Model Driven Solutions

Where Business Meets Technology

A Division of Data Access Technologies, Inc.

Model-Driven Solutions: Open Source Tooling for Implementing OMG's new SoaML Standard

OBJECT MANAGEMENT GROUP

London, UK
30 April 2009

Ed Harrington
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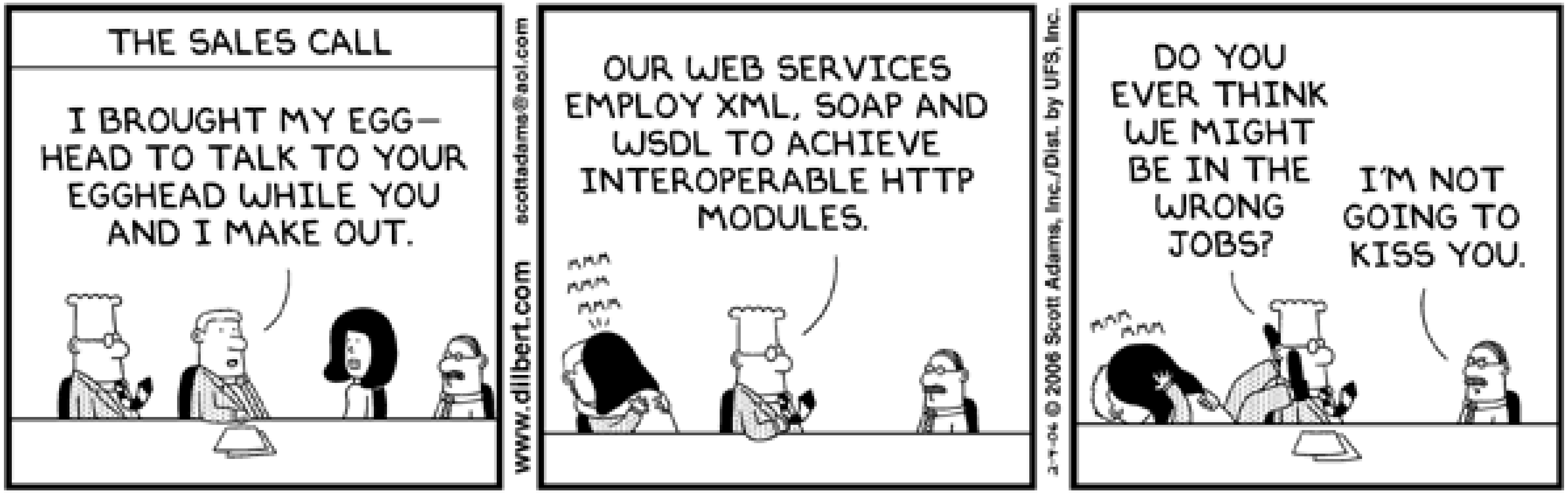
SOA – the fun part! *Dilbert's SOA Predicament!*


THE SALES CALL
I BROUGHT MY EGG-HEAD TO TALK TO YOUR EGGHEAD WHILE YOU AND I MAKE OUT.
www.dilbert.com scottadams@aol.com
OUR WEB SERVICES EMPLOY XML, SOAP AND WSDL TO ACHIEVE INTEROPERABLE HTTP MODULES.
MMM MMM MMM
3-7-06 © 2006 Scott Adams, Inc./Dist. by UFS, Inc.
DO YOU EVER THINK WE MIGHT BE IN THE WRONG JOBS?
I'M NOT GOING TO KISS YOU.
MMM MMM

© Scott Adams, Inc./Dist. by UFS, Inc. http://www.j2eegeek.com/blog/2006/02/04/dilbert-does-web-services/

- **Problem is… the business folks have no idea what the Eggheads are talking about - a.k.a.**

"The SOA Chasm"

Agenda

- OMG OBJECT MANAGEMENT GROUP and SoaML
  - Submitters
  - Goals
  - Service
  - SoaML Metamodel
  - SOA Diagrams Supported
- Open Source Deployment: ModelPro™
  - Relating the Parts for Model Driven SOA
  - Business Focused SOA Using Model Driven Architecture
  - Tiered Deployment
  - Custom Business Logic Components
  - Application Provisioning
- Questions

Service Oriented Architecture Modeling Language
UML Profile and Metamodel for Services (UPMS)

Principle Authors:
Jim Amsden, IBM
Dr. Arne J. Berre, SINTEF
Cory Casanave, Model Driven Solutions

Service vocabulary, Specification, Contract, Correlation to Business Process…

http://www.omg.org/cgi-bin/doc?ad/08-11-01

The Submission Team

- **Submitters**
  - 88Solutions
  - Adaptive
  - EDS
  - Model Driven Solutions
  - Capgemini
  - Fujitsu
  - Fundacion European Software Institute
  - Hewlett-Packard
  - International Business Machines
  - MEGA International
  - MID GmbH
  - Rhysome
  - Softeam
  - Telelogic AB

- **Supporters**
  - Everware-CBDI
  - General Services Administration
  - VisumPoint
  - Mega
  - BAE Systems
  - DERI – University of Innsbruck
  - DFKI
  - France Telecom R&D
  - NKUA – University of Athens
  - Oslo Software
  - SINTEF
  - THALES Group
  - University of Augsburg
  - Wilton Consulting Group

Goals

- **Intuitive and complete** support for modeling services in UML
- Support for **bi-directional asynchronous services** between multiple parties
- Support for **Services Architectures** where parties provide and use multiple services.
- Support for **services defined to contain other services**
- Easily mapped to and made **part of a business process specification**
- **Compatibility with UML, BPDM and BPMN** for business processes
- Direct mapping to web services
- **Top-down, bottom up or meet-in-the-middle modeling**
- **Design by contract** or **dynamic adaptation** of services
- To specify and relate the **service capability and its contract**
- **No changes to UML**

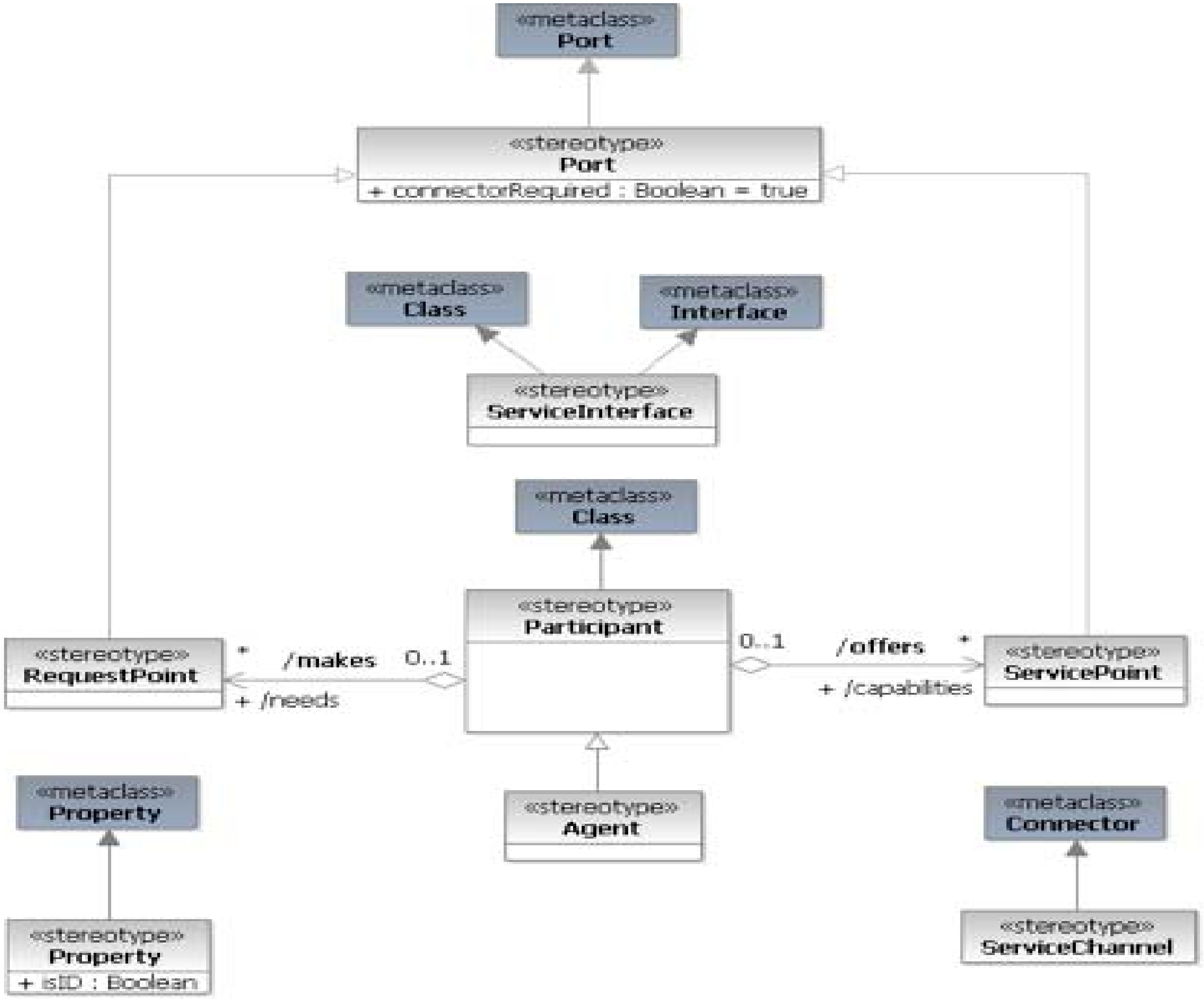
Service

- **Open Group definition: A service** is a logical representation of a repeatable business activity that has a specified outcome (e.g., check customer credit; provide weather data, consolidate drilling reports)
  - Is self-contained
  - *May be* composed of other services
  - Is a "black box" to consumers of the service

- **OMG working definition: A service** (noun) is the work or action performed by one for another, enabled by one or more capabilities.

- "Here, the access to the service is provided using a prescribed interface and is exercised consistent with constraints and policies as specified by the service contract. A service is provided by a participant acting as the *provider of the service—for use by others. The eventual consumers of the service may not be known to the service provider and may demonstrate uses of the service beyond the scope originally conceived by the provider." [OASIS RM]*

Metamodel


«metaclass»
Port
«stereotype»
Port
+ connectorRequired : Boolean = true
«metaclass»
Class
«metaclass»
Interface
«stereotype»
ServiceInterface
«metaclass»
Class
«stereotype»
Participant
«stereotype»
RequestPoint
*
/makes
0..1
+ /needs
0..1
/offers
*
+ /capabilities
«stereotype»
ServicePoint
«metaclass»
Property
«stereotype»
Agent
«metaclass»
Connector
«stereotype»
Property
+ isID : Boolean
«stereotype»
ServiceChannel

SOA Diagrams Supported

- **Service Structure Diagram** – the specification of a service including service contract, service interfaces, events and service choreography. The service structure and choreography diagrams combine to fully define the contract between service providers and consumers, independent of implementation and technology concerns.
- **Service Choreography Diagram** – the specification for how the providers and consumers of a service interact to fulfill the service contract. Indicates what information is sent between provider and consumer as well as when the information is communicated.
- **Services Architecture Diagram** – a high-level diagram of the participants in a SOA as well as the services they provide/use to meet their business objectives.
- **Message Type Diagram** – the model of SOA message data as well as the tie between SOA messages and the UML information model. Message types are then used in the Service Structure Diagram.

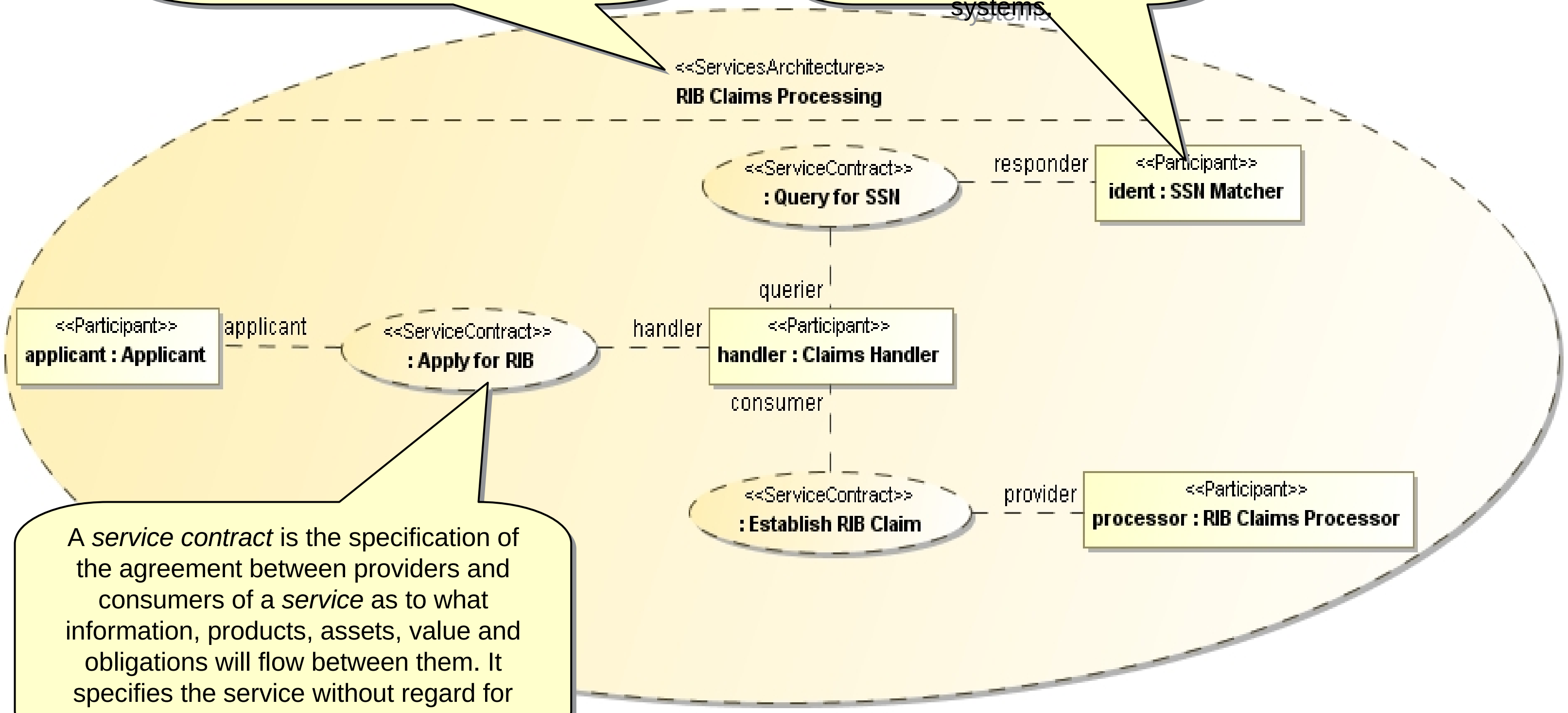
SOA Diagrams Supported (cont.)

- **Composite Application Component Diagram** – the model of components and sub-components that provide and use services as a composite application component that can be provisioned for deployment.
- **Activity Diagram** – the business process and activities within a composite SOA component that provides and uses services.
- **Capabilities Diagram** – the capabilities diagram shows the capabilities behind the services and what other capabilities each service depends on.
- **Provisioning Diagram** – the provisioning diagram defines the connection between an architecture and an implementation of that architecture. The provisioning diagram is used by the Open Source ModelPro engine to produce a deployable project. The provisioning diagram specifies the service components to be provisioned, what technologies will be used to implement each service component and where developers should augment the generated project with custom code.

Services Architecture Diagram

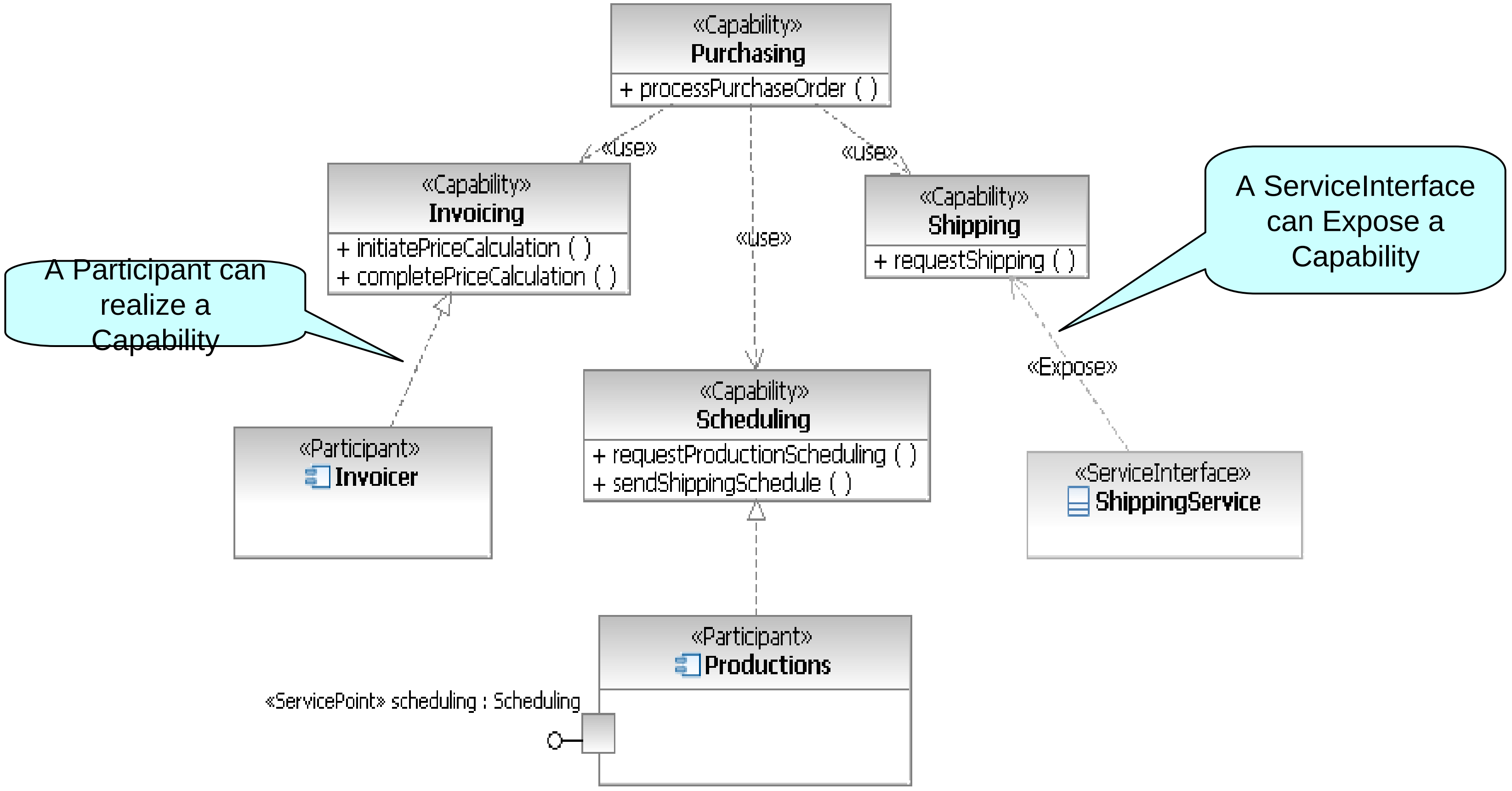
A *services architecture* describes how *participants* work together for a purpose by providing and using services expressed as *service contracts*. It is modeled as a UML *collaboration.*

A *participant* represents some party that provides and/or consumes services. Participants may represent people, organizations or systems.



A *service contract* is the specification of the agreement between providers and consumers of a *service* as to what information, products, assets, value and obligations will flow between them. It specifies the service without regard for realization, capabilities or implementation.

