

2002 - 0004931
2002 01 16

WO 2000/21232
2000 04 13

:

(54)

(10) I/O (27)
 (12) , CML
 CML()
 (11) . (10)
 CML (15)
 (11) (23)
 (23) CML
 (19) . (13)
 (13) GUI CUI()
 (13a) , 가
 (13b) HTML (11) CML

1

1998 10 2 가 60/102,957 1999 1 27
 60/117,595 .
 , (networking infrastru
 cture)
)
 (HTTP) GUI()

IVR() . IVR
 , IVR
 (IVR)
 IVR HW(
)
 (staff) IVR
) , IVR (가) HW(
 SW()

IVR GUI DTMF 가 , IVR /
 가 , IVR
 (, GSM)
 IP(VoIP) 가 , 가

(
,
UI
(, GUI) 가 가 UI
I (, GUI HTML) 가 GU
(/) 가 IT
가 ,
GUI HTML , IVR
/

osk) 가 , PC, NC, (ki
(IVR)
가가
/ GUI " " 가 가
,

, HTTP(가 WWW(" ")(, HTTP
())
(" ") HTTP HTML(
) HTTP

(LiveWire) JDBC() 가
가 JVM(가) (,)
(
, CGI()
(plug - in)
(argument)
. CGI
RMI(), , RPC()
, XML(가) 가

PC , IVR , IVR ,
ATM
PC
PC
PC
IVR

가 : ,

-
-
-
-
-
-

IVR, 가 :

- a. " , 1 " ;
- b. " , 2 " ;
- c. " , 3 " ;
- d. " , 4 " ;
- e. " , 5 " ;
- f. " , 7 " .

IVR 가 DTMF 가 , , : , , DTMF

- a. "가", 1";
- b. ", 2";
- c. ", , 3"

가 . IVR () (DTMF)

SSN , 가 ,
 , 가 .
 , IVR .
 , IVR 가 가
 , 가 , 가 가
 IVR , 가 가
 IVR 가
 IVR , 가
 IVR .
 , TCP/IP, HTTP() WAP(
 , HTTP , GUI(
) 가 ()
 , 가 HTTP
 (IVR) , () DTMF
 가 , IVR , HTTP HTTP
 / , HTML
 HTTP HTTP ,
) , 가 (()
) , API ()
 ,
 IVR , GUI
 HTTP SW
 , IVR HTTP GUI PC ,
 (HTTP) (switched packed)
 ,
 가 WWW
 . HTML
 HTTP . WWW

(, PC) ,
가 , ,

, XML (CML) . CML
가 , CML
 . HTML , CML

CML / HTTP . CML
UI , CML XML
< page> , < body> , < menu> < form>
 , (XML) CML
 . (body)
 , 가
 , 가
 가 URL
 URL .

HTML
(HTML) 가 . HTML

GUI) , GUI CUI(/
() 가
HTML CML
 ,

, HTML/GUI GUI
 ,
(GUI)
 , 가 , , / ,
 , () ,
 / ,

1
2
3
4a
4b
5
6
7
8
9
10

CML() CML HTML()
GUI
, HTML GUI
CML
, CML CML UI
() XML(가)

, RAM, ROM, CD ROM /)
PDA 가

1, (10) 가 HTTP (,
DTMF, ,)
 , HTTP
 , TCP/IP, WAP(), GSM, VoIP
IP TCP/IP
 , TCP/IP가 가 , TCP/IP
()

1 , (10) CVM(가) (15)
(11)() (11) HTML
DB2 () ()
CML() (11) . CML
UI , CML , HTML
CML / (14) (meta) . CML
가 가 , CML XML(
가)
. XML ,

(11) , DTMF () HTTP
(navigation request) / (12)()
(11)

가 , (11) ()
CVM(15) API , CML (CML / (14)) ,
(11) (CVM(15)) TTS(-)
(26) (hook) , (,) ,
(11) (24) NLU() (25)
, / 가 , HTTP . CVM (15)
OS() RTOS() (shell) . CVM (15)

Conversational Computing Via Conversational Virtual Machine"
9 - 111P

IBM Docket No. YO99

1 , CVM (15) API (16) ,
(11)가 (23) () CV
M (17) . CVM (17) (/)
, CUI()
(/) . CVM (15)
, (23), (24), NLU() (25), TTS

() (26) (NLG() ,) (SAPI, S
 RAPI, JSAPI, SVAPI API (18)
 , (, ,
) (33) ((28), (29), , /
 (31) DTMF(32)) I/O /API (22)

CVM (15) TCP/IP, HTTP, WAP (20)
 (19) . (19) (21)(
) IBM Docket No. YO999 - 111P ,
 () (21) (1) (,)
 ; (2) () ; (
 3) (/ , (peer - to - peer))
 ; (4) , , X , 가
 ; (5) ()
 (21)

" System and Method For Providing Network Coordinated Co
 nversational Services" IBM Docket No. YO999 - 113P .

1 (23) I/O (27), /API(22) (33)
 (11) CVM (15) , , , (11)
 (11) CVM (15) , , , (11)
 CVM (15) (CVM
 , CVM (15) , 가 API
 (11)가 CVM (15) (, , ,
 /). , API, , , ,
 (11)
) JVM (JVM(가
) JVM) . ,
 /

(13) 1 (11) , , () ,
 , (13) , , , ,
 . (13) , HTML () CML
 (13a) . ,
 (13)
 (13b) /

" Structure Skeletons For Efficient Voice Navigation Through Generic Hierarchical Objects"
 IBM Docket No. Y099 - 114 .

(35) HTML CML ATM (3270
 (HTML CGI) HTML ATM IVR
)가
 CML H
 TML (CML
 (fly) HTML
 가 CML
 HTML CML
 (intonation) JSAPI TTS e - /
 TTS
 :

1. HTML 가 , 가
 () 가

2. HTML 가 가 가 / ,
 HTML 가
 (GUI
) CUI(IBM Docket No.
) (CUI CVM (가
 YO999 - 111P GUI)
 1999 4 7
 " Multi - Modal Shell" 가 60/128,081
 GUI() 가
 (X)가 / GUI ()
)

3. HTML , " 4 : 1 ..
 ..."
 . HTML CML 가
 ,

4. HTML JSAPI () TTS

5. HTML FSG() 가 ,
 가() 가
 (,) 가 ,
 NLU /

6. . ,
7. () .
8. , < ! CML > ,
9. 가 .
10. NLU . , , (),
가 NLU URL NLU HTML
CML NLU URL HTML CML
() .
11. GUI 가 (, .
(11) 가 , ()
TTS " 가 (barge - in)"
/
CML (C
ML) :
1. ;
2. 가 (, , ,
) ;
3. , /
URL, URL, TTS URL / NLU URL
가 () , URL
(ISP ASP)
;
;
4. URL(, IVR);
5. ;
6. DTMF , DTMF ;

7. 가 TTS (JSAPI);

8. (, , X). () 가 CVM (, CVM)가 , 가 , .

9. (, ,) . , , 가 . , (가 GUI) 가 (,) , ;

10. (,) / URL; /

11. 가 (, ,) IBM Docket No. YO999 - 111P) CVM / (.

< ! CML url=... > 가 (, HTML) , (,) CML () . URL (가 CVM HTTP) . CVM , 가 CVM 가 , 가 .

, < ! CML ... > HTML XML CML CML . CML .

CVM / (, IVR) , . ML (cookie) , / . , / 가 .

HTML (HTML 가)

2 , (100) (102) (104)(, PSTN())
 가 IVR(101)() . IVR(101) (104) (105)
 , IVR(101) () 가 . IVR(101)
 , ATM (10)
 (103) IVR(101)
 PC (104) , LAN, (105)
 , IVR(101) ATM (HTML, CML) HTTP

IVR(101) CVM(106a) (106) CVM(106a) 1 (106)
 2 (106) CVM (11) CVM(15)
 100) () CVM) . IVR ()
 (107) . IVR(101) DTMF (108) (109)(, N
 LU, TTS)

(102)가 IVR(101) , DTMF (107)
 (109)(,) DTMF (108)
 /DTMF (106) (105) (106)
 (104) (105) (, HT
 TP) (105) ()
 / (TCP/IP) HTML(), CML,
 (가 (105)) . , HTML(
) CML / (14)) CML
 ((13)) , (105) CML
 () (106)
 (CVM(106a)) , (104)

(HTTP) (105)
 (106) IP 가 가) . (107)
 , (IBM Docket No. YO999 - 113P)
 (104) ((106))
 (YO999 - 111P YO999 - 113P
) CVM(106a) . CVM , /
 HTTP VoIP , TCP/IP

, WAP, (Bluetooth), . 가
 , () , ()
 API , (YO999 - 111P YO999 - 113P) , R
 PC, RMI .

