

METHOD OF CROSS-BORDER PROCESSING OF DIGITAL COUPONS

TECHNICAL FIELD

Inventions relate to computing and, in particular, cross-border purchase systems.

PRIOR ART

At present, the services that provide an opportunity to make a gift to another person are becoming increasingly trending.

There is a known option to purchase and send physical or digital coupons. In particular cases, one of the disadvantages of such solutions is the impossibility to purchase and give a gift or a certificate from another country in local currency and in accordance with the local legislation.

Furthermore, another example of prior art is a possibility to purchase electronic coupons in other countries via Internet. The disadvantage of such solutions may be the impossibility to study the information about the gift in one's native language or in a common available language in a given area of the planet, as well as the impossibility to complete a transaction on the internet page of another country using the bank card of one's own country under the local legislation. Additionally, under the local legislation it may be required to specify the local address to confirm the local payment method that the purchaser from another country in most cases is lacking.

Another prior art is some social networks (for instance, vkontakte or odnoklassniki) granting a possibility to give their recipients virtual gifts. The disadvantage of such solutions is that it is impossible to give another user a real item or service.

Another prior art is an express delivery option to recipient from the sender. This option is not always convenient for the sender, as it requires them to arrange the delivery time and location, which is often impossible to provide.

The proposed invention allows to override, at the very least, part of the above mentioned disadvantages or each of them, as well as realize the advantages of this invention, as described.

BRIEF DESCRIPTION OF THE INVENTION

The technical outcome of the proposed invention is to increase effectiveness and security of processing cross-border digital coupon data and transactions subject to legislation of countries.

In one case in particular, the method of cross-border computer processing of digital coupons (processing of digital coupon/voucher data), includes the following steps:

- sending request to enable roaming from the personal device of a first user (User 1) located in a first country (Country 1) to a first server (Server 1) located in Country 1;
- receiving by Server 1 of the request to enable roaming and registering User 1 on arbiter server that in turn registers User 1 as roaming user on a second server (Server 2) located

in a second country (Country 2);

- displaying by the arbiter server on the personal device of User 1 the available cities for purchase of goods and services in Country 2, as well as goods and services available in the selected city and the price thereof in the currency of Country 1 subject to exchange rates;
- receiving the request from the personal device of User 1 on Server 1 to purchase the selected products and/or service in the selected city of Country 2;
- processing payment for the selected product and/or service by the payment center of Country 1 in the currency of Country 1, which includes determining of currency/exchange rate ratio based on the exchange data published by the state bank (or another bank) that determines the exchange rate in Country 1, where currency exchange rate data is used both at the time of purchase of a product and/or service, and in order to cross-check the exchange rates between the countries (the determination of exchange rates may be performed via bank API or data parsing);
- sending the request to purchase the prepaid product and/or service from Server 1 to arbiter server;
- creating a digital coupon and corresponding attributes with respect to the product and/or service selected by User 1 based on the request from arbiter server on Server 2, and sending data regarding the digital coupon subject to the legislation of Country 2 to arbiter server, which includes limitations or permissions to transfer personal data of the user with an option for arbiter server to receive personal data of the user, depersonalize such personal user data and transmit such depersonalized personal user data;
- saving the created coupon data and transaction data received on the arbiter server, and creating or updating the amount payable by Country 1 to Country 2 in the amount of the cost of goods and services purchased by User 1;
- creating on Server 1 a digital coupon identical to the one created on Server 2 based on the created coupon data received from arbiter server;
- displaying on the personal device of User 1 the digital coupon created on Server 1;
- receiving from the personal device of User 1 the request to send the aforementioned digital coupon to a second user (User 2) located in Country 2 and delivering that request to the personal device of User 2;
- user 2 activating the coupon received, and Server 2 marking the coupon as activated and based on the request received from the arbiter server providing the status of the aforementioned digital coupon, following which an identical digital coupon on Server 1 is

marked as activated.

In some implementations of the method, Server 2 may periodically provide the digital coupon status following the request from arbiter server.

In some implementations of the method, the method additionally includes the step that describes the offsetting of payables between Country 1 and Country 2.

In some implementations of the method, the digital coupon contains a unique identifier.

In some implementations of the method, the digital coupon on Server 2 is tied to the roaming user that made the purchase.

In some implementations of the method, the data (including attributes) regarding the created digital coupon (voucher) is sent by the country server (Server 2) to the arbiter server subject to the personal data legislation.

In some implementations of the method, the data regarding the created digital coupon (voucher) is sent by the country server (Server 1) to the arbiter server subject to the personal data legislation.

BRIEF DESCRIPTION OF IMAGES

FIG.1 depicts a possible, but not exclusive, embodiment of the general description of the process of selection and transfer of a gift (product) by a user located in one country to another user located in another country;

FIG.2 depicts a possible, but not exclusive, approximate embodiment of the process of enabling roaming for the user in Country 1 in, at least, one other country;

FIG.3 depicts a possible, but not exclusive, approximate embodiment of the process of forming the lists of cities, products with description and price, and product categories for the country (countries) selected by the user;

FIG.4 depicts a possible, but not exclusive, approximate embodiment of the process of Country 1 user purchasing a product in their country currency (Country 1, or Country A) at a price provided by arbiter server, as well as forming a digital coupon corresponding to the purchased product on Country 1 (Country A) servers and on Country 2 (Country B) servers;

FIG.5 depicts a possible, but not exclusive, approximate embodiment of the process of digital coupon receiving by the user of Country 2 (User 2) and displaying the digital coupon to them;

FIG.6 depicts a possible, but not exclusive, approximate embodiment of the process of activation of the received digital coupon by the user of Country 2 and "redeeming" the digital coupon sent by the user of Country 1;

FIG.7 depicts a possible, but not exclusive, approximate embodiment of the diagram of workflow and interaction of the proposed system components that implement the proposed method.

DESCRIPTION OF INVENTION IMPLEMENTATION OPTIONS

Items and attributes of this invention, as well as methods of achieving the given items and attributes will become apparent by reference to approximate implementation options. However, this invention is not limited to approximate implementation options disclosed below, as it may be implemented in various forms. The entity provided in the description is none other than exact details intended to assist the technical specialist in the comprehensive understanding of the invention, and this invention is determined solely within the accompanying formula.

The terms "module", "component", "element" and similar, used in this description of the technical solution are used to define computer entities that may represent hardware/devices (e.g., device, tool, apparatus, device component, e.g., processor, microprocessor, integral scheme, printed circuit board including electronic printed circuit board, development board, motherboard etc., microcomputer and other), software (e.g., executable code, compiled application, program module, software component or software code component and other) and/or microprogram (including firmware). Thus, for instance, a component may represent a process executable on the processor (by the processor), an object, executable code, program code, file, program/application, function, method, (program) library, subroutine, co-routine, and/or computing device (e.g., microcomputer or computer) or a combination of software and hardware components.

This invention uses a digital coupon that is a digital entity (e.g., an electronic document) that grants the right to receive the product or service specified therein generated by the issuer and presented to the partner.

The digital coupon may contain the following information: product or service name; product or service description; product or service obtaining guidelines; map or list of places of receipt; number or unique number; identifier; PIN-code; promo code; password or secret word; logo, image or other audio and visual information about the provider and the product/service itself; QR/BAR code (QR or bar code); other information, for instance, the field for user information input, user location information, etc.

The digital coupon may be displayed via an Internet browser on any computing device, as well as a corresponding application for storage (e.g., electronic wallet, wallet) and tracking of digital coupon status (active/used).

The digital coupon may be distributed by means of transfer to a computing device in the form of a web link, e.g., <https://api.gmoii.world/voucherXyZ>, and the delivery (transfer) may be carried out after successful payment or without it, depending on the requirements of the issuer.

The person presenting a digital coupon (voucher), more specifically, an active digital coupon, will receive a product or service for which that digital coupon was generated. The product may be physical or non-physical and may be available for pickup or delivery. The services possess the identical attributes as the products.

The presenting party is any individual or legal entity that presents an active (unredeemed) digital

coupon.

The issuer is any legal entity with an access to the system described, in particular, at least to the part thereof that generates digital coupons, under its login (identifier). The issuer may generate any number of coupons subject to the limits established by the system. The issuer may generate coupons for its own products or for a product available in the system. If the issuer generates a coupon for its own product, it is required to specify the necessary information, in particular, the product or service name, product or service type, place of delivery (if required), and to specify the type of coupon authorization (subject to its codes) or subject to the codes of the system described, etc.

The partner is a legal entity that accepts coupons in exchange for products or services in coupons. This may be the location of product or service or delivery, website and other product or service delivery locations. The issuer may simultaneously be a partner provided it generates the coupons for its own products or services.

FIG.1 demonstrates a possible, but not exclusive, option of the general description of the process of selection and transfer of a gift (product) by a user located in one country to another user located in another country.

As illustrated in Step **510** performed by a processor by executing (specifically, with the use) of machine-readable instructions stored in the memory, including those transferred to at least one coprocessor or provided for use by a coprocessor, the user of Country 1 (**12, FIG.2**), specifically, the user located in one country, e.g., Country A, wishes to make a gift to the user of Country 2 (**211, FIG.5**), the user located in another country (e.g., Country B).

In the specific event of invention implementation, the user of Country 1 (**12, FIG.2**) enables roaming.

