



e(fx)clipse – JavaFX Runtime

Tom Schindl – BestSolution Systemhaus GmbH

EclipseCon October 2012

(c) Tom Schindl – BestSolution Systemhaus GmbH

About Tom

- ❖ CTO BestSolution Systemhaus GmbH
- ❖ Eclipse Committer
 - ❖ e4
 - ❖ Platform UI
 - ❖ EMF
- ❖ Main developer of e(fx)clipse
- ❖ Twitter: @tomsontom



About e(fx)clipse

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- ❖ Opensource project lead by BestSolution.at

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About e(fx)clipse

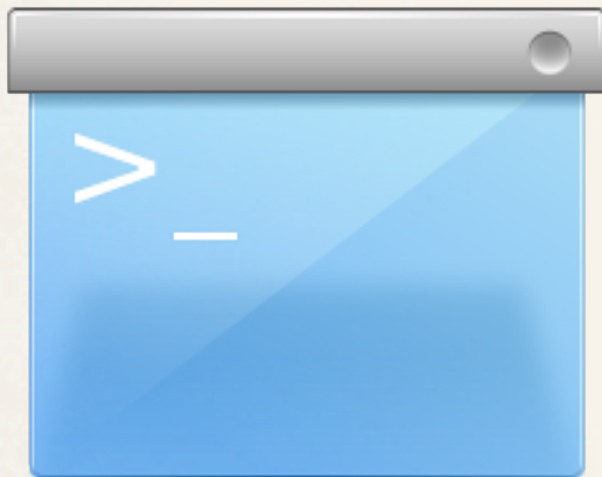
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- ❖ Community Support: www.efxclipse.org
- ❖ Commercial Support: www.bestsolution.at

e(fx)clipse - Anatomy

```
public class MyApp extends Application {  
    public static void main(String[] args) {  
        launch(args);  
    }  
  
    @Override  
    public void start(Stage primaryStage) {  
        BorderPane p = new BorderPane();  
        p.setCenter(new Button("Hello World!"));  
        Scene s = new Scene(p,300,300);  
        primaryStage.setScene(s);  
        primaryStge.show();  
    }  
}
```

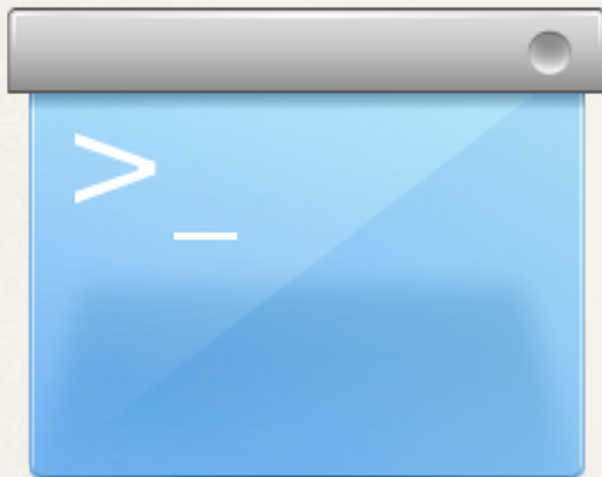
e(fx)clipse - Runtime

Basic-Runtime



e(fx)clipse - Runtime

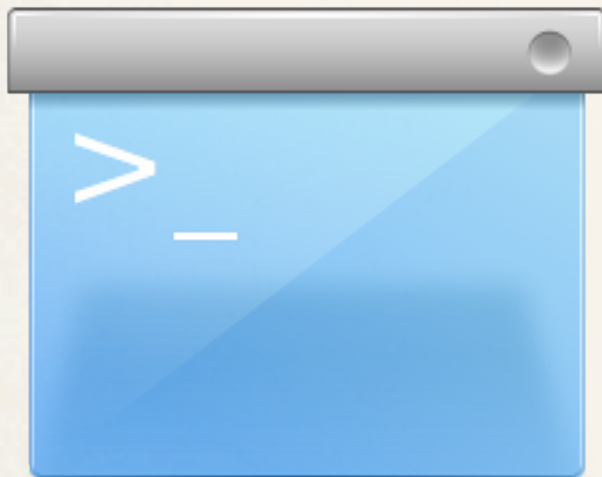
Basic-Runtime



- ✧ Java
 - ✧ Additional Layout-Panels (known from SWT)
 - ✧ Dialogs similar those of SWT/JFace
 - ✧ FXML/Guice-Injector

e(fx)clipse - Runtime

Basic-Runtime



- ✧ Java
 - ✧ Additional Layout-Panels (known from SWT)
 - ✧ Dialogs similar those of SWT/JFace
 - ✧ FXML/Guice-Injector
- ✧ OSGi
 - ✧ Equinox-Extension