2 IVR 가 . , IVR
 " " (,
 IVR). , IVR
 , IVR (, TTS ,
) , , IVR
 . 가 , /
 , IVR 가 , (,)
 (NT) (farm)
 가 .

2 , , , DTMF
 IVR(101) 가 . CVM(106a) ,
 IVR () CVM IVR(101) ,
 (106) .

(106) IVR(101) "
 (all - time)" , IVR
 , 가 HTTP SW
 , IVR HTTP
 , / , 가 .

3 , (106) . IVR
 (2) , HTML ,
 HTTP (105) HTTP (105) IVR
 , 3 WWW
 .

3 , (106)(CVM(106a)) PC(60)
 (61)(, , ,

2) PC(60)(40)(PC(60)(106)(10
(RAS)(70)(ISP))
PC(60)(L)IP /
(106) PC(60), WWW
(106), HTTP
(106) PC(60)
(62)()

0)(, GSM) (106) CPU (8
() DSP (80) () WAP
() CPU)
, DSP , (, CVM(106a)) (preloa
d) . , 가
가 . , A/D 가
YO999 - 113P) (IBM Docket No.
pstrum coefficient) . 가 (ce

(106)

(, 2 (107))

ascii

(, NLU , TTS) 가 ,

(, PDA) , CVM

IBM Docket No. YO999 - 111P YO999 - 113P

TTS, NLU

본 발명의 실시예에 따르면, HTML)가 (

4a 4b

4a IVR

4a

()

P/IP, HTTP) GUI (300) (302a)

PC(302)가 GUI (302) PSTN

TCP/IP , ISDN

(PC)

PC(302)가 IP (303)

(301)(, ,) IVR /PC(302) (30
 2a) (303) (303a) IVR .
 , , (301), PC/IVR (302) (303)가
 (303a)
 (304) , (304)
 (304a) , PC/IVR (302)
 (303, 304) TCP/IP, HTTP, API(CVM)
 (309) ()
 (308) (302a, 303a / 304a) (309)

HTML , (302a, 303a, 304a)가 가
 CML
 (305a) (305)
 (305a) (302a, 303a / 304a)가
 () , HTML
 4a , HTML HTML SQL
 API (307) (306) /
 XML (306 305/305a) Y0999 - 114

4a HTML CML 가 CML
 . CML
 (, HTML)
 . (, HTML WML())
 () , (HTML Vor HTML)
 , CML
 , ()
) CML 가 , / , ()
) 가 .

4b , IVR
 . 4b 4b가 3
 () (4a) . 3
 HTML / (310)(
 1), (311) (, LA
 N ()
 3 (312, 313) . GU
 I(312) (IVR)(315) 3270 (3270 CISC
 , ascii ATM
 HTML (HTML CGI) ATM (

3270) (CT(100),) ,
가
1 , (305) (305a) CML .
IBM Docket No. YO999 - 114P .
, API (,)
HTML 3270) . ,
HTML ,
, HTML .
, HTML XML/HTTP
(,) , GUI GUI 가 .
CML
CML()
. " " /
. " " , CML , GU
I HTML
, HTML GUI - CML .
, CML
(, CGI) , HTML 가) 가 (CVM X)
/ .
, 5 , CML 가
(500) (500) , PC, PDA, (501)
(dumb)" (" " , , "
가) (500) (501)
CML (500) " (502)
, GPS()
, OS ,
CVM , (,)
. (500) UI (500)
, (500) CML (, HTTP, TCP/IP)
(503)(,) (S1, S2, S3) . ,

(500) , HTML CML (500)
 HTML (S1) ,
 CGI (, e -)
 (S2) CML , HTTP
 CML (500) CGI
 (S3) ,
 CML .

: CML 가
 ISP, ASP() HTML CML
 , 가 e - CML
 , , e - , CML
 , 가 CML 가
 (topic) CML (,
 , ,)
 (,) . 5 , 가 , 가 (CML)
 . CML UI . TTS
 , , (CML
)
 , (, IBM) , 1999 9
 가 Proc. Eurospeech 1999 K. A. Kishore " Free - flow dialog Managem
 ent Using Forms" 1999 9 가 Proc. Eurospeech 99
 Davies " The IBM Conversational Telephony System For Financial Applications"
 NL " JSAPI()
 TTS" .

CGI
 (501)
 (HTML CML) URL n - uples
 . URL , (,)
 .
 IVR API (, CML
)
 API(JSAPI) API
 가 API(SAPI, JSAPI)
 /
 Docket No. YO999 - 111P) , API CVM (IBM
 API 가 , API CVM
 . 가 , XML
 . (,)

) , () .

, CML

, HTML

. 가 API , CML
CML ,

가

. , , ,

/ , 가

, C

ML (HTML)

, 가 API . W
WW GUI CML 가 .

6

CML

. (600), (601), (602), (60
3) (604) (600) , (newswire
feed) / WWW (600)
" " API(, DB API, SQ
L) (, XML) .

(601) API (600)
(601) " "

(600)

" (" " " " . "

L(() CML
, HTML , CGI WAP() GUI, API HTML, HDM
(601)
CML (604) UI (601) CML

(602)

(602)

(, (603)) : 가
(601) 가 ()
. HTTP, XML, VoIP

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(604) (602)
(602) (604)

, 7 , CML .

, (604) / (605) (606)
 , (606) (607)(,)
 PDA() PVA()
 (600), (601) () (602) CML
 (,) (601), (602) (603)
 가 (602)가 가
 HTML GUI (608) (604) (607)

, 8 , (606)가 GUI
 (606) (609), (605), , GUI
 GUI (604a) , (60
 1) (606) HTML CML , HTML
 CML , GUI
 HTML ()
 . GUI UI 1999 4 7
 " Multi - Modal Shell" 가 60/128,
 081 .

, 9 ,
 (604) (607)(,)
 (606)(PC) (610)
 (LAN, , DSL)
 " (610) (604)

10 ,
 9 , (604)
 , (604)
 (611) (601), (602)((603)), (604)
 (610)
 , (604)

: CML

CML 가 (XML) . XML HTML CML
 HTML - . XML HTML W3C
 ML , XML HT
 . CML XML CML HTML HTML
 (GUI) JSML(Java Synthes

is Markup Language), XML CML CML
 . XML CML (programming
 tool) CML (authoring tool)

XML . XML

< tagattr1= " val2"attr2= " val2" >arbitrary text< tag> .

XML XML (CML) (,
 ,) .

, CML JAVA " "

, CML NLU
 HTTP

, CML()

IBM Doc

, HTTP
 ket Nos. YO999 - 111P YO999 - 113P

, CML 1 CML < page> , <
 ; body> , < menu> < form> , " " CML
 CML . < body>

. < menu>

가

CML URL
 (a piece of information)

. < form>

(grammar)

. < form>

가

URL

"

" (

CML

)

()

. CML

CML

, < body>

, < menu>

가

CML

()

: < page> CML (< body> , <
 menu> < form>) CML

< page ttl = " seconds" > (, /) < /page>

(ttl)(" time - to - live") CML 가 , 0
. < page>) CML (, ,)
. < page> . (< page>
) 1 .
(foundation classes) . 가 CML .
가 , (cookie) / /API .

: < menu> 가 HT
ML CML , < menu> 가
URL . 가
< menu>

< choice target =" URL1">prompt text 1< /choice>
< choice target =" URL2">prompt text 2< /choice>
< /menu>

< menu> 가 , () < choice>
. < menu> < menu> 가
. 가 < menu> , < menu>
가 .

< choice> 가 가 URL .

