

Young-Suk Ahn Park

Technology Leader Portfolio

April 28, 2021



Content

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 - Culturplus.net & Arteplus.net
 - Knowledge Sharing Channels
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200+ Million*

the number of people benefited
from software I have developed

2,000+

the number of engineers I helped

* Number calculated by adding: Incheon Airport passenger, KT Subscribers, Mobile subscribers in Panama, Wayfair active users, LG service, and Disney+ subscribers,

EDUCATION

- La Salle High school
- Florida State Univ.
- Korea University (BA)
- CMU (MSeng)

BACKGROUND

- Born in Korea
- Lived in Panama and US.
- Father of a 12 yo. girl

EXPERIENCES

- Project Manager
- Software Architect
- Researcher
- Entrepreneur
- Culture Promoter
- YouTuber

Young-Suk Ahn Park

INTERESTS

- Organizational Behavior
- Software Architecture
- Art, Culture, Traveling
- Education Technology
- Sustainability, Green Tech

CORE VALUES

Respect
Growth
Faith

HIGHLIGHTS

- Founded Altenia.com
- Founded Culturaplus.net
- Published research papers
- Visited 14 countries
- Wrote poems
- CMU Fellowship

My Values

Faith and Trust

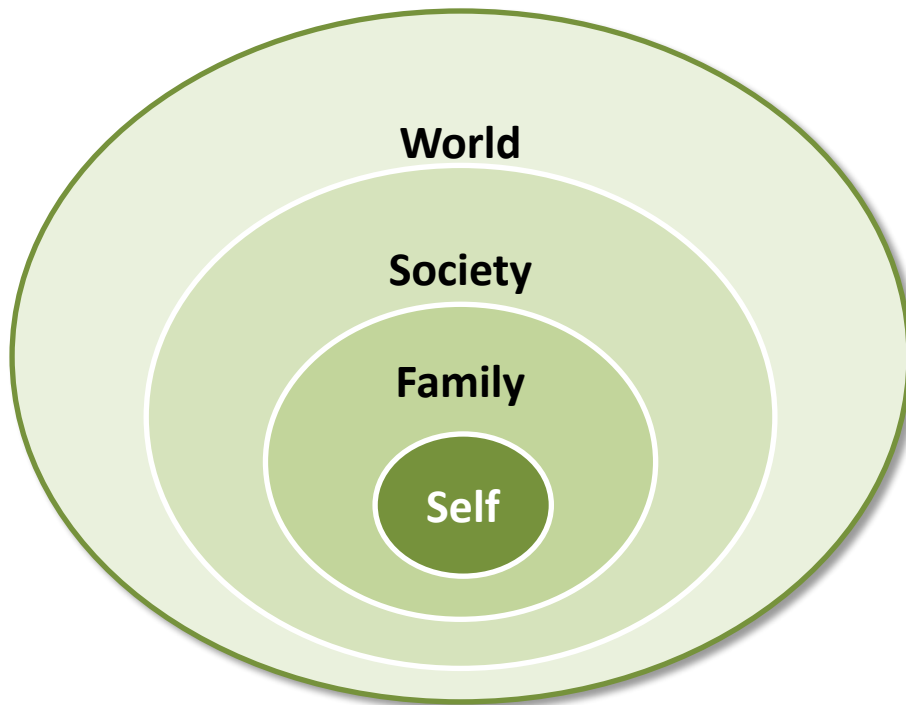
My underlying foundation is faith: trust in God, in myself, in other, in the world.

Respect

When I truly respect someone, learning follows. Everyone is worthy of respect.

Grow

Accept my deficiencies, jump into the fear zone, take risks, learn and grow.

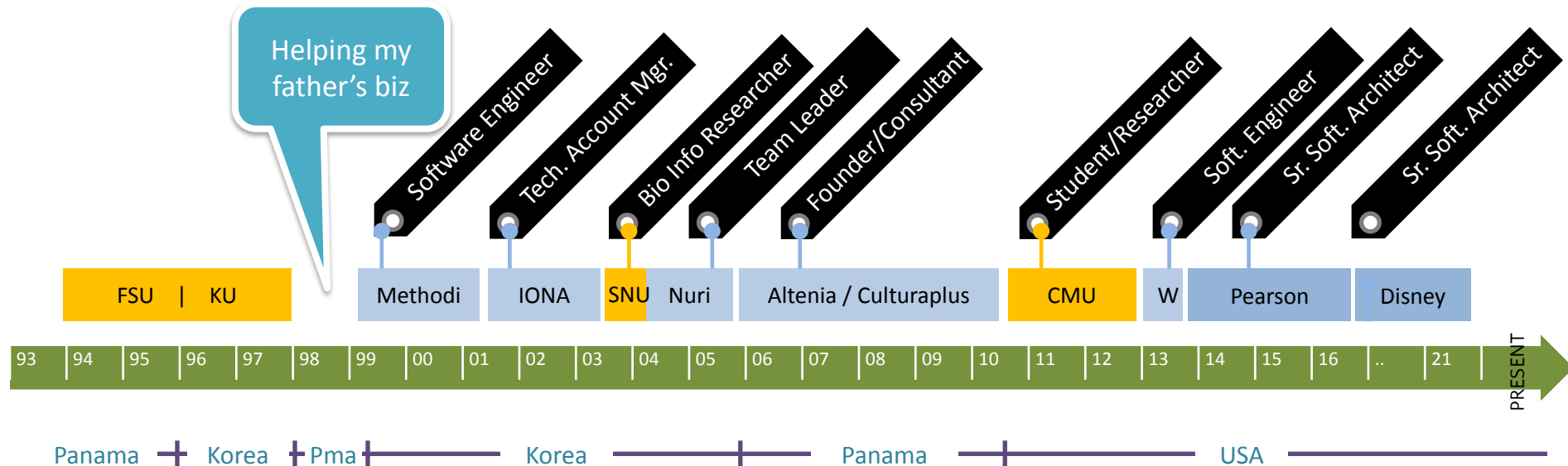


Be valuable

Inspired by Korean philosophy Hongik Ingan (홍익인간)

Professional Trajectory

Helping my father's biz



Legend



Academic
Industry
Role



Timeline
Location



Abbreviations:

- FSU: Florida State University
- KU: Korea University
- SNU: Seoul National University
- CMU: Carnegie Mellon University

Job Experiences

Year	Name	Role		Location
2016 ~	The Walt Disney Studio	Sr. Architect	Technical overseer the Digital Media Distribution Center of Excellence. Engineering community L&D	Burbank
2013 ~	Pearson	Sr. Architect	Technical overseer of next generation content strategy program.	Boston
2013	Wayfair	Software Engineer	Designed and developed enhanced web framework for the commerce site.	Boston
2011 ~	CMU – Institute of Software Research	Research engineer	Researched and developed prototype of home automation system.	Pittsburgh
2005 ~ 2010	Altenia Corporation (www.altenia.com)	Founder / CTO	Generated leads. Participated in projects as architect and lead dev.	Panama
2004 ~ 2005	Nuri Solution (www.nurisol.co.kr)	Product Manager	Generated leads. Participated in projects as architect and lead dev.	S. Korea
2001 ~ 2003	Iona Technologies (acquired by Progress)	Technical Account Manager	Provided consultancy services around CORBA standard to major clients in Korea.	S. Korea
1999 ~ 2000	Method i: (former E&E) (www.methodi.com)	Software Engineer	Participated in various development projects.	S. Korea

Significant Projects (1/2)

Date	Project Name	Role	Description	Highlights
1999 3mo	Internet Community System	Project Leader	Led a team that developed a community portal	ASP, SQL Server
2000 11mo	Freeway Traffic Management System (Incheon Airport)	Integration Architect	Developed integration layer for the new international airport in Korea	(Case Study)
2004 4mo	Multimedia Messaging System (Korea Telecom)	Lead Programmer	Developed a high-performance integration system that provided reliable communication among applications	C++, MQ, Sun, HP, Win, Clustering
2004 4mo	Credit Information Interface System (HSBC)	Software Engineer	Developed a module that provided secure communication between Korea and HK branches	C++, Java, X.25, CORBA, AS/400, IoC
2008 8mo	Customer Support Management System (LG)	Architect / Team Lead	Developed a ticket management system	(Case Study)
2010 5mo	Phone Service Quality Indicator Measurement (Panama Ministry of Public Services)	Architect / Team Lead	Developed a web-based application that collects phone service quality metrics data and provides reporting for auditing	C#, MVC.NET, Spring.NET, IIS, SQL Server

Significant Projects (2/2)

Date	Project Name	Role	Description	Highlights
2010 4mo	Service Mediator for iBanking (BBVA Bank)	Architect / Team Lead	Developed a SOA based middleware system for financial services.	(Case Study)
2011 16mo	Personal Software Process SM Support Tool (SEI)	PL & Chief Architect	Developed a tool that facilitates data collection for PSP	(Case Study)
2013 4mo	Framework for Storefront & Mobile service, Wayfair.com	Architect / Team Lead	Developed a high performing, modular framework for the e-commerce.	PHP, JMeter, MVC
2015 16+mo	Framework for Interactive Learning Platform (Pearson)	Engineer / Architect	Architected and developed a flexible, reusable, and extensible widgets for learning platform	JavaScript, Nodejs, Redis
2017 20+mo	Digital Media Distribution Center of Excellence	Architect	Led teams to integrate media license management system and media configuration and localization system	OpenAPI, VueJS, Kotlin, SpringFramework, PostgreSQL

Technical Knowledge

- Processes & methodologies:
 - Agile (SCRUM, Kanban, XP), Domain Driven Development(DDD), DevOps
- Development languages and tools:
 - Java, JavaScript/TypeScript, PHP, C#, C/C++, Python
- Libraries and frameworks:
 - Spring, Express/Nestjs, ReactJS, Vuejs, Django
- Platforms:
 - Unix, Windows, RDBMS, Mongo, Kafka, blockchain

Publications

Journals

- Dutt, V. , **Ahn, Y.S.**, & Gonzalez, C., (in press) Cyber Situation Awareness: Modeling the Detection of Cyber Attacks with Instance-based Learning Theory. Human Factors.
- Dutt, V., **Ahn, Y.S.**, & Gonzalez, C. (2011). Cyber Situation Awareness: Modeling the Security Analyst in a Cyber-Attack Scenario through Instance-Based Learning. Lecture Notes in Computer Science, 6818, 280-292. doi: 10.1007/978-3-642-22348-8_24
- Nam, J.W., Joung, J.G., **Ahn, Y.S.**, and Zhang, B., "Two-Step Genetic Programming for Optimization of RNA Common-Structure," EvoBio 2004, LNCS Journal. (2004.04)

Conferences & Others

- Dutt, V., **Ahn, Y.S.**, & Gonzalez, C. (in preparation). Cyber Situation Awareness: Modeling the Detection of Cyber Attacks with Instance-based Learning Theory.
- Dutt, V., **Ahn, Y.S.**, Ben-Asher, N., & Gonzalez, C. (2012). Modeling the Effects of Base-rates on Cyber Threat Detection Performance. In Paper presented at the 11th International Conference on Cognitive Modeling. Berlin, Germany.
- Dutt, V., **Ahn, Y.S.**, & Gonzalez, C. (2011). Cyber Situation Awareness: Modeling the Security Analyst in a cyber-attack scenario through Instance-based Learning. In Paper presented at the 25th Annual WG 11.3 Conference on Data and Applications Security and Privacy (to appear in Lecture Notes in Computer Science 6818 (LNCS 6818), Springer) . Richmond, VA, USA.
- Dutt, V., **Ahn, Y.S.**, & Gonzalez, C. (2011). Cyber Situation Awareness: Modeling the Security Analyst in a cyber-attack scenario through Instance-based Learning. In Poster presented at the 20th Behavior Representation in Modeling & Simulation (BRIMS) Conference. Sundance Resort, Utah, USA.
- "EAI & Web Service Platform," Programmer's World Magazine, May 2002, Korea. (2002.05)

What Triggers my Interest?

