

OSGI Best practices shown on

Apache  **Karaf**

Speaker

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Open Source Architect at Talend

Working on

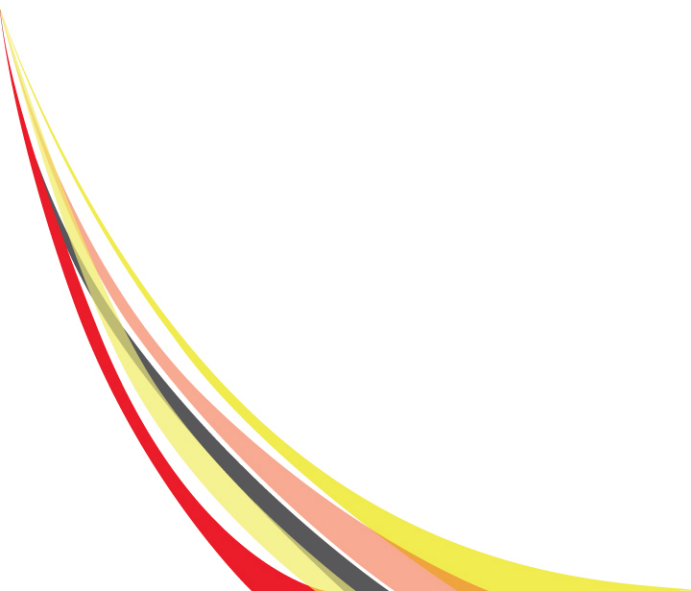
- Apache Karaf
- Apache CXF
- Apache Camel
- OPS4j pax url, pax exam

Blog:

<http://www.liquid-reality.de>

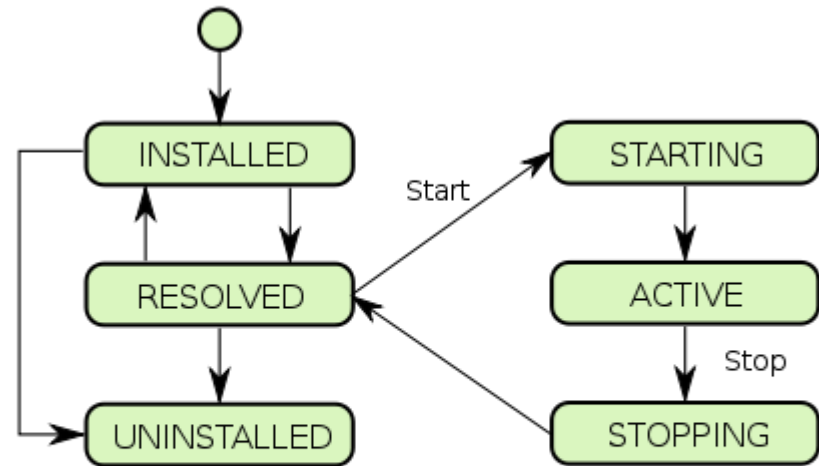


Agenda

- OSGi features and motivation
 - Karaf container
 - OSGi application best practices
 - Demo Tasklist application
- 

OSGi Features

- Bundle Classloader (explicit Imports / Exports)
- Bundle Lifecycle
- Service Registry
- Configuration Admin Service

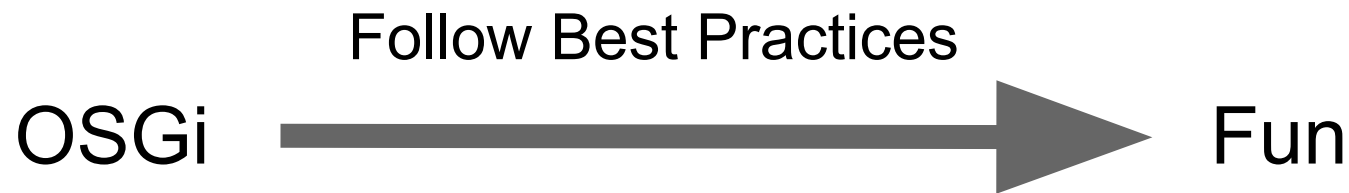


OSGi Best Practices - Motivation

OSGi is hard



OSGi Best Practices - Motivation



Container ?