Server of Country 1 (**15, FIG.2**) registers the user of Country 1 on the arbiter server (**18, FIG.2**). Arbiter server (**18, FIG.2**) registers the user of Country 1 (**12, FIG.2**) on the servers of all countries, e.g., on the server of Country 2 (**24, FIG.2**) as roaming user. Thus, for instance, the arbiter server (**18, FIG.2**) registers the user with a username (or login) "Ivan" as roaming user with a username (or login) "Ivan_RU". The aforementioned user registration as roaming user is used in order for both the recipient and the franchisee company - Gmoji operator in another country, to understand who specifically purchased the product.

Further, as demonstrated in Step **520** performed by a processor by executing (specifically, with the use) of machine-readable instructions stored in the memory, including those transferred to at least one coprocessor or provided for use by a coprocessor, the user of Country 1 (**12, FIG.2**), selects another country (Country 2), e.g., Country B, as well as the city in that Country 2. The computing device of the user of Country 1 (**13, FIG.2**) then loads the catalogue of products available in Country B and the city selected in this country that is displayed to the user of Country 1 (**12, FIG.2**). The aforementioned catalogue contains, as a minimum, the list of products with the description, price and category (e.g.,

certificates, beverages, etc.) for the country selected by the user.

Hence, the server of Country 1 (**15, FIG.2**) executes a request to the arbiter server (**18, FIG.2**) to provide product data such as, but not limited to, availability, price, photo, logo, icon, delivery locations, description, etc. Further, the arbiter server (**18, FIG.2**) requests such data from the server of Country 2 (**24, FIG.2**) and transfers it to the computing device of Country 1 user (**13, FIG.2**) for it to be displayed to Country 1 user (**12, FIG.2**).

Further, as demonstrated in Step **530** performed by a processor by executing (specifically, with the use) of machine-readable instructions stored in the memory, including those transferred to at least one coprocessor or provided for use by a coprocessor, the user of Country 1 (**12, FIG.2**) purchases the product in its local currency of Country 1 (Country A) at a price (cost) provided by the arbiter server (**18, FIG.2**). The payment is then processed by the payment center of Country

1 (Country A) **177 (FIG.4)**.

Further, a digital coupon (digital voucher, Gmoji voucher, Gmoji coupon, Gmoji digital coupon) is created on Country 2 server (**24, FIG.2**) with all its attributes, following which Country

2 server (**24, FIG.2**) transfers to the arbiter server (**18, FIG.2**) for further transfer to Country 1 server (**15, FIG.2**), all product data (name, quantity, weight, volume, price, delivery locations, etc.), marked as "see data on Country 2 server" in the events when data transfer was incomplete (e.g., the incomplete list of delivery locations, since there are many of them) or it is subject to delayed update (e.g., order status).

Further, as demonstrated in Step **540** performed by a processor by executing (specifically, with the use) of machine-readable instructions stored in the memory, including those transferred to at least one coprocessor or provided for use by a coprocessor, the user of Country 1 (**12, FIG.2**) transfers or, more specifically, sends the purchased digital coupon to the Country 2 user (**211, FIG.5**) using the computing device of Country 1 user (**13, FIG.2**); thus, there occurs a digital coupon transfer from the computing device of Country 1 user (**13, FIG.2**) to the computing device of Country 2 user (**222, FIG.5**) via at least one server, e.g., and using data exchange means (servers, services, etc.), e.g. message exchange services including instant messaging services.

In Step **550** performed by a processor by executing (specifically, with the use) of machine-readable instructions stored in the memory, including those transferred to at least one coprocessor or provided for use by a coprocessor, the Country 2 user (**211, FIG.5**) receives the digital coupon to the computing device of Country 2 user (**222, FIG.5**), and such user is displayed the digital coupon to purchase a product or service, including, but not limited to, an online service ("activation", "redemption" etc.), transfer to another user etc. The display of digital coupon to such user may be performed both in the application installed on the computing device of such user, and on the (relevant) webpage that allows actions with digital coupons, e.g. receiving, displaying of such.

Furthermore, as demonstrated in Step **560** that is performed by a processor by executing (applying) machine-readable instructions stored in the memory, such as those transferred to at least one

coprocessor or to be used by a coprocessor, the Country 2 user (**211, FIG.5**) activates the digital coupon (including in exchange for a product, a service or a web service), that is then blocked for Country 2 user (**211, FIG.5**) on the computing device of Country 2 user (**222, FIG.5**), and is also blocked for Country 1 user (**12, FIG.2**) on the first computing device of Country 1 user (**13, FIG.2**). In specific cases, the activated digital coupon is blocked for Country 2 user (**211, FIG.5**) on the computing device of Country 2 user (**222, FIG.5**) directly after its activation, whereas for Country 1 user (**12, FIG.2**) it is blocked on the first computing device of Country 1 user (**13, FIG.2**) following a predetermined period of time (that is determined on Country 1 server or on an arbiter server etc.), e.g. 5 minutes (6 minutes etc.); or in specific cases, within a timeframe that is equal to a predetermined timeframe allowed for the arbiter server (**18, FIG.2**) to transfer requests relating to provision of information (data) on the availability of digital coupons provided by Country 2 server (**24, FIG.2**).

FIG.2-FIG.6 demonstrate a possible, but not exclusive, variant of operation of the proposed system, specifically, an approximate description of interaction among the users, computing devices of the users and servers.

FIG.2 demonstrates a possible, but not exclusive, approximate process of enabling roaming for Country 1 user in at least one other country, specifically, as demonstrated in Step

510.

As demonstrated in **FIG.2**, at the time of purchase (first purchase) by Country 1 user (User 1) **12** using a computing device, specifically, the computing device of Country 1 user (first computing device, User 1 computing device) **13**, e.g. during initiation of purchase by the user, a roaming is then enabled; i.e. at least one computing device or one server and/or at least one user computing device initiates the automatic roaming enabling process. In specific cases, the user

may independently initiate roaming enabling, e.g. by selecting a relevant function in the application installed on the computing device of Country 1 user **13**.

The arbiter server **18** automatically enables roaming e.g. after receiving consent to roaming enabling from the computing device of Country 1 user **13** by the server of Country 1 **15**, accompanied with a user authorization request (**33**) in the described system, specifically on at least one server in at least one country that is not Country 1, e.g. on Country 1 server **15**. The description of the invention will further include one server of one country, although it should be noted that roaming enabling may be executed in multiple countries simultaneously, e.g. on Country 2 server in Country 2 **24**, on Country 3 server in Country 3, on Country 4 server in Country 4 etc., and roaming may be enabled simultaneously, i.e. in parallel in multiple countries or in all countries.

The request for user registration (and the roaming enabling request) for roaming enabling may include user registration data, e.g. first name, last name, telephone number, user device ID of Country 1 **13**, etc.

The user, e.g. Country 1 user **12**, may be registered in the described system on at least one

server (e.g. on Country 1 server **15** etc.). Thus, for instance, Country 1 user **12** may register in the described system either in the application installed on the computing device of Country 1 user **13**, or on the webpage of the website connected to the described system or constituting part of the described system, using at least one of the servers, e.g. on Country 1 server **15** through the input of their identification data, e.g. first name, last name, telephone number and other data, e.g. the country in which Country 1 user is located. In specific cases the country - location of the user is determined by the described system, e.g. by locating the computing device of the user taking into account the information (data) received from such user computing device. Thus, for instance, the module that determines the user location (user geolocation module etc) of the computing device of Country 1 user **13** may determine the location of User 1, specifically, geographical coordinates of the computing device of Country 1 user **13** that are transmitted by the computing device of Country 1 user **13** to Country 1 server **15** in order to determine the country that possesses the transmitted coordinates. Determination of the country that has the computing device of Country 1 user **13** may be carried out both by the computing device of Country 1 user **13** and by the server of Country 1 (**15**). The transmitted data on user location (coordinates or user country etc) is saved on at least one server, e.g. on Country 1 server **15**, specifically, in the storage database **16** of Country 1 server **15**. User location country may also be determined by the server, e.g., Country 1 server **15** on the basis of IP address (Internet Protocol

Address) that is specifically transferred to the user by their Internet supplier. The server, i.e. Country 1 server, stores the user input data attaching to the user a (generated) unique user identifier (unique user ID) in Country 1 - the first unique User 1 identifier in Country 1 tied to User 1 and the data tied to such User 1, e.g. user location data (coordinates, country, etc.) input or automatically determined by the server, including the data such as user IP address, registration data, user data collected by other services, including those authorized by the user, etc. The module that determines the user location (i.e. the user geolocation module) as any other module described in this invention may represent hardware/device (e.g., device, tool, apparatus, device component, e.g., processor, microprocessor, integral scheme, printed circuit board including electronic printed circuit board, development board, motherboard etc., microcomputer and other), software (e.g., executable code, compiled application, program module, software component or software code component and other) and/or microprogram (including firmware). e.g. may be executed by a processor in the form of machine readable instructions. Further, the module may represent executable code, program code, file, program/application, function, method, (program) library, subroutine, co-routine, and/or computing device (e.g., microcomputer or computer) or a combination of software and hardware components.

The first unique identifier of User 1 in Country 1 is saved in storage database **16**.

The aforementioned data storage (e.g., the data storage **16** of Country 1 server **15**; the data storage **32** of Country 2 server **24**, the data storage **22** of arbiter server **18**, data storage of user computing device etc) may represent at least one hard disc drive, solid-state drive (SSD), storage area network (SAN), network attached storage (NAS) and/or any other device that allows recording, reading and/or storing data on the device with a storage function. It should be noted that at least one aforementioned

database may be hierarchical, object, object-oriented, object-related, related, central, fragmented/sectioned, replicated, spatial etc. Various database management systems may be used to manage, create and use databases.

