

Service4All: A Service Cloud Platform

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Agenda



OW2 COSW12

- Project motivation
- Design of Service4All
- The state of the art
- Demo with screenshots

About “SERVICE”



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- A prevalent term in Today's IT world
 - ◆ IaaS, PaaS, SaaS, DaaS, MaaS
- Help people access to certain functions without knowing too much technical details.
E.g:
 - ◆ Developers: easy invocation of reusable functions and use of tools
 - ◆ Deployers: easy obtaining runtime support and simple installation
 - ◆ End users: comfortable tools and process to complete their tasks

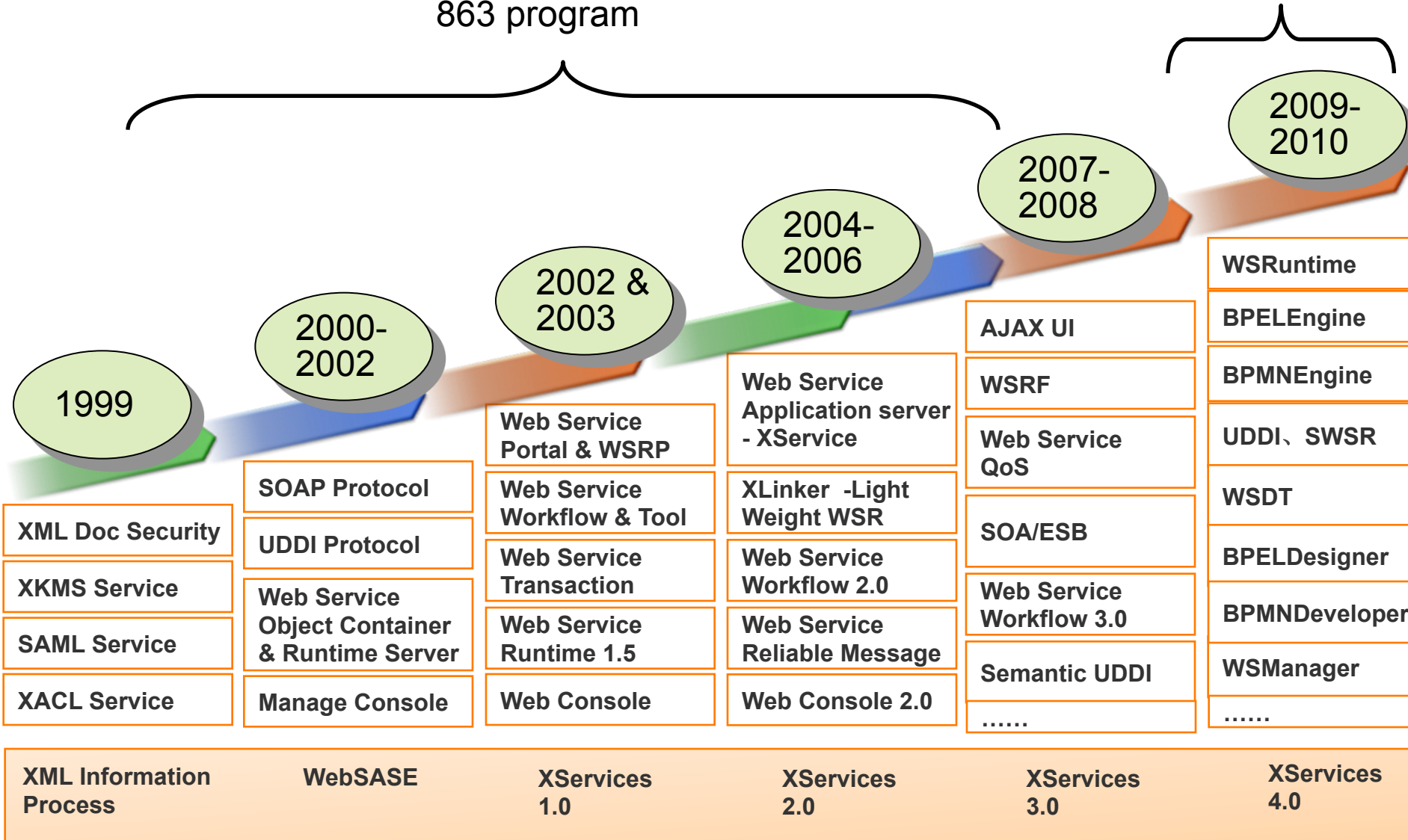
We have been doing services for a long time



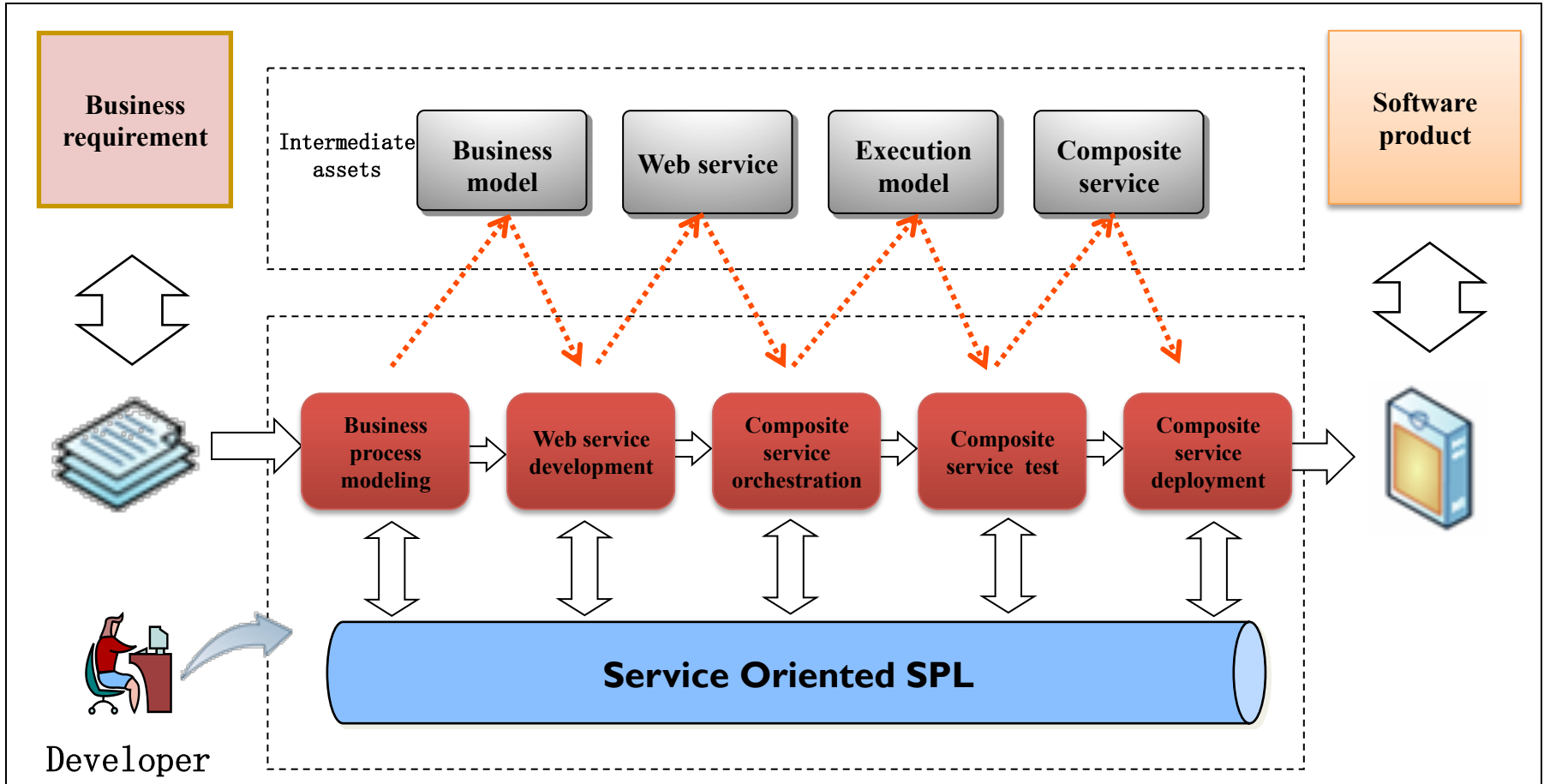
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HGJ program

863 program



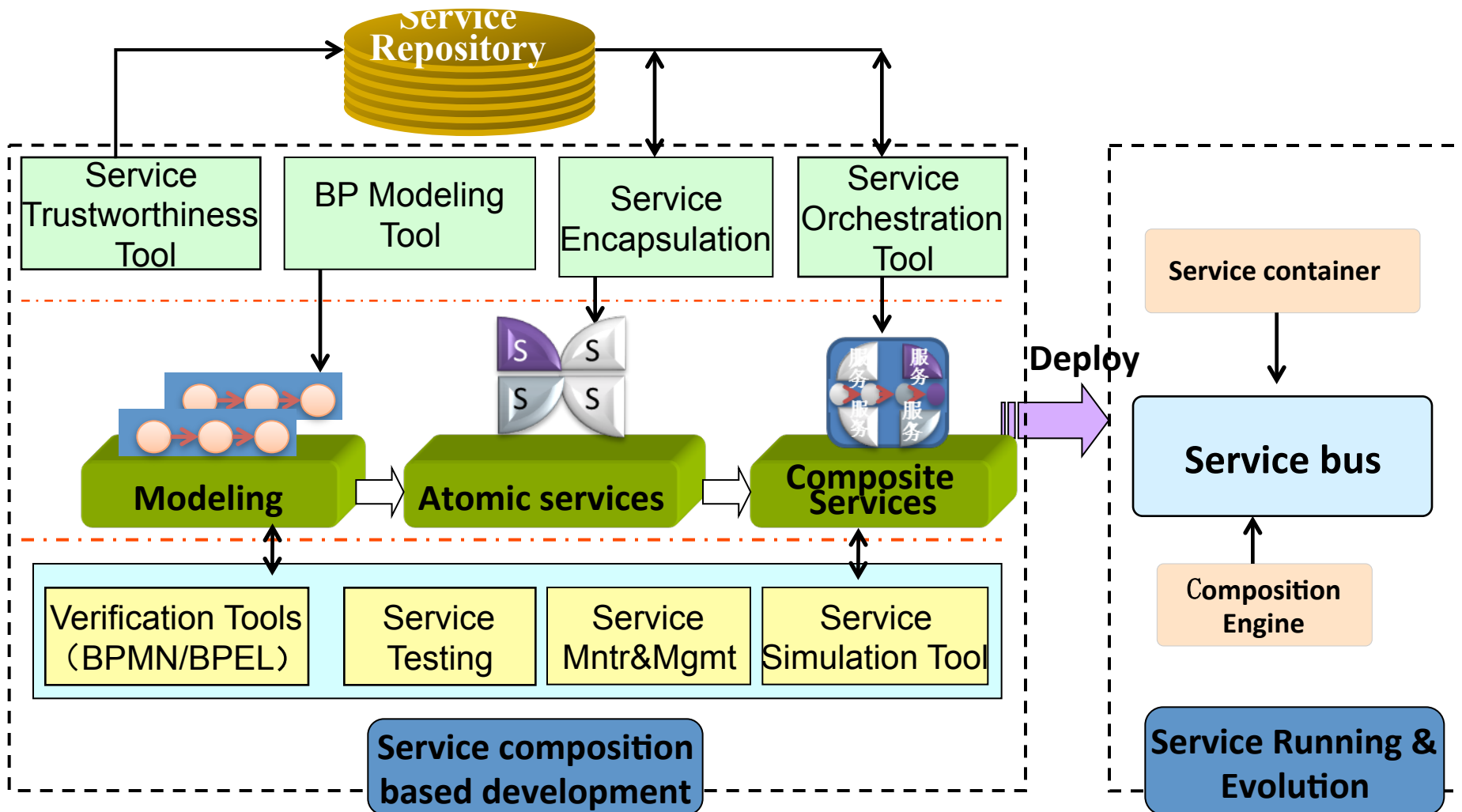
Service oriented software production line



