

碩士學位 請求論文
指導教授

Design and Implementation of
Integrated Customer Management System based on Middleware

2002. 6. 15.

梨花女子大學校 情報科學大學院
學科

Design and Implementation of
Integrated Customer Management System based on Middleware

論文 碩士學位 請求論文 提出

2002年 6月 15日

梨花女子大學校 情報科學大學院
學科

碩士學位

論文

合格

判定

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_____	_____
_____	_____

梨花女子大學校 情報科學大學院

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가 e- 가
가
3-tier 2-
tier , , 가
가
(ICIS)
, , ,
ERD(Entity Relation Diagram) ,
ID .
, ,
, .

1.

가
가 .
/ 가 가
가 가
가 가
가 .[6]
, ,
(interoperability) 가
.[3]
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가 e- 가
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가 .
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가
IT 가

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2.

2.1.

2.1.1.

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가
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,
,
가
2
,
80 가
가 . COBOL
, 가 가 .
, / 2-tier Architecture . 2-tier
/ .

/ . 가 가
가 (Performance)
. GUI 가
,

2.1.2.

, DB AP가 S/W .
/
가
PROGRAM .
, / DB
.
, 가 ,
가 .
, SO ONE-
STOP 가 .

2.2.

2-tier , 3-tier
 . [18]
2-tier 가
 , 3-tier
가 가
 .
가 ,
 .
3-tier 가 tier
 .
가 .

Tier

가

가

가

가

가

가

2.3.

2.3.1.

, PC

(異機種)

(mainframe)

(host)

(downsizing) ,

SI(system integration:)

(centralized computing)

(distributed

computing)

,

(異種)

,

,

.

가 (middleware) .

2.3.2.

, 가

. 가 (Basic

Middleware)

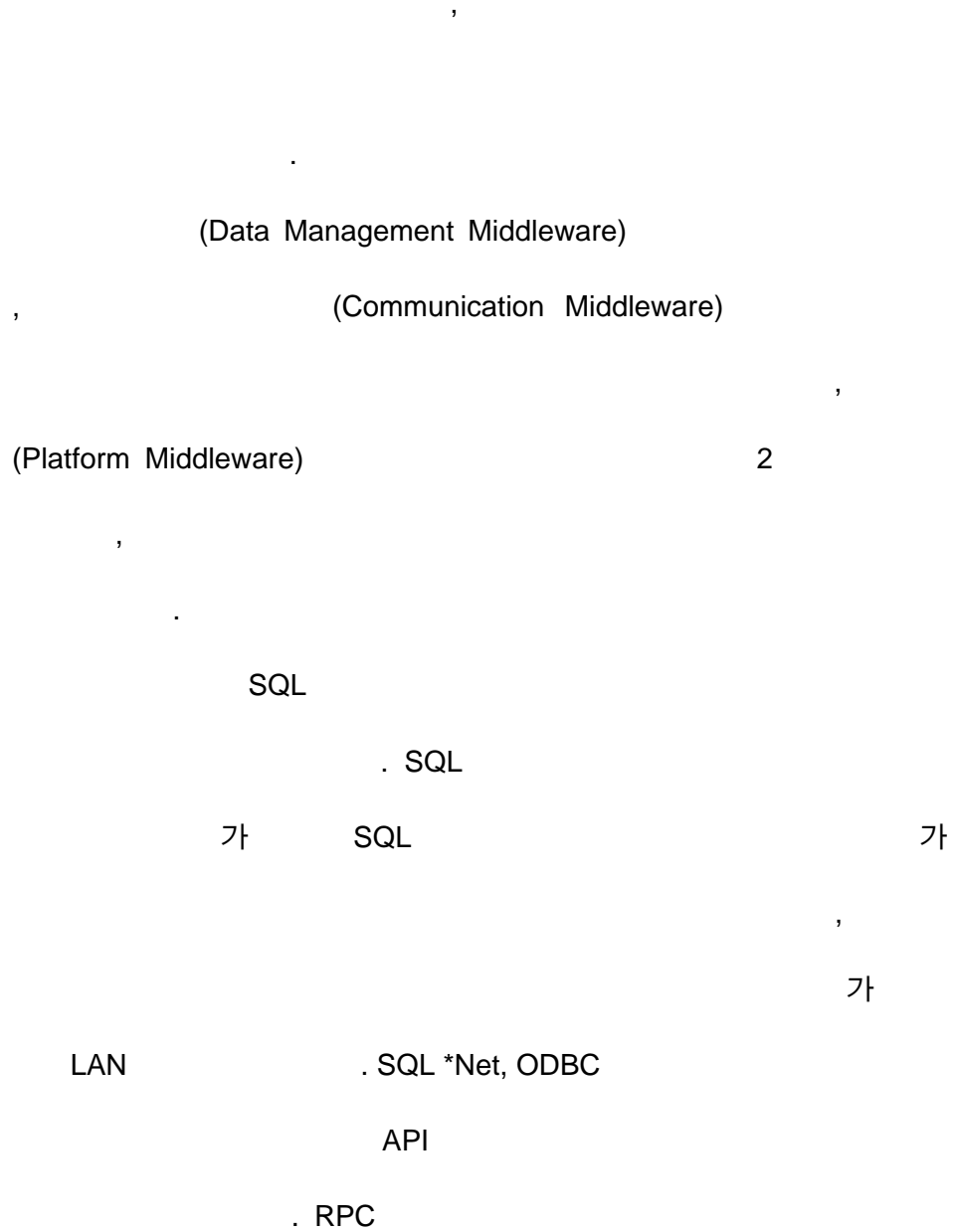
(Integration Middleware)

. [1]

,

.

2.3.2.1. (Basic Middleware)



WAN

2

, ONC-RPC, MqSeries, MSMQ

2

3

가

. TP

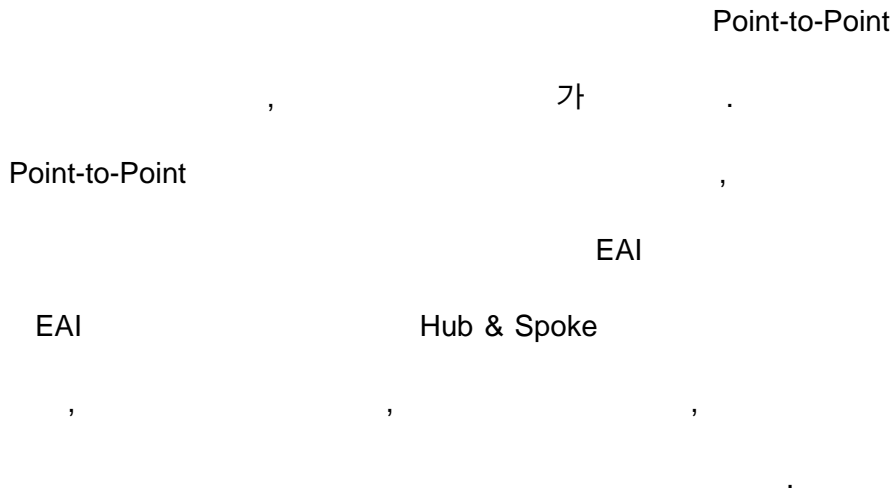
Tuxedo, TopEnd,

WebSphere, WebLogic

2.3.2.2.

