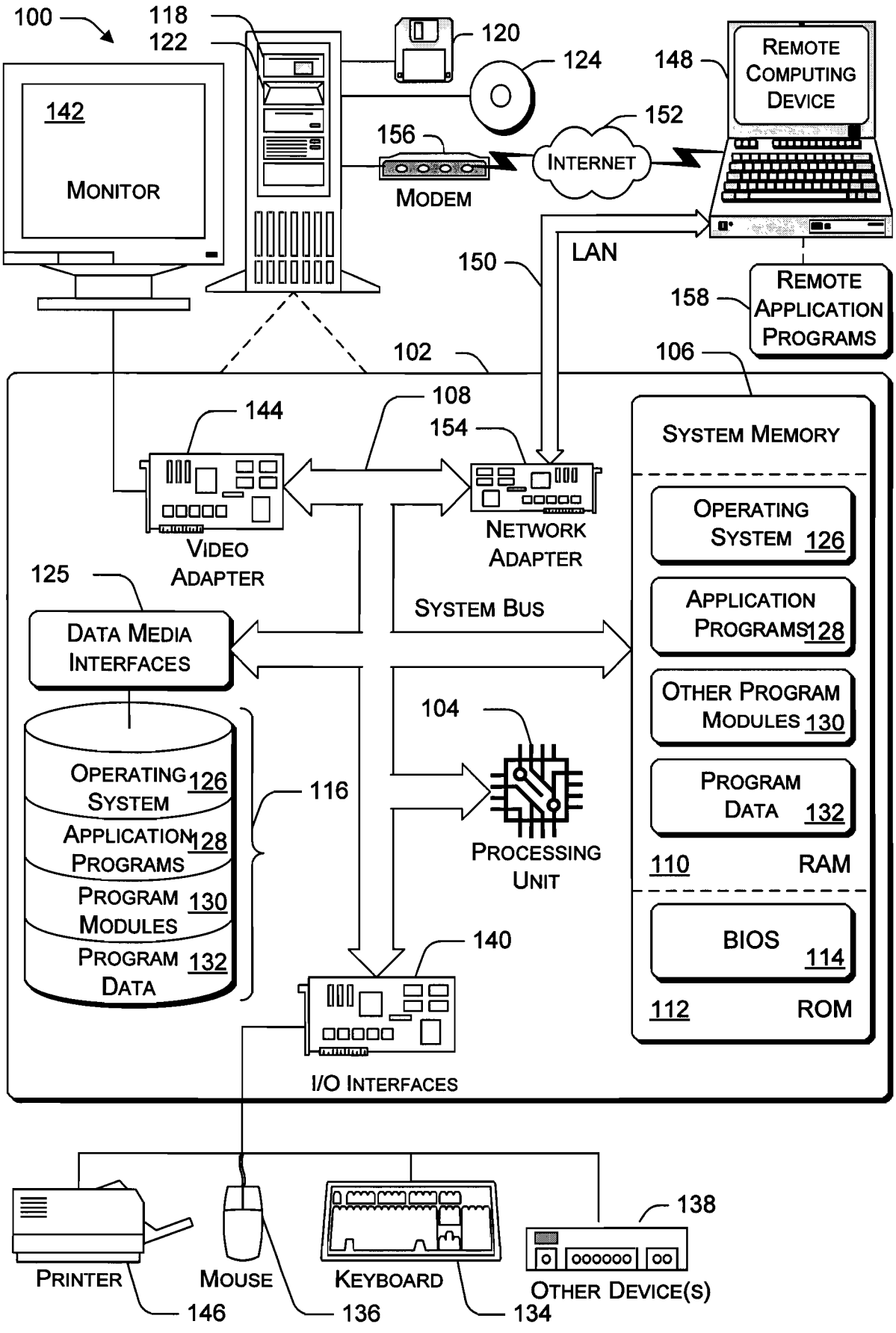

100
118
122
120
124
148
REMOTE COMPUTING DEVICE
142
MONITOR
152
156
INTERNET
MODEM
150
LAN
158
REMOTE APPLICATION PROGRAMS
102
106
144
108
154
SYSTEM MEMORY
VIDEO ADAPTER
NETWORK ADAPTER
OPERATING SYSTEM 126
125
SYSTEM BUS
APPLICATION PROGRAMS 128
DATA MEDIA INTERFACES
OTHER PROGRAM MODULES 130
104
PROGRAM DATA 132
OPERATING SYSTEM 126
116
PROCESSING UNIT
APPLICATION PROGRAMS 128
110
RAM
PROGRAM MODULES 130
140
BIOS 114
PROGRAM DATA 132
112
ROM
I/O INTERFACES
138
PRINTER
MOUSE
KEYBOARD
OTHER DEVICE(S)
146
136
134

FIG. 1

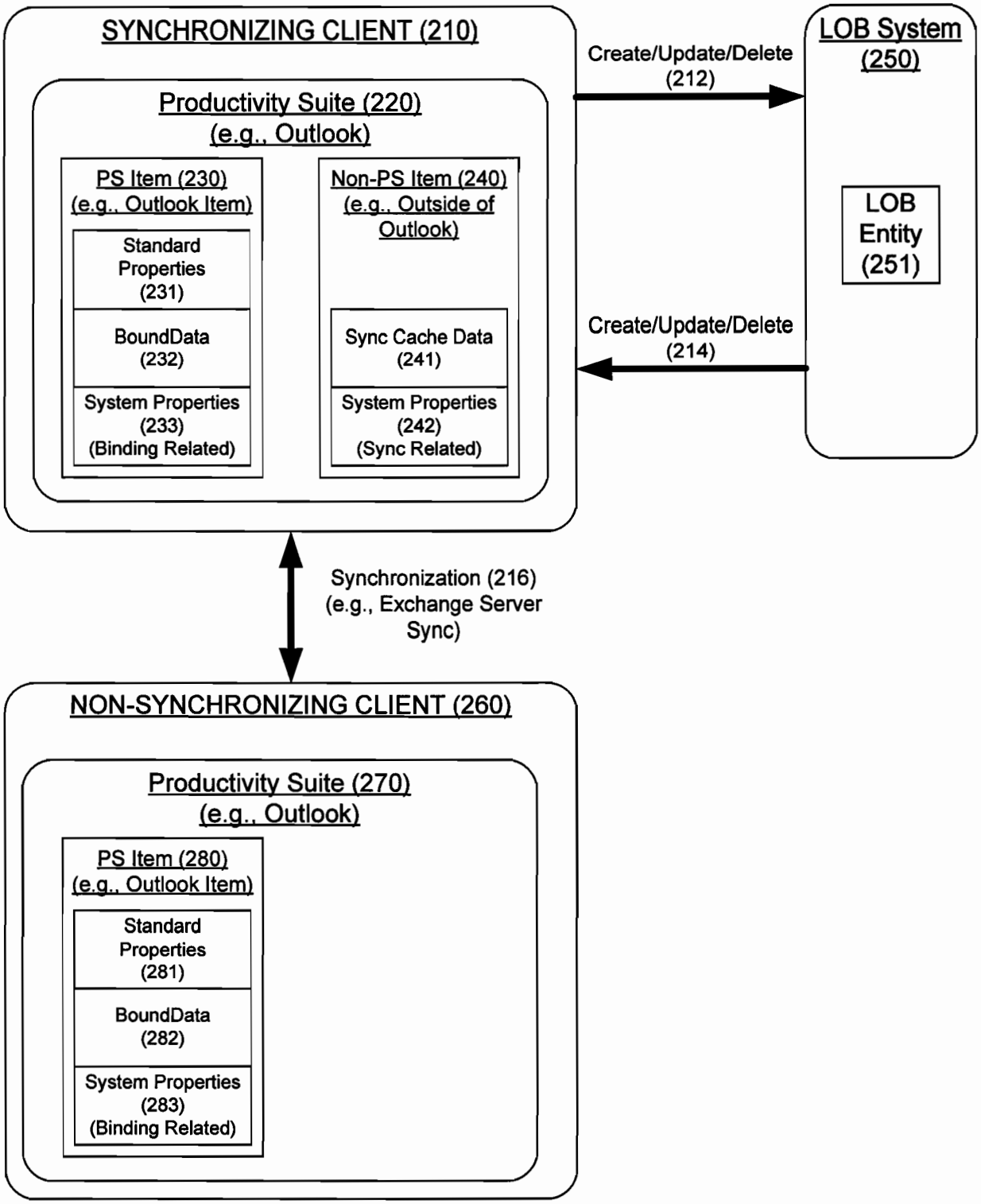

SYNCHRONIZING CLIENT (210)
Productivity Suite (220)
(e.g., Outlook)
PS Item (230)
(e.g., Outlook Item)
Standard Properties (231)
BoundData (232)
System Properties (233)
(Binding Related)
Non-PS Item (240)
(e.g., Outside of Outlook)
Sync Cache Data (241)
System Properties (242)
(Sync Related)
Create/Update/Delete (212)
Create/Update/Delete (214)
LOB System (250)
LOB Entity (251)
Synchronization (216)
(e.g., Exchange Server Sync)
NON-SYNCHRONIZING CLIENT (260)
Productivity Suite (270)
(e.g., Outlook)
PS Item (280)
(e.g., Outlook Item)
Standard Properties (281)
BoundData (282)
System Properties (283)
(Binding Related)

