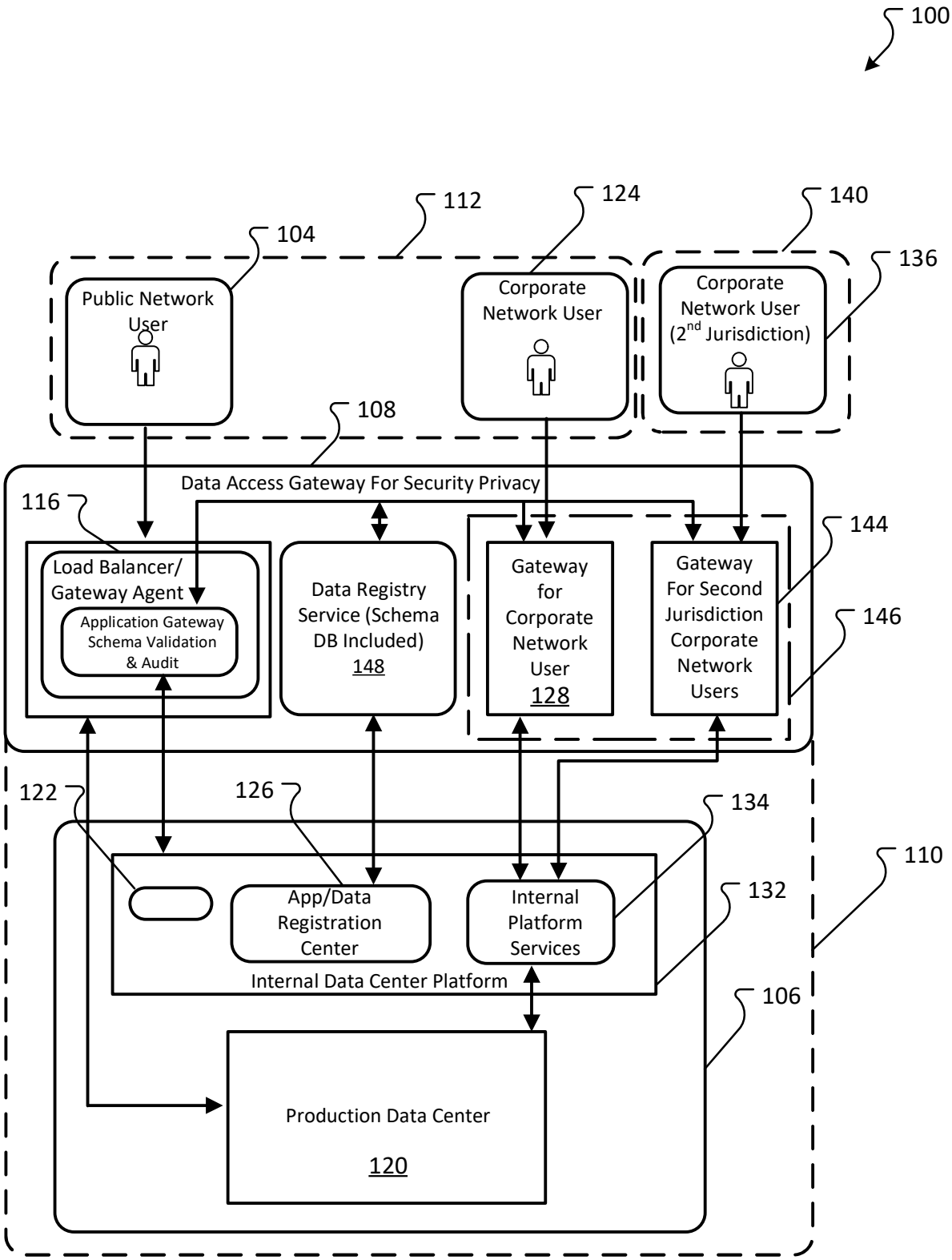

100
112
124
140
104
136
Public Network User
Corporate Network User
Corporate Network User (2nd Jurisdiction)
108
Data Access Gateway For Security Privacy
116
144
Load Balancer/ Gateway Agent
Application Gateway Schema Validation & Audit
Data Registry Service (Schema DB Included) 148
Gateway for Corporate Network User 128
Gateway For Second Jurisdiction Corporate Network Users
146
122
126
134
110
App/Data Registration Center
Internal Platform Services
132
Internal Data Center Platform
106
Production Data Center 120