Country 1 server **15** transmits to the arbiter server (intermediary server, approving server) **18** the user data (**36**), i.e. Country 1 server **15** transmits to the arbiter server **18** the user name and the first unique identifier of User 1 in Country 1, Country 1 user identifier. Thus, the link is created between the purchased coupon and a specific user in a specific country. Additionally, personal data of such user including the age or e-mail, may also be transmitted to a country other than the user's country.

The arbiter server **18** receives data transmitted by Country 1 server **15** and using the received data generates the common (single) universal identifier of User 1 for the first unique identifier of User 1 in Country 1 received from Server 1 **15**. The common universal identifier of User 1 (**28**) is connected to the first unique identifier of User 1 in Country 1 (**29**) generated by Country 1 server **15**. This example is approximate, therefore, the implementation of such operations may vary depending on the invention implementation.

The arbiter server **18** saves the data received by the arbiter server **18** in the data storage **22** that is connected to the arbiter server **18**, in at least one database, e.g. in table **26**, including the data on the first unique identifier of User 1 in Country 1 (**29**) and the common universal identifier of User 1 (**28**).

The arbiter server **18** runs the process (processes) of User 1 registration on the server of the country in which the user intends to purchase a digital coupon (Gmoji), e.g. on Country 2 server **24**, on Country 3 server, etc. In specific cases, the arbiter server **18** is a center or a unique center that manages (all) the requests and responses (in comparison to ordinary servers), which eliminates the need to configure on one (or each) of a country's servers any of the reports or exchange rate tables. In specific cases the arbiter server may be located on "neutral" territory that allows to avoid issues relating to understanding of the processes by third parties. Thus, it may eliminate the direct access of a Russian server to a US personal data server and vice versa. In specific cases, only one currency exchange rate table is used (currency exchange table), and delays are possible in case of multiple servers that leads to e.g. one rate in Country A and a different rate in Country B, that results in different calculation in the two countries based on their relevant rates which in turn will lead to price variation. The arbiter server **18** runs the process (processes) of User 1 registration on the server of Country 2 **24**, specifically, registers User 1 **12** in Country 2, and transmits all the necessary data (**39**), e.g. the unique user identifier, the common universal user identifier for User 1 or the first unique identifier of User 1 in Country 1, as well as user registration data such as username or the user account (identifier or login, password) in addition to the username or in place of it. The user account represents the collective user data stored in the described computer system and used for user authentication and granting of access to personal data, options and/or functions of the system in question. The aforementioned registration of User 1 **12** in Country 2 is carried out using at least the user name, user identifier and country identifier. The arbiter server **18** creates (compiles) the list of other countries' servers that transmit registration requests whenever countries are connected (added) to the system described herein.

Country 2 server **24** receives the data transmitted by the arbiter server **18** and registers User 1 **12**. Thus, Country 2 server **24** creates a record on the foreign user in the user list, which allows making purchases for that country. In the event of successful user registration **12**, Country 2 user **24** creates a unique identifier of User 1 in Country 2 (second identifier of User 1) and saves it in the storage database **32** and in response to the request of the arbiter server **18** sends a flag (identifier) of successful registration of User 1 **12** on Country 2 server **24** as well as the second unique identifier of User 1 in Country 2 (**43**). In specific cases, successful registration (condition of successful registration) is indicated by the response of Country 2 server that contains the success status and user identifier in Country 2 that are saved on the arbiter server. In specific cases the identifier of Country 2 that will be assigned to Country 1 user is mandatory (due to the architecture of the described system), since it is impossible to purchase a product without the purchaser (sender), therefore, the user must be registered in each country where the product is shipped. In the event it is impossible to register User 1 **12** in Country 2, i.e. specifically, to register User 1 **12** on Country 2 server **24**, Country 2 server **24** transmits to the arbiter server **18** a flag indicating such impossibility to register the user in Country 2 (or error). Thus, in the event it is impossible to register User 1 **12** in Country 2, an error report is delivered and processed (by the system in question, system administrator etc.), in order to determine the nature of error based on the error type. For instance, the error may occur in multiple scenarios (without limitation): technical error ("bug"), administrative restriction (e.g., "black list"). The user receives a notification (e.g., a pop-up notification) with an error message and either a suggestion to repeat the procedure or a description of restrictions etc., depending on restriction criteria.

After the arbiter server **18** receives a flag indicating successful registration of User 1 **12** on Country 2 server **24** and the second unique identifier of User 1 in Country 2, the arbiter server **18** saves the second unique identifier of User 1 (**30**) in Country 2 in the database, e.g. in table **26**, data storage **22**. Additionally, the arbiter server saves the country (the countries) that enable roaming for the users of Country 1 **12**, into the database of the data storage **22**, thus compiling the list of countries available to the user, i.e. the countries that enable roaming for the users of Country 1 **12**.

The arbiter server transmits the successful registration flag (i.e. the "success" response) of User 1 **12** on Country 2 server **24** to Country 1 server and stores the received data in the database.

Upon receiving the flag indicating successful registration from the arbiter server **18**, Country 1 server **15** transmits the confirmation of that (second) country availability for selection (subject to the purpose described in this invention) to the computing device of Country 1 user **13**. Additionally, Country 1 server **15** may compile the list of counties available for selection, e.g. in the form of identifiers of such countries in order to transmit it to the computing device of Country 1 user **13** and display it to User 1 **12**. The list of countries available for selection may also be compiled by the arbiter server **18** for transmission to Country 1 server **15** in order to further transmit it to the computing device of Country 1 user **13** and display it to User 1 **12**.

The countries available for selection by user **12** may be saved in data storage databases (**16**, **22**), for instance, as the list of countries available to each user **12**, and/or in the data storage of the

computing device of Country 1 user **13**.

The compiled list of countries may also contain the countries unavailable to Country 1 user **12**, but that may become available to such user after, e.g., the user request to enable roaming in relevant countries. Such temporarily (for the time being) unavailable countries may be marked (e.g. by the first computing device of Country 1 user **13**) as unavailable, for instance, by a color indication (grey font instead of black font, red font instead of green font, red marker, etc.), or, in specific cases, if the available countries displayed to such user represent a link (e.g. a web link) and are, for instance, marked as a link using stressing, then such unavailable countries are not to be marked as links.

FIG.3 demonstrates a possible, but not exclusive, approximate process of compiling city lists, product description and product price, as well as categories for the country selected by the user, specifically, as demonstrated in Step **520**.

Upon unblocking the countries available to User 1 **12** on the first computing device of Country 1 user **13**, a list of cities available to Country 1 user **12** is compiled.

Thus, the computing device of Country 1 user **13** sends the Country 1 server **15** the user identifier on Country 1 server and the request to provide the list of cities (**121**) for the country selected by Country 1 user **12** and/or for all countries available to such user.

Upon receiving the list of cities available to such user, Country 1 server **15** transmits (**124**) to the arbiter server **18** the request to provide the list of cities, as well as the identifier (in specific cases, also age and e-mail) of Country 1 user **12** (first unique User 1 identifier in Country 1).

Upon receiving the request to provide the list of cities from Country 1 server **15**, the arbiter server **18** verifies roaming availability for Country 1 user **12** for the country selected by such user, or for all countries available to such user **12**; thus, it is verified if roaming is enabled for Country 1 user **12** in the selected country (available countries).

Availability verification (of roaming) is performed by the arbiter server **18** using the relevant data saved in the database of the data storage **22**. Specifically, there occurs a verification of the list of countries with the roaming for Country 1 user **12**, e.g. in a database table.

Further, the arbiter server **18** makes a request to at least one of the servers of at least one country other than the user country **12**, e.g. to Country 2 server **24**, to obtain the list of cities available in a specific country (or in all countries including those selected by user **12**). Upon compiling of the request to obtain the list of available cities, the arbiter server **18** transfers it either to each of the servers in other countries or solely to the server of the selected country, other than the country of the user **12**, e.g. to Country 2 server **24**.

In response to the request, Country 2 server **24** returns or transmits to the arbiter server **18** the attributes, specifically, the list of the cities and their identifiers, the list of categories and their identifiers, as well as the list and identifiers of products and categories and description of products, photos and icons,

additional information (on volume, quantity, nominal) and their price in the currency of Country 2 server **24**, as well as other data. Such data (identifiers of products and categories and description of products and their price in the currency of Country 2 server **24** etc.) is stored in data storage database **32** of Country 2 server **24**. In specific cases, all transmitted data may be provided in the form of continuous data flow or in sequence, as requested, which as a minimum allows saving time on data display.

The list of cities and their identifiers, as well as the list and identifiers of products and categories and description of products and their price in the currency of Country 2 server **24** received by the arbiter server **18**, are further processed by arbiter server **18** and transmitted to Country 1 server **15** after currency rate values verification. The data processing by the arbiter server **18** may include, for instance, transformation of product price in the currency of Country 2 server **24** into the currency of Country 1 server **15** using the data stored in the database of data storage **22**, e.g., in the currency rate table **126**, specifically, using currency rates for specific countries (cross rates, etc.). Transformation of product price in the currency of Country 2 server **24** into the currency of Country 1 server **15** may be realized using the currency rates downloaded or obtained real-time (e.g., online) from third party services or servers etc., for instance, from bank servers of various countries or from a bank server of one country, in which Country 1 server **15** or Country 2 server **24**, etc., are located. In specific cases, the currency table may store the currency values (e.g., the Central Bank rates) of the countries participating in this process that are automatically updated.

