

“Enjoy the Technology”

FCOOBAS: Flex Console Of OSGi Bundles And Services in JOnAS, ----Design and Implementation

Xiujuan Ma, Qiang Li
Institute of Software
Peking University
2009.09.19

PKUAS,EECS, PKU

Agenda

- **Background**
 - JOnAS
 - OSGi
 - Flex
- **Design**
 - Console Architecture
 - Module Design
- **Implementation**
 - Module Pages
- **Test**
 - Test Cases Design
- **Conclusion**

Background

■ JOnAS

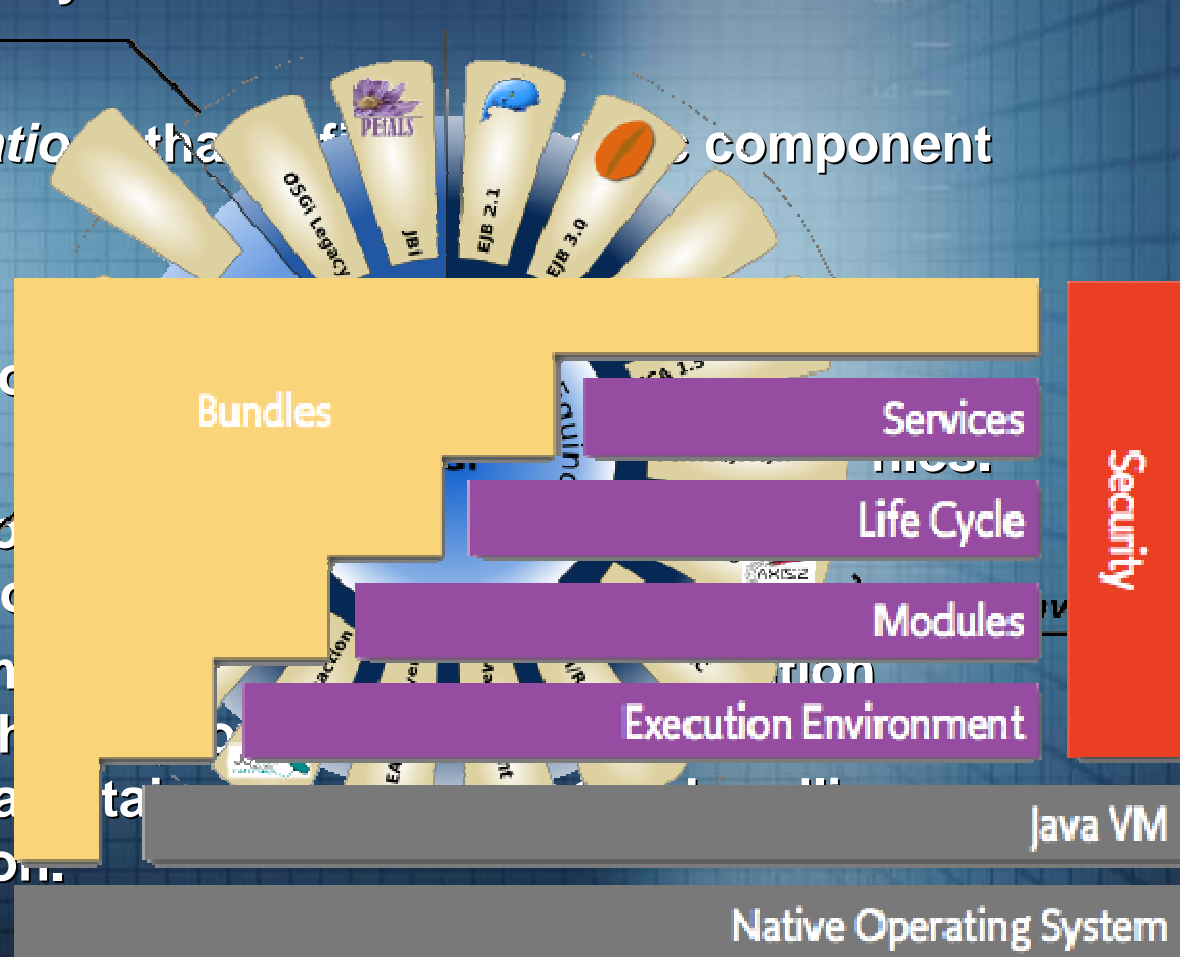
- A leading edge Java EE 5 certified Open Source OSGi Enterprise Server by OW2.

