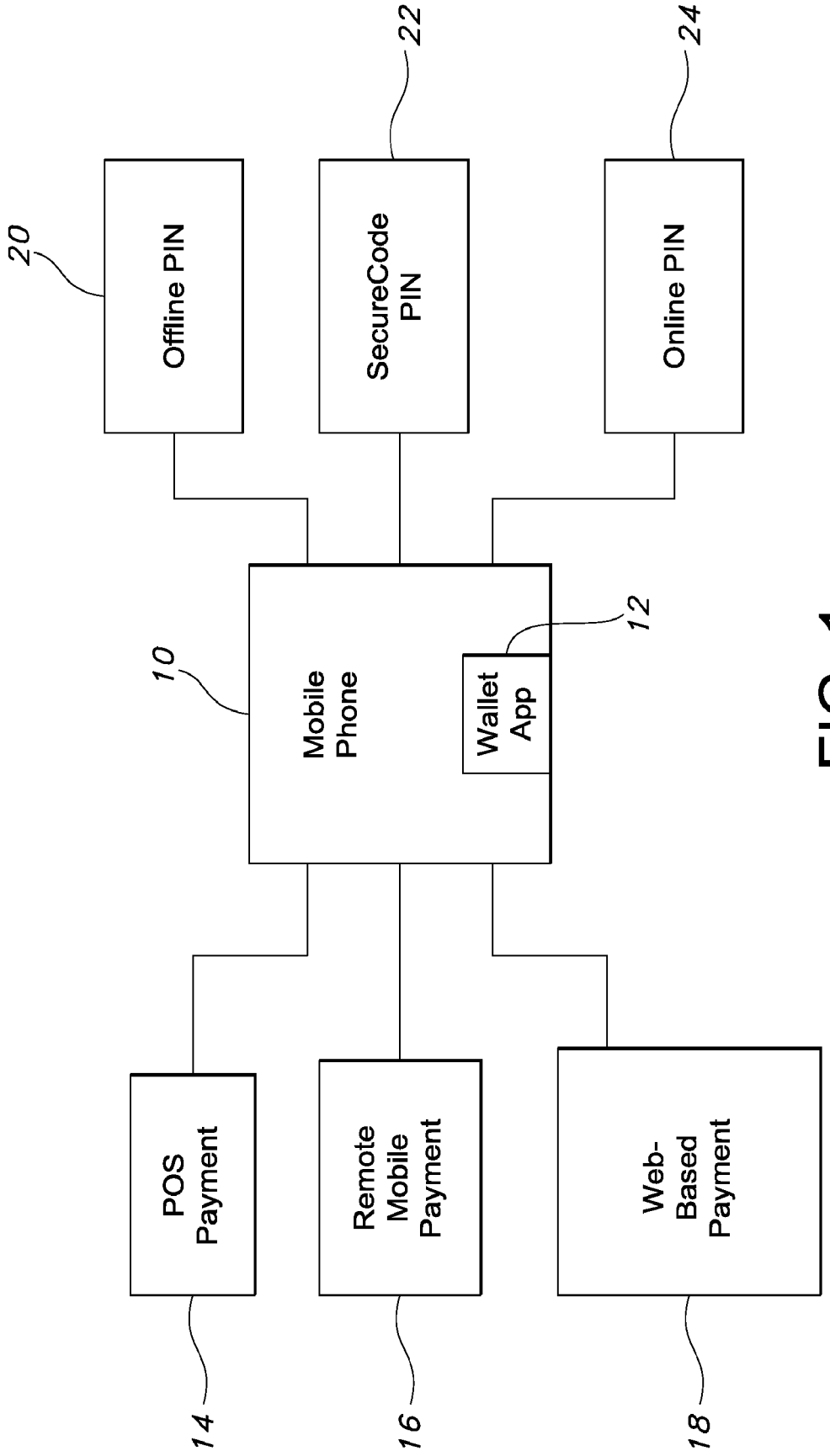

20
Offline PIN
22
SecureCode PIN
24
Online PIN
10
Mobile Phone
12
Wallet App
14
POS Payment
16
Remote Mobile Payment
18
Web-Based Payment