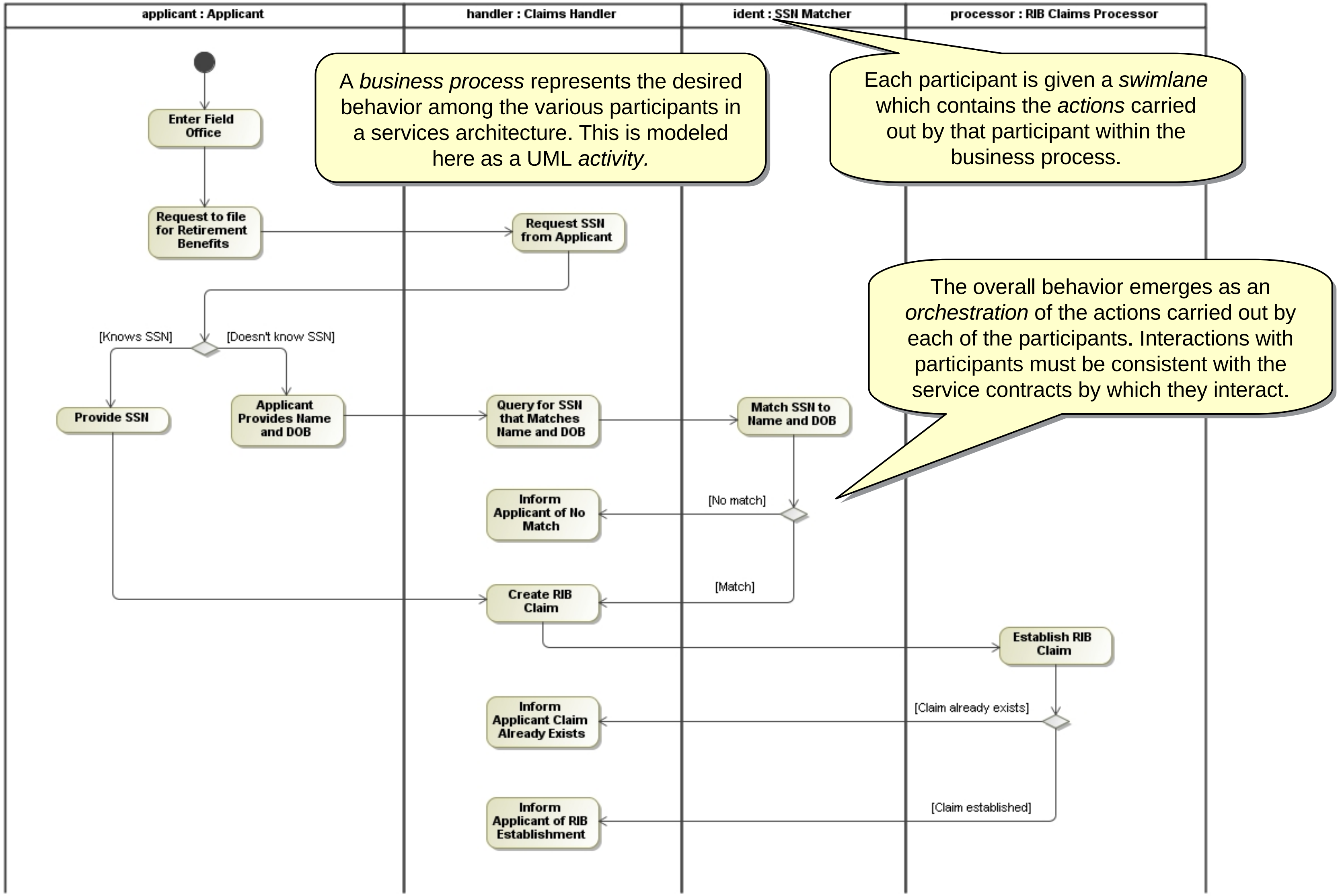
Capabilities Diagram



A Participant can realize a Capability

A ServiceInterface can Expose a Capability

Activity Diagram


applicant : Applicant
handler : Claims Handler
ident : SSN Matcher
processor : RIB Claims Processor
Enter Field Office
Request to file for Retirement Benefits
Request SSN from Applicant
[Knows SSN]
[Doesn't know SSN]
Provide SSN
Applicant Provides Name and DOB
Query for SSN that Matches Name and DOB
Match SSN to Name and DOB
[No match]
Inform Applicant of No Match
[Match]
Create RIB Claim
Establish RIB Claim
[Claim already exists]
Inform Applicant Claim Already Exists
[Claim established]
Inform Applicant of RIB Establishment

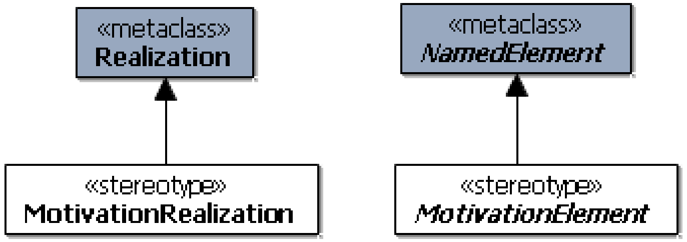
A *business process* represents the desired behavior among the various participants in a services architecture. This is modeled here as a UML *activity.*

Each participant is given a *swimlane* which contains the *actions* carried out by that participant within the business process.

The overall behavior emerges as an *orchestration* of the actions carried out by each of the participants. Interactions with participants must be consistent with the service contracts by which they interact.

Relating to Other Standards

- SoaML integration with BPMN 2.0 and BPDM will be related to the ongoing BPMN 2.0 standardization
- Extensions for Agents and semantic services will also relate to semantics, ontologies and other OMG metamodels like ODM and SBVR
- Limited BMM integration is included to tie services to the business

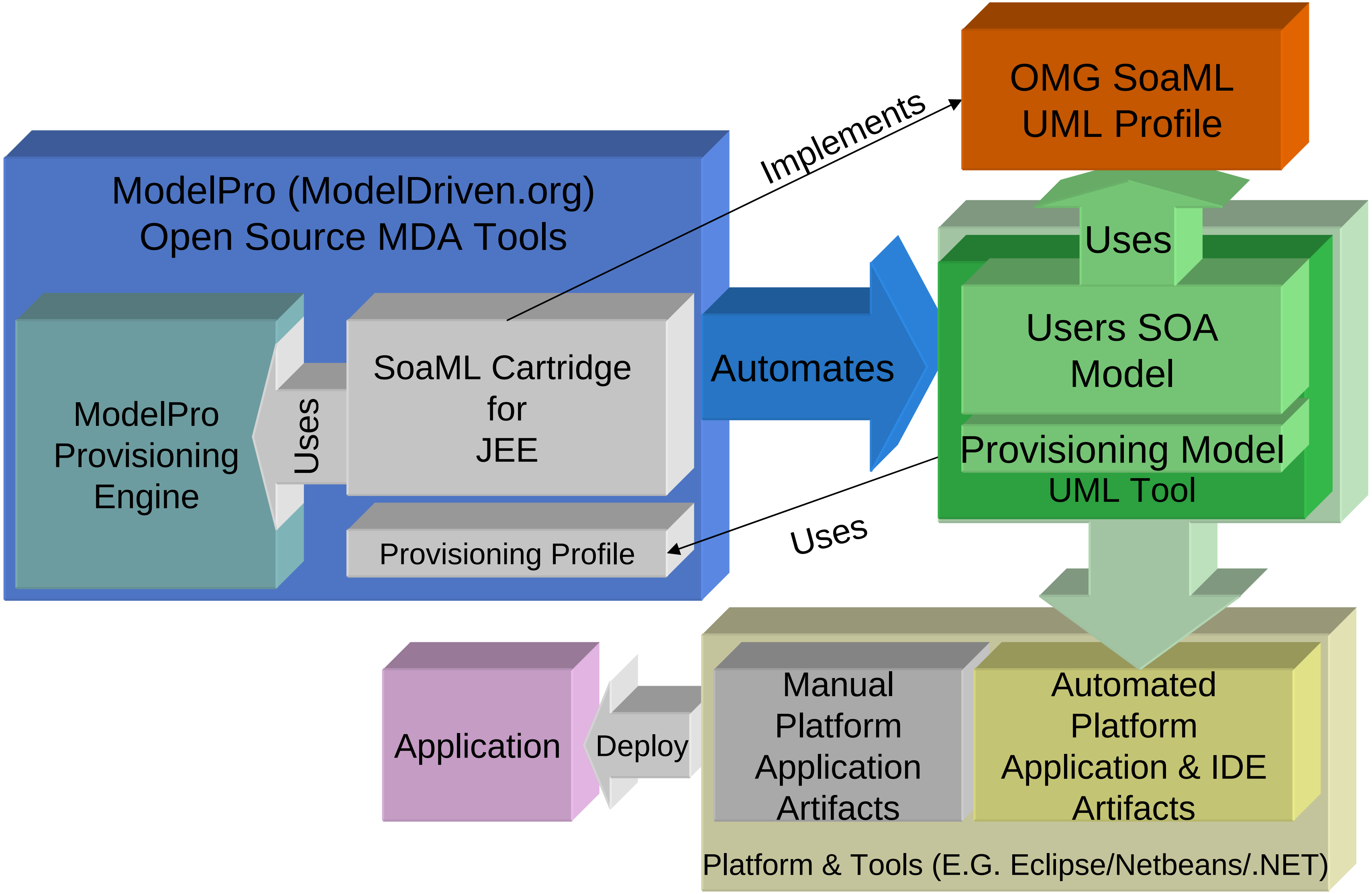


  - Business requirements can be captured using the OMG Business Motivation Model (BMM).
  - Any UML BehavioredClassifier including (for example a ServicesContract) may realize the BMM Motivation concept of *motivation realization*. This allows services models to be connected to the business motivation and strategy linking the services to the things that make them business relevant.

Open Source Deployment: ModelPro™

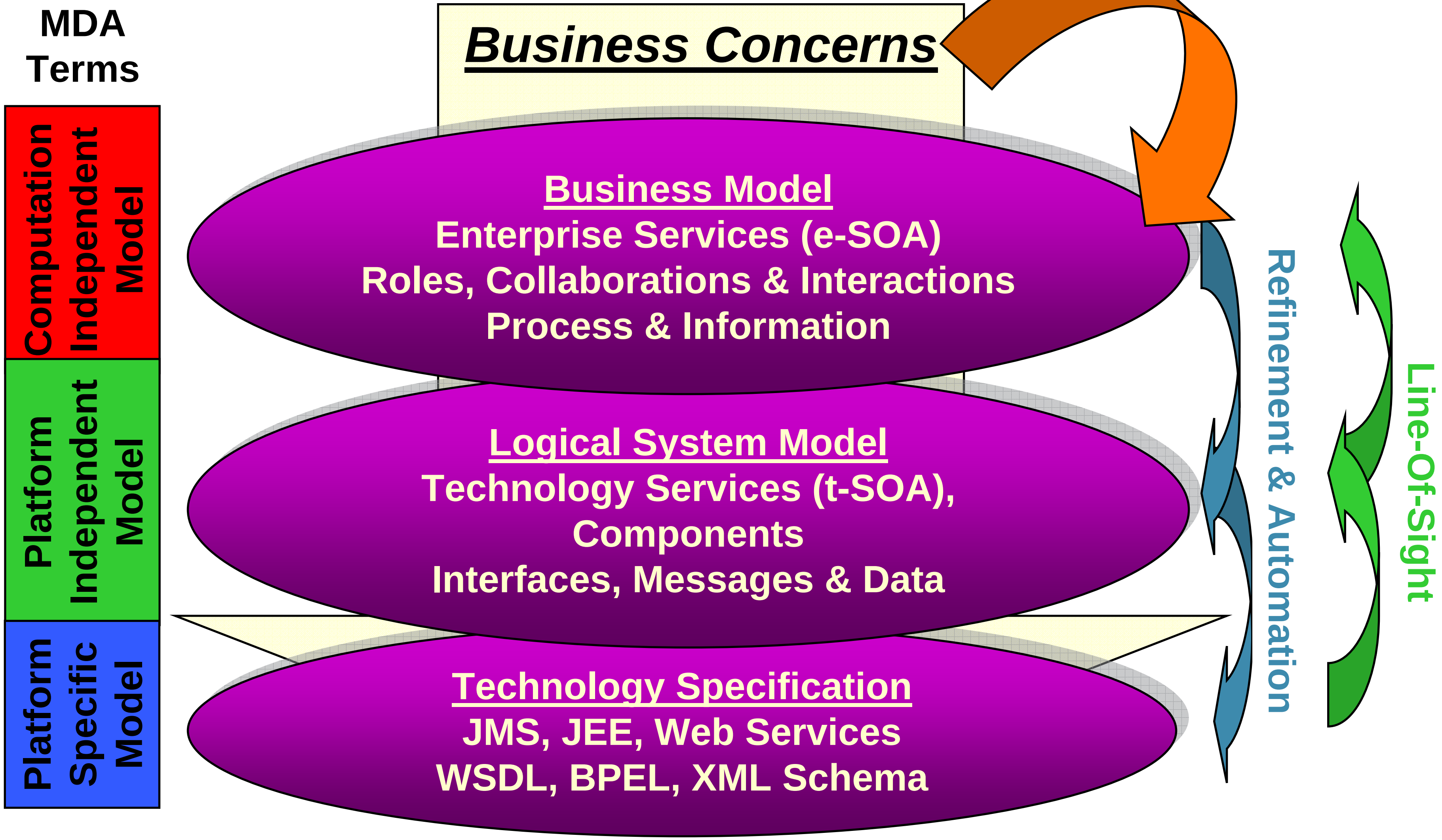
- Automatic Generation of Services
- Implementation Technologies (currently) Supported:
  - Web Services: XSD and WSDL
  - Eclipse IDE: project and build files
  - Java and JEE Implementations: Java source (user override capability) and required libraries for:
    - Services
    - Messages
    - Components
    - Data and Session Beans
  - Application Servers: Configuration and JAR files (tested on JBoss and Glassfish)
  - Constantly expanding

Relating the Parts for Model Driven SOA



OMG SoaML UML Profile
Implements
ModelPro (ModelDriven.org) Open Source MDA Tools
ModelPro Provisioning Engine
Uses
SoaML Cartridge for JEE
Provisioning Profile
Automates
Uses
Users SOA Model
Provisioning Model
UML Tool
Uses
Application
Deploy
Manual Platform Application Artifacts
Automated Platform Application & IDE Artifacts
Platform & Tools (E.G. Eclipse/Netbeans/.NET)

Business Focused SOA Using Model Driven Architecture

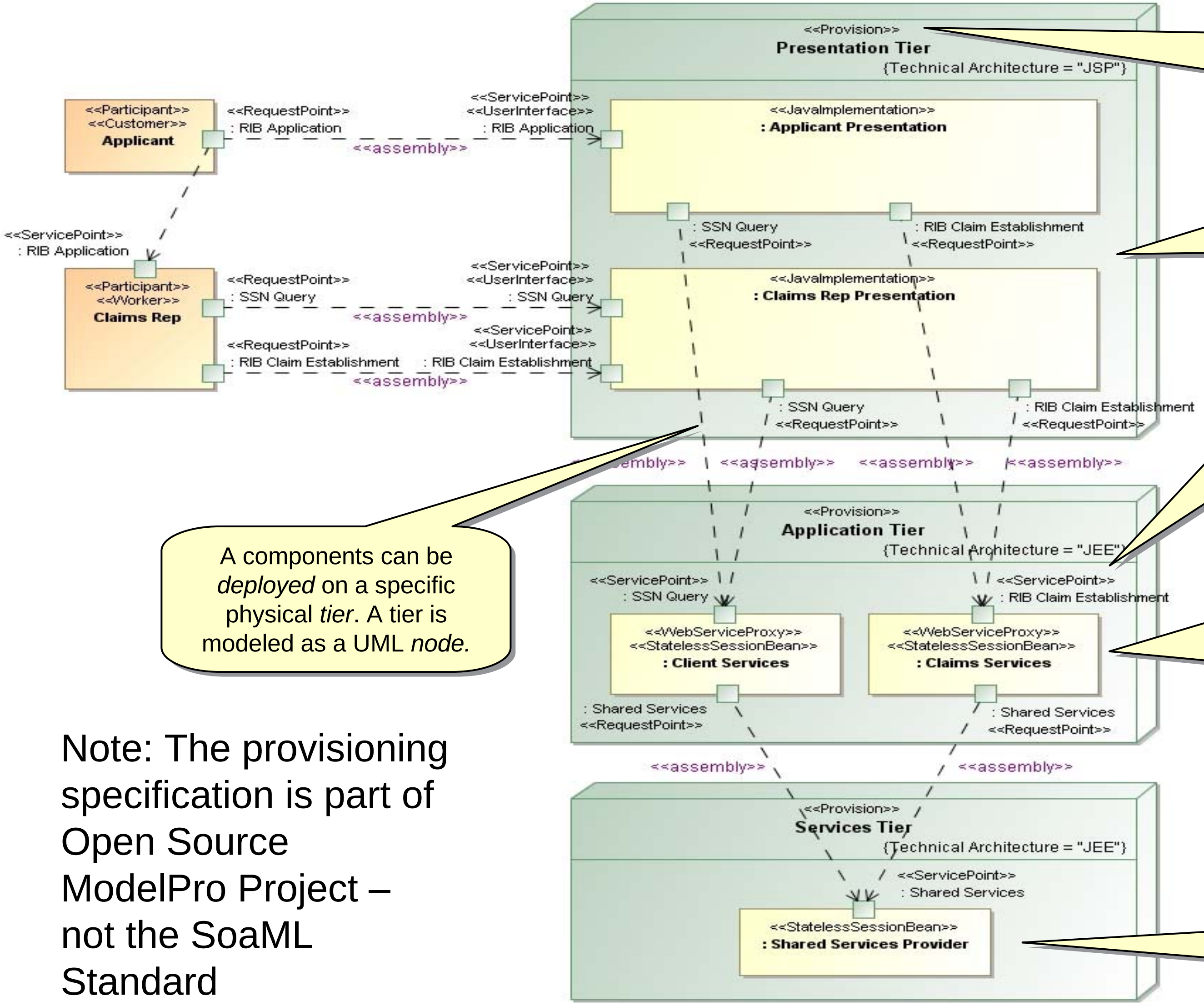


Business Model
Enterprise Services (e-SOA)
Roles, Collaborations & Interactions
Process & Information

Logical System Model
Technology Services (t-SOA),
Components
Interfaces, Messages & Data

Technology Specification
JMS, JEE, Web Services
WSDL, BPEL, XML Schema

“To-Be Claims Processing” Tiered Deployment



Provisioning is the generation of some or all system implementation artifacts directly from the models.

A components can be *deployed* on a specific physical *tier*. A tier is modeled as a UML *node.*

The *technical architecture* for a tier defines the implementation platform to use when provisioning components on that tier.

