

(19) (KR)
(12) (A)

(51) 。 Int. Cl.⁷
G06F 15/16

(11)
(43)

10-2004-0086543
2004 10 11

(21) 10-2004-0013371
(22) 2004 02 27

(30) 10/402,104 2003 03 27 (US)

(71) (: 98052)

(72) 98052 , 107 16630

98074 , 104 2101

(74)

:

(54)

가
(routing) 가 (security context) 가 (listener registration) (session) 가
(user interface presentation)

1 (terminal server system)

2 (fast-user-switch)

3a

3b

3c

4a

4b (listener)

5 가

6

7

8

9 (user presentation)

10

11

12

13

14

15

16

17

18

19

20

21

22

23

* *
114:
102 :
112 :
103 :
104 ;
110 :
106, 108 :
222:
204, 212, 214 : 'D, E, F'
300 :
326 :
222:
204, 212, 214 : 'D, E, F'
300 :
326 :
2346 :
2345 :
2353 :
2327 :
2328 :
2330 : CD-ROM
2335:
2336 :
2337 :
2338 :
2356 :
2340 :
2342 :

2349 :

2350 :

2355 :

2320 :

가

(queue) 가 (invoke) (shared computing resource) 가 가
) (print job) 가

(terminal sever environment)

1 (114) (100)
 (104, 106, 108) (102)
 (104) , (102) (physical console)(103)(
) (104) , (103)
 (102)가 (106 108) (110) (103)

가

(task) (local console)(103)(가 (session)(10)
 가 (104)

(106) (110) (102) (remote console)
 '0') (spooler) (local console)(,
 (104) (114)가 (103)
 (106)

(fast user switch)

2 (206) (222) (200) (204)

(206) , 'E' 'D' (204) 'E'

가 (212) , 'F'가 (206) 'E' (presentation) 'F' (206) 가 'E'

'D'(204) (() 가 (206) 가 (presentation) 'F'(214)

가 ,

(listener) 가 ,

(registration)

(indication) 가 ,

(user interface presentation) (, 가)

(scenario) ,

(privacy) (

(party) ,

(source)

(calling client) (call) (, ,

(retrival) 가

1 -

3a (306) (316)가 (326) (300)
 (326) (316) (326) (316) (316), (326)가
 (306), (316), (326)

2 -

3b 가 (332) (334) (334) (3
 30) (340A, 340B) (indication) () 가
 () (host) . 가
 (334) (332) (se
 nder registration)(336) 가 (338A) (340A) 가
 (338A) (340B) . 가
 (336, 338A, 338B) (337, 339A, 339B) (339A, 339B)
 (337) 가 (routing) .
 (subset)가

3 -

3c 가 (350) (350) ,
 (352, 354) (356, 358) (357, 359) (
 (360, 362)) (352) (364) (366)
 (356) (364) (368)
 (368) 가 (356) 가 (364)
 (370) 가 (366) 가 (366)
 (352)가 (356) 가(370)가
 3c (entity)((352, 354), (356, 358), (364)
 (process address space) (thread),
 가
 () , ()

4 -

(queue)) 가 ()
 (host)

5 -

(host) 가 . (spooler) (console session)('0')

가 / (spooler - hosted component) () . ,

가 / 가 .

(print process manual duplex component)가

가 (driver rich status) 가 .

6 -

entity context property) (,) (id

(, id 'SID'), (,)

(, Globally Unique Identifier, (,),

(topological identifier),

/ (,) /

7 -

4a 가 (400) .

402 가 (,) 422 (, 가

) (,) (,)

422 가 402 가 (, 4a)

8 -

4b (450) . 456 ()
) . ()
 () . ()
) .
 (association) () 가 ,
 () . ()
 458 ()가 ()
) . ,
 ()) ()
 .
 () () 가 .
 460 () . ,
) , 466 () 가
 () 가 , 가
 가 () ()
 () () ()
) . ()
 가 가 () 가)
) . 가 가)
 , 478 , 가 가 . 474 ,
 . (action) (, 456/458 474/478) 가 .

9 -

4b . ,
) . ()
 .
 , 가 .
 가

가

10 -

5

(500) 가
()

502 가
가 (processing task)

(504)

506 가
()

(, Globally Unique Identifier)

(504) (506) 512 가
가 가

11 -

6

(600)

602
()

604 가
(604)

가 가 610

12 - /

(call)

(pass)

가 (816) (810)
 '1' (812) (804)(가) (814) '2'가 (806)(
) (802, 804, 806) (820) (814, 818) (820) (82
 2) (802, 804, 806) (가) (830)
) (RPC)
 가
 (820) (820)
 (826) 가 (826)
 (820) (820) (804, 806)
 (820) (820) 가(
 (820)
 (820) (822) (830)
 (826) 가 (820) 가
 가 가
 (가) (804) (820) (828)
 (820) (828) (820) (804)
 가 (802) (804)
 (810) '0' (804)
 (828) (activity) 가 (804) 가,
 (808) 가 (828) 가 가
 (가) (808) (810)

15 -

8 (800)
 (804) (shell)(824)
 (가) (820)가 0
 (804) (804) 가

(828) (,) (,) (820) (826) (820)
) 가 .
 (,)
 (, ' GUI) (804)
)
 , '0' (,) (804)
 (810) (,)
 ,
 (notification originator)(820)

16 -

2) (904) (906, 908) (900) 9 (900) , (90
 (,) (state saved)
 , (906, 908)
 .
 (912, 916) 가 (904, 906, 908)
 (,) (922) (912, 916) (912, 916)
 (904, 906, 908) 가 . (904, 906, 908)
 (,), (912, 916) (918, 920)
 , (914) (922) (918, 920)
 (,) 가)
 (,) (904, 906, 908)
 , 가 (,)
 902)가).
 (,)가
 (910) , (reactivated session)

17 -

10 (1000) ()
 (1002) ()
 (1004) 가 , 가
 (1006) 가 .
 , 2 가
 (, 가)
 ,
 가
 (, 'NULL').
) , 가 (,
 , (, 가)
)

(impersonation) 'RPC(remote procedure call)'
 (impersonation) 가
 (routine) 'DLL(dynamic link library)'
 (impersonation) (thread) 가
 가
 (, RPC)
 (/)
 가

18 -

(1100) 11 가 (1100) , (1122, 1124)
 (1102)) 가)
 (1122, 1124) ('Joe' 'Mary') Joe
 가) (identity context identifier) Joe
) (1112, 1114)가 (1102) (1112, 1114) Joe '0'
 (1112, 1114)가 (, '0')
 Joe (1112, 1114)
 (1112)

19 -

(1200) 12 (1200) , (120
 2)) (1222, 1224) 가 ,
 (1222, 1224) (, 'ABC' 'DEF' SID

(1604) (1604) (1602) ((1616))
 (1604) (1618) (1614) (1620)
 (1612) (1616) (1602)
 22) 가 ICallBack (16
 (1626) (1604) INotifychannel
 ICallBack (1624) 가
 가 (impersonation)
 가 가
 가 가
 가 (criteria)

25 -

1702)가 (1700) 17 (1704) (
 (1706)
 (1705) 가 가
 (1710, 1712) 가 (가)
 (1704) 가
 ow). (1714) (1704) (1706) (fl
 02) INotifyChannel (1708) (1705) (1705) (1714) (17
 (1710) (1710, 1712) (1714)
 (1712) (1714) (1706) 가
 (1718)

(1714) 가 (1706) (globally u
 BLOB) (pre-arranged).
 (data content and format agnostic)
 (schema) (markup language
 XML)가 (GUID
 BLOB)가 (DLL)

26 -

(1800) 18 (1806)
 (1801) (1806) INotifyChannel
 (logical listener component)(1808) ICallback
 4) 가 (1802) (1810) (181
 (1816) (1812) ICallback (1802) (1804)
 (1801) (1816)

27 -

Washington Redmond Microsoft Corporation the Component Object Model 'COM'
) .COM IUnknown
 (inherit) ()
 , C++ C++)
 (Spoolsv.exe 가)
 가 (generic term) 가 (Winsspool.drv) 가
 가
 1 가 ()

```
typedef enum {
```

```

kAllNotification = 0,
kPerSessionFilter = 1,
kPerUserFilter = 2,
} ESessionFilter
    
```

```

, 1, 가, (, )
( '1' (, ESessionFilter = 1), 가,
(account) (, ESession
Filter = 2), 가
('0' 가
(, ESessionFilter = 0), 가
(, )
, 1, 가
(, ESessionFilter = 1), 가 '1'
가 가 '2' (, ESessionFilter = 2),
( '0'
(, ESessionFilter = 0), 가
(, PRINTER_ADMIN_RIGHTS)
가
(enforced). , kPerSessionFilter
, '2' 가 '1' . kPerSessionFilter , '1'
가 가 '2' 'NULL'
, 2, 가
    
```