Country 1 server **15** transmits the data (**139**) received from the arbiter server **18** to the computing device of Country 1 user **13**, including the list of available cities in the corresponding available countries and city identifiers (unique identifiers of available cities), identifiers (unique identifiers) of products and categories, product description and price in the currency of Country 1 server **15**, including the product price transformed into the local currency (for Country 1 server and, respectively, for Country 1 user **12**). The data received from Country 1 server **15** by the computing device of Country 1 user **13** is provided to Country 1 user **12** and is displayed to the user on the display (screen, etc.) of the computing device of Country 1 user **13** following the request of Country 1 user **12**. In specific cases, all transmitted data may be provided in the form of continuous data flow or in sequence, as requested, which as a minimum allows saving time on data display.

The list of available cities in the countries available to Country 1 user **12** (the process of transferring the request to receive the list of available cities for available countries, or receiving the compiled list of the cities, etc.) may be compiled using the first computing device of User 1 **13**.

The compiled list of cities may also contain the cities in the countries unavailable to Country 1 user **12**, but that may become available to such user after, e.g., the user request to enable roaming in relevant countries. Such temporarily (for the time being) unavailable cities may be marked (e.g. by the first computing device of Country 1 user **13**) as unavailable, for instance, by a color indication (grey font instead of black font, red font instead of green font, red marker, etc.), or, in specific cases, if the available cities displayed to such user represent a link (e.g. a web link) and are, for instance, marked as a link using stressing, then such unavailable cities are not to be marked as links.

FIG.4 demonstrates an approximate process of Country 1 user purchasing a product in their local currency (Country 1, Country A) at a price provided by the arbiter server (**18, FIG.2**) and forming a digital coupon corresponding to such purchased coupon on Country 1 and Country 2 servers, specifically, as demonstrated in Step **520**.

Country 1 user **12** may select the desirable product that may also be intended for another user, for instance, Country 2 user (**211, FIG.5**) through interaction with the first computing device of Country 1 user **13**. Thus, Country 1 user **12** may select the product from the list displayed to them on the first computing device of Country 1 user **13**, for instance as an image (photo, picture, icon, etc.) and/or text or any other form of displaying information to the user that may contain the product name and/or its description, product identifier, the country in which such product may be purchased, etc.

After User 1 **12** selects at least one product, the first computing device of Country 1 user **13** transfers (**150**) purchase and payment requests for the product selected by Country 1 user **12** to the payment server of Country 1 **177** and (**151**) to Country 1 server **15**. In addition, it transfers (either directly or through an intermediary possessing all the necessary licenses and certificates, such as PCI DSS) the (unique) identifier of the product selected by such user, identifier of the country of the selected product, specifically, the country in which the digital coupon will be activated (also known as "receiving country server" or Country 2 server), as well as identifier of Country 1 user and payment data, including the data required to process purchase of the product by Country 1 user **12**. Such data may include (contain) user's bank card number, CVC/CVV code(s), card validity period, first and last name of card owner, user's bank account number, token of their electronic payment tool, etc. In addition to the aforementioned data, the identifier of User 1 country **12** may be transmitted, specifically, Country 1 identifier, as well as the unique identifier of Country 2 user (**211, FIG.5**) in cases when Country 1 user **12** selected the recipient of the digital coupon prior to the product purchase or during product purchase. In addition, the payment server of Country 1 **177** and Country 1 server **15** may receive the unique identifier of Country 2 user (**211, FIG.5**) and/or e-mail address of such Country 2 user (**211, FIG.5**), and/or telephone number (e.g., mobile number) of such Country 2 user (**211, FIG.5**), as well as any other information that may be used to identify such Country 2 user (**211, FIG.5**) or to deliver them a digital coupon. Such data may be transmitted from the first computing device of Country 1 user **13** and/or computing device of Country 2 user (**211, FIG.5**) following the request from at least one computing device, user computing device or server computing device, in specific cases, Country 1 server **15** or Country 2 server **24**, etc. Such data may be received by at least one computing device from other servers or services, including third party services that may store such data such as databases containing addresses, telephone numbers, last names, first names and other user data, as well as any other sources of information including those that allow identifying the users (digital coupon recipients, senders, etc.), as well as digital coupon delivery (transfer) locations, payment data, etc.

After Country 1 user **12** selects at least one product or at least one visual product display using the relevant user computing device, Country 1 user **12** initiates payment and the product is automatically purchased (as per the product image displayed), provided the user payment information

is stored in the payment service. In specific cases, the request to deduct funds from user account by means of payment service (system) API is forwarded to the payment system (payment service) run by the payment server of Country 1 **177**.

The user may link their bank card to the payment service (payment server of Country 1 **177**). Thus, the user's bank card is linked to the payment system (payment service), e.g., Cloudpayments, Stripe, Payture, Apple Pay, Samsung Pay, Yandex.Money, etc. in the application, for instance on the user profile screen. After User 1 **12** inputs their bank card details and personal data (including the last name and first name of bank card holder), the application sends the data (via API provided by the payment system) to the payment system server for verification of the bank card, bank card details, card validity period, etc.

In specific cases, after Country 1 user **12** selects the product using, for instance, the keyboard of the computing device belonging to Country 1 user **13** and in the event user data is not stored in the payment service, payment is initiated and Country 1 user **12** is redirected to the screen (page) of the application via an implemented application component that allows building in pages in applications (such as WebView) in order to facilitate user interaction with the bank card (bank card transactions specific for purchasing products and creating digital coupons for purchased products or services).

After Country 1 user **12** inputs bank card details and personal user data, and presses "Pay" button provided the user data is input correctly, the user is shown a form (window) containing a notification on successful payment for a product or service (realized through a digital coupon), such as "Payment processed".

Further, the payment server **177** blocks (reserves) the funds on the bank card (bank account) of the user and data (notification) on successful funds reservation on user bank card is sent to Country 1 server **15**.

Payment server of Country 1 **177** sends (**152**) data or message on successful completion of payment transaction or failed transaction to Country 1 server **15**. Thus, if the payment server of Country 1 **177** notifies of successful payment by Country 1 user **12**, Country 1 server **15** makes a request to the arbiter server **18** to make a non-cash purchase of a product in another country (**153**), e.g., Country 2 (Country B). Such request may contain, for instance, information about the time, identifiers of Server 1 and Server 2, user identifier in Country 1, product identifier, the amount in Country 1 currency, etc.

In case the payment server of Country 1 **177** delivers the information that payment was not processed or cannot be processed by Country 1 user **12**, e.g., due to the shortage of funds on the user account, or an error in deducting funds, etc., Country 1 server **15** communicates a message about an error or impossibility to process the purchase to the computing device of Country 1 user **13**. Such message may also contain an offer for such user to check the status (balance) of their bank account, or verify the validity of data input during the purchase, etc.

After receiving the request to purchase the product from Country 1 server **15**, the arbiter server

18 verifies that roaming is enabled for Country 1 user **12** in Country 2, as described in this invention. If roaming is enabled, the arbiter server **18** creates a request to purchase the product for Country 2 server **24** and transmits **(156)** such request to Country 2 server **24**.

If roaming is not enabled for the user in Country 2, the arbiter server **18** automatically enables roaming as described in this invention, after which it creates a request to purchase the product for Country 2 server **24** and transmits **(156)** such request to Country 2 server **24**.

Upon receiving the request to purchase the product from the arbiter server **18**, Country 2 server **24** creates a digital coupon containing all such attributes and transfers **(159)** the digital coupon with all such attributes to the arbiter server **18**. Such attributes may contain product or service name; product or service description; product or service obtaining guidelines; map or list of places of receipt; number or unique number; identifier; PIN-code; promo code; password or secret word; logo, image or other audio and visual information about the provider and the product/service itself; QR/BAR code (QR or bar code); other information, for instance, the field for user information input or user location information.

In one of the implementation scenarios, the computing device of Country 1 user **12**, on at least one server, such as Country 1 server **15**, or the arbiter server **18**, or Country 2 server **24**, etc., in the process of creating (generating) a digital coupon and/or in the process of forming a list of products (and services), obtains information (specifically, cost, description, etc.) of the product or service from the database of products or services, in particular, from the database of the seller(s), and associates such information with the digital coupon. In some implementation scenarios, the information from the product and service database may include an image of a product or service (an image of a product or service is used by default; if case it is unavailable, an enlarged display of the application display image may be used), product or service name, detailed description, etc.

After receiving the digital coupon with all the attributes mentioned (at least, including the data related to the digital coupon), the arbiter server **18** records the entry relating to the received digital coupon into the table **170** of the data storage **22**, and then generates (updates/corrects, as well as adds entries to the database on the amount outstanding, the type of product or service for which the amount is due, the currency and direction of the transfer) the outstanding payment to be made by Country 1. In specific cases, the arbiter server **18** contains the means (e.g., subsystem, system) that allows automatic reporting between countries, and each country (servers of each of the countries) may access the information on all digital coupon movements.

