Case-study on Oracle SOA

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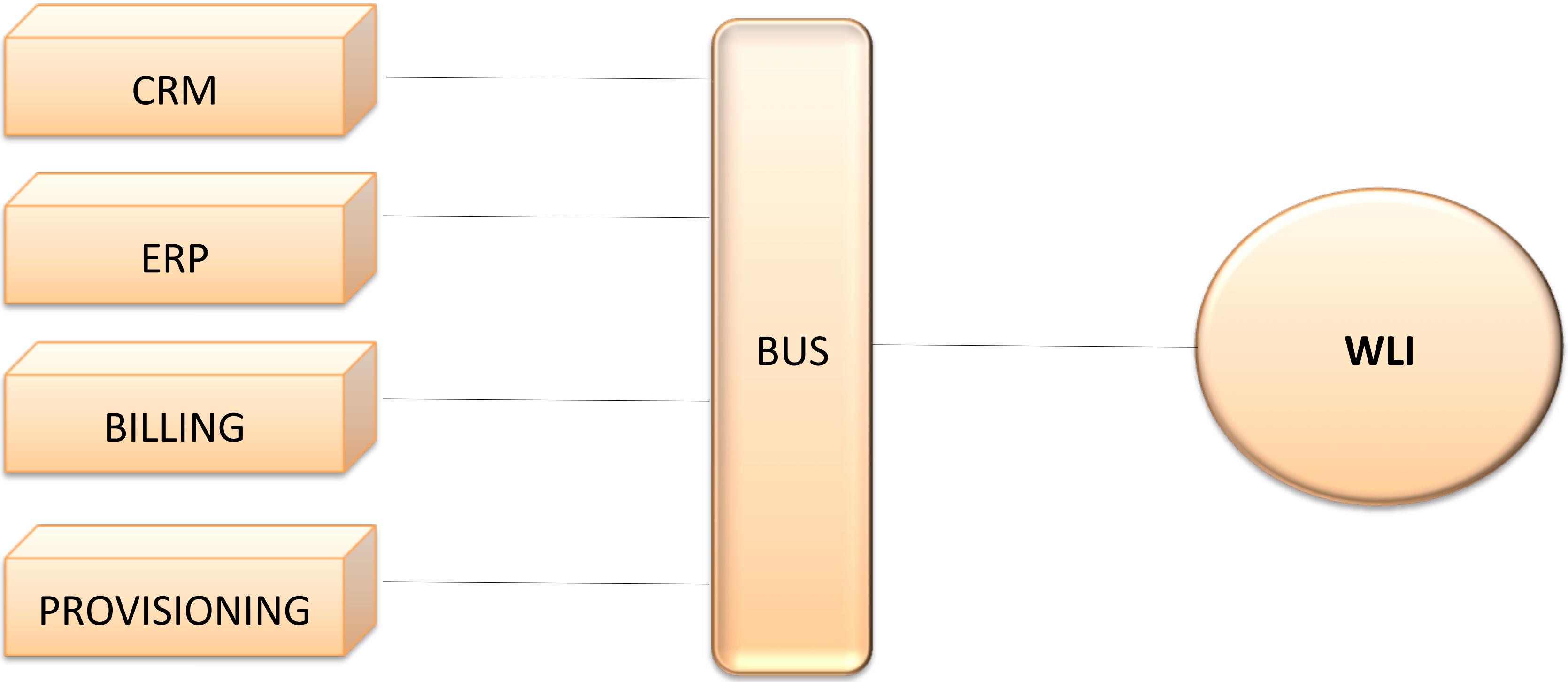
SingularLogic EnterpriseDIS

