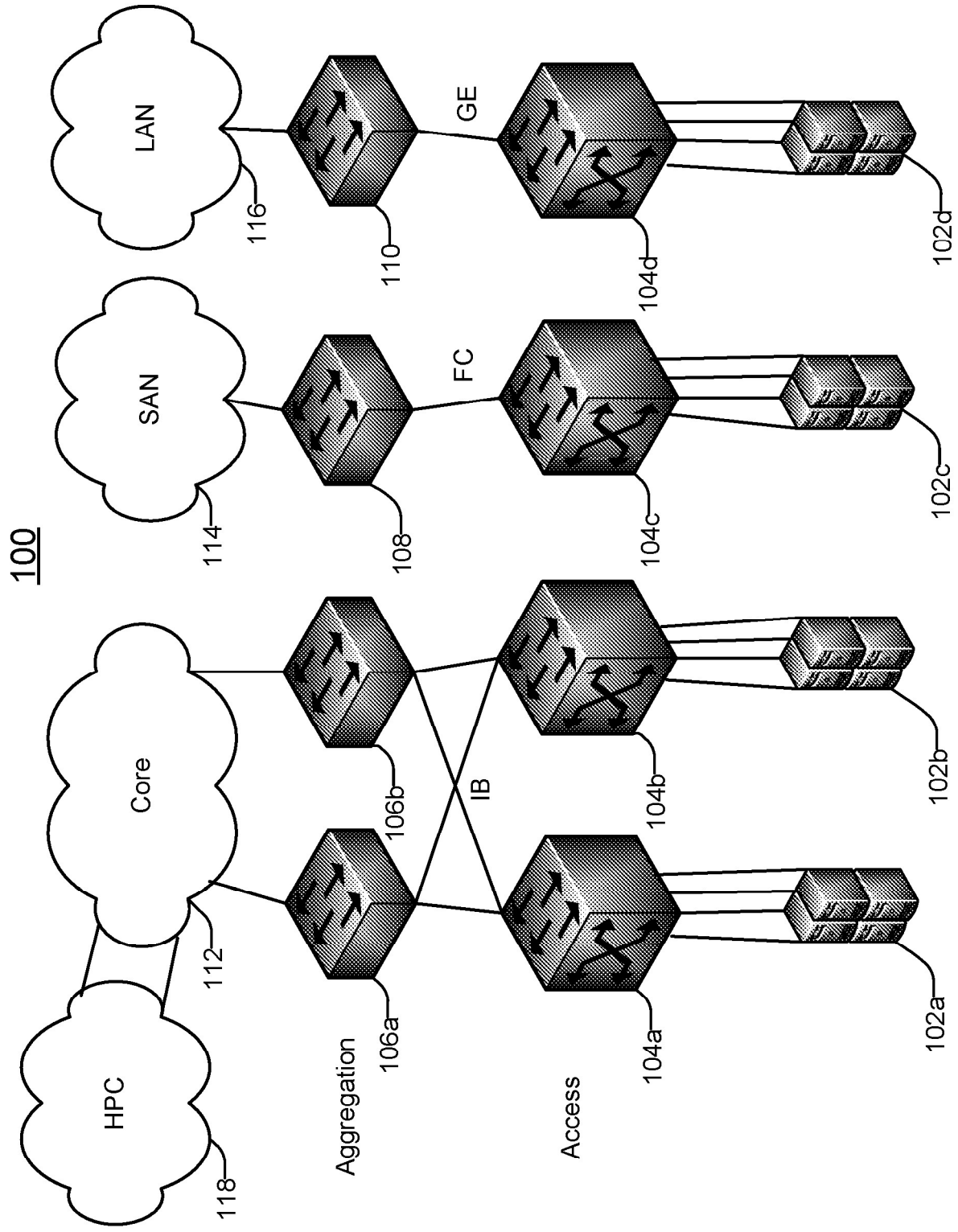
100
LAN
SAN
HPC
Core
GE
FC
IB
Aggregation
Access
116
114
118
112
110
108
106a
106b
104a
104b
104c
104d
102a
102b
102c
102d

FIG. 1

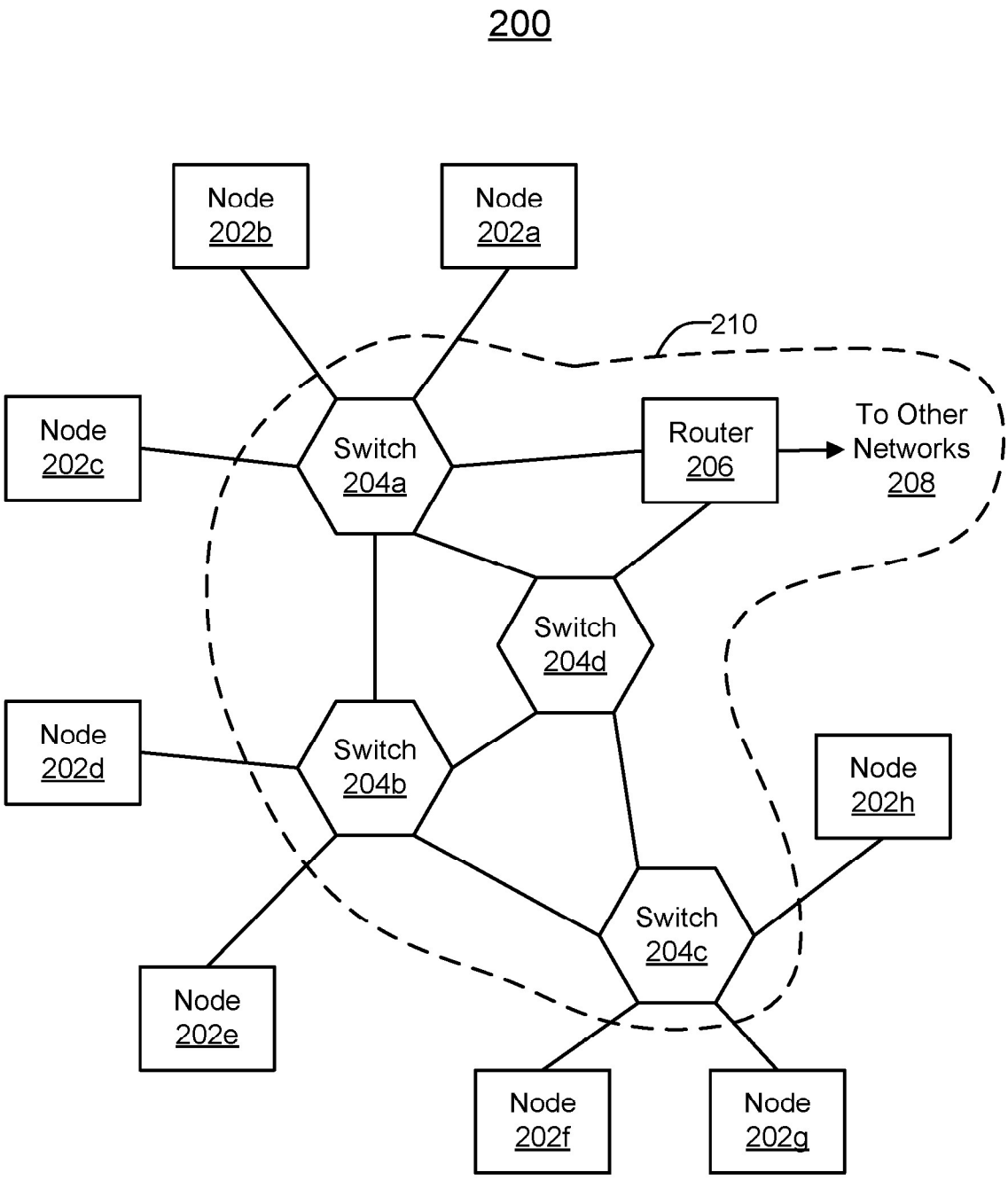
200
Node 202b
Node 202a
210
Node 202c
Switch 204a
Router 206
To Other Networks 208
Switch 204d
Node 202d
Switch 204b
Node 202h
Switch 204c
Node 202e
Node 202f
Node 202g