- Hongik Ingan (Korean: 홍익인간)
- Motivating and improving productivity
- Activities that minimizes wastes and generates great value
- Sustainability, clean/green technologies
- Human psychology and organizational behavior

INITIATIVES

- YouTube Channels (2020 ~ present)
- IT Company (2005 ~ 2010)
- Culturaplus & Arteplus (2006 ~ 2010)

Knowledge Sharing on YouTube



기발가족

Family presentation on world trend, environment, and entertainment



Empoderemos Más

Personal growth, professional development, social betterment



Pluspective

Perspectives on ideologies and world events.



Sunday School

Class for children on Christian faith.

Founder of an IT company: ALTENIA

- Produced 
 - A customizable web-based ERP system

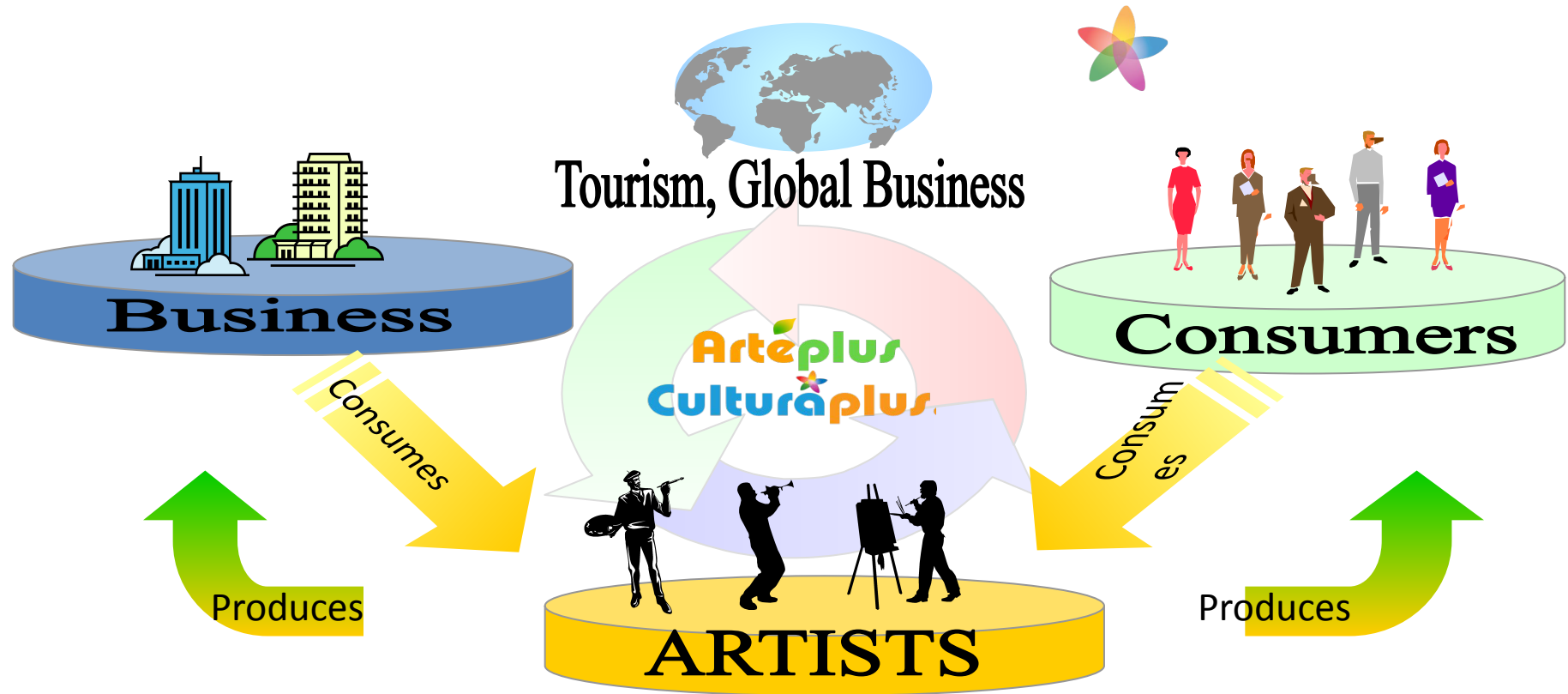
- Prior Customers



- Partnered with



Founder of Non-Profit Organization



Culturaplus.net, Arteplus.net



Culturaplus.net

Galería de Culturaplus!

Search the Gallery
Advanced Search

- Add Album
- Add Comment
- Add Items
- Edit Album
- Edit Captions
- Edit Permissions
- RSS Feed for this Album
- Rearrange Items
- Reorder Items
- View Latest Comments
- View Slideshow

Random Image

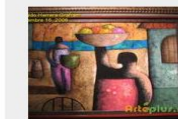


Familia de ExedraBooks y Culturaplus

Date: 07/19/2006

Galería de Culturaplus!

Galería de fotos e imágenes de Culturaplus!



album actions

Album: Eventos

Eventos y actividades

Date: 06/30/2006
Owner: Gallery Administrator
Size: 30 items (925 items total)
Views: 759
Updated



album actions

Album: Arte y Artistas

Obras de artes: pintura, escultura, arquitectura

Date: 07/12/2006
Owner: Gallery Administrator
Size: 15 items (180 items total)
Views: 562

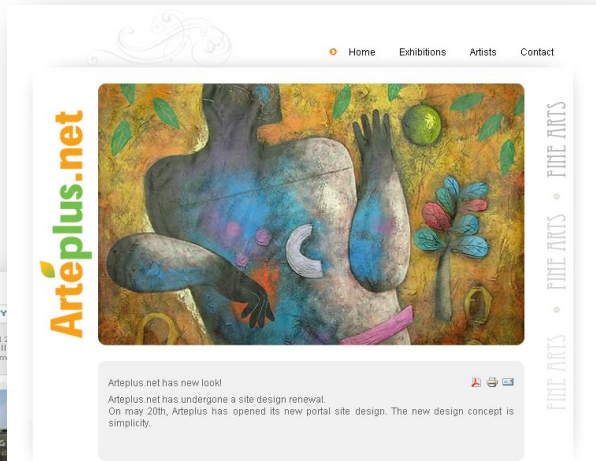


album actions

Album: Fotografías

Fotógrafos, Fotografías, Fotos artísticas

Date: 07/12/2006
Owner: Gallery Administrator
Size: 2 items (7 items total)
Views: 210

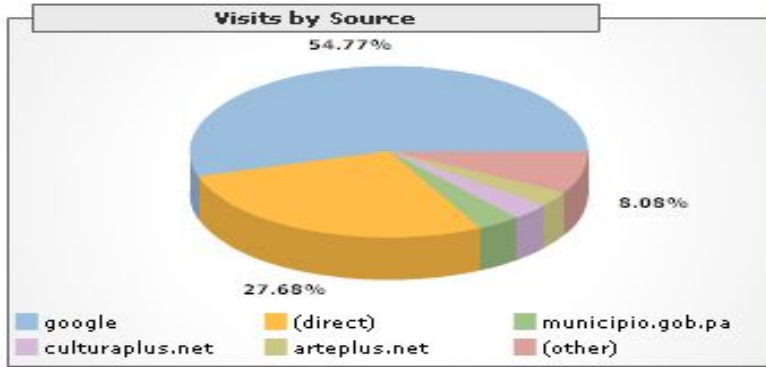
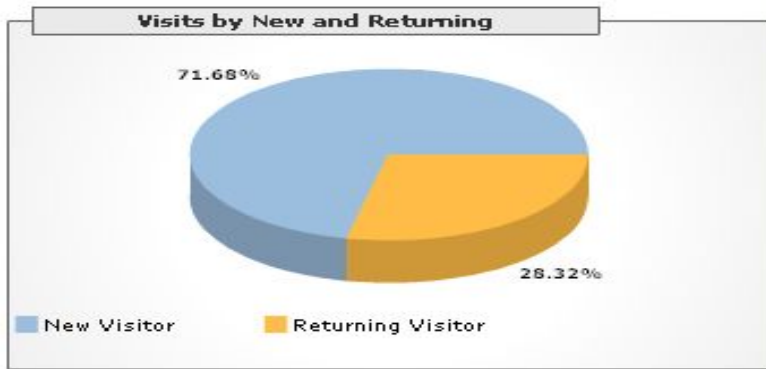
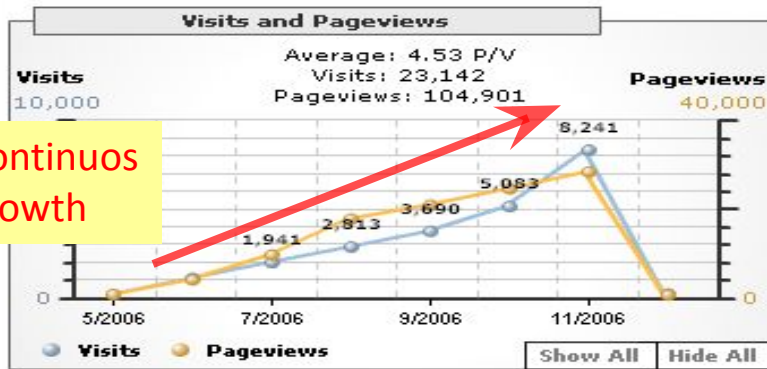


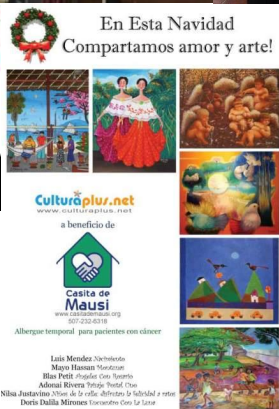
Arteplus.net has new look!

Arteplus.net has undergone a site design renewal. On may 20th, Arteplus has opened its new portal site design. The new design concept is simplicity.