< choice target = " target" >prompt text< /choice>

URL(HTTP, , FTP : (:)
URLs URLs) URL (URL #) .
, (, # URL)
(string) . URL 1
. URL .

, " " (IP ID) . ,
IBM Docket No. YO999 - 111P YO999 - 113P
IP . , 가 가

< choice target = " target" Protocol = " protocolidentifier" > < /choice>

CVM OS 가 CVM 가
 가 CVM(IBM Docket No. YO999 - 111P)
 가 URL(- 가
) 가 가
 가 (,
)(IBM Docket No. YO999 - 113P).
 ()
 " " " "

< choice> " " < menu> 가 . < c
 hoice> < menu> 가
 가 < choice>
 가
 (" " , " 가 " " ")
 가

< menu>

< choice target = "file:e - mail"> E - mail.< /choice>

< choice target = "file:news"> News.< /choice>

< choice target = "file:nav"> Navigation.< /choice>

< choice target = "file:mcform"> Food Ordering.< /choice>

< choice target = "file:weather"> Weather information.< /choice>

< choice target = "file:tutorial"> Tutorial.< /choice>

< /menu>

가
 가 " E - mail. News, Navigation, Food Ordering. Weather
 information. Tutorial. " 가
 , () (). 가
 " " 가
 , 가 " " " "

```

가 , ( , URL CML
) , URL,
URL, /
URL " : "
" "
.
, < menu> < menu>
. < choice>
( < menu> < c
hoice> " 가 "
.
: < body> 가
< body name = " name" next = " target" >text< /body>
< body> 가 , 가
. JSML CML< body> (가 , ) HTML
가 GUI (
가 ) , < body> 가
Java Synthesis Markup Language(JSML)
.
< body>Text to be spoken, marked up using<EMP>JSML< /EMP> < /body>
< body> " " CML (가 < men
u> < form> ) ( URL) <
body> JSML " "
< body next = " #menu1" >
< JSML>
< EMP> < /EMP> IBM
.
< /JSML>
< body>
JSML " " " "
가 " menu1" URL(
) .

```

, CML , < body> < menu>
 (static information) . HTML , C
 ML . , 가 , , ,
 가 가 . 가 ,
 on - the - fly" . (servle
 t) CGI(Common Gate Interface) . 가
 on - the - fly (가
 가 IBM Docket No. YO999 - 114 :).

< form> CML .
 : < form> . < form>
 , , .

< form action = " URL" >

< field name = "name1" rule ="JSGF" >prompt text1< /field>

< field name = "name2" rule ="JSGF" >prompt text2< /field>

...

< /form>

< form> URL . < field> HTML
 가 . (. &
)
 It; form> 가 , ()가
 < field> . < form>
 < form> . < field>
 .

< field name = " name" rule = " ruleName" value = " value" >prompt text< /field>

(< field>)
 가 ,
 가 .
 , 가 (가 Java Speech Grammar
 Format(JSGF) .)

, NLU . , HTTP GET (,
 가) , CML
 (legal value) (,
 " " .
 JSGF) .

< form action = " HTTP://localhost:8080/servlet/McServlet/" >

< field name = " sandwich" rule = " mcgrammar.sandwich" >Sandwich is ?< /field>

< field name = " drink" rule = " mcgrammar.drink" >Drink is ?< /field>

< form>

" 가 가?" . " " . " "
 " JSGF " <mcgrammar.sandwich>가 JSGF " mcgrammar"

JSGF " mcgrammar" ,

mcgrammar;

< > = ;

< > = ; .

" " " " " "
 mixed initiative)" . 가 " "
 가 , 가
 가 .

CML HTML , CML HTML
 : 가 , =
 URL 가 URL HTTP . URL
 CGI - ,
 = .

HTTM 가

(, ,)
CML 가 . , ,

: 가 가 " " (NLU)

가 . " "

CML 가 "

" , () 가 가
. CML 가 가
가 < menu> < form> ,
" " ,

가 " : " , : 가 " ,"
가 " / " 가 " , 가 " 2 ,
; 1, 2
" 가 " , 1 가 " , 2 가 " ,"
가 " , 가 " / " 가 " ,
가 " 가? " , " 가 " , 가 " ,"
I B M " , I B M " / " I B M "

2 1 (" ") , (prompt
text)(" e - (E - mail)" , " (stock quote)") < choice> CM
L (" (stock quotations)") (")
가") < field> < form> (")
, < menu> < form> < choice> < field>
가 .

. , 가

(, ,)
(,)
(, go to)

CVM

(Javascript)

(ECMAScript) < script> ...< /script>

CML

< object> ...< /object>

가 , " " (가)
 t; < form> . , , < menu&g
 가 " e - " " " " , " ,
 " 가 . " " , " " e - " " " ,
 " 가 가 , " " ,
 " . 가 가 .

" " . 가 ,
 가 가 가 (URL),

< page>

< body text=" #new2menu" >

New message 2 form Steve about Pay raise.

Bruce,

We've decided to give you a 250% pay increase this year.

Don't spend it all in one place.

Steve

< /body>

< menu name=" new2menu'>

Choose from the message menu

< Choice target=" #new3" > Next message.< /choice>

< Choice target=" #new2forward" > Forward message.< /choice>

< /menu>

< /page>

URL
, < body> " " 가 " new2menu" 1 가
가 가 가 가
" " 가
가 CVM
IBM Docket No. Y099 - 114
CML
" " " (mixed initiative)"
가 — , 가 가 — , 가
— , 가
/ CML 가 CML

(Scope): CML 가 < menu> < form>
" " < menu> < form>

< menu name=" name" scope=" scope" > title text, choices < /menu>

< form name=" name" action=" target" scope=" scope" > title text, fields< /form>

"

(Local): 가

(Page): 가, ()

(Global): ,

(Application specific): (, (meta - inform
ation tag))

가
가 가 가

< page name=" new2" >

< body next=" #new2menu" >

New message 2 from Steve about Pay raise.

Bruce,

We've decided to give you a 250% pay increase this year.

Don't spend it all in one place.

Steve

< /body>

< menu name=" new2menu" scope=" page" >

Choose form the message menu.

< choice trget=" #new3> Next message.< /choice>

< choice target=" #new2forward" > Forward message.< /choice>

< /menu>

가 " " , 가 e

-

, " "

, 가 ,

, " " e -

가 , () CML . CML

(multiple) . (CML) Kishore, et al, " Free

- Flow Dialog Management Using Forms," Proc. Eurospeech 1999, Budapest Hungary, September 1999

Davies et. al., " The IBM Conversational Telephony System For Financial Applications, Proc. Eurospeech 99, Budapest Hungary, September 1999

()

NL NL
가 , (,
) 가 가 .
.

< menu name=mainnl scope=global>

Introduction dialog

< form name=form1 scope=multiple> ...< /form>

< form name=form2 scope=multiple> ...< /form>

< form name=form3 scope=multiple> ...< /form>

...

< /menu>

, 가 .

< menu name=mainnl scope=global> (we " update" the global menu)

< form name=form1 scope=multiple context=maintain> ...< /form>

< form name=form2 scope=multiple context=reset> ...< /form>

< form name=form3 scope=deactivated context=reset> ...< /form>

< form name=formnew scope=multiple context=reset> ...< /form>

...

< /menu>

, .

< form name...scope...load=target> < /form>

가 , < form> < /form> .
 , 가 ,
().

" (context)" (history)
" " ()
" " ,
" " ,

cope =1 minute or scope = the name of a scope

scope = 5s or s

< scope name = scope1 status = active> < /scope>

가

가

< form name=form3 scope=multiple context=reset load=target> < /form>

< Dialog Object>

< applet...>

< /applet>

< /Dialog object>

, (), (), (CVM 가 , VM 가 CVM , C ML NL , CML () NL , (,) 가 , XML : CML (markup language) 가 CML () ([be] quiet), (shut up): 가 (barge - in)" , 가 , 가 " 가 (say again), (repeat that): 가 가 (,)

(go back): 가 (history list) 가 .

(go forward): 가 ("
").

(go to the beginning): 가 (,)

(optional words) . " (ple
ase)" 가 .

(MRU : most - recently - used) (queue) () 가 .
, (가 (attention phrase),
)
MRU , MRU

1. , .

