

extending liferay through declarative services



Raymond Auge
raymond.auge@liferay.com

powerful simplicity

```
import org.osgi.service.component.annotations.Component;
import org.osgi.service.component.annotations.Reference;

@Component
public class Foo implements IFoo {
    @Reference
    Bar bar;
}
```



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lifecycle dynamicity

```
import org.osgi.service.component.annotations.Activate;
import org.osgi.service.component.annotations.Deactivate;
import org.osgi.service.component.annotations.Modified;

@Component
public class Foo implements IFoo {
    @Activate
    void activate() {}
    @Modified
    void modified() {}
    @Deactivate
    void deactivate() {}
}
```



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dynamic configurability

```
@Component  
public class Foo implements IFoo {  
    @Activate  
    void activate(Map<String, Object> properties) {}  
    @Modified  
    void modified(Map<String, Object> properties) {}  
    @Deactivate  
    void deactivate(Map<String, Object> properties) {}  
}
```



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flexible composition

```
@Component
class Foo implements IFoo {
    @Reference
    IBar bar;
}

@Component
class Bar implements IBar {
    @Reference
    IBaz baz;
}

@Component
class Baz implements IBaz {
    @Reference(
        cardinality = ReferenceCardinality.OPTIONAL,
        policy = ReferencePolicy.DYNAMIC)
    IFoo foo;
}
```



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configuration types

```
@interface FooConf {  
    String name() default "default";  
    int size() default 1;  
}  
  
@Component  
public class Foo implements IFoo {  
    @Activate  
    void activate(FooConf fooConf) {}  
    @Modified  
    void modified(FooConf fooConf) {}  
    @Deactivate  
    void deactivate(FooConf fooConf) {}  
}
```



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configuration schema

```
import org.osgi.service.metatype.annotations.Designate;
import org.osgi.service.metatype.annotations.ObjectClassDefinition;

@ObjectClassDefinition
@interface FooConf {
    String name() default "default";
    int size() default 1;
}

@Component
@Designate(ocd = FooConf.class)
public class Foo implements IFoo {
    @Activate
    void activate(FooConf fooConf) {}
    @Modified
    void modified(FooConf fooConf) {}
    @Deactivate
    void deactivate(FooConf fooConf) {}
}
```



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configuration ui

The screenshot shows the Liferay Control Panel interface. On the left, a sidebar lists various administrative sections: Control Panel, Users, Sites, Apps, Configuration, Virtual Instances, Instance Settings, and System Settings. The Configuration section is currently selected and expanded, showing its sub-options. To the right, a modal window titled "Com liferay demo message listener config" is open. The window contains a note stating "All fields marked with * are required." Below this, there is a field labeled "Destination name *" with the value "default" entered. At the bottom of the modal are two buttons: a blue "Update" button on the left and a white "Cancel" button on the right.