FIG. 1

FIG. 2

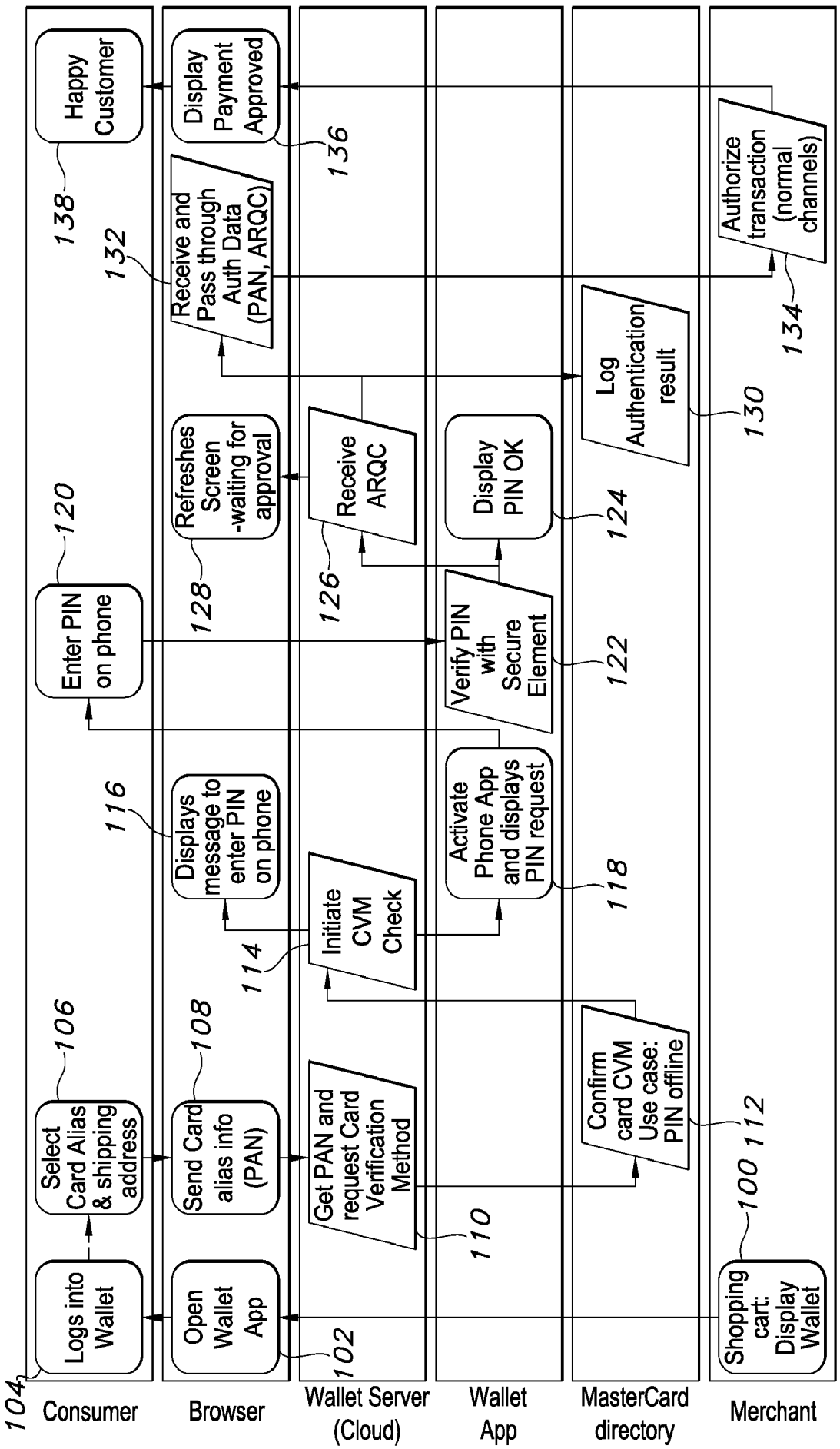

Consumer
Browser
Wallet Server (Cloud)
Wallet App
MasterCard directory
Merchant
104
Logs into Wallet
Open Wallet App
102
Select Card Alias & shipping address
106
Send Card alias info (PAN)
108
Get PAN and request Card Verification Method
110
Shopping cart: Display Wallet
100
Confirm card CVM Use case: PIN offline
112
Initiate CVM Check
114
Activate Phone App and displays PIN request
118
Verify PIN with Secure Element
122
Displays message to enter PIN on phone
116
Enter PIN on phone
120
Refreshes Screen -waiting for approval
128
Receive ARQC
126
Display PIN OK
124
Log Authentication result
130
Receive and Pass through Auth Data (PAN, ARQC)
132
Authorize transaction (normal channels)
134
Display Payment Approved
136
Happy Customer
138

