

(19)
(12)(KR)
(A)(11)
(43)10- 2010- 0039906
2010 04 16

(51) Int. Cl.

(71)

H4L 12/26 (2006.01) H4L 12/24 (2006.01)

H4W24/04 (2009.01)

(21) 10- 2010- 7006682()

5775 (92121- 1714)

(22) () 2006 03 20

(72)

(62) 10- 2007- 7023852

92130

() 2006 03 20

4817

2007 10 17

92129

(85) 2010 03 26

13126

(86) PCT/US2006/010584

(87) W 2006/102506

92122

2006 09 28

7958

(30) (74)

60/663, 515 2005 03 18 (US)

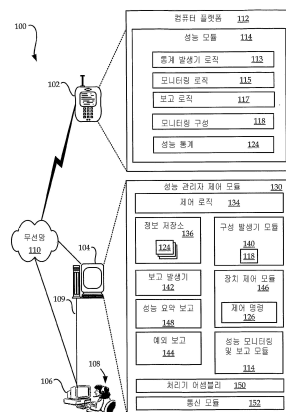
60/664, 669 2005 03 22 (US)

: 45

(54)

(57)

- 1



1

(performance) (monitor) :

(performance parameter)

(threshold setting) (variable

monitoring configuration) (performance

statistic) (limit) ;

;

;

(notification) ,

2

1 , ,

,

3

1 ,

(forward) ,

(reporting parameter)

,

4

1 ,

(type),

(identity),

,

5

1 ,

,

,

6

5 ,

(call drop)- (metric),

(access failure)- (service degradation)-

,

7

1 ,

(over-the-air)

(call event)

(retrieve)

,

.

8

1

,

,

(limited

service configuration)

-

(limited access)

(establish)

,

.

9

1

,

,

-

-

(forward)

,

10

9

,

-

,

(wireless device

identifying information),

,

(performance

statistic identifying information)

,

.

11

3

,

,

,

,

,

12

11

,

,

.

13

(machine)

,

:

,

,

,

;

;

;

,

-

14

,

15

16

logic),

(reporting logic)

17

16

18

16

(air interface statistic) - (non-air)

19

18

20

16

(over-the-air)

21

16

22

21

23

16

(access parameter)

24

16

25

24

(end-user)

26

16

control module) (control command) (parse) (device
(bootstrap) (reset)
(initiate)

27

:

(forward)

(performance report)

28

27 ,

,

29

27 ,

report) (summary

30

27 ,

31

30 ,

32

27 ,

33

27 ,

34

27 ,

(identity), (type),

35

(forward)

(performance report)

36

(forward)

(performance report)

37

(forward)

(performance report)

38

(configuration generator)

(information repository);

(report generator)

(performance manager control module)

39

38

(exception report)

40

38

,
41

38 ,

,
42

38 ,

(device control module) ,

43

42 ,

(user identification) (control activity) ,
(authorization)

(permission logic) ,

44

42 ,

45

38 ,

- , - , -

[0001]

(performance statistics) .

[0002]

(resource) , (configuration) ,
(open communication connection) ,

[0003]

, " " ,
(application programming interface, "API") . API

[0004]

[0005]

(monitor)
 (configurable) (threshold)
 / -
 (summary
 report)

[0006]

(performance
 parameter) (threshold setting) (monitoring configuration)
 (limit)
 ;
 ;
 (notification)

[0007]

(machine readable medium)

[0008]

;
 ;
 ;

[0009]

(performance module)

;
 (monitoring logic);
 (notification message) (reporting logic)

[0010]

;
 (forward) ;
 ;
 (performance report)

[0011]

-
 -

[0012]

;
 ;

[0013]

,
 (configuration generator) ,
 ;
 (information repository) ,
 ;
 (report generator)
 (performance manager control module) .

[0014]

, :
 1 ;
 2 1 ;
 3 1 ;
 4 1 ;
 5 1 ;
 6 1 ;
 7 1 .
 8 1 .

[0015]

1 (download performance monitoring configuration)
 (usage)
 (100) (100) - (124) ,
 (tally), , - ,
 , () , : ,
 , - (voice-call) ,
 , :
 , ,
 , , (functionality) ,
 (non-air) , /
 , (air)
 () , (call drop)- , - ,
 - .