FINE ARTS • FINE ARTS • FINE ARTS

Culturaplus.net (statistics)





Further Links

- Personal site: www.youngsukah.com
- Linked in: www.linkedin.com/in/ysahn
- Github:
 - <https://github.com/ecolearnia>
 - <https://github.com/ysahnpark>
- EmpoderemosMas: <https://empoderemosmas.com>
- Creasoft: <https://creasoft.dev>

PROJECT CASE STUDIES

- Virtual Assistant for Building Automation (CMU, 2012)
- Personal Software Process (PSP™) Tool (Carnegie Mellon University, 2010)
- BBVA Service Oriented Architecture Mediator (BBVA, Panama, 2010)
- Support Case Management System (LG, Panama, 2008)
- EcoLogix™ ERP (Altenia, Panama, 2007)
- Freeway Traffic Mgmt. System (Incheon International Airport, 1999)

Virtual Assistant on HBA Platform

Name	Virtual Assistant on Home/Building Automation Platform
Description	Research on Task/Activity-Oriented Computing on ubiquitous environment.
My Role	Fellow Researcher. Research, evaluate technologies, and develop prototype.
Location	Institute for Software Research, CMU / Pittsburgh
Start-End	Jan. 2012 ~ Dec. 2012 (12 months)
Team size	3 Faculty members, 4 researchers
Involved Technologies and Products	Platforms: Windows Language: Java Framework: SpringFramework, Hibernate, CXF Tools: Eclipse, Maven Libraries:, Apache Commons, JSON, Apache POI

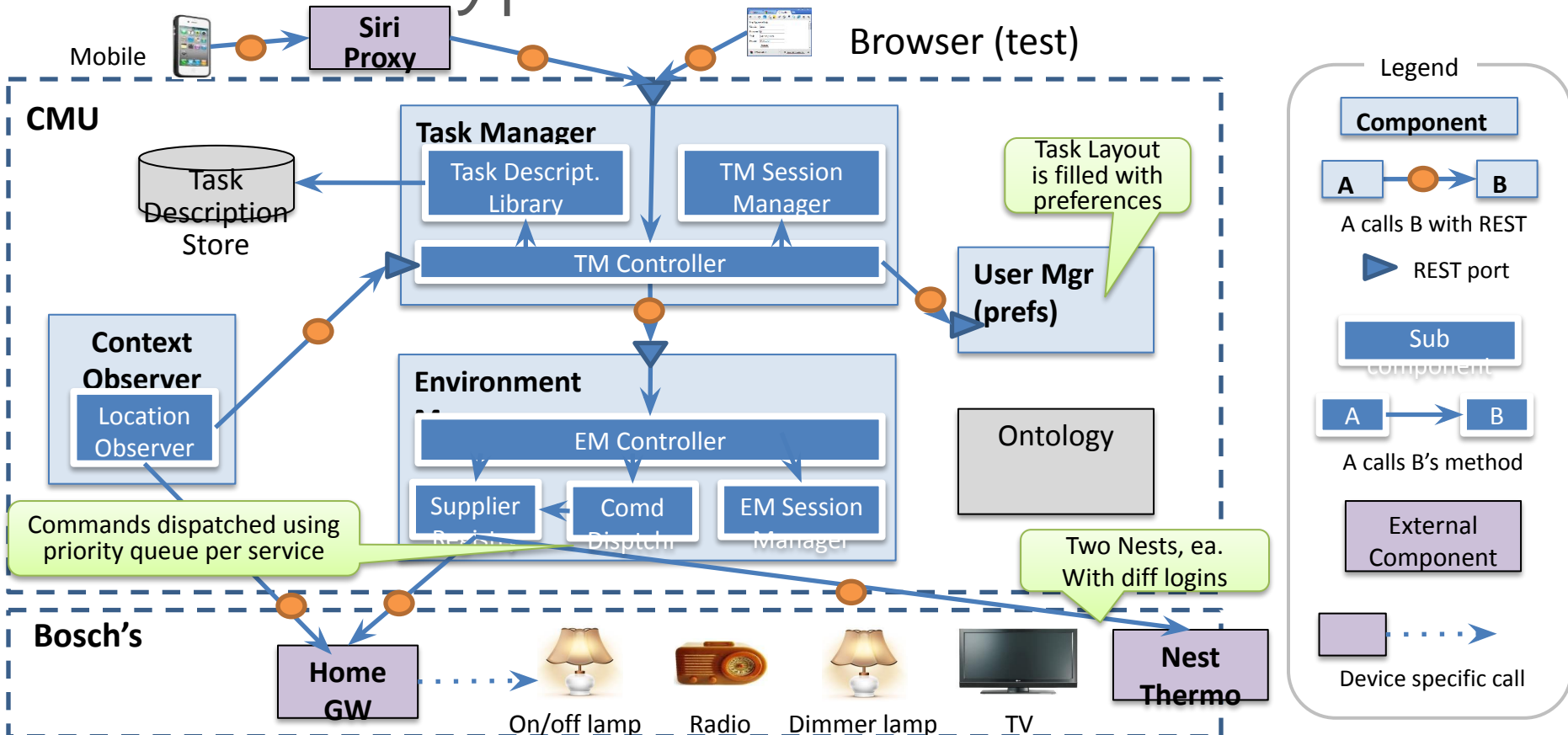
Research Challenges



- Universal Description of Tasks and Task Orchestration
 - Cross domain Task Description Language(s)
- Context Awareness
 - Respond optimally according to the context
- Conflict Resolution
 - Properly handle competing tasks
- User Experience
 - User behavior Learning / Adaptation
- Proper architecture that supports

Virtual Assistant on HBA Platform

First Prototype



My Contributions



- Coordinated the joint work with Bosch researchers
- Designed and developed the initial prototype

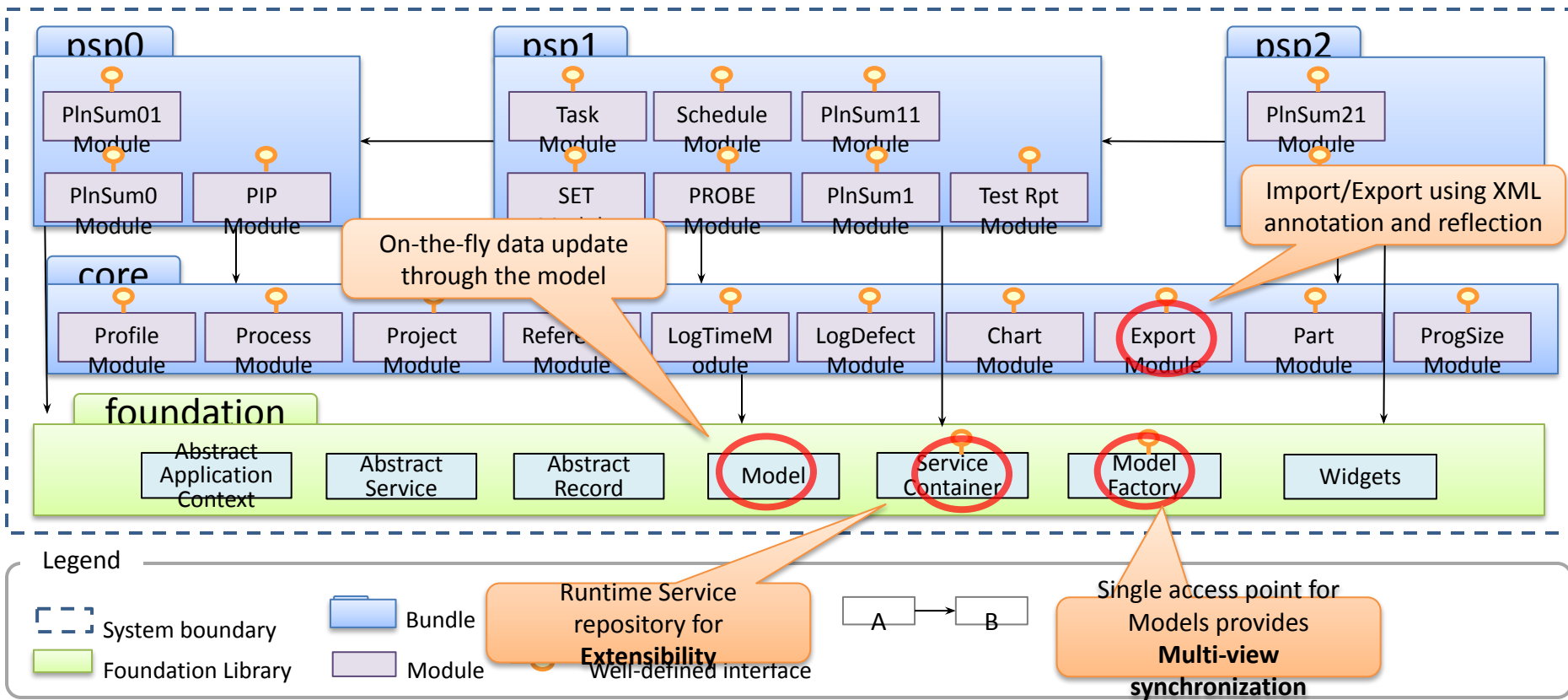
PSPSM Support Tool

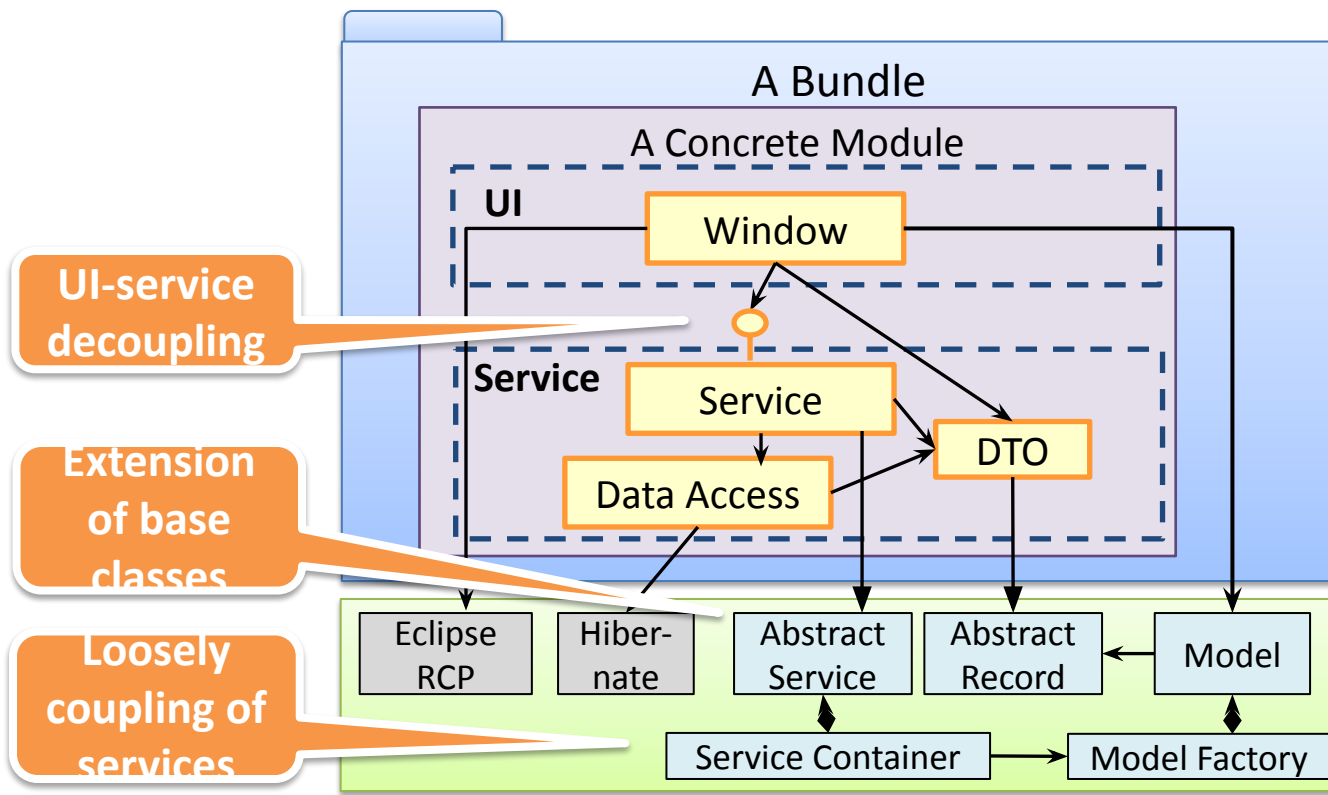
Name	Personal Software Process Support Tool
Description	Development of an extensible PSP SM support tool
My Role	Team Leader/Architect: Coordinate the team. Create architecture, and develop foundation classes.
Client/Location	Software Engineering Institute (SEI) / Pittsburgh, USA
Start-End	Aug. 2010 ~ Dec. 2011 (16 months)
Team size	5 engineers
Involved Technologies and Products	Target Platforms: Windows, Mac, Linux Language: Java Framework: Eclipse RCP, Hibernate, SpringFramework DBMS: Apache Derby Tools: Eclipse, Ant Libraries: Apache Commons, jFreeChart