Previous Customer approach

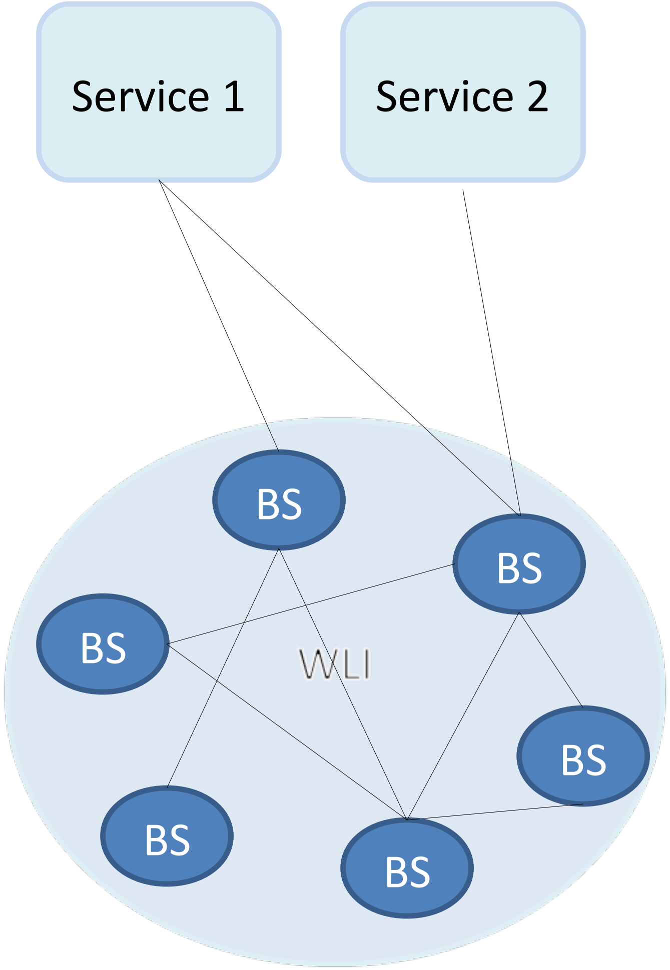


Technical considerations for modernizing SOA infra (1/2)

- Used BEA-WebLogic version (8.1.x) is very reliable but more than 5 years old and reaching end of support
- BEA Workshop was too heavy for development
- WebLogic Integration (WLI) is not the strategic SOA product after BEA acquisition
- Need to leverage modern advancements in SOA commercial products
    - SCA
    - BPEL
    - Wizard driven development
    - JCA Adapters

Technical considerations for modernizing SOA infra (2/2)

- Implementation
  - Difficult & **time consuming**
  - Service integration tedious & **error prone**
  - **Delayed** time to market
- Runtime
  - Service **management** problematic
  - **Deployments** required downtime
  - Overall system **stability** was not up to par with current enterprise needs