FIG. 2

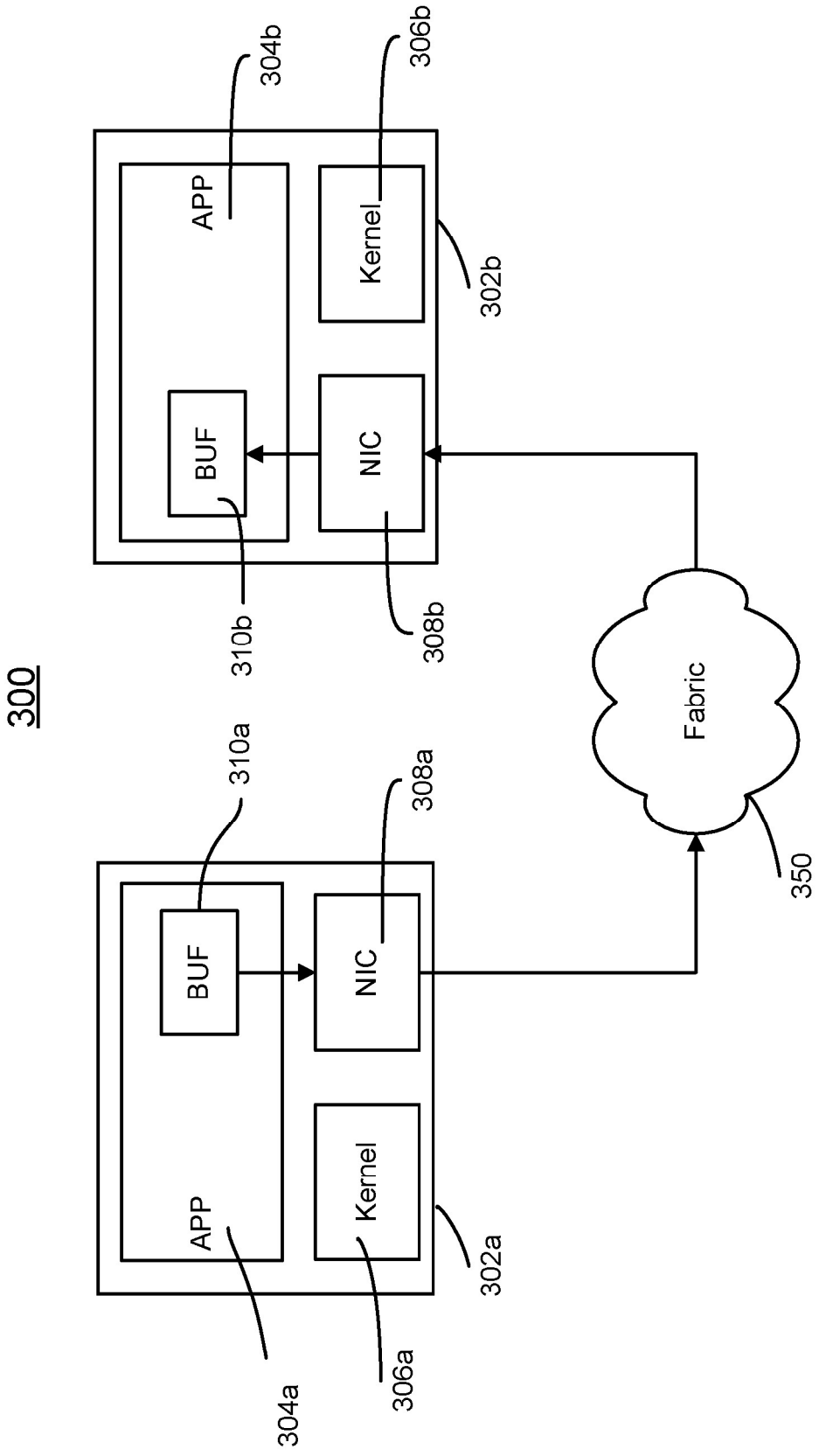
300
APP
304b
Kernel
306b
302b
BUF
NIC
310b
308b
Fabric
350
310a
308a
BUF
NIC
APP
Kernel
302a
304a
306a

FIG. 3

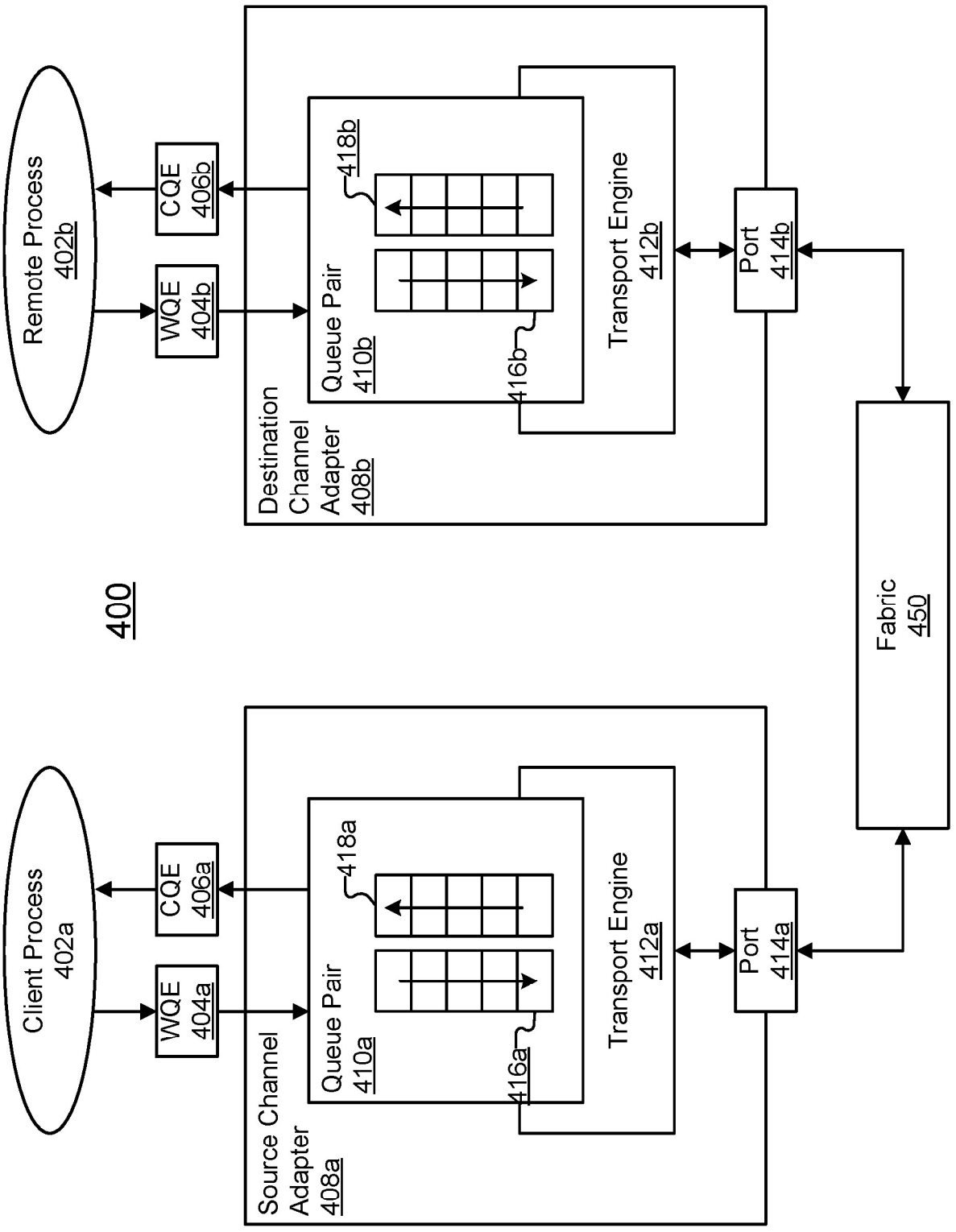
400
Client Process
402a
Remote Process
402b
WQE
404a
WQE
404b
CQE
406a
CQE
406b
Source Channel
Adapter
408a
Destination
Channel
Adapter
408b
Queue Pair
410a
Queue Pair
410b
418a
418b
416a
416b
Transport Engine
412a
Transport Engine
412b
Port
414a
Port
414b
Fabric
450