Characteristics & Challenges

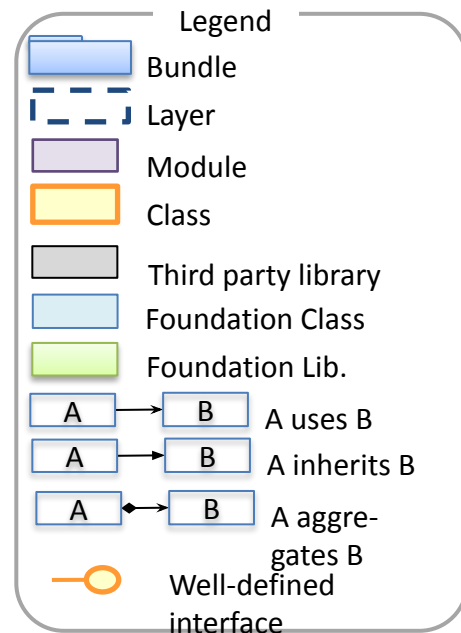
- **Functional Requirements**
 - Implementation of PSP 0 to PSP 2.1
 - Export and Import of all data
- **Quality Attributes (Non-functional Reqs.)**
 - Extensibility: should be able to easily add new modules and reports
 - Reliability: latest data not lost
 - Usability: Easy to use, intuitive

Architecture & Techniques





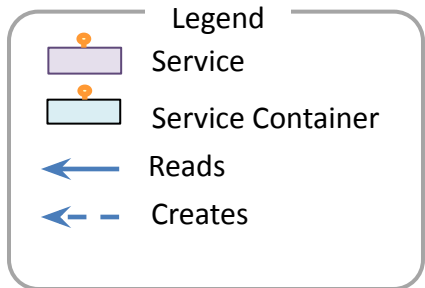
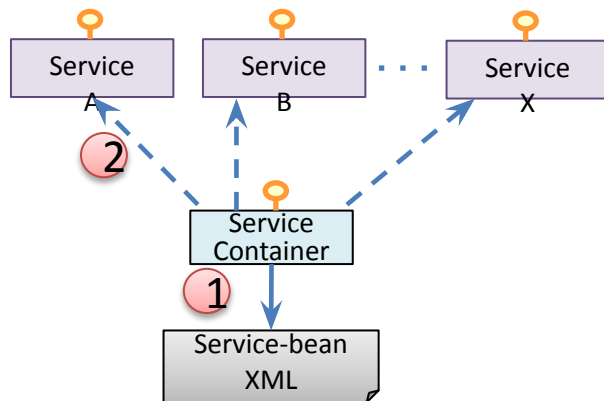
Static Perspective



PSPSM Support Tool

Service Bootstrapping

Dynamic Perspective



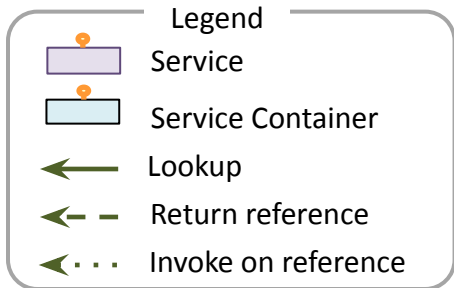
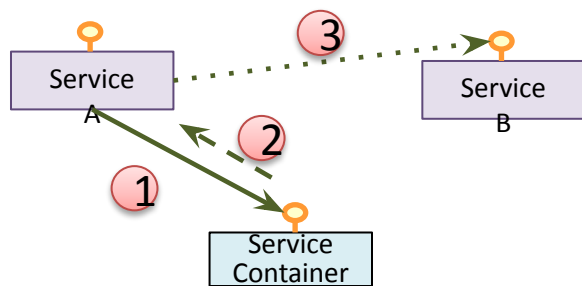
- Motivations**

- Can easily add and modify services in XML file (modifiability)
- Abstracts the complexity of service instantiation and initialization.

- Flow**

1. When application is started, the ServiceContainer reads the service-bean.XML file
2. The Service Container creates the services (instantiate and initialize)

Dynamic Perspective



- **Motivations**

- All available services are maintained in a central
- Decouples the services.

- **Consequence**

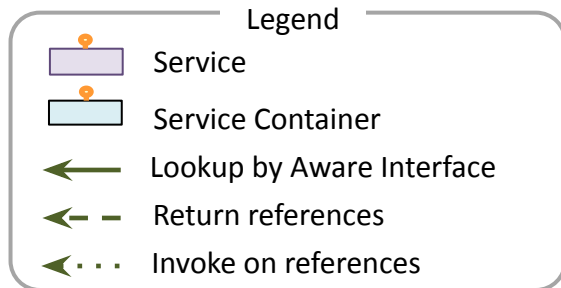
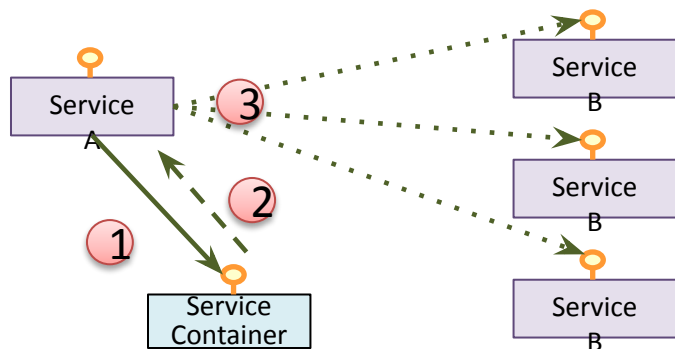
- Centralized Import/Export

- **Flow**

1. A service looks up another service in the ServiceContainer
2. The ServiceContainer returns the reference
3. The service invokes on the reference

“Aware” Service Pattern

Dynamic Perspective



- **Motivations**

- New post behavior can be added (extensibility)

- **Consequence**

- Time Log can do cleanup after a project is deleted without tight coupling those services.

- **Flow**

1. A service looks up “Aware” services in the ServiceContainer
2. The ServiceContainer returns the list of reference
3. The service invokes on the references

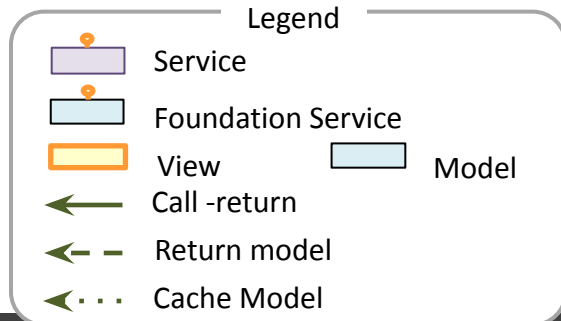
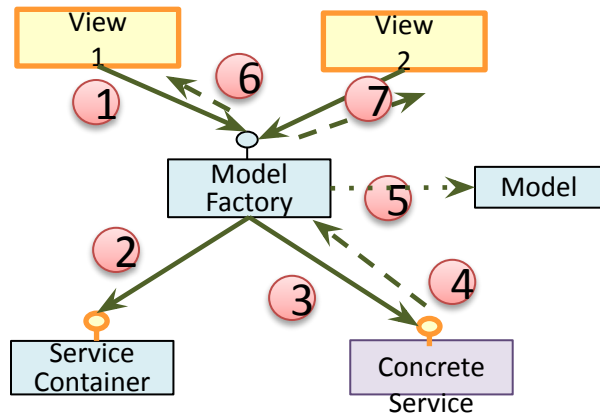
“Aware” Service Pattern

public int deleteProject(ProjectDto project) throws ServiceException,

```
IllegalArgumentException {  
    try {  
        if (!isProjectValid(project))  
            throw new IllegalArgumentException();  
        else {  
            List<IProjectChangeAwareService> paSvcs =  
ServiceContainer.getInstance().getListByType(IProjectChangeAwareService.class);  
            for (IProjectChangeAwareService paSvc: paSvcs) {  
                paSvc.onBeforeProjectDelete(project, null);  
            }  
            this.getPhaseDataDao().deletePhaseDataByProject(project.getSid());  
            return (getProjectDao().deleteProject(project));  
        }  
    } catch (DataAccessException e) {  
        logger.error("Error at ProjectDefaultService.deleteProject", e);  
        throw new ServiceException(e);  
    }  
}
```

Multi-Views Sync: Obtaining Model

Dynamic Perspective



Motivations

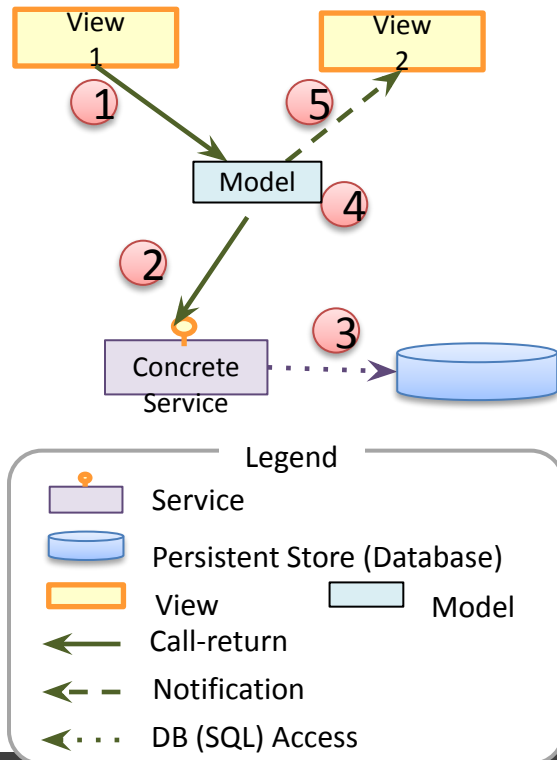
- Provide single model instance for all views

Flow

1. The view queries ModelFactory (MF) for a model
2. If model not in cache, MF uses the ServiceContainer to get the proper service
3. Invokes the service to retrieve model
4. Model is created and returned
5. Model is cached in the MF
6. Model is returned to the View
7. Subsequent queries returns same model

Multi-Views Sync: Data Flow

Dynamic Perspective



• Motivations

- Synchronize views with the persistent store

• Flow

1. One of the view makes changes to the model
2. The model invoke the concrete service with appropriate operation (insert, update, or delete)
3. The service accesses the persistent store (database)
4. Model's internal data is updated
5. Model notifies the rest of the views for update

PSPSM Support Tool Screenshots & Demo

The TxTool main window displays project information and a log table. The Project Directory on the left shows 'Test 0 [PSP0]' and 'PSP3 [PSP2.0]'. The Program Summary section shows Student: YOung, Program: Test 0, Start Date: Jul-25-2011, and Language: Java. The LOGD table lists phases and their durations.