■ OSGi

- A set of *specifications* that define a component system for Java.

■ Adobe Flex

- Developed by Adobe
 - Just like Flash to
 - Can be used as to
 - All Flex development
- Internet Application Framework, which components, data modules and so on.

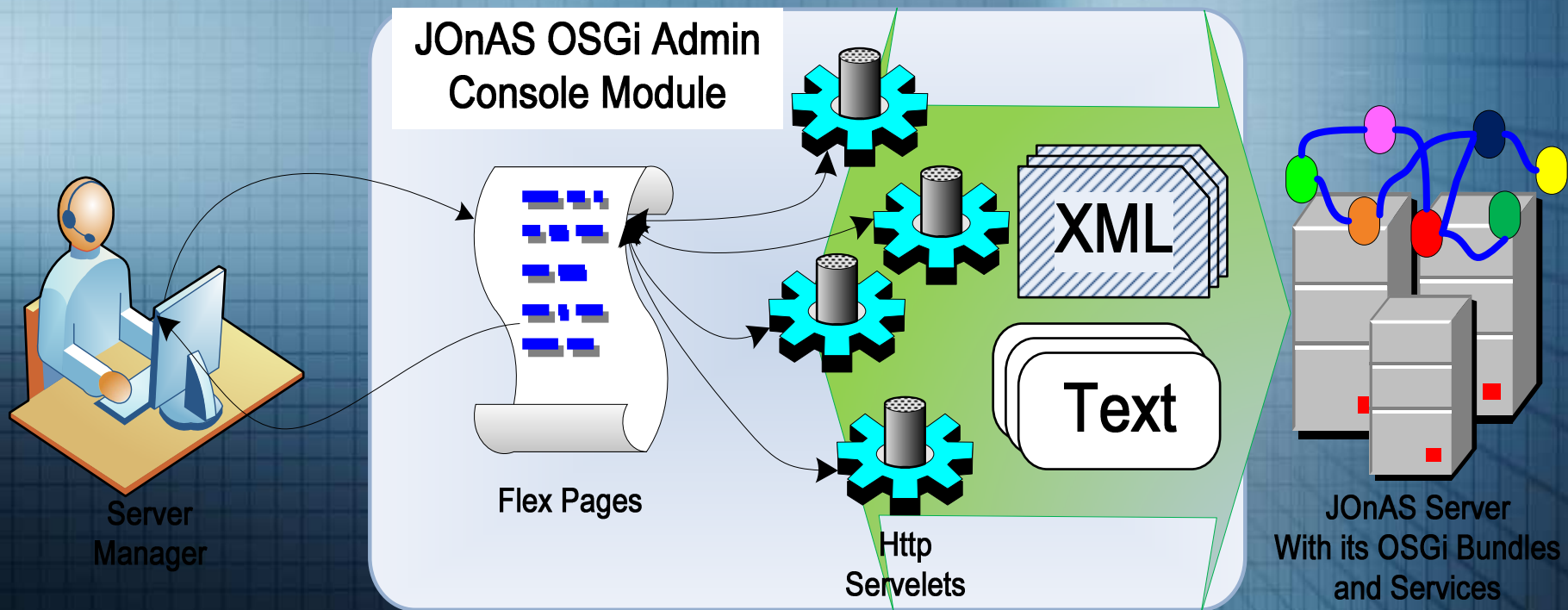


Objective

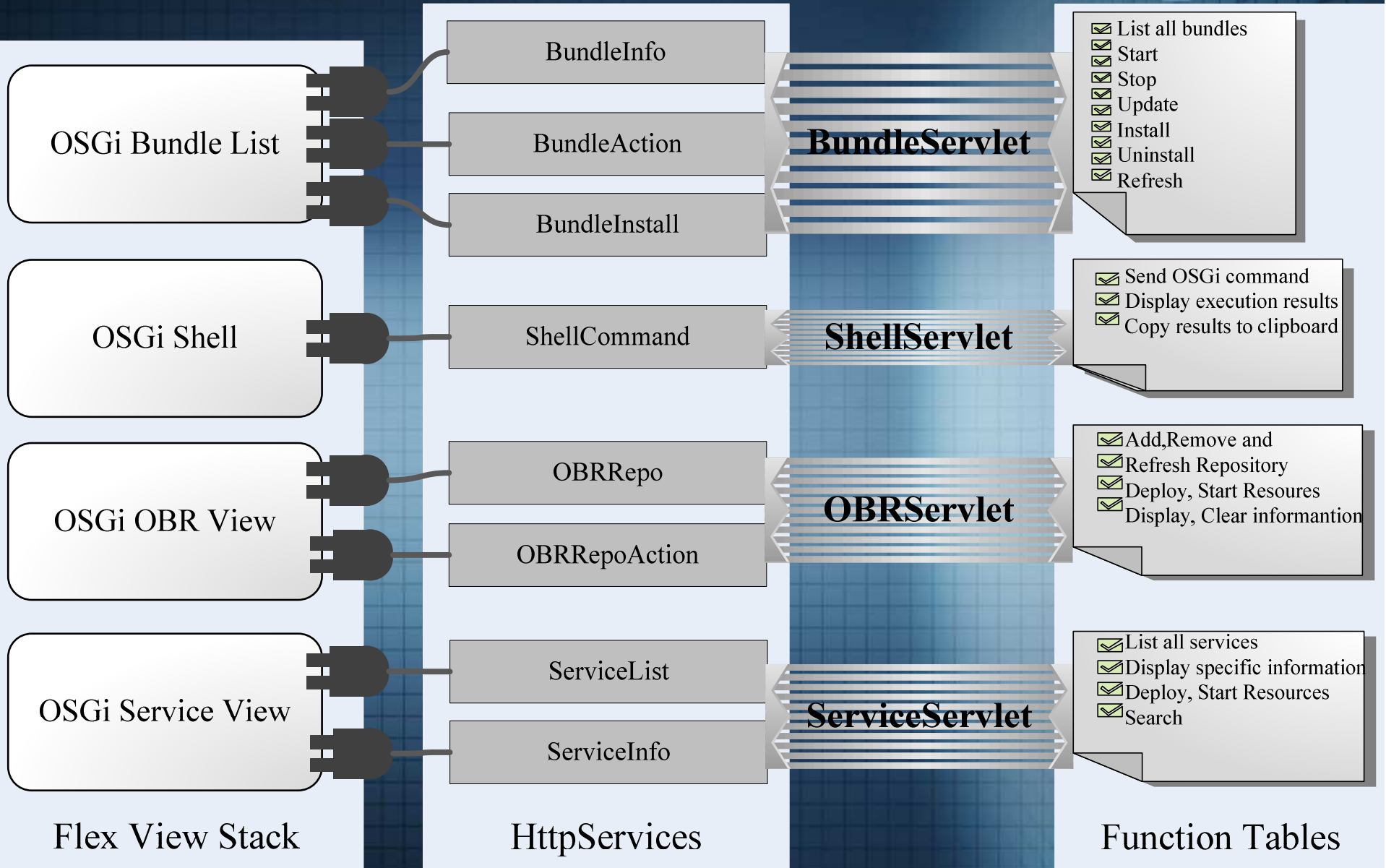
- **To develop a Flex module**
 - visualize and manage OSGi bundles and services deployed on the JOnAS platform.
- **Functional Requirements**
 - OSGi Bundles: start, stop, install, uninstall, refresh and so on.
 - OSGi Command Console Shell
 - OSGi OBR, view, deploy
 - OSGi Service, view
- **Non-Functional Requirements**
 - Modular,
 - Simple, Easy-to-use,
 - Friendly.