FIG. 2

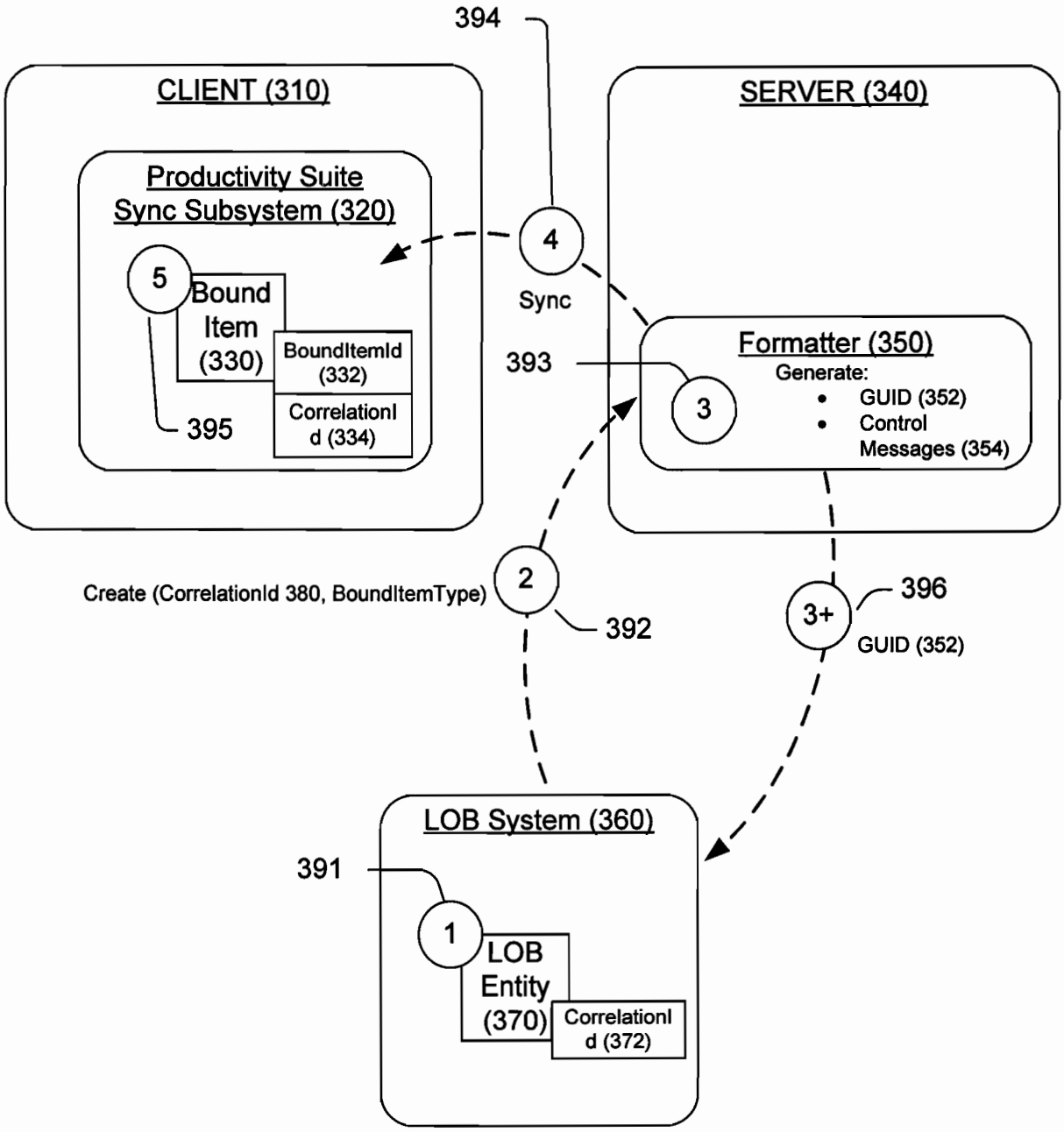

394
CLIENT (310)
SERVER (340)
Productivity Suite Sync Subsystem (320)
4
Sync
5
Bound Item (330)
BoundItemId (332)
CorrelationId (334)
395
393
Formatter (350)
Generate:
GUID (352)
Control Messages (354)
3
Create (CorrelationId 380, BoundItemType)
2
392
3+
396
GUID (352)
LOB System (360)
391
1
LOB Entity (370)
CorrelationId (372)

FIG. 3

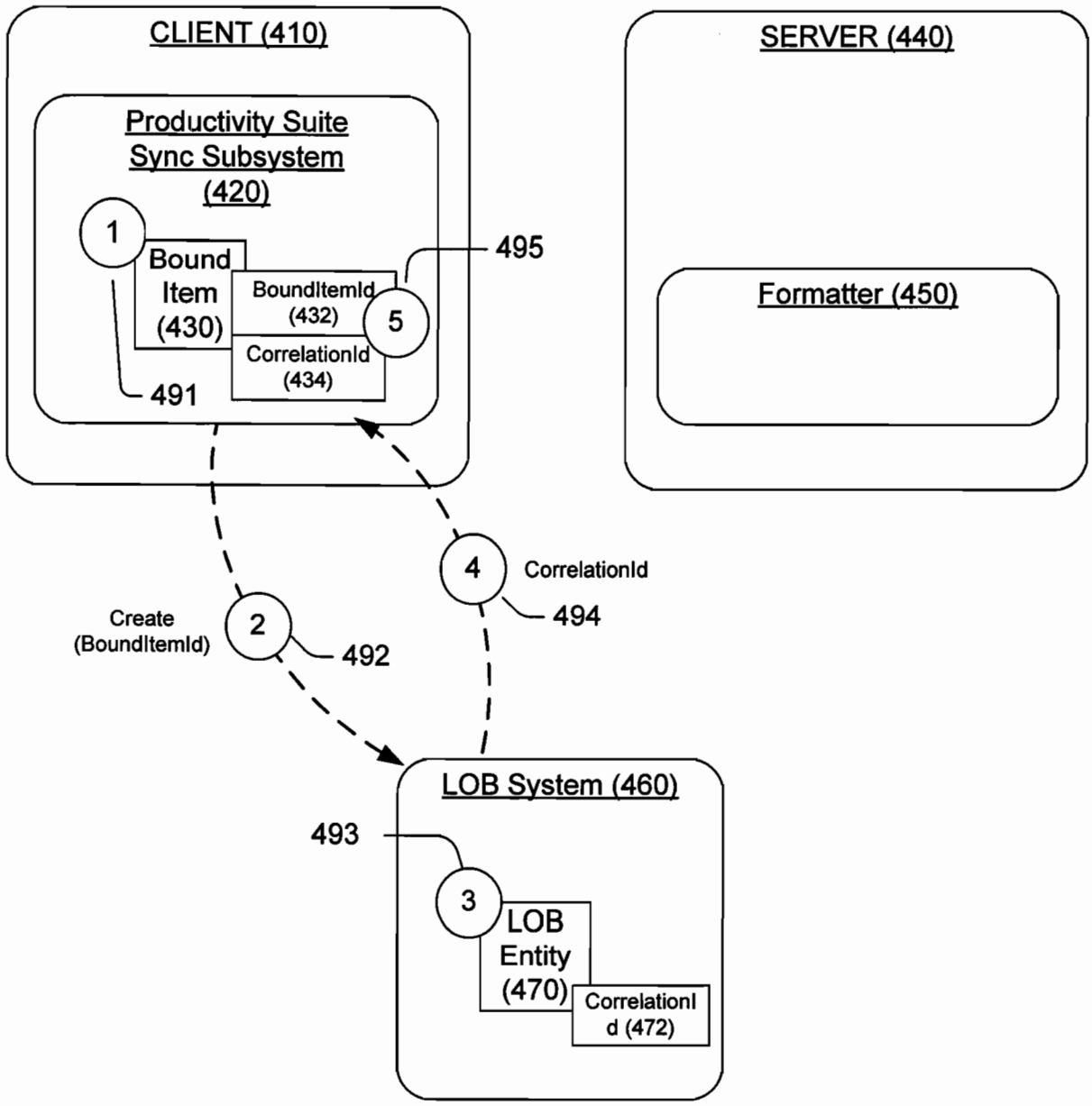

CLIENT (410)
Productivity Suite Sync Subsystem (420)
1
Bound Item (430)
BoundItemId (432)
CorrelationId (434)
5
495
491
SERVER (440)
Formatter (450)
4
CorrelationId
494
Create (BoundItemId)
2
492
LOB System (460)
493
3
LOB Entity (470)
CorrelationId (472)

FIG. 4

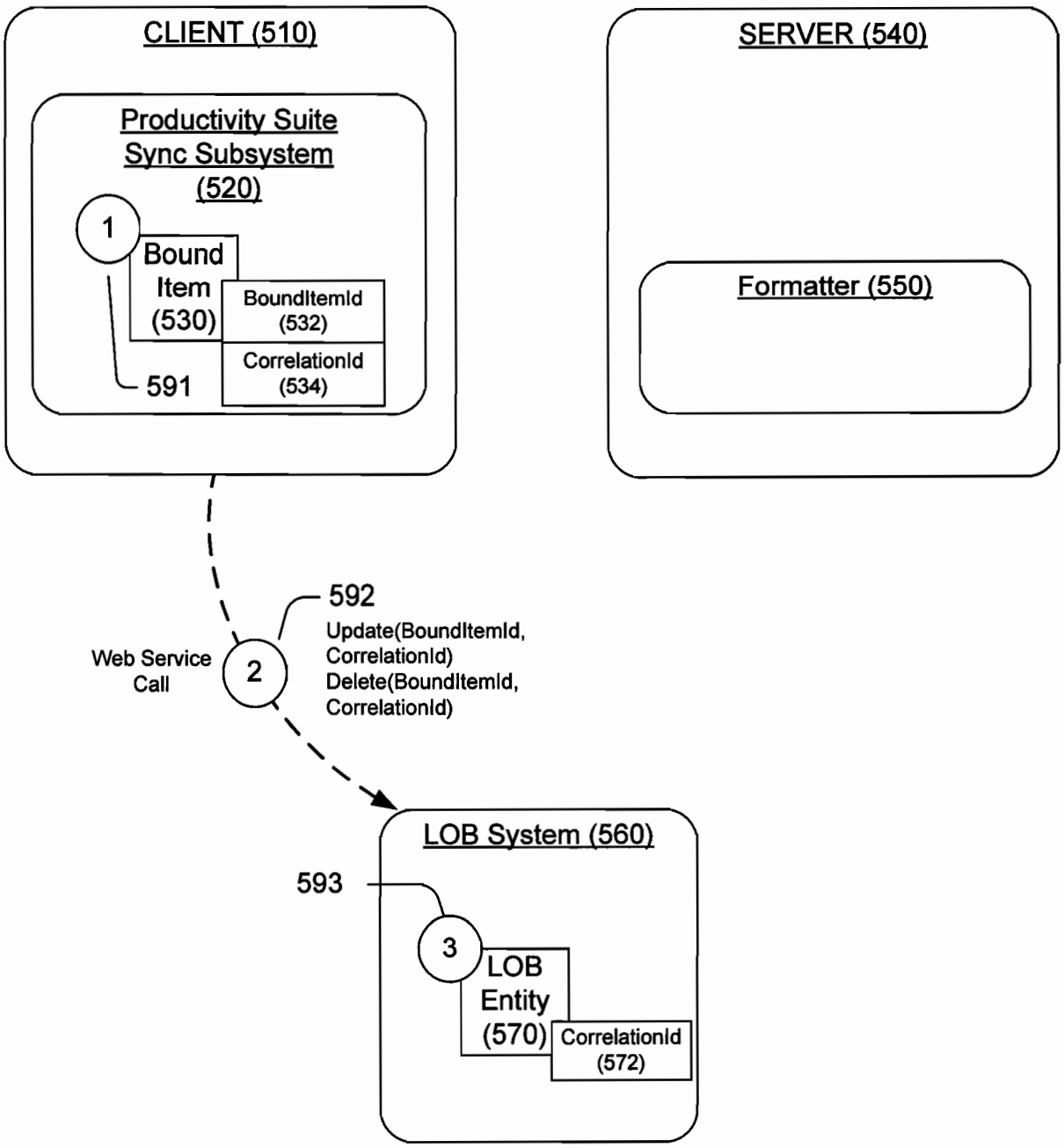

CLIENT (510)
Productivity Suite Sync Subsystem (520)
1
Bound Item (530)
BoundItemId (532)
CorrelationId (534)
591
SERVER (540)
Formatter (550)
592
Update(BoundItemId, CorrelationId)
Delete(BoundItemId, CorrelationId)
Web Service Call
2
LOB System (560)
593
3
LOB Entity (570)
CorrelationId (572)