ID	Phase	Start	Int.	Stop	Delta	Comments
52		12/08 11:05:00	0	12/08 12:30:00	85	Dry-run Mel
53		12/08 13:44:00	0	12/08 14:54:00	70	Export improvement (CSV)
54		12/08 15:10:00	0	12/08 17:11:00	121	Export improvement (CSV)
55		12/08 17:11:00	0	12/08 17:20:00	9	Export improvement (CSV) CR
56		12/08 17:36:00	0	12/08 19:20:00	104	Export improvement (CSV)
57	PLAN	07/28 20:32:08	0		0	
58	CODE	07/29 12:52:17	0	07/29 12:52:27	0	

Buttons: Add, Delete

Filter:

Process Directory: PSP0 Project Plan Summary

Software Engineering Institute | Carnegie Mellon

Time in Phase

Phase	Plan	Actual	To-Date	To-Date%
PLAN	982	982	100.00%	
DLD	0	0	0.00%	
CODE	0	0	0.00%	
COMPILE	0	0	0.00%	
UT	0	0	0.00%	
PM	0	0	0.00%	
TOTAL	0	982	982	100.00%

The Start/Stop dialog box shows the Start button, Elapsed Time field, Stop button, Project dropdown (Test 0), Phase dropdown (DLD), Comments field, Start date/time (2011/07/29 13:57:45), Interrupt field, Stop field, and OK/Cancel buttons.

The TxTool is minimized to the system tray. A notification bubble says: "The Tx Tool has been minimized to System Tray!". The system tray shows the time 1:56 PM on 7/29/2011.

[\[Demo video link\]](#)

Specific Problem Solving



Problem description	Applied Solution	Consequences
Some service (such as Project) triggers event that needs to be handled by other services. E.g. when project is closed, calculate summaries.	"Aware" pattern propagated by the ServiceContainer	Unwanted dependency is removed
Multiple chart has different strategy (but same data and similar rendering process.)	Separated UI, data representation from logic provider	Flexibility to use different implementation
Services need to be added and removed.	Service Management layer	Adding or removing services does not require recompilation
There are a lot of similar boilerplate code.	Implement a code generator that generates template code from HBM file.	Module development time was shortened

- Provided the overall architecture of the system
 - Evaluated technologies: Eclipse RCP vs. GWT
 - Addresses the required architecture drivers
 - Developed foundation
- Setup the development process & environments
 - Coding Standard
 - Eclipse & plugins, Subversion
 - JUnit test environment

BBVA Service Mediator

Name	Service Oriented Architecture Mediator	
Description	Implement SOA framework to existing bank system	
My Role	PL/Chief Architect: Coordinate team. Devise SOA strategy. Design and implement mediator module.	
Client/Location	BBVA/ Panama	
Start-End	June 2010 ~ Oct. 2010 (5 months)	
Num. Developers	4 engineers	
Involved Technologies and Products	Platforms: Sun Solaris, Windows Server Language: Java, C# Framework: SpringFramework, iBatis, CXF DBMS: MySQL, DB2 Tools: Eclipse, Ant, Visual Studio Libraries: Apache Commons, JSON, XML	

ECOLOGIX 

Characteristics & Challenges

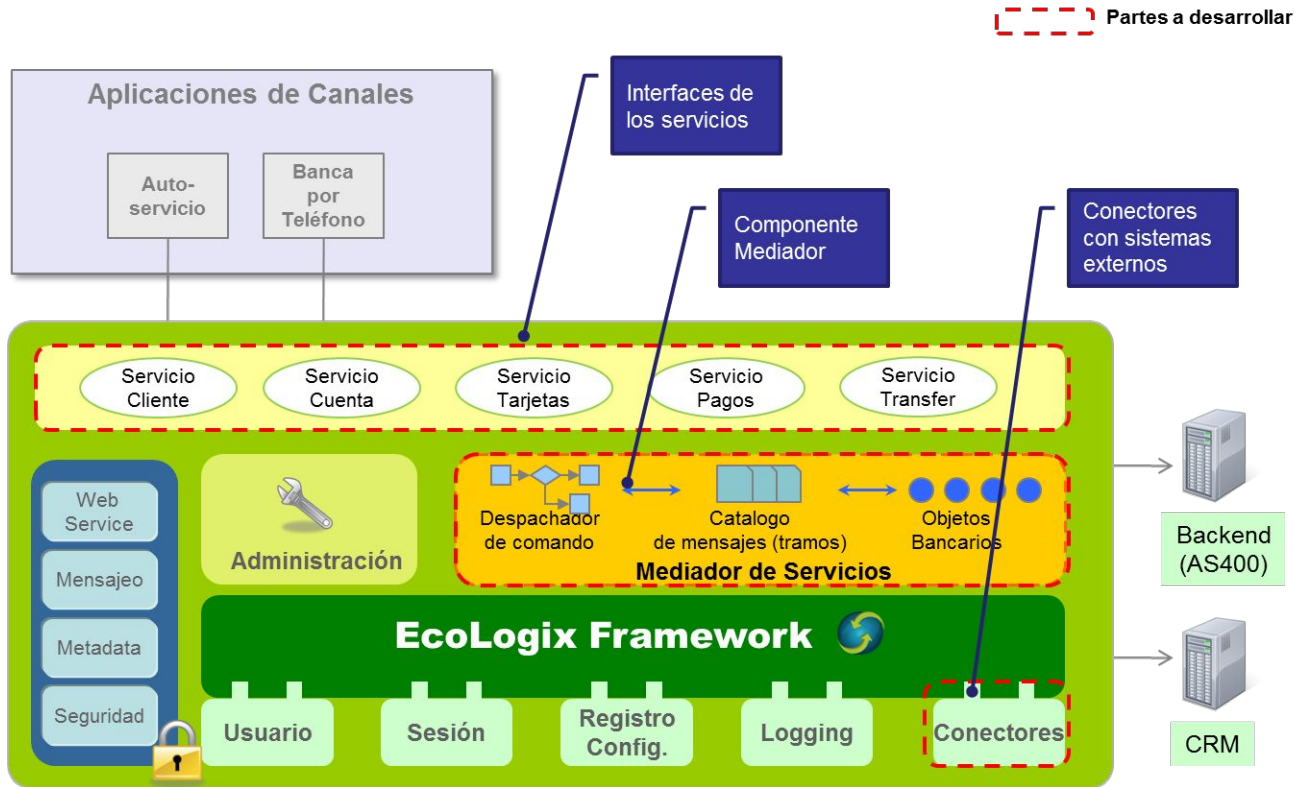
- **Functional Requirements**

- Front the existing services with WSDL interface for all 13 message formats.
- Handle exceptions

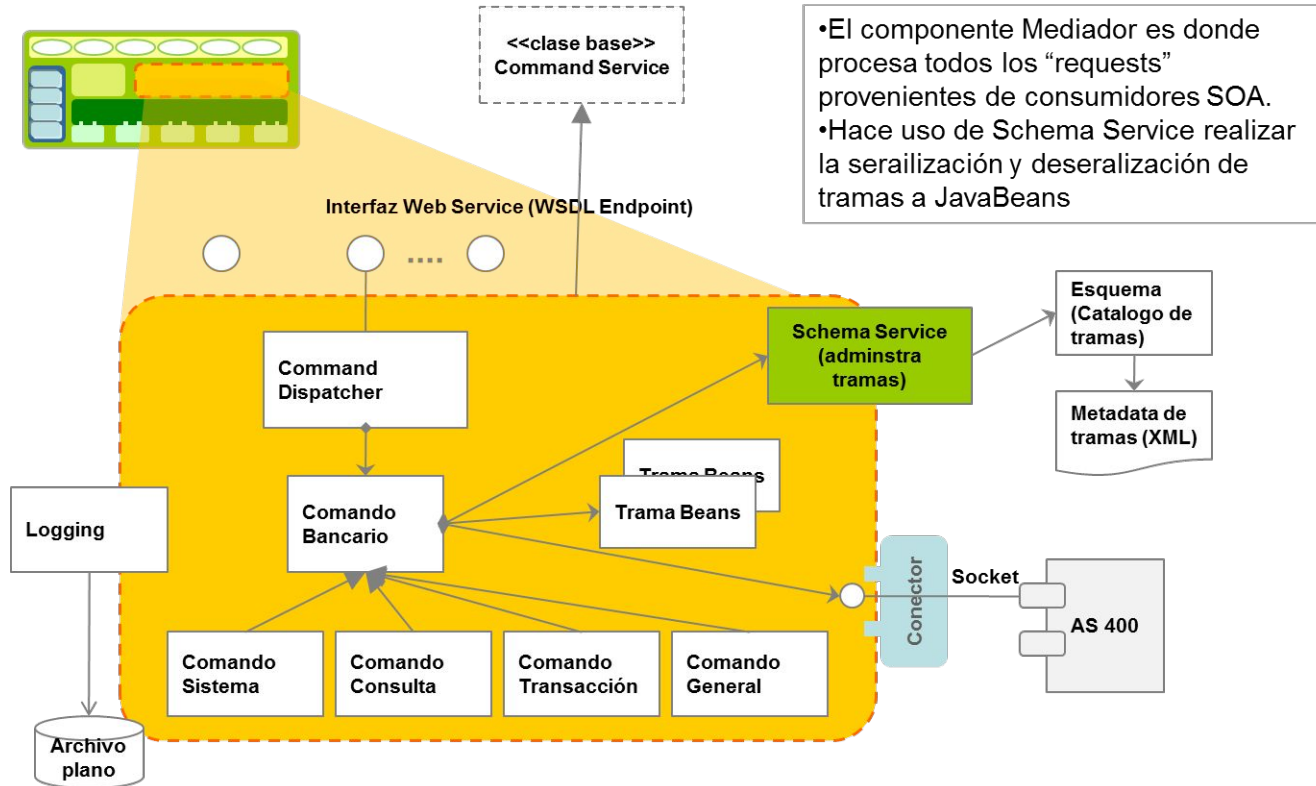
- **Quality Attributes(Non-functional Reqs.)**

