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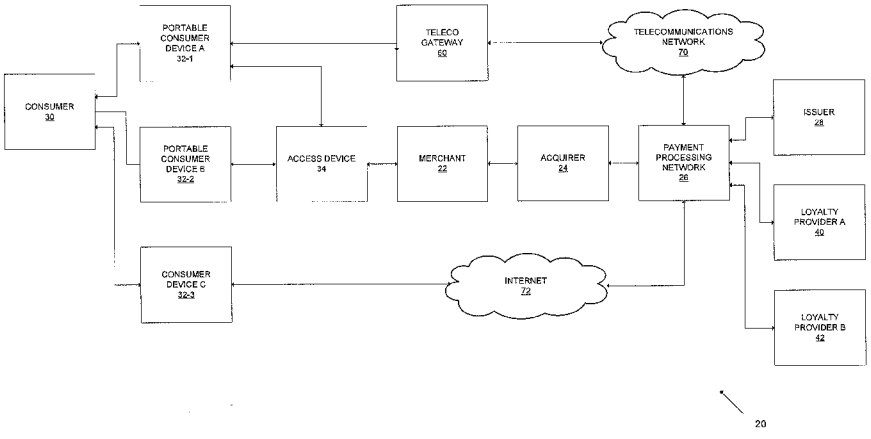

FIG. 1

(57) **Abstract**: A computer readable medium is disclosed. It includes computer readable program code embodied therein, said computer readable program code adapted to be executed to implement a method, the method including receiving a first authorization request message from a merchant and at a server computer, analyzing the first authorization request message using the server computer, sending a second authorization request message to a first service provider, sending a third authorization request message to a second service provider, receiving a first response message from the first service provider, receiving a second response message from the second service provider, and sending a third authorization response message to the merchant.

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AUTHORIZATION SYSTEM WITH SPLIT MESSAGING

CROSS-REFERENCES TO RELATED APPLICATIONS

[0001] This application claims priority to and is a non-provisional of U.S. provisional patent application no. 61/048,814, filed on April 29, 2008, which is incorporated herein by reference in its entirety for all purposes.

BACKGROUND

[0002] Many businesses currently make use of so-called "loyalty" programs that reward consumers for frequent purchase of their products or services. Well known loyalty programs include frequent flyer mileage programs, frequent guest programs at hotels, programs to reward frequent purchases at food markets, etc.

[0003] In a typical illustration of how a traditional loyalty program works, a consumer may have a credit card, which has been co-branded with a particular loyalty provider and the bank that issued the credit card (e.g., an example of an issuer). The loyalty provider may also be a merchant. The loyalty provider provides points for purchases made using the credit card at the merchant. For example, the loyalty provider could be a bookseller that provides points to a customer when the consumer purchases books at the bookseller using a credit card co-branded with the bookseller. Once the number of points reaches a predetermined threshold, the points can be redeemed for a predetermined benefit such as a book or coupon.

[0004] A number of improvements can be made to traditional loyalty processes and systems. For example, after the customer earns points by purchasing books using the credit card, the consumer must undesirably wait until the next billing cycle before accrued points can be redeemed for the predetermined benefit. It would be desirable if points or the like could be redeemed soon after the customer earns them.

[0005] In addition, in some cases, the consumer may have accrued points, but may not have a sufficient number of points to make a particular purchase. If a certain threshold of points is required before a purchase can be made, the consumer

will simply need to wait until a sufficient number of points is accrued. This can be undesirable, since the consumer may be willing to pay for a portion of a purchase, if he could get some benefit from the points that he has in a corresponding loyalty account. For example, if the consumer has 500 points in a loyalty account with the bookseller, and if it takes 1000 points to obtain a particular book that is sold by the bookseller, the consumer may be willing to pay for 50% of the purchase price of the book if his 500 points could be redeemed for the other 50% of the purchase price of the book.

[0006] While some have suggested that it is possible to pay for purchases using a combination of points or credit, this is often discussed in terms of a closed system whereby any points accrued or credits provided are within the same system so that messaging is not needed. In addition, in such systems, specialized loyalty financial instruments are used, and the use of loyalty redemptions using a standard payment device or standard portable consumer device is not contemplated.

[0007] Embodiments of the invention address these and other problems, individually and collectively.

BRIEF SUMMARY

[0008] Embodiments of the invention are directed to methods and systems involving split messaging in the context of a payment transaction or the like. Embodiments of the invention can allow a consumer to pay for a single transaction by sending messages to different service providers requesting that any value held by the service providers on behalf of the consumer be applied to the product or service being purchased in the single transaction.

[0009] One embodiment of the invention is directed to a method, which can be performed by a central server or other entity. The method comprises receiving a first authorization request message from a merchant and at a server computer, analyzing the first authorization request message using the server computer, sending a second authorization request message to a first service provider, sending a third authorization request message to a second service provider, receiving a first response message from the first service provider, receiving a second response

message from the second service provider, and sending a third authorization response message to the merchant.

[0010] Another embodiment of the invention is directed to a method, which can be performed by an access device (e.g., POS or point-of-sale terminal) or other entity. The method comprises sending a first authorization request message to a server computer. The server computer thereafter receives a first authorization request message from a merchant and at a server computer, analyzes the first authorization request message using the server computer, sends a second authorization request message to a first service provider, sends a third authorization request message to a second service provider, receives a first response message from the first service provider, receives a second response message from the second service provider, and sends a third authorization response message. The method also includes receiving the third authorization response message.

[0011] Other embodiments of the invention are directed to computer readable medium computer readable program code embodied therein. The computer readable program code is adapted to be executed to implement the above-described methods and other methods. Yet other embodiments of the invention are directed to server computers incorporating such computer readable media.

[0012] Embodiments of the invention are directed to specific combinations of these different aspects, as well as specific embodiments related to those specific aspects.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. 1 shows a block diagram of a system that can be used in some embodiments of the invention.

[0014] FIG. 2 shows a diagram of a server computer and some components of the server computer according to an embodiment of the invention.

[0015] FIG. 3(a) shows a block diagram of a consumer device in the form of a phone.

[0016] FIG. 3(b) shows an illustration of a payment card.

[0017] FIG. 4 shows a block diagram of an access device according to an embodiment of the invention.

[0018] FIG. 5 shows a block diagram of a computer apparatus.

[0019] FIGS. 6-7 show flowcharts illustrating methods according to embodiments of the invention.

DETAILED DESCRIPTION

[0020] Embodiments of the invention can allow a consumer to make a purchase using a benefit provided by at least two different service providers, in real time, by sending authorization request messages to the different service providers, and receiving authorization response messages back from those service providers. In some embodiments, the different service providers may include an issuer of a credit or debit card account and a loyalty provider.

[0021] Illustratively, a consumer can purchase a book at a merchant such as a bookseller. The consumer may wish to purchase the book using points accrued from past purchases at the merchant, and money in the consumer's debit account. The consumer's debit card may have a computer readable medium, which stores the consumer's debit account number, loyalty account number, and other split payment data. Other split payment data may include data that ultimately instructs an entity such as a payment processing network to pay for any purchases by first using accrued benefits and second using money from the consumer's debit account. In this example, using his debit card, the consumer can interact with a POS (point of sale) terminal at the bookseller. The POS terminal may then generate and send a first authorization request message to a server computer in a payment processing network. The first authorization request message may include the split payment data including the issuer account number and the loyalty account number. The server computer may then analyze the first authorization request message, and may determine the consumer's preference to split payment for this transaction using a combination of points in the customer's loyalty account and money in the consumer's debit account. The server computer then formats and sends a second authorization request message to the issuer of the debit account (an example of a first service provider) and also formats and sends a third authorization request message to the

loyalty provider (an example of a second service provider). In this specific example, the book being purchased may cost $20, and the consumer may have 1000 points in a loyalty account. The 1000 points may be equal to $10 of value. The consumer may also have $100 in his debit card account. The server computer may determine that the consumer has a preference to first pay for books with points. If there are not enough points to pay for the purchase in full, then it is possible to pay for the remainder of the purchase with value from the consumer's debit account. Thus, the server computer can send a second authorization request message to the issuer for $10 and a third authorization request message to the loyalty provider to deduct 1000 points from the consumer's loyalty account.