[0016]

(100) (performance manager server) (104) (118)
 (100) ,
 (187) (2) (188) (2) ,
 (customer service representative) , (party) , (exception
 report) (144) , (144)
 ,
 - / - (100)
 (124) (148) ,
 ,

(Service Level Agreement, SLA)
(Average Revenue Per Unit, ARPU)

[0017]

(100) (110) (functionality)
(104) (114) (102) . ,
(104) , , / , (108)
, (customer care workstation) (106) . (108)
(109) (110) (104)
, , (106) , (102) .

[0018]

-
.
/
- / (, / (, / (,
/ / (/ , " (service degradation)"
(idle node)

[0019]

/ ,
(threshold condition)
(threshold value) . , , ,
, (operator) . , (acceptability)
(unacceptability) . ,
, / (range) . ,
(104) . /
, / ,
, ,
, /
, ,
, ,
.

[0020]

- , PCMTA , ,
, ,
.

[0021]

2 , (102) , (114)
(118) , (110)
(112) .

[0022]

(102) , (102), (personal digital
assistant), - , ,
- (remote-slave), - (end-user) (11
0) , (diagnostic tool) , (data relay)

[0023]

(102) (112) (182) (184)
(182) (102) , ,
, - , . (184)
, ,
(haptic feedback) .

- [0024] (112) (186) , - / - (RAM ROM, EPROM , (186) , , 2 3 . (186) .
- [0025] , (112) (198) , ("ASIC"), (198) (186) , (114) , ("API") (196) , API (196) (runtime environment) . Binary Runtime Environment for Wireless® (BREW®) .
- [0026] (198) , , (102) (110) (operability) (enable) (processing subsystems) (200) (200) , (initiate) , (198) : , - , , , (searcher), (layer) 1, 2, 3 , , , (vocoder), , (call manager), Bluetooth®, Bluetooth® LPS, (position) , (U), , , (SIM) (USIM, (USB), (MPEG) , (General Packet Radio Service, GPRS) (200) .
- [0027] , (200) (112) (component) , (200) (114) API (196) (read) (write) , API (114) / (221) (186) (performance log) (120) .
- [0028] , , (CDMA) , , , , , CDMA " (Over The Air, OTA) " , CDMA () (timer value) , (counter) , (probe) , , CDMA OTA () .
- [0029] (UMTS) , , OTA (114) (124) , , 2005 3 10 , . 050374, Fok , " . 11/078,235 .
- [0030] (112) , , (executable instruction) , , (102) (110) (202) , (chain) (component) , (entry) , / (exit) (component)/ (port)/ , (202) (hardwired) , (202) (104) (1) (124) (114) / (221) ,

(130) (1) (118) .
 [0031] (112) (114) , , ,
 (114) ,
 (110) , , ,
 (102) (static) (load) () (18
 6) (114) ,
 (104) (106) .

[0032] (114) .
 , (114) (124)
 (statistic generator logic) (113) (113)
 (118) (187) (124) ,
 (performance log) (120) (120)
 - / (124), (221), /
 (data repository) . ,
 (113) ,

[0033] , (124) API, , , OIA / OIA
 .
 , (118) (124) .
 (113) , (124)
 (124) (intermediate
 parameter)

[0034] (118) (187) (124) , /
 (identification) (120)
 (lifetime) , /
 , / (102)
 (186) / (118) ,
 (124) (104) .

[0035] , , (114) (124) , (118)
 (188) (monitoring logic) (115)
 , (118) (187) (track)
 (124) (188) (115)
 (124) (188) , (115)
 (187), (187), / /
 , (124) ,
 (221) (120) .

