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# SMART PAYMENTS: METHOD AND SYSTEM FOR INTEGRATING STORED VALUE WALLETS WITH VISA INSTALMENTS SERVICE (VIS)

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# VISA

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## TECHNICAL FIELD

**[0001]** The present subject matter is, generally, related to the field of an electronic payment system and financial technology, and more particularly, but not exclusively, to a method and a system for integrating stored value wallets with a Visa Instalments Service (VIS).

## BACKGROUND

**[0002]** Traditional payment methods were primarily based on cash-based physical payment forms and/or cards of financial transactions, such as debit cards, credit cards and cheques. Transactions involving cash required face-to-face exchanges, and cheques necessitated manual processing, often resulting in delays. Credit cards and debit cards, while providing a convenient alternative, still require physical possession and a card reader for transactions. Hence traditional payment methods lacked the speed, convenience, and accessibility.

**[0003]** A mobile wallet Application (App/app), also known as a digital wallet or an electronic wallet (e-wallet), is a convenient and secure application which allows users to store, manage, and transact various forms of digital currency, including credit card and/or debit card information, loyalty cards, and even cryptocurrency, directly from the user device, for example, from smartphones. These apps have gained widespread popularity due to their user-friendly interfaces and the seamless experience they offer in conducting financial transactions. Mobile wallet apps typically enable users to make payments, transfer money, and receive funds, all within the confines of the user's device. However, there exists a limitation in the existing technology where the users are not provided with information related to an Equated Monthly Instalment (EMI) plan which potentially offers greater/enhanced savings for them. The lack of such information restricts users from making informed financial decisions within the mobile wallet environment..

**[0004]** Hence, to overcome the user reluctance there is a need for a method and a system for integrating stored value wallets with VIS for digital transactions.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0005]** The accompanying drawings, which are incorporated in and constitute a part of this disclosure, illustrate exemplary embodiments and, together with the description, explain the disclosed principles. In the figures, the left-most digit(s) of a reference number identifies the figure in which the reference number first appears. The same numbers are used throughout the

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figures to reference like features and components. Some embodiments of device or system and/or methods in accordance with embodiments of the present subject matter are now described, by way of example only, and with reference to the accompanying figures, in which:

[0006] **FIG. 1** illustrates an exemplary architecture of a system which may be configured for the integration of stored value wallets with a Visa Instalments Service (VIS), in accordance with some embodiments of the present disclosure;

[0007] **FIG. 2** illustrates an exemplary flow diagram of a method for integrating stored value wallets with a Visa Instalments Service (VIS), in accordance with some embodiments of the present disclosure; and

[0008] **FIG. 3** illustrates an exemplary flow of a digital wallet based checkout process with a Visa Instalments Service (VIS), in accordance with some embodiments of the present disclosure.

[0009] The figures depict embodiments of the disclosure for purposes of illustration only. One skilled in the art will readily recognize from the following description that alternative embodiments of the structures and methods illustrated herein may be employed without departing from the principles of the disclosure described herein.

## DESCRIPTION OF THE DISCLOSURE

[0010] It is to be understood that the present disclosure may assume various alternative variations and step sequences, except where expressly specified to the contrary. It is also to be understood that the specific devices and processes illustrated in the attached drawings and described in the following specification are simply exemplary and non-limiting embodiments or aspects. Hence, specific dimensions and other physical characteristics related to the embodiments or aspects disclosed herein are not to be considered as limiting.

[0011] In the present document, the word "exemplary" is used herein to mean "serving as an example, instance, or illustration." Any embodiment or implementation of the present subject matter described herein as "exemplary" is not necessarily to be construed as preferred or advantageous over other embodiments.

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**[0012]** While the disclosure is susceptible to various modifications and alternative forms, specific embodiment thereof has been shown by way of example in the drawings and will be described in detail below. It should be understood, however that it is not intended to limit the disclosure to the particular forms disclosed, but on the contrary, the disclosure is to cover all modifications, equivalents, and alternative falling within the spirit and the scope of the disclosure.

**[0013]** The terms "comprises", "comprising", or any other variations thereof, are intended to cover a non-exclusive inclusion, such that a setup, device, or method that comprises a list of components or steps does not include only those components or steps but may include other components or steps not expressly listed or inherent to such setup or device or method. In other words, one or more elements in a device or system or apparatus proceeded by "comprises… a" does not, without more constraints, preclude the existence of other elements or additional elements in the device or system or apparatus.

