



Leading Open Source SOA

**ebnm**

WEBSOURCING

***SCA in action into PEtALS***

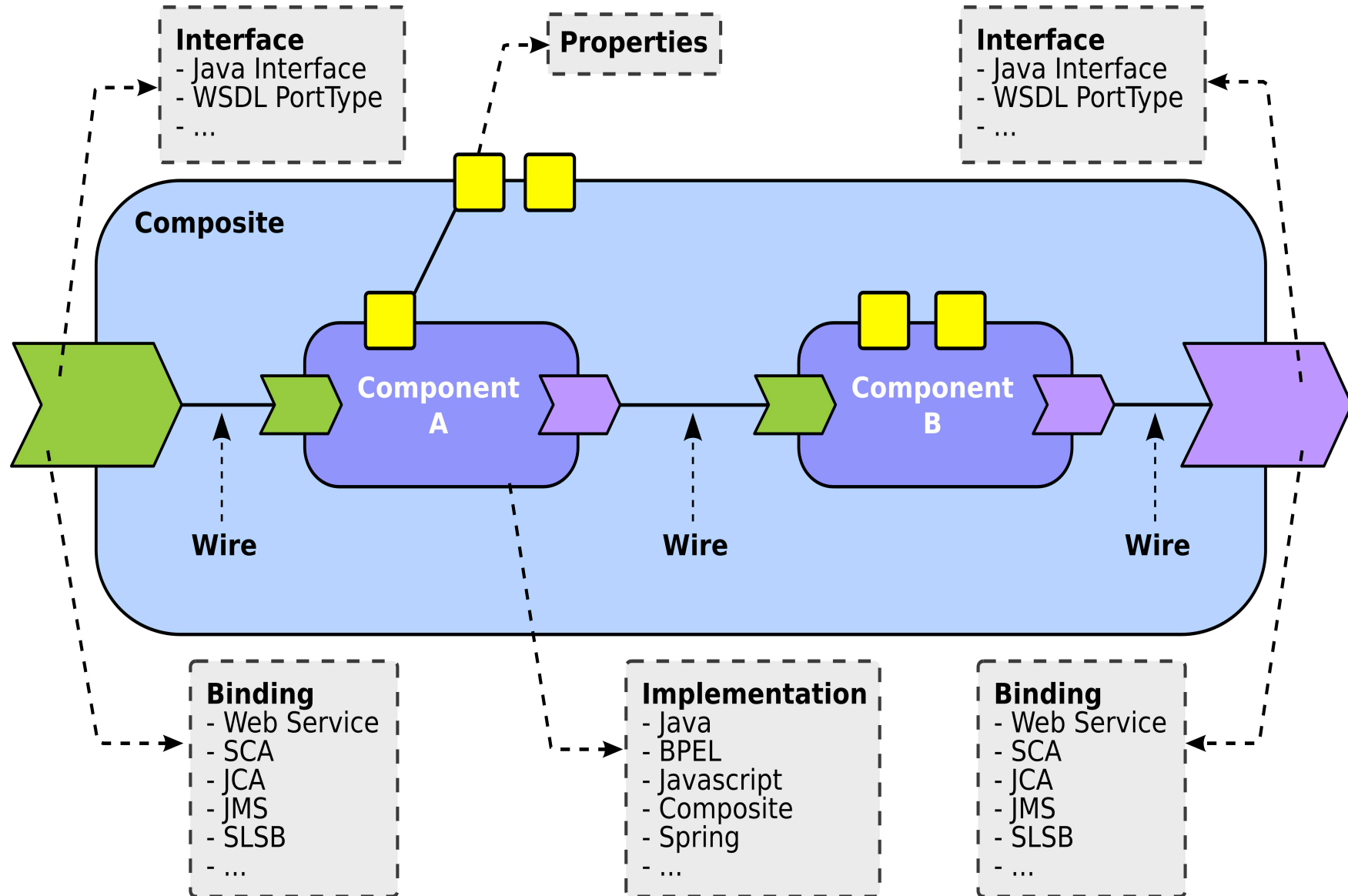
***Mohammed EL JAI – 04/02/2009***



- [Reminder about SCA](#)
- Reminder about JBI
- Support SCA in JBI
- Integration of FraSCAti in PEtALS
- Tools for PEtALS/SCA
- Demonstration



- SCA = Service Component Architecture
- Mix between Service and Component paradigms
- Main advantages
  - Several implementation languages (Java, C++, Cobol, PHP...)
  - Several communication protocols (WS, RMI, JMS...)
  - Seen like a powerful way to turn existing code into services
- Specification defined by OSOA Consortium
  - Supported by IBM, BEA, IONA, Oracle, SAP...
- Standardization by OASIS in progress
  - First version expected in June 2009

