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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
7 January 2010 (07.01.2010)

PCT

(10) International Publication Number
WO 2010/002735 A1

(51) International Patent Classification:
H04L 29/06 (2006.01)

(21) International Application Number:
PCT/US2009/048864

(22) International Filing Date:
26 June 2009 (26.06.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
12/217,419 3 July 2008 (03.07.2008) US

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

(54) **Title**: RISK MANAGEMENT WORKSTATION

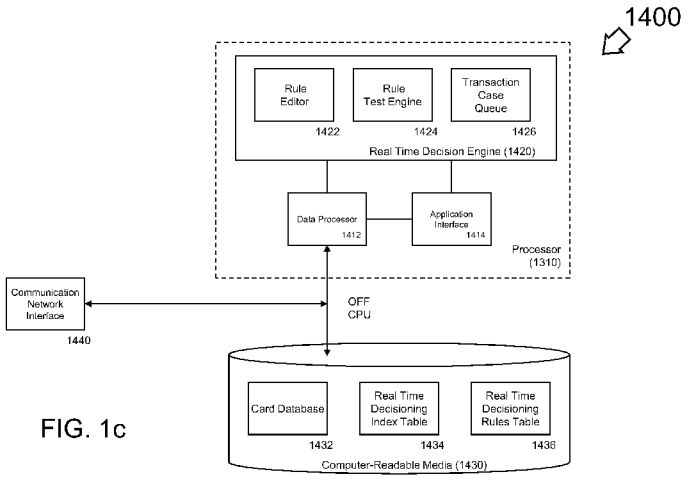

FIG. 1c

(57) **Abstract**: A system, method, and computer-readable storage medium configured to import fraud prevention rules from an issuer and implement them in real-time at a payment processor. Usually, a card issuing bank either approves or declines financial transaction; however, in embodiments of the present invention, the issuing bank creates fraud prevention rules, and the payment processor implements the created rules. A payment processor apparatus comprises a network interface, and a verification engine. The verification engine includes a transaction driver, and a real time decisioning processor. The network interface is configured to receive a fraud prevention rule from a payment card issuing bank, and to receive a proposed financial transaction from an acquiring bank. The transaction driver receives the fraud prevention rule. The real time decisioning processor compares the proposed financial transaction from the acquirer and the fraud prevention rule to determine whether the proposed financial transaction should be declined.

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RISK MANAGEMENT WORKSTATION

BACKGROUND

Field of the Invention

Aspects of the present invention relate in general to financial services. Aspects include a financial fraud prevention apparatus, system, method and computer-readable storage medium configured to import fraud prevention rules from an issuer and implement them in real-time at a payment processor.

"Description of the Related Art"

When a consumer cardholder makes a purchase from a merchant, a payment card can be used to pay for the transaction. The merchant forwards the financial transaction information to an acquiring bank (herein referred to as the “acquirer”). A payment processor (such as Visa™, MasterCard™, or American Express™) receives the transaction information and then forwards it to the payment card issuing bank (the “issuer”) for approval.

The issuer decides on whether or not to approve the cardholder’s purchase.

The existing model requires issuers to have a great deal of technical infrastructure in order to support payment cards. Additionally, maintaining the technical infrastructure is both expensive and difficult, as issuers must monitor and react to various types of payment card fraud. Issuers suffer a great deal of losses due to various fraud schemes.

SUMMARY

Embodiments of the invention include a system and method configured to import fraud prevention rules from an issuer and implement them in real-time at a payment processor. Usually, a card issuing bank either approves or declines financial transaction; however, in embodiments of the present invention, the issuing bank

creates fraud prevention rules, and the payment processor implements the created rules. A verification engine includes a transaction driver, and a real time decisioning processor. The network interface receives a fraud prevention rule from a payment card issuing bank, and a proposed financial transaction from an acquiring bank. The transaction driver receives the fraud prevention rule. The real time decisioning processor compares the proposed financial transaction from the acquirer and the fraud prevention rule to determine whether the proposed financial transaction should be declined.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1a illustrates an embodiment of a system configured to import fraud prevention rules from an issuer and implement them in real-time at a payment processor.

FIG. 1b depicts an embodiment of a payment processor configured to import fraud prevention rules from an issuer and implement them in real-time.

FIG. 1c shows an embodiment of an issuer configured to upload fraud prevention rules to a payment processor that implements the rules in real-time.

FIG. 2 flowcharts a method embodiment in which a payment processor is configured to import fraud prevention rules from an issuer and implement them in real-time.

FIG. 3 is a flowchart of a method embodiment in which a payment processor implements fraud prevention rules received from an issuer and implements the rules in real-time.

FIG. 4 is a flowchart of an alternate method embodiment in which a payment processor implements fraud prevention rules received from an issuer and implements the rules in real-time.

FIG. 5 depicts a method embodiment in which an issuer implements, simulates and works fraud prevention rules.

FIG. 6 illustrates a method embodiment in which an issuer tests and verifies new fraud prevention rules.

FIG. 7 flowcharts a method embodiment in which an issuer works cases, determining whether there is fraud.

DETAILED DESCRIPTION

One aspect of the present invention includes the realization that moving fraud detection and analysis from an issuer to a payment processor solves numerous problems. First, issuers will no longer need to maintain the technical infrastructure, and may outsource the work to the payment processor without ceding total control of their own proprietary fraud detection rules. More importantly, fraud detection rule implementation becomes centralized and easier to maintain. Fraud detection services may be sold by the payment processor to issuers. These and other benefits may be apparent in hindsight to one of ordinary skill in the art.

Embodiments of the present invention include a system, method, and computer-readable storage medium configured to import fraud prevention rules from an issuer and implement them in real-time at a payment processor. For the purposes of this application the terms “fraud prevention rule” and “real time decisioning rule” are synonymous, and may be used interchangeably. Other embodiments of the present invention may include remote terminals configured to create, test, and work fraud-prevention rules, so that the rules may be uploaded to the payment processor.

Turning to FIG. 1a-c, these figures depict system 1000, configured to import fraud prevention rules from an issuer and implement them in real-time at a payment processor, constructed and operative in accordance with an embodiment of the present

invention. In this example, payment card 100 is assumed to be a credit card or debit card embodiment, but it is understood that other payment card equivalents may be substituted. These equivalents may include, but are not limited to: mobile phone, key tag, payment fob, or any other electronic payment device known in the art.

As shown in FIG. 1a, system 1000 supports importing fraud prevention rules from an issuer and implementing them in real-time at a payment processor, constructed and operative in accordance with an embodiment of the present invention. When the consumer uses the payment card 100 at a merchant 1100 to pay for a product or service, the merchant 1100 contacts an acquirer 1200 (for example, a commercial bank) to determine whether the consumer is credit worthy or the account has sufficient funds on the card to pay for the transaction. The acquirer 1200 forwards the details of the payment transaction to a payment processor 1300 for processing. It is understood that for backward compatibility payment card 100, merchant 1100, and acquirer 1200 may be any payment card, merchant and acquirer known in the art.