e(fx)clipse – FX+OSGi

`my.app.bundle`

```
import java.lang  
import javafx.scene
```

JRE

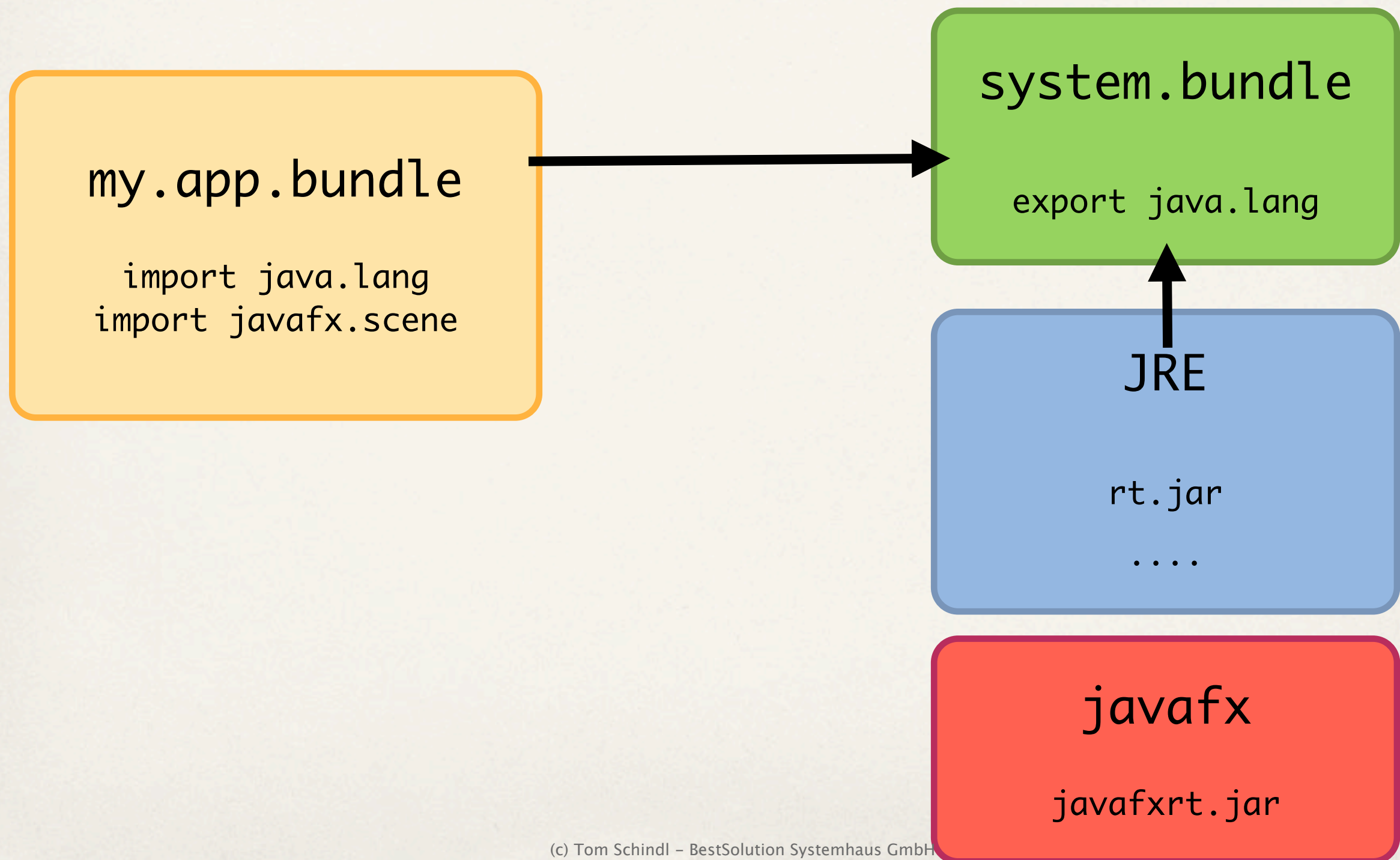
`rt.jar`

...