Organization requirements

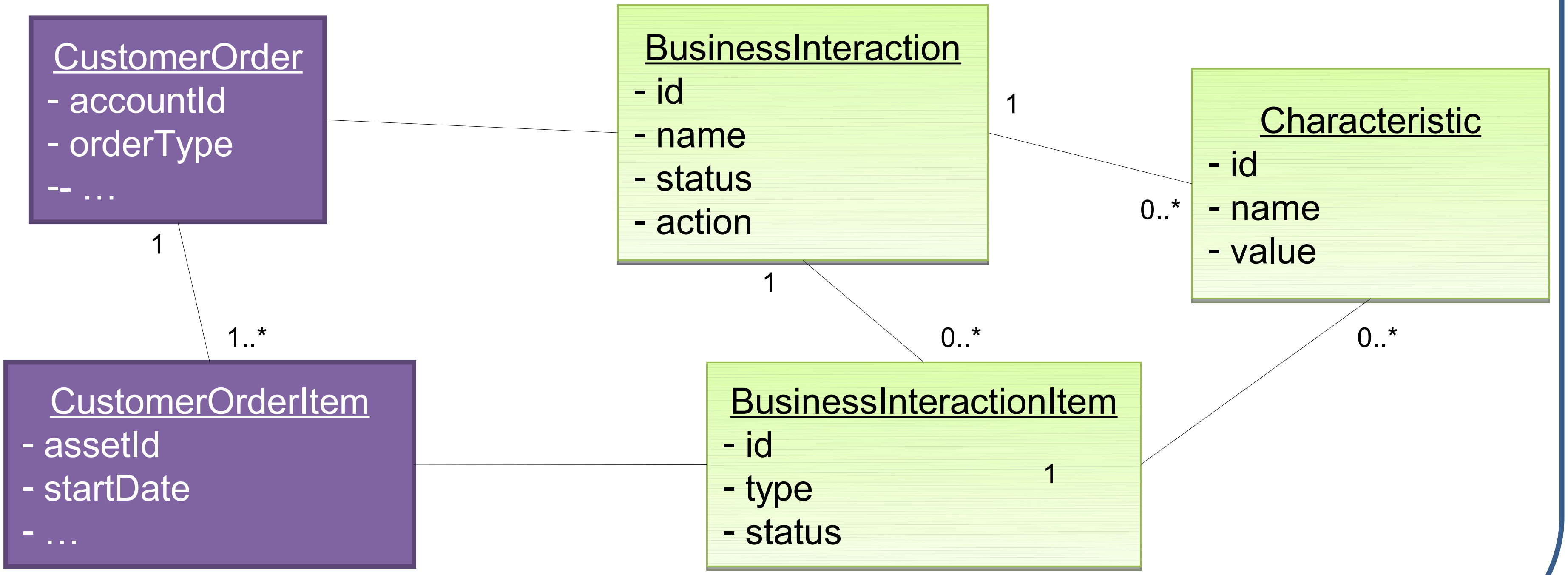
- Bridge the gap between business and IT
- Introduce common tools for processes
- Streamline processes – reduce time to market
- Better monitor and control
- Increase stability and robustness
- Reduce maintenance and operational costs
- Reduce integration costs

Solution for addressing business needs

- BPMN
- Common Data Domain Model (CDDM)
- SOA Services
- Agile and extensible architecture
- Use proven standards to provide interoperability between heterogeneous systems