Payment processor 1300 may be any payment network configured to import fraud prevention rules from an issuer 1400, and implement the rules in real-time. Based on fraud prevention rules uploaded from issuer 1400, the payment processor 1300 determines whether the transaction should be allowed; in other instances, the payment processor 1300 queries the issuer 1400 to determine whether a debit payment card 100 has enough funds to allow the transaction. Internal details of payment processor 1300 are discussed below.

Issuer 1400 may be any payment card issuer configured to upload fraud prevention rules to a payment processor 1400 for implementation in real-time. In some instances, issuer 1400 may include a workstation capable of creating, testing, and

uploading fraud prevention rules to payment processor 1300. Further details of issuer 1400 are also discussed below.

Embodiments will now be disclosed with reference to a block diagram of an exemplary payment processor 1300 of FIG. 1b, constructed and operative in accordance with an embodiment of the present invention. Payment processor 1300 may run a multi-tasking operating system (OS) and include at least one processor or central processing unit (CPU) 1310. Processor 1310 may be any central processing unit, microprocessor, micro-controller, computational device or circuit known in the art.

It is well understood by those in the art, that the functional elements of FIG. 1b may be implemented in hardware, firmware, or as software instructions and data encoded on a computer-readable storage medium 1330. As shown in FIG. 1b, processor 1310 is functionally comprised of a verification engine 1320 and data processor 1312. Verification engine 1320 may further comprise: transaction driver 1322, rules processor 1324, and real time decisioning processor 1326. These structures may be implemented as hardware, firmware, or software encoded on a computer readable medium, such as storage media 1330.

Data processor 1312 interfaces with storage medium 1330 and network interface 1340. The data processor 1312 enables processor 1310 to locate data on, read data from, and writes data to, these components.

Network interface 1340 may be any data port as is known in the art for interfacing, communicating or transferring data across a computer network, examples of such networks include Transmission Control Protocol/Internet Protocol (TCP/IP), Ethernet, Fiber Distributed Data Interface (FDDI), token bus, or token ring networks. Network interface 1340 allows payment processor 1300 to communicate with issuer 1400, and may allow communication with acquirer 1200.

Computer-readable storage medium 1330 may be a conventional read/write memory such as a magnetic disk drive, floppy disk drive, compact-disk read-only-memory (CD-ROM) drive, digital versatile disk (DVD) drive, high definition digital versatile disk (HD-DVD) drive, magneto-optical drive, optical drive, flash memory, memory stick, transistor-based memory or other computer-readable memory device as is known in the art for storing and retrieving data. Significantly, computer-readable storage medium 1330 may be remotely located from processor 1310, and be connected to processor 1310 via a network such as a local area network (LAN), a wide area network (WAN), or the Internet. In addition, as shown in FIG. 1b, storage media 1330 may also contain a card database 1332, a real time decisioning index table 1334, and a master real time decisioning rules database 1336. The function of these structures may best be understood with respect to the flowcharts of FIGS. 2-7, as described below.

FIG. 1c shows an embodiment of an issuer 1400 configured to upload fraud prevention rules to a payment processor that implements the rules in real-time, constructed and operative in accordance with an embodiment of the present invention. It is understood by those known in the art that the issuer computing device 1400 may be configured on any computing device, such as a workstation, personal computer, mini-computer, mainframe, or other computing device known in the art. For illustrative purposes only, we will assume that the computing device located at the issuer 1400 is a computer workstation.

Issuer 1400 may run a multi-tasking operating system (OS) and include at least one processor or central processing unit 1410. Processor 1410 may be any central processing unit, microprocessor, micro-controller, computational device or circuit known in the art. It is further understood that processor 1410 does not have to be the same model or make as processor 1310.

Like the functional elements of FIG. 1b, it is well understood by those in the art, that the functional elements of FIG. 1c may be implemented in hardware, firmware, or as software instructions and data encoded on a computer-readable storage medium. As shown in FIG. 1c, processor 1410 is functionally comprised of a real time decisioning engine 1420, data processor 1412, and application interface 1414. Verification engine 1420 may further comprise: rule editor 1422, rule test engine 1424, and transaction case queue 1426. These structures may be implemented as hardware, firmware, or software encoded on a computer readable medium, such as storage media 1430.

Data processor 1412 interfaces with storage medium 1430 and network interface 1440. The data processor 1412 enables processor 1410 to locate data on, read data from, and writes data to, these components.

Network interface 1440 may be any data port as is known in the art for interfacing, communicating or transferring data across a computer network, examples of such networks include Transmission Control Protocol/Internet Protocol (TCP/IP), Ethernet, Fiber Distributed Data Interface (FDDI), token bus, or token ring networks. Network interface 1440 allows issuer 1400 to communicate with payment processor 1300.

Application interface 1414 enables processor 1410 to take some action with respect to a separate software application or entity. For example, application interface 1414 may take the form of a graphical-user or windowing interface, as is commonly known in the art.

Computer-readable storage medium 1430 may be a conventional read/write memory such as a magnetic disk drive, floppy disk drive, compact-disk read-only-memory (CD-ROM) drive, digital versatile disk (DVD) drive, high definition digital versatile disk (HD-DVD) drive, magneto-optical drive, optical drive, flash memory,

memory stick, transistor-based memory or other computer-readable memory device as is known in the art for storing and retrieving data. Significantly, computer-readable storage medium 1430 may be remotely located from processor 1410, and be connected to processor 1410 via a network such as a local area network (LAN), a wide area network (WAN), or the Internet. In addition, as shown in FIG. 1c, issuer storage media 1430 may contain structures analogous with that of payment processor storage media 1330. These structures include a card database 1432, a real time decisioning index table 1434, and a master real time decisioning rules database 1436. The function of these structures may best be understood with respect to the flowcharts of FIGS. 2-7, as described below.

We now turn our attention to method or process embodiments of the present invention, FIGS. 2-7. It is understood by those known in the art that instructions for such method embodiments may be stored on their respective computer-readable memory and executed by their respective processors.

FIG. 2 flowcharts a process 2000 in which a payment processor 1300 is configured to import fraud prevention rules from an issuer 1400 and implement the rules in real-time, constructed and operative in accordance with an embodiment of the present invention. At block 2002, payment processor network interface 1340 receives new rules from issuer 1400. The rules are indexed, stored and activated within real time decisioning index table 1334 and real time decisioning table 1336 by real time decisioning processor 1326, at block 2004. It is understood that in some embodiments, activation of rules may occur through a different sub-process. Additionally, it is understood that in yet other embodiments, real time decisioning index table 1334 and real time decisioning table 1336 may be one and the same. Once the rules are

activated, verification engine 1320 sends issuer 1400 a notification confirming the new rule activation, block 2006.

Moving to FIG. 3, process 3000 is method embodiment in which a payment processor 1300 implements fraud prevention rules received from issuer 1400 and implements the rules in real-time, constructed and operative in accordance with an embodiment of the present invention.

