



北京航空航天大学  
BEIHANG UNIVERSITY

# ***Orchestra Designer: An Online Workflow Designer***

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**2009 Scilab-OW2 Joint Open Source Software Contest**

**Guiyang, China, 20 September, 2009**



# Outline

- **Background**
- **Project Introduction**
- **Architecture and Implementation**
- **Open Source**
- **Future Work**





# Outline

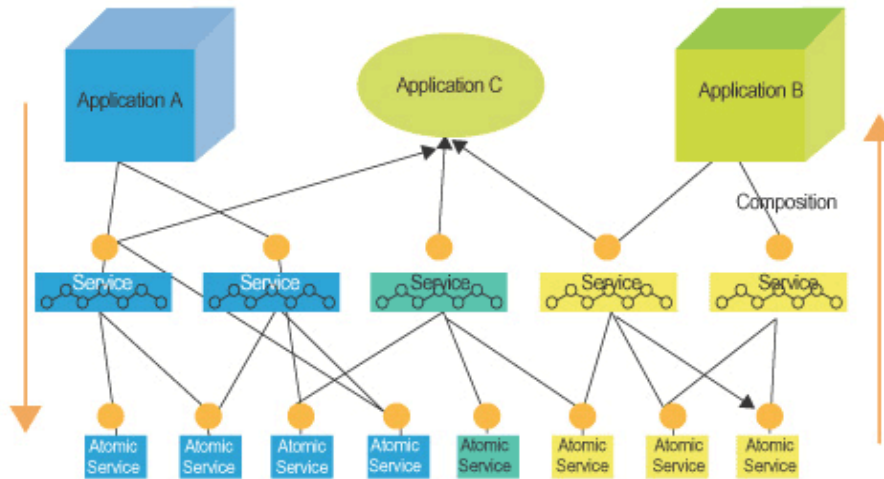
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# Background

- **BPEL** (Business Process Execution Language) has become the de-facto standard for web services processes.
- There has no graphic information in BPEL documents. It is difficult for users to create raw xml file for BPEL.
- A popular approach is to make **BPMN** (Business Process Modeling Notation) be the graphic model of BPEL.

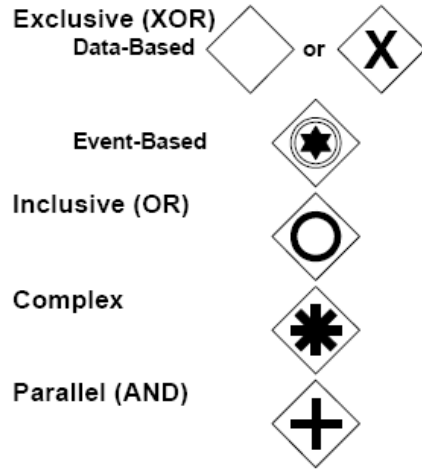


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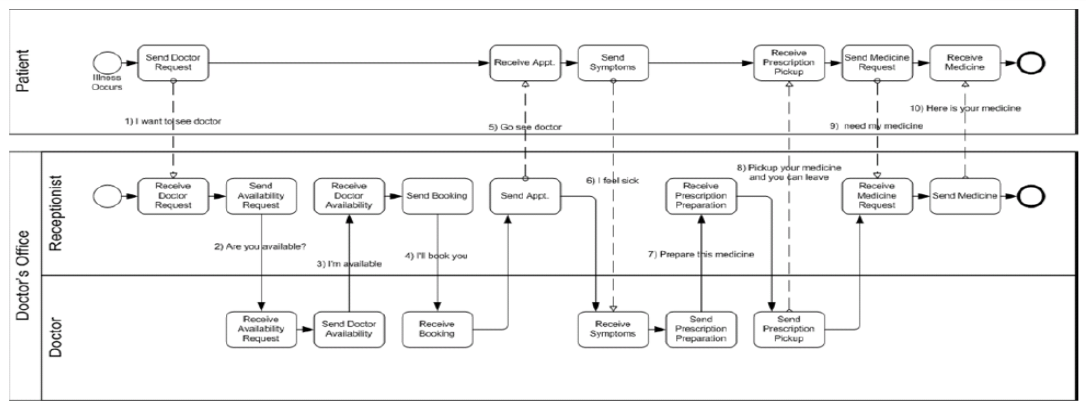
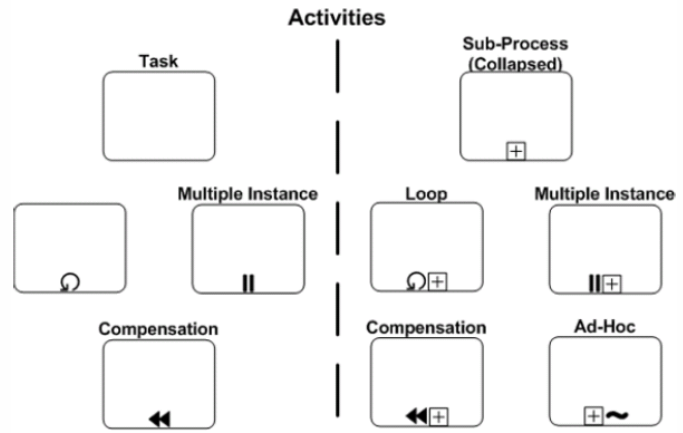