Fig. 1

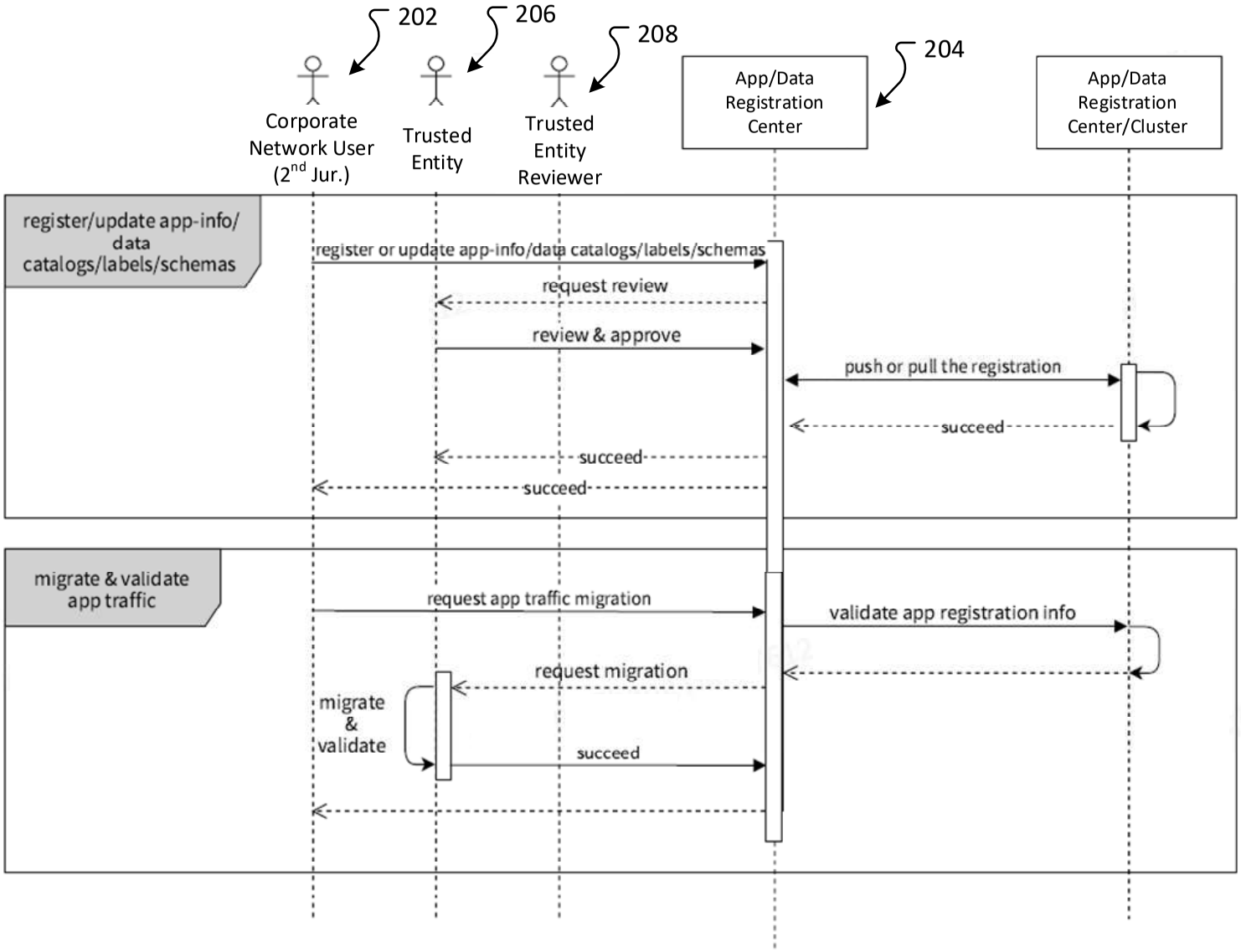

202
206
208
204
Corporate Network User (2nd Jur.)
Trusted Entity
Trusted Entity Reviewer
App/Data Registration Center
App/Data Registration Center/Cluster
register/update app-info/ data catalogs/labels/schemas
register or update app-info/data catalogs/labels/schemas
request review
review & approve
push or pull the registration
succeed
succeed
succeed
migrate & validate app traffic
request app traffic migration
validate app registration info
request migration
migrate & validate
succeed

