

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
27 March 2003 (27.03.2003)

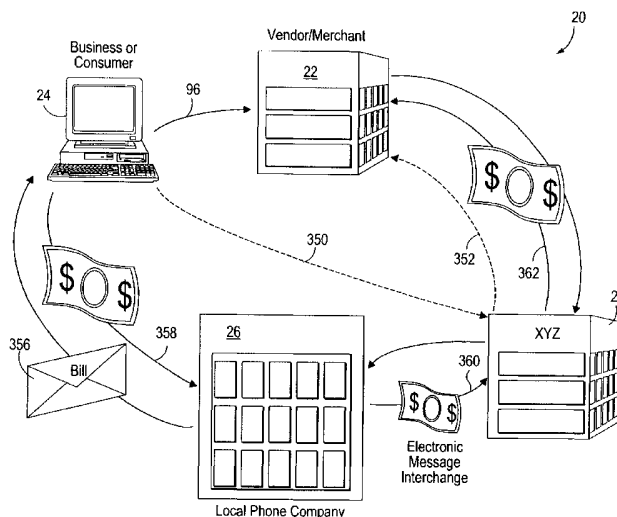
PCT

(10) International Publication Number
WO 03/025824 A1

- (51) International Patent Classification⁷: **G06F 17/60**
 - (21) International Application Number: PCT/US02/30077
 - (22) International Filing Date:
23 September 2002 (23.09.2002)
 - (25) Filing Language: English
 - (26) Publication Language: English
 - (30) Priority Data:
09/962,043 21 September 2001 (21.09.2001) US
 - (71) Applicant (for all designated States except US): **EBILLIT, INCORPORATED** [US/US]; 5883 Rue Ferrari, San Jose, CA 95138 (US).
 - (72) Inventors; and
 - (75) Inventors/Applicants (for US only): **TRUITT, Jennifer** [US/US]; 1321 Hoffman Lane, Campbell, CA 95008 (US). **PHILBIN, M. Brendan** [IE/US]; 1699 Via Campo Verde, San Jose, CA 95120 (US). **LYNAM, Joseph, M.** [US/US]; 13220 Peacock Court, Cupertino, CA 95014 (US). **DAWSON, Ken, R.** [CA/US]; 1691 Orvieto Court, Pleasanton, CA 94566 (US).
 - (74) Agent: **FAHMI, Tarek**; Blakely, Sokoloff, Taylor & Zafman LLP, 12400 Wilshire Boulevard, Seventh Floor, Los Angeles, CA 90025-1026 (US).
 - (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
 - (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**
— with international search report

[Continued on next page]

(54) Title: METHOD AND SYSTEM FOR PROCESSING A TRANSACTION



(57) Abstract: A method of, and system for, processing payment for a transaction is provided. The method includes providing a user with an option to select payment for the transaction from an account associated with a communication line via which an electronic terminal is connected to a communication network. The communication line is typically a subscriber line and, accordingly, the account is a telephone account associated with the subscriber line. When a user transacts with a vendor for goods and/or services, the user may request to process payment using the telephone account instead of using a credit or debit card. The method includes investigating data using the telephone number associated with the subscriber line and, selectively approving the transaction dependent upon an outcome of the investigation. The invention extends to a transaction processor interface and to a transaction validation module. The invention also extends to computer program products including the invention.

WO 03/025824 A1



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

METHOD AND SYSTEM FOR PROCESSING A TRANSACTION

FIELD OF THE INVENTION

The present invention relates generally to transaction processing and, more specifically, to processing a transaction between a vendor and a user via an electronic terminal connected by a communication line to a communication network. The invention extends to a method and system for validating a subscriber line.

BACKGROUND OF THE INVENTION

An increasing number of vendors are offering goods and/or services which may be purchased via a communication network such as a telecommunication network. For example, a purchaser may conduct a transaction via a subscriber line using a landline telephone or a personal computer via the Internet. Conventionally, credit or debit card details are furnished by the purchaser to the vendor to effect payment for the goods and/or services. As many purchasers are hesitant to supply credit or debit card details over a communication network, an alternate method of payment would be advantageous. However, if an alternate method is used, verification of the payment method should preferably take place prior to concluding the transaction.

SUMMARY OF THE INVENTION

In accordance with the invention, there is provided a method of processing payment for a transaction, the method including:

providing a user with an option, via an electronic terminal, to select payment for the transaction from an account associated with a communication line to which the electronic terminal is connected;

receiving a user request entered into the terminal to process payment from the account;

investigating data associated with the communication line; and selectively approving the transaction dependent upon an outcome of the investigation.

Further in accordance with the invention, there is provided a method of modifying a financial instrument record, the method including:

- receiving transaction data entered into an electronic terminal connected via a communication line to a communication network;
- obtaining a unique identifier associated with the communication line; and
- combining the unique identifier and the transaction data to form a financial instrument record.

Still further in accordance with the invention, there is provided a method of validating a transaction conducted using an electronic terminal connected via a subscriber line to an electronic network, the method including:

- receiving a financial instrument record associated with the transaction;
- extracting a unique identifier from the financial instrument record, the unique identifier being associated with the communication line; and
- interrogating at least one database based on the unique identifier to obtain data associated with the subscriber line and selectively generating a validation status.

The invention extends to a transaction processing system for processing a transaction between a vendor and an electronic terminal connected via a communication line to a communication network, the system including:

- an application interface for providing a user, via the electronic terminal, with an option to select payment for the transaction from an account associated with the communication line, and receiving a user request entered into the terminal to process payment from the account; and

- a modification module connected to the application interface, the modification module generating a record which includes a unique identifier associated with the communication line and communicating the record to a validation module which validates the transaction based on data associated with the unique identifier.

The invention also extends to a transaction processor interface for processing payment of a transaction, the interface including:

- an application interface for providing a user with an option, via an

electronic terminal, to select payment for the transaction from an account associated with a communication line to which the electronic terminal is connected, and for receiving a user request entered into the electronic terminal to process payment from the account; and

a modification module for creating a financial instrument record which includes a unique identifier associated with the communication line.

The invention extends further to a transaction validation module for validating a transaction conducted using an electronic terminal connected via a communication line to an electronic network, the module including:

an extraction module for extracting a unique identifier from a financial instrument record associated with a transaction, the unique identifier being associated with the communication line ; and

a processor module for interrogating at least one database based on the unique identifier to obtain data associated with the communication line and selectively generating a validation status.

Further in accordance with the invention, there is provided a computer program product including a medium readable by a processor, the medium carrying instructions which, when executed by the processor, cause the processor to:

provide a user with an option, via an electronic terminal, to select payment for a transaction from an account associated with a communication line to which the electronic terminal is connected;

receive a user request entered into the terminal to process payment from the account;

investigate data associated with the communication line; and

selectively approve the transaction dependent upon an outcome of the investigation.

Still further in accordance with the invention, there is provided a computer program product including a medium readable by a processor, the medium carrying instructions which, when executed by the processor, cause the processor to:

receive transaction data entered into an electronic terminal connected via a communication line to a communication network;

obtain a unique identifier associated with the communication line; and

combine the unique identifier and the transaction data to form a financial instrument record.

Still further in accordance with the invention, there is provided a computer program product including a medium readable by a processor, the medium carrying instructions which, when executed by the processor, cause the processor to:

receive a financial instrument record associated with a transaction conducted using an electronic terminal connected via a subscriber line connected to a communication network;

extract a unique identifier from the financial instrument record, the unique identifier being associated with the communication line; and

interrogate at least one database based on the unique identifier to obtain data associated with the unique identifier and selectively generate a validation status.

Still further in accordance with the invention, there is provided a method to provide validation data associated with a subscriber line of a telecommunication network, the method including:

obtaining line data of the subscriber line, the line data being suitable for interrogating a line identification database (LIDB);

interrogating the LIDB with the line data to obtain reference subscriber data associated with the line data; and

processing the reference subscriber data to obtain validation data associated with the subscriber line.

Still further in accordance with the invention, there is provided a subscriber line validation system for validating a subscriber line of a communication network, the system including:

a communication module for receiving line data of the subscriber line, the line data being suitable for interrogating a line identification database (LIDB);

an interrogation module for interrogating the LIDB with the line data to obtain reference subscriber data associated with the line data; and

a processor module for processing the reference subscriber data to obtain validation data associated with the subscriber line.

Further in accordance with the invention, there is provided a system to provide validation data associated with a subscriber line of a telecommunication network, the system including means for obtaining line data of the subscriber line, the line data being suitable for interrogating a line identification database (LIDB); means for interrogating the LIDB with the line data to obtain reference subscriber data associated with the line data; and means for processing the reference subscriber data to obtain validation data associated with the subscriber line.

Other features of the present invention will be apparent from the accompanying drawings and from the detailed description that follows.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is now described, by way of non-limiting example, with reference to the accompanying diagrammatic drawings.

In the drawings,

Figure 1 shows a schematic block diagram of a system, in accordance with the invention, for processing a transaction;

Figure 2 shows a schematic block diagram of a method used in the prior art to process a transaction electronically;

Figure 3 shows a schematic block diagram of a method, in accordance with the invention, for processing a transaction;

Figure 4 shows a schematic block diagram of a billing cycle used in the method of **Figure 3**;

Figure 5 shows a schematic block diagram of functional modules, also in accordance with the invention, used by a vendor;

Figure 6 shows a schematic block diagram of transaction validation and processing modules, also in accordance with the invention, used in the system;

Figure 7 shows a schematic representation of a client interface in the form of an electronic terminal used to conduct the transaction;

Figure 8 shows a schematic representation of a screen display or layout provided at the client interface;

Figure 9 shows a schematic representation of a further screen layout provided at the client interface;

Figure 10 shows a schematic representation of a screen display at the client interface for choosing a payment method;

Figure 11 shows a schematic representation of a screen display at the client interface for confirming a billing telephone number (BTN);

Figure 12 shows a schematic representation of a screen display at the client which is displayed whilst validation of the client telephone number takes place;

Figure 13 shows a schematic representation of a flow diagram illustrating the validation process;

Figure 14 shows a schematic flow diagram of a bill cycle transaction event;

Figure 15 shows a more detailed schematic block diagram of the transaction validation and processing modules of **Figure 6**;

Figure 16 shows a schematic representation of a sample telephone bill platform or account which the system automatically updates;

Figures 17-19 show schematic flow charts of the validation method or procedure carried out by the validation module of **Figures 6 and 15**; and

Figure 20 shows a diagrammatic representation of machine in the exemplary form of a computer system within which a set of instructions, for causing the machine to perform any one of the methodologies discussed herein, may be executed.

DETAILED DESCRIPTION

Referring to the drawings, reference numeral 20 general indicates a system for processing payment of a transaction. The system 20 includes a

merchant or vendor 22, a plurality of client interfaces in the form of electronic terminals 24 (only 1 of which is shown in the drawings), a plurality of telephone companies (Telcos) 26 (only 1 of which is shown in the drawings), and a transaction validation and processing facility 28 including a transaction validation and processing module 30 (see **Figure 6**), also in accordance to the invention. The vendor 22 includes a transaction processor interface defined by an application interface and modification module 32 (see **Figure 5**) and, as will be described in more detail below, the system 20 with its transaction validation and processing module 30 allows a user to purchase goods and/or services from the vendor 22 via the electronic terminal 24 in such a fashion so that charges for the transaction are included in a telephone account 34 (see **Figure 16**) of the user.

The system 20 is typically configured for use in an Internet environment in which a plurality of vendors 22 offer goods and/or services for sale on the Internet via the electronic terminals 24 which are typically personal computers (PCs). It is important to appreciate that the modules 30, 32 describe functional modules or capabilities which may be implemented by a variety of different hardware and software combinations.

Conventionally, and as shown in **Figure 2**, in order to procure payment for goods and/or services, a user or purchaser using the electronic terminal 24 enters financial card details, e.g., credit card, debit card, or any other financial instrument details, which are then communicated (see line 38 in **Figure 2**) to a vendor, as shown at 40, which then communicates with a credit card gateway 42. The credit card gateway 42 may then either accept or reject the transaction. However, many users are unwilling to submit financial card information to vendors, *inter alia*, for security reasons. Further, many users who have access to the Internet do not in fact possess financial cards (hereinafter referred to as credit cards) and are thus unable to transact via the Internet.

Referring in particular to **Figure 3** of the drawings, in one embodiment of the invention the system 20 receives transaction data 44 which is then formatted substantially to resemble a conventional credit card transaction 46 which is then converted or modified and payment for the transaction is included

in a telephone bill or account as shown at block 48. As will be described in more detail below, each particular transaction or billing event is not immediately included in the telephone account 34 at the Telco 26, but during a billing cycle (see **Figure 4**) which occurs periodically, e.g., daily, weekly, monthly or at any other interval. Accordingly, communications 50 take place during billing events between the transaction validation and processing facility 28 and the vendor 22 and a record of each transaction is kept at the facility 28 as shown by block 52 in **Figure 4**. The facility 28, with its transaction validation and processing module 30, in an automated fashion at the end of a billing cycle, processes the transactions into the relevant telephone accounts at the relevant Telcos 26 as shown at block 54.

Referring in particular to **Figure 5** of the drawings, the vendor 22 uses the application interface and modification module 32 to interface to the communication network, typically the Internet, so that the user may communicate with the vendor 22 via the electronic terminal 24. The module 32 includes an application interface (API) 56, a customer management system (CMS) 58, an automatic number identification (ANI) module 60, a modification module 62, and a communication module 64. The communication module 64 is configured to communicate with the transaction validation and processing module 30, which is typically located offsite. In use, the API 56 provides the electronic terminal 24 with a user interface whereby the user can purchase goods and/or services and this may be provided in a conventional fashion. Once the user has selected the goods and/or services he or she wishes to purchase, the API 56 communicates a display screen or form 66 to the electronic terminal 24 as shown in **Figure 8**. Typically, the API 56 requests the user to enter into the form 66 name, address, city, state, zip, day time phone number, evening phone number, or the like information. Typically, the evening phone number defines a billing telephone number (BTN) which is associated with the telephone account 34. Thereafter, the various terms and or conditions of the transaction are communicated to the user in the form of a display screen 68 as shown in **Figure 9**. The user is then compelled either to accept or decline the terms by activating buttons 70, 72

respectively, typically by means of a mouse or pointing device in a conventional fashion.

Once the user has accepted the terms, the API 56 then provides the user with a display screen 74 which allows the user to select various different methods of payment for the transaction. For example, the display screen 74 includes a "Visa" button 76, a "MasterCard" button 78, "American Express" button 80, and a "bank account" button 82. However, unlike conventional systems, the system 20 provides the user with a "phone bill" button 84 whereby the user can charge the transaction to the telephone account 34 (see **Figure 16**).

If the user selects the option to pay via the telephone account 34 by activating the "phone bill" button 84, the API 56 then provides the user with a screen display 86 (see **Figure 11**) which requests the user to confirm the BTN associated with the telephone account 34. The screen display 86 includes a "yes" button 88 for the user to confirm the telephone number which is shown at 90, and a "no" button 92 which is activated in the event of the telephone number being incorrect. If the telephone number shown at 90 is incorrect, the user then is prompted to re-enter a corrected telephone number. Once the user has activated the "yes" button 88, the API 56 then communicates a display screen 94 to the electronic terminal 24 to advise the user that he or she should wait while the request is authorized. It is to be appreciated however that the description above is merely an example of how a user may be provided with various interfaces to allow the user to select a mode or method of payment associated with the telephone account 34. Those skilled in the art will appreciate that user data may be obtained in a variety of different ways. For example, an application may be downloaded to the electronic terminal 24 which requests and obtains the relevant data from the user and which is then subsequently communicated to the vendor 22.

The BTN which the user enters into the form 66 should correspond with the subscriber line 96 (see **Figure 1**) via which the electronic terminal 24 is connected to the communication network. Accordingly, the ANI module 60

automatically identifies or determines the telephone number of the subscriber line 96 so that a comparison between the two can be made. The BTN thus defines a unique identifier associated with the communication line and with which the telephone account 34 corresponds.

The user's request, via the electronic terminal 24 and via the subscriber line 96 (which may be any communication line associated with the account 34), is then communicated to the CMS 58 which then formats the request to form a request record with information provided by the user via the electronic terminal 24 (see block 98 in **Figure 13**). As shown at decision step 100, the module 32 checks to determine whether or not a credit card number is present in the record and, if so, the record is communicated to a credit card gateway for processing in a conventional fashion and the procedure terminates as shown at step 102. This situation typically arises when the user has not selected the telephone account option by activating the "phone bill" button 84 but, instead, selected one of the other methods of payment, e.g., the "Visa" button 76, the "MasterCard" button 78, the "American Express" button 80, or the "bank account" button 82.

However, if the "phone bill" button 84 has been activated and a credit card number is not present in the record, the CMS 58, in combination with the modification module 62, modifies the credit card record to include the telephone number identified by the ANI module 60. Accordingly, the credit card or financial record communicated from the vendor 22 to the transaction validation and processing facility 28 substantially resembles a conventional or industry standard credit card record except that, instead of a credit card number, the telephone number associated with the subscriber line 96 is included (see step 104). In the embodiment of the invention in which the credit card number has been replaced with the telephone number, and as the record substantially resembles and industry standard credit card record, existing or conventional customer management systems may be used to process the transaction. Thus, the CMS 58 may be a conventional customer management system.

The application interface and modification module 32 of the vendor 22,

communicates the transaction record to the transaction validation and processing module 30 of the facility 28 via the communication module 64. The module 30 then receives the record as shown at step 106 whereafter it is processed. The transaction validation and processing module 30 (see **Figure 6**) includes a line number extraction module 108, a processor module 110, and an OBF exchange interface 112. It is important to appreciate that the application interface and modification module 32 and the transaction validation and processing module 30 may be defined by one or more servers which are programmed appropriately. Thus, the blocks or modules may represent functional components of software running on the server. Typically, each vendor 22 has a server programmed and configured to implement the application interface and modification module 32 and the vendors 22 are connected via a communications network to a central transaction processing and validation facility 28. Accordingly the servers at the facility 28 may receive validation and processing requests from a plurality of different offsite servers provided at different vendors 22.

The processor module 110 first checks, at step 114, if all the information required for validation has been furnished by the vendor 22 and, if not, the request is returned to vendor 22 as shown in step 116. If, however, all the information required by the module 30 is present in the record, the credit card record received is then parsed and the billing telephone number (BTN) is extracted from the credit card record and formatted into a validation request as shown at step 118. Thereafter, as described more detail in **Figures 13 and 14**, the module 30 performs various checks during which the subscriber line 96 is validated (see step 120). If the BTN progresses to a LIDB interrogation step (as described in more detail below with reference to steps 264 to 286 in **Figure 17**), the request is then reformatted into a LIDB request to obtain LIDB response information (see step 122). The LIDB database 124 (see **Figure 13**) is then interrogated and the LIDB response is received and parsed for relevant information whereafter it is reformatted into a BTN validation request as shown at step 126. Thereafter, and as described in more detail below with reference to

Figures 18 and 19, the processor module 110 performs further validation checks (see step 128 in **Figure 13** and steps 296 to 338 in **Figures 18 and 19**). Once the request has been investigated, the various databases have been interrogated, and the results retrieved therefrom processed, the processor module 110 then translates the validation response in to a credit card authorization response format, which is typically a conventional or industry standard format so that an industry standard or conventional CMS 58 can process the response. The response is then communicated from the facility 28 to the vendor 22 (see step 130). The CMS 58 then receives the reformatted response, updates purchase data, and creates an account for the user as shown in step 132. Thereafter, the API 56 communicates a display screen 134 to the electronic terminal 24 which thanks the user for ordering the good and/or services. Each transaction defines a billing event which is recorded at the vendor 22 and, together with other billing events, is communicated to the facility 28 at the end of a billing cycle (see block 136). Typically, this marks the end of the BTN validation procedure from the credit card authorization record translation as shown at block 138.

The method described above broadly translates a record requiring validation from an existing financial instrument form, e.g., a credit card form, to a form that is suitable to be validated based on a unique identifier associated with the subscriber line 96. Although the description above, and the more detailed description below, describe the translation from a credit card record to an appropriate record to validate a ANI/BTN, it is to be appreciated that any data associated with a financial instrument may be translated into a BTN format and, in response to validation of the BTN, the transaction may be processed. Further, the validation of the BTN may take place one or more times during the life cycle of a transaction. For example, the validation process may be executed when the user or customer request the transaction to be included in the telephone account 34 as described above and, when the facility 28 receives a plurality of billing events or transactions at the end of a bill cycle, the facility 28 may once again validate the transaction.

In certain embodiments, the user or purchaser drives an authorization event in order to establish whether or not the transaction can be billed to the telephone account 34. In this case, the Billing Telephone Number (BTN) defines the credit instrument requiring authorization for billing. The CMS 58 may then drive the request to the facility 28 in the same format as it would to a Credit Card Authorization System. An example of the conversion of a credit card billing request to a BTN validation record is described in more detail below.

1. Credit Card Authorization Request to Billing Telephone Number Validation Request

Credit Card Authorization Request Record			
99m999999123456.....	2022269329	Ebillittestregistration	12345 Main Street apt 12
Any City	CA9505107892	202226932930155919920002695	

Billing Telephone Number Validation Request Record	
99m9999999999999999	202226932912345Main StreetCA 9505107892022269329

Credit Card Authorization Record			Billing Telephone Number Validation Record		
Position	Field	Example	Positon	Field	Example
1-15	Tracking ID	99m999999123456	1-15	Tracking ID	99m999999123456
16-35	CREDIT #	2022269329	16-25	ANI*	2022269329
36-65	NAME	Ebillittestregistration			
66-105	ADDRESS1	12345 Main Street	26-56	ADDRESS1	12345 Main Street
106-125	ADDRESS2	Apt 12			
126-155	CITY	Any City			
156-157	STATE	CA	57-58	STATE	CA
158-163	ZIP	95051	59-63	ZIP	95051
164-168	Zip + 4	0789	64-67	Zip + 4	0789
169-178	BTN	2022269329	68-77	BTN	2022269329

179-188	EVENING #	3015591992			
189-195	AMOUNT	0002695			

2. Billing Telephone Number Validation to a LIDB Request Record

If the Phone number passes a series of validation checks, it will then be checked against the LIDB database. In order to do that, the record must be translated in to a format specific for the LIDB process.

Billing Telephone Number Validation Request Record
99m999999123456202226932912345Main StreetCA 9505107892022269329

LIDB Request Record
DR110033333330200021234561010914132401;;102022269329

Billing Telephone Number Validation Record			LIDB Request Record		
Positon	Field	Field	Positon	Field	Example
1-15	Tracking ID	99m999999123456	1-2	MESSAGE ID	DR
16-25	ANI*	2022269329	3-6	FIELD BIT MAP	1100
			7-14	CUST ID	3333333 3
26-56	ADDRESS1	12345 Main Street	15-18	MESSAGE TYPE	0200
			19-20	TRANS TYPE	02
			21-26	SEQ #	123456
57-58	STATE	CA	27-27	DATA INDICATOR	1
59-63	ZIP	95051	28-33	DATE	010914
64-67	Zip + 4	0789	34-39	TIME	132401
68-77	BTN	2022269329	40-42	END OF HEADER	::
			43-45	ACCT # LENGTH	10
			46-55	ACCT #	2022269 329

3. LIDB Response Record to a BTN Validation Record

Once the information is received from LIDB, the record must be translated back into a format that the Phone Number Validation System can read

so the process can continue with additional checks to the phone number.