FIG. 3

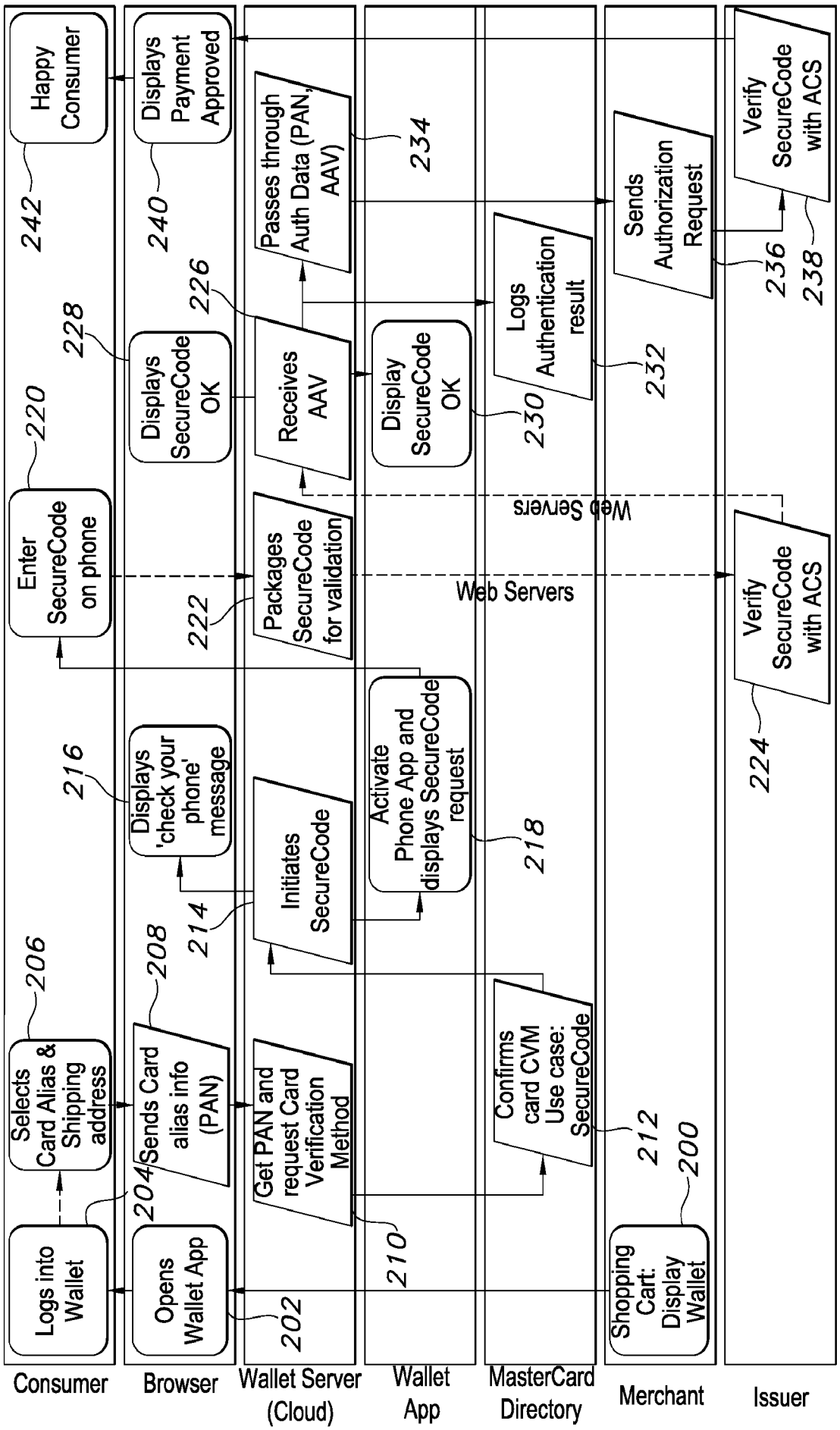

Consumer
Browser
Wallet Server (Cloud)
Wallet App
MasterCard Directory
Merchant
Issuer
Logs into Wallet
Opens Wallet App
Selects Card Alias & Shipping address
Sends Card alias info (PAN)
Get PAN and request Card Verification Method
Confirms card CVM Use case: SecureCode
Shopping Cart: Display Wallet
Displays 'check your phone' message
Initiates SecureCode
Activate Phone App and displays SecureCode request
Enter SecureCode on phone
Packages SecureCode for validation
Receives AAV
Display SecureCode OK
Logs Authentication result
Displays SecureCode OK
Passes through Auth Data (PAN, AAV)
Sends Authorization Request
Verify SecureCode with ACS
Displays Payment Approved
Happy Consumer
Web Servers
Web Servers
202
204
206
208
210
212
214
216
218
220
222
224
226
228
230
232
234
236
238
240
242
200