Service oriented SPL



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Three aspects concerned



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■ Development

- ◆ Service resource management
- ◆ Service composition

■ Deployment

- ◆ Deploy service-oriented applications onto supporting middleware

■ Runtime

- ◆ Runtime middleware
- ◆ Dealing with changes



- Prior work focusing on how to implement “service-oriented software development”
 - ◆ Modeling
 - ◆ Composition
 - ◆ Dynamic evolution
- Less concern about the PROCESS of implementing service-oriented solutions.
- What can “SERVICE” bring to this PROCESS?
 - ◆ E.g further improve the development productivity and service quality



■ Tools

- ◆ Business process modeler
- ◆ Service composition tool
- ◆ Verification and test tool
- ◆ Service deployment tool
- ◆ Monitoring tool

■ Middleware

- ◆ Service container
- ◆ Composite service execution engine (workflow engine)
- ◆ Service bus



- The extra work for developers
 - ◆ Install and configure various development tools
 - ◆ Install and configure runtime supporting middleware
 - ◆ Obtain and maintain underlying resources
 - **Machines**
 - **Networks**
- They should focus on “development”.



- Online application development
 - ◆ Browser-based IDE
 - ◆ Business process centric development
 - ◆ Online sharing of software services
- Transparent deployment and running
 - ◆ Similar to Google AppEngine



- Provide full-fledged support for service-oriented software development
- Lower the burden of development, deployment and runtime support
- Improve development productivity and guarantee service quality



- Individual developers
 - ◆ Build applications and provide services online
- Corporate developers
 - ◆ Integrate Service4All with private clouds to build a develop environment
- Service providers
 - ◆ Deploy their services to Service4All
- End users
 - ◆ Consume the application services provided by Service4All

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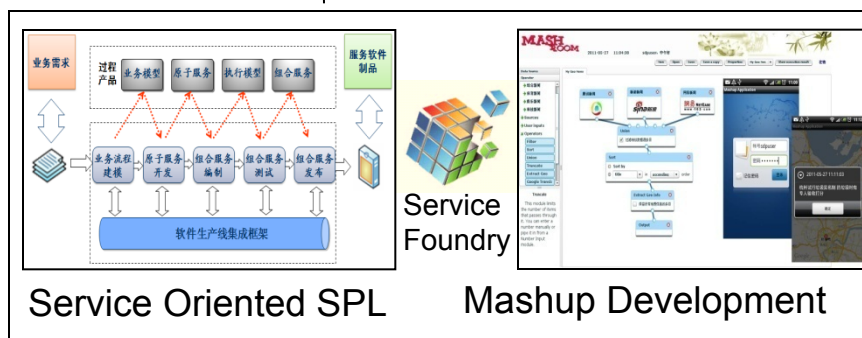
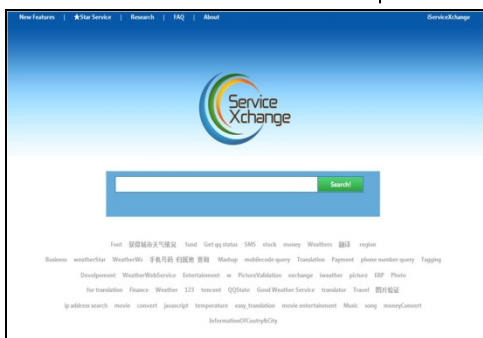


Application services



SaaS

Service oriented software development



PaaS

ServiceXchange

Service Foundry

Atomic Service API

Composite Service API

Runtime API

Data API



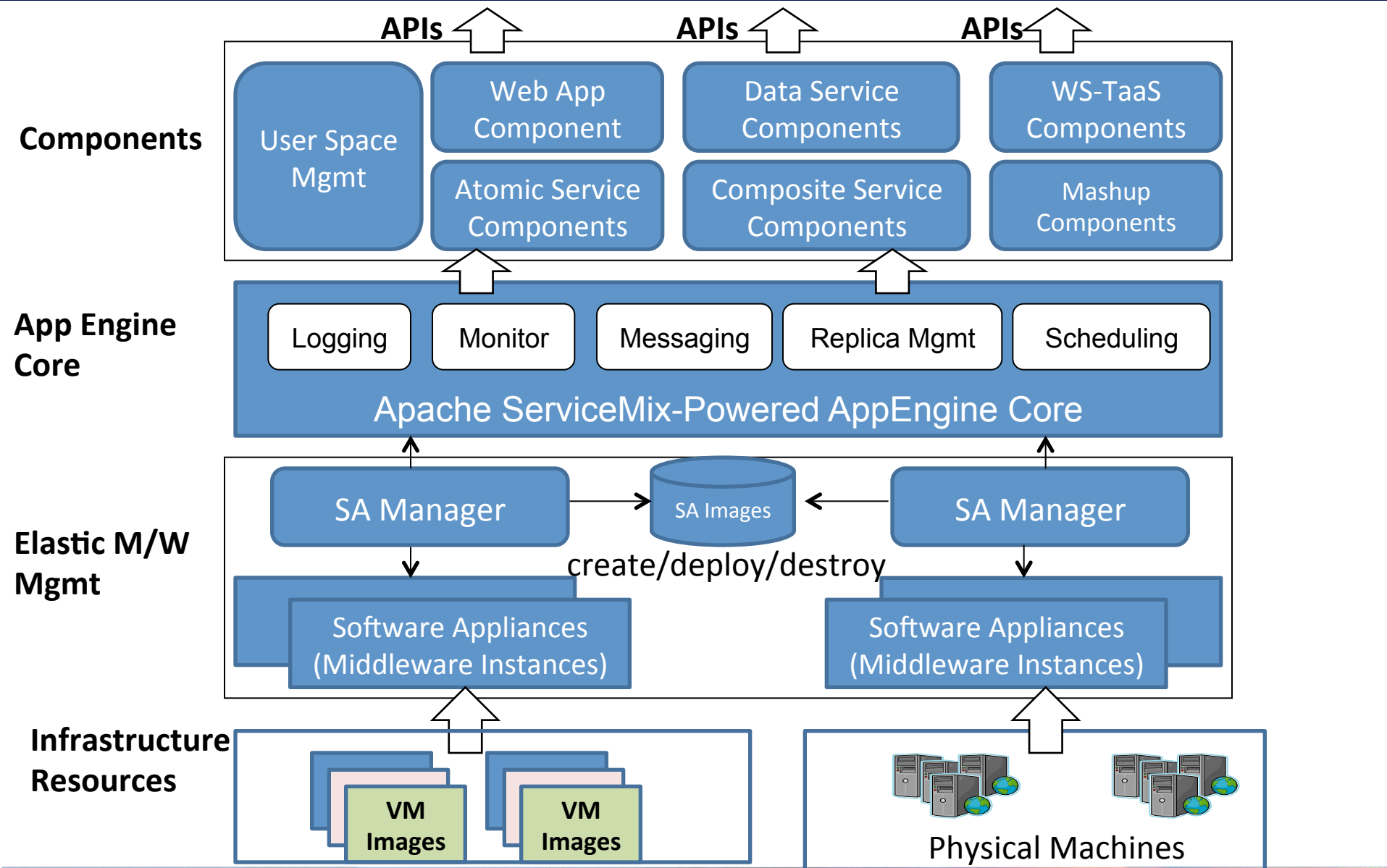
Service-oriented App Engine

Infrastructural resource layer

Architecture of Service Oriented App Engine



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Why elastic M/W management?