LIDB Response Record
DR021033333330200021234561010914132416;;20222693292019417998

Billing Telephone Number Validation Request Record
99m999999123456202226932912345Main StreetCA 95051078920222693292019417998

LIDB Response Record			Billing Telephone Number Validation Record		
Positon	Field	Example	Positon	Field	Example
1-2	MESSAGE ID	DR	1-15	Tracking ID	99m999999123456
3-6	FIELD BIT MAP	0210	16-25	ANI*	2022269329
7-14	CUST ID	33333333			
15-18	MESSAGE TYPE	0200	26-56	ADDRESS1	12345 Main Street
19-20	TRANS TYPE	02			
21-26	SEQ #	123456			
27-27	DATA INDICATOR	1	57-58	STATE	CA
28-33	DATE	010914	59-63	ZIP	95051
34-39	TIME	132416	64-67	Zip + 4	0789
40-42	END OF HEADER	::	68-77	BTN	2022269392
43-52	ACCT #	2022269329			
53-55	RESPONSE CDOE	201	78-80	RESPONSE CDOE	201
56-59	PHONE COMPANY #	9417	81-84	PHONE COMPANY #	9417
60-62	PHONE COMPANY #	998	85-87	PHONE COMPANY #	998

4. BTN Validation Response Record to a Credit Card Authorization Response Record

At the conclusion of the Phone Number Validation Process, the results must be sent back to the CM System so the results can be returned to the purchaser and updated in the CM System. The BTN Validation response must

be converted to a format that the CM can interpret. The BTN Validation Response Record is translated to the Credit Card Authorization Response Record for this phase of the purchase.

Billing Telephone Number Validation Response Record
99m9999991234562022269329180201N2Y5552269329YY

Credit Card Authorization Response Record
99m999999123456.....2022269329201N25552269329YY

Billing Telephone Number Validation Record			Credit Card Authorization Record		
Positon	Field	Example	Positon	Field	Example
1-15	Tracking ID	99m999999123456	1-15	Tracking ID	99m999999123456
16-25	BTN	2022269329	16-35	CREDIT #	2022269329
26-28	BTN VAL RESPONSE CODE	180	36-41	RESPONSE CODE	201N2
28-32	CC RESPONSE CODE	201N2	42-51	NEW PHONE #	5552269329
35-35	AREA CODE CHANGE	Y	52-52	BUSINESS LINE	Y
36-45	NEW PHONE #	5552269329	53-53	ACCT < 90 DAYS	Y
46-46	BUSINESS LINE	Y			
47-47	ACCT < 90 DAYS	Y			

Referring in particular to **Figure 14** of the drawings, at the end of a bill cycle during which a plurality of transactions or billing events or transactions have been recorded by the CMS 58, the CMS 58 communicates a billing transaction file in a credit card bill event format to the facility 28 (see step 140 in **Figure 14**). Each event in the transaction file includes an indicator to indicate that the event is a phone billing transaction for inclusion in the telephone account

34. The module 30 of the facility 28 then receives the billing request file as shown at step 142, whereafter the request file is parsed, as shown at step 144, and the processor module 110 checks to see whether or not all the required information is present in the file (see step 146). If not, a code is appended to the record as shown at step 148. If all the information is present in the file, the process then proceeds to step 150 where the credit card authorization to BTN validation steps 118-130, as described above, are executed. Once the validation procedure has been completed, the BTN billing response is formatted into a industry standard credit card billing response with a response code appended to the end of each record and, the records are then returned to the CMS 58 (see step 152).

At the same time, transactions or billing events which have been validated as billable and thus capable of being included in the relevant telephone account 34, are translated into an electronic message interface (EMI) format appropriate for the Telco with which the telephone account 34 is associated (see step 154). The EMI formatted file is then transferred to the Telco for billing as shown in step 156 whereafter the Telco call places each billing event on telephone account 34 associated with the subscriber line 96. Typically, the Telco returns any records that can not be billed to the telephone account 34 or that have already been billed and credited, or written off because of non payment to the facility 28 as shown at step 160. The records received by the facility 28 are in the EMI format and the facility 28 translates the record to a credit card return record including a reason code appended to the record, as shown at step 162, whereafter record is returned to the CMS 58 at the vendor 22.

An example of the billing event record conversion in which a credit card billing request is translated into a BTN billing request is set out below.

1. Credit Card Billing Request to a BTN Billing Request

Once the purchase event has been slotted for billing, it enters the billing stream for that bill cycle. In certain embodiments, daily bill cycle records

are sent to the appropriate processors. As described above, the transaction validation and processing module 30 may receive the record in the same format required by a conventional credit card processing facility.

In certain embodiments, the first step in the bill cycle is to re-validate the billable status of the BTN. This is done by following the same steps in the BTN Validation process set out above. The first step is to convert the record to a BTN Validation event record.

Credit Card Billing Request Record	
S749499M4N0000107252E100BP2623775174 0000 0004500	
ABPAT*MOORE	H2624444444
A2888 NW 87 th REGENCY CIRCLE	D2623775174
A3CEADARBURG, WI 53012-0505	

Billing Telephone Number Validation Request Record
749499M4N0000107252E10020222693290004500888WI531020505B

Credit Card Authorization Record			Billing Telephone Number Validation Record		
Position	Field	Example	Position	Field	Example
1-1	Bill Event	S	1-15	Tracking ID	749499M4N0000107252 E100
2-7	Merchant ID	749499	16-25	BTN	2623775174
8	YEARS IN BUSINESS	M (13 th year)	26-33	AMOUNT	0004500
9-10	MONTH, DAY	4N (April 14 th)	34-43	ADDRESS1	888.....
11-20	ACCT #	00001072 52	44-45	STATE	WI
21-24		E100	46-50	ZIP	53102
25-25	RECORD TYPE	B	51-54	ZIP +4	0505
26-26	BILL TYPE	P	55-55	RECORD TYPE	B
27-46	BTN	26237751 74			

47-54	AMOUNT	00000450 0			
-------	--------	---------------	--	--	--

1-2	ACCT INFO	AB			
3-32	NAME	PAT MOORE			
33-43	HOME #	H2624444444			
44-45	ADDRESS INDICATOR	A2			
46-65	STREET	888 NW 87 th REGENCY CIRCLE			
66-76	DAYTIME #	D2623775174			
77-78	ADDRESS3	A3			
79-108	CITY, STATE, ZIP	CEADARBURG, WI 53012 0505			

2. Phone Bill Billing Record to Credit Card Billing Response Record

At the conclusion of the revalidation during the billing process, a different response record may be written to a file. That record is typically in a format according to the Credit Card Billing Response format.

Billing Telephone Number Billing Validation Response Record
749499M4N0000107252E1002623775174180201N2N0000000000NN0004500B

Credit Card Billing Response Record
S749499M4N0000107252E100BP2623775174201N2N0000000000NN

BTN Billing Validation Response Record			Credit Card Billing Response Record		
Positon	Field	Example	Positon	Field	Example
1-15	Tracking ID	749499M4N0000107252E100	1-1	BILLING EVENT	S
16-25	BTN	2623775174	2-24	Tracking ID	749499M 4N00001 07252E1 00
26-28	BTN VAL	180	25-34	BTN	2623775

	CODE				
34-34	AREA CODE CHANGE	N	24-34	Zero fill	0000000 00000
35-44	NEW PHONE #	0000000000	35-38	SUBCIC #	7364
45-45	BUSINESS LINE	N	39-44	AMT	004500
46-46	ACCT < 90 DAYS	N	45-81	Zero fill	000...00
47-53	AMOUNT	0004500	82-85	OCN	9102
54-54	RECORD TYPE	B	86-100	Zero fill	0000000 0000000 0
			101-103	CIC #	903
			104-112	Zero fill	00..000
			113-122	BTN	2623775 174
			123-175	Zero fill	000...00 0

4. Negative Billing Event Records to Credit Card Negative Event Records

These BTN Billing Records are deposited at a Telephone Company for processing on to the bill page. If a charge is unable to be placed on the bill page, the event must be converted in to the Credit Card Negative Billing Event format for processing. In addition, any other negative information, such as a credit of a charge or the write-off of bad debt, must be converted to the appropriate Credit Card formats for processing by the CM. Thus, if inclusion into the telephone account 34 fails for some reason, the transaction then gets charged to the financial instrument or credit card and an industry standard credit card record is created by the module 30.

The CMS 58 typically knows how to handle the negative event by the file name that contains the records and the response code within the returned records. The file name and response codes are in the industry standard credit

card processing convention.

Phone Company Return Record
4250010114000000000074420000000000073640045000000000000000000000000000000000000MOO 00000000910214100000000000090300000002623775174000....000

Credit Card Negative Event Record
S749499M4N0000107252E1002623775174201091501

Phone Company Deposit Record			Credit Card Chargeback Record		
Positon	Field	Example	Positon	Field	Example
1-6	RECORD TYPE	425001	1-1	BILLING EVENT	S
7-11	DATE	101400	2-24	Tracking ID	749499M4N000 0107252E100
12-19	Zero fill	00000000	25-34	BTN	2623775174
20-23	PROCESSOR #	7442	35-37	RESPONSE CODE	201
24-34	Zero fill	000000000000	38-43	RETURN DATE	091501
35-38	SUBCIC #	7364			
39-44	AMT	004500			
45-69	Zero fill	000...00			
70-71	REASON CODE	MO			
72-81	Zero fill	000.000			
82-85	OCN	9102			
86-89	NEW OCN	1410			
90-100	Zero fill	000...000			
101-103	CIC #	903			
104-112	Zero fill	00..000			
113-122	BTN	2623775174			
123-175	Zero fill	000...000			

As mentioned above, the transaction validation and processing module 30 carries out a validation process on the telephone number associated

with subscriber line 96 (see **Figure 15**) and periodically processes transactions directly into subscriber telephone accounts 34.

Referring in particular to **Figure 15** of the drawings, reference numeral 200 generally indicates a more detailed schematic block diagram of an embodiment of the module 30. In the module 200, the line number extraction module 108 and the OBF exchange interface 112 are integrated into the processor module 110 which is in the form of a server.

The module 200 includes an application program interface (API) 214 which is connected to the vendor 22 or service provider (see also **Figure 5**) of goods and/or services which require validation of a subscriber account. The vendor 22, which could for example be an Internet Service Provider, may request the validation of the subscriber line 96 prior to concluding an electronic transaction with a subscriber via the subscriber line 96. It is, however, to be appreciated that the API 214 may be connected to a variety of different hosts or clients which require validation of a subscriber line 96 via which the vendor 22 may carry out transactions for goods and/or services.

The vendor 22 typically communicates a request to the module 200 and forwards the subscriber line number, determined by the ANI service, to the module 200 via its API 214. The module 200 then processes the information received from the vendor 22 and provides a validation status, e.g. a code indicating a valid billable number or a code indicating that the line number is not a valid billable number (unbillable or non-billable). In particular, a plurality of codes associated with various statuses of the subscriber line 96 are communicated to the vendor 22 as described in more detail below.

The module 200 includes hardware and software to implement the invention. In particular, the module 200 includes a comparator module 218, a threshold database 220, an OFFNET database 222, an ONNET database 224, a competitive local exchange carrier (CLEC) database 226, a 42 BLOCK database 228, a block and cancel database 230, an unbilled and/or unpaid bills database 232, line identification database (LIDB) short term cache 234, a validity check module 236, a regional account office (RAO) database 238, an operating

company number (OCN) database 240, an ONNET database 242, an address verification database 244, customer account record exchange (CARE) results database 246, an ANI watch database 248, and an NPA (Numbering Plan Area) exchange database 250. It is to be appreciated that, in less sophisticated embodiments of the invention, all of the above databases need not be included. However, for enhanced accuracy, all of the above databases are preferably included. Further databases may also be included further to increase the reliability of the validation process.

In addition to any one or more of the above databases, in one embodiment the module 200 is in communication via a conventional communication channel with an offsite or, in some embodiments, on-site line identification database (LIDB) host 252. The LIDB host may include a line number portability (LNP) database. Typically, the LNP database may front end access to a plurality of industry standard LIDBs (e.g. 13 different LIDBs). The LNP database may however be a separate database. In certain embodiments, the line identification database host 252 is an on-site database which is built using line identification data from, for example, a plurality of telephone companies.

As described in more detail below, the module 200 communicates the subscriber line number to the LIDB host 252 which, in turn, communicates reference subscriber data in the form of industry standard LIDB codes back to the module 200 for processing. The module 200 then processes the LIDB codes to provide the vendor 22 with validation data relating to the subscriber line 96. Unlike conventional LIDB applications which use a LIDB to make decisions regarding destination subscriber lines or call completion decisions, e.g. decisions for calling cards, collect and third party toll services or the like, the module 200 is used to identify telephone numbers of originating subscriber lines.

Broadly, the module 200 includes a communication module formed by the application program interface (API) 214 which communicates with the communication module 64 (see **Figure 5**) of the vendor 22, a processor module 110 which includes the various databases 220 to 232 as well as the comparator

module 218 and the validity check module 236, and an interrogation module 256 for interrogating the LIDB host 252. It is to be appreciated that the modules may be defined by one or more servers with associated databases. Further, in the example illustrated, the LIDB host 252 is shown as a single database but may comprise many different LIDB databases maintained by various LECs and, accordingly, may be located at various different geographic locations.

Referring in particular to **Figures 16 to 19** of the drawings, various sections of a flow chart describing the method of operation of the module 200 are shown. As described above, the vendor 22 initiates a request to the module 200 to validate a transaction to be included in the account 34 associated with the subscriber line 96. As shown at step 260, the module 200 first checks to see if the BTN number is present in the request from the vendor 22 and, if no number is present, a return code 121 is generated and communicated to the vendor as shown at step 262. The code 121 indicates to the vendor 22 that the module 200 is unable to process the request. If, however, the number is present in the request from the vendor 22, the module 200 then checks if the line number captured (hereinafter also referred to as the ANI) by the ANI module 60, and the BTN entered on the form 66 (see **Figure 8**) match, as shown at step 264 (see also the comparator module 218 in **Figure 15**). If, however, the ANI and the BTN do not match, then the processor module 110 generates a code 120 (see step 66) to indicate that the caller and the owner of the line number are not the same person (e.g. the user enters his or her BTN in the form 66 and uses an electronic terminal connected to a different subscriber line and is thus calling from a different ANI) and the relevant modified code is then returned to the vendor 22.

If the ANI and the BTN do match, the processor module 110 interrogates the threshold database 220 (see step 268) to ascertain whether or not the line number has reached its threshold (e.g., a predefined client threshold parameter such as an account threshold). If the line number has reached its threshold, the processor module 110 then generates a code 60, as shown at step 270, which is then communicated to the vendor 22 to indicate that the line number may not be granted service. In other words, the subscriber account

cannot be billed for the goods and/or services requested by the user from the vendor 22.

If the threshold has not been reached, the module 200 then interrogates its OFFNET database 22 (see step 271) to check if the industry standard NPA/NXX and operating company number (OCN) of the subscriber line 96 is present in the OFFNET database 22. The OFFNET database 22 includes NPA /NXX and OCN combinations of operating companies with which the proprietor or user of the module 200 does not have billing and collections agreements to bill into the Telco's bill page associated with the subscriber line 96. Accordingly, the facility 20 is unable to include a charge in the account associated with the subscriber line 96 on behalf of the vendor 22 for the transaction.

If the line number is in the OFFNET database 222, then the processor module 110 generates codes 130 to 133 (see step 272) and communicates these codes to the vendor 22. The codes 130 to 133 indicate that the NPA/NXX and OCN for the particular line number 96 are not billable and, accordingly, charges for goods and/or services requested by the user cannot be included in the monthly telephone account 34 by the module 200. As shown in Table 2 below, the codes 130 to 133 provide an indication to the vendor 22 why the subscriber line 96 is not billable or deliverable. If the subscriber line number is not included in the OFFNET database 222, a check is conducted to see whether or not the subscriber line number is included in the ONNET database 224. This check is however optional in the embodiment depicted in the drawings, but may be mandatory if the module 200 does not include the OFFNET database 222.

Thereafter, as shown in step 278, the processor module 110 checks to see if the line number is found in a known CLEC table in the CLEC database 226. CLEC numbers are those line numbers that are known to have ported to a CLEC and, accordingly, the proprietor of the module 200 is thus unable to route these line numbers to the correct billing entities. If the line number is found in the CLEC database 226, then the processor module 110 generates a code 140 (see step 276) which is communicated to the vendor 22. The code 140 indicates

that the BTN provided by the user is not billable for the CLEC and the module 200 can thus not charge the transaction to the subscriber account associated with the subscriber line 96.

If the line number is not found in the CLEC database 226, then the module 200 checks to see if the subscriber of the subscriber line 96 has requested a 4250 billing block as shown at step 278. In particular, the processor module 110 interrogates the 42 BLOCK database 228 and, if the number is located in the database 228, which indicates that monthly recurring charges (4250) charges are prevented from being billed to that line number, the processor module 110 generates a code 150 (see step 280) which is communicated to the vendor 22 to indicate that billing to the particular subscriber line 96 has been blocked.

If, however, the subscriber line 96 has not been blocked, the module 200 then checks at step 282 if the line number is located in the block and cancel database 230 and, if so, the processor module 110 generates codes 160 and 161 which are then communicated to the vendor as shown at step 284. The block and cancel database 230 includes requests from owners of subscriber lines, agencies, businesses, or the like that a service be canceled or blocked from further billing. Thereafter, the module 200 interrogates the unbilled and/or unpaid bills database 232, as shown at step 286, to check if there is a history of any unpaid bills and/or unbillable bills associated with the subscriber line 96. Unbillable bills relate to those subscriber line numbers where previous attempts have been made to bill charges to the subscriber account associated with the line number, and which have been returned as unbillable. If the processor module 110 locates the line number in the unbillable and/or unpaid bills database 232 then, as shown at step 288, a code 170 is generated and communicated to the vendor 22 to indicate that the line number was previously found to be unbillable and is still considered to be unbillable.

The processing described above conducts a preliminary investigation into the subscriber line number or ANI/BTN to provide an initial indication of whether or not the ANI/BTN corresponds with a billable subscriber line. Once

the initial investigation has been conducted, the module 200 then uses the ANI to obtain reference subscriber line data in the form of LIDB codes from one or more industry standard databases in the form of the LIDB host or database 252. Examples of the LIDB codes used in the module 200 are shown in Table 3 below.

As shown at step 290, if the ANI is not found in the LIDB database 252, the module 200 cannot provide any validation data to the vendor 22 on this subscriber line and an appropriate code is then communicated to the vendor 22 as shown at block 292.

Once the LIDB database or host 252 has been interrogated, it returns industry standard LIDB codes and line number portability (LNP) data to the module 200 as shown in step 294 (see **Figure 18**). The LIDB codes are then mapped or translated by the processor module 110 into modified validation codes (see Table 3) which provide relevant validation information to the vendor 22. As can be seen from Table 3, the same modified validation code can be generated from a plurality of different LIDB codes. Once the LIDB information codes have been returned to the processor module 110, the LIDB codes, including OCN and RAO response codes, are fed into the validity check module 236 (see **Figure 15**) as shown at step 96.

As mentioned above, the LIDB host 252 may also provide LNP data to the module 200. The LNP data is used to identify subscriber line numbers that have ported to a CLEC. If a subscriber line has been ported to a CLEC, the billing ONNET status of the CLEC is verified in the CLEC database 226. The LNP identifies the facilities based CLECs which are CLECs that have been assigned all the line numbers for an NPA/NXX in a specific geographic territory. This type of CLEC would be in control of the cable, dial tone and billing envelope for that number. Typically, the LNP cannot be used to identify CLEC sellers which have resold the subscriber line under their brand, but still lease the cable and tone from an incumbent local exchange carrier (ILEC). Accordingly the facility 28 may be unable to process transaction data onto a bill page or telephone account 34 of the CLEC reseller bill page. In order to identify reseller

CLECs, the module 200 compares RAO and OCN information, returned from the LIDB host 252, to data in the ONNET database 224. The OCN is the local Telco that owns the subscriber line number and the RAO is the office of the Telco that is responsible from a billing standpoint for the subscriber line number.

If the validity check module 236 determines that the response codes are invalid, the module 200 generates modified codes 180 to 999 (see step 298 and Table 2) which are communicated to the requestor or vendor 22 to indicate that the mapping of the LIDB codes to the modified codes concluded that the line is an unbillable subscriber line.

If the validity check module 236 confirms the validity of the LIDB codes and, in the event of the line number being a billable line number, the processor module 110 then checks the RAO database 238 to ascertain whether or not the RAO is billable, as shown at step 300. If the RAO is not billable, then the processor module 110 generates and communicates a return code 143 (see step 302) to indicate to the vendor 22 that the line number belongs to a CLEC which is not billable by the module 200.

In a similar fashion, at step 304 the processor module 110 checks to see if the OCN returned from the LIDB host 252 corresponds with a known CLEC or if the OCN corresponds with an OFFNET OCN and is therefore also unbillable. If the line number corresponds to an OCN that is not billable, a return code 142 is generated by the processor module 110 and communicated to the vendor 22 (see step 306).

If the subscriber line number has passed the RAO and OCN checks and, accordingly, it appears that the number is billable, the processor module 110 then checks to see if a new NPA /NXX and OCN combination for this line number is guidable to the correct local Telco for billing (see step 308). If the line number is not guidable, then the module 200 generates a code 141 at step 310 which is communicated to the vendor 22 to indicate that, even though the line number is billable, the facility 28 is unable to guide the billing information to the new Telco for billing. Accordingly, the telephone number is in fact non-billable insofar as the facility 28 is concerned and a decline status is therefore

communicated to the vendor 22.

The abovementioned steps are carried out to ascertain whether or not the subscriber line 96 can be billed for the goods and/or services requested. However, to enhance the accuracy or reliability of the module 200, further checks or verification are conducted as described below.

In the event that the subscriber line number has passed or complied with the abovementioned checks, and has thus not yet been rejected, the module 200 performs address verification procedures at step 312. The module 200 then interrogates an address verification database 244 to compare the address or location data (e.g. a ZIP code) supplied by the user via the form 66 (see **Figure 8**) with reference address data as shown at step 312. If, however, the address supplied by the user does not match with the address in the verification database 244 or, the addresses are not within a predefined range or area, the processor module 110, as shown at step 314, generates codes 10 to 39 which are then communicated to the vendor 22 to indicate the level of likelihood that the caller (ANI) and the account owner are the same person.

During the address verification step 312, the module 200 interrogates a customer account record exchange (CARE) database (which can be an on-site database which is regularly updated), to provide enhanced reliability. In particular, the CARE database or information site is typically one or more industry standard offsite databases which allow consumers to select or change their long distance service provider. Local Telcos forward specific customer information to the LEC associated with the subscriber. The information communicated typically includes a new phone number, billing address, installation date, the person or organization responsible for the account, or the like.