[0022] In embodiments of the invention, the second and third authorization request messages to the issuer and the loyalty provider may have formats similar to those in ordinary credit and debit authorization request messages. For example, the loyalty provider (or other service provider) may have an identifier associated with it, and the identifier may be in the format of a traditional BIN (bank identification number), which may be six characters long. Advantageously, this allows non-bank entities to receive and send messages using a system which processes standard credit and debit card transactions.

[0023] After receiving the second authorization request message, the issuer of the debit card account may then approve or deny the request to debit $10 from the consumer's debit card account. Also, after receiving the third authorization request message, the loyalty provider can also approve or deny the request to deduct 1000 points from the consumer's loyalty account. The server computer in the payment processing network can thereafter receive a first response message from the issuer and can receive a second response message from the loyalty provider. The server computer can then format and send a third authorization response message indicating approval of the consumer's split payment request to the merchant. At the end of the day or any other suitable time after the transaction is initiated, a normal clearing and settlement process can occur.

[0024] In embodiments of the invention, the specific split payment instructions and preferences may be stored within a portable consumer device that the consumer is using, and/or may be stored at a central server. If the split payment data (e.g.,

account numbers for service providers who will be splitting payment, specific instructions on payment splitting, etc.) is stored in the portable consumer device, a supplementary data field can be used as a vehicle for providing additional data in the authorization request messages from a point of sale to an issuer. The supplementary data field may be Field 55 as defined in Visa Contactless Payment Specification.

[0025] Any suitable instructions for splitting payment may be used in embodiments of the invention. For example, such instructions may include: (1) instructions to pay for purchases using points or the like in a loyalty account first, and then using a credit or debit instrument (or vice-versa); (2) instructions on paying for a specific proportion of a purchase using points in a loyalty account first, and paying for the reminder of the purchase using a credit or debit instruction; (3) instructions for paying for purchases using points or the like in a loyalty account first, but only if the points reach a predetermined reward threshold, and then using a credit or debit instrument for the reminder of any purchase amount, etc. Such instructions may be stored in a portable consumer device such as a debit or credit card, or may be stored at a central database. In the latter case, the instructions may be executed after a code or other split payment data is received by a central server computer in communication with the central database.

[0026] In some embodiments, the split payment data can be included in data tags which can be sent in authorization request messages. Embodiments of the invention include the use of data tags, assigned or enhanced, to be sent in the supplementary data field, for the purpose of moving additional data in authorization request messages. Exemplary data tags may include a user exclusive data tag, which can contain the split payment data, and a form factor indicator tag. The user exclusive data tag can be a customer exclusive data tag. The data within these tags may be utilized alone or together, and in the clear or encrypted.

[0027] A "data tag" may include one or more data elements in any suitable form. In some embodiments, a data tag may include a tag identifier element, a length element, and a value element. The tag identifier element may be embodied by one or more characters, which indicate a characteristic of the data tag. For example, a customer exclusive data tag identifier element may indicate that its

corresponding data tag is related to data that is specifically associated with the consumer. A length element may indicate the length of the value element in the data tag, or could indicate the length of the data tag itself. For example, a length element, which has the value "4" may indicate that the value element may have four characters. The length element advantageously indicates the size of its corresponding value element so that a computer apparatus that reads the data tag will know how large the data tag will be. Lastly, a value element can be a substantive value associated with the data tag. For example, a consumer's loyalty account number could be a substantive value. As an illustration, a data tag including a customer's loyalty account number might be 88101234567890. "88" might be a tag identifier element indicating a loyalty account number. "10" might be an indication of the length of the value. "1234567890" might be a value corresponding to a loyalty account number.

[0028] Exemplary systems and methods using these data tags are provided below.

[0029] **I. Exemplary Systems**

[0030] A system according to an embodiment of the invention is shown in FIG. 1.

[0031] FIG. 1 shows a system **20** that can be used in an embodiment of the invention. The system **20** includes a merchant **22** and an acquirer **24** associated with the merchant **22**. In a typical payment transaction, a consumer **30** may purchase goods or services at the merchant **22** using a portable consumer device such as portable consumer device A **32-1**. The consumer may be an individual, or an organization such as a business that is capable of purchasing goods or services. The acquirer **24** can communicate with an issuer **28** via a payment processing network **26**. At least two loyalty providers such as loyalty provider A **40** and loyalty provider B **42** may be in communication with the payment processing network **26**. The loyalty provider A **40** and/or the loyalty provider B **42** could be affiliated with the merchant **22** such that any benefits (e.g., points) accrued by the consumer **30** and managed by loyalty provider A **40** and/or the loyalty provider B **42** are redeemable at the merchant **22**. In some cases, loyalty provider A **40** or the loyalty provider B **42** can be the same as the merchant **22**. For example, the merchant **22** may be an

airline such as United Airlines™ and the loyalty provider A **40** could be an entity that manages frequent flyer miles programs under the United Airlines™ brand name. Loyalty providers A and B **40**, **42**, the issuer **28**, the acquirer **24**, and the merchant **22** may be examples of service providers.

[0035] As used herein, an "issuer" is typically a business entity (e.g., a bank) which maintains financial accounts for the consumer and often issues a portable consumer device such as a credit or debit card to the consumer. A "merchant" is typically an entity that engages in transactions and can sell goods or services. An "acquirer" is typically a business entity (e.g., a commercial bank) that has a business relationship with a particular merchant or other entity. Some entities can perform both issuer and acquirer functions. Embodiments of the invention encompass such single entity issuer-acquirers.

[0032] A "loyalty provider" can be any entity that provides some benefit to a consumer when the consumer makes a purchase. A loyalty provider typically has an ongoing relationship with the consumer so that the consumer has loyalty to a merchant offering a particular good or service. A loyalty provider can operate under the same brand name as a merchant that sells a good or service, or can be different than a merchant that sells a good or service. In the latter case, a loyalty provider may simply maintain a loyalty account for the consumer and benefits accrued under that account may be used by the consumer to obtain benefits in the purchase of goods or services that are not directly related to the loyalty provider's line of business. For example, United Airlines™ may be an example of a loyalty provider as it may hold an airline miles account for purchases made by a consumer. Those miles can be redeemed at a merchant such hotel.

[0033] In FIG. 1, a consumer **30** is illustrated. In some embodiments, the consumer **30** can use at different types of consumer devices to make purchases and/or to interact with the various service providers. In FIG. 1, the consumer **30** has a portable consumer device A **32-1**, a portable consumer device B **32-2**, and a consumer device C **32-3**. The consumer device A **32-1** may be a phone. The consumer device A **32-1** may consequently be used to communicate with the issuer **28** via a telecommunications gateway **60**, a telecommunications network **70**, and a payment processing network **26**. The portable consumer device B **32-2** may be a

card such as a credit card. The consumer device **32-3** may be a personal computer that is used to communicate with the merchant **22** and other parties including the payment processing network **26**, loyalty providers A, B, **40**, **42**, and the issuer **28** via the Internet **72**. The different consumer devices A, B, and C may be linked to the same or different issuer account numbers.

[0034] As illustrated above, the consumer devices according to embodiments of the invention may be in any suitable form. In some embodiments, the consumer devices are portable in nature and may be portable consumer devices. Suitable portable consumer devices can be hand-held and compact so that they can fit into a consumer's wallet and/or pocket (e.g., pocket-sized). They may include smart cards, ordinary credit or debit cards (with a magnetic strip and without a microprocessor), keychain devices (such as the Speedpass™ commercially available from Exxon-Mobil Corp.), etc. Other examples of portable consumer devices include cellular phones, personal digital assistants (PDAs), pagers, payment cards, security cards, access cards, smart media, transponders, and the like. The portable consumer devices can also be debit devices (e.g., a debit card), credit devices (e.g., a credit card), or stored value devices (e.g., a stored value card). In some embodiments, the consumer devices are not dedicated loyalty instruments.