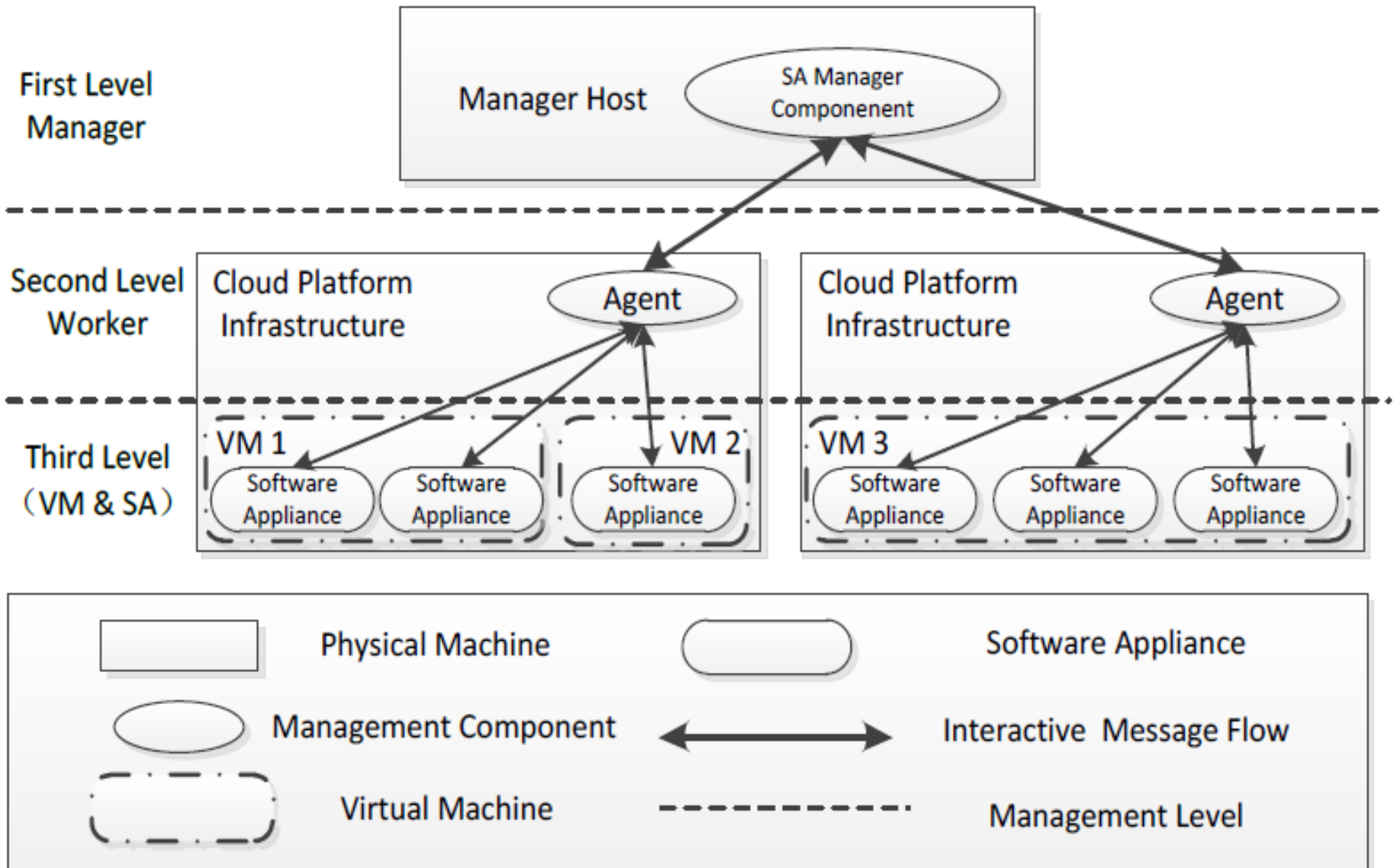
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- Unused middleware costs VM/PM resources like memory
- Binding irrelevant M/W with a VM can increase booting time
- Support multiple M/Ws running on a single VM so as to improve resource utilization

SA Management



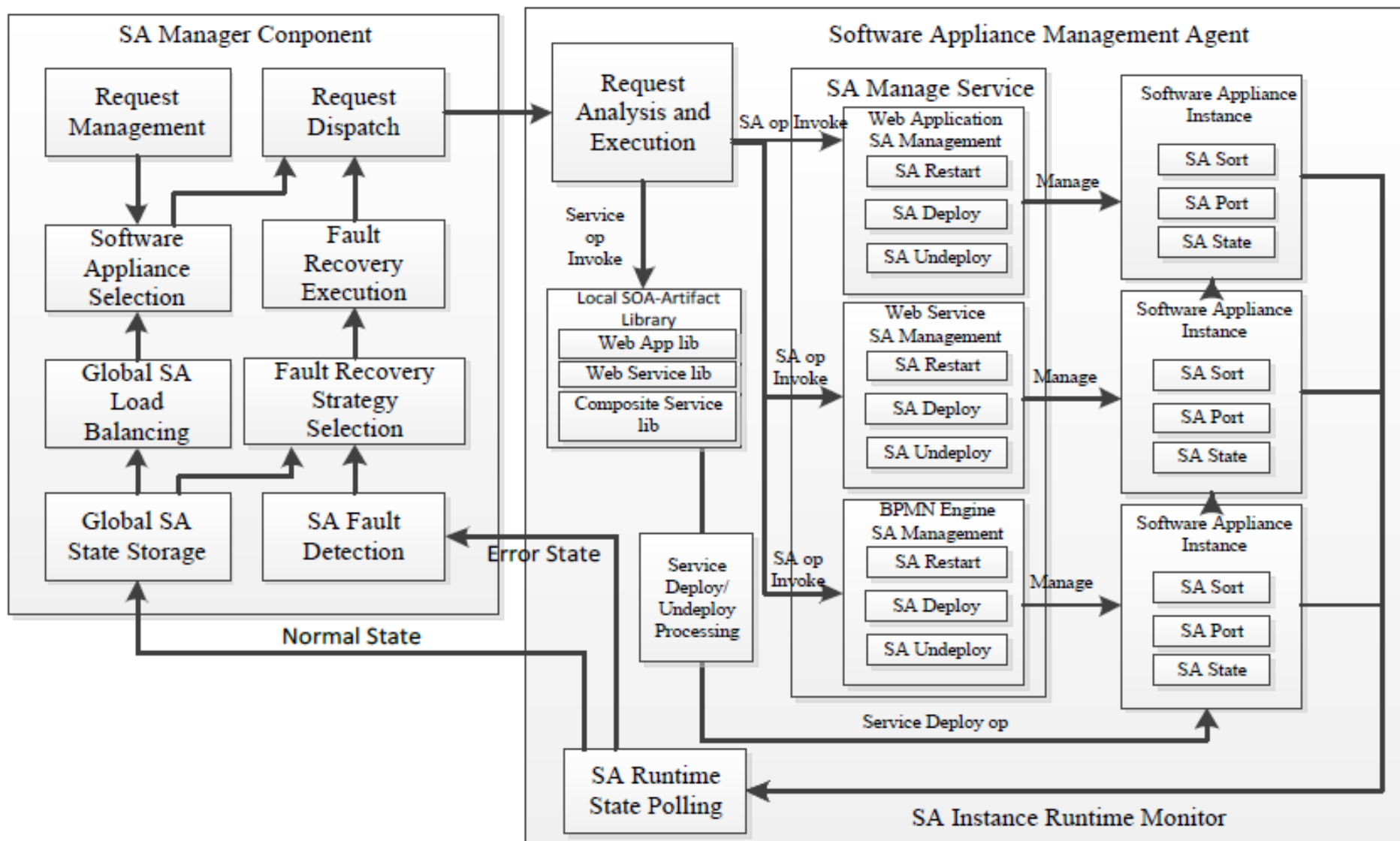
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Design of SA Manager



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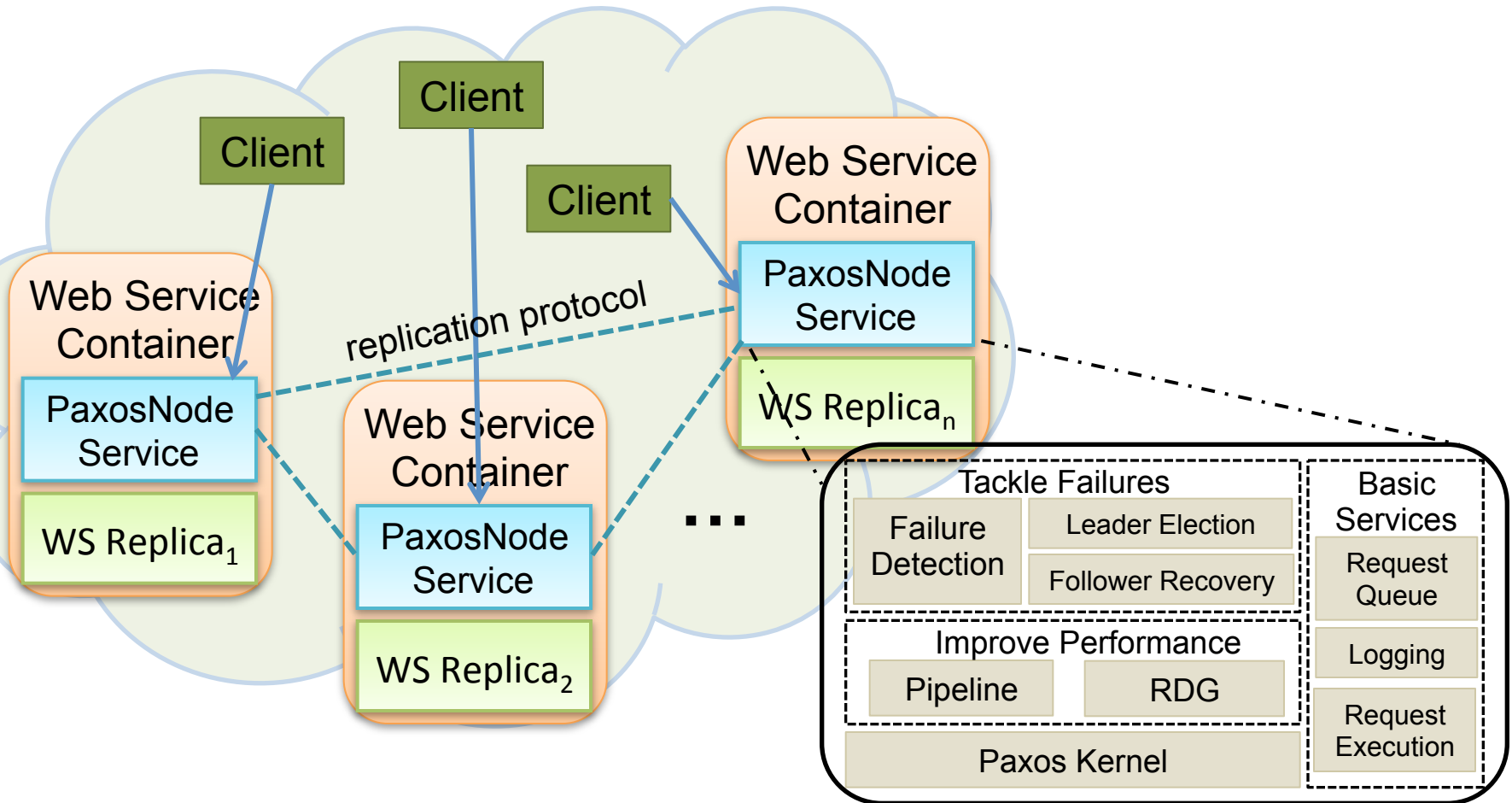


Paxos-based Replication Framework



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Availability v.s. Consistency