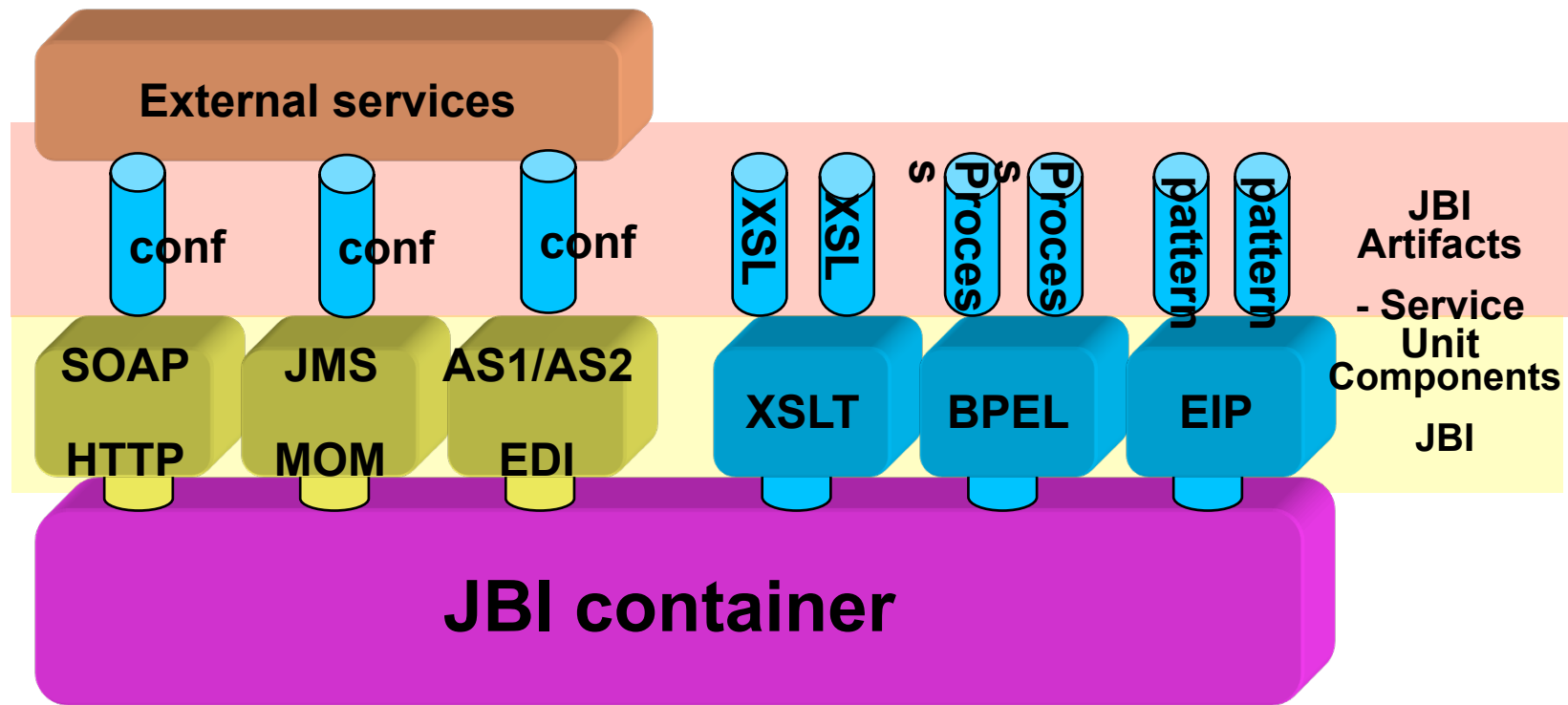





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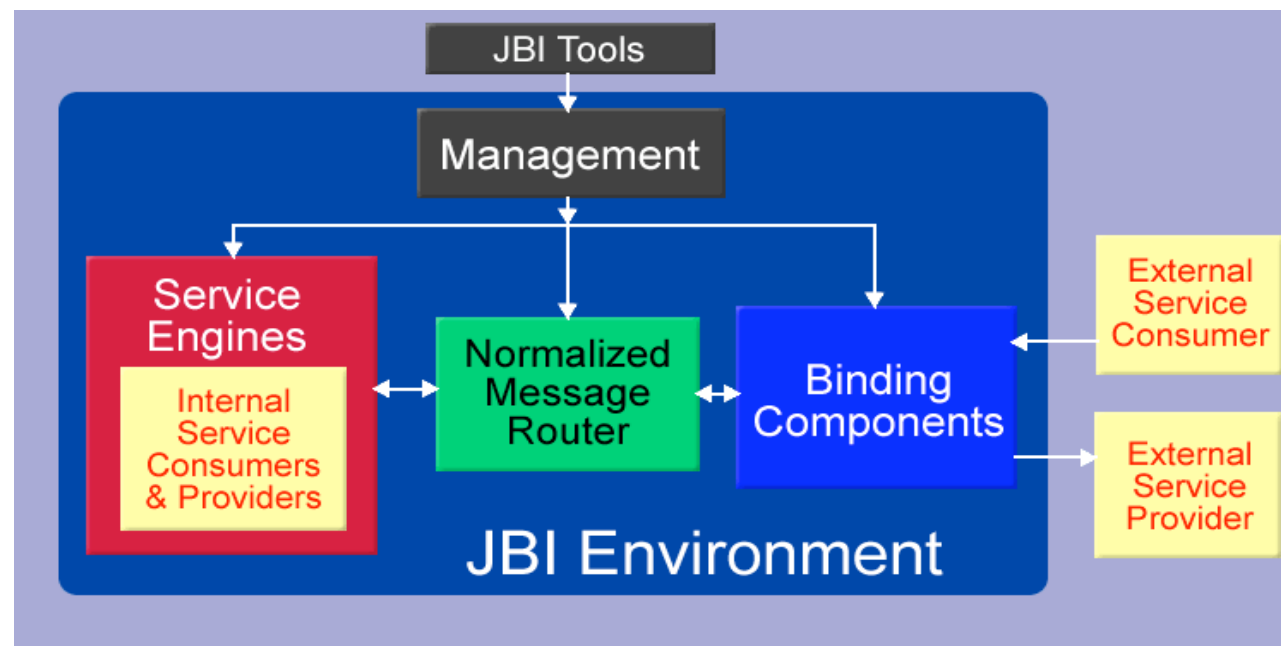
- JBI architecture overview



-  **Service Engines:** provide transformation, orchestration and business services
-  **Binding Components:** connection to external resources



- Component Architecture, « pluggable »
  - Service engine for technical functionalities
  - Binding component to connect to the external world
  
- JBI standard in Java world



Source: [java.sun.com](http://java.sun.com)



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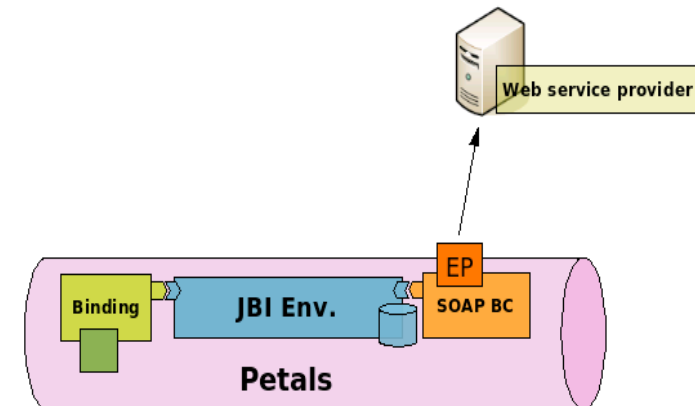
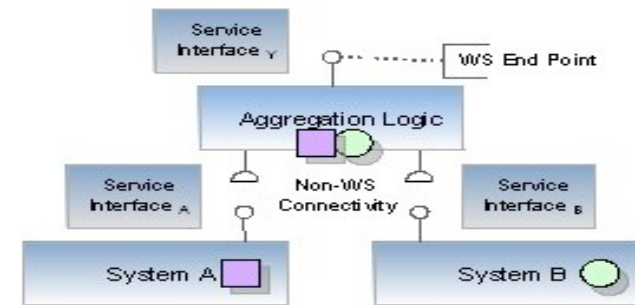
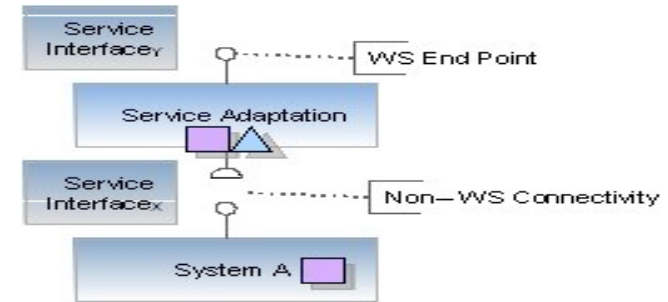