FIG. 4

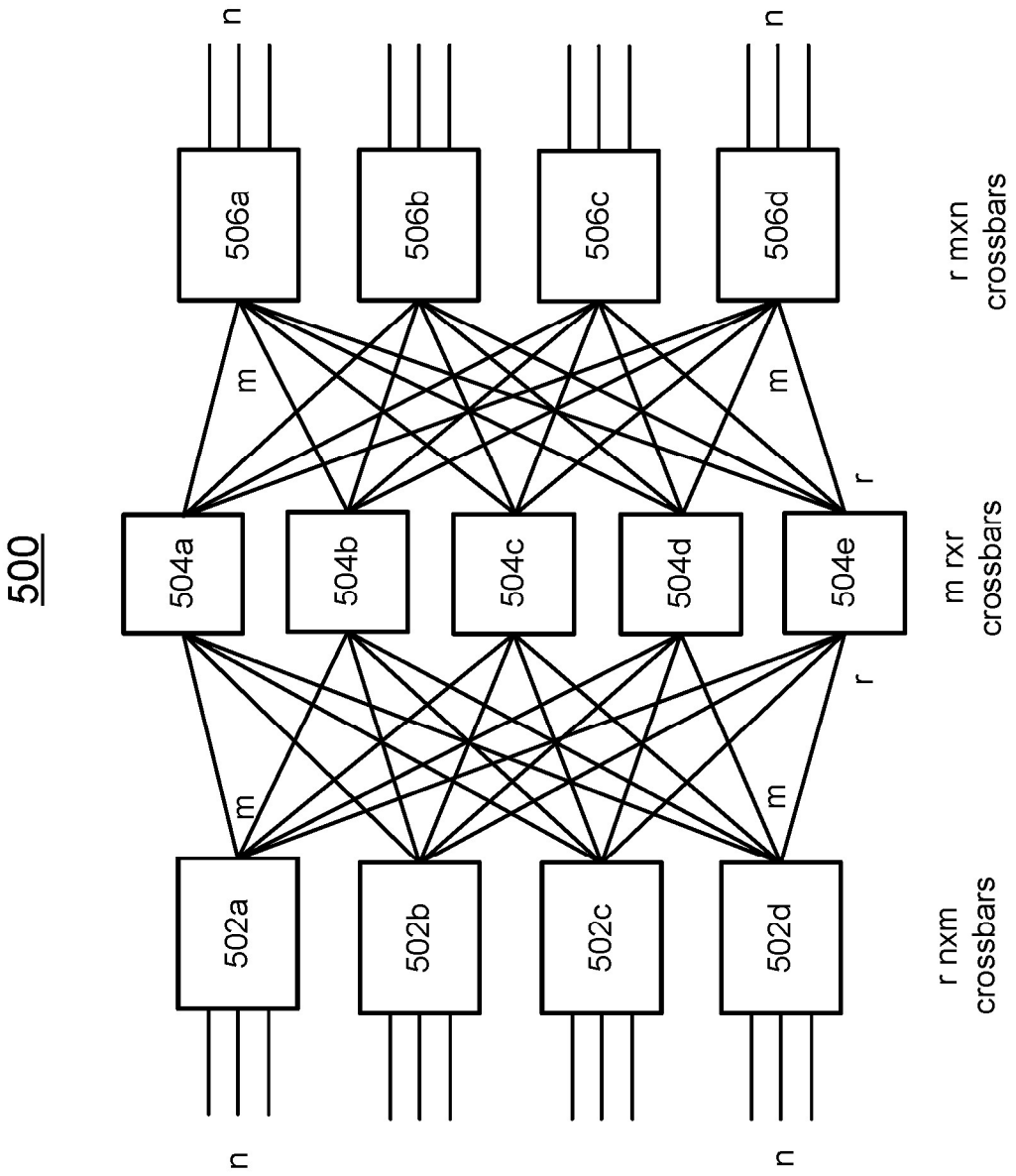
500
n
506a
506b
506c
506d
n
r mxn
crossbars
m
m
r
504a
504b
504c
504d
504e
m rxr
crossbars
r
m
m
502a
502b
502c
502d
r nxm
crossbars
n
n

