details of the user 102 are valid, the second issuer server 114 generates the second transaction card that is valid for the first time-period for the user 102. The second issuer server 114 thus provides the second transaction card to the payment network server 110 by way of a second notification (as shown by arrow 454). In another embodiment, when the details of the user 102 are valid, the second payment-mode manager 316 permits the payment network server 110 by way of the second notification to generate the second payment mode for the user 102 on behalf of the second issuer bank. The first payment-mode manager 216, in conjunction with the first transceiver 206, then transmits a third notification to the user 102 (as shown by arrow 456) to provide the second transaction card to the user 102 that is valid the first time-period. Once the user 102 receives the third notification, the second transaction card is added to the list of registered payment modes (which previously included the first transaction card) of the user 102 for the first time-period.

[0086] The user 102 thus selects the second transaction card to perform a transaction through the user device 104 for purchasing the first product (as shown by arrow 458). The merchant server 106 receives the transaction details (as shown by arrow 460) of the transaction from the user device 104. The transaction details include a transaction identification number of the transaction, a date and time of the transaction, the purchase amount, details of the second transaction card, and the like. The details of the second transaction card include an identification number of the second transaction card, and the like. The acquirer server 108 receives the transaction details from the merchant server 106 (as shown by arrow 462). The acquirer server 108 then transmits the transaction details to the payment network server 110 for approving the transaction (as shown by arrow 464). The payment network server 110 receives the transaction details by way of a transaction request. On receiving the transaction details, the first settlement-amount manager 214 initiates a settlement of the transaction (as shown by arrow 466a). The first settlement-amount manager 214 settles the transaction amongst the merchant, issuer banks (*i.e.*, the first and second issuer banks) of the first and second transaction cards (as shown by arrow 466b) as explained herein.

[0087] For settling the transaction, the authorization manager 210 authorizes the second transaction card. Authorization of the second transaction card may be performed by various authorization techniques known to a person skilled in the art. On authorizing the second transaction card, the first settlement-amount manager 214 requests the second issuer server 114 to initiate a credit of the purchase amount in the second currency to an account of the merchant established at the acquirer bank. In one embodiment, once the second issuer server 114 approves the credit of the purchase amount to the account of the merchant, the first settlement-amount manager 214 bills the settlement amount on the first transaction card of the user 102 that is registered with the payment network server 110. The first settlement-amount manager 214 may further communicate with the second settlement-amount manager 314 to deduct the settlement amount from the amount that is blocked in the user account linked to the first transaction card. In an example, the settlement amount may further include a fee charged by the first settlement-amount manager 214 for providing the facility of the second payment mode to the user 102. The first settlement-amount manager 214 may declare the fee to the user 102 before the generation of the second transaction card. Once the settlement amount is billed on the first transaction card, the second issuer bank that had credited the purchase amount to the account of the merchant for settling the transaction with the merchant receives the purchase amount, thereby settling the transaction. When the transaction is settled, the first settlement-amount manager 214 transmits a transaction approval notification to the user device 104 to indicate the settling of the transaction (as shown by arrow 468). In one embodiment, the first settlement-amount manager 214 may not settle the transaction on the day the transaction is performed. However, the first settlement-amount manager 214 charges the first transaction card with the same settlement amount that was applicable on the day of the transaction, in spite of the fact that the currency conversion rate, and the first and second foreign transaction fee are not constant and may change over a period of time. In other words, the first settlement-amount manager 214 ensures that the user 102 is levied the currency conversion rate and the second foreign transaction fee that were applicable on day the user 102 had performed the transaction while settling the transaction.

[0088] In various embodiments, the first and second issuer servers 112 and 114 may be maintained by first and second e-wallet providers. In another embodiment, the first issuer server 112 is associated with the first issuer bank whereas the second issuer server 114 is maintained by the second e-wallet provider or vice versa. In yet another embodiment, the functions performed

by the payment network server 110 may be performed by a third-party service provider to provide the facilities (as explained in the foregoing in FIGS. 4A and 4B) to the user 102. In yet another embodiment, the payment network server 110 may provide the second payment mode that corresponds to first issuer bank to the user 102. For example, the first transaction card possessed by the user 102 is a credit card of a first type whereas the second transaction card is a credit card of a second type on which offers provided by a merchant are applicable, such that the first and second transaction cards correspond to the first issuer bank.

[0089] In another scenario, the user 102 may be in India and has the registered payment mode (*i.e.*, the first transaction card) which has INR as its currency type. Further, the user 102 wants to make the purchase of the first product from India. In such a scenario, the payment network server 110 presents the offers that are offered by the merchants in India. Exemplary offers presented by the first payment-mode manager 216 on the user device 104 are illustrated in Table B of FIG. 4C. As shown in Table B, "offer-2" indicates a second offer that is offered by a third merchant "M3" on the use of the first transaction card for purchasing the first product. "Offer-2" indicates a 5% discount that amounts to at least 5000 INR on the purchase of the first product. "Offer-3" is a third offer that is offered by a fourth merchant "M4" on the purchase of the first product by using the first transaction card. The third offer indicates a 50 INR cashback on the purchase of the first product by using the first transaction card. The second and third offers are offered on the use of the first transaction card. "Offer-4" is a fourth offer that indicates a 10% discount on the purchase of the first product amounting to at least 5000 INR from the third merchant "M3" by using the third payment mode. "Offer-5" is a fifth offer that indicates a 100 INR cashback on purchase of the first product at the fourth merchant "M4" by using a fourth payment mode. As the fourth and fifth offers "offer-4" and "offer-5" provide higher discount and cashback on the third and fourth payment modes that the user 102 does not possess, respectively, the user 102 may opt for one of the third and fourth payment modes as per her requirement. The process of obtaining the payment modes has been explained in the aforementioned specification. It will be apparent to a person skilled in the art that as the first payment mode is in INR and the purchase is in INR, the payment network server 110 does not need to retrieve currency conversion rate and foreign transaction rate for any of the third or fourth payment mode.