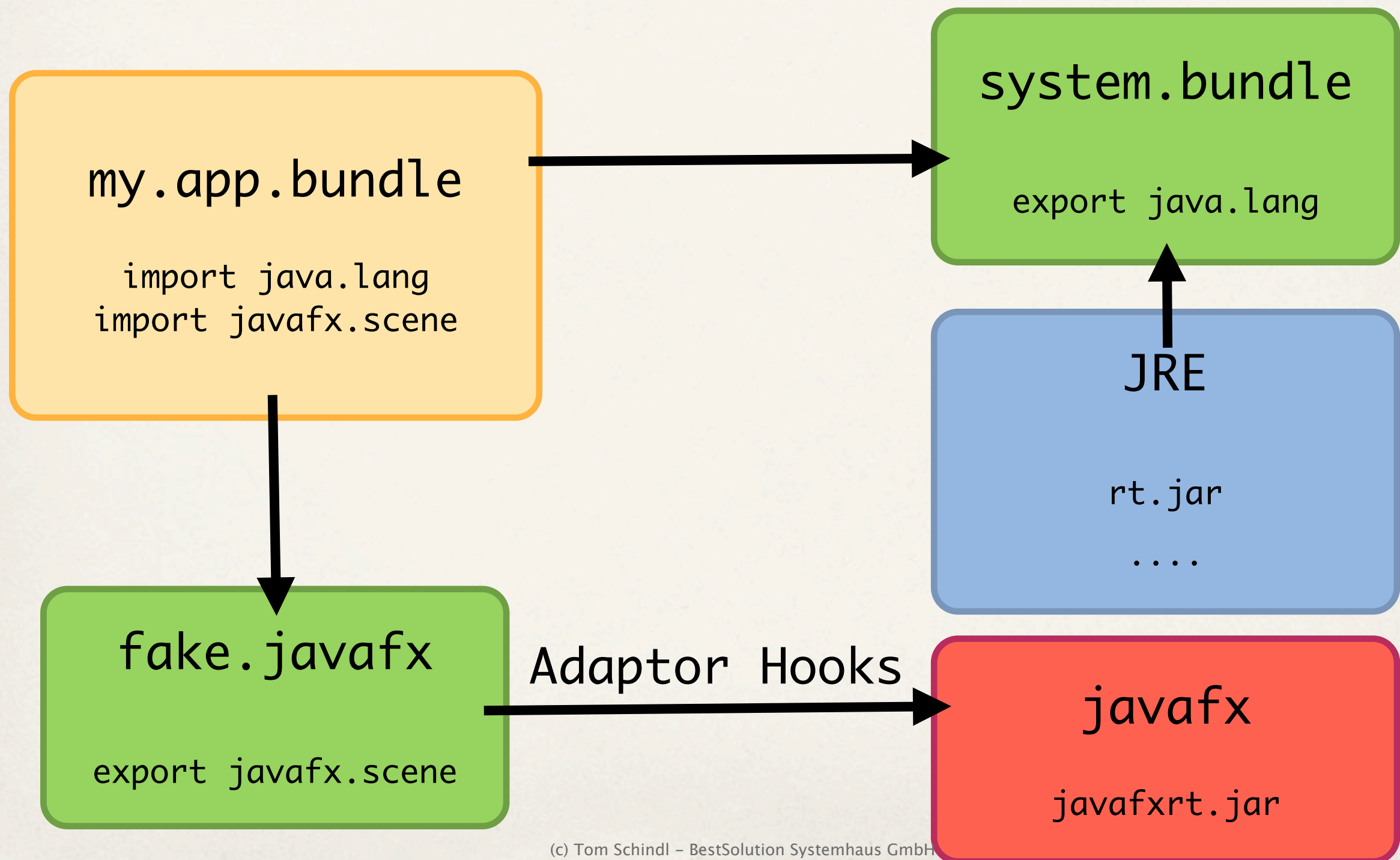
javafx

`javafxrt.jar`

e(fx)clipse - FX+OSGi



e(fx)clipse - FX+OSGi



e(fx)clipse - Adapter Hooks

- ❖ Defined in a fragment with `org.eclipse.osgi` as their Host
- ❖ Configured through `hookconfigurators.properties`

```
public class FXClassLoader implements ClassLoadingHook, AdaptorHook {  
  
    public BaseClassLoader createClassLoader(ClassLoader parent,  
        ClassLoaderDelegate delegate, BundleProtectionDomain domain, BaseData data, String[]  
        bundleclasspath) {  
  
        if (data.getBundle().getSymbolicName().equals("at.bestsolution.efxclipse.runtime.javafx")) {  
            // create javafx enabled classloader  
        }  
        return null;  
    }  
}
```

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e(fx)clipse - Application

e(fx)clipse - Application

FX-App

```
public class MyApp extends Application {  
  
    @Override  
    public void start(Stage primaryStage) {  
    }  
}
```

e(fx)clipse - Application

FX-App

```
public class MyApp extends Application {  
  
    @Override  
    public void start(Stage primaryStage) {  
    }  
}
```

OSGi-App

```
public class MyApp implements IApplication {  
  
    @Override  
    public final Object start(IApplicationContext  
context) throws Exception {  
    }  
}
```

e(fx)clipse - Application

FX-App

```
public class MyApp extends Application {  
  
    @Override  
    public void start(Stage primaryStage) {  
    }  
}
```

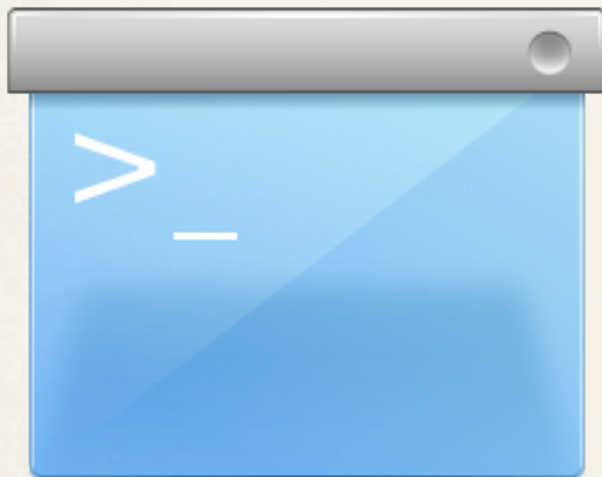
OSGi-App

```
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    @Override  
    public final Object start(IApplicationContext  
context) throws Exception {  
    }  
}
```

```
public class MyApp extends AbstractJFXApplication {  
  
    @Override  
    protected void jfxStart(IApplicationContext applicationContext,  
        Application jfxApplication, Stage primaryStage) {  
    }  
}
```