As discussed above, whenever a customer uses payment card 100 to pay for a financial transaction, the merchant 1100, and, in turn, acquirer 1200 seek authorization before performing the transaction. At block 3002, payment processor 1300 receives an authorization request from acquirer 1200. The authorization request contains a formatted data packet or packets containing information about the requested transaction, such as transaction amount, merchant name, and the customer's Primary Account Number (PAN). Usually, a customer's Primary Account Number is either a 15 or 16 digit number. The first six digits of a Visa™ or MasterCard™ Primary Account Number identifies the card issuer banking institution 1400 and is known as the "Bank Identification Number" or "BIN." In debit transactions, the authorization request may also contain a user verification identifier, such as the customer's personal identification number (PIN) or biometric information.

At decision block 3004, the transaction driver 1322 determines whether the account referenced by Primary Account Number or the issuer 1400 represented by the Bank Identification Number participate in the real time decisioning process. If not, flow continues at block 3010. When the account's Primary Account Number or the Bank Identification Number participates in the real time decisioning process, flow continues at decision block 3006. In some instances, the transaction driver 1322 may make its

determination through identifying Primary Account Numbers or Bank Identification Numbers listed in the card database 1332.

Whenever the fraud prevention rules identify a fraudulent transaction, it is referred to as a "fraud rule hit" and the real time decisioning processor 1326 declines the transaction at block 3006, and flow continues at block 3008. In applying the fraud detection rules, real time decisioning processor 1326 may apply fraud detection rules stored at the real time decisioning index table 1334 or real time decisioning rules table 1336. If no fraud is detected, flow continues at block 3010.

At block 3008, rules processor 1324 determines whether the Bank Identification Number or Account is set for all responses or whether Stand in Processing ("STIP") should apply for this transaction. Stand in Processing is a backup system that provides authorization services on behalf of an issuer 1400 when the issuer 1400 or its authorizing processor is unavailable. If the BIN or account is marked for Stand in Processing, flow continues at block 3010. If the BIN or account is marked for all responses, flow continues at block 3018.

Returning to block 3010, if no Stand in Processing applies to the transaction, as determined by the transaction driver 1322, flow continues at block 3012, where the transaction driver 1322 allows the transaction, sends the transaction information to issuer 1400 via communication network interface 1340, and process 3000 ends. If no Stand in Processing applies to the transaction, the process flow continues at decision block 3014.

The standard Stand in Processing procedure applies, block 3014.

At block 3018, the transaction driver 1322 declines the transaction. When the transaction is declined, the acquirer 1200 is informed that that the transaction is not

authorized. Furthermore, transaction driver 1322 informs the issuer of the declined transaction, block 3020. Process 3000 ends.

FIG. 4 is a flowchart of an alternate process 4000 in which a payment processor 1300is implements fraud prevention rules received from an issuer 1400 and implements the rules in real-time, constructed and operative in accordance with an embodiment of the present invention.

At block 4002, payment processor 1300 receives an authorization request from acquirer 1200. The authorization request may be formatted as discussed above at FIG. 3.

At decision block 4004, the transaction driver 1322 determines whether the account referenced by Primary Account Number or the issuer 1400 represented by the Bank Identification Number participate in the real time decisioning process. If not, flow continues at block 4018. When the Primary Account Number or the Bank Identification Number participates in the real time decisioning process, flow continues at decision block 4006.

At decision block 4006, the real time decisioning processor 1326 decides whether there is a card-level real time decisioning rule that applies. Block 4006 may be accomplished when real time decisioning processor 1326 matches a card's primary account number against an entry in the card database 1332, real time decisioning index table 1334, or real time decisioning rules table 1336. A card-level real time decisioning rule is any rule that applies to a specific primary account number. For example, as a rule for extremely high value cardholders, their card may never be declined. For other customers, their card may be declined whenever their purchase amount exceeds a fixed sum, or whenever their total card balance exceeds a certain amount. If a card-level real time decisioning rule applies, flow continues at block 4008.

The real time decisioning processor 1326 applies the rule at decision block 4008, and either approves or declines the transaction. If the transaction is approved, process 4000 continues at block 4018. If the transaction is declined, flow continues at block 4022.

If no card-level rule applies, process 4000 determines whether there is a Bank Identification Numbers level rule, block 4010. If there is no BIN level rule, flow continues at block 4018; otherwise, flow continues at block 4012.

At decision block 4012, a check is made whether Stand in Processing is the only rule that should apply. If so, flow continues at block 4018. Otherwise, flow continues at block 4014.

At block 4014, verification engine 1320 determines whether the transaction should be forwarded to issuer 1400 for final determination block 4016, or declined at block 4022.

Returning to block 4018, if no Stand in Processing applies to the transaction, as determined by the transaction driver 1322, flow continues at block 4022.

If the standard Stand in Processing procedure applies, it is applied at block 4026. Both the issuer 1400 and acquirer 1200 are informed of the STIP result, and the process ends.

At block 4022, the transaction driver 1322 declines the transaction and the acquirer 1200 is informed that that the transaction is not authorized. Transaction driver 1322 informs the issuer 1400 of the declined transaction, block 4024. Process 4000 ends.

FIG. 5 depicts a method embodiment in which issuer 1400 implements, simulates and works fraud prevention rules, constructed and operative in accordance with an embodiment of the present invention. In one notable aspect of the present

invention, an issuer 1400 may create (block 5002) and test (block 6000) their own issuer-specific rules on their own data. This data includes local card database 1432, local real time decisioning index table 1434, and local real time decisioning rules table 1436. The rules may be created and modified by a rule editor 1422. After the rules have been tested with a rule test engine 1424 at block 6000, they may be uploaded to payment processor 1300 for implementation, block 5004. When cases are flagged for inquiry by payment processor 1300 (such as at block 4016), cases are examined by issuer's employees ("worked") at a transaction case queue 1426, block 7000, to determine whether the transaction should be declined, block 5008. If there transaction should be declined, the fraud is reported and a chargeback is managed, block 5010.

FIG. 6 illustrates a more detailed method embodiment 6000 in which issuer 1400 tests and verifies new fraud prevention rules, constructed and operative in accordance with an embodiment of the present invention. At block 6002, the rule test engine 1424 receives the real time decisioning rule. The real time decisioning rule may be received directly from rule editor 1422, real time decisioning rules table 1436. The rule is verified against sample fraudulent transaction data, block 6004, and the authorization responses are output, block 6006. In some embodiments the results are generated as a file, block 6008. Comparing the results against the known sample data, the issuer 1400 determines whether the rule is useful. If useful in detecting fraudulent transactions, the new rule is activated, block 6010. If the rule is not useful, it is rejected at block 6012, and the process flow returns to block 5002 of FIG. 5.

FIG. 7 flowcharts a method embodiment in which issuer 1400 works cases, determining whether there is fraud, constructed and operative in accordance with an embodiment of the present invention. At block 7002, the transaction case queue 1426 receives a list of authorized transactions. The issuer 1400 determines whether an alert

should be created 7004. An alert may need to be created if the transaction case queue received a transaction that is suspicious, or needs human intervention. If no alert is needed, flow ends. If the an alert is needed, as determined by decision block 7004, an alert is displayed in the workstation transaction case queue 1426, block 7006, prompting a user for action on the transaction, block 7008.