[0090] FIG. 5A represents a process flow diagram 500A for registering a payment mode of the user 102, in accordance with another embodiment of the present invention. FIG. 5A illustrates the user device 104 and the first issuer server 112.

[0091] The user 102 accesses a mobile application or a website of the first issuer server 112 that facilitates transactions (as shown by arrow 502) for purchases that the user 102 wants to make. The user 102 accesses the mobile application or the website to register the first payment mode (for example, the first transaction card having the currency type as the first currency) with the first issuer server 112for availing the service that facilitates transactions on the first transaction card. The user 102 initiates the registration request for providing registration details to the first issuer server 112 (as shown by arrow 504). The second transceiver 306 receives the registration request from the user device 104. Based on the registration request, the authentication manager 310 registers the user 102 (as shown by arrow 506) and updates the user profile of the user 102 stored in the second memory 304 to include the registration details. The authentication manager 310 further notifies the user 102 that the registration is successful. The authentication manager 310 further prompts the user 102 through the mobile application or a webpage of the website to provide details of a payment mode, which the user 102 wants to register. The user 102 thus inputs the details of the first transaction card by way of the user device 104 (as shown by arrow 508). The user 102 may further input details of as many payment modes that the user 102 possesses and which correspond to the first issuer bank.

[0092] The second transceiver 306 receives the details of the first transaction card from the user device 104 (as shown by arrow 510). Based on the details of the first transaction card, the authentication manager 310 initiates an authorization of the first transaction card of the user 102 (as shown by arrow 512). To authenticate the first transaction card, the authentication manager 310 determines whether the first transaction card is valid or invalid. The authentication manager 310 determines that the first transaction card is valid, when the details of the first transaction card match with the first transaction card details stored in the second memory 304. In a scenario, when the first transaction card details provided by the user 102 does not match the first transaction card stored in the second memory 304, the authentication manager 310 determines that the first transaction card is invalid and does not register the first transaction card. The authentication manager 310 then notifies the user 102 to provide the details of the first

transaction card again. In another scenario, when the first transaction card details provided by the user 102 matches the first transaction card details stored in the second memory 304, the authentication manager 310 determines that the first transaction card is valid and registers the first transaction card (as shown by arrow 514). The authentication manager 310, in conjunction with the second transceiver 306, notifies the user 102 that the registration of the first transaction card is successful by way of the registration notification (as shown by arrow 516).

[0093] It is assumed that the user 102 is travelling to a foreign country, *i.e.*, Singapore for the second time-period and where transactions are processed in the second currency, *i.e.*, SGD. To know the currency conversion rate and the foreign transaction rate that may be levied on the use of the first transaction card in the foreign country during the second time-period, the user 102 accesses the mobile application or the website of the first issuer server 112 on the user device 104 and submits the rate request to the first issuer server 112 (as shown by arrow 518). The second transceiver 306 receives the rate request from the user device 104.

[0094] Based on the details of the first transaction card in the rate request, the second settlement-amount manager 314 determines the currency type of the first transaction card. The second settlement-amount manager 314 further determines the currency type (*i.e.*, the second currency) used in the foreign country based on the details of the foreign country included in the rate request. The second payment-mode manager 316 further retrieves the provisions (as shown by arrow 520) associated with the first transaction card. On retrieving the provisions, the second payment-mode manager 316 determines whether the first transaction card can be used in the foreign country where the user 102 is travelling. Based on the determination, the second settlement-amount manager 314 may retrieve the currency conversion rate and the first foreign transaction rate from the second memory 304 (as shown by arrow 522). The second settlement-amount manager 314 further retrieves the second foreign transaction rate that is levied by the payment network from one of the second memory 304 or from an external database maintained by a third-party organization, or by communicating with the payment network server 110 (as shown by arrow 524). The second settlement-amount manager 314, in conjunction with the second transceiver 306, thus communicates the currency conversion rate, the first and second foreign transaction rates to the user 102 by way of the rate notification (as shown by arrow 526).