[0036] , (113) , (115)
 (124) (188) , /
 (118) (190) (), (115)
 , / -
 (exception report) (144) . , ,
 () : (wireless device identifying information);
 (exception data), / ,
 (identifier);

[0037] , , (114) (144), (120), /
 , (104) , (117) .
 , (190) , (117)
 (221), (124) / (144) (104) /
 (party) . (120) (104) (
 1) (148) (1) . , (18
 , (117) (115) (124) (18
 8) (144) (104) . , ,
 (190) , (221) / (124) ,
 (104)
 . , , ,
 (114) (120) (124) .
 [0038] , (118) (191) , , (124)
 , (186) . ,
 (104) (106) , .
 [0039] , / (102) (110)
 , (ongoing) " (piggybacking)"
 . (124) (SMS) /
 (HTTP) (104) . (104)
 (ad hoc) (110) (102)
 (124) " (pull)" .
 [0040] (114) (control command) (126) (14
 6) . (126) , (115) / (146)
 (parse) (action)
 (126) (114) (launch), (118) / , / -
 (activity) , (activity)
 . (146) 4 .
 [0041] , (126) / , (115) /
 (122) , , / (acknowledgment)
 (104) . (bootstrap
 command) (118) .
 [0042] , (102) , (104) (106)
 , (110) - .
 (192) (set up) , (124) (104)
 (118) , (114) (102)
 . , - . ,
 -
 (194) . (limited service
 configuration) (192) (110) , (serial connection)
 , (102) , (102) .
 [0043] 1 , (104) () , (102)
 , (200) , (152) (130)
 , (118) (114) ,
 (102) (110) . (104)
 , , , (processor
 assembly) (150)
 (format) (party) , / (102) (104)

(104)

[0044]

(104) (102) (124)

(130) (130) (120) / (124) /

(102) (221) (information

repository) (136) (136)

[0045]

(120) (130) (152) (221),

(124) (130)

(144) (106)

(report generator) (142) (144)

(102) (144) (

): ; /

(performance statistics identifier); / ;

(144) / (144)

(threshold exception) (104)

(108)

[0046]

(144) (142) (102)

(124) (148) (148)

(108) (142)

(ARPU) (SLA)

(148)

(148) (108)

[0047]

(144) (148) (108) /

(148) (152) (106)

(142) (108)

[0048]

(130) (108) (118) (114) (102)

(configuration generator module) (140)

(130) (134) (10)

8) (124) " (pull)" (124)

(102) " (push)"

[0049]

3 (140) (118)

(configuration generator module) (140) (140)

(usage configuration) (118)

(assemble) (configuration logic) (254)

CMA UMS (118)

(118) (254)

(256) (258)

- [0050] parameters (187) (2) (140) (configuration performance
(242) (108) (242) (114)
- / / (187) (124)
- [0051] (140) (188) (2)
(246)
/ (threshold condition)
- [0052] (140) (configuration reporting
parameter) (190) (2) (244)
(244) (interval) ,
(104) (106) (104)
- [0053] (254)
(250) (authorization
configuration) (118) (grouping)
- [0054] (256)
/ (258) (242)
(correlate) (254) (102)
(capability)
(118)
- [0055] (118) (254) ID(248)
(250)
(recall) (library) (254) /
(130) (118)
(tally)
- [0056] 4 (130) / (102) (134)
(102) (126) (126) (102)
(146) (102)
(126) (146) (version)
- [0057] (126) ("ID") (260) (control activity) (262)
ID(260) (126) (108)
ID(260) (name), (hash),
ID(260) (126)
(126) (origin) (262)
(102) (114) (126)
(114) (124)

- [0058] (126) , (146) (permission logic) (264)
 , (126) (authority) (ID) ,
 (action) (104) (118) (102) (verification) (265)
- [0059] (126) (264) ID(260)
 (126) (262) (parse) (permission) (268) ,
 (ID (272) ID (270) .
 , (265) / , (146)
 (permission decision) (266) , (126)
 .
- [0060] (268) ID(260) / ID (272)
 (262) . , ,
 . ID (270) , (268)
 ID (272) , (126) (108)
 ID(260) , ID (272) " (upload current
 statistics)" (262) (264) (268) ID (270)
 (108) (102)
 (disable) .
- [0061] , (130) - (non-limiting)
 / .
- [0062] , (100) , (106) (108) ,
 (144) / (104) (148) , ,
 . (144, 148) , - , (106)
 , (106)
 (104) .
- [0063] (100) , (108) (114) , , (10
 6) (102)
 (106) , (104) (106) (validate)
 (102) (connectivity) , (104) (slave)
 .
- [0064] 5 , (106) , , ,
 , , (102) (104) , (106)
 (238) (110) , (106) , (106)
 (104) , (102) (106) , (104) , (240)
 . , (102) , (110) .
- [0065] (106) (224) (220) , (222)
 (220) (222) (102)
 (182, 184) (108) (106)
 , (104) (102)
 .
- [0066] (224) (238) (228)
 (226) (106)
 (108) - , ID(260) (108) (22
 6) , (104) (102)

