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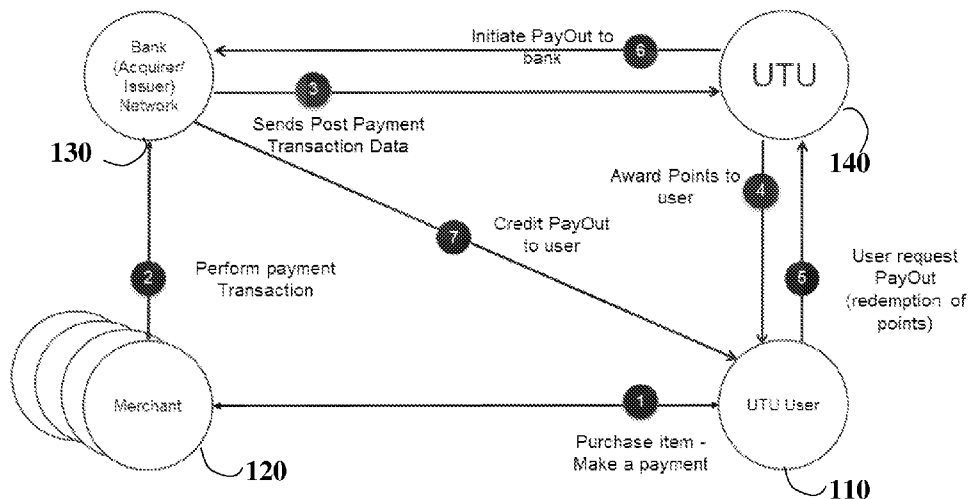


Figure 1

(57) Abstract: A method of providing a rebate to a participant of a rewards program, over a communications network, the method including sending details of a transaction payment to a rewards server is described. The method also includes identifying the participant using the transaction payment by retrieving an account element associated with the participant from a database and determining an amount of rewards points to the participant. The participant is then informed of the amount of rewards points awarded by the rewards server transmitting the amount of rewards points awarded over the communications network to the participant via a mobile device associated with the participant, and the rebate is determined based on the amount of rewards points awarded to the participant.



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METHOD AND SYSTEM FOR PROVIDING A REBATE

TECHNICAL FIELD

[001] The present invention relates to a method and system for providing a rebate to a customer upon completion of a transaction. More specifically, the present invention relates to allowing the customer to earn, redeem and convert rewards points globally and manage the rebate accordingly.

BACKGROUND

[002] Typical reward systems and loyalty programs require a customer to carry a separate card or device or remember a customer reference number in order to identify the customer as being eligible for a discount or rewards points. This would require a customer to carry or remember the details of multiple cards or devices in order to access the various reward systems or loyalty programs maintained by various organisations. The sole purpose of these details is merely to identify that the customer is a member of the rewards or loyalty program, which can be done using the credit card, debit card or any payment alternatives or identifiers relating to cards or devices.

[003] However, existing reward systems require merchant Point Of Sale (POS) devices or other payment systems to be modified in order to be able to identify a rewards program member and process the rewards points accordingly. These modifications can cause a disruption for the merchant and/or for the banks running the payment system. The existing system also make it difficult for the

customer to manage the rewards point since they can only do so at the merchant POS device or payment system, or after the transactions are batch processed at the end of a transaction cycle or business day. By being part of the payment transaction, the existing systems would impact the payment transaction itself either increasing the amount of time to process or increasing the amount of overheads needed to process the rewards points.

[004] Existing rewards points and loyalty programs typically are restricted to a country, merchant or a currency. However, in cases where a global rewards program is implemented, the loyalty points earned may not vary from country to country. This may create an unfair situation for the customer who is earning loyalty points overseas. It is difficult to calculate the loyalty points earned overseas since the points would be subject to currency fluctuations. Furthermore, the currency fluctuations may create uncertainty for the customer in knowing how many points are earned, as well as uncertainty for the loyalty program manager.

[005] In terms of privacy, existing reward systems also pose a security risk as personal information is included in information about a transaction collected by these reward systems. The personal information collected may include details of the completed transaction between a merchant and a bank including credit card details used to complete the transaction. There is also the issue of the retention of payment card data, which may be in contravention of local laws.

[006] Hence, there is a need for an automated system and method that is able to securely recognize a rewards program or loyalty program customer wherever

the merchant is located, and allow the customer to earn, redeem and manage rewards points from merchants globally, while using the existing payment network.

SUMMARY

[007] The present invention provides a system and method for providing a rebate to a participant of a rewards program over a communications network, utilizing the existing infrastructure and hardware, as well as the existing association network. According to some embodiments, the method of providing a rebate to a participant of a rewards program, over a communications network, may include sending details of a transaction payment to a rewards server; identifying the participant using the transaction payment by retrieving an account element associated with the participant from a database; determining an amount of rewards points to the participant; informing the participant of the amount of rewards points awarded by the rewards server transmitting the amount of rewards points awarded over the communications network to the participant via a mobile device associated with the participant; wherein the rebate is determined based on the amount of rewards points awarded to the participant.

In one aspect, the method also includes providing an input by the participant to the rewards server after the participant is informed of the amount of rewards points awarded. In another aspect, the input by the participant initiates the rebate against a credit, debit or bank, electronic or online account associated with the participant. Alternatively, another aspect has the input by the participant initiates

the rebate against the transaction payment. In another aspect, the input by the participant initiates the rebate against a second transaction payment.

[008] In a further aspect, the method includes registering the participant during a registration process before the transaction payment is made. In yet another aspect, the account element relates to a particular account belonging to the participant. In an alternative aspect, the method includes setting the rebate against an amount in the particular account associated with the participant. In yet another aspect, the particular account is any one of: a credit card account, a debit card account, a bank account, a transaction account, a loyalty program account.

[009] In one aspect of the invention, the method may include sending details of the transaction payment is carried out using at least one of the following: encryption, hashing, or tokenization. Further, the method includes checking against a whitelist after the details of the transaction payment are sent to the rewards server. Yet further, the whitelist resides on the rewards server, and the rewards server checks that a condition is met before processing the rebate. Alternatively, the whitelist is stored at a location other than the rewards server, and a processor refers to the whitelist that a condition is met before processing the rebate. In an aspect of the invention, the processor is part of a transaction terminal that processes the transaction payment. In another aspect of the invention, the condition is that at least one party to the transaction payment is a member of the rewards program. Alternatively, the condition is that an activity specified by the host is completed by the participant. Yet alternatively, the

condition is a specified time period. Further, the condition is a specified geographical or physical location. Yet further still, the condition is a specified merchant or group of merchants where the transaction payment is made. In an aspect of the invention, the whitelist is secured using at least one of the following: encryption, hashing, or tokenization.

[0010] In another aspect of the invention, a system for providing a rebate to a participant of a rewards program over a communications network is described, with a rewards host comprising a server and a database; a mobile device containing a processor configured to execute a mobile application; the application configured to: receive the amount of rewards points awarded from the rewards host; and provide an instruction to the rewards host; where the amount of rewards points awarded to a participant of the rewards program is determined by the rewards host when the details of a transaction payment is transmitted to the rewards host over a communications network; and wherein the rebate is determined based on the amount of rewards points awarded to the participant. In another aspect of the invention, the default instruction to the rewards host is to credit the account of the participant with the rebate. In an alternatively aspect, the instruction to the rewards host is to offset the rebate against the transaction payment. Further alternatively, the system includes an application processor, configured to process the transaction payment and determine the amount of rewards points awarded. In another aspect, the system includes an application processor configured to check a whitelist ensure the participant is a member of the rewards program. In an aspect of the invention, the application processor is

integrated with the rewards host. Alternatively, the application processor is integrated with a host other than the rewards host. In yet another aspect of the invention, the rewards host further comprises a content management system, said content management system configured to provide content to the participant.

[0011] In a further aspect, the rewards host further comprises an administrative portal, said administrative portal configured to manage a user account of the participant. In yet a further aspect, the administrative portal accesses an external database managed by a third party.

[0012] In an aspect of the invention, any data transmitted is secured using at least one of the following: encryption, hashing, or tokenization.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The accompanying drawings, which are incorporated herein and form part of the specification, illustrate various embodiments of the present disclosure and, together with the description, further serve to explain the principles of the disclosure and to enable a person skilled in the pertinent art to make and use the embodiments disclosed herein. In the drawings, like reference numbers indicate identical or functionally similar elements.

[0014] Figure 1 is an illustration of a reward and redemption method in accordance with an embodiment of the invention.

[0015] Figure 2A is an illustration of a payment network in accordance with an embodiment of the invention.

[0016] Figure 2B is an illustration of a global rewards network in accordance with an embodiment of the invention.

[0017] Figure 2C is an illustration of a global rewards network integrated with a payment network in accordance with an embodiment of the invention.

[0018] Figure 2D is an illustration of a custom global rewards network integrated with a payment network in accordance with an embodiment of the invention.

[0019] Figure 3A is an illustration of an acquiring bank with a host solution in accordance with an embodiment of the invention.

[0020] Figure 3B is an illustration of whitelist implementation in accordance with embodiments of the invention.

[0021] Figure 4 is a flowchart of the host solution in accordance with an embodiment of the invention.

[0022] Figure 5 is an illustration of the various secure communication channels in accordance with an embodiment of the invention.

[0023] Figure 6 is an list of applications and modules for the system in accordance with an embodiment of the invention.

[0024] Figure 7 is an illustration of the flow of dynamic multi-currency points in accordance with an embodiment of the invention.

[0025] Figure 8 is an illustration of identifying a customer globally using the payment network in accordance with an embodiment of the invention.

DETAILED DESCRIPTION

[0026] Some embodiments of the present invention provides a system and method for providing a rebate to a customer and an example of the process can be seen in Figure 1, where the process begins with the customer 110 purchasing a product or service at a merchant 120, and the payment transaction is performed between the merchant 120 and the bank 130. Once the transaction is completed, the bank 130 transmits the post payment transaction data over a communications network to the host 140. The host 140 processes the information and identifies that the customer is a member or participant of a loyalty program run by the host, and relays the amount of points awarded for the particular transaction to the customer 110. The current balance of points, including points awarded from past transactions, may also be provided to the customer 110 at the same time or in a separate communication. The message may be sent by any known conventional messaging service, including Short Message Service (SMS), etc., or may be sent through an application installed on a smart phone or other mobile device of the customer 110. The initial registration of the customer to the loyalty program or rewards points system may also be done through the application or separately through a web portal via the internet. Through a reply message or the application, the user 110 requests for a payout or a redemption of points to the host 140. When a payout or a redemption of points is requested, the host 140 initiates the payout or redemption process to the bank 130, and the payout is credited back to the user 110 and the bank 130 can communicate this directly to the user accordingly. This payout can be in the form of a rebate for the next purchase, an offset for the current purchase, or a

direct credit to the existing account of the user. In accordance with various embodiments, the process can be done in batches, or on a transaction basis which would mean that depending on the speed of the communications, the rewarding process can be done in almost real time. In accordance with some embodiments, the process does not require any update or change to the merchant's payment systems and the rewards program can be run independently by the bank or a third party service provider. The information sent to and from the host 140 can be secured using known processes such as hashing, tokenization, or any other form of encryption. The other lines of communication, for example between the merchant and the bank, may also be secured in a similar fashion.