FIG. 5

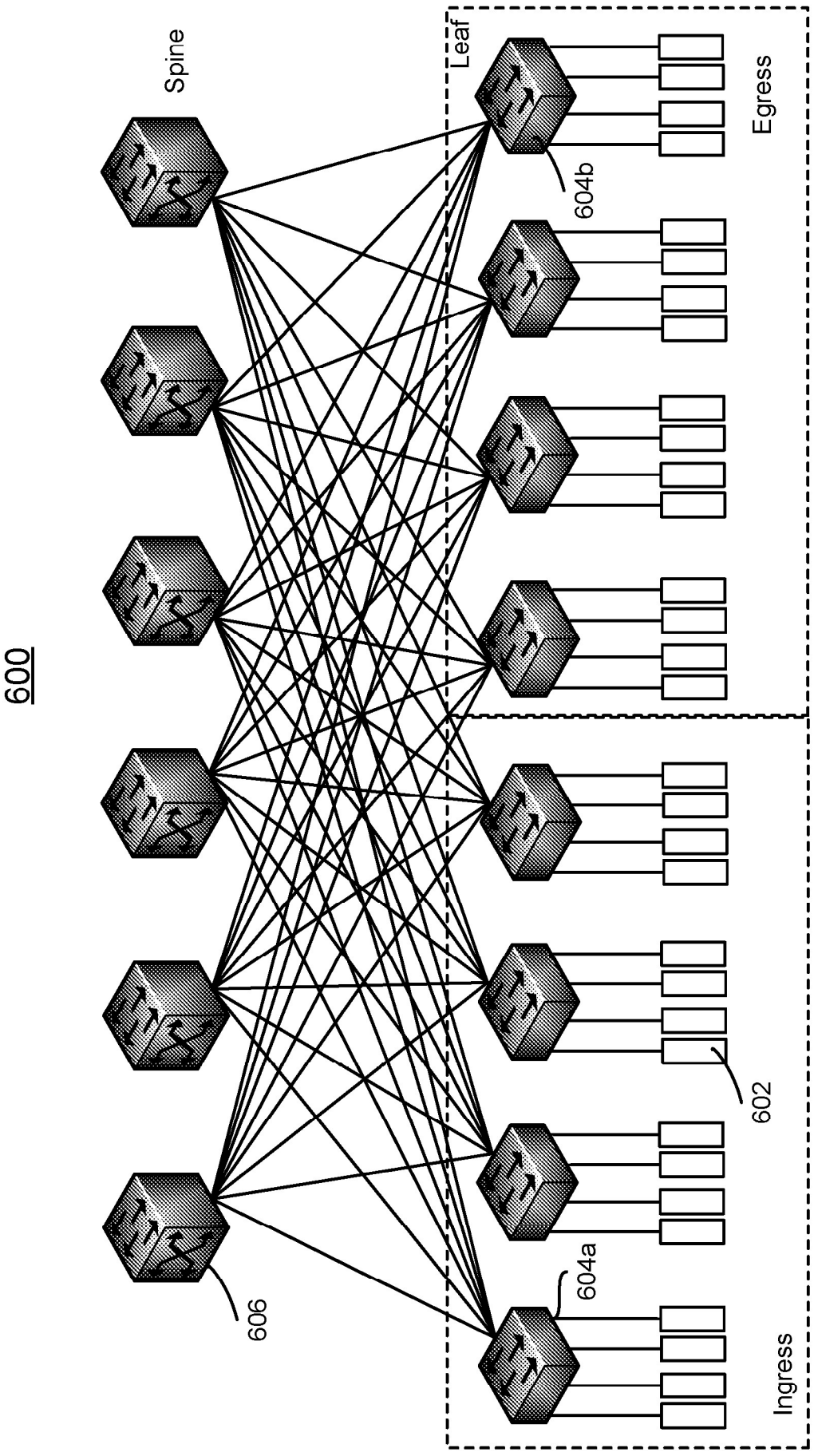

FIG. 6

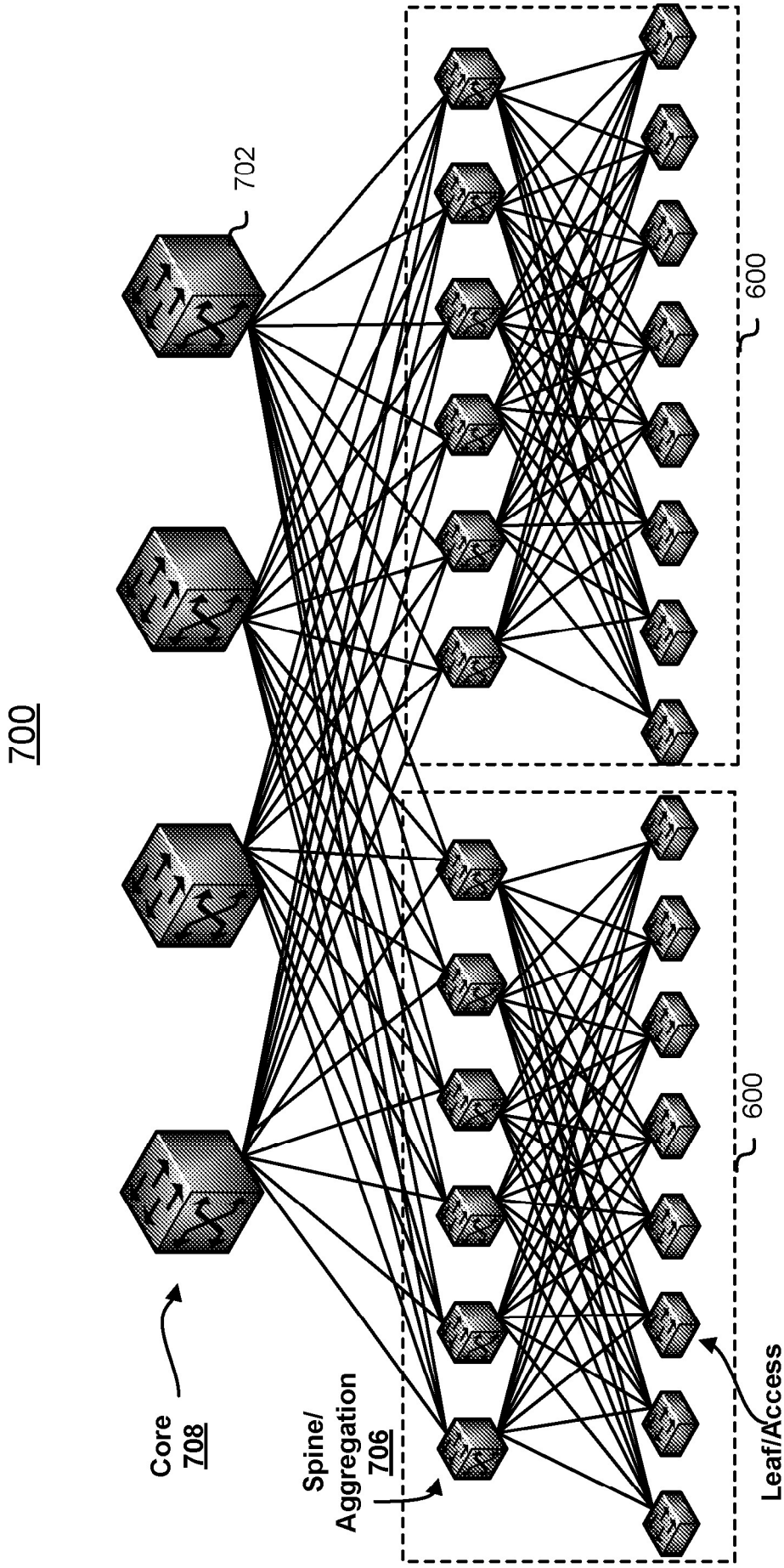
700
702
600
600
Core
708
Spine/
Aggregation
706
Leaf/Access
704

FIG. 7

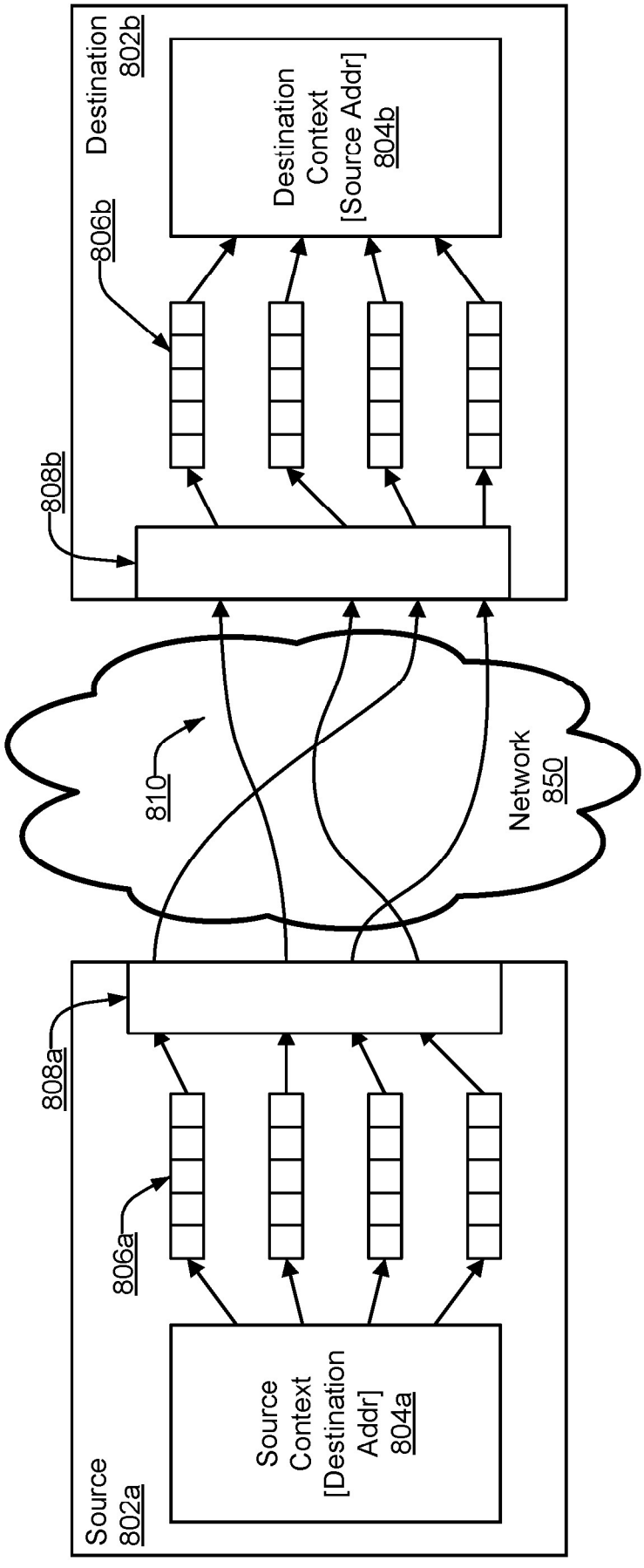
Source
802a
Source Context [Destination Addr] 804a
806a
808a
Network 850
810
808b
806b
Destination Context [Source Addr] 804b
Destination
802b