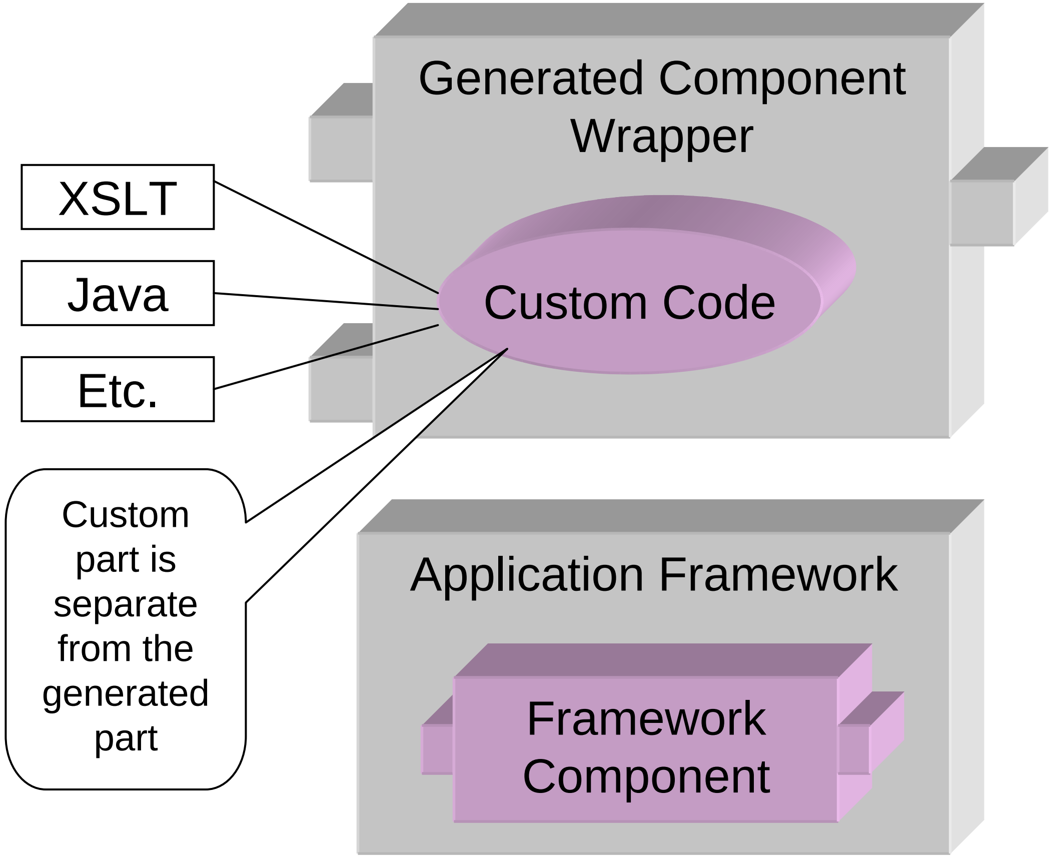
A components can be *deployed* on a specific physical *tier*. A tier is modeled as a UML *node.*

Within the context of the technical architecture, component deployments can be stereotyped to affect how they are provisioned.

Shared services may be provided to multiple applications.

Note: The provisioning specification is part of Open Source ModelPro Project – not the SoaML Standard

Custom Business Logic Components


Generated Component Wrapper
XSLT
Java
Etc.
Custom Code
Custom part is separate from the generated part
Application Framework
Framework Component

Application components provide service implementations with user supplied logic. These “plug into” the users architecture as composite application components

Framework components add infrastructural capabilities by extending the platform (E.G. JBI) and are called by the provisioned code or platform configuration

As MDA progresses, there will be less and less need for custom components, but the capability will remain.

Application Provisioning

- Platform technologies are provisioned from the model based on the technology specified
  - XSD
  - WSDL
  - Application Server Configuration
  - Java Interfaces & Implementation
  - XSLT
  - IDE Project
  - SQL
  - Documentation
  - Tests
  - …

Details of what is provisioned for a particular technology are beyond the scope of this presentation

Thank You

Additional Information:

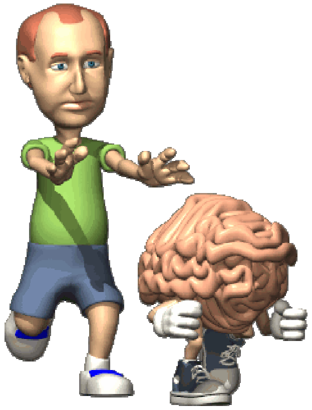
OMG and SOAML

http://www.omg.org/cgi-bin/doc?ad/08-11-01

ModelPro™ : http://www.modelpro.org

CAMEO™ SOA+ POWERED BY MODELPRO : http://www.magicdraw.com/

(Fully supported modeling tool from MagicDraw with an integrated and supported version of ModelPro, included)

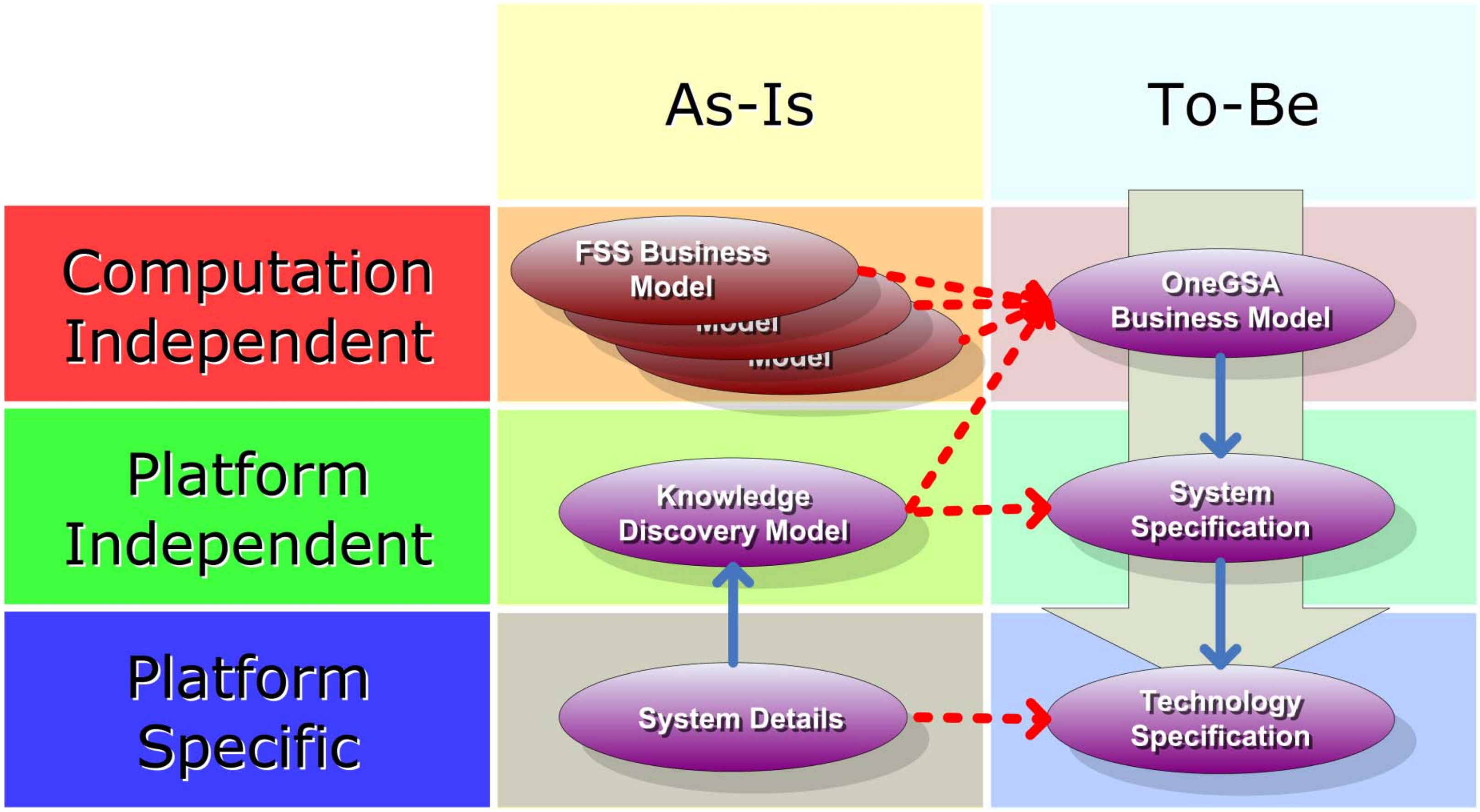


Ed Harrington, EVP & COO
Model Driven Solutions
ed-h@modeldriven.com

Supplemental Materials

- Social Security Administration / ORSIS SOA Modeling Example

Incorporating Legacy Analysis



As-Is

To-Be

Computation Independent

Platform Independent

Platform Specific

FSS Business Model

Model

Model

OneGSA Business Model

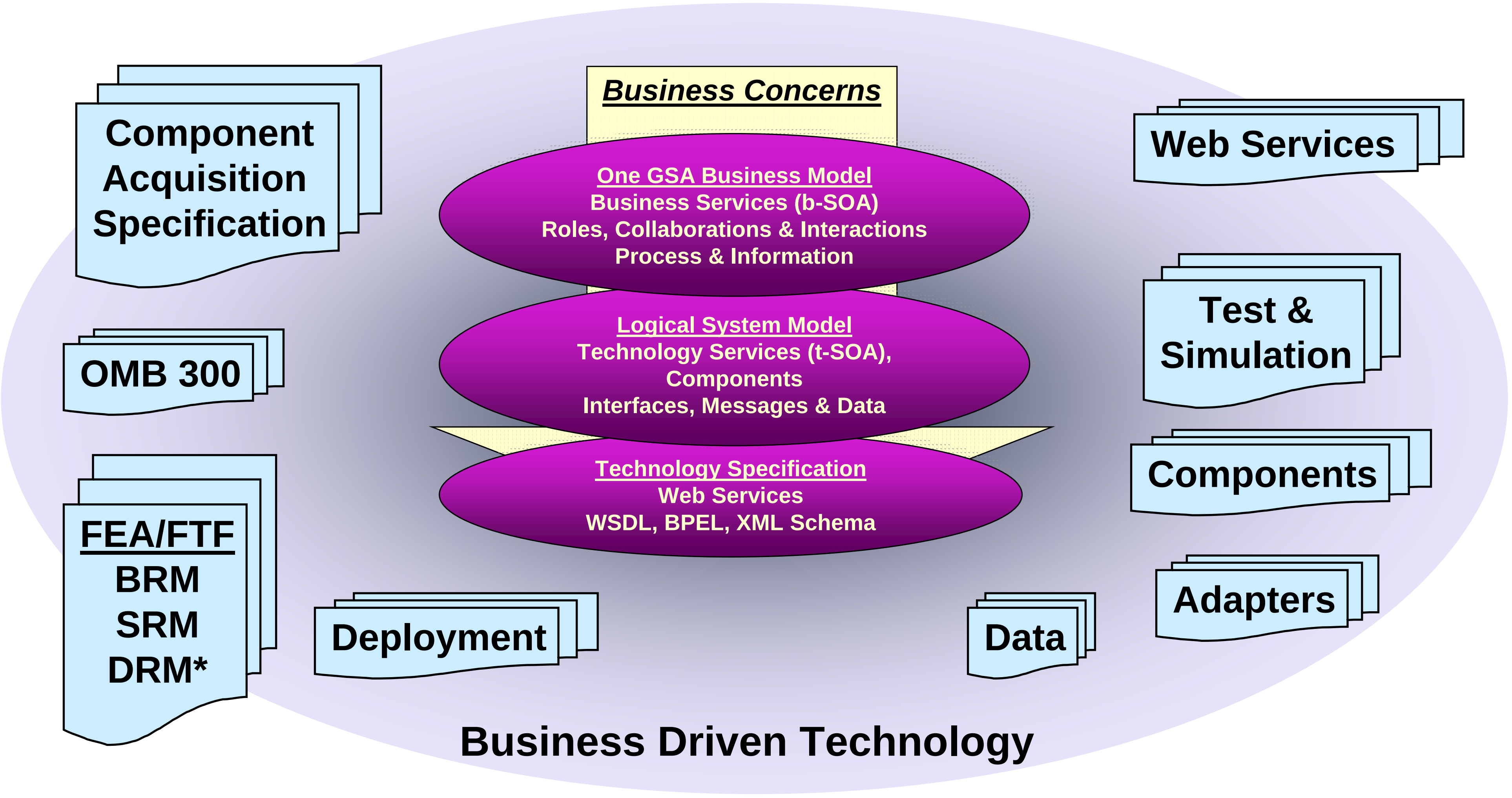
Knowledge Discovery Model

System Specification

System Details

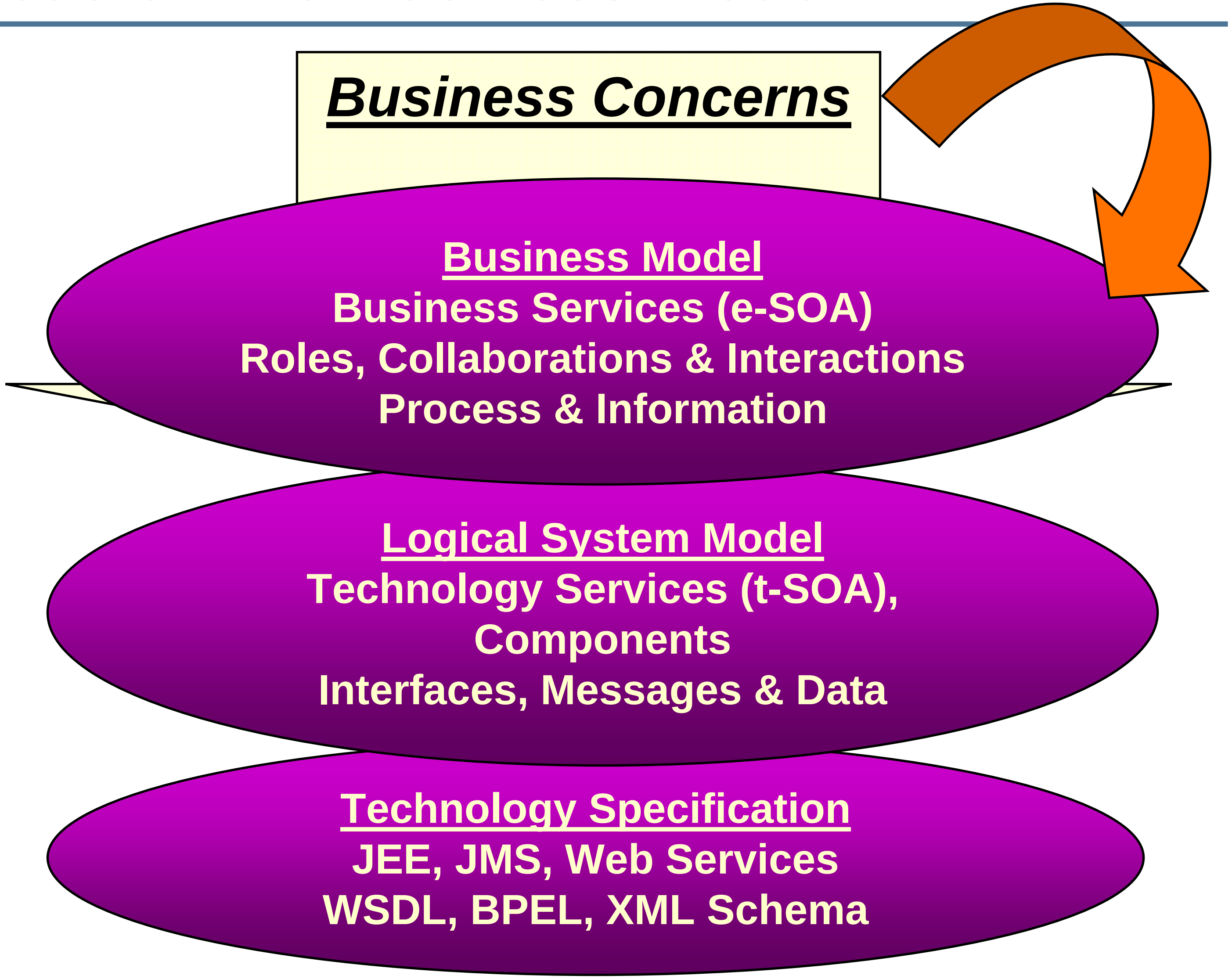
Technology Specification

Value derived from the architecture



Facilitating Business Processes

Focus on the Business Model



Business Concerns

Business Model
Business Services (e-SOA)
Roles, Collaborations & Interactions
Process & Information

Logical System Model
Technology Services (t-SOA), Components
Interfaces, Messages & Data

Technology Specification
JEE, JMS, Web Services
WSDL, BPEL, XML Schema

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Social Security Administration / ORSIS Service Oriented Architecture (SOA) Modeling Example

Ed Seidewitz

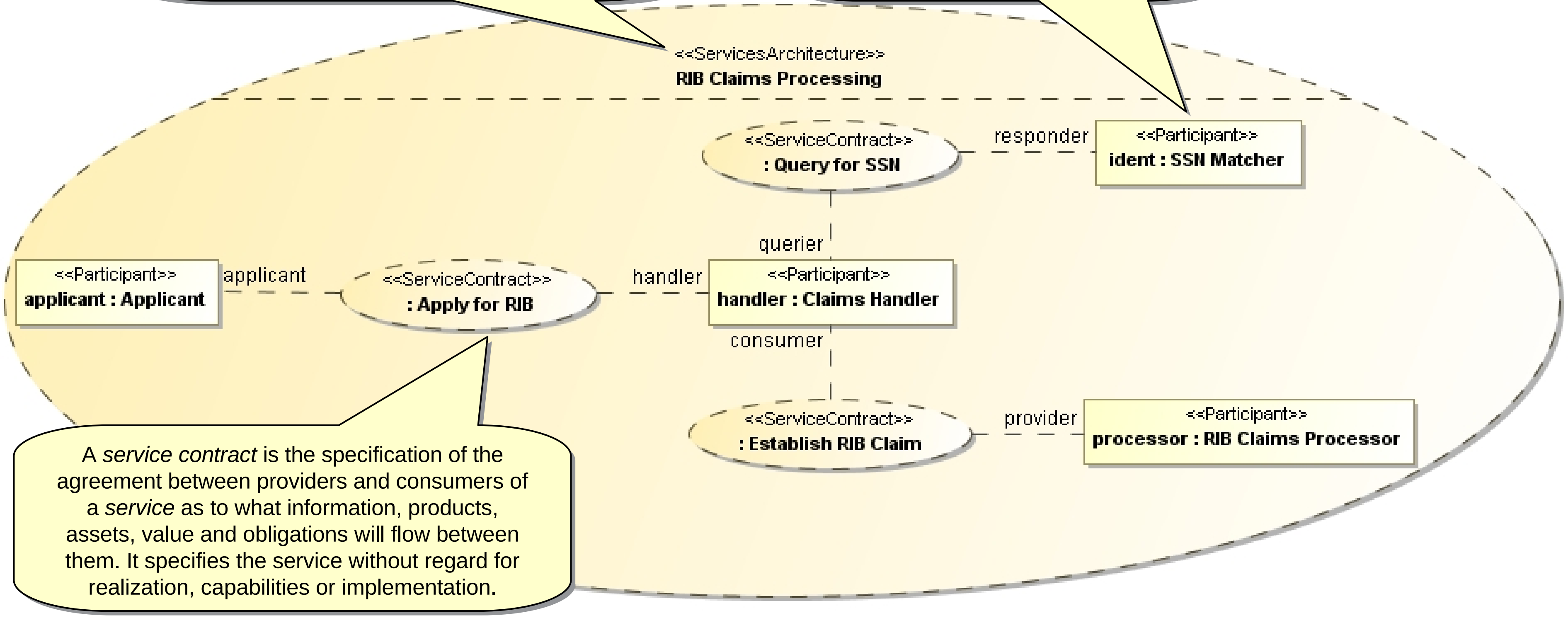
Computation Independent Model (CIM)

- RIB Claims Processing Services Architecture
  - RIB Claims Processing Business Process
- Apply for RIB Service Contract
  - RIB Application Service Interface
- Query for SSN Service Contract
  - SSN Query Service Interface
- Establish RIB Claim Service Contract
  - RIB Establishment Service Interface
- RIB Claims Processing Participants

