Mobile Agent Development with CBD on ABCD Architectures

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❑ Dr.Haeng-Kon Kim

❑ hangkon@cu.ac.kr
❑ http://selab.cu.ac.kr

CUD SE lab.

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❑ Example of MA-Specification

❑ Conclusion

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Entering

New Applications
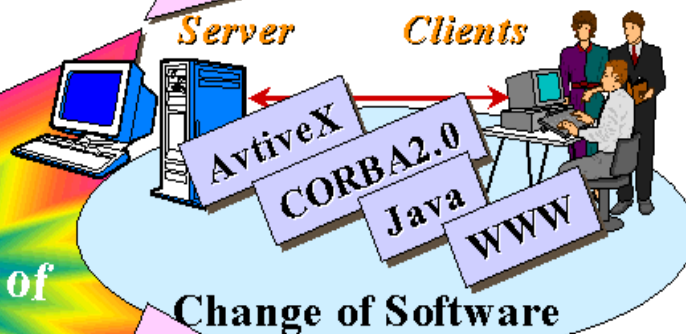e.g. Electronic Commerce
Groupware, Multimedia

New Software Architecture
Web-based, Internet
Distributed Computing

Server   Clients

AvtiveX
CORBA2.0
Java
WWW

Change of
Environmnets

Toward New Age of
Software Development

Change of Software

New Users
From Technical
to Non-Technical Users

New Development Methodologies
Object-Orientation, Architecture
Framework, Componentware