As shown at step 316, the module 200 interrogates the CARE database or information site and CARE data is then loaded into CLEC and new line databases to perform certain fraud and billing checks. The CARE information investigation occurs after a successful validation event. Once the module 200 has validated the subscriber line 96, the subscriber line number data

is sent to a CARE database provider hosting the CARE database 246 to obtain the BNA and age of the account. The information is typically returned within 48 hours and then processed. Care records that are returned without BNA and CLEC ACCOUNT codes are inserted into the CLEC database 226 for future reference. Accordingly, if the BTN is presented again at a later date, it will fail the CLEC check step (see step 274 in **Figure 17**).

The ANI watch database 248, which includes historical and adjusted information, is used by the module 200 to determine if the account has previously been adjusted (see step 316). Typically, this step includes ascertaining previous requests by the subscriber for credit, obtaining data on any written off amounts for charges that were billed to a bill page, or the like.

If adjustments have previously been made to the account associated with the subscriber line 96, the processor module 110 generates codes 1 to 5 (see step 318) to indicate to the vendor 22 that the adjustments have been made. If no adjustments have been made, the processor module 110 checks to see whether or not the line number has a business line indicator as shown at step 320. If the business line indicator is active, the module 200 generates a code 70 (see step 322) which is communicated to the vendor 22 to advise that the line is a business line. Thereafter, as shown in step 324, the processor module 110 checks to see if the subscriber line number has been in service for less than about 90 days and, if so, a return code 80 (see step 326) is generated to advise the vendor 22 who may then selectively decide whether or not to conclude the transaction. A database of new numbers may be updated with the new number.

Thereafter, the module 200 interrogates the ANI watch database 248 (see step 328) to ascertain whether or not the area code of the line number has been changed or is scheduled to change. This interrogation is typically for billing purposes only and is not used to decide upon the validity of the request. In this step, the vendor 22 requesting the validation typically updates the billing file with the new area code number, and the processor module 110 generates a code 110 (see step 330) to advise the vendor 22 of the scheduled change to the area

code.

Once the line number has passed all the aforementioned checks, the module 200 then concludes that the subscriber line 96 obtained using ANI techniques is in fact a billable line and, accordingly, the transaction may be charged directly to the account of the subscriber. Accordingly, the module 200 then generates a code 000 (see step 334) which is communicated to the vendor 22. The code 000 defines an approved status following both a billable line number inquiry as well as several fraud checks which are carried out by the fraud control module 332. If the line number has passed the abovementioned checks and the return code 000 is generated, the process terminates at block step 336. Thus, step 336 defines the end of the process during which the various checks have been conducted on the subscriber line 96 to assess whether or not it is a billable subscriber line that charges may be billed to. Step 338 defines the last step to which the process jumps when, at any point during the abovementioned process, the line number is found not to be billable (e.g., a creditworthy decision was requested by the vendor 22) and the inquiry is accordingly terminated and the relevant code is communicated to the vendor 22.

The abovementioned steps are typically executed in real time. However, information sources that do not allow checks on the line number in real time may be carried out subsequently on the line number. Typically, once the real time evaluation is carried out and the return code 000 is communicated to the vendor, and the vendor 22 decide to proceed with the transaction, transaction data is then periodically returned to the module 200 by the vendor 22 for a pre-billing validation check or actual billing. During actual billing the module 200 accesses an account folder of the subscriber line at the Telco 26 and inserts the charges due to the vendor 22 into the telephone account 34. As shown at step 340, line numbers are sent to the CARE database 246 to determine if the BNA is available at the local Telco 26. If the folder or telephone account 34 is not available, the local Telco 26 typically sends the BNA and codes as to why the number is unavailable to the facility 28. If the BNA is found in the CARE database 246, the processor module 110 then checks to see whether or not the

account was created within the last 90 days as shown at step 342. If the account was not created within the last 90 days, then the business indicator is checked as shown at step 344 and the process ends as previously shown at step 346. If, however, the number was found in the CARE database 246, the account was created within the last 90 days, or has an active business indicator then the module 200 generates the appropriate codes which are communicated to vendor 22 and the process terminates as shown at step 348.

The above process has been described in terms of modified codes set out in Table 2 but, it is to be appreciated, that the mapping or translation of the LIDB codes may produce any other defined set of corresponding codes so long as the codes are mapped onto, or generated in response to, any one or more of the industry standard LIDB codes.

A summary of the codes generated by the module 200 during execution of the validation process is provided in Table 1 below.

Table 1

Modified codes generated during the BTN Validation Process.	
Code Generated and ref to flow charts	Description of code
Return Code 121	Indicates inability to proceed with validation; returned to requestor
See step 264	Checks if ANI captured and BTN provided match (not required in all scenarios)
Return Code 120	Indicates caller and # (line number) owner are not the same person; returned to requestor
See step 268	A defined Threshold limits the number of attempts on that # within a certain timeframe

Return Code 60	Indicates # may not be granted service; returned to requestor.
See step 271	Checks the NPA/NXX and OCN to those in the OFFNET. OFFNET = NPA/NXX and OCN combinations where proprietor of the module 200 does not have a Billing and Collections agreement to bill into the Telco's' bill page.
Return Code 130-133	Indicates that NPA/NXX & OCN for that Number are not billable; returned to requestor
See step 274	Checks the line number to see if found in known CLEC table. These are numbers that are known to have ported to a CLEC. Proprietor is unable to route these # to the correct billing entities.
Return code 140	Indicates # not billable for CLEC; returned to requestor.
See step 278	Checks line # to see if owner has requested a 4250 Billing block. This block prevents monthly recurring (4250) charges from being billed to that line #.
Return Code 150	Indicates that requested a block of billing; returned to requestor.
See step 282	Checks line number for inclusion in the Block and Cancel database. This database includes requests from line # owners, agencies, businesses etc that have requested that service be cancelled and or blocked from further billing.
Return Code 160-161	Indicates number found in Block and Cancel and is not billable; returned to requestor.
See step 286	Checks line # for unbillable history. Unbillables are #s where tried to bill charges previously and have been returned as unbillable.
Return Code 960	Indicates # has unbilled before and is still considered unbillable; returned to requestor.

See step 290	If # not found in Unbillable, then routed to LIDB for info.
--------------	---

ITEM	Description
See step 294	Identifies info returned from LIDB re. that line #; Response Code = status about that # as a call termination point. OCN = Operating Company # = the local Telco that owns that #. RAO = Regional Accounting Office = the office of the Telco that is responsible from a \$ flow standpoint for that #.
See step 296	Checks the validity of the LIDB code returned for the number as a Billable #. This is where the mapping of the LIDB codes to the proprietor validation codes happens.
Return Code 180-999	Indicates the mappings of the LIDB codes to the proprietor Val reply codes. Each of these indicate a non-billable #; returned to requestor.
See step 300	Checks if RAO returned is an RAO that is not billable.
Return Code 143	Indicates that the # belongs to a CLEC and is unbillable; returned to requestor.
See step 304	Checks if OCN returned from LIDB is a known CLEC or OFFNET OCN and therefore unbillable.
Return code 142	Indicates that the new OCN is not billable; returned to requestor.
See step 308	Checks to see if new NPA/NXX & OCN combination for # is guidable to the correct local Telco for billing.
Return code 141	Indicates that even though the # is billable, eBillit is unable to guide to the new Telco for billing; unguidable = unbillable; # returned to requestor.
The steps to indicate if # is billable have been completed.	

The next steps provide additional information about the # for the requestor e.g. to decide if and how much credit to extend for services. They also provide additional billing information.

ITEM	Description
See step 312	Provides address verification (if required). Matches # to address to determine likelihood of person dialing to the person that owns the acct at local Telco.
Return Code 10-39	Indicates the level likelihood that the caller (ANI) and acct owner are the same. Returned to requestor.
See step 316	Checks to see if # has had adjustment activity previously. This includes request for credit, written off for charges that billed to a bill page. Requestor makes credit decision based on #'s history of credits, adjustments, write offs.
Return Code 1-5	Indicates the type and source of adjustment to charges to that #. Returned to requestor.
See step 320	Checks to see if the # has a business line indicator. Requestor decides if would like to extend service or not.
Return Code 70	Indicates that the # is identified as a business.
See step 324	Checks to see if the # has been in service less than 90 days. Requestor makes a decision about how much service to offer # without much payment history.
Return Code 80	Indicates that the # has been in service less than 90 days.
See step 328	Checks if the Area Code of the # has been scheduled to change. This is for billing information purposes only. Requestor updates billing filed with new number.
Return Code 110	Indicates Area Code has been scheduled to change. New number is appended to end of record.

See step 334	If the number passes all the previous checks, then 000 code is returned to requestor. The Validation is complete for this request.
See step 338	End of validation for numbers that did no pass or were found in other checks.
END OF REAL TIME VALIDATION EVENT	

<p>Information sources that do not allow checks on the # in Real-time (r-t), happen on # that was returned as 000 after the r-t validation event has completed. The #s are loaded into the appropriate databases. This information will be provided once the # is returned for billing.</p>	
ITEM	Description
Steps 340, 342, 344	Indicates path for those #s returned with a 000 code.
See step 340	#s are sent to CARE source to determine if BNA (billing Name and Address) available at local Telco. Telco sends BNA and codes as to why unavailable.
CLEC	#s that are returned with codes that indicate the # has moved to a CLEC from the local Telco are loaded into the CLEC table.
See step 342	#s are sent to the CARE source to determine if the account has been crested within the last 90 days. The response codes indicate this condition.
New within 90	#s that are returned with codes that indicate this condition are loaded into the NEW table.

See step 344	#s are sent to a Business source. This source identifies which numbers belong to businesses.
Biz table	Numbers that are indicated as being line #s that belong to businesses are loaded in this table.

Table 2 below provides the various actions which are executed in response to a modified validity code. The table provides a description and explanation of each code. Return codes 001 to 969 relate to failure codes which are generated by the module 200 prior to investigation of the LIDB host 252. Return codes 180 to 451 are generated during the LIDB code checks. In the event of the subscriber line 96 failing the checks carried out on it, the module 200 provides optional use of a credit card and, accordingly, Table 2 sets out codes which the module 200 generates in response to executing a standard credit card enquiry for a particular transaction. If the module 200, which is typically defined by a server and associated databases, is down, codes 994 to 999 are generated and communicated to the vendor.

Table 2

Validation & BNA Reply Codes

Code	Action	DESCRIPTION	EXPLANATION
BILLABLE CODES			
000	Approved	Billable; was not found during fraud control checks	Passed all billing and fraud control checks
FRAUD CONTROL CODES (performed after billable check)			

ANI WATCH (adjustments to bill)			
001	Verify	Billable; found in ANI WATCH - CLIENT source all	Passed all billable checks; but ANI had been adjusted previously at vendor's, Client's or telco's request for your Client #
002	Verify	Billable; ANI WATCH - CLIENT source Client	Passed all billable checks; but ANI had been adjusted previously at Client's request for your Client #
003	Verify	Billable; ANI WATCH - CLIENT source Telco or Vendor	Passed all billable checks; but ANI had been adjusted previously at vendor's or telco's request for your Client #
004	Verify	Billable; found in ANI WATCH - GLOBAL	Passed all billable checks; ANI had been adjusted previously at vendor's, Client's or telco's request for all Client ids
005	Verify	Billable; found in ANI WATCH - PRODUCT	Passed all billable checks; ANI had been adjusted previously at vendor's, Client's or telco's request for same product type
ZIP VERIFICATION			
010	Verify	Billable; Unable to match ZIP invalid	Passed all billable checks; unable to find this Zip code for this NPA/NXX -
011	Verify	Billable; ZIP does not match	Passed all billable checks; Zip code does not match this NPA/NXX
012	Verify	Billable; ZIP matches to same Metropolitan area	Passed all billable checks; Zip code matches to same Metropolitan area as NPA NXX.
ADDRESS VERIFICATION			
<p>Note: The result of an AVS check does not mean that the transaction is declined. This information is advice only. The system compares the AVS data with billing information for the buyer and passes the results of the comparison to the merchant.</p>			
020	Verify	Billable; BNA match not found	Passed all billable checks; no BNA

			match found for ANI
021	Verify	Billable; Unable to verify BNA invalid	Passed all billable checks; unable to verify BNA to ANI info sent
022	Verify	Billable; with zip-Match, plus4-Match, locale-Match	Passed all billable checks; BNA Zip code + 4 & locale (street address) matches info sent for ANI, Name does not match
023	Verify	Billable; with zip-Match, plus4-Match, NoMatch-locale.	Passed all billable checks; BNA Zip code + 4 matches info sent for ANI but locale (street address) does not match
024	Verify	Billable; zip-Match, NoMatch-plus4, locale-Match.	Passed all billable checks; BNA Zip code & locale (street address) matches info sent for ANI but + 4 does not match
025	Verify	Billable; zip-Match, NoMatch-plus4, NoMatch-locale.	Passed all billable checks; BNA Zip code matches info sent for ANI but locale (street address) & + 4 does not match
026	Verify	Billable; NoMatch-zip, plus4-Match, locale-Match.	Passed all billable checks; BNA +4 and locale (street address) matches info sent for ANI but Zip does not match
027	Verify	Billable; NoMatch-zip, plus4-Match, NoMatch-locale.	Passed all billable checks; BNA +4 matches info sent for ANI but locale (street address) and Zip does not match
028	Verify	Billable; NoMatch-zip, NoMatch-plus4, locale-Match.	Passed all billable checks; BNA locale (street address) matches info sent for ANI but ZIP and +4 does not match
029	Verify	Billable; NoMatch-zip, NoMatch-plus4, NoMatch-locale.	Passed all billable checks; BNA does not match zip, + 4 or locale (street address) sent for ANI
030	Good	Address & Zip Match	
031	Verify	Address Match, Zip No Match	
032	Verify	Address Match, Zip Service Unavailable	

033	Verify	Address No Match, Zip Match	
034	Verify	Address No Match, Zip No Match	
035	Verify	Address No Match, Zip Service Unavailable	
036	Verify	Address Service Unavailable, Zip Match	
037	Verify	Address Service Unavailable, Zip No Match	
038	Verify	Address Service Unavailable, Zip Service Unavailable	

AREA CODE CHANGE INDICATOR			
110	Update	Indicates there has been an area code change for this NPA/NXX	Code is sent in addition to the validation response codes. New phone number is appended to record. Provided to update the account with the correct BTN.
MISC			
120	Verify	BTN and ANI do not match	For use where BTN and ANI are passed and do not match.
121	Verify	BTN or ANI are missing from record	For use where BTN and ANI is missing from record
UNBILLABLE CODES			
OFFNET			
130	Unbillable	NPA/NXX found in OFFNET - GLOBAL	Area code/exchange (NPA/Nxx) combination resides in OFFNET DB. OFFNET is a territory where the LEC (Local Exchange Carrier) is unable to provide 3rd party presentation in to it's envelope.

131	Unbillable	NPA/NXX found in OFFNET - CLIENT SPECIFIC	Area code/exchange (NPA/Nxx) combination resides in OFFNET DB specific for this Client id.
132	Unbillable	NPA/NXX found in OFFNET - PRODUCT	Area code/exchange (NPA/Nxx) combination resides in OFFNET DB specific for this product type.
133	Unbillable	NPA/NXX NOT VALID	Area code /exchange is not a valid area code exchange
CLEC (CLECs are unable to provide 3rd party bill presentation in their envelopes.)			
140	Unbillable	Line number (NPA/Nxx-xxxx) in CLEC Territory	BTN has been ported to a CLEC (competitive local exchange carrier).
141	Unbillable	NPA/Nxx not ON NET	BTN has been ported to a CLEC (competitive local exchange carrier) and is not billable.
142	Unbillable	Line number OCN in CLEC OCN table	Operating Company number for this BTN was found on CLEC OCN table. The number is not billable.
143	Unbillable	Line number RAO in CLEC RAO table	Regional Accounting Office number for this BTN was found on CLEC RAO table. This BTN is not billable.
42 BLOCK (4250s Only)			
150	Unbillable	Line Number has a block for 4250 records	Consumer has requested a block for all MRCs (monthly recurring charges) from being billed to this phone number.
BLOCK & CANCEL			
160	Unbillable	GLOBAL - Line number has been blocked to stop all charges.	Consumer requested block to stop all charges from being billed to this number.
161	Unbillable	CLIENT - Line number has a block to stop all charges from this Client id.	Consumer requested a block to stop charges from being billed or to cancel service for this phone number from this Client id.

UNBILLS			
960	Unbillable	Line number is Unbillable.	Line number has been returned from the Local Telephone companies within th last 6 months as unable to be billed.
LIDB FAILURE			
180	Unbillable	Line number failed LIDB check - GENERAL	Line Number has been returned from LIDB as unbillable.
181	Unbillable	Vacant NPA NXX	No working line #s in NPA NXX
182	Unbillable	No Incoming Calls	Line # cannot accept incoming calls
183	Unbillable	Denied ANI	Auto decline of all attempts from this ANI
184	Unbillable	Calling Card block	Auto decline of Calling Card number
185	Unbillable	Collect Call Block	Auto decline of Collect calls to this number
186	Unbillable	Third Party Call Block	Auto decline all Third Party billed calls to this number
187	Unbillable	Credit Card Block	Auto decline of charges billed to Credit Card
188	Unbillable	Group Number Block	Auto decline of attempts from this group.
189	Unbillable	Audiotext Bock	Number does not allow audiotext calls.
190	Unbillable	Excessive Calling Card PIN hits	Threshold for calling card attempts has been exceeded.
191	Unbillable	Line Number Block	Auto decline of all charges to this number
200	Unbillable	Excessive Use - BTN	BTN has exceeded threshold
201	Unbillable	Excessive Use DN	DN has exceeded threshold
202	Unbillable	Excessive Use - ANI	ANI has exceeded threshold
203	Unbillable	Excessive USE - Calling Card Pin	Calling Card Pin has exceeded threshold
220	Unbillable	Feature Group A	Local telephone switch is Feature Group A

221	Unbillable	PBX line	Line # is a PBX line
222	Unbillable	WATS line	Line # is a WATS line
223	Unbillable	Hotel/Motel Auto Quote w/ tax	Hotel/Motel Auto Quote w/ tax
224	Unbillable	Hotel/Motel Auto quote w/o tax	Hotel/Motel Auto quote w/o tax
225	Unbillable	Dormitory line	Line # belongs to a dorm
226	Unbillable	Hospital line	Line number belongs to a hospital
227	Unbillable	Centrex line	Line number belongs to CENTREX
228	Unbillable	Alternate Service Provider	Line # belongs to an alternate service provider
229	Unbillable	POTS line (collect or third party calls)	Line # is plain old telephone service lines for business or residential
230	Unbillable	Pager #	Line number belongs to pager
231	Unbillable	PCS/Mobile/Cellular #	Line number belongs to a wireless provider
240	Unbillable	Line was disconnected w/o referral	Line # was disconnected w/o a referral number
241	Unbillable	Line Number changing	Line is not connected yet.
242	Unbillable	not used	
243	Unbillable	DISCO w/o referral	Line number has been removed from service w/o referral
244	Unbillable	Temp DISCO	Line number has been removed from service temporarily
245	Unbillable	DISCO with referral	Line number has been disconnected w/ referral or Operator takes calls
246	Unbillable	Temp DISCO w/ referral	Line number has been removed from service temporarily w/ referral
250	Unbillable	POTS line rating on rate plan	POTS line is on a rate plan for business or residential message rate 1 or 2 or flat rate
300	Unbillable	Public - Incompatible interface	Public phone with incompatible interface
301	Unbillable	LEC Public Standard PreP OT	LEC Public phone standard interface; prepay overtime

302	Unbillable	LEC Public Alternate	LEC Public phone alternate interface; functions controlled by set
303	Unbillable	LEC Public Standard PP OT	LEC Public phone standard interface; postpay overtime
304	Unbillable	IC Public	IC Public Phone - Alternate Interface
305	Unbillable	IC Public Standard	IC Public Phone - Standard Interface
306	Unbillable	LEC Public Special - PP OT	LEC Public Phone- Special billing post paid OT
307	Unbillable	LEC Public Special - PreP OT	LEC Public Phone - Special Billing; Pre pay OT
308	Unbillable	LEC Semi Public	LEC Semi Public Phone
309	Unbillable	LEC Semi Public Phone (no collect or 3rd Party calls)	LEC Semi Public Phone does not allow collect or 3rd party calls to this number
310	Unbillable	LEC Prepaid Card	LEC Prepaid Card Telecommunications station
311	Unbillable	IPP (fka COCOT) Standard interface	Payphone Standard
312	Unbillable	IPP (fka COCOT) Alternate interface	Payphone - Alternate
313	Unbillable	Coinless (non IPP fka COCOT)	Coinless Pay phone
314	Unbillable	Coinless (IPP fka COCOT)	Coinless payphone
315	Unbillable	Prison (non IPP fka COCOT)	Prison payphone
316	Unbillable	Prison (IPP fka COCOT)	Prison Payphone
450	Unbillable	BNS: Voice Quote - without tax	Charge quotes without tax
451	Unbillable	BNS: Voice Quote - with tax	Charge quotes with tax

CREDIT CARD RESPONSE CODES			
-----------------------------------	--	--	--

000	Approved	Credit card approved	
501	Decline/Error	User authentication Failed	
502	Decline/Error	Invalid tender	Your merchant bank account does not support the following credit card type that was submitted

503	Decline/Error	Invalid transaction type	Transaction type is not appropriate for this trans-action. For example, you cannot credit an authorization-only transaction.
504	Decline/Error	Invalid amount	
505	Decline/Error	Invalid merchant information	Processor does not recognize your merchant account information. Contact your bank account acquirer to resolve this problem.
512	Decline/Error	Declined	Please check the credit card number and transaction information to make sure they were entered correctly. If this does not resolve the problem, have the customer call the credit card issuer to resolve.
513	Decline/Error	Referral	Transaction was declined but could be approved with a verbal authorization from the bank that issued the card. Submit a manual Voice Authorization transaction and enter the verbal auth code
519	Decline/Error	Original transaction ID not found	The transaction ID you entered for this transaction is not valid.
520	Decline/Error	Cannot find the customer reference number	
522	Decline/Error	Invalid ABA number	
523	Decline/Error	Invalid account number	Please check credit card number and re-submit.
530	Decline/Error	Account Lookup information Mismatch	Account provided found in system, however, unique key provided does not match unique key in system.
531	Decline/Error	Account does not exist	Account provided not found in system
1102	Decline/Error	Invalid expiration date	Please check and re-submit
525	Decline/Error	Transaction type not mapped to this host	
526	Decline/Error	Invalid vendor account	

527	Decline/Error	Insufficient partner permissions	
528	Decline/Error	Insufficient user permissions	
550	Decline/Error	Insufficient funds available	
551	Decline/Error	Invalid transaction returned from host	
552	Decline/Error	Processor not available	
553	Decline/Error	Credit error	Please make sure you have not already credited this transaction, or that this transaction ID is for a creditable transaction. (For example, you cannot credit an authorization.)
5110	Decline/Error	Void error	Please make sure the transaction ID entered has not already been voided. If not, then look at the Transaction Detail screen for this transaction to see if it has settled. (The Batch field will be set to a number greater than zero if the transaction has been settled). If the transaction has already settled, your only recourse is a reversal (credit a payment or submit a payment for a credit).
555	Decline/Error	Capture error	Only authorization transactions can be captured
556	Decline/Error	Failed AVS check	Address and Zip code do not match
557	Decline/Error	Cannot exceed sales cap	For ACH transactions only
558	Decline/Error	CVV2 Mismatch	
800	Unbillable	LNP Only Look-Up, number was found	LNP Only Look-Up, number was found in the LNP GTT database as ported.
801	Unbillable	LNP Only Look-Up, number was not found	LNP Only Look-Up, number was not found in the LNP GTT database, not ported.
802	Unbillable	LNP Only Look-Up, the NPANXX is not a portable range.	LNP Only Look-Up, the NPANXX is not a portable range.