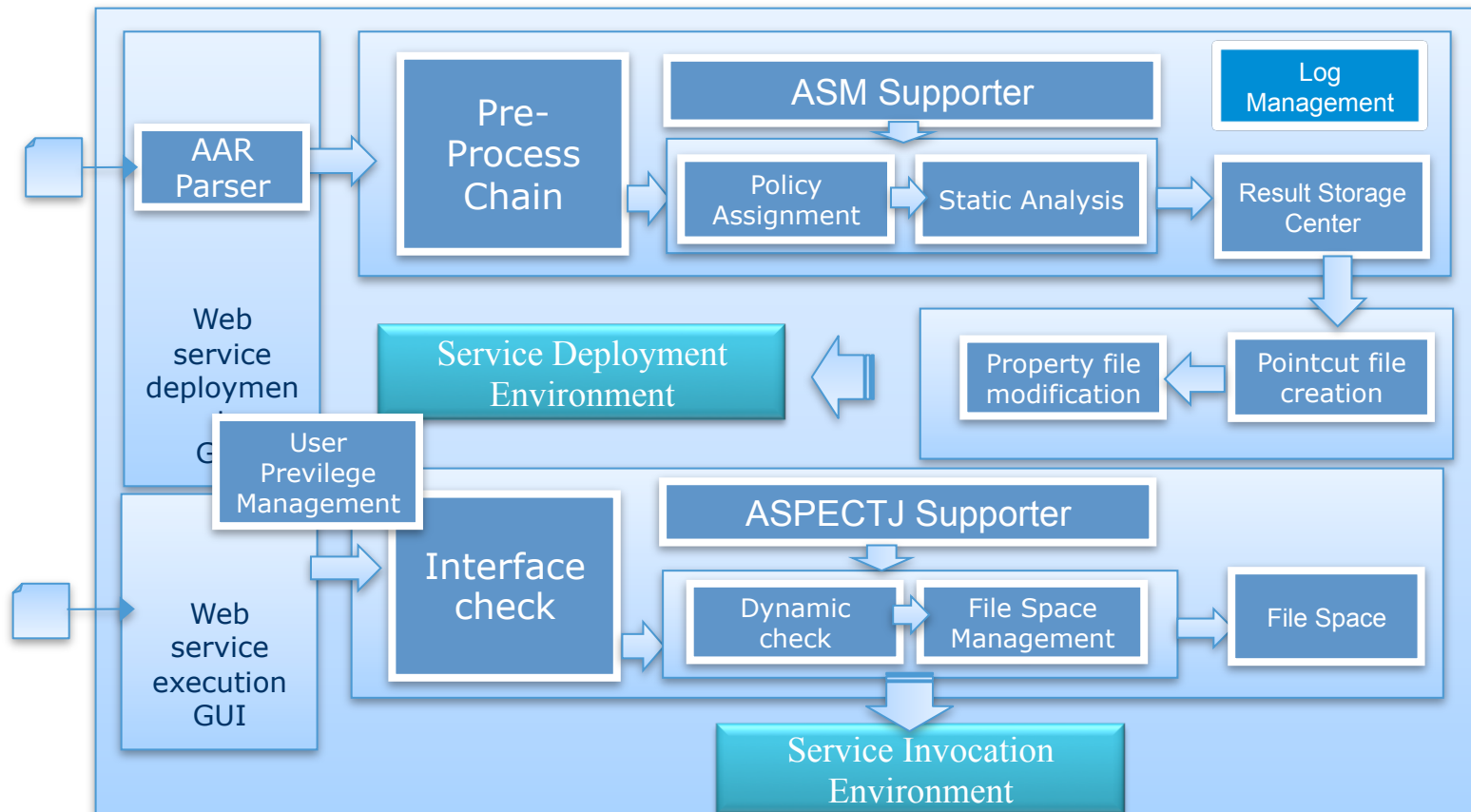
Sanbox-based service container



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❖ **Safe deployment**

❖ **Safe execution**

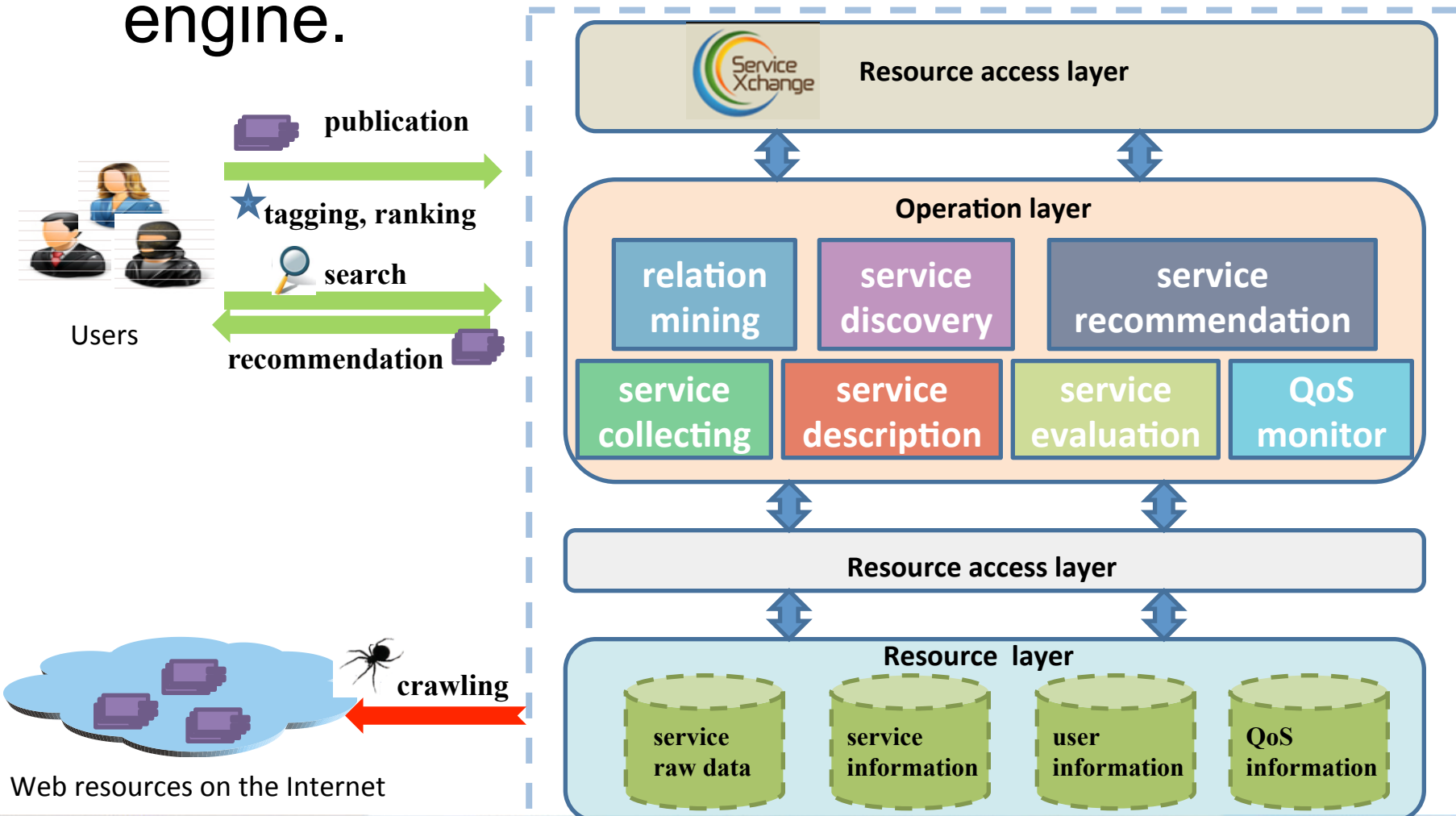


ServiceXchange



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- A service repository and service search engine.



Main problems



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- how to automatically identify and collect?
- too few descriptions

collecting
and
description

services

monitoring
and
evaluation

- non-functional description
- the dynamic nature of the web

recommendation
and
discovery

analysis
and
mining

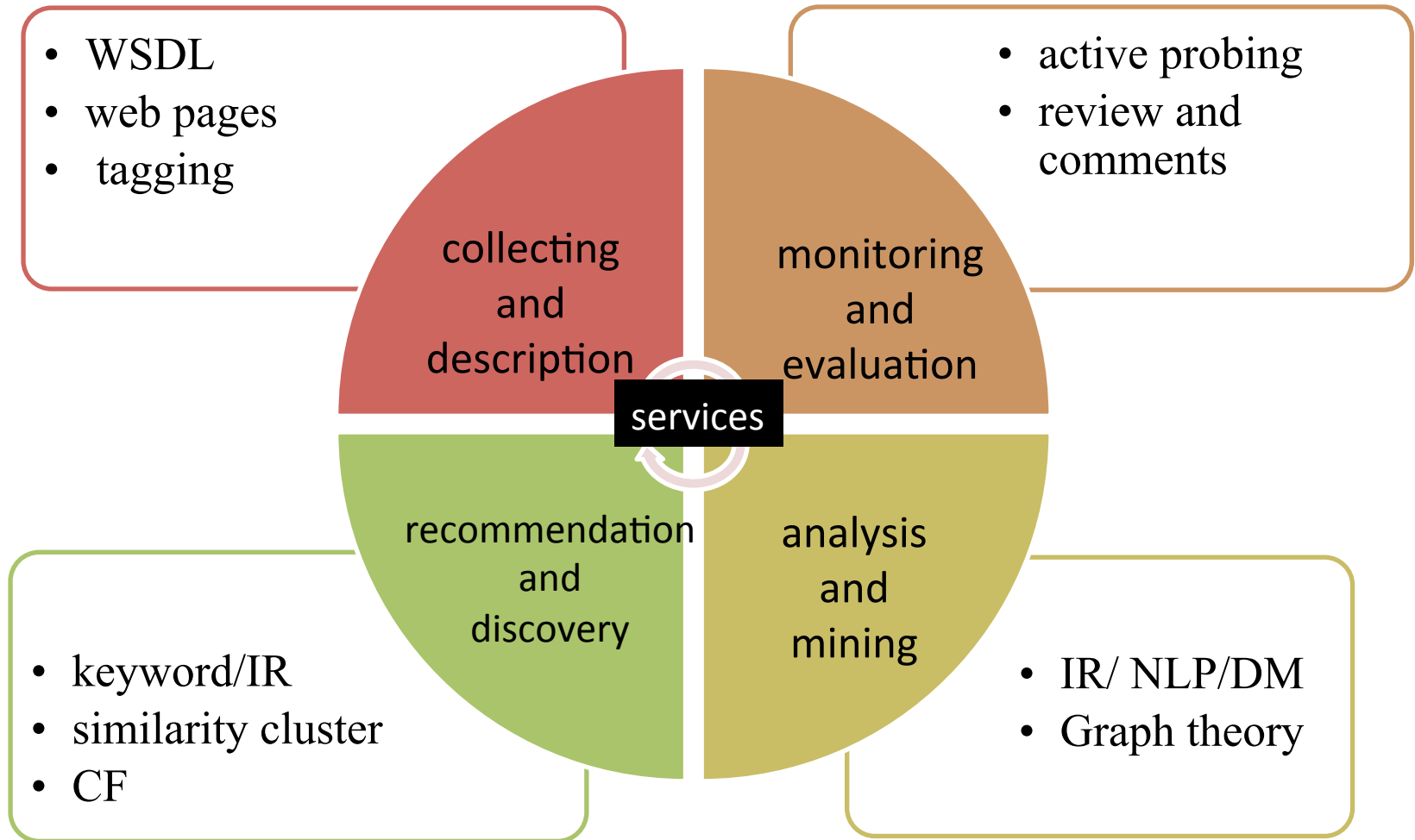
- return too many/few
- understand users' requirement and the context