The previous description of the embodiments is provided to enable any person skilled in the art to practice the invention. The various modifications to these embodiments will be readily apparent to those skilled in the art, and the generic principles defined herein may be applied to other embodiments without the use of inventive faculty. Thus, the present invention is not intended to be limited to the embodiments shown herein, but is to be accorded the widest scope consistent with the principles and novel features disclosed herein.

WHAT IS CLAIMED IS:

1. An issuer fraud prevention apparatus located at a payment card issuing institution comprising:

a rule editor configured to create or edit a fraud prevention rule;

a rule test engine configured to receive the fraud prevention rule from the rule editor, and configured to test the fraud prevention rule against a sample financial transaction; and

a network interface configured to export the fraud prevention rule to a payment processing network.

2. The issuer fraud prevention apparatus of claim 1, further comprising:

a rule database configured to store the fraud prevention rule.

3. The issuer fraud prevention apparatus of claim 2, further comprising:

a transaction case queue configured to receive a proposed financial transaction from the payment network.

4. The issuer fraud prevention apparatus of claim 3, wherein transaction case queue is further configured to alert a user when the proposed financial transaction is received.

5. The issuer fraud prevention apparatus of claim 4, wherein the rule test engine is further configured to test the fraud prevention rule against the proposed financial transaction.

6. The issuer fraud prevention apparatus of claim 5, wherein the network interface is further configured to export at least a portion of the rules database to the issuer.

7. The issuer fraud prevention apparatus of claim 5, wherein the network interface is further configured to export at least a portion of the rules database to the payment processing network.

8. An issuer fraud prevention method at a payment card issuing institution (issuer) comprising:

creating or editing a fraud prevention rule;

testing the fraud prevention rule against a sample financial transaction; and

exporting the fraud prevention rule from the issuer to a payment processing network.

9. The issuer fraud prevention method of claim 8, further comprising:

storing the fraud prevention rule in a rule database.

10. The issuer fraud prevention method of claim 9, further comprising:

receiving a proposed financial transaction from the payment network; and

inputting the proposed financial transaction into a transaction case queue.

11. The issuer fraud prevention method of claim 10, further comprising:

alerting a user when the proposed financial transaction is received.

12. The issuer fraud prevention method of claim 11, further comprising:

testing the fraud prevention rule against the proposed financial transaction.

13. The issuer fraud prevention method of claim 12, further comprising:

exporting at least a portion of the rules database to the issuer.

14. The issuer fraud prevention method of claim 12, further comprising:

export at least a portion of the rules database to the payment processing network

15. A computer-readable storage medium, encoded with data and instructions, such that when executed by a device, the instructions causes the device to:

create or editing a fraud prevention rule;

test the fraud prevention rule against a sample financial transaction; and

export the fraud prevention rule from a payment card issuing institution (issuer) to a payment processing network.

16. The computer-readable storage medium of claim 15, further comprising instructions to:

store the fraud prevention rule in a rule database.

17. The computer-readable storage medium of claim 16, further comprising instructions to:

receive a proposed financial transaction from the payment network;

input the proposed financial transaction into a transaction case queue.

18. The computer-readable storage medium of claim 17, further comprising instructions to:

alert a user when the proposed financial transaction is received.

19. The computer-readable storage medium of claim 18, further comprising instructions to:

test the fraud prevention rule against the proposed financial transaction.

20. The computer-readable storage medium of claim 19, further comprising instructions to:

export at least a portion of the rules database to the payment processing network