# Problem



**BPMN is too complex for non technical people**





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# Topic

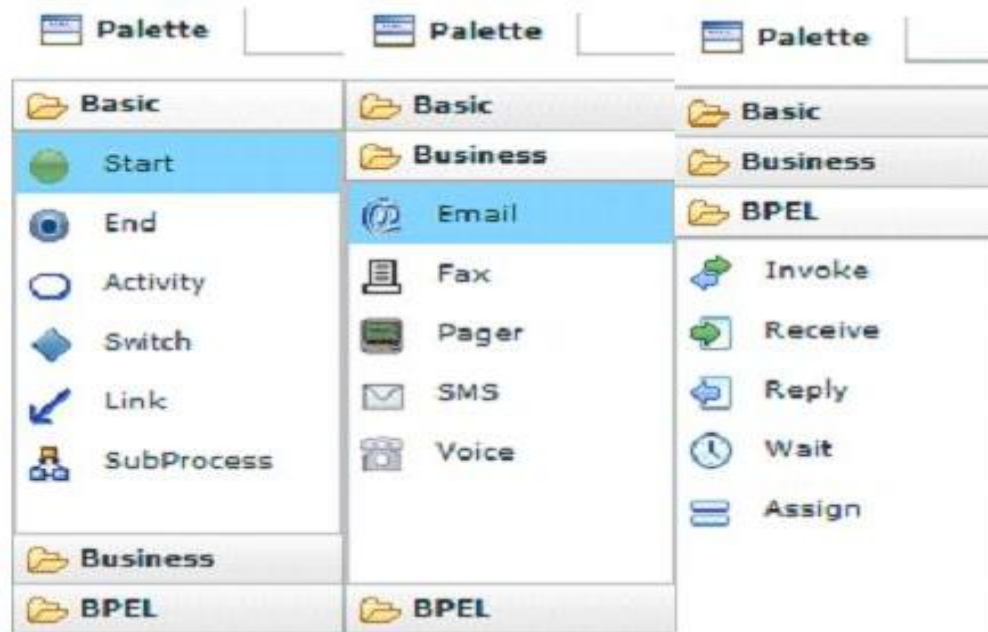
## 2009 OW2 Programming Contest

<b>Title</b>	Web 2.0 BPM editor
<b>OW2 Project</b>	<b>Orchestra</b>
<b>Keywords</b>	Web, BPM, BPEL, BPMN, GWT, Flex
<b>Description</b>	Orchestra is BPM solution based on the <b>BPEL</b> language. The objective of this development is to build a designer that could be integrated to the Orchestra Web 2.0 console. The designer is targeted to <b>non technical</b> people and so should provide a functional view of the process. Once the process is designed, the description of the process should be generated in a format accepted by Orchestra. Technology used to develop this designer could be either GWT or <b>Flex</b> .
<b>Project Contact</b>	Goulven Le Jeune (goulven.le-jeune@bull.net)
<b>Estimated Workload</b>	<b>6</b> man months