SYSTEM DOWN			
994	Resubmit	Message Format Error	Message received in invalid or unrecognized format.
995	Resubmit	Time out	Session timed out.
996	Resubmit	Connection Failure	Unable to connect.
997	Resubmit	Subsystem Failure	Subsystem, such as LIDB, Credit Card, etc, not available.
998	Resubmit	Network Failure	Network Not Available
999	Resubmit	System Down	System Unavailable

As mentioned above, the module 200 translates the LIDB codes into modified verification codes as shown in Table 2. These modified validity codes are then mapped or translated. Table 3 below provides a list of the modified validity codes which are generated following the mapping carried out by the processor module 110 to translate LIDB codes to the modified verification codes set out in Table 1.

Table 3

LIDB/LNP SOURCE TRANSLATIONS for ISP:

Resp. Type In	Resp. Code In	ACTION	LIDB ADMIN ?	Description	rtfc type	EBI Code Out
APP	000	Approved		Calling card has an Unrestricted PIN.	G1	000
APP	001	Approved		Calling card has a Restricted PIN. The switch must verify that the DNI matches the first 10 digits of the calling card before placing the call.	g1	000
APP	004	Approved		Collect call - No verification is required.	G1	000
APP	005	Approved		Third-party call - No verification is required.	G1	000
APP	006	Approved		There is a system error.	S	999
APP	008	Approved		Communications Link Tests "Good."	S	999
APP	010	Approved		Commercial credit card is approved and the zip code matches, if the zip code was sent.	G1	000

APP	011	Approved	Y	Bill-to number has an Admin. Override to automatically approve the transaction. (Admin. Reply)	G1	000
APP	012	Approved		Originating number (ANI) has an Admin. Override to automatically approve the transaction. (Admin. Reply)	G1	000
APP	013	Approved		Dialed number (DNI) has an Admn Override to automatically approve the transaction. (Admin. Reply)	G1	000
APP	014	Approved		Group number has an Admin. Override to automatically approve the transaction. (Admin. Reply)	G1	000
APP	015	Approved		Commercial credit card is approved but the zip code check is unavailable.	CC	500
APP	016	Approved		Commercial credit card is approved but the zip code check is unavailable. Retry later.	CC	501
APP	096	Approved		Commercial credit card is approved but the zip code check is not supported.	CC	502
APP	018	Approved		Commercial credit card is approved and the address matches but the zip code does not match.	CC	503
APP	019	Approved		Commercial credit card is approved and the address and the zip code match.	CC	504
APP	020	Success		LNP Only Look-Up, number was found in the LNP GTT database as ported.	LNP	800
APP	021	Success		LNP Only Look-Up, number was not found in the LNP GTT database, not ported.	LNP	801
CON	050	Verify		Collect call number has no block. Verify acceptance of the charge.	o1	000
CON	051	Verify		Third-party call number has no block. Verify acceptance of the charge.	O1	000
CON	053	Denied		Unable to authorize, Automatic Code Gapping is in effect at the LIDB. Every third query is dropped by the LIDB.	S	999
CON	0110	Denied	Y	Excessive Use - The bill-to number exceeded the high limit threshold in the Admin. fraud control system. (Admin. Reply)	G3	000
CON	055	Denied	Y	Excessive Bad PIN Attempts -The threshold for bad PIN attempts for the calling card was exceeded in the Admin. fraud control system.	O2	000

				(Admin. Reply) This is the same as reply code 309.		
CON	060	Conditional	Y	Low Limit Warning - The bill-to number exceeded the low limit threshold in the Admin. Fraud control system. (Admin. Reply)	G3	000
CON	061	Conditional	Y	Low Limit Warning - The dialed number exceeded the low limit threshold in the Admin. fraud control system. (Admin. Reply)	G3	000
CON	062	Denied	Y	Excessive Use Dialed - The dialed number exceeded the high limit threshold in the Admin. fraud control system. (Admin. Reply)	G3	000
CON	063	Conditional	Y	No Host Still Billable - There is no LIDB check available, but the Customer has a billing agreement with this LEC. (Admin. Reply)	G2	180
CON	064	Approved	Y	Commercial credit card is approved but the zip code and the address do not match.	CC	505
CON	065	Conditional	Y	Low Limit Warning - The ANI exceeded the low limit threshold in the Admin. fraud control system. (Admin. Reply)	G3	000
CON	066	Denied	Y	Excessive Use ANI - The ANI exceeded the high threshold in the Admin. fraud control system. (Admin. Reply)	G3	000
CON	070	Approved		Calling card has no service denial in the Card Service Denial Indicator field. Calling card calls may be billed to this card number.	G1	000
CON	071	Approved		Calling card has no service denial in the Pin Service Denial Indicator field. Calling card calls may be billed to this card number.	G1	000
CON	080	Verify		Collect calls - Accept intralata, Reject interlata collect calls. Recommend verify acceptance of the charge.	O1	000
CON	081	Verify		Third-party calls - Accept intralata, reject interlata third-party calls. Recommend verify acceptance of the charge.	O1	000
CON	082	Verify		Collect calls - Accept intralata, verify interlata collect calls. Recommend verify acceptance of the charge.	O1	000

CON	083	Verify		Third-party calls - Verify intralata, reject interlata third-party calls. Recommend Verify acceptance of the charge.	O1	000
CON	084	Verify		Collect call - Verify acceptance of the charge by an Operator.	O1	000
CON	085	Verify		Third-party call - Verify acceptance of the charge by an Operator.	O1	000
CON	086	Verify		Collect call - Accept intralata charge, verify interlata charge with Operator.	O1	000
CON	087	Verify		Third-party calls - Verify intralata charge with operator, reject interlata charge with Operator.	O1	000
CON	088	Verify		Collect Calls: POTS Line (Business/Residential)	G5	000
CON	089	Verify		Third-Party Calls: POTS Line (Business/Residential)	G5	000
CON	090	Verify		BNS: Centrex Line, Collect calls - Some LECs allow billing to this type of line, others do not. Verify Acceptance.	G4	000
CON	091	Verify		BNS: POTS Line - Residential - Message rate 1	G9	000
CON	092	Verify		BNS: POTS Line - Residential - Message rate 2	G9	000
CON	093	Verify		BNS: POTS Line - Business - flat rate	G9	000
CON	094	Verify		BNS: POTs Line - Business - message rate 1	G9	000
CON	095	Verify		BNS: POTS Line - Business - message rate 2	G9	000
CON	096	Verify		BNS: POTS Line - Residential - flat rate	G9	000
DENY	100	Denied		Message Format Error Message	S	994
DENY	100	Denied		Message Format Error- Date format	S	994
DENY	100	Denied		Message Format Error-Header Message Error	S	994
DENY	100	Denied		Message Format Error- Merchant ID Error	S	994
DENY	100	Denied		Message Format Error-No End of Header Indicator	S	994
DENY	100	Denied		Message Format Error-Header Data Indicator, did not contain data in each field of the message That was represented by the message text map field	S	994
DENY	100	Denied		Message Format Error-PIN not numeric	S	994
DENY	100	Denied		Message Format Error-Terminating Error (commercial credit card only	S	994
DENY	100	Denied		Message Format Error-Terminating Number not numeric	S	994

DENY	100	Denied		Message Format Error-Originating Number not Numeric	S	994
DENY	100	Denied		Message Format Error-Charge Number not Numeric	S	994
DENY	100	Denied		Message Format Error-No End Header Indicator	S	994
DENY	101	Denied		Message Format Error Invalid Customer/Terminal ID Number	S	994
DENY	102	Denied		Message Format Error Invalid Message Type	S	994
DENY	103	Denied		Message Format Error Invalid Transaction Type	S	994
DENY	104	Denied		Message Format Error Invalid Sequence Number	S	994
DENY	105	Denied		Message Format Error Invalid Data Indicator	S	994
DENY	105	Denied		Message Format Error- Header Data Indicator	S	994
DENY	107	Denied		Bad PIN format. PINs must be equal to or higher than 2000.	S	994
DENY	200	Denied		Calling card blocked, missing customer record - There is no record of that calling card number in the database.	S	994
DENY	201	Denied		BNS, missing customer record - There is no record of that line number in the database.	S	994
DENY	202	Denied		Missing BNG - There is no record of that NPANXX in the database.	S	994
DENY	203	Denied		Non billable NXX - DPC table failure. The NPANXX does not have routing or allow billing, e.g. cellular. (LIDB or Admin. Reply)	G2	180
DENY	204	Denied		Calling card blocked, screened data - A screening mechanism is in place at the LIDB that does not allow charges to this calling card.	O2	000
DENY	205	Denied		Protocol converter problem - There is a problem with the SS7 protocol converter.	S	999
DENY	206	Denied		BNS & No Calling Card Calls - No Host, Nonparticipating Group. This NPANXX exists but there is no LIDB host. (LIDB or Admin. Reply)	o2	180
DENY	207	Denied		LIDB Access Denied because no queries should be sent to this LIDB destination. (Admin. Reply)	S	999
DENY	208	Denied		Calling card blocked, Screened Data on PIN (Pin Service Denial Indicator) - A screening mechanism is in place at the LIDB that does not allow charges to this PIN.	O2	000

DENY	209	Denied	External SS7 Problem - There is a format problem in the SS7 network	S	999
DENY	210	Denied	Calling card blocked, screened data - A screening mechanism is in place at the LIDB that does not allow charges to this calling card.	O2	000
DENY	211	Denied	Calling card is blocked because it has a bad PIN or the PIN does not match database information.	O2	000
DENY	211	Denied	Unexpected Data Value, Calling card blocked, Bad PIN - This means a bad PIN was used or there is no PIN on file.	O2	000
DENY	212	Denied	Calling card blocked, PIN Excessive Use at LIDB Owner. - The PIN exceeded the high threshold in the LIDB fraud control system	G3	000
DENY	213	Denied	Vacant BNG - There are no working lines in the NPANXX.	G2	181
DENY	214	Denied	No Collect calls - Collect calls are not allowed to this line number.	O2	000
DENY	215	Denied	No Third-party calls - Third-party calls are not allowed to this line number	O2	000
DENY	216	Denied	BNS: LEC Public - Standard Interface (functions controlled by the network) - Postpay Overtime	G10	303
DENY	296	Denied	BNS: Coinless (non IPP fka COCOT)	G10	313
DENY	218	Denied	BNS: semi-public phone - No Collect or Third-party calls are allowed to this line number.	G10	309
DENY	219	Denied	Spare - This LIDB response is not in use at this time.	AV	180
DENY	220	Denied	Time-out, No response from Host - A response was not received from the host database within 4 seconds for a Telco query or 12 seconds for a Bank card query. (LIDB or Admin. Reply)	S	180
DENY	221	Denied	BNS Data unavailable, Error Message, No Host - No collect or third-party calls should be allowed to this line number.	S	180
DENY	222	Denied	Calling card Data unavailable, Error Message, No Host - No calling card calls should be allowed to this line number.	S	180
DENY	223	Denied	BNS & Calling card, screened response LIDB - A screening mechanism is in place at the LIDB that does not allow charges to this account number.	O2	000

DENY	224	Denied		LIDB Misroute - The query was routed to the wrong LIDB.	S	999
DENY	225	Denied		Reject, Reroute - The LIDB could not read the format of the query.	S	994
DENY	226	Denied		Unexpected Component - The LIDB cannot interpret the format of the query.	S	994
DENY	227	Denied		UDTS, SS7 Network problem - There is an SS7 network problem.	S	999
DENY	228	Denied		BNS: Personal Communication Service (PCS)	G8	231
DENY	229	Denied		BNS: Mobile	G8	231
DENY	230	Denied		Not Billable - The Customer does not have a billing arrangement with the LEC for this NPANXX (OCN On-Net Screening).	G2	180
DENY	231	Denied		BNS: LEC Prepaid Telecommunications Card Station	G10	310
DENY	232	Denied		Feature Group A (FGA)	G4	000
DENY	233	Denied		BNS: LEC Public - Alternate Interface (functions controlled by set)	G10	302
DENY	234	Denied		BNS: LEC Public - Special Billing - Postpay Overtime (functions controlled by the network)	G10	306
DENY	235	Denied		BNS: LEC Public - Special Billing - Prepay Overtime (functions controlled by the network)	G10	307
DENY	236	Denied		BNS: Public - Incompatible Network Interface (interface other than standard or alternate)	G10	300
DENY	237	Denied		BNS: IC Public - Alternate Interface	G10	304
DENY	238	Denied		BNS: IPP (fka COCOT) - Standard Interface		311
DENY	239	Denied		BNS: Pager	G8	230
DENY	241	Denied		General, Reject - The LIDB could not read the format of the query.	S	994
DENY	242	Denied		Invoke, Reject - The LIDB could not read the format of the query.	S	994
DENY	243	Denied		Return Result, Reject - The LIDB could not read the format of the query.	S	994
DENY	244	Denied		Return Error, Reject - The LIDB could not read the format of the query.	S	994
DENY	245	Denied		Transaction Portion, Reject - The LIDB could not read the format of the query.	S	994
DENY	246	Denied		BNS: Vacant Number - There is no line number assigned.	G2	180

DENY	247	Denied		BNS: Disconnected without referral - The line number was disconnected with no referral to a new line number.	G6	240
DENY	248	Denied		BNS: Changed to non-published number - The line number was changed to a non-published number.	o5	000
DENY	250	Denied		No Collect Calls, Screened Data - A screening mechanism is in place at the LIDB that does not allow charges to this line number.	O2	000
DENY	251	Denied		No Third-party calls, Screened Data - A screening mechanism is in place at the LIDB that does not allow charges to this line number.	O2	000
DENY	252	Denied		BNS: Screened Data - A screening mechanism is in place at the LIDB that does not allow charges to this line number.	G7	191
DENY	253	Denied		BNS: Screened Data - A screening mechanism is in place at the LIDB that does not allow charges to this line number.	G7	191
DENY	2110	Denied		BNS & No Calling Card, Unavailable network resource - This line or card number is not in the database.	O2	411
DENY	255	Denied		BNS: Screened Data - A screening mechanism is in place at the LIDB that does not allow charges to this line number.	G7	191
DENY	256	Denied		BNS: Being changed - The line number is being changed, it may not yet be connected.	G6	241
DENY	257	Denied		BNS: May not yet be connected - The line number may be new, it may not yet be connected.	G6	243
DENY	258	Denied		BNS: Temporarily disconnected - The line number is temporarily disconnected.	G6	244
DENY	259	Denied		BNS: Disconnected, calls being taken by operator - The line number is temporarily disconnected, the operator is taking calls.	G6	245
DENY	260	Denied		BNS: Temporarily removed from service - The line number is temporarily removed from service.	G6	244
DENY	261	Denied		BNS: Not in service for incoming calls - This line number cannot accept incoming calls.	G2	182
DENY	262	Denied		BNS: Temporarily disconnected at customer request without referral - The line number is temporarily disconnected at the request of the	G6	245

			customer without referral.		
DENY	263	Denied	BNS: Temporarily disconnected at customer request with referral - The line number is temporarily disconnected at the request of the customer with referral.	G6	246
DENY	264	Denied	BNS: Changed with referral to new number - The line number was changed. A referral to another line number is in place.	o5	000
DENY	265	Denied	Calling card blocked, PIN Nonpayment - The calling card is blocked because of nonpayment.	O2	000
DENY	266	Denied	Calling card blocked, Service Restriction on PIN - There is a service restriction on this PIN.	O2	000
DENY	267	Denied	Calling card blocked, no PINs assigned. There is no PIN assigned to this calling card/line number.	O2	000
DENY	268	Denied	Calling card blocked, service denial - There is a service restriction on this calling card.	O2	000
DENY	269	Denied	Calling Card - The calling card is a CIID (proprietary card) for which there is no host.	O2	000
DENY	270	Denied	BNS: Unexpected Data Value - No Collect or Third-Party Calls are allowed.	S	994
DENY	272	Denied	LIDB/CCC Response Time-out - A response was not received from the host database within 4 seconds for a Telco query and 12 seconds for a Bank query.	S	180
DENY	273	Denied	No Collect Calls at Customer Request - The end user customer requested the block for collect calls to this line number.	O2	000
DENY	274	Denied	BNS & No Calling Card Calls: Screened data.	O2	000
DENY	275	Denied	BNS: Hotel/Motel Auto Quote - with tax	G4	000
DENY	276	Denied	BNS: Dormitory Line	G4	225
DENY	277	Denied	BNS: Hotel/Motel Auto Quote - without tax	G4	000
DENY	278	Denied	BNS: PBX Line	G4	221
DENY	279	Denied	BNS: Prison (IPP fka COCOT)	G10	316
DENY	280	Denied	BNS: WATS Line	G4	222
DENY	281	Denied	No Third-party calls at Customer Request - The end user customer requested the block for third-party calls to this line number.	O2	000

DENY	282	Denied		BNS: LEC Public - Standard interface - Prepay Overtime	G10	301
DENY	283	Denied		BNS: Coinless (IPP fka COCOT)	G10	314
DENY	284	Denied		BNS: IC Public - Standard Interface	G10	305
DENY	285	Denied		BNS: Voice Quote - without tax	o6	450
DENY	286	Denied		BNS: Voice Quote - with tax	o6	451
DENY	287	Denied		BNS: IPP (fka COCOT) - Alternate Interface	G10	312
DENY	288	Denied		BNS: Hospital	G4	226
DENY	289	Denied		BNS: Prison (non-IPP fka COCOT)	G10	315
DENY	290	Denied		BNS: LEC Semi-Public	G10	308
DENY	291	Denied		BNS: Subsystem Congestion	S	180
DENY	292	Denied		BNS: Subsystem Failure	S	180
DENY	293	Denied		BNS: No translation for address of such nature	S	180
DENY	294	Denied		BNS: Unequipped User	S	999
DENY	295	Denied		BNS: Network Failure	S	180
DENY	296	Denied		BNS: Network congestion	S	999
DENY	297	Denied		BNS: Cellular (cellular is distinct from mobile)	G8	231
DENY	298	Denied		BNS and Calling Card - Although the NPANXX belongs to SWBT the end-user account number is no longer is a SWBT customer. The line number now belongs to another local service provider.	G4	228
DENY	299	Failure		LNP Only Look-Up, the NPANXX is not a portable range.	LNP	000
DENY	301	Denied	Y	Denied Originating Number (ANI) - The ANI has an Admin. block to automatically decline all attempts from this line number. (Admin. Reply)	G2	183
DENY	302	Denied	Y	Terminating Number (DNI) has an Admin. block to automatically decline all attempts to this line number. (Admin. Reply)	G2	182
DENY	303	Denied	Y	Calling card has an Admin. block to automatically decline all attempts to this line number. (Admin. Reply)	G2	000
DENY	304	Denied	Y	Collect Number has an Admin. block to automatically decline all attempts to this line number. (Admin. Reply)	G2	000
DENY	305	Denied	Y	Third Party Number has an Admin. block to automatically decline all attempts to this line number. (Admin. Reply)	G2	000

DENY	306	Denied	Y	Commercial credit card has an Admin. block to automatically decline all attempts to this line number. (Admin. Reply)	G2	000
DENY	307	Denied	Y	Group Number has an Admin. block to automatically decline all attempts from this group. (Admin. Reply)	G2	000
DENY	308	Denied	Y	Global Negative Database Block - There is an Admin. block in the Global Negative Database to this line number for the Audiotext Industry. (Admin. Reply)	G2	000
DENY	309	Denied	Y	Excessive calling card PIN hits - The threshold for bad PIN attempts for a calling card was exceeded in the Admin. fraud control system (Admin. Reply). This is the same as reply code 055.	G2	000
DENY	400	Denied		Commercial credit card, Invalid Commercial credit card - This is not a valid commercial credit card account number. It failed the MOD 10 check. Also an invalid amount, invalid date or a format error may cause this response. (Host or Admin. Reply)		506
DENY	401	Denied		Commercial credit card, Call issuer - The authorization attempt triggered a flag in the fraud control system of the issuing bank, Banknet or VISA.net.		507
DENY	402	Denied		Commercial credit card, Confiscate card - No billing is allowed to this account number. If possible confiscate this card.		508
DENY	403	Denied		Commercial credit card, Authorization Declined - No billing is allowed to this account number.		509
DENY	404	Denied		Commercial credit card, Unable to Validate Account Number - There is problem in authorizing this account number.		510
DENY	405	Denied		Commercial credit card, Card expired - No billing is allowed to this account number because the card has expired		511
DENY	406	Denied		Commercial credit card - Invalid Merchant ID		512

DENY	408	Denied		Commercial credit card, Invalid card and Address (zip code) - Both the account number and the address or zip code are invalid. Do not allow billing to this account number.	513
DENY	409	Denied		Commercial credit card, System Problem - There is a technical problem with the authorization system of the issuing bank, Banknet or VISAnet.	514
DENY	420	Denied		Commercial credit card, Over withdrawal limit - This account has exceeded the withdrawal threshold in the authorization system of the issuing bank	515
DENY	421	Denied		Commercial credit card, Over credit limit - This account has exceeded the credit threshold in the authorization system of the issuing bank	516
DENY	422	Denied		Commercial credit card, Lost card, Confiscate - - This account number was reported lost. No billing is allowed to this account number. If possible confiscate this card.	596
DENY	423	Denied		Commercial credit card, Stolen card, Confiscate card - This card was reported stolen. No billing is allowed to this account number. If possible confiscate this card.	518
DENY	424	Denied		Commercial credit card, Invalid Pin - This means a bad PIN was used.	519
DENY	425	Denied		Commercial credit card, Allowable Number of PIN Tries Exceeded - The threshold for bad PIN attempts for a calling card was exceeded in the authorization system of the issuing bank, Banknet or VISAnet.	520
DENY	426	Denied		Duplicate transaction. The Authorization host considers this a duplicate transaction.	521

In the embodiment of the invention depicted in the drawings, regardless of the type of service provider or the type of validation request, all clients or vendors 22 typically need a profile so that the process or method carried out by the module 200 knows how to treat the request. The client or vendor profile is set up in a database which includes the indicators that are set

for the type and tests for each request which will be subsequently received from the vendor.

<i>Client or Vendor Profile Table</i>		
Fields	Data Type	Key
Name	Char(10)	
Client	Char(4)	Primary
Product	Char(3)	
Transtype	Char(3)	
BTN_vs_ANI	Null or not	
Global_Offnet	Null or not	
Client_Offnet	Null or not	
Product_Offnet	Null or not	
Calling_Card_Offnet	Null or not	
Plan_Offnet	Null or not	
ONNET	Null or not	
CLEC	Null or not	
Block42	Null or not	
Unbill	Null or not	
Cancel	Null or not	
Smart_LIDB	Null or not	
Area_Code_Split	Null or not	
Zip	Null or not	
BNA	Null or not	
BNA_AVAIL	Null or not	
Threshold	Null or not	
Client_Bad_ANI	Null or not	
Global_Bad_ANI	Null or not	
Product_Bad_ANI	Null or not	
NON-PAY	Null or not	
Goodwill	Null or not	
Return_To_Sender	Null or not	
Credit_Check	Null or not	

Note: Some tests are required for certain validation types.