e(fx)clipse - Runtime

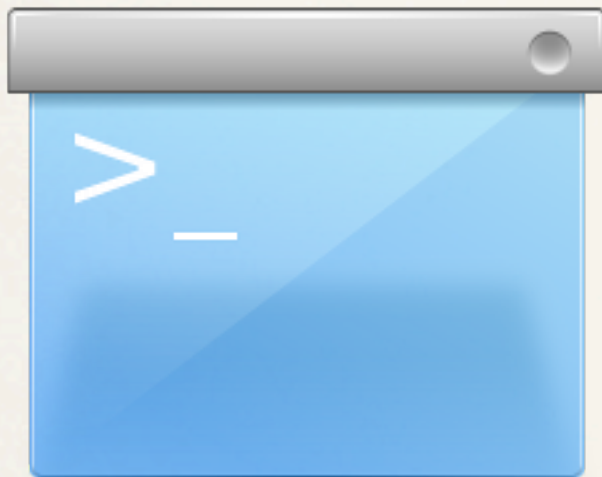
Advanced-Runtime



e(fx)clipse - Runtime

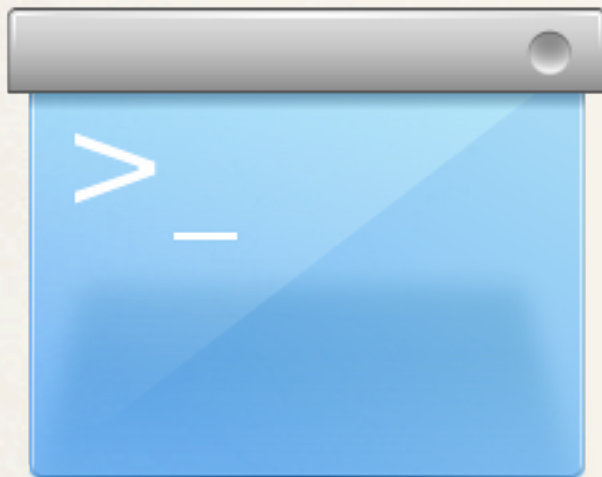
Advanced-Runtime

- ✧ Eclipse 3.x/4.x
 - ✧ Specialized ViewPart



e(fx)clipse - Runtime

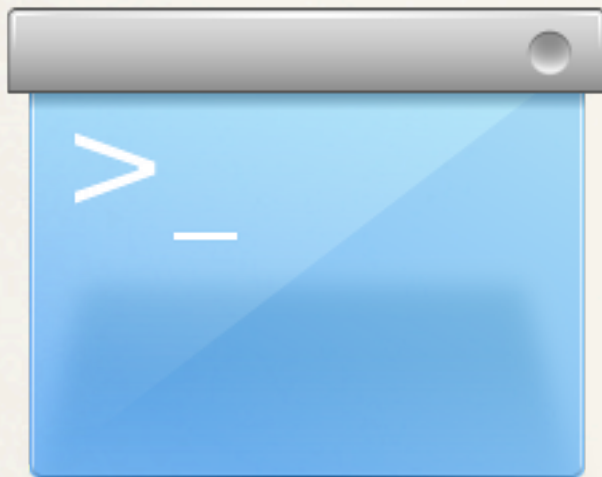
Advanced-Runtime



- ✧ Eclipse 3.x/4.x
 - ✧ Specialized ViewPart
- ✧ EMF-Edit integration

e(fx)clipse - Runtime

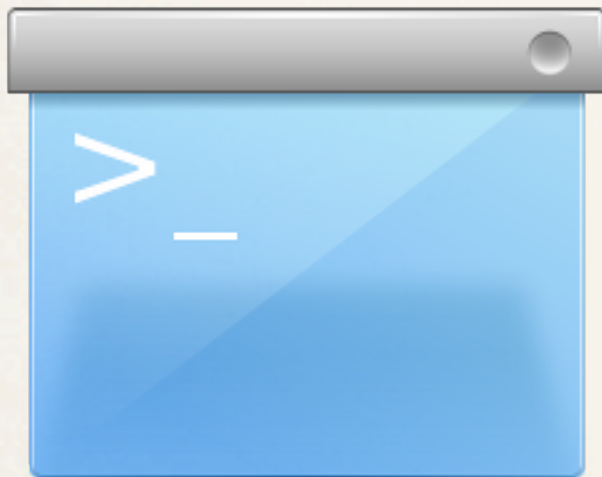
Advanced-Runtime



- ✧ Eclipse 3.x/4.x
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- ✧ EMF-Edit integration
- ✧ OSGi + FXML
 - ✧ DI support for loading

e(fx)clipse - Runtime

Advanced-Runtime



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- ✧ OSGi + FXML
 - ✧ DI support for loading
- ✧ e4
 - ✧ renderers for e4
 - ✧ jemmy test support

e(fx)clipse - FXML

```
<BorderPane xmlns:fx="http://javafx.com/fxml" fx:controller="MyController">
  <center>
    <Button
      text="Hello World"
      onAction="#clicked" />
  </center>
</BorderPane>
```

```
final MyController c = new MyController();
BorderPane p = new BorderPane();
Button b = new Button("Hello World");
b.setOnAction(new EventHandler<ActionEvent>() {
  @Override
  public void handle(ActionEvent event) {
    c.clicked(event);
  }
});
```

e(fx)clipse – OSGI & FXML

`System.bundle` – `Object.class`, `String.class`

e(fx)clipse – OSGI & FXML

`System.bundle` – `Object.class`, `String.class`

MyApp-Bundle
(requires FX-Bundle)