FIG. 5

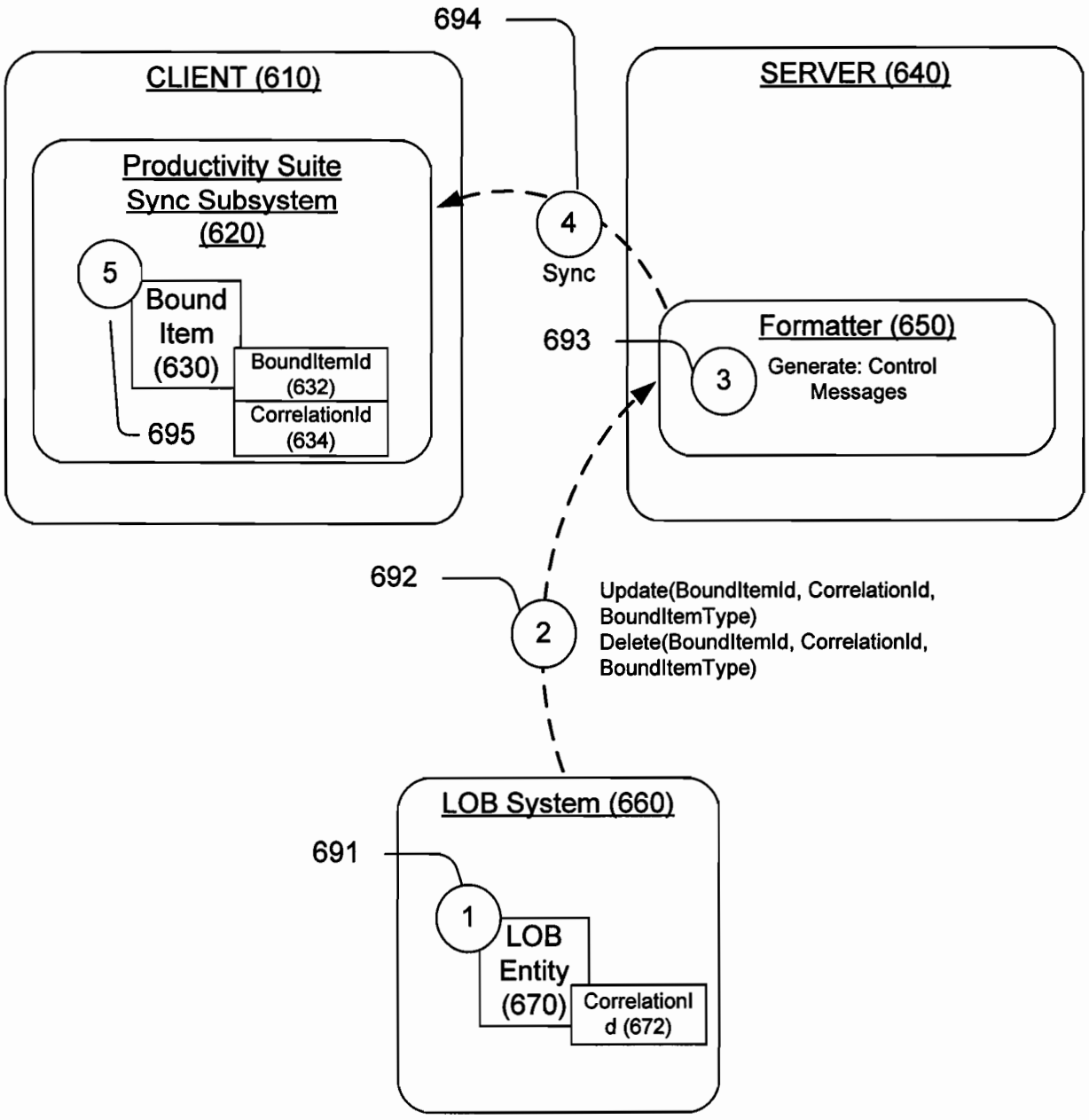

694
CLIENT (610)
SERVER (640)
Productivity Suite Sync Subsystem (620)
5
Bound Item (630)
BoundItemId (632)
CorrelationId (634)
695
4
Sync
693
Formatter (650)
3
Generate: Control Messages
692
2
Update(BoundItemId, CorrelationId, BoundItemType)
Delete(BoundItemId, CorrelationId, BoundItemType)
LOB System (660)
691
1
LOB Entity (670)
CorrelationId (672)

FIG. 6

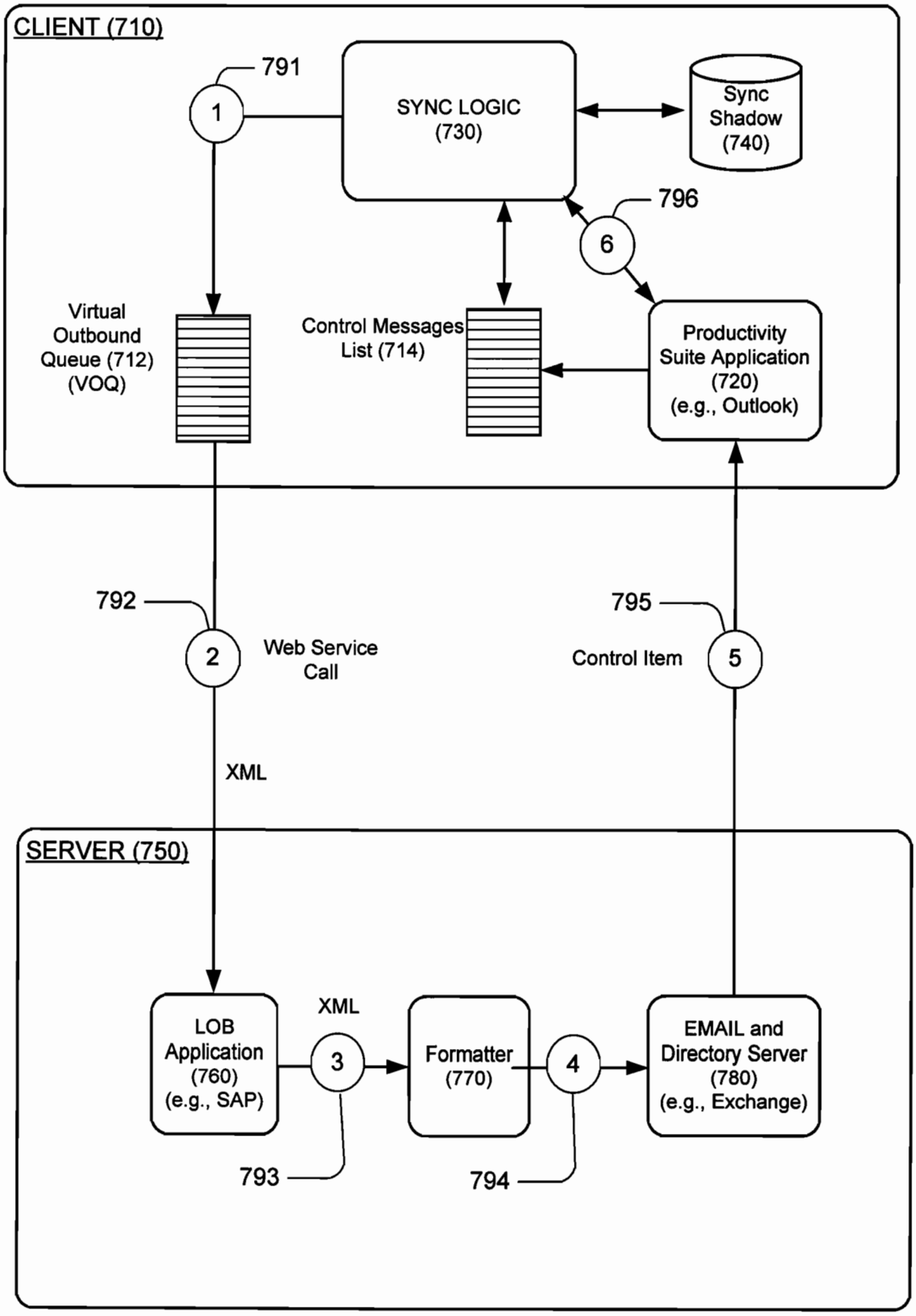

CLIENT (710)
791
1
SYNC LOGIC
(730)
Sync
Shadow
(740)
796
6
Virtual
Outbound
Queue (712)
(VOQ)
Control Messages
List (714)
Productivity
Suite Application
(720)
(e.g., Outlook)
792
2
Web Service
Call
795
Control Item
5
XML
SERVER (750)
LOB
Application
(760)
(e.g., SAP)
XML
3
Formatter
(770)
4
EMAIL and
Directory Server
(780)
(e.g., Exchange)
793
794