[0035] Each consumer device may comprise a body, and a memory comprising a computer readable medium disposed on or within the body. The computer readable medium may comprise code for a form factor indicator element coupled to the body. The form factor indicator element may be in a form factor indicator tag. The computer readable medium may also comprise code for one or more customer exclusive data tags (described above). In addition, the consumer device may also include a processor coupled to the memory, where greater functionality and/or security are desired.

[0036] Other types of consumer devices may include devices that are not generally carried by consumers to make purchases. An example of a consumer device of this type may be a desktop computer terminal.

[0037] The payment processing network **26** may include data processing subsystems, networks, and operations used to support and deliver authorization services, exception file services, and clearing and settlement services. For example,

referring to FIG. 2, the payment processing network **26** may comprise a server computer **26(a)**, coupled to a network interface **26(b)**, and a database of information **26(c)**. An exemplary payment processing network may include VisaNet™. Payment processing networks such as VisaNet™ are able to process credit card transactions, debit card transactions, and other types of commercial transactions. VisaNet™, in particular, includes a VIP system (Visa Integrated Payments system) which processes authorization requests and a Base II system which performs clearing and settlement services.

[0038] As noted above, the payment processing network **26** may include a server computer. A server computer is typically a powerful computer or cluster of computers. For example, the server computer can be a large mainframe, a minicomputer cluster, or a group of servers functioning as a unit. In one example, the server computer may be a database server coupled to a Web server. The payment processing network **26** may use any suitable wired or wireless network, including the Internet.

[0039] The server computer in the payment processing network **26** may comprise a processor and a computer readable medium coupled to the processor. The computer readable medium comprises code or instructions, executable by the processor, for: receiving a first authorization request message from a merchant and at a server computer; analyzing the first authorization request message using the server computer; sending a second authorization request message to a first service provider; sending a third authorization request message to a second service provider; receiving a first response message from the first service provider; receiving a second response message from the second service provider; and sending a third authorization response message to the merchant.

[0040] The merchant **22** may also have, or may receive communications from, an access device **34** that can interact with the portable consumer device **32**. The access devices according to embodiments of the invention can be in any suitable form. Examples of access devices include point of sale (POS) devices, cellular phones, PDAs, personal computers (PCs), tablet PCs, handheld specialized readers, set-top boxes, electronic cash registers (ECRs), automated teller machines (ATMs), virtual cash registers (VCRs), kiosks, security systems, access systems, and the like.

[0041] If the access device **34** is a point of sale terminal, any suitable point of sale terminal may be used including card readers. The card readers may include any suitable contact or contactless mode of operation. For example, exemplary card readers can include RF (radio frequency) antennas, magnetic stripe readers, etc. to interact with the portable consumer devices **32**.

[0042] **II. Exemplary Consumer Devices, Access Devices, and Computer Apparatuses**

[0043] FIG. 3(a) shows a block diagram of another phone **32'** that can be used in embodiments of the invention. The exemplary wireless phone **32'** may comprise a computer readable medium and a body as shown in FIG. 2(a). The computer readable medium **32(b)** may be present within the body **32(h)**, or may be detachable from it. The body **32(h)** may be in the form a plastic substrate, housing, or other structure. The computer readable medium **32(b)** may be in the form of (or may be included in) a memory that stores data (e.g., issuer account numbers, loyalty provider account numbers, and other elements of split payment data) and may be in any suitable form including a magnetic stripe, a memory chip, etc. The memory preferably stores information such as financial information, transit information (e.g., as in a subway or train pass), access information (e.g., as in access badges), etc. Financial information may include information such as bank account information, loyalty account information (e.g., a loyalty account number), a bank identification number (BIN), credit or debit card number information, account balance information, expiration date, consumer information such as name, date of birth, etc. Any of this information may be transmitted by the phone **32'**.

[0044] In some embodiments, information in the memory may also be in the form of data tracks that are traditionally associated with credits cards. Such tracks include Track 1 and Track 2. Track 1 ("International Air Transport Association") stores more information than Track 2, and contains the cardholder's name as well as account number and other discretionary data. This track is sometimes used by the airlines when securing reservations with a credit card. Track 2 ("American Banking Association") is currently most commonly used. This is the track that is read by ATMs and credit card checkers. The ABA (American Banking Association) designed the specifications of this track and all world banks must abide by it. It contains the cardholder's account, encrypted PIN, plus other discretionary data.

[0045] The phone **32'** may further include a contactless element **32(g)**, which is typically implemented in the form of a semiconductor chip (or other data storage element) with an associated wireless transfer (e.g., data transmission) element, such as an antenna. Contactless element **32(g)** is associated with (e.g., embedded within) phone **32** and data or control instructions transmitted via a cellular network may be applied to contactless element **32(g)** by means of a contactless element interface (not shown). The contactless element interface functions to permit the exchange of data and/or control instructions between the mobile device circuitry (and hence the cellular network) and an optional contactless element **32(g)**.

[0046] Contactless element **32(g)** is capable of transferring and receiving data using a near field communications ("NFC") capability (or near field communications medium) typically in accordance with a standardized protocol or data transfer mechanism (e.g., ISO 14443/NFC). Near field communications capability is a short-range communications capability, such as RFID, Bluetooth™, infra-red, or other data transfer capability that can be used to exchange data between the phone **32'** and an interrogation device. Thus, the phone **32'** is capable of communicating and transferring data and/or control instructions via both cellular network and near field communications capability.

[0047] The phone **32'** may also include a processor **32(c)** (e.g., a microprocessor) for processing the functions of the phone **32** and a display **32(d)** to allow a consumer to see phone numbers and other information and messages. The phone **32'** may further include input elements **32(e)** to allow a consumer to input information into the device, a speaker **32(f)** to allow the consumer to hear voice communication, music, etc., and a microphone **32(i)** to allow the consumer to transmit her voice through the phone **32'**. The phone **32'** may also include an antenna **32(a)** for wireless data transfer (e.g., data transmission).

[0048] FIG. 4 shows a block diagram of an access device **34** according to an embodiment of the invention. The access device **34** comprises a processor **34(a)-1** operatively coupled to a computer readable medium **32(a)-2** (e.g., one or more memory chips, etc.), input elements **32(a)-3** such as buttons or the like, a reader **32(a)-4** (e.g., a contactless reader, a magnetic stripe reader, etc.), an output device **32(a)-5** (e.g., a display, a speaker, etc.) and a network interface **32(a)-6**. The

computer readable medium may comprise instructions or code, executable by a processor. The instructions may include instructions for sending a first authorization request message to a server computer, wherein the server computer thereafter receives a first authorization request message from a merchant and at a server computer, analyzes the first authorization request message using the server computer, sends a second authorization request message to a first service provider, sends a third authorization request message to a second service provider, receives a first response message from the first service provider, receives a second response message from the second service provider, and sends a third authorization response message; and receiving the third authorization response message.

[0049] The various participants and elements in FIG. 1 may operate one or more computer apparatuses (e.g., a server computer) to facilitate the functions described herein. Any of the elements in FIG. 1 may use any suitable number of subsystems to facilitate the functions described herein. Examples of such subsystems or components are shown in FIG. 5. The subsystems shown in FIG. 5 are interconnected via a system bus **775**. Additional subsystems such as a printer **774**, keyboard **778**, fixed disk **779** (or other memory comprising computer readable media), monitor **776**, which is coupled to display adapter **782**, and others are shown. Peripherals and input/output (I/O) devices, which couple to I/O controller **771**, can be connected to the computer system by any number of means known in the art, such as serial port **777**. For example, serial port **777** or external interface **781** can be used to connect the computer apparatus to a wide area network such as the Internet, a mouse input device, or a scanner. The interconnection via system bus allows the central processor **773** to communicate with each subsystem and to control the execution of instructions from system memory **772** or the fixed disk **779**, as well as the exchange of information between subsystems. The system memory **772** and/or the fixed disk **779** may embody a computer readable medium.

