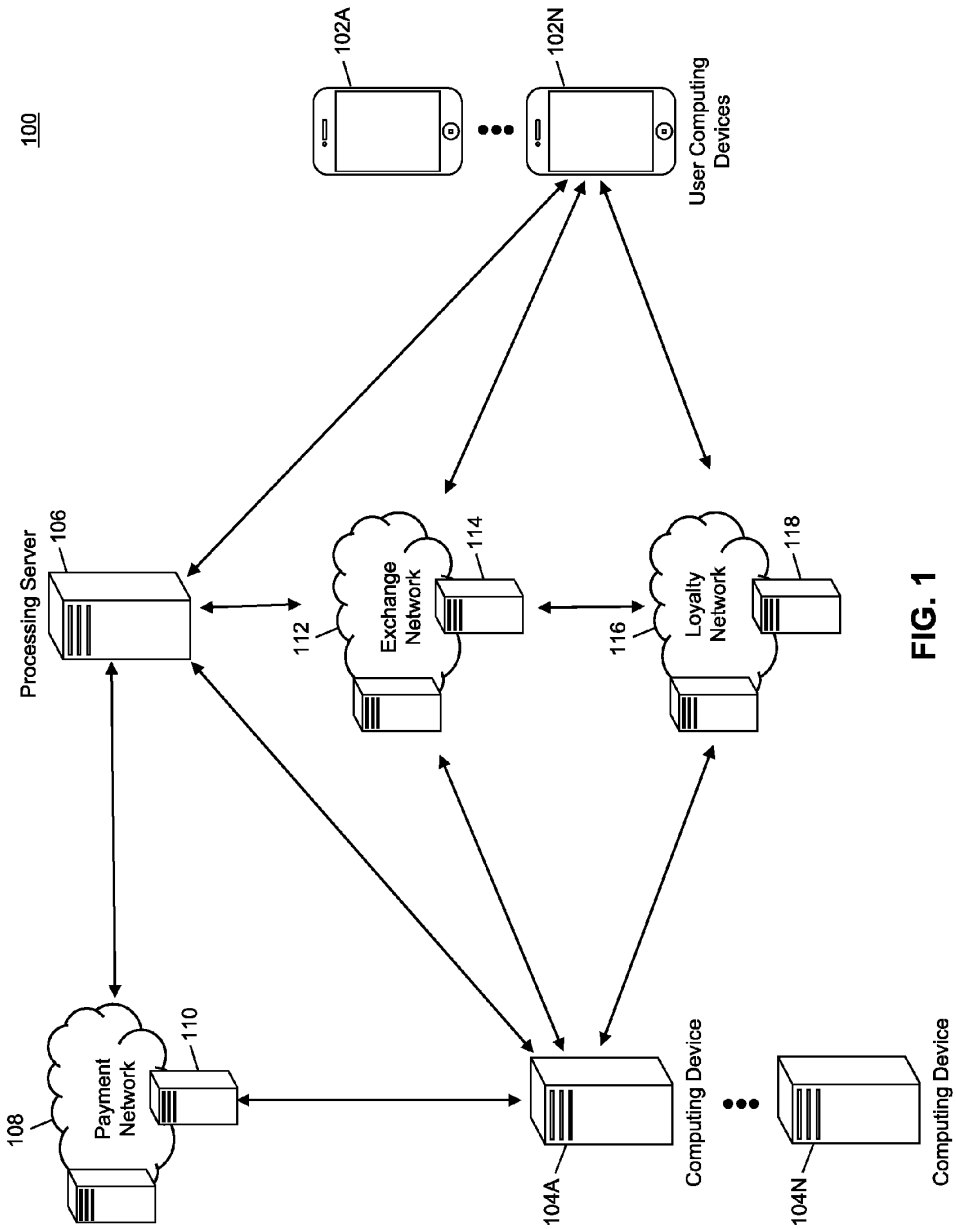

100
102A
102N
User Computing Devices
Processing Server
106
Exchange Network
114
112
Loyalty Network
118
116
Payment Network
110
108
104A
Computing Device
104N
Computing Device