- support service consumption
- category, relation, compositability

Main approaches



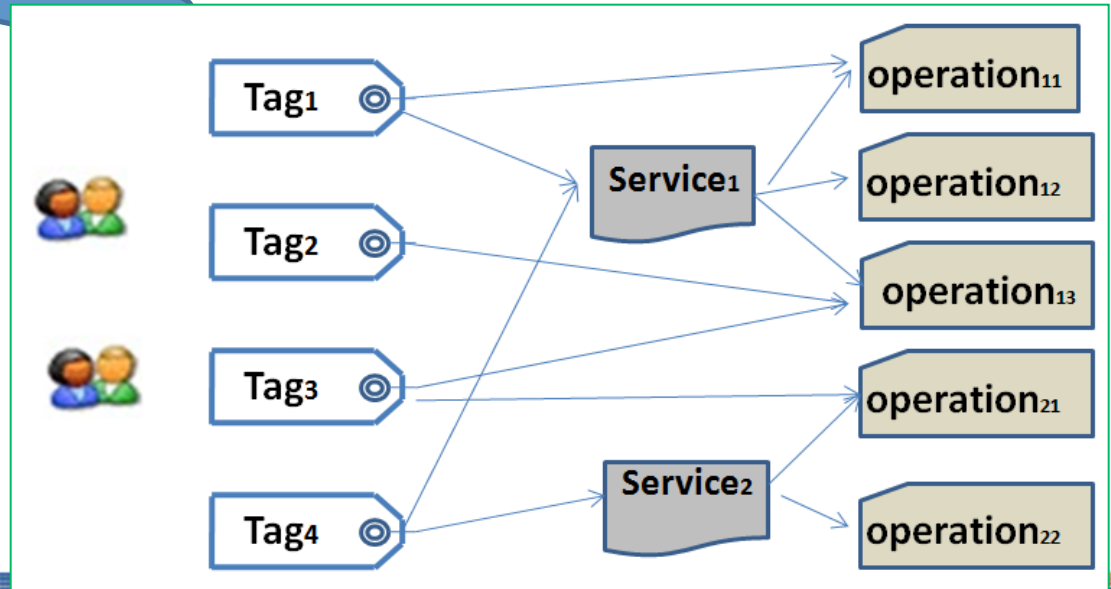
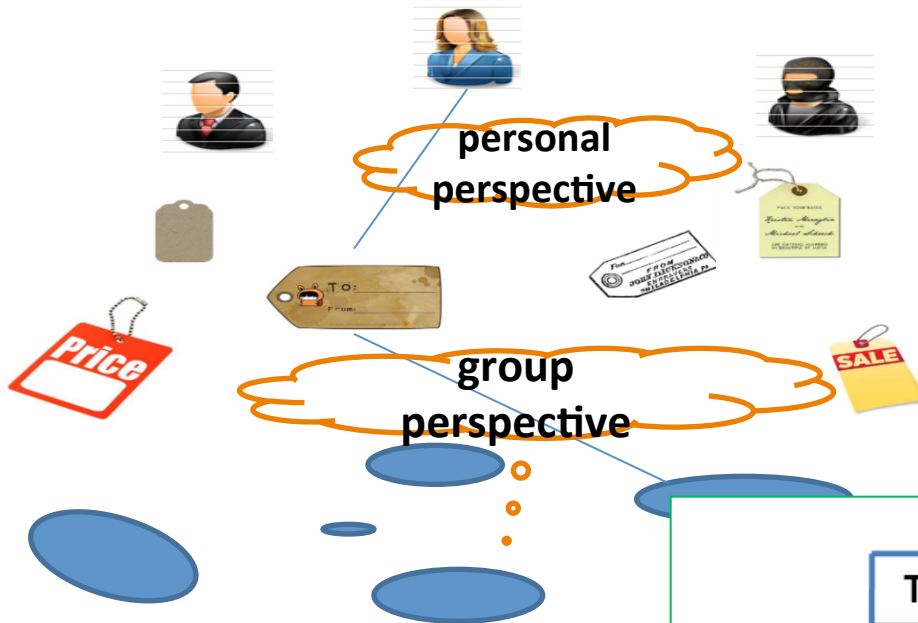
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Social description: tag



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Website snapshots



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New Features | ★Star Service | Research | FAQ | About iServiceXchange

Service Xchange

Search!

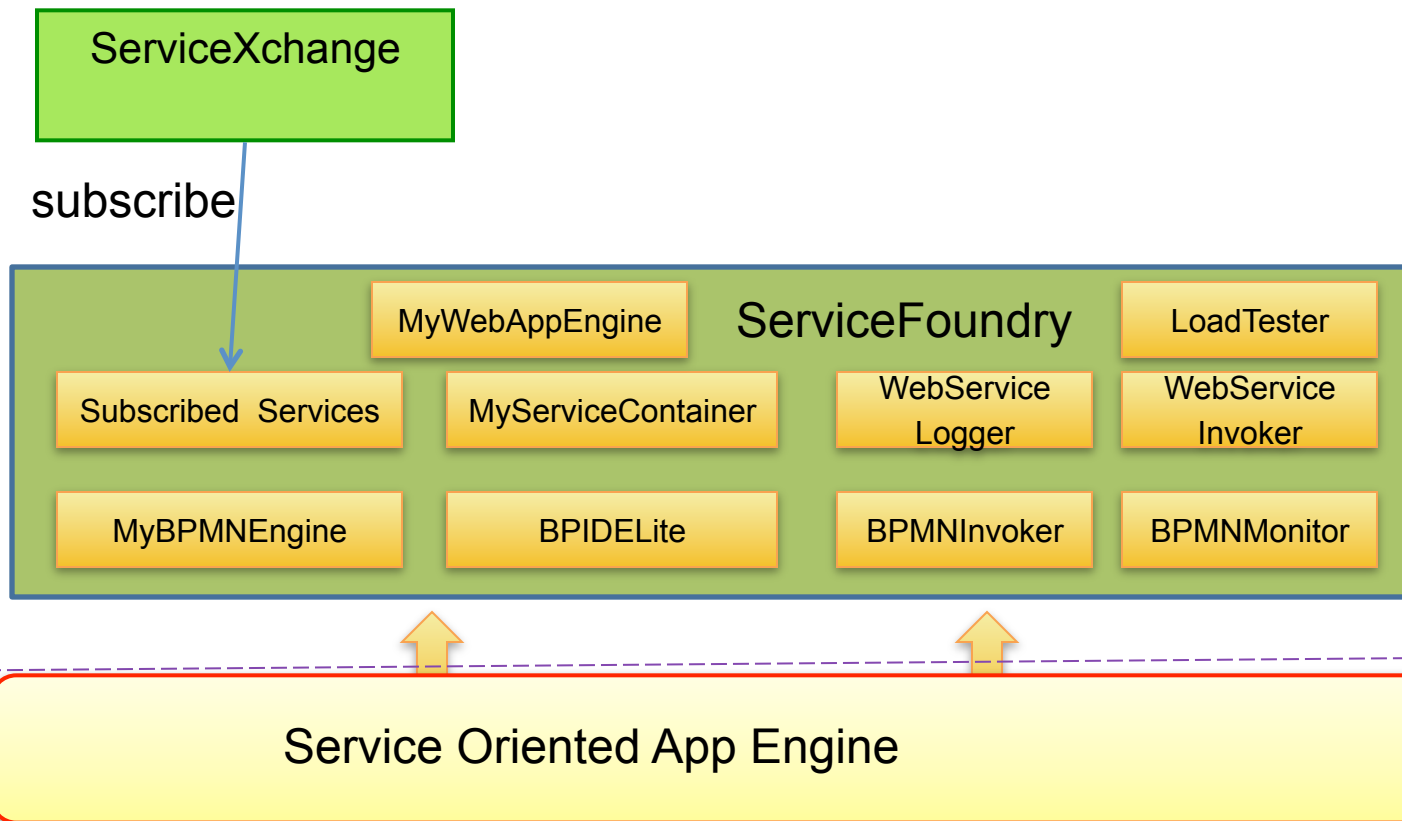
New Features | ★Star Service | Research | FAQ | About zilin | iServiceXchange | Sign out

Service: WeatherWS Tag it | Add to favorites

Overview	Functionality	Non-functionality	Reputation
This service has rating below:			
User's Rating : ★★★★★			
User's Comment :			
<input type="text"/>			submit

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■ Online development environment



BP based service oriented Development



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Service Foundry

Home MyServiceContainer MyBPMNEngine MyWebAppEngine BPIDELite SubscribedServices SubscribedBPMN MyLoadTester

Invoke

- you can invoke the selected service
- then you can enter the needed parameter to test this service
- the system may return the result of your test

Remove

- you can remove the service from the this service container

Description

- you can click the "WSDL file" to see the details of the WSDL file

Service Name: Alert
Service ID: WS_2581
Description: WSDL file
Details: Log Info

Service Name: confirmservice
Service ID: WS_2582
Description: WSDL file
Details: Log Info

Service Name: CreateOrderService
Service ID: WS_2583

Virtual service container

Service Foundry

Home MyServiceContainer MyBPMNEngine MyWebAppEngine BPIDELite SubscribedServices SubscribedBPMN MyLoadTester

estore

goodName:String: thinking in java
orderId:String: jinf
userName:String: jinf
password:String: jinf

submit monitor result=true

Refresh per 2 Seconds

start findproduct returnresult gateway1 Row4 order charge confirm

paramName	paramType	paramValue
goodName	String	thinking in java
goodPrice	String	64.99
orderId	String	

Online testing

BPIDELITE v1.0

File Edit Tool Window Help

Navigator

estore

start findproduct returnresult gateway1 Row4 receiverorder charge confirm

searchrequest searchresult gateway3 Row7

Modeling and composition

Service Foundry

Home Deployments Tools Resources

Use Now

- use this BPMN file to test its feasibility
- then you should fill some parameters into a form, after that, you can observe the executing process with an online monitor

Remove

- you can remove the BPMN file from the the BpmnEngine

Publish

- publish the fixed Bpmn file

BpmnName: estore
Bpmn ID: BPMN_1963
Description: BPMN file

Use Now Remove

Virtual composite service engine

Mashup-based development



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2011-05-27 11:04:38 sdpuser, 中午好

New Open Save Save a copy

Data Source

Operator

- 综合新闻
- 体育新闻
- 娱乐新闻
- 科技新闻

Sources

User inputs

Operators

- Filter
- Sort
- Union
- Truncate
- Extract Geo
- Google Transl



Truncate

This module limits the number of items that passes through it. You can enter a number manually or pipe it in from a Number Input module.