[0095] In one embodiment, the user 102 may want to know a settlement amount that she might need to pay for purchasing a first product by using the first transaction card in the foreign country during the travel period (*i.e.*, the second time-period). Thus, the user 102 submits the rate request that includes details pertaining to the travel period, the second currency, a purchase amount of the first product in the second currency, geographical area of a merchant that sells the first product, and the first transaction card which the user 102 wants to use for making the purchase. The second settlement-amount manager 314 then determines the settlement amount that the user 102 might need to pay for purchasing the first product by using the first transaction card based on the purchase amount, the currency conversion rate, the first foreign transaction rate, and the second foreign transaction rate and communicates it to the user 102. The second settlement-amount manager 314 may communicate details of other payment modes (such as other transaction cards that correspond to the first issuer bank) for which the settlement amount is less in comparison to the first transaction card of the user 102 in the rate notification. The user 102 may or may not possess the other payment modes. Thus, the first issuer server 112 enables the user 102 to procure one or more of the other payment modes (as explained in FIG. 5B) for making the purchase by way of the mobile application or the website. The process involved in the purchase of the first product through the mobile application or the website by using the first transaction card or one of the procured payment modes is explained in detail in FIG. 5B.

[0096] FIG. 5B represents a process flow diagram 500B for facilitating transactions, in accordance with another embodiment of the present invention, and illustrates the user device 104, the merchant server 106, the acquirer server 108, the payment network server 110, and the first issuer server 112. For the sake of ongoing discussion, it is assumed that the user 102 may want to purchase the first product. Thus, the user 102 logs-in to the mobile application or the website of the first issuer server 112 to inquire about nearby merchants that sell the first product and the offers that are offered by those merchants on the sale of the first product. In one scenario, the second location-tracking manager 312 determines a geo-location (as shown by arrow 528) of the user device 104 to identify the nearby merchants. In another scenario, the user 102 requests the first issuer to provide the offers offered by merchants in a specified geographical area. To inquire about the offers from the nearby merchants, the second payment-mode manager 316 transmits offer requests to the merchant servers of corresponding merchants based on the geo-location. On receiving responses to the offer requests, the second payment-mode manager 316

presents the offers on the sale of the first product to the user 102 through the user device 104 (as shown by arrow 530). The presented offers may include offers on the registered payment mode (for example the first transaction card) of the user 102. The presented offers may further include offers on other payment modes (for example, a second payment mode) that are not possessed by the user 102. It is assumed that the user 102 has the registered transaction card (*i.e.*, the first transaction card) with INR as its currency type. Further, the user 102 wants to make the purchase of the first product from Singapore. In such a scenario, the second payment-mode manager 316 presents the offers that are offered by the merchants in Singapore. Exemplary offers provided by the first merchant "M1" is presented by the second payment-mode manager 316 on the user device 104 and illustrated in Table A of FIG. 4C. The second payment-mode manager 316 may further provide offers (not shown) offered by the second merchant "M2".

[0097] Based on the first through third offers, the user 102 may want to know the settlement amount in INR for the first transaction card, which she might need to pay if she uses the first transaction card for purchasing the first product from the first merchant "M1". The user 102 may further want to know the settlement amount in INR for the second payment mode (for example, a third transaction card that corresponds to the first issuer bank), which she might need to pay if she uses the third transaction card for purchasing the first product from the first merchant "M1". Thus, the user 102 communicates the rate request by way of the mobile application or the website on the user device 104 to the first issuer server 112 (as shown by arrow 532) to inquire about the settlement amounts in INR for purchasing the first product by way of the first and third transaction cards. In an example, the purchase amount of the first product is 200 SGD. Thus, the rate request is to apprise the settlement amount in INR for the purchase amount of 200 SGD.

[0098] The second transceiver 306 receives the rate request. The second payment-mode manager 316 determines that the first transaction card has INR as its currency type, thus the foreign currency conversion rate and first and second foreign transactions fees may be levied on a purchase made in a foreign currency, such as SGD, by using the first transaction card. The second payment-mode manager 316 further determines that the third transaction card has SGD as its currency type, thus no transaction fee is levied on a purchase made in SGD by using the third transaction card.

[0099] The second settlement-amount manager 314 retrieves the provisions of the first transaction card (as shown by arrow 534) and determines whether the first transaction card has any provision to be used for making purchases in the foreign country (for example, Singapore). When the second settlement-amount manager 314 determines that the first transaction card has the provision to be used for making purchases in the foreign country, the second settlement-amount manager 314 retrieves the current first foreign transaction rate and the currency conversion rate (as shown by arrow 536a), which is levied for making purchases in SGD by using the first transaction card, from the second memory 304. The second settlement-amount manager 314 further retrieves the second foreign transaction fee (as shown by arrow 536b) from the second memory 304 or a cloud server that is maintained by the first issuer server 112 or an external database that is maintained by a third-party organization. The second settlement-amount manager 314 thus determines the settlement amount (as shown by arrow 538) for the first transaction card based on the purchase amount (*i.e.*, 200 SGD), the first and second foreign transaction fees, and the foreign currency conversion rate. The second settlement-amount manager 314 thus communicates the settlement amounts in INR for both the first and third transaction cards to the user device 104 by way of the first notification (as shown by arrow 540).

[00100] The user 102 thus has a comparison of the settlement amounts for the first and third transaction cards and opts for the transaction card with the lowest settlement amount. In one example, the third transaction card has the lowest settlement amount. Since the user 102 does not possess the third transaction card, she initiates the first request to the first issuer server 112 for providing the third transaction card that is valid for the first time-period (as shown by arrow 542).