Fig. 2

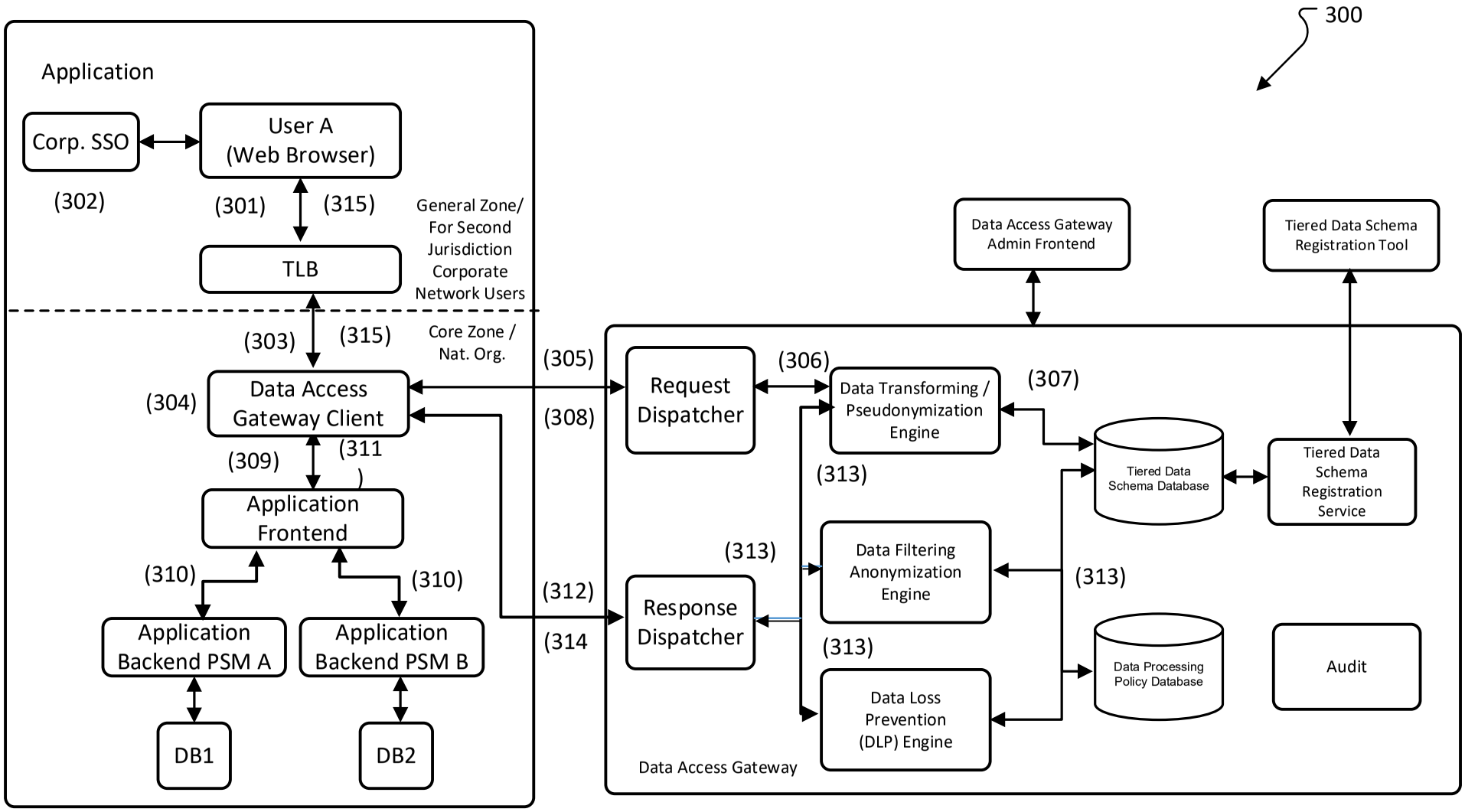

300
Application
Corp. SSO
User A
(Web Browser)
(302)
(301)
(315)
General Zone/
For Second
Jurisdiction
Corporate
Network Users
TLB
(303)
(315)
Core Zone /
Nat. Org.
(304)
Data Access
Gateway Client
(309)
(311
)
Application
Frontend
(310)
(310)
Application
Backend PSM A
Application
Backend PSM B
DB1
DB2
(305)
(308)
(312)
(314
Request
Dispatcher
Response
Dispatcher
Data Access Gateway
Admin Frontend
Tiered Data Schema
Registration Tool
(306)
Data Transforming /
Pseudonymization
Engine
(307)
(313)
Tiered Data
Schema Database
Tiered Data
Schema
Registration
Service
(313)
Data Filtering
Anonymization
Engine
(313)
(313)
Data Loss
Prevention
(DLP) Engine
Data Processing
Policy Database
Audit
Data Access Gateway