`MyController.class`
`MyControl.class`
`MyApp.class`
`myscreen.fxml`

e(fx)clipse – OSGI & FXML

`System.bundle` – `Object.class`, `String.class`

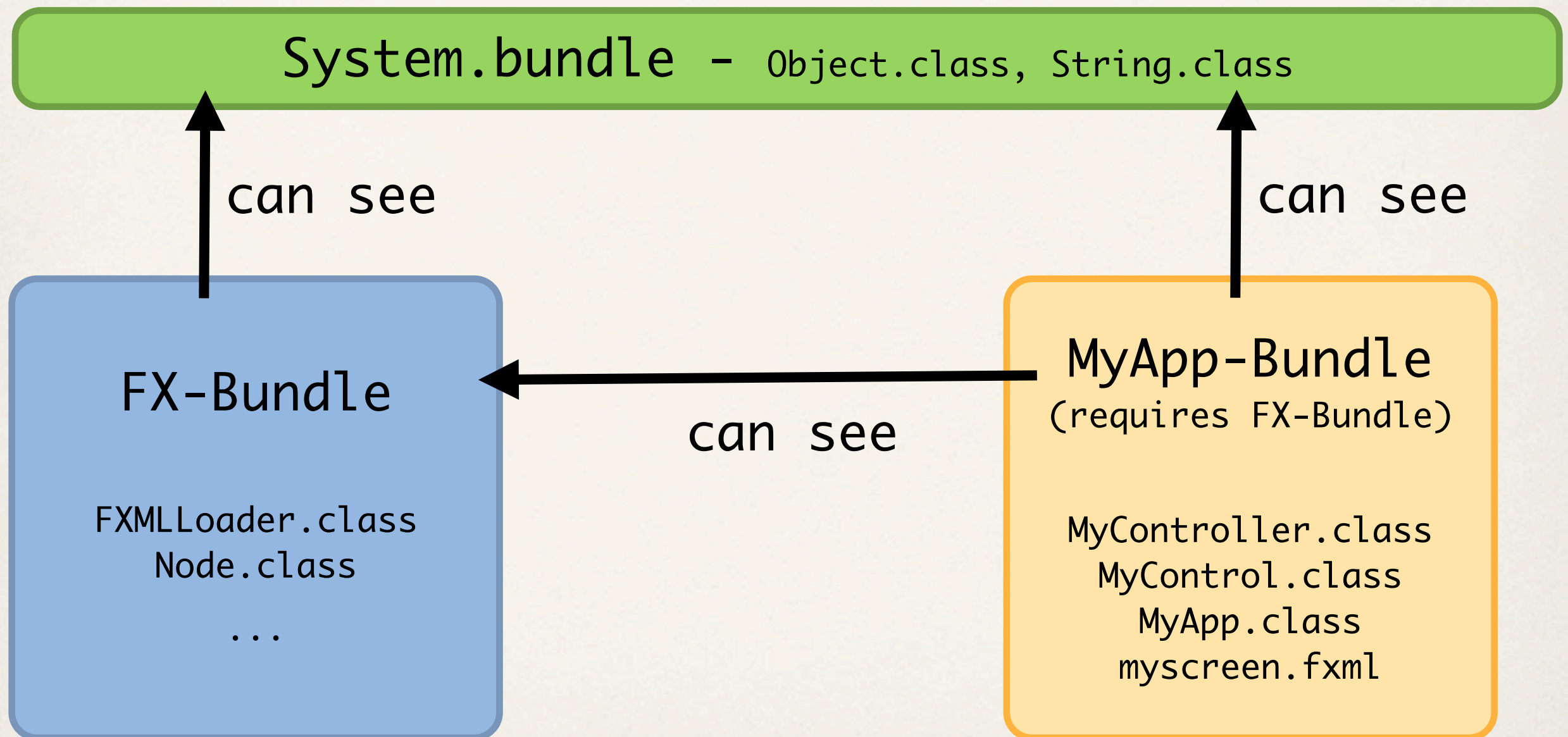
FX-Bundle

`FXMLLoader.class`
`Node.class`
...

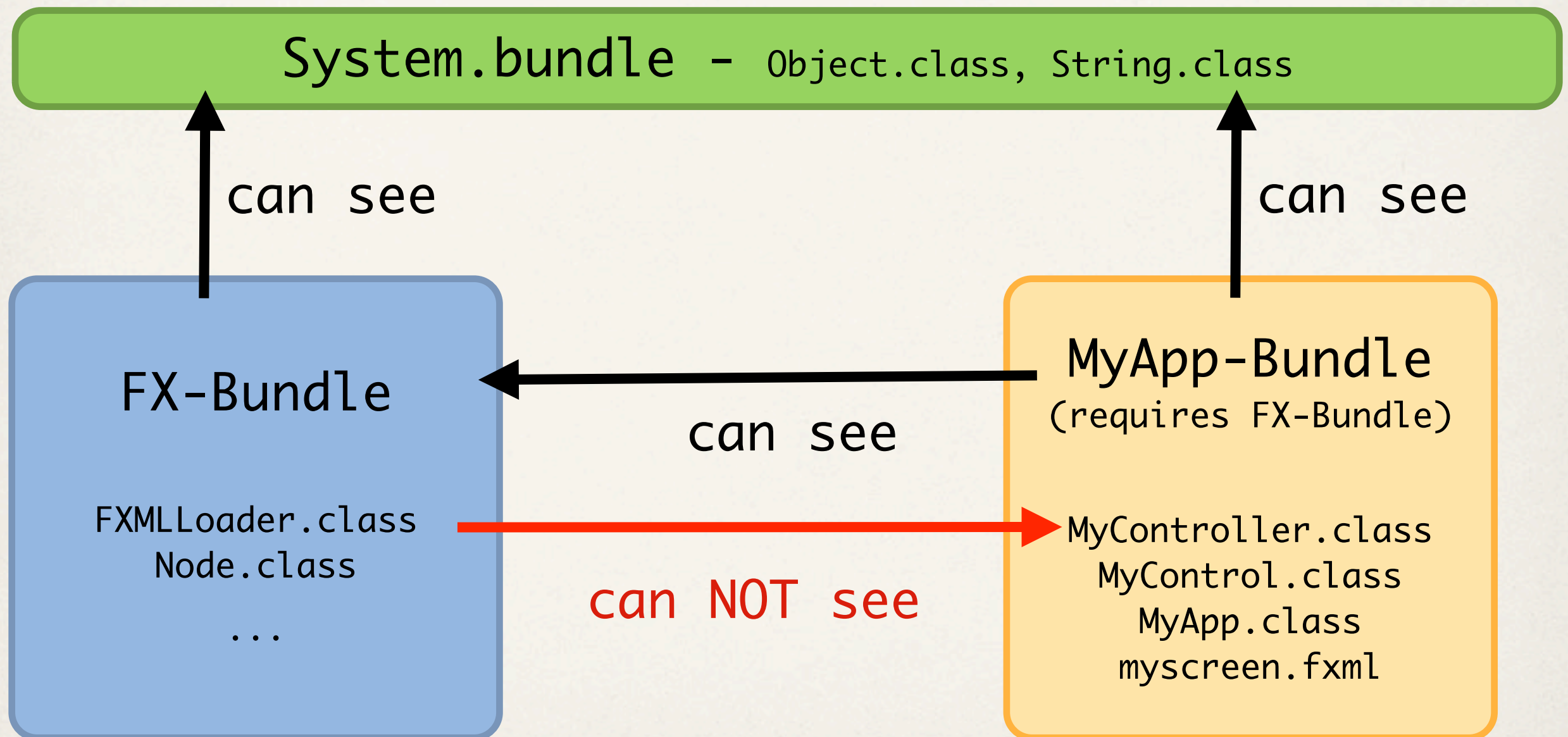
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e(fx)clipse - OSGI & FXML