- Many questions about their relation
- Both focus on Service Oriented Architecture
- JBI is used to implement integration platforms
  - The only standard to focus on loosely coupling
  - Binding components to communicate with external world
  - Service engines to propose technical features
    - Orchestration, transformation...
  - Used to integrate applications in an SOA
- SCA can be used to build service composite in a JBI environment
  - Using the JBI bindings



- Service Adaptation (ESB provide message mapping/enrichment, protocol)
- Service Orchestration (composite services can be used to address new business needs)
- SCA references are not “hardwired” in the SCA application

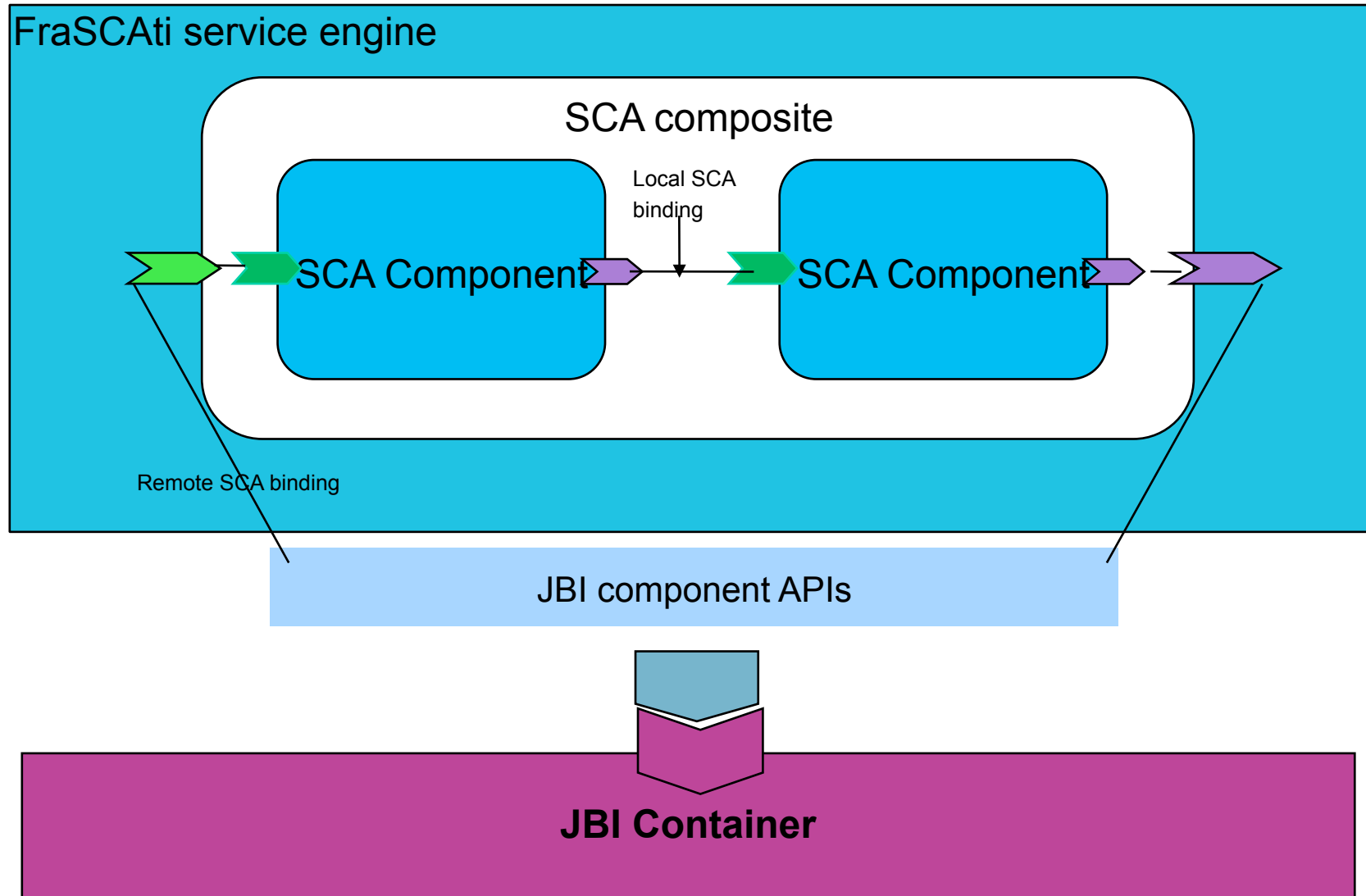




- Reminder about SCA
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- SCA Vs. JBI
- Benefits of ESB (PEtALS) to SCA
- [Integration of FraSCAti in PEtALS](#)
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- Extend FraSCAti to support the JBI binding
  - Add a JBI plugin to FraSCAti pluggable architecture
  
- Integrate Frascati as a service engine
  - Expose new services in PEtALS via composite services
  - Consume existing services in PEtALS via composite references
  
- Delegate remote binding of the SCA composite to PEtALS
  - The composite is running in FraSCAti service engine
  - Remote calls handled by the PEtALS binding components