- Oracle BPEL PM (http://www.oracle.com/us/technologies/soa/soa-suite/)
  - SCA
  - BPEL
  - WS-*
  - JCA Adapters
  - Java Enterprise Edition (JEE)

Task 1: Establishment of Common Domain Data Model

- Common understanding of business data elements and requirements
- Standardization of transformation
- Efficient development of new modules
- Easier integration of new systems



CustomerOrder
- accountId
- orderType
-- …

CustomerOrderItem
- assetId
- startDate
- …

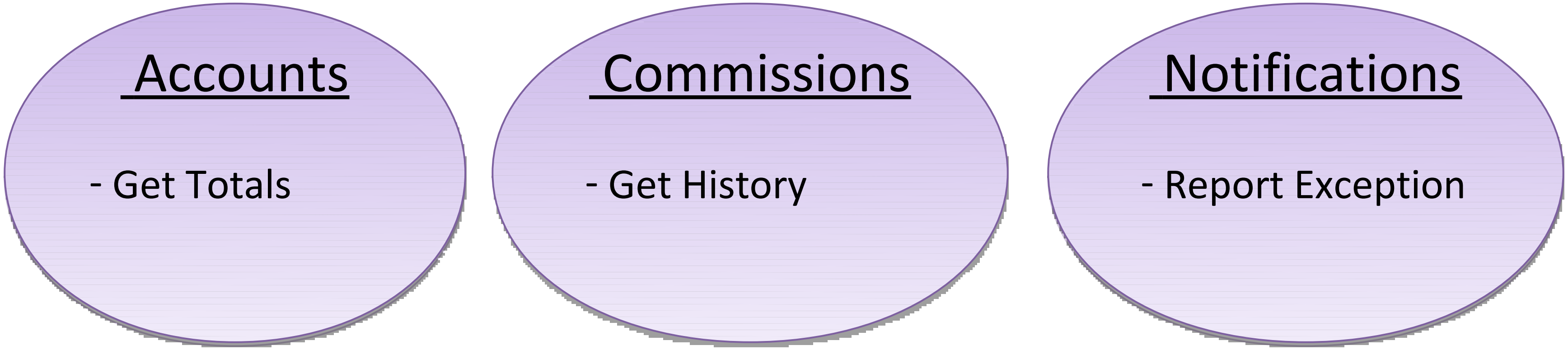
BusinessInteraction
- id
- name
- status
- action