2. , ,
.

3. , .

가 CVD , IBM Docket No. YO999 - 111P

, CVM

, CML 가
가 , 가 , (가) CVM, OS

(Plugins): . < choice>

< form> URL , 가 가

local : service/function,

local : service/function?arg1=value1,arg2=value2...

가 < choice> < field> 가
< form> 가 URL < choice>

, : URL ,

. 가 ()

. : URL URL CML . URL 가 URL URL (servlets/cgi) (, RPC) , /

. (thread) , API (: URL) URL 가 , (가 , 가 URL 가 가 , API , 가 URL 가 . , 가 URL CML , : [public class Service{public void visit(URL url, Dictionary parameters) throws IOException;}] .

(Registration mechanism): (, CPU) , 가 (cookie) , Speech_Reco=1;Speaker_Reco=0; TTS=1; Dialog_Manager=0, NLU=0; Speech_Reco. Vocabulary_Size=500; Speech_Reco.FSG=1 CM L (, 가, 가 50 , CML (,)

IBM Docket Nos YO999 - 111P YO999 - 113P , 가 , HTTP RPC, RMI . (procedural) , 가 . CVM , 가 , IC 가 , (ID, ID, (, ,) (speech biometrics))가 () .

가 . 1) CML . 2) CML . 3) CML
(IBM Docket No. YO999 - 113P)

(Dynamic deactivation): CML . , "
" CML
(markup) , (vocabulary)가
: (< Global> < /Global>)가
(priority) CML ;
가
(utterance) 가 가
가 , 1996 ,
4 29 - 5 1 NIST DARPA MITAGS, MD LVCSR Hub5 Workshop"
가 (, 3
(triphone) , (phonemes/lefemes) , (acous
tic score)(, (speech non - speech), (,
가, 가 , 3 (trigra
m), (3) (, , ,
, , , SNR) (leaves)
1993 Breiman " Classification and regress
ion trees" Chapman & Hal, 1993
(leave) . C. Neti, S.Roukos and E.Eide entit
led " Word based condidence measures as a guide for stack search in speech recognition" ICASSP97, Munic
h, Germany, April, 1997 IBM (score)
LVCSR , (predictor) 가
(,)
NBEST 가 ()
(rewind) (reload)
가
가 . IBM ViaVoice VoiceCenter(
)

(Capability - based frames): 가 , CML [HTML cfr< fr
ame> and < /frame>]

(Forms with minimum requirement): 가 (FSG,
) () (form)
, 2 . ,) (,
) : < Global> ,)
URL (applet),)
/ .
(YO999 - 113P /
)

FSG,

.

(MULTI - MODEL BROWSER)

. (tag) , HTML CML (< GUI>) , (< M - M>)
 , GUI 가

.

.

< GUI>

.....

< /GUI>

< Speech+GUI+M - M>

.....

< /Speech+GUI+M - M>

< GUI+M - M>

< img = ...>

< GUI+M - M>

< Speech>

.....

< GUI>

.....

< /GUI>

< M - M>

.....

< /M - M>

< M - M+Speech>

.....

(57)

1.

CML(

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CM

L

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CML

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CML

2.

1

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3.

1

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가

(CVM)

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CVM

CVM

4.

3

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5.

3

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, CVM

6.

1

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CML

7.

6 , TCP/IP(/), HTTP(), WAP(), VoIP() .

8.

1 , CML .

9.

8 , .

10.

8 , , , , .

11.

8 , CML .

12.

1 , CML , (1) CML ; (2) ; (3) CML ; (4) ; (5) .

13.

12 , URL(uniform resource locator) .

14.

, ; ; , CML() CML ;

CML ;

CML CML

15.

14 , CML ;

CML

16.

14 , ;

CML

17.

16 ,

18.

14 , CML

19.

가 , 가 ,

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, CML()
CML

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CML ;

CML CML

20.