FIG. 8

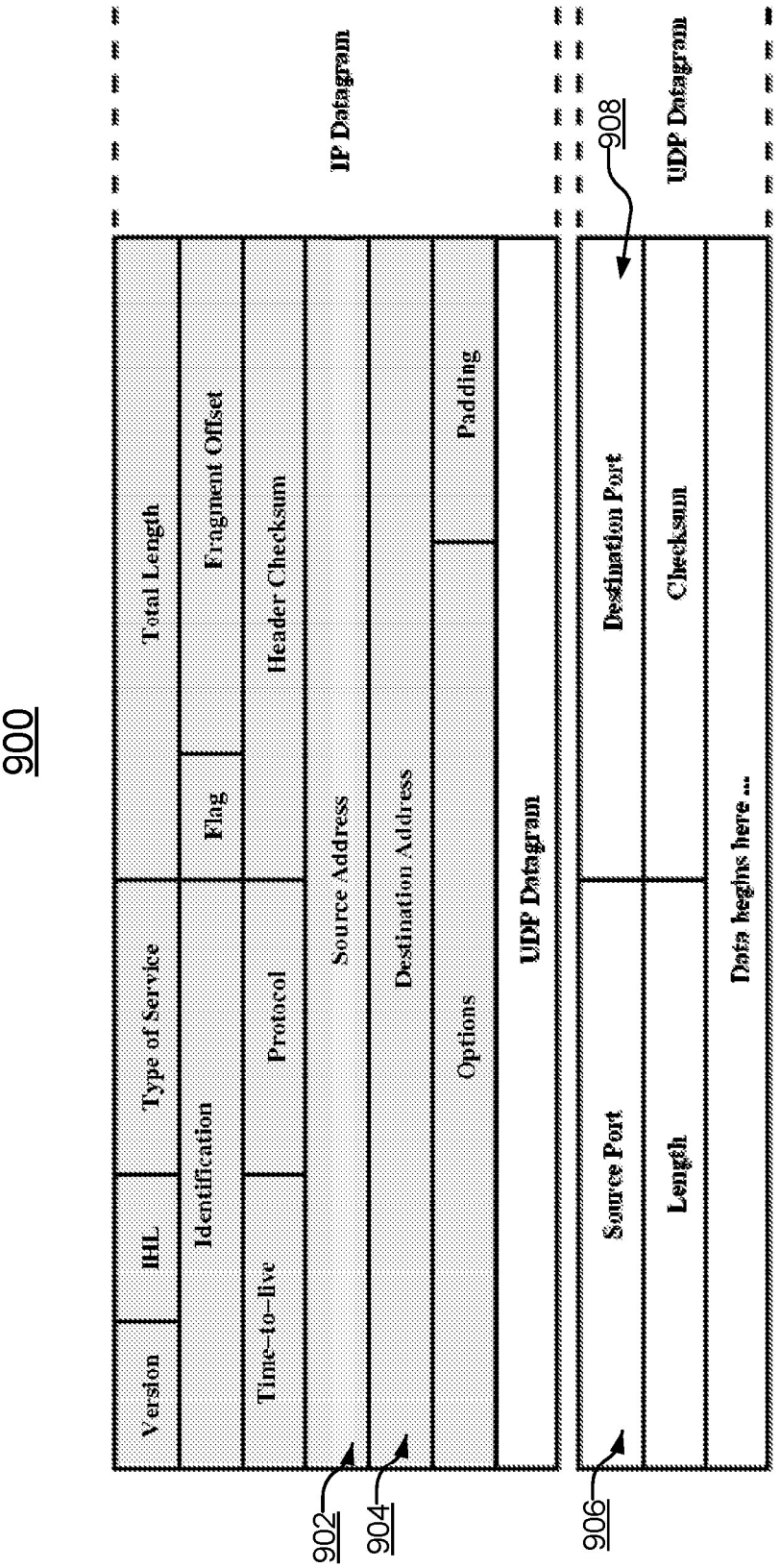
900
Version
IHL
Type of Service
Total Length
Identification
Flag
Fragment Offset
Time–to–live
Protocol
Header Checksum
Source Address
Destination Address
Options
Padding
IP Datagram
UDP Datagram
Source Port
Destination Port
Length
Checksum
Data begins here ...
UDP Datagram
902
904
906
908

FIG. 9

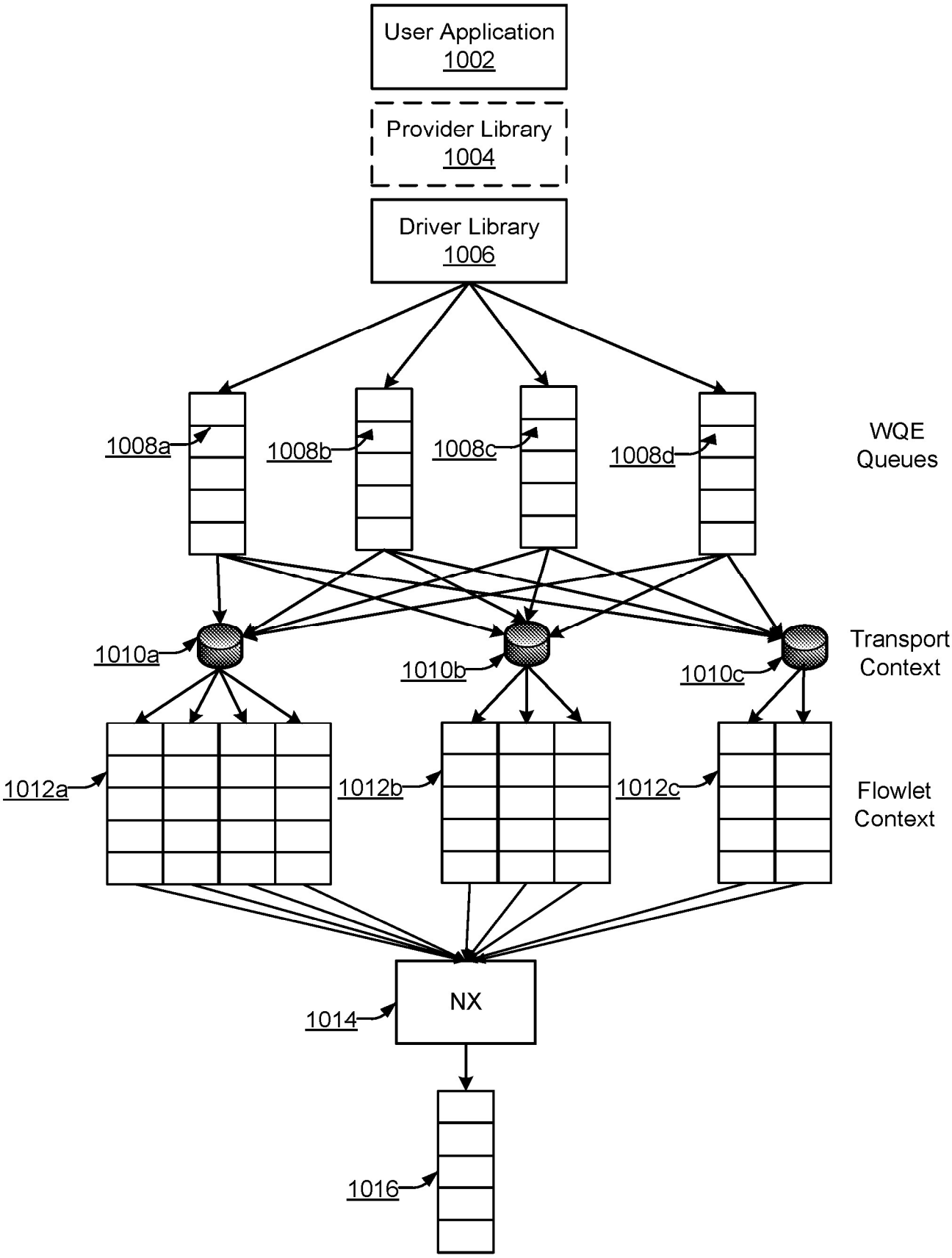
User Application
1002
Provider Library
1004
Driver Library
1006
1008a
1008b
1008c
1008d
WQE
Queues
1010a
1010b
1010c
Transport
Context
1012a
1012b
1012c
Flowlet
Context
NX
1014
1016