Console Architecture

- **Server Manager**
 - who will use the Console to manage JOnAS Server
- **JOnAS Server**
 - with its OSGi Bundles and Services.
- **JOnAS OSGi Admin Console**
 - Flex Pages
 - Http Servelets



Module Design



OSGI Bundle List

Felix Shell

Bundle List
OSGi Shell
OBR
Service View

View Stacks

Bundle List

URL: E:\org.apache.felix.bundlerepository-1.2.1.jar **Install**

ID	State	Location
0	Active	System Bundle
1	Installed	Apache Felix Shell TUI
2	Installed	ShellGUI Bundle List
3	Installed	ShellGUIPlugin
4	Active	Apache Felix Shell Service
5	Active	Apache Felix Bundle Repository
6	Active	Apache Felix iPOJO
7	Active	Apache Felix iPOJO Arch Command

Start Stop Update Refresh Uninstall

OSGi Shell

Felix Shell

Bundle List

OSGi Shell

OBR

Service View

OSGi Shell

```
> ps
```

```
START LEVEL 2
```

ID	State	Level	Name
[0]	[Active]	[0]	System Bundle (1.4.1)
[1]	[Installed]	[1]	Apache Felix Shell TUI (1.0.2)
[2]	[Installed]	[1]	ShellGUI (0.9.0.incubator-SNAPSHOT)
[3]	[Installed]	[1]	ShellGUIPlugin (0.9.0.incubator-SNAPSHOT)
[4]	[Active]	[1]	Apache Felix Shell Service (1.0.2)

Command:

```
ps|
```

Tip:

You can use Up/Down Keys / Clipboard.

Execute the Command in the server side

Input OSGi Command

OSGi OBR View

Felix Shell

- Bundle List
- OSGi Shell
- OBR**
- Service View

OBR

Repositories

URL:

Resources

- ▼ Felix-Releases
 - Apache Felix Bundle Repository (1.0.3)
 - Apache Felix Bundle Repository (1.2.0)
 - Apache Felix Bundle Repository (1.2.1)
 - Apache Felix Configuration Admin Service (1.0.1)

Information

Apache Felix Bundle Repository

description = Bundle repository service.

documentation = <http://oscar-osgi.sf.net/obr2/org.apache.felix.bundlerepository/>

id = org.apache.felix.bundlerepository/1.0.3

OSGi Service View

Felix Shell

Bundle List

OSGi Shell

OBR

Service View

Service View

Service:

S...

N...

P...

ID	Service Name
42	class org.ow2.util.plan.fetcher.impl.obr.ObrResourceFetcherFactory@105
1	class org.apache.felix.framework.StartLevelImpl@14852987
2	class org.apache.felix.framework.PackageAdminImpl@22741380
85	class org.apache.felix.ipojoo.ComponentFactory@29405700
109	class org.ow2.jonas.db.hsqldb.HsqlDBServiceImpl@9572071
53	class org.apache.felix.cm.file.FilePersistenceManager@17861656
54	class org.apache.felix.cm.impl.ConfigurationAdminImpl@22905698
35	class org.ow2.util.ee.metadata.war.impl.WarDeployableMetadataFactory

Information

ServiceBundle:

id:37 OW2 Bundles :: Deployment Plan :: Fetcher :: Impl :: OBR

UsingBundles:

id:34 OW2 Bundles :: Deployment Plan :: Fetcher :: Impl

id:113 JOnAS :: Services :: Web Container :: Tomcat :: 6.0.x

Test Cases

■ Environment

- Language Run-time : JDK 1.5
- Flash-Player : version 10
- Adobe Flex SDK 3.2.0, 3.3.0
- JOnAS : version 5.1.0-RC3
- Operation System : any