Characteristic
- id
- name
- value

BusinessInteractionItem
- id
- type
- status

Task 2: Plan SOA Services

- SOA Services principles
  - Standardized Service Contract
  - Service Loose Coupling
  - Service Abstraction
  - Service Reusability
  - Service Autonomy
  - Service Composability



Accounts

- Get Totals

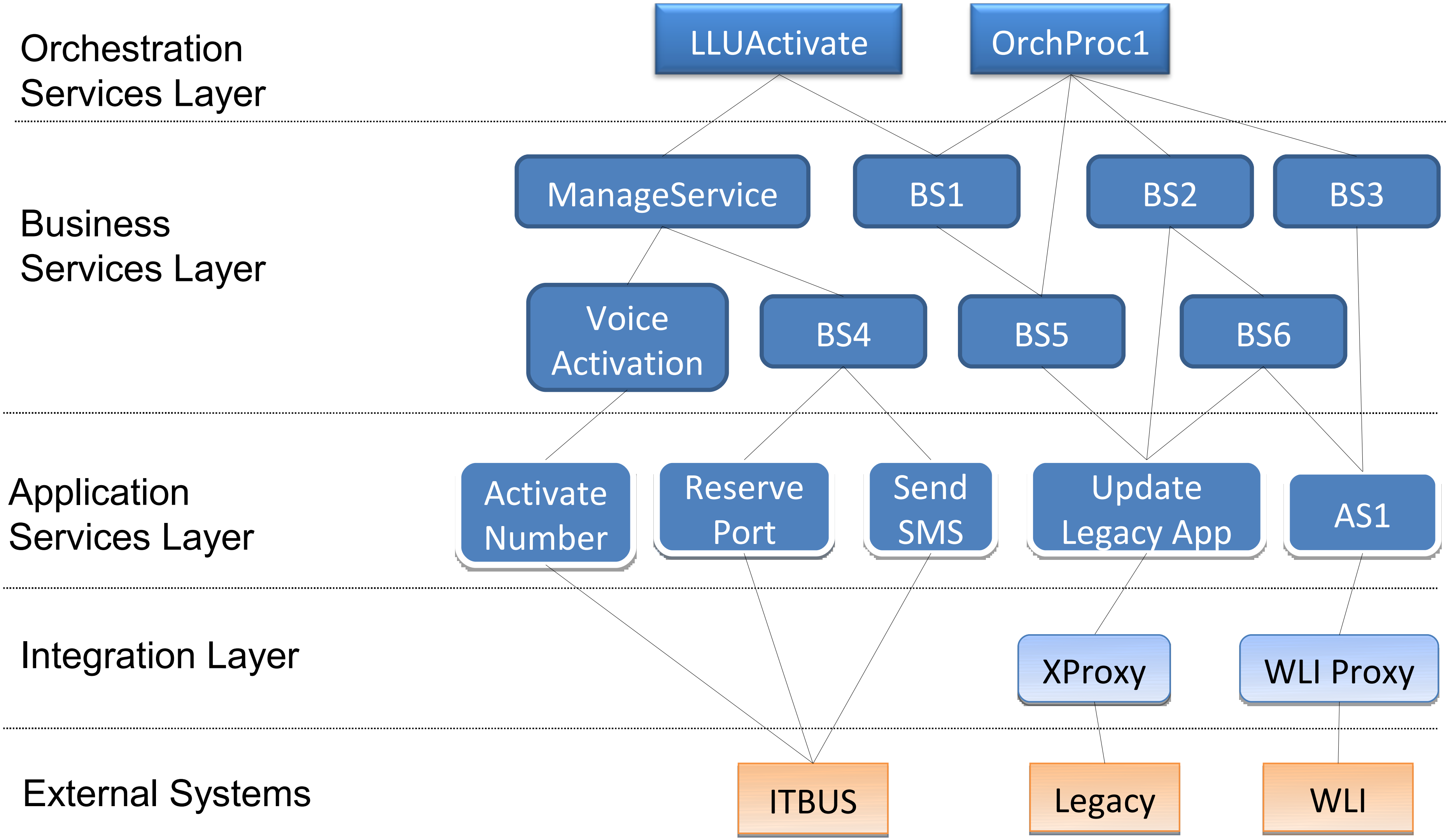
Commissions

- Get History

Notifications

- Report Exception

Task 3: Design Customer's Services Architecture



BPEL PM technologies & benefits – Development

SCA

- Implementation abstraction
- Assemble service components

Service Definitions

- Standard way of defining services
- Network protocol abstraction
- Service manipulation regardless of actual binding

BPEL

- Standard-based and productive design of flows
- Design & integrate services
- Orchestrate services
- Native support of BPEL in engine

Transformations

- Payload manipulation as xml document
- Easily transform from one entity to another in a visual and uniform manner

Emphasis on: **Standards & Interoperability**

BPEL PM technologies & benefits – Runtime

Fault Management Framework

- Automatic retry
- Manual recovery

Reliability

- Asynchronous messaging (JMS)
- Direct Binding (RMI)
- Transactionality
- Persistence

Message routing & handling

- Easy handle communication with external systems (correlation ids)
- Efficient internal handling (WS-Addressing)
- Composite versioning for updated services
- JCA Adapters (JMS, DB etc)

Service Management

- Efficient management
  - Live deployments
  - Multiple versions
  - Activating & retiring
  - Efficient Audit trail viewing
- Effective operations
- Monitoring

Business added value

- Bridge the gap between Business & IT
- Reduced maintenance & operational costs
- Reduced implementation costs
- Increased competitive edge
- Increased customer satisfaction

What's next…

Extend BPEL to cover Pay-TV services

Bridge the **gap** between business and IT
Introduce common tools for processes

Complete the WLI -> **BPEL** migration!