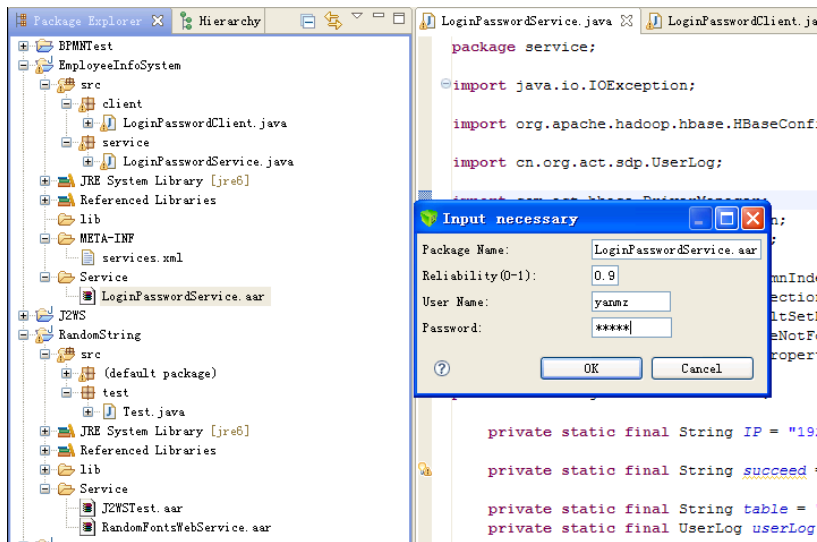
The screenshot shows a mobile application interface with a map of Hangzhou. A notification box is overlaid on the map, displaying the following information:

- Time: 2011-05-27 11:11:03
- Text: 杭州试行垃圾实名制 扔垃圾时有专人验收打分 (Hangzhou trials garbage real-name system. When throwing garbage, there are special personnel for acceptance and scoring.)
- Button: 确定 (Confirm)

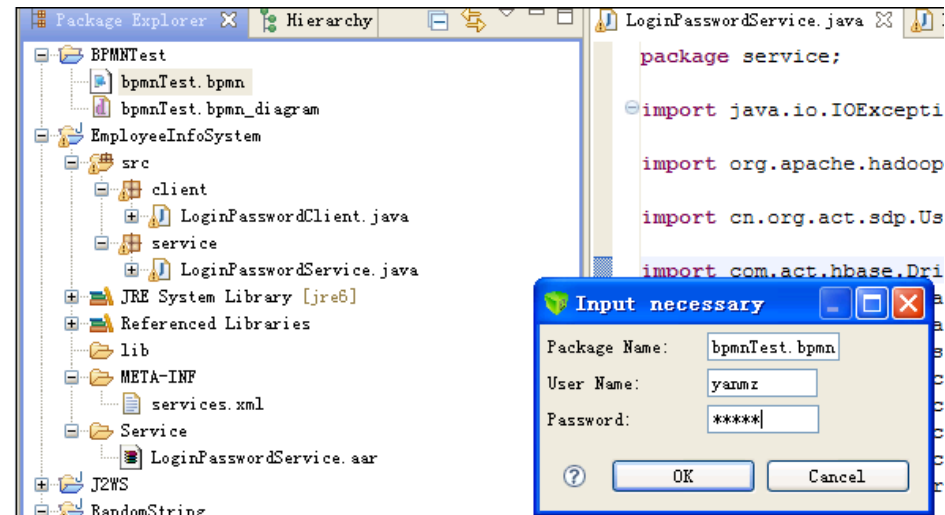


Deployment4BPIDE Plugin

- ◆ .aar and .bpmn can be deployed remotely to App Engine



Atomic service



Composite service

Agenda



OW2 COSW12

- Motivation
- Existing work
- The state of the art
- Demo with screenshots

The state of the art



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- Open-sourced at OW2 in 2012
 - ◆ LGPL V3.0
- Two topics in OW2 programming contests
 - ◆ Both with a second prize
- Deployed on Shahe Campus of Beihang
 - ◆ Internal WAN network
 - ◆ Un-accessible from outside
- Successfully used in a joint project with Peking Univ., Digital China, Nanjing Univ. and Fudan Univ.

Service4All



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Date: Wed Oct

南大西洋 (South Atlantic)

Date: Thu Jan 12 15:57:27 CST 2012 Idle: ■ Normal: ■ Busy: ■

Host主机-0	CPU: 1.0%	Memory: 77.592M
容器	Id: axis2_http://192.168.7.166:5000	Type: axis2
容器	Id: bpmnengine_http://192.168.7.166:5003	Type: bpmnengine
Host主机-1	CPU: 1.0%	Memory: 123.768M
容器	Id: axis2_http://192.168.7.168:5000	Type: axis2
容器	Id: testengine_http://192.168.7.168:5003	Type: testengine
Host主机-2	CPU: 0.0%	Memory: 128.56M
容器	Id: axis2_http://192.168.7.169:5000	Type: axis2
Host主机-3	CPU: 1.0%	Memory: 83.328M
容器	Id: axis2_http://192.168.7.165:5003	Type: axis2
容器	Id: testengine_http://192.168.7.165:5000	Type: testengine
Host主机-4	CPU: 1.0%	Memory: 216.268M
Host主机-5	CPU: 1.0%	Memory: 224.66M
Host主机-6	CPU: 2.0%	Memory: 91.452M
容器	Id: testengine_http://192.168.7.175:5000	Type: testengine
Host主机-7	CPU: 1.0%	Memory: 241.852M
Host主机-8	CPU: 0.0%	Memory: 95.272M
容器	Id: testengine_http://192.168.7.171:5000	Type: testengine

Agenda



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Demo scenario:



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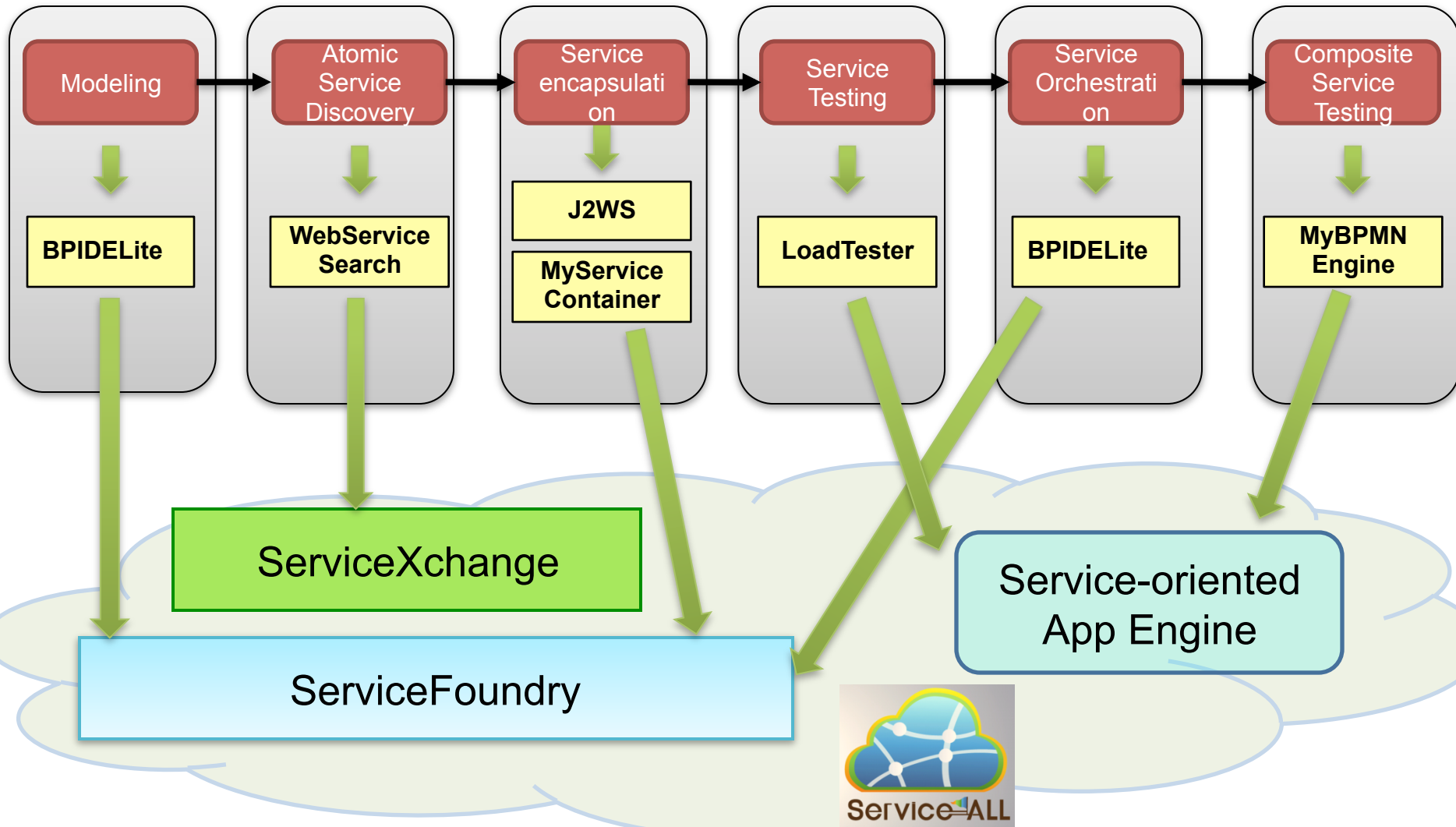
Overseas purchasing agent