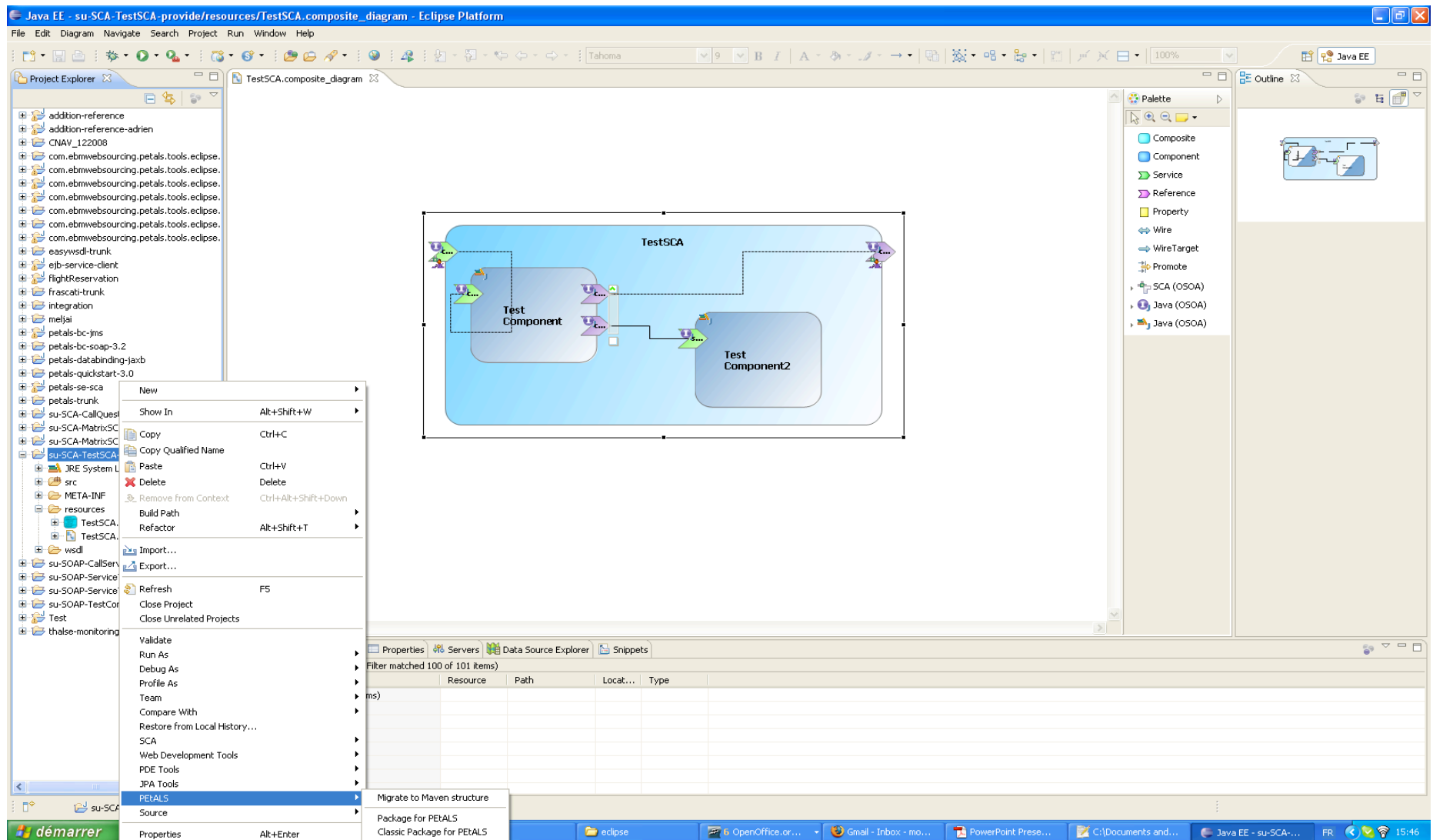
- Input
  - SCA description file ( \*.composite )
  - Sources or binaries of the composite implementations
  - JBI description file ( jbi.xml )
  
- Deployment Time
  - Instantiate the SCA composite using FraSCAti (Tinfir)
  - Exposition of the composite services as PEtALS services
  
- Invocation Time
  - Transform JBI messages into Java method calls and vice-versa
  - "Marshalling" and "Unmarshalling" of JBI messages using JAXB



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- PEtALS Eclipse plugin for SCA