[2]

```

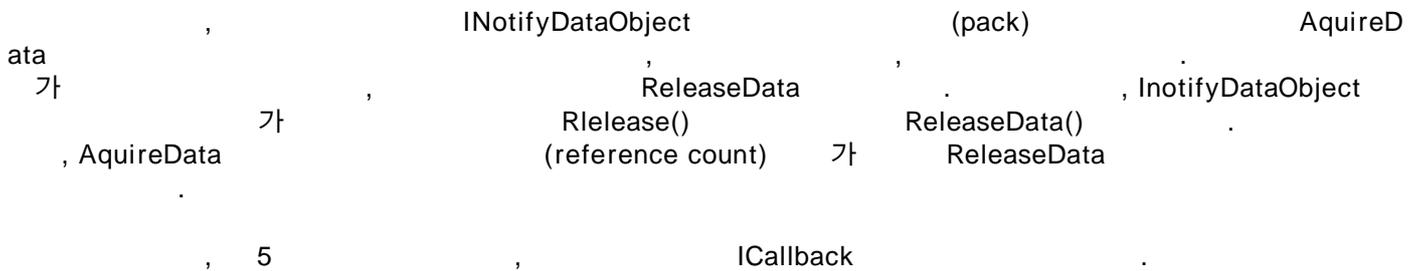
Typedef enum {
kBidirectional = 1,
//First response is handed to the
//ICallback interface;
//the client that first responded
//will carry on the dialog.
kUnidirectional = 0,
//No response is handed to the
    
```



```
{
typedef GUID* NotificationType;

HRESULT AquireData(
[out]BYTE**,
[in, out]ULONG*,
[in, out]NotificationType*
);

HRESULT ReleaseData(
VOID
);
};
```



[5]

```
interface ICallback : IUnknown {

HRESULT OnEventNotify(
[in]IAsynchNotifination
*pIAsynchNotification,
[in]INotifyDataObject
*pNotification
);

HRESULT ChannelClosed(
[in]IAsynchNotification
*pIAsynNotification,
[in]INotifyDataObject
*pNotification
);
};
```

ICallBack

IBack

ICallBack

ICallBack

ICal

가 (,) ,
 OnEventNotify ,
 , ChannelClosed 가 , Notification_Died Ch
 annelClosed .
 , 6 , IAsynchNotification ,
 가 CreateNotificationChannel .

[6]

```
interface IAsynchNotification : IUnknown {

//Sends notification of a certain type.
HRESULT SendNotification(
[in]INotifyDataObject *pNotification
//Notification data.
);

//Close the notification channel.
HRESULT CloseChannel(
[in]INotifyDataObject *pNotification
//Reason for closing
);

//Query notif. type that channel supports.
HRESULT GetChannelNotificationType(
[out]INotifyDataObject
**pNotificationType
//Notification Channel type
);
};
```

IAsynchNotification
 SendNotification (role)
 , 가 CloseChannel
 (pass) NULL 가
 , GetChannelNotificationType NULL 가 INotifyDataObject
 , CreatePrintNotificationChannel
 (handle) (handle)
 , (, Winpool.drv)
 가
 (, Spoolss.lib) 가
 Cr
 eatePrintNotificationChannel

, 7 , CreatePrintNotificationChannel .

[7]

```
HRESULT CreatePrintNotificationChannel(
[in]PCWSTR PrinterName,
[in]NotificationType ChannelType,
[in]ESessionFilter eSessionFilter,
[in]ECommunication eCommunication,
[in]ICallback* pCallback,
[out]IAsynchNotification**pIAsynNotification
);
```

7 (, eSessionFilter) (,).
 / . ICallback 가
 가 NULL .
 , IAsynchNotification IAsynchNotification
 CloseChannel .
 , 8 , RegisterForPrintNotification .

[8]

```
HRESULT RegisterForPrintNotifications(
[in]PCWSTR PrinterName,
[in]NotificationType NotifyType,
[in]ESessionFilter eSessionFilter,
[in]ECommunication eCmmunication,
[in]ICallback* pCallback,
[out]HNOTIFY* phNotify
);

HRESULT UnRegisterForPrintNotifications(
[in]HNOTIFY hNotify
);
```

RegisterForPrintNotification

(, Winspool.drv)
 (, Spoolss.lib) 가
 (, Spoolss.lib)
 RegisterForRrintNotification , /
 (,).
 / . ICallback 가 .

가 UnRegisterForPrintNotification
 (opaque registration handler

Session ID

28 -

19 (1900)
 1902 ,
 (instantiated). , (1900) (runtime)
 가). (affirmative action) 가 (,
 od call) (, COM, DCOM, JAVA, C++) (meth
 1904 ,
 () , 1906 ()
 (1902) 가 1908 가 1910
 1910 , (,)
 (1902) , 1912 (,)
 1914 가 1908 가 , 가
 1914 , (,) 가 ,
 1916 ,
 1916 가 , (1918)
 가 (1916) ,
 (1902) (1919) (1918)가 ,
 1920 1908 , 가 (1914)가
 1920 , 가 ,
 가 (1922) , , 1918
 가 가 , 1924
 1924 , 가 1926 (1902)
 1908 ,
 1928 , 가 1908
 (1900) 가
 가
 (inter-process communication)
 (, 1904, 1910) 가

(, (member function)) .

29 -

20

(2000)

가

2002

(,)

가

(, ,

) 가

2008

(, 가 ,

).

가

, Globally Unique Identifier)

가

2012

2014

가

2016

가 가

가

(,

), 가

(,

) 가

30 -

21

(2100)

2102

(,

), 2108

가

2112

가 .
 2114 , (,). 가
 가 .

31 -

, 가
 ,
 가 (, ,). 가 ,
 가 가 .
 (,
).

32 -

22 (2218) (2220) 가 (2220)
 (2218) (2204)
 , (2220) (2210) (2202)
 (2208) , 3 (2210, 2212, 2214)
 (2216)
 (2210, 2212, 2214) 가
 (2210, 2212, 2214) . (, (2202)
 (2208))
 (impersonating)
 (2210)
 (2222)

33 -

(vendors)

(,)

34 -

sentation) , , (,) (user interface pre

가

35 - (computing environment)

23 / 가 (particular abstract data type)
 가 (appliance),
 23 (2320)(2321), (2322) (2323)
 X86, MIPS, MIPS, NEC, IDT, Siemens, ; IBM Motorola PowerPC (Cyrix, AMD Nexgen; Alpha from Digital)
 가 (2321)
 PCI, VESA, AGP, Microchannel, ISA EISA ROM(2324) RAM(2325)
 (BIOS) ROM(2324) (220)
 (2320) 가 (2329) (2327), (2330)
 (2328) CD-ROM (2331) (2332), (2328) (2330) (2334)
 (2323) 가 (2320) 가 CD
 가
 (2337), (23556) (2338) (2335), RAM(2325) (2336),
 (2340) (2342) (2320) (2346) (2321) (2347)
 가 (USB) (2348) (2323)
 (2320) (2349) 가
 LAN(2341) WAN(2352) (2349) (2350)
 LAN (2351) WAN (2320) (2353) WAN(2352)
 (, LAN(2351) (2355)) (2346) (2323)
 2354) (23534) (2320)

가

'forwarding'

가

가

가

가

(57)

1.

(notification)

(identity context property)

(sender properties)

(indication)

2.

1

(multiple session)

(responsible for invocation);

(session identifier)

3.

1

(fast user switch environment)

가

4.

1

(user identifier)

5.

1

(security context identifier)

5 6. ,

1 7. ,

(machine identifier)

1 8. ,

1 9. ,

(state condition)

(user interface

presentation)

9 10. ,

(interactive user interface element)

가

9 11. ,

9 12. ,

9 13. ,

9 14. ,

1 15. ,

(printing specific data)

16.

1 ,

,

17.

1 ,

,

-;

가

,

18.

1 ,

(printing-related component)

19.

1 ,

(listener)

-

-;

20.

19 ,

RPC (call)

21.

19 ,

;

22.

21 ,

(forwarding the reply)

23.

19 ,

;

24.

8 ,

(interprocess call set-up)

24 25.

19 26.

19 27.

19 28.

19 29.

19 30.

2 2 2 ;
2 2 ;
2 2 2

19 31.

(remote terminal)

19 32.

(administrative right) 가 ;
가

19 33.

가 ,
가

19 34.

(print job)

19 35.

(plug-in component)

19 36.

19 37.

(subset)

37 38.

(console)

(spooler process)

37 39. , (terminal server) (terminal session) ,

37 40. , (thread)

41. , ;
-;

41 42. ,

41 43. ,

41 44. ,

45. ,
- ;
- ;

가

46.

45

,

가

47.

46

,

(source)

48.

45

,

가

49.

45

,

50.

45

,

51.

49

,

52.

49

,

53.

;

(impersonated security context)

;

;

54.

가

가

,

;

;

(reference)

;

(callback function)

-

-

;

(reference)

;

(object)

;

가

가

.

55.

54

,

(reply notification object)

;

가

56.

,

,

;

(initiating session)

;

;

-;

;

;

-

-;

(presenting)

57.