Framework ?

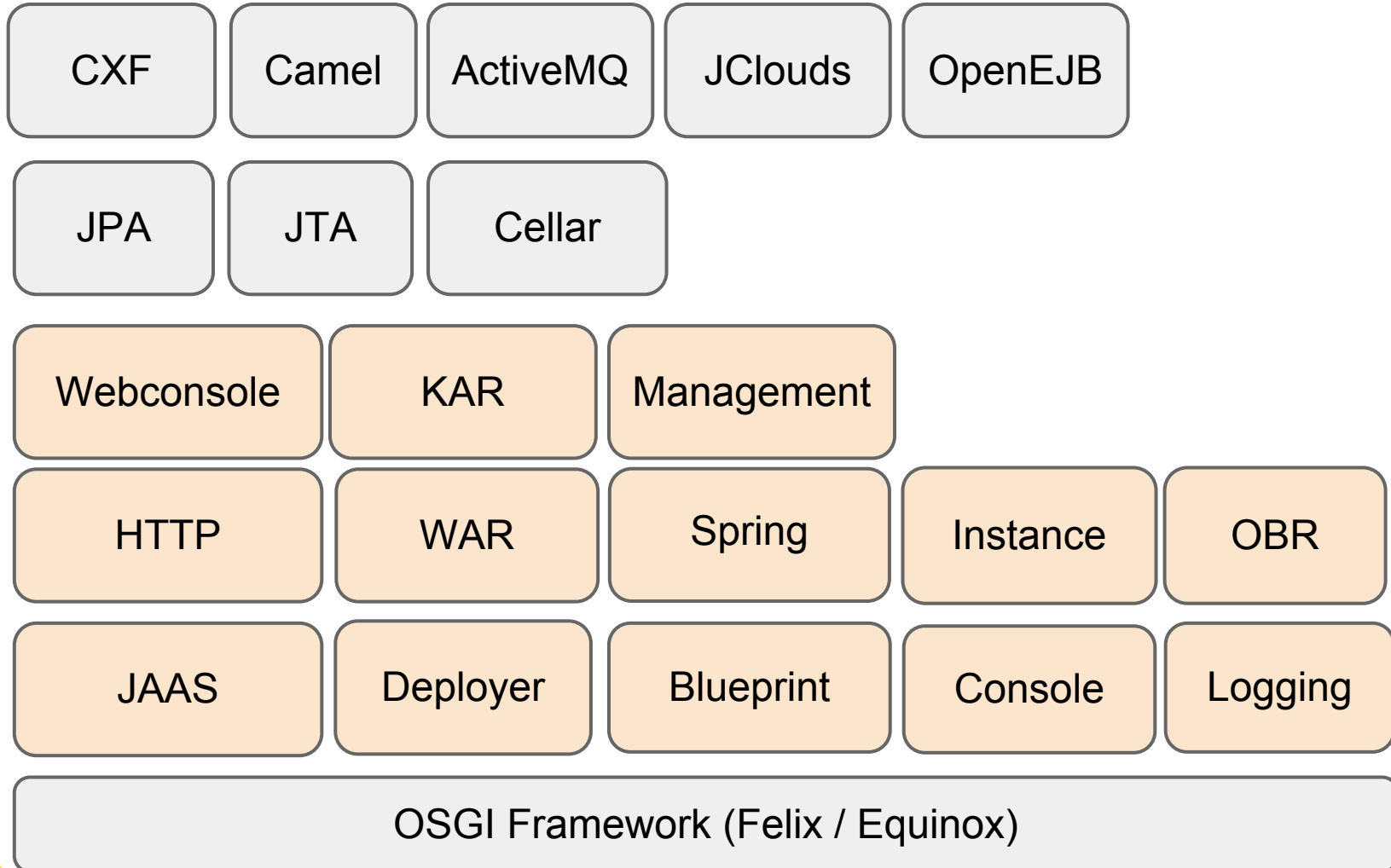
Apache  **Karaf**

Extras ?