In certain embodiments, the client or vendor profile is used to determine which validation request type to convert from or to, which validation checks should be performed on the ANI/BTN for the particular purchase event, which checks are to be performed for the pre-billing validation event at the time of billing, and the billing record conversion specifics for that client or vendor. Thus, the facility 28 may customize its validation procedures to suit a specific client or vendor.

For both the validation events, the client profile check is typically performed in facility 28 prior to carrying out the validity checks. For example, the customer profile check may be included in step 98 (see **Figure 13**) and step 142 (see **Figure 14**). The customer profile includes client specific information which may determine the nature and extent of the validation process. Accordingly, the profile may be checked as soon as the record is received from a registration module or the customer management system 58. In use, a profile table is queried to identify the validation checks to be performed by the module 30 and the checks may differ between an initial purchase event or transaction and an associated subsequent billing event at the end of a bill cycle. These checks may, dependent on the client profile, include checking if the ANI is the same as the BTN, if the subscriber line is listed in OFFNET database 222, in the UNBILLS database 232, in the Blocking databases 228,230, in the CLEC database 226, in the LIDB database 252, in the address verification database 244, or in databases including data on previous credits, new lines, business lines area codes, area code changes, or the like.

Additionally, the client profile is typically checked to see which billing record should be written for inclusion on the phone bill for that particular purchase. This may occur as the first part of step 218 in **Figure 15** and step 260 in **Figure 17**.

The client profile can also be used to determine the type of billing record to convert from and the type to convert to for inclusion in the telephone account 34 for the purchase or transaction. For example, the types of billing records may

include a 425001 record for a monthly recurring charge; 010101, 010105, 010102, 010116 type records for detailed, usage-based events; and 415001, 410101, 410105, 410102, 410116 records for the credit records.

An example of software tables for implementing the steps in the method set out in the flow diagrams shown in **Figures 17 to 19** are shown below.

The first table shows the steps in the BTN test descriptions process. Typically, a set of core tests is run for each client. Additionally, clients may have some configuration options to identify the tests that best fit their program.

<u>BILLABLE BTN TESTS</u>		
PROCESS	TESTs	PURPOSE
VAL/ Pre-bill	Client profile	Client profile for each id for BTN validation process test flags.
VAL only	ANI=BTN	Determines if originating number = BTN input by caller.
VAL/ Pre-bill	Invalid # OFFNET	Ids Invalid NPAs & NXXs
VAL/ Pre-bill	Global OFFNET	Ids (NPA)NXX & OCN combinations where there is not a B&C agreement
VAL/Pre-bill	Product OFFNET	Ids (NPA)NXX & OCN combinations where the traffic type is not approved to bill (7/24/01: MRC only for NECA and Illuminet Only)
VAL/Pre-bill	Client OFFNET	Ids (NPA)NXX & OCN combinations where there the Client id (7###) is not approved to bill
VAL/Pre-bill	Special Calling Card OFFNET	Ids (NPA)NXX & OCN combinations of special calling card #s for non-calling card traffic that are unable to be billed
VAL/Pre-bill	Plan OFFNET	Ids (NPA)NXX & OCN combinations where a Client Plan is not approved to bill
VAL/Pre-bill	ONNET	Ids (NPA)NXX & OCN combinations where there are B&C agreements
VAL/Pre-bill	CLEC	Ids (NPA)NXX-xxxx's are not billable due to CLEC for all Clients.
VAL/Pre-bill	4250 BLOCK	Ids (NPA)NXX-xxxx's that have a 4250 billing block (for MRC only)
VAL/Pre-bill	UNBILL	Ids (NPA)NXX-xxxx's that have unbilled previously for all Clients
VAL/Pre-bill	Block & Cancel – GLOBAL	Ids (NPA)NXX-xxxx's that requested a Block and/or Cancel; usually institutional
VAL/Pre-bill	Block & Cancel – Client Specific	Ids (NPA)NXX-xxxx's that requested a Block and/or Cancel for a particular Client id
VAL/ 1 st +n Pre-bill	Val Code Cache	Ids (NPA)NXX-xxxx & Return Code combinations for previous request
VAL/ 1 st Pre-bill	LIDB Validity Test	To determine the billable status of the return code from the LIDB dip
VAL/ 1 st Pre-bill	LIDB CLEC RAO	Ids RAOs that belong to CLECs
VAL/ 1 st Pre-	LIDB CLEC OCN	Ids known CLEC OCNs

bill		
VAL/ 1 st Pre-bill	LIDB State Specific Conversion	To determine if the returned LIDB code is a state specific code and then a conversion to the billable OCN for the ONNET check
VAL/ 1 st Pre-bill	LIDB ONNET	Ids billable (NPA)NXX & returned OCN combinations
ALL	VAL Trans Log	Log of each validation request and response by Client ID

<u>BTN CREDIT SCORING</u>		
PROCESS	TESTs	PURPOSE
VAL/Pre-bill	AREA CODE Change indicator	Provides the new area code for the line number while in permissive dialing period.
Val	ZIP MATCH	ZIP matches zip codes for (NPA) NXX (not in production as of 6/01)
VAL/ Pre-bill	ANI WATCH – CLIENT (SOURCE: all)	(NPA)NXX-xxxx's where there a refund/chargeback has been issued previously for this Client ID
VAL/ Pre-bill	ANI WATCH – CLIENT (SOURCE: client)	(NPA)NXX-xxxx's where there a refund has been issued previously for this Client ID
VAL/ Pre-bill	ANI WATCH – CLIENT (SOURCE: ebi/telco)	(NPA)NXX-xxxx's where there a chargeback/bad debt has been issued previously for this Client ID
VAL/Pre-bill	ANI WATCH – GLOBAL (SOURCE: all)	(NPA)NXX-xxxx's where there a refund/chargeback/bad debt has been issued previously from CLIENT, ebi or telco
VAL/Pre-bill	ANI WATCH – PRODUCT (SOURCE: all)	(NPA)NXX-xxxx's where there a refund/chargeback/bad debt has been issued previously for the same product
VAL	Address Verification	Not Available

<u>TEST BEFORE FIRST BTN BILLING</u>		
PROCESS	TESTs	PURPOSE
VAL/ Pre-bill	LEC CARE FEED	Determines if the ILEC owns the Acct. for billing
VAL/ Pre-bill	Biz vs Res	Determines the commercial or consumer status for credit score

<u>Example TESTs</u>		
PROCESS	TESTs	PURPOSE
VAL/ Pre-bill	Threshold by Client	Determines whether the BTN has met a Client specific threshold
VAL/Pre-bill	LEC PROV feed	To determine if LEC owns Acct
VAL/Pre-bill	Credit Check	Credit header files check from Credit source
VAL/ Pre-bill	New within 90 days	Determines if BTN is less than 90 days old; affects credit score

ON/OFFNET Family Tables (Billing Coverage)

The OFFNET table family contains OCN & NPA_NXX combinations where billing is not approved. If found, the BTN does not continue on the

validation path.

The ONNET table determines if an NPA_NXX & OCN combination can be found among the billable combinations. In this case a match, allows the BTN to move further on the validation path. A no match will return a failure.

The CLEC table consists of CLECs that the proprietor, or user of the module 200, does not have billing contracts with. This table is specific to the line number. Sources dictate the fields that will be present for the record. A match here is considered a fail and does not continue.

The 4250 Block table consists of specific line numbers that cannot be billed for 4250-01 record types. A match in this table stops the validation movement.

BILL CONTROL Family Tables

The Unbills or unbillable table holds all the BTNs that have been sent to a subscribers bill page but could not be placed on the bill page for various reasons. A match here halts the validation sequence for the subject BTN.

Block and cancel tables identify BTNs that have requested a permanent or a Client specific block for billing. A match sends a failed response.

Validation Cache is a table that holds responses in order not to process duplicates (e.g., Submit pressed 10 times). A match here will return the code stored from a previous request.

LIDB Family Tables

LIDB is a third party that supplies information to the phone line number level. The module 30 typically tests and stores as many relevant fields as can be requested in a transaction.

LIDB Codes Table		
Fields	Data Type	Key

LIDB	Char(3)	Primary
Description	Char(100)	
RFC	Char(3)	
ISP	Char(3)	
OSP	Char(3)	
CCC	Char(3)	
LDD	Char(3)	
CRC	Char(3)	

The LIDB Validity Table translates the LIDB code into a billable or non-billable response according to predefined business rules. A fail here will halt the validation for the request.

LIDB Validity Translation Table		
Fields	Data Type	Key
BTN	Numeric(10)	Primary
Date	DateTime	
LIDB_Code	Char(3)	
OCN	Char(4)	
TransType	Char(3)	
Updated	bit	
RAO	Char(3)	

The State specific table is a conversion from a true OCN to a known State Specific OCN that is billable. A match here will trigger the conversion, the BTN continues in the validation process.

<u>LIDB State Specific OCN Table</u>		
Fields	Data Type	Key
ST_OCN	Numeric (4)	Primary
Billable_OCN	Numeric (4)	

The transaction log is the history of each transaction request and response that is processed through the validation system.

<u>VAL Transaction Log Table</u>		
Fields	Data Type	Key
CLIENT ID	Int(3)	
ANI	Numeric(10)	
LidbCode	Char(3)	
Date	DateTime	Primary

The TPM indicates that an NPA is in the permissive dialing period. A match here appends the record with the updated number for a record update.

<u>TPM Change Table</u>		
Fields	Data Type	Key
NPA_NXX	Numeric (6)	Primary
DATE	DateTime	

<u>TPM Delete Table</u>		
Fields	Data Type	Key
NPA_NXX	Numeric (6)	None
DATE	DateTime	None

* **See Exhibit A**

VALIDATION TABLE MAINTENANCE

TABLE LOAD

TABLE	SCHEDULE	SOURCE	HOW
Client profile	Adds & changes	CSA	Manual
ANI=BTN	NA	NA	NA
Invalid # OFFNET	Adds & changes	Rejects/Unbills*	Manual
Global OFFNET	2x weekly Thurs for Mon cycle Tues for Thurs cycle	CYCLE OFFNET P:/WC30/FILES/ONOFF CIC: 903	Full Replace
Product OFFNET	Fridays	Client Directory Cust7000 Directory	Full Replace
Client OFFNET	Fridays	Client Directory CYCLE files Load for each client id.	Full Replace
Special Calling Card	Fridays	CYCLE OFFNET	Full Replace

OFFNET		P:/WC30/FILES/ONOFF CIC: 903	
Plan OFFNET	Adds & changes	NA	Manual
ONNET	2x weekly Thurs for Mon cycle Tues for Thurs cycle	CYCLE ONNET P:/WC30/FILES/ONOFF CIC: 903	Full Replace
CLEC1	Mondays	CLEC MASTER*	Incremental adds
CLEC2	as process LIDB responses	Fails for LIDB OCN/RAO tests	Insert with source
CLEC3	as process BNA responses	TCSI 2618s, 2619s codes that fail for BNA	Insert with source
4250 BLOCK	Mondays	Block42 Master	Incremental adds
UNBILL	Mondays	Unbill Master from UB1s	Incremental adds
Block & Cancel – GLOBAL	Mondays	INQ file	Incremental adds
Block & Cancel – Client Specific	Mondays	INQ files for Clients	Incremental adds
Val CACHE	as process LIDB requests	LIDB requests	Insert new
LIDB Validity Test	NA	NA	NA
LIDB CLEC RAO	as process LIDB requests	Code 998 only (new Telcordia source)	TBD
LIDB CLEC OCN	As process LIDB requests	P:OCN.dat	Full replace
LIDB State Specific	Adds & changes	NA	manual
VAL Trans Log	Adds	NA	All adds
AREA CODE Change Indicator	Adds	TPM	All adds

* See Exhibit B for Billing rejects and Unbills codes that are loaded into tables.

TABLE PURGE

TABLE	SCHEDULE	TRIGGER	HOW
Client profile	changes	NA	manual
ANI=BTN	NA		
Invalid # OFFNET	changes	NA	manual
Global OFFNET	See load	See load	Full replace
Product OFFNET	See load	See load	Full replace
Client OFFNET	See load	See load	Full replace
Special Calling Card	See load	See load	Full replace

OFFNET			
Plan OFFNET	See load	See load	Full replace
ONNET	See load	See load	Full replace
CLEC	90 days	Insert date	Delete from table
4250 BLOCK	180 days		Delete from table
UNBILL	OCN Moratorium	Insert date and elapsed time	Delete from table
Block & Cancel – GLOBAL	No purge		Delete from table
Block & Cancel – Client Specific	Every 6 months	From insert date	Delete from table
VAL CACHE	>2<30 days; >180 days	From insert date	Delete from table
LIDB Validity Test	As changes	NA	Manual
LIDB CLEC RAO	See load	NA	Full replace
LIDB CLEC OCN	See load	NA	Full replace
VAL Trans Log	No purge		
AREA CODE Change indicator	Monthly	Completion of Permissive Dialing period	TPM deletions

* See Exhibit C OCN Moratorium schedule.

Exhibit A

Example Tables

Zip to NPA_NXX source allows for best 3 zips for an NPA_NXX combination. Tests show a 70% match rate. This rate has been improved by matching to position 1-3 of the Zip. The low match rate combined with the fact that a BTN is not a portable instrument, this test is not recommended for BTN validation.

Zip Match Table		
Fields	Data Type	Key
NPA_NXX	Numeric(6)	Primary
ZIP1	Numeric(5)	None
ZIP3	Numeric(5)	None

ZIP3	Numeric(5)	None
------	------------	------

The following tests are optionally carried out in other embodiments of the invention.

ANI WATCH Table		
Fields	Data Type	Key
BTN	Numeric(10)	Primary
NSP_Product	Char(5)	None
Client id	Numeric (3)	None
DATETIME	Numeric (4)	None
SOURCE	Numeric (6)	None

The ANI Watch has BTNs that have been given an adjustment for charges by the Client, proprietor or user of the module 200 or the Telco. This is to help the client determine the credit score for the BTN.

Billing Name and Address Table		
Fields	Data Type	Key
Name	Varchar(30)	None
Address1	Varchar(30)	None
Address2	Varchar(30)	None
Address3	Varchar(30)	None
City	Varchar(20)	None
State	CHAR(2)	None
Zip+4	Numeric (10)	None
BTN	Numeric (10)	None
DATE	DateTime	None
Source	Varchar(20)	None

BTN Thresholding Table		
Fields	Data Type	Key
BTN	Numeric (10)	None

DATE	DateTime	None
Client ID	Numeric(3)	None
eBi RESPONSE CODE	Char(3)	None
NSP_Product	Char(10)	None
Total	Int(4)	None

Exhibit B

Loaded Reject and Unbill Codes

Reject Codes	Reject Code Description	LOAD in DB?	DB?	PURGE?
15	ORIGINATING NXX INVALID (NXX=555 OR 976)	Y	Invalid OFFNET	N
44	BILLING NXX INVALID (NXX = 555 OR 976)	Y	INVALID	N
48	REFUSE TO PAY/END USER REJECT	Y	B&C	NORMAL
74	LEC REQUESTED BLOCK	Y	B&C	NORMAL
93	REGULATORY BLOCK	Y	B&C	NORMAL
94	INTRASTATE LEC BLOCK	Y	B&C	NORMAL
95	ANI BLOCK	Y	B&C	NORMAL
98	NON-LOCAL INTRASTATE BLOCK	Y	B&C	NORMAL

Unbill Codes	Unbill Code Description	LOAD in DB?	DB?	PURGE?
M0	SHARED NPA-NXX (CLEC)	Y	CLEC	90 DAYS
12	ORIG NPA/NXX NOT ON TPM	Y	Invalid OFFNET	NEVER
15	ORIG NXX INVALID (NXX=555 OR 976)	Y	Invalid OFFNET	NEVER
16	ORIG NPA INVALID	Y	Invalid OFFNET	NEVER
30	TERM NPA = 800	Y	Invalid OFFNET	NEVER
44	BILLING NXX INVALID (NXX=555 OR 976)	Y	Invalid OFFNET	NEVER
AS	INVALID NPA CODE	Y	Invalid OFFNET	NEVER
18	ORIG NUM INVALID	Y	UNBILL	OCN
34	TERMINATING NUMBER INVALID	Y	UNBILL	OCN
36	SPECIAL BILLING NBR - AT&T ONLY	Y	UNBILL	OCN
37	SPECIAL BILLING NBR - CINCINNATI BELL ONLY	Y	UNBILL	OCN
38	SPECIAL BILLING NUMBER INVALID	Y	UNBILL	OCN
41	BILLING NPA/NXX IN SPECIAL BILL NBR NVALID	Y	UNBILL	OCN
59	SUSPECTED FRAUD	Y	UNBILL	OCN
A1	SUSPECTED FRAUD NUMBER	Y	UNBILL	OCN

A7	INVALID BILL TO COIN ACCOUNT	Y	UNBILL	OCN
A8	NO ACCOUNT	Y	UNBILL	OCN
B0	NO ACCOUNT AFTER INVESTIGATION	Y	UNBILL	OCN
D6	INVALID BILLING NUMBER	Y	UNBILL	OCN
E6	CALLS OVER \$999.99	Y	UNBILL	OCN
F1	BILLED TO CELLULAR/MOBILE NUMBER	Y	UNBILL	OCN
G1	ACCOUNT IN WRITE-OFF STATUS	Y	UNBILL	OCN
H8	REBILL - NO LONGER BILLABLE BY PB	Y	UNBILL	OCN
K2	TOLL BILLING RESTRICTION	Y	UNBILL	OCN
U0	DENY ALL KNOWLEDGE (DAK)	Y	UNBILL	OCN
U6	END-USER ACCOUNT IN FINAL STATUS	Y	UNBILL	OCN
K4	LEC INITIATED BILL BLOCK	Y	UNBILL	OCN
L6	DENIAL STATUS RESTRICTION (891/CIID)	Y	UNBILL	OCN
L7	DISCONNECTED ACCOUNT DUE TO NONPAYMENT	Y	UNBILL	OCN
V7	RESTRICTED ACCOUNT	Y	UNBILL	OCN
A9	EC DOES NOT HAVE BILLING ARRANGEMENT WITH IC	Y	UNBILL	OCN

Exhibit C

OCN PURGE SCHDEULE

Days	NAMES	OCNS
90	Ameritech, Pac Bell, Nevada Bell, SNET, SWBT, Bell Atlantic, Nynex, Bell South	9321, 9323, 9325, 9327, 9329, 9740, 9742, 9147, 9102, 9104, 9206, 9208, 9210, 9211, 9212, 9213, 9214, 9496
120	Sprint United	0341, 0470, 832, 9993
180	CBT, GTE, NECA, Illuminet, Alltel, Citizens, Qwest, default	All others

Unlike conventional use of the LIDB database that uses the LIDB data to obtain information on a destination/termination or recipient location or subscriber unit, the module 200, in accordance with the invention, uses the industry standard LIDB database to obtain relevant information on the initiating subscriber line 96. The subscriber line reference data obtained from the LIDB database is then processed to generate modified validity codes, which provide a vendor with data to facilitate deciding whether or not a transaction should be

processed. The LIDB/LNP database is queried as if a collect call event is occurring and a call is thus mimicked. The processing of the transaction typically involves communicating the relevant transaction data to a folder of the subscriber's account with a relevant Telco. The method of, and module 200 for, validating the billing account associated with the subscriber line allows, for example, a subscriber line to be used to validate and conclude a transaction instead of using a conventional payment techniques such as a credit card, debit card, bank account details or the like.

A current industry-wide problem is the lack of ability of a service provider to identify when a line subscriber has switched his service to a CLEC since the service provider may not have an existing billing arrangement with such a CLEC and may also not have a source for the BNA to allow for a direct billing solution. LNP databases were originally established for the purpose of directing call routing activities among facilities-based carriers and most telephone numbers ported to a CLEC do not involve a facility change (the CLEC may be simply reselling the incumbent LEC's facilities). This means that, for billing decision purposes, LNP queries usually provide an incorrect response.

The LNP queries are enhanced by analyzing and interpreting other field elements included within the query response. Specifically, certain values or, in some cases, the absence of certain values, in the Operating Company Number ("OCN") and/or the Regional Accounting Office ("RAO") fields, allows further accuracy in the validation response. While the definitions of the OCN and RAO field elements can be obtained from industry sources, their interpreted use in the validation process is unique to the present invention. Use of these additional data elements can improve the reliability of the validation event.

LNP results may be supplemented with CARE queries in LEC regions where LNP results are inadequate and CARE costs are not otherwise prohibitive based on the retail price of the underlying service. CARE provides a reliable result on CLEC-ported numbers since its basic purpose is to provide subscriber account information (such as billing name and address). Once a number is ported to a CLEC, the incumbent LEC no longer has subscriber responsibility

and will, therefore, return an "unavailable" response, even if the LEC's dial-tone facility is still being utilized. This negative response is then used to generate a "deny" status on the subscriber based on the current lack of CLEC billing support.

The validation process is also supplemented through the use of internal databases built from information gathered throughout the billing and collection process.

It is important to appreciate that all of the steps in the method executed by the module 200 need not be executed in real time. Typically, after the approval code 000 has been generated by the module 200 at step 334 the module 200 terminates its pre-validation check routine as shown at step 336. At this point the module 200 may merely provide pre-validation data or verification data to indicate to the vendor 22 if the subscriber line 96 is billable. Thus the module 200 may, in a first interaction with the vendor 22 provide pre-validation data, and in a second interaction process billing information. During the processing of billing information the validation process may once again be executed. In certain embodiments, the first interaction may be in the form of a registration process during which the validation procedure is carried out to register a subscriber line 96. The vendor 22 may then conduct numerous transactions with subscriber and subsequent validation checks on the subscriber line may then only be carried out on a periodic basis as described above.

After the validation code has been sent to the vendor 22, and the pre-validation procedure has been complete, the module 200 then carries out the fraud checks on a non-real time basis (usually during the next 48 to 72 hours) as shown in steps 340 to 344. The information obtained during the fraud control checks, if necessary, is used to update the various databases. In particular, after a BTN has been successfully validated but before a billing event takes place, the CARE investigation steps 340 to 344 are executed. The module 200 is typically arranged to interrogate offsite CARE databases and the results of the enquiry are stored in the CARE database 246. Checks on the data received from the CARE databases are then performed whereafter one or more of the other

databases may be updated with the results. For example, the CARE database 246 may be updated, new within 90 days information, business indicator information, or the like. CARE codes 2618 and 2619 typically indicate that the BNA is not available and that the LEC no longer owns the account.

The updating of the databases following the CARE investigation allows enhanced future checks by the module 200 in a subsequent pre-validation procedure or subsequent registration event validation event. The updated information may be provided to the vendor 22. However, if the BTN information returned from the CARE database 246 does not meet predefined criteria, the other databases of the module 200 are not updated.

When a purchase validation event or billing event is declined, fails, unbillable or is negative event for any reason, the purchaser is preferably apprised. The manner in which the failure is treated depends upon the point in time and the reason the transaction validation or billing event fails.