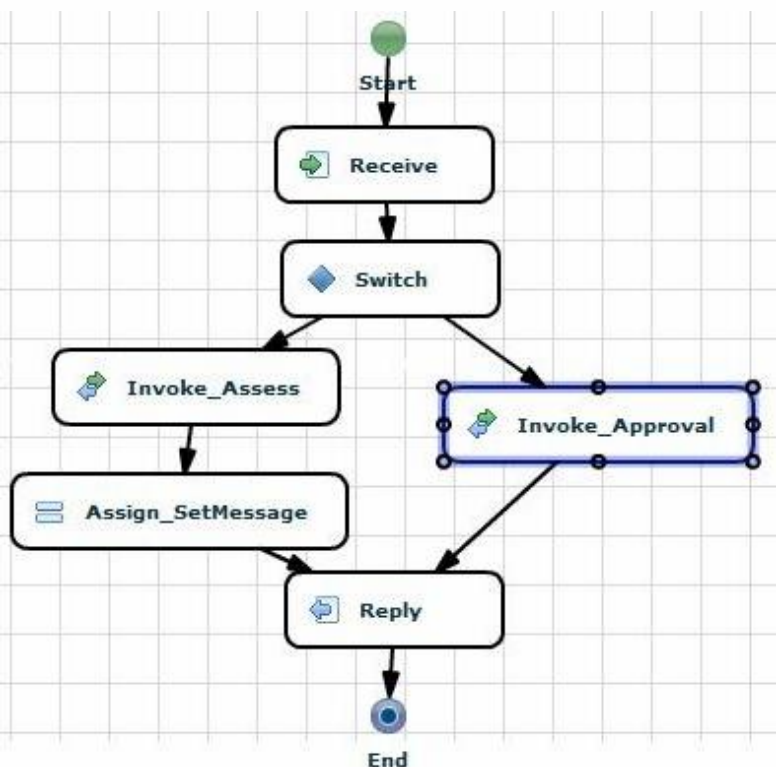


# Tasks

- **Basic:** Start, End, Activity, Switch, Link, SubProcess
- **Business:** Email, Fax, Pager, SMS, Voice
- **BPEL:** Invoke, Receive, Reply, Wait, Assign



# Generate BPEL



```
<process name="Process" targetNamespace="" xmlns="http://docs.oasis-open.org/wsbpel/2.0/process/executable">
  <partnerLinks>
    <partnerLink name=""/>
  </partnerLinks>
  <variables>
    <variable name=""/>
  </variables>
  <sequence>
    <receive name="Receive_2" partnerLink="customer" operation="request"
      variable="request" createInstance="yes" suppressJoinFailure="null"/>
    <flow>
      <links>
        <link name="Switch_3toInvoke_Approval_6"/>
        <link name="Switch_3toInvoke_Assess_4"/>
        <link name="Invoke_Approval_6toReply_7"/>
        <link name="Invoke_Assess_4toAssign_SetMessage_5"/>
        <link name="Assign_SetMessage_5toReply_7"/>
      </links>
      <empty>
        <source linkName="Switch_3toInvoke_Approval_6" transitionCondition="
        <source linkName="Switch_3toInvoke_Assess_4" transitionCondition="
```