FIG. 7

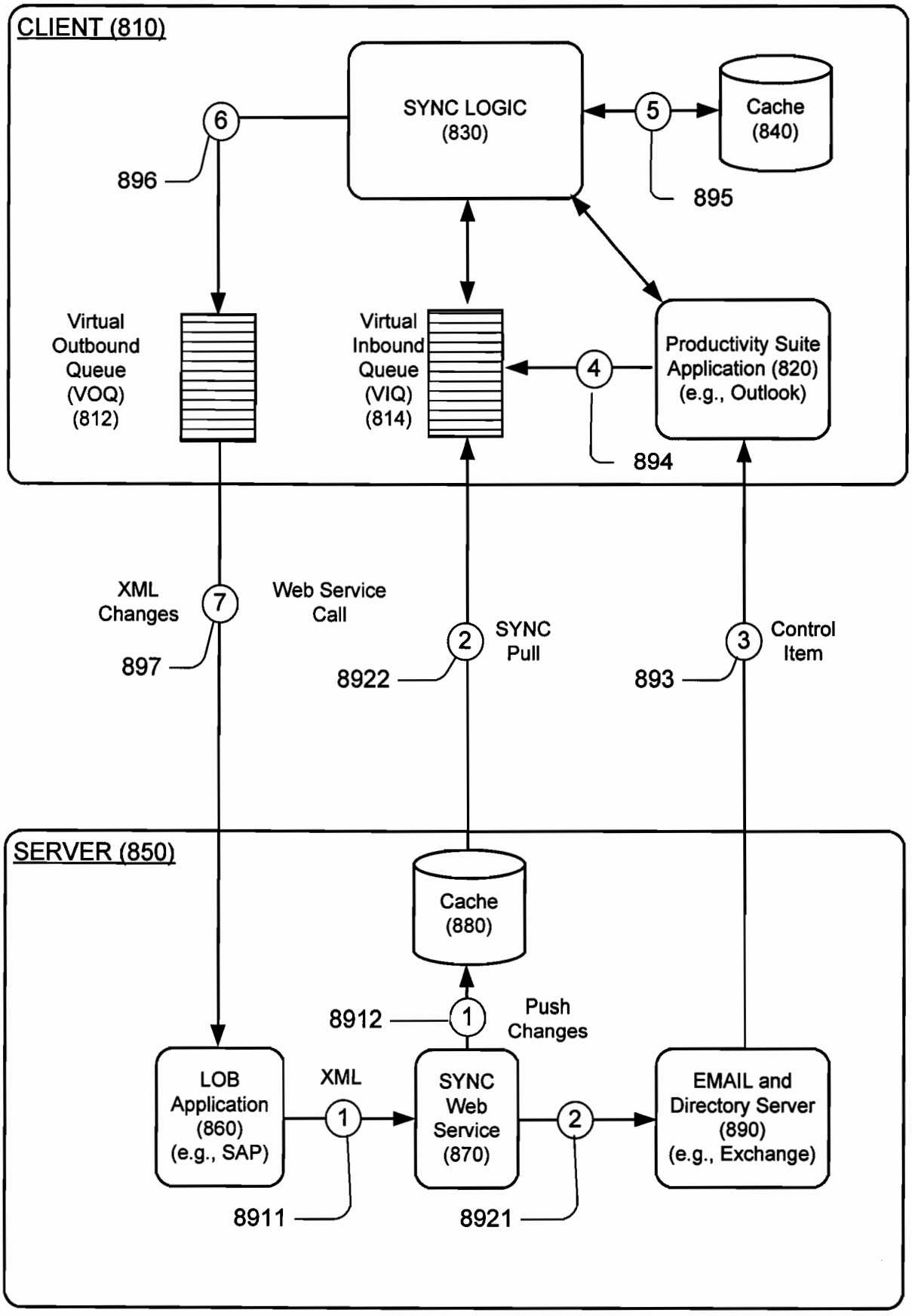

CLIENT (810)
SYNC LOGIC (830)
Cache (840)
6
5
896
895
Virtual Outbound Queue (VOQ) (812)
Virtual Inbound Queue (VIQ) (814)
Productivity Suite Application (820) (e.g., Outlook)
4
894
XML Changes
7
897
Web Service Call
2
SYNC Pull
8922
3
Control Item
893
SERVER (850)
Cache (880)
8912
1
Push Changes
LOB Application (860) (e.g., SAP)
XML
1
8911
SYNC Web Service (870)
2
8921
EMAIL and Directory Server (890) (e.g., Exchange)

FIG. 8

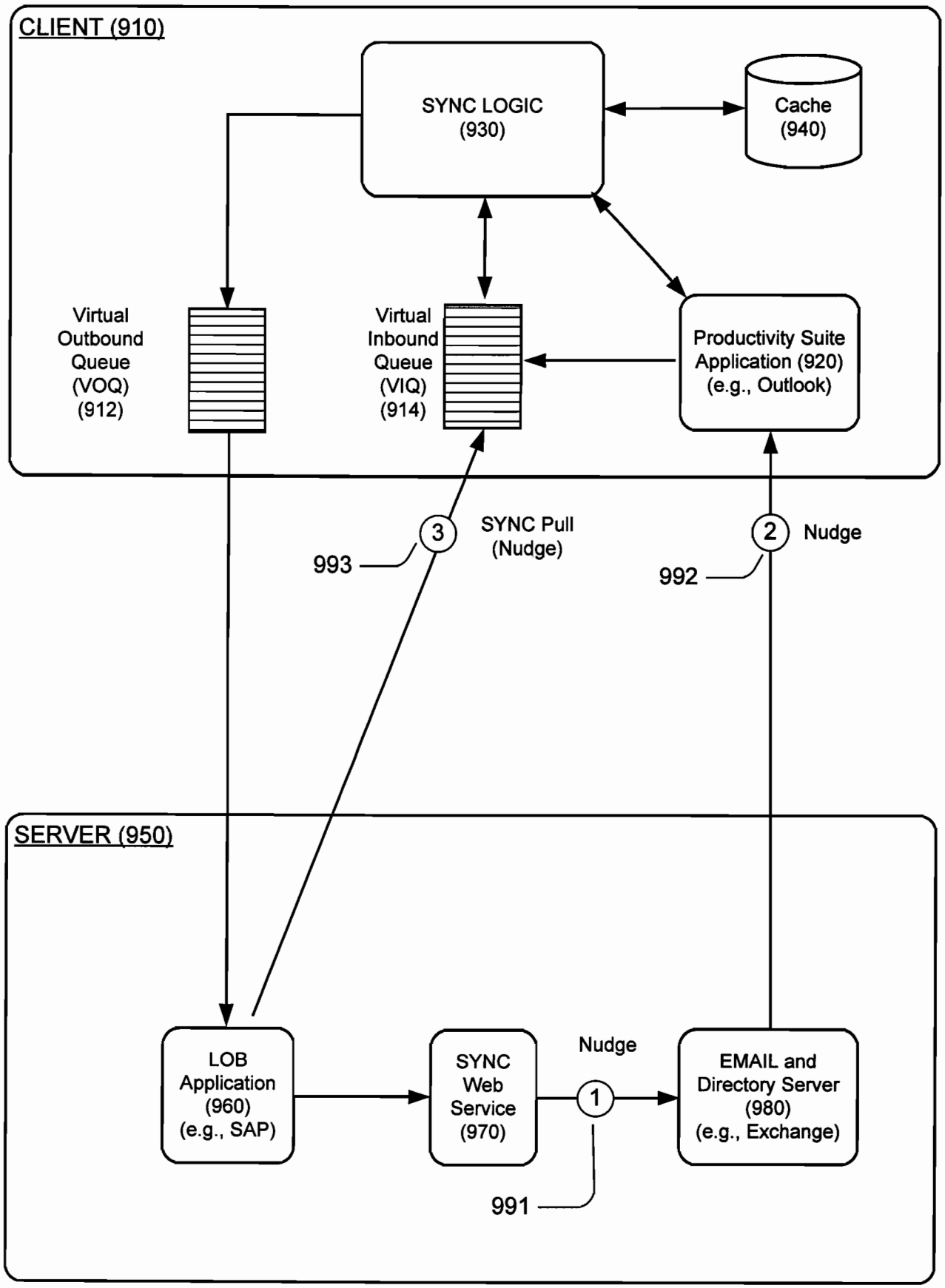

CLIENT (910)
SYNC LOGIC (930)
Cache (940)
Virtual Outbound Queue (VOQ) (912)
Virtual Inbound Queue (VIQ) (914)
Productivity Suite Application (920) (e.g., Outlook)
3
SYNC Pull (Nudge)
993
2
Nudge
992
SERVER (950)
LOB Application (960) (e.g., SAP)
SYNC Web Service (970)
Nudge
1
EMAIL and Directory Server (980) (e.g., Exchange)
991

FIG. 9

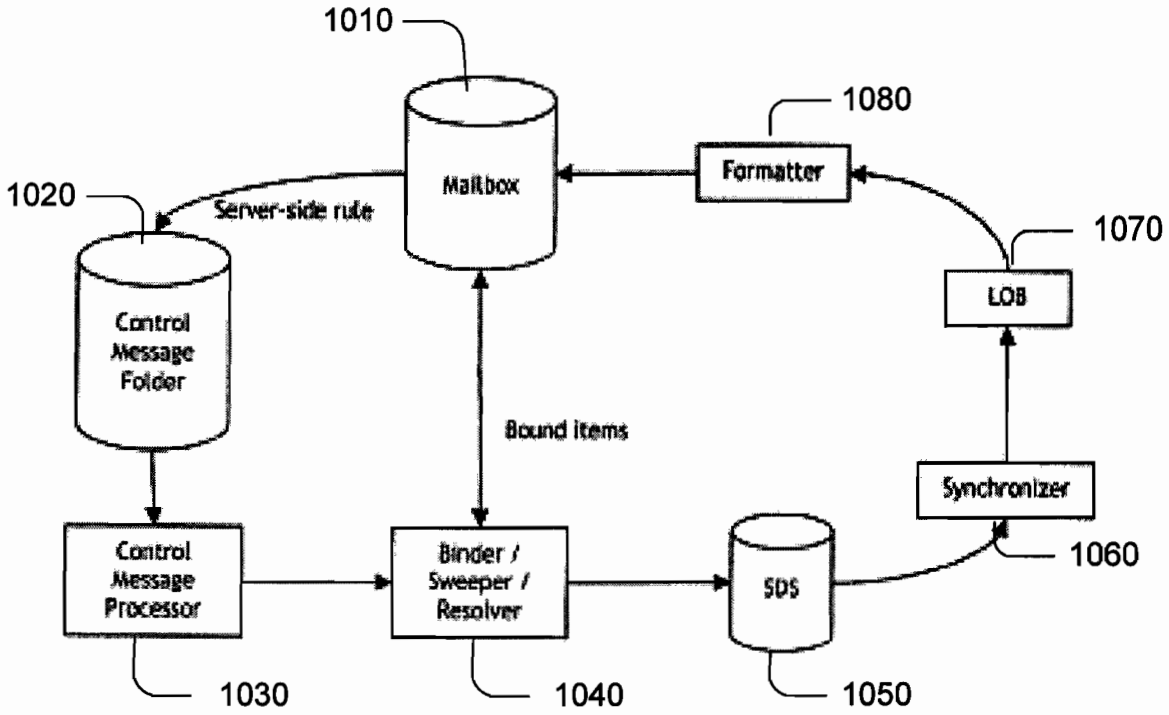

1010
Mailbox
1080
Formatter
1020
Server-side rule
Control Message Folder
1070
LOB
Bound items
Synchronizer
Control Message Processor
Binder / Sweeper / Resolver
SDS
1060
1030
1040
1050