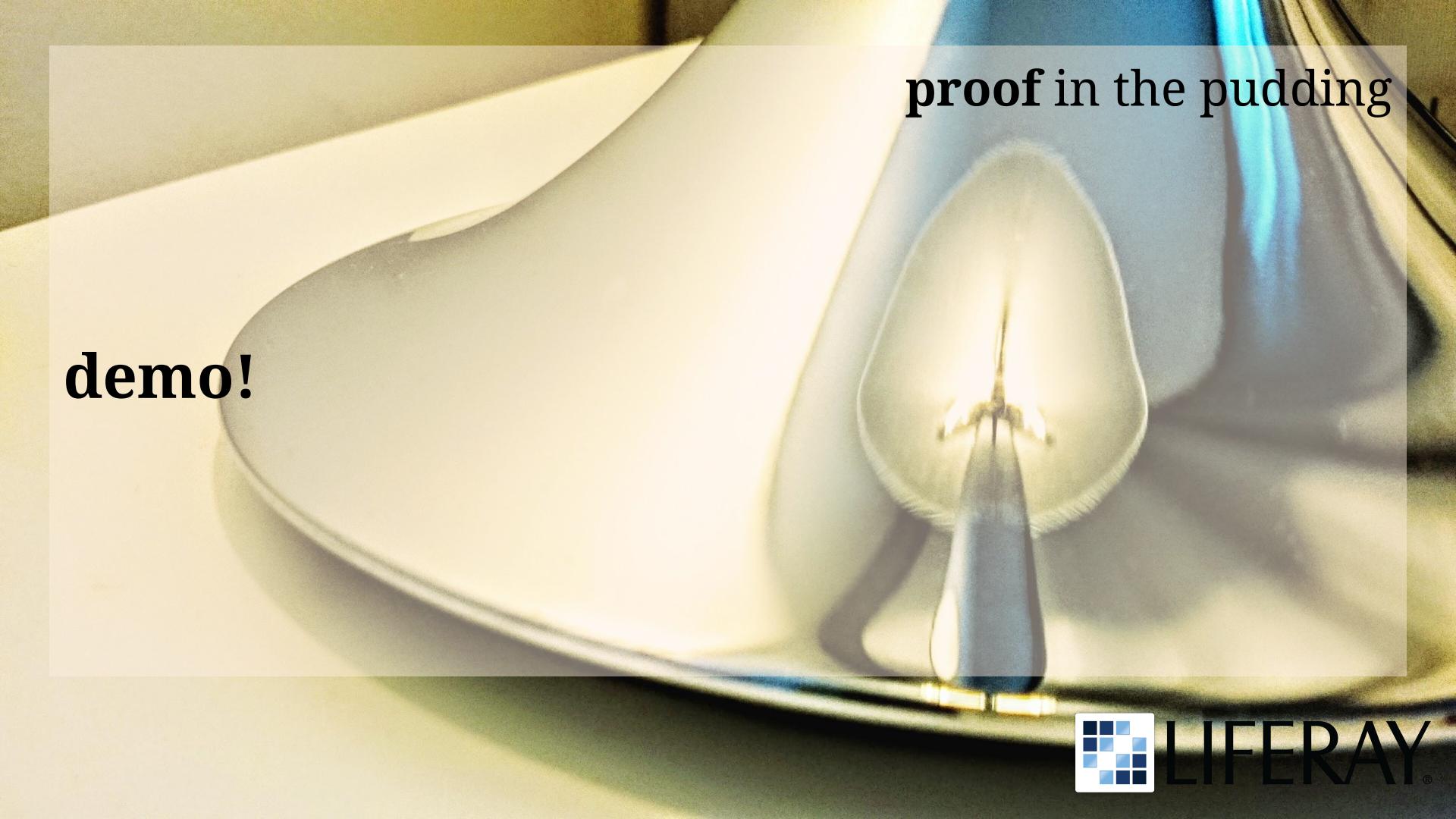
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liferay components

```
g! scr:list
BundleId Component Name Default State
    Component Id State      PIDs (Factory PID)
[ 4] com.liferay.portal.configuration.persistence.listener.ConfigurationModelListenerProvide
r enabled
[ 6] com.liferay.portal.lpkg.deployer.internal.BytesURLProtocolSupport enabled
[ 6] com.liferay.portal.lpkg.deployer.internal.DefaultLPKGDeployer enabled
[ 2] [active ]
[ 6] com.liferay.portal.lpkg.deployer.internal.DefaultLPKGVerifier enabled
[ 3] [active ]
[ 6] com.liferay.portal.lpkg.deployer.internal.LPKGIndexValidator enabled
[ 4] [active ]
[ 7] com.liferay.portal.osgi.web.portlet.tracker.internal.PortletTracker enabled
[ 16] [active ]
[ 8] com.liferay.portal.osgi.web.servlet.context.helper.ServletContextHelperFactory enabled
[ 17] [active ]
[ 9] com.liferay.portal.osgi.web.servlet.jsp.compiler.internal.JspReloaded enabled
[ 18] [active ]
[ 10] com.liferay.portal.osgi.web.wab.extender.internal.WabFactory enabled
[ 19] [active ]
[ 10] com.liferay.portal.osgi.web.wab.extender.internal.adapter.HttpAdapter enabled
[ 20] [active ]
[ 10] org.eclipse.core.runtime.FileLocator enabled
[ 21] [active ]
[ 11] com.liferay.portal.osgi.web.wab.extender.internal.WabGenerator enabled
```



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demo!

proof in the pudding



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References

<https://github.com/rotty3000/papersntalks/tree/master/2017/MontrealMeetup/code>

<https://www.osgi.org/developer/downloads/release-6/>

<https://dev.liferay.com/participate/liferaypedia/-/wiki/Main/Components>