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SW classification (1)

```
                    ┌──────────────────┐
                    │        SW        │
                    └──────────────────┘
          ┌──────────────┼──────────────┐
┌──────────────┐ ┌──────────────────┐ ┌──────────────────┐
│ Embedded SW  │ │Information System│ │Ubiquitous Service│
└──────────────┘ └──────────────────┘ └──────────────────┘
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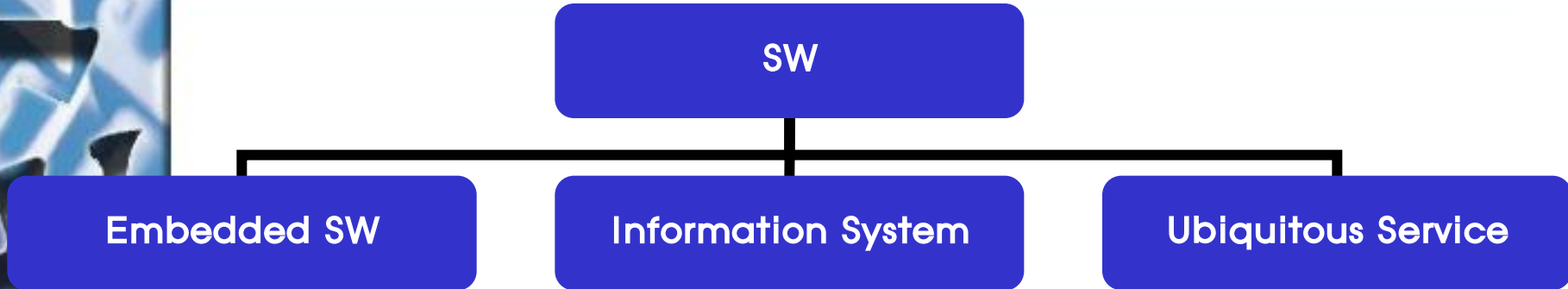
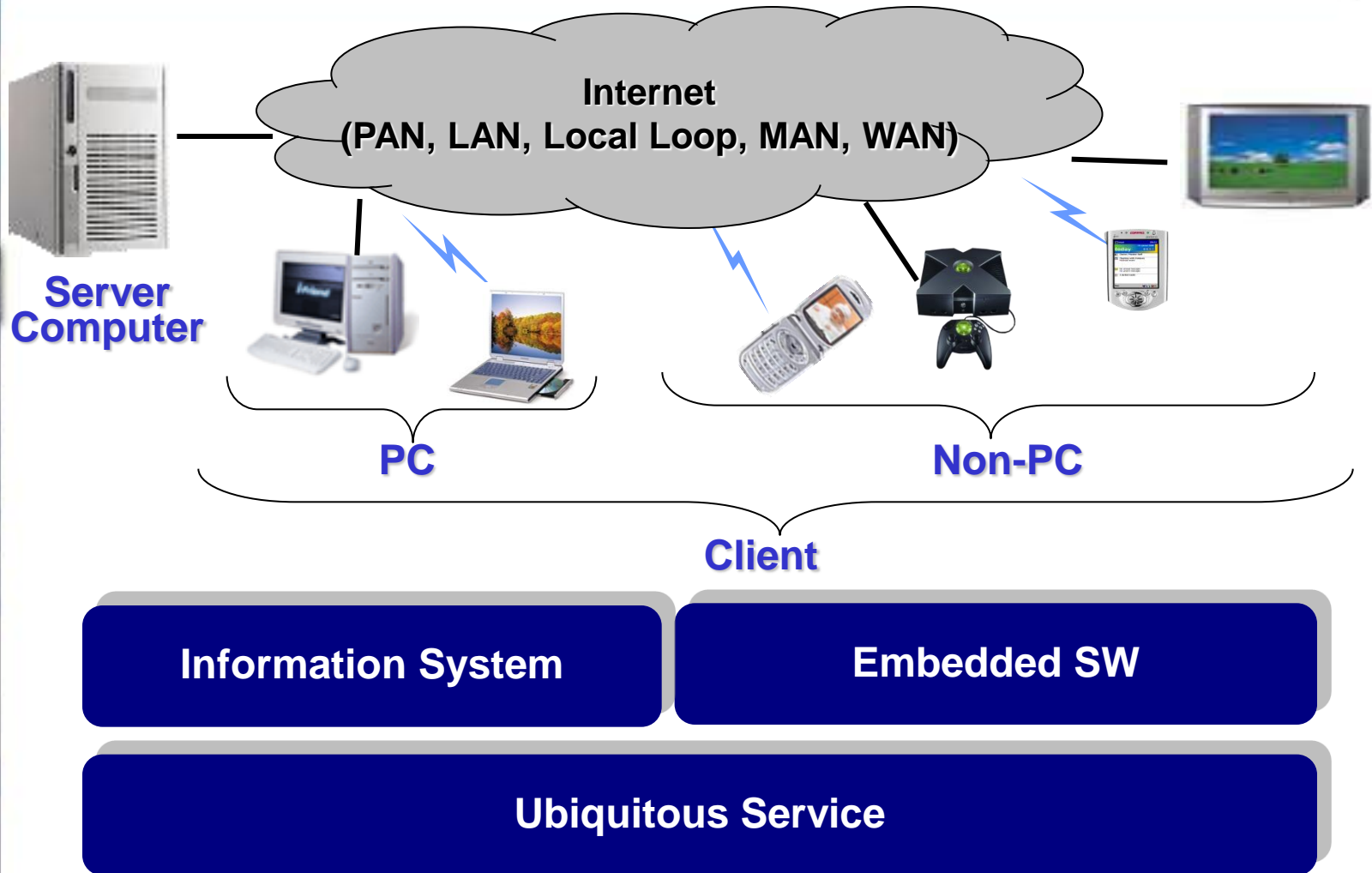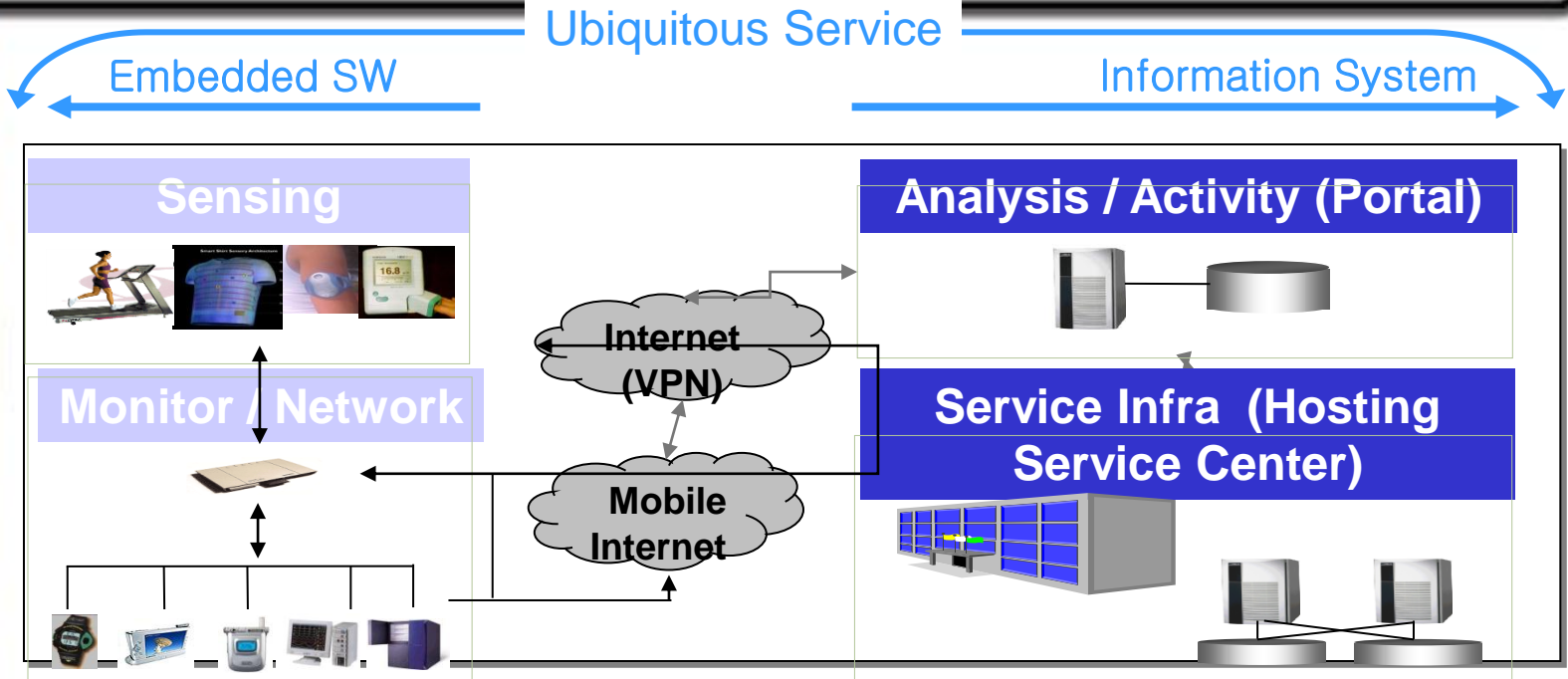|	용도	응용분야
Embedded SW	Information Access	Cellular Phone, PDA, Vertical Market Devices
	Entertainment	DTV, Set-top Box, MP3 Player, Game Console
	Intelligent Appliances	ATM, POS, Vending Machine, White Goods, Automotive, Medical Monitoring, Intelligent Switches, Telematics, GPS
	Smart Controls	Smart Card, Home Control, Mfg Process Control, AFC
Information System	Personal IS	PIMS, Office SW
	Enterprise IS	Transaction Processing, Business Intelligence, Enterprise Portal, ERP, CRM, SCM, e-Commerce, KMS, BAM
Ubiquitous Service		Mobile Service, Digital Home, U-City, U-Health

SW classification (2)

Server Computer

**Internet
(PAN, LAN, Local Loop, MAN, WAN)**

PC

Non-PC

Client

Information System

Embedded SW

Ubiquitous Service

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SW classification (3)

Embedded SW

Information System

Sensing

Monitor / Network

Internet (VPN)

Mobile Internet

Analysis / Activity (Portal)

Service Infra (Hosting Service Center)

Embedded SW

- ❑ SW running on ROM inside a device with a CPU
- ❑ SW in a device with a focused set of applications
- ❑ Limited amount of ROM/RAM, electrical power, connection bandwidth, and UI screen
- ❑ Stringent real-time and predictability constraints

Information System (Server SW)

- ❑ SW running on RAM in a server computer
- ❑ SW that performs the business logic
- ❑ SW responding to the request from a client
- ❑ Access to database or data warehouse
- ❑ High throughput and reliability requirements

SW classification (3)

Ubiquitous Service

Information System — Embedded SW

Business Component (Biz Logic)	Web Component (Server-side GUI)	Client Component (Client-side GUI)		

EJB EJB EJB	Servelet/ Servelet/ JSP	Applet Swing	J2ME Application J2ME Application	Java Card Applet Java Card Applet
			Car Profile / TV Profile / PDA Profile / Phone Profile	
Java 2 Enterprise Edition	Java 2 Standard Edition		Java 2 Micro Edition Core Library	JavaCard Runtime
Java Hot Spot	JVM		KVM	JCVM

Memory   **MB**
CPU   **bit**

Embedded Software

Requirements and strategy

> ➢ Build complex business application quickly
>> • Raise software reuse rate
>
> ➢ Build standard interface and middleware
>> • Raise interoperability between software
>
> ➢ Make maintenance and repair more easy
>> • Regard software as Well-wrapped set of semantic unit
>
> ➢ Build Infrastructure with system-level service
>> • Free from a system box => Distributed environment

ES Crisis

Performance based paradigm is sensitive to

- Commercial market
- Cost
- Schedule
- Changing requirements

Software Engineers   **Sales, Management, Quality**

Competition

Shifting of Software Development Methodologies

CBD

Model Based Development

패키지 통합 방법론
객체지향 방법론
클라이언트/서버 방법론

정보공학적
방법론

구조적
방법론
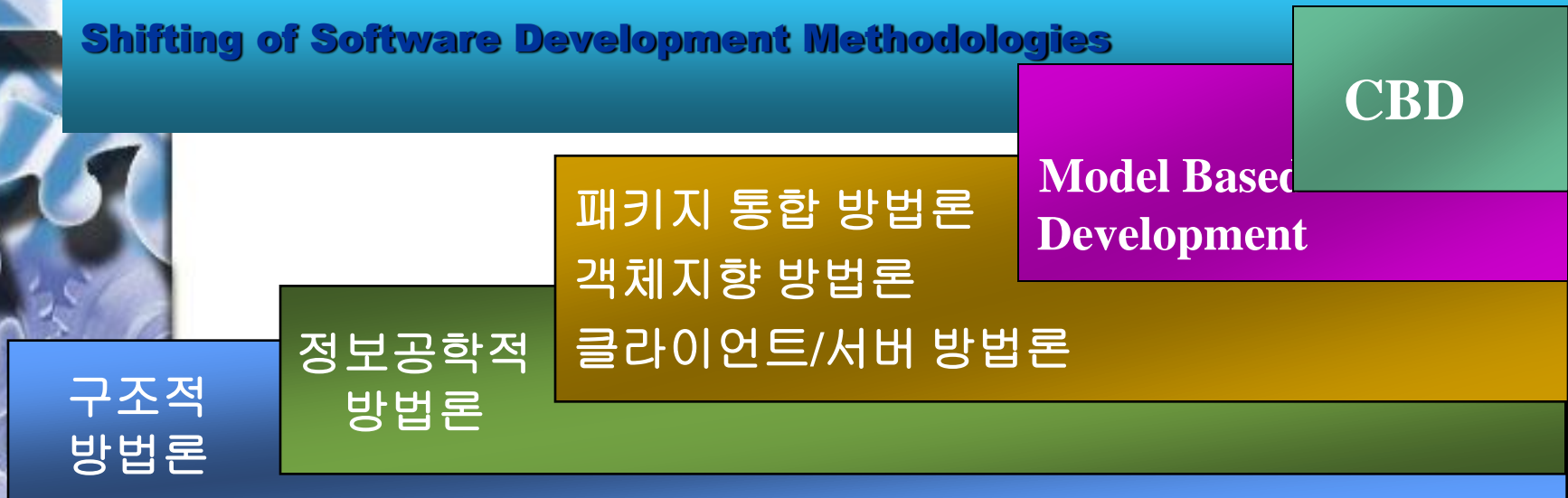
< *Hot Topics* >

- **A collection of rules and guidelines**
- **A full description of deliverables**
- **A set of techniques and tools**
- **A set of appropriate metrics, standards, and test strategies**
- **A description of the underlying models for product and lifecycle, i. e., process**
- **Identification of organizational roles, e.g., business analyst, programmer**

hangkon@cu.ac.kr

Overcome the Crisis(2)

SW Vendor

Asset Producer
- *Domain Architect*
- *Component Engineer*

Asset Reuse →

← **Application Harvest**

Asset Consumer = Application Producer
- *Application Engineer*