■ Install

- build the whole console into a standard war file
- deploy it on JOnAS full-5.1.0-RC3
- visit <http://localhost:9000/OSGIServlet>

```
WARDeployer.doDeploy : Deploying OSGIServlet.war↵  
Http11Protocol.init : Initializing Coyote HTTP/1.1 on http-8971↵  
StandardService.start : Starting service JOnAS↵  
StandardEngine.start : Starting Servlet Engine: Apache Tomcat/6.0.18↵  
Http11Protocol.start : Starting Coyote HTTP/1.1 on http-8971↵  
WebappLoader.start : Dual registration of jndi stream handler: factory already defined↵  
BaseWebContainerService.registerWar : War OSGIServlet.war available at the context /OSGIServlet.↵
```

Test Outline

Module	Function ID	Description
1. <u>OSGi Bundle List</u>	1.1	List all bundles in the server
	1.2	Install a given URL bundle
	1.3	Start a bundle
	1.4	Stop a bundle
	1.5	Update a bundle
	1.6	Uninstall a bundle
	1.7	Refresh all bundles' state
2. <u>OSGi Shell</u>	2.1	Input <u>OSGi</u> Command and execute it
	2.2	Copy the execution result to the clipboard
	2.3	Use Up/Down key to input previous command
3. <u>OSGi OBR View</u>	3.1	Add an OBR repository URL
	3.2	View the resource tree of a repository
	3.3	Deploy and start a selected resource in the repository
	3.4	View the information of the deploy and start operation
4. <u>OSGi Service View</u>	4.1	List all services in the server
	4.2	Display the detailed information for a specific service
	4.3	Search a service whose name contains the input word.

Table 1 FCOOBAS Function Table

Test Case Examples

TC 1: Install the console (here from, we will call Test Case "TC" for short.)

Step	Description	Input Type/Value	Expected Results	Function ID	Preamble
1	<ul style="list-style-type: none"> Deploy the console war file on to JOnAS and open the console. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Deployed successful 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> JOnAS 5.1.0-RC 3.0 has been started successfully

TC 8: Stop an active state bundle and update immediately.

Step	Description	Input Type/Value	Expected Results	Function ID	Preamble
1	<ul style="list-style-type: none"> Selected an active state bundle 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> 1.4 	<ul style="list-style-type: none"> TC1 passed
2	<ul style="list-style-type: none"> Click "Stop" 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> The bundle should be stopped . 	<ul style="list-style-type: none"> 1.4 	<ul style="list-style-type: none">
3	<ul style="list-style-type: none"> Click "Update" quickly. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> The bundle state should be changed to "resolved". 	<ul style="list-style-type: none"> 1.5 	<ul style="list-style-type: none">

Conclusion

- **This paper presents a Flex module**
 - visualize the management OSGi bundles and services deployed on the JOnAS platform.
- **There are four Flex View Stack named**
 - OSGi Bundle List, OSGi Shell, OSGi OBR View and OSGi Service View.
 - Each View needs some HttpServices to provide data and pass control commands.
 - These HttpServices will call corresponding servlet to deal with the requests, so as to complete the management functions such as
 - list all bundles in the server, input OSGi Command and execute it,
 - deploy and start a selected resource in the OBR repository and
 - list all services in the server.
- **With all test cases successfully passed, it indicates that**
 - the console has implemented the function requirements correctly and efficiently.
 - Also this module is modular, simple, easy-to-use and friendly.



Q&A



- **Thank you!**

Reference

1. **JOnAS Java Open Application Server.**
[http://wiki.jonas.ow2.org/xwiki/bin/view/Main/Web Home.](http://wiki.jonas.ow2.org/xwiki/bin/view/Main/Web+Home)
2. **Adobe Flex.** [http://learn.adobe.com/wiki/display/Flex.](http://learn.adobe.com/wiki/display/Flex)
3. **OSGi Service Platform Core Specification, Release 4, Version 4.1, The OSGi Alliance.**