FIG. 1

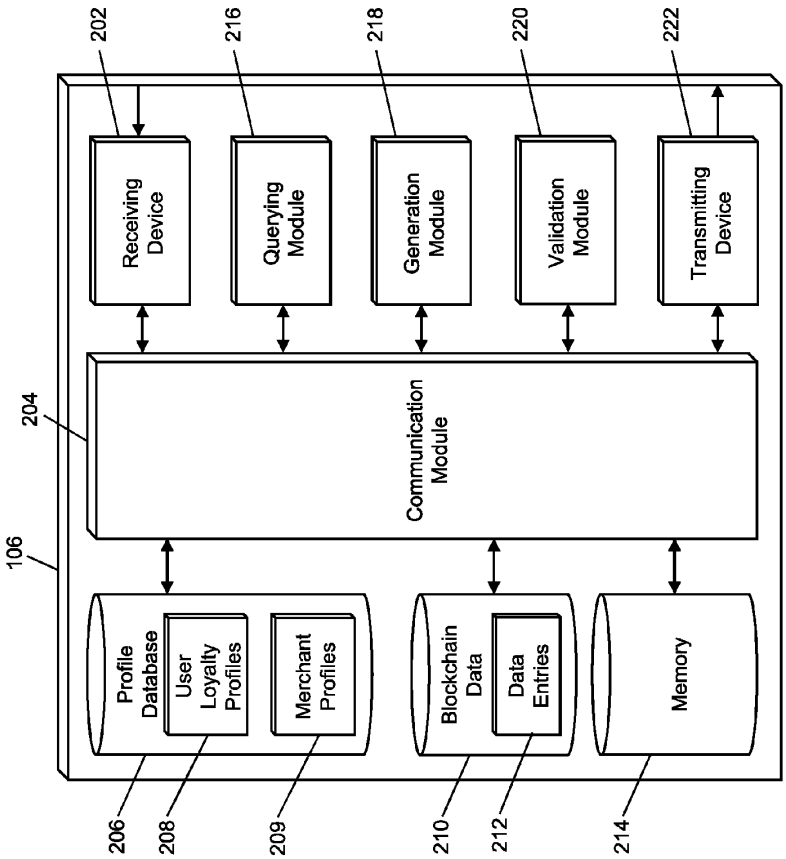

202
216
218
220
222
Receiving Device
Querying Module
Generation Module
Validation Module
Transmitting Device
204
Communication Module
106
Profile Database
User Loyalty Profiles
Merchant Profiles
Blockchain Data
Data Entries
Memory
206
208
209
210
212
214

FIG. 2

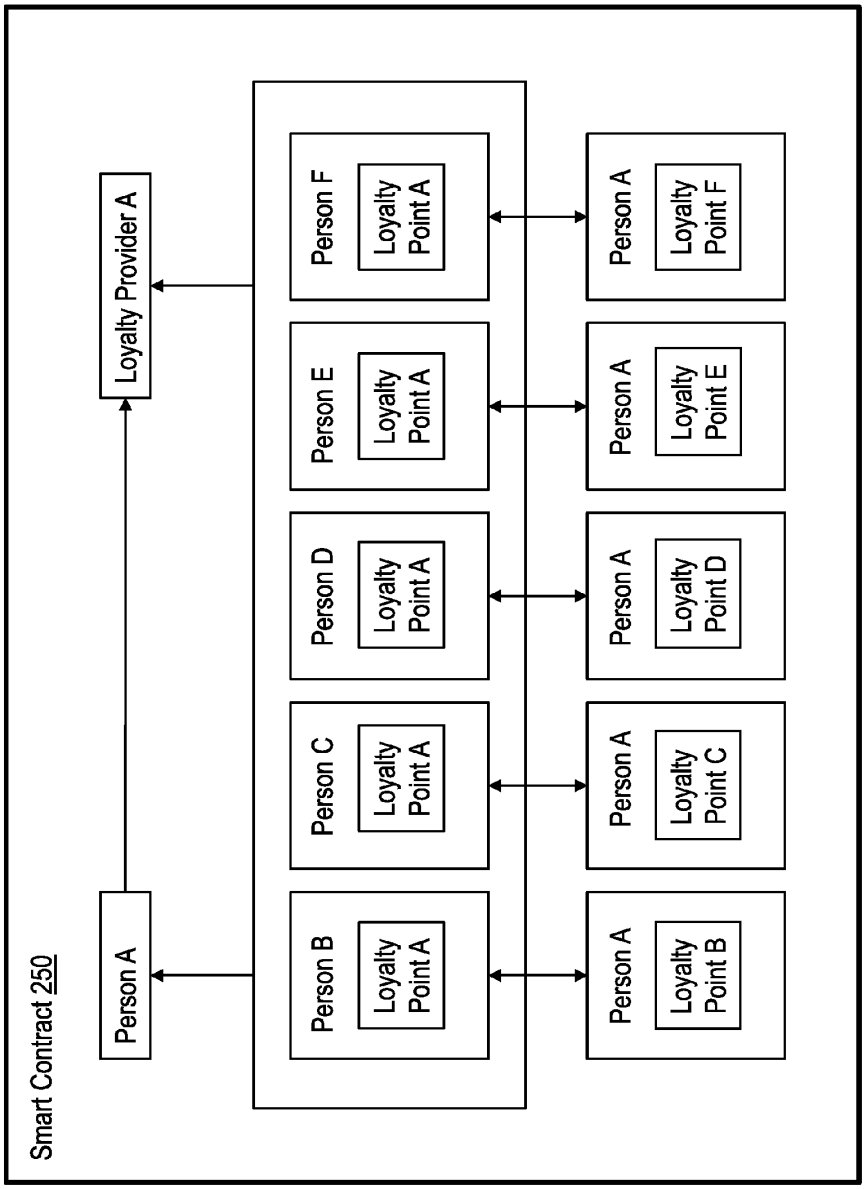

Smart Contract 250
Person A
Loyalty Provider A
Person B
Loyalty Point A
Person C
Loyalty Point A
Person D
Loyalty Point A
Person E
Loyalty Point A
Person F
Loyalty Point A
Person A
Loyalty Point B
Person A
Loyalty Point C
Person A
Loyalty Point D
Person A
Loyalty Point E
Person A
Loyalty Point F