In certain embodiments, a business rule table drives the treatment method and course based on when the failed event occurred during the validation process and the reason for the failure. With a purchase validation event, the option may be provided to interact with the purchaser at the time of requesting the purchase. For example, the option to change failed information for a revalidation or to change to another payment option may be provided. An example of customer failure may be as follows:

If a purchase validation event fails:	Then the customer treatment may be:
ANI=BTN	Screen pop requesting new number and or to call from the matching number.
Missing or incorrect cust code	Screen pop requesting correct cust code.
THRESHOLD	Screen pop explaining this and a request for another payment method.
OFFNET	Screen pop explaining this and a request for another payment method.
CLEC	Screen pop explaining this and a link to change carrier to ILEC. Or request another payment option.

42 Block	Screen pop explaining this and a link to ILEC to unblock 4250. Or request another payment option.
BLOCK and CANCEL	Screen pop explaining this and a request for another payment method. Also include explanation as to how to unblock.
UNBILLS	Screen pop explaining this and a request for another payment method.
LIDB Code Fail	Screen pop explaining this and a request for another payment method.
LIDB RAO/OCN fail	Screen pop explaining this and a link to change carrier to ILEC. Or request another payment option.
ADDRESS VERIFICATION	Screen pop requesting correct information.
Previous Adjustment	Screen pop explaining this and a link to inquiry chat or inquiry call information.
Unpaid Balance	See above.

At the time of a pre-billing validation event or a failed billing event, the interaction with the purchaser will be after the fact and is typically in a screen pop at the next sign-on and in email form. In certain embodiments, there is a preset length of time to correct the failed information for a revalidation or change to a new payment method.

If a pre-bill validation event fails:	Then the customer treatment may be:
OFFNET	Screen pop at next id sign-on explaining this and requesting change of payment method. Email containing the same information and link to update payment information.
CLEC	Screen pop at next id sign-on explaining this and instructions how to solve or update payment method information. Email containing the same information and a link to change carrier to ILEC and link to update payment method.
42 Block	Screen pop at next id sign-on explaining this and instructions how to solve or update payment method information. Email containing the same information and link to unblock at ILEC or link to update payment information.
BLOCK and CANCEL	Screen pop at next id sign-on explaining this and instructions how to solve or update payment method information request for another payment method. Email requesting the same information and a link to change carrier to ILEC and link to update payment method
UNBILLS	Screen pop at next id sign-on explaining this and requesting change of payment method. Email containing the same information and link to update payment

	information.
LIDB Code Fail	Screen pop at next id sign-on explaining this and requesting change of payment method. Email containing the same information and link to update payment information.
LIDB RAO/OCN fail	Screen pop at next id sign-on explaining this and instructions how to solve or update payment method information. Email containing the same information and a link to change carrier to ILEC and link to update payment method
Previous Adjustment	Screen pop at next sign-on explaining this and a link to inquiry chat or inquiry call information.
Unpaid Balance	See above.

If a billing event fails:	Then the customer treatment may be:
Unbills	Screen pop at next id sign-on explaining this, requesting payment of unbilled charge and suggestions of ways to solve including a link to switch back to the ILEC and a way to update new phone number. It will also include a request for a change of payment method. Email containing the same information, link to change back to ILEC, to update with a new phone number, update to update payment information also contains link to inquiry chat or inquiry call.
Chargeback	Screen pop at next sign-on explaining this and a link to inquiry chat or inquiry call information.
Bad Debt Write-off	Screen pop at next sign-on explaining this and a link to inquiry chat or inquiry call information.

Once the treatment period passes, the account access is typically denied and more traditional ways of saving, winning back, and reactivation or collections activities would take place.

In the embodiment described above, information on the subscriber line 96 is forwarded by the service provider or vendor 22 to the module 200 for validation. However, in other embodiments of the invention, the consumer or user may call the module 200 directly, as shown by line 350 in **Figure 1**, and the ANI may then be obtained by the module 200 directly from the terminal 24 and not indirectly from the vendor 22. Further subscriber line data, e.g. BTN, address of the user and so on, may then also be obtained directly from the user. For example, the user may have appropriate software installed on his/her PC which

allows the user to dial into the module 200 in an automated fashion should he/she wish to charge any requested goods or services to his/her subscriber account. The module 200 would then validate the subscriber line 96 using the method describer above. The module 200 then typically communicates a validation code (e.g. corresponding to approval or non-approval) to the vendor 22 as shown by line 352. The vendor 22 would then conclude the transaction with the user if the subscriber line has been validated.

In the first iteration of the validation process in which a validation request is received from the vendor 22, the ANI of the subscriber line 96 is captured to identify the subscriber line to which the terminal 24 is connected so that the validation process can be executed and the transaction or purchase can be approved and the billing process can be effected. It is to be appreciated however that the validation process and further prosecution of the transaction may take place based on the BTN which the user enters but that the capturing of the ANI may reduce the likelihood of fraud. Thus, if the ANI is captured, it may be done during an initial enquiry, purchase event, or at any other time during the process.

In other embodiments of the invention, in addition to or instead of capturing the ANI, the system 20 may request a user to enter the unique number associated with every phone billing account that Telcos currently issue. These additional digits are typically found at the end of the account number on a conventional telephone bill. These digits, sometimes called customer codes, identify the account associated with that particular assignment of the phone number. These codes provide a way to avoid capturing the ANI because typically only the account holder has access to this number thereby reducing the chance of fraud. Thus, the display screen 86 of **Figure 11** optionally includes the field 364 in which a user can enter the customer codes. An appropriate database would then be interrogated to validate the subscriber line. In one embodiment of the invention, the interrogation is included in the LIDB step, and includes details on the account to the customer code level.

The customer codes may thus eliminate the need to capture the ANI by the module 60 (see **Figure 5**) and, customer code data may be compared by the

comparator module 218 (see **Figure 15**) and as shown in step 264 in **Figure 17**. As described above, the display screen 86 then includes the field 264 to accommodate this facility. Likewise, if the phone number is not confirmed, then the input screen would be provided with the customer code field.

When the customer code is used to validate the subscriber line 96, a step to interrogate the information is included in which additional information is sent to the LIDB database 252 (see **Figure 15**) in step 124 of **Figure 13**, and step 290 in **Figure 17**. Additionally, steps relating to the return of LIDB data are updated to include the results of the interrogation of this piece of information.

The facility 28 may function as a type of clearing house. In particular, the facility 28 may be responsible or accountable for payment of the goods or services for each transaction to the service provider or vendor 22 and, in turn, receive payment from the Telco. As mentioned above, the module 200 updates the telephone bill or account 34 of the subscriber in an automated fashion (see line) and the bill 356 that the user receives (see **Figure 1**) includes the charges for the goods and/or services provided by the vendor 22. The user pays the Telco 26 (see line 358), the Telco 26 pays the facility 28 (see line 360), and the facility 28 pays the vendor 22 (see line 362). It is important to appreciate that these payments need not take place at the same time. Typically, the payments between the Telco 26 and the facility 28, and the facility 28 and vendor 22, take place periodically in a batch fashion.

In certain embodiments, the module 200 may define an exemplary subscriber line validation system, in accordance with a further aspect of the invention, for validating the subscriber line 96 of a subscriber. In one exemplary embodiment, the subscriber line 96 is a telephone line or the like which a consumer or business using the electronic terminal 24 obtains from a telephone company (Telco) 26 or a local exchange carrier (LEC). As described above, in one embodiment the module 200, that defines the subscriber line validation system, uses line data in the exemplary form of an automatic number identification (ANI) service to obtain the telephone line number of the subscriber line 96 thereby to validate the subscriber line 96 when the subscriber line 96

initiates a communication or connection. In one exemplary embodiment, the line number obtained from the ANI service is used to investigate various databases to obtain, for example, an indication of the credit worthiness of the subscriber account associated with the subscriber line 96, as described above. It is however to be appreciated that any electronic apparatus, e.g. a personal computer, PDA, cellular telephone, or the like may be used to initiate the communication.

In one exemplary embodiment, when the module 200 defines the subscriber line identification system, it may be connected to a plurality of vendors which conduct transactions with users via line termination equipment such as a telephone, a personal computer or the like. Such vendors, when conducting transactions, may preferably charge a user for their services by adding such charges to a telephone account of the user rather than charging the goods and/or services to a credit card, debit card, or the like. Accordingly, the validation of the subscriber line 96, and the subscriber account associated with the subscriber line 96, may be of benefit to the vendor 22 prior to completing a transaction. The validation may include determining whether or not the subscriber line 96, via which the communication is made to the vendor, is a billable line and, accordingly, the subscriber account associated with the subscriber line 96 may thus be billed for the transaction.

Figure 20 shows a diagrammatic representation of machine in the exemplary form of a computer system 600 within which a set of instructions, for causing the machine to perform any one of the methodologies discussed above, may be executed.

The computer system 600 includes a processor 602, a main memory 604 and a static memory 606, which communicate with each other via a bus 608. The computer system 600 may further include a video display unit 610 (e.g., a liquid crystal display (LCD) or a cathode ray tube (CRT)). The computer system 600 also includes an alphanumeric input device 612 (e.g., a keyboard), a cursor control device 614 (e.g., a mouse), a disk drive unit 616, a signal generation device 618 (e.g., a speaker) and a network interface device 620.

The disk drive unit 616 includes a machine-readable medium 622 on which is stored a set of instructions (software) 624 embodying any one, or all, of the methodologies or functions described herein. The software 624 is also shown to reside, completely or at least partially, within the main memory 604 and/or within the processor 602. The software 624 may further be transmitted or received via the network interface device 620. For the purposes of this specification, the term "machine-readable medium" shall be taken to include any medium that is capable of storing, encoding or carrying a sequence of instructions for execution by the machine and that cause the machine to perform any one of the methodologies of the present invention. The term "machine-readable medium" shall accordingly be taken to include, but not be limited to, solid-state memories, optical and magnetic disks, and carrier wave signals.

Thus, a method and system for processing a transaction and validating a subscriber line have been described. Although the present invention has been described with reference to specific exemplary embodiments, it will be evident that various modifications and changes may be made to these embodiments without departing from the broader spirit and scope of the invention. Accordingly, the specification and drawings are to be regarded in an illustrative rather than a restrictive sense.

CLAIMS:

What we claim is:

1. A method of processing payment for a transaction, the method including:
providing a user with an option, via an electronic terminal, to select payment for the transaction from an account associated with a communication line to which the electronic terminal is connected;
receiving a user request entered into the terminal to process payment from the account;
investigating data associated with the communication line; and
selectively approving the transaction dependent upon an outcome of the investigation.
2. A method as claimed in Claim 1, in which the communication line is a subscriber line and the account is a telephone account associated with the subscriber line.
3. A method as claimed in Claim 2, which includes identifying a telephone number of the subscriber line using automatic number identification (ANI) techniques.
4. A method as claimed in Claim 3, which includes combining the telephone number and transaction data to form a financial instrument record.
5. A method as claimed in Claim 4, in which the financial instrument record is an industry standard credit card record.
6. A method as claimed in Claim 3, in which investigating data associated with the communication line includes performing a validation process in which data associated with the telephone number is investigated.

7. A method as claimed in Claim 6, which includes obtaining a user entered telephone number from the electronic terminal and comparing the user entered telephone number with the telephone number obtained using ANI techniques.
8. A method as claimed in Claim 6, in which the validation process includes retrieving information from a line identification database (LIDB).
9. A method as claimed in Claim 6, which includes:
 - communicating a validating message on approval of the transaction if the validation process validates the subscriber line; and
 - routing processing of the transaction to a financial instrument gateway in the event of the validation process not validating the subscriber line.
10. A method of modifying a financial instrument record, the method including:
 - receiving transaction data entered into an electronic terminal connected via a communication line to a communication network;
 - obtaining a unique identifier associated with the communication line; and
 - combining the unique identifier and the transaction data to form a financial instrument record.
11. A method as claimed in Claim 10, in which the financial instrument record is selected from the group including a credit card record and a debit card record.
12. A method as claimed in Claim 11, in which the financial instrument record is receivable by a Customer Management System.
13. A method as claimed in Claim 12, in which the communication line is a subscriber line and the unique identifier is a telephone number associated with

the subscriber line.

14. A method as claimed in Claim 13, in which the telephone number replaces a financial instrument number in the financial instrument record.

15. A method of validating a transaction conducted using an electronic terminal connected via a communication line to an electronic network, the method including:

- receiving a financial instrument record associated with the transaction;
- extracting a unique identifier from the financial instrument record, the unique identifier being associated with the communication line; and
- interrogating at least one database based on the unique identifier to obtain data associated with the communication line and selectively generating a validation status.

16. A method as claimed in Claim 15, in which the unique identifier is a telephone number of a subscriber line and processor module retrieves information from a line identification database (LIDB).

17. A method as claimed in Claim 16, in which charges for the transaction are included in an account associated with the subscriber line.

18. A method as claimed in Claim 16, which communicates a validating message on approval the transaction if the subscriber line is validated, and routes processing of the transaction to a financial card gateway in the event of the subscriber line is not validated.

19. A transaction processing system for processing a transaction between a vendor and an electronic terminal connected via a communication line to a communication network, the system including:

- an application interface for providing a user, via the electronic terminal,

with an option to select payment for the transaction from an account associated with the communication line, and receiving a user request entered into the terminal to process payment from the account; and

a modification module connected to the application interface, the modification module generating a record which includes a unique identifier associated with the communication line and communicating the record to a validation module which validates the transaction based on data associated with the unique identifier.

20. A system as claimed in Claim 19, in which payment is routed to financial card gateway if the validation module invalidates the transaction.

21. A system as claimed in Claim 19, in which the communication line is a subscriber line and the unique identifier is a telephone number associated with the subscriber line.

22. A system as claimed in Claim 21, which includes an automatic line identification (ANI) module automatically to identify the telephone number.

23. A system as claimed in Claim 22, in which the validation module includes:
a telephone number extraction module for extracting a telephone number from the record, the telephone number defining the unique identifier; and
a processor module which interrogates at least one reference data base to obtain data associated with the telephone number and, in response thereto, generates a validation status.

24. A system as claimed in Claim 22, in which the processor module interrogates a line identification database (LIDB).

25. A system as claimed in Claim 22, in which the processor module validates the transaction if charges can be included in the account associated with the

subscriber line, and invalidates the transaction if the charges cannot be included in the account.

26. A system as claimed in Claim 23, which includes an exchange interface for interfacing the validation module to an accounting facility of a telecommunications company at which the account is held thereby automatically to include the charges for the transaction in the account.

27. A system as claimed in Claim 19, in which the record is an industry standard financial instrument record.

28. A system as claimed in Claim 27, in which the record is selected from the group including a credit card record and a debit card record.

29. A transaction processor interface for processing payment of a transaction, the interface including:

an application interface for providing a user with an option, via an electronic terminal, to select payment for the transaction from an account associated with a communication line to which the electronic terminal is connected, and for receiving a user request entered into the electronic terminal to process payment from the account; and

a modification module for creating a financial instrument record which includes a unique identifier associated with the communication line.

30. A transaction processor interface as claimed in Claim 29, in which the communication line is a subscriber line and the account is a telephone account associated with the subscriber line.

31. A transaction processor interface as claimed in Claim 30, which includes an automatic number identification (ANI) module to obtain a unique identifier in the form of a telephone number of the subscriber line.

32. A transaction processor interface as claimed in Claim 29, which includes a communications module for communicating the financial instrument record to a validation module for validating the transaction based on data associated with the unique identifier.

33. A transaction processing interface as claimed in Claim 29, in which the financial instrument record is selected from the group including a credit card record and a debit card record.

34. A transaction validation module for validating a transaction conducted using an electronic terminal connected via a communication line to an electronic network, the module including:

an extraction module for extracting a unique identifier from a financial instrument record associated with a transaction, the unique identifier being associated with the communication line ; and

a processor module for interrogating at least one database based on the unique identifier to obtain data associated with the communication line and selectively generating a validation status.

35. A transaction validation module as claimed in Claim 34, in which the unique identifier is a telephone number and the processor module retrieves the data from a line identification database (LIDB).

36. A transaction validation module as claimed in Claim 35, in which charges for the transaction are included in an account associated with the communication line.

37. A transaction validation module as claimed in Claim 34, which communicates a validating message on approval the transaction if the communication line is validated, and routes processing of the transaction to a

financial card gateway if the communication line is not validated.

38. A computer program product including a medium readable by a processor, the medium carrying instructions which, when executed by the processor, cause the processor to:

provide a user with an option, via an electronic terminal, to select payment for a transaction from an account associated with a communication line to which the electronic terminal is connected;

receive a user request entered into the terminal to process payment from the account;

investigate data associated with the communication line; and

selectively approve the transaction dependent upon an outcome of the investigation.

39. A product as claimed in Claim 38, in which the communication line is a subscriber line and the account is a telephone account associated with the subscriber line.

40. A product as claimed in Claim 39, which includes identifying a telephone number of the subscriber line using automatic number identification (ANI) techniques.

41. A product as claimed in Claim 39, which includes combining the telephone number and transaction data to form a financial instrument record.

42. A computer program product including a medium readable by a processor, the medium carrying instructions which, when executed by the processor, cause the processor to:

receive transaction data entered into an electronic terminal connected via a communication line to a communication network;

obtain a unique identifier associated with the communication line; and

combine the unique identifier and the transaction data to form a financial instrument record.

43. A product as claimed in Claim 42, in which the financial instrument record is selected from the group including a credit card record and a debit card record.

44. A product as claimed in Claim 42, in which the financial instrument record is receivable by an Internet-based Customer Management System.

45. A computer program product including a medium readable by a processor, the medium carrying instructions which, when executed by the processor, cause the processor to:

receive a financial instrument record associated with a transaction conducted using an electronic terminal connected via a subscriber line connected to a communication network;

extract a unique identifier from the financial instrument record, the unique identifier being associated with the communication line; and

interrogate at least one database based on the unique identifier to obtain data associated with the unique identifier and selectively generate a validation status.

46. A product as claimed in Claim 45, in which the unique identifier is a telephone number and the processor retrieves information from a line identification database (LIDB).

47. A method as claimed in Claim 45, in which charges for the transaction are included in an account associated with the communication line.

48. A method of providing validation data associated with a subscriber line of a telecommunication network, the method including:

obtaining line data of the subscriber line, the line data being suitable for

interrogating a line identification database (LIDB);

interrogating the LIDB with the line data to obtain reference subscriber data associated with the line data; and

processing the reference subscriber data to obtain validation data associated with the subscriber line.

49. The method of claim 48, wherein the LIDB is a conventional LIDB used by a service provider.

50. The method of claim 49, which includes:

analyzing the reference subscriber data to determine if the line data is associated with a billing telephone number (BTN); and

generating one of an approval and a decline status in response to the analysis.

51. The method of claim 48, wherein the line data is an automatic number identification (ANI).

52. The method of claim 51, which includes interrogating the LIDB with the ANI to obtain the reference subscriber data associated with the line data.

53. The method of claim 52, which includes processing the validation data to determine whether the subscriber line is a billable line having an associated account to which goods or services can be billed.

54. The method of claim 52, which includes processing the reference subscriber data received from the LIDB selectively to approve a transaction requested via the subscriber line.

55. The method of claim 52, wherein the reference subscriber data is in the form of LIDB codes.

56. The method of claim 55, wherein the processing of the reference subscriber data includes generating a modified code from at least one LIDB code from a plurality of LIDB codes.

57. The method of claim 56, which includes generating a common modified code from the plurality of LIDB codes.

58. The method of claim 57, which includes arranging the modified codes into a billable group and a non-billable group.

59. The method of claim 51, which includes conducting fraud control checks on the account associated with the subscriber line.

60. The method of claim 59, wherein the fraud control checks include at least one of the operations selected from the group consisting of checking if adjustments have been made to the account associated with the line data, verifying a user entered ZIP code with ZIP data from a ZIP data source, verifying user entered address data with address data from an address data source, checking if an area code associated with the line data has changed, checking if the line data and a BTN match, and checking if one of the BTN and ANI are missing from the record.

61. The method of claim 48, which includes interrogating a network database with the ANI to determine if the subscriber line is a billable subscriber line and, if so, generating one of a decline status and an approved status in response to the interrogation.

62. The method of claim 61, which includes interrogating with the line data at least one of a competitive local exchange carrier (CLEC) database, a 42 BLOCK database, a Block and Cancel database, an unpaid bills database, an off

network database, an on network database, an address verification database, a regional account office (RAO) database, an operating company number (OCN) database, and a customer account record exchange (CARE) database.

63. The method of claim 48, which includes:
receiving the line data from a vendor of goods or services; and
communicating one of a decline status and an approval status to the vendor in response to receiving the line data from the vendor.

64. The method of claim 63, which includes billing charges raised by the vendor to an account submitted by an exchange carrier to a subscriber for use of the subscriber line.

65. A machine-readable medium for storing a set of instructions that, when executed by a machine, cause the machine to:
obtain line data of a subscriber line, the line data being suitable for interrogating a line identification database (LIDB);
interrogate the LIDB with the line data to obtain reference subscriber data associated with the line data; and
process the reference subscriber data to obtain validation data associated with the subscriber line.

66. A subscriber line validation system to validate a subscriber line of a communication network, the system including
a communication module to receive line data of the subscriber line, the line data being suitable for interrogating a line identification database (LIDB);
an interrogation module for interrogating the LIDB with the line data to obtain reference subscriber data associated with the line data; and
a processor module for processing the reference subscriber data to obtain validation data associated with the subscriber line.

67. The system of claim 66, wherein the LIDB is at least one conventional LIDB used by at least one service provider to investigate a destination line to which the subscriber line requests a connection.

68. The system of claim 67, wherein the processor module is configured to analyze the reference subscriber data to determine if the data is associated with a billing telephone number (BTN) and to generate one of an approval and a decline status in response to the analysis.

69. The system of claim 66, wherein the line data is an automatic number identification (ANI).

70. The system of claim 69, wherein the interrogation module is configured to interrogate the LIDB with the ANI to obtain the reference subscriber data associated with the line data.

71. The system of claim 70, wherein the validation data is processed to determine whether the subscriber line is a billable line having an associated account to which goods or services can be billed.

72. The system of claim 70, wherein the reference subscriber data is received from the LIDB and is processed selectively to approve a transaction requested via the subscriber line.

73. The system of claim 70, wherein the reference subscriber data is in the form of conventional LIDB codes and the processor module generates a modified code from at least one LIDB code.

74. The system of claim 73, wherein a common modified code is generated from a plurality of different LIDB codes.

75. The system of claim 74, wherein a plurality of modified codes are generated and arranged in a billable group and a non-billable group.

76. The system of claim 69, wherein the processor module is configured to conduct at least one fraud control check selected from the group consisting of checking if adjustments have been made to the account associated with the line data, verifying a user entered ZIP code with a ZIP data source, verifying user entered address data with an address data source, checking if the area code associated with the ANI has changed, checking if the ANI and the BTN match, and checking if at least one of the BTN and ANI is missing from the record.

77. The system of claim 66, wherein the processor module is configured to interrogate a network database with the ANI to determine if the subscriber line is a billable subscriber line and, if so, generate one of a decline status and an approved status in response to the interrogation.

78. The system of claim 77, wherein the network database includes at least one of a competitive local exchange carrier (CLEC) database, a 42 BLOCK database, a Block and Cancel database, an unpaid bills database, an off network database, an on network database, an address verification database, a regional account office (RAO) database, an operating company number (OCN) database, and a customer account record exchange (CARE) database.

79. The system of claim 66, wherein the communication module receives the line data from a vendor of goods or services and communicates at least a decline status to the vendor.