(Integration Middleware)

, B2B
 가 .
 (Gateway)
 API
 , Information Builder, Cross Access
 , MQSeries
 , COM-to-CICS, COM-to-CORBA, JAVA-to-CICS, Tuxedo-
 to-CICS
 API
 API
 Candle Roma가 .



2.4.

가 Tuxedo Tmax TP

	Tuxedo	Tmax
	Global Standard ()	가 가
	1. 20 Version Upgrade Source code 가	1. 2 Reference 가 Field Test 가 2. Site Source

	Tuxedo	Tmax
	<p>2. RDBMS, Source Code Level Bug report</p> <p>3. Patch report 가 .</p> <p>4. (Supported Platform) 가 .</p>	<p>Version Version .</p> <p>3. Porting Source Level Porting - (DBMS)</p> <p>Version-Up Porting .</p> <p>4. RDBMS 가 .</p>
	<p>BEA Solution OLTP Tuxedo , Internet Web Logic Application Server, CORBA Web Logic Enterprise Server, (IBM,UNISYS, Tandem) eLink for Mainframe, eLink for SAP, Oracle ERP, People Soft, BAAN (Builder, Visual Café) (WebLogic Commerce Server) Total Solution</p> <p>Solution</p>	<p>OLTP Tmax Web Server Relay module Web T (BEA JOLT) Web Server (JAVA, Component) 가</p>

	Tuxedo	Tmax
	(IBM, HP, SUN, Compaq), RDBMS (Oracle, Informix, Sybase, Microsoft), (Powerbuilder, Delphi, Visual Basic), (CA, BMC, HP OpenView) (Source code) 가	가 가 가 (HP 가 HP escalation , HP Support Tmax) Supported Platform .
	, Mission Critical Sites TPC 80% BEA Tuxedo .	, Mission Critical 가 . ()
	1993 300 가	.

	Tuxedo	Tmax
	1. Command Line Help, OnLine Help e-Doc 2. 3. Log System Trace	1. Command Line Help OnLine Help 2. 가 3. Log 가 Trace 가
Roadmap	2000 5 Tuxedo Version 7.1 Multi-thread Engine Engine change XML e-Business Upgrade	Bug fix release upgrade
	/	

Tuxedo Tmax , Enterprise

Tuxedo , Tuxedo

2.5. Tuxedo

2.5.1.

,

,

.

(, 2

) 가 가 가,

가 .

가

가 .

,

.

2.5.2. TUXEDO

RPC(Remote Procedure Call)	<p>1. Procedure() Sub_Routine 가</p> <p>2. X/Open RPC 가 TUXEDO XATMI TxRPC,</p>
Multi-Thread	<p>Application ,</p> <p>TP_Monitor</p>
Directory	<p>1.Directory</p> <p>2. 가 RPC ()</p>
Data Dependent Routing	<p>1.Request</p> <p>2.</p> <p>3. Load Balancing Request</p> <p>4. ,</p> <p>5. 가 (Configuration) File .</p> <p>6. Application Program Version . ,</p>

2.5.3. TUXEDO

	Peak-Time ,
	Program
	가
	DBMS, Network, System , . (2 Phase Commit)
	가
	C/S 가

3.

3.1.

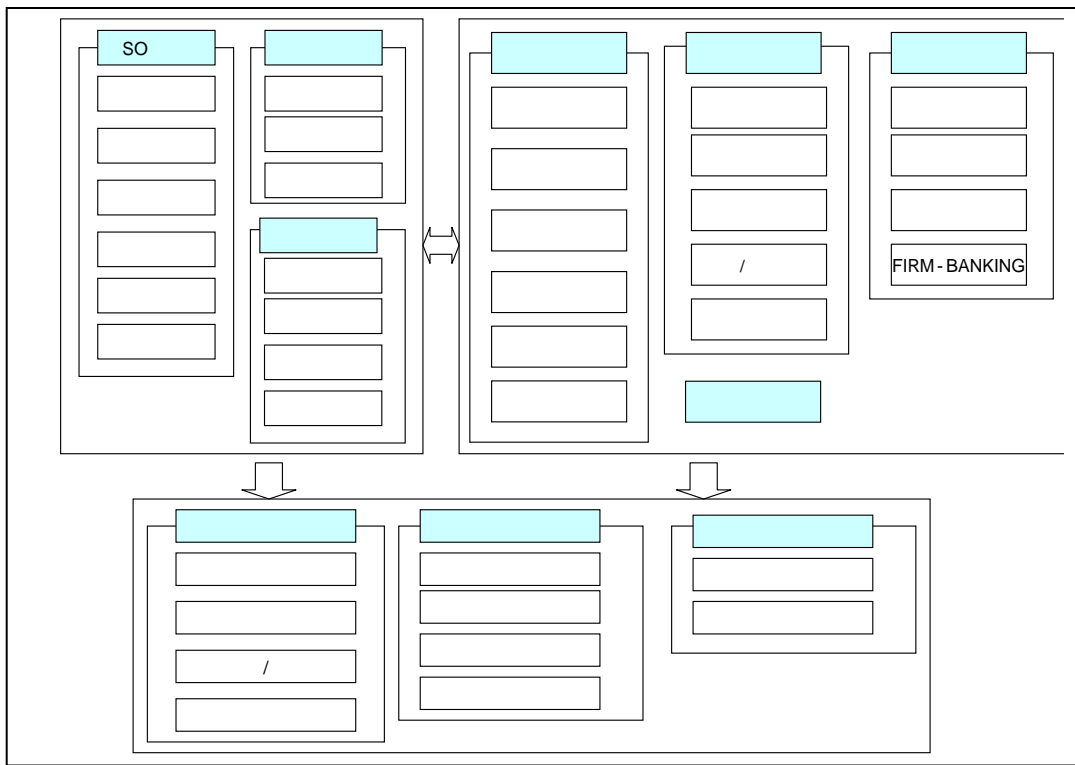
(ICIS : Integrated Customer Information System)

, ,
DB / /
가 .

3.1.1.

, ,
, (SO), / ,
, ,
. .
TEXT CLIENT GUI(Graphic
User Interface) .

가



[Figure 1]

3.1.2.