[0027] It is noted that the proven success of tokenization has applications across multiple industries and sectors to protect sensitive data. Tokenization is a valuable tool that can be implemented to protect data being transmitted or stored, while reducing cost and maintaining compliance of existing rules and laws governing financial transactions. Using tokenization to transmit the transaction information ensures that sensitive information such as credit card details are protected, while still allowing the customer and the merchant to be identified by the host or the bank. Although various forms of tokenization exist, including, but not limited to, some processes with keys, some processes without keys, for the purposes of the specification, any reference to tokenization refers to all and various forms.

[0028] A payment network in accordance with an embodiment of this invention is shown in Figure 2A. In the payment network, each transaction; and the details of

the transaction, including credit/debit card details of the user 210, are sent through an issuer bank 215 via a network to a payment gateway 245, such as, but not limited to Visa, which then goes through the acquirer bank network 230 and to the merchant 220. In some embodiments, a global rewards network can be implemented as seen in Figure 2B such that the user 210 goes through the system server or host 240, before connecting to the acquirer bank 230 and the merchant 220. The system can also be integrated with an existing payment network as seen in Figure 2C, where instead of an acquirer bank 230, a credit provider network 234, such as, but not limited to Visa or Mastercard is connected to the system 240. The credit provider network 234 is connected to the acquiring bank network 231 and the merchant 222. In some embodiments, brands may choose to use the system proposed as seen in Figure 2D, with their program running as part of the system, and they would run and manage their own loyalty programs, while utilizing the overall system. In accordance with some of these embodiments, a merchant network 250, such as the network for the fashion brand Uniqlo, is connected to the system 240 as well as merchant stores 255. This enables the merchant network 250 to manage a loyalty program using the existing infrastructure with the added advantage of being part of a larger network of rewards points.

[0029] In some embodiments, an application processor 338 can reside within a bank's secure environment 330 and communicate with a host 340 as seen in Figure 3A. When a customer 310 purchases goods and/or services at a merchant and the payment is completed via the merchant's transaction payment

device or POS device 320, the bank processes the transaction via the Network Access Controller (NAC) 332 and authorizes the transaction via the bank host or bank authorization host 334. Network Access Controller is a server that connects to POS devices via various channels, for example a normal telephone line or IP data line, and can be also known as a POS network. The amount transacted is processed by the clearing and settlement host 336. Immediately or soon after the transaction is completed, the information relating to the transaction is sent to an application processor 338. The same message that authorizes the payment can be used to immediately trigger the issuance of rewards points. The application processor (UAP) 338 communicates with a host 340. The host 340 awards the points to the customer 310. The determination of whether a customer 310 is a member of the rewards program or loyalty program can be carried out by the bank 330, the host 340 or the UAP 338 in accordance with various embodiments. In further embodiments, only the host 340 has the customer information as it allows access to the registration of the customer globally. The host 340 can reside in a cloud or be hosted by an online web service. In accordance with further embodiments, a white list can be created that would allow the bank 330, the host 340 or the UAP 338 to determine whether a merchant or a user belongs to the rewards program.

[0030] The implementation of the whitelist may be done in several ways as shown in Figure 3B. The whitelist itself can be in the form of a merchant whitelist (MWL) or a user whitelist (UWL) 360 in accordance with several embodiments of the invention. The whitelist 360 allows the system to be more efficient by

determining whether merchants, partners or users 350 belong to the rewards program and/or are not entitled to the rewards points. This filtering of data allows the system to be more effective in terms of: data communications management; security and fraud management; and sensitive data communications management. The whitelist 360 can reside on the server or host 370 within its secure environment 380 as shown in example A of Figure 3B. In another embodiment according to the invention, the whitelist 360 can be implemented at the merchants, acquirers, issuers, payment gateways and/or card scheme networks in example B. In accordance with another embodiment of the invention, the whitelist 360 may also be implemented in the UAP that connects the external party to the host. In further embodiments of the invention, the UAP can reside with the external party; a neutral data centre in the country; a neutral data centre outside the country; and/or within the host itself. In some embodiments of the invention, the whitelist 360 may be a local whitelist that resides locally on site with the merchant, acquirer or any other external party other than the host. In further embodiments of the invention, the whitelist 360 is centralized and all users of the system access the whitelist 360 accordingly. The physical location of the centralized whitelist can be varied depending on the system requirements. In embodiments according to the invention, the whitelist 360 may be encrypted, hashed or tokenized for added security.

[0031] The functionalities of a UAP can be seen in Figure 4, which provides a solution to the bank for processing and managing the rewards program. The process 400 shows a proxy server where the UAP, which can be installed within

the secure environment of the bank, acts as a proxy for the bank to the host which would minimize the impact on the bank's systems and processors. This is similar to existing payment gateways or credit provider systems where a direct connection is created between the merchant and the host that is low cost and high speed. In accordance with many embodiments, the connection protocol supports TCP/IP for real time mode, although similar protocols may also be used. Message decoding and validation then takes place to ensure that the decoding of the message is done accurately and further validation may be performed to ensure data accuracy. The sensitive information can be tokenized, hashed or encrypted for security in accordance with various different embodiments of the invention. By whitelisting merchants, the system ensures that only transactions from merchants within the loyalty program are accepted. Whitelisting is to have a list of merchants who are current members or subscribers to the program, so that only their transactions are processed as rewards awarding. Aside from protecting from fraudulent or incorrect transactions, this also prevents unnecessary demand for network and processor resources. In some embodiments of the invention, the UAP can be integrated with any of the following: the merchant; acquirer; payment networks; payment processor; payment gateway; and/or Master Merchant. In some embodiments, the same UAP can be used regardless of the location of its implementation. In embodiments of the invention, only a single implementation of the UAP is required for integration with external parties. In further embodiments, the UAP may be replaced by a set of routines, protocols, and tools for building software applications or application program interfaces (APIs).

[0032] In accordance with some embodiments supporting a real time mode, an instant update of the points awarded is provided to the customer. In further embodiments, the real time updating may be carried out via APIs. In some embodiments, a secure file transfer protocol (SFTP) channel may be used to upload reports for reconciliation. In further embodiments, the SFTP channel is used to upload in batches. In accordance with some embodiments, the UAP only works with post payment transaction data. In other embodiments, the UAP may perform functions such as merchant whitelisting, which ensures that only participating merchant information is processed and allowed to pass through. In other embodiments, the UAP may carry out tokenization or hashing of sensitive data which would ensure secure communications without worrying that any deliberate or accidental interception of payment transaction information cannot be obtained without usage of inordinate computing power; and the removal of data that is not needed, for improving the communication speed and preempt any shortage in storage. Post payment transaction is used for rewarding of points and it uses the transaction authorization messages to trigger the rewarding of points. Merchant whitelisting carried out by updating the merchant list and may be a separate process from the transaction authorization. In other embodiments, SFTP is used for uploading other files for exception handling and reports for settlement or reconciliation. Merchant whitelisting may also be implemented in real time using the UAP or APIs. The UAP can also be customized according to the needs of the bank or the acquirer bank in accordance with various different

embodiments of the invention. Details of whitelisting are discussed in a separate section.

[0033] In terms of compliance, the system may comply with Payment Card Industry (PCI) standards. By working with post transaction data, the system does not impact or impair the transaction process. A process in accordance with embodiments of the invention in which all of the steps of the process are PCI compliant is shown in Figure 5. The system includes a customer's mobile device 510, the merchants payment transaction device 520, the acquiring bank's secured environment 530 the application processor (UAP) 538 (together with the bank's host), and a system host 540, such as, but not limited to, cloud computing services such as, but not limited to, Amazon Web Services (AWS) environment. The devices communicated via various secured channels like secure leased line or virtual private network (VPN) or any secure network in accordance with some embodiments of the invention. In many of these embodiments, the secured channels are provided through tokenization, hashing or any form of encryption, depending on the user requirements and the amount of processing power available by the various servers, portals, hosts and devices. Every portion of the dataflow is PCI compliant since sensitive data is not stored, or if the data is stored it is stored securely.

[0034] In accordance with some other embodiments, a list of applications and modules that can be used to implement the system and process is shown in Figure 6. The host 600 can be implemented via web applications 605 that communicates with an application 610 that is installed on a mobile device or

smartphone of a member user. The mobile application 610 may also inform the customer of any promotions, points earned after each transaction, and/or the balance of points in accordance with various embodiments. In accordance with a number of embodiments, the mobile application 610 provides the ability to gift rewards points to someone in their social network or contact list. The application 610 is operating system agnostic and can be implemented in iOS and Android mobile devices in accordance with many embodiments. The host 600 is connected to an application processor 615 that may be integrated with the bank's systems without having to make any changes to the transaction flow or the merchant card terminals in accordance with some embodiments. In an alternative embodiment, the application processor 615 may reside in a cloud or a central location easy access by all parties. The host 600 may also identify members of a loyalty program via their registered credit, debit or account cards or any other account details or elements, in order to award the member the relevant loyalty points or rewards points. Alternatively, the administrative portal 620 may also be used to identify members or users of a loyalty program. The administrative portal 620 allows an administrator to add new merchants or customers or to modify business rules to meet operational or business objectives. In a further embodiment, the administrative portal 620 is integrated with an application, processor, server and/or database of a customer, partner and/or participating merchant. This would allow easy and fast registration of participants, especially if authentication of the customer or participant is already done. In some embodiments in accordance to the invention, the administrative portal 620 may

be used to administer support for members of the loyalty program and directly manage their records in accordance with some of these embodiments. In accordance with some embodiments, the administrative portal 620 allows general administrative work associated with the management of accounts, including addition, editing, deletion of accounts. A content management system 625 allows the administrator to modify the contents of the mobile application 610 in accordance with a number of embodiments. The modifiable content may include promotions, advertisements, or similar notifications that inform a new and/or existing customer of the ways to earn or spend their rewards points in accordance with some embodiments. The content management system 625 may also act as an "Advertising and Marketing Serving Platform" where the content management system may publish advertisements from merchants, partners, agencies, advertisers or developers. In further embodiments, the content management system 625 is accessed by the relevant merchants, partners, agencies, advertisers, or developers to edit the content. A merchant portal 630 allows merchants to download reports for their billing reconciliation in accordance with a number of embodiments. The reports may be generated for a defined period including, but not limited to, daily or weekly periods; and provide a summary or a detailed breakdown of any and/or all transactions within the defined period.