80. The system of claim 79, wherein charges raised by the vendor are included in an account submitted by an exchange carrier to a subscriber for use of the subscriber line.

81. A system to provide validation data associated with a subscriber line of a telecommunication network, the system including

means for obtaining line data of the subscriber line, the line data being suitable for interrogating a line identification database (LIDB);

means for interrogating the LIDB with the line data to obtain reference subscriber data associated with the line data; and

means for processing the reference subscriber data to obtain validation data associated with the subscriber line.

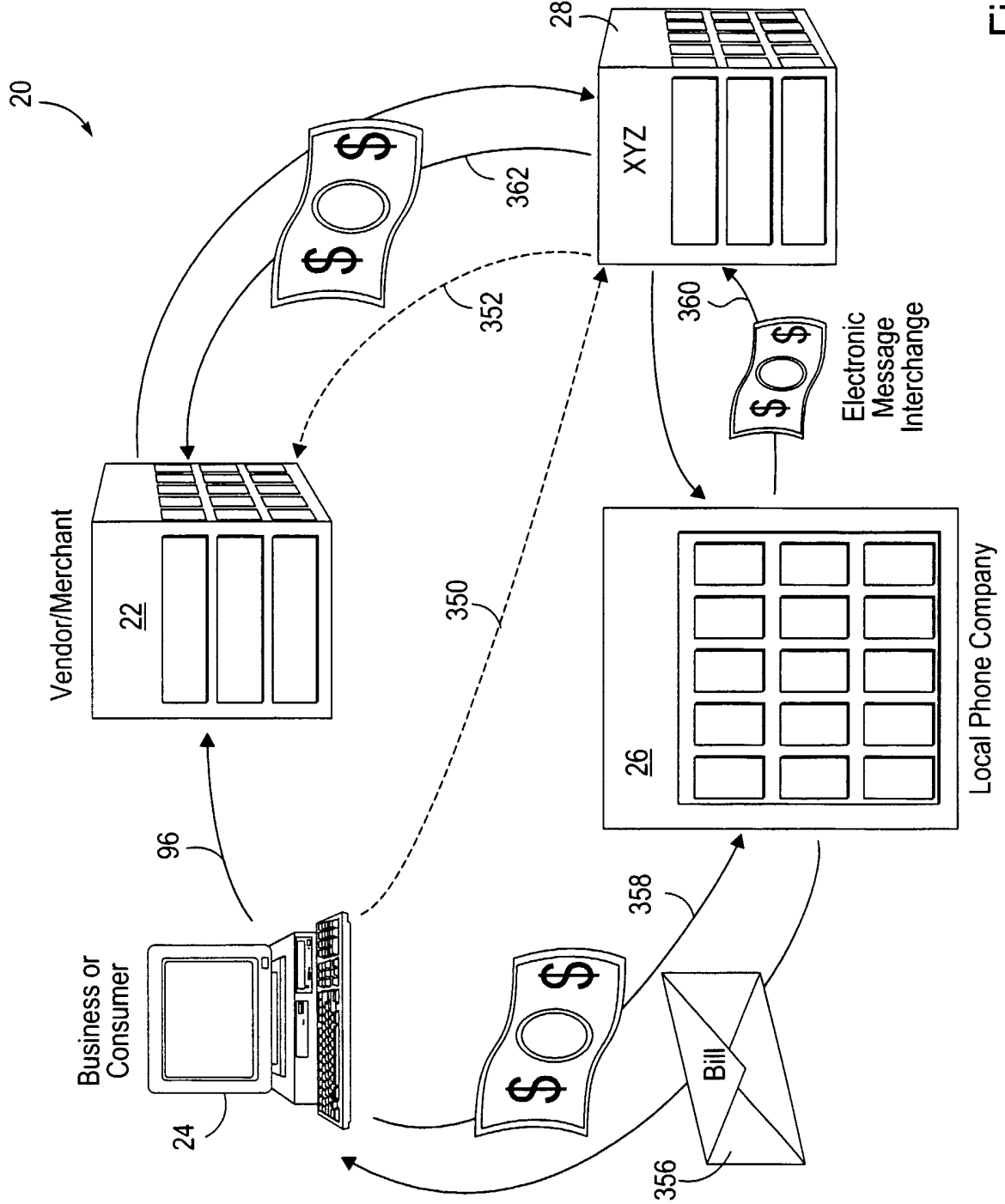


Fig. 1

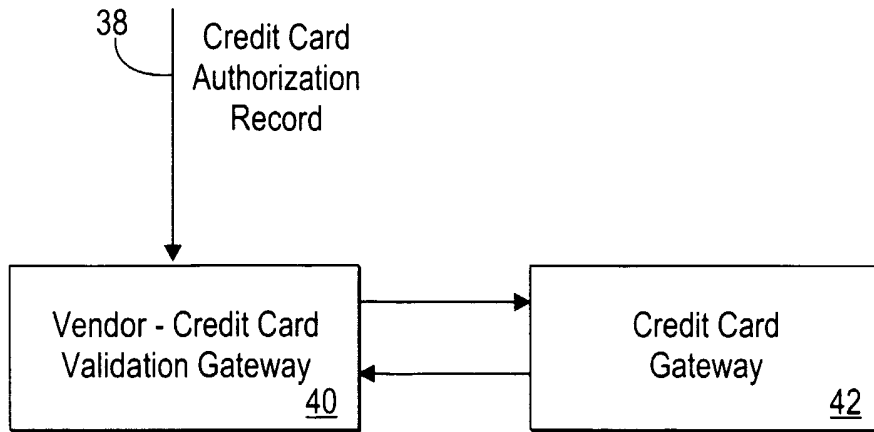


Fig. 2
(Prior Art)

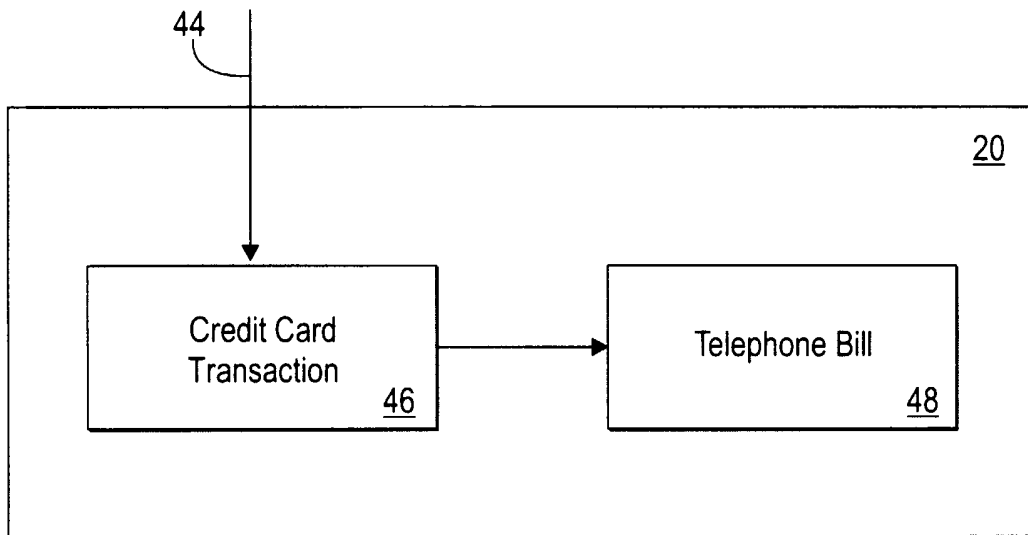


Fig. 3

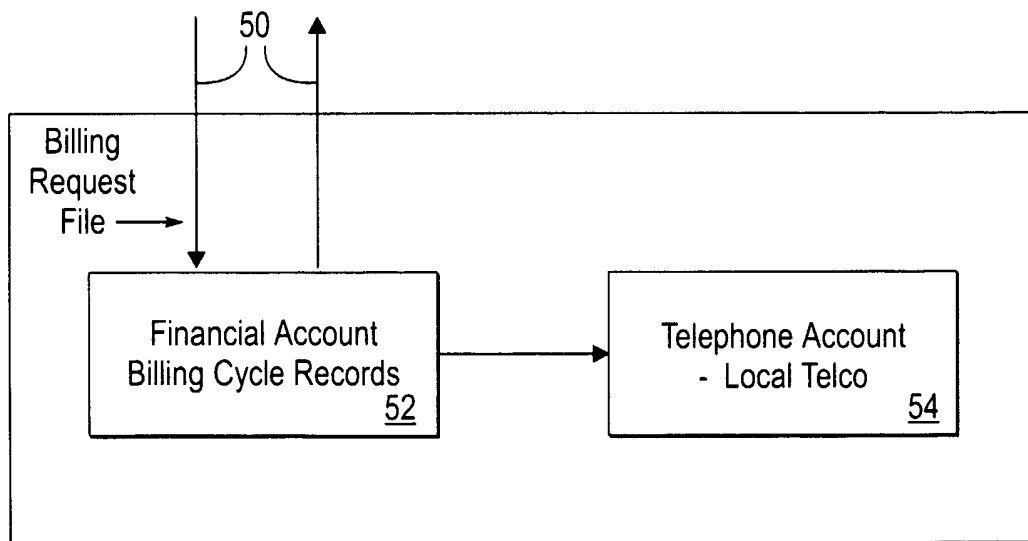


Fig. 4

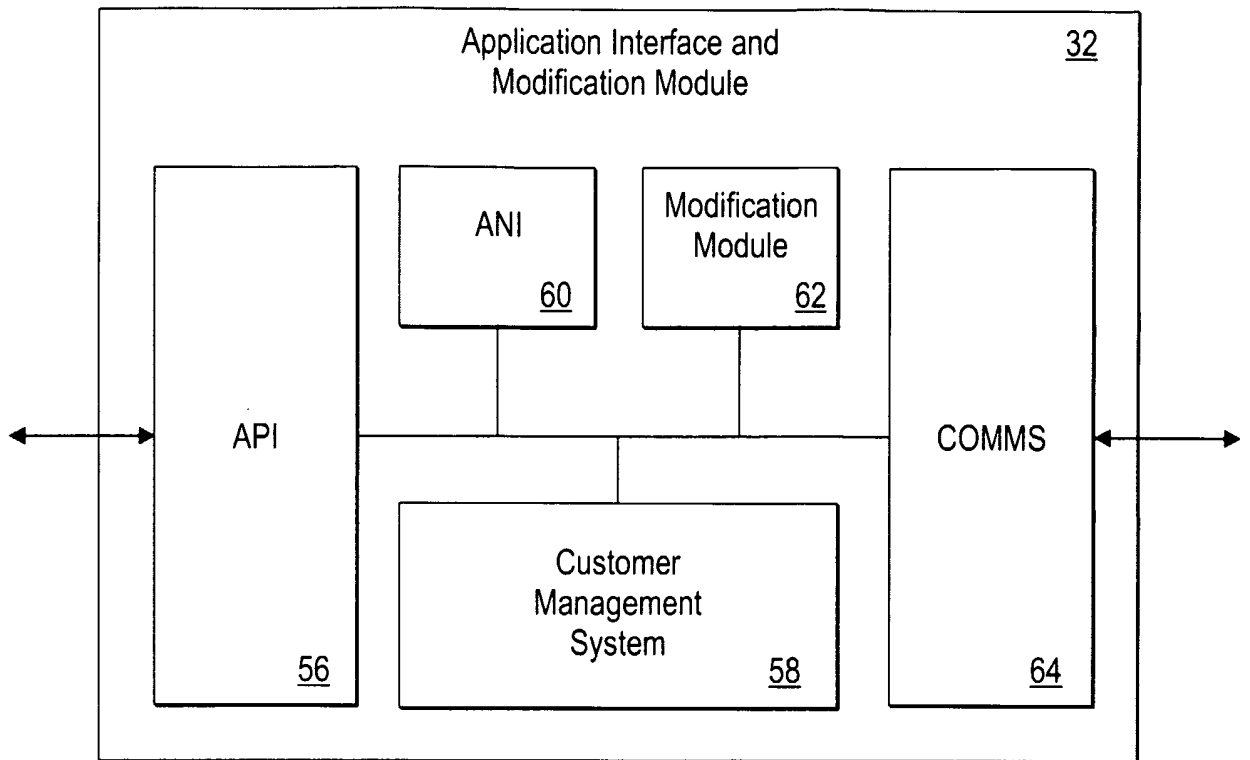


Fig. 5

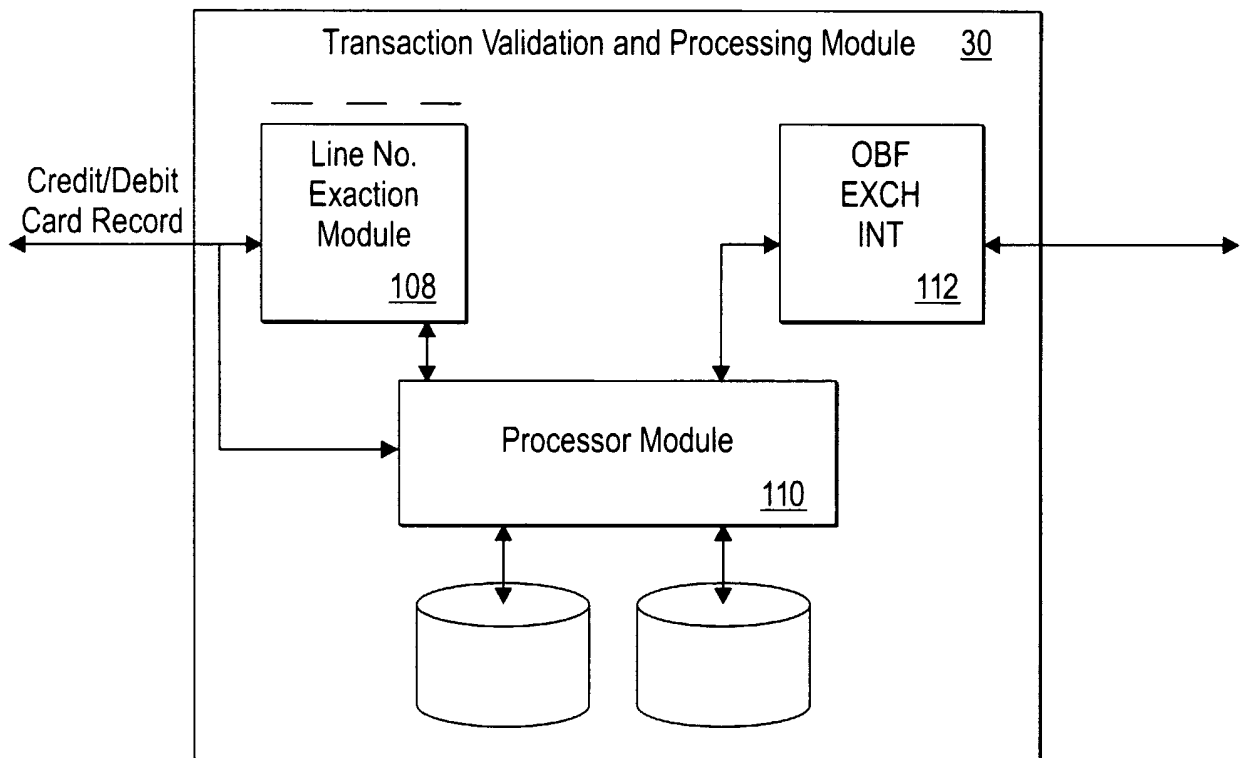


Fig. 6

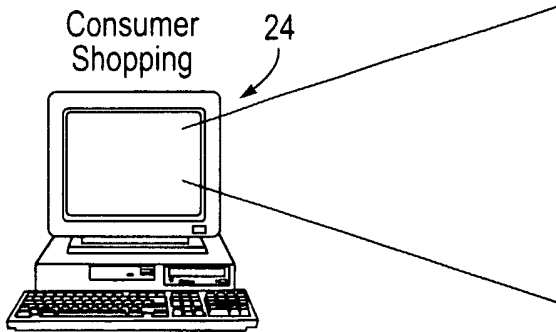


Fig. 7

Name
Address
City, State Zip
Daytime Phone
Evening Phone <u>66</u>

Fig. 8

TERMS	<u>68</u>
<ul style="list-style-type: none">- You agree to pay for the purchase.- You are the responsible party for chosen payment method.- You are at least 18 years of age.- You authorize the authorization or validation of chosen payment method.- You authorize the capture of information for the express purpose of authorization or validation of payment method.	
<input type="button" value="ACCEPT"/> 70	<input type="button" value="DECLINE"/> 72

Fig. 9

CHOOSE A PAYMENT METHOD:	<u>74</u>
76 — <input type="button" value="VISA"/>	<input type="button" value="MASTERCARD"/> 78
80 — <input type="button" value="AMEX"/>	<input type="button" value="PHONE BILL"/> 84
<input type="button" value="BANK ACCOUNT"/> 82	

Fig. 10

PLEASE CONFIRM YOUR PHONE #: PLEASE ENTER 86

(XXX) XXX-XXXX 90

CUST CODE 364

88 92

Fig. 11

94

WE WILL AUTHORIZE YOUR PHONE NUMBER FOR THIS CHARGE,
PLEASE WAIT.....