(106)

[0067]

(228) (GUI) (232), (220),
 (222) (230),
 (108) (gui de) . GUI (232) , - ,
 (234) (126)
 (130) (102)

[0068]

(110) , (102) (110)
 (enable) , (110)
 , (110) : (4) ;
 Medi aFLOTM , Forward Link Only(FLO
 ; DMB-S, DMB-C, DMB-T, DMG-H ,
 (di gital video broadcasting DVB) ; ("IrDA")-
 ; - ; BLUETOOTH® ; ZIGBEE® ; ("UMB")
 ; ("HnRF") ; ("SWP") ; (wireless
 Ethernet compatibility alliance)("VGA") , - ("WiFi Alliance") , 802.11 ,
 ; ; (public heterogeneous communications
 network); ;

[0069]

: ("CDMA"), ("WCDMA"),
 ("UMTS"), ("AMPS"), ("TDMA"), ("FDMA"),
 ("OFDMA"), ("GSM"), ("1X") ("RIT"),
 evolution data only("EV-DO") , general packet radio service("GPRS"), enhanced data GSM
 environment("EDGE"), ("HSDPA"),
 / ,
 / ,

[0070]

6 , (300) (102) (334)
 (330) (338) (300)
 , /
 (carrier) / (338)
 (102) ,

[0071]

(322) , (104) (330) (, LAN ,
 (102) (124) (324) ,
 (328) (104) - (post-processi ng) ,
 (104), (324) (328)
 (322)

[0072]

(104), / (328) , LAN WAN
 , (332) (334) (carrier network)(334)
 (mobile switching center, "MSC")(340) ()
 , (334) , / POIS(" (plain old telephone service)")
 , (336) MSC(340) , (336) ,
 , POIS , MSC(340) , /
 POIS , (342)
 ("BIS")(344) . BIS(344) ("SMS"),
 (102) ,

[0073]

7 , (exception on data)
 (102) (108) , (274)
 (114) , (118)

[0074]

, (114) (102) (13

0) (102) " (push)" (102) (130)
 (110) " (pull)" (102) (114) (pushing) (pulling)
 , : .

[0075] (102) (114) ,
 (118) , (118) (104)
 , (104) (130) (140)
 (118) , (130) (152)
 (118) (108) (102)

[0076] (140) (254) (118)
 / (customize) , (102) / / ,
 , (tally) .

[0077] (108) , (134) , (276) ,
 (126) , (186) (114) (launch)
 , / SMS
 (automated call back, ACB) ,

[0078] (278) , (122) ,
 / , (122)
 , (126) (source) .
 , (122) (264)
 (126) ID(260) / (262)
 , (permission decision) (266) , (122)
 (104) (146) (126) /
 , (126) , (280) ,
 (114) , HTTP , (104) (110)

[0079] (282) , (114) , (104)
 , (118) , (118)
 (102) , (102) (102)

[0080] , (118) : (124)
 (187);
 (188); (124) (104)
 (190); (102) (191)
 (2) , (118) , (acknowledgment)
 (104) (284) (118)

[0081] (286) , (114) (background process) , (118)
 (221) (124)
 (114) (124) ,
 (188)

[0082] (124) (188) ,
 (114) , (288) , (202) / (192) , (104)
 , HTTP, HTTPS, FTP,
 (290) , (117) (124), (118), (221)
 (102) , (114) (notification)
 , (104) , (117) ,

(202) , (102) , ():
 (wireless identifying information), , ID(wireless ID) (272); /
 ; / ; (144) /

[0083] (292) , (104) (124), (221), / (144)
 (102), (136)
 , (152) - ,
 (130) (136)