[0050] **II. Exemplary Methods**

[0051] Methods according to embodiments of the invention can be described with respect to FIGS. 1 and 6.

[0052] Prior to using a portable consumer device, a portable consumer device may be loaded with the customer exclusive data including split tender payment data.

The split tender payment data may include specific instructions to split payment in a predetermined manner, as well as specific service provider account numbers (e.g., an account number associated with an issuer, an account number associated with a loyalty provider, etc.). The instructions to split payment may be embodied by a code, which is used to retrieve specific payment instructions stored at a central server.

[0053] In other embodiments of the invention, the split payment data may be provided to a service provider such as a merchant, an organization that operates the payment processing network, or an issuer. It may be provided to the service provider in any suitable manner. If the service provider is, for example, an organization that operates the payment processing network **26**, then the consumer **30** may contact a server computer in the payment processing network **26** via the Internet **72**, using a standard computing device (e.g., consumer device C **32-3**) operating a standard operating system (e.g., a Windows™ based operating system) and using a standard browser (Internet Explorer™). The consumer **30** can then provide split payment data to the payment processing network **26**.

[0054] In some embodiments, the issuer **28** can receive split payment data from the consumer. After receiving the split payment data, the issuer **28** could issue one or more portable consumer devices to the consumer with the split payment data in their associated memories. Alternatively, if the consumer devices can receive data (e.g., as in the case of phones or computers), then the split payment data can be sent to the consumer devices and then stored in them. In yet another embodiment, the split payment data may be loaded on to the consumer devices by the user using external devices such as access devices. For example, a consumer could take a standard payment card with a re-writeable memory to an access device that can write the split payment data to the standard payment card.

[0055] After the split payment data is loaded into the consumer device, it may be used in a transaction such as payment transaction. Illustratively, a consumer **30** may first use his portable consumer device A **32-1** to purchase a good or service at a merchant **22**. The portable consumer device A **32-1** may be in the form of a phone with a contactless element (as described above with respect to FIG. 2(a)). When making the purchase, the consumer A **30(a)** may pass the portable consumer device A **32-1** by the access device **34**, or may otherwise interact with it (step **202**). The

split payment data may be stored in a memory in the portable consumer device A **32-1**. The split payment data may pass from the portable consumer device A **32-1** to the access device **34**. A reader in the access device **34** can read the split payment data and other information, and a processor in the access device **34** can generate an authorization request message including the split payment data, which may include the account information (e.g., a BIN, expiration date, etc.) associated with the portable consumer device **30**, a merchant code (e.g., a merchant category code), and the price associated with the good or service purchased. The access device **34** may then send the authorization request message to the payment processing network **26** via the merchant's acquirer **24** (step **204**). Although split payment data can be included in a customer exclusive data tag in this embodiment, customer exclusive data (or user exclusive data) could be sent in an authorization request message without being in a tag in other embodiments of the invention.

[0056] A server computer in the payment processing network **26** can then receive (step **206**) and analyze the authorization request message (step **208**). After determining that payment for the particular good or service is supposed to be split between at least two different service providers, a server computer in the payment processing network **26** can format individual authorization request messages to the different service providers. For example, a second authorization request message may be sent to the issuer **28** for a portion of the payment (step **210**), and a third authorization request message may be sent to the loyalty provider A **40** (step **212**) to deduct points equal to the remaining portion of the payment. Although two additional authorization request messages are derived from one authorization request message in this embodiment, in other embodiments of the invention, there can be three, four, or more authorization request messages that are derived from an initial authorization request message.

[0057] The sending of the second and third authorization messages to the various service providers can be done in any suitable order, and may be done in parallel and/or substantially simultaneously. In some embodiments, a second authorization request message could be sent to a loyalty provider first, and a third authorization response message could be sent to an issuer of a portable consumer device after the second authorization request message is sent to the loyalty provider. In this way, if the loyalty provider does not approve the second authorization request

message or if the second authorization request message only requests authorization for partial payment of the purchase amount using points or the like, then the server in the payment processing network may modify the third authorization request message to the issuer so that the amount to be approved equals the purchase price of the product, minus any amounts approved by the loyalty provider. In other embodiments, the second and third authorization request messages may be sent to an issuer and loyalty provider substantially simultaneously. For instance, the consumer may know how many points that he has in his loyalty account and in his debit account. The consumer may then request, at the point of sale, that a certain number of points and a certain amount of money be used to pay for the current purchase.

[0058] Illustratively, the current purchase price for a good or service in a transaction may be $100, and the server computer in the payment processing network **26** can determine that the consumer wants to split payment for the purchase between points accrued at loyalty provider A and money in the consumer's checking account at the issuer **28**. The loyalty provider A **40** may hold 500 points for the consumer **30** and the 500 points may have a value of $50 for the item being purchased. The consumer **30** may also have $100 in his debit account at the issuer **28**. The server in the payment processing network **26** may send a second authorization request message to the loyalty provider A and may request that 500 points be deducted from the consumer's loyalty account. At the same time, or after receiving approval for the point deduction, the server computer in the payment processing network **26** can send a third authorization request message to the issuer **28** to request approval to deduct $50 from the consumer's checking account.

[0059] Although a server at the payment processing network **26** is described as performing additional processing in this and in other examples in this application, it is understood that other entities including a third party processor may perform such additional processing using its own server computer.

[0060] After the authorization request message is forwarded to the issuer **28** for approval, the issuer **28** can respond by sending a first authorization response message back to the payment processing network **26** (step **214**). After the authorization request message is forwarded to the loyalty provider A **40** for approval,

the loyalty provider A **40** can respond by sending a second authorization response message back to the payment processing network **26** (step **216**).

[0061] After the payment processing network **26** receives both the first and second authorization response messages from the issuer **28** and the loyalty provider A **40**, the payment processing network **26** can generate a third authorization response message and this may be sent to and received by the merchant **22** (steps **218** and **220**). The third authorization response message may combine information from the first and second authorization response messages. For example, the third authorization response message may include the name of the issuer **28** and the name of the loyalty provider A **40**, as well as indications of approval for each of these entities. A receipt or the like with this and other information may be output (e.g., printed) by the access device **34**, and may be provided to the consumer **30**.

[0062] After the authorization request message is received by the merchant **22**, a normal clearing and settlement process may take place between the issuer **28**, acquirer **24**, and the payment processing network **26** (step **222**).

[0063] In the described embodiment, the consumer device that is used may store user specific split payment data. Advantageously, this data need not be stored at a central server, thereby reducing the need to store large amounts of data in a central database.

[0064] Another method according to an embodiment of the invention can be described with reference to FIGS. 1 and 7. In the embodiment in FIG. 7, split payment data need not be stored in a portable consumer device prior to use. Rather, in this embodiment, a standard authorization request message may be sent from an access device such as a POS terminal. Split payment data may be stored in a database accessible to a central server, and it may then initiate a process of sending multiple messages to different service providers.

[0065] Illustratively, a consumer **30** may first use his portable consumer device A **32-1** to purchase a good or service at a merchant **22**. The portable consumer device A **32-1** may be in the form of a phone with a contactless element (as described above with respect to FIG. 2(a)). When making the purchase, the consumer A **30(a)** may pass the portable consumer device A **32-1** by the access device **34**, or may otherwise interact with it (step **302**).

[0066] A reader in the access device **34** can read the data from the portable consumer device A **32-1** and a processor in the access device **34** can generate an authorization request message including the account information (e.g., a BIN, expiration date, etc.) associated with the portable consumer device **30**, a merchant code (e.g., a merchant category code), and the price associated with the good or service purchased. At this point, the authorization request message may not include split payment data such as a second service provider account number (e.g., a loyalty account number) or instructions on splitting payment. The access device **34** may then send the authorization request message to the payment processing network **26** via the merchant's acquirer **24** (step **304**).