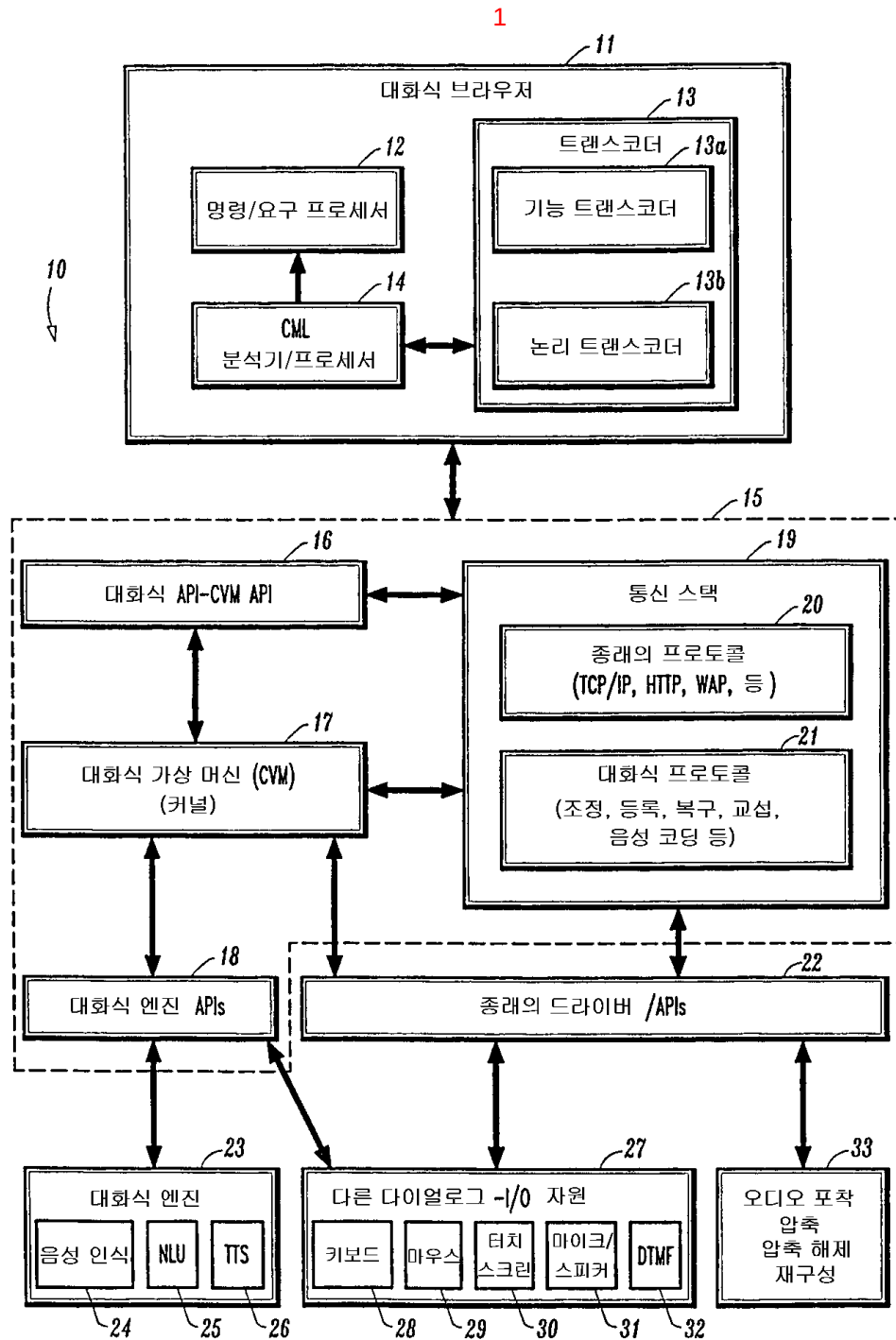
19 , 가 CML CML

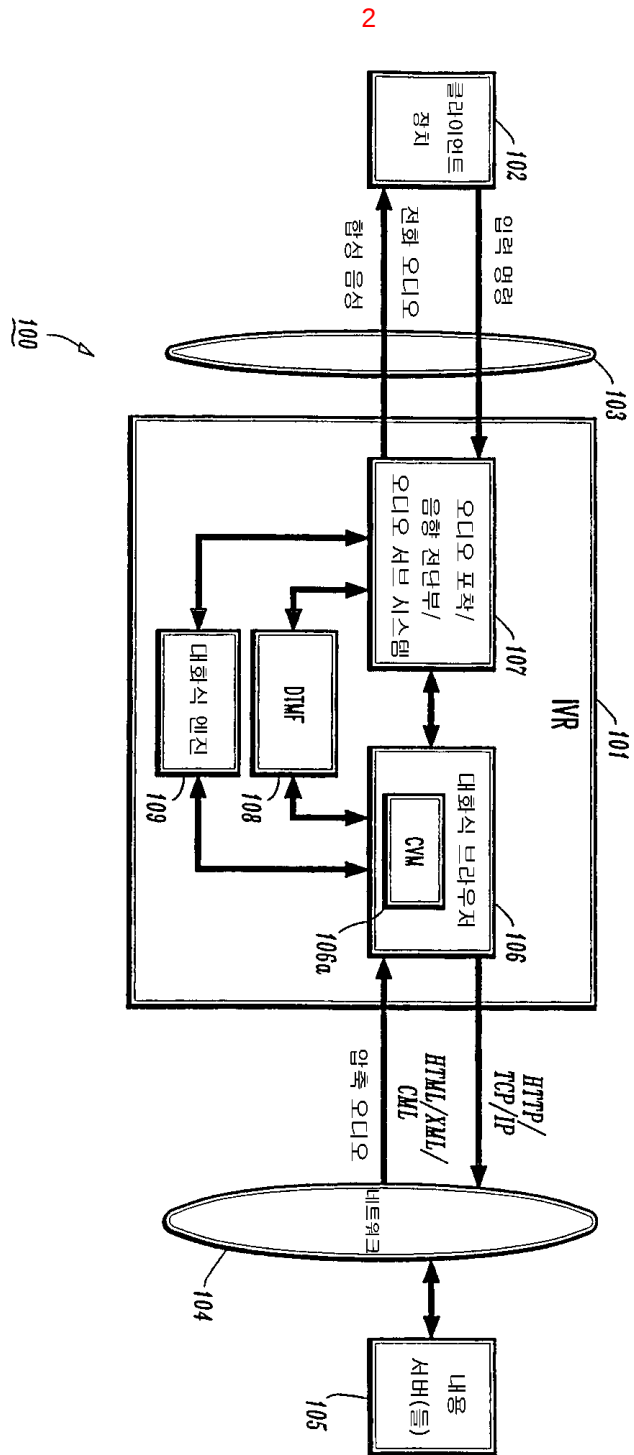
21.

19
CML

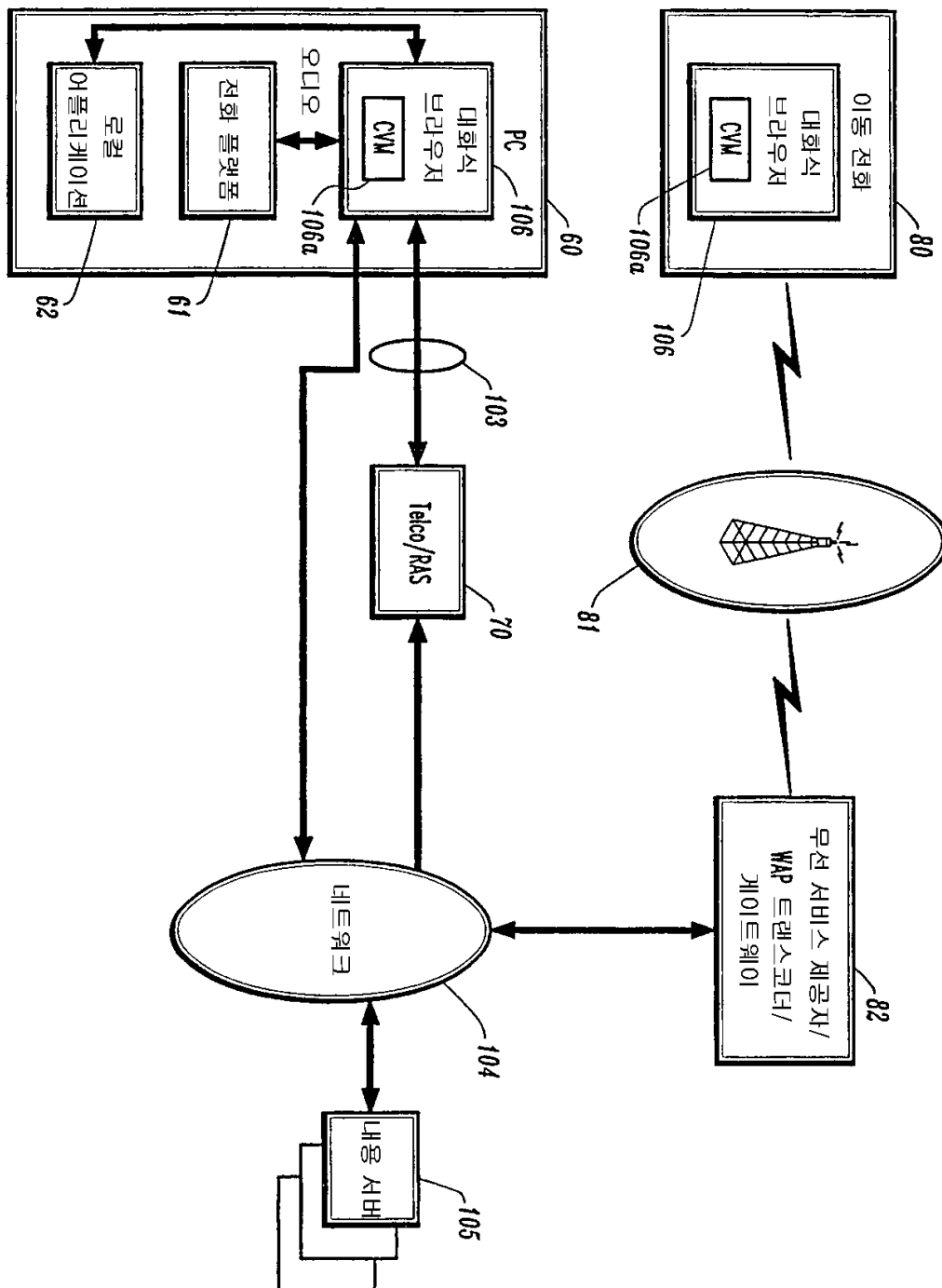
22.