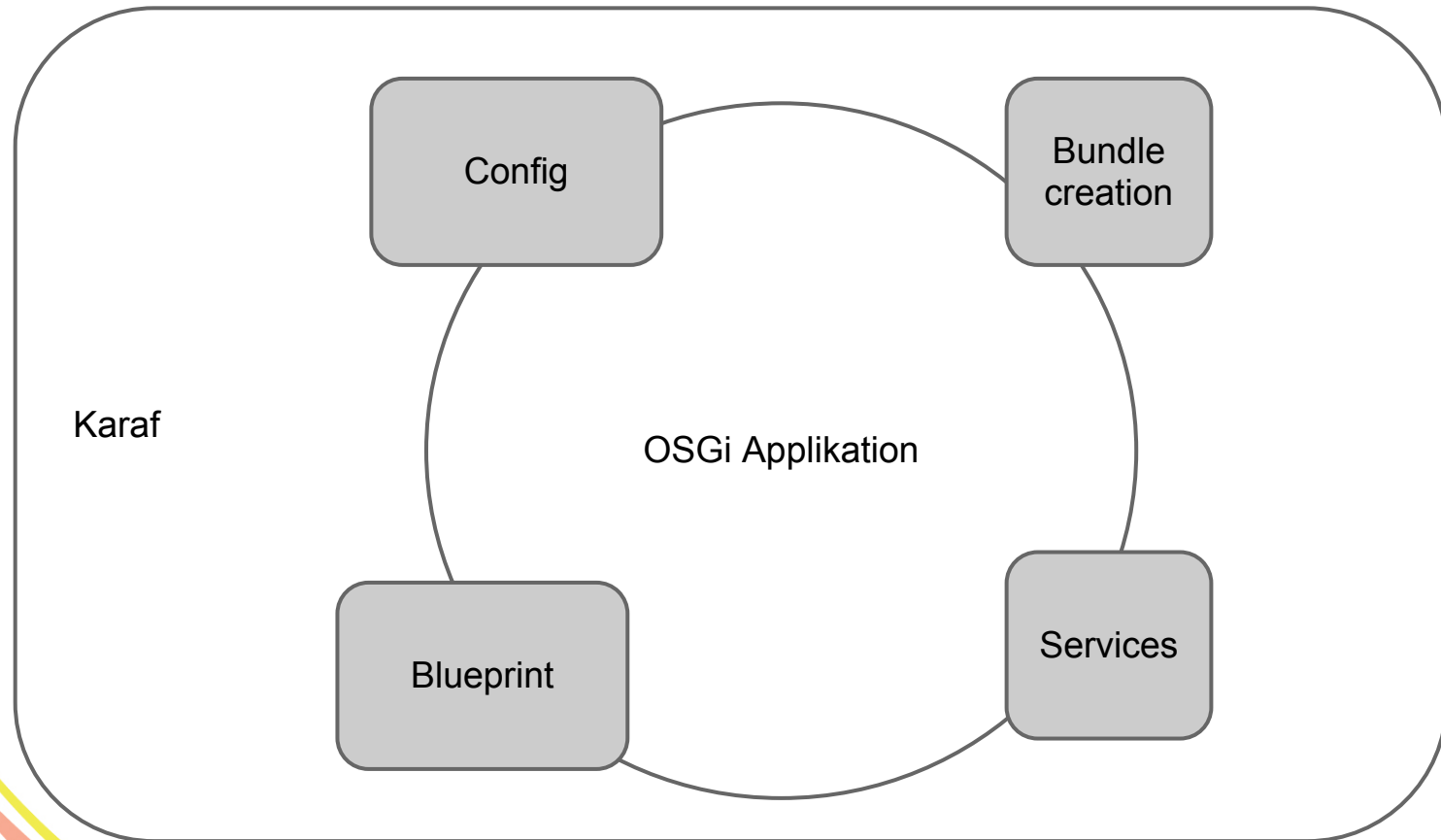


Apache Karaf

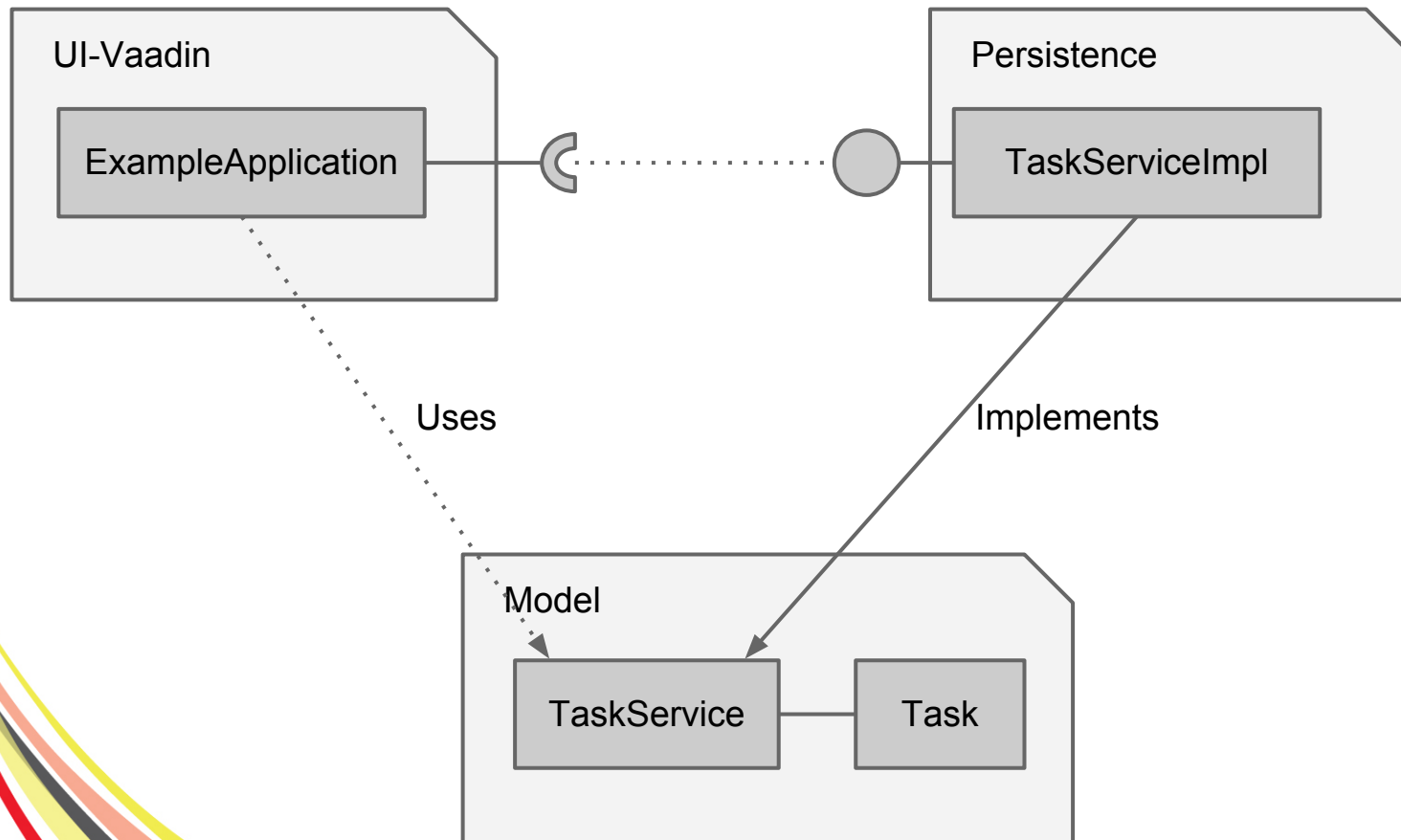
External
Enterprise
Standard
Core



OSGi Best Practices



Tasklist Example



Creating Bundles with maven

maven-bundle-plugin



bnd



jar File with OSGi Manifest



Dynamic Wiring

OSGi is dynamic in nature
Bundles, Services, Config



Isn't that complicated ?