Fig. 4

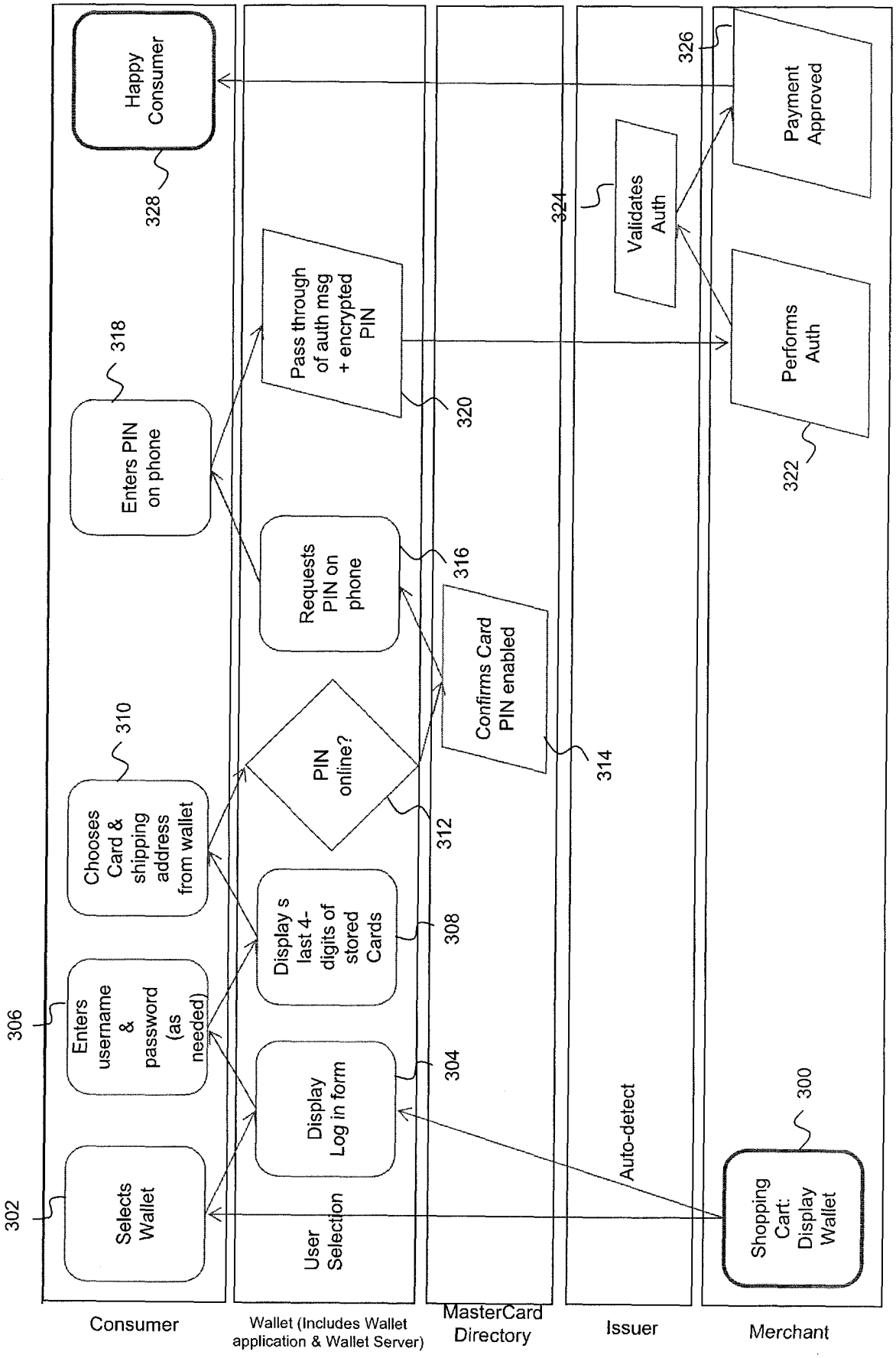