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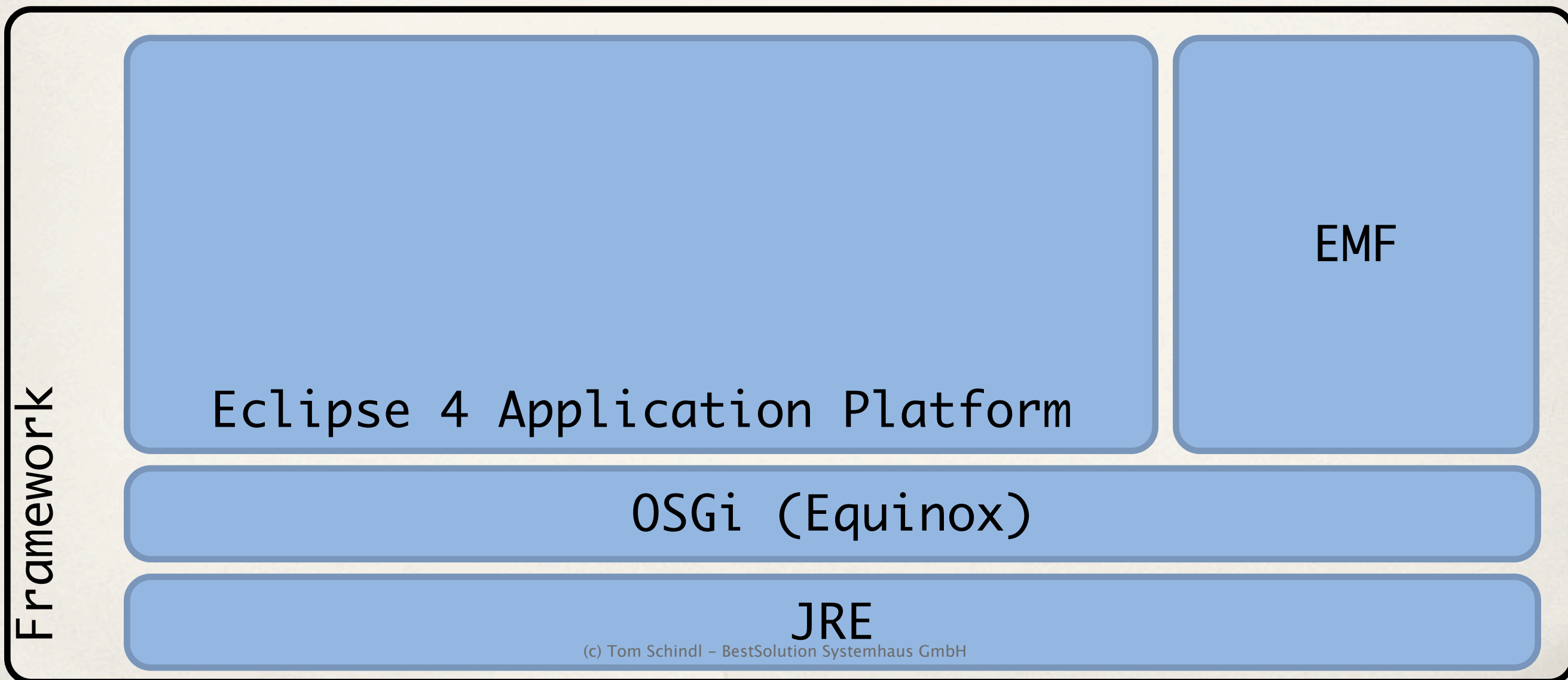