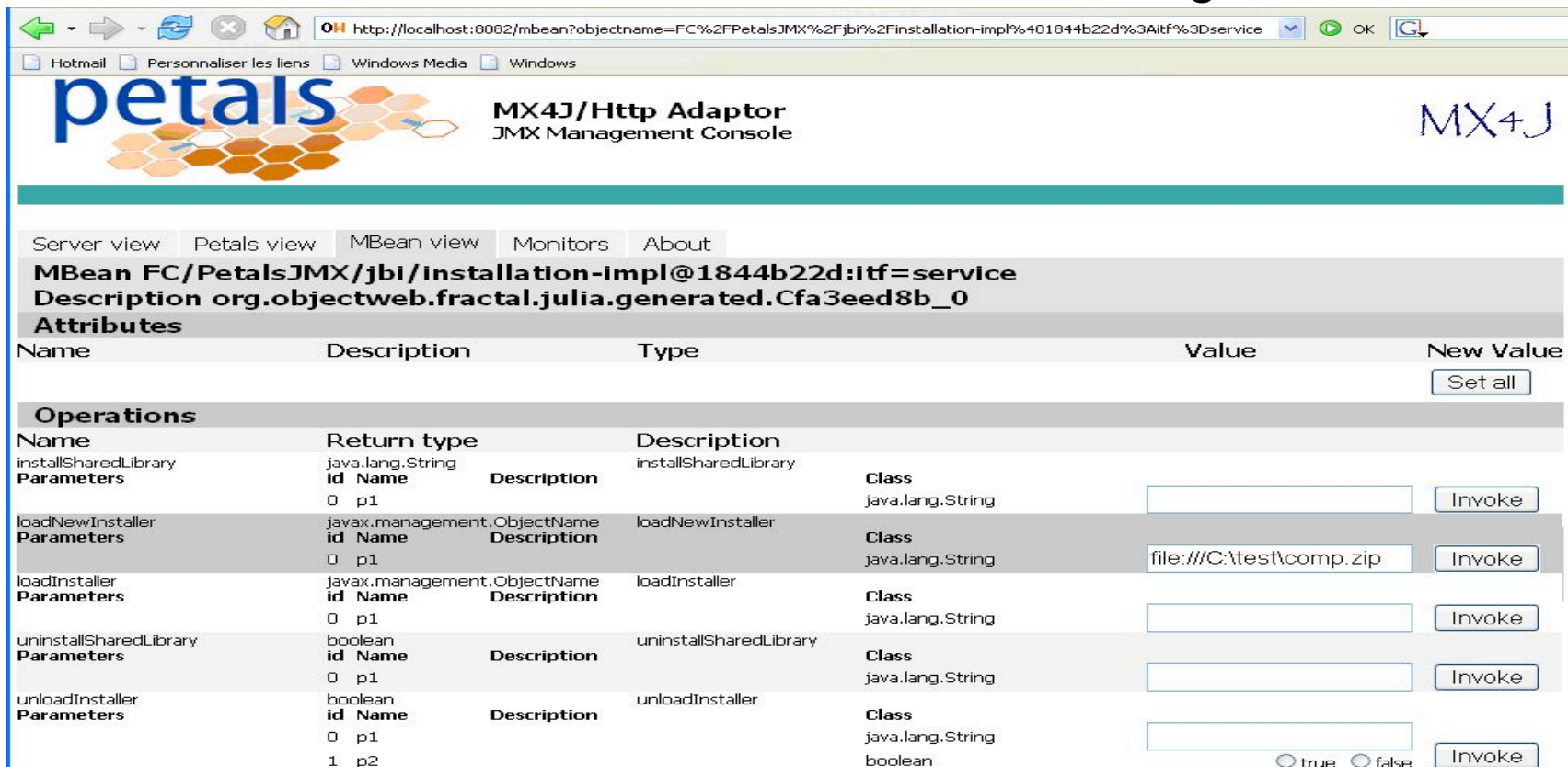


The screenshot shows the Eclipse IDE with the PEtALS plugin installed. The main editor displays a composite diagram for 'TestSCA' containing two components: 'Test Component' and 'Test Component2'. A context menu is open over the 'TestSCA' package, showing options like 'New', 'Copy', 'Paste', 'Delete', 'Refresh', and 'PEtALS'. The 'PEtALS' option is highlighted, with a sub-menu showing 'Migrate to Maven structure', 'Package for PEtALS', and 'Classic Package for PEtALS'. The Project Explorer on the left shows a project structure with 'TestSCA' under 'resources'. The Palette on the right shows SCA-related elements like Composite, Component, Service, Reference, Property, Wire, Wire Target, and Promote. The Outline on the right shows a small diagram of the composite structure.





- PEtALS biding components (Advanced configurations)
  - SOAP, EJB, JMS, SMTP ...
- PEtALS JMX console for remote installation/configuration



Server view | Petals view | MBean view | Monitors | About

**MBean FC/PetalsJMX/jbi/installation-impl@1844b22d:itf=service**  
 Description org.objectweb.fractal.julia.generated.Cfa3eed8b\_0

**Attributes**

Name	Description	Type	Value	New Value
<input type="button" value="Set all"/>				



**Operations**

Name	Return type	Description	Class
installSharedLibrary	java.lang.String	installSharedLibrary	java.lang.String
<b>Parameters</b>	<b>id</b> <b>Name</b> <b>Description</b>	<b>Class</b>	
0	p1	java.lang.String	<input type="text"/> <input type="button" value="Invoke"/>
loadNewInstaller	javax.management.ObjectName	loadNewInstaller	java.lang.String
<b>Parameters</b>	<b>id</b> <b>Name</b> <b>Description</b>	<b>Class</b>	
0	p1	file:///C:/test/comp.zip	<input type="text"/> <input type="button" value="Invoke"/>
loadInstaller	javax.management.ObjectName	loadInstaller	java.lang.String
<b>Parameters</b>	<b>id</b> <b>Name</b> <b>Description</b>	<b>Class</b>	
0	p1	java.lang.String	<input type="text"/> <input type="button" value="Invoke"/>
uninstallSharedLibrary	boolean	uninstallSharedLibrary	java.lang.String
<b>Parameters</b>	<b>id</b> <b>Name</b> <b>Description</b>	<b>Class</b>	
0	p1	java.lang.String	<input type="text"/> <input type="button" value="Invoke"/>
unloadInstaller	boolean	unloadInstaller	java.lang.String
<b>Parameters</b>	<b>id</b> <b>Name</b> <b>Description</b>	<b>Class</b>	
0	p1	java.lang.String	<input type="text"/>
1	p2	boolean	<input type="radio"/> true <input type="radio"/> false <input type="button" value="Invoke"/>



- PEtALS Web console


The open source ESB solution for Services Oriented Architectures

PETALS Admin | JUDDI Admin | **Monitoring**
logged in as **petals** (admin) | [log out](#)

**PETALS (static)**

- subdomain1
  - server 0
    - binding components
    - service engines
    - petals-sample-client
    - system Info
  - server 1
    - binding components
    - service engines
      - petals-se-random
        - MCEndpoint
        - randomEndpoint
        - testEndpoint
      - petals-sample-clock
        - ClockEndpoint
    - system Info
  - message Exchanges
  - endpoints