RIB Claims Processing Services Architecture

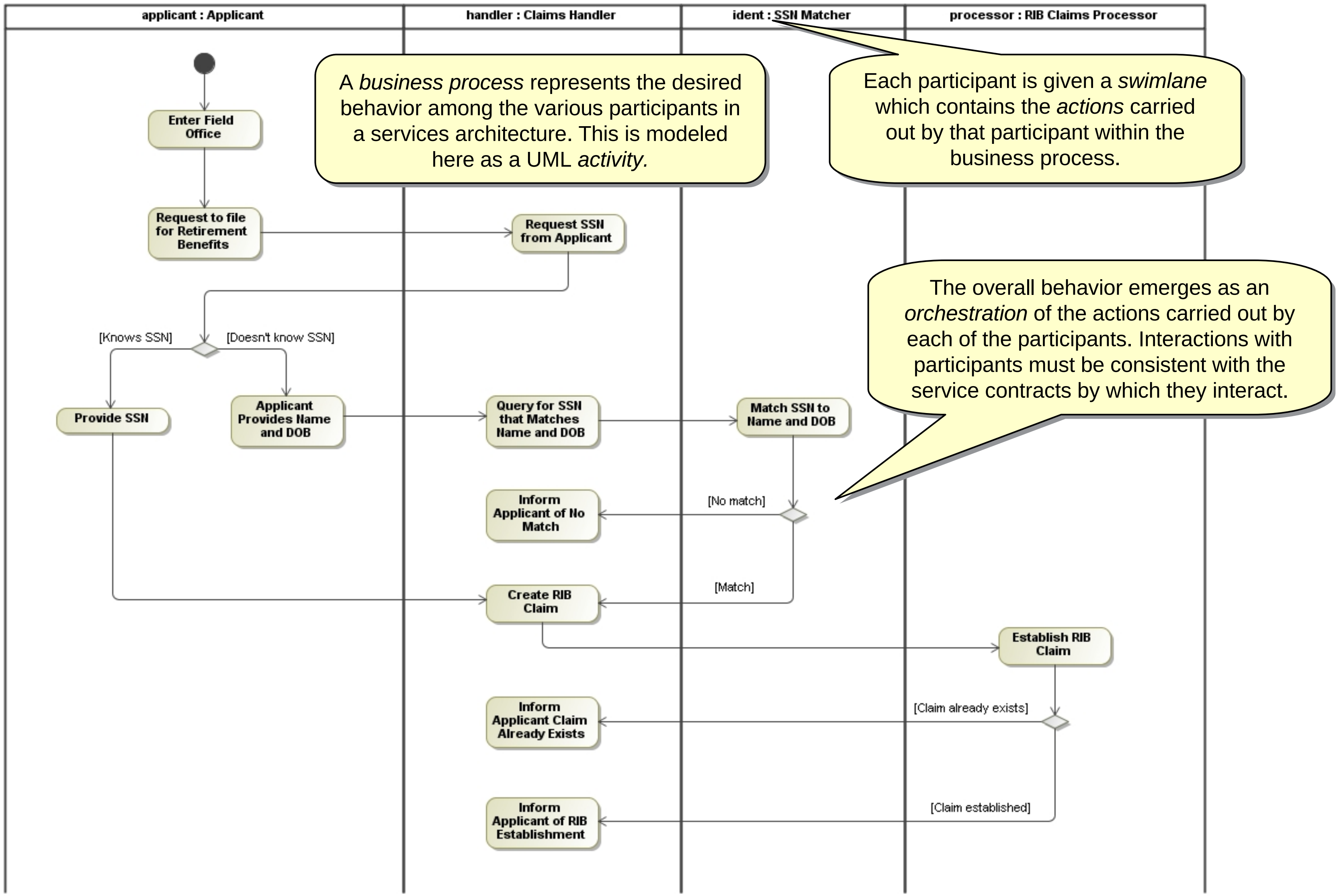
A *services architecture* describes how *participants* work together for a purpose by providing and using services expressed as *service contracts*. It is modeled as a UML *collaboration.*

A *participant* represents some party that provides and/or consumes services. Participants may represent people, organizations or systems.



A *service contract* is the specification of the agreement between providers and consumers of a *service* as to what information, products, assets, value and obligations will flow between them. It specifies the service without regard for realization, capabilities or implementation.

RIB Claims Processing Business Process


applicant : Applicant
handler : Claims Handler
ident : SSN Matcher
processor : RIB Claims Processor
Enter Field Office
Request to file for Retirement Benefits
Request SSN from Applicant
[Knows SSN]
[Doesn't know SSN]
Provide SSN
Applicant Provides Name and DOB
Query for SSN that Matches Name and DOB
Match SSN to Name and DOB
[No match]
Inform Applicant of No Match
[Match]
Create RIB Claim
Establish RIB Claim
[Claim already exists]
Inform Applicant Claim Already Exists
[Claim established]
Inform Applicant of RIB Establishment

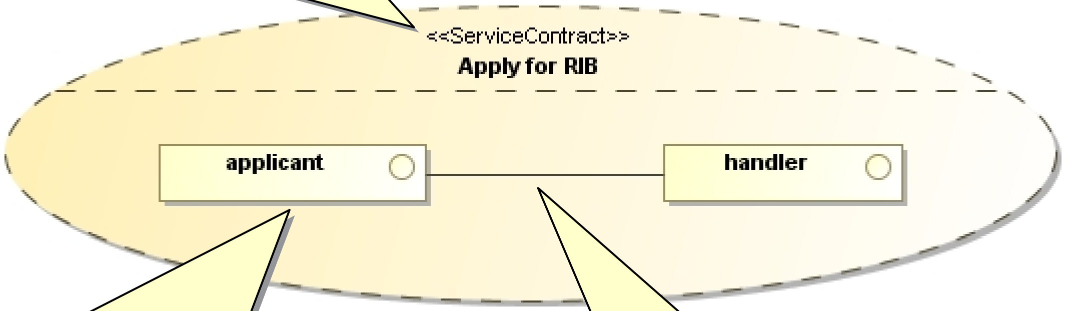
A *business process* represents the desired behavior among the various participants in a services architecture. This is modeled here as a UML *activity.*

Each participant is given a *swimlane* which contains the *actions* carried out by that participant within the business process.

The overall behavior emerges as an *orchestration* of the actions carried out by each of the participants. Interactions with participants must be consistent with the service contracts by which they interact.

Apply for RIB Service Contract

A *service contract* is the specification of the agreement between providers and consumers of a *service* as to what information, products, assets, value and obligations will flow between them. It specifies the service without regard for realization, capabilities or implementation. It is modeled as a UML *collaboration.*

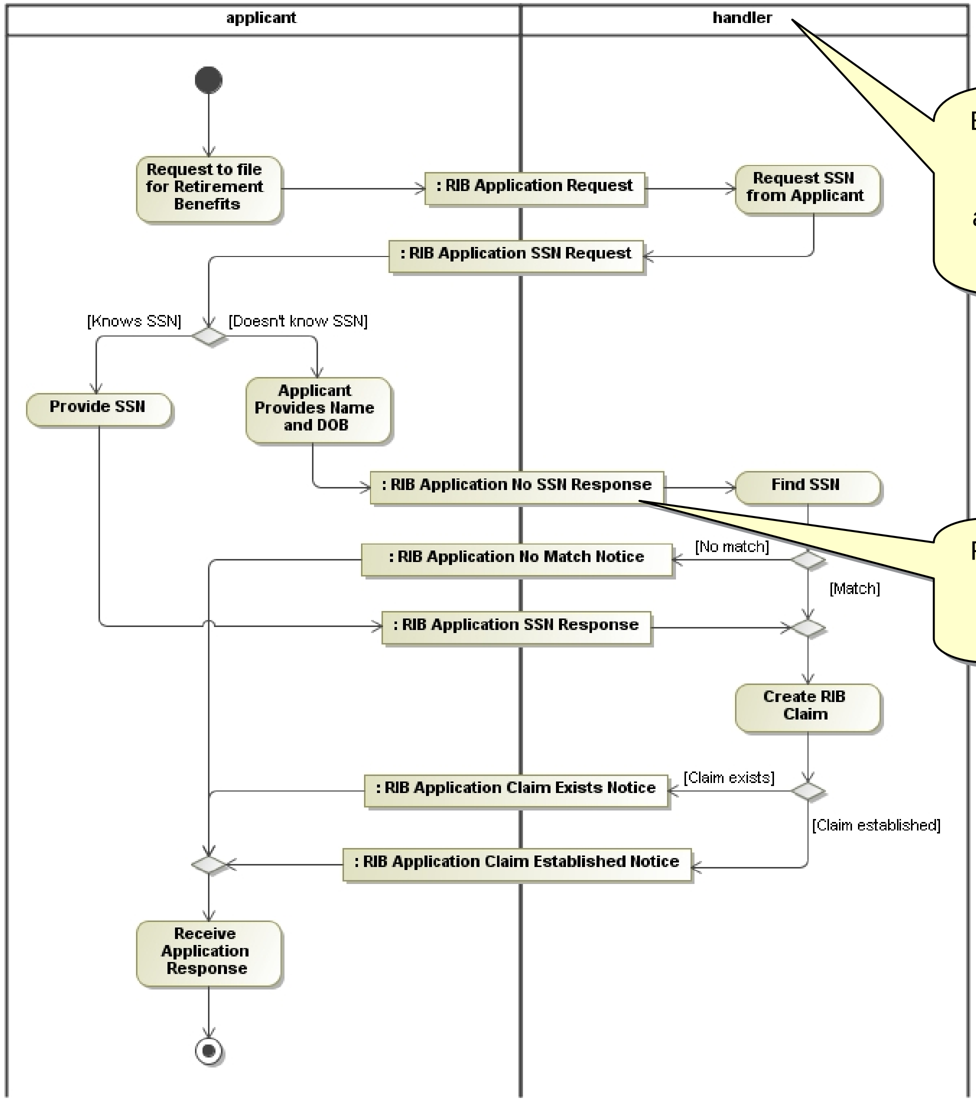


The service contract defines the *roles* to be played by consumers and providers of the service. Many service contracts have only two roles, one a consumer and one a provider. But any number are allowed.

The service contract also defines the *connections* across which roles may interact.

Apply for RIB Behavior

A service contract may have a ***behavior*** that ***choreographs*** the allowed interactions between parties in the contract. This is modeled here as a UML ***activity.***

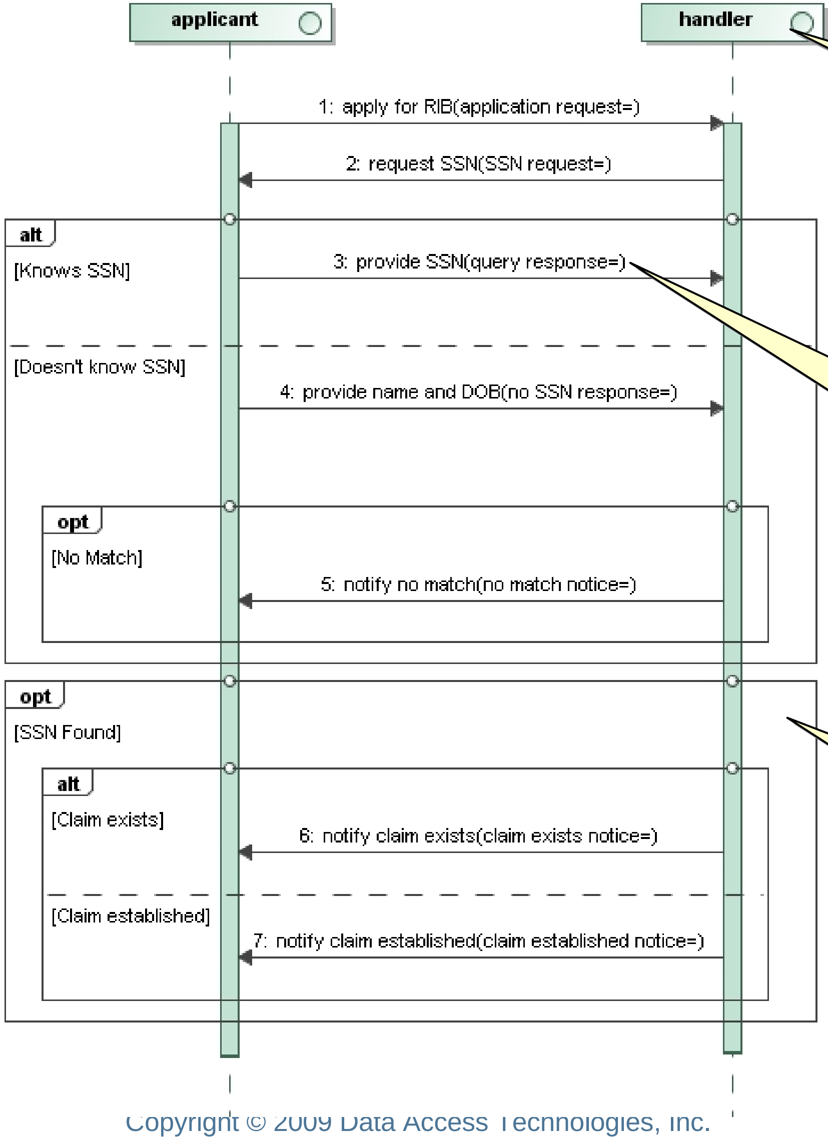

applicant
handler
Request to file for Retirement Benefits
: RIB Application Request
Request SSN from Applicant
: RIB Application SSN Request
[Knows SSN]
[Doesn't know SSN]
Provide SSN
Applicant Provides Name and DOB
: RIB Application No SSN Response
Find SSN
[No match]
: RIB Application No Match Notice
[Match]
: RIB Application SSN Response
Create RIB Claim
[Claim exists]
: RIB Application Claim Exists Notice
[Claim established]
: RIB Application Claim Established Notice
Receive Application Response

Each role in the contract is given a *swimlane* which contains the *actions* that are expected to be carried out by that role.

Roles may exchange information via *message* objects.

Apply for RIB Interaction

The behavior of a service contract may also be modeled using other kinds of UML interaction models. It is modeled here as an *interaction* using a *sequence diagram.*



applicant
handler
1: apply for RIB(application request=)
2: request SSN(SSN request=)
alt
[Knows SSN]
3: provide SSN(query response=)
[Doesn't know SSN]
4: provide name and DOB(no SSN response=)
opt
[No Match]
5: notify no match(no match notice=)
opt
[SSN Found]
alt
[Claim exists]
6: notify claim exists(claim exists notice=)
[Claim established]
7: notify claim established(claim established notice=)

Each role in the contract is given a *lifeline* which acts as the source and target for the sending of *messages*.

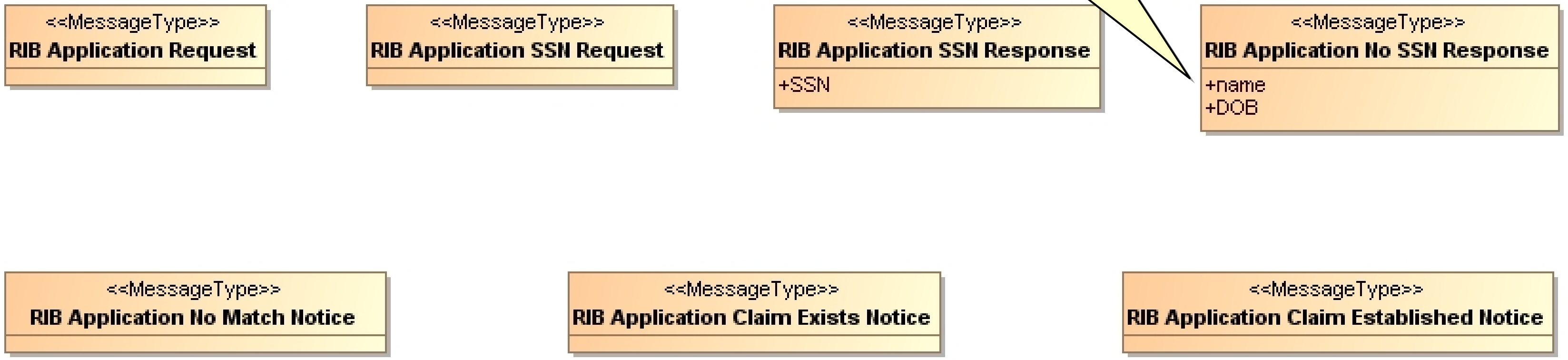
Messages are modeled as being passed via calls to *operations* on the *interfaces* to the roles.

Condition flows can be modeled using *interaction fragment* constructs within the sequence diagram.

RIB Application Messages

The messages passed between roles in a service contract are specified using *message types.* Message types are modeled as UML *classes*.

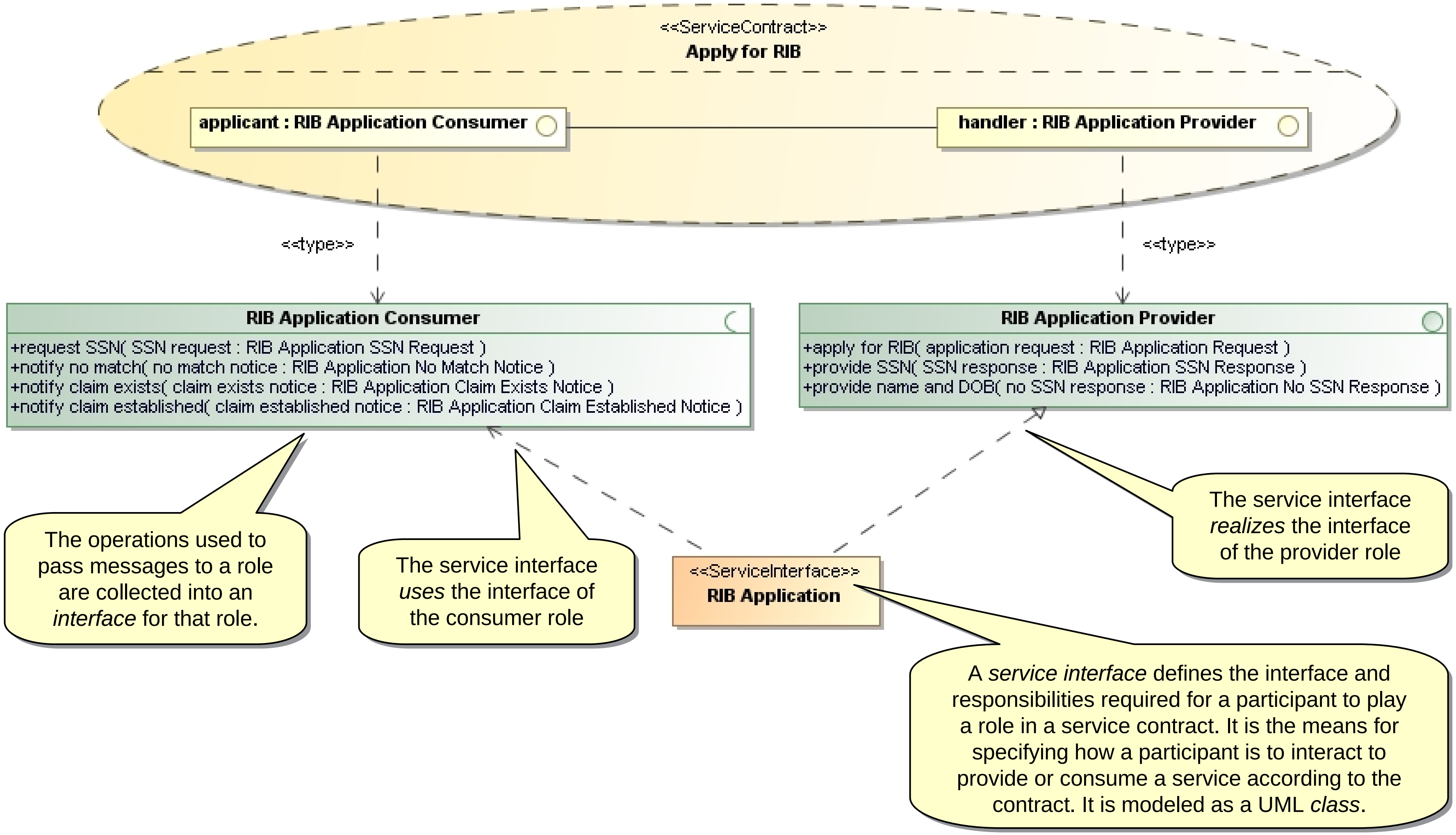
A message type may have data *attributes* but no operations or other behavior.