[0084] (294) , (142) (124), (221) /
 (144) , (144) /
 (130) , (296) , ,
 (144) (144) , (108)
 , (144) (104) (10
 8) (104)

[0085] 7 , 8 (102) (124)
 (104) (100) ,
 /
 , (104)
 (108) (124) (148)

[0086] , (274, 276, 278, 280) 7 , (282) (118) ,
 (122) (parse) , (298) , (114)
 , (104) (190)
 , HTTP, HTTPS, FTP,
 , (300) , (124), (221), (118), (102)
 (102)
 (104) 7 , ()
): , ID(272); /
 ; / ; (144) /
 (124) ((302)), ,
 (122) (120) (124)

[0087] (304) , (104) (136)
 (130) (142) (108) ,
 (148) , , (148)
 (108)

[0088] (130) (148) , (130)
 (table) , (nap) , (graphic view) , ,
 , (102)
 (view)
 (130) , (306) , (148)
 , / , HTTP, HTTPS, FTP,

[0089] , (104) , ,
 (130) , (130) (11
 0) (124) , (124) (102)
 , (130) (102)

(130)

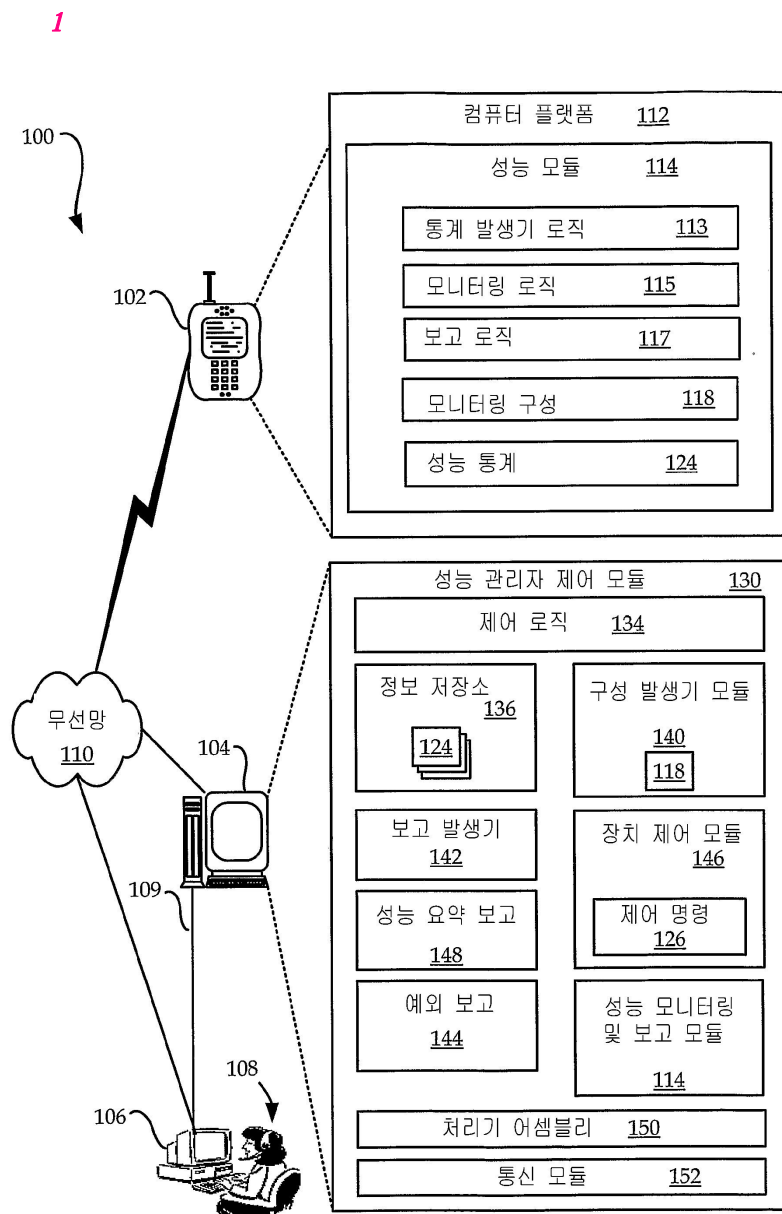
[0090] (148) HIGH ARPU (out age)
(124) (136)