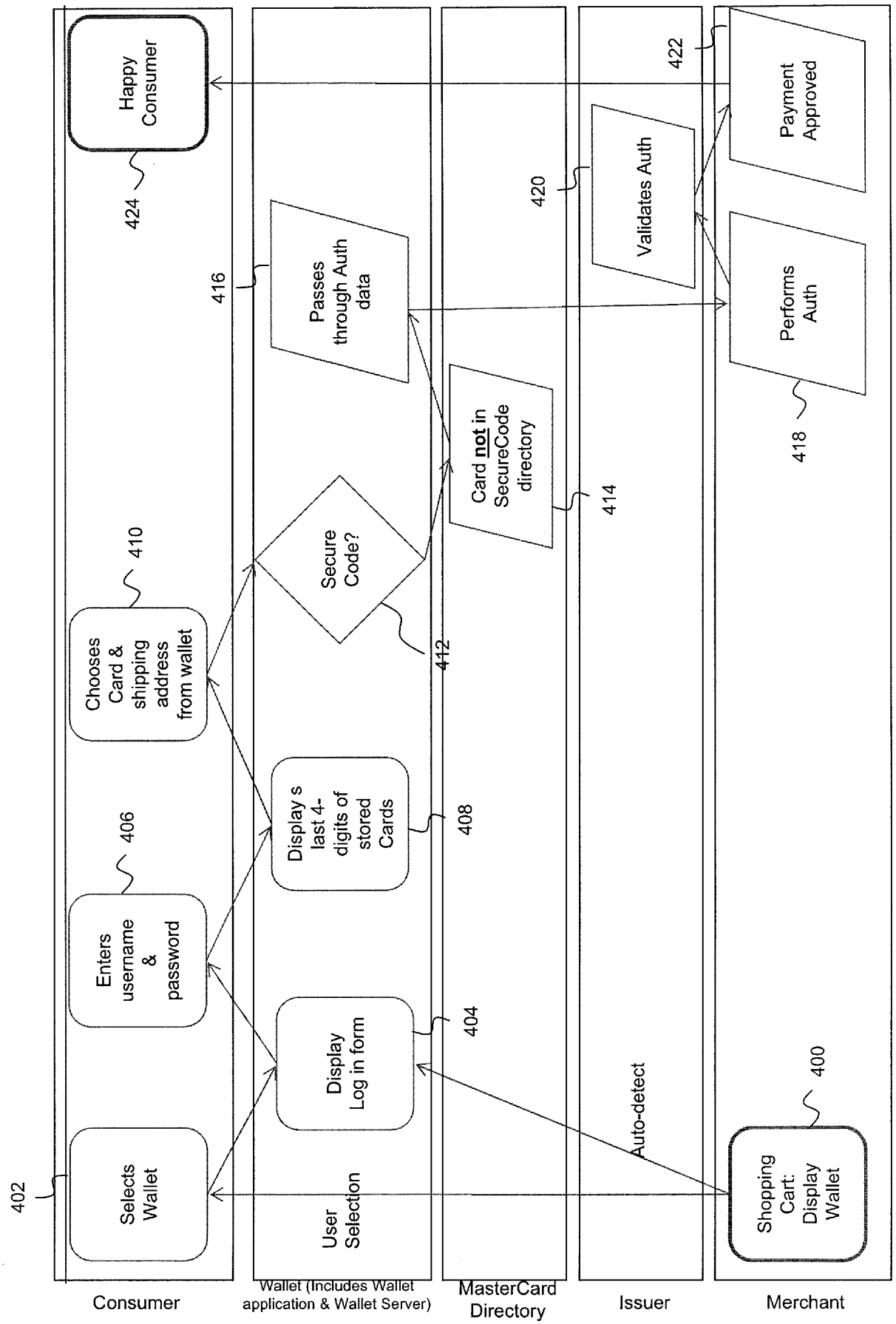
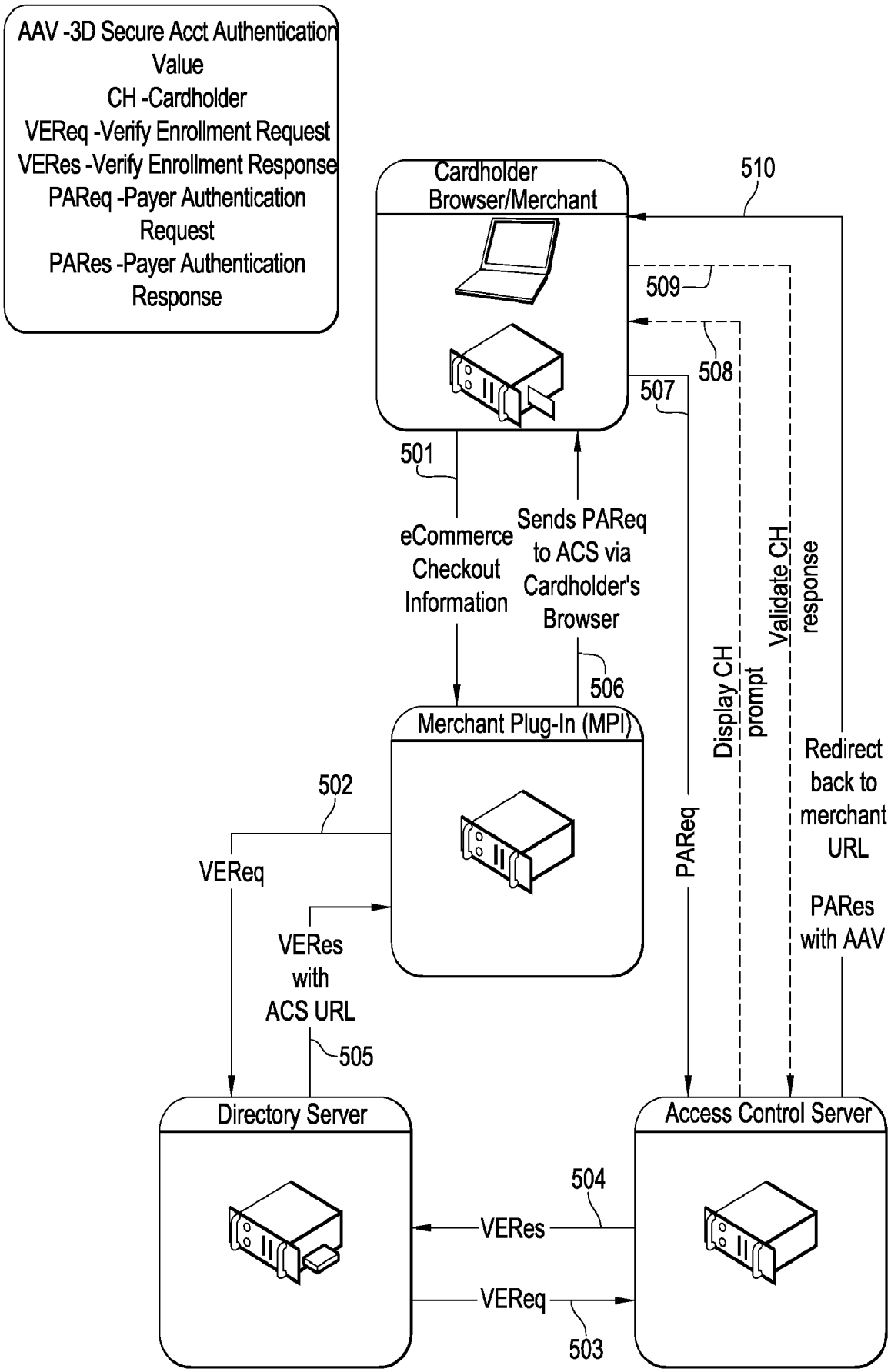