3.1.2.1. SO(SERVICE ORDER)

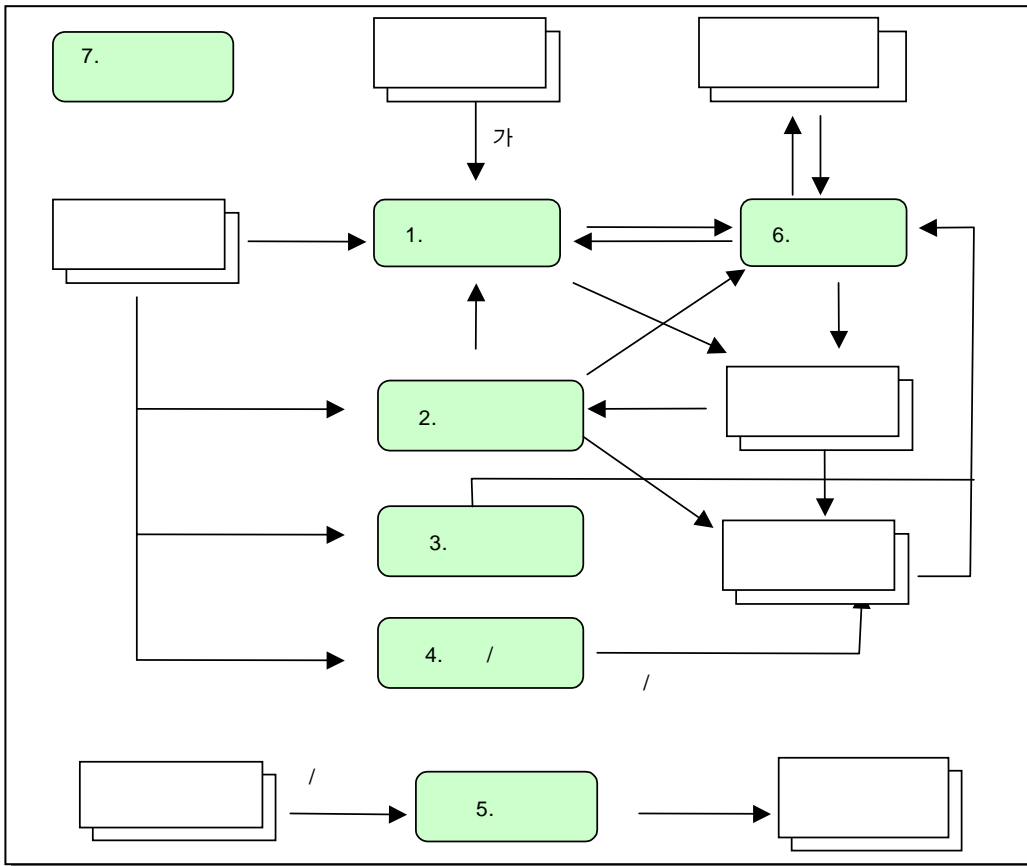
SO , , , , , , , 가
, , / , , , , ,DID/DOD
, , , / , , , , ,
/ (, / , , , ,),
/ , , ,

SO

. 가

TIMS

, / . SO



[Figure 2] SO

3.1.2.1.1.

/ , 가

.

. 가

가

3.1.2.1.2.

가
TIMS
TIMS
가
REAL_TIME
가
TIMS

3.1.2.1.3.

. 가
,

3.1.2.1.4.

() 가
.
가 , , , ,
,가 , .

3.1.2.1.5.

()
.
가 .

3.1.2.1.6.

SO

, , , , , , ,
, .
, , , ,
, , , ,
.

(가)

TABLE UPDATE .

SO /

3.1.2.2.

SO

.

3.1.2.2.1.

/ , ,

. / ID(CUST_ID)

TABLE

TABLE

3.1.2.2.2.

, 가 , .

/ / / / 가 가

() (, , ID,RSS,IDLC)

(, 가) .

가 가 가 , 가 가 ,

, , . 가

가 가 가

. 가 가 가

가 가 / /

. , , /

가/ / . , ,

. , 가

가 , .

3.1.2.2.3.

가 , / 가 , / 가 .

3.1.2.3.

SO BATCH .

3.1.2.3.1.

SO .

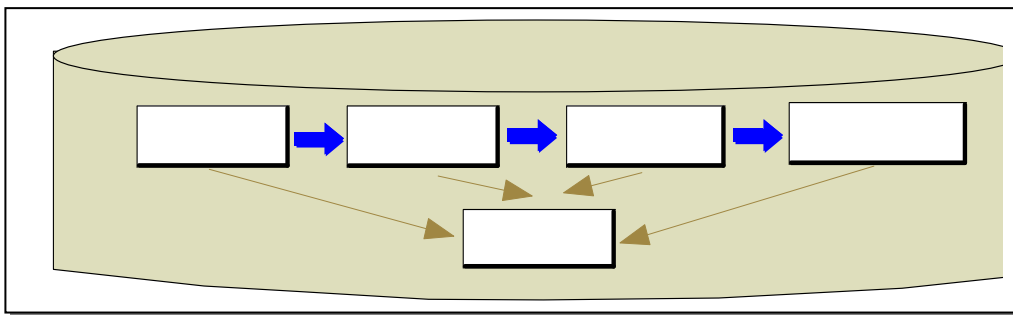
3.1.2.3.2.

SO .
/ / , , .
가 , , .

3.1.2.3.3.

, .

3.1.3.



[Figure 3]

3.1.3.1.

가 가
가 / 가 , 가

BATCH

3.1.3.2.

AP 가

3.1.3.3. ()

, 가

, , 가

.
,
.

3.1.3.4.

, ERP
3가 .
, ,
, ,
, / , .

가 .

AP , ,
.

가

AP

ERP

,

AP

가

3.1.3.5. /

, , , / 가 , ,

6

가

,KT

OCR

/

/

ARS

LAYOUT

가

AP

가

가 .

DB .

.

가

, , , ,

, ,

.

KT

, ,

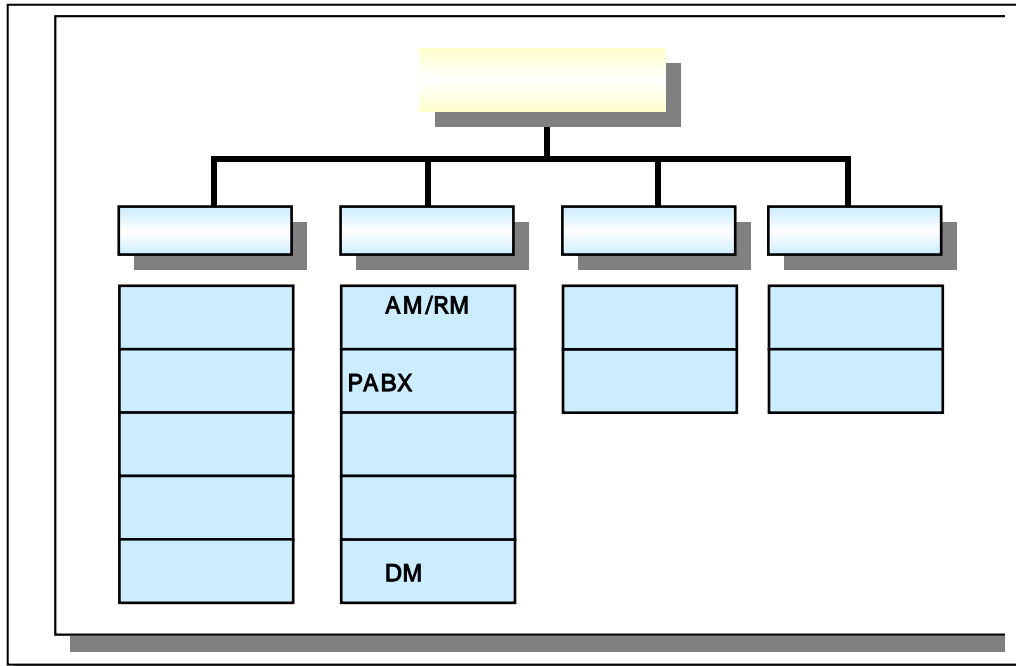
.

KT

, 가 , ,

.

3.1.4.



[Figure 4]

3.1.4.1.