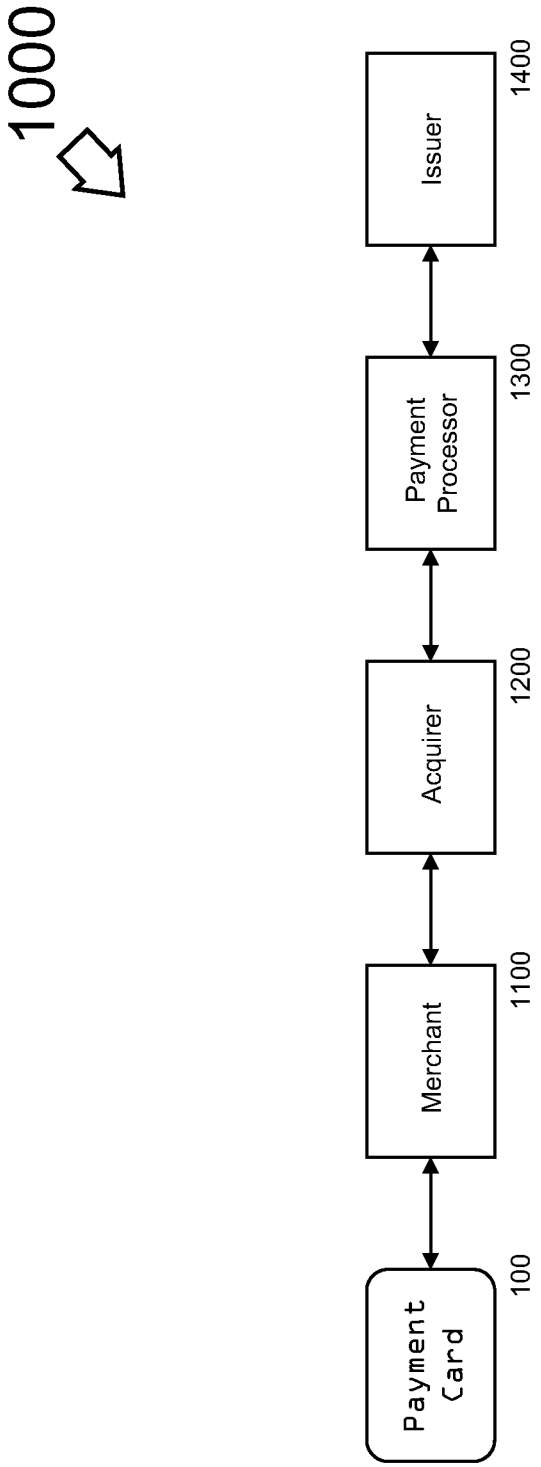

1000
Payment Card
100
Merchant
1100
Acquirer
1200
Payment Processor
1300
Issuer
1400

FIG. 1a

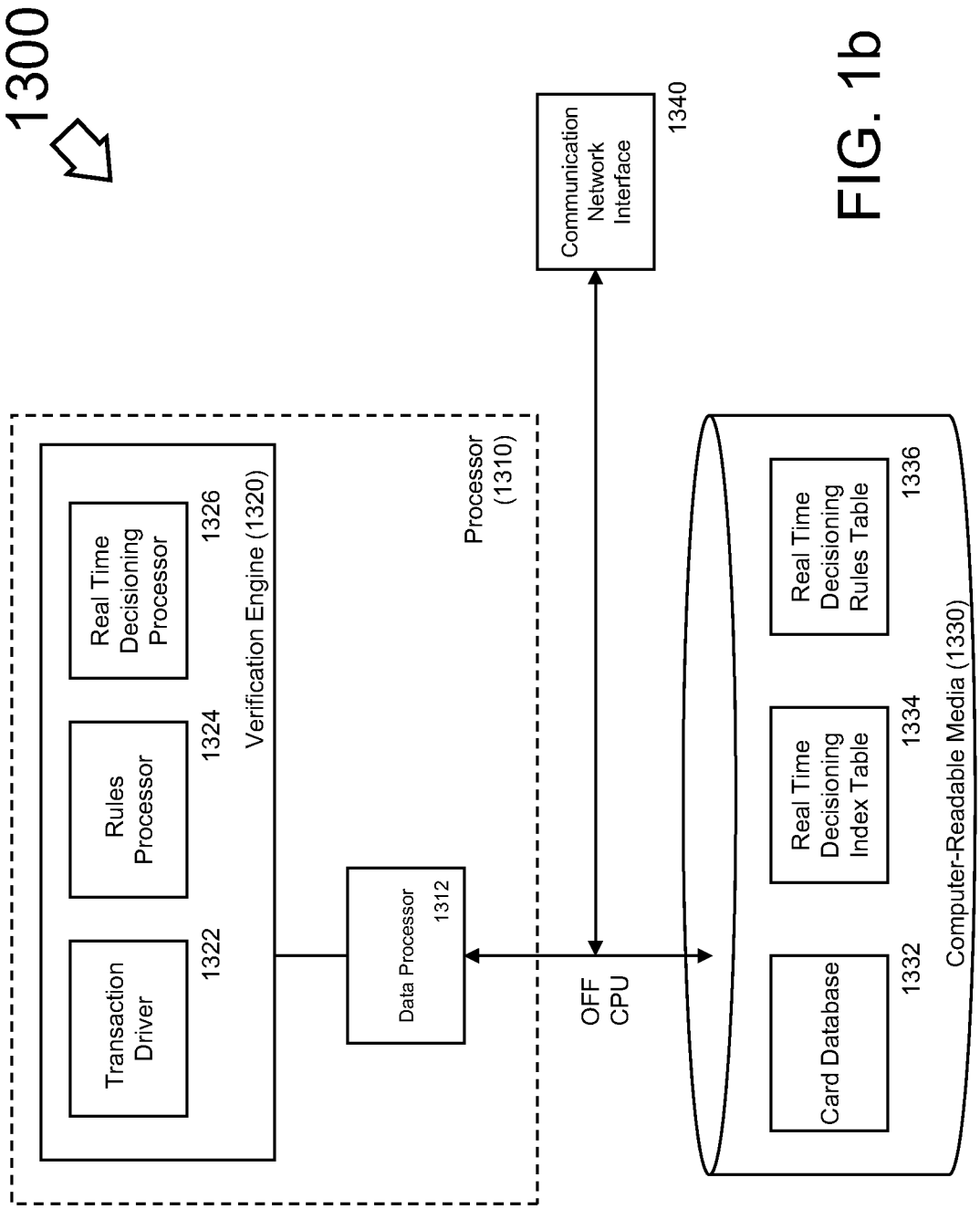

1300
Communication Network Interface
1340
Processor (1310)
Verification Engine (1320)
Real Time Decisioning Processor
1326
Rules Processor
1324
Transaction Driver
1322
Data Processor
1312
OFF CPU
Computer-Readable Media (1330)
Real Time Decisioning Rules Table
1336
Real Time Decisioning Index Table
1334
Card Database
1332

FIG. 1b

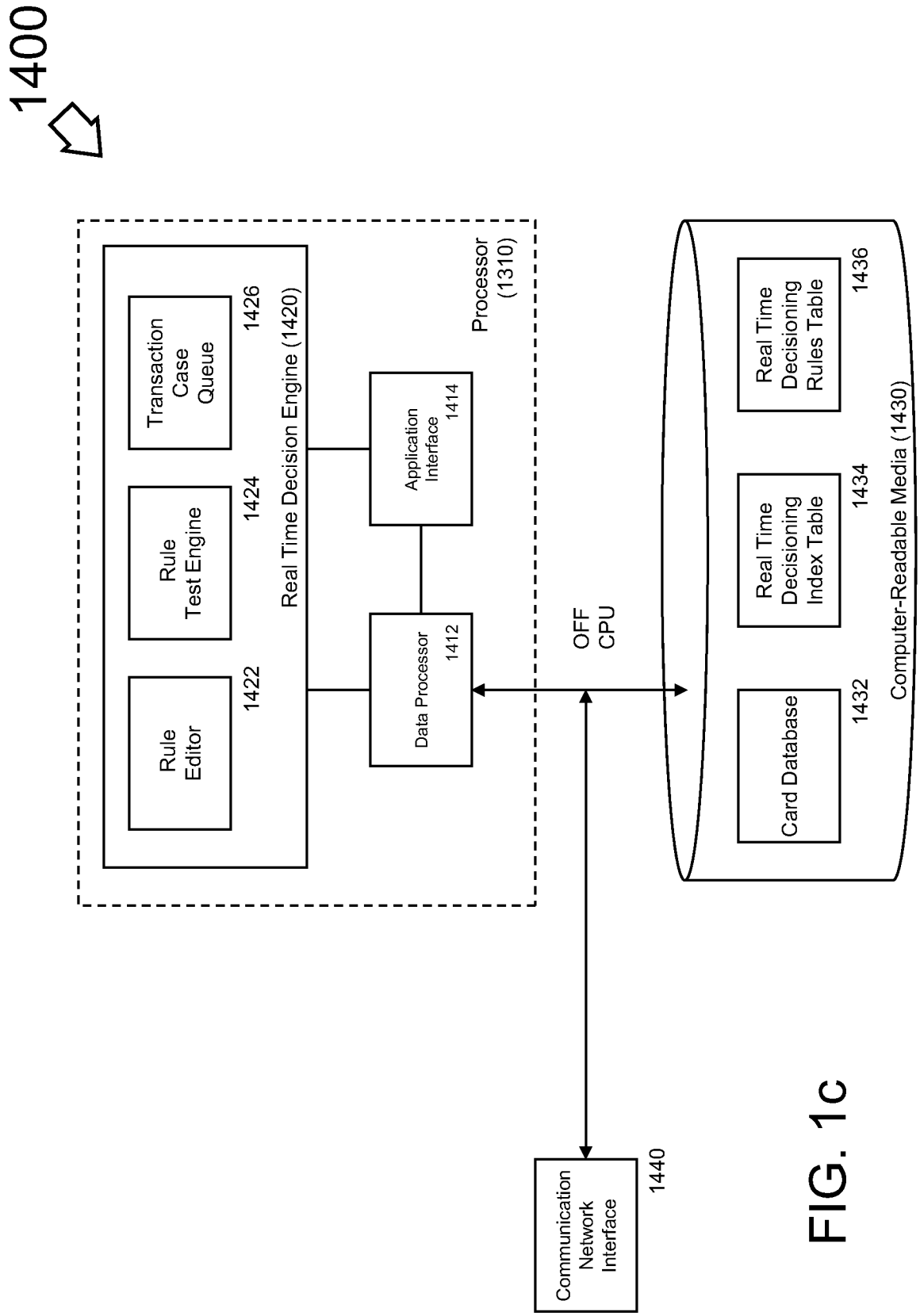

1400
Processor (1310)
Real Time Decision Engine (1420)
Rule Editor
1422
Rule Test Engine
1424
Transaction Case Queue
1426
Application Interface
1414
Data Processor
1412
OFF CPU
Computer-Readable Media (1430)
Card Database
1432
Real Time Decisioning Index Table
1434
Real Time Decisioning Rules Table
1436
Communication Network Interface
1440