e(fx)clipse - OSGi+FXML

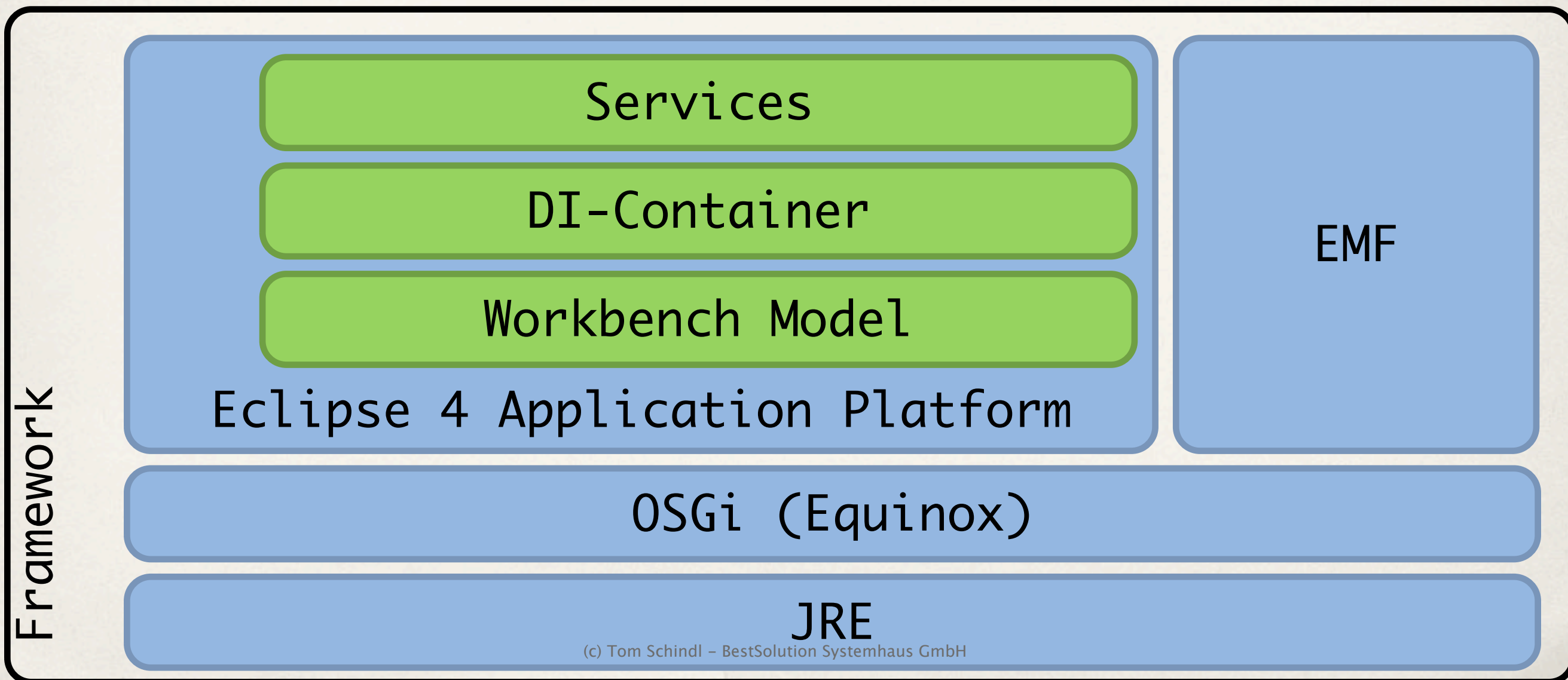
```
public class MyApp {  
  
    @Inject  
    @FXMLLoader  
    FXMLLoaderFactory factory;  
  
    @PostConstruct  
    void launch(IApplicationContext applicationContext,  
        Application jfxApplication, Stage primaryStage) {  
        Parent p = (Parent) factory.loadBundleRelative("Sample.fxml").load();  
    }  
}
```