- Performance: Should handle at least 5 transactions per second
- Extensibility: Should easily accommodate new message formats

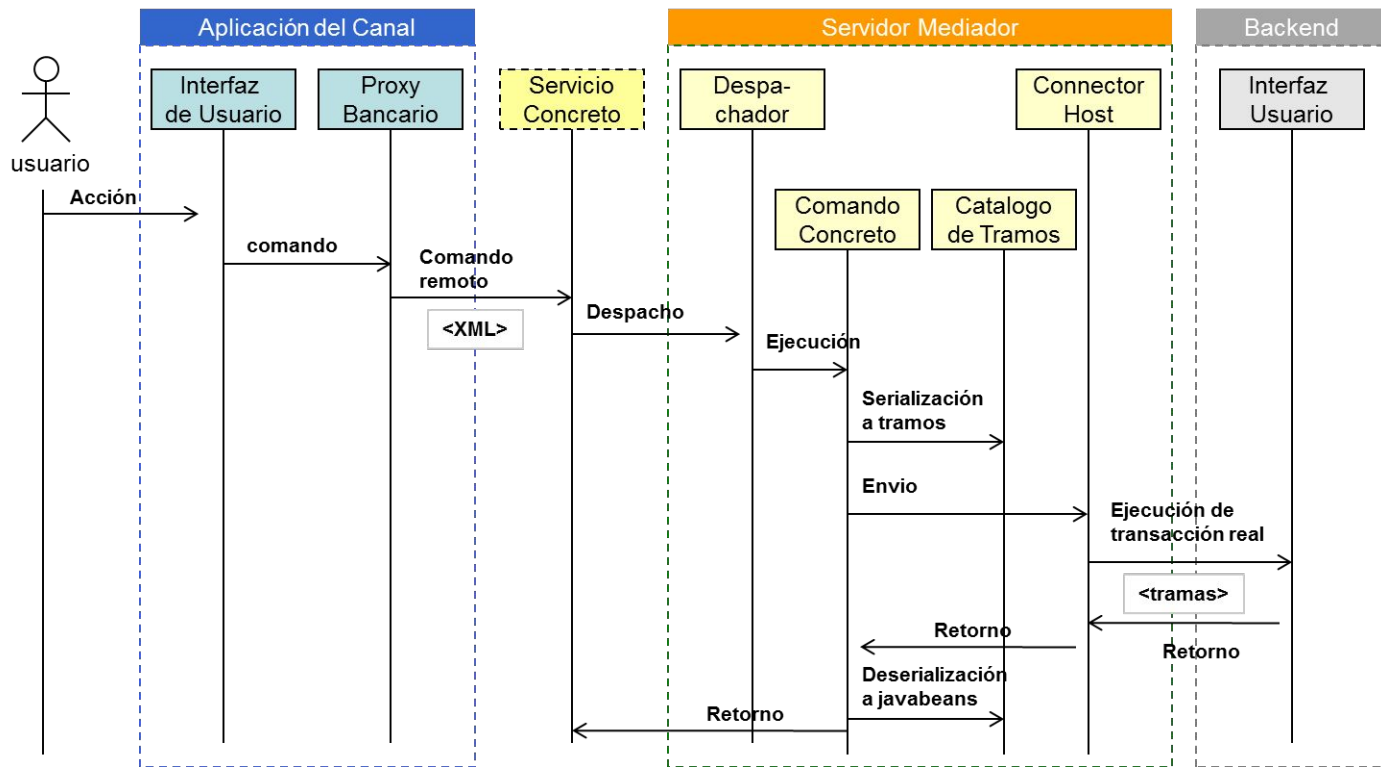
Service Mediator Architecture & Technologies



Service Mediator Architecture & Technologies



Service Mediator Sequence Diagram




My Contributions



- Introduced SOA to BBVA's e-Banking system
 - Provided a development framework for exposing APIs to AS4000 services
- Implemented robust message Mediator
 - Flexible XML based message format processor
- Implemented Test Tool in C#
 - Automate Load & Interoperability Test Tool

Support Case Management

Name	Support Case Management System	
Description	Development of a system that replaces the existing (slow) ticket management system.	
My Role	PM/Architect: Manage project (schedule, budget). Design the overall system, and develop core modules.	
Client/Location	LG Electronics / Panama	
Start-End	Sep. 2008 ~ May. 2009 (8 months)	
Team size	2 engineers	
Involved Technologies and Products	Platforms: Sun Solaris, Windows Server Language: Java, C# Framework: SpringFramework, iBatis, CXF DBMS: MySQL Tools: Eclipse, Ant, Visual Studio Libraries: jQuery, Freemarker, Apache Commons, JasperReports, JSON, Apache POI	ECOLOGIX 

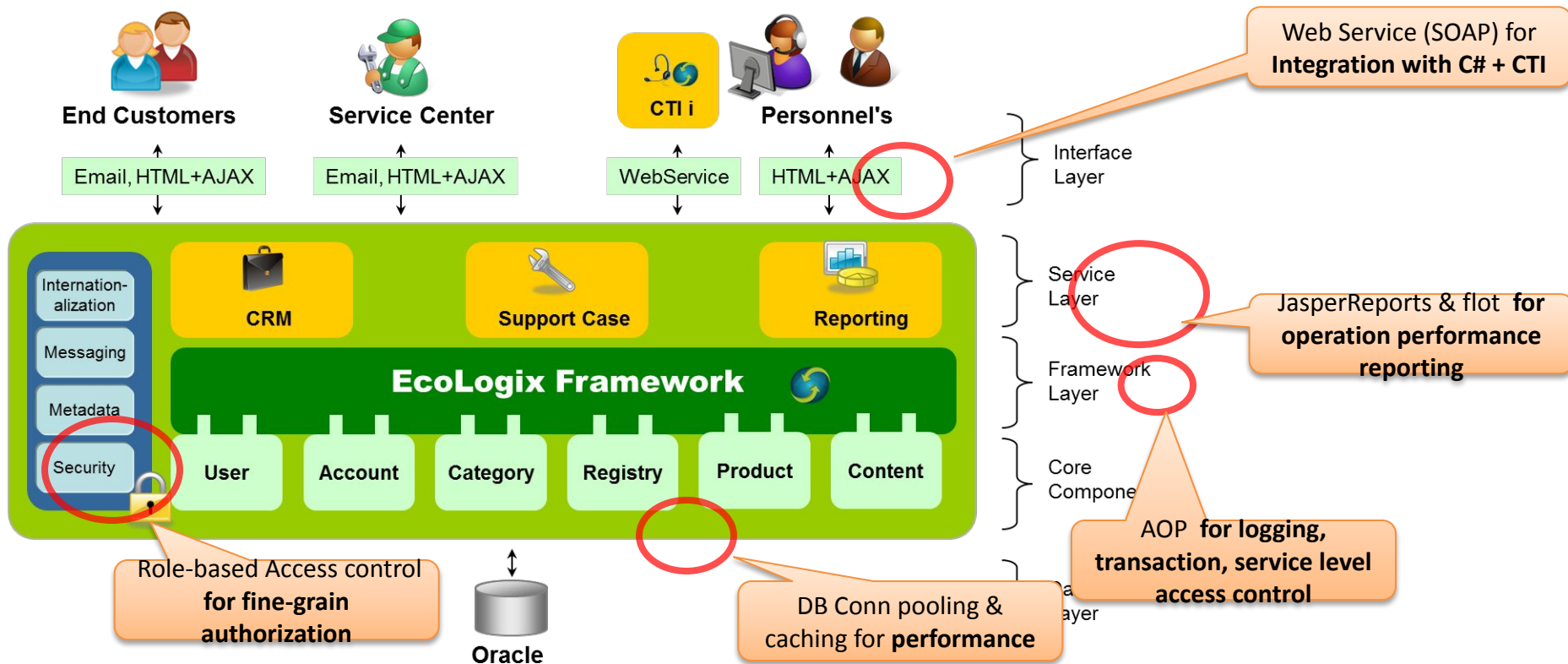
Support Case Management for LG Electronics

Characteristics & Challenges



- **Functional Requirements**
 - Access existing Oracle table
 - Role/country-based access control
 - Operation performance monitoring
 - Connectivity with CTI (Computer Telephony Integration) System
- **Quality Attributes (Non-functional Reqs.)**
 - Performance: sub-second response
 - Usability: Onboarding of new agents within 2hrs training

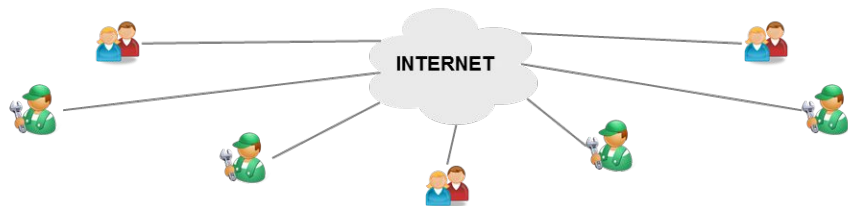
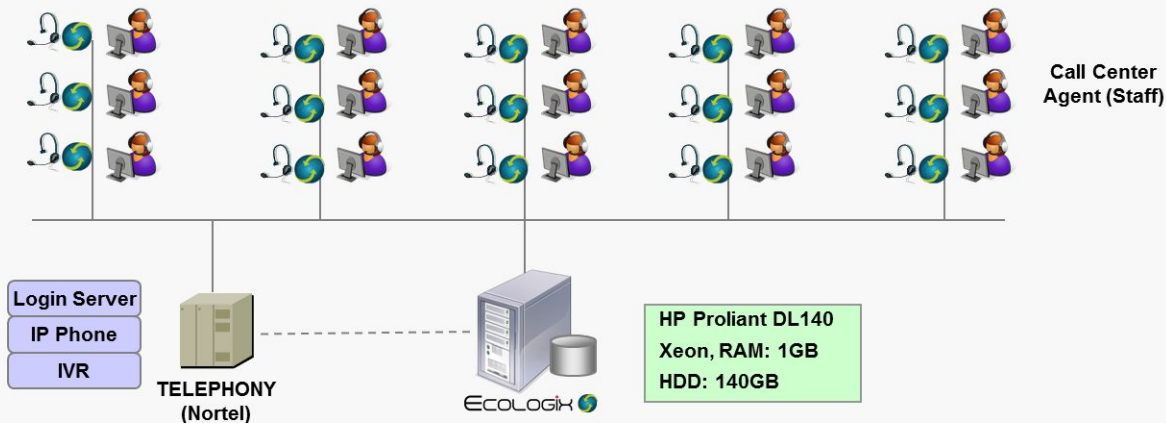
Support Case Management for LG Electronics Architecture & Techniques