Service4All



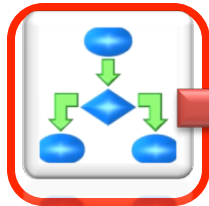
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Business process modeling



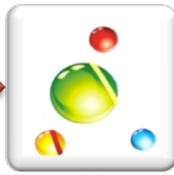
OW2 COSW12



Modeling



Atomic Service
Discovery



Service
Encapsulation



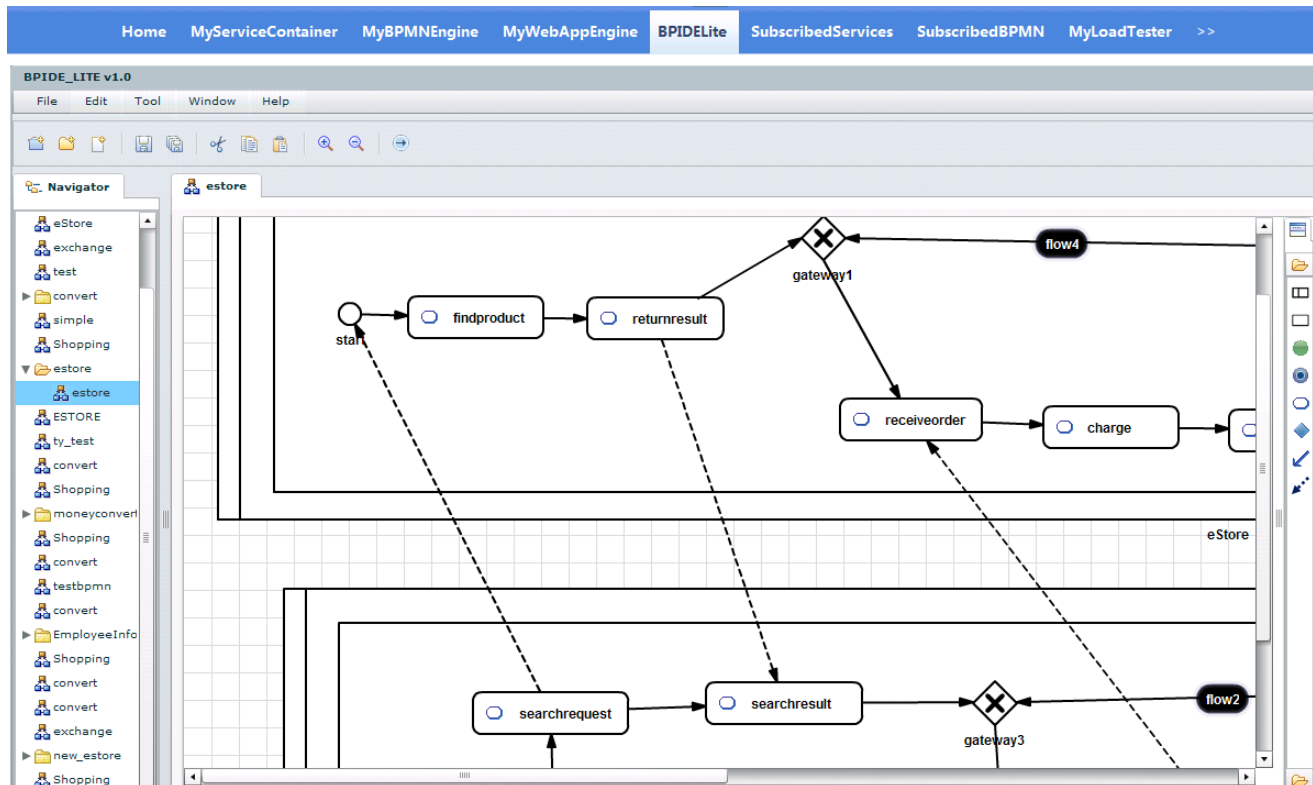
Service
Testing



Service
orchestration



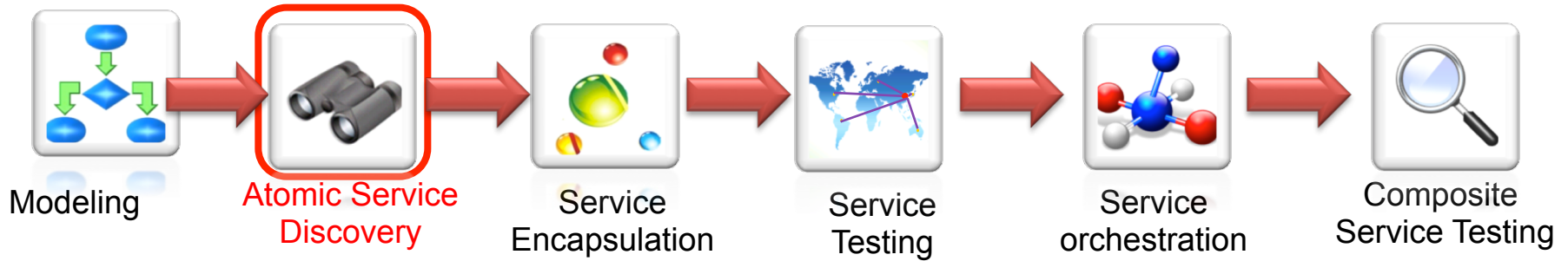
Composite
Service Testing



Component service discovery



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About 7 results

- 1
eBaySvc WSDL
Tags: No Tags
Description:
Provider:act
Source:

- eBayWatcherService** WSDL
Tags: No Tags
Description: Aktueller (fiktiver) Preis einer (fiktiven) Auktion
Provider:
Source: <http://www.hauser-wenz.de/playground/ws/eBayWatcherService.php>

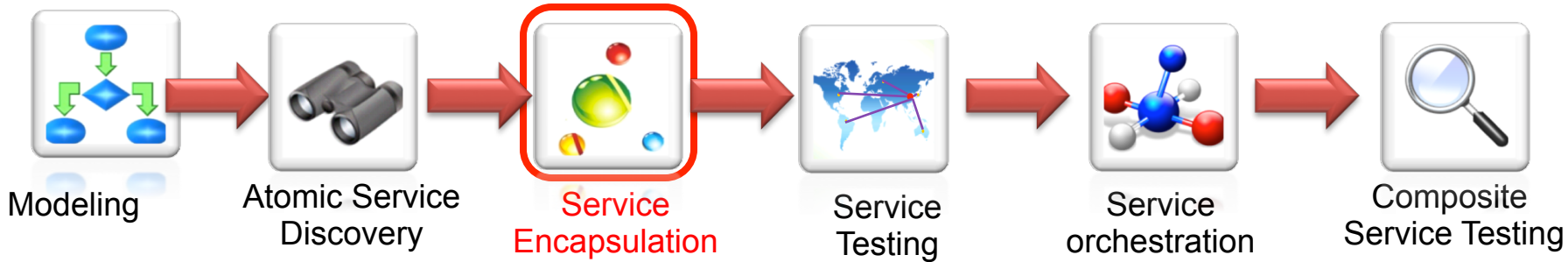
- EBayResultsServices** WSDL
Tags: No Tags
Description:
Provider:
Source: <http://www.pricespider.com/ScriptServices/EBayResults.asmx>

- eBayNotification** WSDL
Tags: No Tags
Description:
Provider:
Source: <http://www.redtagmarket.com/notify/eBayNotification.asmx>

Service encapsulation



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Saturday, March 31

ServiceFoundry

Service Foundry

MyWebAppEngine BPIDElite SubscribedServices SubscribedBPMN MyLoadTester

Invoke

- you can invoke the selected service
- then you can enter the needed parameter to test this service
- the system may return the result of your test

Remove

- you can remove the service from the this service container

Description

- you can click the "WSDL file" to see the details of the WSDL file

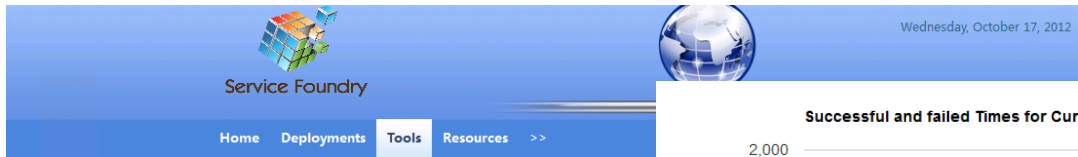
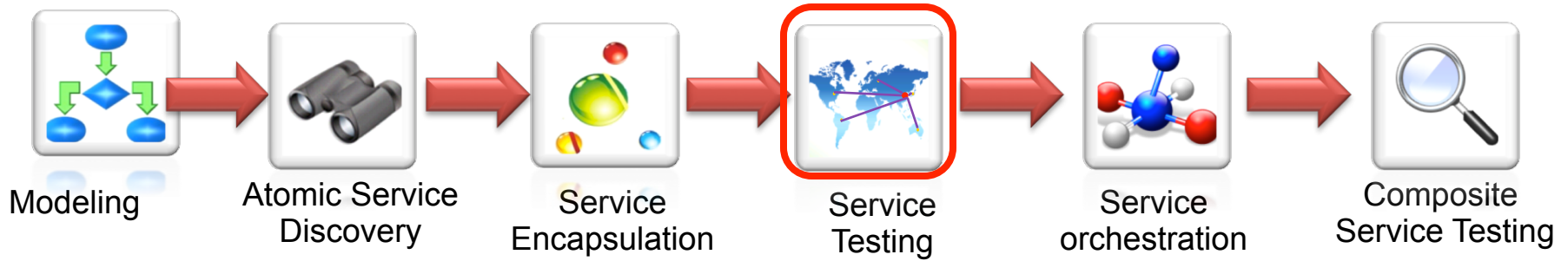
浏览... Reliability Low

Service Name: Alert
Service ID: ws_2581
Description: WSDL file
Details: Log Info

Service Name: ConfirmService
Service ID: ws_2582
Description: WSDL file
Details: Log Info