19
CML

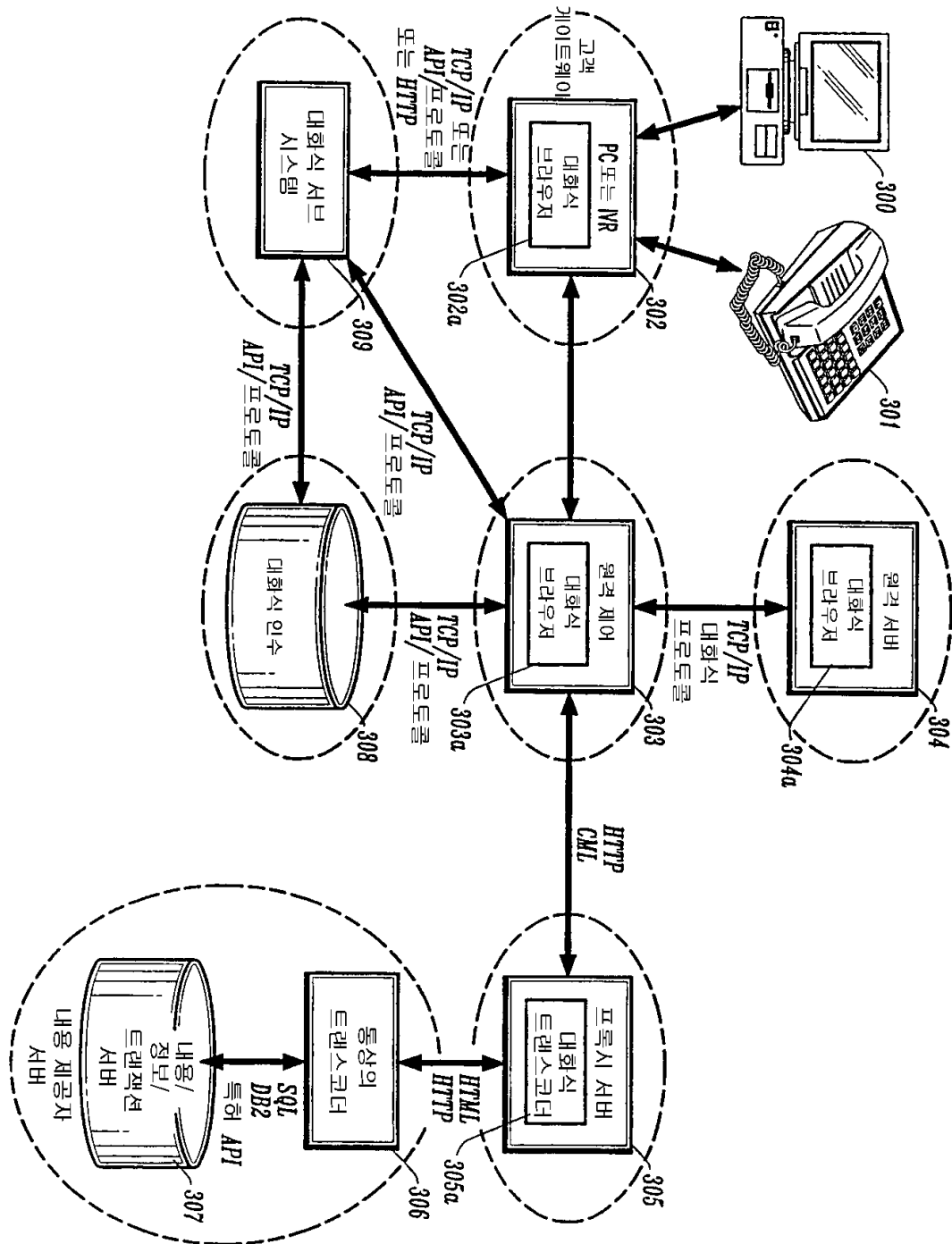




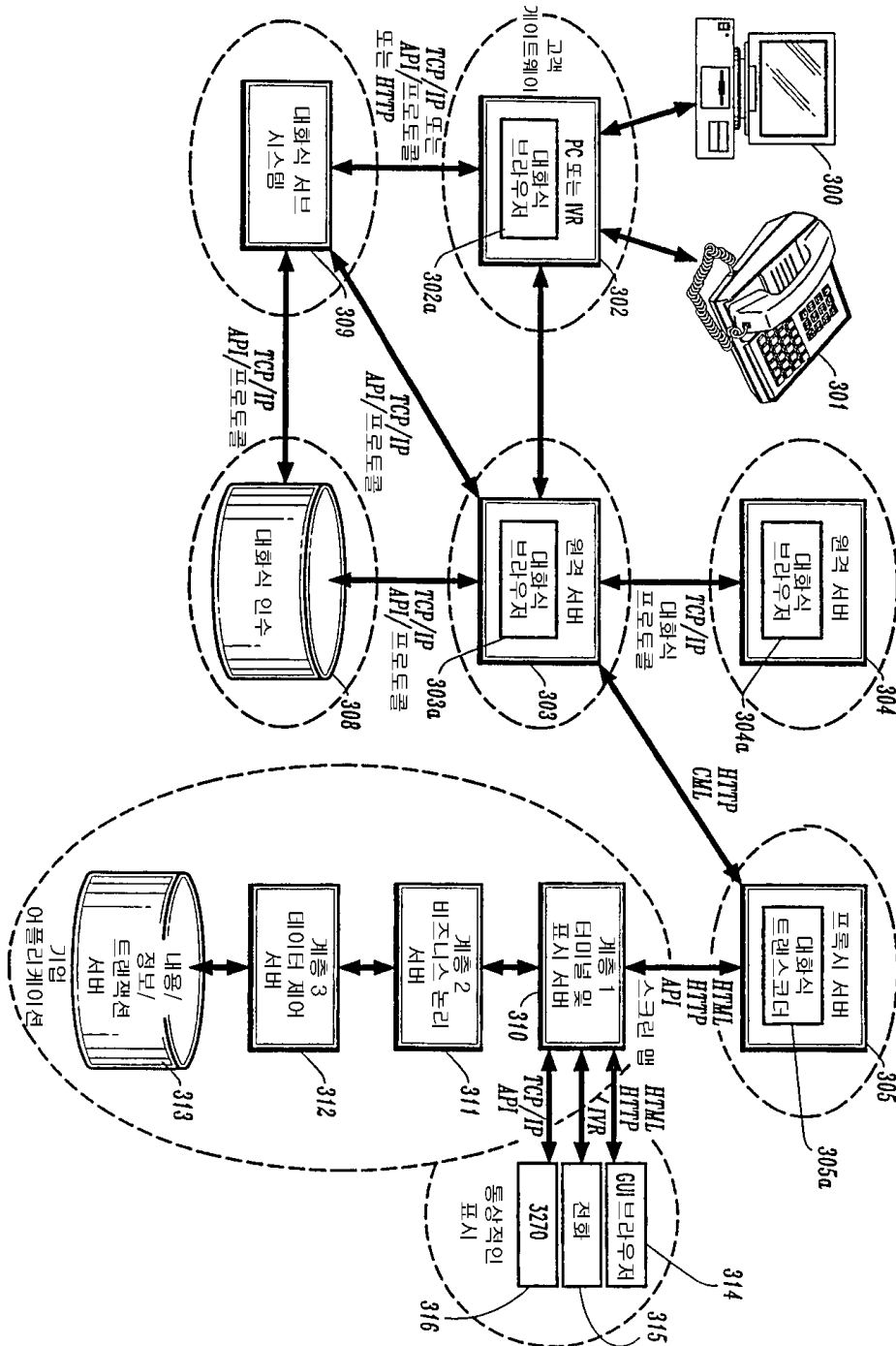
3