[0091] (usage) ()

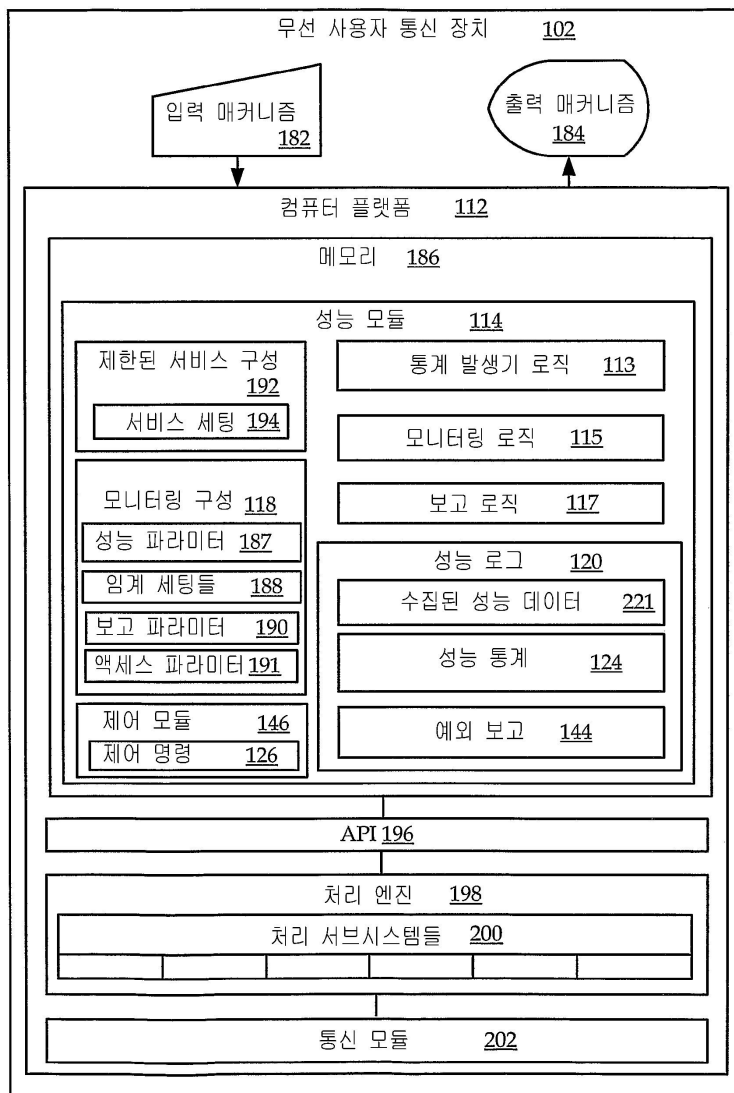
[0092] (DSP), (ASIC), (FPGA)
DSP

[0093] RAM
ROM, EPROM, EEPROM, CD-ROM
ASIC

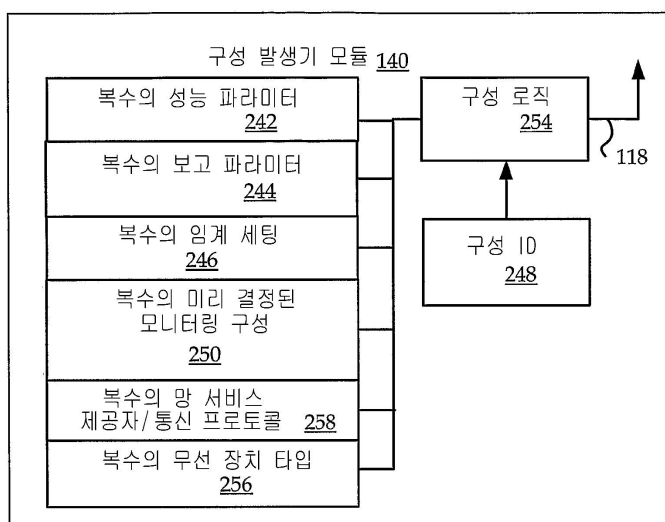