Further, the arbiter server **18** transmits **(162)** data to Country 1 server **15**, upon which Country 1 server **15** generates a digital coupon identical to the digital coupon generated by Country 2 server **24**. The generated digital coupon contains the same data that can be updated. The data transmitted by the arbiter server **18** (and received by Country 1 server **15**) may contain product or service name; product or service description; product or service obtaining guidelines; map or list of places of receipt; number or unique number; identifier; PIN-code; promo code; password or secret word; logo, image or other audio and visual information about the provider and the product/service itself; QR/BAR code (QR or bar code);

other information, for instance, the field for user information input or user location information.

Further, Country 1 server **15** transmits (**165**) the generated digital coupon with all the attributes received from Country 2 server (Country 1 server **15**) to the computing device of Country 1 user **13**, for purposes of presenting it to Country 1 user **12**.

In a specific case, the coupon on Country 1 server is a duplicate of the digital coupon of Country 2 server.

After (or during) the formation or, more specifically, generation of a digital coupon (on Country 1 server **15** and/or on Country 2 server **24**) in the application or on the server of one of the countries, a link may be generated, specifically, a short link that identifies the application, the sender of the digital coupon and/or the user's computing device (in particular, the computing device of Country 1 user **13**, i.e. the sender of the digital coupon). At the time of digital coupon generation, the server (Country 1 server **15** and/or Country 2 server **24**) generates a digital coupon identifier, a PIN-code (which may be used when activating a digital coupon) and a digital code (which may be used when activating a digital coupon), such as a QR code and/or a barcode (which corresponds to the seller(s)). Such generated digital code (one-dimensional, twodimensional, etc.) may be scanned (photographed, etc.) by means of an appropriate device (e.g., a bar code or QR code scanner, or a device camera) at a sales outlet of the product or service, specifically, by the seller's employee, or presented on a virtual resource to receive an online product or service. In addition, in some implementation scenarios, the digital coupon contains a purchase time stamp and the number of days remaining before the digital coupon is terminated.

The above-mentioned device that the seller of a product or service uses to activate the digital coupon can read the codes described herein, obtain information on the digital coupon; pay for the order using digital coupons in full or partially. When activating the digital coupon (in particular, at the time of completing the order), the digital coupon is activated on the server and the corresponding transaction is completed, provided the activation was successful.

It is also worth noting that the seller may open the editing screen or create a new order on a relevant device, and scan the digital coupon code with a relevant scanner.

Further, the software (specifically, the plugin) of the device creates a request (e.g., an HTTP GET request) to the server for a relative path, for instance, `/api/script/find_gpon_for_cash?code={code}` where {code} is the code received from the scanner. The type of the request and the access path, as well as the transmitted data, may vary.

Further, in case of a successful response from the server, the device displays a notification that an active digital coupon and the name of the product or service have been discovered.

It is also worth noting that when the seller adds payment to the order using the device, a cash screen is displayed where the seller may choose a non-cash payment method for a product or service from the digital coupon. Next, the digital coupon code is scanned as described above, and a request is sent to the server to identify the digital coupon and obtain information about the digital coupon. The

above-mentioned plugin creates a request (e.g., HTTP GET or any other) to the server using the aforementioned relative path. If the digital coupon is invalid, an error notification is displayed to the seller on the device, and payment for the product or service is cancelled (interrupted).

It is worth noting that when paying for an order (product or service) with a digital coupon, in particular, when the seller selects an order payment button using the above device, the plugin checks the presence of digital coupons in the order and the amount to be paid using such a digital coupon, upon which the product or the digital coupon activation service are paid for. During the activation of the digital coupon, the device sends an HTTP POST (or other relevant) request to the server, and such request may contain the PIN-code of the digital coupon, the identifier of the digital coupon and the identifier of the store, seller, merchant, etc.

In some implementation scenarios, the PIN-code is a four-digit (although some implementation scenarios may use 5, 6 or more digits in the PIN-code) number (or a combination of letters and/or numbers) of 1234-type and is generated randomly (by random number generators) or using known generating algorithms, such number generators, numerical sequences generators, etc. In specific cases, the PIN-code, as well as the unique number (digital coupon identifier), may be provided by third parties and be associated with certain algorithms used to apply discounts and rewards in their own cash systems.

When generating (creating) a coupon, the digital coupon (using the identifier of the digital coupon created by one of the computing devices, i.e., servers) is also associated with at least one seller.

The user, for instance, Country 1 user **12** may purchase several products, or several identical products, and a digital coupon is generated for each purchased product (on Country 1 server **15** and on Country 2 server **24**), either immediately (simultaneously) and separately. Thus, for instance, the user may purchase two identical products at the same time (e.g., by selecting their number equal to two units using the relevant elements, including elements of the graphical or text interface of the application, or other methods) or may first purchase one product, and following a period of time, for instance, several minutes, hours, days, etc., may purchase a second identical product. If a user has purchased several identical products and has not yet sent a digital coupon to another user, i.e. a user in another country, e.g., Country 2, the number of products purchased by the user and realized by means of digital coupons is increased, and such number of digital coupons is displayed to the user, for instance, on visual displays of products or services in the application installed on the user's computing device. The quantity of products purchased by the user is stored on at least one server, e.g., Country 1 server **15**, the arbiter server **18**, Country 2 server **24**, and/or may be stored on the computing device of Country 1 user, e.g., as cached.

Upon presentation of the generated digital coupon to Country 1 user **12**, such user may send the digital coupon to another user, such as a user from another country, i.e., Country 2 user (Country B). Thus, Country 1 user **12** may interact with the digital coupon displayed to transfer it to another user, e.g., Country 1 user **12** may select a digital coupon and the recipient of such a digital coupon (e.g., using a notebook or a directory stored in the user's computing device), enter a number, an email address, etc. of

User 2 (Country 2 user) to transmit the digital coupon. Thus, a link to the generated digital coupon for a purchased product or service (or product or service received by the user as a gift from another user) may be copied (by the user or by user's computing device) into a message field, such as the text input line of a messaging application. Additionally, a digital coupon may be displayed with the link in the application. Further, the digital coupon is sent by the user (sender) to another user (recipient), for instance, using the "Send" button in a messaging application, a mail client in a web browser on a web page having such functionality, etc. In specific cases, if the user purchases several digital coupons for a particular product or service, then, as one of the options, the digital coupon with the shortest validity period is sent first.

In one of the implementation scenarios for this technical solution, in case the user (sender) purchases more than one product or service represented by digital coupons, and several digital coupons have the same validity period, the digital coupon to be sent from the list of coupons first is sorted by the purchase time, taking into account the identification number (unique identifier) of this digital coupon.

The quantity of digital coupons available for sending is reduced (when the data is updated). After User 1 (sender) sends the digital coupon to another user (recipient) on at least one server, such as Country 1 server **15** and/or Country 2 server **24**, etc., the number of products or services purchased by the user (sender) is reduced by one. The digital coupon with the shortest validity period is placed next in queue.

The identifier (identification number, unique identifier) of the digital coupon may contain [4-240] characters in a hexadecimal system, e.g., of 598d9bac47217f28ba69e0f5-type, and specifically represents a unique number that is automatically generated (created) by at least one server (or database when a new record is added), for example, Country 1 server **15**, Country 2 server **24**, etc.

FIG.5 demonstrates a possible, but not exclusive, approximate process of Country 2 user receiving a digital coupon and displaying the digital coupon to such user, in particular, as described in step **550**.

Country 2 user **211** receives a digital coupon on the computing device of Country 2 user. After Country 2 user **211** receives the digital coupon sent by Country 1 user **12**, the computing device of Country 2 user **222** sends a request (**234**) to display the digital coupon received by such User 2 on the computing device of Country 2 user **222** to Country 2 server **24**.

In response to the request to display the digital coupon received by Country 2 user **211**, Country 2 server **24** displays the digital coupon previously generated by Country 2 server **24** on the computing device of Country 2 user **222**, and transmits data (**236**) to display such a digital coupon to Country 2 user **211** on the computing device of Country 2 user **222**. Thus, in specific cases, Country 2 server is a server that directly responds to the request when a link is opened, and Country 2 server directly transfers all the attributes of the coupon, such as price, name, description, photos, icons, places of receipt, delivery option if supported, etc.

In specific cases, if no digital coupon interaction application is installed on the computing device

of Country 2 user **222**, e.g., the application that allows purchasing, receiving and/or activating a received digital coupon, then after the Country 2 user **211** receives the digital coupon and selects such digital coupon, the computing device of Country 2 user **222** displays information associated with the digital coupon in a web browser on the computing device of Country 2 user **222**. Country 2 user **211** is displayed the web page containing data for Country 2, for instance, a specially created page for such Country 2, e.g., on the subdomain of the main website, or on web pages of websites, such as websites registered in the domain zones of the respective countries, such as subdomains of national top-level domains (RU, US, UK, BR, etc.).

In specific cases, if the application of the country in which the other user (Country 2 application, Country 2 application version) is located, is installed on the computing device of Country 2 user **222**, provided such application allows purchasing or receiving and/or activating digital coupons, when Country 2 user **211** selects such received digital coupon, the computing device of Country 2 user **222** displays information related to the digital coupon in such Country 2 application.

In specific cases, if the computing device of Country 2 user **222** has an application for a country other than the one in which User 2 (another user) or Country 2 user is located, e.g., Country 1 application (Country A) or Country 3 application (Country C), such installed application will inform Country 2 user **211** of the error and inability to obtain data on the received digital coupon and deliver it to the user, as well as the inability to activate the received digital coupon. The application installed on the computing device of Country 2 user **222** for a country other than the one in which the user is located may prompt the user to install the application for the country in which the user is located. For example, if the user is in located in Country 2 (Country B) and the computing device of Country 2 user **222** has an application installed for Country 1 (Country A) or Country 3 (Country C), etc., then such an installed application may prompt Country 2 user **211** to install the application for Country B on the computing device of Country 2 user **222**.