FIG. 10

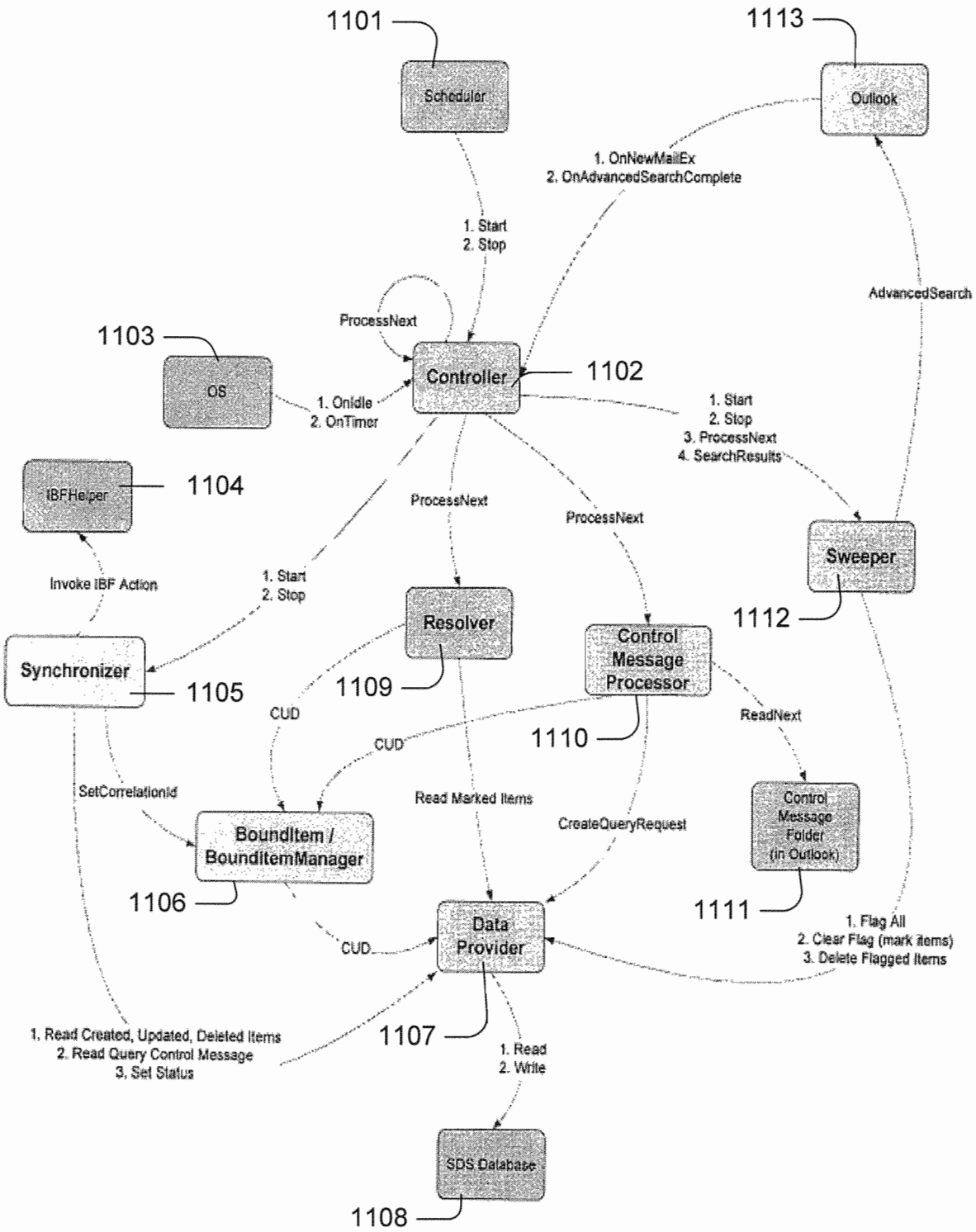

1101
Scheduler
1113
Outlook
1. OnNewMailEx
2. OnAdvancedSearchComplete
1. Start
2. Stop
AdvancedSearch
ProcessNext
1103
OS
Controller
1102
1. OnIdle
2. OnTimer
1. Start
2. Stop
3. ProcessNext
4. SearchResults
IBFHelper
1104
ProcessNext
ProcessNext
Sweeper
Invoke IBF Action
1. Start
2. Stop
Resolver
1112
Synchronizer
1105
1109
Control Message Processor
CUD
1110
ReadNext
CUD
SetCorrelationId
Read Marked Items
CreateQueryRequest
Control Message Folder (in Outlook)
BoundItem / BoundItemManager
1106
1111
CUD
Data Provider
1. Flag All
2. Clear Flag (mark items)
3. Delete Flagged Items
1. Read Created, Updated, Deleted Items
2. Read Query Control Message
3. Set Status
1107
1. Read
2. Write
SDS Database
1108

FIG. 11

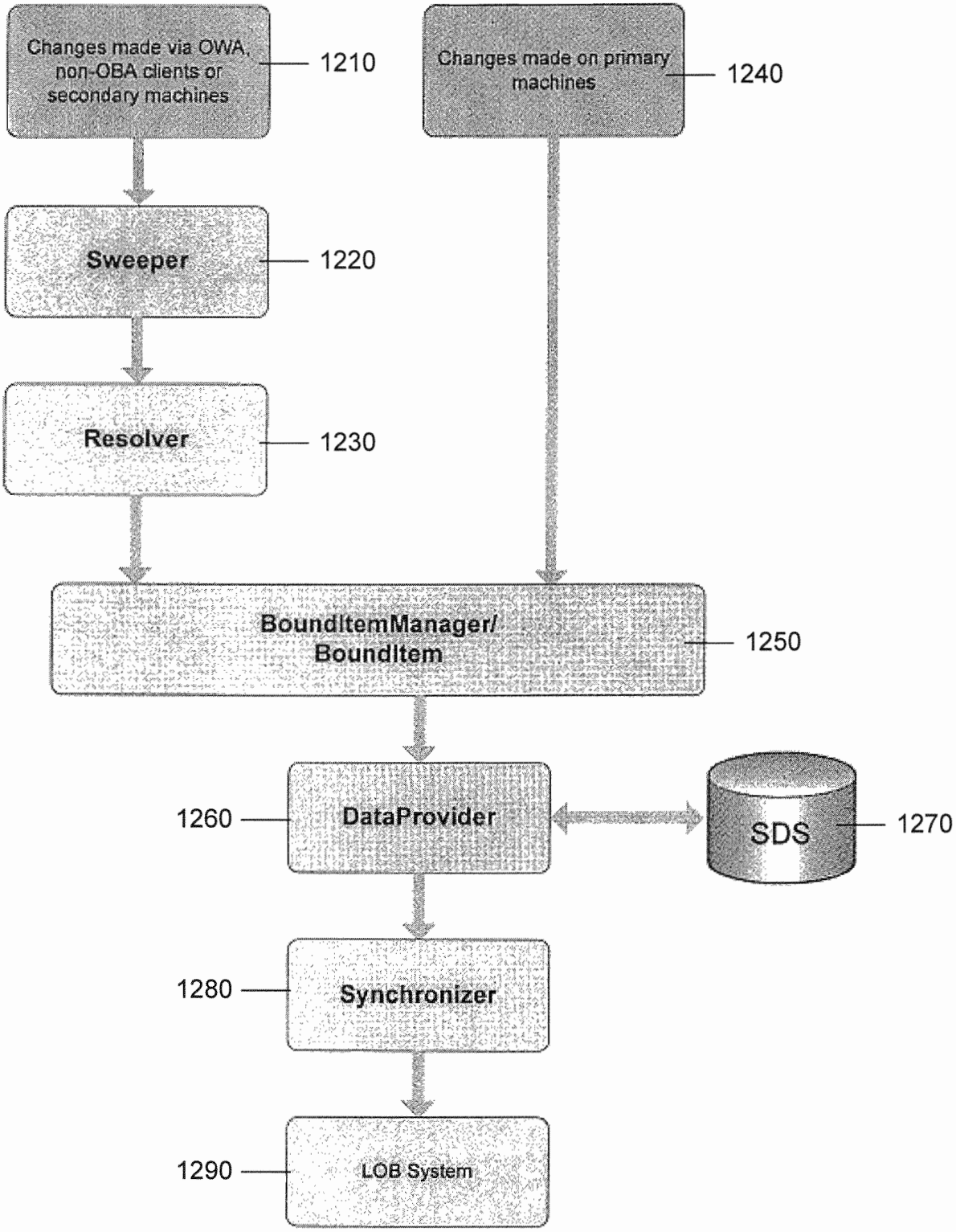

Changes made via OWA, non-OBA clients or secondary machines
1210
Changes made on primary machines
1240
Sweeper
1220
Resolver
1230
BoundItemManager/ BoundItem
1250
1260
DataProvider
SDS
1270
1280
Synchronizer
1290
LOB System

FIG. 12

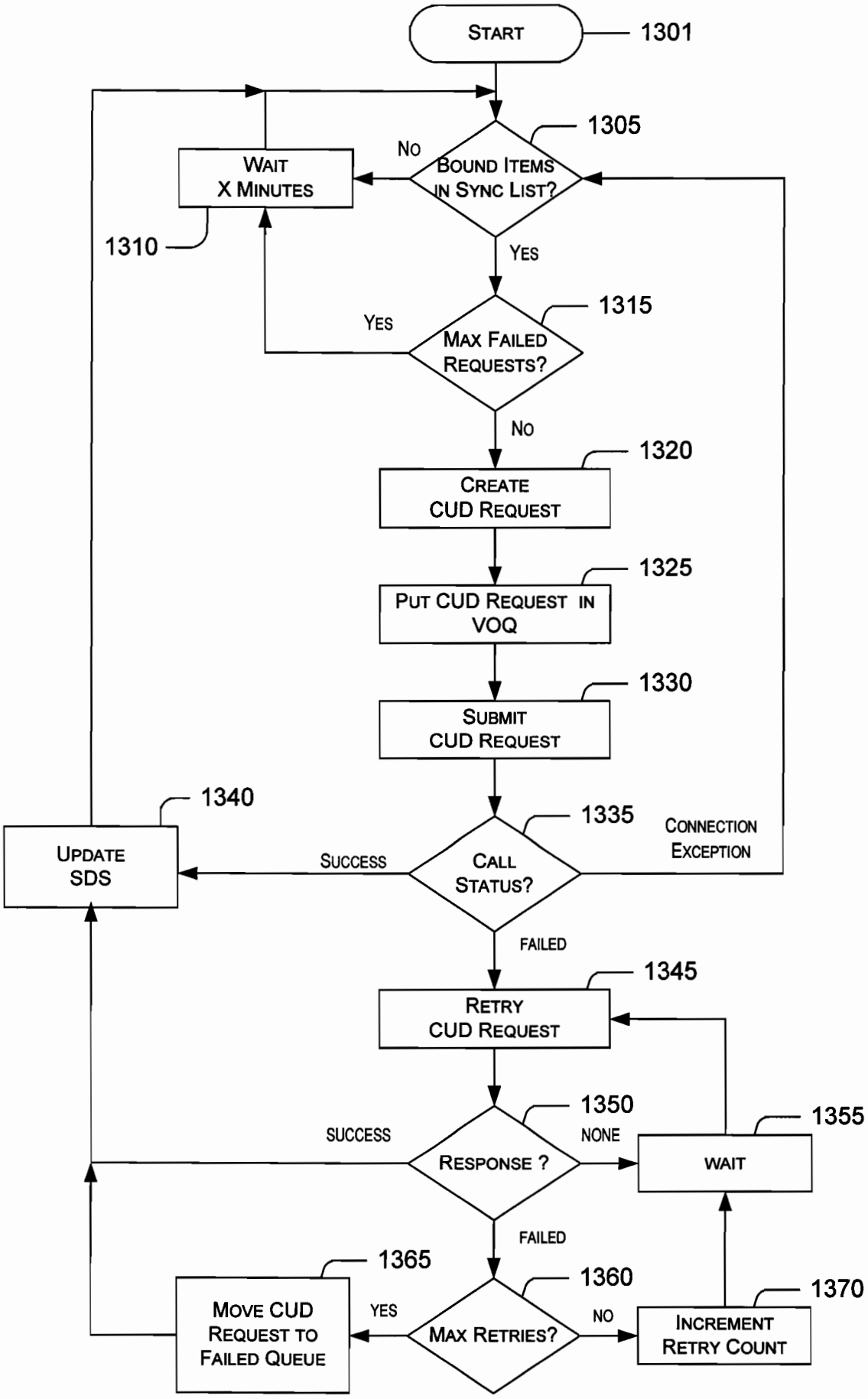

START
1301
1305
BOUND ITEMS IN SYNC LIST?
NO
WAIT X MINUTES
1310
YES
1315
MAX FAILED REQUESTS?
YES
NO
1320
CREATE CUD REQUEST
1325
PUT CUD REQUEST IN VOQ
1330
SUBMIT CUD REQUEST
1340
UPDATE SDS
1335
CALL STATUS?
SUCCESS
CONNECTION EXCEPTION
FAILED
1345
RETRY CUD REQUEST
1350
RESPONSE ?
SUCCESS
NONE
1355
WAIT
FAILED
1365
MOVE CUD REQUEST TO FAILED QUEUE
YES
1360
MAX RETRIES?
NO
1370
INCREMENT RETRY COUNT