[00101] The second transceiver 306 receives the first request. The authentication manager 310 checks the details of the user 102 based on the first request to provide the third transaction card. When the details of the user 102 are valid, the second payment-mode manager 316 generates the third transaction card that is valid for the first time-period for the user 102. The second payment-mode manager 316 thus provides the third transaction card to the user 102 by way of the second notification (as shown by arrow 544). Once the user 102 receives the second notification, the third transaction card is added to the list of registered payment modes (which previously included the first transaction card) of the user 102 for the first time-period.

[00102] The user 102 thus selects the third transaction card to perform the transaction through the user device 104 for purchasing the first product (as shown by arrow 546). The merchant server 106 receives the transaction details (as shown by arrow 548) of the transaction from the user device 104. The acquirer server 108 further receives the transaction details from the merchant server 106 (as shown by arrow 550). The acquirer server 108 transmits the transaction details to the payment network server 110 for approving the transaction (as shown by arrow 552). The payment network server 110 transmits the transaction details to the first issuer server 112 by way of the transaction request for approving the transaction (as shown by arrow 554). On receiving the transaction details, the second settlement-amount manager 314 initiates the settlement of the transaction (as shown by arrow 556a). The second settlement-amount manager 314 settles the transaction amongst the merchant, the payment network server 110, and the first issuer server 112 (as shown by arrow 556b).

[00103] To initiate the settlement, the authentication manager 310 authorizes the third transaction card. Authorization of the third transaction card may be performed by various authorization techniques known to a person skilled in the art. The second settlement-amount manager 314 approves the credit of the purchase amount to the account of the merchant and bills the settlement amount on the first transaction card of the user 102. The settlement amount may further include a fee charged by the second settlement-amount manager 314 for providing the facility of the third transaction card to the user 102. The second settlement-amount manager 314 may declare the fee to the user 102 before the generation of the third transaction card. When the transaction is settled, the second settlement-amount manager 314 transmits the transaction approval notification to the user device 104 to indicate the settling of the transaction (as shown by arrow 558). In one embodiment, the second settlement-amount manager 314 may not settle the transaction on the day the transaction is performed. However, the second settlement-amount manager 314 charges the first transaction card with the same settlement amount that was applicable on the day of the transaction, in spite of the fact that the currency conversion rate, and the first and second foreign transaction fees are not constant and may change over a period of time.

[00104] FIGS. 6A and 6B represent a flowchart 600 that illustrates a method for registering a payment mode of the user 102 with the payment network server 110, in accordance

with an embodiment of the present invention. At step 602, the payment network server 110 receives the registration request from the user device 104. At step 604, the payment network server 110 registers the user 102 based on the registration request. The payment network server 110 further notifies the user 102 that the registration is successful. The payment network server 110 further prompts the user 102 through the mobile application or the webpage of the website to provide details of a payment mode, which the user 102 wants to register.

[00105] At step 606, the payment network server 110 receives the first payment mode details from the user device 104. At step 608, the payment network server 110 initiates an authorization of the first payment mode of the user 102 based on the first payment mode details. At step 610, the payment network server 110 checks whether the first payment mode is valid or invalid. If at step 610, the payment network server 110 determines that the first payment mode is valid, the payment network server 110 authorizes the first payment mode and step 612 is performed. At step 612, the payment network server 110 registers the first payment mode for the service. At step 614, the payment network server 110 communicates the registration notification to the user 102 for informing about the successful registration of the first payment mode.

[00106] At step 616, the payment network server 110 receives the rate request from the user device 104. The rate request includes details pertaining to the second time-period and the foreign country or countries the user 102 is travelling to during the second time-period. At step 618, the payment network server 110 transmits the provision request to the first issuer server 112 to receive information pertaining to the provisions or facilities associated with the registered first payment mode. At step 620, the payment network server 110 receives the provision response from the first issuer server 112. At step 622, the payment network server 110 retrieves the currency conversion rate and the first foreign transaction rate from the provision response. At step 624, the payment network server 110 retrieves the second foreign transaction rate that would be levied by the payment network if the user 102 performs a transaction in the foreign country using the first payment mode. At step 626, the payment network server 110 communicates the currency conversion rate and the foreign transaction rate to the user 102 by way of the rate notification. At step 610, if the payment network server 110 determines that the first payment mode is not valid, step 628 is performed. At step 628, the payment network server 110 transmits

a denial notification to the user device 104 to indicate that the first payment mode is invalid and hence the service cannot be availed on the first payment mode.

[00107] FIGS. 7A and 7B represent a flowchart 700 that illustrates a method for facilitating transactions for purchases made by the user 102, in accordance with an embodiment of the present invention. The user 102 may want to purchase the first product, such as cosmetics. Thus, the user 102 may login to the mobile application or the website of the payment network server 110 to inquire about nearby merchants that sell the first product and offers offered by those merchants on the sale of the first product. At step 702, the payment network server 110 determines the geo-location of the user device 104 to identify the nearby merchants. At step 704, the payment network server 110 presents to the user 102 the offers offered by the nearby merchants on the sale of the first product through the user device 104. The presented offers may include offers on the registered payment mode (such as the first payment mode) of the user 102. The presented offers may further include offers other payment modes (such as the second payment mode) that are not possessed by the user 102.