FIG. 3

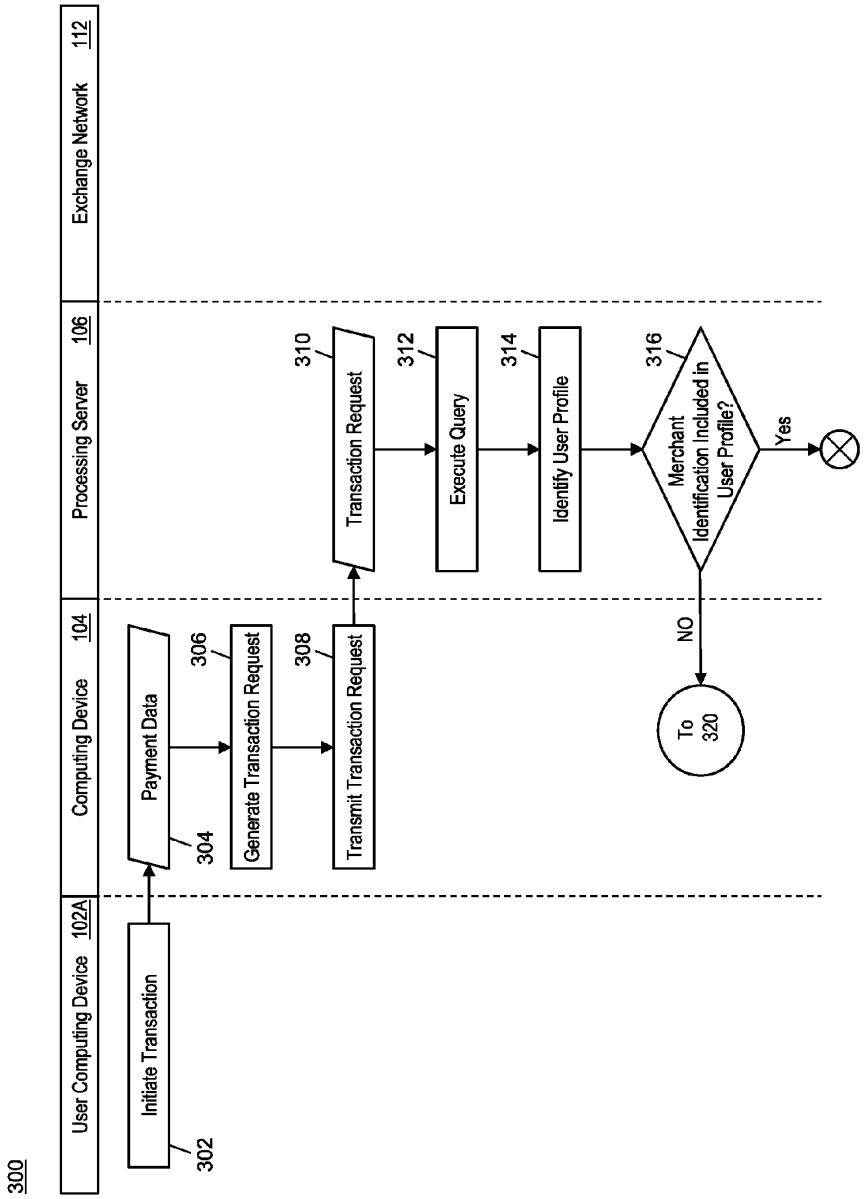

300
User Computing Device 102A
Computing Device 104
Processing Server 106
Exchange Network 112
Initiate Transaction
302
Payment Data
304
Generate Transaction Request
306
Transmit Transaction Request
308
Transaction Request
310
Execute Query
312
Identify User Profile
314
Merchant Identification Included in User Profile?
316
Yes
NO
To 320

FIG. 4A

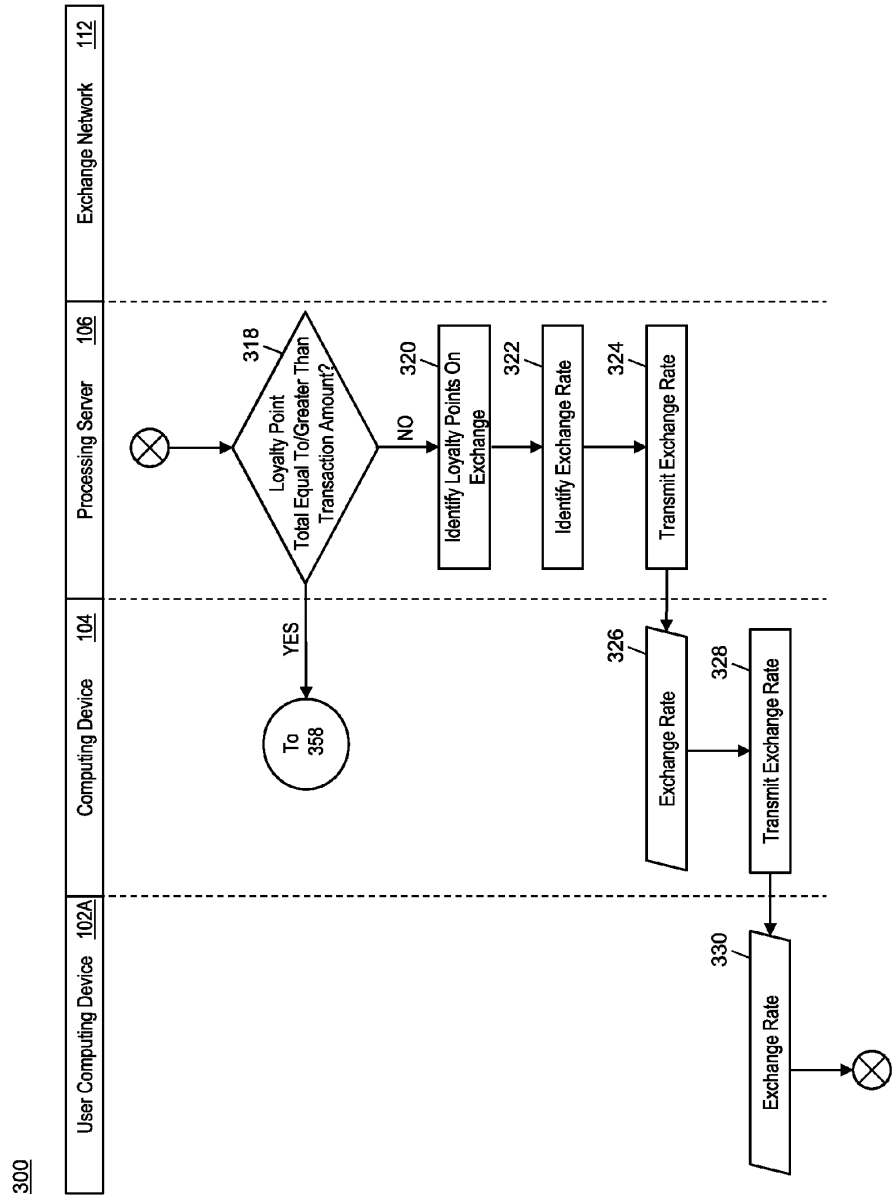

300
User Computing Device 102A
Computing Device 104
Processing Server 106
Exchange Network 112
318
Loyalty Point Total Equal To/Greater Than Transaction Amount?
YES
NO
To 358
320
Identify Loyalty Points On Exchange
322
Identify Exchange Rate
324
Transmit Exchange Rate
326
Exchange Rate
328
Transmit Exchange Rate
330
Exchange Rate