가

,

가

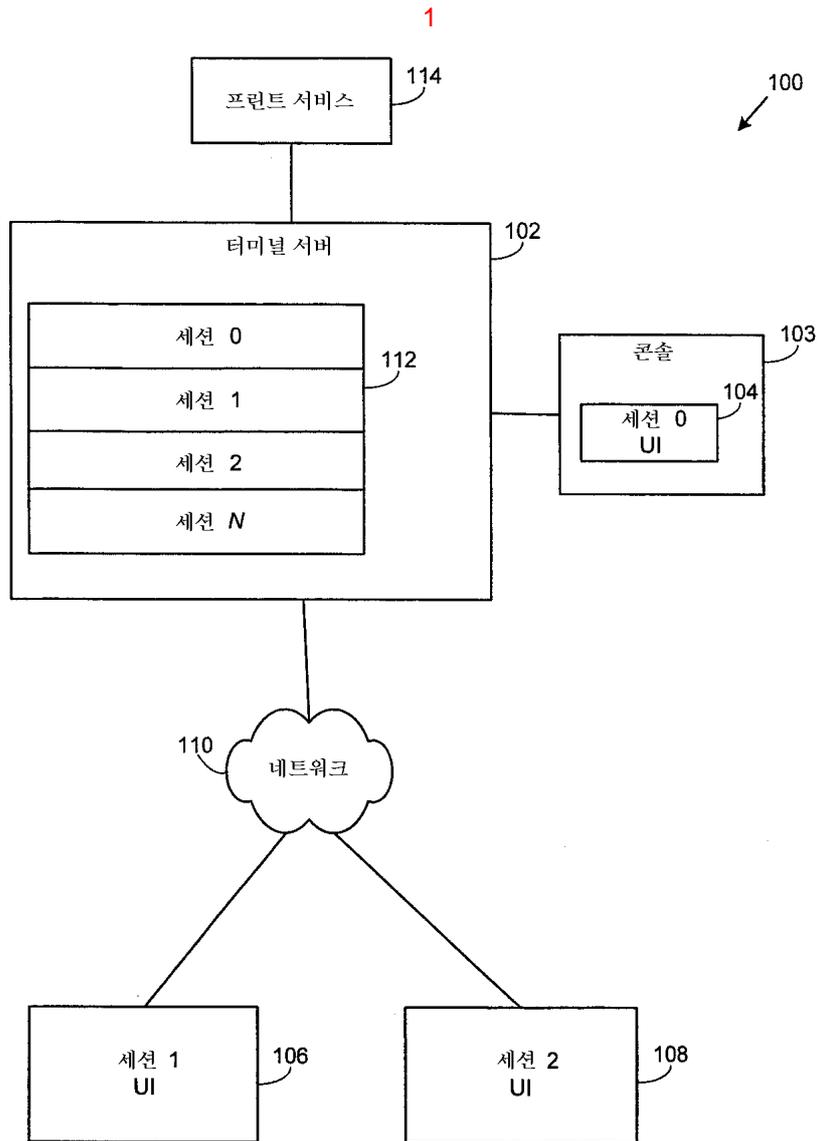
,

(member function) -

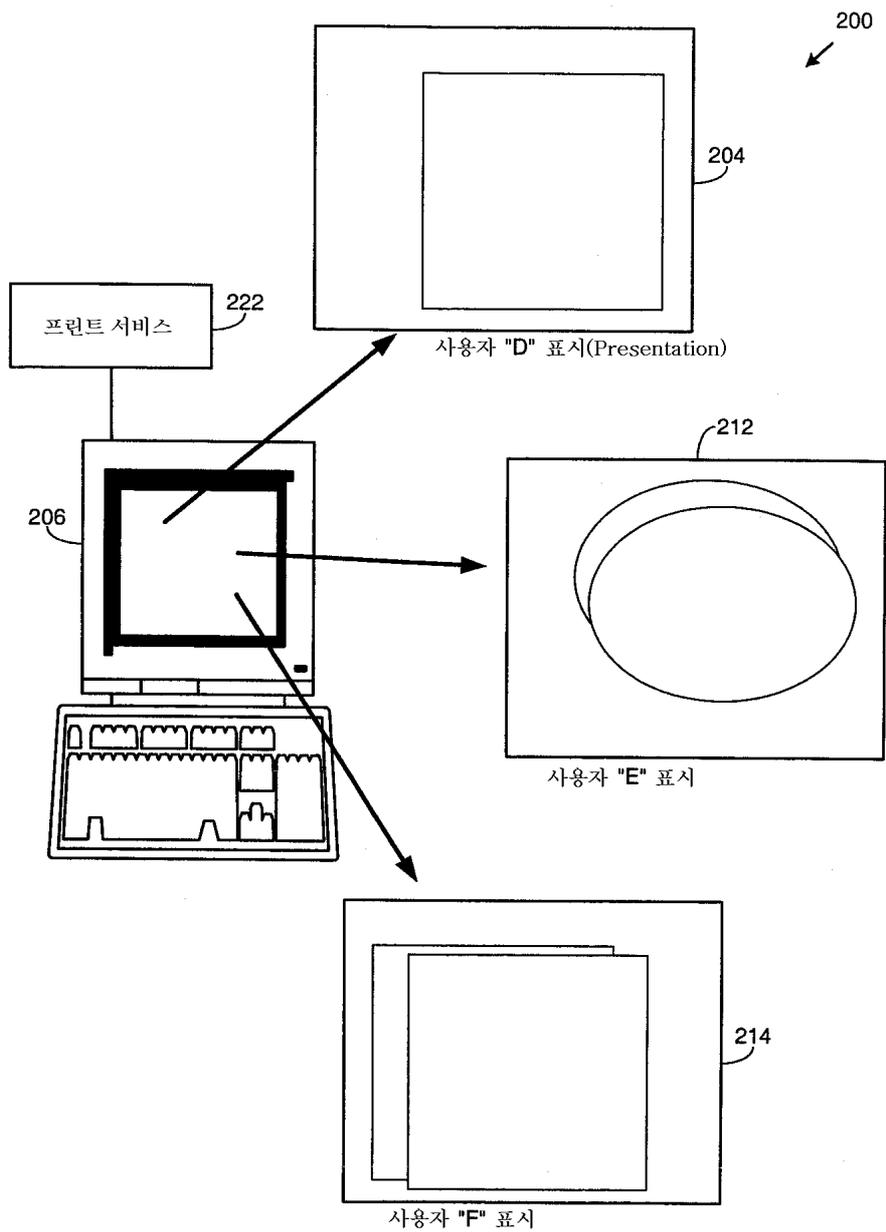
(pointer) -;

-;