Service Name: CreateOrderService
Service ID: ws_2583

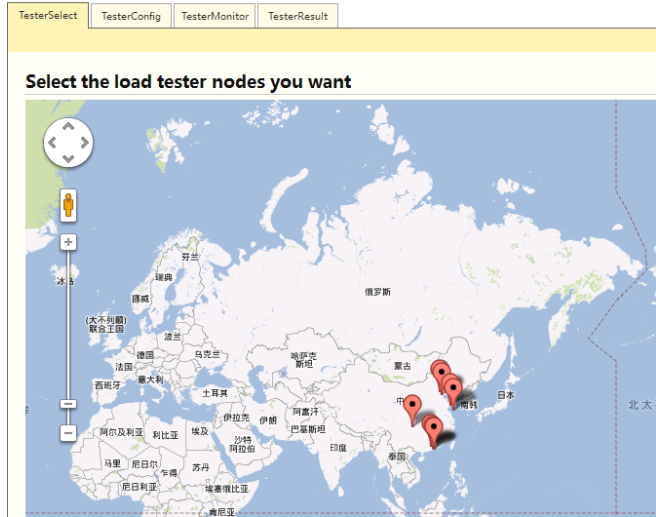
Atomic service load testing



Service Foundry

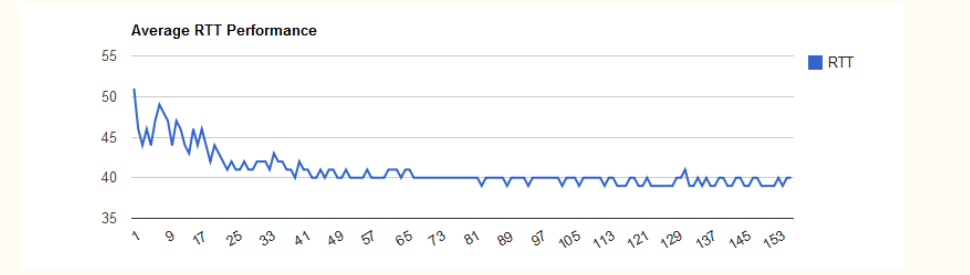
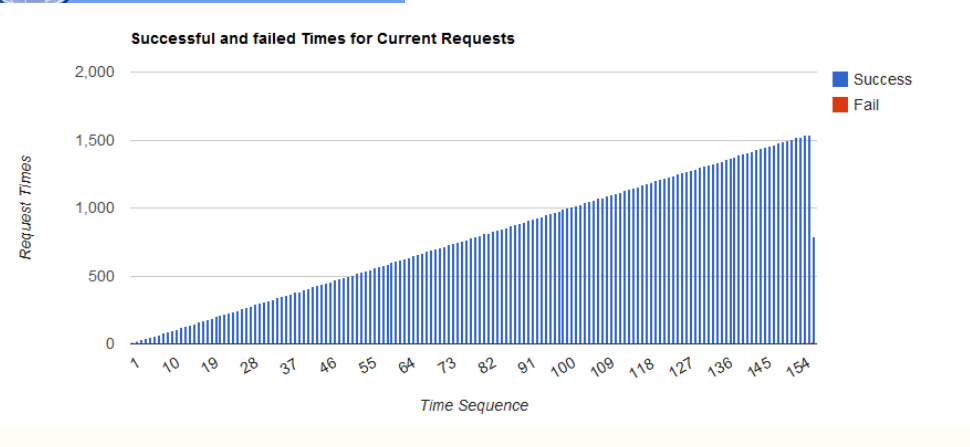
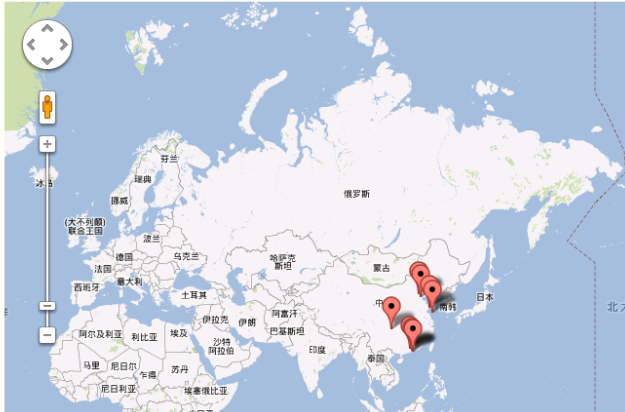
Wednesday, October 17, 2012

Home Deployments Tools Resources >>

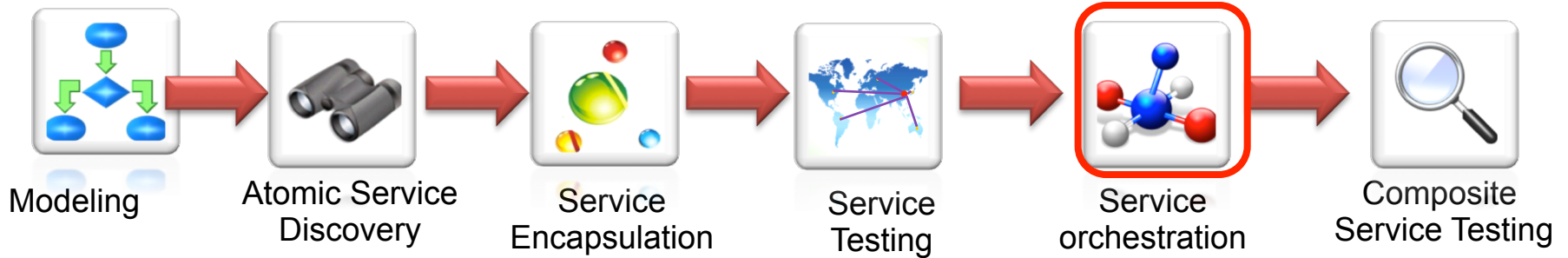


TesterSelect TesterConfig TesterMonitor TesterResult

Select the load tester nodes you want



Service orchestration



ServiceFoundry

Home MyServiceContainer MyBPMNEngine MyWebAppEngine **BPIDELite** SubscribedServices SubscribedBPMN MyLoadTester >>

BPIDE_LITE v1.0

File Edit Tool Window Help

Navigator

- eStore
- exchange
- test
- convert
- simple
- Shopping
- estore
- ESTORE
- ty_test
- convert
- Shopping
- moneyconvert
- Shopping
- convert
- testbpmn
- convert
- EmployeeInfoSystem
- Shopping
- convert
- convert

ServiceInformationEdit

servicename	operation	url	definition	description	targetnamespace
ValidateEmailWe	ValidateEmailAdc	http://www.webxr	http://www.webxr		http://WebXml.c
ValidateEmailWe	ValidateEmailAdc	http://www.webxr	http://www.webxr		http://WebXml.c
RandomFontsWe	getChineseFonts	http://webservice	http://webservice		http://WebXml.c
RandomFontsWe	getCharFonts	http://webservice	http://webservice		http://WebXml.c
Alert	alert	http://192.168.7	http://192.168.7		http://employee
ConfirmService	confirm	http://192.168.7	http://192.168.7		http://services.te
CreateOrderServ	createOrder	http://192.168.7	http://192.168.7		http://services.te
DeliverService	deliver	http://192.168.7	http://192.168.7		http://services.te
FindBookService	main	http://192.168.7	http://192.168.7		http://services.te

servicename:

operation:

url:

definition:

description:

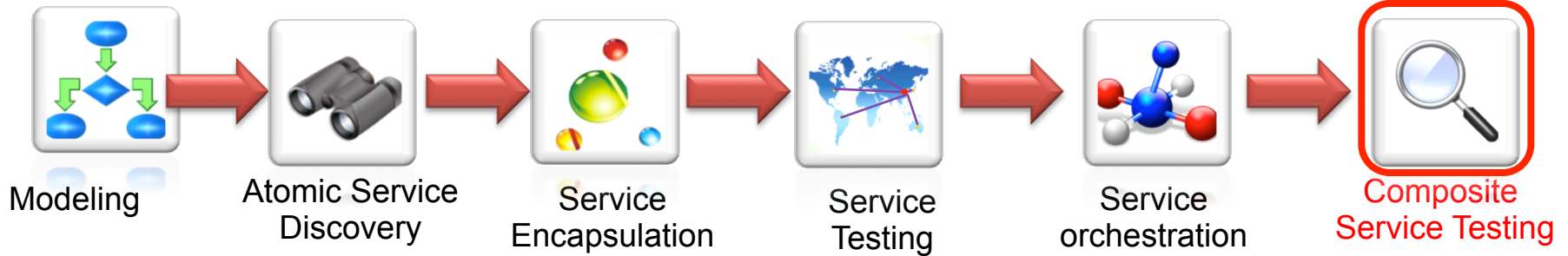
targetnamespace:

OK Cancel

Composite service testing



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ServiceFoundry

Home MyServiceContainer MyBPMEngine MyWebAppEngine BPIDELite SubscribedServices SubscribedBPMN MyLoadTester

estore

goodName:String: thinking in java
orderId:String:
userName:String: jinrf
password:String: jinrf
 result=true

Refresh per 2 Seconds


paramName	paramType	paramValue
goodName	String	thinking in java
goodPrice	String	64.99
orderId	String	

eStore

Web App Deployment



OW2 COSW12



Service Foundry

Home MyServiceContainer MyBPMEngine **MyWebAppEngine** BPIDeLite SubscribedServices SubscribedBPMN MyLoadTester

Invoke

- you can invoke the selected service
- then you can enter the needed parameter to test this service
- the system may return the result of your test

Remove

- Remove your web application

InvokeUrl

- you can get access to your web application through this hyper-link

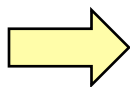
Service Name: flex
Service ID: APP_2
InvokeUrl: <http://192.168.3.191:5000/flex>

Service Name: JSPPage
Service ID: APP_2574
InvokeUrl: <http://192.168.7.173:5006/JSPPage>

Service Name: IStore
Service ID: APP_2588
InvokeUrl: <http://192.168.7.170:5003/ISore>



Store 爱代



Store 爱代 代购超市

您好 Susan (退出) 我的爱代 | 个性代购 | 社区 | 帮助

所有商品

1 选择代购商品 → 2 计算商品价格 → 3 创建订单 → 4 确认并支付

eBay网站商品 [什么是个性代购!](#)

首页 特价团购 个性代购 精品馆 所有分类

个性代购

什么是个性代购? 当您在ebay上找到您想代购的商品, 您可以使用“个性代购”功能。只需点击代购按钮, 系统将为您自动计算出预估到手价, 轻松支付后即可完成整个代购过程。

1 选择代购商品 → 2 计算商品价格 → 3 创建订单 → 4 确认并支付

eBay网站商品 [什么是个性代购!](#)

暂时只支持美国、加拿大、澳大利亚3个国家的eBay网站商品;
暂时只支持下线时间大于24小时的一口价商品, 大于12小时的竞拍商品。

系统提示: 您已经发出了收货确认!
订单编号: 20111025-3879
收货确认: 感谢您对我们的支持!

新手入门 物流配送 费用支付 自助代购 帮助信息

Q&A