In specific cases, if the computing device of Country 2 user **222** has an application for a country other than the one in which User 2 (Country 2 user) is located, the user may be redirected to a web page for the country in which such user is located, by notifying Country 2 user **211** on the impossibility to receive or use a digital coupon using an application installed on the computing device of Country 2 user **222**.

In specific cases, if the computing device of Country 2 **222** user **211** has a relevant application, i.e., Country 2 application, such application is opened (or launched) and the display screen containing a digital coupon is displayed when the user selects visual display of the product or service on the computing device of Country 2 user **222**. In specific cases, if the application, in particular, Country 2 application is not installed on the computing device of Country 2 user **222**, such user may be displayed the screen displaying the option to gift a digital coupon, for example, by using the application. When Country 2 user **211** selects such an option, the computing device of Country 2 user **222** redirects the user to the application download page of a mobile application e-store.

Further, Country 2 user **211** may have the option to view the digital coupon, using which Country 2 user (recipient) is displayed the digital coupon, for example, as a picture (specifically, without having to install the application on the computing device of Country 2 user **222**).

FIG.5 demonstrates a possible, but not exclusive, approximate process of Country 2 user activating the received digital coupon and "redeeming" the digital coupon sent by Country 1 user, as described in step **560**.

After Country 2 user (recipient of the product or service) **211** receives the digital coupon, the activation ("redemption") of the received digital coupon is performed by purchasing the product corresponding to such digital coupon from the merchant **288**.

In specific cases of implementation, it is possible to display (and activate) the code of the digital coupon (depending on the settings of the product or service), for example, in the form of a QR code and/or barcode, or any other available identifier.

In specific cases, the receipt of the product or service using the digital coupon, or, specifically, the activation of the digital coupon is noted (registered) by the seller (employee of the seller) **288**, or by an online system, by using a corresponding device associated with the seller's computing device (e.g., a cash register) **250**, allowing the purchase of the product or service to be recorded by Country 2 user **211**. The merchant **288** reads the codes using a device that allows the code scanning (in some implementations, code photographing), or the codes are entered manually.

Variants of digital coupon activation (a combination of several variants is possible):

- on the digital coupon page in the application (by scanning or photographing the code or entering the digital code of the product or service);
- on a web page of a digital coupon by scanning or photographing one of the codes described within the scope of this invention, or by entering a product or service (digital) code;
- on a digital coupon page in an application or web page by selecting a delivery operator and specifying a delivery address. The server of one of the countries may have direct integration with the delivery server, which will allow transmitting a unique digital code and PIN-code in an automated mode;
- the digital code that is specifically used for the "Call Using Application/Order Delivery" option. In this case, the merchant delivery service number **288** is added to the program element, i.e., the graphical button "Call Using Application/Order Delivery," which when pressed allows the user (who is the sender) to start automatic dialling. In a specific case, the digital code is the digital coupon number implemented by a barcode or QR code (in the form of a link), corresponding to a standard of RFC4122 type 151B-090X- 090A-2556, and is generated with the V4 algorithm (<https://www.npmjs.com/package/uuid>).

The digital code may be activated remotely when ordering the delivery of goods or services. For example, the merchant **288** may enter a digital code on the digital coupon activation page (e.g. web page)

on the merchant's **288** administrative dashboard on the website

- digital code may be used for the "Incoming Call/Order Call-back" option. When selecting the "Incoming Call/Order Call-back" button, a form containing the following fields is displayed to the user (the fields are generated by at least one of the servers, e.g., Country 2 server 24 at the time when the digital coupon is created:

- digital coupon number with automatic input option (automatic filling in of the relevant field),

- telephone number for feedback implemented by the field where the user enters the number of their (mobile, cellular, home, etc.) telephone,

- merchant 288 selection is used as a field for selecting one merchant from the list of merchants that sell the product or service. In a specific case, if the product or service belongs to the same merchant, this field is automatically filled in with the name (identification number, etc.) of the merchant,

- a message sent to the merchant 288.

In a specific case, the digital code may be activated remotely, for example, the merchant 288 enters the digital code on the digital code activation page on the merchant's administrative dashboard.

Thus, Country 2 user 211 receives the link to the digital coupon on the computing device of Country 2 user 222, e.g. in the application, follows the link to display information on the coupon and possible sales outlets for a product or service tied to the digital coupon, and then provides the merchant 288 with the information necessary for activating the digital coupon and selling the product or service associated with such digital coupon.

After Country 2 user 211 provides the merchant 288 with the digital coupon (specifically, the digital coupon created by Country 2 server 24) and/or digital coupon-related data, including the data required for digital coupon activation and receipt of a product (or service), the merchant 288 inputs the information (and sells the product or service related to this digital coupon) required to activate the coupon using the computing device of the merchant 250, which then sends (261) this data along with confirmation of successful activation of the digital coupon to Country 2 server 24. Country 2 server 24 marks the digital coupon as activated and sends a notification on successful activation of the digital coupon to the arbiter server 18, in response to a corresponding request from the arbiter server 18.

The arbiter server 18 may request (267) information (data) on availability of activated digital coupons (generated by Country 2 server 24) with a predetermined frequency, such as once every five minutes, six minutes, etc. In response to such request, Country 2 server 24 transmits (264) to the arbiter server 18 information on availability or absence of activated coupons received from the computing device of the merchant 250, in response to the corresponding request (258) to provide data on digital coupon activation from Country 2 server **24** for the time elapsed since the transfer of the previous request or receipt of the previous response, etc.

After receiving a response on availability of an activated digital coupon, the arbiter server **18** transmits (**270**) to Country 1 server **15**, at a minimum, the information about the activated digital coupon (created by Country 2 server **24**), and the digital coupon (generated by Country 1 server **15**) is marked in the database **16** of Country 1 server **15**. Data on the activation of the corresponding digital coupon is recorded, and Country 1 server **15** transmits (**273**) to the computing device of Country 1 user **13** the activation information relating to the corresponding digital coupon (generated by Country 1 server **15**). Thus, the corresponding coupon generated by Country 1 server **15** is "redeemed" in the application installed on the computing device of Country 1 user **13**, rendering it inactive.

In one of the implementation scenarios, the digital coupon/voucher display presented to the user may contain:

- an invertible (or other) field with product information;
- "Send" button (or "Give," "Share," etc. buttons) used to select how a digital coupon is delivered;
- a field to input the city name;
- a map displaying the locations where products or services may be received (map locations closest to the user, if any).

In one of the implementation scenarios, the invertible (or other) field contains:

- an image of a product or service (the image of a product or service is used by default, if not available - an enlarged image of product visual display in the application);
- name of a product or service;
- detailed description;
- visual display of a product or service;
- display of digital coupon code (different options are available);
- digital identification of digital coupon code;
- a PIN-code activating a digital coupon (or a code in the merchant's system). The PIN- code is a four-digit (although some implementation scenarios may use 5, 6 or more digits in the PIN-code) number of 1234-type and is generated randomly (by random number generators). The PIN-code may be provided by third parties;
- digital coupon validity period;
- pictures of this product;
- an interactive instruction to receive digital coupons, which may also contain QR/BAR code, or a button redirecting to a web resource, or an input field for information allowing interactive data exchange with a server of one of the countries.

Information on product or service receipt locations may be presented in the form of an interactive map. Thus, the city of user's location and the merchant's sales outlets may be displayed on such interactive map.

In a specific case, when a user (sender or recipient of a product or service) clicks on a sales outlet icon (point of sale, merchant's location) on the map, the user may view the address of such sales outlet and obtain a link with the route to that outlet based on its location in the navigator application installed on the user's device.

In a specific case, a product or service sold by several merchants is displayed to the user, and if the product or service (sold using a digital coupon as described in the present digital coupon solution) is attached to several merchants (i.e., the product or service is sold by several merchants), the interactive map displays all sales outlets (point of sale) of all merchants selling that product or service.

In a specific case, after purchasing a product or service, the user may view the purchased products and services for which a digital coupon has been generated in the menu (on the screen) of mobile application "My Gifts".

When a user (sender) purchases a product, the digital coupon displays the validity period of that digital coupon (the period during which the digital coupon will be valid and may be sent to another user (to the recipient)). The validity period of the digital coupon may be displayed as a difference between the purchase date of the product or service and the expiration date of the digital coupon for such product or service (prior to activation of this digital coupon by another user), a so-called "delta."

In the specific implementation case of this technical solution, the validity period of the digital coupon is the same for all users (senders and/or recipients) and is calculated (counted) using the time in the recipient's capital city. The validity period of the digital coupon may in such case be accompanied with an appropriate clarification (notification) for the application user, for example, "Moscow Time," "Based on Moscow Time," etc. The text of the notification may change depending, for example, on the location of the server or region of the services provided, or depending on the location of the users (sender or recipient).

In a specific case, if the "delta" mentioned above is more than one day (24 hours), then the period before the expiry of the digital coupon is displayed in days rounded down. Thus, for example, if there remain 10 days and 5 hours and 7 minutes left for activating the digital coupon, the user, specifically, the recipient (third-party user), is displayed the time remaining before coupon expiry in whole days, for example, "Use within 10 days."