FIG. 4B

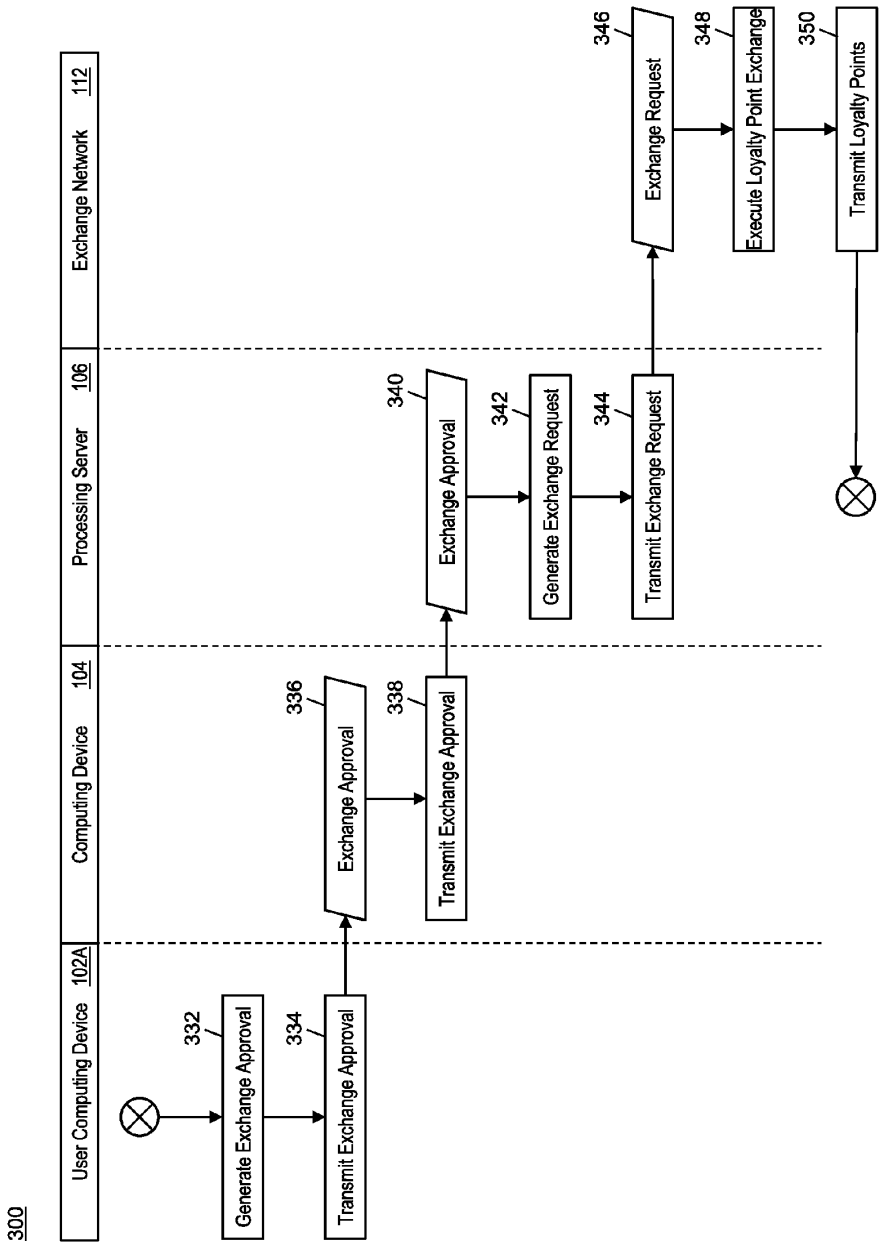

300
User Computing Device 102A
Computing Device 104
Processing Server 106
Exchange Network 112
332
Generate Exchange Approval
334
Transmit Exchange Approval
336
Exchange Approval
338
Transmit Exchange Approval
340
Exchange Approval
342
Generate Exchange Request
344
Transmit Exchange Request
346
Exchange Request
348
Execute Loyalty Point Exchange
350
Transmit Loyalty Points