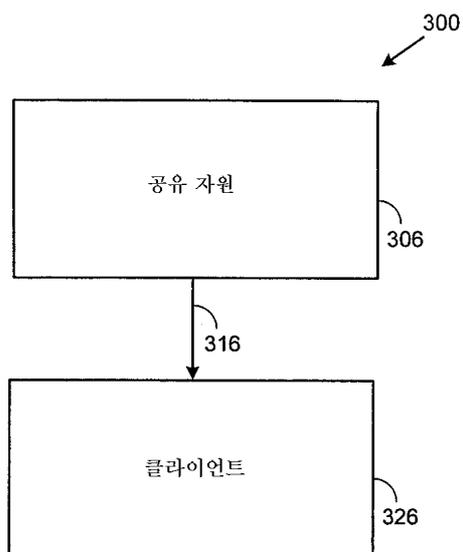
가
가



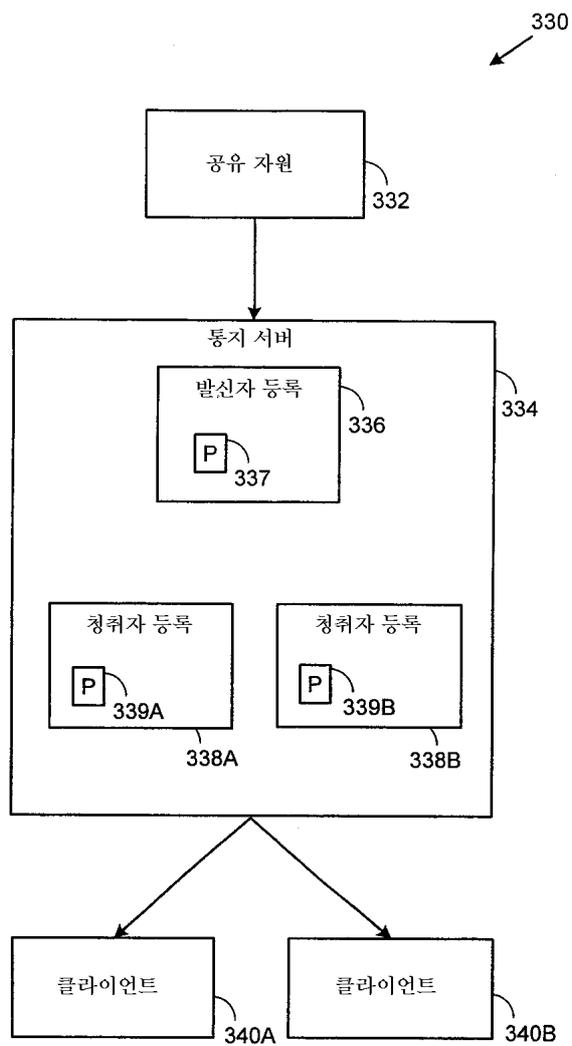
2



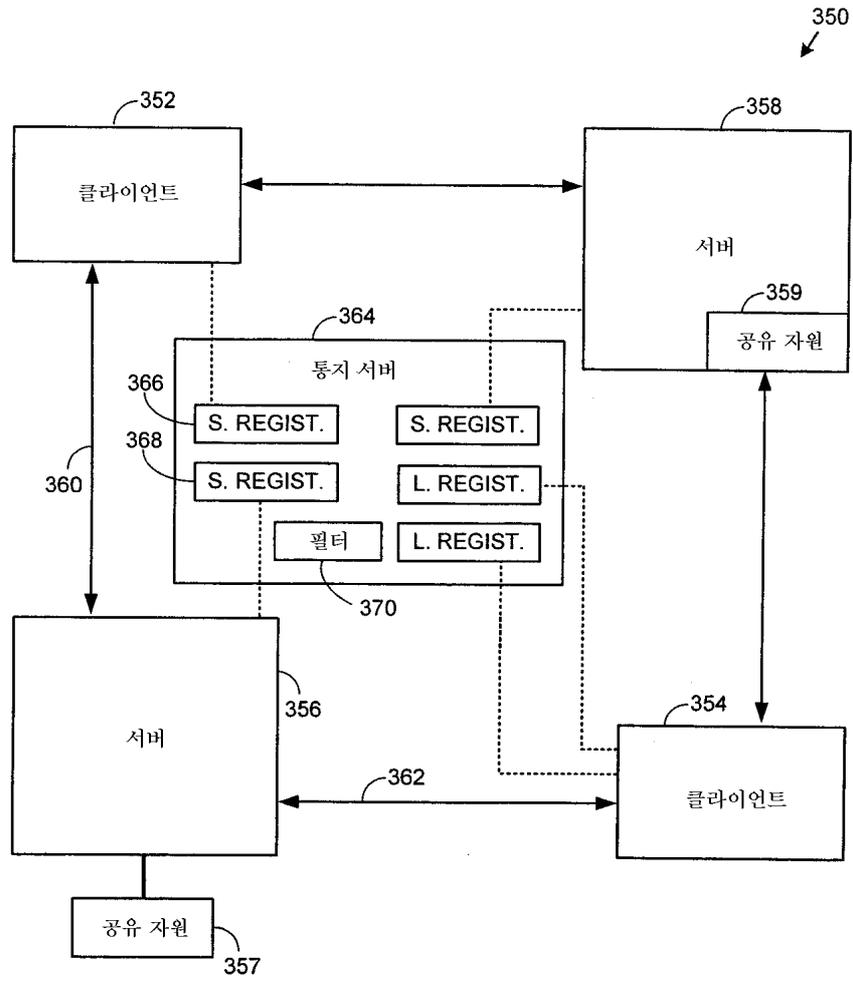
3a



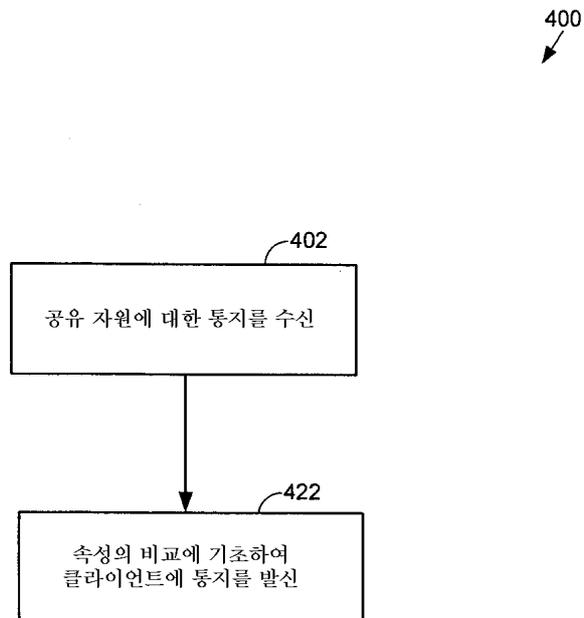
3b



3c

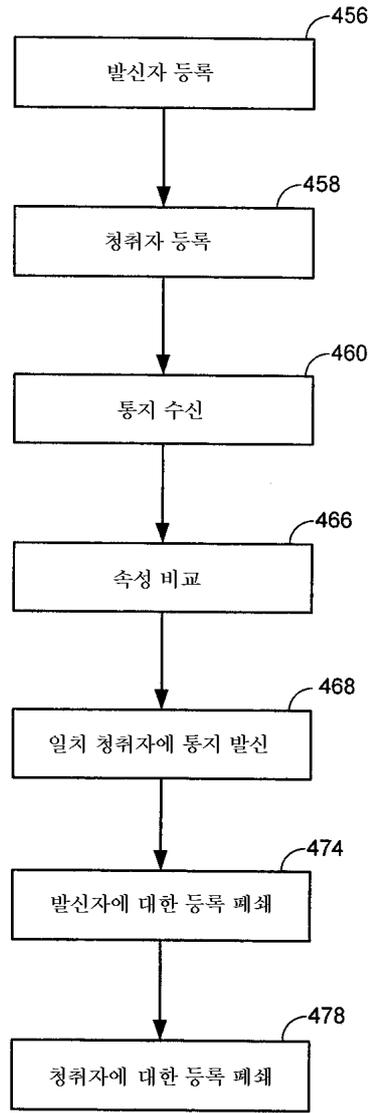