Support Case Management for LG Electronics

Deployment Topology

LG Call Center Albroom Network



Support Case Management for LG Electronics System Screenshots

Company Logo

ECOLOGIX

Mi Cuenta (admin) | Admin | Salir

INICIO | ADMIN | SOPORTE | DISPATCHER | CONTENIDO

Lang

[Support] Lista

[Agregar]

Búsqueda

Categoría: -TODO-
Caso#:
Nombre:
Num. Serial:

Estado: -TODO-
Rango: 01-26-2009 ~
Tel. 1:
Producto:

Prioridad: -TODO-
Dia: Mes: Año: F. Recibo:
RUC(Cedula):
Modelo:

Supervisor: -TODO-
Asignado: -TODO-
Time:

Avanzado[+/-]

Caso#	Estado	Recibo	F. Cierre	Asignado	Nombre	Tel. 1		
V-00002	Abierto	02-24-2009 [1d]		Jamar	Ahn	asfd		
V-00001	Abierto	02-24-2009 [1d]		roberto	Dupree	23-123		
ET0016	Abierto	02-23-2009 [3d]		Admin	Ahn	22		
ET0015	Abierto	02-23-2009 [3d]		Admin	Ahn	2		
ET0014	Abierto	02-18-2009 [7d]		Admin	J'hon	123-123		
ET0013	Pendiente	02-17-2009 [8d]		Admin	J'hon	123-123		

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[First] [Prev] 1 [Next] [Last]
Descargar Reporte: XLS | CSV

EcoLogix CTI Integrator

Session Info
Username:
Password:
Login

Change Status
Ready
Drop
Transfer
Conference
IVR

Support Case Management for LG Electronics


Problem Solving



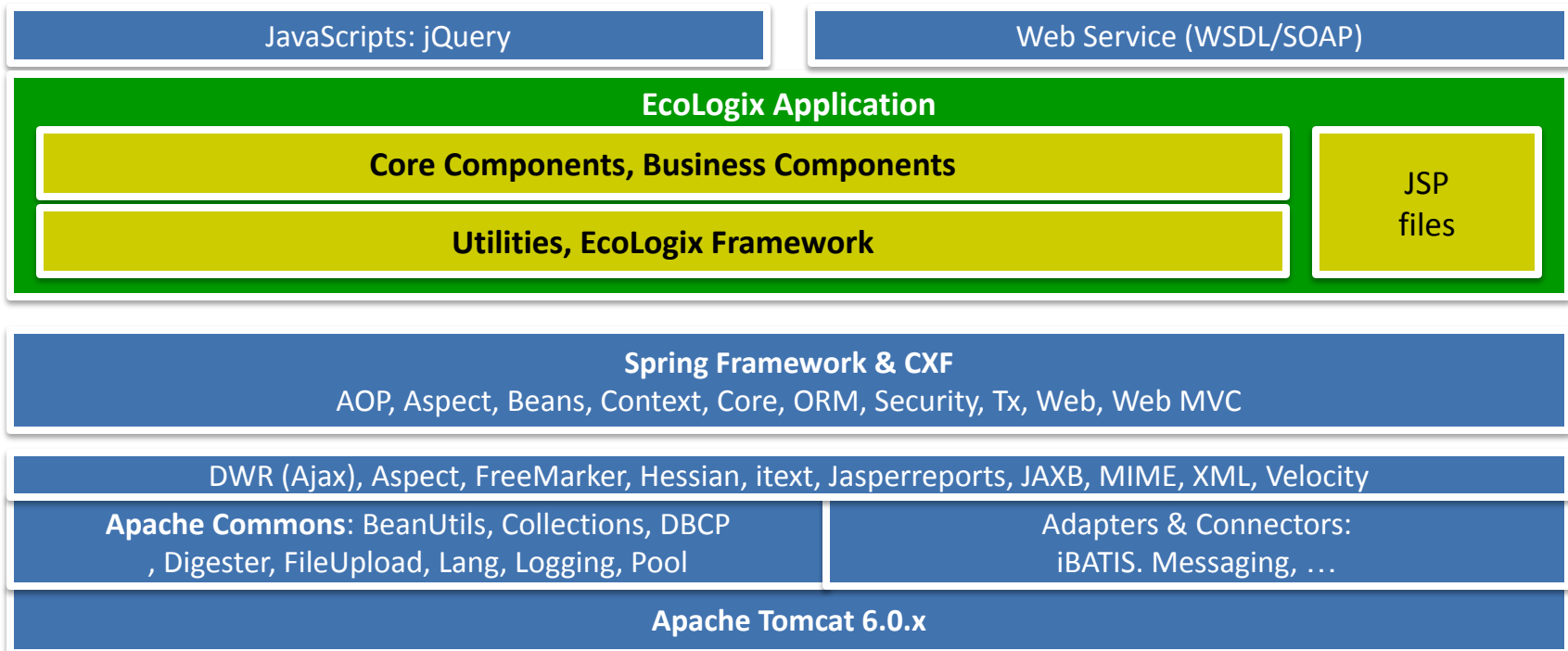
Problem description	Applied Solution	Consequences
Many pieces of logic is repeated in different places. E.g.: Sending notification email, loading related catalog	Use command pattern with command chain (Apache Chain)	Configurable / composable commands
Cached data must be synchronized when updated from different service	Use Observer pattern to notify about changes in the model	Synchronized application state
System uses many resources: (email) template files, XMLs, menus, etc. that increases complexity.	Unify access to the resources through adapter pattern	Extensible resource reader

My Contributions

- Improved performance.
- Improved usability: Users of different role/geographical area has customized view.
- Improved operation: Tighter integration with CTI.
- Business alignment: operation performance monitor by time range allowed better allocation of resources.

Name	ECOLOGIX 
Description	Scalable and Extensible Enterprise Application Platform
My Role	PL/Chief Architect: Coordinate team. Provide product vision. Design and implement core components
Client/Location	Internal product / Panama
Start-End	September 2007 ~ Sept. 2010
Num. Developers	2~4 engineers
Involved Technologies and Products	Platforms: Sun Solaris, Windows Server Language: Java, C# Framework: SpringFramework, iBatis, CXF DBMS: MySQL, DB2 Tools: Eclipse, Ant, Visual Studio Libraries: Apache Commons, JSON, XML

EcoLogix Architecture



Spring: MVC

- View/Controller Config. Sample (Registry-sevler.xml)

```
<bean id="servletViewResolver" class="org.springframework.web.servlet.view.InternalResourceViewResolver">
  <property name="order" value="1" />
  <property name="prefix">
    <value>/WEB-INF/views/jsp/registry/</value>
  </property>
  <property name="suffix" value=".jsp" />
</bean>
<bean id="urlMapping" class="org.springframework.web.servlet.handler.SimpleUrlHandlerMapping">
  <property name="interceptors">
    <list><ref bean="localeChangeInterceptor" /></list>
  </property>
  <property name="urlMap">
    <map>
      <entry key="/list.html"><ref local="registryListController"/></entry>
      <entry key="/form.html"><ref local="registryFormController"/></entry>
      <entry key="/view.html"><ref local="registryViewController"/></entry>
      <entry key="/delete.html"><ref local="registryDeleteController"/></entry>
      <entry key="/import.html"><ref local="registryImportController"/></entry>
    </map>
  </property>
</bean>
<bean id="registryListController" class="com.alianzasoft.ecologix.core.registry.web.RegistryListController">
  <property name="registryService"><ref bean="registryServiceObject"/></property>
</bean>
```

View
resolver: JSP

URL to
controller
mapping

Controller
instantiation

Spring: Securities

- Set of Servlet filters implemented as Spring Bean (so it can take advantage of IoC and available beans in the container)
- In EcoLogix, the configuration set in
 - applicationContext-security.xml

```
<http auto-config="true"
    access-denied-page="/accessDenied.jsp" >
    <intercept-url pattern="/dba/**" access="ROLE_HOST,ROLE_FELLOW" />
    <intercept-url pattern="/user/signin.html*" access="IS_AUTHENTICATED_ANONYMOUSLY" />
    <intercept-url pattern="/user/view.html" access="ROLE_HOST,ROLE_FELLOW,ROLE_PARTNER,ROLE_REGISTERED" />
</http>
<authentication-provider user-service-ref="altUserJdbcDaoImpl">
</authentication-provider>

<beans:bean id="daoAuthenticationProvider"
    class="org.springframework.security.providers.dao.DaoAuthenticationProvider">
    <beans:property name="userDetailsService" ref="altUserJdbcDaoImpl" />
</beans:bean>
<beans:bean id="altUserJdbcDaoImpl" class="com.alianzasoft.ecologix.core.user.SpringSecUserAuthJdbcDaoImpl">
    <beans:property name="dataSource" ref="dataSource" />
    <beans:property name="userService" ref="userServiceObject" />
</beans:bean>
```

Spring: AOP (Transaction)