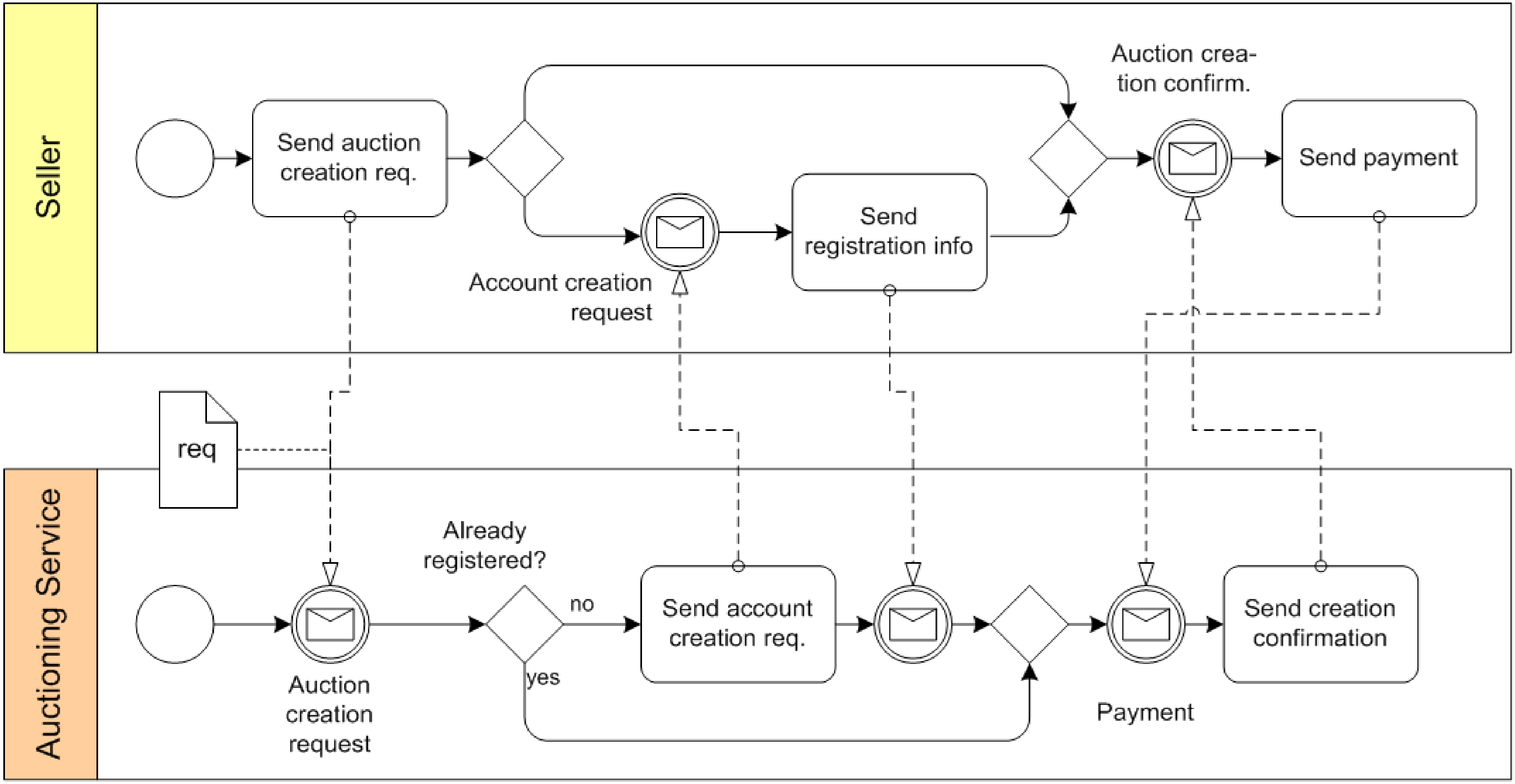
Emphasize on **governance**

End of story

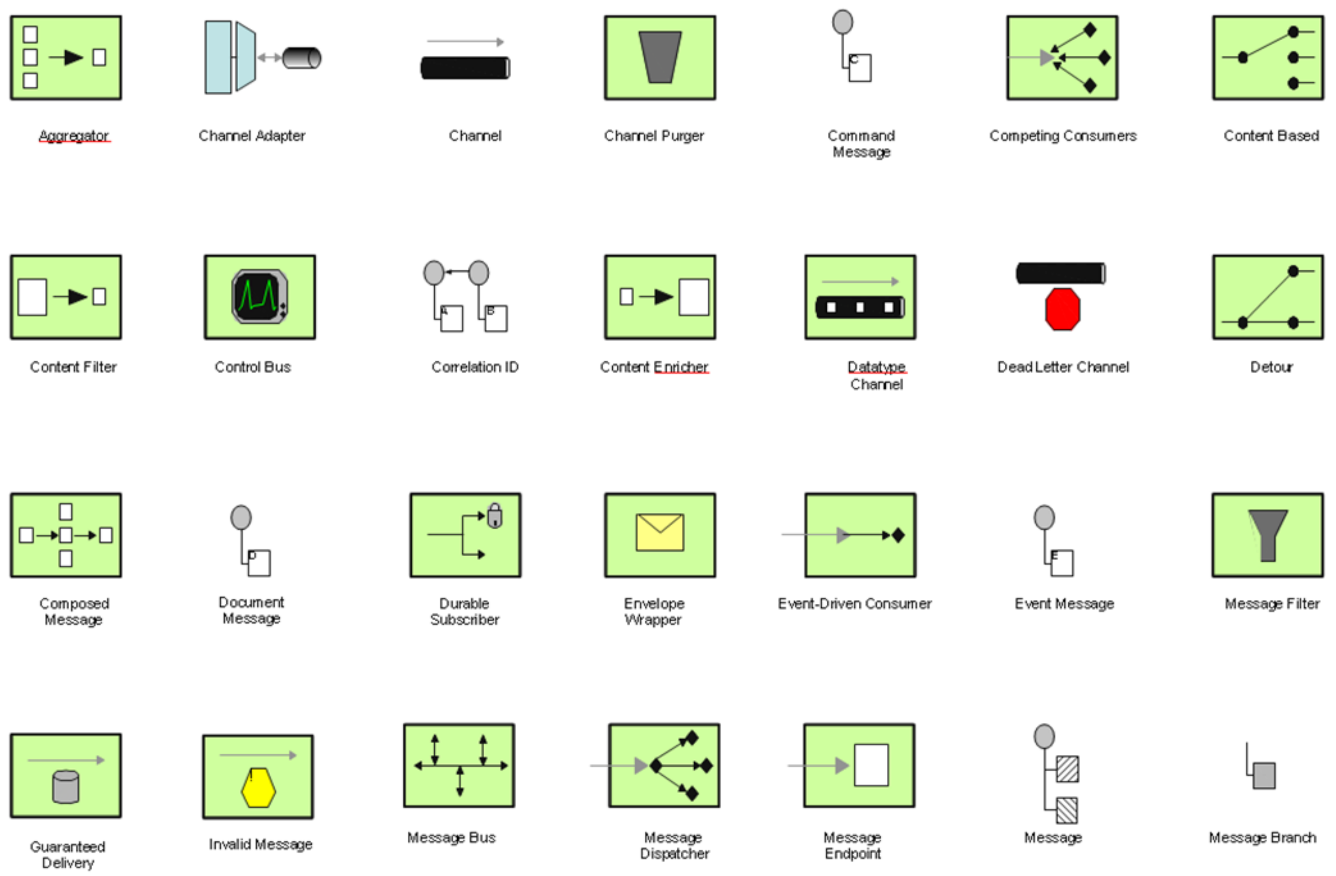
The crystal ship is being filled
A thousand girls, a thousand thrills
A million ways to spend your time
When we get back, I'll drop a line