Dynamic Wiring

Yes ... if you fight it

- ~~Startlevel tuning~~
 - ~~Import Services by Hand~~
 - ~~Update configs by hand~~
- 

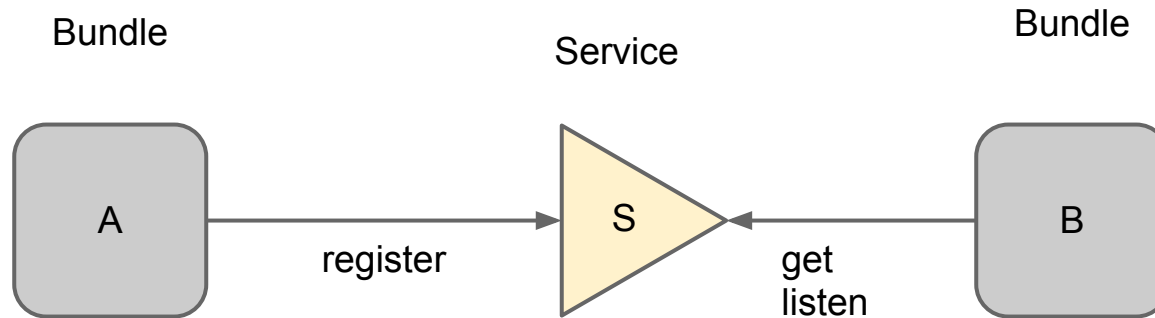
Blueprint

Aries Blueprint
(Spring like dependency injection for OSGi)



declarative dynamic wiring

OSGi Services



Java Object

Java Interface +
Properties +
priority

OSGi Services in Blueprint

Provider

```
<bean id="taskService" class="net.lr...TaskServiceImpl" />  
<service ref="taskService" interface="net.lr.tasklist.model.TaskService"/>
```

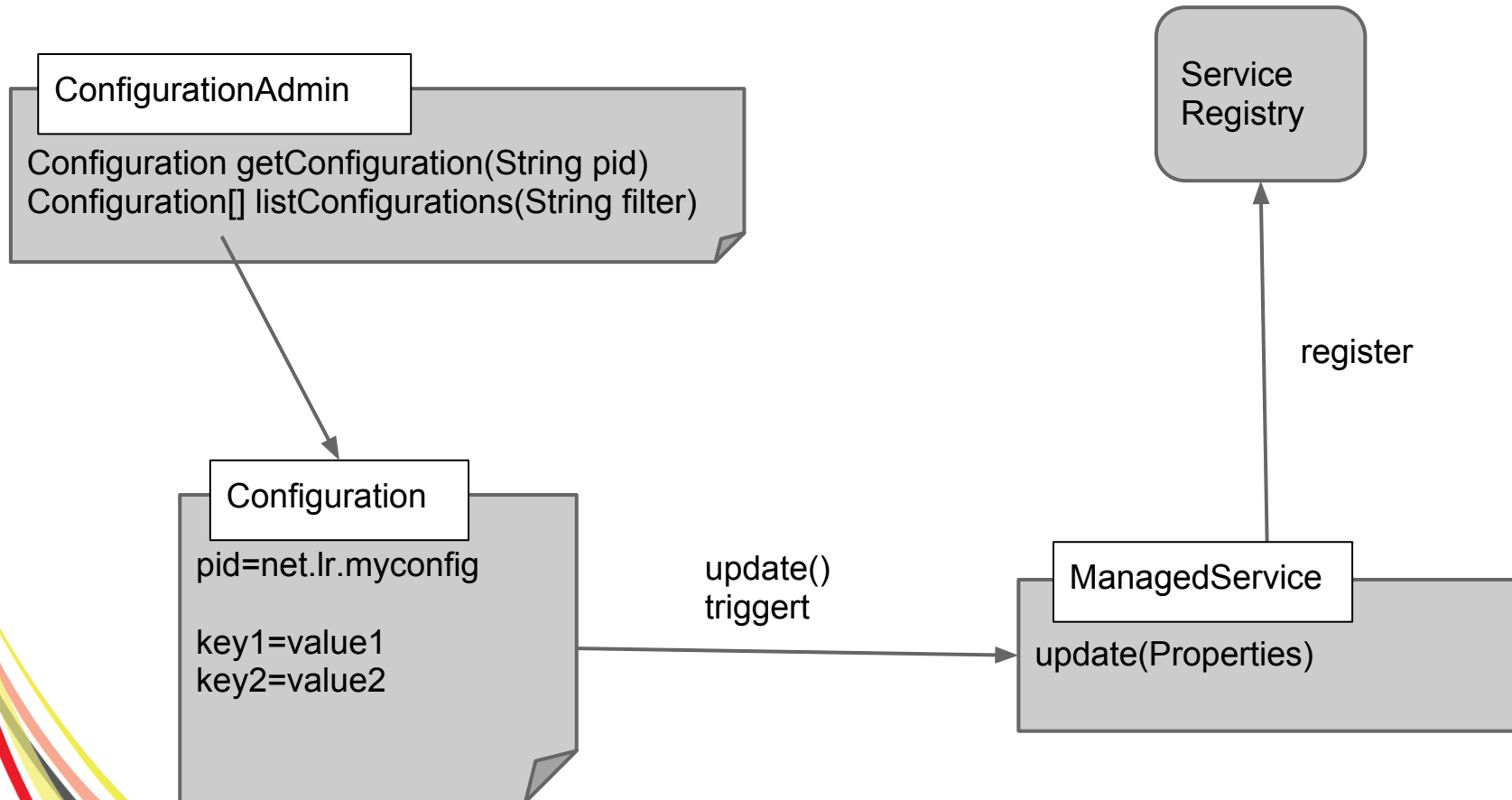
Consumer

```
<reference id="taskService" availability="mandatory" interface="net.lr.  
tasklist.model.TaskService" />
```