Fig. 3

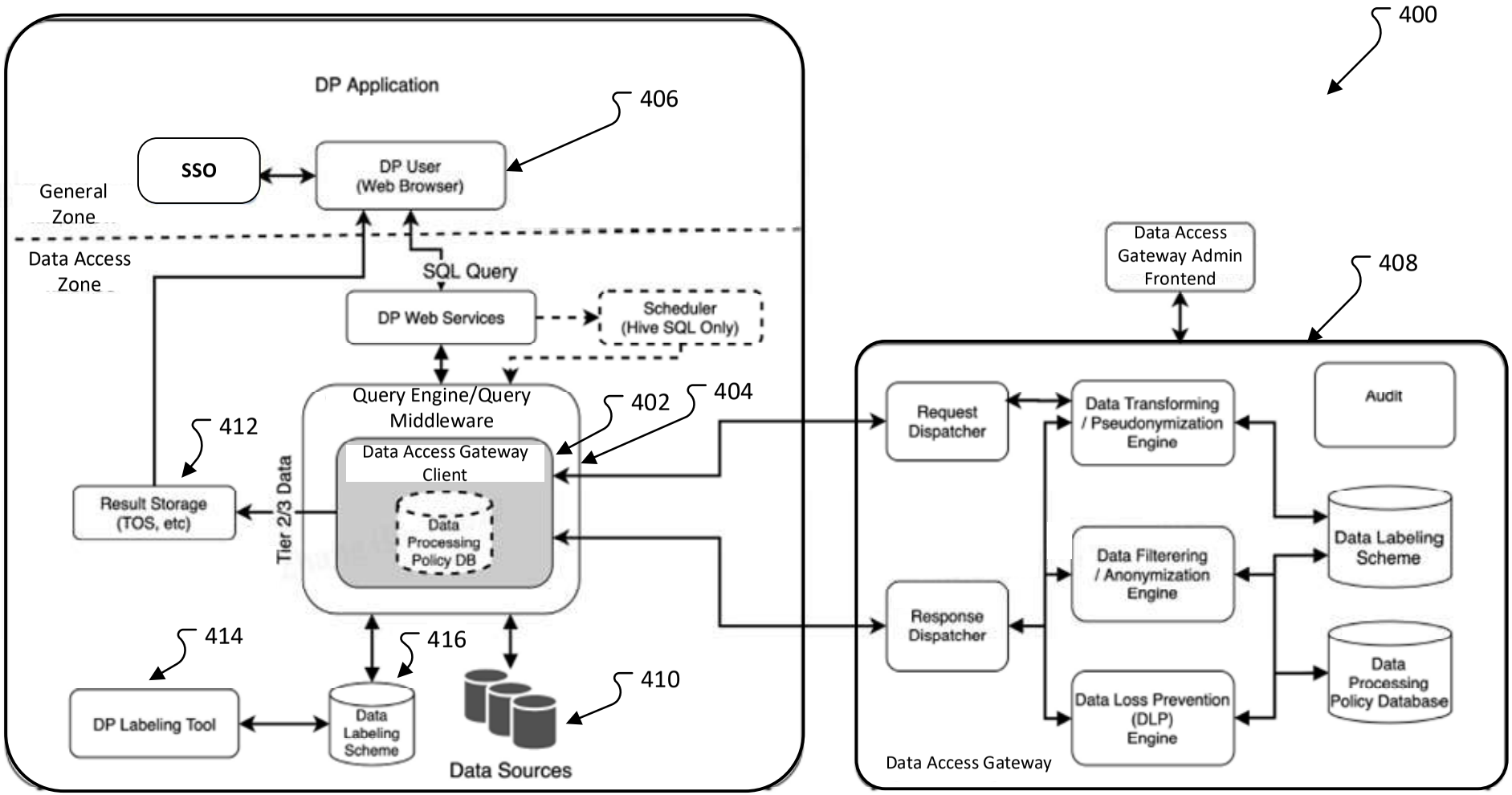

400
DP Application
406
SSO
DP User
(Web Browser)
General
Zone
Data Access
Zone
SQL Query
DP Web Services
Scheduler
(Hive SQL Only)
Query Engine/Query
Middleware
402
404
412
Data Access Gateway
Client
Result Storage
(TOS, etc)
Tier 2/3 Data
Data
Processing
Policy DB
414
416
410
DP Labeling Tool
Data
Labeling
Scheme
Data Sources
Data Access
Gateway Admin
Frontend
408
Request
Dispatcher
Data Transforming
/ Pseudonymization
Engine
Audit
Data Labeling
Scheme
Data Filterering
/ Anonymization
Engine
Response
Dispatcher
Data
Processing
Policy Database
Data Loss Prevention
(DLP)
Engine
Data Access Gateway