**[0014]** The terms "an embodiment", "embodiment", "embodiments", "the embodiment", "the embodiments", "one or more embodiments", "some embodiments", and "one embodiment" mean "one or more (but not all) embodiments of the invention(s)" unless expressly specified otherwise.

**[0015]** The terms "including", "comprising", "having" and variations thereof mean "including but not limited to" unless expressly specified otherwise.

**[0016]** As used herein, the terms "communication" and "communicate" may refer to the reception, receipt, transmission, transfer, provision, and/or the like of information (e.g., data, signals, messages, instructions, commands, and/or the like). For one unit (e.g., a device, a system, a component of a device or system, combinations thereof, and/or the like) to be in communication with another unit means that the one unit can receive information directly or indirectly from and/or transmit information to the other unit. This may refer to a direct or indirect connection (e.g., a direct communication connection, an indirect communication connection, and/or the like) that is wired and/or wireless in nature. Additionally, two units may be in communication with each other even though the information transmitted may be modified, processed, relayed, and/or routed between the first and second unit. For example, a first unit may be in communication with a second unit even though the first unit passively receives information and does not actively transmit information to the second unit. As another

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example, a first unit may be in communication with a second unit if at least one intermediary unit (e.g., a third unit located between the first unit and the second unit) processes information received from the first unit and communicates the processed information to the second unit. In some non-limiting embodiments, a message may refer to a network packet (e.g., a data packet and/or the like) that includes data. It will be appreciated that numerous other arrangements are possible.

[0017] As used herein, the term "application" may refer to a computer code or other data stored on a computer-readable medium (e.g., memory element or secure element) that may be executable by a processor to complete a task.

[0018] As used herein, the term "acquirer" may typically be a business entity. The acquirer may operate an acquirer computer, which can also be generically referred to as a "transport computer".

[0019] As used herein, the term "issuer" may typically refer to a financial institution or entity that provides and issues financial instruments such as credit cards, debit cards, or other payment cards to consumers.

[0020] As used herein, the term "computing device" may refer to one or more electronic devices that are configured to communicate with directly or indirectly or over one or more networks. A computing device may be a mobile or portable computing device, a desktop computer, a server, and/or the like. Furthermore, the term "computer" may refer to any computing device that includes the necessary components to receive, process, and output data, and normally includes a display, a processor, a memory, an input device, and a network interface. A "computing system" may include one or more computing devices or computers.

[0021] As used herein, the term "processor" may refer to any suitable data computation device or devices. A processor may comprise one or more microprocessors working together to accomplish a desired function.

[0022] As used herein, the term "memory" may be any suitable device or devices that can store electronic data. A suitable memory may comprise a non-transitory computer readable medium that stores instructions that can be executed by a processor to implement a desired method. Examples of memories may comprise one or more memory chips, disk drives, etc. Such

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memories may operate using any suitable electrical, optical, and/or magnetic mode of operation.

[0023] It will be apparent that systems and/or methods described herein can be implemented in different forms of hardware, software, or a combination of hardware and software. The actual specialized control hardware or software code used to implement these systems and/or methods is not limiting of the implementations. Thus, the operation and behavior of the systems and/or methods are described herein without reference to specific software code, it being understood that software and hardware can be designed to implement the systems and/or methods based on the description herein.

[0024] **FIG. 1** illustrates an exemplary environment 100 of a system, which is configured to integrate stored value wallets in a digital wallet with a Visa Instalment Service (VIS). In an embodiment, the environment 100 comprises, without limitation, a cardholder device 101, a digital wallet 103, a VIS smart plan Application Program Interface (API) 105, and an issuer server 109. The cardholder device 101 may be associated with a cardholder. The cardholder may also be referred to as a user, account holder, or customer. In some embodiments, the cardholder may be associated with one or more personal accounts and/or mobile devices. Various types of cardholder accounts include, without limiting to, a savings account, a credit account, a current account, a digital wallet, and a virtual payment account. Each of the cardholder accounts may be associated with an entity such as an individual person, a family, a commercial entity, a company, a corporation, a governmental entity, a non-profit organization, and the like. The issuer server 109 and the VIS smart plan API 105 may be connected via a predefined communication network 107. In an embodiment, the system may be implemented in a variety of computing systems, such as a laptop computer, a desktop computer, a Personal Computer (PC), a notebook, a smartphone, a tablet, e-book readers, a server, a network server, a cloud-based server and the like. In some embodiments, the system may be a dedicated server or maybe a cloud-based server.