[0035] In another embodiment of the invention, user registration can be done by integrating the registration process as an opt-in option during an enrollment process for the partner, especially those that require the customer details such

as, but not limited to, issuers, merchants or other loyalty or membership programs. The relevant details for the enrollment process may be used for the registration process for the rewards program, streamlining the procedure. In an embodiment, a user from an external party such as a bank can opt-in to the program when an enrollment process is conducted by the bank, either electronically, via the internet, at the physical branch or via the ATM, and this information is sent to the rewards server either in real time or in batches, and when the authenticated user registers or logs into the rewards server, the information can be presented to the user for confirmation.

[0036] In terms of security, various levels of security and privacy can be implemented in accordance with various different embodiments of the invention. In accordance with some embodiments, the mobile application level requires customers perform an authentication process during the initial registration process. The authentication may follow a sign in or log on to the application or system in accordance with many of these embodiments. For the credit or debit card details that are used during the registration process, only the last 4 digits of the card can be seen by the user, and communication can be secured via secure sockets layer (SSL) in accordance with some embodiments. The system or the host may conduct a card authentication with the card issuer. The system or the host itself can reside in a secure environment such as, but not limited to, the cloud computing services like Amazon Web Servers (AWS) which complies to PCI standards in accordance with many embodiments. Access to the environment is restricted and is used to maintain the system and server. As an

added measure, the system can communicate details that are tokenized by AWS Hardware security module (HSM) or by a HSM stored in a physical location in accordance with a number of embodiments. At another level, access to the portals may be controlled by administrators and require a user to sign in according to some embodiment. After a successful sign in, access can be IP restricted for an added layer of security and an audit trail of all activities carried out by the user is maintained in accordance with some embodiments.

[0037] In some embodiments, the merchants supporting the system are able to choose how much they would like to reward their customer per dollar spent depending on a sales margin measured either by transaction or purchased goods and services depending on the particular embodiment.

[0038] In some embodiments, the merchants supporting the system can be found in different countries as seen in Figure 7 where the operating country is Thailand while local (Thai) member 710 earns local points, a tourist 715 visiting a participating merchant in Thailand, or any country or market foreign to his designated 'home' country can also earn rewards points that are associated to his home currency, especially if the merchant issues rewards points that are currency dependent in accordance with some embodiments. The home country may depend on the country where the credit/debit cards are issued in accordance with many embodiments. In accordance with some of these embodiments, the credit/debit card numbers are used to identify the home country. In accordance with some other embodiments, the home country may be set up manually by the user. The conversion from foreign earned rewards points

to home currency rewards points may be performed by the mobile application, or by the rewards server in accordance with various different embodiments. The conversion may be performed in real time or almost instantaneously in accordance with some of these embodiments. The issue of foreign currency risk for the program is mitigated as there is no gain or loss of value of points that are issued and then used at a later date, possibly in another country, since the fluctuation of currencies is taken into account. The process of the local member 710 requesting a payout is performed in the following manner in accordance with some embodiments of the invention. The local member 710 completes a purchase at a local (Thai) merchant. The system 740 recognizes the local member 710 and award points to the local member 710. The local member 710 makes a request to the system 740 for a payout or redemption of rewards points and the system 740 credits the payout in Thai Baht to the local member 710. For a tourist member 715 whose home country is Australia (and home currency Australian dollar (AUD) making a purchase at a Thai merchant, the process is performed in a similar manner. Tourist member 715 completes a transaction at the Thai merchant. The system 740 recognizes the tourist member 715 and awards the points based upon the AUD to the tourist member 715. Tourist member 715 may make a request to the system 740 for a payout and the payout is made in AUD. The difference is that the system 740 pays out to the tourist member 715 in Australian dollars instead of Thai Baht. The process may be automated such that the various awards and conversions are done in real time. Using the same conversion process, universal points and/or existing international

loyalty programs may be associated with a fixed value or fixed currency, while local points are associated with the local currency. In accordance with many of these embodiments, the tourist member 715 is allowed to give or donate points or rewards points to a local member 710 or a local chosen charity. In accordance with many of these embodiments, the gift or donation can be converted to local points in real time.

[0039] In accordance with an embodiment shown in Figure 8, the system 840 may identify a customer globally through the acquiring payment network. In accordance with some of these embodiments, the information flow between the acquiring bank (not shown) and the system 840 does not include any sensitive data like transactions details, customer details or credit/debit card details without hashing or encryption. The acquirer does not share sensitive cardholder details as it is tokenized before sharing with the system, and hence the system only has the token, nor the card details. The process begins when a user or customer 810 downloads a mobile application into his mobile device 805 and performs a registration process to obtain an account. The user 810 associated one or more credit and/or debit cards with the user's account using the application with an authorization or authentication process to ensure that they are the rightful cardholder. The number of cards can be limited to 5 to ensure reasonable bandwidth in accordance with some embodiments and this number may be defined by the system administrator accordingly. As the card details are associated with an account using the application, the details may be tokenized, hashed and/or encrypted in accordance with a number of embodiments. The

card details may be removed from the system after registration. When a user 810 completes a transaction at a merchant 820, the acquiring bank 830 performs a similar tokenization, hashing, and/or encrypting, depending on the embodiment, and the tokenized, hashed, and/or encrypted data is sent to the system 840. Thus communications are secure since no card details are sent directly to the system 840. In the case of tokenization and hashing, the system does not require the card details. By comparing the token or the hash, the system 840 is able to identify the customer as being a member of the loyalty program, no matter which of the associated card is used. The system is not limited by card brand, issuing bank, or even location in accordance with many embodiments. At the same time, the user is not limited by the mode of payment used, such as, but not limited to credit card, debit card, electronic wallets, online payment accounts, etc used, as long as it was preregistered and authorized or authenticated, and the user does not require any other type of membership identifier. Further, the user is not limited by the presence (or lack thereof) of a physical card, specific identifier and/or QR code, since the process of recognizing that the customer is a member of the loyalty program can be carried out at the backend. Identifying the customer is done at the host by identifying the token. The token is like a membership number created from the card details.

[0040] In accordance with some embodiments of the invention, there may be a situation where only either the merchant or the customer is a member of the loyalty program, the system would still process the transaction payment and

award the rewards points accordingly. A merchant can choose to be part of the loyalty program in return for various incentives with the acquirer or the host.

[0041] In terms of the consumer user experience, the process begins with registration, that is performed online or using a mobile application. Once the website or application is loaded, the customer registers to use or subscribe to the service using either email or messages sent using the mobile application. This registration process may also include an authentication process to authenticate the identity of the customer and ensure the mobile device, email address, and/or any other contact detail associated with the customer is correct. The authentication process is typically performed by sending a confirmation request via the contact detail in accordance with many embodiments. Other types of local authentication can also be carried out by the application using the mobile device, including, but not limited to, biometric recognition, facial recognition, password entry, and/or PIN entry. The customer may also input the details of a credit or debit card to be used to identify the customer in the system via the online registration form or through the application in accordance with a number of these embodiments. In accordance with some of these embodiments in which the application is used to register the customer, the customer may be presented with the option of inputting the credit/debit card details by scanning the card using an onboard camera of the mobile device or NFC, and/or by manual entry of the card number using an input device. A limit on the number of cards can also be implemented. Once a transaction is completed, the system identifies the customer as a member of the program and award rewards points accordingly.

The rewards points can be in the form of general points called rewards points or UTU points, which can span across many merchants and brands to encourage customers to spend accordingly. For the purposes of this discussion, the merchants may be physical shops; and/or online spaces both in a local and global context. The mobile application may also inform the customer of ongoing promotions that can award extra points at the participating merchants, and these promotions can be as simple as completing a transaction at a participating merchant in accordance with various embodiments. Other promotions may be activities based or a combination of activities, and these may be carried out on the mobile device itself. In accordance with the various different embodiments, activities may include, but not limited to, a transaction at a store; watching a video; liking a social media page; sharing the merchant's webpage or media page; reading a fact; doing a survey; and/or enabling additional credit cards. Further promotions can be implemented based on events in accordance with some embodiments. Events may include, but are not limited to a customer's birthday month, a certain day of the week, certain hour(s) of the day etc.

[0042] In accordance with some embodiments, redemption of rewards points or enabling a rebate of the rewards points awarded is performed either over a POS terminal with the transaction amount being offset by previously earned points where the points earned in the transaction can only be used in the next transaction; or via the mobile or mobile application, which enables a cashback or a payout of cash rebates to the customer's account or credit/debit card with the awarded points. Further, the points can be converted into loyalty points belonging

to other schemes. The customer can choose to donate the points to a chosen charity, and/or transfer the points to friends and family in accordance with some of these embodiments. Using the social network list, the customer can also view the points earned by friends and family. This customer may then gift and/or top up the points accordingly. These points may be converted to loyalty points or rewards points from a partner scheme. This is particularly useful for merchants who wish to differentiate and stand out by issuing their own type/brand of point. The system would enable the merchant to manage and issue the points accordingly by relying on the existing system infrastructure. Conversion of points may be done to convert points that can be used or redeemed within the system or outside the system. The conversion partner may be a merchant that enable their closed loop loyalty program on the system; or it could be existing loyalty programs that are managed by other vendors. In accordance with further embodiments of the invention, the rewards program can be open loop, closed loop or a mixture of closed and open loop. In open loop, the program is open to various merchants and partners and the rewards points awarded are universal that can be used at any of the other merchants and partners, no matter the location or country. In accordance with other embodiments of the invention, the points could also be used to convert to or from other loyalty programs. In some embodiments, the loyalty programs are integrated with the host. [In accordance with alternative embodiments of the invention, the program is implemented on a closed loop on a single platform or an integrated platform. This usually occurs when a merchant, usually one with a larger customer base, chooses to reward

their own proprietary points in the closed loop program. The proprietary points is earned and redeemed only at specific merchants. In accordance with some embodiments of the invention, multiple closed loops may exist at the same time, exclusive of each other. Both the closed and open loops may use the same user interface although they are run separate and distinct from each other. In accordance with some embodiments, the user base can be shared or acquired with registration and opt-in processes to adhere to local requirements on personal data protection and/or the terms and conditions of the rewards program.

[0043] In accordance with some embodiments of the invention, the rewards points can be in the form of: points; discounts; vouchers; rebates; refunds; free gifts; etc. These rewards can be applied to purchases in real time almost instantaneously; for the next purchase; and/or to be collected when desired by the user. The collation of multiple sources allow for faster gaining of rewards points and rewards accumulation. In another embodiment of the invention, government authorities may use the system to provide tax refunds for visiting tourists.