Fig. 12

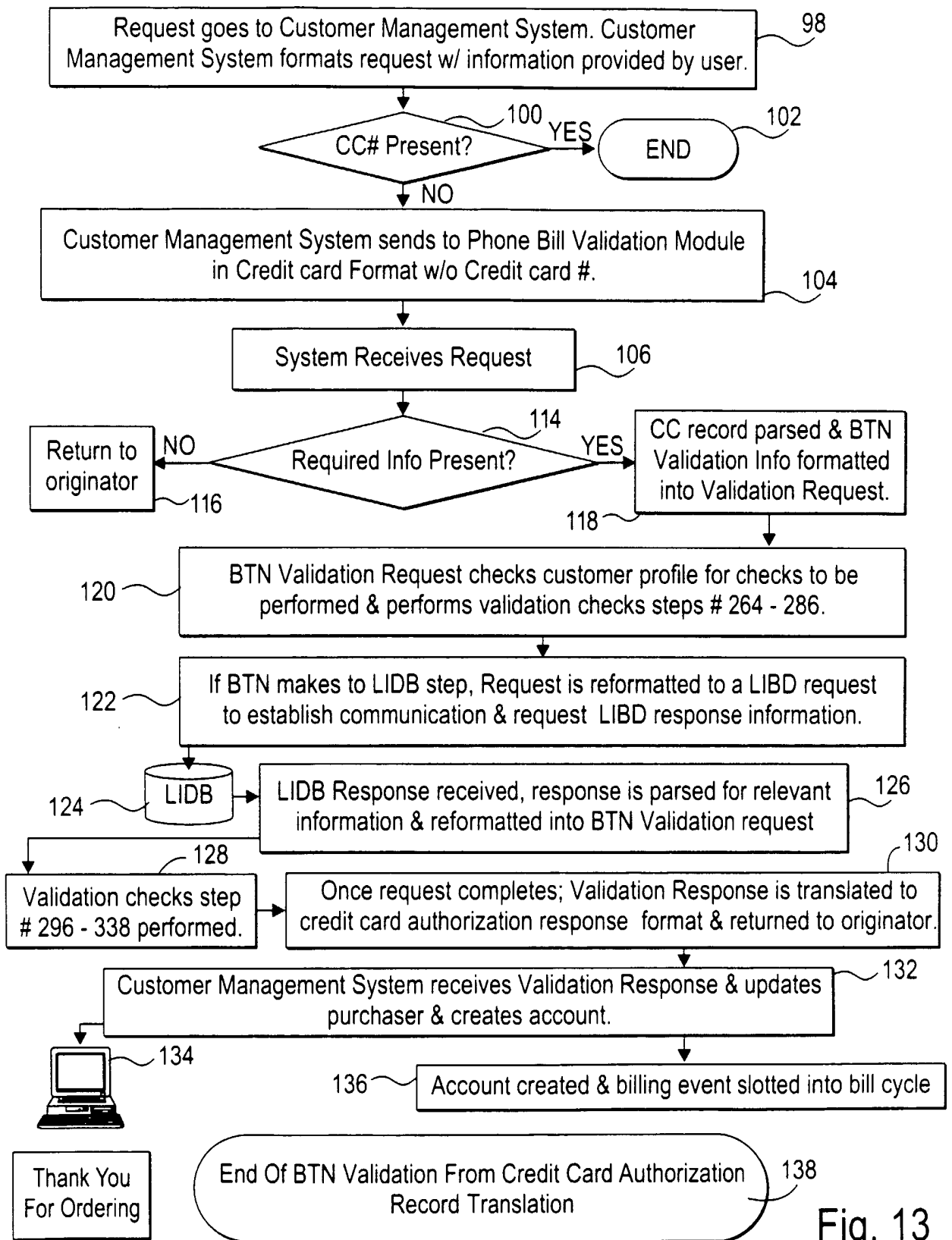


Fig. 13

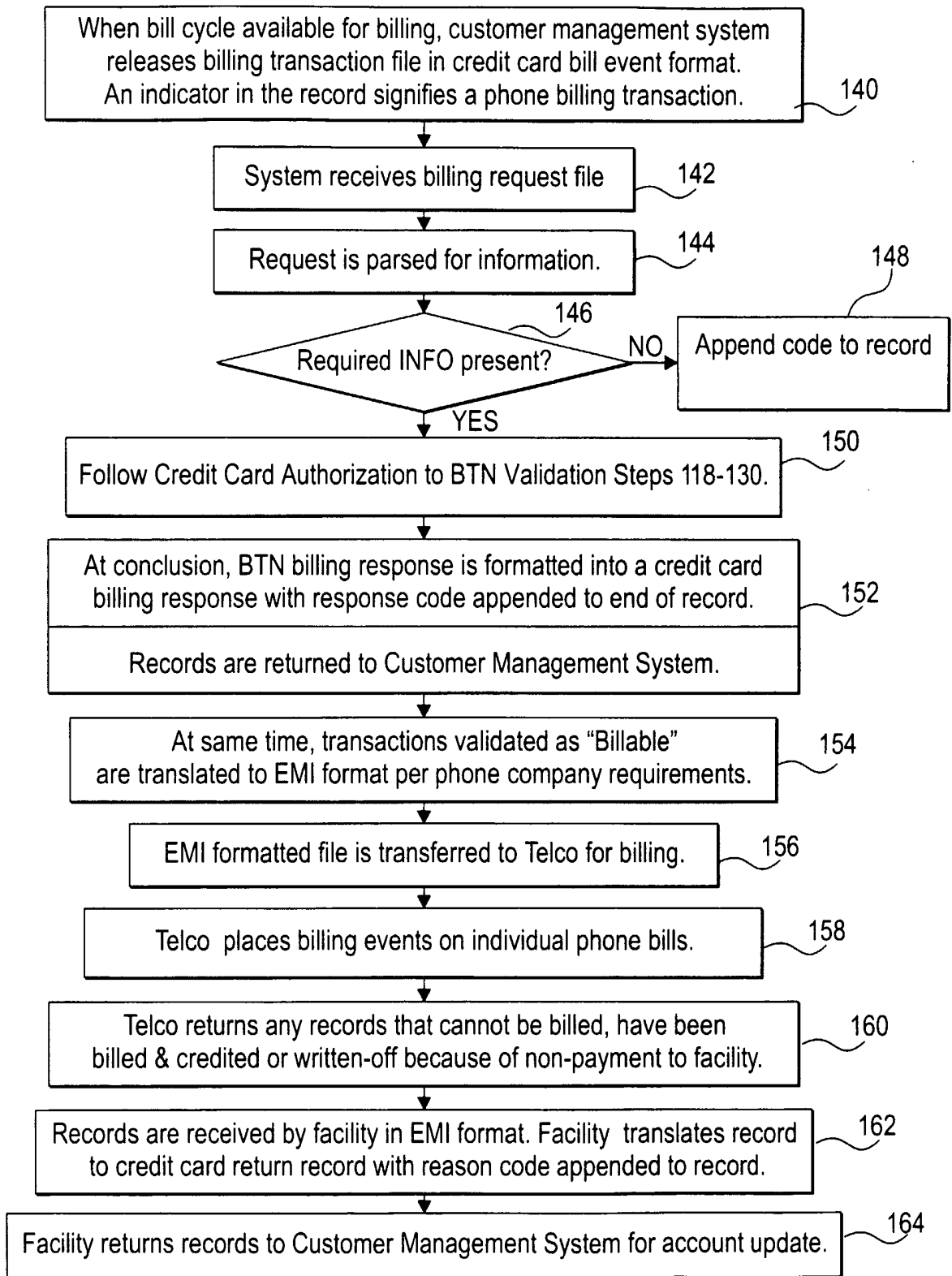


Fig. 14

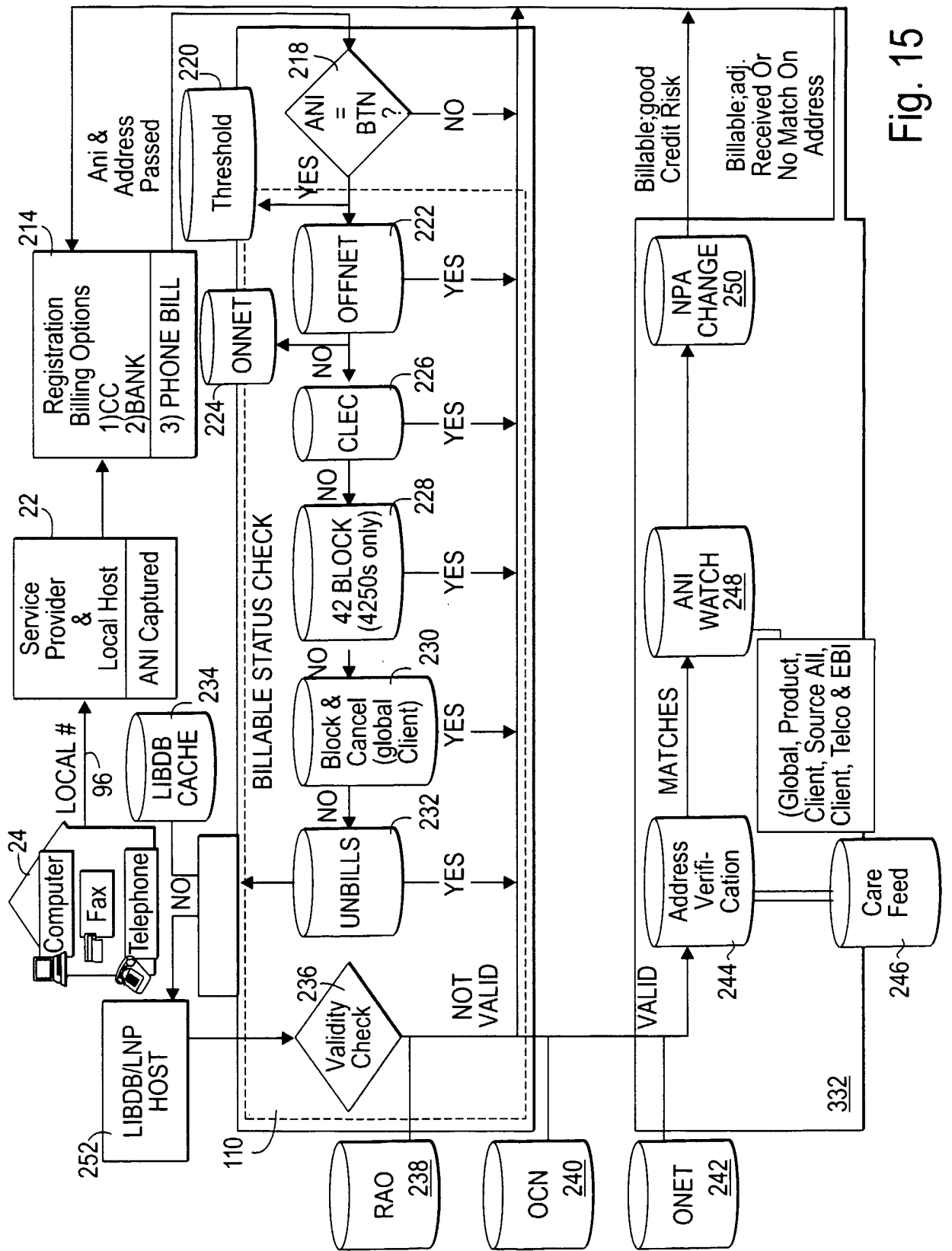


Fig. 15

Account Number

Statement Date

Page 1

34

Dec 4, 2002

Questions about your bill?

1-800-000-0000

XYZ

Total Current Charges (See detail below)	\$106.11
--	----------

Billed on Behalf of xyz.com

Description	Amount:
1. Dec 3 XYZ ISP ACCESS	\$9.91
2. Dec 3 ONLINE SERVICE	\$4.91
3. Dec 3 DSL LINE CHARGE	\$29.91
4. Dec 3 UNIFIED MESSAGING	\$5.95
5. Dec 3 WEB HOSTING	\$20.00

Total Monthly Chargers	\$70.80
------------------------	---------

Billed on Behalf of INTERNET TELEPHONY PROVIDER

Date	Time	Place and Number Called	Type	Rate	Minutes	Amount
6. Nov.8	3:37 pm	Anywhere, USA 444 555-7777	Direct Day		6	.42
7. Nov.10	3:37 pm	Anywhere, USA 444 555-7777	Direct Day		10	.70
8. Nov.14	3:37 pm	Anywhere, USA 444 555-7777	Direct Day		7	1.61
9. Nov.16	3:37 pm	Anywhere, USA 444 555-7777	Direct Day		23	.49
10. Nov.21	3:37 pm	Anywhere, USA 444 555-7777	Direct Day		50	3.92

TotalCalls	\$7.14
------------	--------

Billed on Behalf of INTERNET SERVICE PROVIDER

11. Nov.14	2:32 pm	Online Games 444 555-7774	Direct Day		1	\$6.00
12. Nov.16	2:37 pm	Software 444 555-7771	Direct Day		1	\$14.95
13. Nov.21	5:17 pm	MPS Smooth Jazz 444 555-7772	Direct Eve		1	\$8.99

TotalCalls	\$24.94
------------	---------

Taxes & Surcharges

Description

14. Charges for Network Access for Interstate Calling.
Imposed by Federal Communications Commission

Amount
\$3.50

Fig. 16

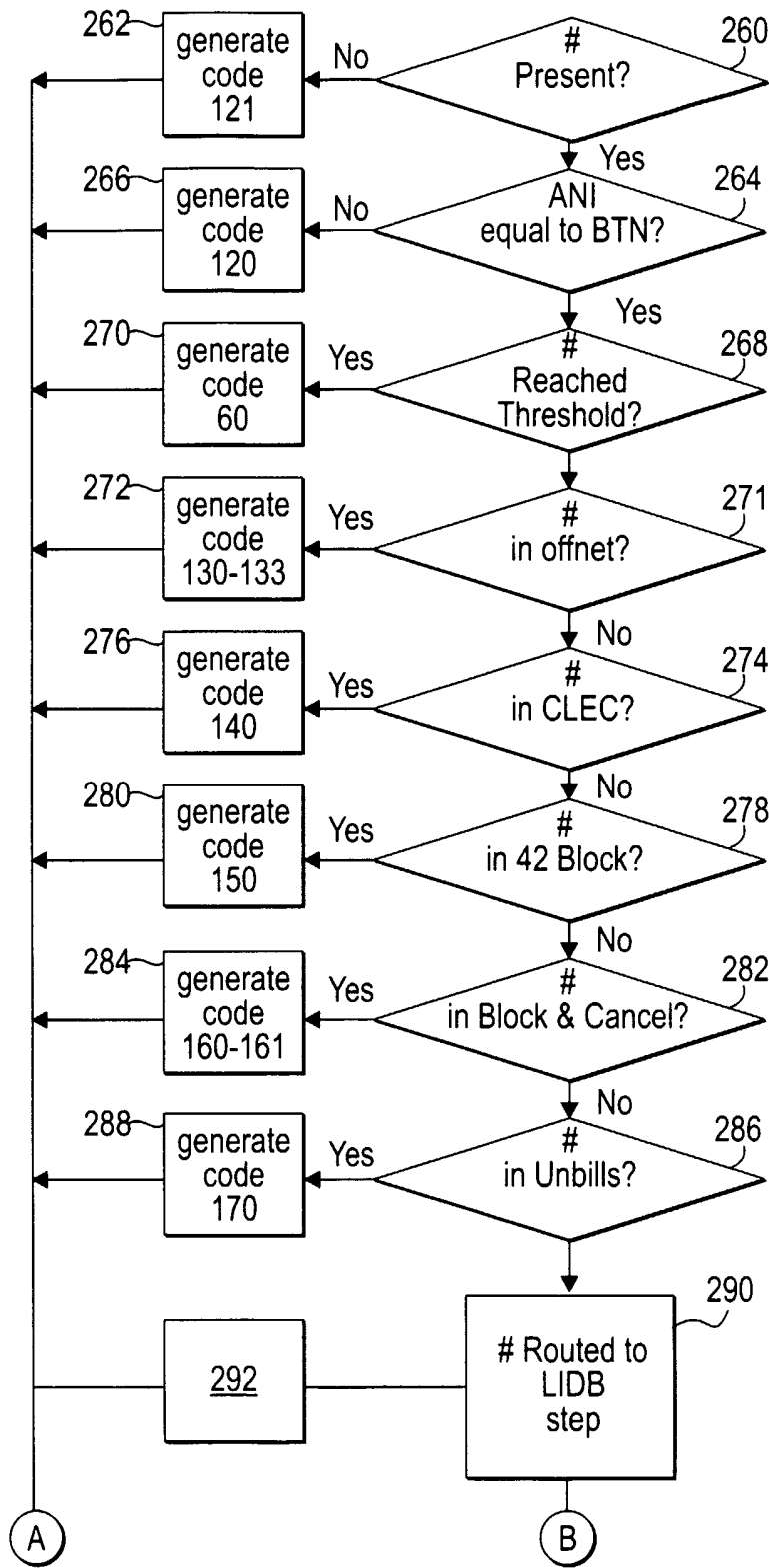


Fig. 17

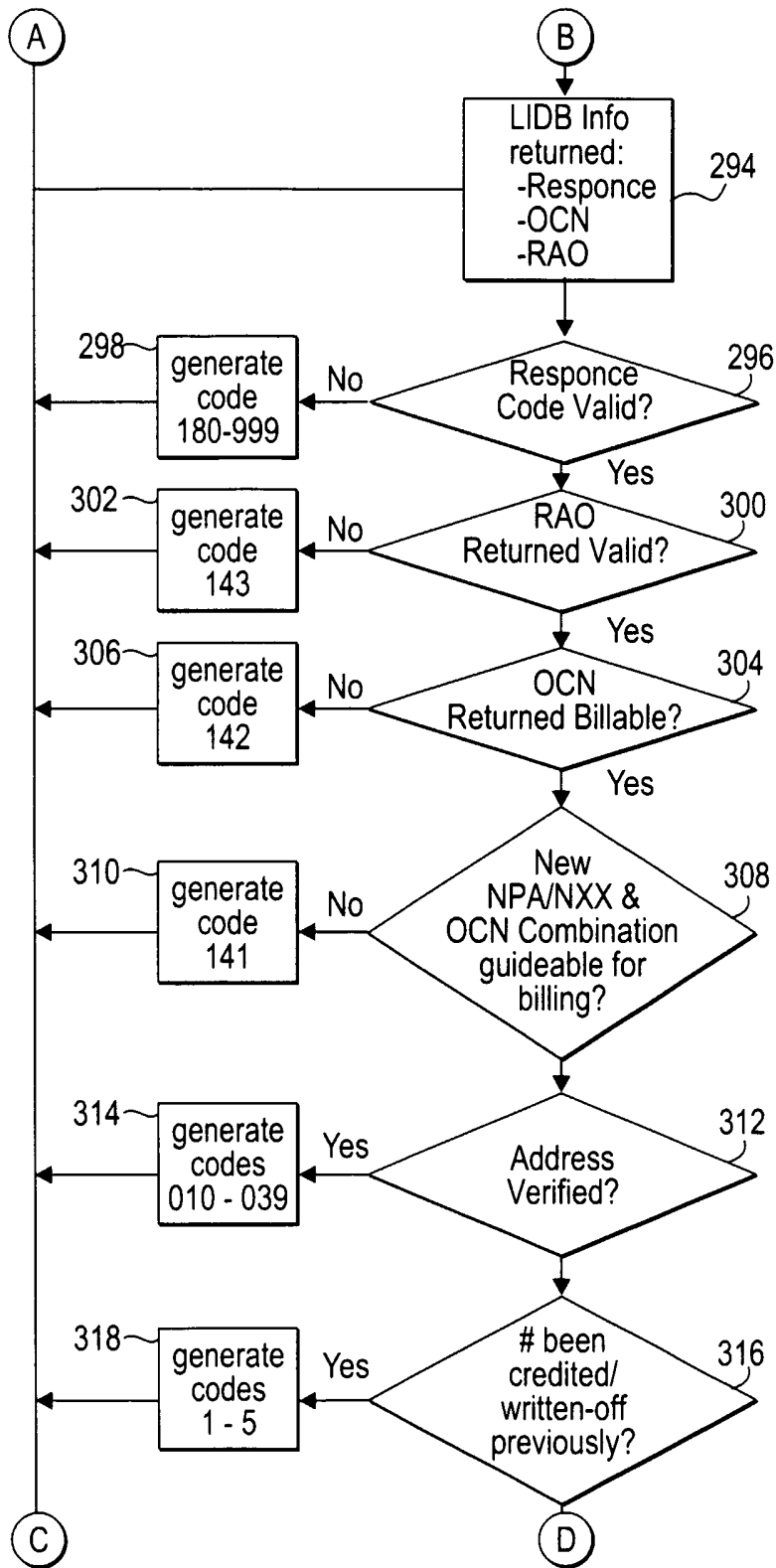


Fig. 18

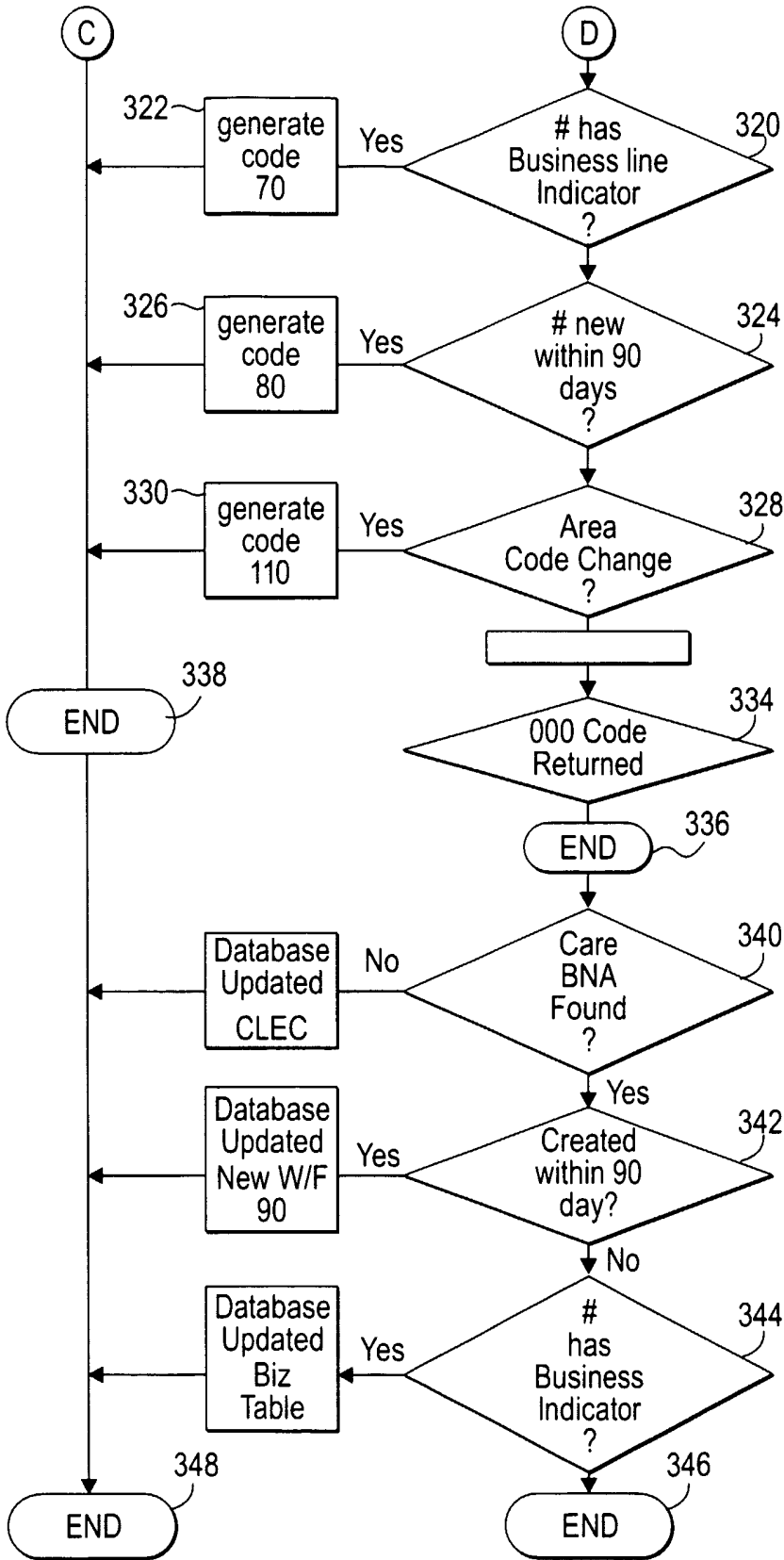


Fig. 19

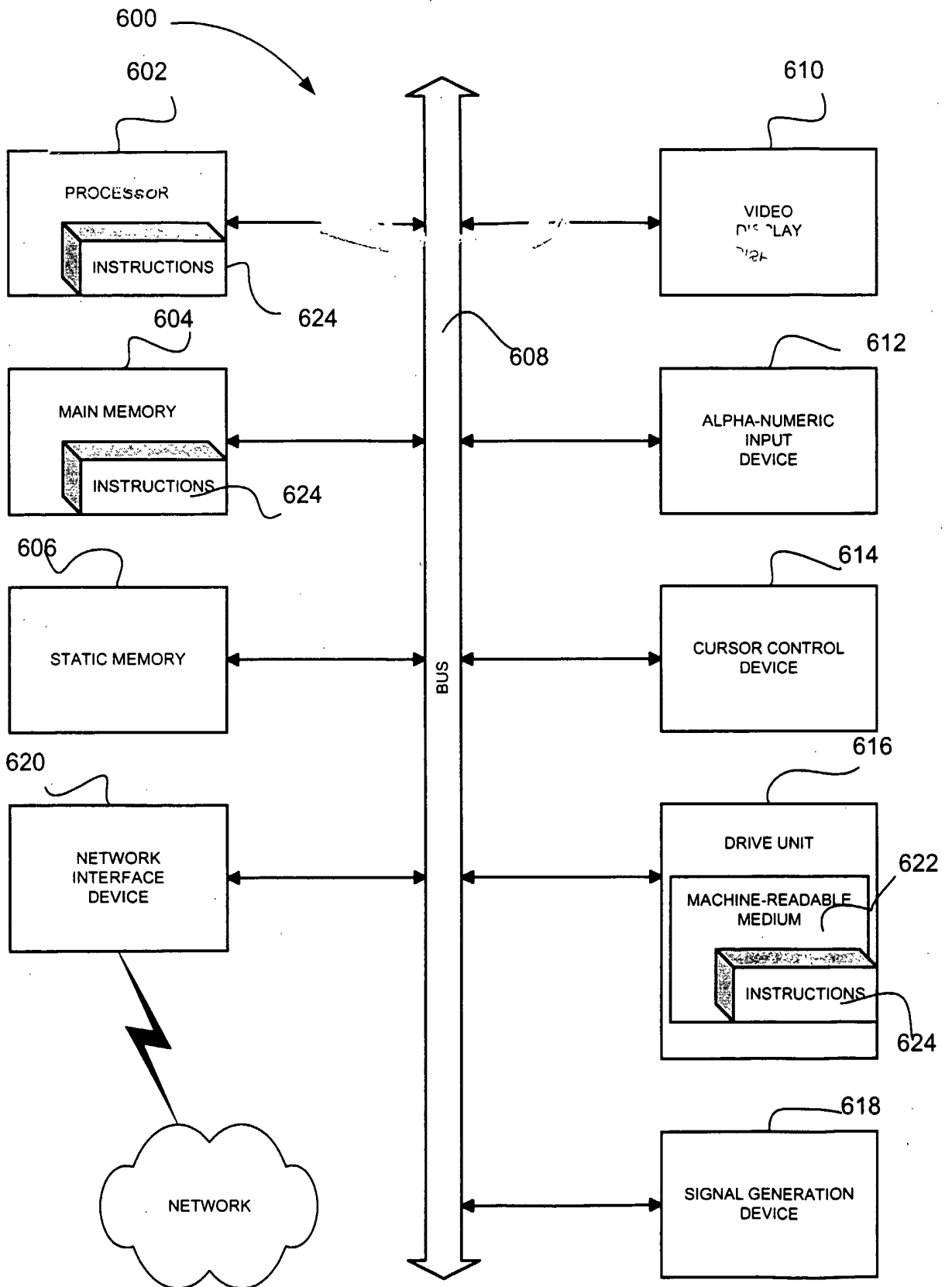


FIG. 20

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/30077

A. CLASSIFICATION OF SUBJECT MATTER		
IPC(7) : G06F 17/60 US CL : 705/26,40		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) U.S. : 705/26,40		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Please See Continuation Sheet		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2002/0147658 A1 (KWAN) 10 October 2002 (10.10.2002), entire document	1-81
A	US 6,023,502A (BOUANAKA et al.) 8 February 2000 (8.02.2000), entire document.	
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* Special categories of cited documents:		
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family	
Date of the actual completion of the international search 25 November 2002 (25.11.2002)		Date of mailing of the international search report 02 JAN 2003
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230		Authorized officer <i>James P. Trammell</i> James P. Trammell Telephone No. 703.308-1113

INTERNATIONAL SEARCH REPORT

PCT/US02/30077

Continuation of B. FIELDS SEARCHED Item 3:

EAST.

search terms; telephone accounts, bill distribution/payment, finance, credit