FIG. 10

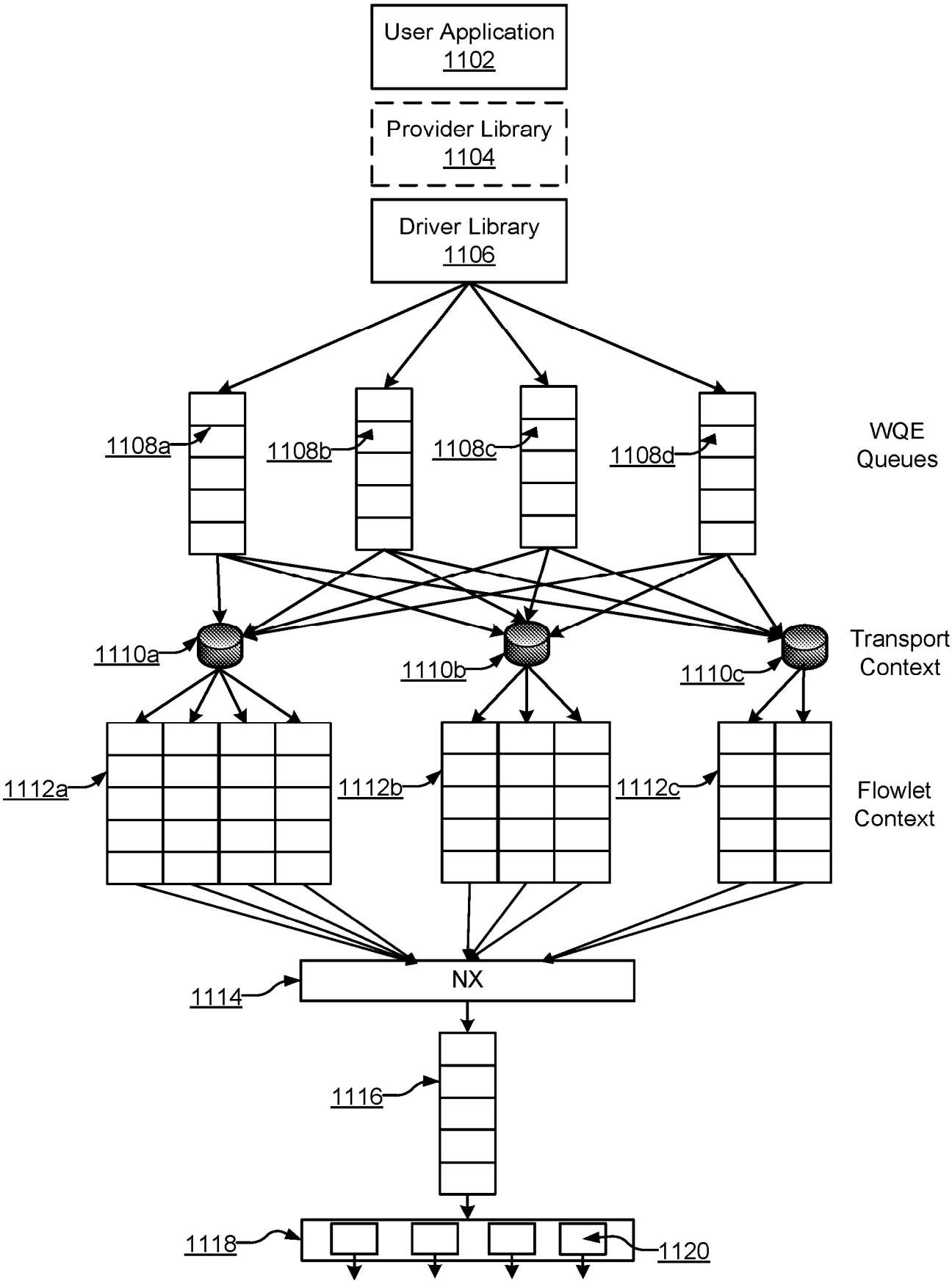
User Application
1102
Provider Library
1104
Driver Library
1106
1108a
1108b
1108c
1108d
WQE
Queues
1110a
1110b
1110c
Transport
Context
1112a
1112b
1112c
Flowlet
Context
NX
1114
1116
1118
1120