[0044] In terms of the merchant experience, no additional hardware is required, especially in terms of the payment transaction device in accordance with many embodiments of the invention. Instead, the system can be implemented using software in the POS terminal communicates with the system awarding the rewards points at the back end. The software may be updated remotely. In accordance with some embodiments, the software may be installed in the terminal so that it is able to communicate directly with the system or host. In

accordance with further embodiments, the software in the terminal may communicate without passing through the acquiring host, and would minimize any impact to the acquiring host for payment transactions. This means that at the cashier, when a registered card of the customer is inserted into the credit card terminal, the terminal will prompt if the cardholder is enabled or entitled and then show how many rewards points or UTU points and the equivalent amounts are available for redemption in accordance with a number of embodiments. Should the cardholder choose to redeem, the available rewards points or UTU points will be used to off-set the transaction amount. After the transaction is completed, the terminal shows how many points the cardholder has used and earned from this transaction both on the receipt and on the mobile application in accordance with some embodiments of the invention. In accordance with some embodiments, a notification to the cashier that the credit or debit card has been reported as stolen may be presented, if the host received instructions either from the user or the acquiring bank to that effect.

[0045] In accordance with some embodiments the software is updated in the system of the acquiring bank, which means any inconvenience in terms of downtime is minimized for both merchant and banks and it would not matter if the payment terminal was owned by the acquiring bank, the infrastructure partner(s) or the merchants themselves. In accordance with some other embodiments, the system is implemented by integrating a customized software with the host of the bank, which may be either within a terminal, a POS device, a bank host, a bank server or the UAP. In accordance with many of these embodiments, the bank

host communicates with the backend reward system. At the cashier, the transaction is a business-as-usual for payment of purchase. Once the transaction is completed, the system recognizes the credit card of the customer and triggers the customer's mobile phone to show how many points are earned from this transaction in accordance with a number of these embodiments. The system may prompt the user if he/she wants to pay-out the points that he/she has earned previously to the credit card. The user can then choose to initiate a cashback, rebate, or pay-out in cash, to their debit or credit card account or choose to do nothing and accumulate the points. This process can be done either through a mobile application installed on the customer's mobile device, or it can be done through short message service (SMS), multimedia messaging service (MMS) or any other form of messaging service.

[0046] In accordance with some embodiments, the merchant may choose to present promotions, advertisements and marketing directly to the customer via the mobile application. In accordance with many of these embodiments, rewards points (UTU) can be rewarded either immediately upon the completion of activities given by the mobile application or upon completion of a transaction with the merchant either at the physical store via the transaction payment device or online store via online payment schemes. In accordance with a number of embodiments, the mobile application is also able to list the details of participating merchants, including, but not limited to, the address; contact details; and/or rewards & redemption terms and conditions. In accordance with some of these embodiments, the details of the participating merchants may be linked with the

phone function and location services of the customer's mobile device. Other types of promotions that may be provided by the mobile application include, but not limited to, promotion for locals only; promotion for tourist only; task/activity based promotion (i.e. points awarded upon completion of task/activity); task/activity with transaction based promotion; transaction based promotion (where the customer can earn extra points on top of the standard earning rate); time limited promotion (e.g. only available for 1 month); limited quantity promotion (e.g. only for first 500 users); event based (e.g. birthday month; week of the day - e.g. Tuesday; time based, e.g. happy hour 15:00 – 17:00), distance based (that the customer has covered a certain distance), geofencing (where a customer enters or exist a specified area or location bounded by a geofence).

[0047] In terms of the experience by a loyalty partner, the customer is able to select from a list of other loyalty program partners that are available to activate for the conversion of points from those found in the reward system (UTU points) to the partner loyalty program points. It is also possible that the customer can choose to convert points from other loyalty programs to UTU points. In either case, there can be a conversion rate in place, since various loyalty program partners may have different rates of earning points.

[0048] Charity programs can also be listed as a loyalty partner, for the purpose of allowing customers to donate points to them. This donation can be set up by the customer before making any transaction such that all or a part of the points earned automatically get donated to the charity. Alternatively, the donation can be triggered manually by the customer by selecting the appropriate option by

signing into the mobile application or by logging into the website connected to the rewards system, and selecting the appropriate option.

[0049] Turning now to Figure 9, a rebate system in accordance with an embodiment of the invention is illustrated. The system 910 includes a server 912. In other embodiments, the server 912 can be any processing device including a processor and sufficient resources to perform the process of providing a rebate to a customer. The server 912 can be any processing device including a processor and sufficient resources to perform the process of providing a rebate to a customer. The server 912 is connected to an HTTP server 914. HTTP server 914 uses HTTP or any other appropriate stateless protocols to communicate via a network 916 such as the Internet, with any other device connected to the network 916.

[0050] In the illustrated embodiment, user devices include personal computers 918, CE players, and mobile phones 920. In other embodiments, user devices can include consumer electronic devices such as televisions, set top boxes, video game consoles, tablets, and other devices that are capable of connecting to a server via HTTP and playing back encoded media. Although a specific architecture is shown in Figure 9, any of a variety of architectures including system that perform conventional processes can be utilized that enable playback devices to request portions of the top level index file and the container files in accordance with embodiments of the invention.

[0051] Some process for providing methods and systems in accordance with embodiments of this invention are executed by a user device or user mobile device. The relevant components in a playback device that can perform processes including adaptive streaming processes in accordance with embodiments of the invention are shown in Figure 10. One skilled in the art will recognize that user device 1000 may include other components that are omitted for brevity without departing from the embodiments of the invention as described. The user device 1000 includes a processor 1005, a non-volatile memory 1010, and a volatile memory 1015. The processor 1005 is a processor, microprocessor, controller, or a combination of processors, microprocessor, and/or controllers that performs instructions stored in the volatile 1015 or non-volatile memory 1010 to manipulate data stored in the memory. The non-volatile memory 1010 can store processor instructions utilized to configure the user device 1000 to perform processes including processes in accordance with embodiments of the invention and/or data for the processes being utilized. In other embodiments, the user device software and/or firmware can be stored in any of a variety of non-transitory computer readable media appropriate to a specific application.

[0052] The communications network refers to any contact between the parties described and is accomplished through any suitable communication means, including, but not limited to, a telephone network, public switch telephone network, intranet, Internet, extranet, WAN, LAN, point of interaction device, point of sale device, personal digital assistant, cellular phone, kiosk terminal, automated teller machine (ATM), etc.), online communications, off-line

communications, wireless communications, satellite communications, and/or the like. One skilled in the art will also appreciate that, for security reasons, any databases, systems, or components of the present invention may consist of any combination of databases or components at a single location or at multiple locations, wherein each database or system includes any of various suitable security features, such as firewalls, access codes, encryption, de-encryption, compression, decompression, and/or the like.

[0053] As understood by one of ordinary skill in the art, the present invention can be implemented with special purpose computers, devices, and servers that are programmed to implement the embodiments described herein. Further, the system according to the embodiments disclosed herein is able accommodate many more combinations and permutations, or any other future electronic payment methods. For example, the system according to the embodiments disclosed herein can accommodate all the new upcoming wallets and digital credits as well.

[0054] Thus, the present invention has been fully described with reference to the drawing figures. Although the invention has been described based upon these preferred embodiments, to those of skill in the art, certain modifications, variations, and alternative constructions would be apparent, while remaining within the spirit and scope of the invention. In order to determine the metes and bounds of the invention, therefore, reference should be made to the appended claims.

CLAIMS

1. A method of providing a rebate to a participant of a rewards program, over a communications network, the method comprising:

 sending details of a transaction payment to a rewards server;

 identifying the participant using the transaction payment by retrieving an account element associated with the participant from a database;

 determining an amount of rewards points to the participant;

 informing the participant of the amount of rewards points awarded by the rewards server transmitting the amount of rewards points awarded over the communications network to the participant via a mobile device associated with the participant;

wherein the rebate is determined based on the amount of rewards points awarded to the participant.

2. The method of claim 1, further comprising providing an input by the participant to the rewards server after the participant is informed of the amount of rewards points awarded.

3 The method of claim 2, wherein the input by the participant initiates the rebate against a credit, debit, bank, electronic or online account associated with the participant.

4. The method of claim 2, wherein the input by the participant initiates the rebate against the transaction payment.

5. The method of claim 2, wherein the input by the participant initiates the rebate against a second transaction payment.
6. The method of claim 1, further comprising registering the participant during a registration process before the transaction payment is made.
- 7 The method of claim 1, wherein the account element relates to a particular account belonging to the participant.
8. The method of claim 7 further comprising setting the rebate against an amount in the particular account associated with the participant.
- 9 The method of claim 8 wherein the particular account is any one of: a credit card account, a debit card account, a bank account, a transaction account, a loyalty program account an online account, an electronic account.
10. The method of claim 1, wherein the sending details of the transaction payment is carried out using at least one of the following: encryption, hashing, or tokenization.
11. The method of claim 1, further comprising checking against a whitelist after the details of the transaction payment are sent to the rewards server.
12. The method of claim 11, wherein the whitelist resides on the rewards server, and the rewards server checks that a condition is met before processing the rebate.

13. The method of claim 11, wherein the whitelist is stored at a location other than the rewards server, and a processor refers to the whitelist that a condition is met before processing the rebate.

14. The method of claim 13, wherein the processor is part of a transaction terminal that processes the transaction payment.

15. The method of any one of claims 12 or 13, wherein the condition is that at least one party to the transaction payment is a member of the rewards program.

16. The method of any one of claims 12 or 13, wherein the condition is that an activity specified by the host is completed by the participant.

17. The method of any one of claims 12 or 13, wherein the condition is a specified time period.

18. The method of any one of claims 12 or 13, wherein the condition is a specified geographical or physical location.

19. The method of any one of claims 12 or 13, wherein the condition is a specified merchant or group of merchants where the transaction payment is made.

20. The method of any one of claims 11-19 wherein the whitelist is secured using at least one of the following: encryption, hashing, or tokenization.

21. A system for providing a rebate to a participant of a rewards program over a communications network comprising:

a rewards host comprising a server and a database;

a mobile device containing a processor configured to execute a mobile application;

the application configured to:

receive the amount of rewards points awarded from the rewards host; and

provide an instruction to the rewards host;

wherein the amount of rewards points awarded to a participant of the rewards program is determined by the rewards host when the details of a transaction payment is transmitted to the rewards host over a communications network; and

wherein the rebate is determined based on the amount of rewards points awarded to the participant.

22 The system of claim 21, wherein the default instruction to the rewards host is to credit the account of the participant with the rebate.

23. The system of claim 21, wherein the instruction to the rewards host is to offset the rebate against the transaction payment.