Build & Assemble →

Application Consumer (End User)
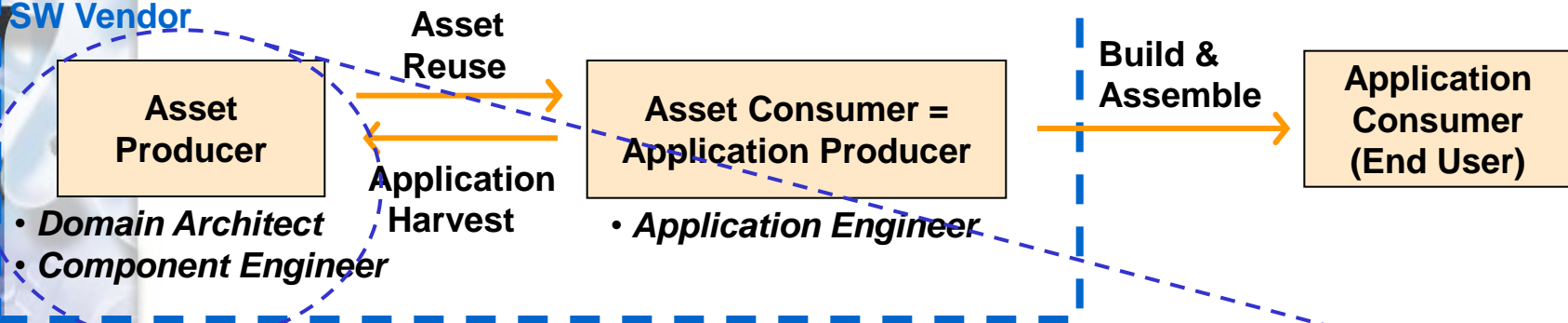
Domain Engineering using CBD

Domain Analysis

| Domain Scoping | Domain Modeling |

| Domain Req'ts | Domain Architecture |

Framework Development

| Design | Framework Assembly |

| Component Coding | Test |

Reusable Assets

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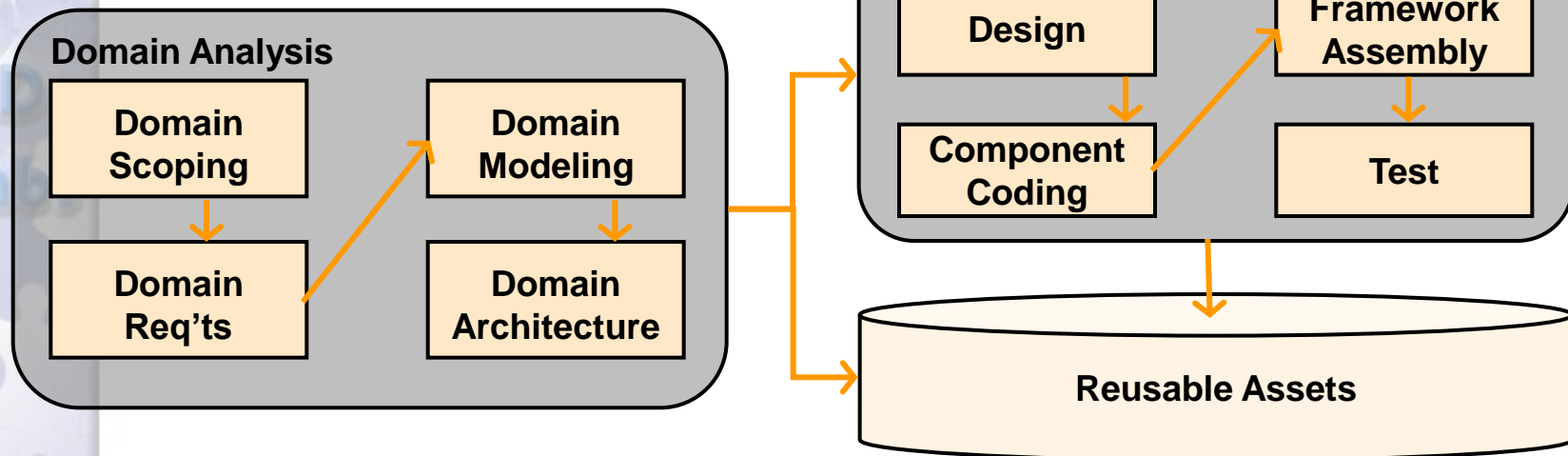
Software Factory

➢ Manufacturing

• Parts, Components
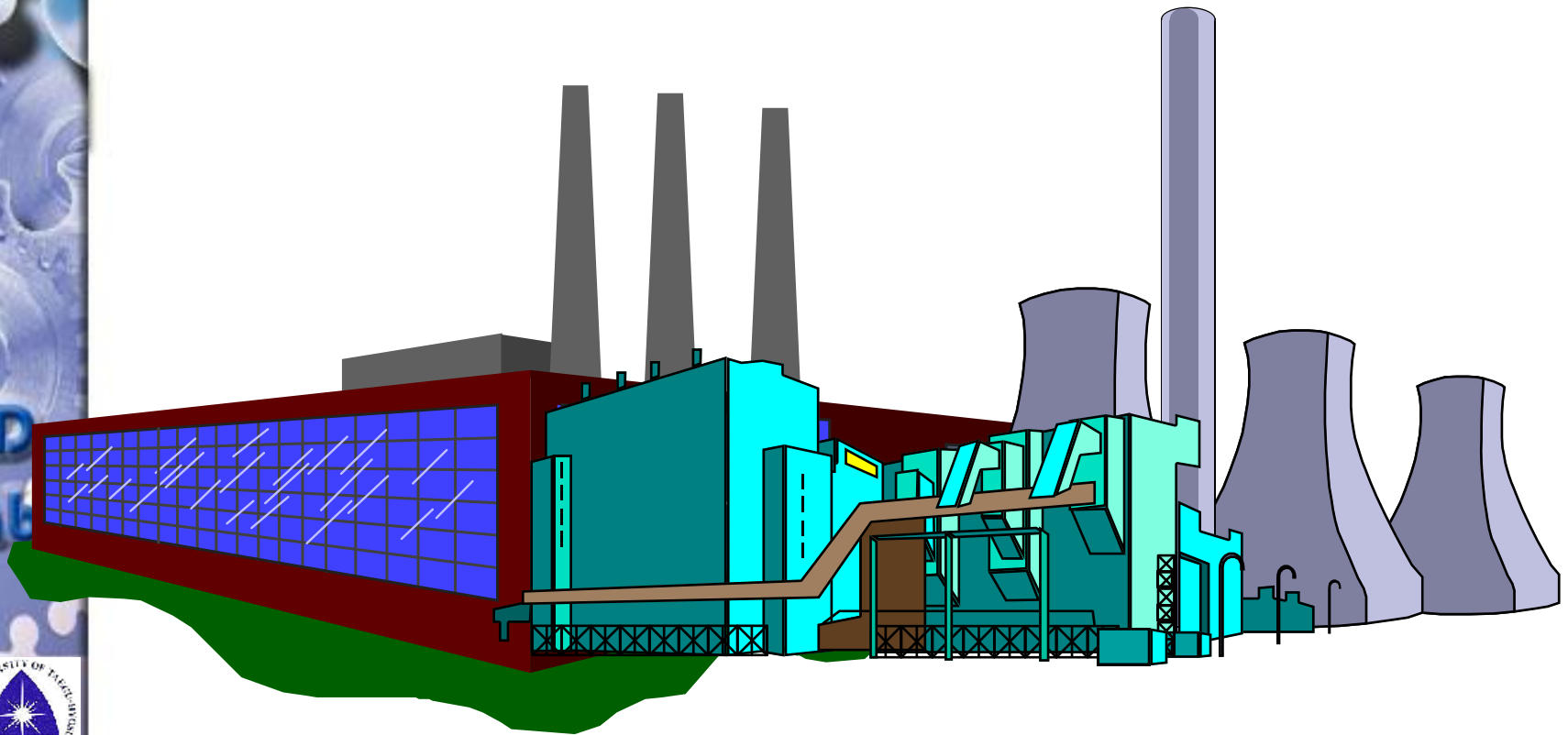
Component Base Development(1)

❑ CBD : Component Production + Component Composition

Component Base Development(2)

We identify
components

We catalog
components

We sell
components

We design
components

We build
components

We execute
components
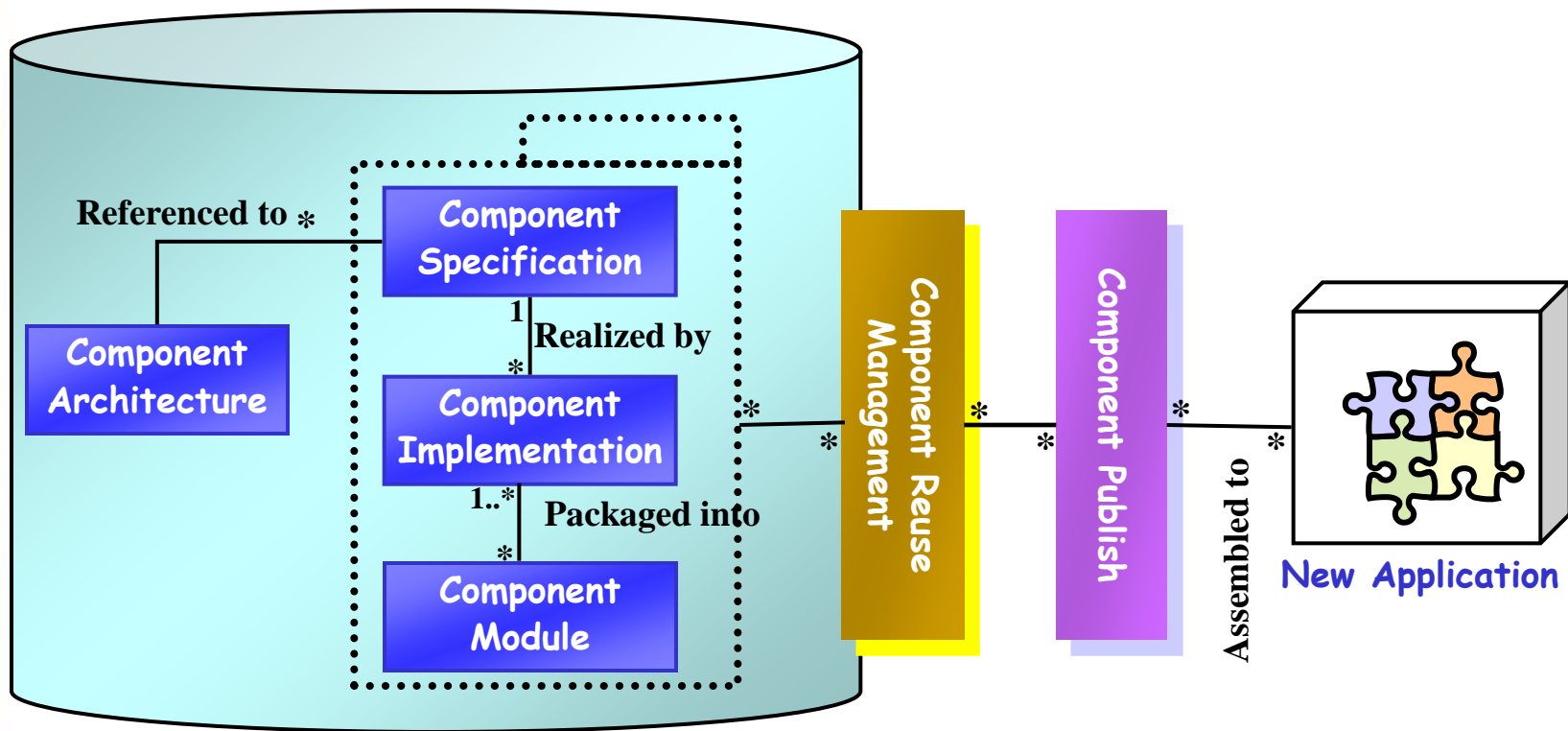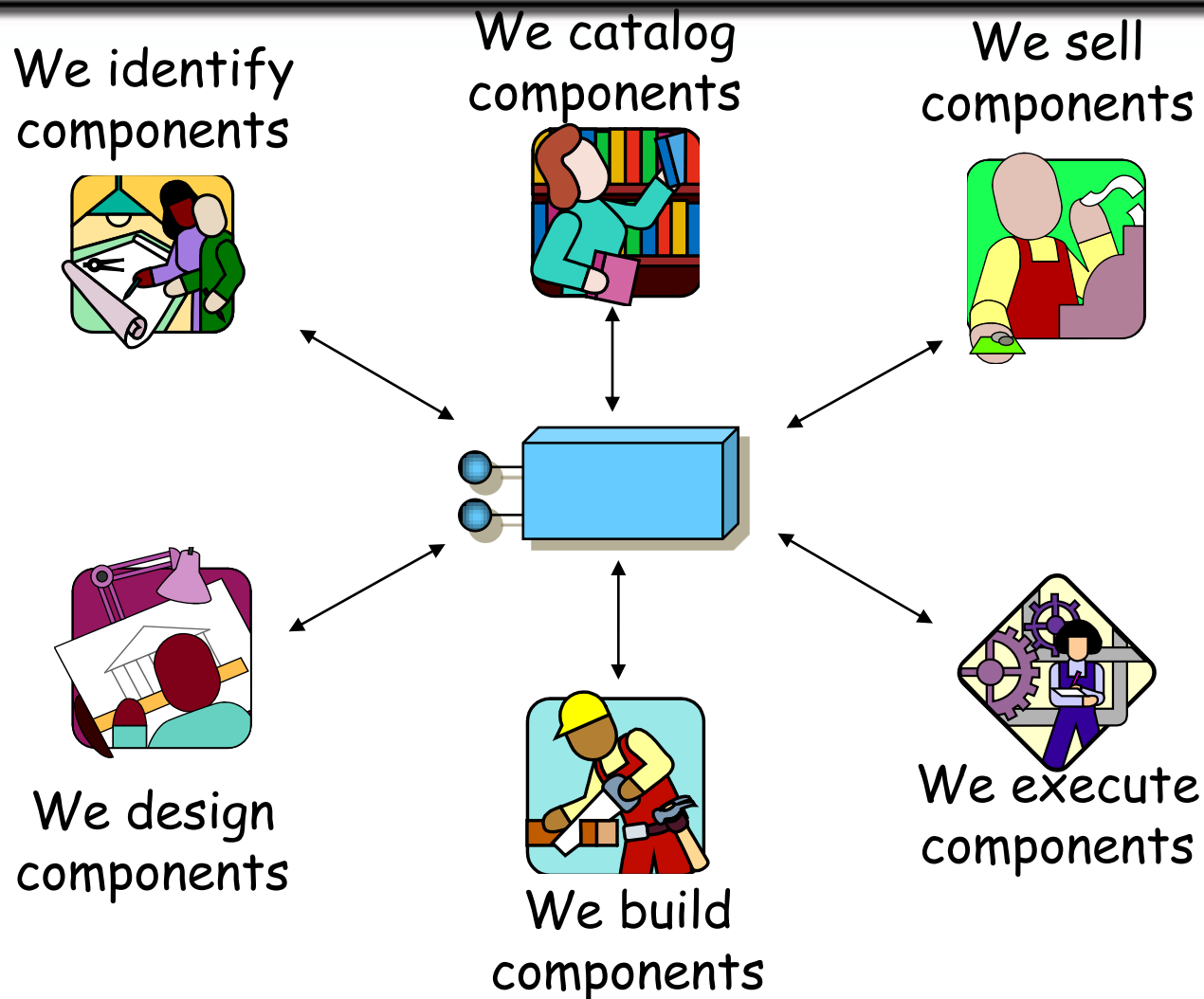
Component Base Development(4)
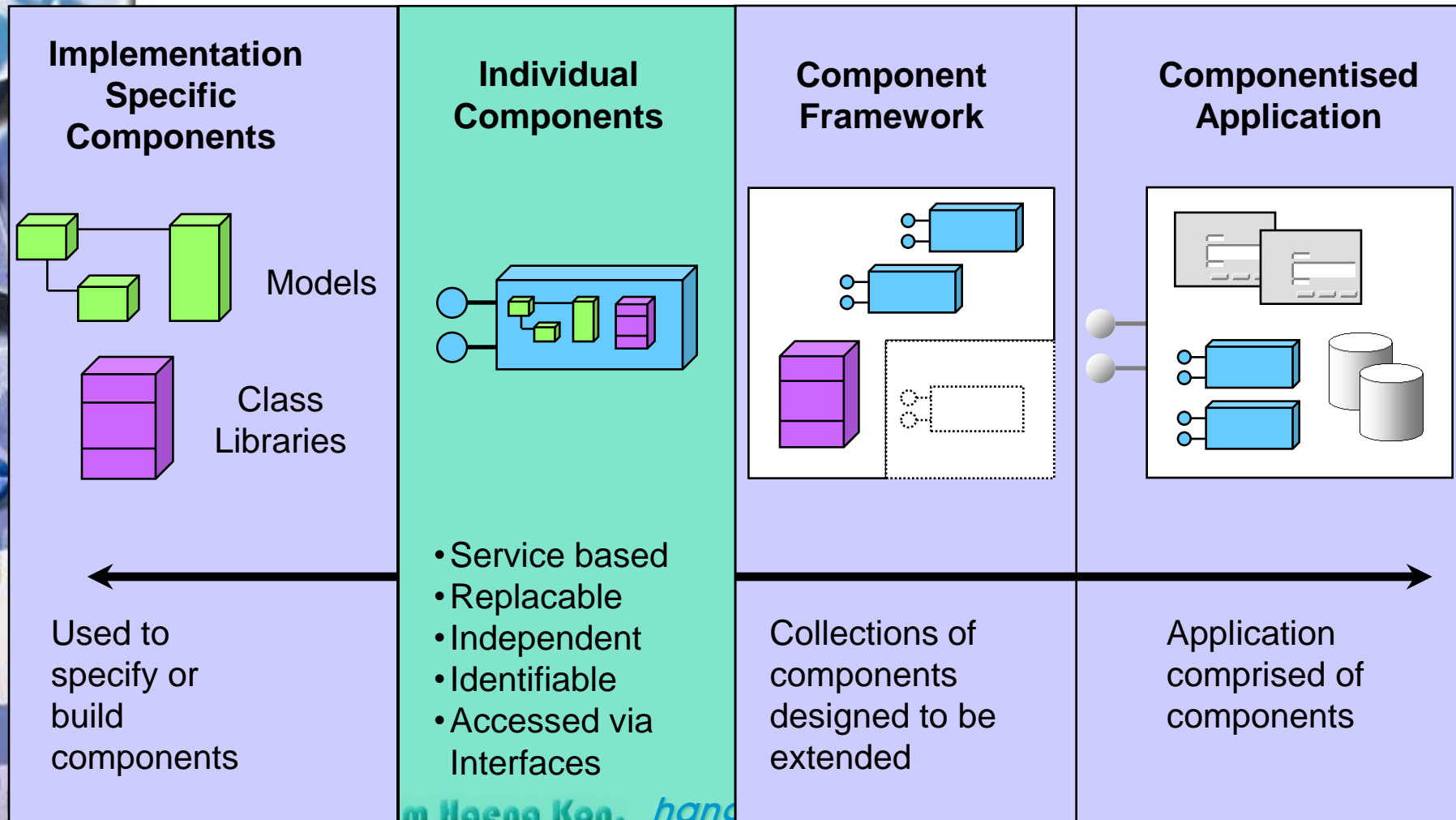
❑ Use of Component

Implementation Specific Components	Individual Components	Component Framework	Componentised Application
Models Class Libraries			
	• Service based • Replacable • Independent • Identifiable • Accessed via Interfaces		
Used to specify or build components		Collections of components designed to be extended	Application comprised of components

Component Base Development(5)

□ CBD Process

Component Base Development(6)

❑ Component Architecture For Korea Component Consortium

		Manufacturing			**Finance**			**Public Administration**			
		개별 생산(DM)	반복 생산(RM)	연속 생산(CM)	뱅킹	신용카드	보험	주민	복지	환경	

Domain Layer

Domain Specific

개별 생산(DM)
.생산 계획(DM)
.중장기 계획(DM)
.부하계획(DM)
.자재 소요 계획(DM)
.계획 지시(DM)
.생산 지시(DM)
. .

반복 생산(RM)
.생산 계획(RM)
.중장기 계획(RM)
.부하계획(RM)
.자재 소요 계획(RM)
.계획 지시(RM)
.생산 지시(RM)
. .

연속 생산(CM)
.생산 계획(CM)
.중장기 계획(CM)
.부하계획(CM)
.자재 소요 계획(CM)
.계획 지시(CM)
.생산 지시(CM)
. .

뱅킹
. 예금관리
. 대외계
. 고객지원
. 정보지원
. 지점프로세서
. 지점단말
.

신용카드
.회원
.승인
.회원정산
.가맹점관리
.국제연체관리
.사고채권관리
.생활서비스
.

보험
.청약관리
.계약관리
.입금관리
.제지급관리
.재보험관리
.보유계약관리
.손해사정관리
.마감/분석
통계

주민
.주민등록관리
.외국인관리
.인감관리
.취학아동관리
.병무관리
.선거관리
.호적관리
.여권교부

복지
.사회복지시설 및 법인
.생활보호
.의료보호
.노인복지
.영유아복지
.아동복지
.모자(부자)복지
.장애인복지
.가정의례
.매장묘지
.지역사회자원 활용

환경
.환경영향평가
.환경보전환경
.오염방지사업
.오수 분뇨 및 축산폐수관리
.유해화학 물질관리
.환경시설관리
.폐기물관리
.청소행정관리

Business Support

그룹웨어
입찰/경매
가상상점
화상회의
웹 편집기
웹 자동번역기

Domain Common

제조공통
. 자원관리
. 회계및 원가
. 재무및 자산
. 영업및 물류
.자재 관리
.재고관리
.품질 및 서비스
.공장 관리

금융공통
. 계좌관리
. 계산관리
. 고객정보관리
. 서비스관리
. 코드관리
. 거래관리

행정공통
주민정보관리   토지관리
건축물관리   세정관리

Common Layer

Business Mngmt.

B2B 쇼핑몰 (CBM01) : 회원관리, 상품관리, 주문관리, 배송, 결재, 장바구니. ...
B2B 가상시장 (CBM02) : 경매관리, Exchange 관리, 회원관리, 주문관리, Catalog관리, ...
XML/EDI (CBM03) : Repository관리, Vendor관리, Mapping관리, 전송관리, XML Schema生成기, XML파서, ...
인사 (CBM04) : 인력관리, 조직관리, 발령관리, 근태관리, 직무관리, 교육관리, 채용관리, 평가관리, 임금관리, ...
회계 (CBM05) : 전표관리, 채권/채무관리, 장부관리, 결산관리, 고정자산관리, 세무관리, 지금수지관리, ...
공급망 (CBM06) : 수요예측, 협력계획, 공급망계획/배치, 카탈로그, 창고관리, 운송관리, 자재조달, 보고서, ...
고객관계 (CBM07) : 마케팅관리, 세일즈관리, 서비스관리, ...

Business Common

CBC : 부서, 계정, 원가중심점, Project Code, 사원, 개인/법인 카드, 품목, 설비/자산, 자산구조, 부가세 코드 ,
마감통제, 달력, 사업자등록번호확인, 주민등록번호확인, 메일, 게시판, ...

Platform Layer

Application server (EJB / COM / CCM)

Operating System and Network Service

Component Base Development(7)

Billing.exe

Billing System

Register.exe

Course.dll

People.dll

User

Course

Course

Course Offering

Student

Professor

Component Diagrams with UML

Classes

Packages

Components

Interfaces

Class to Components

Component Base Development(9)

Analysis
- •Class Modeling
- •State Transition
- •Sequence Diagram
- •Activity Diagram

Requirements Definition
- •Use Case Modeling
- •Class Modeling

Design
- •Packaging
- •Component Diagram
- •Deployment Diagram

Source: Butler Group

Component Base Development(10)

SC1   SC2   ··   SCn   *Scenario Component Layer*

Port based Tailoring

CC1   CC2   CC3   ··   CCn   *Composite Component Layer*

Feature Composition Tailoring

EC1   EC2   EC3   ··   ECn   *Elementary Component Layer*

Component Integration

Component Base Development(11)

❑ Monolithic Component