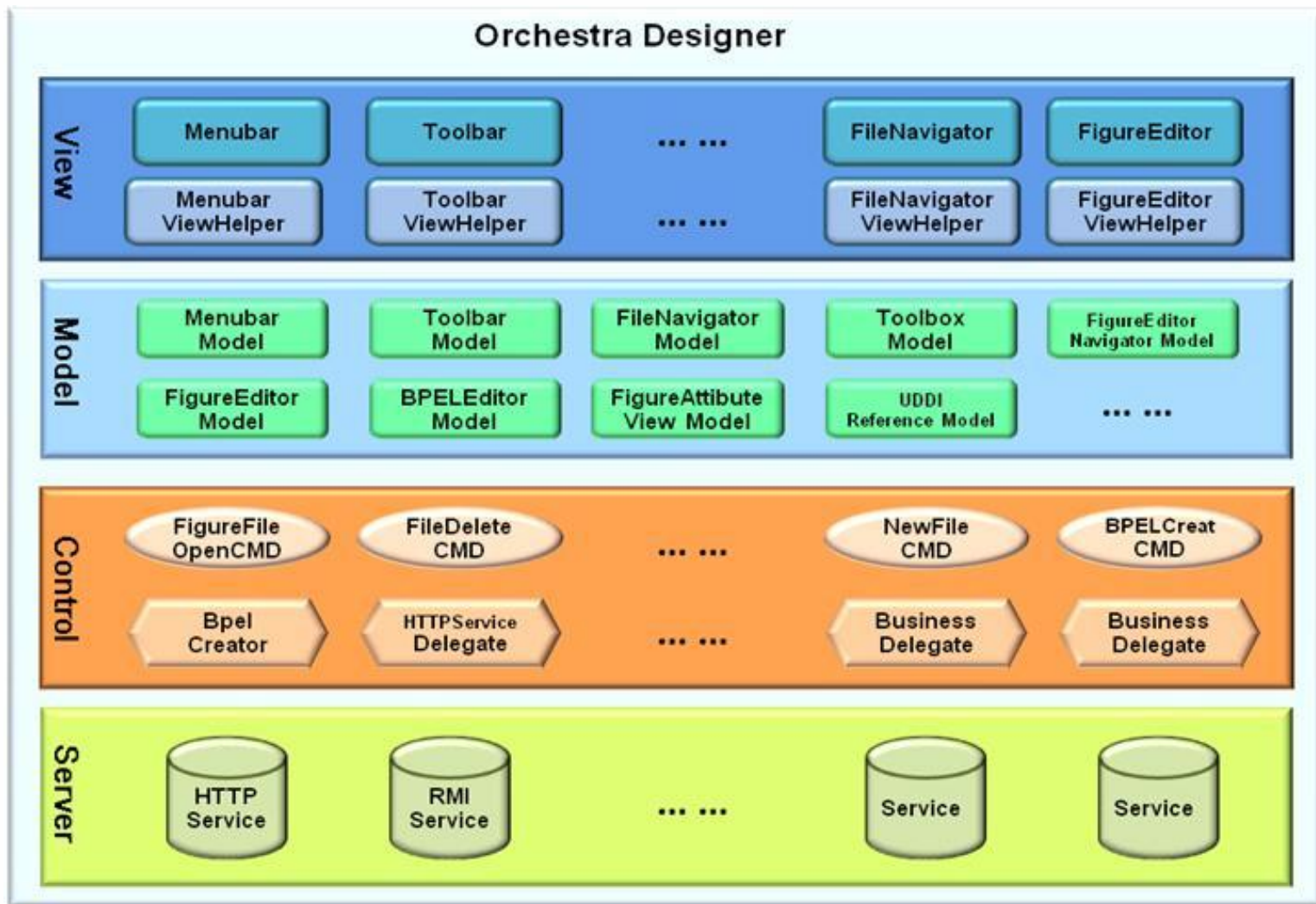
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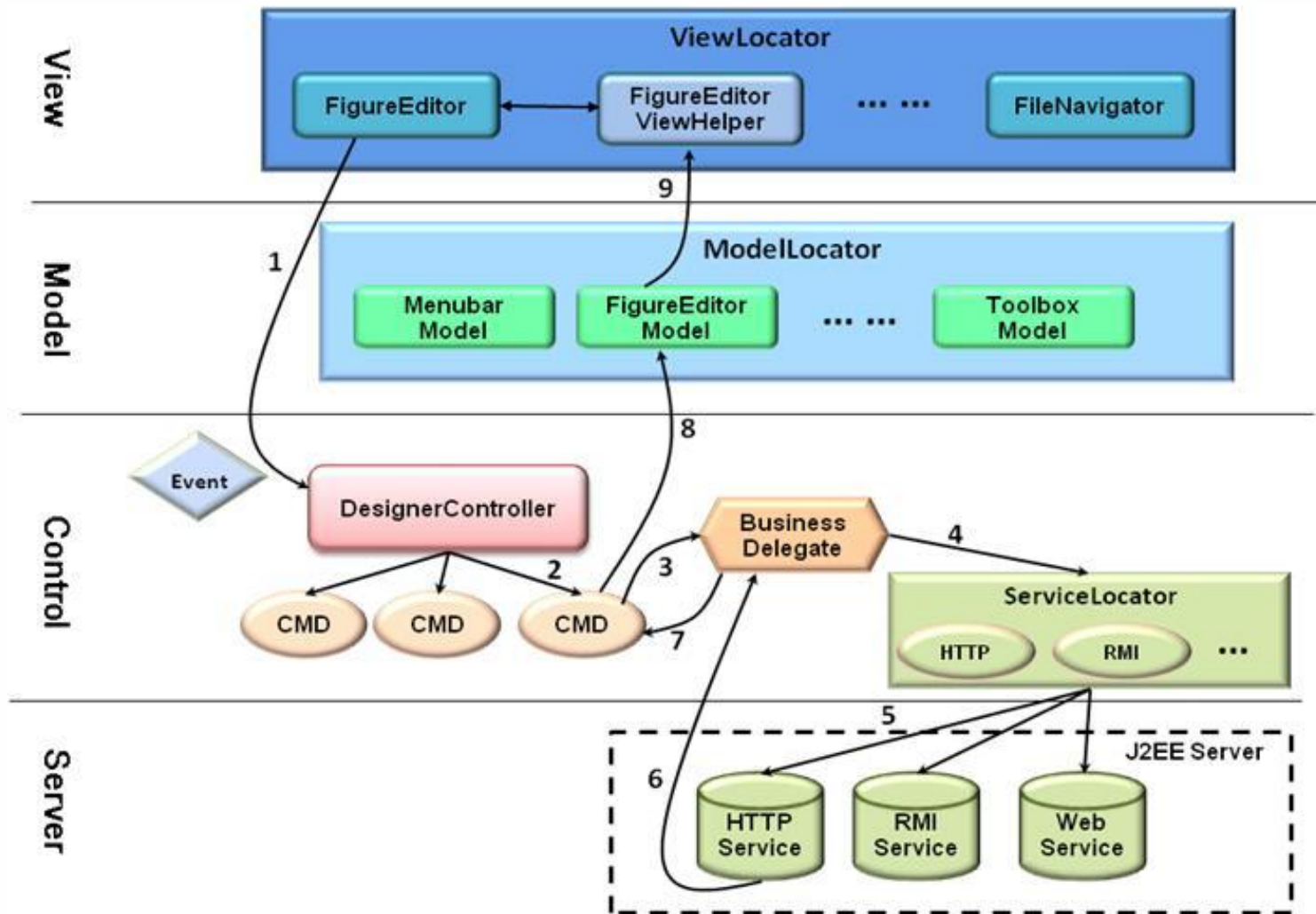