[0094] /



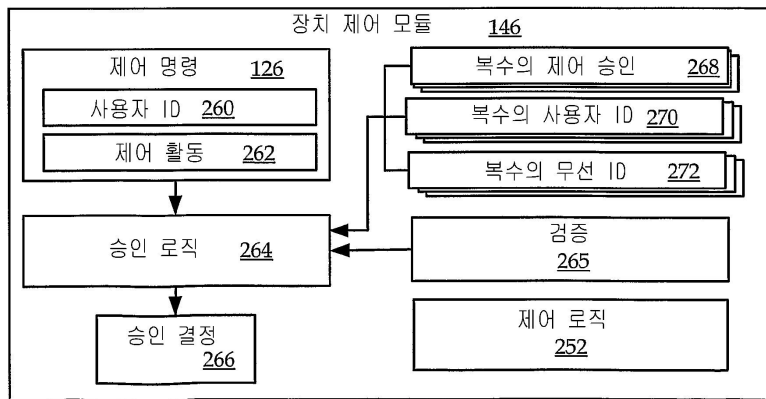
2



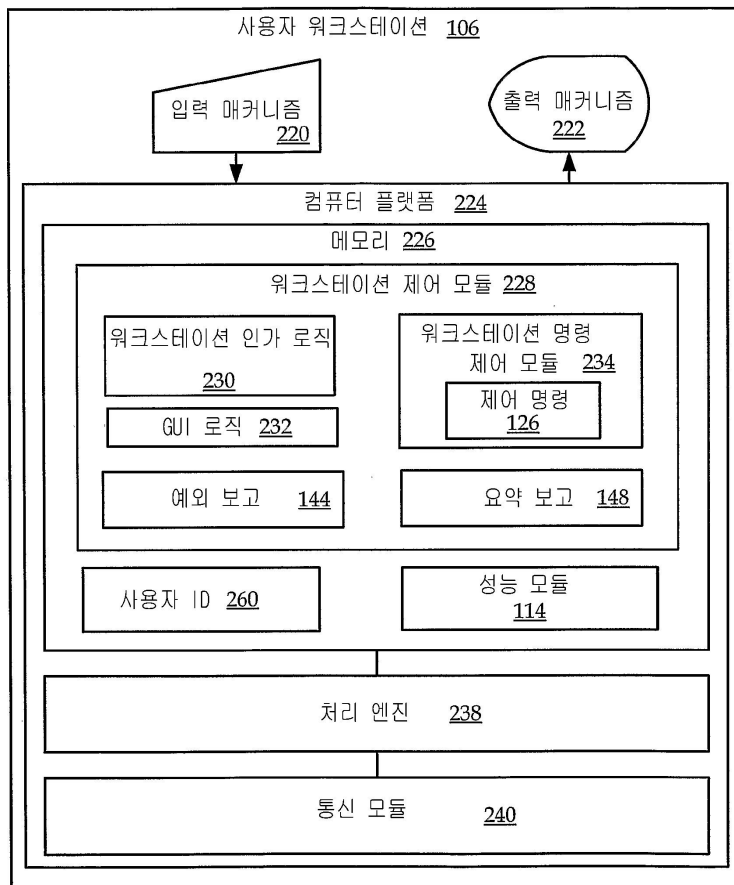
3



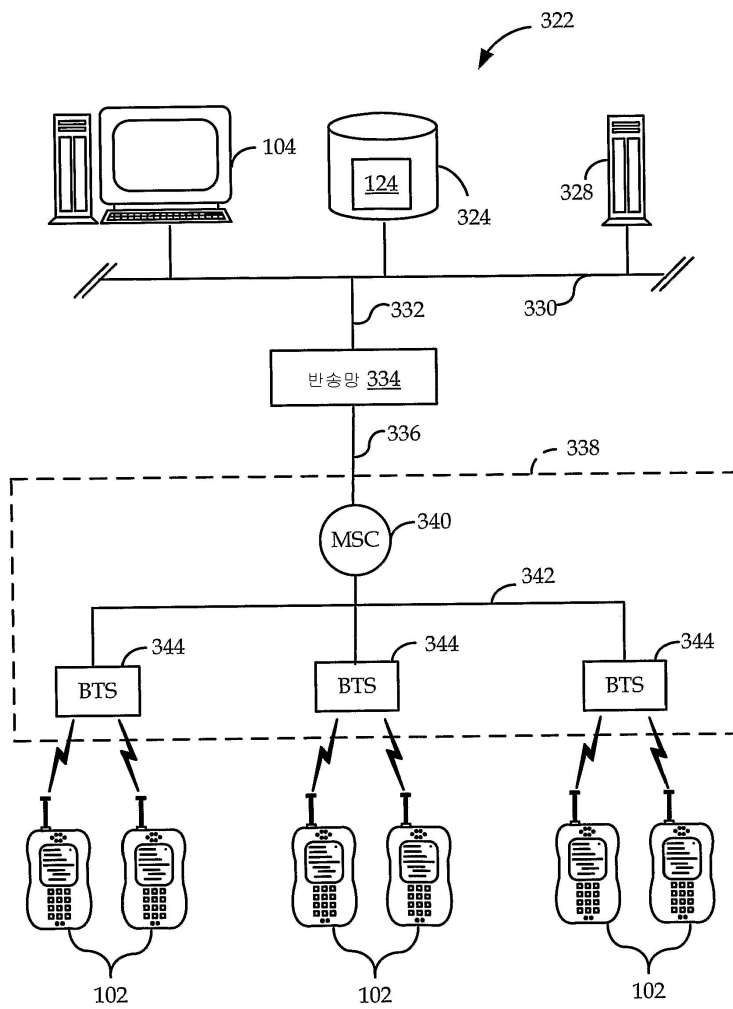
4