Consumer
Wallet (Includes Wallet application & Wallet Server)
MasterCard Directory
Issuer
Merchant
Selects Wallet
302
Enters username & password (as needed)
306
Chooses Card & shipping address from wallet
310
Enters PIN on phone
318
Happy Consumer
328
User Selection
Display Log in form
304
Display s last 4-digits of stored Cards
308
PIN online?
312
Requests PIN on phone
316
Pass through of auth msg + encrypted PIN
320
Confirms Card PIN enabled
314
Auto-detect
Validates Auth
324
Performs Auth
322
Payment Approved
326
Shopping Cart: Display Wallet
300

Fig. 5

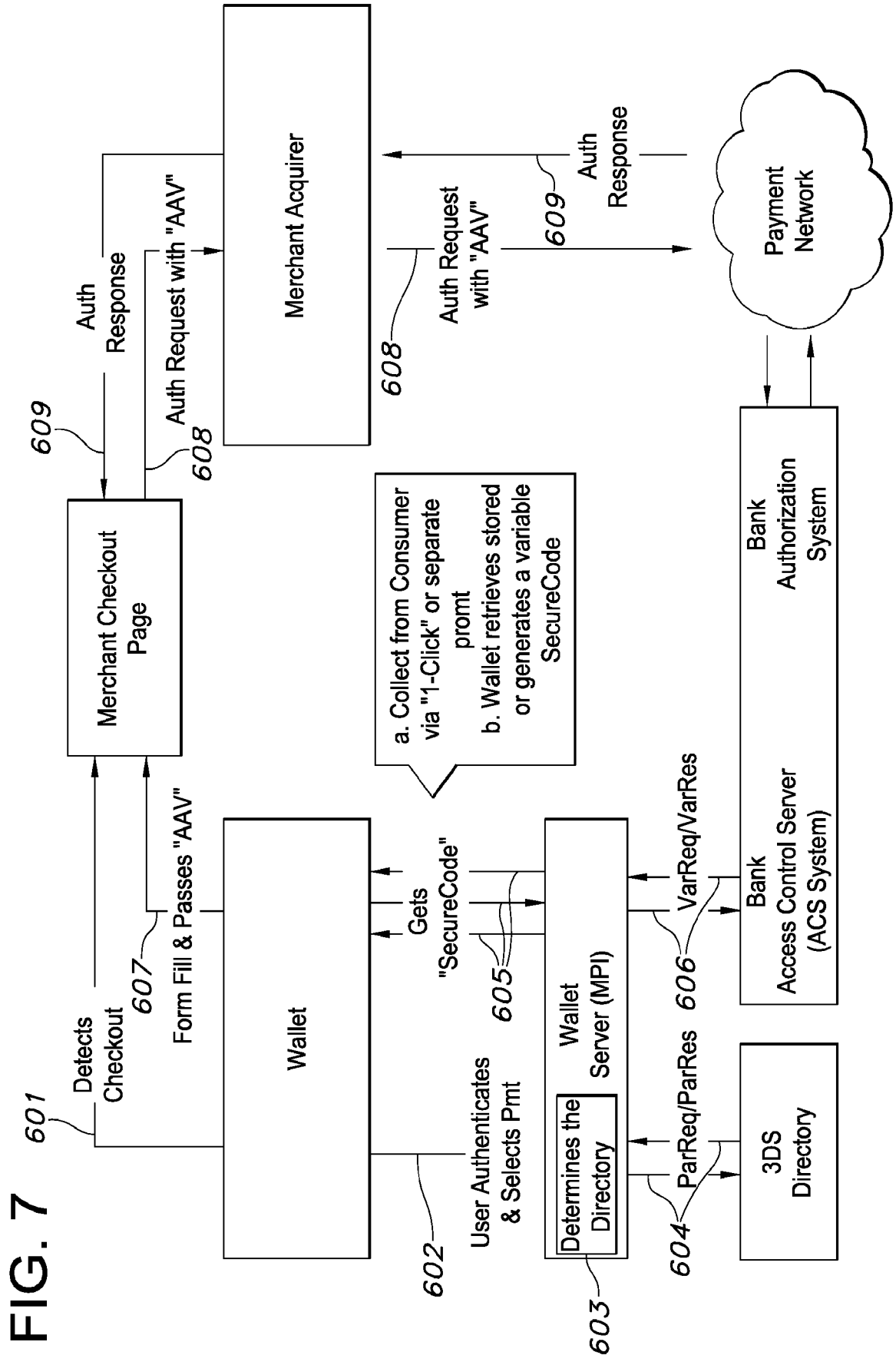

Happy Consumer
424
416
Passes through Auth data
420
Validates Auth
422
Payment Approved
Performs Auth
418
Card not in SecureCode directory
414
Secure Code?
412
Chooses Card & shipping address from wallet
410
Enters username & password
406
Display s last 4-digits of stored Cards
408
Display Log in form
404
Auto-detect
Selects Wallet
402
User Selection
Shopping Cart: Display Wallet
400
Consumer
Wallet (Includes Wallet application & Wallet Server)
MasterCard Directory
Issuer
Merchant

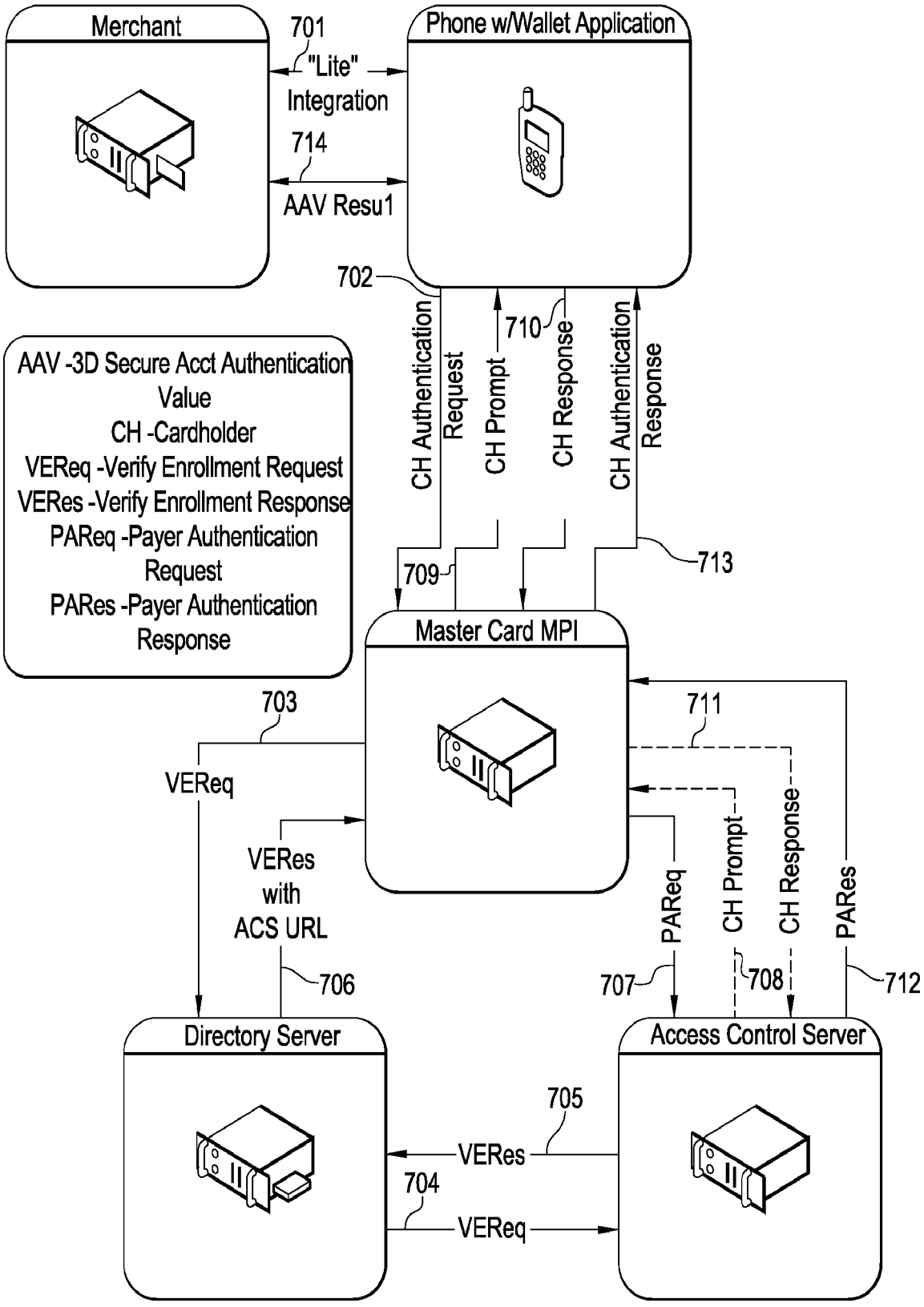


Existing 3D Secure Implementation

FIG. 6

FIG. 7


601
Detects Checkout
607
Form Fill & Passes "AAV"
Merchant Checkout Page
609
Auth Response
608
Auth Request with "AAV"
Merchant Acquirer
608
Auth Request with "AAV"
609
Auth Response
Payment Network
a. Collect from Consumer via "1-Click" or separate promt
b. Wallet retrieves stored or generates a variable SecureCode
Wallet
Gets "SecureCode"
605
Wallet Server (MPI)
Determines the Directory
603
VarReq/VarRes
606
Bank Access Control Server (ACS System)
Bank Authorization System
602
User Authenticates & Selects Pmt
ParReq/ParRes
604
3DS Directory