[00108] At step 706, the payment network server 110 receives the rate request from the user 102 for inquiring about the settlement amounts that the user 102 might need to pay in her home currency (such as INR) for purchasing the first product by using the first and second payment modes. At step 708, the payment network server 110 transmits the provision request to the first issuer server 112 of the first issuer bank that had issued the first payment mode to the user 102 to receive the provisions associated with the first payment mode. Further, the payment network server 110 may not transmit any provision request to the second issuer server 114 associated with the second payment mode as the second payment mode has a same currency type as of the purchase. However, in a scenario where the second payment mode has a different currency type as of the purchase, the payment network server 110 may transmit the provision request to the second issuer server 114 as well for inquiring about the provisions associated with the second payment mode. At step 710, the payment network server 110 receives the provision response in response to the provision request from the first issuer server 112. At step 712, the payment network server 110 retrieves the second foreign transaction rate and step 714 is performed to determine the settlement amounts for the first and second payment modes (as explained in the foregoing in FIG. 4B). At step 716, the payment network server 110 transmits

the first notification to the user device 104 for communicating the settlement amounts in INR for both the first and second payment modes to the user 102.

[00109] The user 102 thus has a comparison of the settlement amounts for the first and second payment modes and opts for the payment mode with the lowest settlement amount. For example, the user 102 opts for the second payment mode having the second currency as its currency type. Since the user 102 does not possess the second payment mode, the user 102 requests the payment network server 110 by way of the first request to provide her with the second payment mode. At step 718, the payment network server 110 receives the first request from the user device 104.

[00110] At step 720, the payment network server 110 transmits the first request to the second issuer server 114. The second issuer server 114 checks the validity of the details of the user 102 based on the first request. In one embodiment, the second issuer server 114 generates the second payment mode that is valid for the first time-period for the user 102. At step 722, the payment network server 110 receives the second notification from the second issuer server 114. The second notification may include the second payment mode. In another embodiment, the second issuer server 114 may not generate the second payment mode but permit the payment network server 110 through the second notification to generate the second payment mode on its behalf. In this scenario, the payment network server 110 generates the second payment mode on behalf of the second issuer server 114 based on the second notification. At step 724, the payment network server 110 transmits the third notification to the user device 104 for providing the second payment mode, which is valid the first time-period, to the user 102. The second notification further includes the second payment mode details. The second payment mode is then added in the list of registered payment modes of the user 102.

[00111] The user 102 then selects the second payment mode to perform the transaction through the user device 104 for purchasing the first product. The merchant server 106 receives the transaction details of the transaction from the user device 104. The acquirer server 108 further receives the transaction details from the merchant server 106. At step 726, the payment network server 110 receives the transaction details by way of the transaction request from the acquirer server 108 for approving the transaction. At step 727, the payment network server 110 initiates the settlement of the transaction. At step 728, the payment network server 110 settles the

transaction amongst the merchant, issuer banks (*i.e.*, the first and second issuer banks) of the first and second payment modes on receiving the transaction details. When the transaction is settled, the settlement amount corresponding to the second payment mode is billed on the first payment mode for the transaction, such that the settlement amount is deducted from the account linked to the first payment mode and provided to the second issuer bank for paying the merchant for the purchase. Since the merchant receives the purchase amount associated with the transaction from the second issuer bank, the user 102 gets the benefit of the offer that the merchant had offered on the purchase by using the second payment mode. The settling of the transaction amongst the various entities has been explained in FIG. 4B. At step 730, the payment network server 110 transmits the transaction approval notification to the user device 104 to indicate the settling of the transaction.

[00112] FIGS. 8A and 8B represent a flowchart 800 that illustrates a method for registering the payment mode of the user 102, in accordance with another embodiment of the present invention. At step 802, the first issuer server 112 receives the registration request from the user device 104. At step 804, the first issuer server 112 registers the user 102 based on the registration request. The first issuer server 112 further notifies the user 102 that registration is successful. The first issuer server 112 further prompts the user 102 through the mobile application or the webpage to provide details of a payment mode, which the user 102 wants to register.

[00113] At step 806, the first issuer server 112 receives the first payment mode details from the user device 104. At step 808, the first issuer server 112 initiates an authorization of the first payment mode of the user 102 based on the first payment mode details. At step 810, the first issuer server 112 checks whether the first payment mode is valid or invalid. If at step 810, the first issuer server 112 determines that the first payment mode is valid, the first issuer server 112 authorizes the first payment mode and step 812 is performed. At step 812, the first issuer server 112 registers the first payment mode for the service. At step 814, the first issuer server 112 communicates the registration notification to the user 102 for informing about the successful registration of the first payment mode.

[00114] At step 816, the first issuer server 112 receives the rate request from the user device 104. The rate request includes details pertaining to the second time-period and the foreign

country the user 102 is travelling to during the second time-period. At step 818, the first issuer server 112 retrieves information pertaining to the provisions or facilities associated with the registered first payment mode. At step 820, the first issuer server 112 determines whether the first payment mode can be used in the foreign country where the user 102 is travelling. If the first issuer server 112 determines that the first payment mode can be used in the foreign country, step 822 is performed. At step 822, the first issuer server 112 retrieves the currency conversion rate and the first foreign transaction rate. At step 824, the first issuer server 112 retrieves the second foreign transaction rate that would be levied by the payment network if the user 102 performs a transaction in the foreign country using the first payment mode. At step 826, the first issuer server 112 communicates the currency conversion rate and the foreign transaction rate to the user 102 by way of the rate notification. At step 810, if the first issuer server 112 determines that the first payment mode is not valid, step 828 is performed. At step 828, the first issuer server 112 transmits the denial notification to the user device 104. The denial notification indicates that the service cannot be availed on the first payment mode. At step 820, if the first issuer server 112 determines that the first payment mode cannot be used in the foreign country, step 828 is performed.