<<MessageType>>
RIB Application Request
<<MessageType>>
RIB Application SSN Request
<<MessageType>>
RIB Application SSN Response
+SSN
<<MessageType>>
RIB Application No SSN Response
+name
+DOB
<<MessageType>>
RIB Application No Match Notice
<<MessageType>>
RIB Application Claim Exists Notice
<<MessageType>>
RIB Application Claim Established Notice

Note: Message information model has not been fully elaborated yet

RIB Application Service Interface



<<ServiceContract>>
Apply for RIB
applicant : RIB Application Consumer
handler : RIB Application Provider
<<type>>
<<type>>
RIB Application Consumer
+request SSN(SSN request : RIB Application SSN Request)
+notify no match(no match notice : RIB Application No Match Notice)
+notify claim exists(claim exists notice : RIB Application Claim Exists Notice)
+notify claim established(claim established notice : RIB Application Claim Established Notice)
RIB Application Provider
+apply for RIB(application request : RIB Application Request)
+provide SSN(SSN response : RIB Application SSN Response)
+provide name and DOB(no SSN response : RIB Application No SSN Response)
<<ServiceInterface>>
RIB Application

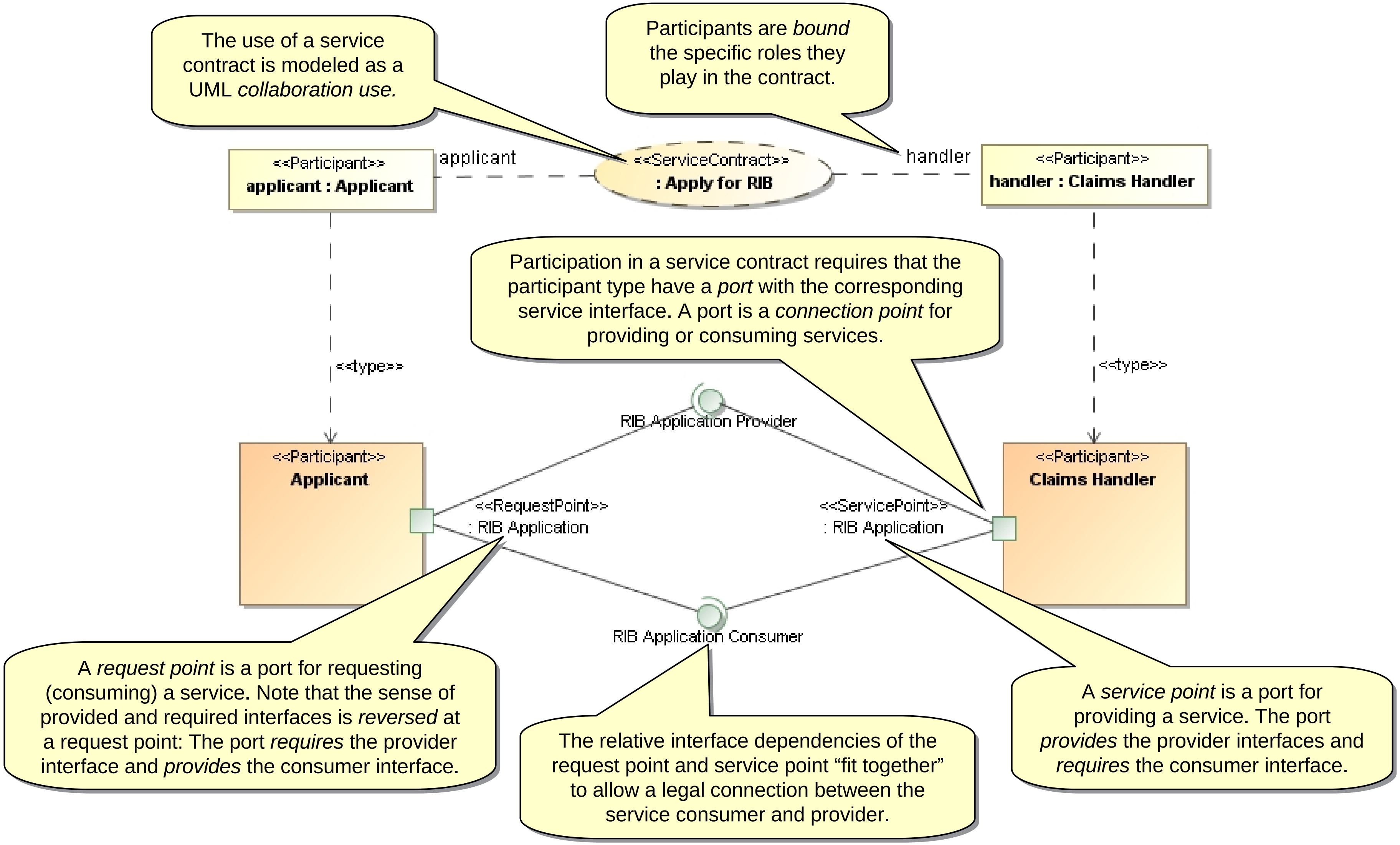
The operations used to pass messages to a role are collected into an *interface* for that role.

The service interface *uses* the interface of the consumer role

The service interface *realizes* the interface of the provider role

A *service interface* defines the interface and responsibilities required for a participant to play a role in a service contract. It is the means for specifying how a participant is to interact to provide or consume a service according to the contract. It is modeled as a UML *class*.

RIB Application Service Usage



The use of a service contract is modeled as a UML *collaboration use.*

Participants are *bound* the specific roles they play in the contract.

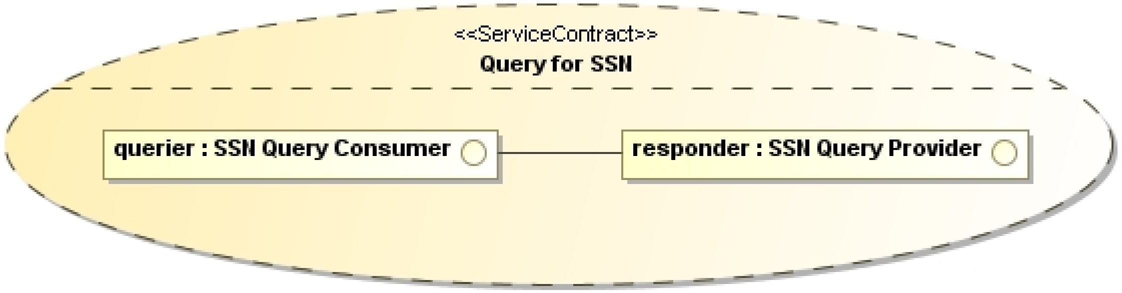
Participation in a service contract requires that the participant type have a *port* with the corresponding service interface. A port is a *connection point* for providing or consuming services.

A *request point* is a port for requesting (consuming) a service. Note that the sense of provided and required interfaces is *reversed* at a request point: The port *requires* the provider interface and *provides* the consumer interface.

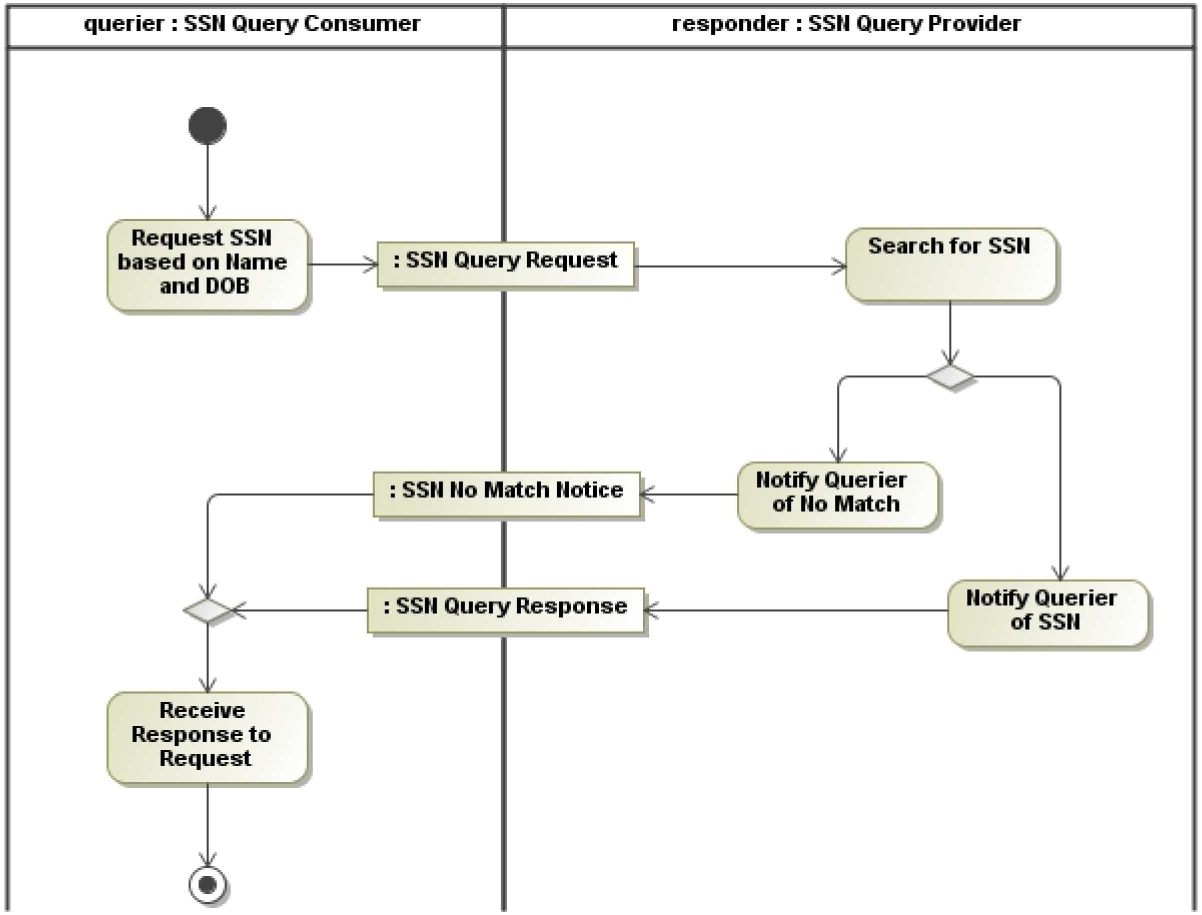
The relative interface dependencies of the request point and service point “fit together” to allow a legal connection between the service consumer and provider.

A *service point* is a port for providing a service. The port *provides* the provider interfaces and *requires* the consumer interface.

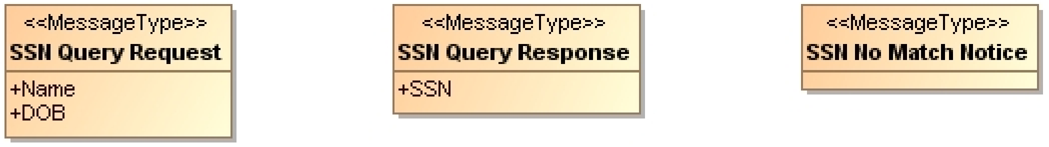
Query for SSN Service Contract



Query for SSN Behavior


querier : SSN Query Consumer
responder : SSN Query Provider
Request SSN based on Name and DOB
: SSN Query Request
Search for SSN
Notify Querier of No Match
: SSN No Match Notice
Notify Querier of SSN
: SSN Query Response
Receive Response to Request

SSN *Query* Messages

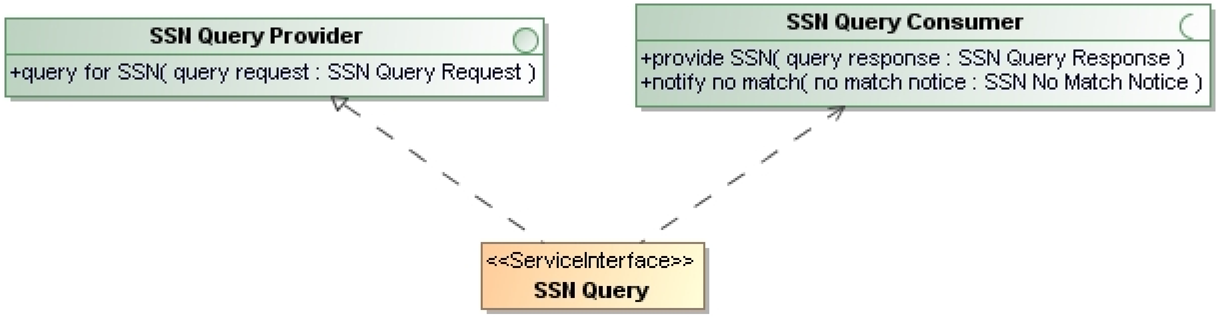


<<MessageType>>
SSN Query Request
+Name
+DOB

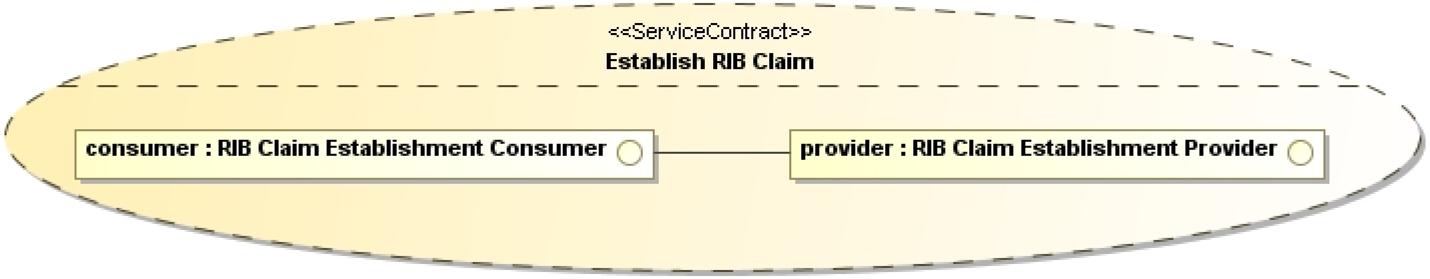
<<MessageType>>
SSN Query Response
+SSN

<<MessageType>>
SSN No Match Notice

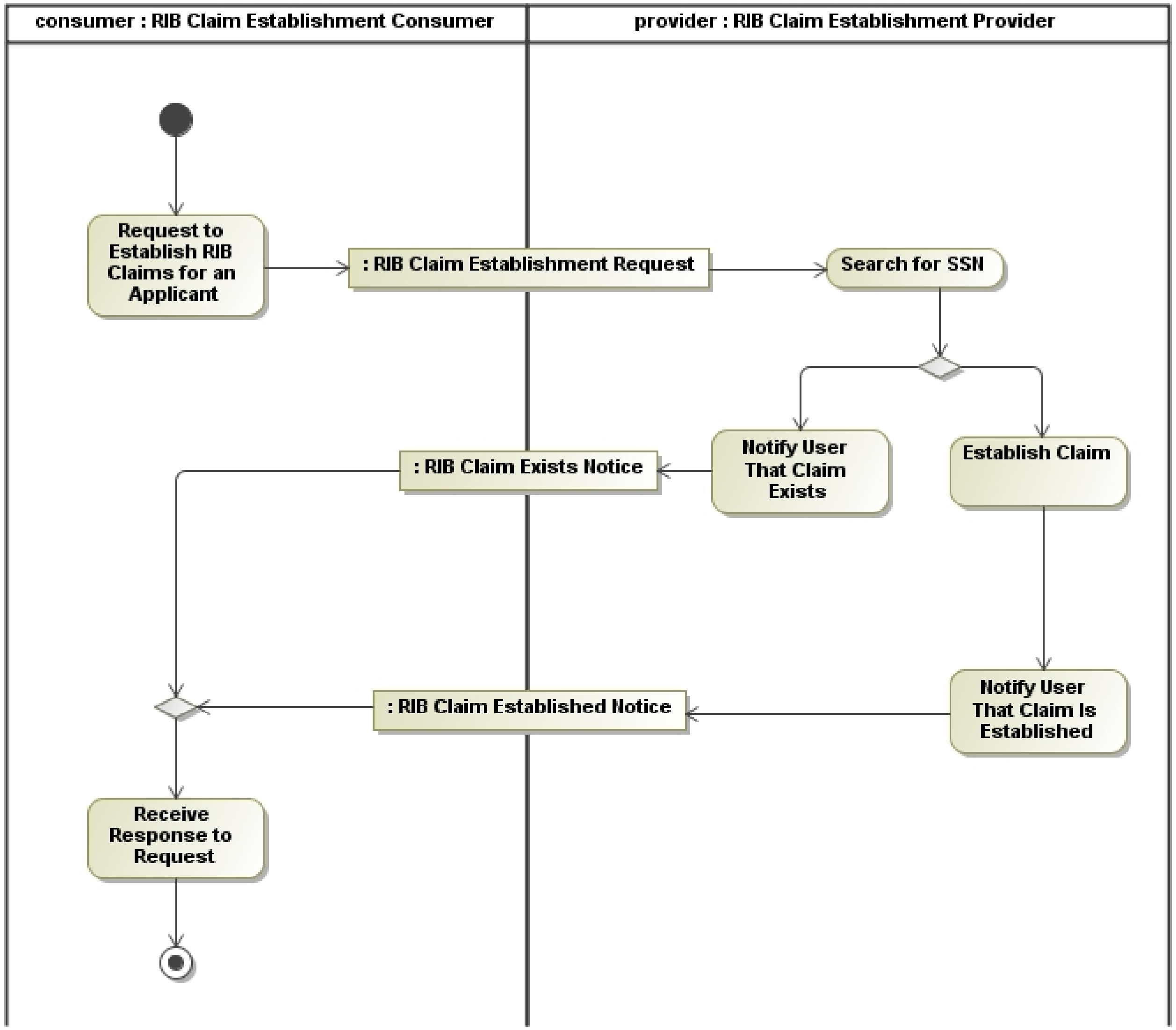
SSN Query Service Interface


SSN Query Provider
+query for SSN(query request : SSN Query Request)
SSN Query Consumer
+provide SSN(query response : SSN Query Response)
+notify no match(no match notice : SSN No Match Notice)
<<ServiceInterface>>
SSN Query

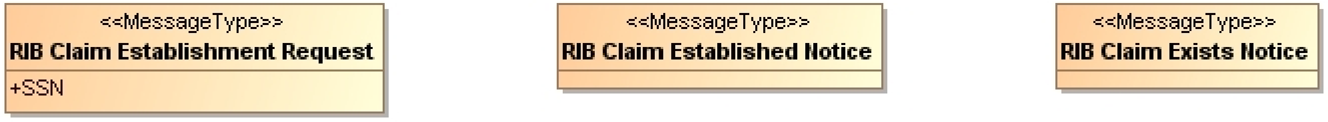
Establish RIB Claim Service Contract


<<ServiceContract>>
Establish RIB Claim
consumer : RIB Claim Establishment Consumer
provider : RIB Claim Establishment Provider