   ➢ Monolithic

   ➢ Completed

컴포넌트   단조 완성형   컴포넌트   맞춤 조립형
                 컴포넌트   컴포넌트
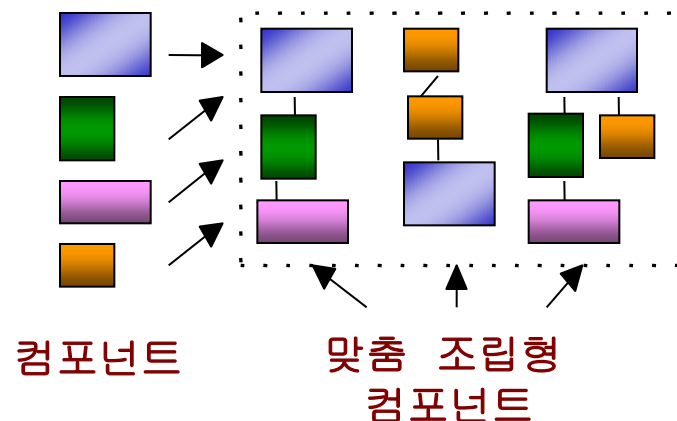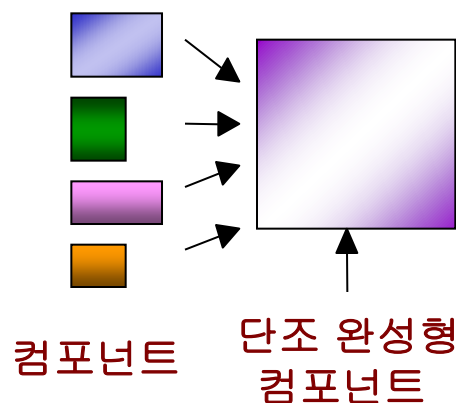
Component Integration (2)

Component Base Development(12)

SC

Scenario Component

Composited Component takes a role from both

Business Process

CC1

Composite Component

E1 E2 Role A

CC2

Composite Component

E1 Role B E2

Basic, Common Logic

C

B

Related Site

- http://selab.cataegu.ac.kr/
- http://www.cetus-links.org/
- http://www.cbdiforum.com/
- http://www.componentsource.com/
- http://www.flashline.com/
- http://www.afams.af.mil/
- http://alsp.ie.org/alsp/
- http://www.amso.army.mil/
- http://vpg.apg.army.mil/
- http://bmdssc.jntf.osd.mil
- http://www.darpa.mil/
- http://www.disa.mil/
- http://www.disa.mil/D8/html/c4isr.htm

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Related Site

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IBM (85)
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↳ WebLogic Server (38)
↳ WebLogic Workshop (94)
**Sybase** (150)

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Stimulsoft Reports.Wpf 2011.2 adds new chart types
Also adds new filtering options, collapsing hierarchical reports and the ability to store reports in the Google Cloud. Published: September 29, 2011

.Net Multimedia Control supports 64 bit platforms
V3.0 also adds support for Windows 7, Visual Studio 2010 and .NET Framework 4.0 Published: September 29, 2011
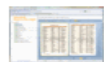
Stimulsoft Reports.Silverlight 2011.2 released
Adds a new report checker for web, new import tool and the ability to store reports in the Google Cloud. Published: September 29, 2011

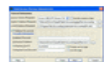**MailBee.NET POP3 Bundle now available**
Includes MailBee.NET SMTP, POP3, Security, and Outlook components. Published: September 29, 2011

MailBee.NET IMAP Bundle now available
Includes MailBee.NET SMTP, IMAP, Security, and Outlook components. Published: September 29, 2011

Total Access Startup 2010 released
Start the right version of Microsoft Access and your database every time, now supports Microsoft Access 2010. Published: September 29, 2011

HS SMTP C Source Library 2.0.5 released
Separate code bases are combined into a single code base that compiles both on Windows and on Linux. Published: September 29, 2011

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ActiveX / COM Repair (5)
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Analysis, Design and Modeling (25)
Artificial Intelligence (2)
Audio, MIDI and Sound (3)
Automatic Updates (3)
Barcodes (135)
Biometrics and Authentication (1)
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Top Downloads

1. Dynamic-CD for ASP
2. InstallShield 2012 Professional
3. True DBGrid Pro
4. DXperience
5. VSFlexGrid Pro
6. IBM ILOG Elixir Standard V3.0
7. Data Widgets
8. ActiveReports 6
9. ComponentOne Studio Enterprise
10. Infragistics NetAdvantage Ultimate

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Top Reviews

• Syncfusion Essential Studio Enterprise Edition
• Janus GridEX
• Syncfusion Essential XlsIO
• Syncfusion Essential Grid for Windows Forms
• Syncfusion Essential Studio User Interface Edition
• Syncfusion Essential DocIO
• Syncfusion Essential Studio Reporting Edition
• FarPoint Spread 8 COM
• Enterprise Enabler (EE) for WSS
• ReSize OCX/.NET

View All Top Reviews

Case Works
– Kinds of Agent

❑ Some key applications for agents in internet

➤ Information Gathering Agents (interesting in our work)

➤ Shopping Agent

➤ Management Agent

➤ Monitor Agent

➤ Mobile Agent (interesting in our work)

Case Works
- Some of key problems in using Agents

❑ Security

❑ Psychological Resistance

❑ Infrastructure Integration

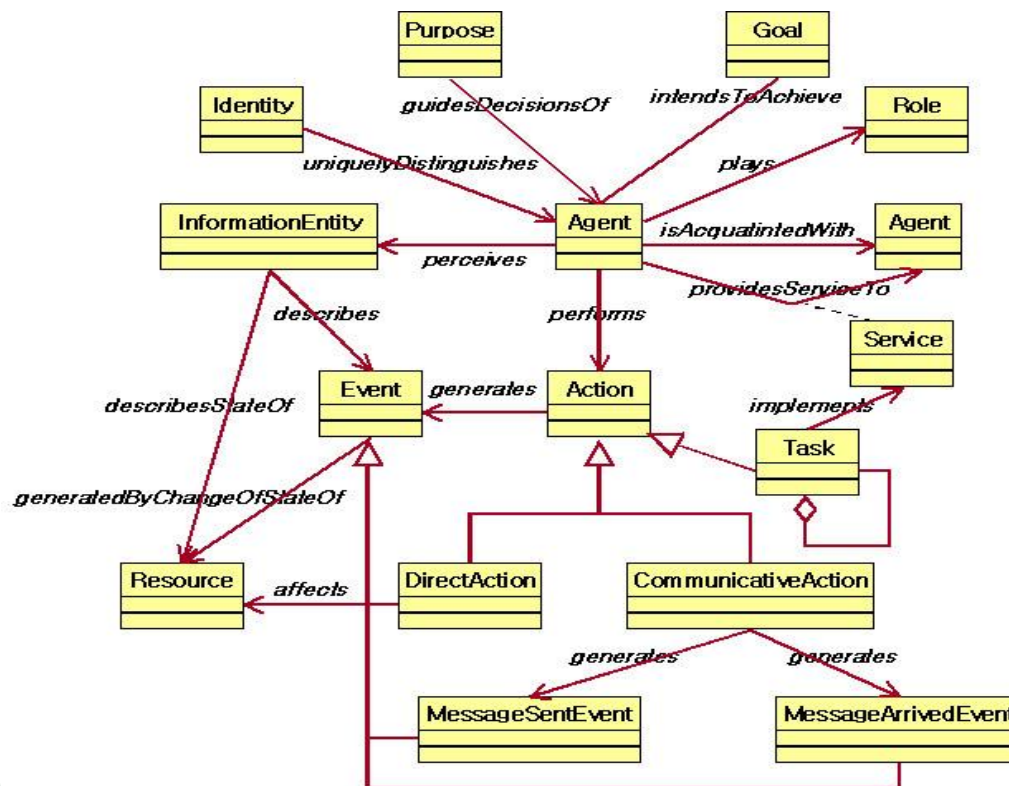❑ Interoperability

❑ Reliability

Case Works – Agent Model

❑ Agent Concept Model

➢ atomic autonomous entity

➢ gives an informal agent-centric overview of how these concepts are inter-related