[00115] FIGS. 9A and 9B represent a flow-chart 900 to illustrate a method for facilitating transactions for purchases made by the user 102, in accordance with another embodiment of the present invention. The user 102 may want to purchase the first product, such as cosmetics. Thus, the user 102 may login to the mobile application or the website of the first issuer server 112 to inquire about nearby merchants that sell the first product and offers offered by those merchants on the sale of the first product. At step 902, the first issuer server 112 determines the geo-location of the user device 104 to identify the nearby merchants. At step 904, the first issuer server 112 presents to the user 102 the offers offered by the nearby merchants on the sale of the first product through the user device 104. The presented offers may include offers on the registered payment mode (such as the first payment mode) of the user 102. The presented offers may further include offers on other payment modes (such as the second payment mode) that are not possessed by the user 102.

[00116] At step 906, the first issuer server 112 receives the rate request from the user 102 for inquiring about the settlement amounts in her home currency (such as INR) for purchasing

the first product by using the first and second payment modes. At step 908, the first issuer server 112 retrieves the provisions associated with the first payment mode. At step 910, the first issuer server 112 retrieves the currency conversion rate and first foreign transaction rate. At step 912, the first issuer server 112 retrieves the second foreign transaction fee. At step 914, the first issuer server 112 determines the settlement amounts for the first and second payment modes (as explained in the foregoing in FIGS. 4B and 5B). At step 916, the first issuer server 112 transmits the first notification to the user device 104 for communicating the settlement amounts in INR for both the first and second payment modes to the user 102.

[00117] The user 102 thus has a comparison of the settlement amounts for the first and second payment modes and opts for the payment mode with the lowest settlement amount. For example, the user 102 opts for the second payment mode having the second currency as its currency type. Since the user 102 does not possess the second payment mode, the user 102 requests the first issuer server 112 by way of the first request to provide her with the second payment mode. At step 918, the first issuer server 112 receives the first request from the user device 104.

[00118] At step 920, the first issuer server 112 generates the second payment mode that is valid for the first time-period for the user 102 and transmits the second notification that includes the second payment mode to the user 102. The user 102 then selects the second payment mode to perform the transaction through the user device 104 for purchasing the first product. The merchant server 106 receives the transaction details of the transaction from the user device 104. The acquirer server 108 further receives the transaction details from the merchant server 106. At step 922, the first issuer server 112 receives the transaction details from the payment network server 110 by way of the transaction request. At step 923, the first issuer server 112 initiates the settlement of the transaction. At step 924, the first issuer server 112 settles the transaction amongst the merchant, the payment network server 110, and the first issuer bank. When the transaction is settled, the settlement amount corresponding to the second payment mode is billed on the first payment mode for the transaction, such that the settlement amount is deducted from the account linked to the first payment mode. Since the merchant receives the purchase amount associated with the transaction from the first issuer bank, the user 102 gets the benefit of the offer that the merchant had offered on the purchase by using the second payment mode. The

settling of the transaction amongst the various entities has been explained in FIGS. 4B and 5B. It will further be apparent to a person skilled in the art that as the second issuer bank is not involved, the transaction is settled amongst the first merchant "M1", the payment network server 110, and the second issuer bank. At step 926, the first issuer server 112 transmits the transaction approval notification to the user device 104 to indicate the settling of the transaction.

[00119] The method and system of the present invention provide a provision to the user 102 based on which she can opt for a payment mode that provides the lowest settlement amount as compared to the payment modes that the user 102 possesses. Further, the currency conversion rate and the foreign transaction fees are retrieved in real-time or near real-time to let the user 102 know the settlement amounts, thereby maintaining transparency of the currency conversion rate and the first foreign transaction fees charged by the first issuer bank and the second foreign transaction fees charged by the payment network. The method and system further provide an indicative conversion rate and an indicative transaction rate to the user 102. Hence, the user 102 is aware of the rates and fees beforehand when she travels to the foreign country. The method and system further provide a payment mode to the user 102 having a validity period (*i.e.*, the first time-period), which may be defined by the user 102 and/or the payment network server 110, thus eliminating the need for a long-term maintenance of the payment mode. Further, the hassle of maintaining multiple payment modes for performing transactions in various countries is eliminated as the user 102 has to rely on a one-stop global solution that provides payment modes in a currency of the foreign country. The method and system further provide a facility to the user 102 to avail offers provided by the merchant on a payment mode that is not owned by the user 102. As the payment mode for the user 102 is provided immediately, the user 102 does not have to wait for days to receive the payment mode. The invention is beneficial for issuers that provide the payment mode to the user 102 in the foreign country, as the issuers can earn first foreign transaction fee on every purchase performed by the user 102 by way of the first payment mode. The service may be offered to the user 102 by charging a pre-determined fee, thus any entity, such as payment networks, issuer banks, or third-party servers, earns monetary benefits by offering the service to the user 102.