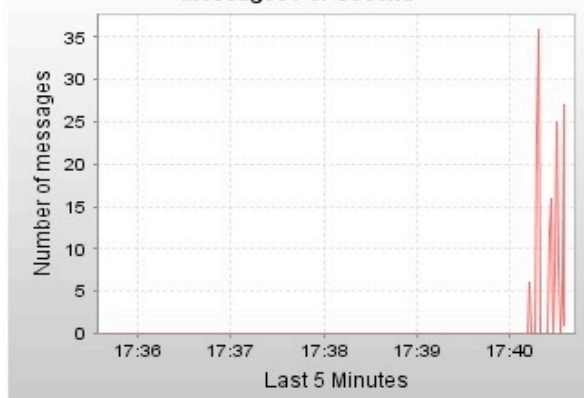


## Subdomain1

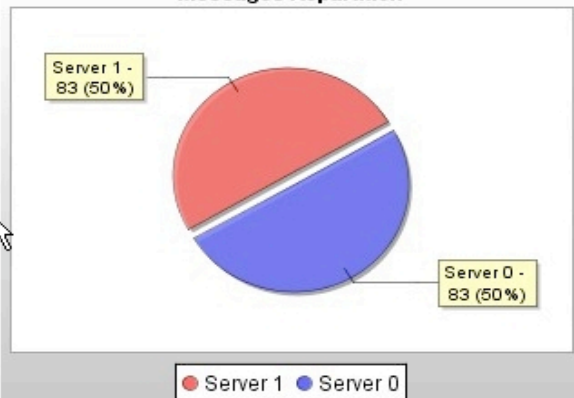
30 s

Subdomain's statistics

Messages Per Second



Messages Repartition



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Book Flight

Book Hotel

Send Confirmation Mail

**Book Flight with customer information (name, destination ...)**

**Book Hotel with customer information (name, arrival date, departure date )...**

**Send recapitulation mail from the reservations information**

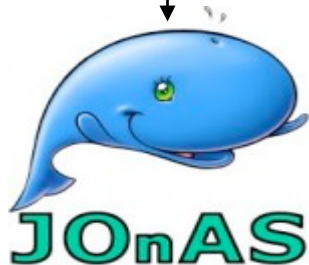
 **Use existing Service**

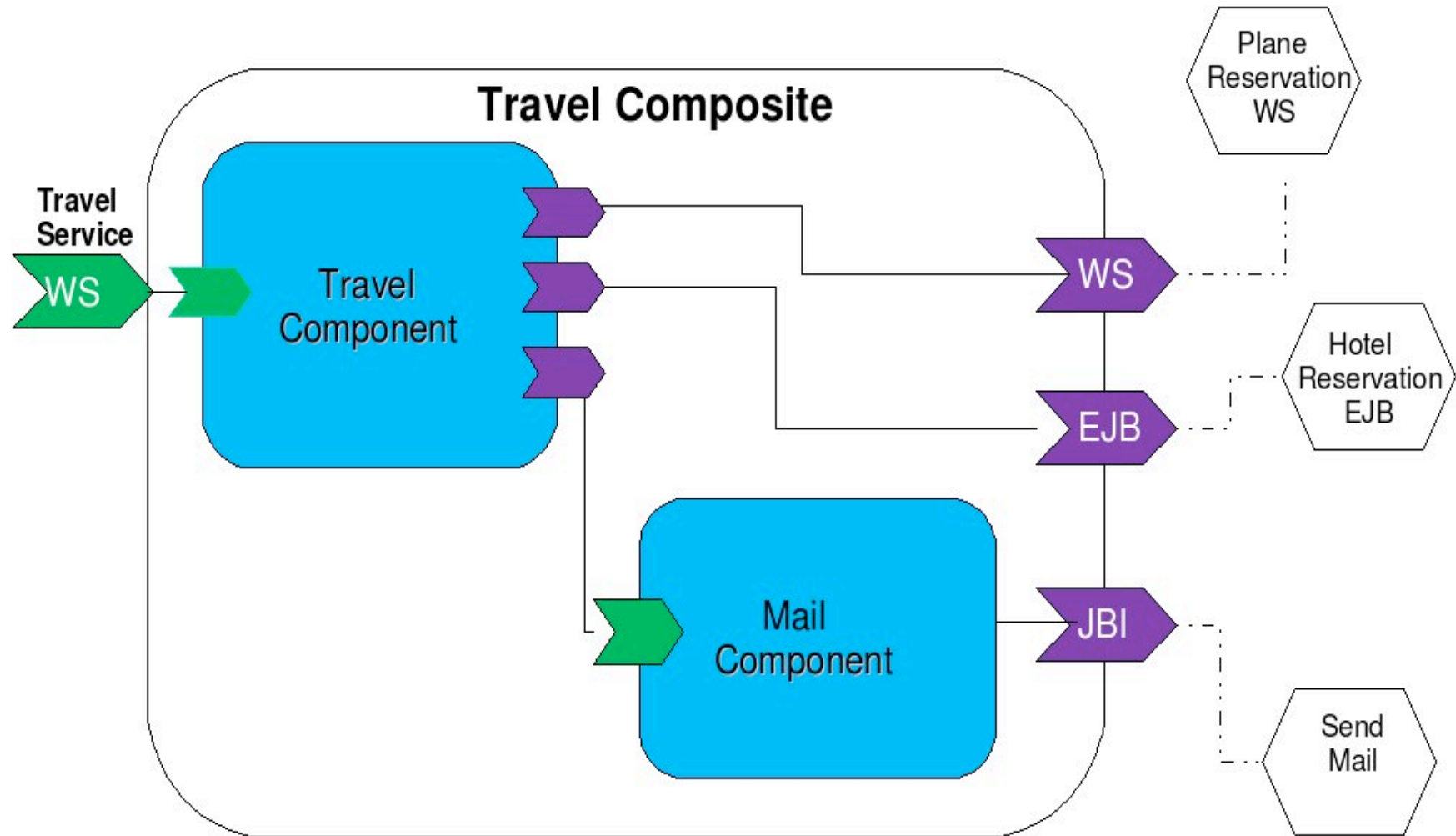
 **Use existing Service**

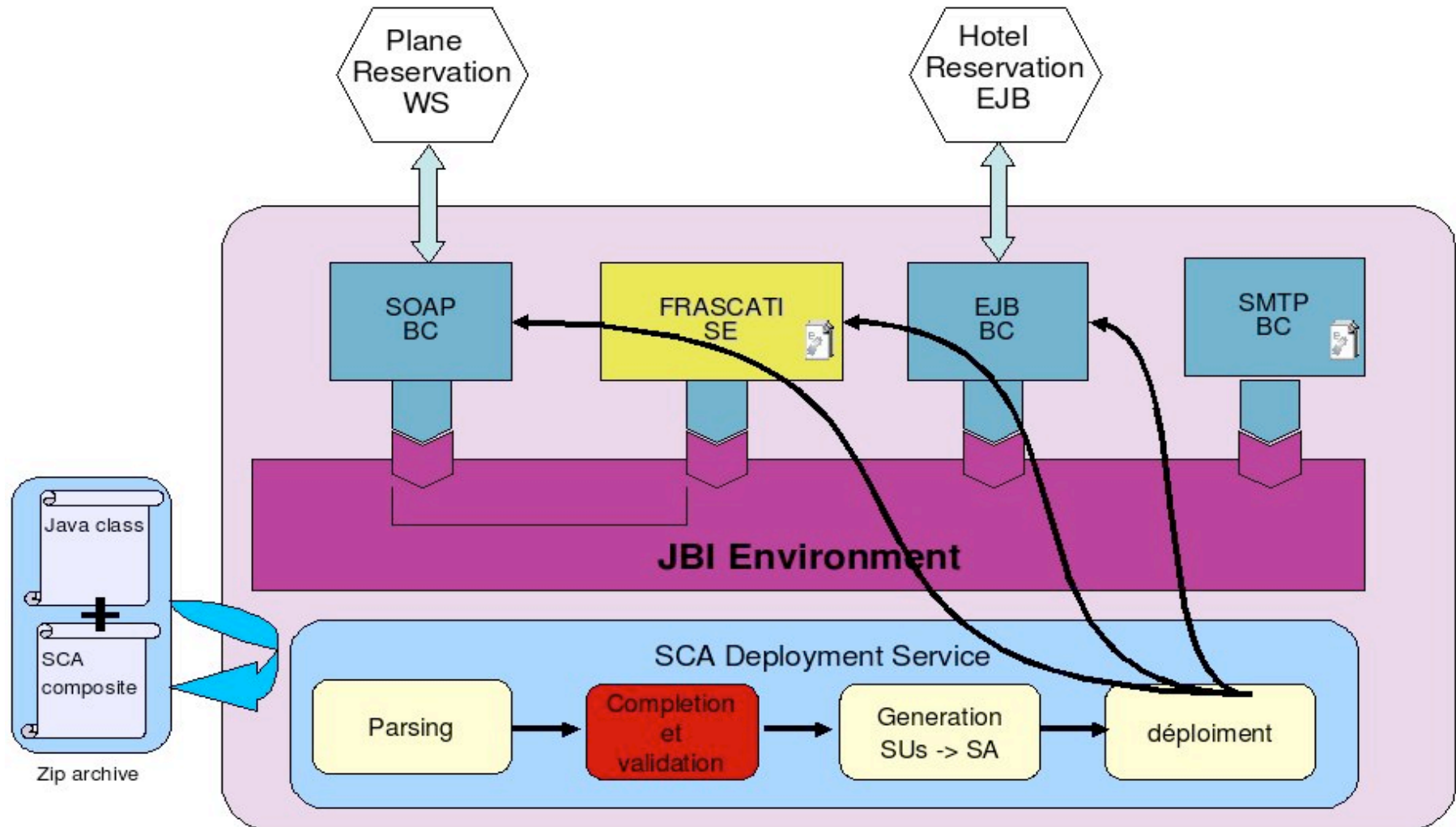
 **New required functionality**

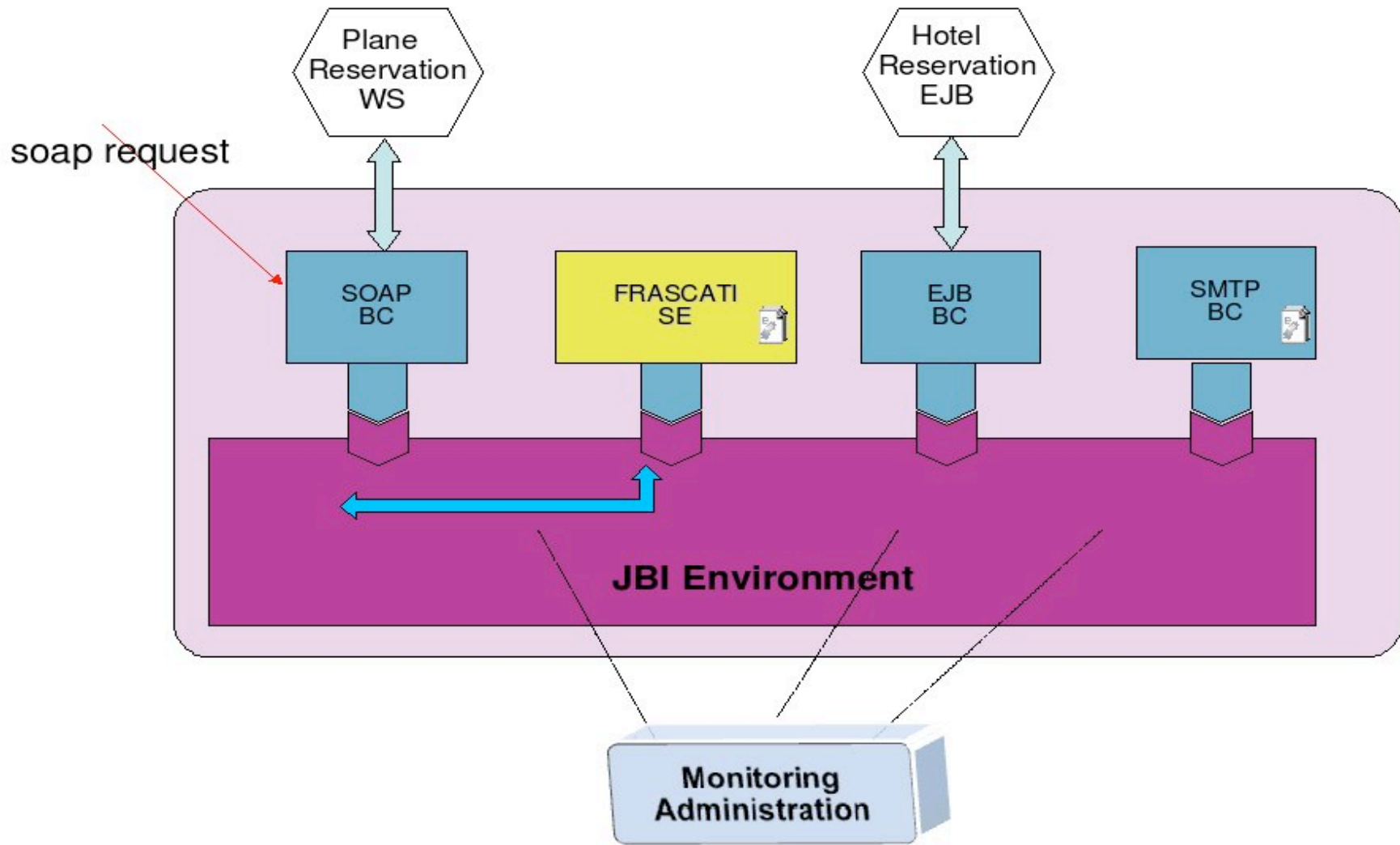
Deployed as EJB

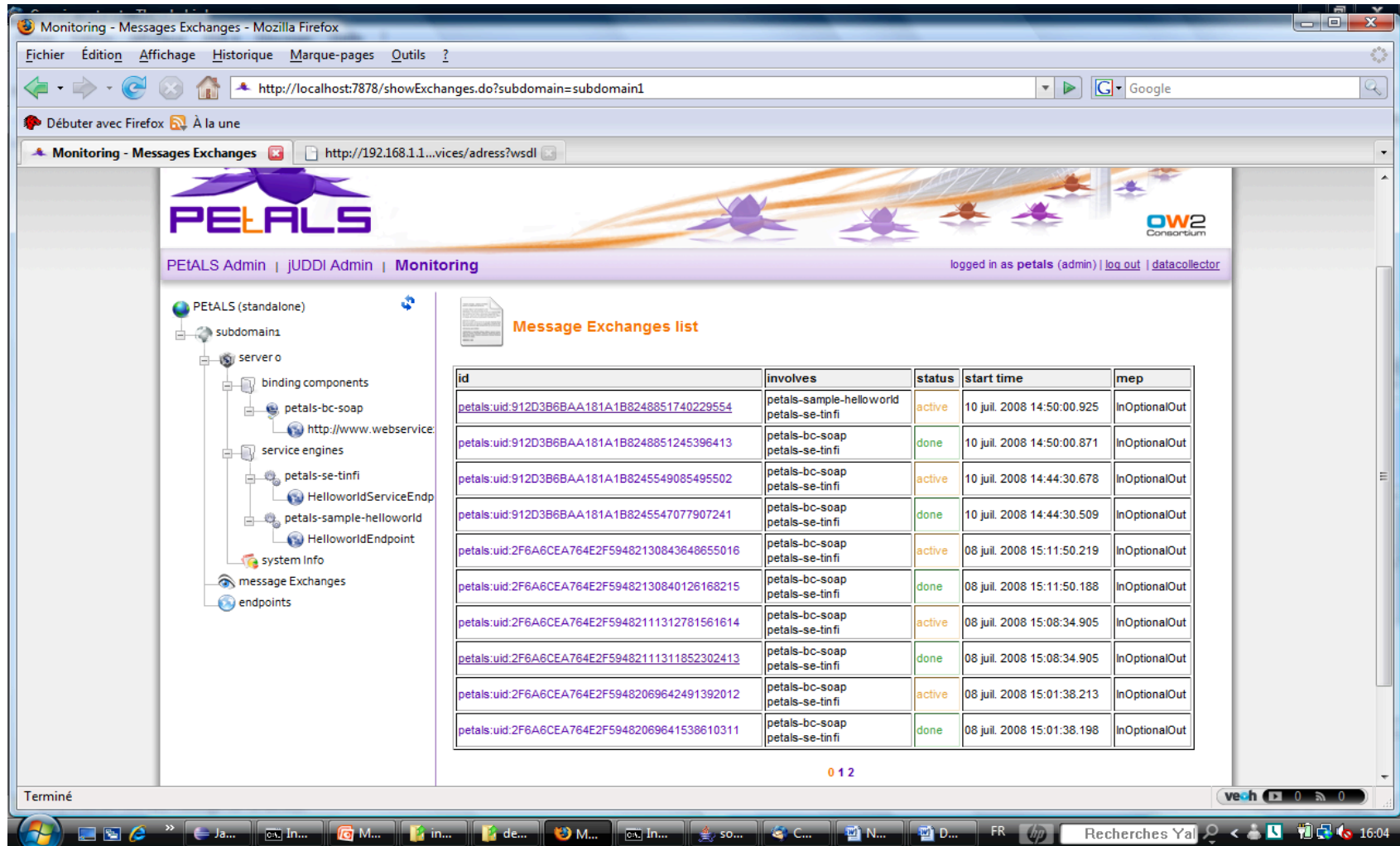
Accessible as WS









**PETALS**  
 PETALS Admin | JUDDI Admin | Monitoring logged in as petals (admin) | log out | datacollector