Fig. 4

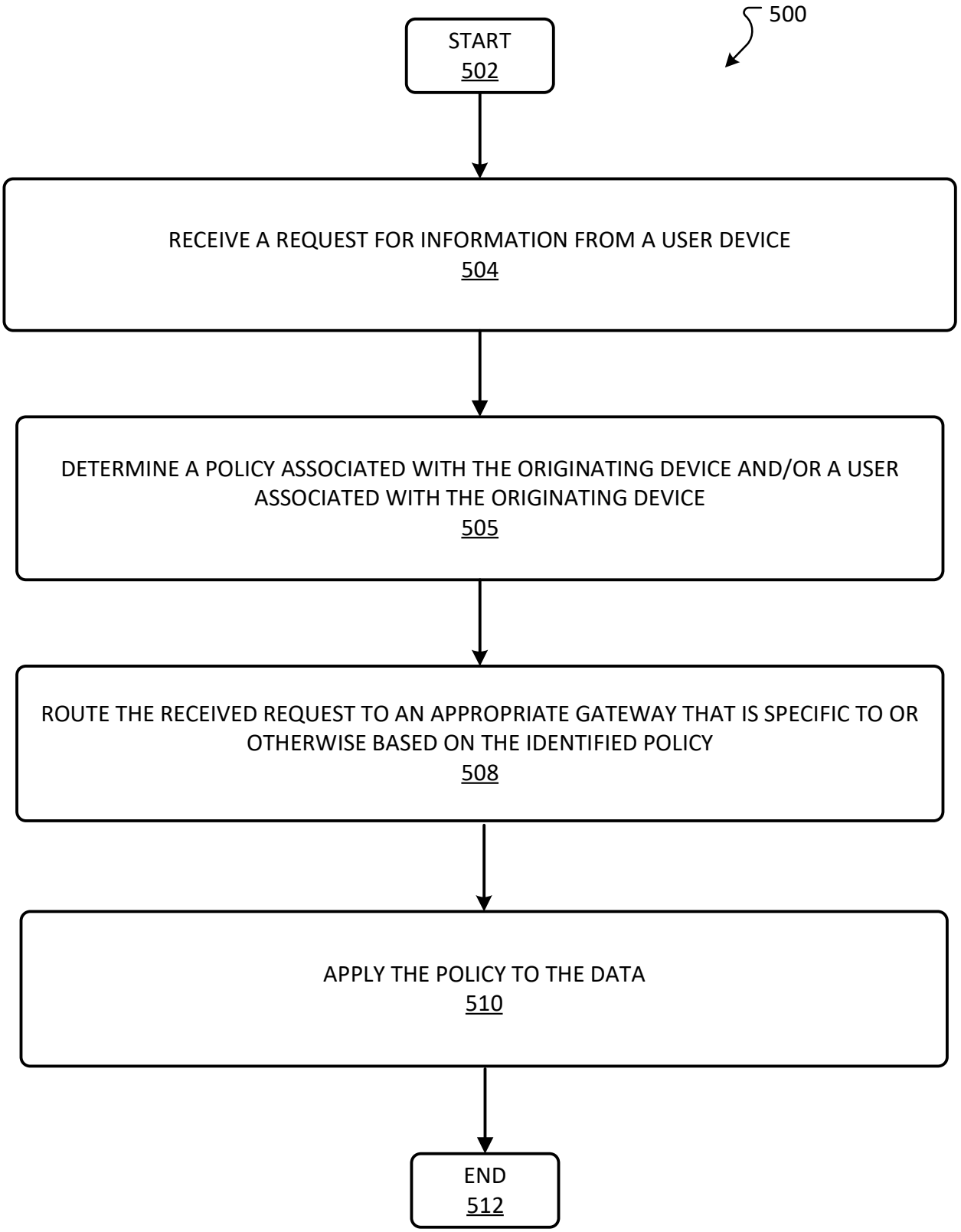

500
START
502
RECEIVE A REQUEST FOR INFORMATION FROM A USER DEVICE
504
DETERMINE A POLICY ASSOCIATED WITH THE ORIGINATING DEVICE AND/OR A USER ASSOCIATED WITH THE ORIGINATING DEVICE
505
ROUTE THE RECEIVED REQUEST TO AN APPROPRIATE GATEWAY THAT IS SPECIFIC TO OR OTHERWISE BASED ON THE IDENTIFIED POLICY
508
APPLY THE POLICY TO THE DATA
510
END
512