5



6



7



사용자 워크스테이션

106



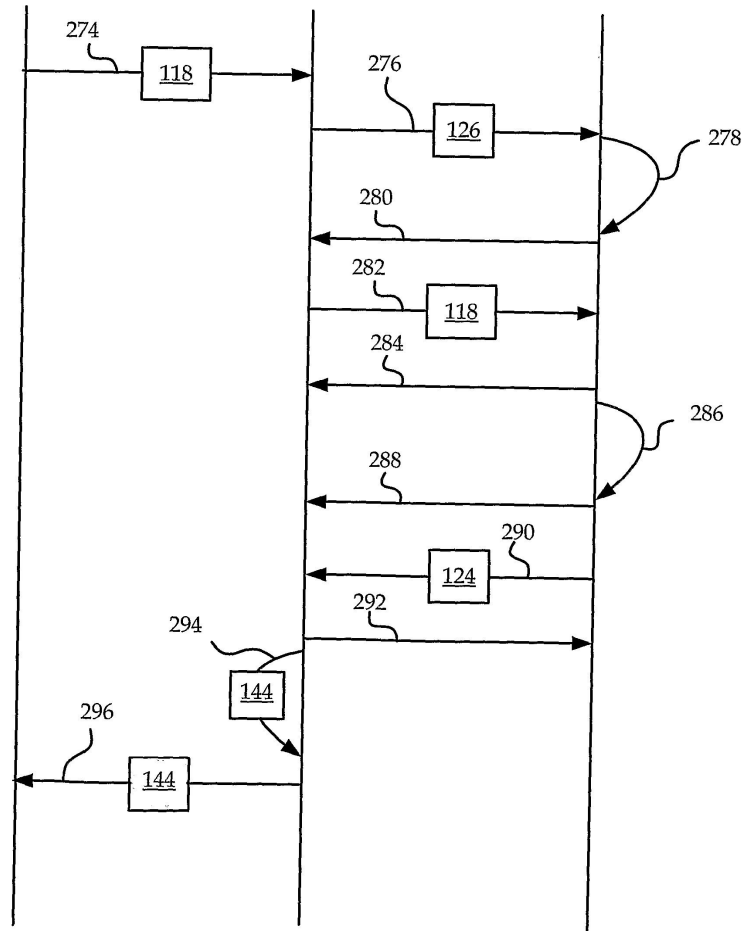
성능 모니터링 관리자 서버

104



무선장치

102



8



사용자 워크스테이션
106



성능 모니터링 관리자 서버
104



무선장치
102