4a



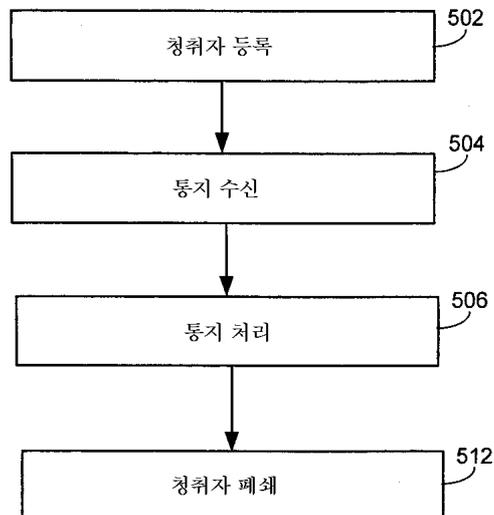
4b

450

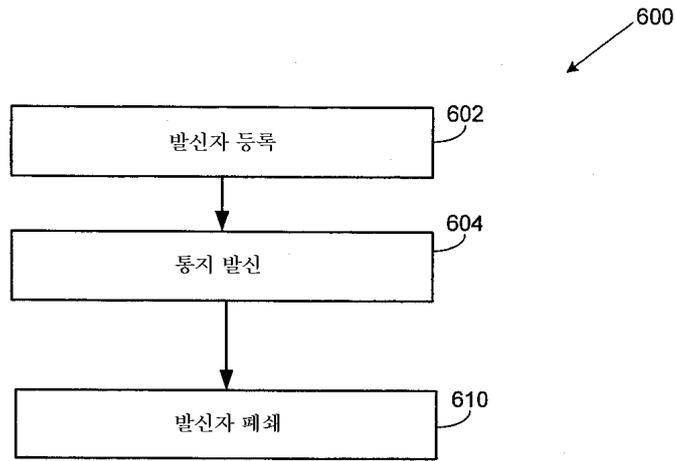


5

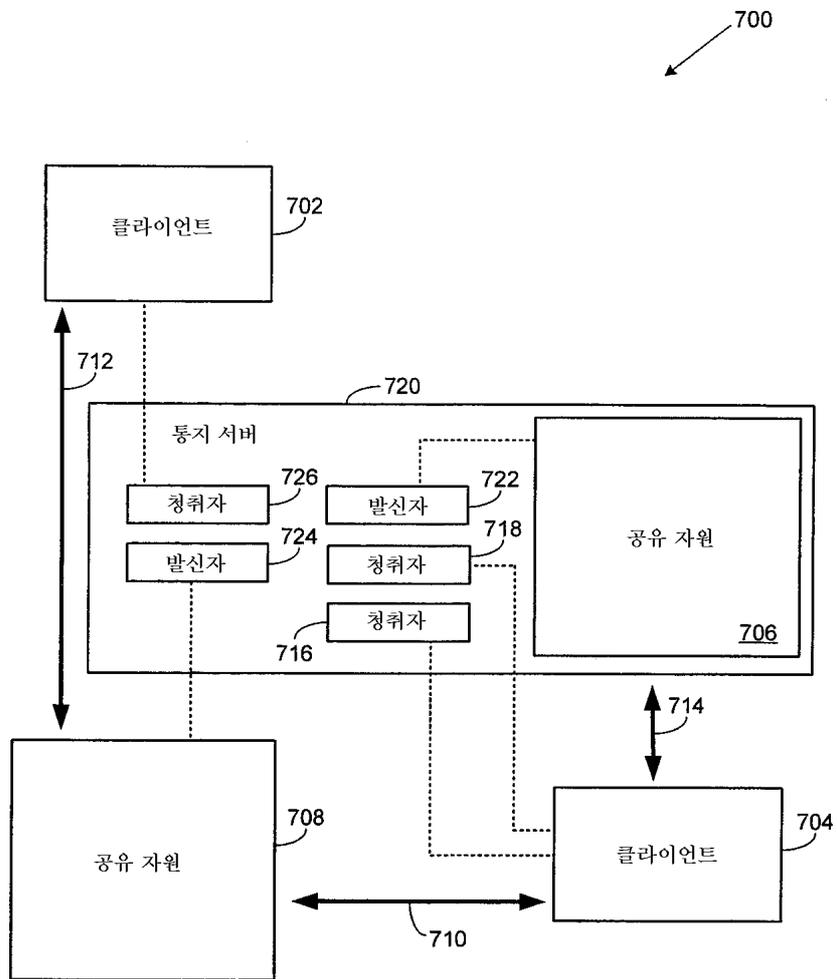
500



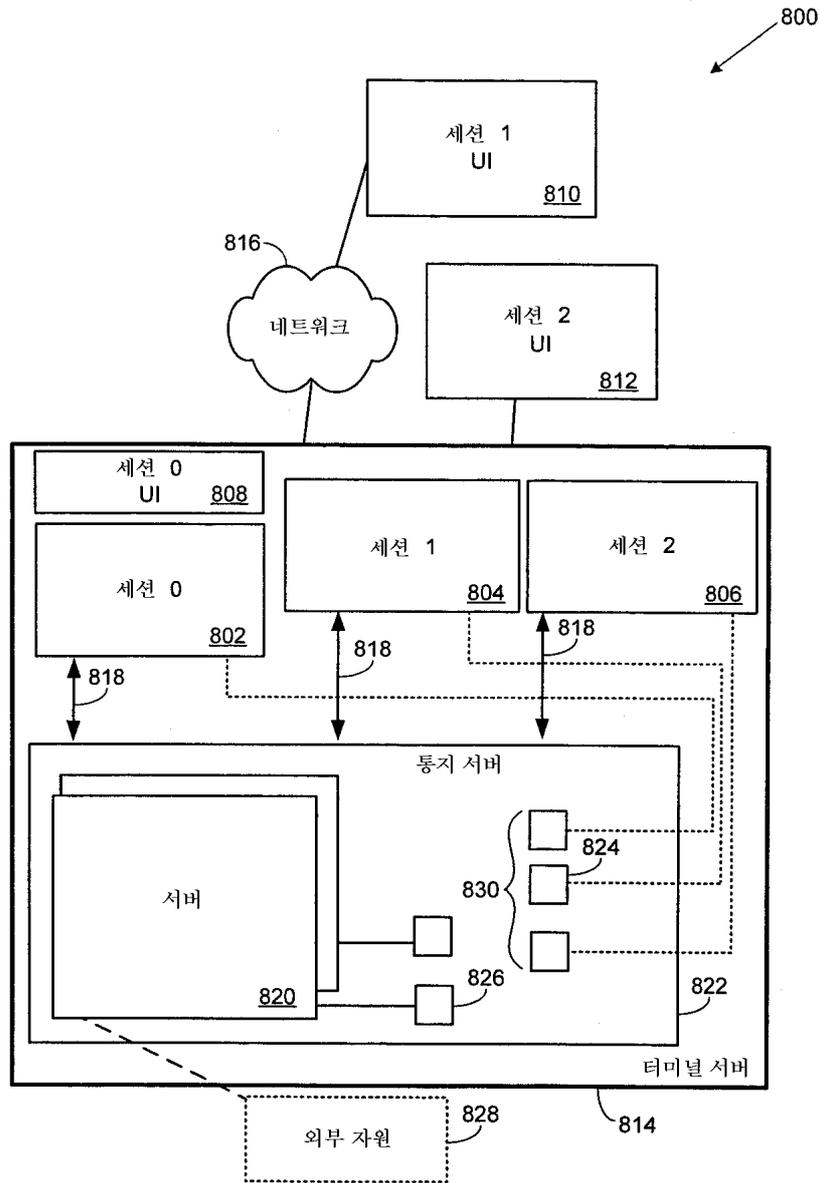
6



7

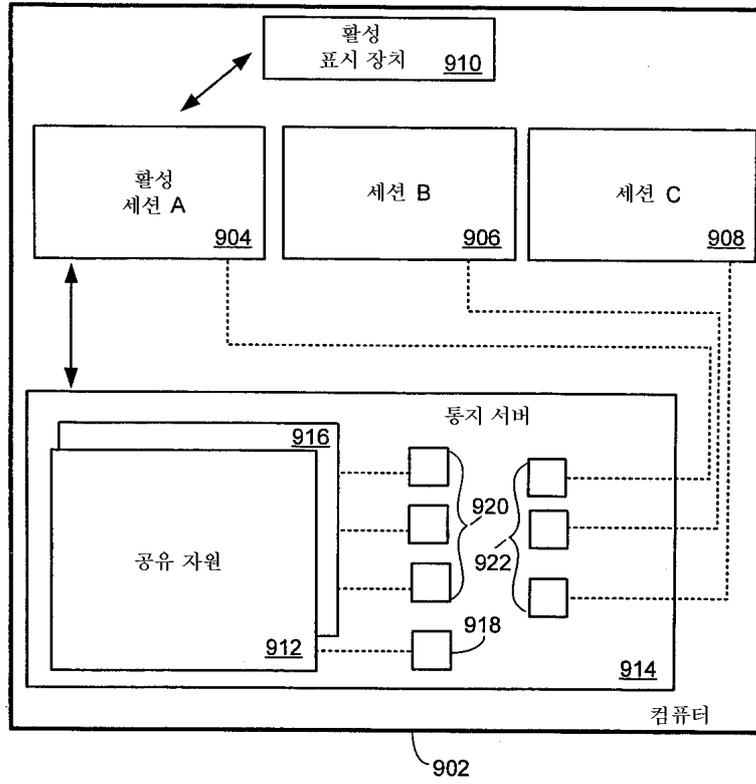