ICIS가 KT 가
 가 / ,
 가
 (Megapass, , enTUM) .
 / / / / 50

SO
, 가
/ /ISDN / / /

가
/ , 가 /

CRM

3.1.4.2.

AM/RM
AM/RM , PABX 3
PABX , / OCP
. AM/RM

. / , , ,
, AM/RM

. DM
DM
, / DB 가 가
.

3.1.4.3.

/ / /DM
/
.

3.1.4.4.

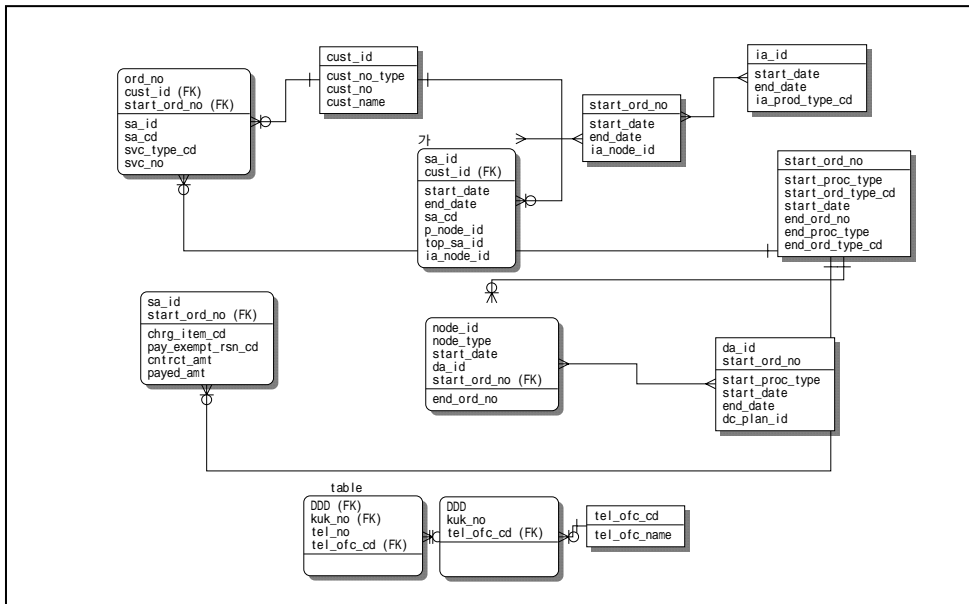
, 가
,
가
,

/

가

3.2.

3.2.1. ERD



[Figure 5]

ERD

3.2.2. ID

ID	
ID (CUST_ID)	<ul style="list-style-type: none"> ● : :VARCHAR2(11) ● - :ID (1) + (9) + (1)
ID (SA_ID)	<ul style="list-style-type: none"> ● : : VARCHAR(11) ● :ID (1) + (9) + (1)
ID (IA_ID)	<ul style="list-style-type: none"> ● : VARCHAR(11) ● - : (1) + (9) + (1)
(ORD_NO)	<ul style="list-style-type: none"> ● :SO SO ● :VARCHAR(15)) 003638100728996 => 00-363-81-007289-9-6 - 00: (2000) - 363:select to_char(sysdate,'ddd') from dual - 81: (08 10 0~N, 10) - 007289: Oracle Sequence No 6) - 9: “9” 가 A,B,C,D 가 - 6:

ID	
(ORD_MNG_NO)	<ul style="list-style-type: none"> ● : / / ● : + + + + <li style="margin-left: 100px;">6 - 1 +SERIAL 5
TIMS (WO_SER)	<ul style="list-style-type: none"> ● : / / TIMS ● - (TSIS) - : 1000000001(10)

3.2.3. TABLE

3.2.3.1. 가

□

□

□

	()	PK	TYPE	LENGTH
SA_ID	ID	PK	Varchar	11
START_DATE			Varchar	8
END_DATE			Varchar	8
TABLE_ID	ID		Varchar	30
PROD_TYPE_CD			Varchar	1
SA_CD			Varchar	4
SA_DTL_CD			Varchar	4
P_NODE_TYPE			Varchar	1
P_NODE_ID	ID		Varchar	11
TOP_SA_ID	ID		Varchar	11
IA_NODE_TYPE			Varchar	1
IA_NODE_ID	ID		Varchar	12
BILL_SA_ID_TYPE	ID		Varchar	1
INIT_START_DATE			Varchar	8

[Table 1] 가 TABLE

3.2.3.2.

□

□ , ()

	()	PK	TYPE	LENGTH
SA_ID	ID	PK	Varchar	11
START_ORD_NO		PK	Varchar	15

	()	PK	TYPE	LENGTH
START_PROC_TYPE			Varchar	1
START_ORD_TYPE_CD			Varchar	2
START_DATE	()		Varchar	8
START_REG_DATE			Date	
END_ORD_NO			Varchar	15
END_PROC_TYPE			Varchar	1
END_ORD_TYPE_CD			Varchar	2
END_DATE	()		Varchar	8
END_REG_DATE			Date	
PROD_TYPE_CD			Varchar	1
LIFE_CYCLE			Varchar	1
SA_CD			Varchar	4
TOP_SA_ID	ID		Varchar	11
P_SA_ID	ID		Varchar	11
TOP_SA_DTL_CD			Varchar	4
SA_DTL_CD			Varchar	4
CNTRCT_END_RESV_FLAG			Varchar	1

[Table 2]

TABLE

3.2.3.3.

id

()	()	PK	TYPE	LENGTH
SA_ID	ID	PK	Varchar	11
START_ORD_NO		PK	Varchar	15
START_PROC_TYPE			Varchar	1
START_DATE	()		Varchar	8
START_REG_DATE			Date	
END_ORD_NO			Varchar	15
END_PROC_TYPE			Varchar	1

END_DATE	()		Varchar	8
END_REG_DATE			Date	
IA_NODE_TYPE			Varchar	1
IA_NODE_ID	ID		Varchar	12
BILL_SA_ID_TYPE	ID		Varchar	1
TOP_SA_ID	ID		Varchar	11

[Table 3]

TABLE

3.2.3.4.



()	()	PK	TYPE	LENGTH
IA_ID	ID	PK	Varchar	11
REG_DATE			Date	
START_DATE	()		Varchar	8
END_DATE	()		Varchar	8
SA_END_REG_DATE			Date	
IA_PROD_TYPE_CD			Varchar	2
AR_IA_ID	ID		Varchar	11
AR_IA_TYPE_CD			Varchar	1
REPR_SA_ID	ID		Varchar	11
CUST_ID	ID		Varchar	11
PAYER_NAME			Varchar	50
PAYER_MNG_TYPE			Varchar	1
PAYER_MNG_CD			Varchar	8
AUTO_EFT_FLAG			Varchar	1

[Table 4]

TABLE

3.2.3.5.

- UPDATE
- 3
-
- / / ()

	()	PK	TYPE	LENGTH
ORD_NO		PK	Varchar	15
SA_ID	ID		Varchar	11
SA_CD			Varchar	4
SVC_TYPE_CD			Varchar	2
TERM_CNTRCT_TYPE			Varchar	1
KT_USE_FLAG			Varchar	1
SVC_NO			Varchar	20
ORD_MNG_NO			Varchar	10
SVC_OFCD_CD			Varchar	6
EXCH_OFCD_CD			Varchar	6
INSTL_MNG_OFCD_CD			Varchar	6
CUST_ID	ID		Varchar	11
CUST_NAME			Varchar	50
CUST_NO_TYPE			Varchar	1
CUST_NO			Varchar	20
USER_ORD_TYPE_CD			Varchar	2

[Table 5]

TABLE

3.2.3.6.