[00120] FIG. 10 is a high-level flow chart 1000 that illustrates a method for facilitating transactions, in accordance with an embodiment of the present invention. The user 102 accesses

the mobile application or the website of one of the payment network server 110 or the first issuer server 112 to register for a service that facilitates transactions. The user 102 raises the registration request to avail the service. The references made to a server hereinafter may refer to either of the payment network server 110 or the first issuer server 112. At step 1002, the server receives the first request from the user 102 to obtain the first payment mode associated with the first currency for the first time-period. The first request includes user details of the user 102 and details of the second payment mode associated with the second currency. At step 1004, the server provides the first payment mode that is valid for the first time-period based on the first request to the user 102. At step 1006, the server receives the transaction request for performing the transaction in the first currency at the first merchant by way of the first payment mode. At step 1008, the server determines the settlement amount in the second currency for the transaction. The determination of the settlement amount is based on at least a purchase amount associated with the transaction. At step 1010, the server settles the transaction amongst the first merchant and the first and second issuer banks and bills the settlement amount associated with the transaction on the second payment mode.

[00121] FIG. 11 is a high-level flow chart 1100 that illustrates a method for facilitating transactions, in accordance with another embodiment of the present invention. The user 102 accesses the mobile application or the website of one of the payment network server 110 or the first issuer server 112 to register the first payment mode for the service that facilitates transactions. The user 102 raises the registration request to avail the service. The references made to a server hereinafter may refer to either of the payment network server 110 or the first issuer server 112. At step 1102, the server determines the settlement amount corresponding to the first payment mode for the purchase that the user 102 wants to make at the first merchant. At step 1104, the server identifies the second payment mode for which a second settlement amount for the purchase is less than the first settlement amount. At step 1106, the server communicates the first settlement amount and the second payment mode details to the user 102. At step 1108, the server receives from the user 102 the first request to procure the second payment mode having a validity of the first time-period. At step 1110, the server provides the first payment mode to the user 102 based on the first request. At step 1112, the server initiates the transaction that corresponds to the purchase that is performed by the user 102 by way of the second payment

mode. The server charges the first payment mode with the second settlement amount to complete the transaction.

[00122] FIG. 12 represents a block diagram that illustrates system architecture of a computer system 1200, 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 1200. In one example, the merchant server 106, the acquirer server 109, the payment network server 110, and the first and second issuer servers 112 and 114 of FIG. 1 may be implemented in the computer system 1200 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. 6A and 6B, 7A and 7B, 8A and 8B, 9A and 9B, 10, and 11.

[00123] The computer system 1200 includes a processor 1202 that may be a special-purpose or a general-purpose processing device. The processor 1202 may be a single processor, multiple processors, or combinations thereof. The processor 1202 may have one or more processor cores. In one example, the processor 1202 is an octa-core processor. Further, the processor 1202 may be connected to a communication infrastructure 1204, such as a bus, message queue, multi-core message-passing scheme, and the like. The computer system 1200 may further include a main memory 1206 and a secondary memory 1208. Examples of the main memory 1206 may include RAM, ROM, and the like. In one embodiment, the main memory 1206 is the first memory 204 or the second memory 304. The secondary memory 1208 may include a hard disk drive or a removable storage drive, 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 one example, if the removable storage drive is a compact disc drive, the removable storage device may be a compact disc. In an embodiment, the removable storage unit may be a non-transitory computer readable recording media.

[00124] The computer system 1200 further includes an input/output (I/O) interface 1210 and a communication interface 1212. The I/O interface 1210 includes various input and output

devices that are configured to communicate with the processor 1202. 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 1212 may be configured to allow data to be transferred between the computer system 1200 and various devices that are communicatively coupled to the computer system 1200. Examples of the communication interface 1212 may include a modem, a network interface, *i.e.*, an Ethernet card, a communications port, and the like. Data transferred via the communication interface 1212 may correspond to 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 (not shown) which may be configured to transmit the signals to devices that are communicatively coupled to the computer system 1200. Examples of the communications channel may include, but are not limited to, cable, fiber optics, a phone line, a cellular phone link, a radio frequency link, and the like.

[00125] Computer program medium and computer usable medium may refer to memories, such as the main memory 1206 and the secondary memory 1208, which may be a semiconductor memory such as a DRAM. These computer program mediums may provide data that enables the computer system 1200 to implement the methods illustrated in FIGS. 6A and 6B, 7A and 7B, 8A and 8B, 9A and 9B, 10, and 11. In an embodiment, the present invention is implemented using a computer implemented application that may be stored in a computer program product and loaded into the computer system 1200 using the removable storage drive or the hard disc drive in the secondary memory 1208, the I/O interface 1210, or communication interface 1212.

[00126] 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 1202 and a memory such as the main memory 1206 and the secondary memory 1208 implements 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.

[00127] Techniques consistent with the present invention provide, among other features, systems and methods for facilitating transactions. 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.