Case Works
- Reference Architecture of MA-CBD(2)

❑ In order to construct component reference architecture, agent is classified in general agent type and e-business function attribute

❑ Reference architecture

- ➢ Consisted of two part, which has 14 general types and 11 concrete business agent types with domain oriented component architecture

- ➢ Two classification areas
  - • Tend to be independent for each cross-referenced
  - • Each area has its own horizontal and vertical characteristics

- ➢ General agent types are corresponding to agent platform and application

- ➢ Possible to develop agent system or application by the referencing architecture

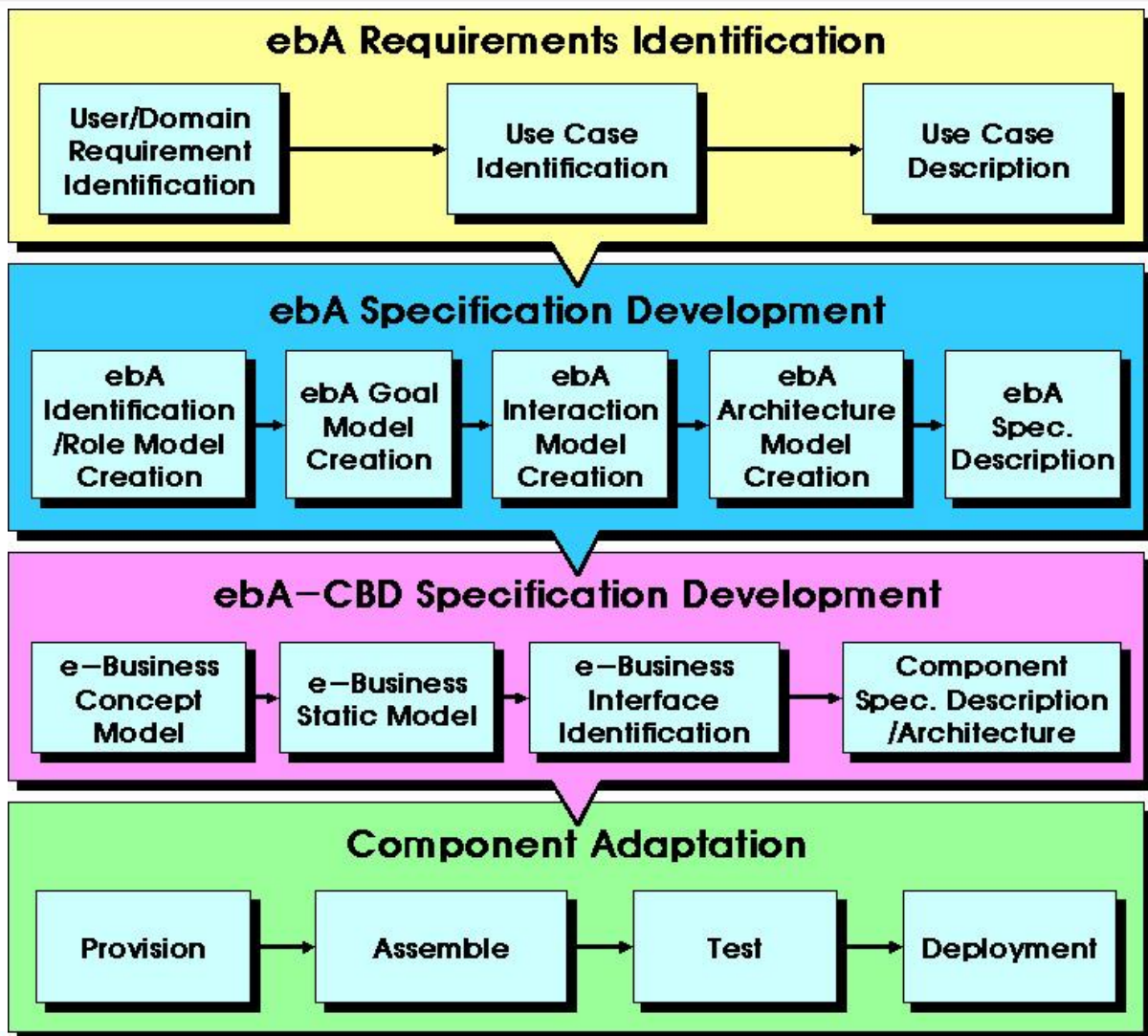# MA-CBD Process

❑ Component development process based architecture

  ➢ Involve the development of component from MA specification by using UML model

  ➢ Consider systemically development process using AUML and MA model technology to analyze, design, and develop e-business agent

  ➢ Product

    • Domain analysis specification, design model, implemented component
    • Stored in the repository

MA-CBD Process
- Process

ebA Requirements Identification

| User/Domain Requirement Identification | → | Use Case Identification | → | Use Case Description |

ebA Specification Development

| ebA Identification /Role Model Creation | → | ebA Goal Model Creation | → | ebA Interaction Model Creation | → | ebA Architecture Model Creation | → | ebA Spec. Description |

ebA-CBD Specification Development

| e-Business Concept Model | → | e-Business Static Model | → | e-Business Interface Identification | → | Component Spec. Description /Architecture |

Component Adaptation

| Provision | → | Assemble | → | Test | → | Deployment |

MA-CBD Process
- MA Requirements Identification Phase

❑ The requirement of agent
- ➢ Identified in desired business system
- ➢ To analyze the primary property of agent
- ➢ Corresponding to agent type in reference architecture and what business concept is focused on

❑ For the e-business domain analysis
- ➢ Used UML's use case diagram
- ➢ Supports the behavior of a system by modeling static aspects of a system
- ➢ Presented on entire domain concept and scenario using activity diagram
- ➢ Defined through use case diagram and use case description.

❑ Agent specification

- ➢ based on user's requirement creates MA Specification and 4 models
- ➢ identify and development new components.

❑ MA Model

- ➢ extends the UML meta-model by adding a number of elements
- ➢ Represent the notation that MA-Role, Goal, Interaction and Architecture model
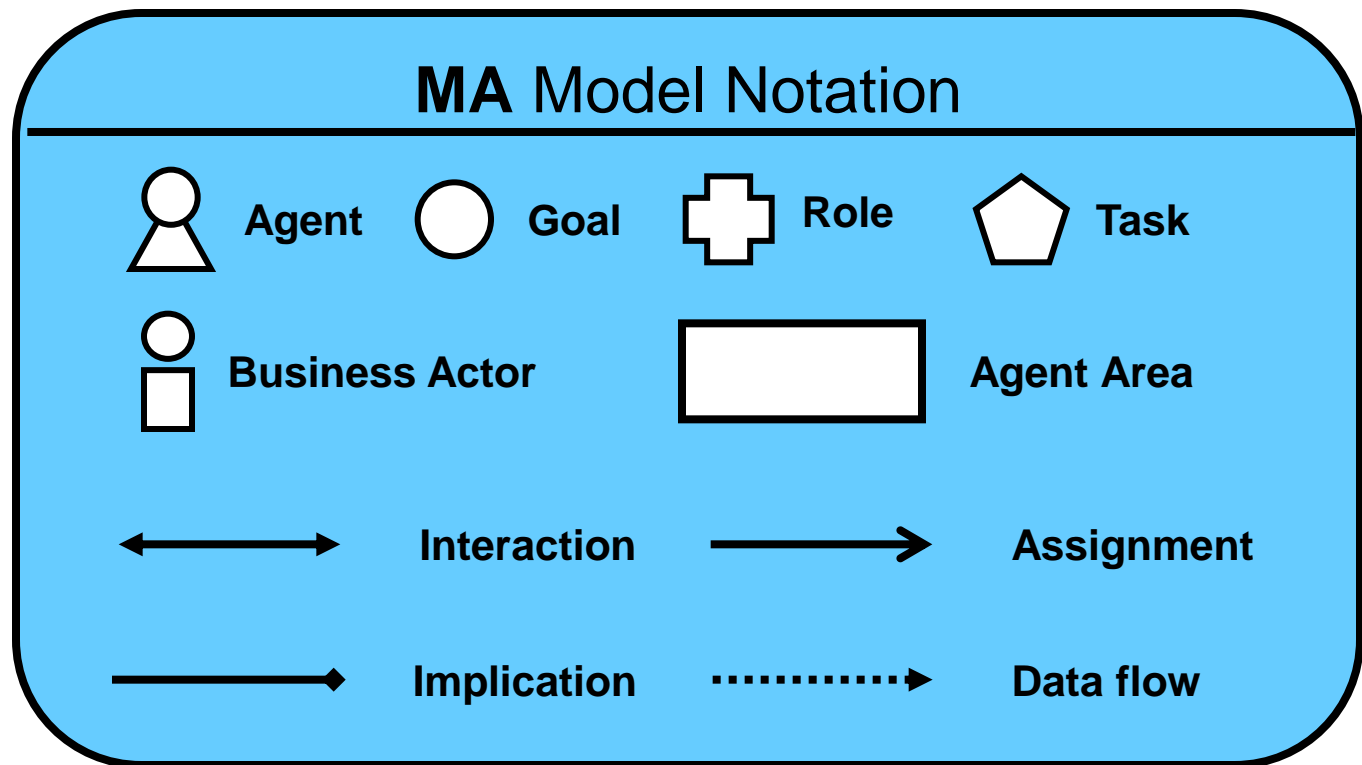- ➢ graphically the instances of these new meta-elements in the diagrams

❑ MA Model Notation

➤ Representing the MA Model concepts and relations

MA Model Notation

| Agent | Goal | Role | Task |

Business Actor

Agent Area

→ Interaction

→ Assignment

→ Implication

⋯→ Data flow

MA-CBD Process
- MA Specification Development (3)

❑ The usages of relationships

➢ Implication

- Links one or more elements that have an attribute of type state to a single element that has an attribute of type state

➢ Assignment

- Links an element of type Autonomous Entity to an element that has an attribute of type Autonomous Entity

- Assignment from one Autonomous Entity to another following the direction of the arrow

➢ Data flow

- Links a DataProsumer to an InformationEntity that is produced or consumed

- Relation as the ObjectFlow relation defined in UML

❑ MA Identification and Role Model Creation

- ➢ focuses on the individual Agents and Roles

- ➢ For each agent/role it uses scheme supported by diagrams to its characteristics
  - what goals it is responsible for
  - what events it needs to sense
  - what resources it controls
  - what tasks it informs
  - how to perform

MA-CBD Process
- MA Specification Development(5)

❑ MA-CBD reference metrics

➢ Used to agent identification and agent naming