Fig. 5

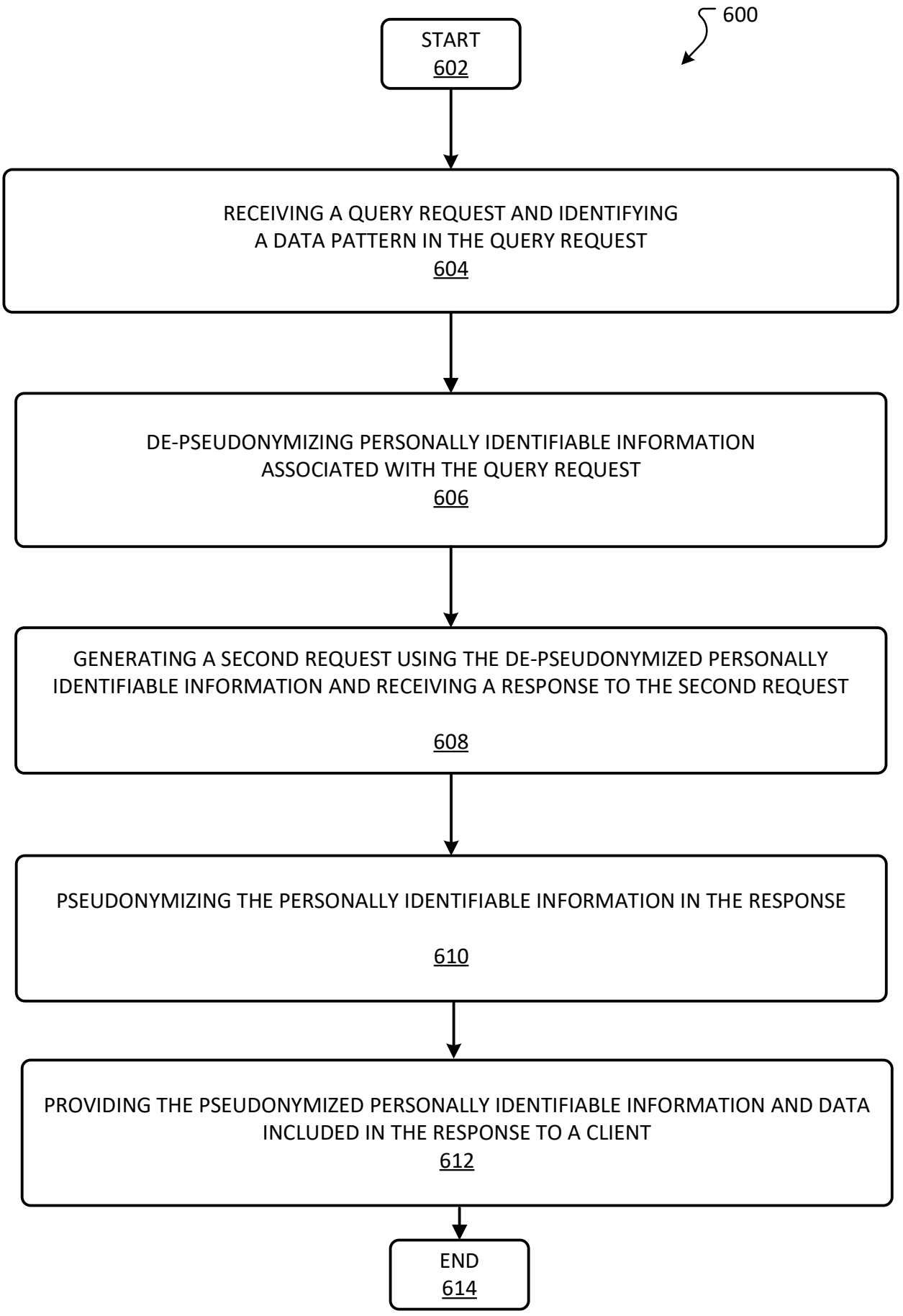

600
START
602
RECEIVING A QUERY REQUEST AND IDENTIFYING A DATA PATTERN IN THE QUERY REQUEST
604
DE-PSEUDONYMIZING PERSONALLY IDENTIFIABLE INFORMATION ASSOCIATED WITH THE QUERY REQUEST
606
GENERATING A SECOND REQUEST USING THE DE-PSEUDONYMIZED PERSONALLY IDENTIFIABLE INFORMATION AND RECEIVING A RESPONSE TO THE SECOND REQUEST
608
PSEUDONYMIZING THE PERSONALLY IDENTIFIABLE INFORMATION IN THE RESPONSE
610
PROVIDING THE PSEUDONYMIZED PERSONALLY IDENTIFIABLE INFORMATION AND DATA INCLUDED IN THE RESPONSE TO A CLIENT
612
END
614