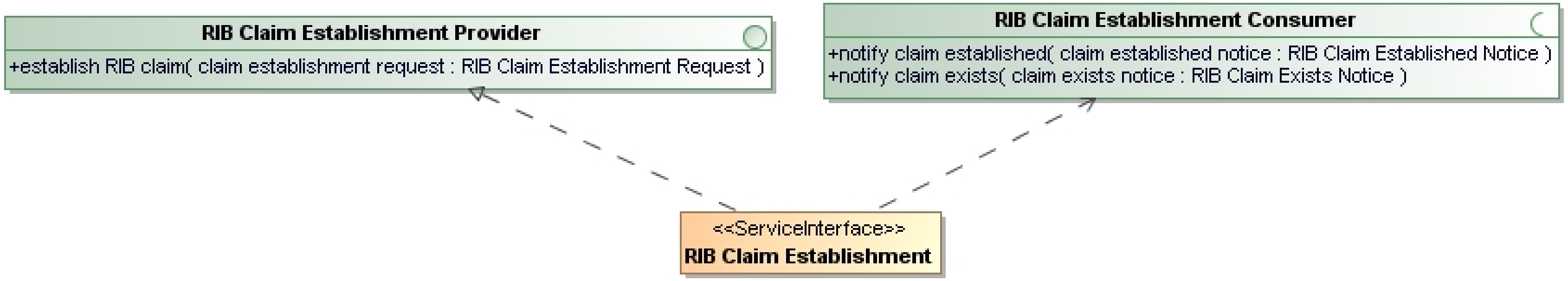
Establish RIB Claim Behavior


consumer : RIB Claim Establishment Consumer
provider : RIB Claim Establishment Provider
Request to Establish RIB Claims for an Applicant
: RIB Claim Establishment Request
Search for SSN
Notify User That Claim Exists
Establish Claim
: RIB Claim Exists Notice
Notify User That Claim Is Established
: RIB Claim Established Notice
Receive Response to Request

RIB Claim Establishment Messages

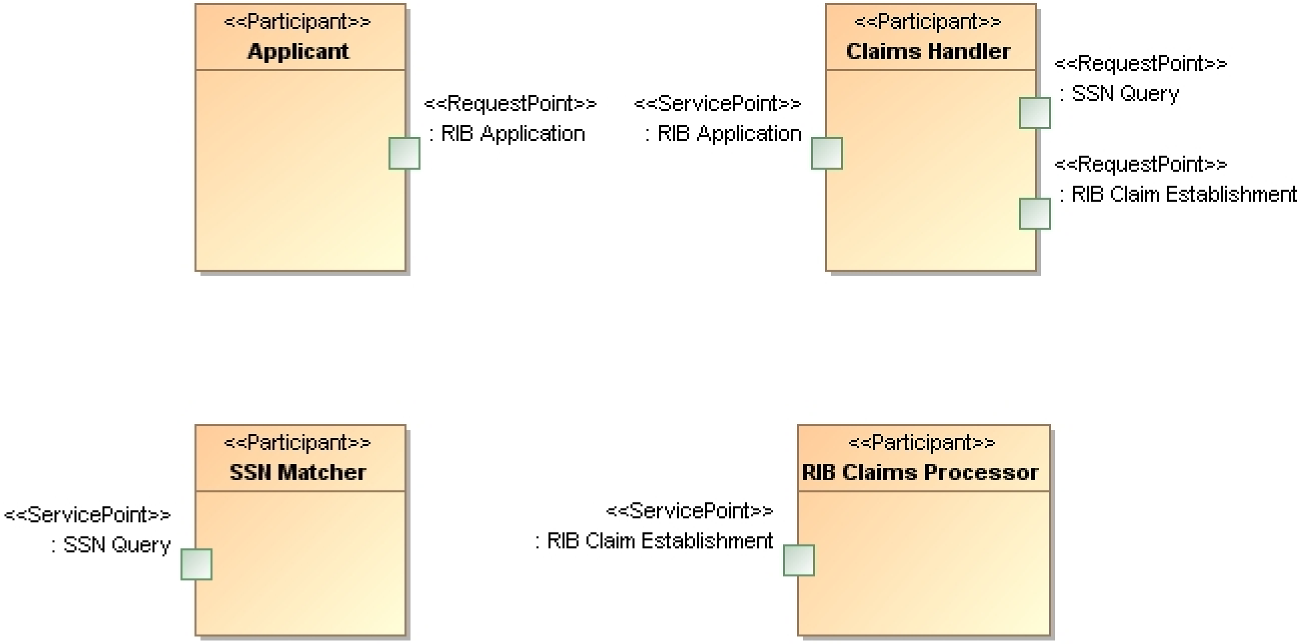


RIB Claim Establishment Service Interface

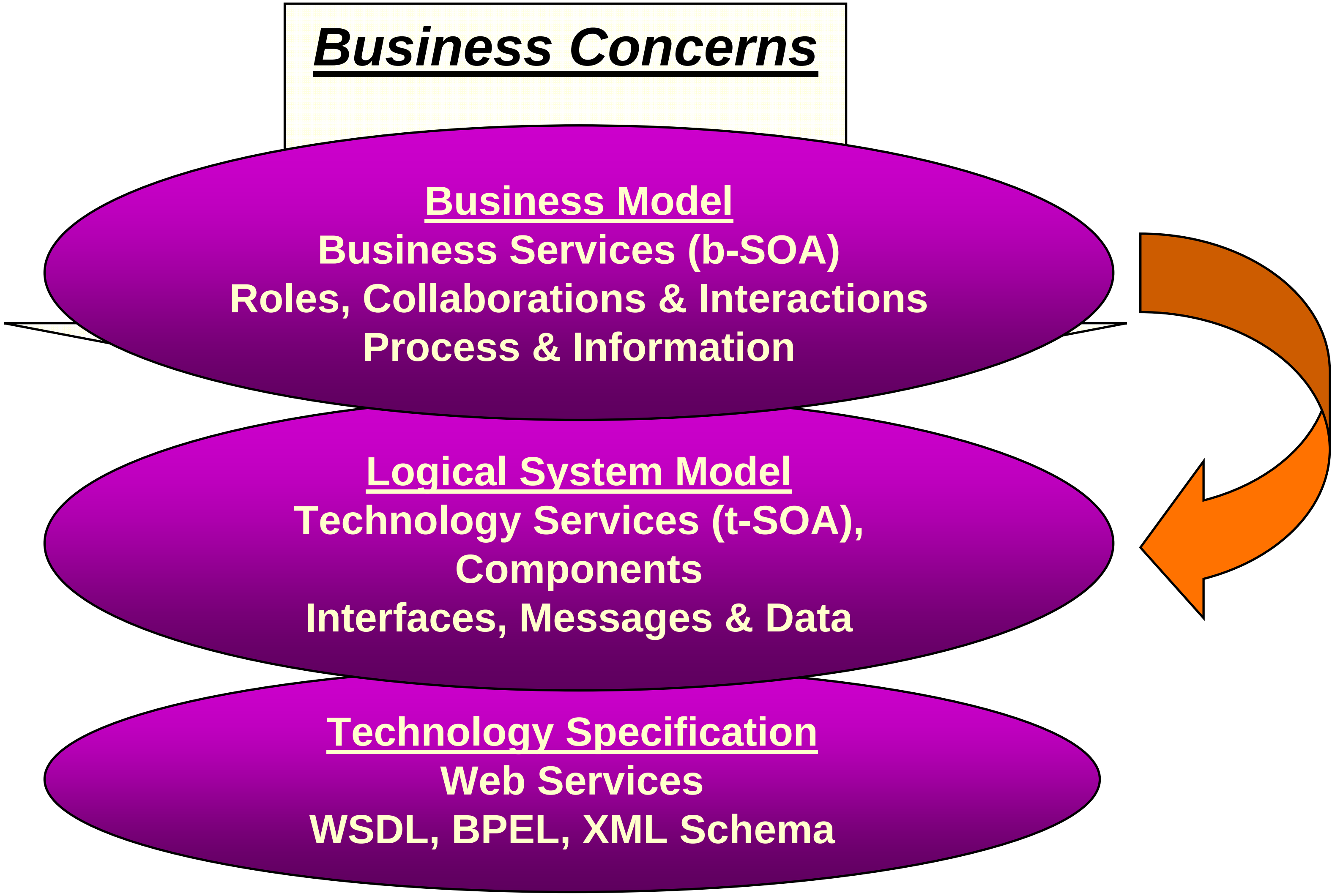

RIB Claim Establishment Provider
+establish RIB claim(claim establishment request : RIB Claim Establishment Request)
RIB Claim Establishment Consumer
+notify claim established(claim established notice : RIB Claim Established Notice)
+notify claim exists(claim exists notice : RIB Claim Exists Notice)
<<ServiceInterface>>
RIB Claim Establishment

RIB Claims Processing Participants

The full specification of a participant includes ports for every service contract in which the participant participates within the services architecture.



Producing the logical systems model



Business Concerns

Business Model
Business Services (b-SOA)
Roles, Collaborations & Interactions
Process & Information

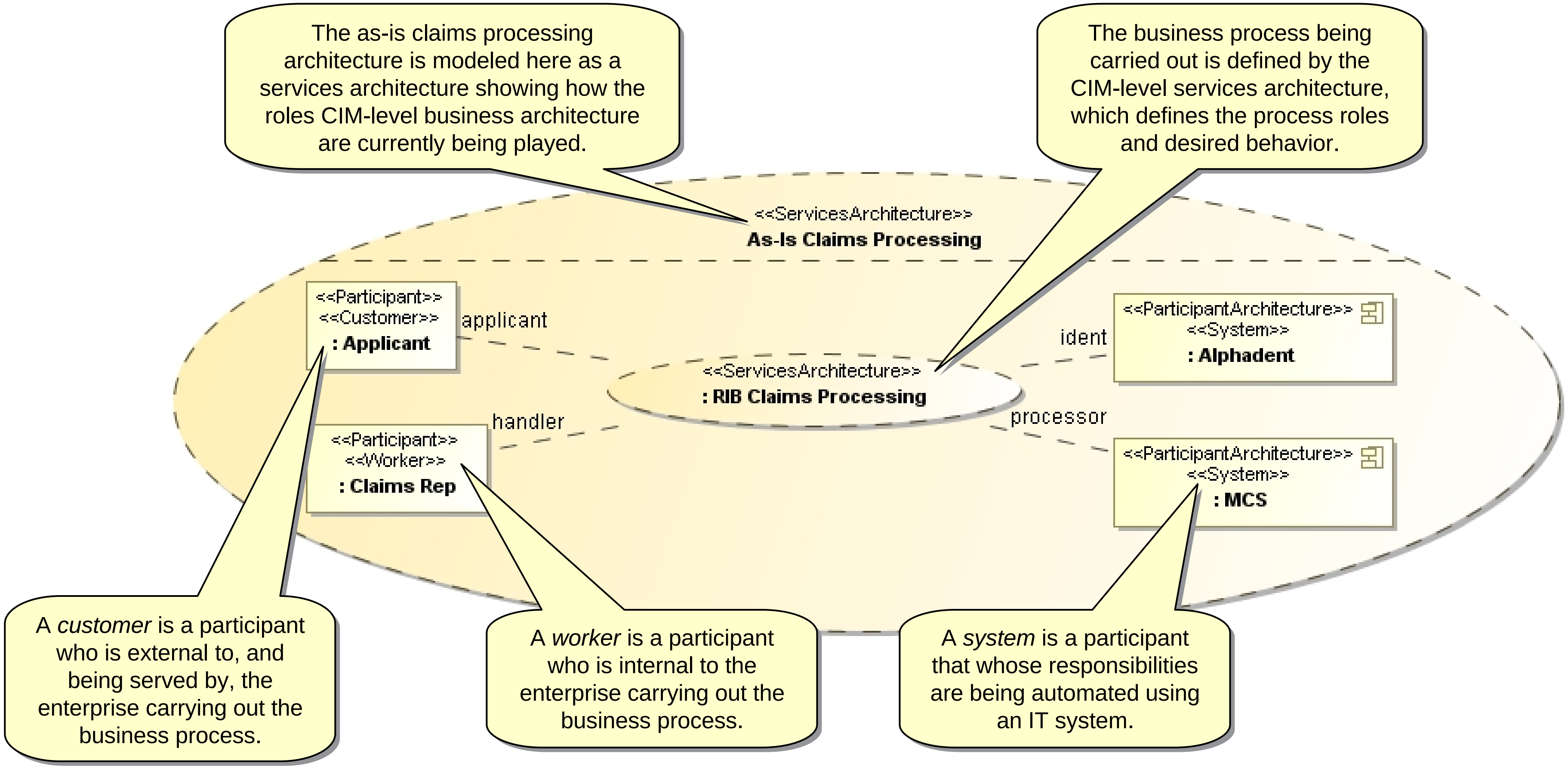
Logical System Model
Technology Services (t-SOA),
Components
Interfaces, Messages & Data

Technology Specification
Web Services
WSDL, BPEL, XML Schema

Platform Independent Model (PIM)

- As-Is Claims Processing Services Architecture
  - Human Participants
  - System Participant Architectures
- MCS: Potential Tiered Replacement Architecture
- Claims Processing System: Potential Replacement Architecture
  - Citizen Self Service
  - Claims Rep Assisted Service

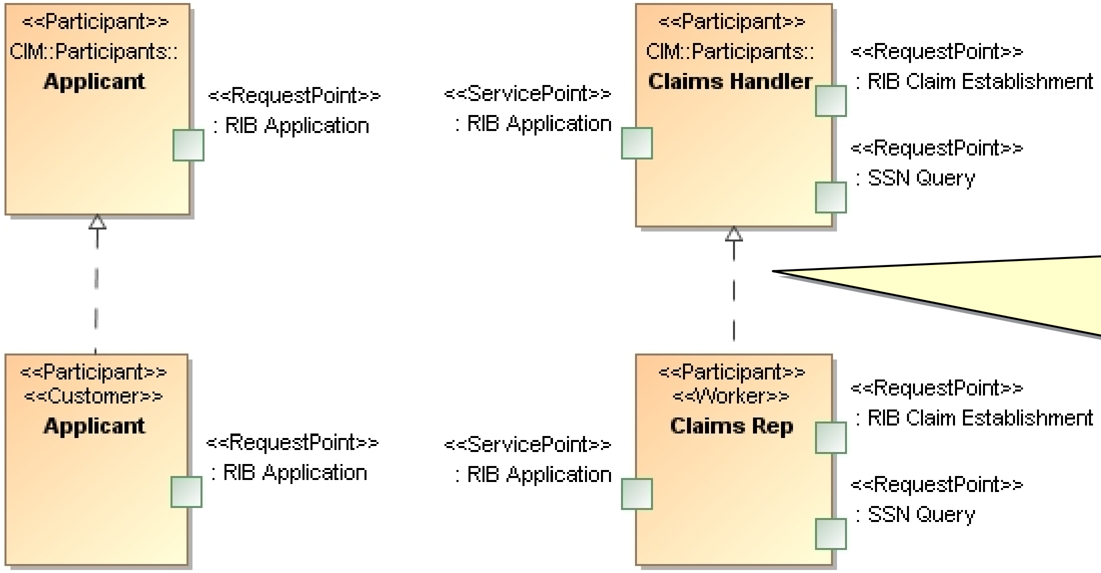
As-Is Claims Processing Services Architecture



The as-is claims processing architecture is modeled here as a services architecture showing how the roles CIM-level business architecture are currently being played.
The business process being carried out is defined by the CIM-level services architecture, which defines the process roles and desired behavior.
<<ServicesArchitecture>>
As-Is Claims Processing
<<Participant>>
<<Customer>>
: Applicant
applicant
ident
<<ParticipantArchitecture>>
<<System>>
: Alphadent
<<ServicesArchitecture>>
: RIB Claims Processing
handler
processor
<<Participant>>
<<Worker>>
: Claims Rep
<<ParticipantArchitecture>>
<<System>>
: MCS
A *customer* is a participant who is external to, and being served by, the enterprise carrying out the business process.
A *worker* is a participant who is internal to the enterprise carrying out the business process.
A *system* is a participant that whose responsibilities are being automated using an IT system.

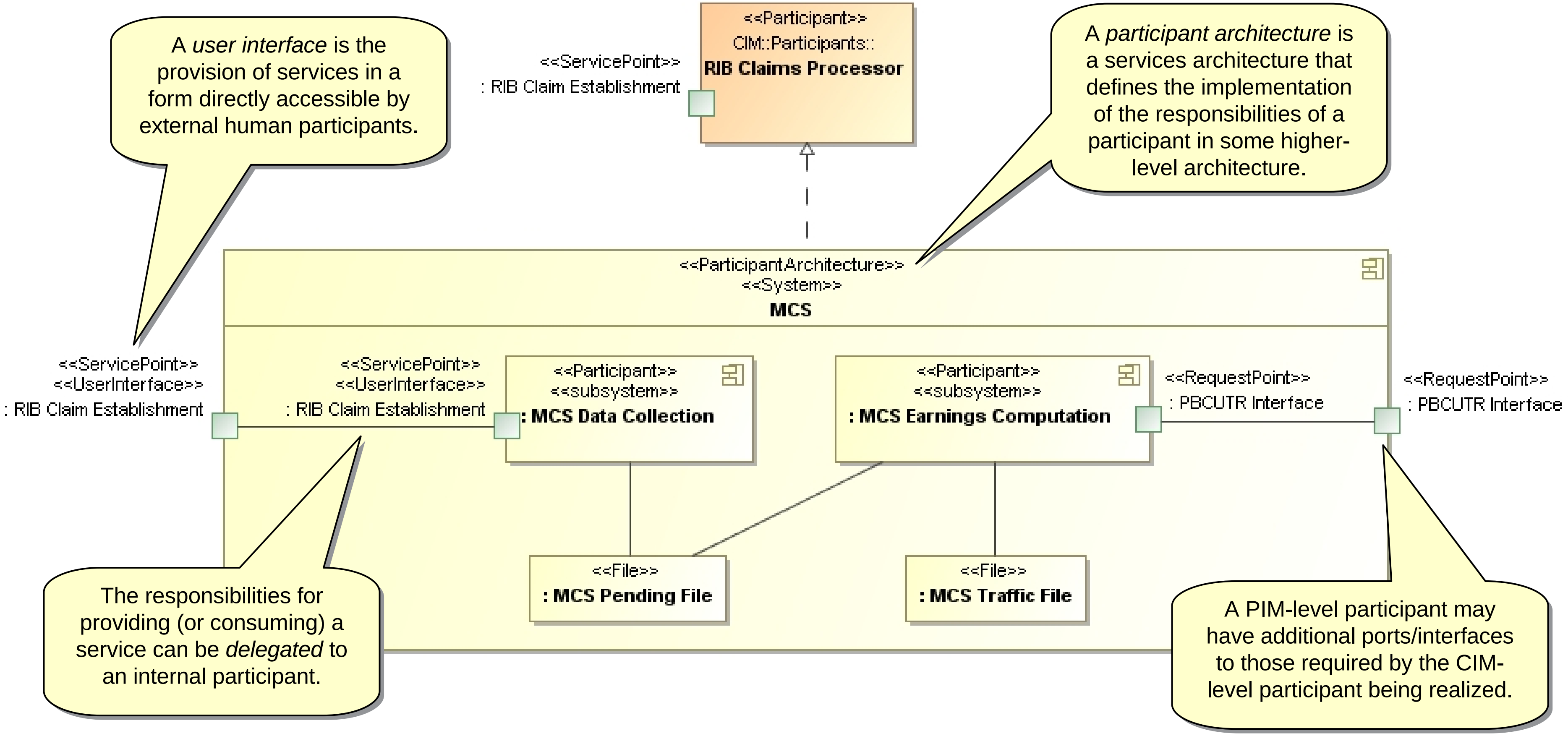
As-Is Claims Processing Human Participants

At the PIM-level, some participants may be known not to be automated. Such participant types generally represent *positions* filled by people in the enterprise.



Participants at the PIM level can *realize* (one or more) participants at the CIM level. This indicates the intended way the PIM-level participants are to participate in various business processes. The PIM-level participant model must have ports that conform to all the ports of the CIM-level participant.