[0067] A server computer in the payment processing network **26** can then receive (step **306**) and analyze the authorization request message (step **308**). The server computer in the payment processing network **26** can then determine the account number associated with the portable consumer device A **32-1**, and can check an associated database to determine if any specific split payment data instructions are available (step **310**). The split payment data may have been previously stored in the database by the consumer **30**. Split payment data may include the account numbers for accounts which will be used to pay for the particular good or service being purchased, and/or specific instructions on splitting payment.

[0068] After determining that payment for the particular good or service is supposed to be split between at least two different service providers, the server computer in the payment processing network **26** can format individual authorization request messages to the different service providers. For example, a second authorization request message may be sent to the issuer **28** for a portion of the payment (step **312**), and a third authorization request message may be sent to the loyalty provider A **40** (step **314**) to deduct points equal to the remaining portion of the payment. As noted above, the sending of the second and third authorization messages to the various service providers can be done in any suitable order, and may be done in parallel and/or substantially simultaneously.

[0069] After the authorization request message is forwarded to the issuer **28** for approval, the issuer **28** can respond by sending a first authorization response message back to the payment processing network **26** (step **316**). After the

authorization request message is forwarded to the loyalty provider A **40** for approval, the loyalty provider A **40** can respond by sending a second authorization response message back to the payment processing network **26** (step **318**).

[0070] After the payment processing network **26** receives both the first and second authorization response messages from the issuer **28** and the loyalty provider A **40**, the payment processing network **26** can generate a third authorization response message and this may be sent to and received by the merchant **22** (steps **320** and **322**). The third authorization response message may combine information from the first and second authorization response messages. For example, the third authorization response message may include the name of the issuer **28** and the name of the loyalty provider A **40**, as well as indications of approval for each of these entities. A receipt or the like with this and other information may be output (e.g., printed) by the access device **34**, and may be provided to the consumer **30**.

[0071] After the authorization request message is received by the merchant **22**, a normal clearing and settlement process may take place between the issuer **28**, acquirer 24, and the payment processing network **26** (step **324**).

[0072] Embodiments of the invention have a number of advantages. First, embodiments of the invention allow a consumer to pay for a good or service using a combination of rewards earned with a loyalty provider, and other value (e.g., credit). Point deduction and use can occur in real time. All of this can occur using a standard consumer device and standard consumer device account. Specialized accounts or devices such as specialized loyalty accounts or devices are not needed, thus dispensing with the need for the consumer to use separate devices for different service providers.

[0073] Embodiments of the invention are not limited to the above-described embodiments. For example, although separate functional blocks are shown for an issuer, payment processing network, and acquirer, some entities perform (e.g., Discover, AMEX, etc.) all of these functions and may be included in embodiments of invention.

[0074] Specific details regarding some of the above-described aspects are provided below. The specific details of the specific aspects may be combined in any

suitable manner without departing from the spirit and scope of embodiments of the invention.

[0075] It should be understood that the present invention as described above can be implemented in the form of control logic using computer software in a modular or integrated manner. Based on the disclosure and teachings provided herein, a person of ordinary skill in the art will know and appreciate other ways and/or methods to implement the present invention using hardware and a combination of hardware and software

[0076] Any of the software components or functions described in this application, may be implemented as software code to be executed by a processor using any suitable computer language such as, for example, Java, C++ or Perl using, for example, conventional or object-oriented techniques. The software code may be stored as a series of instructions, or commands on a computer readable medium, such as a random access memory (RAM), a read only memory (ROM), a magnetic medium such as a hard-drive or a floppy disk, or an optical medium such as a CD-ROM. Any such computer readable medium may reside on or within a single computational apparatus, and may be present on or within different computational apparatuses within a system or network.

[0077] The above description is illustrative and is not restrictive. Many variations of the invention will become apparent to those skilled in the art upon review of the disclosure. The scope of the invention should, therefore, be determined not with reference to the above description, but instead should be determined with reference to the pending claims along with their full scope or equivalents.

[0078] One or more features from any embodiment may be combined with one or more features of any other embodiment without departing from the scope of the invention.

[0079] A recitation of "a", "an" or "the" is intended to mean "one or more" unless specifically indicated to the contrary.

[0080] All patents, patent applications, publications, and descriptions mentioned above are herein incorporated by reference in their entirety for all purposes. None is admitted to be prior art.

WHAT IS CLAIMED IS:

1. A computer readable medium computer readable program code embodied therein, said computer readable program code adapted to be executed to implement a method, the method comprising:

receiving a first authorization request message from a merchant and at a server computer;

analyzing the first authorization request message using the server computer;

sending a second authorization request message to a first service provider;

sending a third authorization request message to a second service provider;

receiving a first response message from the first service provider;

receiving a second response message from the second service provider; and

sending a third authorization response message to the merchant.

2. The computer readable medium of claim 1 wherein the authorization request message comprises split payment data.

3. The computer readable medium of claim 1 wherein the first service provider is an issuer and the second service provider is a loyalty provider.

4. The computer readable medium of claim 9 further comprising:

performing a clearing and settlement process.

5. A server computer comprising the computer readable medium of claim 1.

6. A server computer comprising the computer readable medium of claim 2.

7. A method comprising:

receiving a first authorization request message from a merchant and at a server computer;

analyzing the first authorization request message using the server computer;

sending a second authorization request message to a first service provider;

sending a third authorization request message to a second service provider;

receiving a first response message from the first service provider;

receiving a second response message from the second service provider; and

sending a third authorization response message to the merchant.

8. The method of claim 7 wherein the first service provider is an issuer and the second service provider is a loyalty provider.

9. The method of claim 7 wherein the authorization request message comprises split payment data.

10. The method of claim 9 wherein the split payment data comprises a BIN number and a loyalty account number.

11. The method of claim 9 wherein the server computer sends the second and third authorization request messages.

12. The method of claim 9 further comprising:

performing a clearing and settlement process.

13. The method of claim 9 wherein the split payment data is stored on a portable consumer device.

14. The method of claim 13 wherein the portable consumer device is a phone.

15. A method comprising:

sending a first authorization request message to a server computer, wherein the server computer thereafter receives a first authorization request message from a merchant and at a server computer, analyzes the first authorization request message using the server computer, sends a second authorization request

message to a first service provider, sends a third authorization request message to a second service provider, receives a first response message from the first service provider, receives a second response message from the second service provider, sends a third authorization response message; and

receiving the third authorization response message.

16. The method of claim 15 wherein the server computer is in a payment processing network.

17. The method of claim 15 wherein the first service provider is an issuer and the second service provider is a loyalty provider.

18. A computer readable medium computer readable program code embodied therein, said computer readable program code adapted to be executed to implement a method, the method comprising:

sending a first authorization request message to a server computer, wherein the server computer thereafter receives a first authorization request message from a merchant and at a server computer, analyzes the first authorization request message using the server computer, sends a second authorization request message to a first service provider, sends a third authorization request message to a second service provider, receives a first response message from the first service provider, receives a second response message from the second service provider, and sends a third authorization response message; and

receiving the third authorization response message.

19. The computer readable medium of claim 18 wherein the first service provider is an issuer and the second service provider is a loyalty provider.