[0025] In an embodiment, the digital wallet 103 is a virtual or electronic version of a traditional physical wallet which enables users/cardholders to securely store and manage various types of payment information, such as credit cards, debit cards, and, stored value. The digital wallet 103 may include both stored values and stored Primary Account Numbers (PANs). The digital wallet 103 holds a preloaded or a pre-allocated amount of money in digital form a. For example,

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stored value wallets include the balance within mobile payment applications (apps), or digital wallet services provided by financial institutions.

[0026] In an embodiment, the digital wallet 103 and the issuer server 109 may be may also be connected via a predefined communication network 107. . The communication network 107, exemplified as a card network, such as VISA, MasterCard, or any other suitable network facilitating communication between an acquirer server 301 and the issuer server 109 specifically for card transactions. The network 107 enables seamless and secure data interchange between the digital wallet 103 and the issuer server 109, ensuring efficient processing of card transactions.

[0027] In an embodiment, the VIS smart plan API 105 is an application designed to handle and process information related to multiple Primary Account Numbers (PANs) for users. PANs are typically the unique identification numbers associated with credit cards and/or debit cards of the users. The VIS smart plan API 105 may process one or more parameters to determine the best an Equated Monthly Installment (EMI) plan for the user/cardholder. The one or more parameters include, without limiting to, a purchase amount, a down-payment amount, an interest rate, an installment frequency, and other relevant factors.

[0028] In an embodiment, the issuer server 109 is a server installed at an issuer bank or a financial institution. The issuer bank or the financial institution or financial institution processor that issues payment cards or other financial accounts to cardholders allowing the cardholders to access funds or credit in the account. The issuer bank may also refer to processing agents which act on behalf of such financial institutions or systems. Each issuer typically serves a number of account holders.

[0029] Consider a scenario when a cardholder desires to purchase goods or items through an application or an electronic commerce (e-commerce) merchant website or a mobile application, as an example. The cardholder initiates the purchase on the e-commerce merchant website using a cardholder device 101, by selecting products. According to the proposed method, the issuer server 109 uploads a Bank Identification Number (BIN) file which includes a list of BINs eligible for EMI payments and EMI plans are created based on one or more parameters tabulated in Table I. For example, when the cardholder selects a coffee machine for purchase and proceeds to checkout, the e-commerce merchant website displays a list of payment methods, including the digital wallet 103 integrated with the VIS smart plan API 105, for the

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purchase. Thereafter, the cardholder decides to make the payment using the stored value wallet within the digital wallet 103. Subsequently, the stored value wallet suggests using a predefined amount from the cardholder's stored value for a down payment, and upon confirmation from the cardholder, the payment is completed.

| Card Number | Down Payment Amount | Purchase Amount | EMI Frequency | Minimum Purchase Amount | Maximum Purchase Amount | APR | Interest Rate |
|---|---|---|---|---|---|---|---|
| 4111XXXX1111 | 0 USD | 500 USD | 6 MONTHS | 90 USD | 550 USD | 10% | 5% |
| 4111XXXX1112 | 100 USD | 500 USD | 3 MONTHS | 50 USD | 450 USD | 5% | 0% |

**TABLE I**

[0030] In an embodiment, the cardholder may express interest in exploring the best EMI plans available on their registered cards within the digital wallet 103. Based on the cardholder's interest, the digital wallet 103 activates the VIS smart plan API 105 to retrieve optimal EMI plans. The cardholder may review the suggested/recommended EMI plans and select the most suitable EMI plans out of the suggested EMI plans. Further, the cardholder completes the purchase using the selected EMI plan.

[0031] **FIG. 2** illustrates an exemplary flow diagram of a method for integrating stored value wallets with a Visa Instalments Service (VIS), in accordance with some embodiments of the present disclosure.