24. The system of claim 21 further comprising an application processor, said application processor configured to process the transaction payment and determine the amount of rewards points awarded.

25. The system of claim 21 further comprising an application processor, said application processor configured to check a whitelist ensure the participant is a member of the rewards program.

26. The system of any one of claims 24 or 25, wherein the application processor is integrated with the rewards host.

27. The system of any one of claims 24 or 25, wherein the application processor is integrated with a host other than the rewards host.

28. The system of claim 21, wherein the rewards host further comprises a content management system, said content management system configured to provide content to the participant.

29. The system of claim 21, wherein the rewards host further comprises an administrative portal, said administrative portal configured to manage a user account of the participant.

30. The system of claim 29, wherein the administrative portal accesses an external database managed by a third party.

31. The system of any one of claims 21-30, wherein any data transmitted is secured using at least one of the following: encryption, hashing, or tokenization.

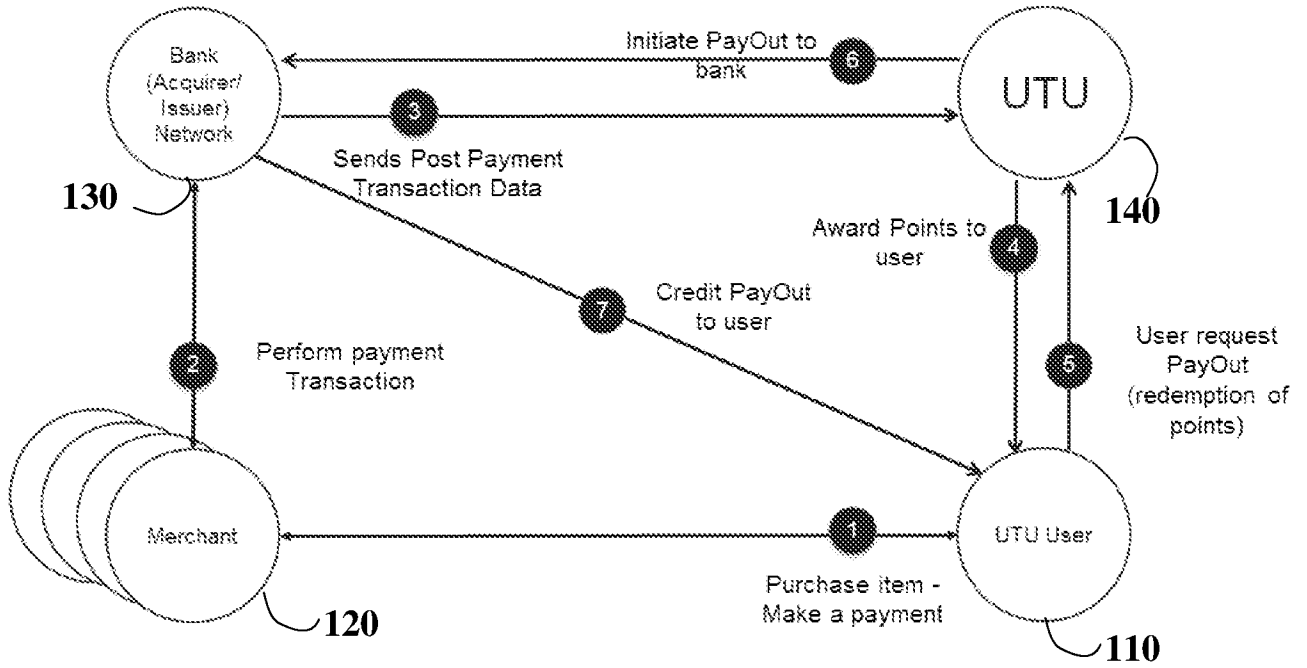


Figure 1

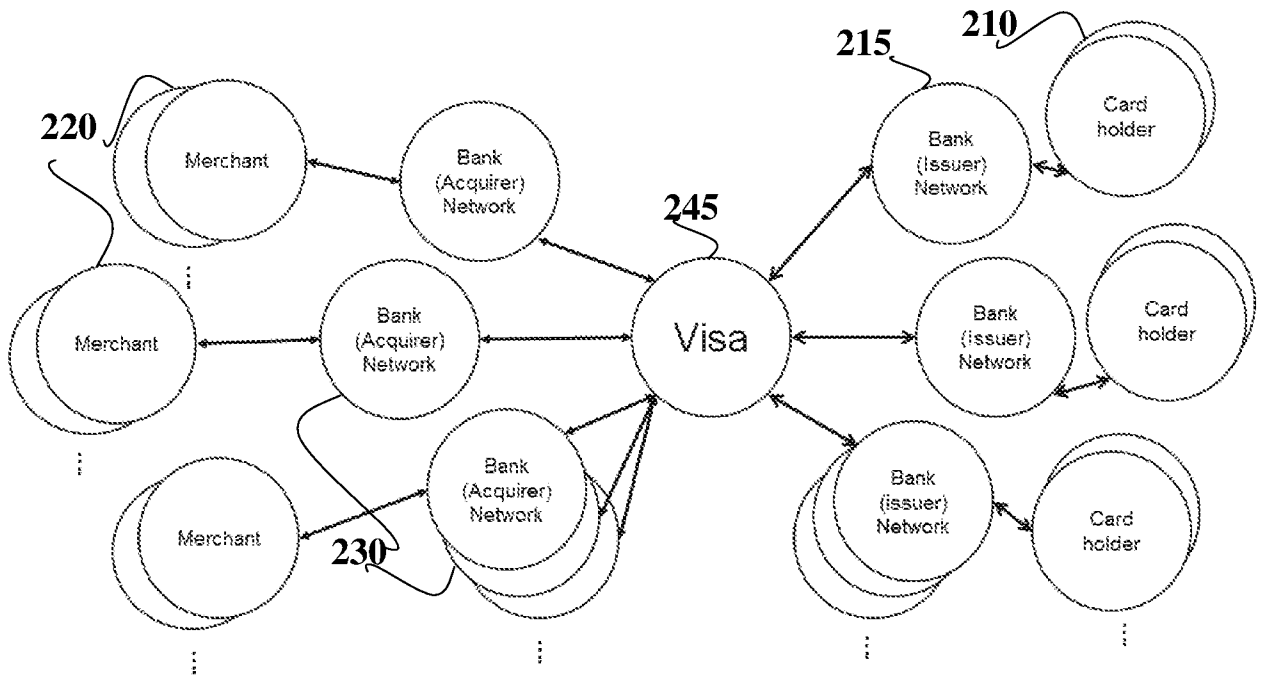


Figure 2A

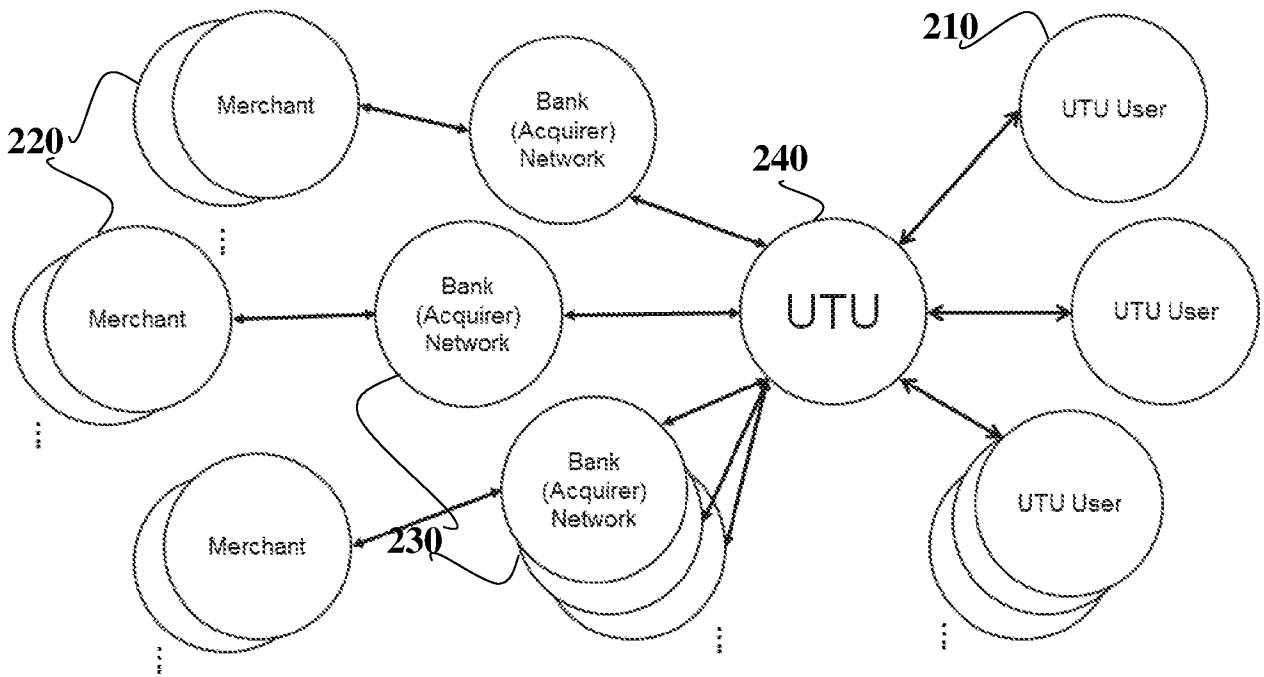


Figure 2B

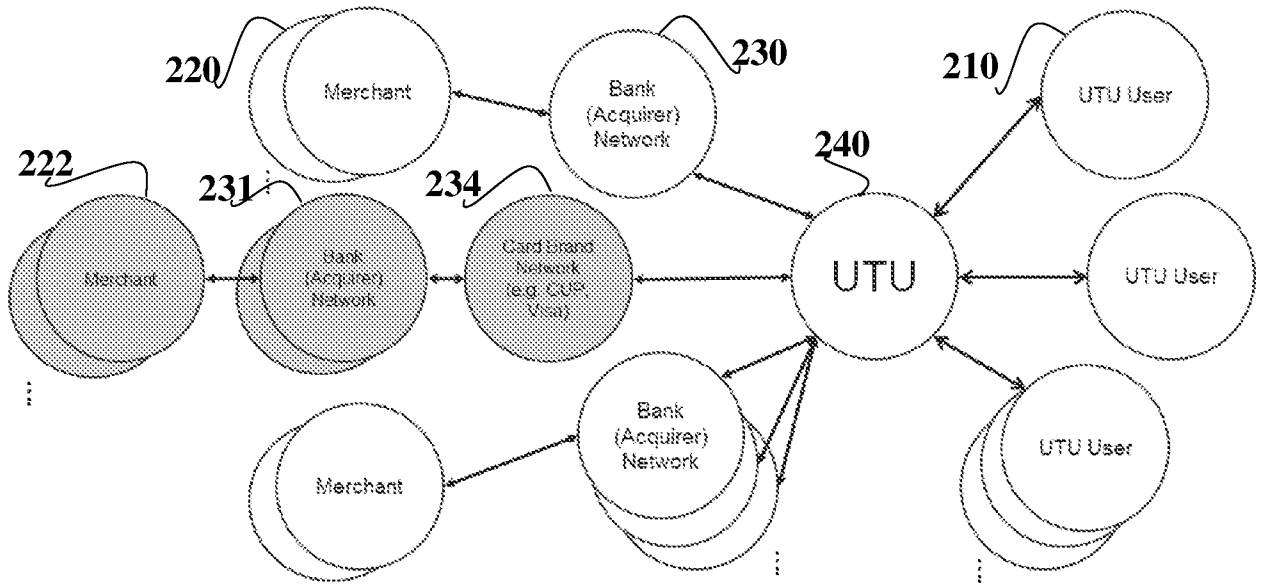


Figure 2C

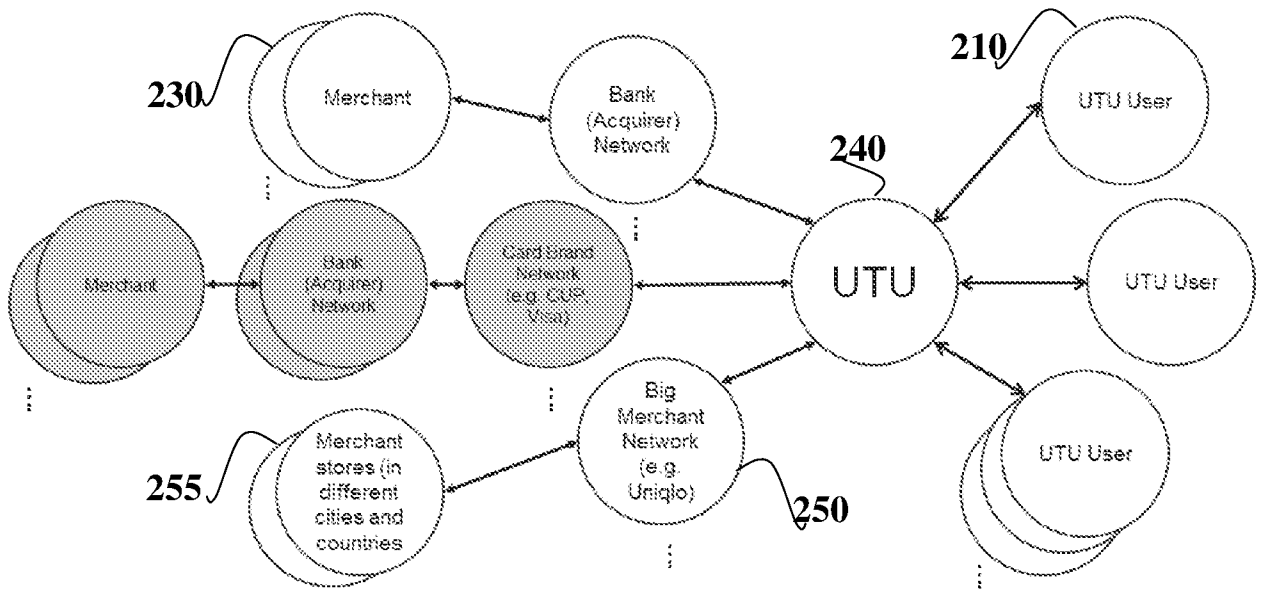


Figure 2D

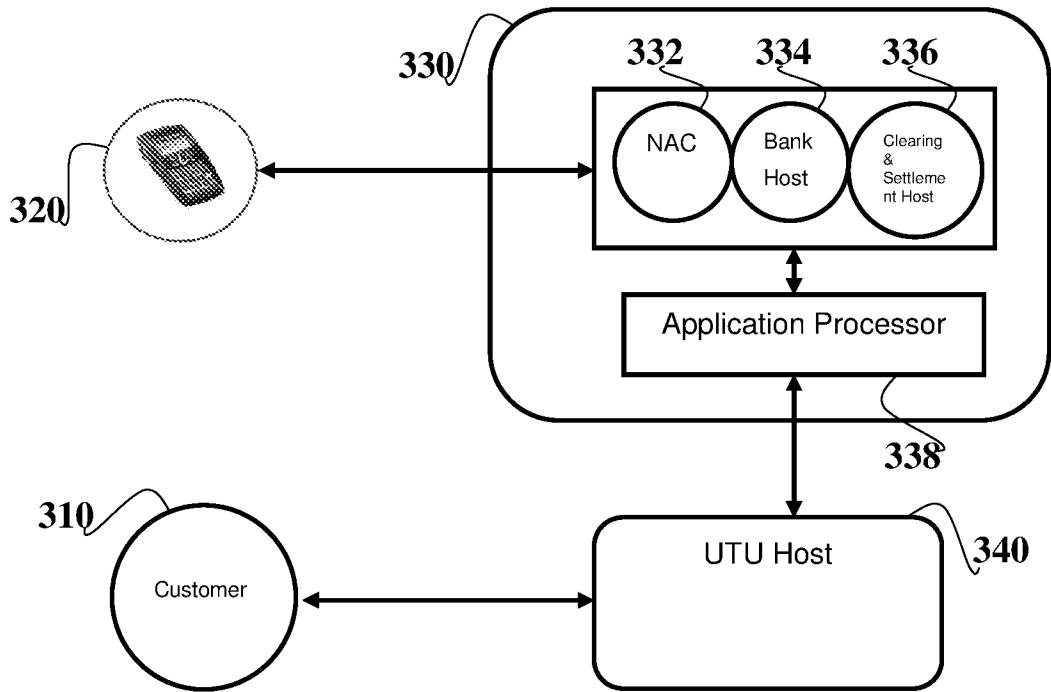


Figure 3A

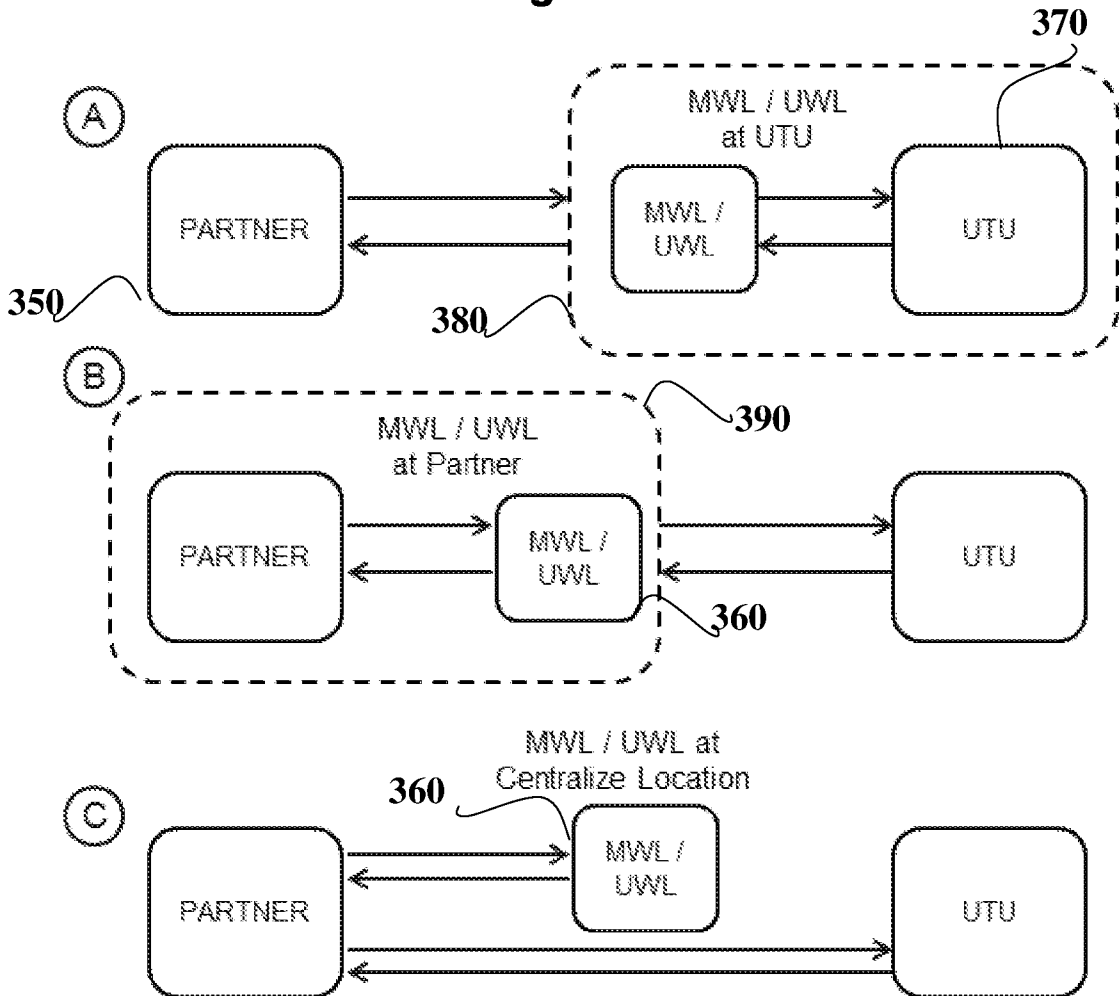


Figure 3B

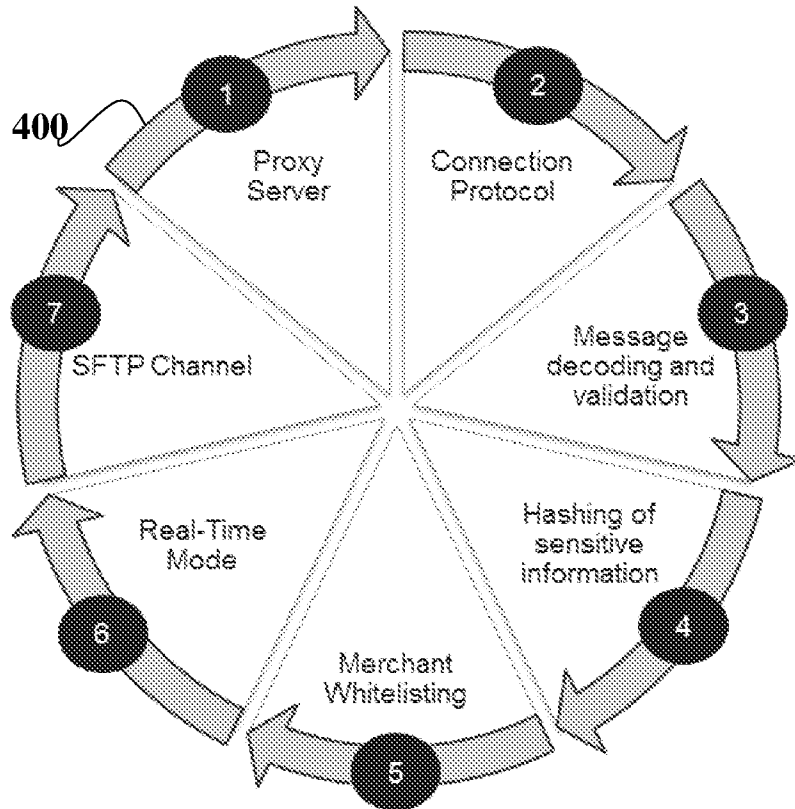


Figure 4

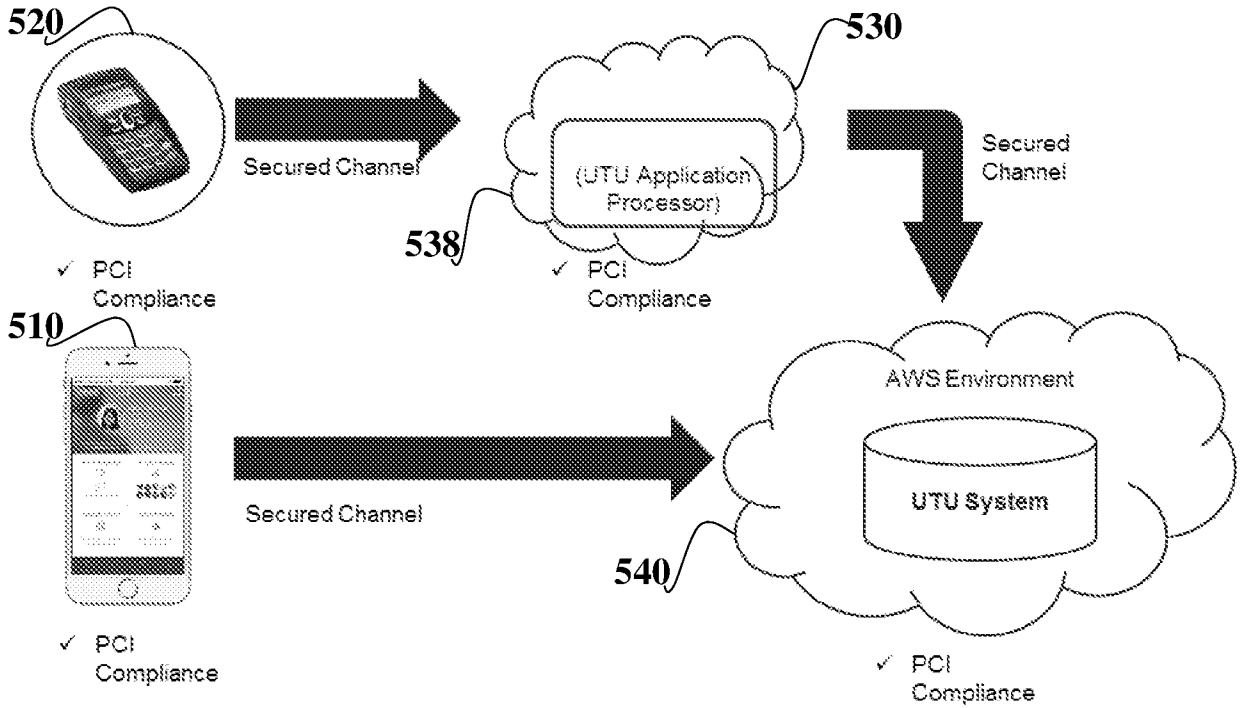


Figure 5

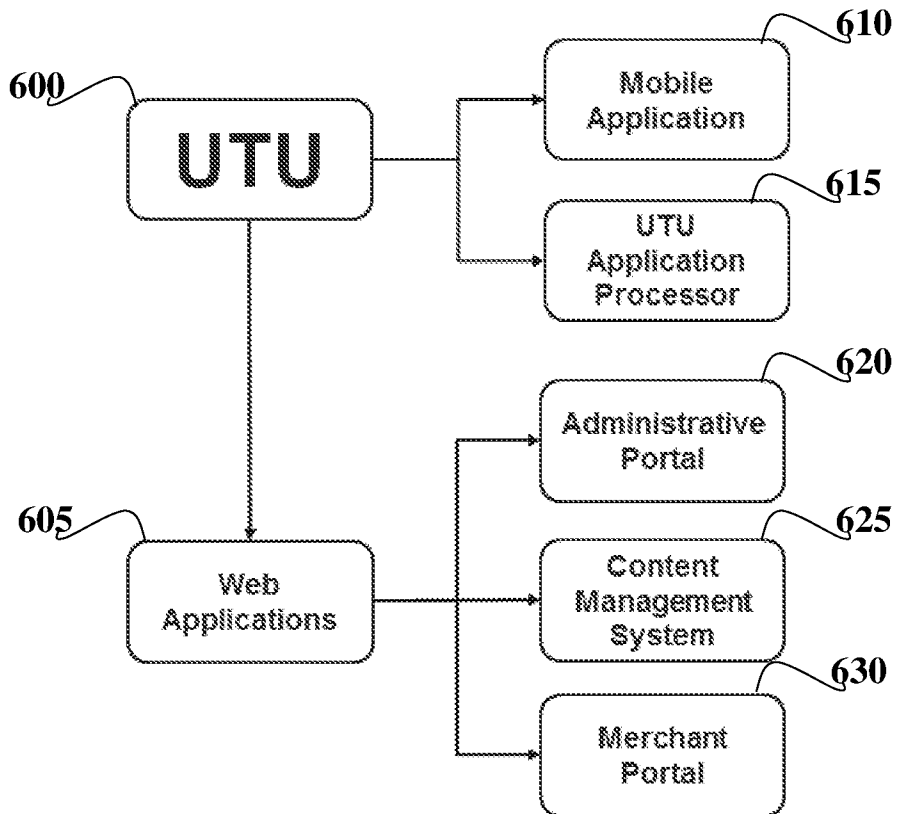


Figure 6

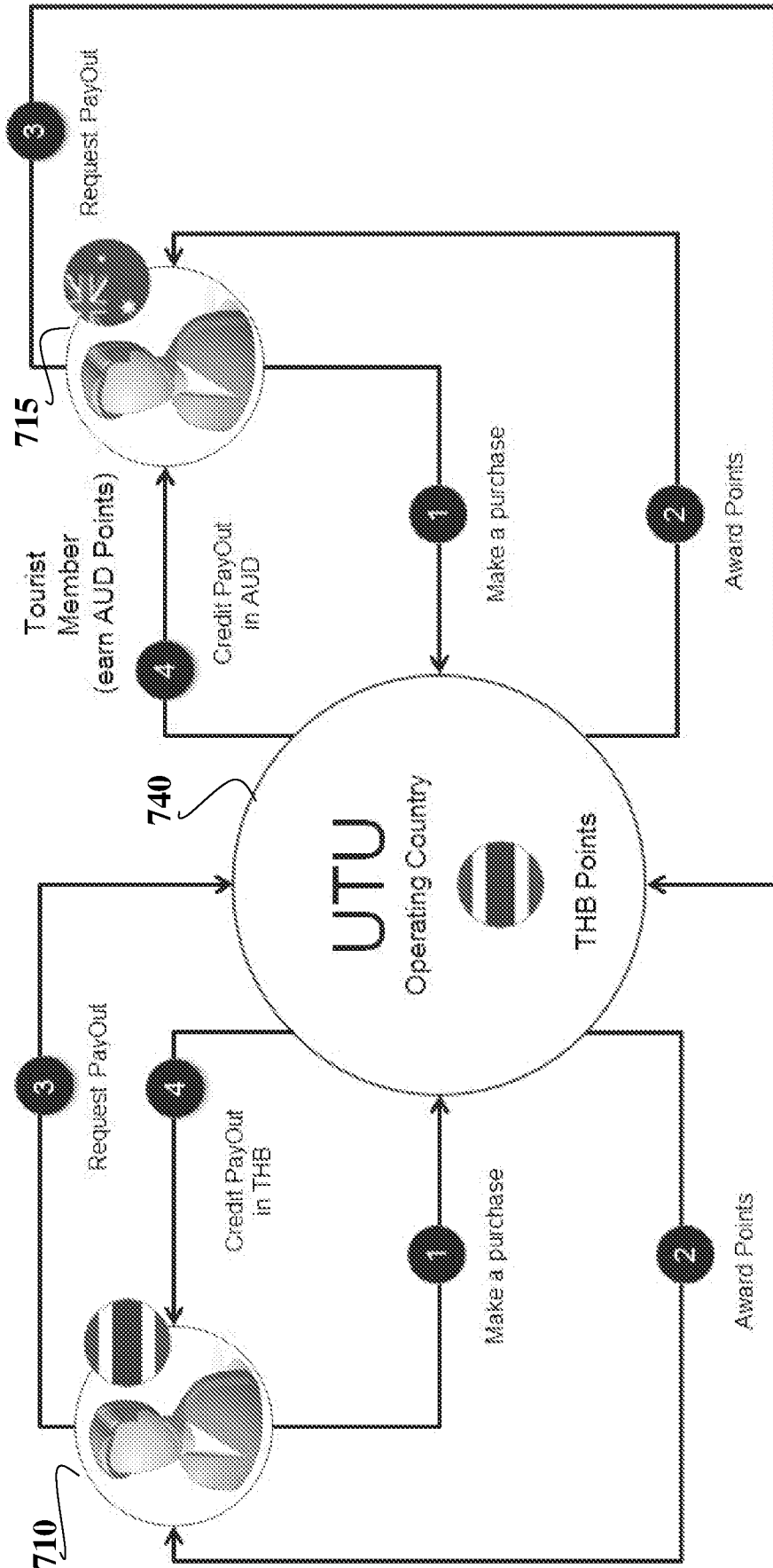


Figure 7

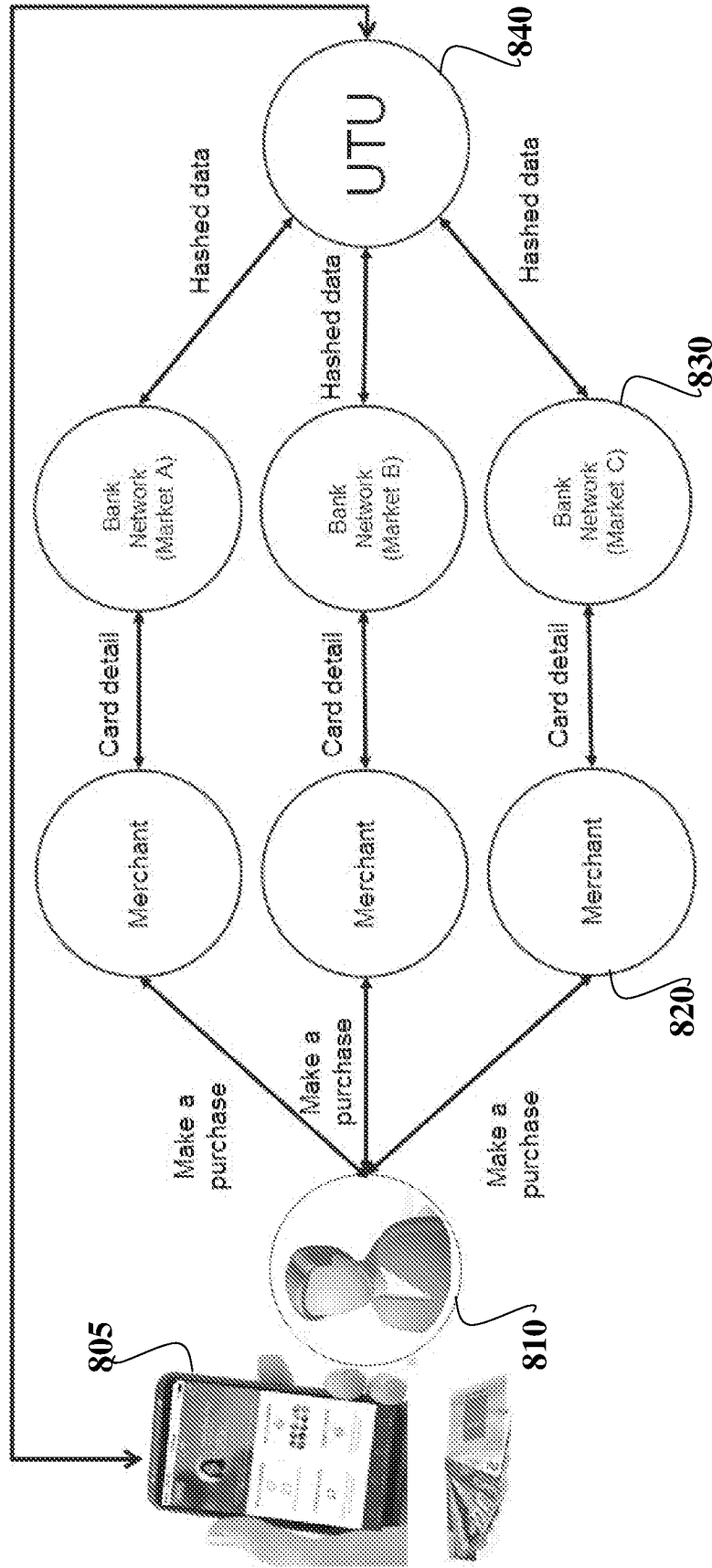


Figure 8

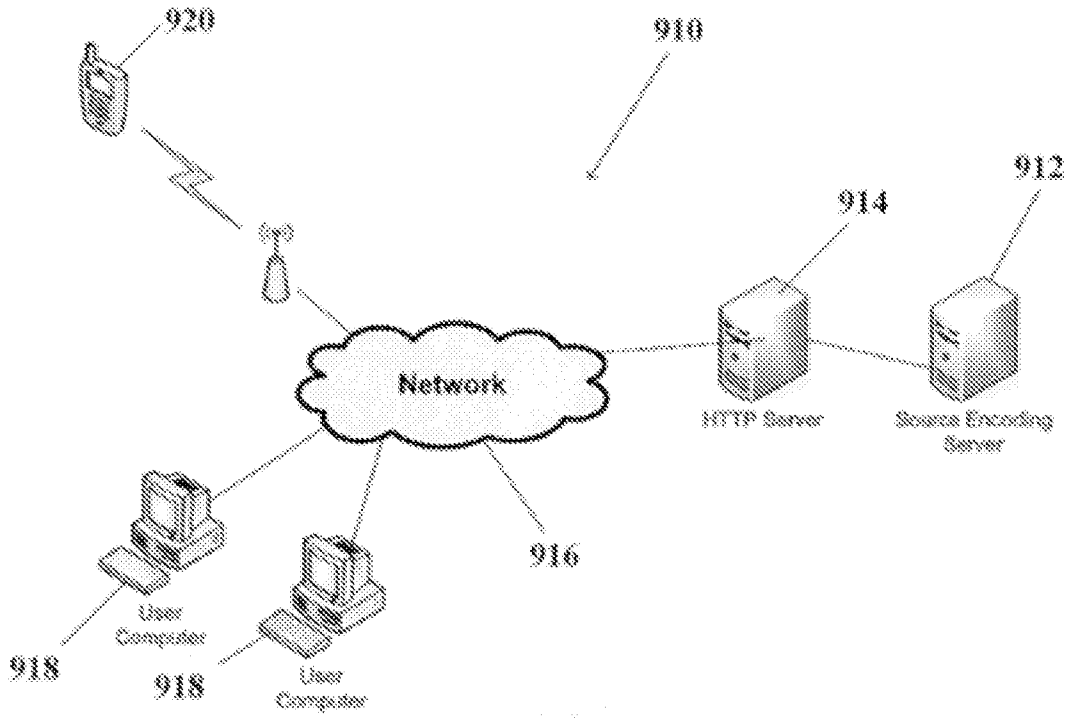


Figure 9

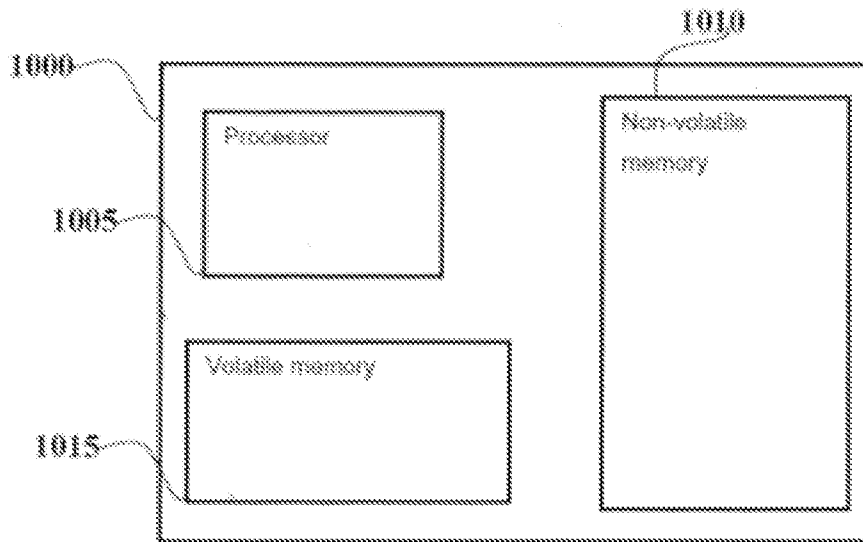


Figure 10

A. CLASSIFICATION OF SUBJECT MATTER

G06Q 30/02 (2012.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Google Patents and PATENW: Keywords (Loyalty, program, reward, card, rebate, notification, mobile, phone, customer) and like terms.

Applicant and Inventor name search.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Documents are listed in the continuation of Box C	



Further documents are listed in the continuation of Box C



See patent family annex

* Special categories of cited documents:		
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search