FIG. 4C

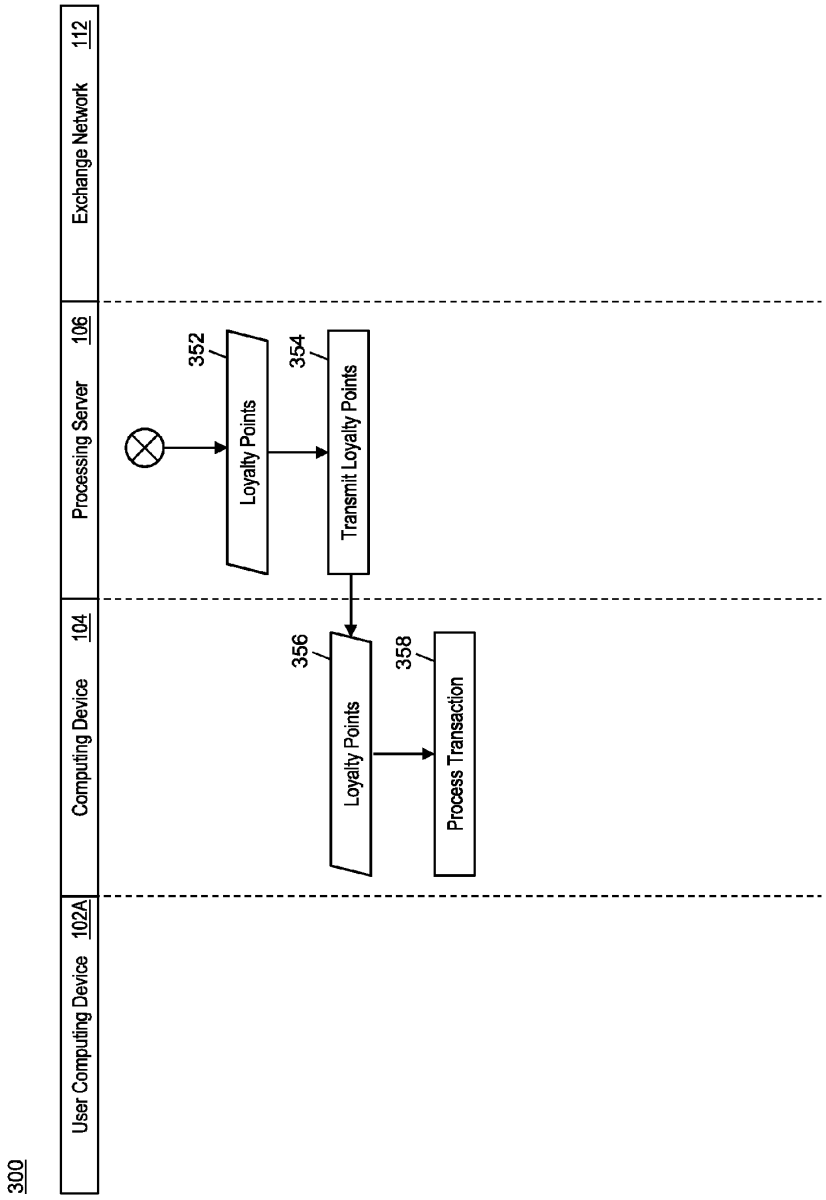

300
User Computing Device 102A
Computing Device 104
Processing Server 106
Exchange Network 112
352
Loyalty Points
354
Transmit Loyalty Points
356
Loyalty Points
358
Process Transaction

FIG. 4D

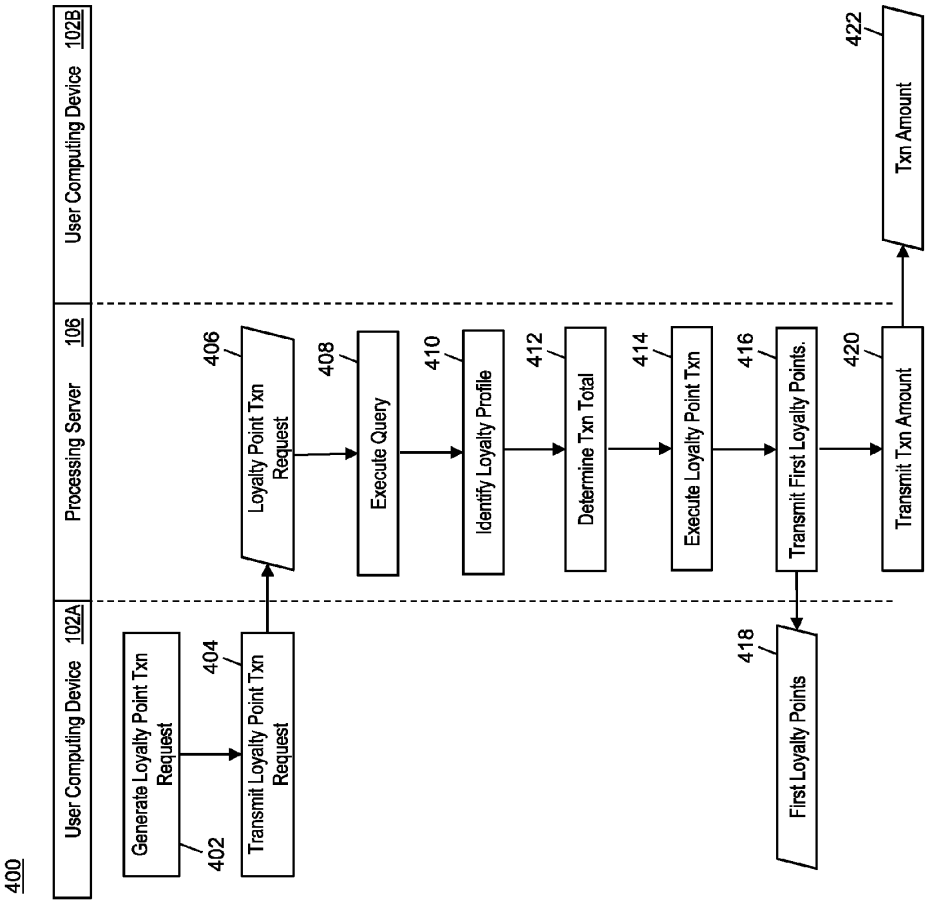

400
User Computing Device 102A
Processing Server 106
User Computing Device 102B
Generate Loyalty Point Txn Request
402
Transmit Loyalty Point Txn Request
404
Loyalty Point Txn Request
406
Execute Query
408
Identify Loyalty Profile
410
Determine Txn Total
412
Execute Loyalty Point Txn
414
Transmit First Loyalty Points.
416
Transmit Txn Amount
420
Txn Amount
422
First Loyalty Points
418