FIG. 11

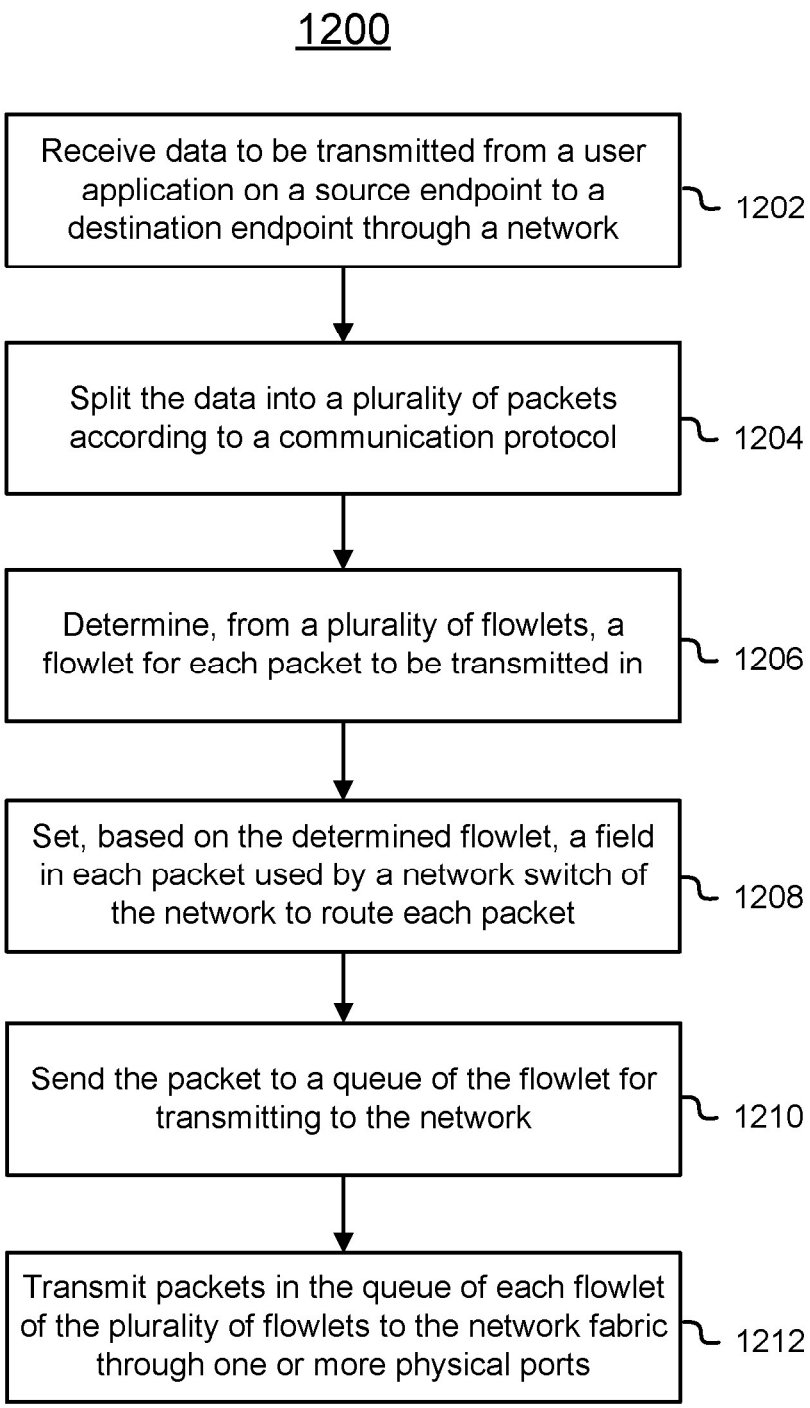
1200
Receive data to be transmitted from a user application on a source endpoint to a destination endpoint through a network
1202
Split the data into a plurality of packets according to a communication protocol
1204
Determine, from a plurality of flowlets, a flowlet for each packet to be transmitted in
1206
Set, based on the determined flowlet, a field in each packet used by a network switch of the network to route each packet
1208
Send the packet to a queue of the flowlet for transmitting to the network
1210
Transmit packets in the queue of each flowlet of the plurality of flowlets to the network fabric through one or more physical ports
1212

FIG. 12

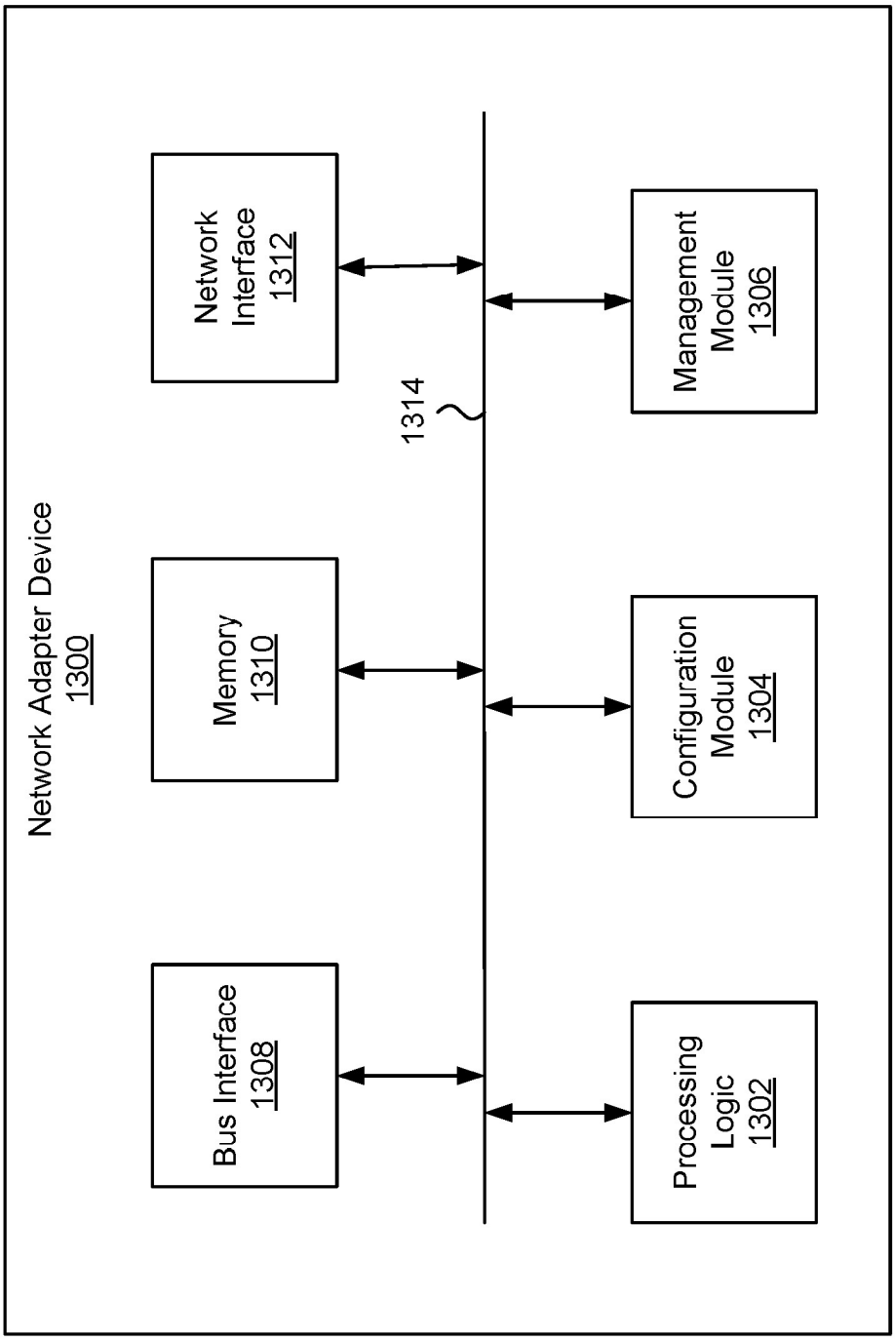
Network Adapter Device
1300
Network Interface 1312
Memory 1310
Bus Interface 1308
Processing Logic 1302
1314
Management Module 1306
Configuration Module 1304