[0032] In an embodiment, at block 201, the method comprises uploading, by an issuer server 109, a Bank Identification Number (BIN) file including BINs eligible for an Equated Monthly Installment (EMI) payment and creating, by the issuer server 109, EMI plans based on one or more parameters. The one or more parameters include, without limiting to, purchase amount, down-payment amount, interest rates, and instalment frequency. The BIN file may be in a specific format, such as a Common-Separated Values (CSV) file, and contain the relevant BINs. The issuer server 109 internally defines the conditions (such as card type, issuer policies

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and any other relevant criteria) under which the BIN is considered eligible for contributing to EMI plans.

**[0033]** In an embodiment, at block 203, the method comprises selecting, by a cardholder device 101, a digital wallet 103 which includes a stored value wallet (any amount which the cardholder may upload) and stored Primary Account Numbers (PANs) for payment during the checkout process on an electronic commerce (e-commerce) merchant website of mobile application (app). For example, the cardholder via the cardholder device 101 adds the selected coffee machine to the virtual shopping cart and proceeds to the checkout process on the e-commerce merchant website or mobile app. The e-commerce merchant website presents/displays a list of various payment methods (as shown in FIG. 3). The list includes both payment methods (for example, net banking and gift cards) and other payment methods (for example, credit cards/debit card payment method and wallet payment method). Thereafter cardholder selects to use the stored value wallet within the digital wallet 103 for the transaction. The cardholder may also select the stored value within the digital wallet 103 linked to the cardholder's registered cards. For example, the cardholder selects the "stored value wallet" payment option as the preferred payment method during the checkout process (as shown in FIG. 3). Further, the stored value wallet may offer the cardholder the option to use a portion of the stored value as the down payment. For example, the coffee machine costs around '600 dollars'. The wallet interface prompts the cardholder, to enquire whether the cardholder wishes to use a portion of their stored value, say '100 dollars', as a down payment for the coffee machine.

**[0034]** In an embodiment, at block 205, the method comprises initiating a VIS smart plan Application Program Interface (API) 105 to facilitate comprehensive data exchange. The VIS smart plan API 105 is specifically designed to accept multiple PANs, purchase amounts and a down payment as input parameters. For example, if the cardholder wishes to assess the best EMI plans available on their cards which are already registered on the wallet for the remaining purchase amount, say '500 dollars'. The digital wallet 103 initiates the VIS smart plan API 105 to retrieve the best/optimal EMI plans. Thereafter, at block 207, the method comprises, determining the best savings EMI plan by amalgamating the VIS API data with an issuer server data. In other words, the input parameters are integrated with the issuer server data associated with the specified BINs. The VIS smart plan API 105 determines the best savings EMI plan for the cardholder based on one or more parameters. Subsequently, the VIS smart plan API 105 may suggest an optimal allocation of the stored value for making a down payment, ensuring

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efficient utilization of the cardholder's purchase amount. Upon determining the EMI plan, at block 209, the method suggests offering the determined EMI plan along with a suggested down-payment option to the cardholder via the cardholder device 101. The cardholder may either accept or modify the recommendations based on user preferences. Further, at block 211, the method suggests selecting the offered EMI plan by the cardholder device 101 and proceeding to finalize the financial transaction with the best EMI plan. As a result, the cardholder accepts the recommended EMI plan, selects the best EMI plan and completes the coffee machine purchase.

Advantages of the present invention:

**[0035]** In an embodiment, the method disclosed in the present disclosure integrates a digital wallet with a VIS for enhanced user experience.

**[0036]** In an embodiment, the method disclosed in the present disclosure provides the best EMI plan recommendations based on user-specific parameters and/or multiple parameters.

**[0037]** In an embodiment, the method disclosed in the present disclosure enables flexibility in making down payments during transactions.

**[0038]** The described operations may be implemented as a method, system or article of manufacture using standard programming and/or engineering techniques to produce software, firmware, hardware, or any combination thereof. The described operations may be implemented as code maintained in a "non-transitory computer-readable medium", where a processor may read and execute the code from the computer-readable medium. The processor is at least one of a microprocessor and a processor capable of processing and executing the queries. A non-transitory computer-readable medium may include media such as magnetic storage medium (e.g., hard disk drives, floppy disks, tape, etc.), optical storage (CD-ROMs, DVDs, optical disks, etc.), volatile and non-volatile memory devices (e.g., EEPROMs, ROMs, PROMs, RAMs, DRAMs, SRAMs, Flash Memory, firmware, programmable logic, etc.), etc. Further, non-transitory computer-readable media may include all computer-readable media except for transitory. The code implementing the described operations may further be implemented in hardware logic (e.g., an integrated circuit chip, Programmable Gate Array (PGA), Application Specific Integrated Circuit (ASIC), etc.).