➢ To give a classification code

E-Business Agent / Agent Type	System-Level Agent(00)			General Business Activity Agent(10)					Personal Agent (20)	System -Level Agent (30)	Security Agent (40)
	Interoperation Agent (01)	Business Transaction Agent (02)	Workflow Agent (03)	Marketing Agent (11)	Legal Agent (12)	Financial Agent (13)	Negotiation /Contracting Agent (14)	Information Brokering Agent (15)			
Software Agent(SWA)											
Autonomous Agent (AUA)											
Interactive Agent (INA)											
Adaptive Agent (ADA)											
Mobile Agent (MBA)											
Coordinative Agent (COA)											
Intelligent Agent (ITA)											
Wrapper Agent (WRA)											
Middle Agent (MOA)											
Interface Agent (IFA)											
Information Agent (IMA)											
Smart Agent (SMA)											
Hybrid Agent (HYA)											
Heterogeneous Agent (HGA)											

MA-CBD Process
- MA Specification Development(6)

❑ **MA Goal Model Creation**

➢ Shows Goals, Tasks, States and the dependencies among them

➢ Linked by logical dependencies to form graphs

- Show that achieving a set of sub-goals implies that a higher level Goal is achieved
- How Tasks can be performed to achieve Goals

❑ **MA Interaction Model Creation**

➢ Highlights which, why and when agents/roles need to communicate leaving all the details about how the communication takes place to the design process

➢ Can be conveniently expressed by means of a number of interaction diagrams

➢ Shows the initiator, the responders, the motivator of an interaction plus other optional information

❑ **MA Architecture Model Creation**

  ➢ Shows agents relationship to negotiate and coordinate in agent area

  ➢ Considers the business actor and domain concept

  ➢ Agent area
   • software agents meet and interact in the target architecture
   • Can be distributed on different hosts, and facilitate means for efficient inter-agent communication

   • two main types
    – the area where the agents advertise their capabilities, communicate with other agents
    – the user-client where the user interacts with agents

MA-CBD Process
- MA Specification Development(8)

❑ **MA Specification Description**

➢ Based previous models as role model, goal model, interaction model and architecture model

➢ Show functional and non-functional elements

• Functional element : described to use class diagram and sequence diagram

Item	Description
Agent Name	Identified ebA name
E-Business Type	Identified E-business Type in ebA-CBD reference architecture
General Agent Type	Identified General Agent Type in ebA-CBD reference architecture
Identification Code	Identified code in ebA-CBD metrics
Access Information	Assessed, stored and modified information
Produce Information	File/information which the agent creates while it operates
Related Agent	Agent which negotiate, coordinate or exchange message
Information Model	Represented agent's attribute and operation
Operation Model	Represented sequence of operation among agents

MA-CBD Process
- MA-CBD Specification Development(1)

❑ Input

  ➢ Requirements a use case model, MA models, MA-spec

  ➢ Uses information about existing software assets

    • Legacy systems, packages, and databases

    • Technical constrains, such as use of particular architectures or tools

❑ Output

  ➢ Set of component specifications and component architecture

  ➢ Component specification

    • Include the interface specifications they support or depend on

  ➢ Component architecture

    • Shows how the components interact with each other

    • Must be provided in specification form for integration

MA-CBD Process
- MA-CBD Specification Development(2)

❑ Component Specification

➢ Include component design and development information, functional and non-functional information and commercial information

Item	Description
Category	Component family of Business domain
Component Diagram	Relationship between component
Component Name	Identified component name