FIG. 5

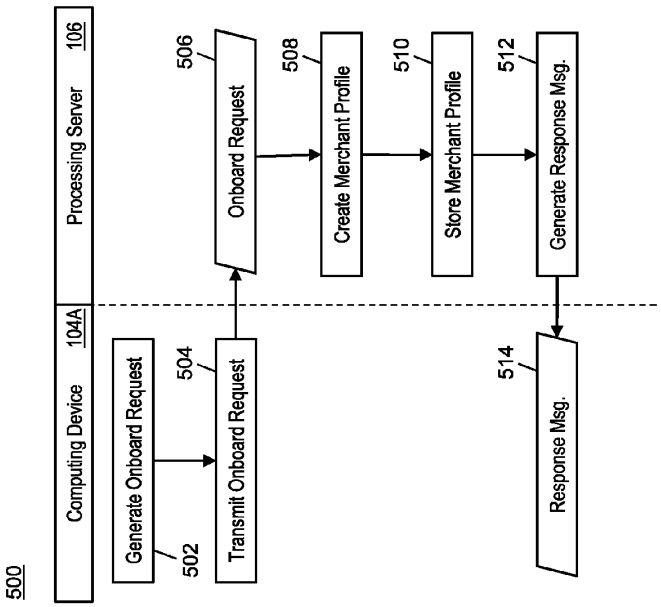

500
Computing Device 104A
Processing Server 106
Generate Onboard Request
502
Transmit Onboard Request
504
Onboard Request
506
Create Merchant Profile
508
Store Merchant Profile
510
Generate Response Msg.
512
Response Msg.
514

FIG. 6

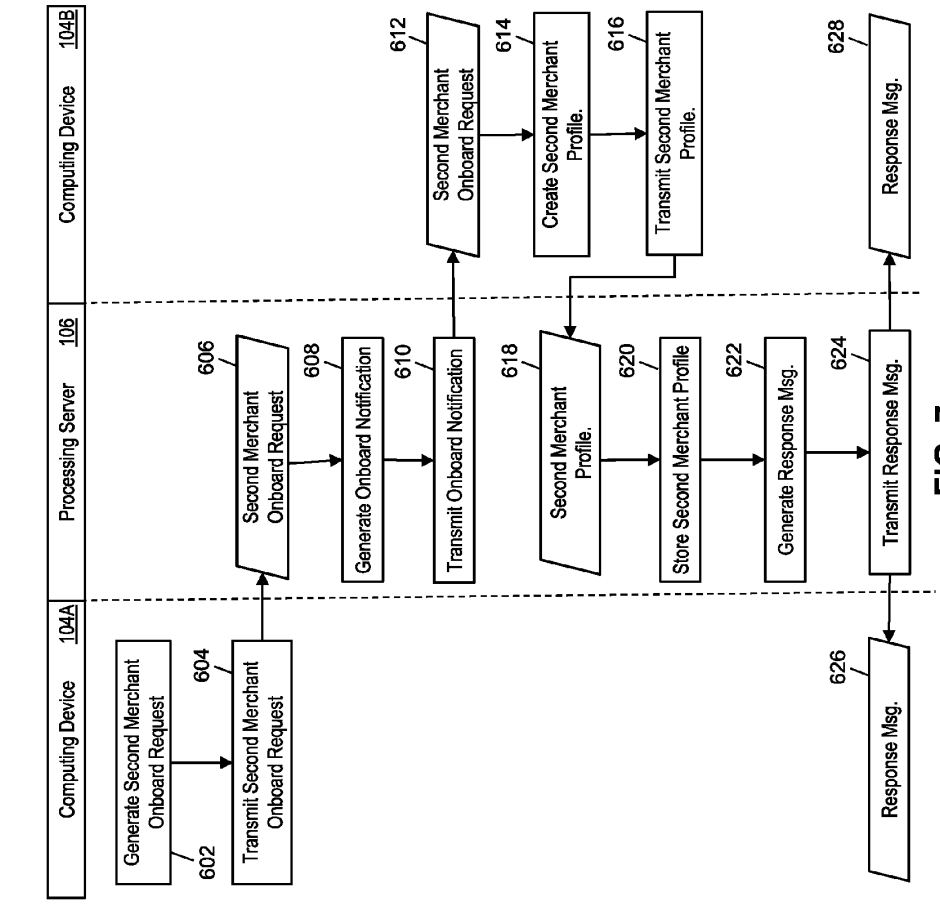

600
Computing Device 104A
Processing Server 106
Computing Device 104B
Generate Second Merchant Onboard Request
602
Transmit Second Merchant Onboard Request
604
Second Merchant Onboard Request
606
Generate Onboard Notification
608
Transmit Onboard Notification
610
Second Merchant Onboard Request
612
Create Second Merchant Profile.
614
Transmit Second Merchant Profile.
616
Second Merchant Profile.
618
Store Second Merchant Profile
620
Generate Response Msg.
622
Transmit Response Msg.
624
Response Msg.
626
Response Msg.
628