FIG. 13

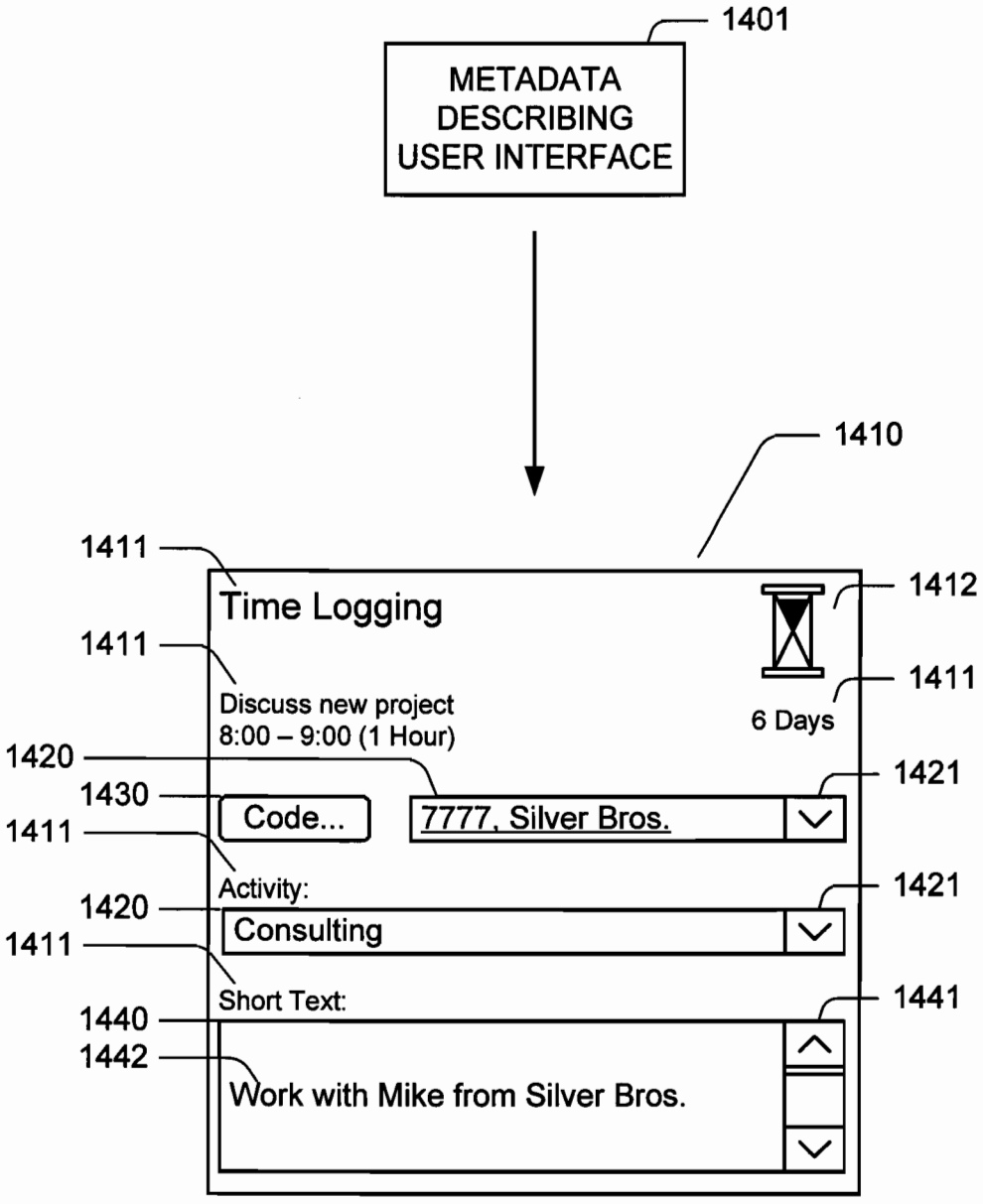

1401
METADATA DESCRIBING USER INTERFACE
1410
1411
Time Logging
1412
1411
Discuss new project
8:00 – 9:00 (1 Hour)
6 Days
1411
1420
1421
1430
Code...
7777, Silver Bros.
1411
Activity:
1420
1421
Consulting
1411
Short Text:
1440
1441
1442
Work with Mike from Silver Bros.

FIG. 14A

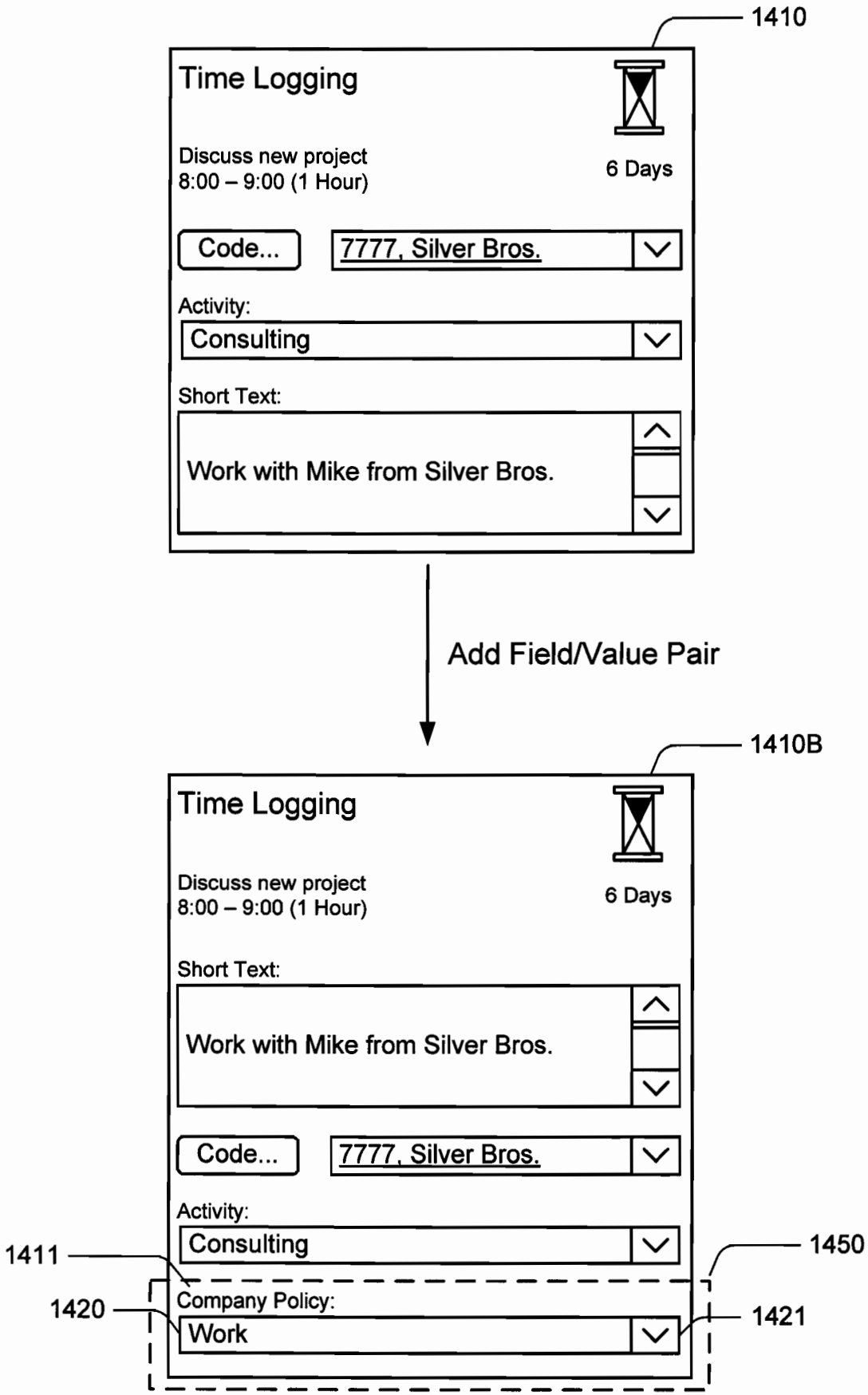

1410
Time Logging
Discuss new project
8:00 – 9:00 (1 Hour)
6 Days
Code...
7777, Silver Bros.
Activity:
Consulting
Short Text:
Work with Mike from Silver Bros.
Add Field/Value Pair
1410B
Time Logging
Discuss new project
8:00 – 9:00 (1 Hour)
6 Days
Short Text:
Work with Mike from Silver Bros.
Code...
7777, Silver Bros.
Activity:
Consulting
1411
1450
1420
Company Policy:
Work
1421