20. An access device comprising the processor and the computer readable medium of claim 18.

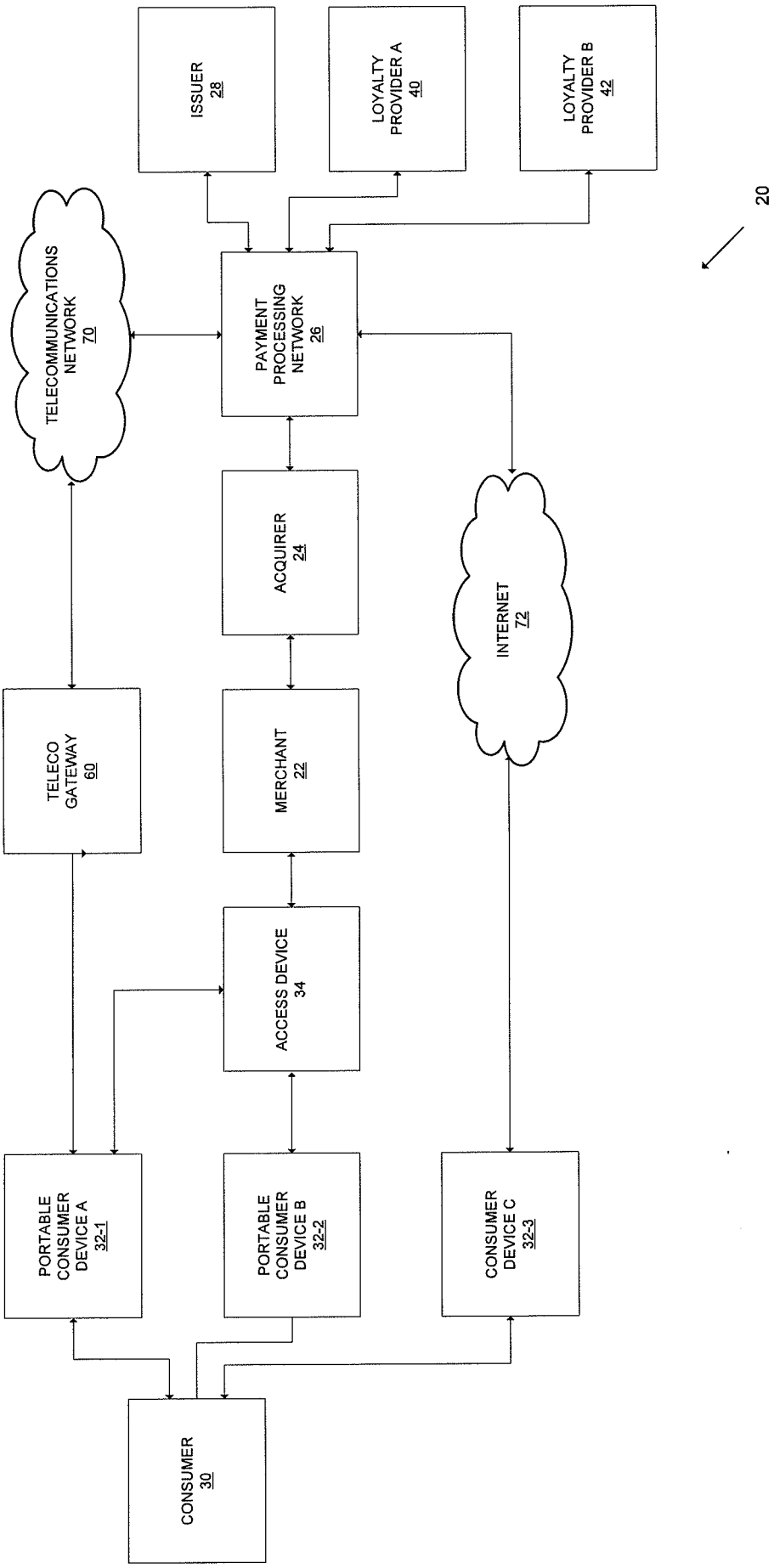
ISSUER
28
LOYALTY PROVIDER A
40
LOYALTY PROVIDER B
42
20
TELECOMMUNICATIONS NETWORK
70
PAYMENT PROCESSING NETWORK
26
ACQUIRER
24
INTERNET
72
TELECO GATEWAY
60
MERCHANT
22
ACCESS DEVICE
34
PORTABLE CONSUMER DEVICE A
32-1
PORTABLE CONSUMER DEVICE B
32-2
CONSUMER DEVICE C
32-3
CONSUMER
30