FIG. 7

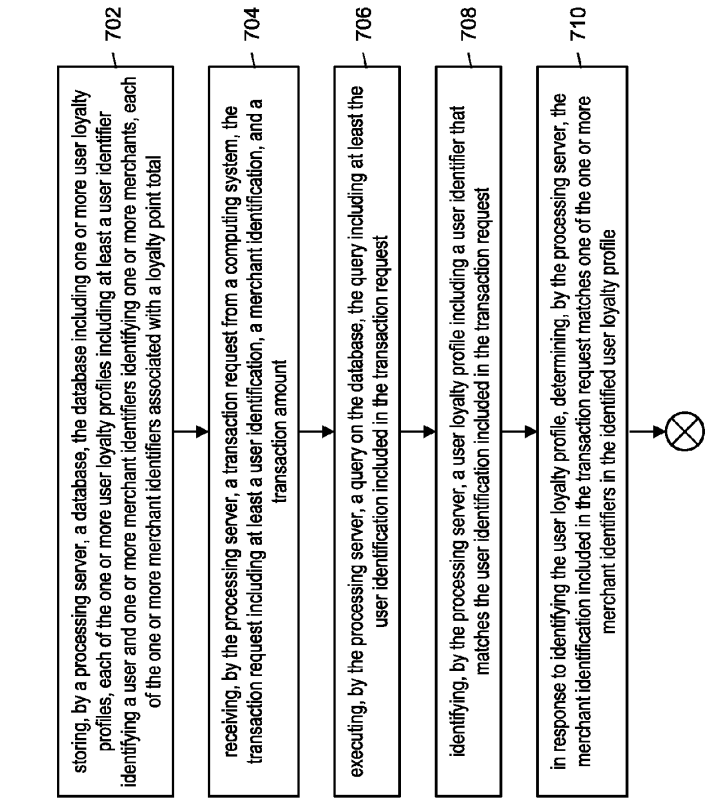

700
storing, by a processing server, a database, the database including one or more user loyalty profiles, each of the one or more user loyalty profiles including at least a user identifier identifying a user and one or more merchant identifiers identifying one or more merchants, each of the one or more merchant identifiers associated with a loyalty point total
702
receiving, by the processing server, a transaction request from a computing system, the transaction request including at least a user identification, a merchant identification, and a transaction amount
704
executing, by the processing server, a query on the database, the query including at least the user identification included in the transaction request
706
identifying, by the processing server, a user loyalty profile including a user identifier that matches the user identification included in the transaction request
708
in response to identifying the user loyalty profile, determining, by the processing server, the merchant identification included in the transaction request matches one of the one or more merchant identifiers in the identified user loyalty profile
710

FIG. 8A

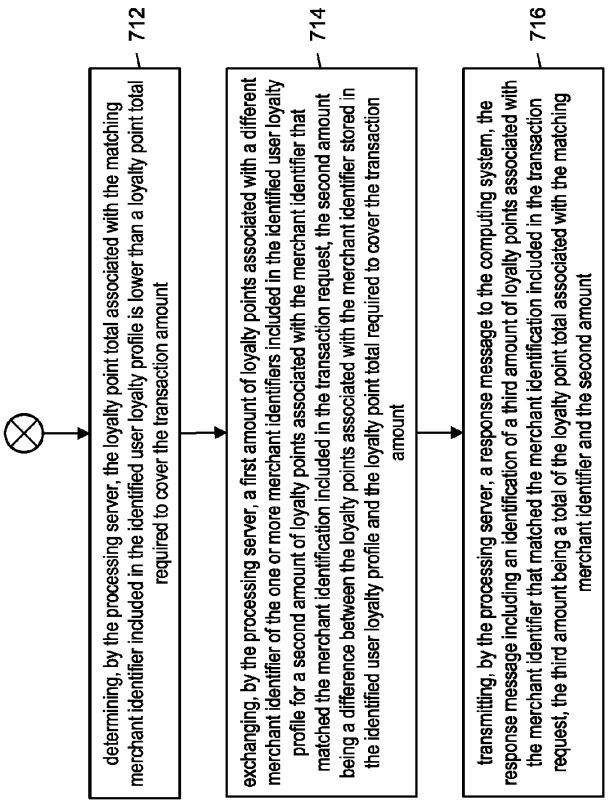

712
determining, by the processing server, the loyalty point total associated with the matching merchant identifier included in the identified user loyalty profile is lower than a loyalty point total required to cover the transaction amount
714
exchanging, by the processing server, a first amount of loyalty points associated with a different merchant identifier of the one or more merchant identifiers included in the identified user loyalty profile for a second amount of loyalty points associated with the merchant identifier that matched the merchant identification included in the transaction request, the second amount being a difference between the loyalty points associated with the merchant identifier stored in the identified user loyalty profile and the loyalty point total required to cover the transaction amount
716
transmitting, by the processing server, a response message to the computing system, the response message including an identification of a third amount of loyalty points associated with the merchant identifier that matched the merchant identification included in the transaction request, the third amount being a total of the loyalty point total associated with the matching merchant identifier and the second amount