FIG. 14B

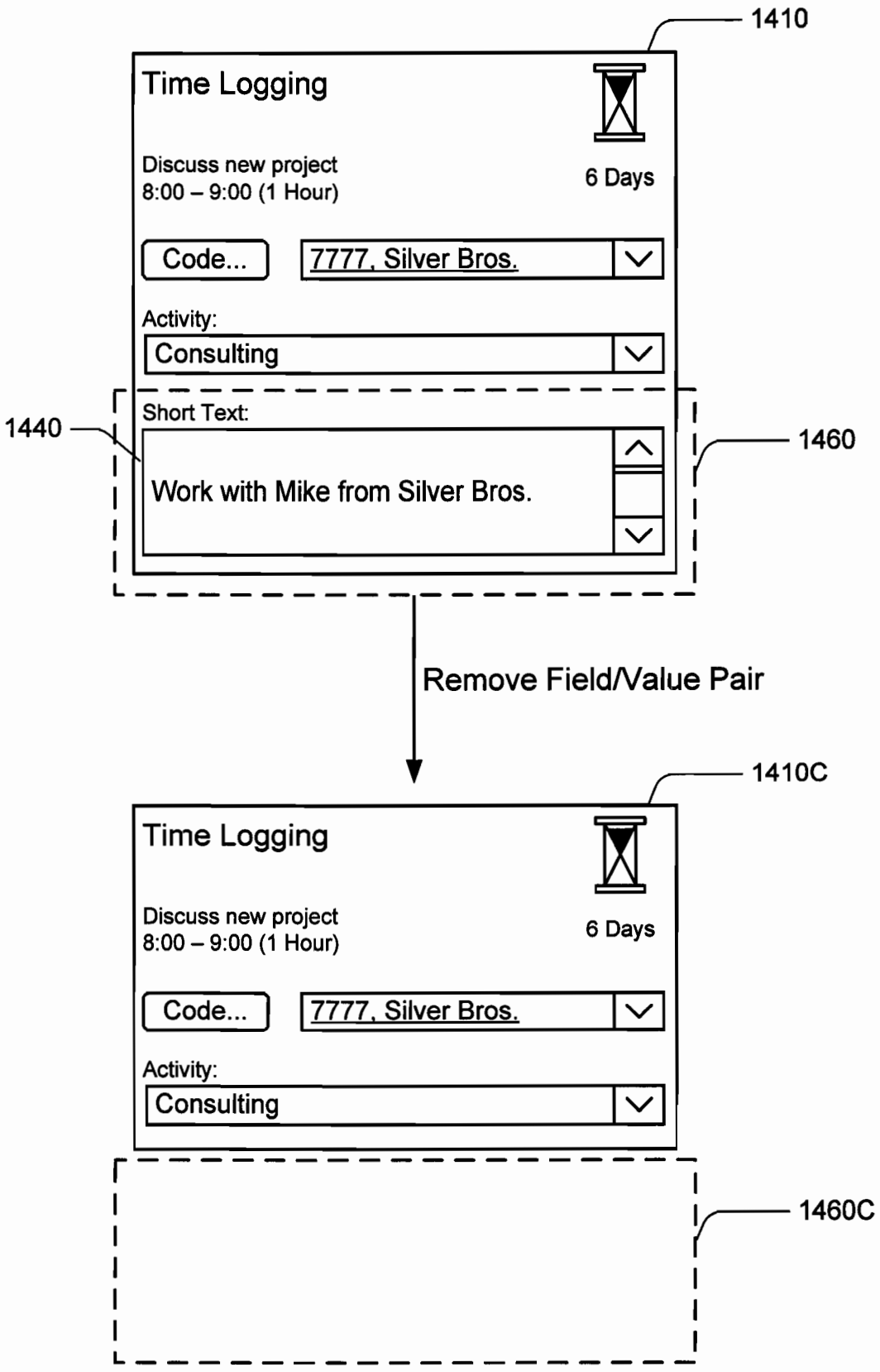

1410
Time Logging
Discuss new project
8:00 – 9:00 (1 Hour)
6 Days
Code...
7777, Silver Bros.
Activity:
Consulting
Short Text:
Work with Mike from Silver Bros.
1440
1460
Remove Field/Value Pair
1410C
Time Logging
Discuss new project
8:00 – 9:00 (1 Hour)
6 Days
Code...
7777, Silver Bros.
Activity:
Consulting
1460C

FIG. 14C

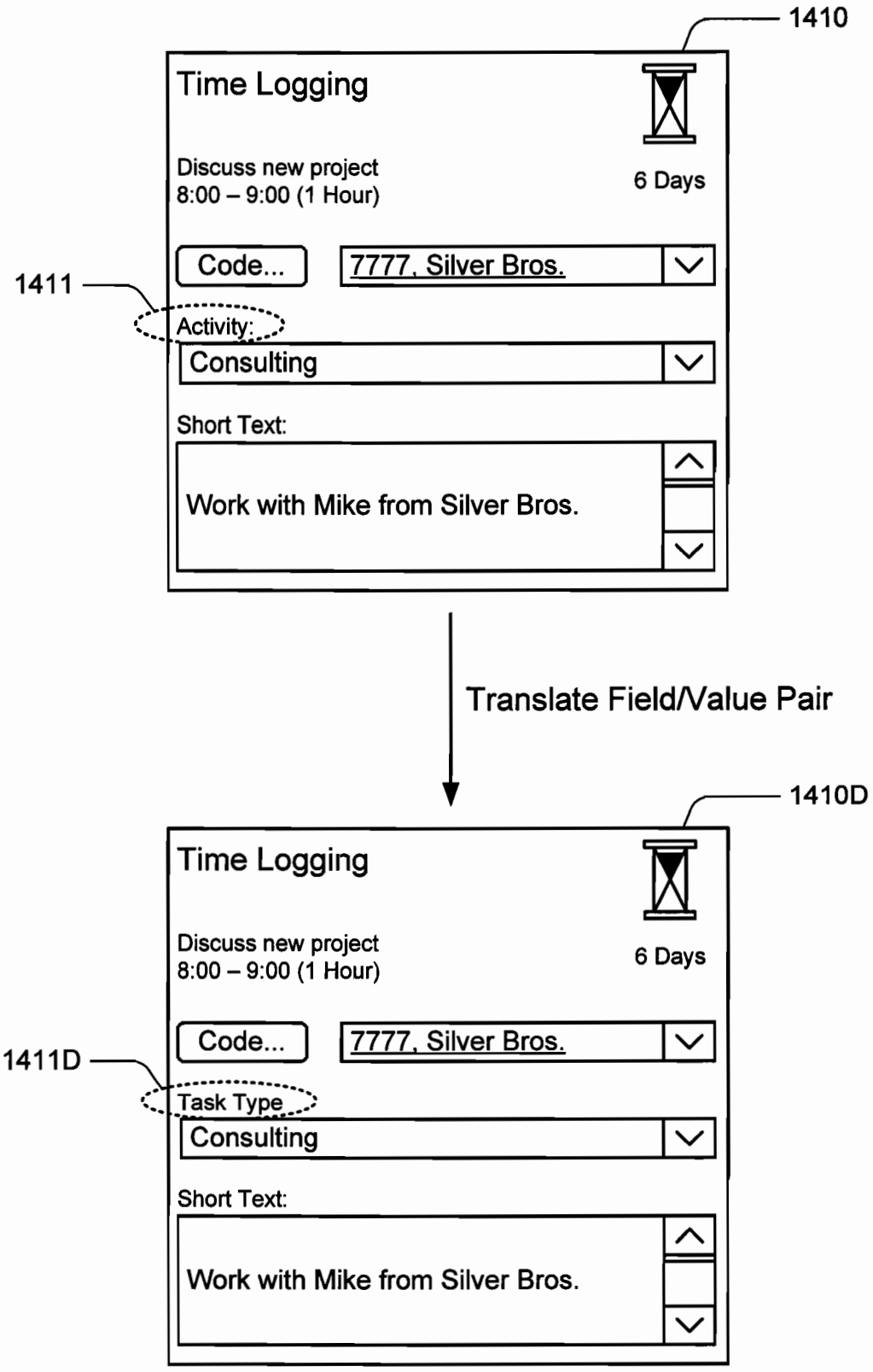

1410
Time Logging
Discuss new project
8:00 – 9:00 (1 Hour)
6 Days
Code...
7777, Silver Bros.
1411
Activity:
Consulting
Short Text:
Work with Mike from Silver Bros.
Translate Field/Value Pair
1410D
Time Logging
Discuss new project
8:00 – 9:00 (1 Hour)
6 Days
Code...
7777, Silver Bros.
1411D
Task Type
Consulting
Short Text:
Work with Mike from Silver Bros.

FIG. 14D

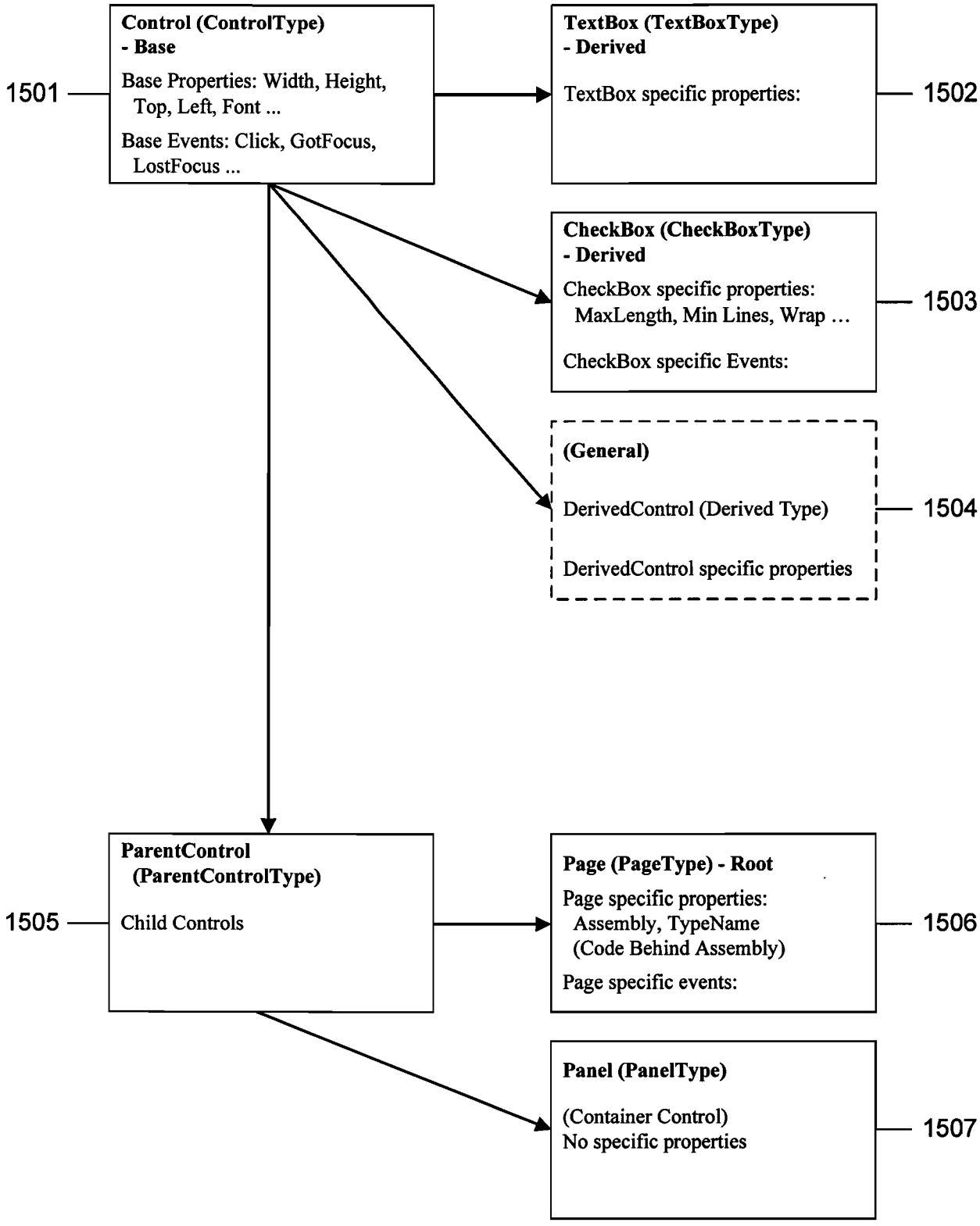

Control (ControlType)
- Base
Base Properties: Width, Height, Top, Left, Font ...
Base Events: Click, GotFocus, LostFocus ...
1501
TextBox (TextBoxType)
- Derived
TextBox specific properties:
1502
CheckBox (CheckBoxType)
- Derived
CheckBox specific properties: MaxLength, Min Lines, Wrap ...
CheckBox specific Events:
1503
(General)
DerivedControl (Derived Type)
DerivedControl specific properties
1504
ParentControl (ParentControlType)
Child Controls
1505
Page (PageType) - Root
Page specific properties: Assembly, TypeName (Code Behind Assembly)
Page specific events:
1506
Panel (PanelType)
(Container Control)
No specific properties
1507