Classification Code	Classification code of component based on ABCD Architecture
Short Description	Describe about component function, motive, constraint, etc.
Glossary	Describe concept of glossary related component specification
Component Context Diagram	Main function of Component
Component Interaction Diagram	Relationship between component
Component Sequence Diagram	Operational sequence of component
Component Diagram	Represent of required and provide interface
Component State Diagram	Represent of operation change
Interface Description	Pre/Post condition, input/output result
Usage Scenario	Scenario for component usage
Quality Attribute	Non-functional(Quality) attribute

MA-CBD Process
- Component Adaptation

❑ Provisioning phase

  ➢ To determine what components to build or buy, in the assembly phase as an input to test scripts

  ➢ Ensures that the necessary components are made available,

   • By building them form scratch
   • By buying them from a third party
   • By reusing, integrating, mining
   • By modifying an existing component or other software

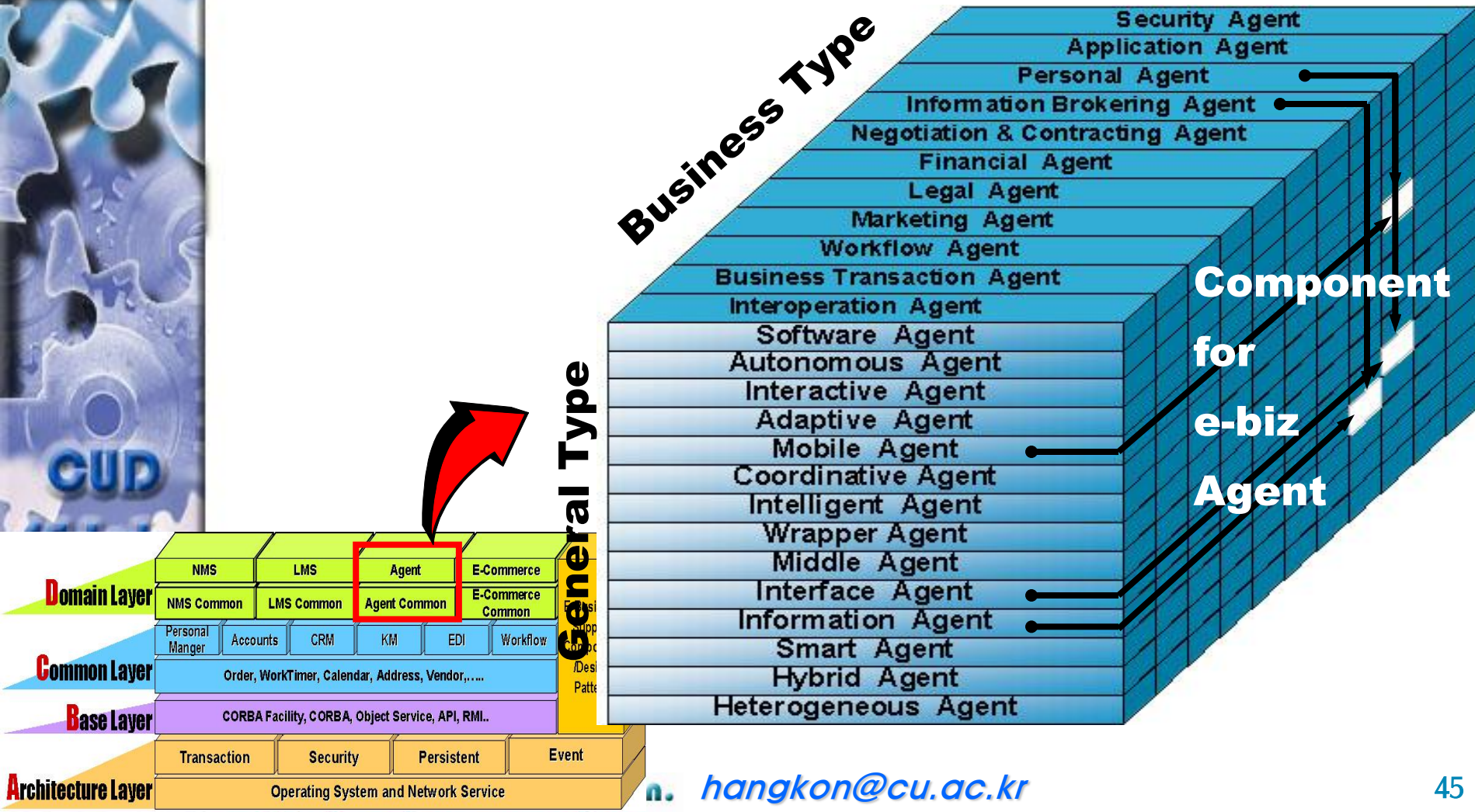 ➢ Includes unit testing the component prior to assembly

❑ Assembly phase

  ➢ Takes all the components

  ➢ Puts them together with existing software assets and a suitable user interface

❑ The application is passed to the test phase for system and user acceptance testing

Reference Architecture of MA-CBD

❏ MA-CBD Reference Architecture

Business Type

Security Agent
Application Agent
Personal Agent
Information Brokering Agent
Negotiation & Contracting Agent
Financial Agent
Legal Agent
Marketing Agent
Workflow Agent
Business Transaction Agent
Interoperation Agent

General Type

Software Agent
Autonomous Agent
Interactive Agent
Adaptive Agent
Mobile Agent
Coordinative Agent
Intelligent Agent
Wrapper Agent
Middle Agent
Interface Agent
Information Agent
Smart Agent
Hybrid Agent
Heterogeneous Agent

Component for e-biz Agent

| NMS | LMS | Agent | E-Commerce |
| NMS Common | LMS Common | Agent Common | E-Commerce Common |

Domain Layer

| Personal Manger | Accounts | CRM | KM | EDI | Workflow |

Common Layer

Order, WorkTimer, Calendar, Address, Vendor,…..

Base Layer

CORBA Facility, CORBA, Object Service, API, RMI..

Architecture Layer

| Transaction | Security | Persistent | Event |

Operating System and Network Service

MA-CBD Integration

❑ Component Integration

SC

Scenario Component

Business Process

Composited Component takes a role from both

CC1

Composite Component

E2
E1
Role A

CC2

Composite Component

E1
Role B
E2
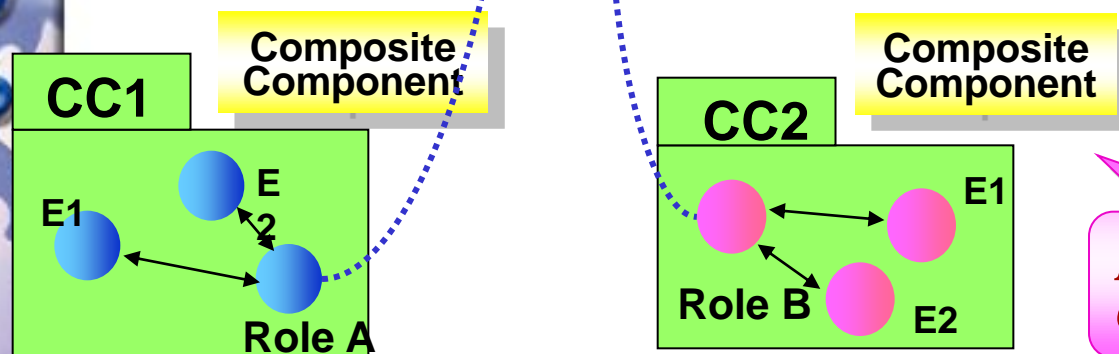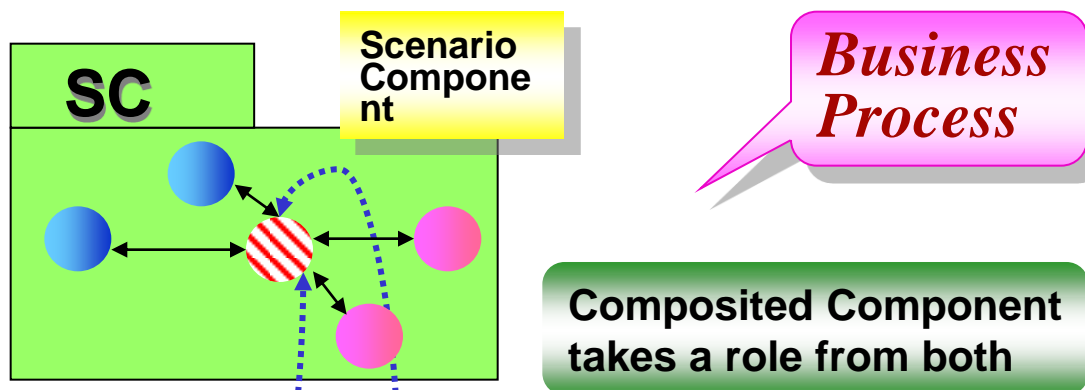
Basic, Common Logic
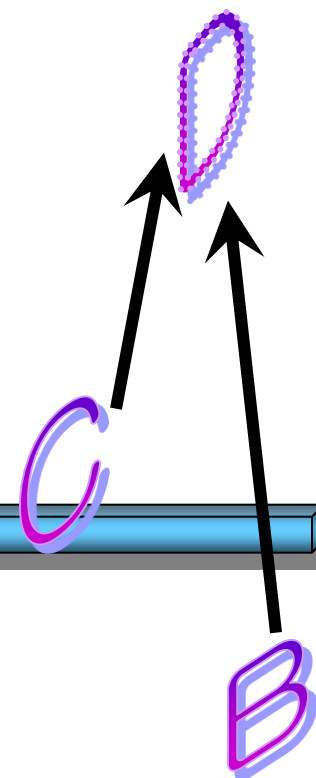
Example of MA-Specification(1)

❑ **Example : Component information search agent**
  ➢ The agent finds the information of the component to be registered newly

❑ MA Requirements Identification
  ➢ Use case diagram of Component Information Search Agent
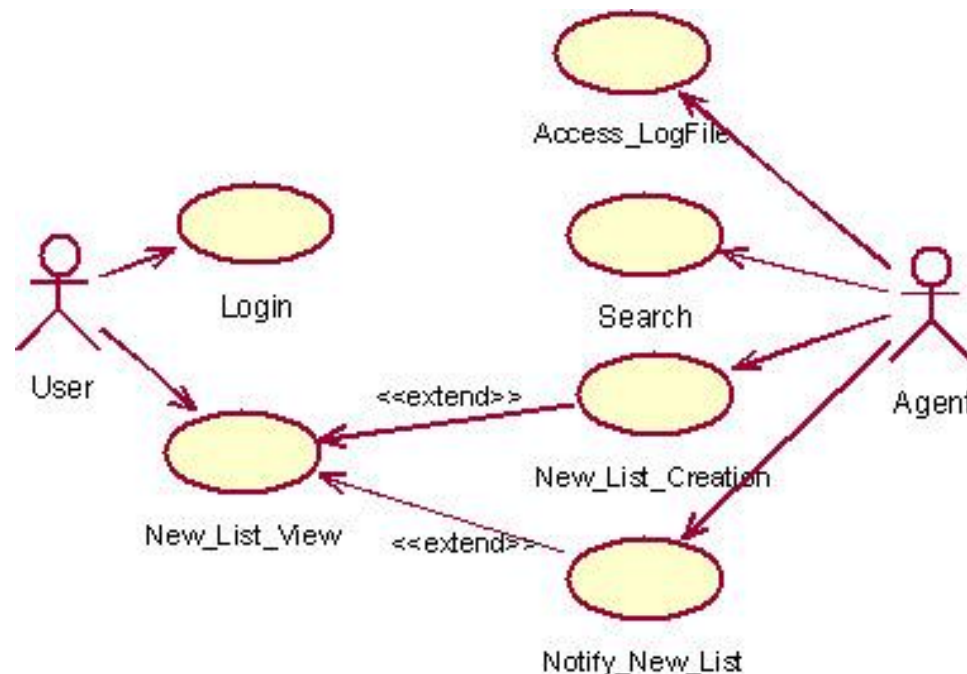
Example of MA-Specification(2)

❑ MA-Spec. Development

➢ The MA candidate identify based on use case diagram and using MA-CBD reference metrics

➢ Identified MA : User, Search and collection agent

E-Business Agent / Agent Type	General Business Activity Agent(10)		Personal Agent (20)
		Information Brokering Agent (15)	
Mobile Agent (MBA)			MBA-20-01 Collection Agent
Coordinative Agent (COA)			
Intelligent Agent (ITA)			
Wrapper Agent (WRA)			
Middle Agent (MOA)			
Interface Agent (IFA)			IFA-20-01 User Agent
Information Agent (IMA)		IMA-15-01 Search Agent	

Example of MA-Specification(3)

❑ Role Model

➢ Represents overall role of component information search agent

➢ Describe the external characteristics of identified agent
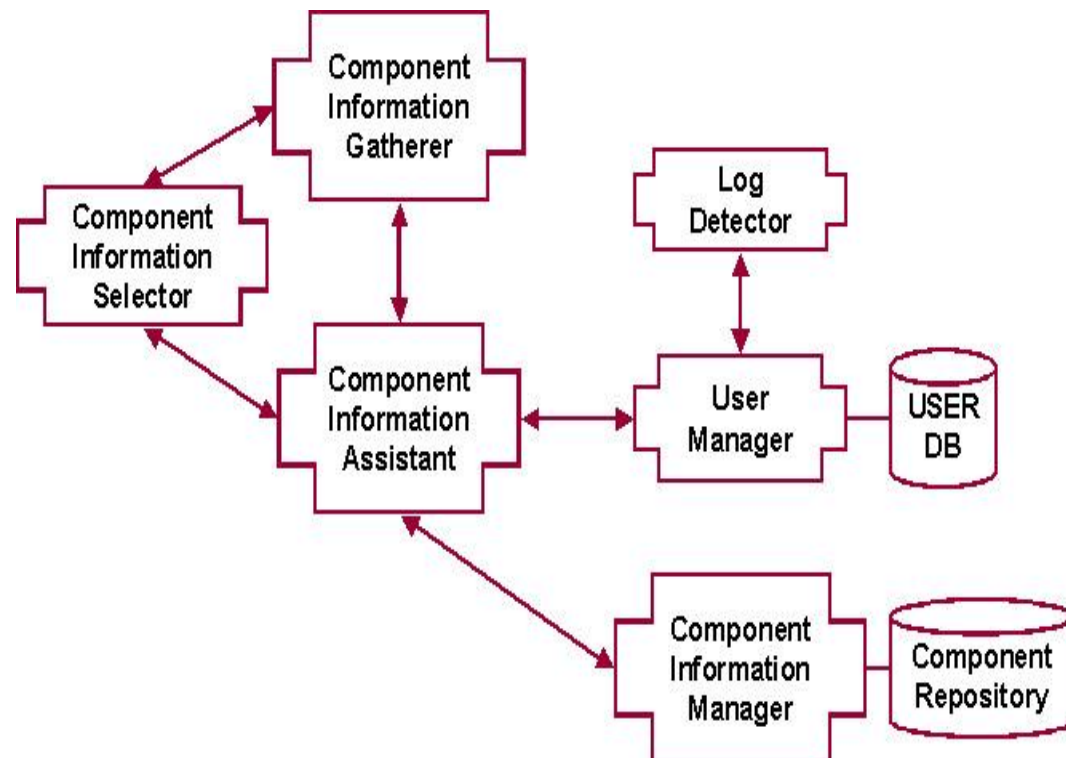
Example of MA-Specification(4)

❑ Goal model

➢ Shows the main goal of the component information search agent

➢ The CteateNewList goal is achieved when lower goal successfully completed