□

■ : ()

■ 가 : 가 ()

■ : ()

	()	PK	TYPE	LENGTH
SA_ID	ID	PK	Varchar	11
CHRG_ITEM_CD			Varchar	4
PAY_EXEMPT_RSN_CD			Varchar	2
PAY_EXEMPT_RSN_TEXT			Varchar	100
AREA_GRD			Varchar	2
SUPPLY_AMT	가		Number	
VAT	가		Number	
VAT_CD	가		Varchar	2
CNTRCT_AMT			Number	
CNTRCT_PAY_TIME_CD			Varchar	1
CNTRCT_PAY_CNT			Number	
CHARGE_CNT			Number	
PAYED_AMT			Number	
INSTALLMENT_COMPLETED_DATE			Varchar	8
PAY_COMPLETE_TYPE			Varchar	1
SA_DTL_CD			Varchar	4

[Table 6]

TABLE

3.2.3.7.

□ / /

□ ID

	()	PK	TYPE	LENGTH
NODE_ID	ID()	PK	Varchar	11
NODE_TYPE	()	PK	Varchar	1
START_DATE	()	PK	Varchar	8
DA_ID	ID	PK	Varchar	11
START_ORD_NO			Varchar	15
END_ORD_NO			Varchar	15
END_DATE	()		Varchar	8

[Table 7]

TABLE

3.2.3.8.

	()	PK	TYPE	LENGTH
DA_ID	ID	PK	Varchar	11
START_ORD_NO		PK	Varchar	15
START_PROC_TYPE	()		Varchar	1
START_DATE	()		Varchar	8
START_REG_DATE			Date	
END_ORD_NO			Varchar	15
END_PROC_TYPE	()		Varchar	1
END_DATE	()		Varchar	8
END_REG_DATE			Date	

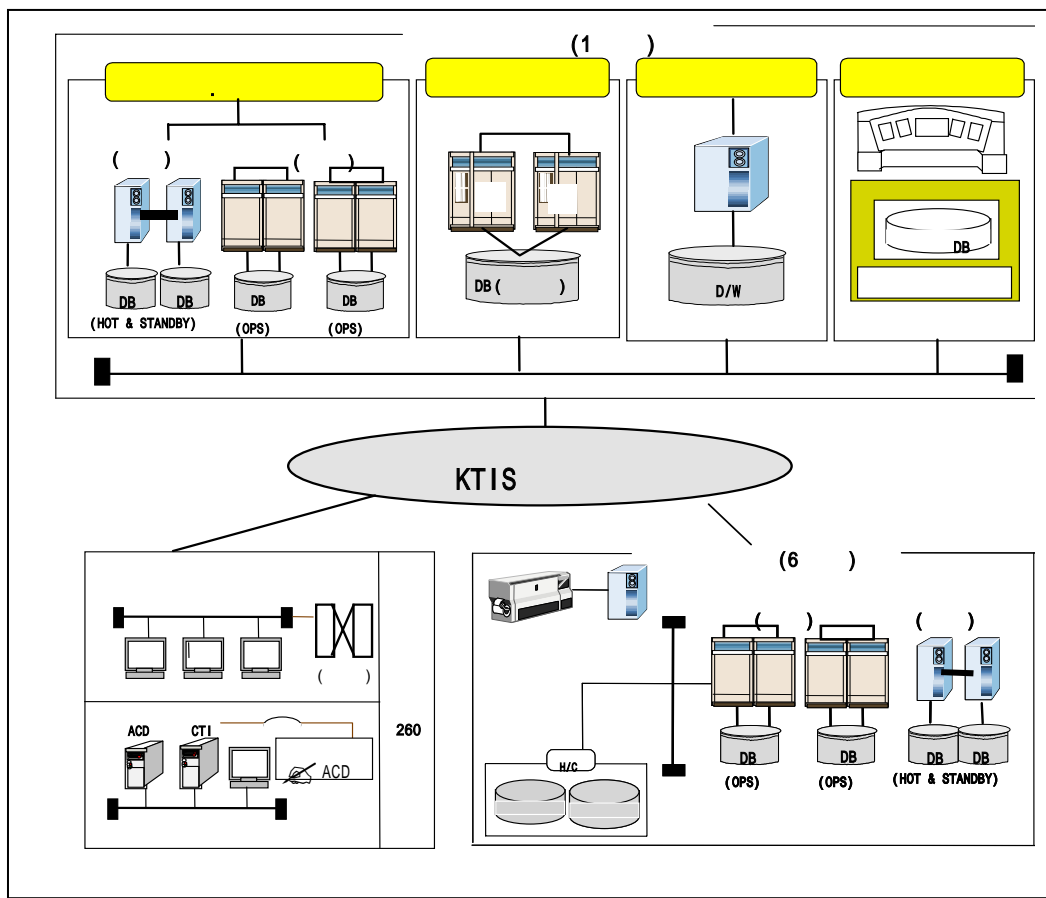
	()	PK	TYPE	LENGTH
INIT_INSTL_DATE			Varchar	8
DC_PLAN_ID	ID		Varchar	4
SA_CD			Varchar	4
SA_DTL_CD			Varchar	4
CNTRY_CD_SET_1	가 (1 가)		Varchar	24
CNTRY_CD_SET_2	가 (2 가)		Varchar	24
CNTRCT_YEARS			Number	1
CNTRCT_END_RESV_DATE			Varchar	8
REL_SA_ID	ID		Varchar	11
CALLED_NO_SET			Varchar	300

[Table 8]

TABLE

4.

4.1.



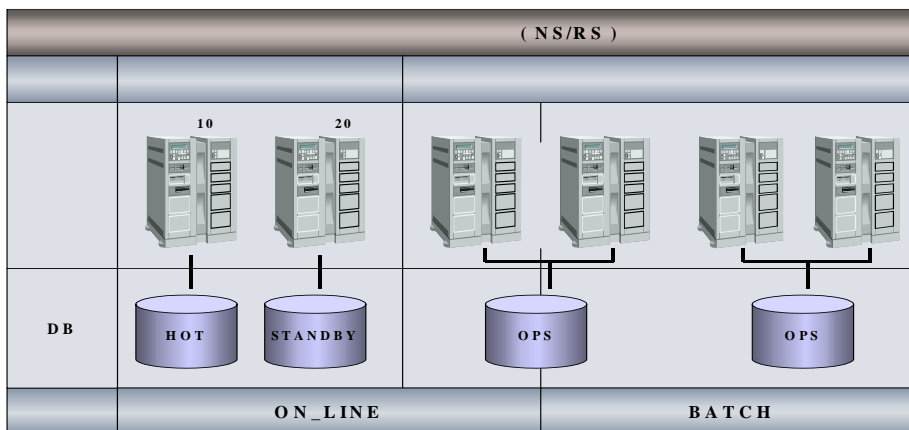
[Figure 6]