8



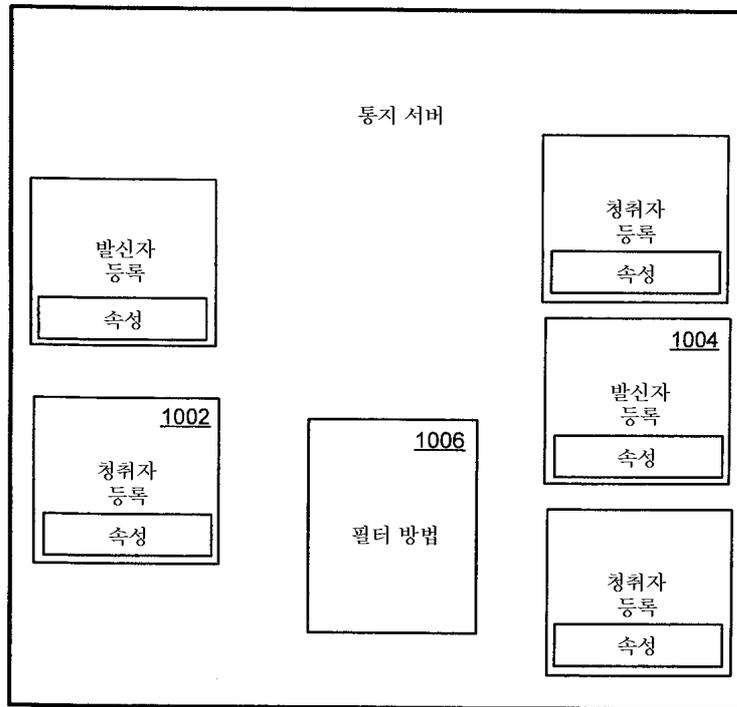
9

900



10

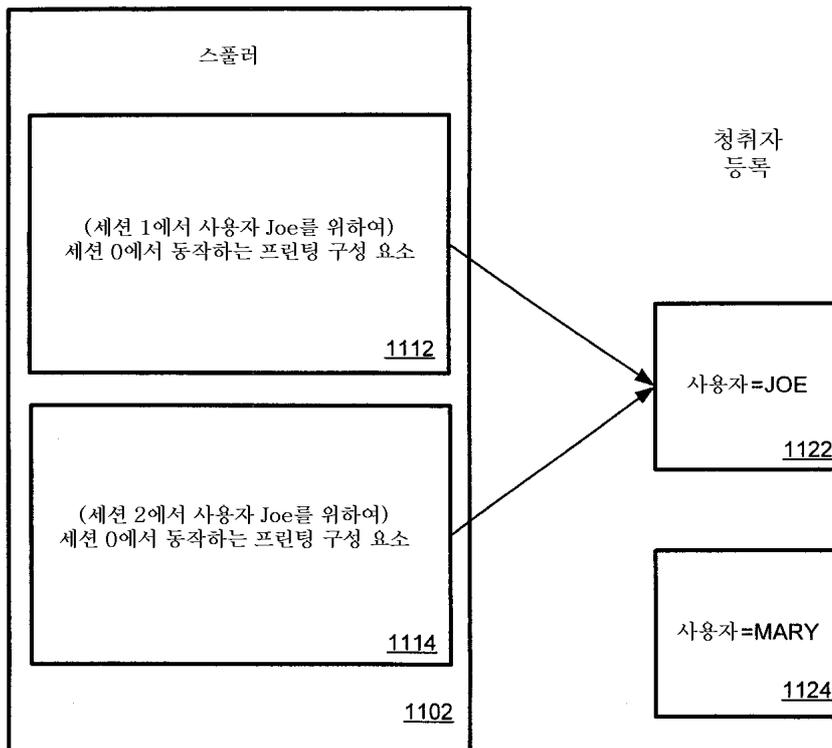
1000



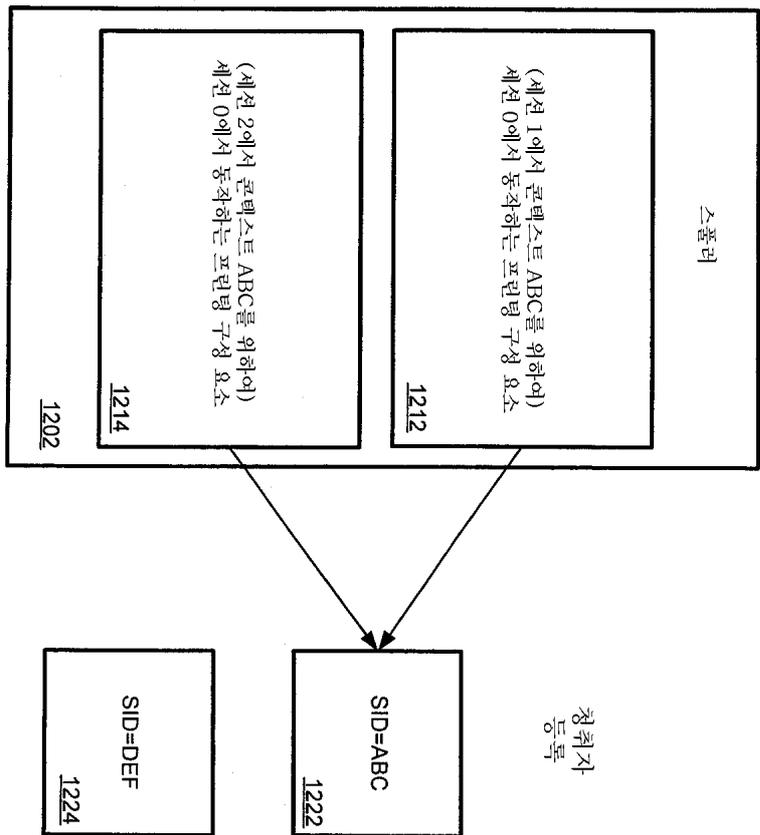
11

사용자 필터

1100



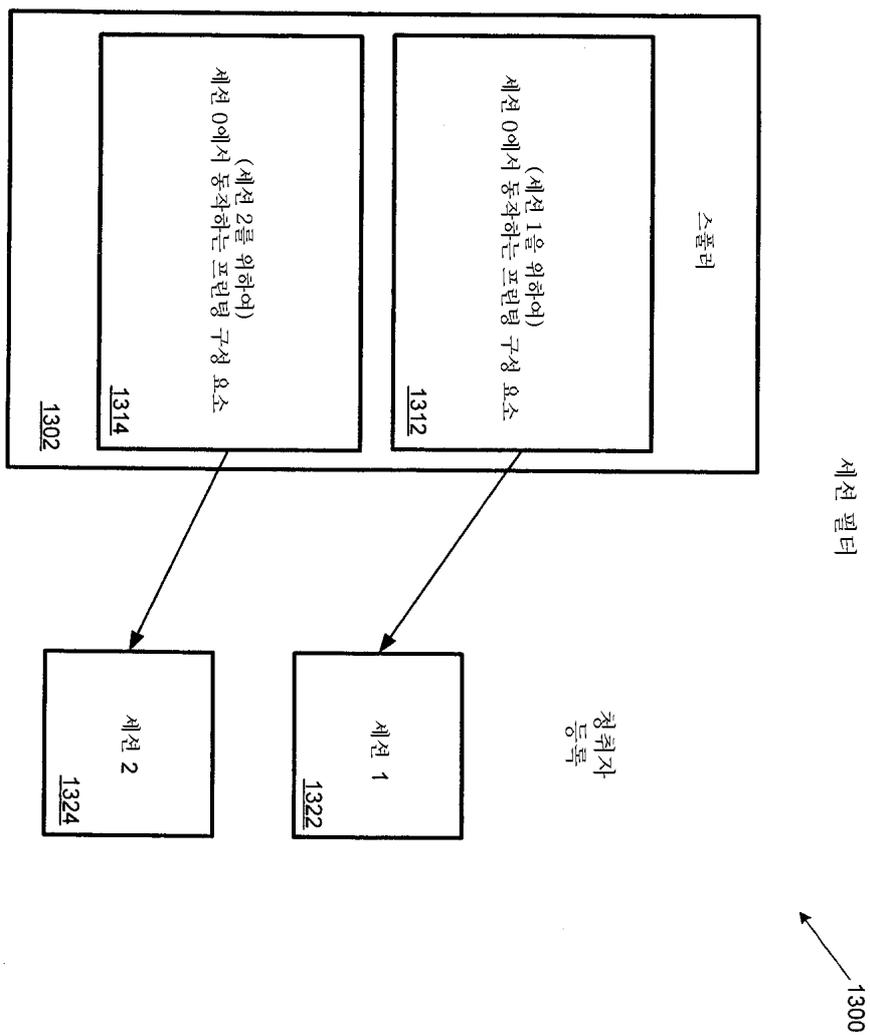
12