MCS System Architecture



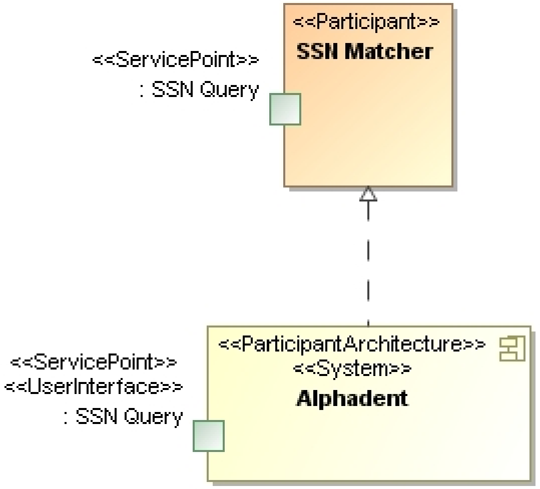
A *user interface* is the provision of services in a form directly accessible by external human participants.

A *participant architecture* is a services architecture that defines the implementation of the responsibilities of a participant in some higher-level architecture.

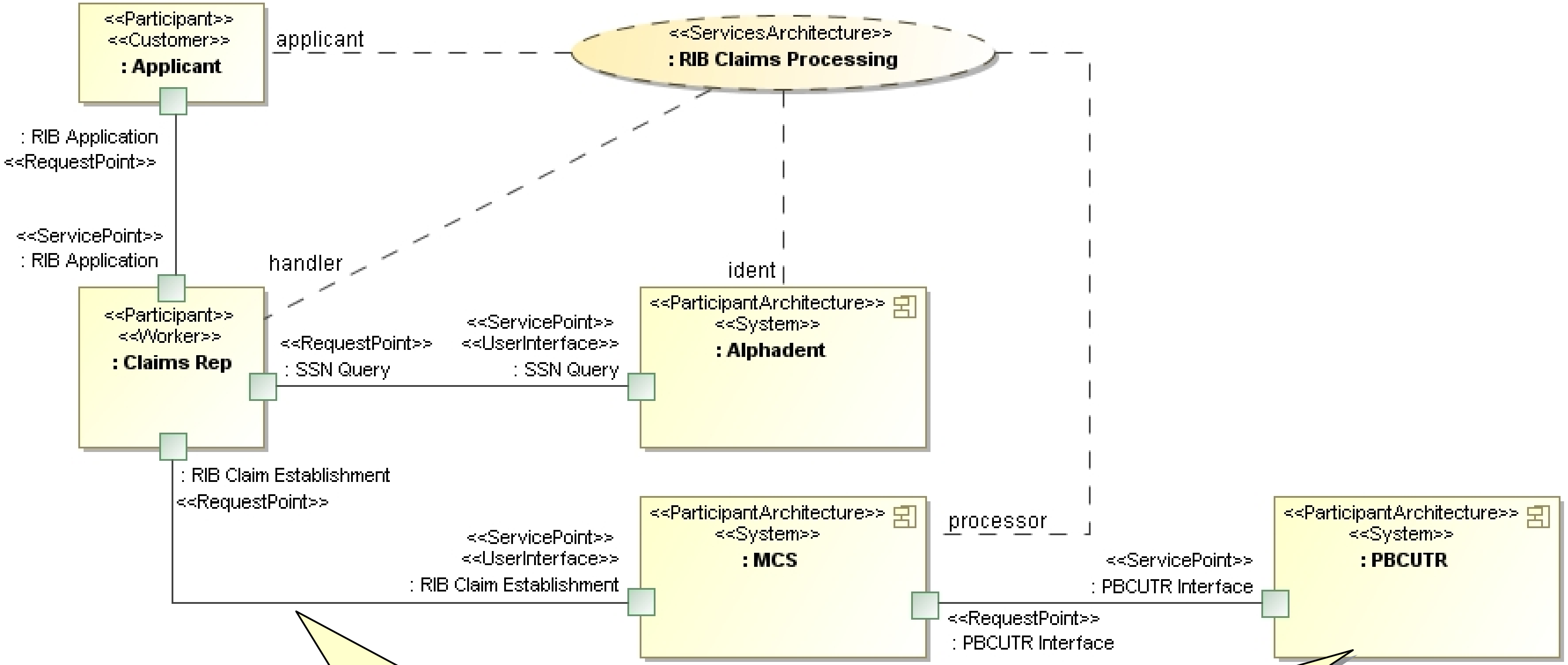
The responsibilities for providing (or consuming) a service can be *delegated* to an internal participant.

A PIM-level participant may have additional ports/interfaces to those required by the CIM-level participant being realized.

Alphadent System Architecture



As-Is Claim Processing Composite Structure

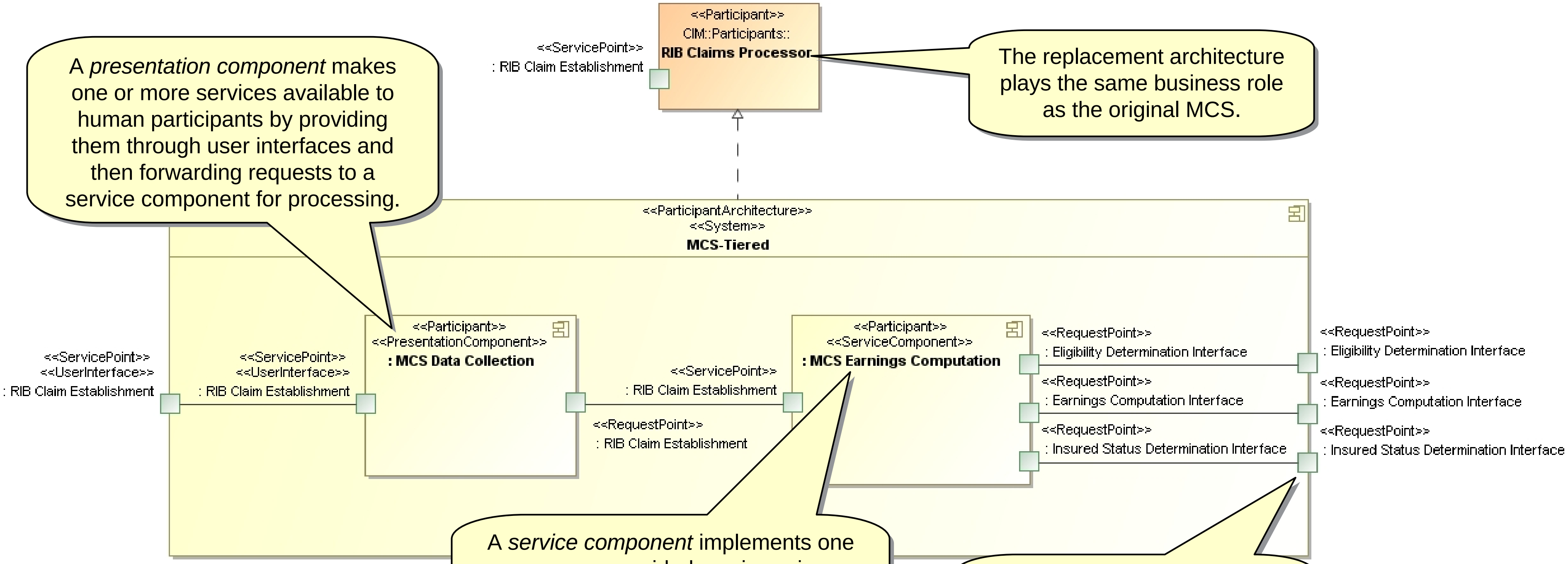


A *service channel connector* shows how a consumer is connected to providers of services. One end is always a request point, the other a service point.

The PIM-level architecture may include supporting participants that do not directly play business roles in the CIM-level business architecture model.

MCS Potential Tiered Replacement Architecture

This is a simplified example of a logically tiered replacement architecture for MCS, in which internal file interfaces have been replaced by a service interface.



<<Participant>>
CIM::Participants::
RIB Claims Processor
<<ServicePoint>>
: RIB Claim Establishment
<<ParticipantArchitecture>>
<<System>>
MCS-Tiered
<<ServicePoint>>
<<UserInterface>>
: RIB Claim Establishment
<<ServicePoint>>
<<UserInterface>>
: RIB Claim Establishment
<<Participant>>
<<PresentationComponent>>
: MCS Data Collection
<<ServicePoint>>
: RIB Claim Establishment
<<RequestPoint>>
: RIB Claim Establishment
<<Participant>>
<<ServiceComponent>>
: MCS Earnings Computation
<<RequestPoint>>
: Eligibility Determination Interface
<<RequestPoint>>
: Earnings Computation Interface
<<RequestPoint>>
: Insured Status Determination Interface
<<RequestPoint>>
: Eligibility Determination Interface
<<RequestPoint>>
: Earnings Computation Interface
<<RequestPoint>>
: Insured Status Determination Interface

A *presentation component* makes one or more services available to human participants by providing them through user interfaces and then forwarding requests to a service component for processing.

The replacement architecture plays the same business role as the original MCS.

A *service component* implements one or more provided services via interfaces available to other system components (as opposed to humans).

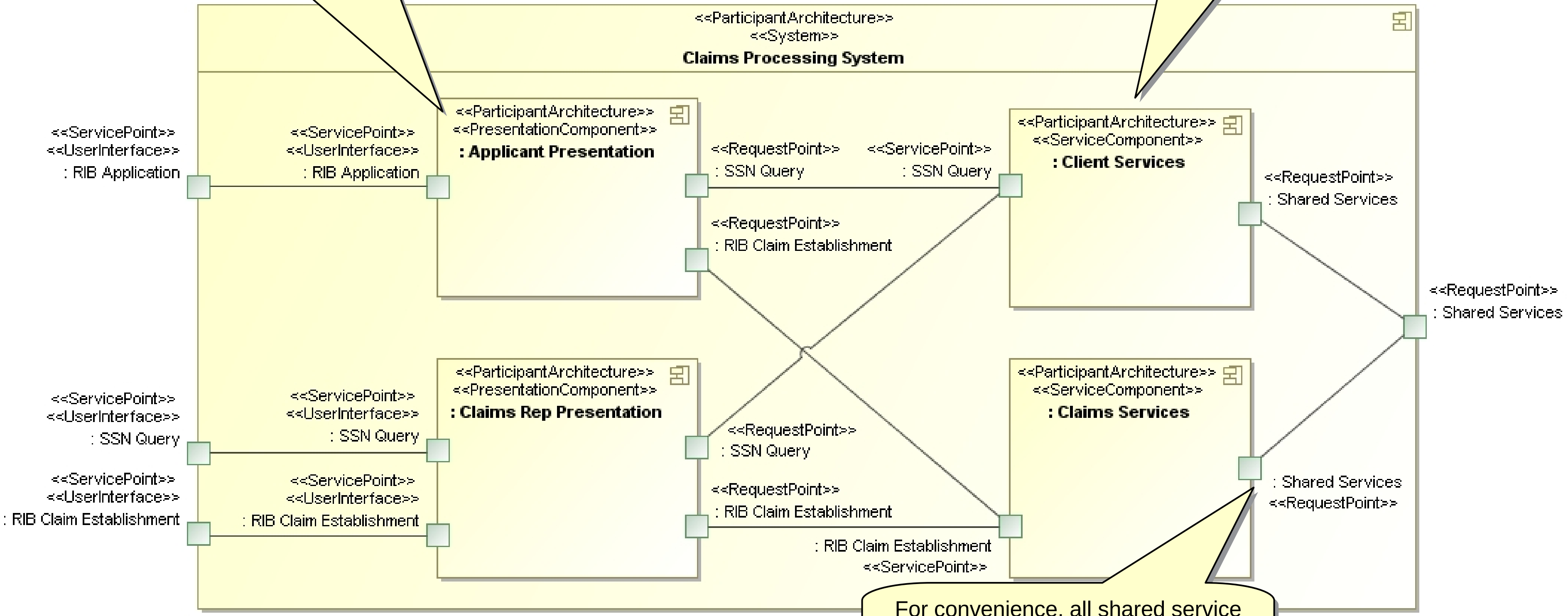
These services are presumed to be available from some shared service provider.

Claims Processing System Potential Replacement Architecture

An applicant presentation component allows for customer self-service, mediating the use of the same services internally that are directly available to a claims rep.

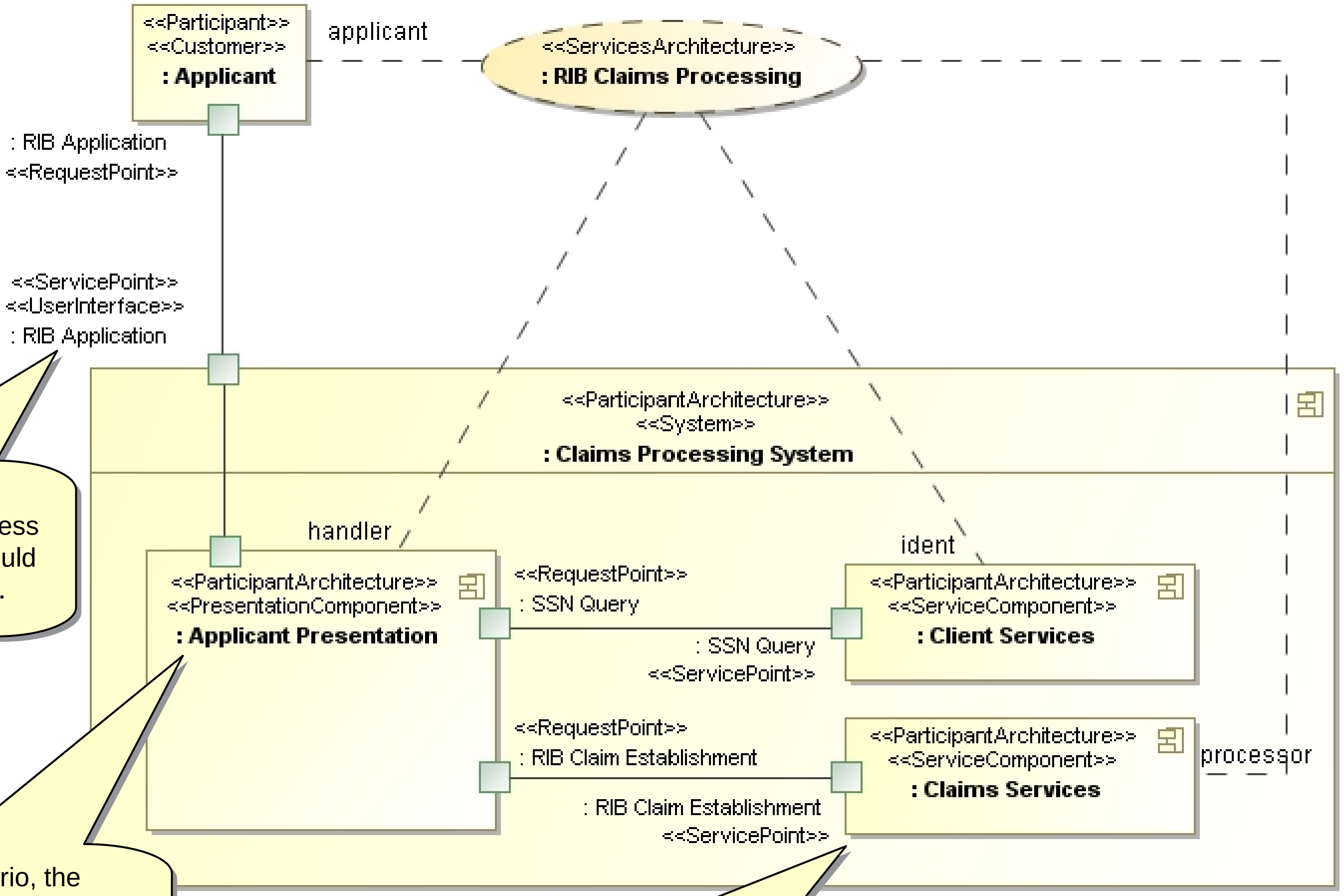
This is a simplified example of a more sweeping replacement for the entire claims processing architecture.

Service components are designed to provide services specifically related to different business entities.



For convenience, all shared service interfaces have been grouped into a single *composite* service interface.

To-Be Claims Processing Architecture: Citizen Self Service



<<Participant>>
<<Customer>>
: Applicant

applicant

<<ServicesArchitecture>>
: RIB Claims Processing

: RIB Application
<<RequestPoint>>

<<ServicePoint>>
<<UserInterface>>
: RIB Application

<<ParticipantArchitecture>>
<<System>>
: Claims Processing System

handler

<<ParticipantArchitecture>>
<<PresentationComponent>>
: Applicant Presentation

ident

<<ParticipantArchitecture>>
<<ServiceComponent>>
: Client Services

<<RequestPoint>>
: SSN Query

: SSN Query
<<ServicePoint>>

<<RequestPoint>>
: RIB Claim Establishment

<<ParticipantArchitecture>>
<<ServiceComponent>>
: Claims Services

processor

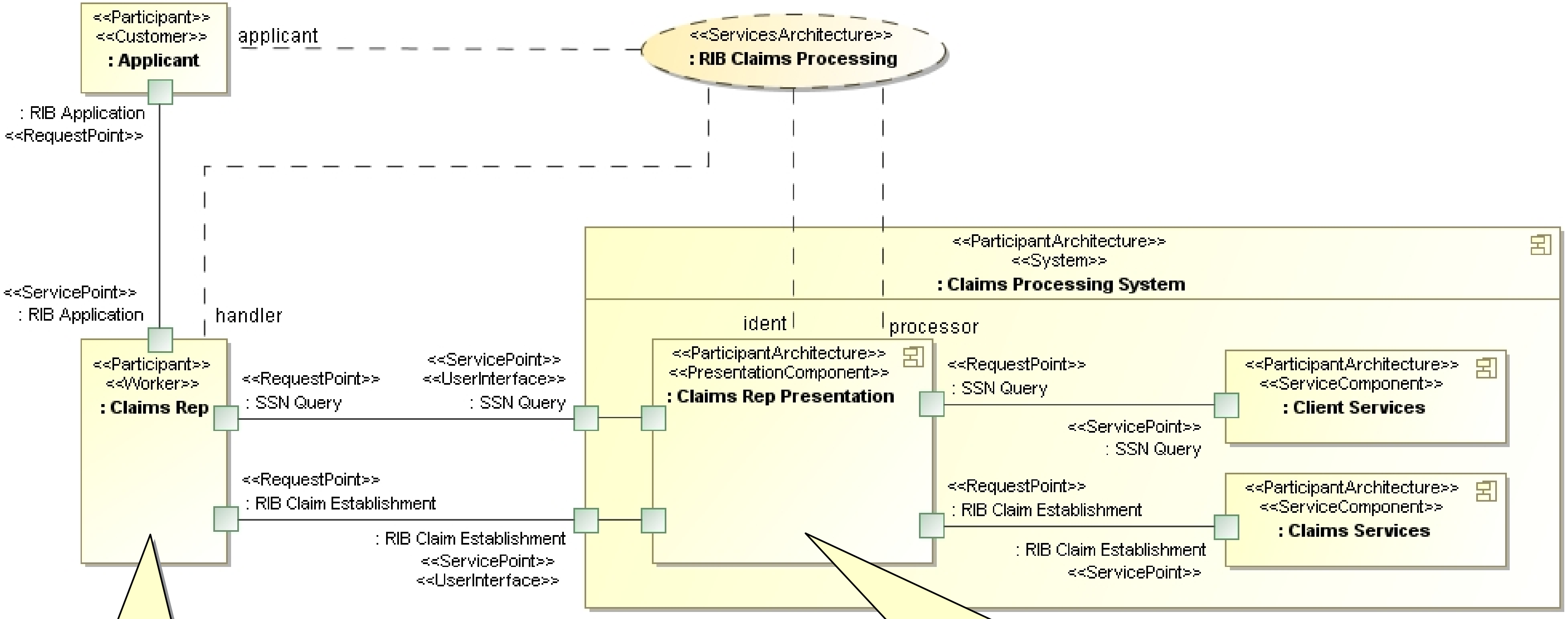
: RIB Claim Establishment
<<ServicePoint>>

The applicant user interface mediates the same basic business interaction that an applicant would have had with a Claims Rep.