The Crystal Ship, Doors

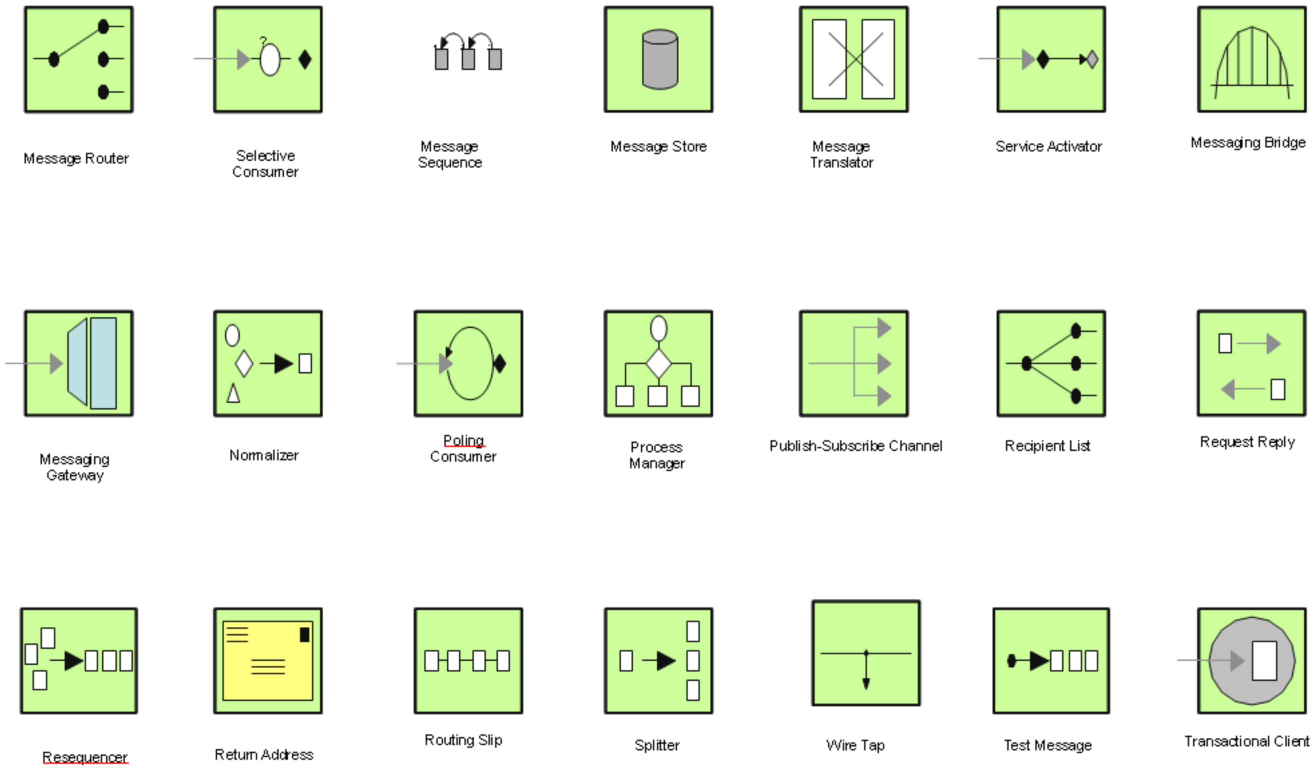
Appendix A: BPMN example



Appendix B: Enterprise Integration Patterns (1)



Appendix B: Enterprise Integration Patterns (2)



Message Router

Selective Consumer

Message Sequence

Message Store

Message Translator

Service Activator

Messaging Bridge

Messaging Gateway

Normalizer

Poling Consumer

Process Manager

Publish-Subscribe Channel

Recipient List

Request Reply

Resequencer

Return Address

Routing Slip

Splitter

Wire Tap

Test Message

Transactional Client

Appendix C: Open Source tools for BPM

- jBPM (http://www.jboss.org/jbpm)
- Drools (http://www.jboss.org/drools)
- Activiti (http://www.activiti.org)
- Apache ODE (http://ode.apache.org)
- JBoss Riftsaw (http://www.jboss.org/riftsaw)

- Mule ESB (http://www.mulesoft.org)
- Apache ServiceMix (http://servicemix.apache.org)
- Apache Camel (http://camel.apache.org)
- Spring Integration (http://www.springsource.org/spring-integration)
- JBoss ESB (http://www.jboss.org/jbossesb)

Appendix D: Useful URLs

- BPEL (Business Process Execution Language)
  - http://www.oasis-open.org/
  - http://docs.oasis-open.org/wsbpel/2.0/OS/wsbpel-v2.0-OS.html
- BPMN (Business Process Modeling Notation)
  - http://www.bpmn.org/
- SCA (Service Component Architecture)
  - http://www.osoa.org
- JCA (J2EE Connector Architecture)
  - http://java.sun.com/j2ee/connector/
- From Oracle Service Oriented Architecture event in Athens
  - http://www.oracle.com/us/dm/h2fy11/forthnet-case-study-on-oracle-soa-304680.pdf
- For high level overviews, also check Wikipedia ☺