mandatory: Context only starts when service is available



ConfigAdmin Service



ConfigAdmin Service in Blueprint

Context Kontext Restart on config changes

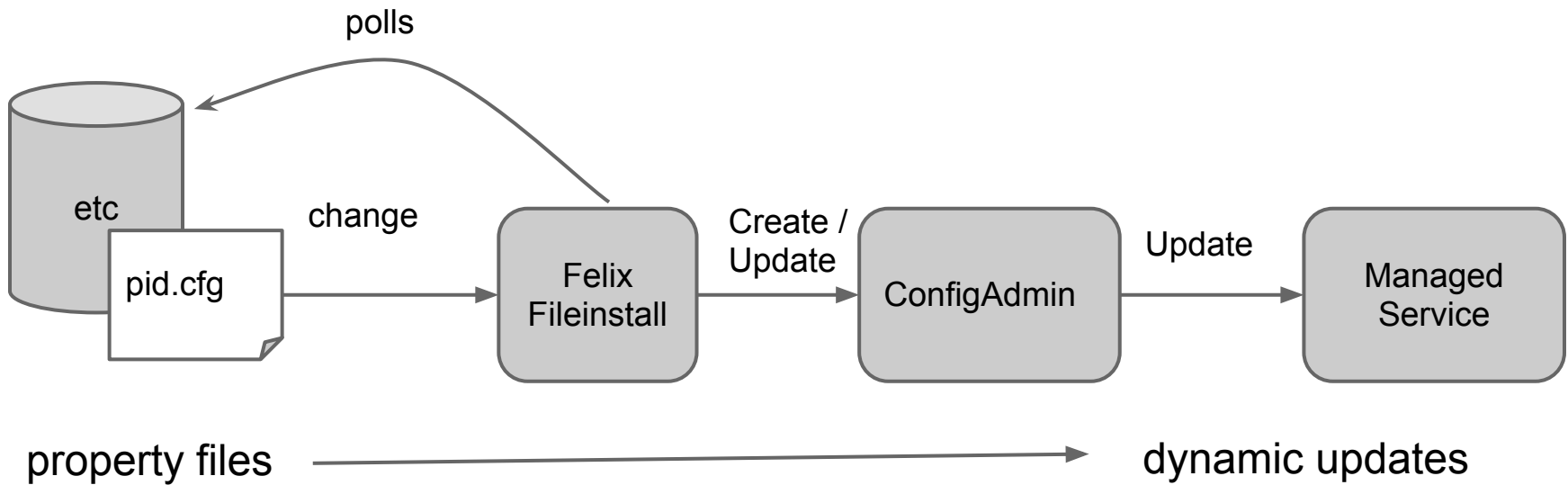
```
<cm:property-placeholder persistent-id="ConfigApp" update-strategy="reload">
  <cm:default-properties>
    <cm:property name="title" value="Default Title"/>
  </cm:default-properties>
</cm:property-placeholder>

<bean id="myApp" class="net.lr...MyApp" init-method="refresh">
  <property name="title" value="\${title}"></property>
</bean>
```