FIG. 13

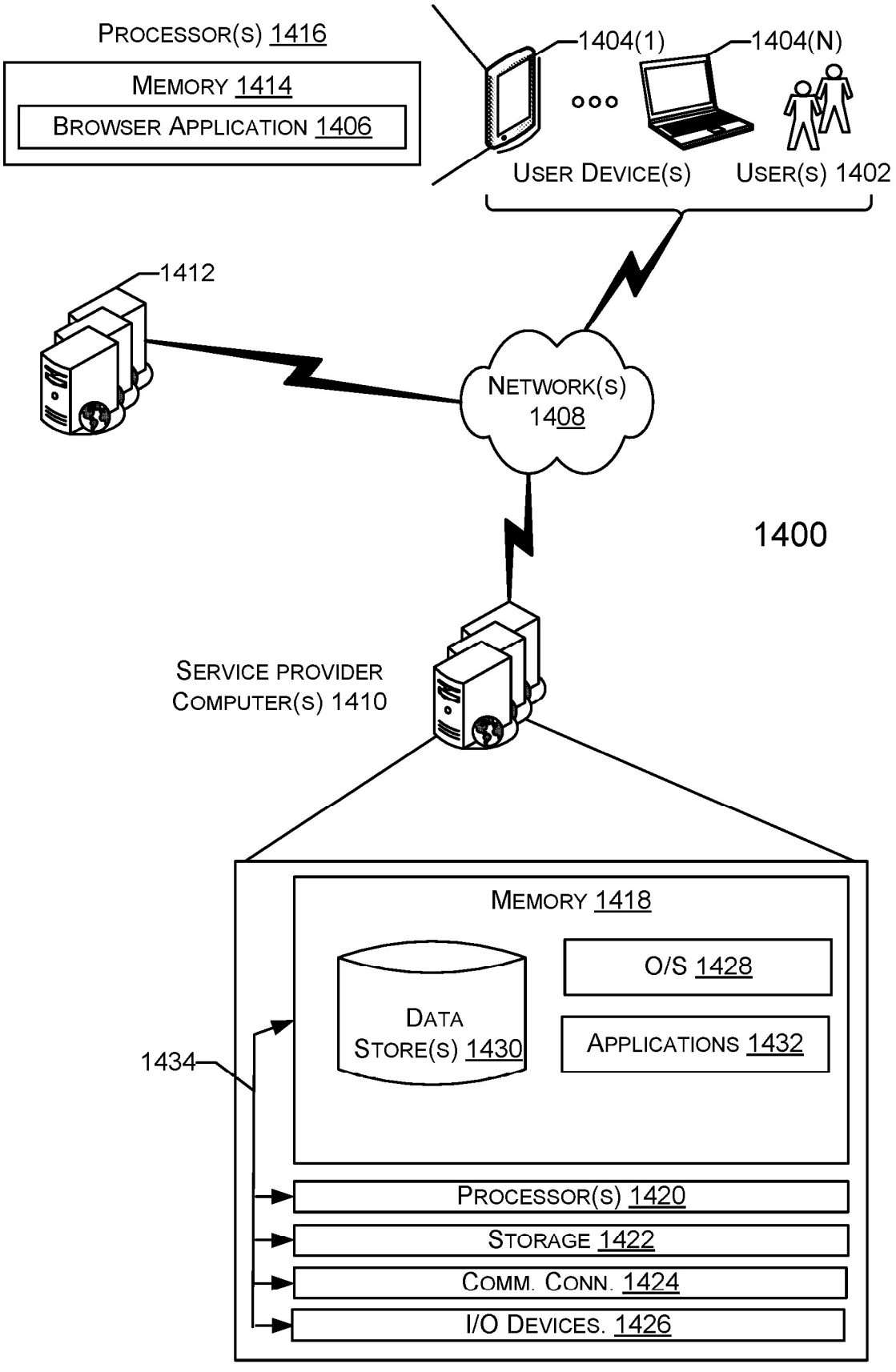
PROCESSOR(S) 1416
MEMORY 1414
BROWSER APPLICATION 1406
1404(1)
1404(N)
USER DEVICE(S)
USER(S) 1402
1412
NETWORK(S) 1408
1400
SERVICE PROVIDER COMPUTER(S) 1410
MEMORY 1418
O/S 1428
DATA STORE(S) 1430
APPLICATIONS 1432
1434
PROCESSOR(S) 1420
STORAGE 1422
COMM. CONN. 1424
I/O DEVICES. 1426

FIG. 14

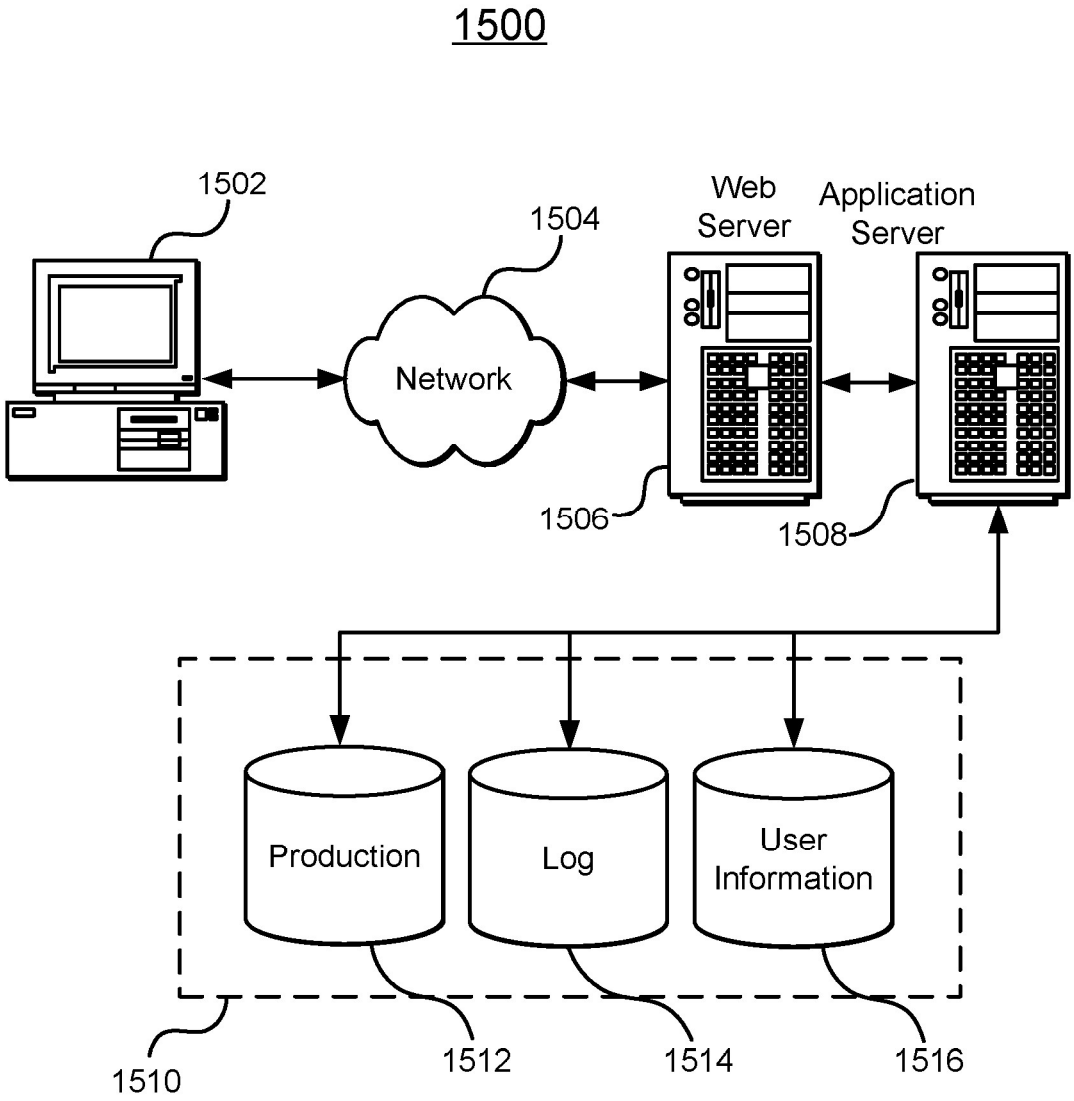
1500
1502
1504
Web Server
Application Server
Network
1506
1508
Production
Log
User Information
1510
1512
1514
1516

FIG. 15