31 August 2017Date of mailing of the international search report
31 August 2017

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INTERNATIONAL SEARCH REPORT C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		International application No. PCT/SG2017/050275
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 8783561 B2 (WESLEY) 22 July 2014 Abstract, Col 14 line 29-35, Fig 4A-4C and the related description	1 - 30
X	US 2010/0174596 A1 (GILMAN et al.) 08 July 2010 Abstract, Fig 4A-4B, 7 and Para [0075]	1 - 30
X	US 2011/0295675 A1 (REODICA) 01 December 2011 Abstract, Fig 9-11 and related description	1 - 30
X	US 2015/0032537 A1 (BANK OF AMERICA CORPORATION) 29 January 2015 Abstract, Claims and Para [0064]	1 - 30

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/SG2017/050275

This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	Publication Date	Publication Number	Publication Date
US 8783561 B2	22 July 2014	US 2008011837 A1	17 Jan 2008
		US 8783561 B2	22 Jul 2014
		AU 2003286576 A1	13 May 2004
		AU 2003301605 A1	13 May 2004
		CA 2841479 A1	17 Jan 2013
		CA 2847387 A1	07 Mar 2013
		EP 1563426 A2	17 Aug 2005
		EP 1584009 A2	12 Oct 2005
		EP 1610276 A1	28 Dec 2005
		EP 2732417 A2	21 May 2014
		JP 2006012175 A	12 Jan 2006
		JP 2006504188 A	02 Feb 2006
		JP 2006504208 A	02 Feb 2006