FIG. 1

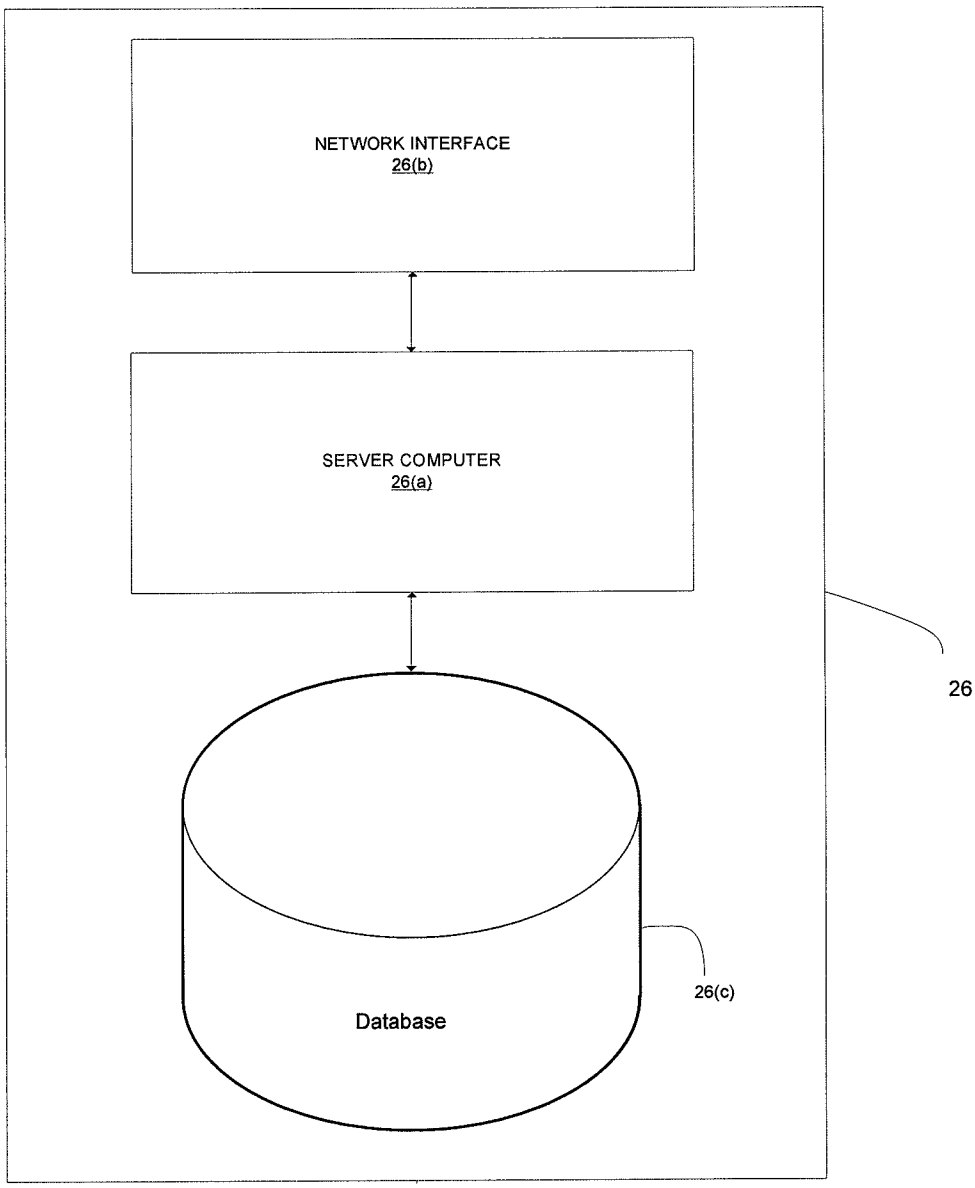

FIG. 2

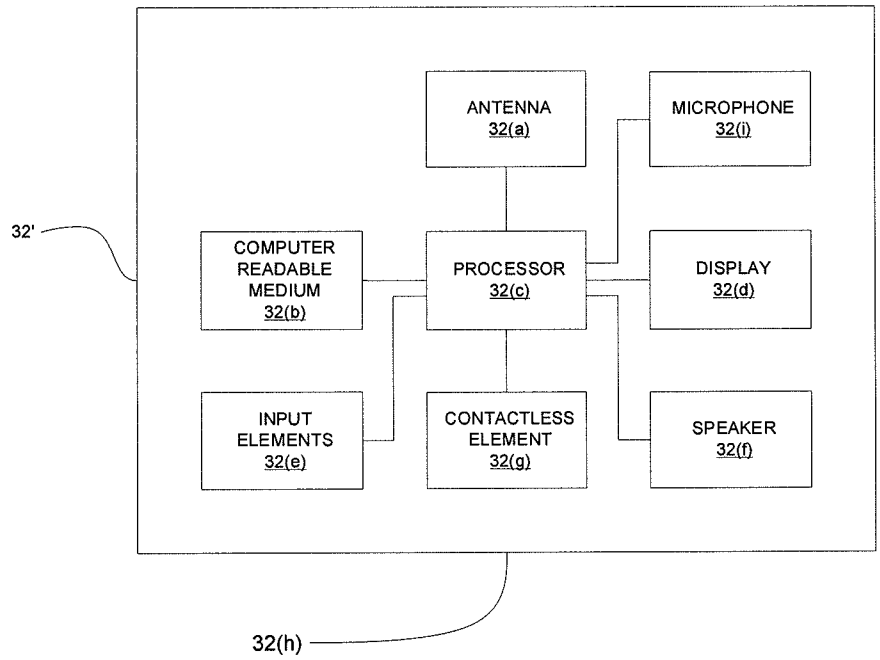
32'
ANTENNA
32(a)
MICROPHONE
32(i)
COMPUTER
READABLE
MEDIUM
32(b)
PROCESSOR
32(c)
DISPLAY
32(d)
INPUT
ELEMENTS
32(e)
CONTACTLESS
ELEMENT
32(g)
SPEAKER
32(f)
32(h)

FIG. 3(a)

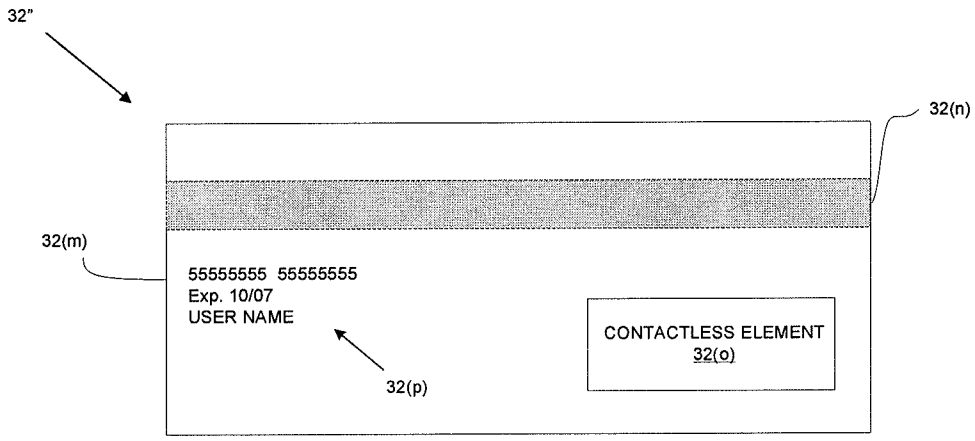
32"
32(n)
32(m)
55555555 55555555
Exp. 10/07
USER NAME
32(p)
CONTACTLESS ELEMENT
32(o)

FIG. 3(b)

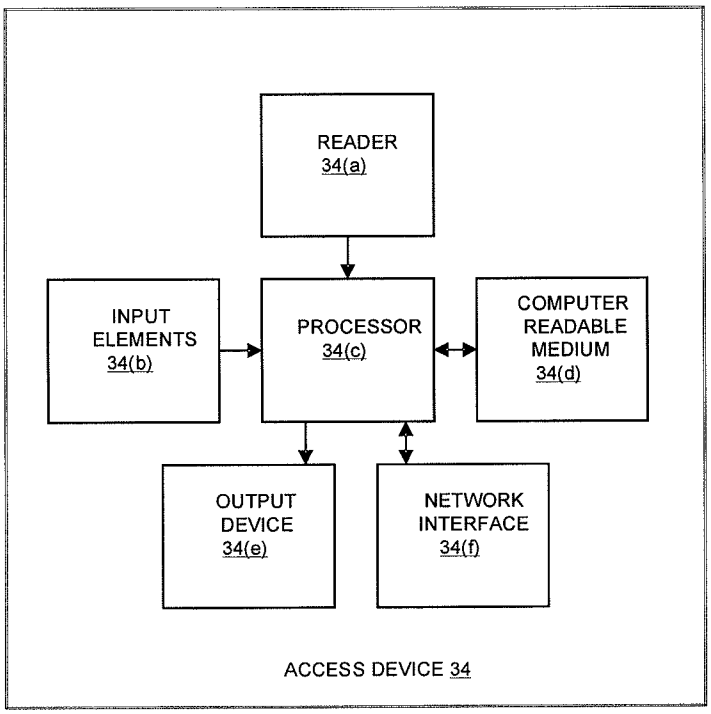
READER
34(a)
INPUT
ELEMENTS
34(b)
PROCESSOR
34(c)
COMPUTER
READABLE
MEDIUM
34(d)
OUTPUT
DEVICE
34(e)
NETWORK
INTERFACE
34(f)
ACCESS DEVICE 34

FIG. 4

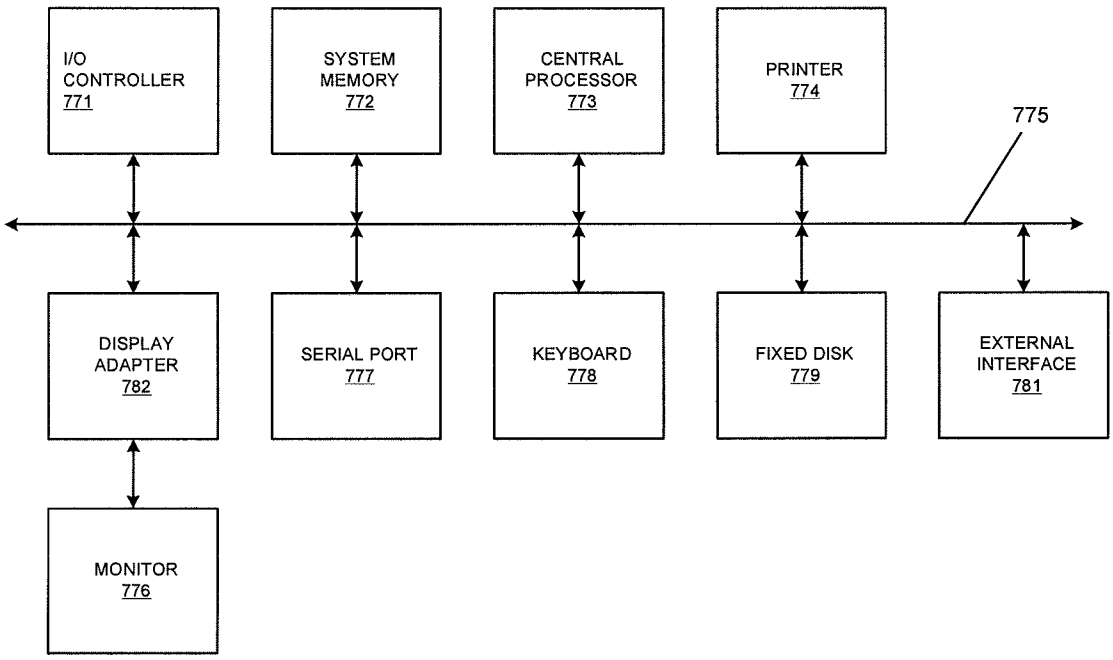
I/O CONTROLLER 771
SYSTEM MEMORY 772
CENTRAL PROCESSOR 773
PRINTER 774
775
DISPLAY ADAPTER 782
SERIAL PORT 777
KEYBOARD 778
FIXED DISK 779
EXTERNAL INTERFACE 781
MONITOR 776