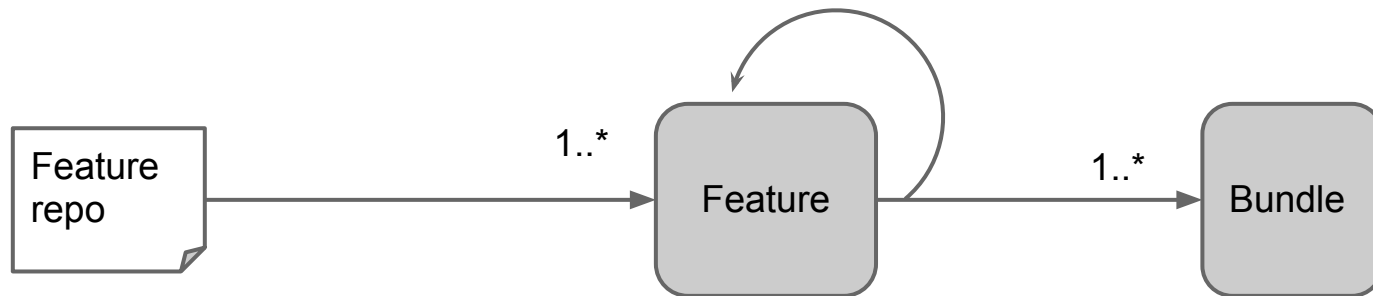
Keys available as placeholders

ConfigAdmin

in Apache  **Karaf**

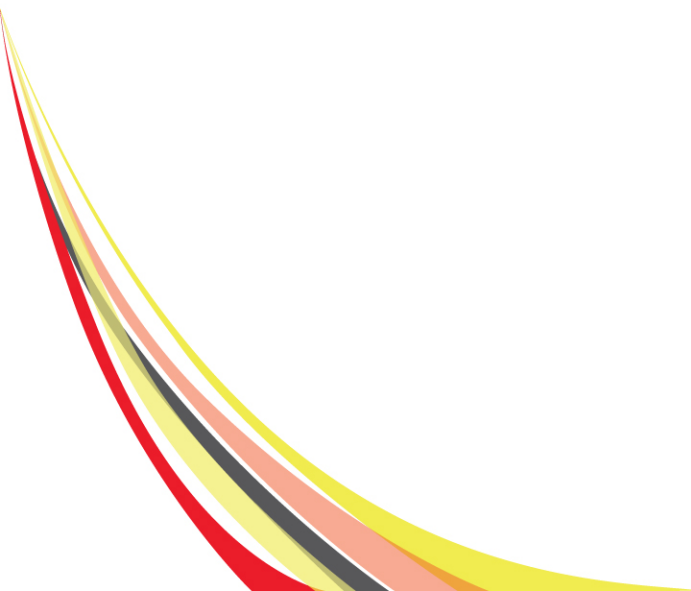


Deployment



```
features:addurl mvn:net.lr.tasklist/tasklist-features/1.0.0-SNAPSHOT/xml  
features:install example-tasklist
```

DEMO



Advanced Topics

- CDI on OSGi (Weld-OSGi, Karaf EE, Glassfish)
- DOSGi (CXF-DOSGi)
- Aries JPA and JTA

Questions?



(c) [Damian Navas](#)



Links

Christian Schneider

<http://www.liquid-reality.de>

[@schneider_chris](#)

<https://github.com/cschneider>

Apache Karaf Tutorials: <http://liquid-reality.de/display/liquid/Karaf+Tutorials>

OSGi - Alliance <http://www.osgi.org>

Apache Karaf <http://karaf.apache.org/>

Apache Felix <http://felix.apache.org/>

Apache Aries Blueprint <http://aries.apache.org/modules/blueprint.html>

Talend ESB (based on Apache Karaf): <http://www.talend.com/products/esb>