FIG. 1c

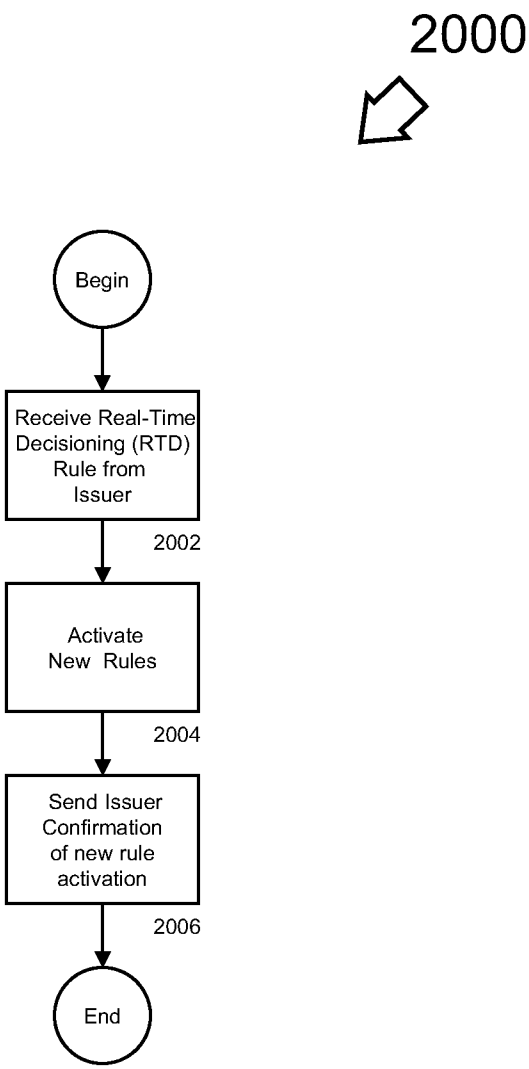

2000
Begin
Receive Real-Time Decisioning (RTD) Rule from Issuer
2002
Activate New Rules
2004
Send Issuer Confirmation of new rule activation
2006
End

FIG. 2

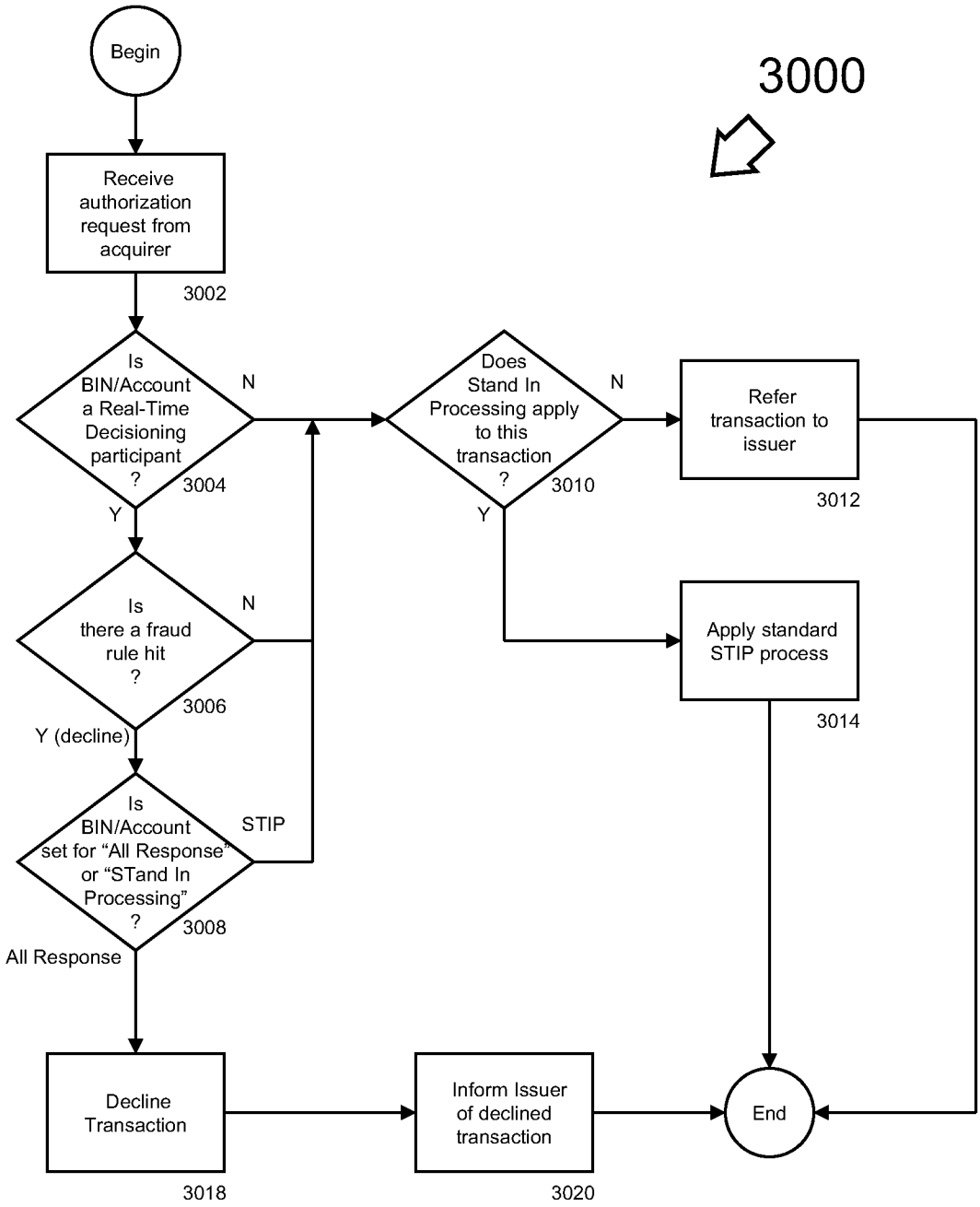
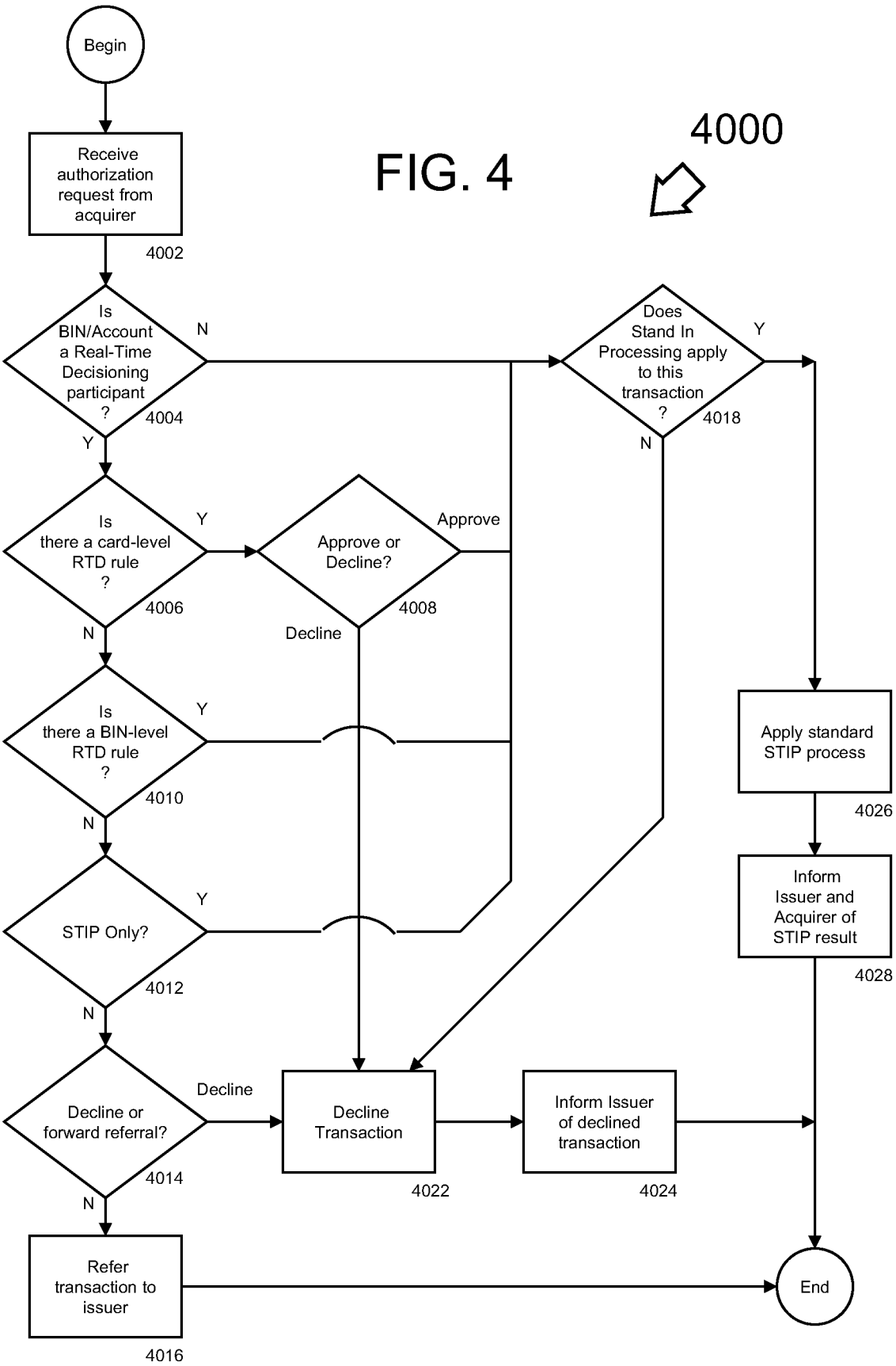