**[0039]** The illustrated steps are set out to explain the exemplary embodiments shown, and it should be anticipated that ongoing technological development will change the manner in which particular functions are performed. These examples are presented herein for purposes of illustration, and not limitation. Further, the boundaries of the functional building blocks have been arbitrarily defined herein for the convenience of the description. Alternative boundaries can be defined so long as the specified functions and relationships thereof are appropriately performed. Alternatives (including equivalents, extensions, variations, deviations, etc., of those described herein) will be apparent to persons skilled in the relevant art(s) based on the teachings contained herein. Such alternatives fall within the scope and spirit of the disclosed embodiments. Also, the words "comprising," "having," "containing," and "including," and other similar forms are intended to be equivalent in meaning and be open ended in that an item or items following any one of these words is not meant to be an exhaustive listing of such item or items or meant to be limited to only the listed item or items. It must also be noted that as used herein, the singular forms "a," "an," and "the" include plural references unless the context clearly dictates otherwise.

**[0040]** Furthermore, one or more computer-readable storage media may be utilized in implementing embodiments consistent with the present disclosure. A computer-readable storage medium refers to any type of physical memory on which information or data readable by a processor may be stored. Thus, a computer-readable storage medium may store instructions for execution by one or more processors, including instructions for causing the processor(s) to perform steps or stages consistent with the embodiments described herein. The term "computer-readable medium" should be understood to include tangible items and exclude carrier waves and transient signals, i.e., are non-transitory. Examples include Random Access Memory (RAM), Read-Only Memory (ROM), volatile memory, non-volatile memory, hard drives, CD ROMs, DVDs, flash drives, disks, and any other known physical storage media.

**[0041]** Finally, the language used in the specification has been principally selected for readability and instructional purposes, and it may not have been selected to delineate or circumscribe the inventive subject matter. Accordingly, the disclosure of the embodiments of the disclosure is intended to be illustrative, but not limiting, of the scope of the disclosure.

**[0042]** With respect to the use of substantially any plural and/or singular terms herein, those having skill in the art can translate from the plural to the singular and/or from the singular to

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the plural as is appropriate to the context and/or application. The various singular/plural permutations may be expressly set forth herein for sake of clarity.

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# "SMART PAYMENTS: METHOD AND SYSTEM FOR INTEGRATING STORED VALUE WALLETS WITH VISA INSTALMENTS SERVICE (VIS)"