MasterCard MPI Concept

FIG. 8

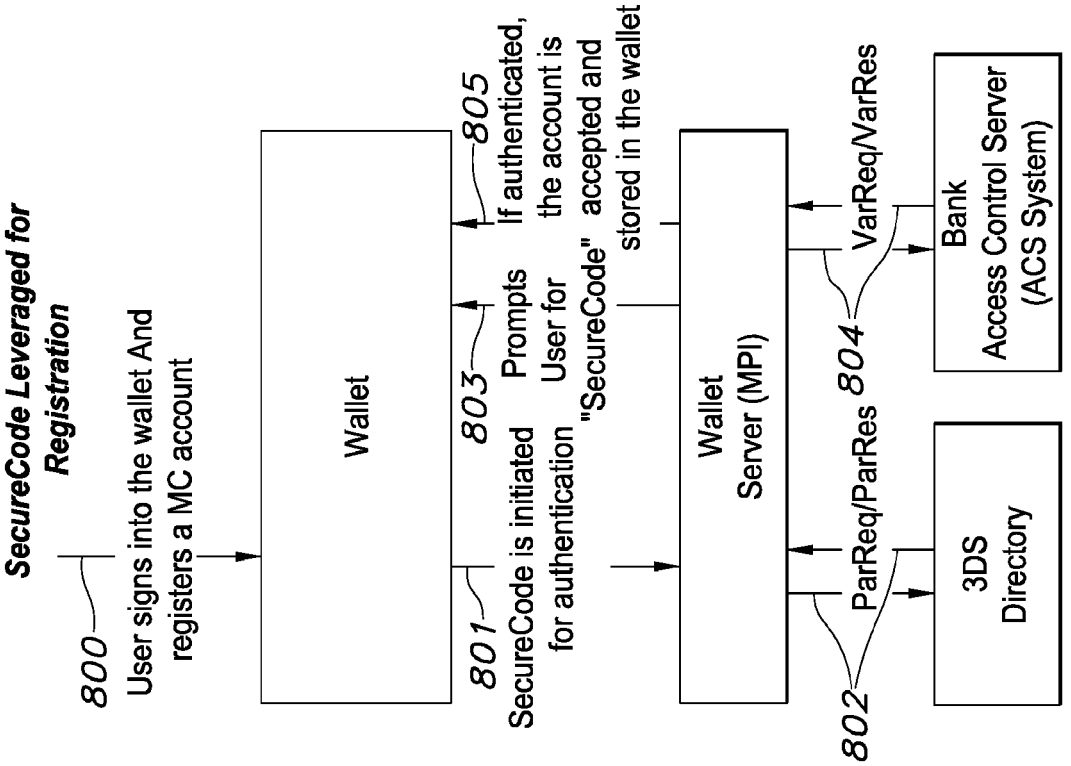

SecureCode Leveraged for Registration
800
User signs into the wallet And registers a MC account
Wallet
801
SecureCode is initiated for authentication
803
Prompts User for "SecureCode"
805
If authenticated, the account is accepted and stored in the wallet
Wallet Server (MPI)
802
ParReq/ParRes
804
VarReq/VarRes
3DS Directory
Bank Access Control Server (ACS System)