Begin
3000
Receive authorization request from acquirer
3002
Is BIN/Account a Real-Time Decisioning participant ?
3004
N
Y
Does Stand In Processing apply to this transaction ?
3010
N
Y
Refer transaction to issuer
3012
Is there a fraud rule hit ?
3006
N
Y (decline)
Apply standard STIP process
3014
Is BIN/Account set for "All Response" or "STand In Processing" ?
3008
STIP
All Response
Decline Transaction
3018
Inform Issuer of declined transaction
3020
End

FIG. 3

FIG. 4


4000
Begin
Receive authorization request from acquirer
4002
Is BIN/Account a Real-Time Decisioning participant ?
4004
N
Y
Does Stand In Processing apply to this transaction ?
4018
Y
N
Is there a card-level RTD rule ?
4006
Y
N
Approve or Decline?
4008
Approve
Decline
Is there a BIN-level RTD rule ?
4010
Y
N
STIP Only?
4012
Y
N
Apply standard STIP process
4026
Inform Issuer and Acquirer of STIP result
4028
Decline or forward referral?
4014
Decline
N
Decline Transaction
4022
Inform Issuer of declined transaction
4024
Refer transaction to issuer
4016
End

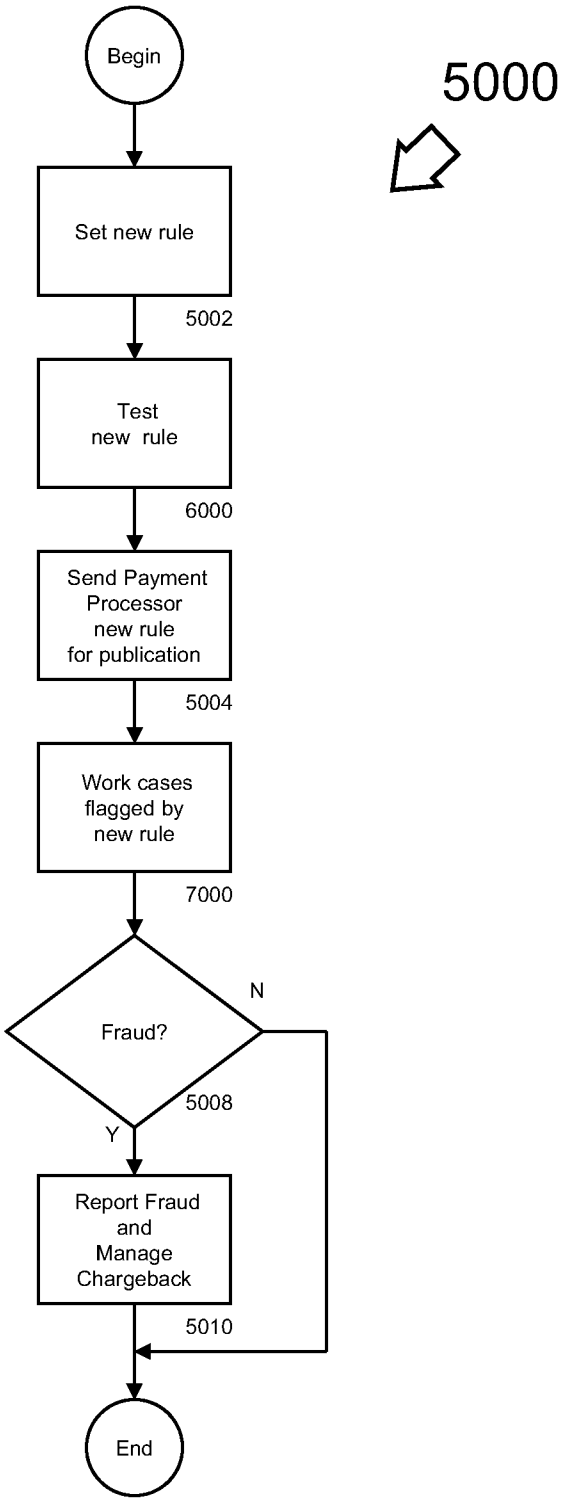

Begin
5000
Set new rule
5002
Test
new rule
6000
Send Payment
Processor
new rule
for publication
5004
Work cases
flagged by
new rule
7000
Fraud?
N
5008
Y
Report Fraud
and
Manage
Chargeback
5010
End