, , , 4
 , H/W
 가 가 6
 1 ,
 1

4.1.1. H/W

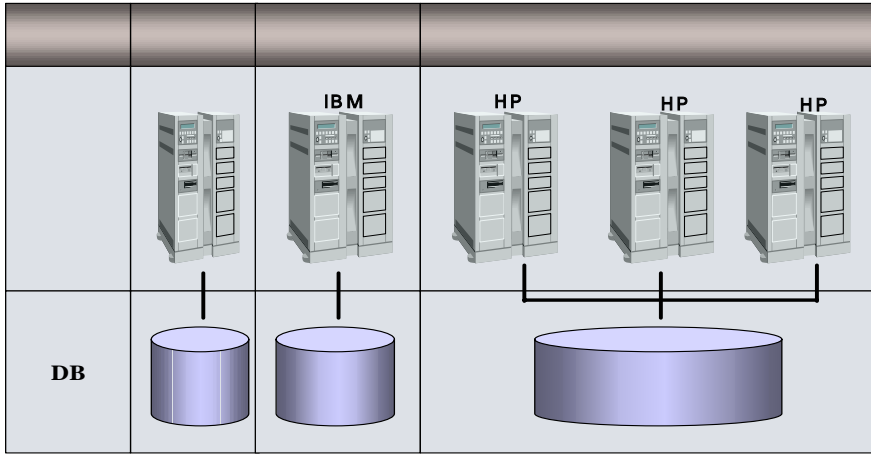
2 Hot/Standby Hot
 Standby .
 2 OPS ,
 .

□ /



[Figure 7] /

□ /



[Figure 8] /

4.1.2.

		CPU()	MEM(GB)	DISK(GB)
(CCRNS)	GS140(700MHz)	6	6	283
(CCRSL)	GS140(700MHz)	6	6	350
, (CCRKK)	GS140(700MHz)	4	4	359
(CCRPS)	GS140(700MHz)	4	4	233
(CCRDG)	GS140(700MHz)	4	4	145
, , (CCRJN)	GS140(700MHz)	4	4	149
(CCRCN)	GS140(525MHz)	4	4	168

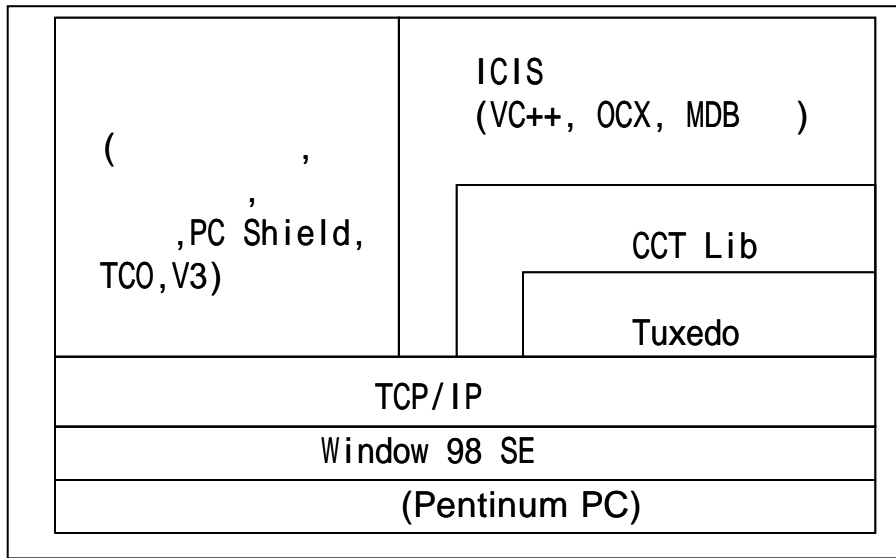
[Figure 9] /

		CPU()	MEM(GB)	DISK(GB)
	GS140 AS8400	138	120	26,459
	AS8400	16	8	5,927
	RS6000SP	117	80	14,000
	HP K20 HP L2000	4	4	233

[Figure 10]

4.1.3. Client

WIN98 SE NT, Windows XP Tuxedo CCT
LIB MDB , OCX C++ .

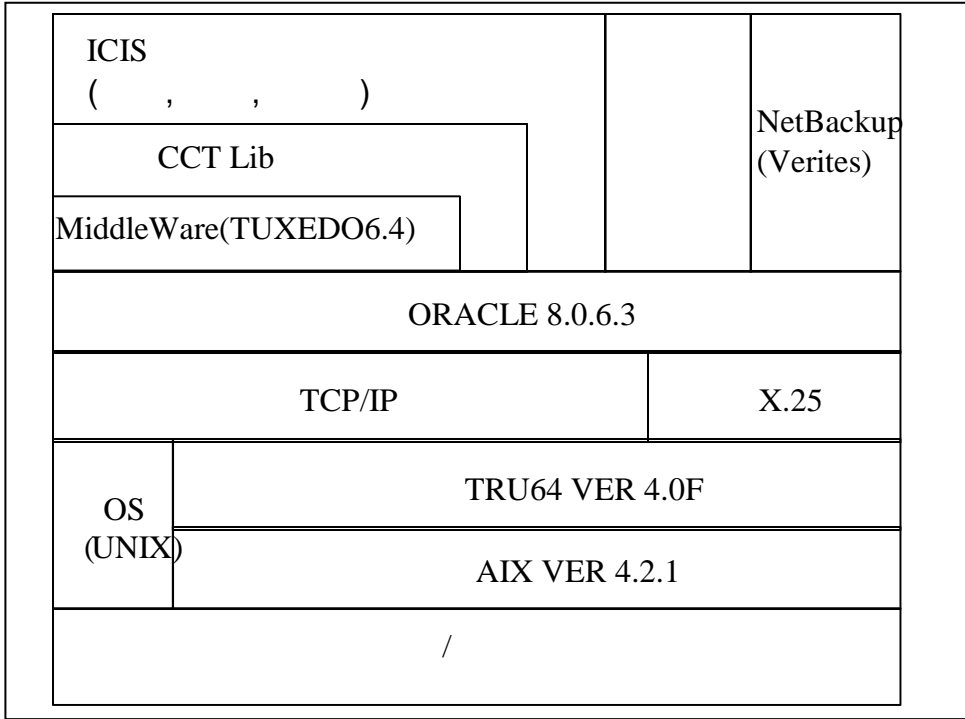


[Figure 11] CLIENT

	Windows	Visual C++ 6.0 , Crystal Report	GUI
Tool	ICIS		DLL
	CCT API		
		TB_CSYSRSCD	
			Two-Phase Commit

4.1.4. Server

	S/W		
	(tuxedo)		CCT Lib AP
	IBM	AIX UNIX	Oracle 8.0.6.3
TUXEDO 6.4		Pro*C	
			CCT
		CCT_Server DLL	
LIB			



[Figure 12]

4.2.

4.2.1.

Visual C++ ,

Oracle Pro*C ,

Tuxedo(Middleware) (3-Tier) NS()

RS()

가 .