FIG. 5

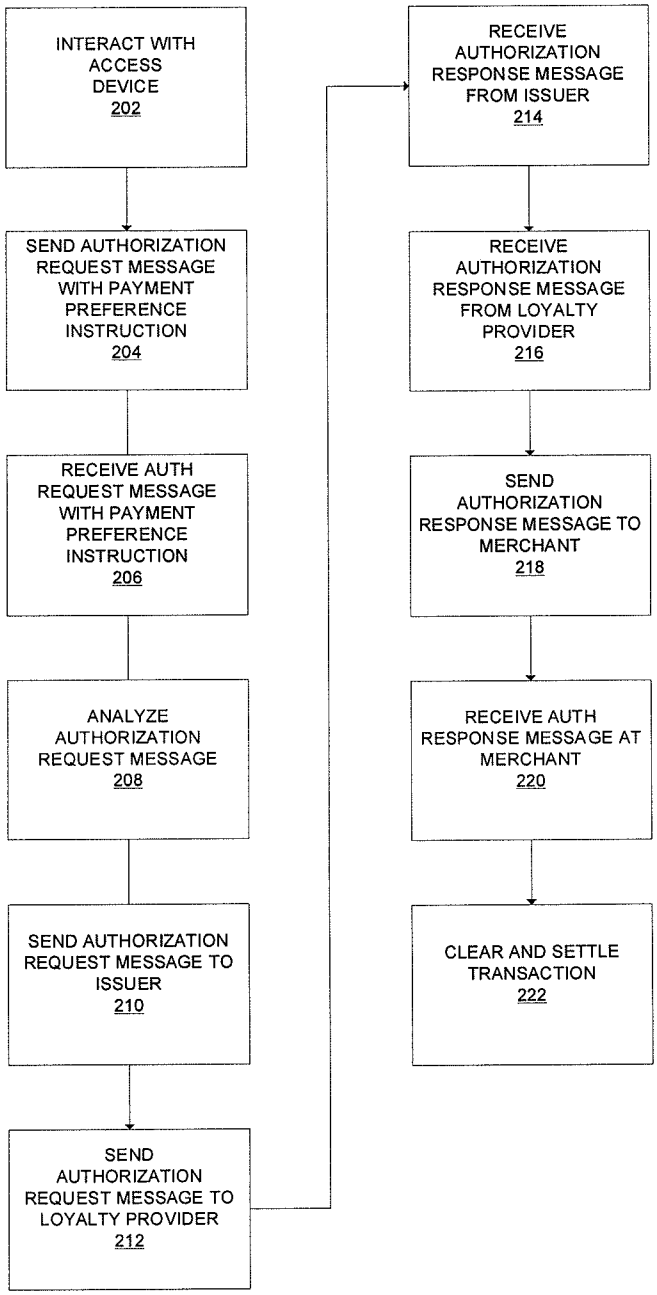
INTERACT WITH ACCESS DEVICE 202
SEND AUTHORIZATION REQUEST MESSAGE WITH PAYMENT PREFERENCE INSTRUCTION 204
RECEIVE AUTH REQUEST MESSAGE WITH PAYMENT PREFERENCE INSTRUCTION 206
ANALYZE AUTHORIZATION REQUEST MESSAGE 208
SEND AUTHORIZATION REQUEST MESSAGE TO ISSUER 210
SEND AUTHORIZATION REQUEST MESSAGE TO LOYALTY PROVIDER 212
RECEIVE AUTHORIZATION RESPONSE MESSAGE FROM ISSUER 214
RECEIVE AUTHORIZATION RESPONSE MESSAGE FROM LOYALTY PROVIDER 216
SEND AUTHORIZATION RESPONSE MESSAGE TO MERCHANT 218
RECEIVE AUTH RESPONSE MESSAGE AT MERCHANT 220
CLEAR AND SETTLE TRANSACTION 222

FIG. 6

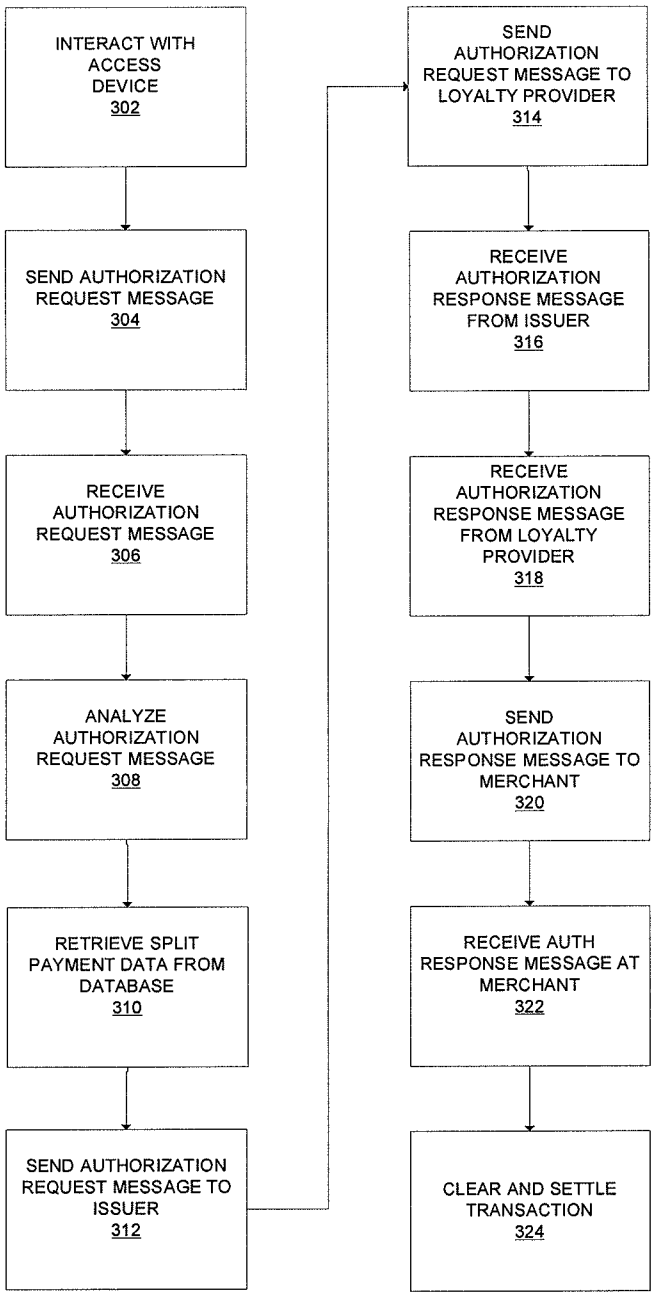
INTERACT WITH ACCESS DEVICE 302
SEND AUTHORIZATION REQUEST MESSAGE 304
RECEIVE AUTHORIZATION REQUEST MESSAGE 306
ANALYZE AUTHORIZATION REQUEST MESSAGE 308
RETRIEVE SPLIT PAYMENT DATA FROM DATABASE 310
SEND AUTHORIZATION REQUEST MESSAGE TO ISSUER 312
SEND AUTHORIZATION REQUEST MESSAGE TO LOYALTY PROVIDER 314
RECEIVE AUTHORIZATION RESPONSE MESSAGE FROM ISSUER 316
RECEIVE AUTHORIZATION RESPONSE MESSAGE FROM LOYALTY PROVIDER 318
SEND AUTHORIZATION RESPONSE MESSAGE TO MERCHANT 320
RECEIVE AUTH RESPONSE MESSAGE AT MERCHANT 322
CLEAR AND SETTLE TRANSACTION 324

FIG. 7