**Message Exchanges list**

id	involves	status	start time	mep
<a href="#">petals:uid:912D3B6BAA181A1B8248851740229554</a>	petals-sample-helloworld petals-se-tinfi	active	10 juil. 2008 14:50:00.925	InOptionalOut
<a href="#">petals:uid:912D3B6BAA181A1B8248851245396413</a>	petals-bc-soap petals-se-tinfi	done	10 juil. 2008 14:50:00.871	InOptionalOut
<a href="#">petals:uid:912D3B6BAA181A1B8245549085495502</a>	petals-bc-soap petals-se-tinfi	active	10 juil. 2008 14:44:30.678	InOptionalOut
<a href="#">petals:uid:912D3B6BAA181A1B8245547077907241</a>	petals-bc-soap petals-se-tinfi	done	10 juil. 2008 14:44:30.509	InOptionalOut
<a href="#">petals:uid:2F6A6CEA764E2F59482130843648655016</a>	petals-bc-soap petals-se-tinfi	active	08 juil. 2008 15:11:50.219	InOptionalOut
<a href="#">petals:uid:2F6A6CEA764E2F59482130840126168215</a>	petals-bc-soap petals-se-tinfi	done	08 juil. 2008 15:11:50.188	InOptionalOut
<a href="#">petals:uid:2F6A6CEA764E2F59482111312781561614</a>	petals-bc-soap petals-se-tinfi	active	08 juil. 2008 15:08:34.905	InOptionalOut
<a href="#">petals:uid:2F6A6CEA764E2F59482111311852302413</a>	petals-bc-soap petals-se-tinfi	done	08 juil. 2008 15:08:34.905	InOptionalOut
<a href="#">petals:uid:2F6A6CEA764E2F59482069642491392012</a>	petals-bc-soap petals-se-tinfi	active	08 juil. 2008 15:01:38.213	InOptionalOut
<a href="#">petals:uid:2F6A6CEA764E2F59482069641538610311</a>	petals-bc-soap petals-se-tinfi	done	08 juil. 2008 15:01:38.198	InOptionalOut

0 1 2

Terminé





- OSOA: <http://www.osoa.org/display/Main/Home>
- PEtALS website: <http://petals.objectweb.org/>
- SCOrWare project: <http://www.scorware.org/>
- Apache Tuscany project: <http://incubator.apache.org/tuscany/>
- SCA component of Eclipse STP: <http://www.eclipse.org/stp/sca/index.php>
- Eclipse STP wiki about SCA: [http://wiki.eclipse.org/STP/SCA\\_Component](http://wiki.eclipse.org/STP/SCA_Component)



# Questions