In a self-service scenario, the Application Presentation component automates the claims handler role, replacing the human Claims Rep.

The service components handle requests made via the presentation component, playing the ident and processor roles in the business process.

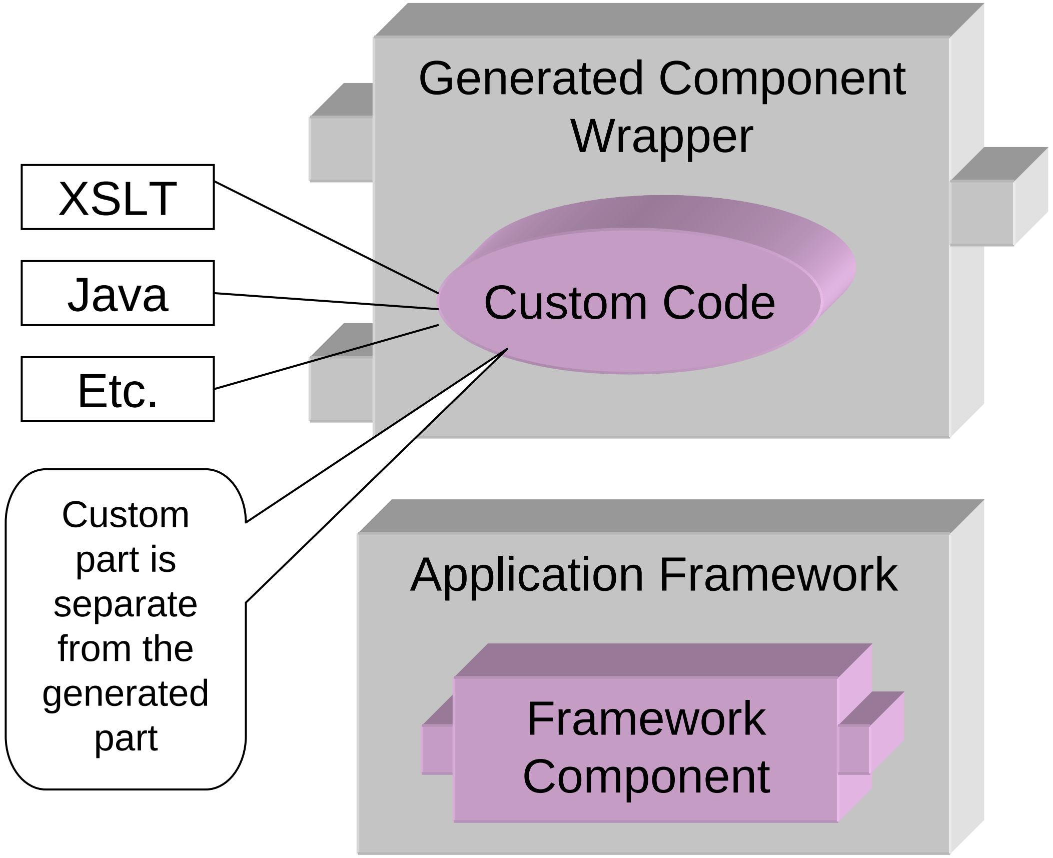
To-Be Claims Processing Architecture: Claims Rep Assisted Service



In an assisted-service scenario, the Claims Rep still plays the handler role for the Applicant.

The Claims Rep Presentation component acts as a *façade* allowing the Claims Rep access to the underlying services provided by the service components. Relative to the Claims Rep it effectively plays *both* the ident and processor roles.

Custom Business Logic Components


Generated Component Wrapper
XSLT
Java
Etc.
Custom Code
Custom part is separate from the generated part
Application Framework
Framework Component

Application components provide service implementations with user supplied logic. These “plug into” the users architecture as composite application components

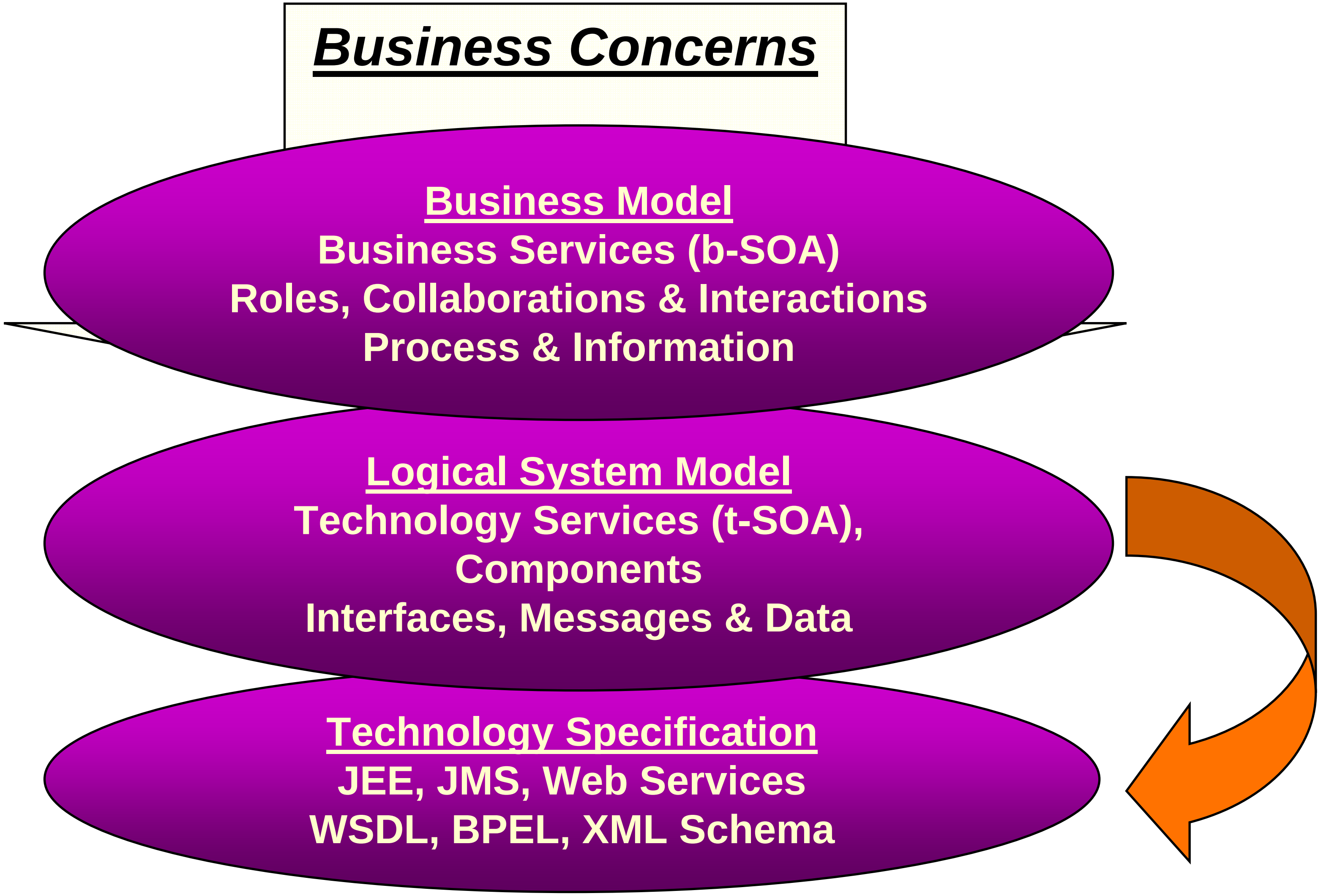
Framework components add infrastructural capabilities by extending the platform (E.G. JBI) and are called by the provisioned code or platform configuration

As MDA progresses, there will be less and less need for custom components, but the capability will remain.

Platform Specific Model (PSM)

- MCS Tiered Deployment
- Claims Processing System Tiered Deployment

Technology Architecture



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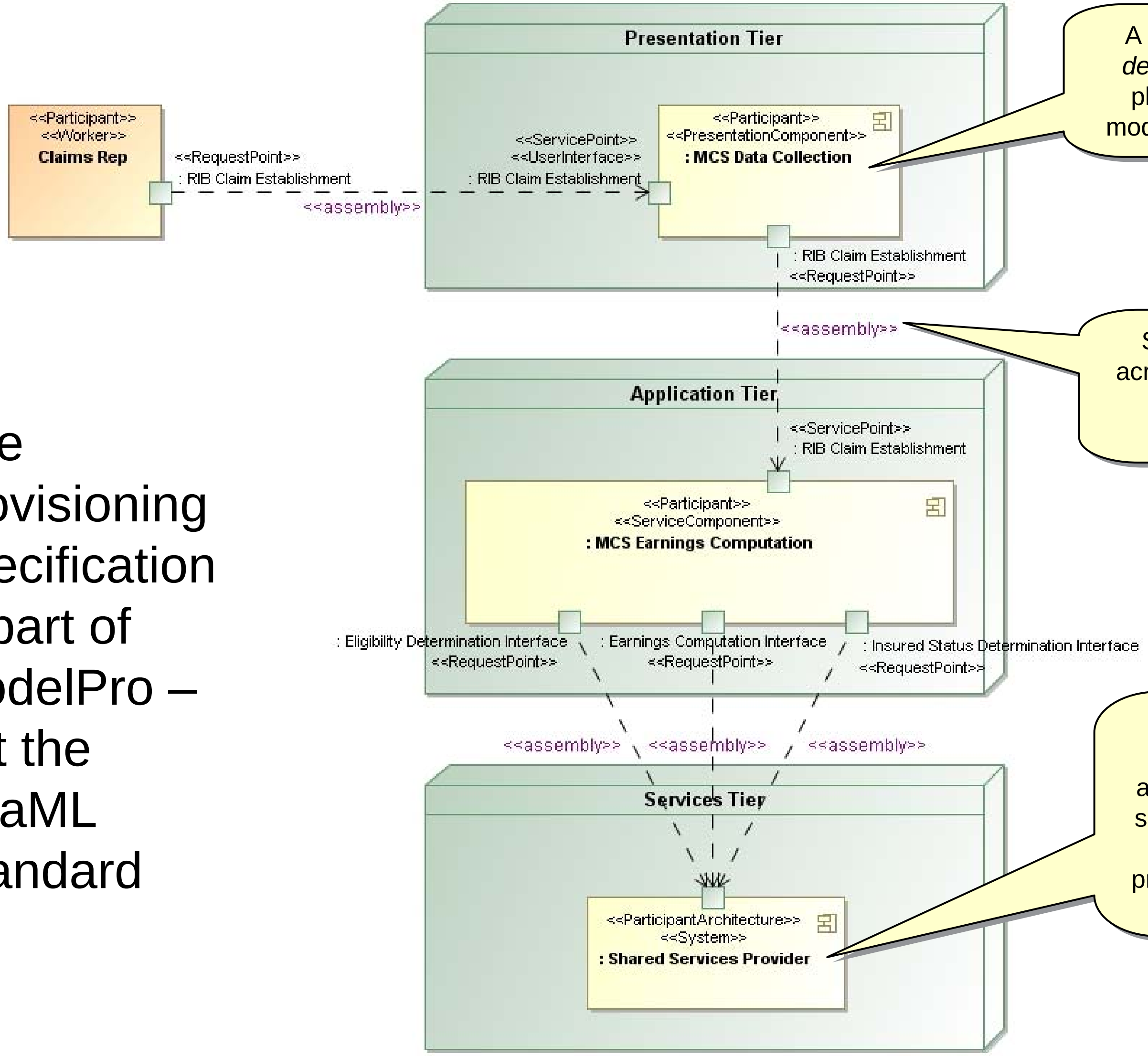
WSDL, BPEL, XML Schema

MCS Tiered Deployment



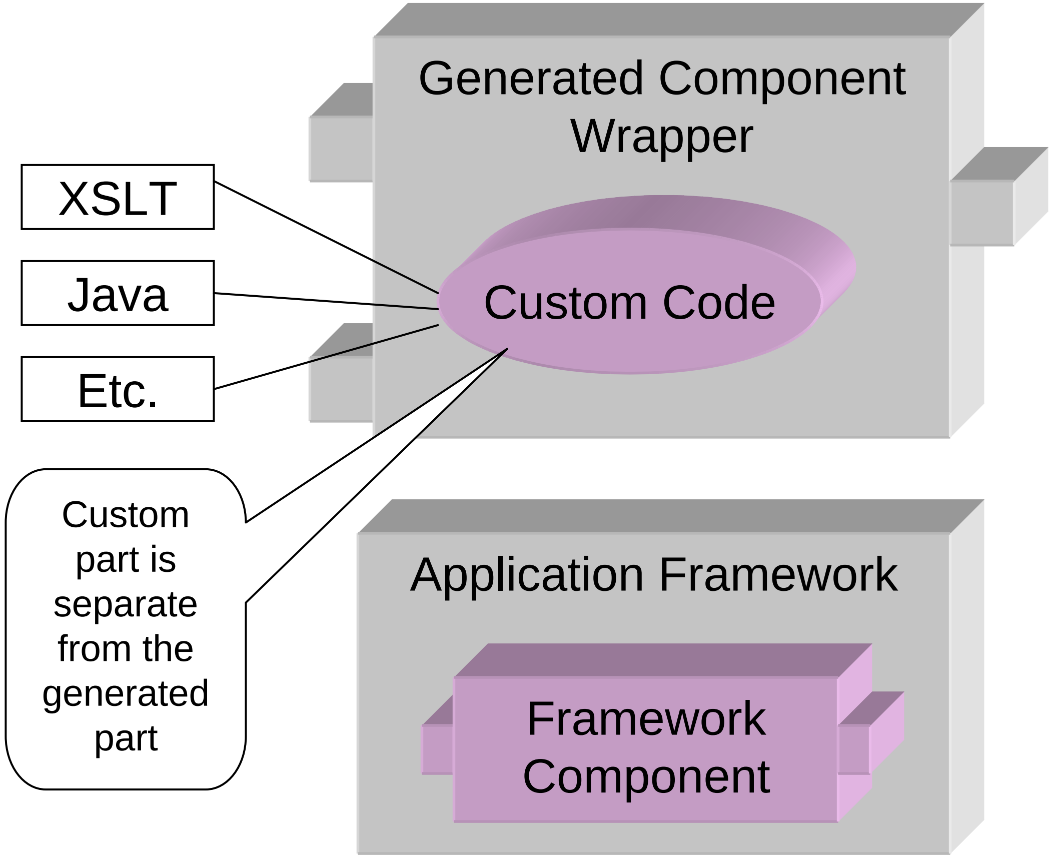
A components can be *deployed* on a specific physical *tier*. A tier is modeled as a UML *node.*

Service connections across tiers are modeled as UML *assembly dependencies.*

Shared services may be provided to multiple applications. (The provider shown is illustrative—there may be more than one provider for different sets of shared services.)

The provisioning specification is part of ModelPro – not the SoaML Standard

Custom Business Logic Components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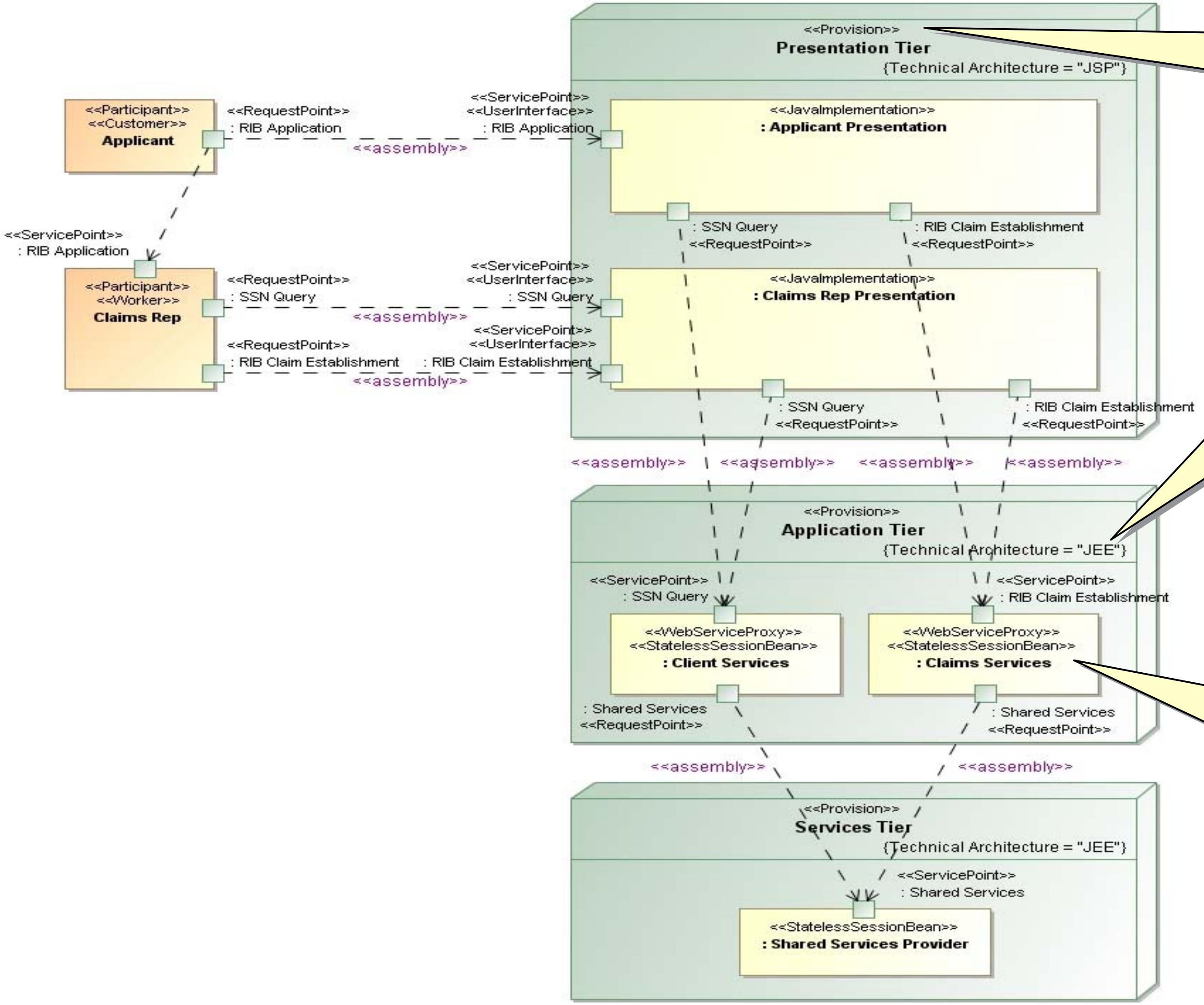
To-Be Claims Processing Tiered Deployment



Provisioning is the generation of some or all system implementation artifacts directly from the models.

The *technical architecture* for a tier defines the implementation platform to use when provisioning components on that tier.

Within the context of the technical architecture, component deployments can be stereotyped to affect how they are provisioned.

Application Provisioning

- Platform technologies are provisioned from the model based on the technology specified
  - XSD
  - WSDL
  - Application Server Configuration
  - Java Interfaces & Implementation
  - XSLT
  - IDE Project
  - SQL
  - Documentation
  - Tests
  - …

Details of what is provisioned for a particular technology are beyond the scope of this presentation