FIG. 8B

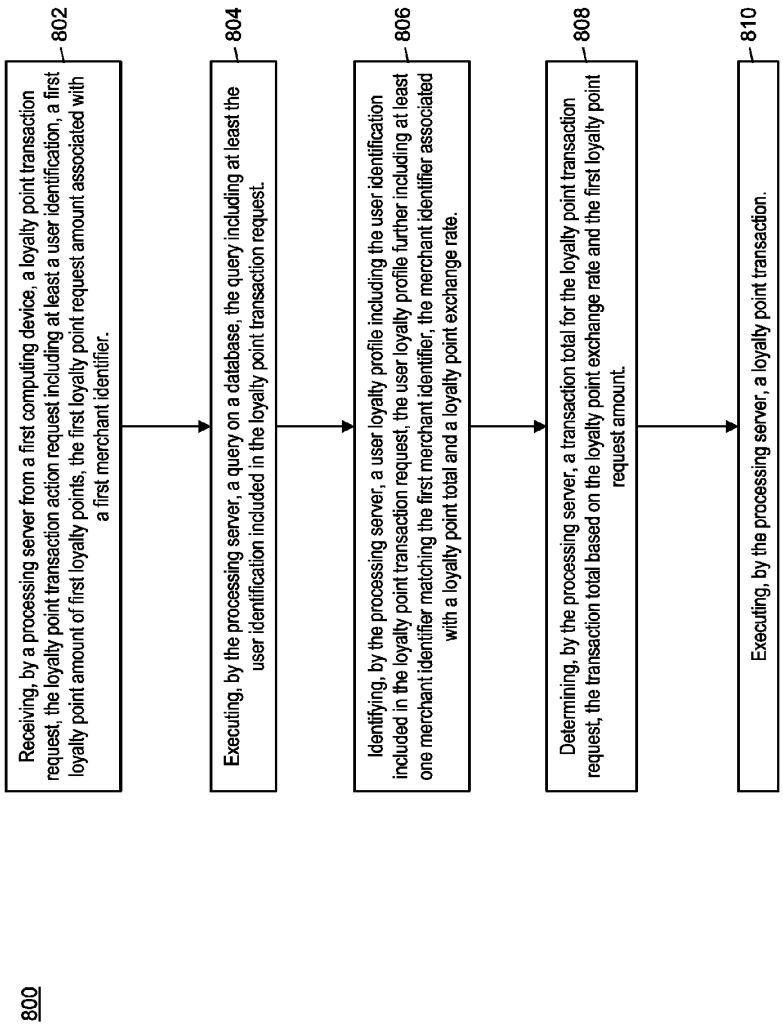

800
802
Receiving, by a processing server from a first computing device, a loyalty point transaction request, the loyalty point transaction action request including at least a user identification, a first loyalty point amount of first loyalty points, the first loyalty point request amount associated with a first merchant identifier.
804
Executing, by the processing server, a query on a database, the query including at least the user identification included in the loyalty point transaction request.
806
Identifying, by the processing server, a user loyalty profile including the user identification included in the loyalty point transaction request, the user loyalty profile further including at least one merchant identifier matching the first merchant identifier, the merchant identifier associated with a loyalty point total and a loyalty point exchange rate.
808
Determining, by the processing server, a transaction total for the loyalty point transaction request, the transaction total based on the loyalty point exchange rate and the first loyalty point request amount.
810
Executing, by the processing server, a loyalty point transaction.

FIG. 9

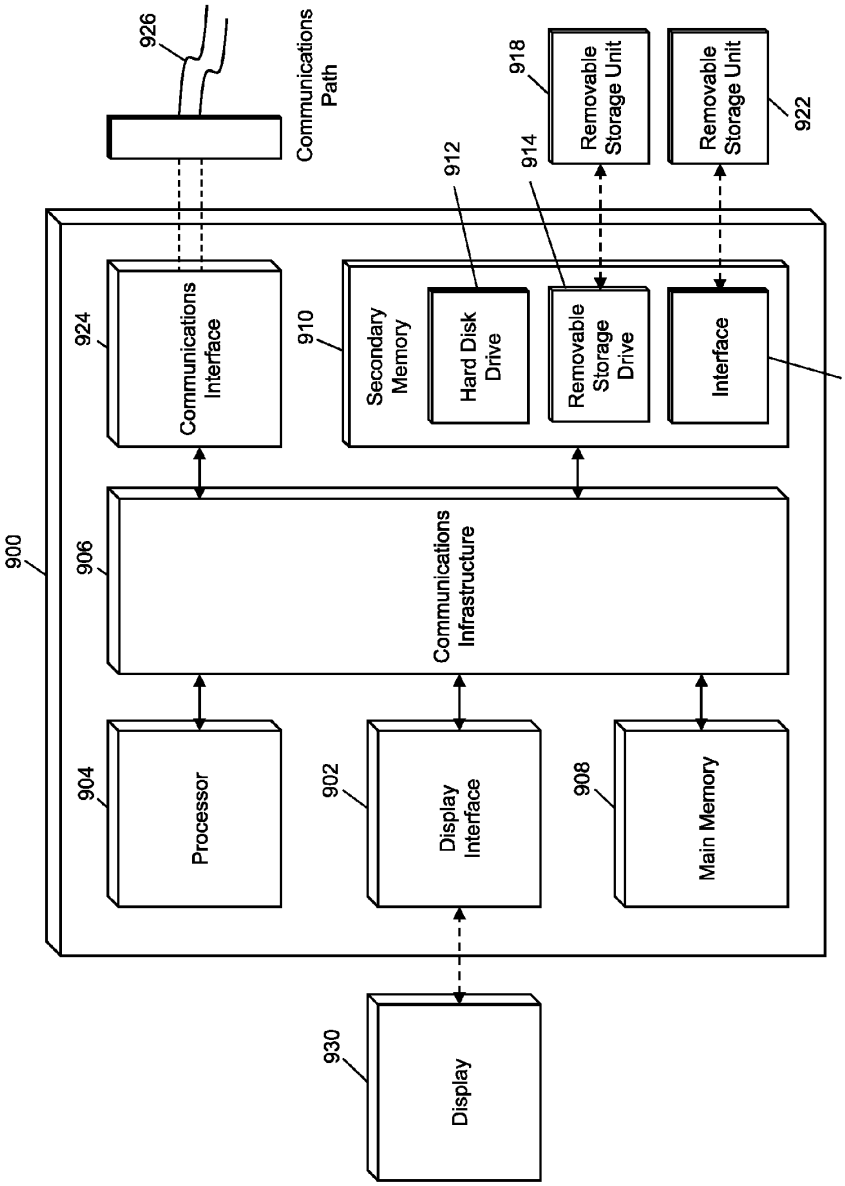

926
Communications Path
918
Removable Storage Unit
922
Removable Storage Unit
912
914
924
Communications Interface
910
Secondary Memory
Hard Disk Drive
Removable Storage Drive
Interface
920
900
906
Communications Infrastructure
904
Processor
902
Display Interface
908
Main Memory
930
Display

FIG. 10