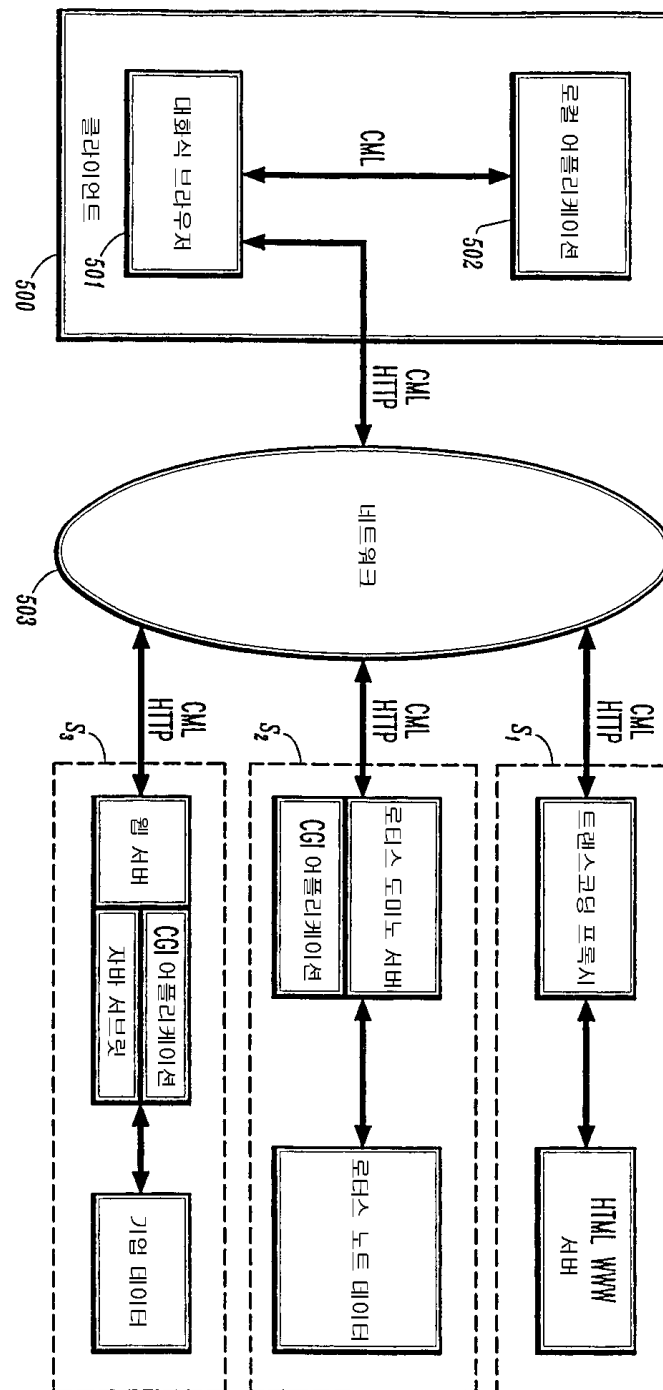
4a



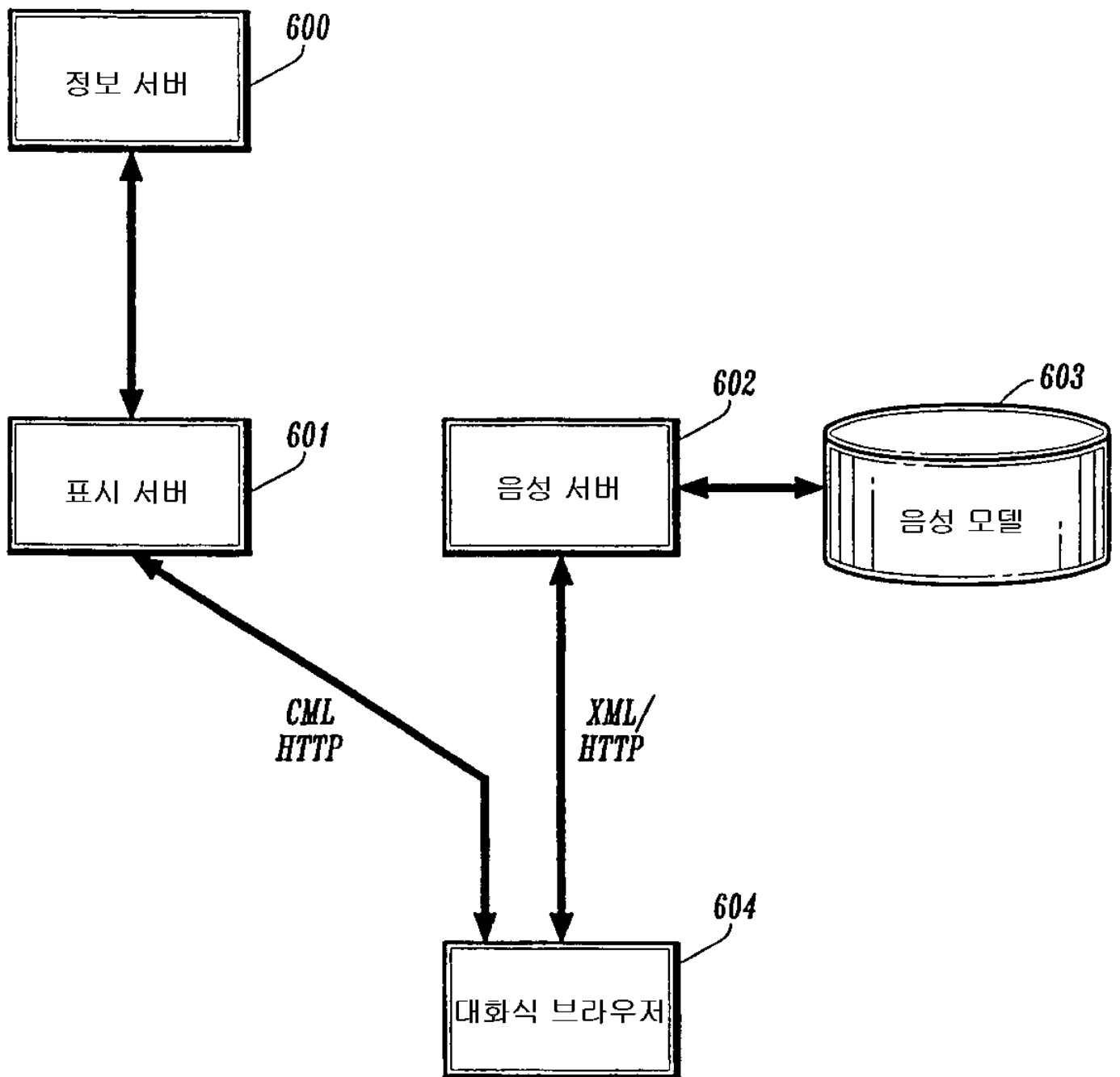
4b



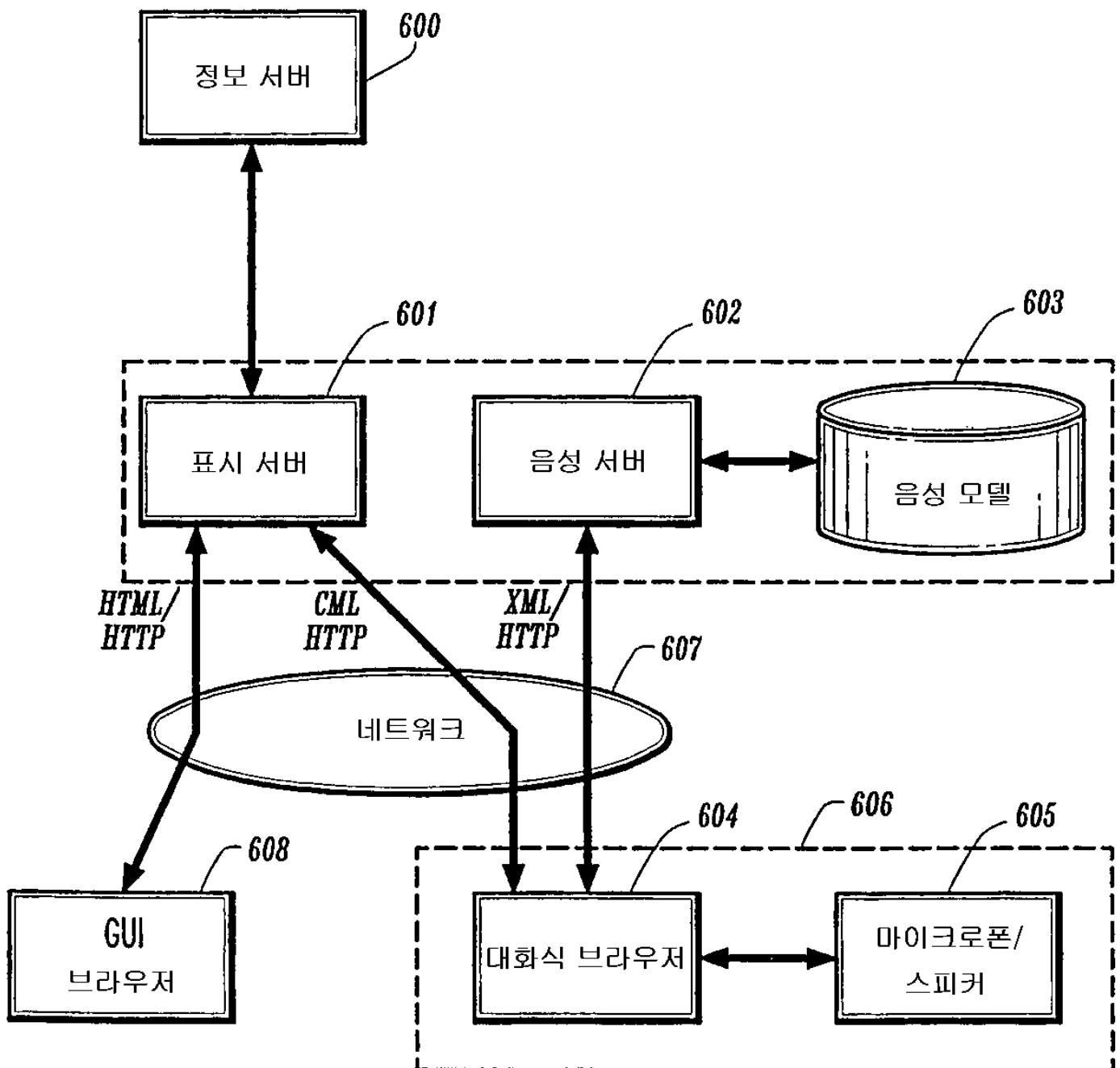