# Architecture





# Interaction





# GUI

Orchestra Designer (<http://www.trustie.net/projects/project/show/OrchestraDesigner>)

File Edit BPEL Help

Loan Approval.xml

```

    graph TD
      Start((Start)) --> Receive([Receive])
      Receive --> Switch{Switch}
      Switch -- "getVariableData < 10000" --> Invoke_Assess([Invoke_Assess])
      Switch -- "getVariableData >= 10000" --> Invoke_Approval([Invoke_Approval])
      Invoke_Assess --> Assign_SetMessage[Assign_SetMessage]
      Invoke_Approval --> Reply([Reply])
      Assign_SetMessage --> Reply
      Reply --> End((End))
  
```

Navigator

- Examples
  - examples
    - Loan Approval

Palette

- Basic
  - Start
  - End
  - Activity
  - Switch
  - Link
  - SubProcess
- Business
- BPEL

UDDI

Service Name	Service Location
TestWS	http://localhost/TestW
ResourceSe	http://localhost/Resou

Properties

Property	Value

Graphic | BPEL



# Outline

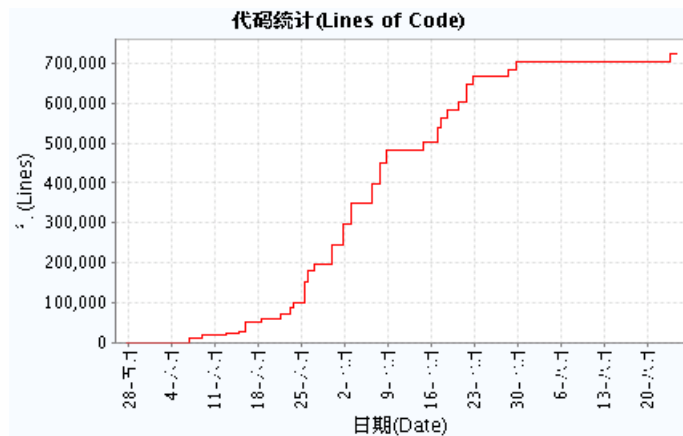
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# Development

- **Duration:** 4 months (from May to August)
- **Team:** 1 manager, 6 developers
- **Communication:** 15 meetings (2 on network)
- **Program:** 34 versions (5 official, 29 internal)
- **Code:** 12,000 lines (latest version), 700,000 lines (total)
- **Documents:** architecture, API, test cases, test reports, user manuals...
- **Download:** 857 (before September 16)