FIG. 5

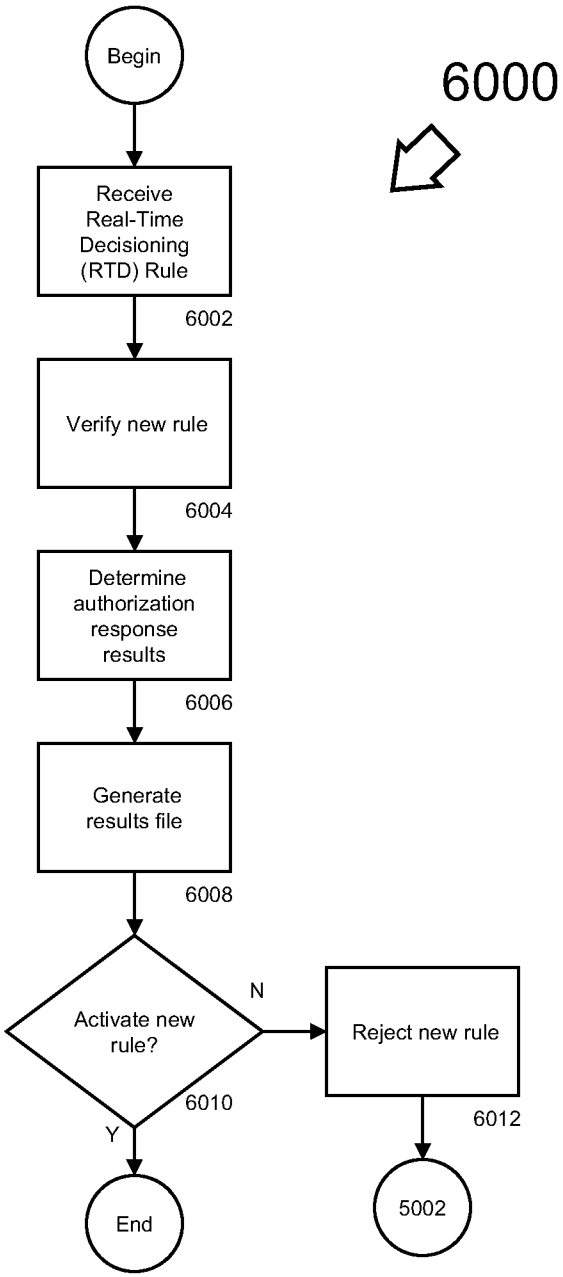

Begin
6000
Receive Real-Time Decisioning (RTD) Rule
6002
Verify new rule
6004
Determine authorization response results
6006
Generate results file
6008
Activate new rule?
N
Reject new rule
6010
6012
Y
End
5002

FIG. 6

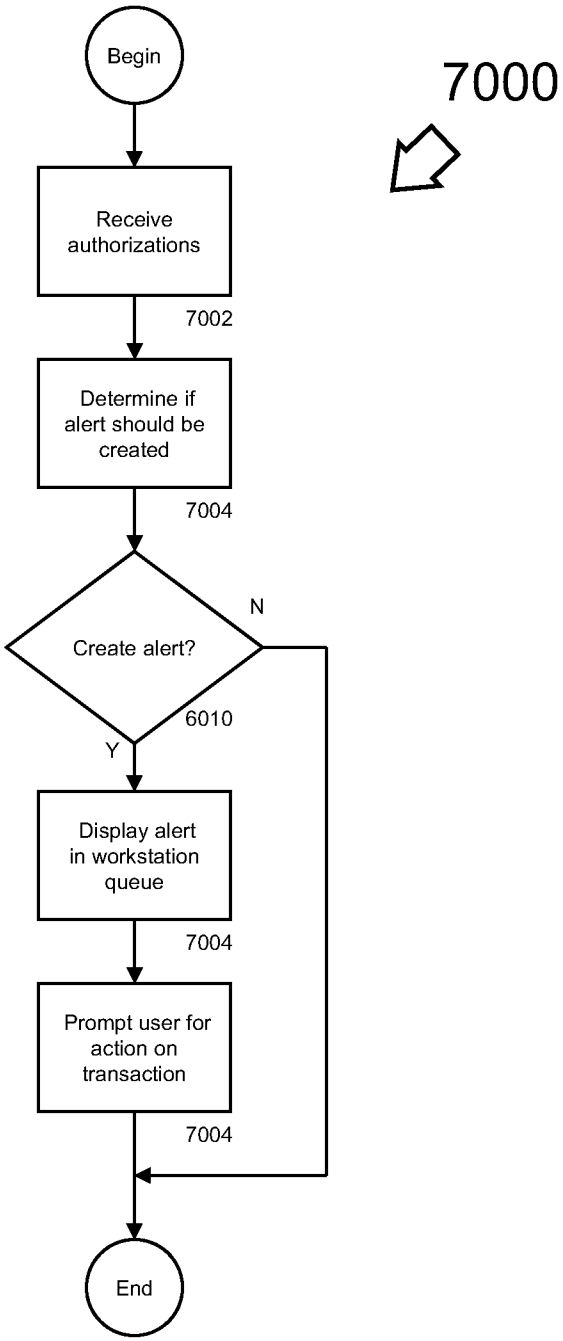

Begin
7000
Receive authorizations
7002
Determine if alert should be created
7004
Create alert?
N
6010
Y
Display alert in workstation queue
7004
Prompt user for action on transaction
7004
End

FIG. 7

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 09/48864

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - H04L 29/06 (2009.01)
USPC - 726/1
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)
IPC (8) - H04L 29/06 (2009.01)
USPC - 726/1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 726/1, 2, 4, 14, 21; 705/1, 50; 706/47; 700/1, 90 (See Keywords Below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Pub WEST (USPT, PGPB, JPAB, EPAB), Google Scholar
Search Terms Used: create, edit, compile, rule, testing rule, exporting, transmitting, sending rule, rule database, card fraud prevention, transaction, test transaction, policy, fraud prevention rule, transaction, issuer, fraud

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2008/0109392 A1 (NANDY), 08 May 2008 (08.05.2008), entire document, especially para [0027], [0029], [0078], [0101]-[0105]	1-20
Y	US 2006/0226216 A1 (KEITHLEY et al.), 12 October 2006 (12.10.2006), entire document, especially para [0021]-[0023], [0039], [0041]-[0043]	1-20
A	US 2002/0099649 A1 (LEE et al.), 25 July 2002 (25.07.2002), entire document	1-20

☐ Further documents are listed in the continuation of Box C. ☐

* 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 but 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	Date of mailing of the international search report
29 July 2009 (29.07.2009)	07 AUG 2009
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (April 2007)