, , TimeOut

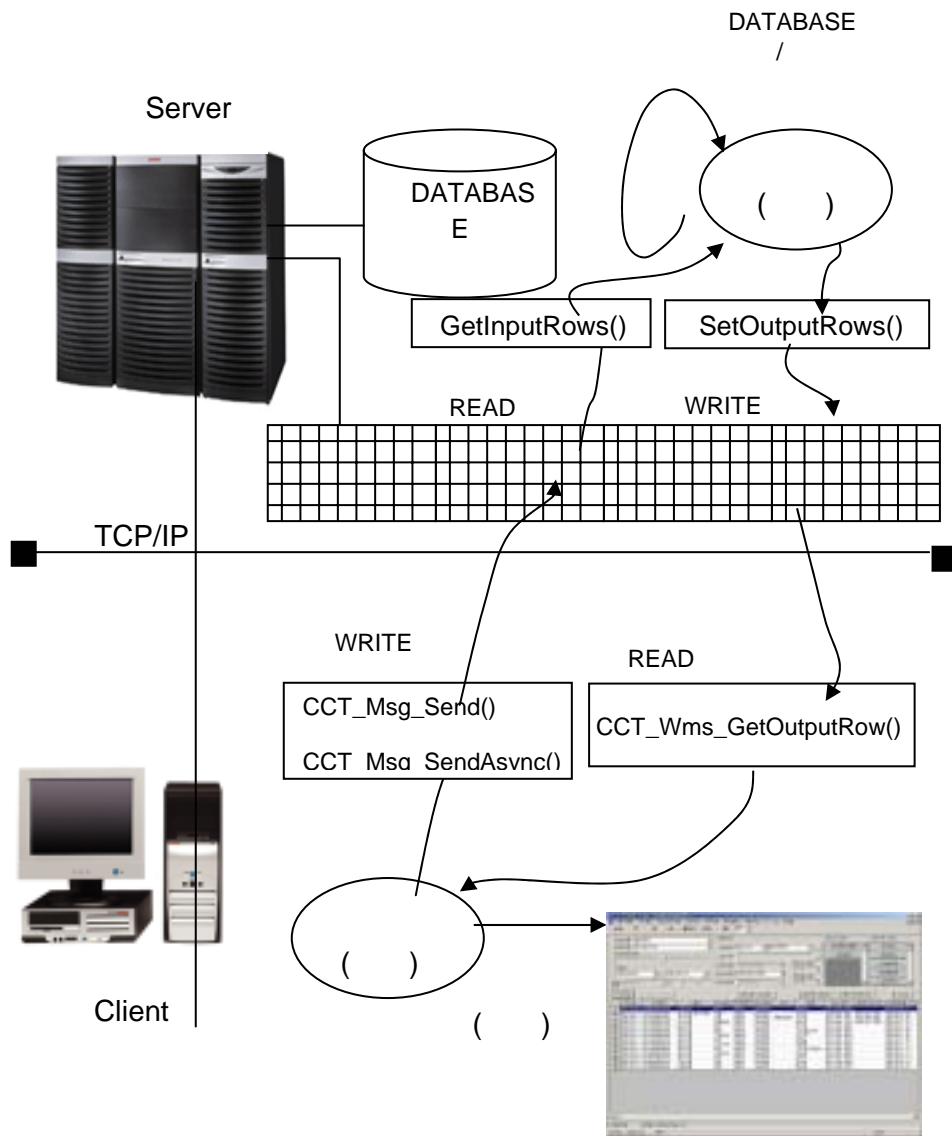
(/)

SQL*NET, TCP/IP, X.25, RS-232C

/

2-Tier

4.2.2.



CCT_Msg_Send() :
 CCT_Msg_SendAsync() :

4.2.3. .

4.2.3.1. ()

CCT_Msg_Send()

CCT_Msg_SendAsync()

FML(Fielded

Manipulation Language) .

FML

3-Tier

FML .

4.2.3.2. ()

GetInutRows() FML

, Oracle Database

FML .

4.2.3.3.

FML

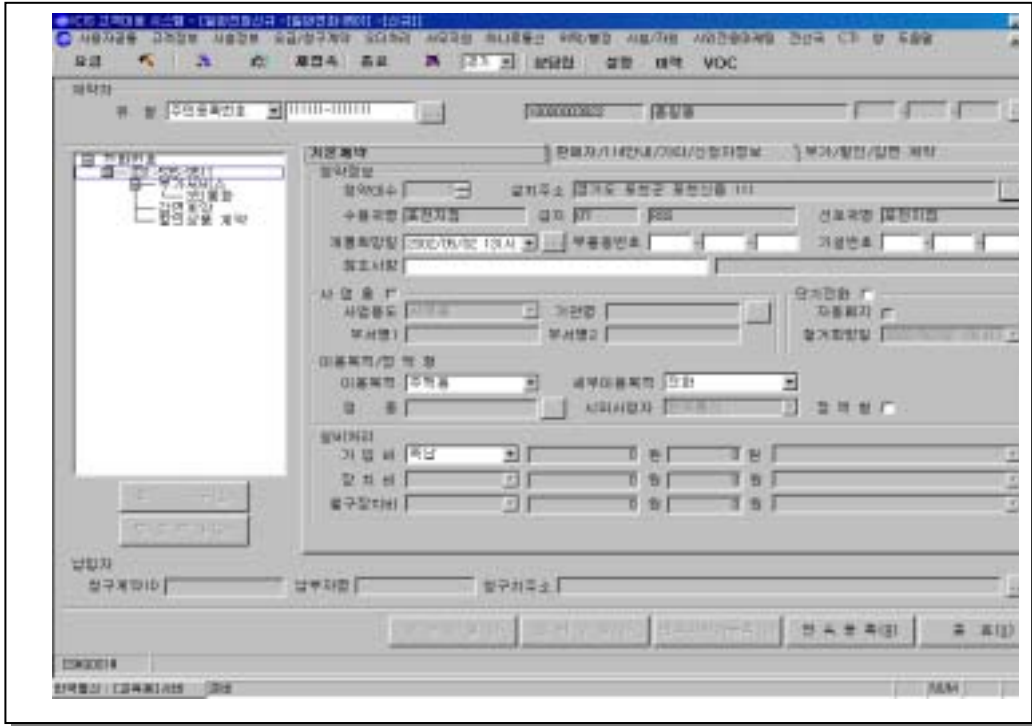
DATA write

/ .

FML CCT_Wms_GetOutputRow ()
READ, .

4.3.

. CLIENT 3 TAB
. .
1) TAB1 : TAB ,
. .
TAB1 , ,
. . CHECK .
. , , ,
가 .
TIMS . (), ,ONLINE
, . SETTINGE .
. .