FIG. 9A

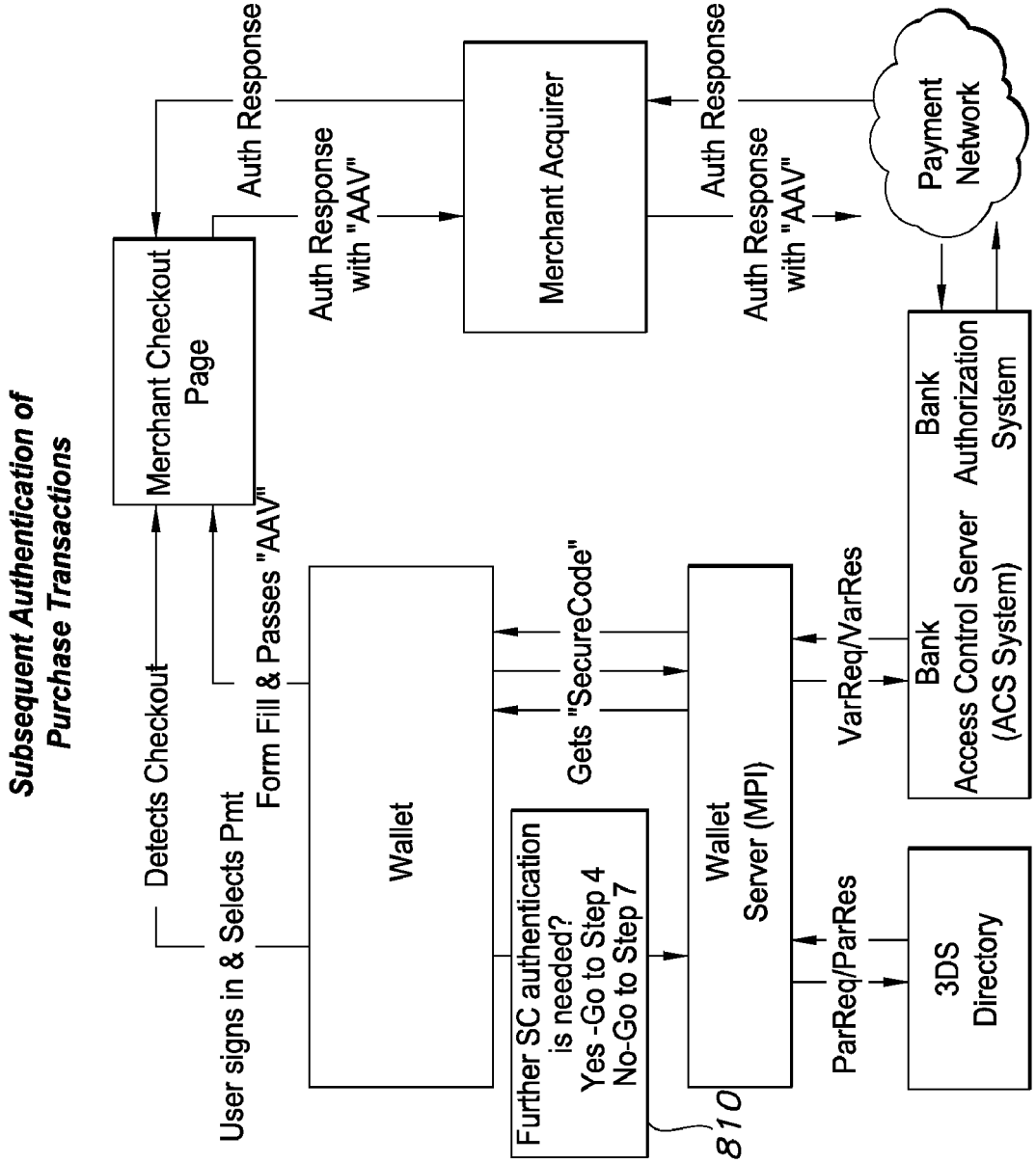

Subsequent Authentication of Purchase Transactions
Detects Checkout
User signs in & Selects Pmt
Form Fill & Passes "AAV"
Merchant Checkout Page
Auth Response
Auth Response with "AAV"
Merchant Acquirer
Auth Response
Auth Response with "AAV"
Payment Network
Wallet
Gets "SecureCode"
Further SC authentication is needed?
Yes -Go to Step 4
No-Go to Step 7
810
Wallet Server (MPI)
VarReq/VarRes
ParReq/ParRes
Bank Access Control Server (ACS System)
Bank Authorization System
3DS Directory

FIG. 9B

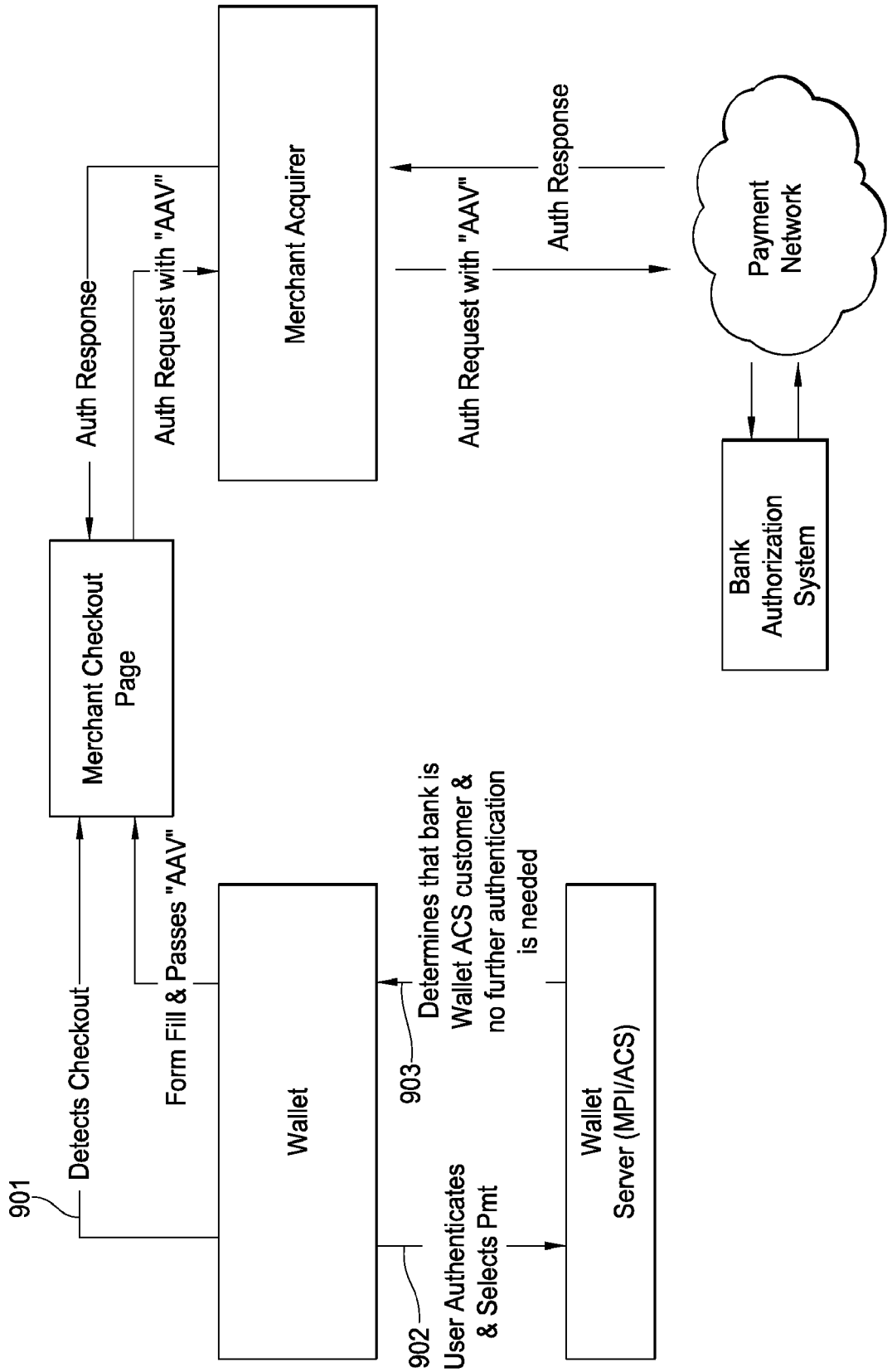

Merchant Acquirer
Auth Response
Auth Request with "AAV"
Auth Request with "AAV"
Auth Response
Payment Network
Merchant Checkout Page
Bank Authorization System
Detects Checkout
Form Fill & Passes "AAV"
Wallet
Determines that bank is Wallet ACS customer & no further authentication is needed
Wallet Server (MPI/ACS)
User Authenticates & Selects Pmt
901
902
903

FIG. 10