FIG. 15

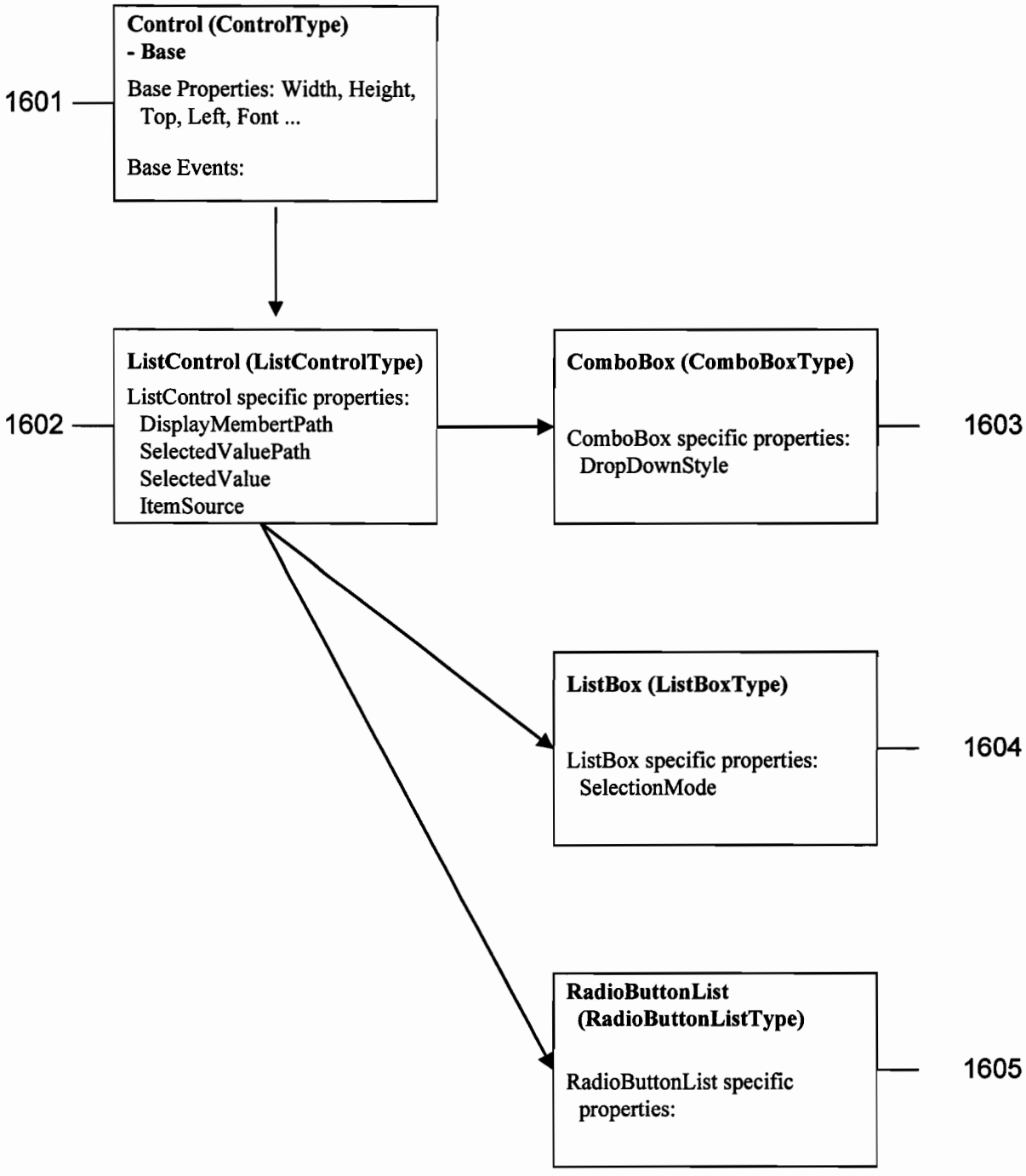

Control (ControlType)
- Base
Base Properties: Width, Height, Top, Left, Font ...
Base Events:
1601
ListControl (ListControlType)
ListControl specific properties:
DisplayMembertPath
SelectedValuePath
SelectedValue
ItemSource
1602
ComboBox (ComboBoxType)
ComboBox specific properties:
DropDownStyle
1603
ListBox (ListBoxType)
ListBox specific properties:
SelectionMode
1604
RadioButtonList (RadioButtonListType)
RadioButtonList specific properties:
1605

FIG. 16

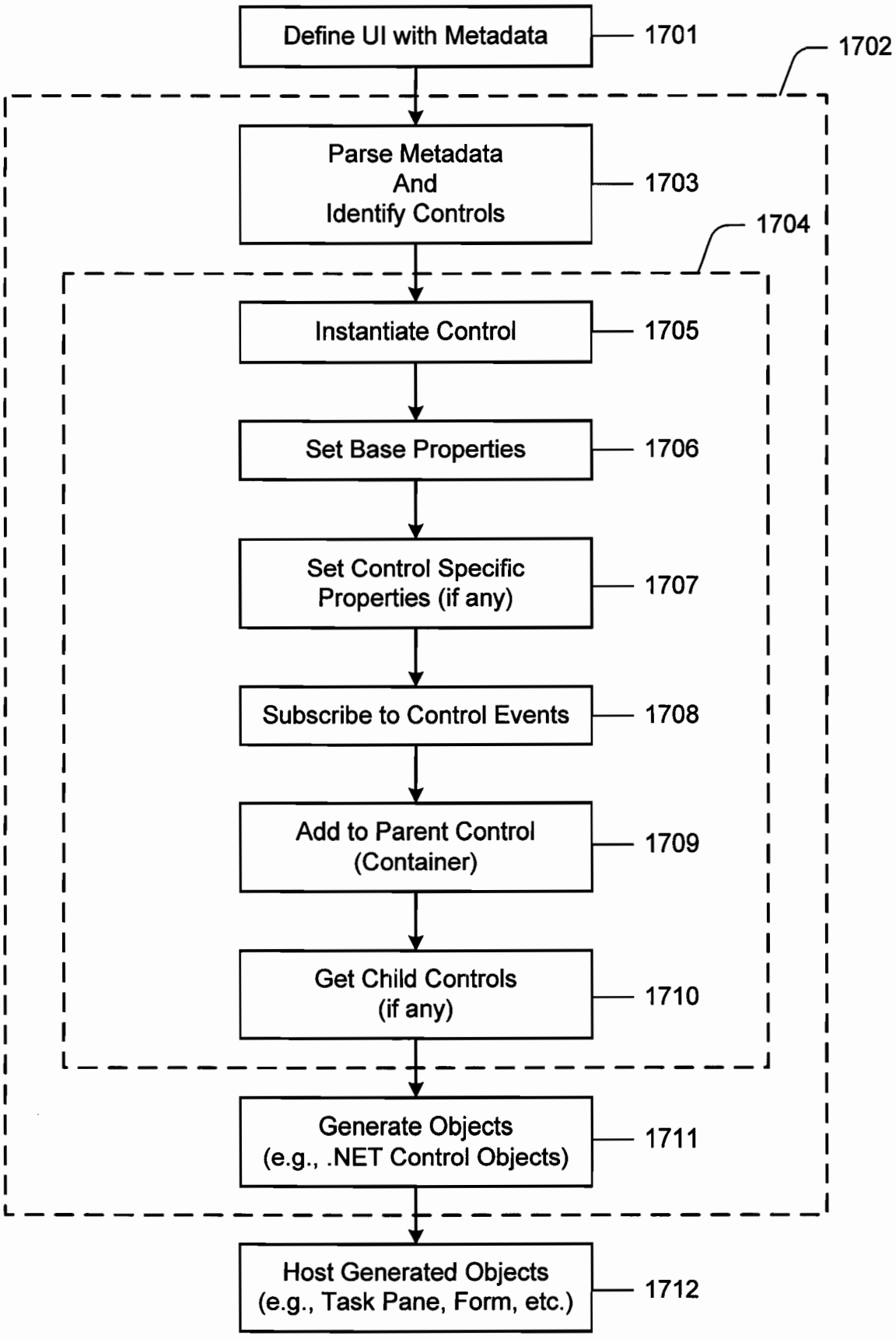

Define UI with Metadata
1701
1702
Parse Metadata
And
Identify Controls
1703
1704
Instantiate Control
1705
Set Base Properties
1706
Set Control Specific
Properties (if any)
1707
Subscribe to Control Events
1708
Add to Parent Control
(Container)
1709
Get Child Controls
(if any)
1710
Generate Objects
(e.g., .NET Control Objects)
1711
Host Generated Objects
(e.g., Task Pane, Form, etc.)
1712

FIG. 17

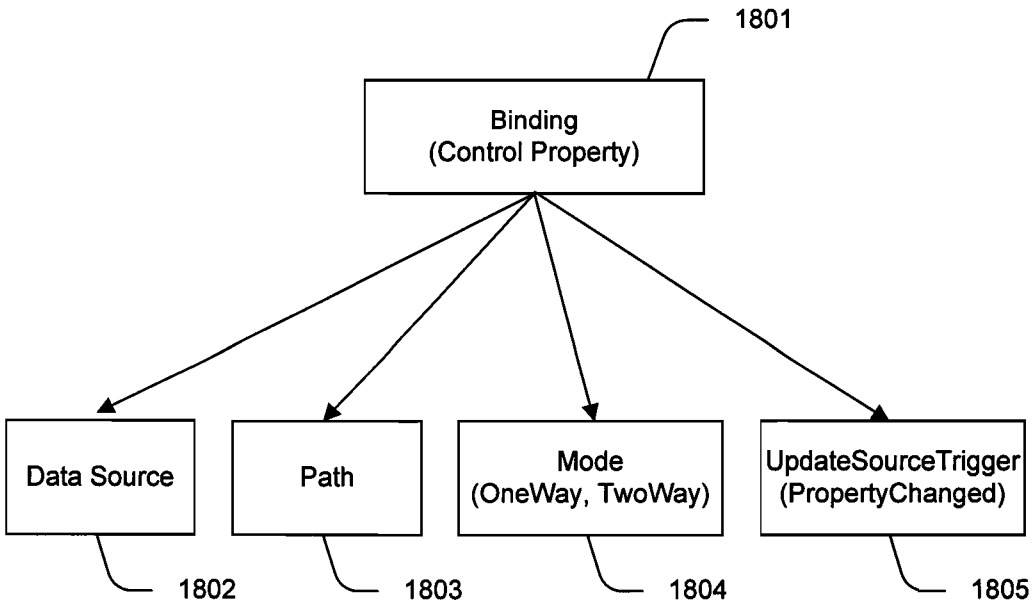

1801
Binding
(Control Property)
Data Source
Path
Mode
(OneWay, TwoWay)
UpdateSourceTrigger
(PropertyChanged)
1802
1803
1804
1805

FIG. 18