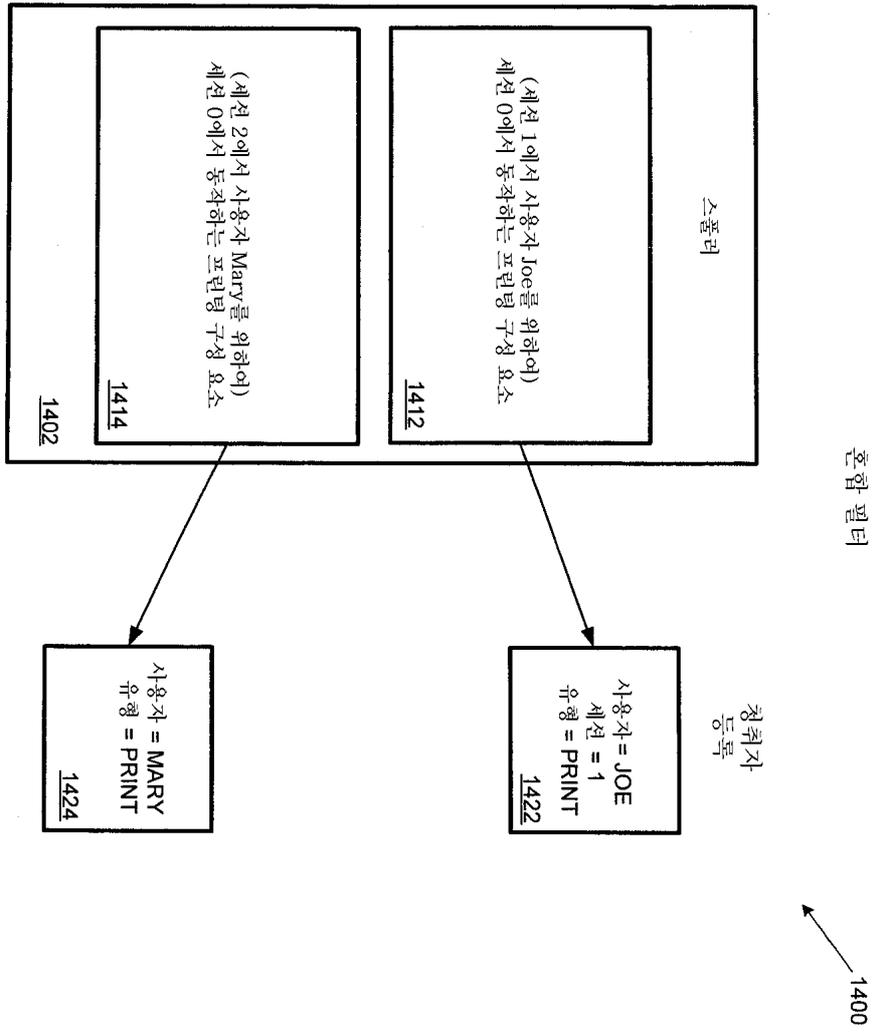
포인 콘텍스트 필터

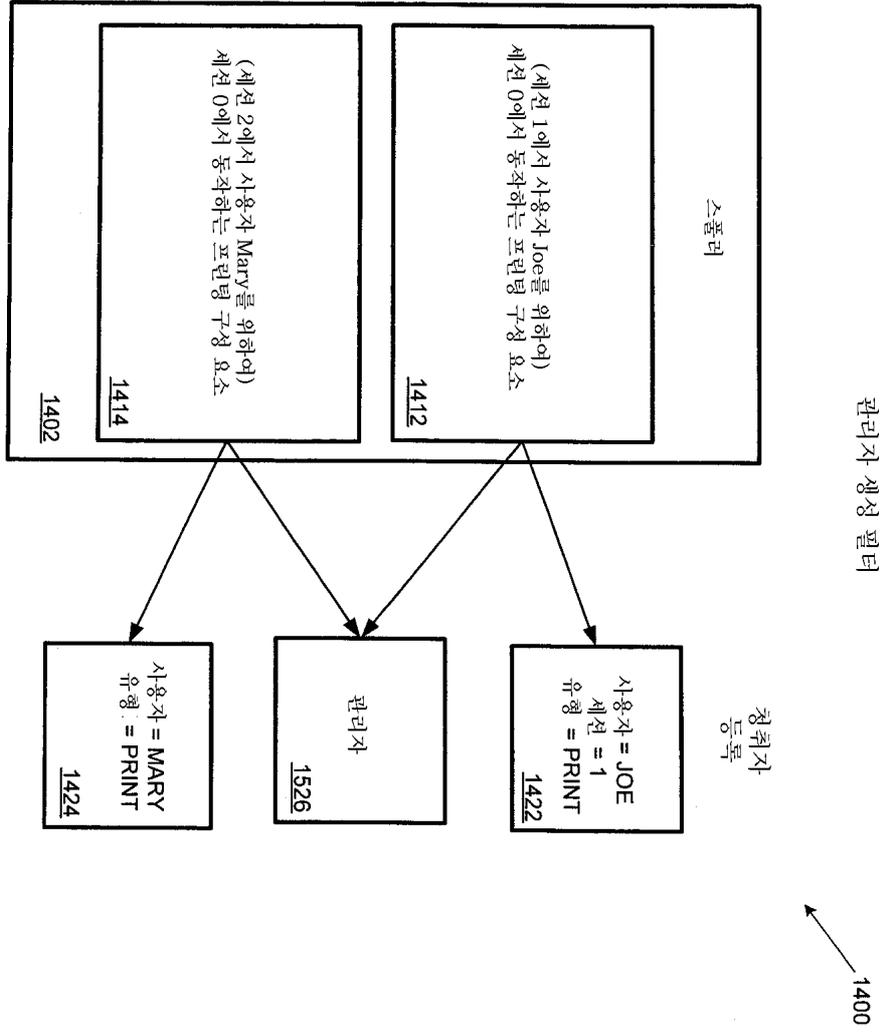
1200

13

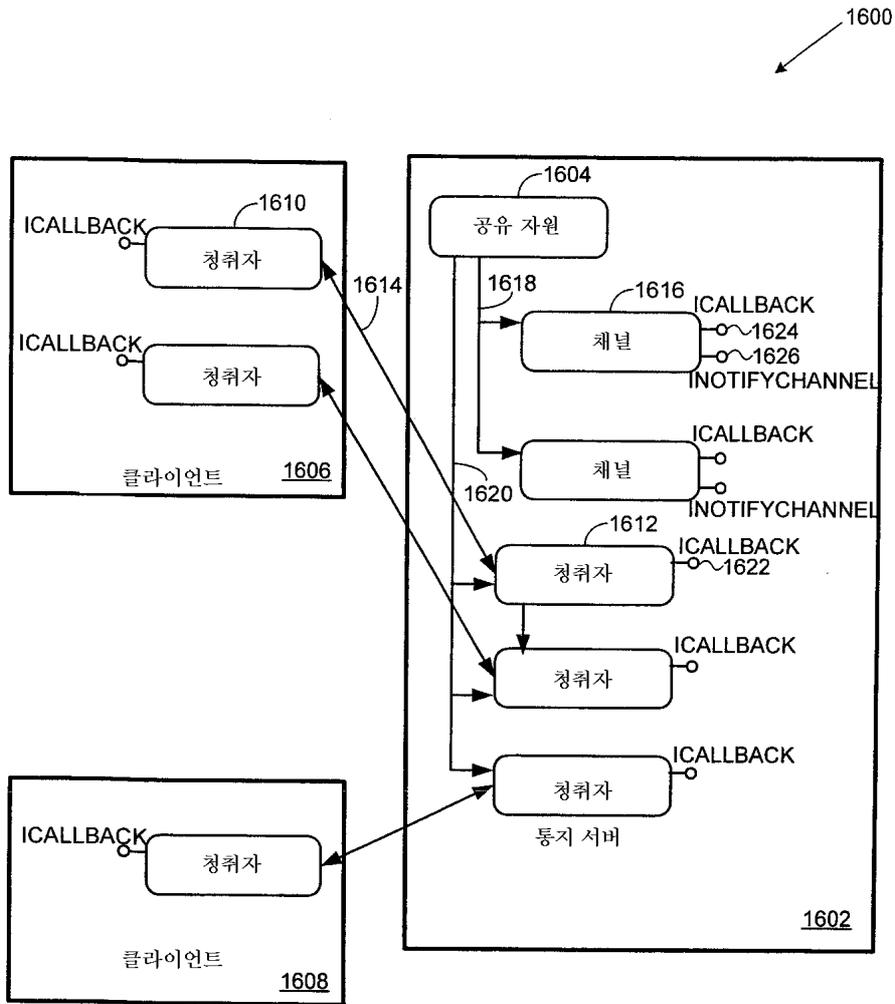


14

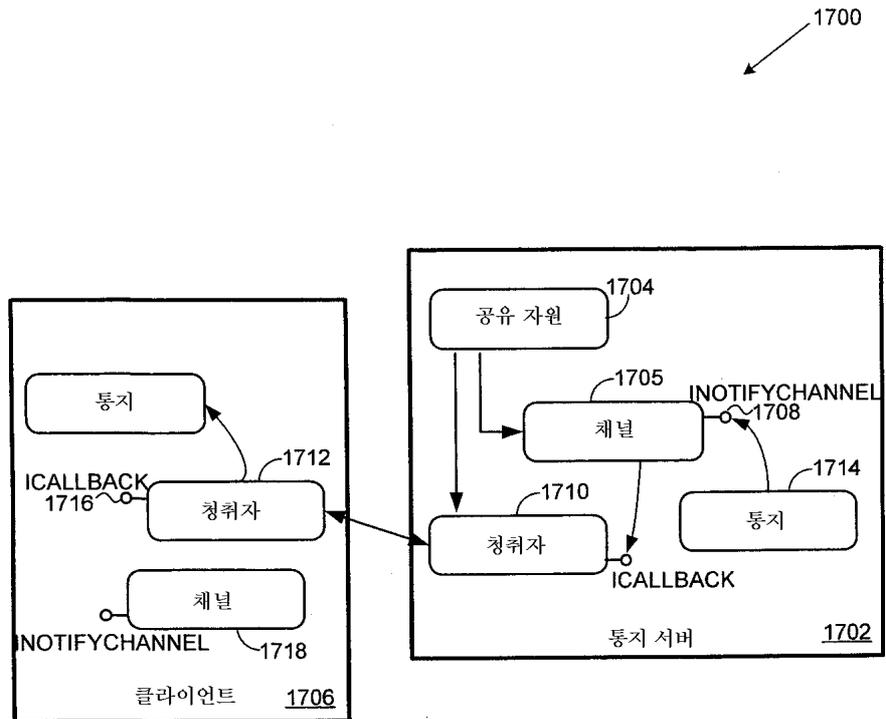




16

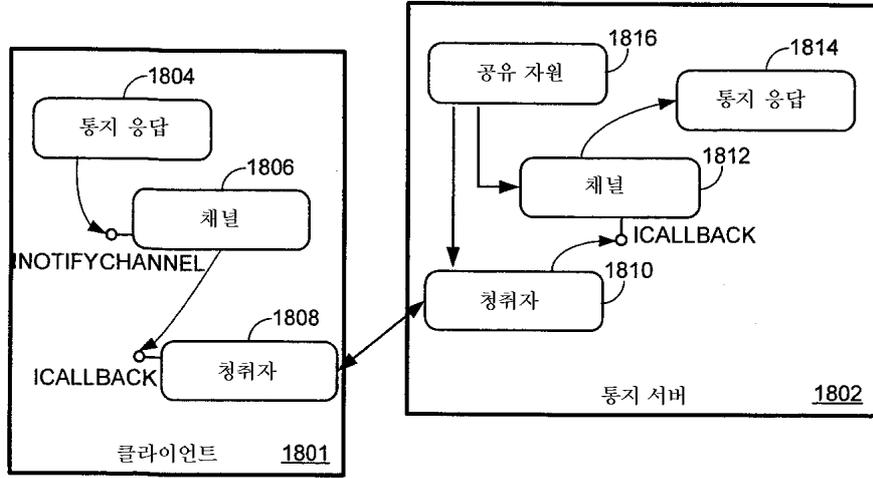