5

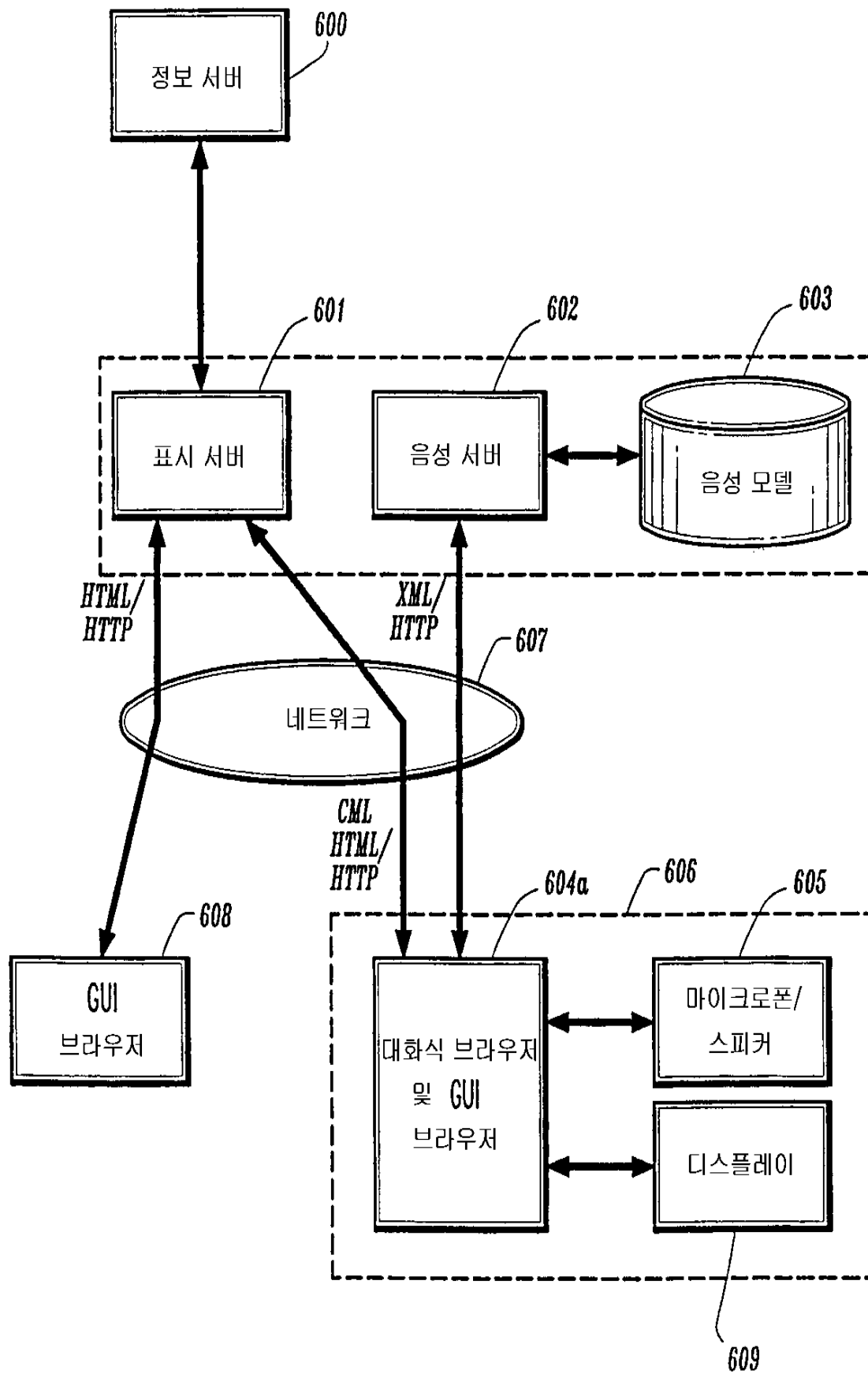


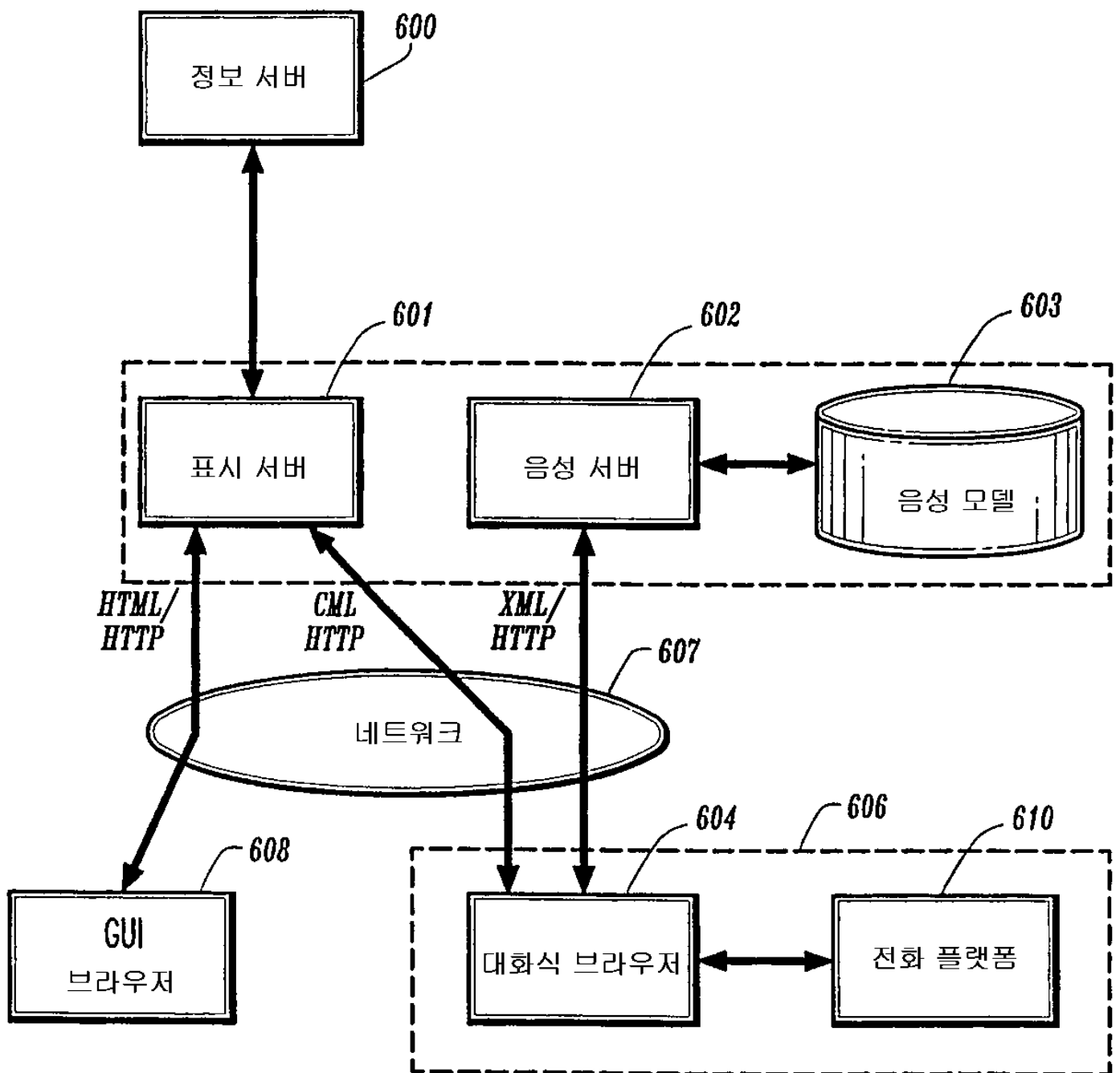
6



7







10