[Figure 13] TAB1

2) TAB2 : /114 / / .
 2 TAB / 가 가 / 가
 가 . 114

4.4.

```
BOOL CCsng001NewRegistration::CallSvcCSNG911S()
{
    CWaitCursor wait;
    int                nMsgCnt;
    CString            strSaCd;        //
    .....
    strcpy(szSvcName,"csng911s");
    strSaCd = m_strSaCd; //
    .....
    nReturn = CCT_Wms_SetInputRow(szSvcName, nMsgCnt++
        , strSaCd        //
        , strSvcOfcCd    //
        .....
        , strMnginfoFlag); //

    if ((nReturn == ERRNUM_ERR_APPLMSG ) || (nReturn <= -300)) {
        m_objMsgBox.DisplaySvrErr();
        return FALSE;
    } else if (nReturn != CCT_SUCCESS) {
        m_objMsgBox.Display("MCAPE001", nReturn);
        return FALSE;
    }
}

.....
nReturn = CCT_Msg_Send (szSvcName, &NumRowsOut, &bCct, &nSvcId);
if ((nReturn == ERRNUM_ERR_APPLMSG ) || (nReturn <= -300)) {
    m_objMsgBox.DisplaySvrErr();
    return FALSE;
} else if (nReturn != CCT_SUCCESS) {
    m_objMsgBox.Display("MCAPE001", nReturn);
    m_objMsgBox.DisplayView("MCAPE001", nReturn);
    return FALSE;
}

if (CCT_Msg_Clear (szSvcName, nSvcId ) <= -300)
    m_objMsgBox.DisplaySvrErr();
}
wait.Restore();
return TRUE ;
```

4.5.

```
#include <csnzinc.h>
#include <csng590s.h>

csng911sf()
{
    /*          .          */
    int nReturn;          /*          */
    .....
    /* Client          */
    nReturn = CCT_Msg_GetInputRow(szSvcName, 0,
                                szSaCd,
                                szSvcOfcCd,
                                .....
                                szMnginfoFlag);

    /*          < 0      Error          */
    if (nReturn < 0) {
        sprintf(szErrBuffer, "          [          ->          ]          .");
        CCT_Err_SetAppMsg(MCAPE000, szErrBuffer);
        longjmp(jmpBuf, 0);
    }
    .....
    /*          가          */
    strcpy(szErrBuffer, ValidationLimitCheck(szSvcOfcCd,
    aszSpecProdInfo.szKNo[nInputIndex],
    aszSpecProdInfo.szSpecProdCd[nInputIndex]));
    if (strcmp(szErrBuffer, "Validation Success") != 0) {
        DP(("ValidationOrder() Error [%s]", szErrBuffer));
        CCT_Err_SetAppMsg(MCAPE000, szErrBuffer);
        longjmp(jmpBuf, 0);
    }
}
/* End Of For */

DP(("s          ", szSvcName));
return CCT_SUCCESS;
}
```

5.

5.1.

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Hot/Standby
가 , TP Monitor
가 . 3-tier
가 , 가 .

5.2.

ICIS ,
3,000 가 107 3,200 .
13,000 CDR 가 . ,
가 . / /

/ / ,
, AP/DB Naming Rule , SQL
ICIS

가 ,

/ 가 가 , 3,000

Crystal Report Utility

GUI Crystal Report Utility

, Shell

S/W

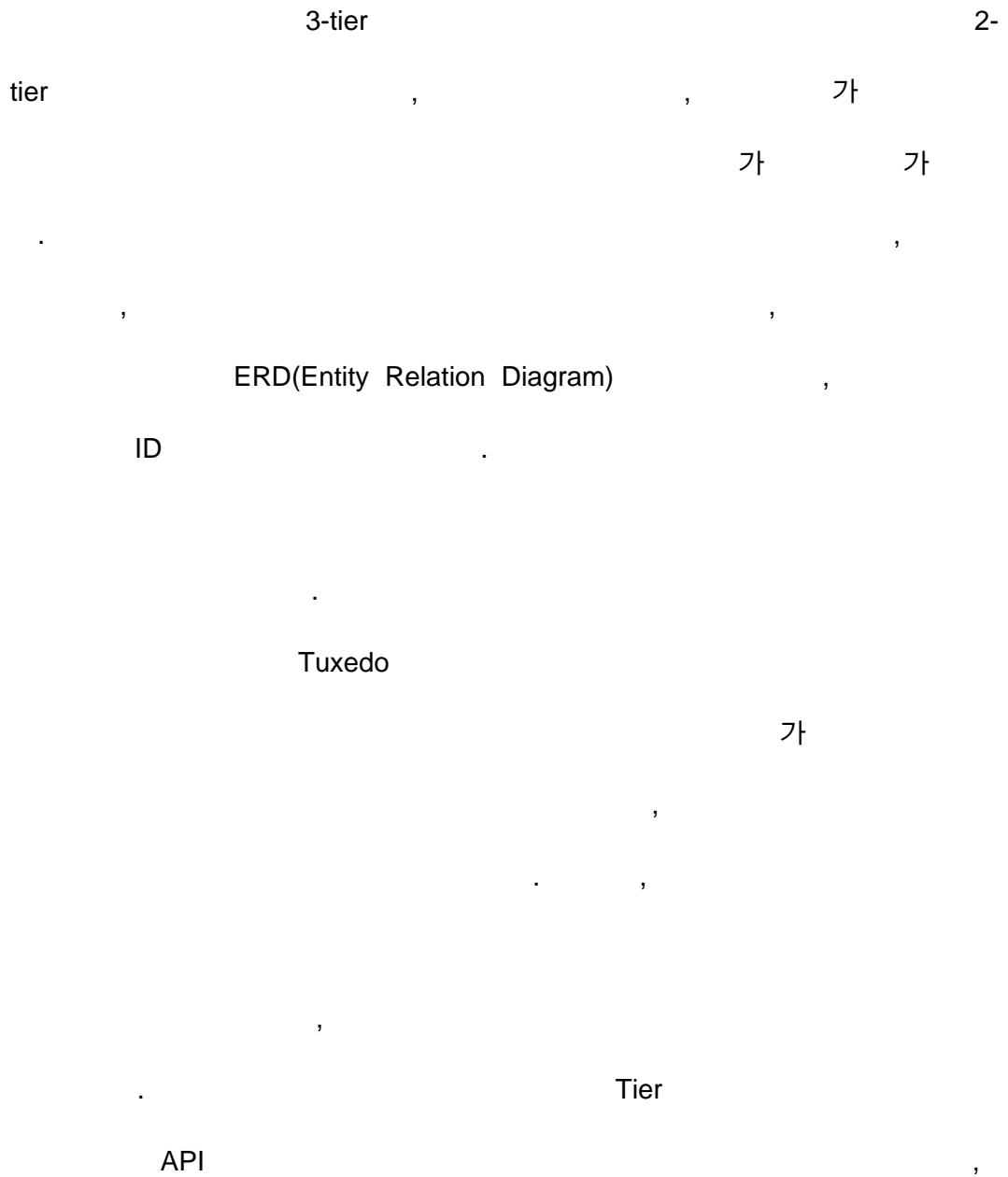
ICIS UNIX

AP, DB

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6.



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(User Interface Design)

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(Human Interface)

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(Performance)

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Enterprise

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Abstract

Design and Implementation of Integrated Customer Management System based on Middleware

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Kim, Mee Young

The reason to introduce Middle Ware is to win over companies' competence power. The environment around companies is rapidly changing day by day and every industry utilizing e-business makes the change faster. The companies not meeting such a change surely fall down. How fast they cope with the change is the coral point to company competence power.

The 3-tier system development using Middle Ware has advantages in high functions compared with existing host-originated and 2-tier systems, easily expanded structure, the flexibility in works addition and change and high productivity in development.

This thesis defines in customer management, charge management and marketing support system of the main functions in middle-originated integrated customer management system(ICIS), and explains important table and ID grant rules designed and utilized system. In addition, it explains the constructed system on-line processing flow and basic flow and suggests client's embodied screen and server source.

ICIS

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