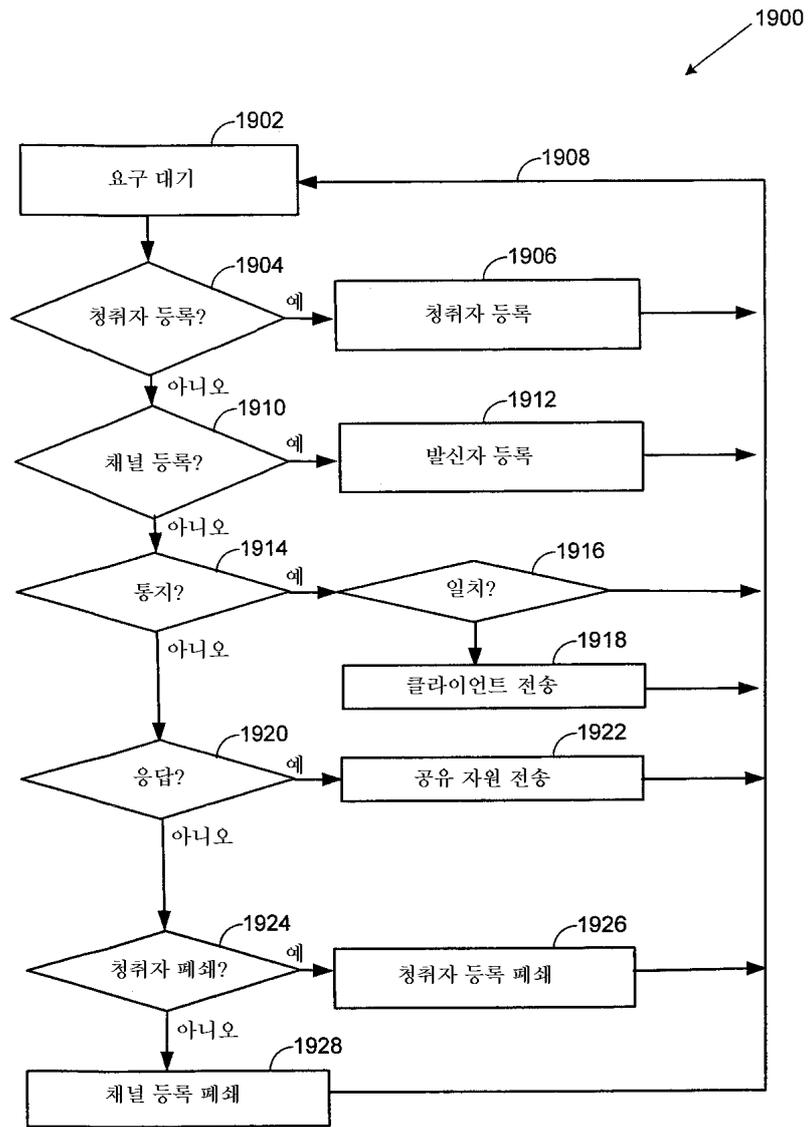
17



18

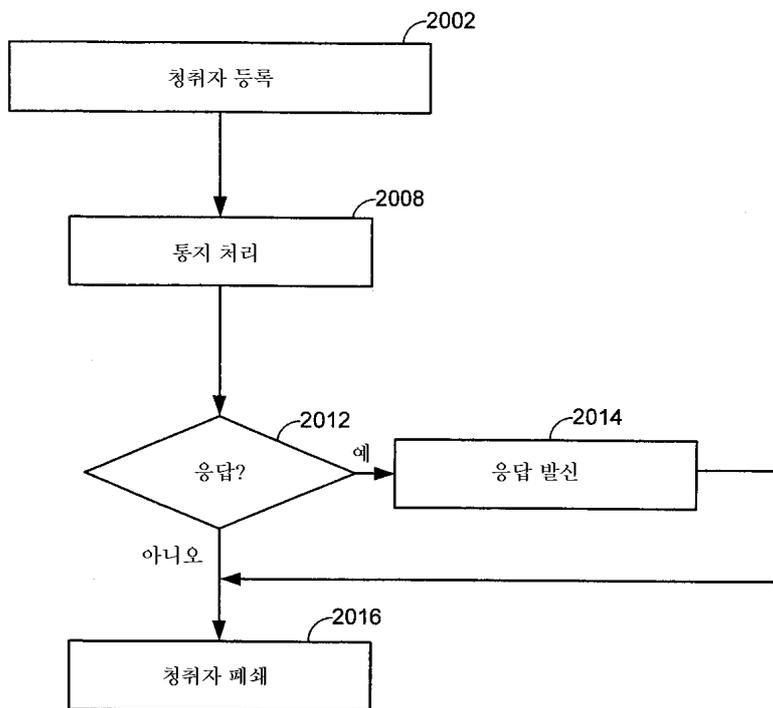
1800





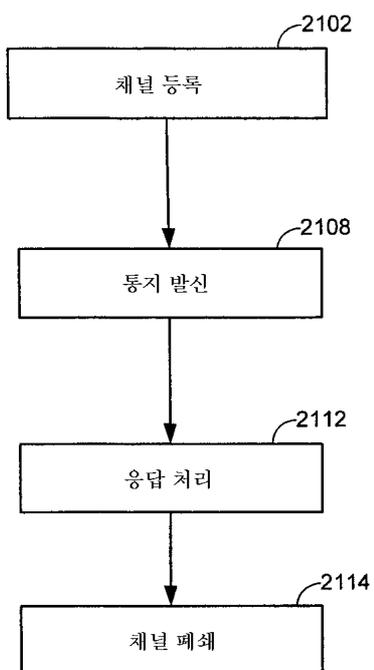
20

2000

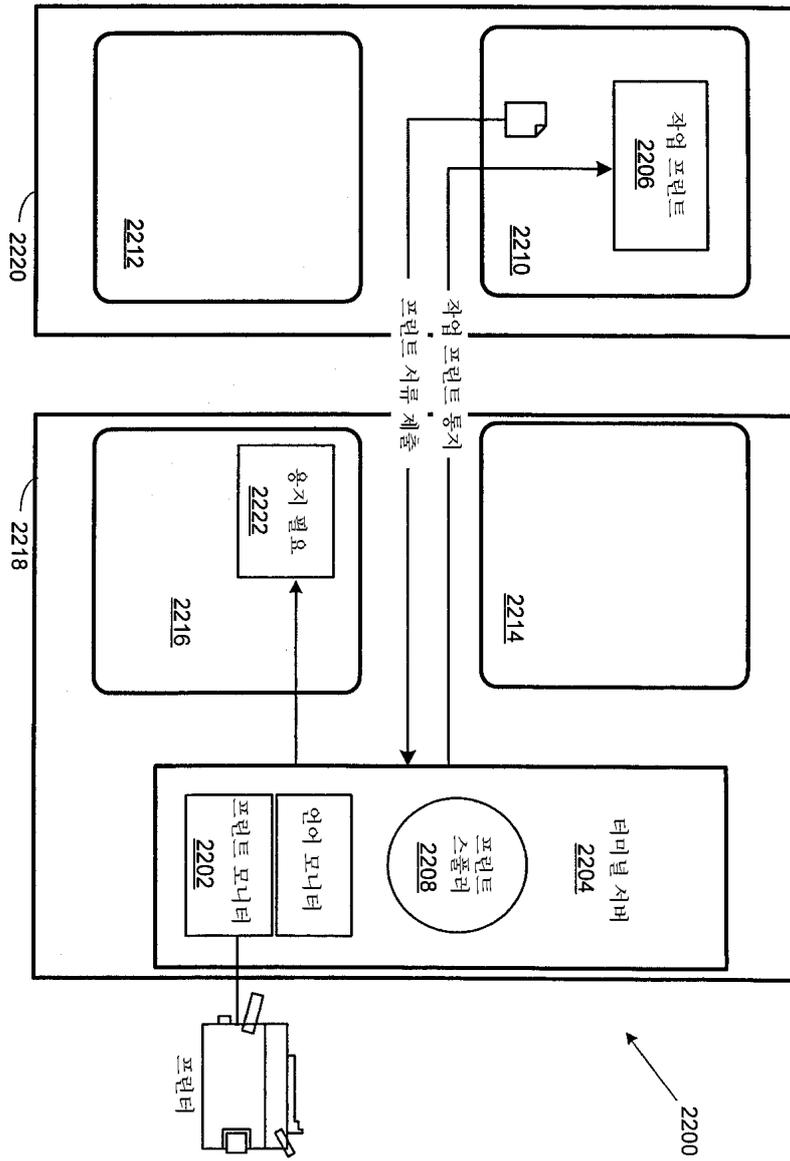


21

2100



22



23