## ABSTRACT

The present disclosure relates to a method and a system for integrating stored value wallets with a Visa Instalments Service (VIS). The present disclosure suggests uploading a Bank Identification Number (BIN) file including BINs eligible for an Equated Monthly Installment (EMI) payment and creating specific plans associated with the uploaded BINs. Thereafter, a cardholder selects a digital wallet which includes a stored value wallet for payment during the checkout process on an electronic commerce (e-commerce) merchant website or a mobile application. Once the selection process is successful, the present disclosure suggests initiating a VIS Application Program Interface (API) to facilitate comprehensive data exchange, wherein data includes, without limited to, primary account number, purchase amount, and wallet amount. After the initiation of the VIS API, the present disclosure suggests determining the best savings EMI plan by combining the VIS API data with an issuer server data. Subsequently, offering/presenting the determined EMI plan along with a suggested down-payment option to the cardholder. Further, the cardholder may actively select the offered EMI plan and proceed to finalize the financial transaction.
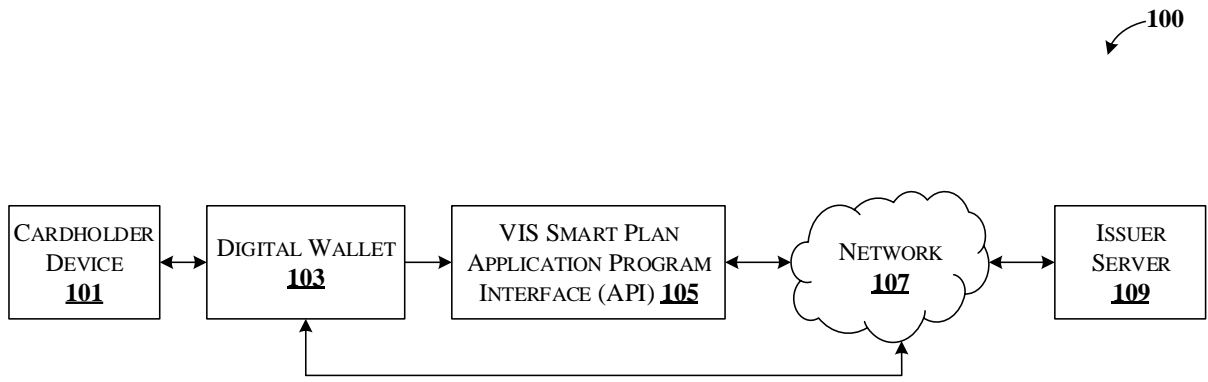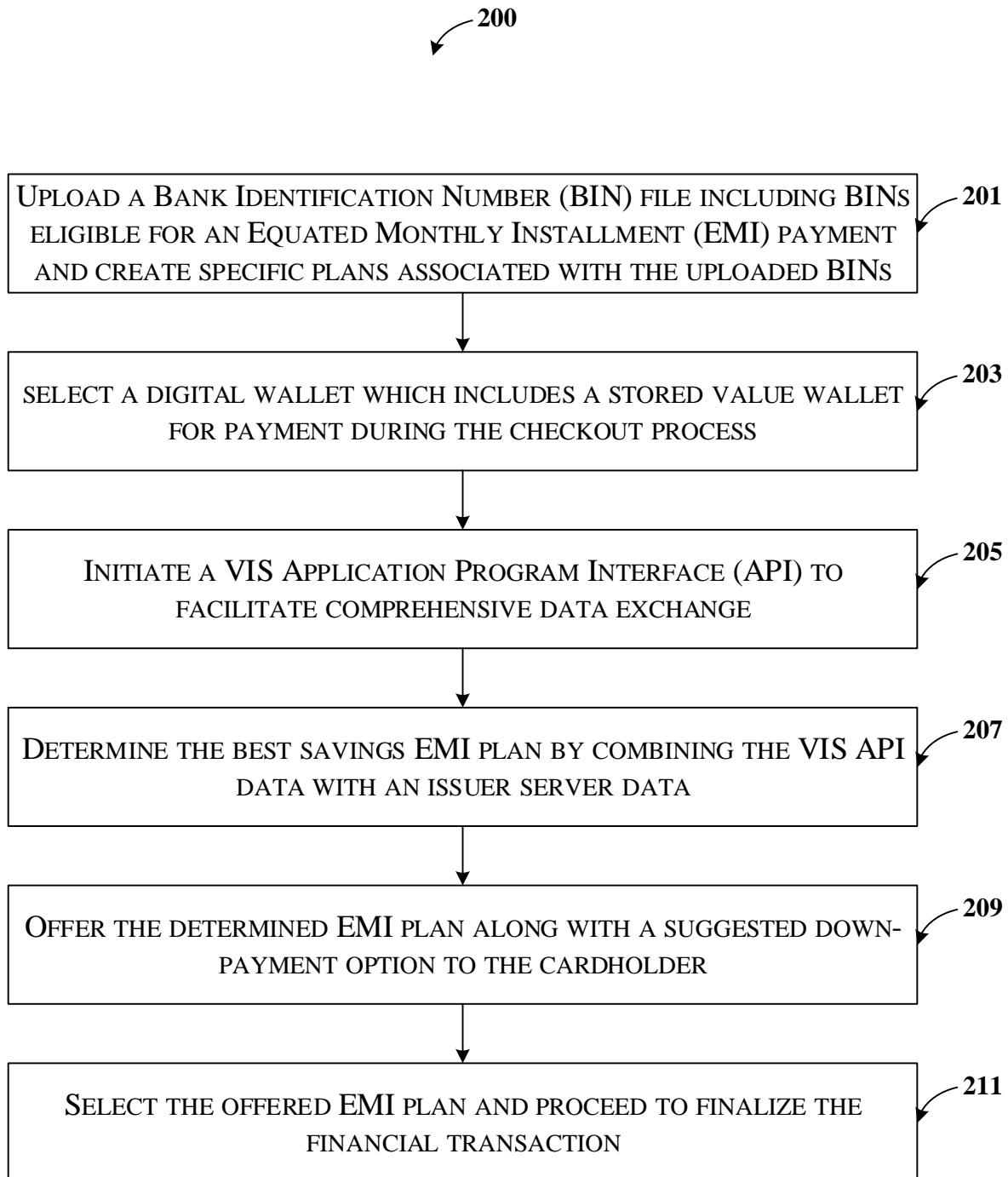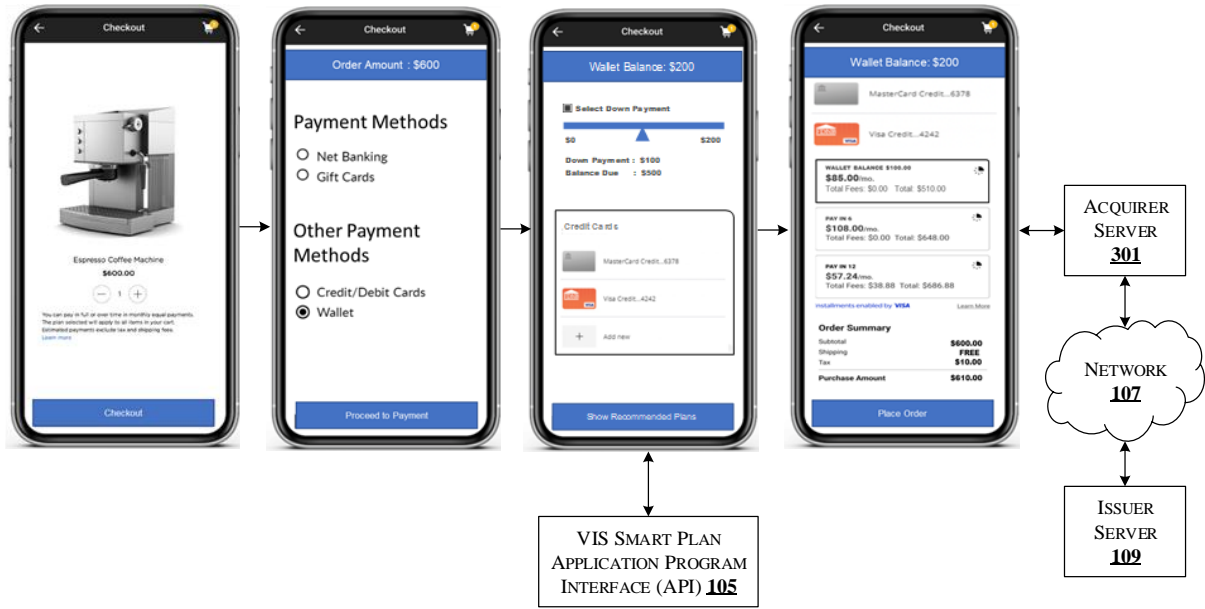
**100**