Download Most More>>

TrustieIM	8017
PolyFlow	1682
OrchestraDesigner	857
PKUModeler	448
exvantage	234
GrandHotel	163
Trustie-SPLIF	156
BundleMonitor	78
tBuilder	70



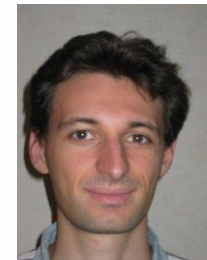
# Team Members



left to right: Yin Yiwei, Li Kexin, Li Zhuqing, Sun Dou, Lu Yue, Zou Jianing



Goulven Le Jeune



Guillaume Porcher



Guillaume Renault

# Website

<http://www.trustie.net/projects/project/show/OrchestraDesigner>



可信的国家软件资源  
共享与协同生产环境

Overview | Screenshots | Download | News | Wiki | Issues | Code | Forum | Maillist

## Orchestra Designer

### Introduction

#### -English

- Introduction
- Architecture Guide
- Class Design
- User's Guide
- Demo
- ScreenShots
- Download
- SVN Repository
- News
- Mailing Lists
- Bugs
- Forum

#### -中文

- 项目介绍
- 体系架构介绍
- 类层次设计
- 用户手册
- 场景演示
- 截图
- 程序下载
- SVN代码库
- 新闻
- 邮件列表
- 缺陷库
- 论坛

**Orchestra Designer** is an open source project from "Web 2.0 BPM editor" topic of 2009 OW2 Programming Contest. The objective of this project is to build an online workflow designer that generates BPEL processes. Those processes can be accepted by Orchestra, which is an open source BPEL engine released on OW2 platform. The designer is developed on Flex, targeted to non technical people and provides a more business-oriented functional view of the process than pure BPEL view.

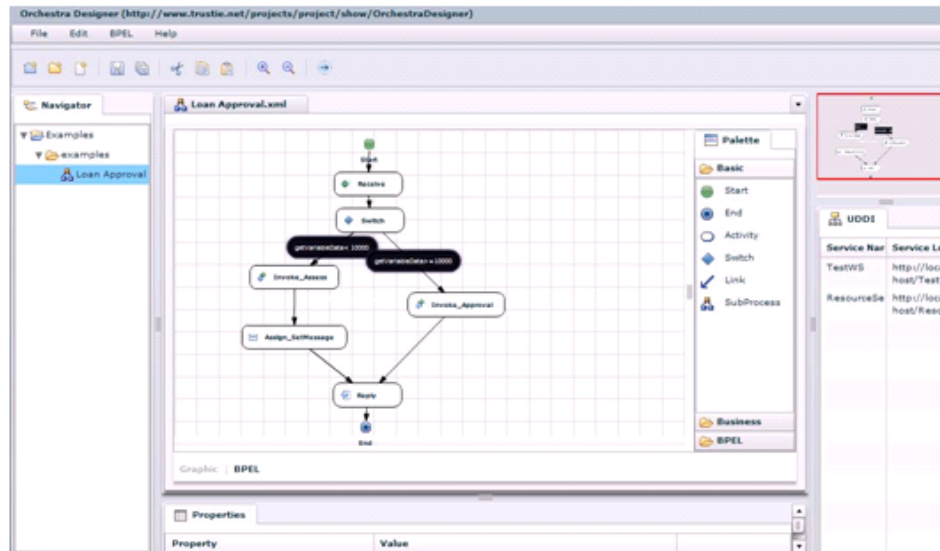


Figure 1 Graphical View

### 首页

Last Modify by: SunDou  
LastUpdate at: 2009-8-23  
14:52:28  
Version 2.26

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- [首页](#)
- [新闻](#)

### Wiki

Start Page  
Sort By Title  
Sort By Date



# First Prize

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# Future Work

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- Integrating it into the web 2.0 **console** of Orchestra
- Optimizing the **mapping** from graph to BPEL code
- Adding more **domain tasks** for scientific workflows
- Implementing the **collaborative design** among users
- Applying it to some **real projects** in China
- ... ..



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A wide-angle photograph of a university campus. A paved path made of rectangular stones leads from the foreground into the distance. The path is flanked by a lush green lawn. On either side of the path, there are numerous tall, mature trees with dense green foliage. In the background, several black lampposts with white globe lights are visible. The sky is bright, and the sun is shining from the left, creating a lens flare effect. The overall atmosphere is peaceful and well-maintained.

Thanks!