		JP 2014527658 A	16 Oct 2014
		JP 2014531071 A	20 Nov 2014
		US 2007050259 A1	01 Mar 2007
		US 8626130 B2	07 Jan 2014
		US 2014330631 A1	06 Nov 2014
		US 9224154 B2	29 Dec 2015
		US 2004083170 A1	29 Apr 2004
		US 2004128197 A1	01 Jul 2004
		US 2005216354 A1	29 Sep 2005
		US 2012022930 A1	26 Jan 2012
		US 2012022944 A1	26 Jan 2012
		US 2014122114 A1	01 May 2014
		US 2016110753 A1	21 Apr 2016
		WO 2004038552 A2	06 May 2004
WO 2004038558 A2	06 May 2004		
WO 2007024726 A2	01 Mar 2007		
WO 2008008671 A2	17 Jan 2008		
WO 2013009989 A2	17 Jan 2013		
WO 2013033540 A1	07 Mar 2013		
US 2010/0174596 A1	08 July 2010	US 2010174596 A1	08 Jul 2010
		AU 2007308944 A1	02 May 2008
		CA 2670640 A1	02 May 2008

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

Form PCT/ISA/210 (Family Annex)(July 2009)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/SG2017/050275

This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	Publication Date	Publication Number	Publication Date
		EP 2097864 A2	09 Sep 2009
		US 2008133350 A1	05 Jun 2008
		US 2008133351 A1	05 Jun 2008
		WO 2008052073 A2	02 May 2008
		WO 2010108084 A1	23 Sep 2010
US 2011/0295675 A1	01 December 2011	US 2011295675 A1	01 Dec 2011
		WO 2011153019 A2	08 Dec 2011
US 2015/0032537 A1	29 January 2015	US 2015032537 A1	29 Jan 2015

End of Annex