| CARDHOLDER DEVICE **101** | DIGITAL WALLET **103** | VIS SMART PLAN APPLICATION PROGRAM INTERFACE (API) **105** | NETWORK **107** | ISSUER SERVER **109** |

**FIG. 1**

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UPLOAD A BANK IDENTIFICATION NUMBER (BIN) FILE INCLUDING BINs
ELIGIBLE FOR AN EQUATED MONTHLY INSTALLMENT (EMI) PAYMENT
AND CREATE SPECIFIC PLANS ASSOCIATED WITH THE UPLOADED BINs — 201

SELECT A DIGITAL WALLET WHICH INCLUDES A STORED VALUE WALLET
FOR PAYMENT DURING THE CHECKOUT PROCESS — 203

INITIATE A VIS APPLICATION PROGRAM INTERFACE (API) TO
FACILITATE COMPREHENSIVE DATA EXCHANGE — 205

DETERMINE THE BEST SAVINGS EMI PLAN BY COMBINING THE VIS API
DATA WITH AN ISSUER SERVER DATA — 207

OFFER THE DETERMINED EMI PLAN ALONG WITH A SUGGESTED DOWN-
PAYMENT OPTION TO THE CARDHOLDER — 209

SELECT THE OFFERED EMI PLAN AND PROCEED TO FINALIZE THE
FINANCIAL TRANSACTION — 211

**FIG. 2**

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**FIG. 3**