Fig. 6

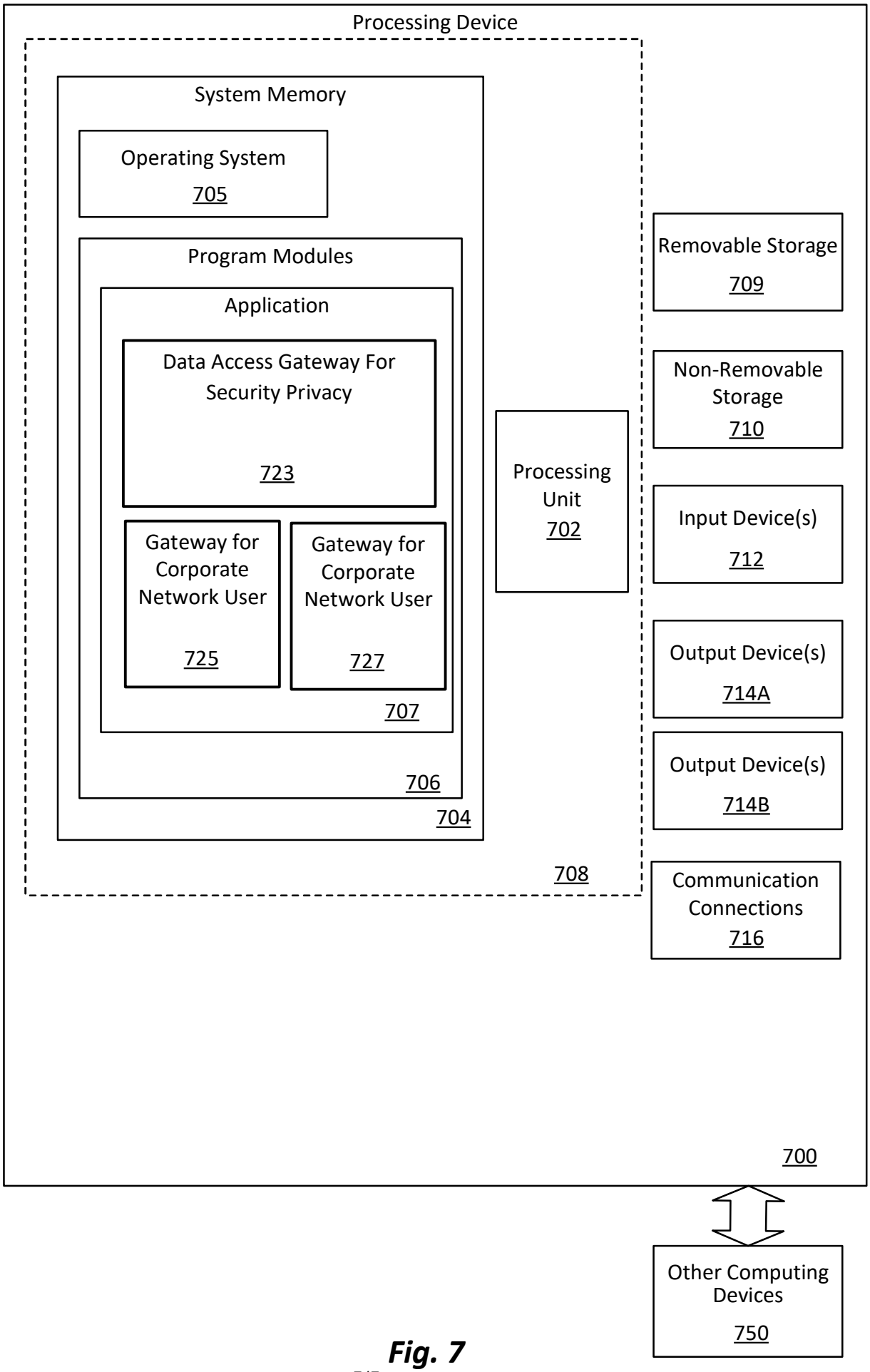

Processing Device
System Memory
Operating System
705
Program Modules
Application
Data Access Gateway For Security Privacy
723
Gateway for Corporate Network User
725
Gateway for Corporate Network User
727
707
706
704
708
Processing Unit
702
Removable Storage
709
Non-Removable Storage
710
Input Device(s)
712
Output Device(s)
714A
Output Device(s)
714B
Communication Connections
716
700
Other Computing Devices
750

Fig. 7