Claims

1. A method for facilitating transactions, comprising:

receiving, by a server from a user, a first request to obtain a first payment mode associated with a first currency for a first time-period, wherein the first request includes user details of the user and details of a second payment mode associated with a second currency;

providing, by the server to the user, the first payment mode based on the first request, wherein the first payment mode is valid for the first time-period;

receiving, by the server, a transaction request for performing a transaction in the first currency at a first merchant by way of the first payment mode;

determining, by the server, a settlement amount in the second currency for the transaction, wherein the determination of the settlement amount is based on at least a purchase amount associated with the transaction; and

settling, by the server, the transaction amongst the first merchant and issuers of the first and second payment modes, wherein the server bills the settlement amount associated with the transaction on the second payment mode for the settlement.

2. The method of claim 1, wherein the server is implemented by one of the payment network and the issuer of the second payment mode.

3. The method of claim 1 or claim 2, further comprising:

receiving, by the server from the user, a registration request for registering the second payment mode;

initiating, by the server, an authorization of the second payment mode based on the registration request; and

registering, by the server, the second payment mode when the second payment mode is authorized.

4. The method of any one of claims 1 to 3, further comprising:

determining, by the server, a geo-location of a user device of the user; and

presenting, by the server, one or more offers offered by one or more merchants that are associated with the geo-location, wherein the user selects the first merchant from the one or more

merchants to perform the transaction to avail the one or more offers offered by the first merchant.

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

receiving, by the server from the user, a rate request to provide a transaction rate associated with the second payment mode; and

initiating, by the server, a provision request to retrieve provisions associated with the second payment mode based on the rate request, wherein the provisions include the transaction rate.

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

predicting, by the server, an indicative transaction rate based on historical transaction rates levied by the payment network and the issuer of the second payment mode.

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

communicating, by the server, the settlement amount that corresponds to the first payment mode to the user, wherein the server settles the transaction when the user approves the settlement amount.

8. A system for facilitating transactions, comprising:

a server comprising:

a processor configured to:

receive from a user a first request to obtain a first payment mode associated with a first currency for a first time-period, wherein the first request includes user details of the user and details of a second payment mode associated with a second currency;

provide to the user the first payment mode based on the first request, wherein the first payment mode is valid for the first time-period;

receive a transaction request for performing a transaction in the first currency at a first merchant by way of the first payment mode;

determine a settlement amount in the second currency for the transaction, wherein the settlement amount is determined based on at least a purchase amount associated with the transaction; and

settle the transaction amongst the first merchant and issuers of the first and second payment modes, wherein the processor bills the settlement amount associated with the transaction on the second payment mode for the settlement.

9. The system of claim 8, wherein the server is implemented by one of the payment network and the issuer of the second payment mode.

10. The system of claim 8 or claim 9, wherein the processor is further configured to:

receive from the user a registration request to register the second payment mode;

initiate an authorization of the second payment mode based on the registration request; and

register the second payment mode when the second payment mode is authorized.

11. The system of any one of claims 8 to 10, wherein the processor is further configured to:

determine a geo-location of a user device of the user; and

present one or more offers offered by one or more merchants that are associated with the geo-location, wherein the user selects the first merchant from the one or more merchants to perform the transaction to avail the one or more offers offered by the first merchant.

12. The system of any one of claims 8 to 11, wherein the processor is further configured to:

receive a rate request from the user to provide a transaction rate associated with the second payment mode; and

initiate a provision request to retrieve provisions associated with the second payment mode based on the rate request, wherein the provisions include the transaction rate.

13. The system of any one of claims 8 to 12, wherein the processor is further configured to:

predict an indicative transaction rate based on historical transaction rates levied by the payment network and the issuer of the second payment mode.

14. The system of any one of claims 8 to 12, wherein the processor is further configured to:

communicate to the user the settlement amount that corresponds to the first payment mode, wherein the processor settles the transaction when the user approves the settlement amount.

15. A method for facilitating transactions, the method comprising:

determining, by a server, a first settlement amount corresponding to a first payment mode for a purchase that a user wants to make at a first merchant;

identifying, by the server, a second payment mode for which a second settlement amount for the purchase is less than the first settlement amount;

communicating, by a server, the first settlement amount and details of the second payment mode to the user;

receiving, by the server from the user, a first request to procure the second payment mode having a validity of a first time-period;

providing, by the server to the user, the first payment mode based on the first request; and

initiating, by the server, a transaction that corresponds to the purchase that is made by the user by way of the second payment mode, wherein the server charges the first payment mode with the second settlement amount to complete the transaction.

16. The method of claim 15, wherein the server is implemented by one of the payment network or the issuer of the first payment mode.

17. The method of claim 15 or claim 16, further comprising:

receiving, by the server from the user, a registration request for registering the first payment mode;

initiating, by the server, an authorization of the first payment mode based on the registration request; and

registering, by the server, the first payment mode when the first payment mode is authorized.

18. The method of any one of claims 15 to 17, further comprising:

determining, by the server, a geo-location of a user device of the user; and

presenting, by the server, one or more offers offered by one or more merchants that are associated with the geo-location, wherein the user selects the first merchant from the one or more merchants to make the purchase to avail the one or more offers offered by the first merchant.

19. The method of any one of claims 15 to 18, wherein the first payment mode is associated with a first currency and the second payment mode is associated with a second currency, and wherein the first and second currencies are same.

20. The method of any one of claims 15 to 18, wherein the first payment mode is associated with a first currency and the second payment mode is associated with a second currency, and wherein the first and second currencies are different.