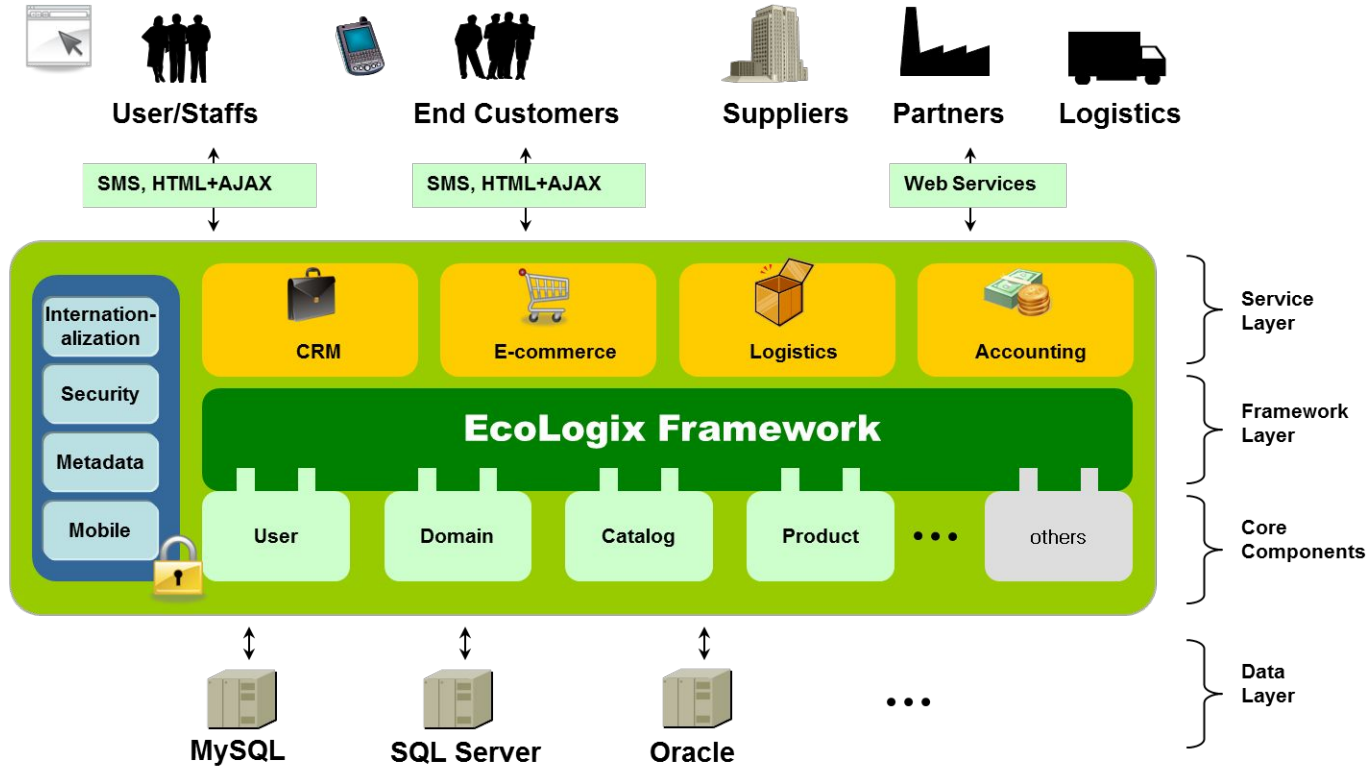
- Aspect Oriented Programming
 - separation of cross-cutting concerns, to promote modularization
 - Example: Transaction.
 - Business logic developer need not to know the transaction implementation intricacies. Just need to know that it NEEDS it.

```
<beans xmlns="http://www.springframework.org/schema/beans"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:aop="http://www.springframework.org/schema/aop"

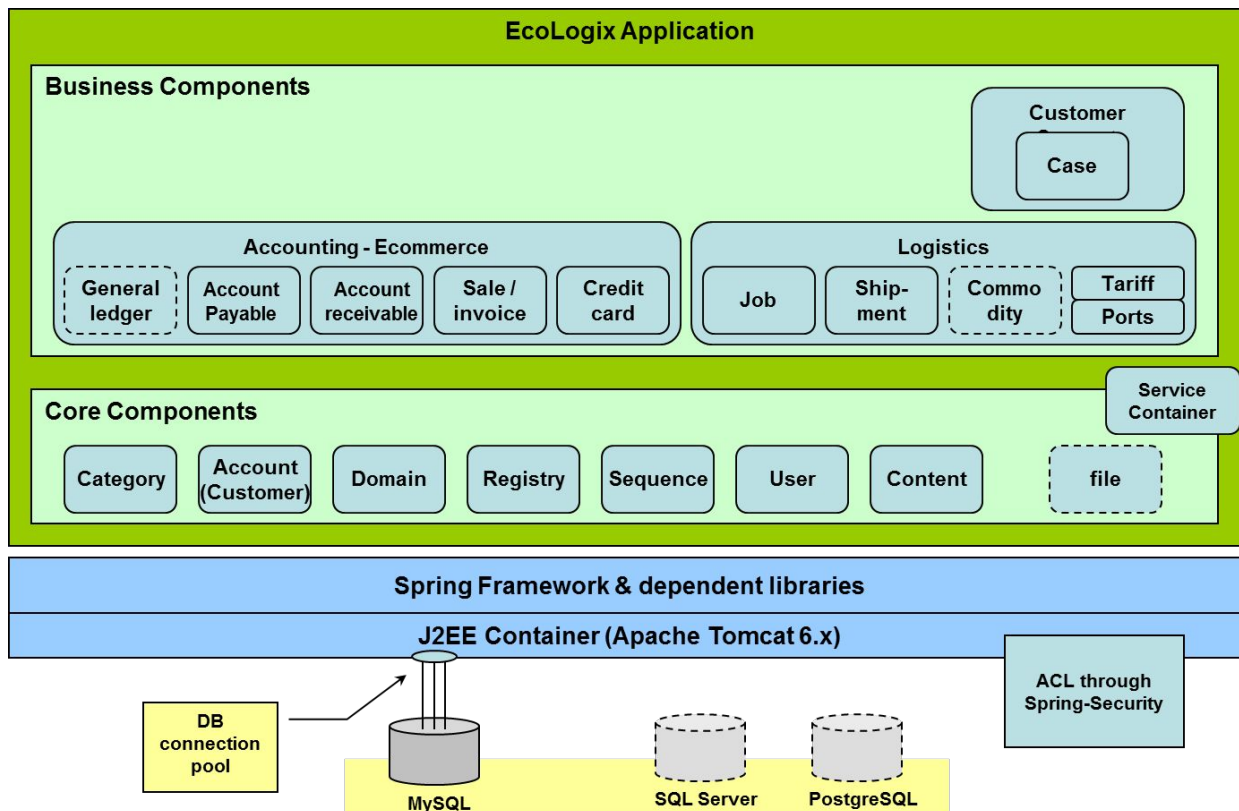
  <tx:advice id="txAdvice" transaction-manager="txManager">
    <tx:attributes>
      <tx:method name="getNext*" isolation="SERIALIZABLE"/>
    </tx:attributes>
  </tx:advice>
  <aop:config>
    <aop:pointcut id="sequenceNumServiceOperation" expression="execution(* com.alianzasoft.ecologix.core.sequence.SequenceNumService.*(..))"/>
    <aop:advisor advice-ref="txAdvice" pointcut-ref="sequenceNumServiceOperation"/>
  </aop:config>
```

NOTE: here the com.ecologixsystem.core.sequence.SequenceNumService IS AN INTERFACE

EcoLogix Conceptual Architecture



EcoLogix Component Diagram



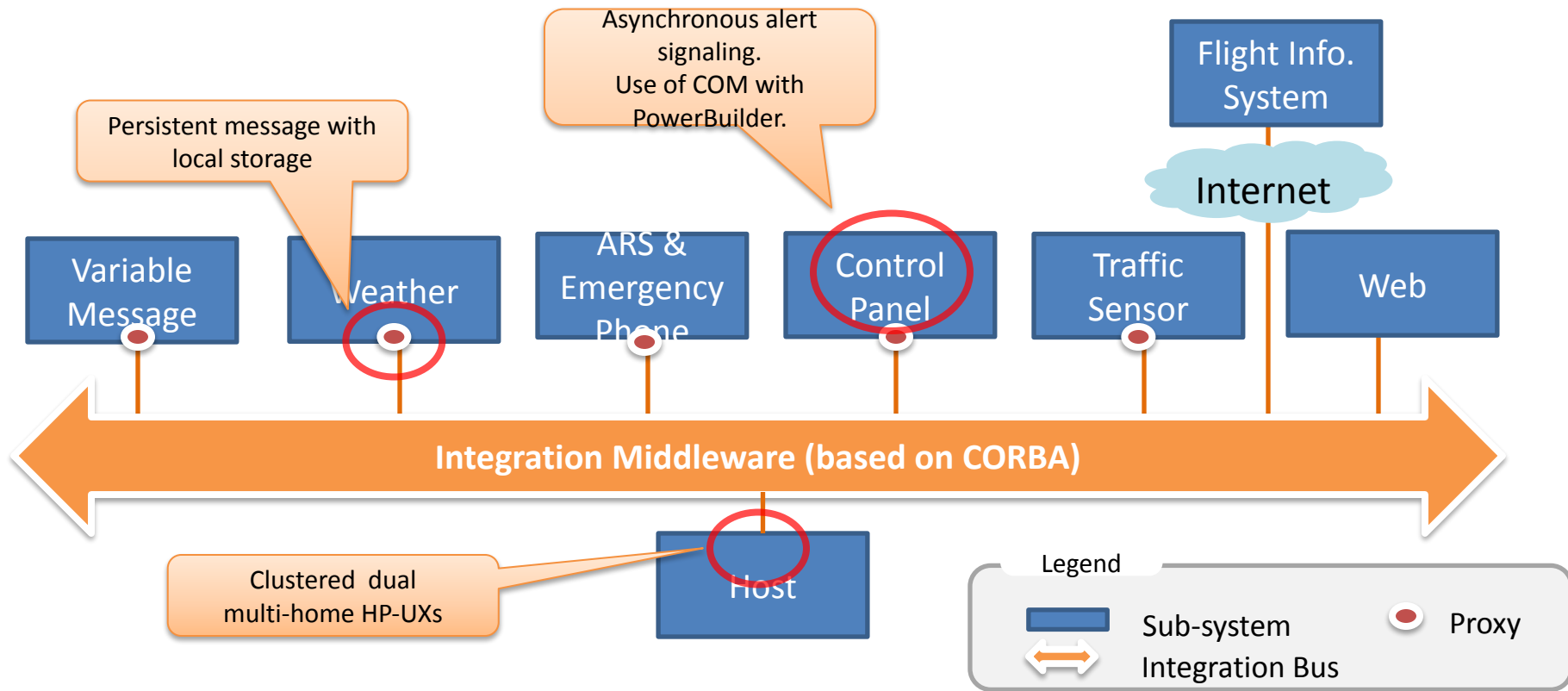
Freeway Traffic Mgmt. System (FTMS)

Name	Freeway Traffic Management System
website	http://www.hiway21.com/
Description	Part of Incheon International Airport (http://www.airport.kr)
My Role	Software Engineer (Integration Architect): Create the overall integration strategy using CORBA. Develop the middleware stubs/proxies. Design and implement high-availability.
Client/Location	Samsung + Honeywell consortium / Korea
Start-End	Nov. 1999 ~ Oct. 2000
Num. Developers	40 engineers
Involved Technologies and Products	<p>Platforms: HP-UX (Clustered), Windows NT, Sun Solaris</p> <p>Middleware: CORBA (Orbix, Orbix Talk)</p> <p>Language: C++, PowerBuilder(COM), Oracle Pro*C++</p> <p>DBMS: Oracle</p>

Characteristics & Challenges

- **Project**
 - 9 different subsystems (different outsourcing company ea.)
- **Constraints**
 - Real-time data handling
 - Integration with Flight Information System (FIS)
 - Heterogeneous platforms
 - High-Availability, message persistence

Freeway Traffic Mgmt. System (FTMS) Architecture & Technologies



Freeway Traffic Mgmt. System (FTMS) Problem Solving



Problem description	Applied Solution	Consequences
Registry of location (CORBA NameServer) required fail safe mechanism	Redundant Name Servers with real-time synchronization	Two instances of name servers available, reduces fail time.
Message should not be lost, even when the network is unavailable	Smart proxy that stores locally the untransmitted messages during network failure. Once the network is restored, the messages are sent in a separate thread	No message is lost
Alerts should be broadcasted to multiple consoles	Instead of using synchronous TCP transmission, use asynchronous UDP transmission with NACK for reliability	No blocking in the message processing.
Need to integrate PowerBuilder application	Wrap CORBA objects in COM	

My Contribution

- Trained all engineers to use Object-Oriented Modeling
- Architected the integration middleware
- Designed and implement High-availability mechanism using replication and heart-beat
- Designed and implement message persistence using local message storage

THANK YOU



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