In a particular case, if the above "delta" is less than one day, then the time to the end of the digital coupon in hours and minutes is displayed. In a particular case, if the time to activate the digital coupon has expired ("delta" less than zero), a message (notification, etc.) is displayed that the digital coupon is overdue and may neither be sent by the user (sender) to another user (recipient) nor activated by another user (recipient). For example, one of the users may receive the message "Your digital coupon has

expired."

It is worth noting that "My Gifts" application menu may divide digital coupons into at least two groups, such as "My Coupons" and "Sent Coupons".

In the specific implementation case of this technical solution, the digital coupon sent by the user (sender) to the user (recipient) who is not registered in the application, is not displayed in "My Gifts" window (screen). It is worth noting that when sending a digital coupon to users registered in the application, the recipient of a digital coupon is the user who last opened a link to such a digital coupon.

It is worth noting that the digital coupon may be sent not only using an additional keyboard in the messaging application, but also from the application.

It is also worth noting that application windows may include the top of the application window, which displays categories of products and services.

In the specific case of implementing this technical solution, the categories of products and services are located at the top of the application window. Furthermore, these categories of products and services represent the names of categories of products and services accompanied with visual displays (icons, etc.), which are active elements of the application interface. The aforementioned elements of the categories of products and services may be displayed into at least one line. To view the categories of products and services, the application user may use horizontal scrolling to view elements of categories of products and services. It is worth noting that in specific cases, the selected category is the category of products and services that the user moved to the center (the middle of the line containing categories of products and services).

It is worth noting that in a specific case of implementing this technical solution, the user change the position of categories of products and services in the application by the following:

- selecting the visual display of the product or service;
- selecting the category name of the product or service;
- horizontal scrolling of the categories list (at the top of the application screen);
- horizontal finger movement ("swipe" motion) by the user at the bottom of the application screen (window).

Such selection of the category of products and services allows the user of the application to view the list of products and services in the selected category of products and services.

It is worth noting that when the mentioned elements of the categories of products and services are displayed in two lines, ellipsis is used to limit the text "...".

In a specific implementation scenario of this technical solution, the list of products and services in the corresponding category of products and services is located under the field for selection of categories of products and services. The products and services category screen contains a list of all

products and services in the corresponding category of goods and services, and such screen displays data about the products or services, in particular:

- the image of a product or service,
- the name of a product or service,
- the cost of a product or service (sold by digital coupon).

In a specific case, if a product or service cannot be purchased at present, i.e., a digital coupon cannot be generated for such a product or service, then after the user selects the "Buy" button, a pop-up window is displayed with a notification that the product or service cannot be purchased.

It is worth noting that the items on the list screen may be occupy two lines. Vertical scrolling is also possible for the user. For example, if the number of visual displays of products is less than six, then they are filled in sequentially, starting from the upper left corner (left to right and from top to bottom).

In a specific case, when a product or service is selected, the Product or Service Card screen is displayed to the user (sender). Such product or service card screen may contain, for example:

- an invertible field with information about the product or service;
- or the name (name, identification number, etc.) of the merchant and information about the merchant;
- or a field to input the city name (i.e., city name by default);
- or a map displaying the locations where products or services may be received (map locations closest to the user, if any).

In one of the implementation scenarios, the invertible (or other) field may contain:

- an image of a product or service (the image of a product or service is used by default, if not available - an enlarged image of product visual display in the application);
- name of a product or service;
- from the other side of the invertible field:
 - name of a product or service;
 - price of a product or service;
 - visual display of a product or service;
 - detailed description of a product or service;
 - "Buy" button.

In a specific case, when buying a digital coupon, the user (sender) purchases one unit of product

or service.

When switching to viewing the product, the inverted field turns 180 degrees in order to inform the user about filling in the reverse side of the inverted field.

In a particular case, when the user selects the "Buy" button on the display screen of a product or service, the payment is initialized.

After successful initialization, the user is prompted to input the bank card data of the user (sender) i.e., the buyer, into the form. Furthermore, after the user selects the "Pay" button and provided the user's bank card entry data was input correctly, the user is provided a payment notification form (for example, "Payment processed"). It is worth noting that the payment notification form is displayed for a pre-set period of time, for example, 3 seconds, while the payment system (payment service) makes a request (sends a request) to the server containing a notification on successful blocking of funds on the user's bank card.

After the server receives a notification on successful blocking of funds on the user's bank card, the server deducts funds from the user's bank card and creates (generates) a digital coupon. The user in the application received a notification (form) on digital coupon creation (e.g., "Wait while your digital coupon is being created") in the process of deducting funds from the user's bank card and creating a digital coupon.

Further, after the successful payment for product or service and the creation of a digital coupon, the application (automatically) displays the "My Gifts" screen to the user, in which the purchased digital coupon is displayed as the first item.

It is worth noting that, in a specific case, the purchase of a digital coupon is the purchase of one unit of product or service.

It is also worth noting that if, within a given (predetermined) time, for example, within forty seconds, a digital coupon has not been generated, the application displays a form notifying that a digital coupon has not been created (For example, "Something went wrong. Email < email > so we can help you" and "Close" button).

When completing a purchase, i.e., when funds are successfully deducted from a user's bank card, or in case of an unsuccessful attempt to deduct funds from a user's bank card (for example, if the card does not have enough funds or the limit for one-time funds withdrawal is exceeded), the user's computing device displays the corresponding message in the payment system (payment service).

In a specific case, the above-mentioned "My Gifts" screen may contain two sections, such as "My coupons" section and the "Sent coupons" section. The "My coupons" section displays digital coupons that were not sent after purchase and digital coupons received as a gift. It is worth noting that the ranking (in particular, ordering) of digital coupons is arranged so that the most recent purchased digital coupon (which has just been purchased by the user) is displayed first.

In a specific case, when the user selects a digital coupon in the application, the digital coupon becomes available for viewing, and when the user selects the "Send" button, the user is forwarded to the send digital coupon screen.

It is also worth noting that the user of the application may send a digital coupon by using a web link to the generated digital coupon. Thus, when the user selects the "Copy" link, the web link to the web page of the digital coupon is copied to the clipboard of the user's computing device. The user may then be prompted to insert the contents of the clipboard into the message and send to another user (the intended recipient of the gift, i.e. the digital coupon). For example, a user may copy such a web link into the text of an email, into the body of a message, such as messages from one of the messaging applications, etc.

In the specific case of implementation of this solution, when another user receives a digital coupon message in the messaging application, a visual display of the product or service (digital coupon) is displayed to the user. After one user sends a digital coupon to another user, the digital coupon is moved from "My coupons" section to "Sent coupons" section. It is worth noting that in a particular case, the digital coupon is saved in the "Sent coupons" section both in case of successful sending of the digital coupon and in case of failure when sending the digital coupon.

It is worth noting that the user may also send a digital coupon in the "Sent coupons" section of the application.

In the particular implementation of this invention, the activated digital coupon in "My coupons" section of the application becomes blurred as in the case of expiration of the digital coupon.

It is worth noting that digital coupons may be stored (not deleted) regardless of their (digital coupons) status. Furthermore, digital coupons may be removed, i.e., hidden from users, after a certain (predetermined) time, e.g., twenty, thirty days, etc., since their expiration or activation.

It is also worth noting that there exist other options to buy digital coupons that do not require the use of a mobile device. Thus, options are possible for API interaction between algorithms of different systems that may generate/purchase digital coupons without human participation at the time of generation and may send them between countries.

FIG.7 demonstrates an approximate variant of diagram and interaction among the components of this invention.

At least one server of the described system, e.g., Country 1 server **15**, the arbiter server **18**, Country 2 server **24**, Country 4 server, etc., and combinations thereof, e.g., Country 1 server and Country 2 server plus arbiter server, Country 1 server and Country 4 server plus arbiter server, Country 1 server and Country 3 server plus arbiter server, etc., as well as all of these servers combined, may include the following modules that allow interaction of the described system.

Issuers, i.e. issuer servers **303**, create (generate) a digital coupon corresponding to the one

purchased by Country 1 user **12** using the computing device of Country 1 user **13** and which (or a variant thereof formed by Country 2 server **24**) is presented by Country 2 user **211** (using the computing device of Country 2 user **222**) to the merchants (partners) **288** for redemption using at least one computing device of the merchant (**250**). Furthermore, issuers, in particular issuer servers **303**, transmit the generated digital coupons and the list of recipients. Thus, if the issuer server is the server issuing the digital coupon (Gmoji), then such issuer server is the server of the recipient's country. Thus, within the scope of this invention description, Country 2 server is an issuer that forwards to the arbiter server (all) digital coupon data, including coupons purchased from abroad (in another country), however, some implementations exclude the transfer of some information (data), for example, depending on technical requirements or to ensure compliance with local law.

The described system (in particular, at least one server may include) a digital coupon generation module that generates and displays coupon information based on the received data from the issuer (name, image, instruction, receipt locations, product type, quantity and other related information).

The described system may also include a module for exchanging data with issuers, which receives input data from issuers for generating coupons and, after generating a coupon, returns a result in response, which depends on the type of delivery method selected by the issuer. Thus, if the issuer has chosen a pick up delivery option, the module will return relevant links in response, in another case the module will transmit the data to the notification system module and return the response from the module.

The system may also include a partner communication module that receives coupon information from partner devices and integrations, determines its validity, and returns a response.