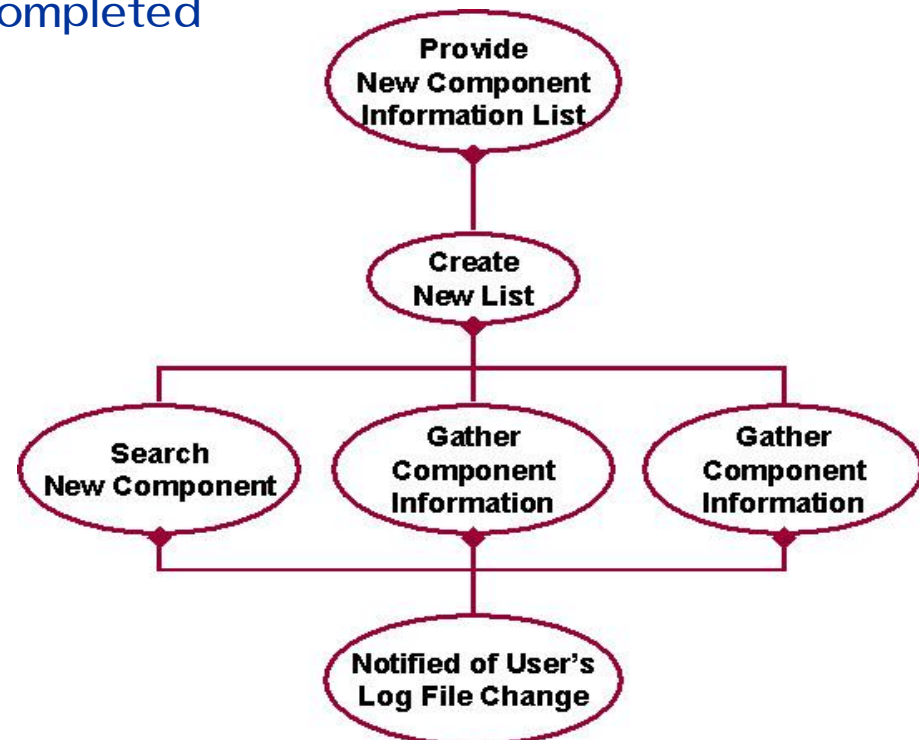
Example of MA-Specification(5)

❑ Interaction model

➢ Describing the InformationRequest interaction between the Component Information Gather and Component Information Assistant roles
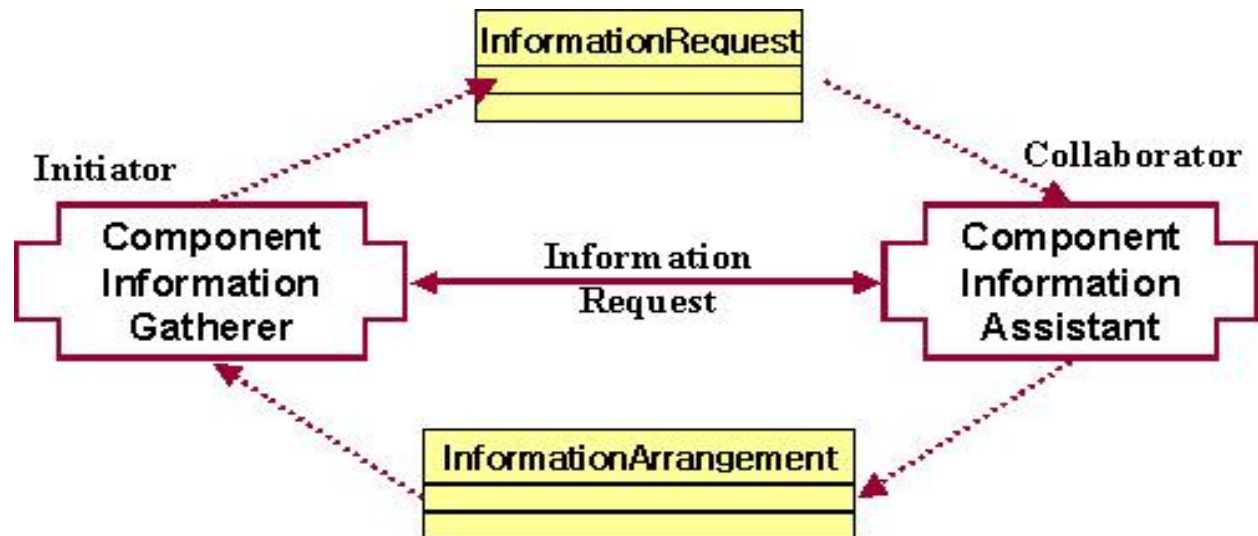
Example of MA-Specification(6)

❑ Architecture model

➢ Represents overall system structure of Component Information Search Agent

- Search Agent finds the information of the component to be registered newly
- Collection Agent periodically update and gather to component information list
- User Agent provide to alert service and manage log file
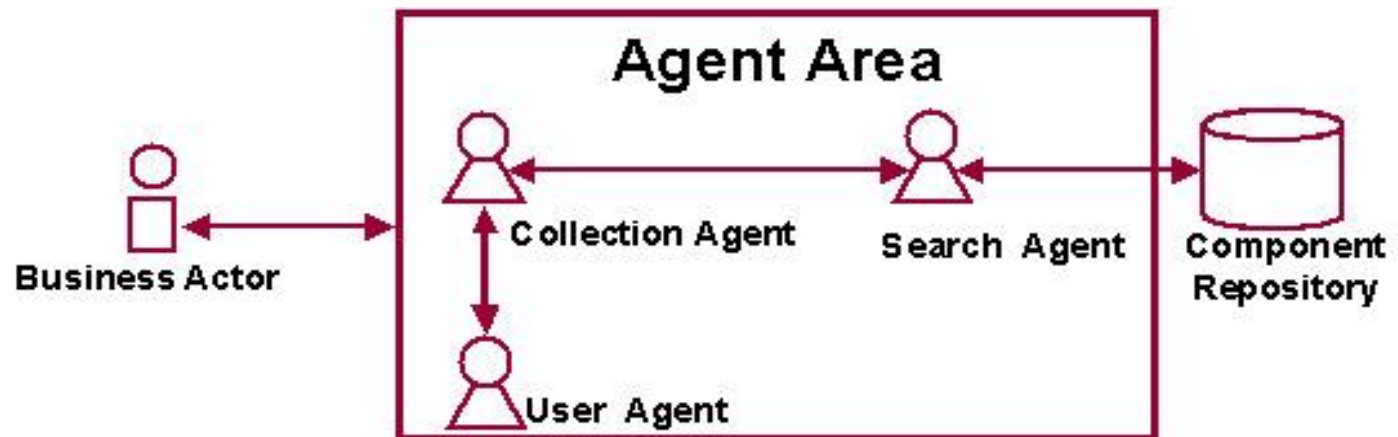
Example of MA-Specification(7)

❑ User Agent specifications

➤ The information and operation model provide inter/external structure and interoperation of agents

Item	Description
Agent Name	User Agent
E-Business Type	Personal Agent
General Agent Type	Interface Agent
Identification Code	IFA-20-01
Access Information	User Id, User Login Time, Logout Time
Produce Information	User Log File
Related Agent	Collection Agent
Information Model	
Operation Model	
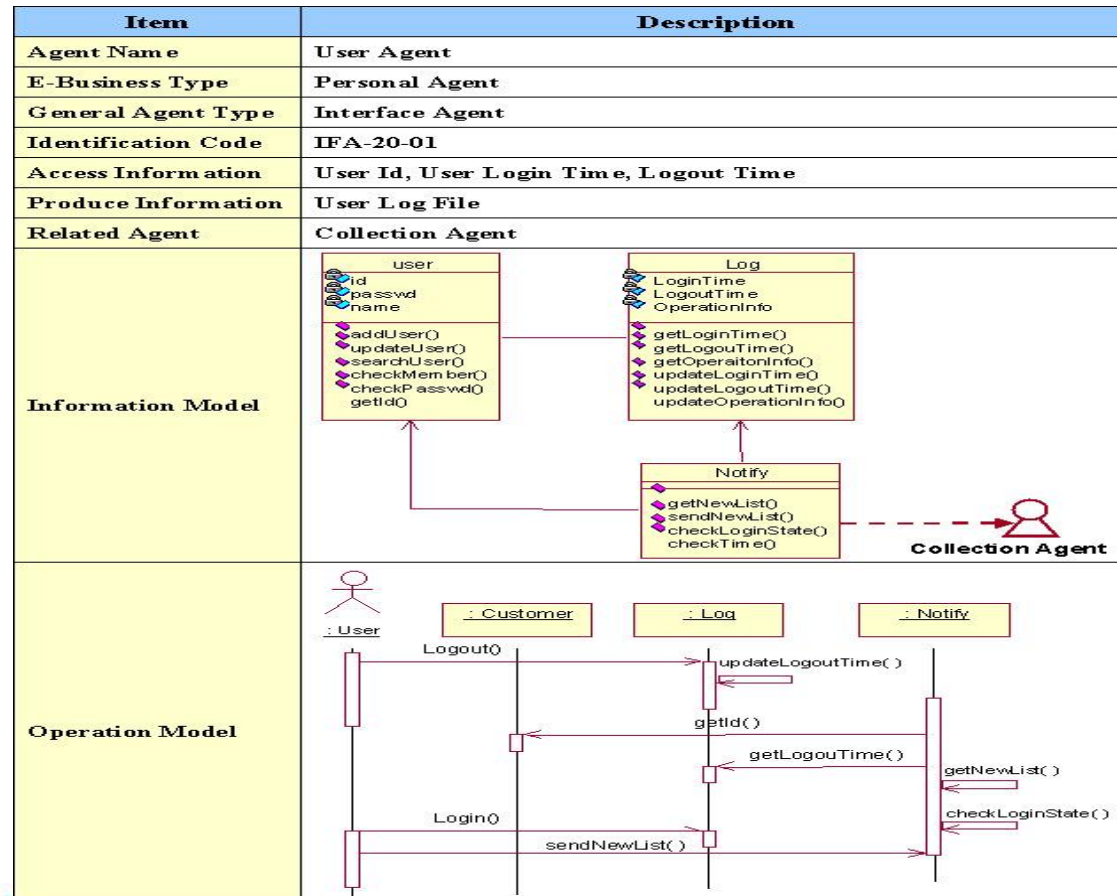
Example of MA-Specification(9)

➢ Operation Model
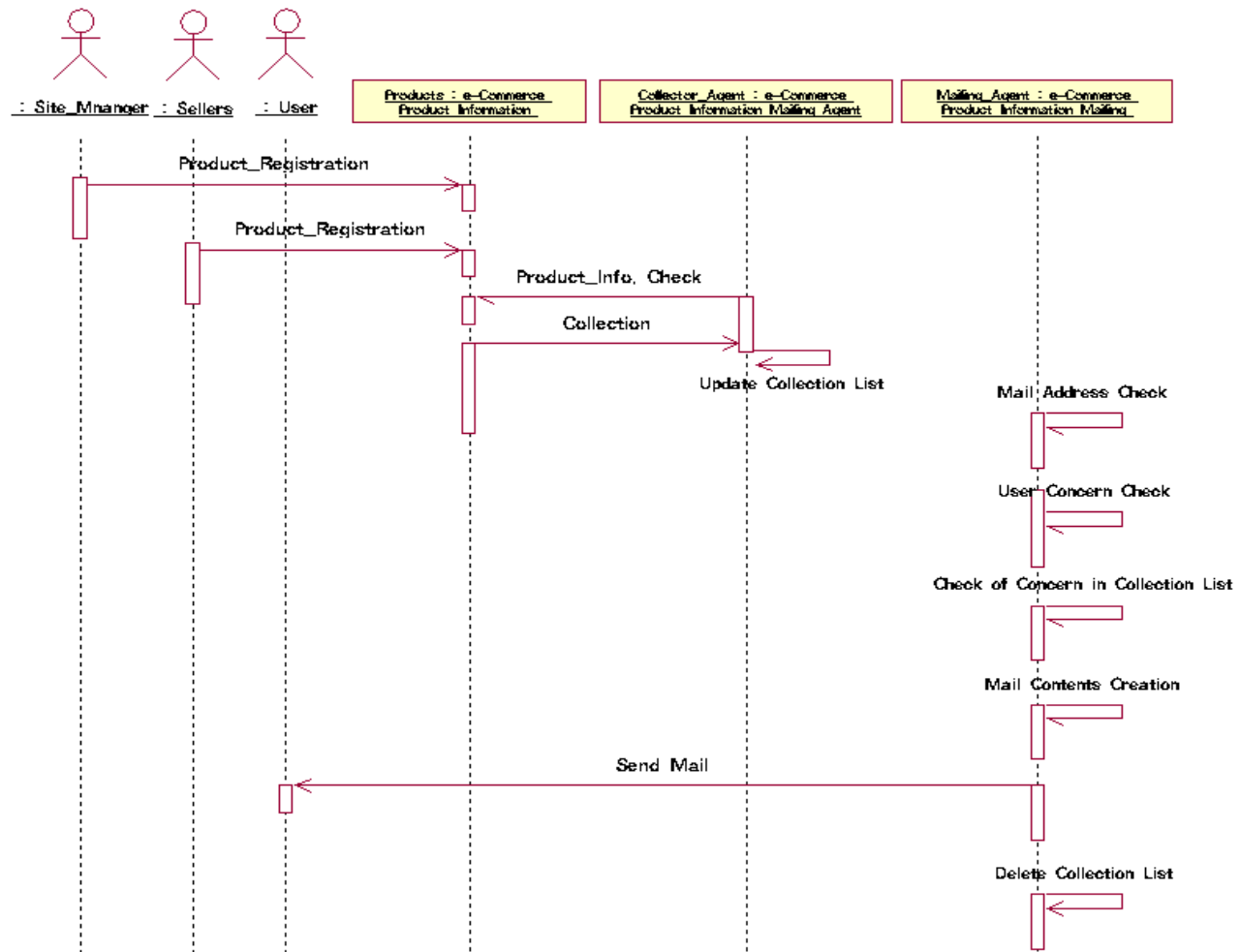
Example of MA-Specification(10)

❑ Static Model
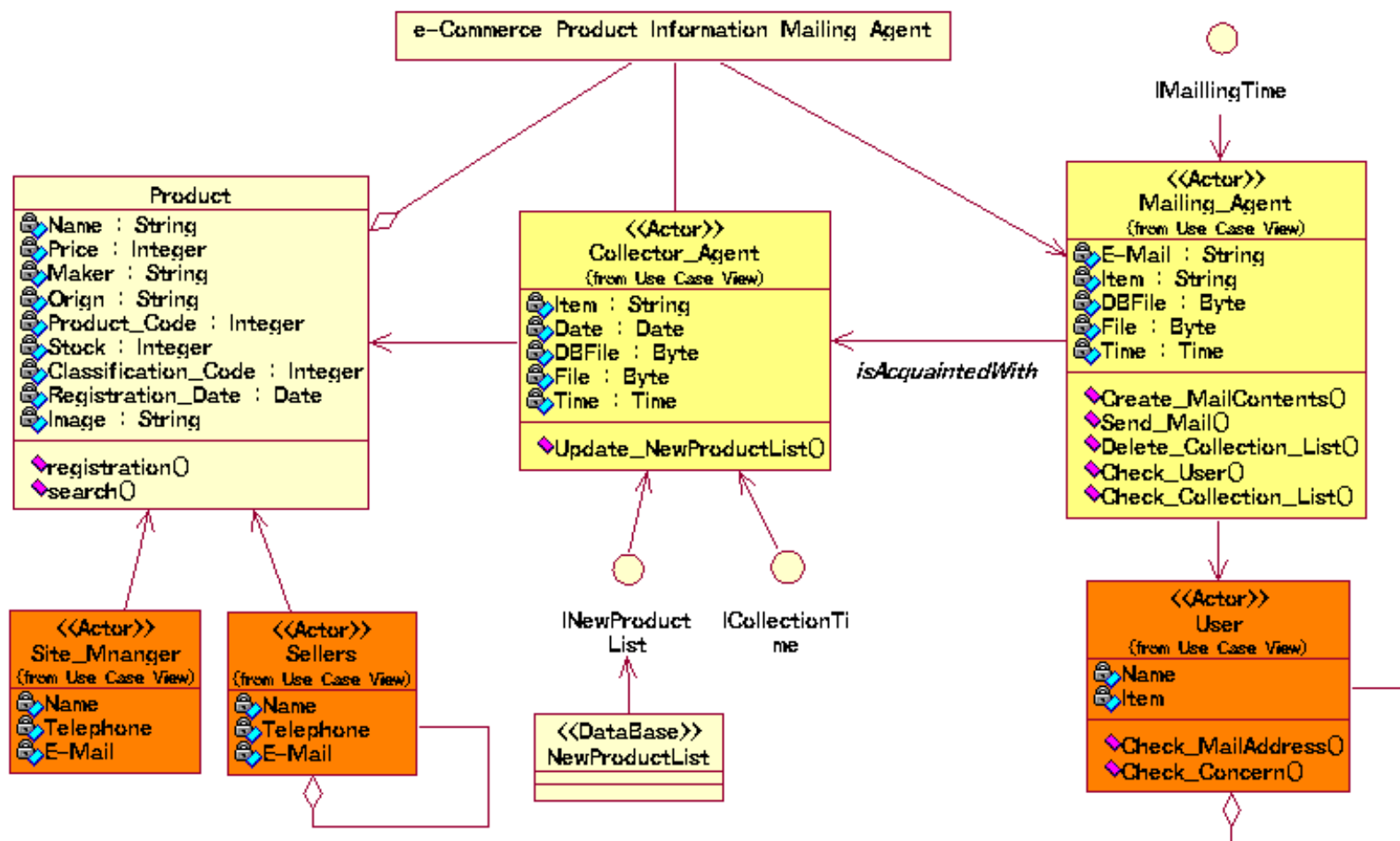
Example of MA-Specification(11)

❑ Collaboration Diagram

➢ Represents interaction between classes for e-CPIMAS

5: Update Collection List

Collector_Agent : e-Commerce Product Information Mailing Agent

6: Mail Address Check
7: User Concern Check
8: Check of Concern in Collection List
9: Mail Contents Creation
11: Delete Collection List

4: Collection

3: Product_Info, Check

1: Product_Registration

Products : e-Commerce Product Information Mailing Agent

Mailing_Agent : e-Commerce Product Information Mailing Agent

10: Send Mail

: Site_Mnanger

2: Product_Registration

: Sellers

: User

Example of MA-Specification(12)

❑ e-Mailing Agent interface Model
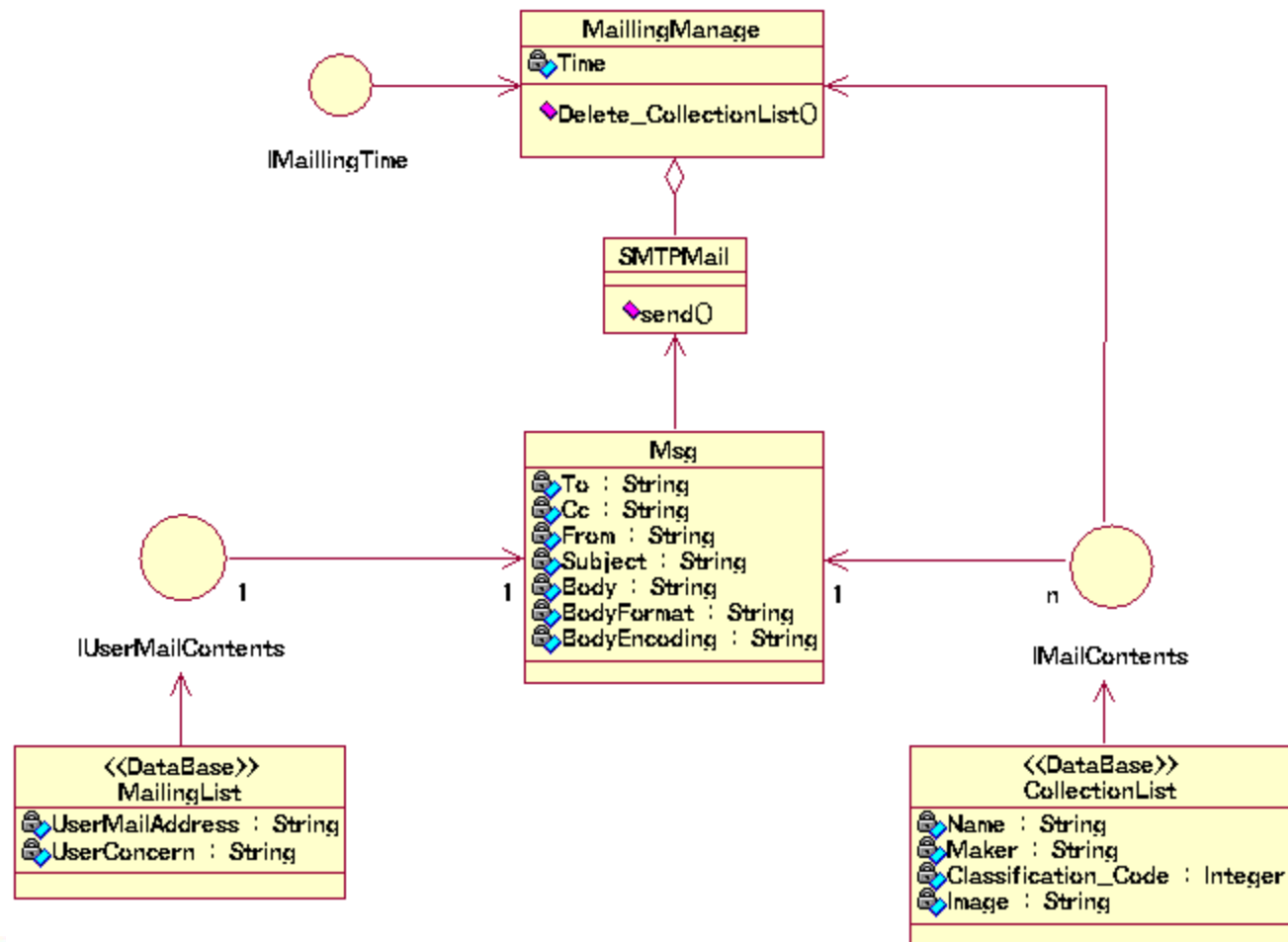
Example of MA-Specification(13)

❑ Component Diagram
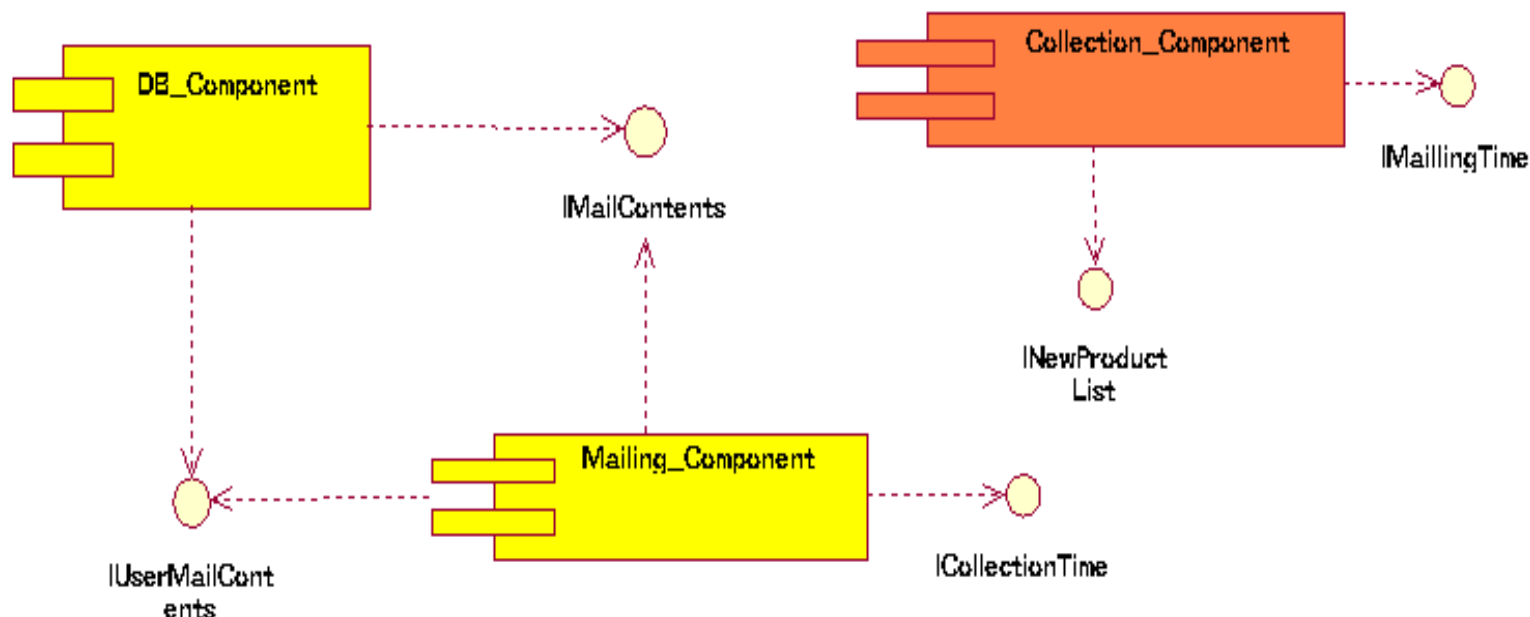
Example of MA-Specification(14)

❑ MA-CBD Specification for Mailing Component

Item	Description
Category	E-Business Agent
Component Diagram	
Component Name	Mailing Component
Classification Code	MA.00.01.01
Short Description	get information form DB and send the mail to the user
Interface Description	Mailling_Component : 　　　　　[Provide Interface ：ImailContents] 　　　　　[Provide Interface ：IUserMailContents] 　　　　　[Provide Interface ：ICollectionTime] DB_Component : 　　　　　[Required Interface ：IUserMailContents] 　　　　　[Required ：ICollectionTime]

Example of MA-Specification(15)

❑ E-CPIMAS System Structure

➢ Component structure based on .net Framework
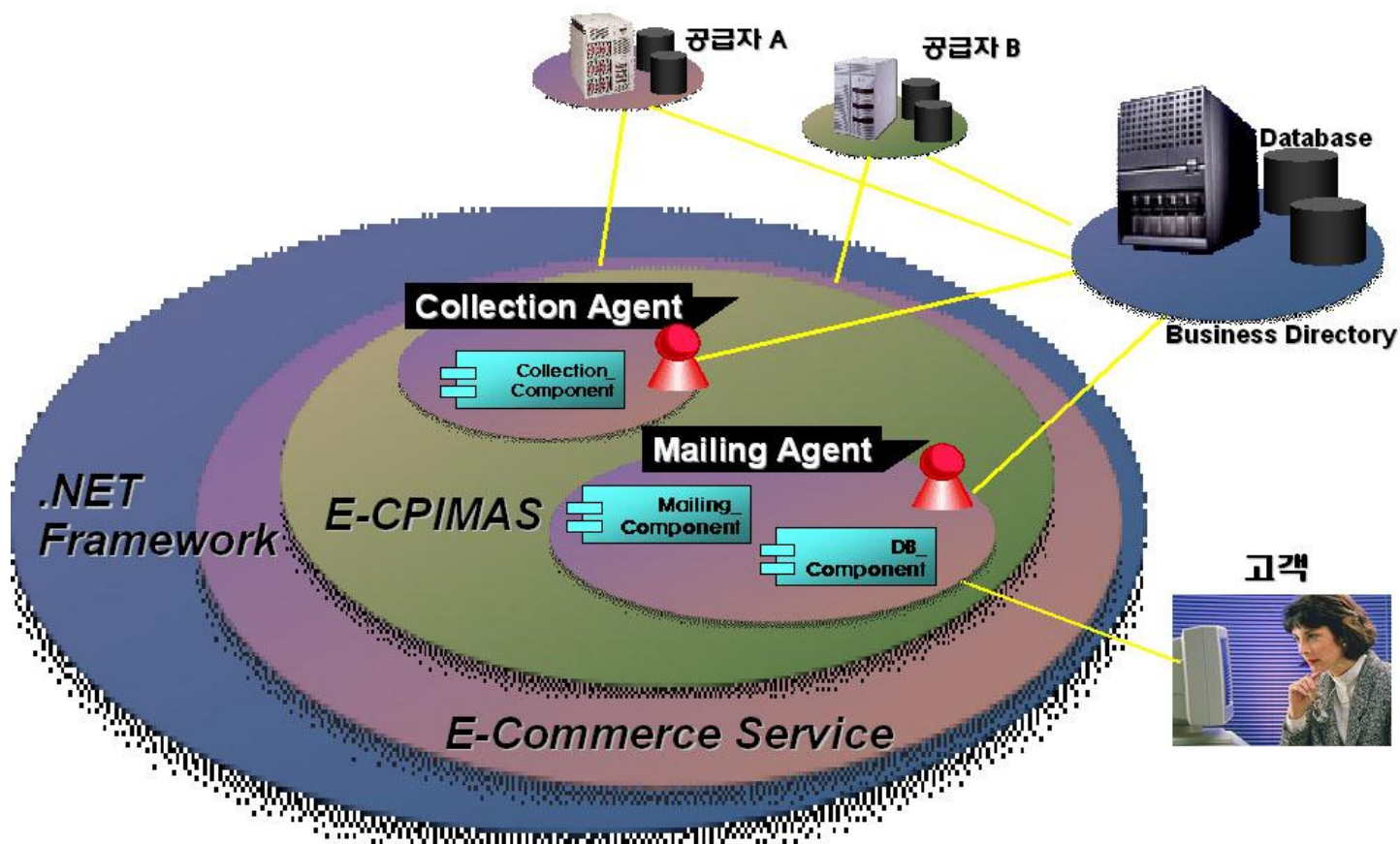
Example of MA-Specification(16)

❑ Product Registration Window

Example of MA-Specification(17)

❑ Product information collection window of Collection Agent
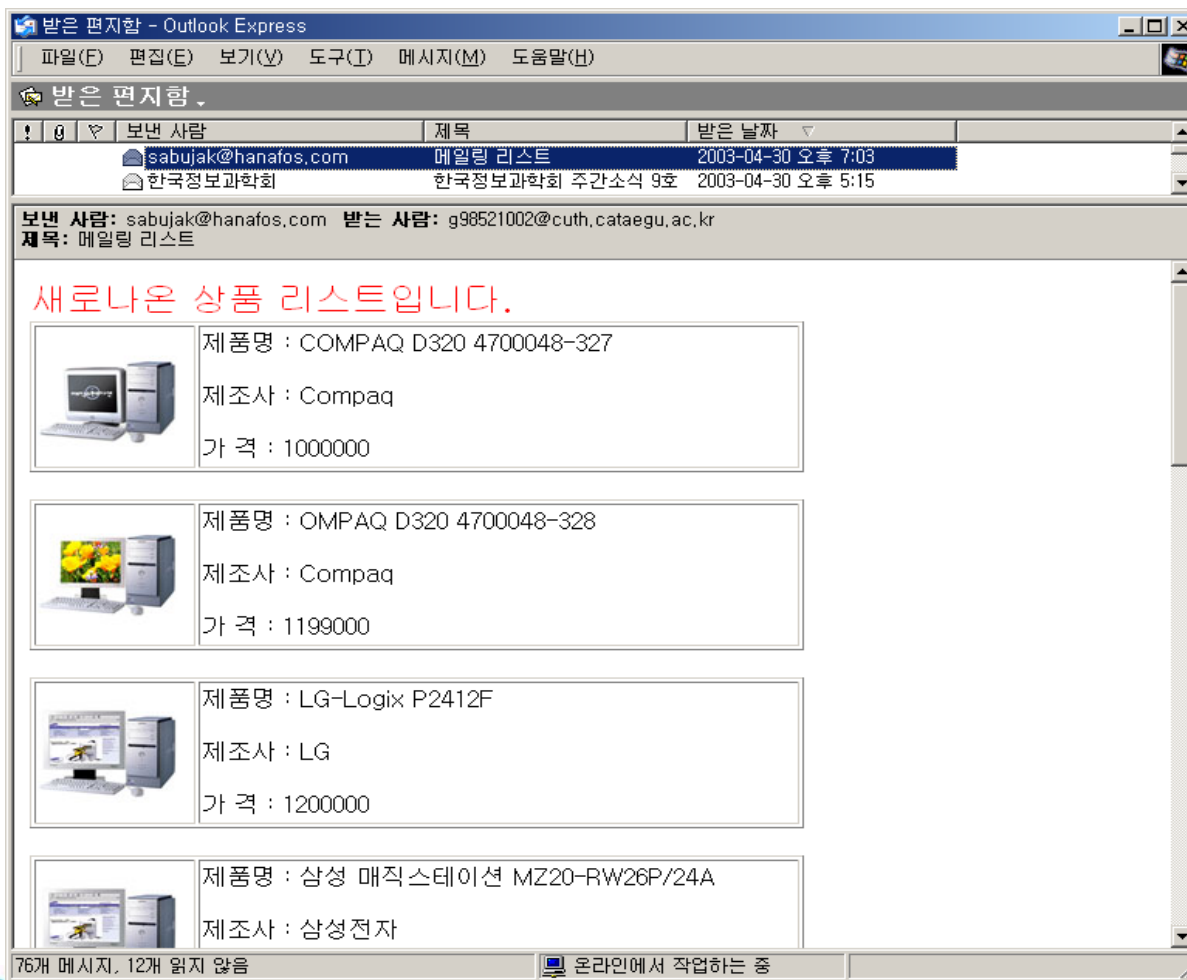
Example of MA-Specification(18)

❑ Execution Window of Mailing Agent
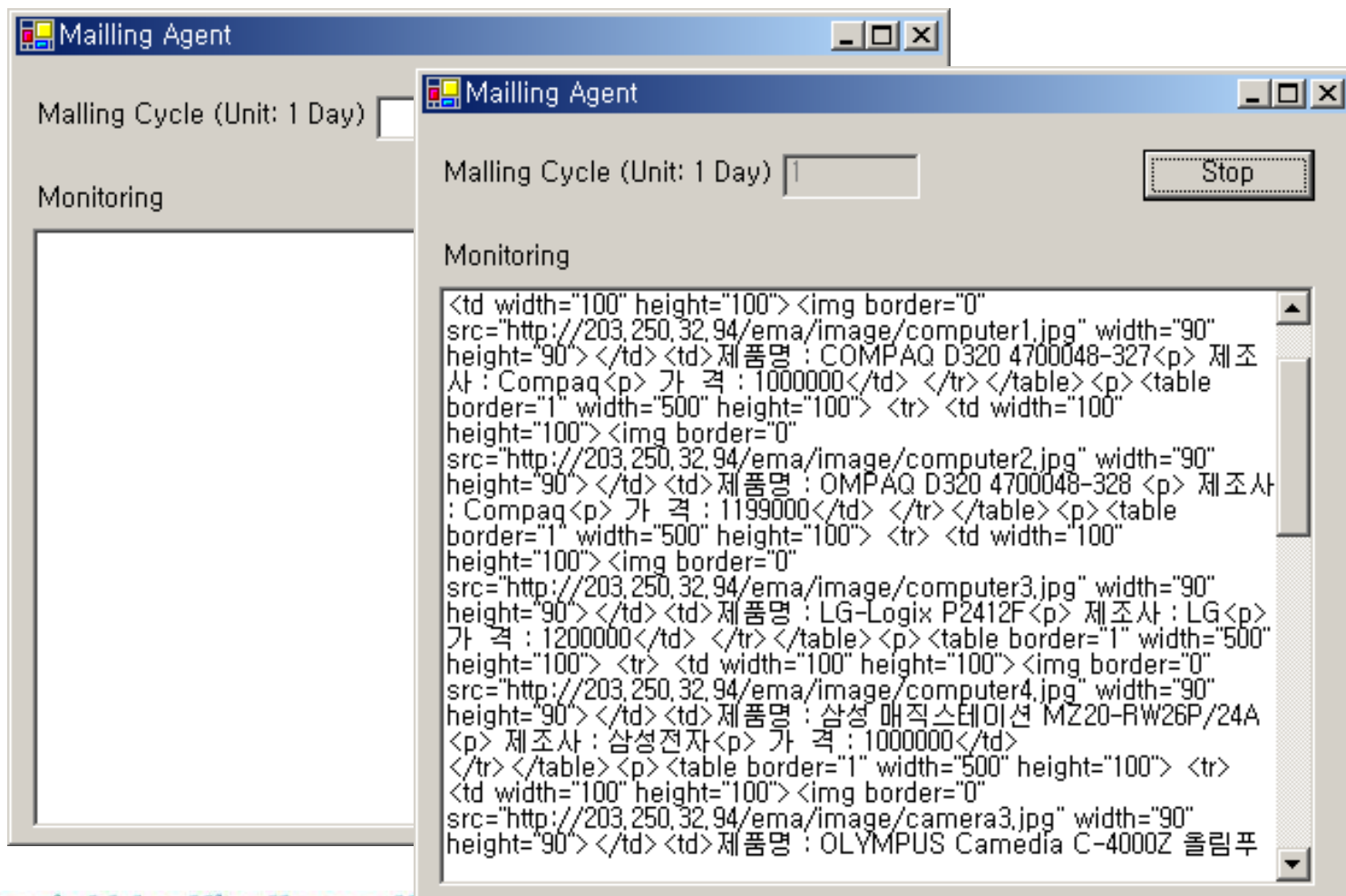
Example of MA-Specification(19)

❑ Window of Product Information Mail

Conclusion

❑ Each characteristic in the view of agent and component are defined

❑ MA-CBD process
  ➢ Proposed to develop e-business agent
  ➢ Defining MA specification of whole entire agent has e-business agent information more systemical and intuitional then also includes more information

❑ Introducing the systemical process and MA-CBD reference model of e-business agent can provide the efficiency by the component easily

❑ The specification can be the guideline to choose desired component and be reused as based more for component creation

Future Works

❑ The definition and detail methods should be required based on MA specification for component development and assemble

❑ The comparison and verification are needed though the cases study of implementation

Thank you!