The described system can also include a module for visual creation of coupons, which allows creating coupons without using API connections, through a web service using the same data as in the module for digital coupon generation.

The described system may also contain an integration module with customer/partner CRMs that enables connection of third party CRMs to generate coupons and distribution thereof to their own databases.

The described system may also include a reporting module that maintains and provides reports on company tariffs, including tariffs for generating coupons, sending messages, and redeeming products with issuer coupons at other partner outlets.

The system may also include a messaging module that allows the issuer to send generated coupons to its database of customers, suppliers, counterparties, or employees by SMS or e-mail or other means.

The described system may also include an authorization module, internal balance sheet and issuer limits to allow accounting and control of balance and limits for each issuer, preventing the distribution and/or generation of vouchers without sufficient balance in the personal account. In particular, country "B" may not have the required number of certificates available for sale; in this case, Country A

server will receive comprehensive information about the limits before making a purchase. For example, when the Country 1 user selects (12, FIG.2) another country (Country 2), for example, country "B," and a city in that Country 2, a catalogue of products available in country "B" and in the selected city thereof is loaded to the computing device of Country 1 user (13, FIG.2) and is displayed to Country 1 user (12, FIG.2), where such catalogue contains at least a list of products with their description, price and category (e.g., certificates, drinks, etc.) for the country selected by the user. In the event there are no products e.g., certificates, available in country "B," then, the arbiter server (18, FIG.2), in response to a request to the arbiter server (18, FIG.2) to provide product data such as, but not limited to, availability, price, picture, logo, icon, receipt locations, description, etc. by Country 1 server (15, FIG.2) requests such data from the Country 2 server (24, FIG.2) and sends a response, which is further transmitted to the computing device of Country 1 user (13, FIG.2) that such product (certificate, etc.) is not available.

The described system can also include a module for interacting with companies and systems with regard to product delivery using dynamic data exchange and connection to a cargo delivery operator. This system may automatically fill in the city, street and house number for guaranteed accuracy of input data for delivery. The system also allows monitoring of delivery status.

The described system may also include a user source-tracking module, analysing the data on the advertising identifier of the device, which allows tracking whether the user used a link, QR- code, in case of the latter, which QR-code, or used a search/hint in the application store.

The described system may also include a module on promotional campaigns provided it knows the source of the user who initially referred the user to the application, allowing granting them a free special gift and a corresponding push notification (e.g., the user who has learned about any service in a coffee shop may receive coffee as a gift from this coffee shop).

The described system may also include a module to directly credit funds to the phone balance that allows transferring funds to the balance of the user's phone, or its counterparty, depending on the conditions of promotional campaigns, or rewards (tips).

The described system may also include a module that may operate with vending machines that allows receiving and transmitting data from the vending machine server, which makes it possible for the user to seamlessly interact with vending machines from the application/web page, even if they do not have open API access.

The described system may also include a module (i.e., a widget) that allows selling a product without registering a user in the system. In case of using this module, the system implementing this invention creates a virtual buyer on Country B server, in the same manner as when registering an ordinary user on whose behalf the purchase is made. If such a virtual user has already been created earlier, the action is completed without registration. Such mechanism may be added (built in) to applications or websites and does not require long-term integration. Payment is carried out using any available methods, it is also possible to pay by a sponsor, e.g., on a birthday, the user receives a link to a product catalogue that does not specify the price. After choosing any product, they will receive it as a gift.

The described system may also include a promo code processing module that generates and maintains records of promo codes that can be used in the application to obtain a "free" product for the final user. The promo code processing module allows using a virtual bonus balance, which may be replenished, e.g., by using a promo code. This bonus balance may further be used to purchase a digital coupon for a product or service.

The described system may also include a module that allows interacting with online electronic code providers, i.e., interacting with suppliers of electronic cards (gift certificates), allowing the purchase of products and services from such providers online.

The described system may also include a module that allows accounting and monitoring language locales, i.e., provides the ability to add locales, determine which locale is installed in the application and return a response in the preferred language.

The described system may also include a module for (instantaneous) calculation, i.e., calculating the distance between locations, providing the user with a list of nearest locations, based on known data on the radius of the earth (using the laws of spherical trigonometry). Such calculation is performed in milliseconds, which allows checking thousands of locations for the user at a time without needing to access cloud solutions. Thus, various methods of distance from the client to the location can be used, for example, classic methods of calculating distance from the client to the location, which may be carried out using, the so called geocoders that are the services (including paid ones) provided by map providers, e.g., Google, Yandex, etc. These services in response return the distance in meters/kilometres from the user to the location of interest. However, in the event of a large number of locations (e.g., a thousand locations), this request may stretch over time for several (including ten, hundreds, etc.) seconds. The mentioned module of (instantaneous) calculation of distance between locations can use mathematical functions (including exclusively mathematical functions), which allow calculating the distance in fractions of seconds, without accessing third-party services, in particular, this formula may be used:

$$V ((\text{Point Longitudel} - \text{Point Longitude2})^2 + 4 * (\text{Point Latitudel} - \text{Point Latitude2})^2) * 58$$

This formula is correct for the metric system, for the English measurement system, an additional translation into miles is required. The above formula is one of the possible variants and may vary depending on the task.

The described system may also include an algorithmic interaction module for at least one or all of the above processes, allowing the interactions described above to be carried out without human interference.

The described system may also include a module that allows working with different sources on exchange rate data, and their correlation according to pre-arranged rules. Such module collects information, stores its historical records, and provides other components of the system with information, including reference information on exchange rates and time shifts. This module is also used at the time of forming a catalogue for the purchaser, issuing payment amount and forming the debt between

countries.

Since during the international circulation of coupons different countries will incur obligations to one another, the described system may include a reporting module for different countries. This module represents algorithms for calculating coupon traffic between countries and allows keeping records and controlling debt between countries, in a common or specific currency. The module will also allow displaying this information on a web resource, access to which is protected with available authorization methods.

The described system may include a module for depersonalizing some data, which, according to the local laws of a particular country, prevents the transfer of restricted information to third countries. In a particular case, the system may replace the sender's name with another name under the requirements of local legislation, for example, the name Ivan may be replaced (at least by one server) with a Gift sender from Russia, with no changes to user ID and no impact on reports. For example, users in the state of California (USA) may be subject to the California law "California Consumer Privacy Act" ("CCPA"). This legislative act expressly grants the user the right to dispose of their personal information, in particular, this applies to the user name record, if the user wishes to restrict the transfer of their data outside the territory of their country; the arbiter server will receive depersonalized data.

The described system and method may include a module (its functionality) tracking user behaviour and when identifying matches according to given patterns, block their transactions as potentially fraudulent (fraud control). For example, this module may collect data on the user's behavioural model, in particular, determining an approximate location based on the IP address, which will allow blocking operations above the average sum when changing countries. The model described above is approximate, the rules and algorithms may vary depending on the circumstances.

In conclusion, it should be noted that the information described herein represents examples that do not limit the scope of this invention as defined by the formula. Any specialist in this field will appreciate the existence of different implementation scenarios for this invention in accordance with the essence and scope of this invention.

CLAIMS

1. A method of cross-border computer processing of digital coupons comprising the following steps:
 - sending request to enable roaming from the personal device of a first user located in a first country to a first server located in the first country;
 - receiving the request to enable roaming on the first server and registering the first user on the arbiter server that further registers the first user as roaming user on a second server located in a second country;
 - displaying on the personal device of the first user the available cities for purchase of goods and services in the second country, as well as goods and services available in the selected city and the price thereof in the currency of the first country, as provided by the arbiter server subject to exchange rates;
 - receiving the request from the personal device of the first user on the first server to purchase the selected product and/or service in the selected city of the second country;
 - processing payment for the selected product and/or service in the payment center of the first country in the first country currency, which includes determining of currency/exchange rate ratio based on the exchange data published by the state bank (or another bank) that determines the exchange rate in the first country, where currency exchange rate data is used both at the time of purchase of a product and/or service, and in order to cross-check the exchange rates between the countries;
 - sending the request to purchase the prepaid product and/or service from the first server to arbiter server;
 - creating a digital coupon and corresponding attributes with respect to the product and/or service selected by the first user based on the request from arbiter server on the second server, and sending data regarding the digital coupon subject to the legislation of the second country to arbiter server, which includes limitations or permissions to transfer personal data of the user with an option for arbiter server to receive personal data of the user, depersonalize such personal user data and transmit such depersonalized personal user data;
 - saving the created coupon data and transaction data received on the arbiter server, and creating or updating the amount payable by the first country to the second country in the amount of the cost of products and services purchased by the first user;
 - creating a digital coupon on the first server that is identical to the one created on the second server based on the created coupon data received from the arbiter server;
 - displaying the digital coupon created on the first server on the personal device of the first user;
 - receiving from the personal device of the first user the request to send the aforementioned

digital coupon to the second user located in the second country and delivering that request to the personal device of the second user;

- the second user activating the received coupon, and the second server marking the coupon as activated, and subject to the request received from the arbiter server providing the status of the aforementioned digital coupon, following which an identical digital coupon on the first server is marked as activated.
2. The method of claim 1, wherein the second server may periodically provide the digital coupon status following the request from arbiter server.
 3. The method of claim 1, comprising an additional step that describes the offsetting of debt between the first country and the second country.
 4. The method of claim 1, wherein the digital coupon contains a unique identifier.
 5. The method of claim 1, wherein the digital coupon on the second server is tied to the roaming user that made the purchase.