e(fx)clipse – EAP

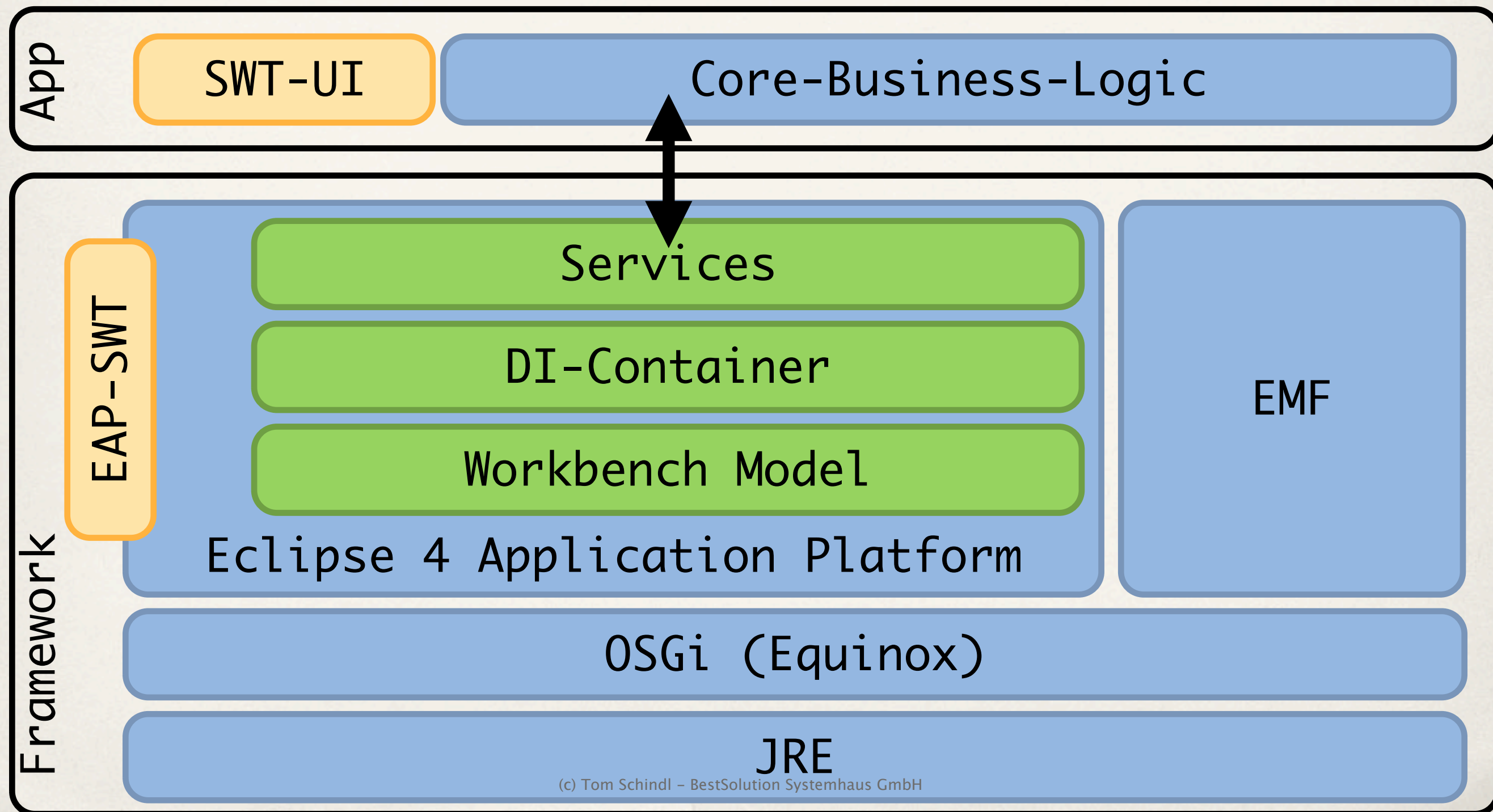
e(fx)clipse - EAP



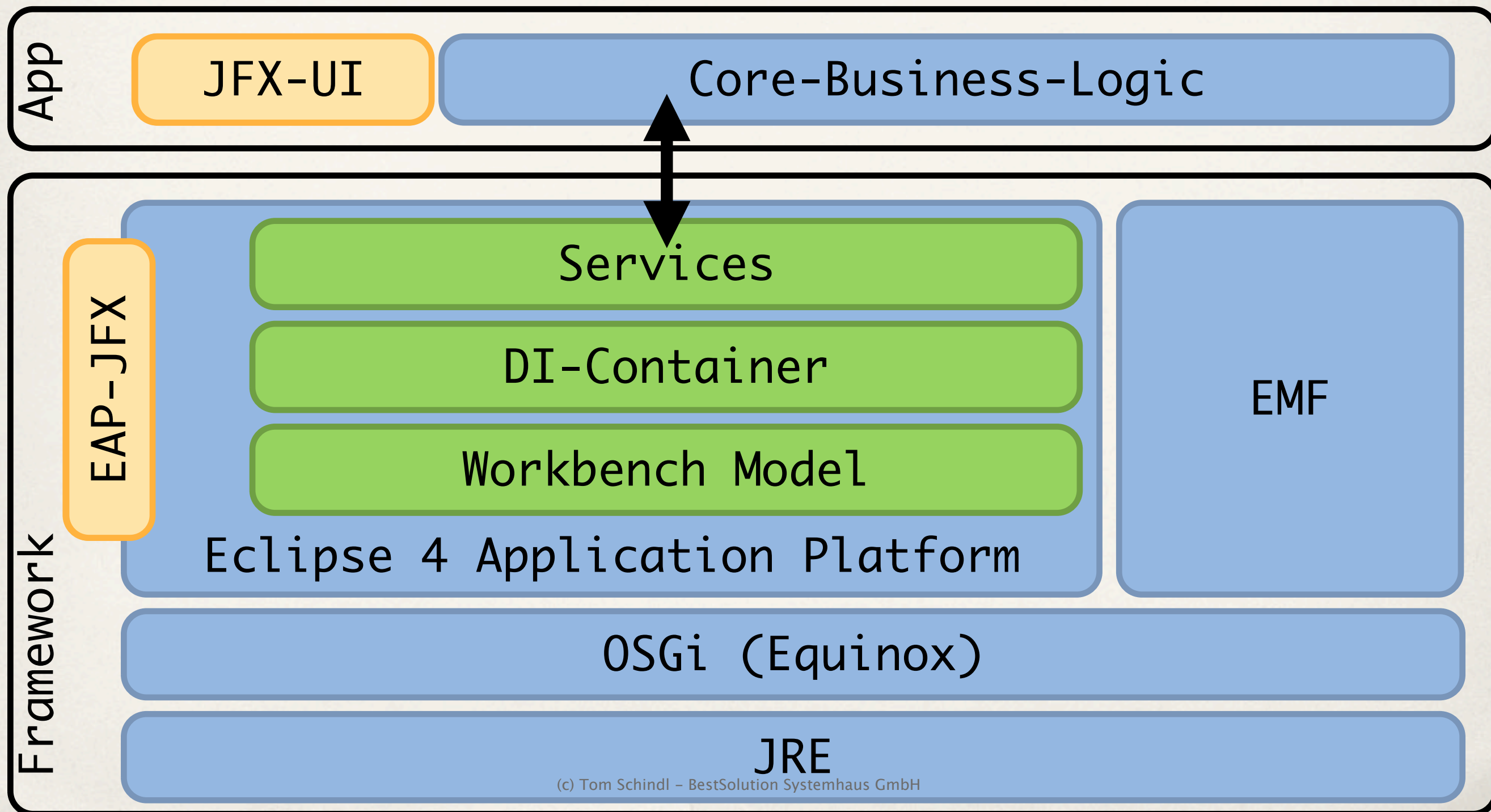
e(fx)clipse – EAP



e(fx)clipse - EAP



e(fx)clipse - EAP



e(fx)clipse – OSGi+FXML

e4 Runtime Demo

e(fx)clipse – OSGi+FXML

e4 Runtime Demo

- ✧ EMF-Edit

e(fx)clipse – OSGi+FXML

e4 Runtime Demo

- ✧ EMF-Edit
- ✧ e4 Demo

e(fx)clipse – Real Apps

TESIS Dynaware

TESIS DYNAware simulation software in use at Audi, BMW, Ford, MAGNA, MAN, VW and others.

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e(fx)clipse – Real Apps

TESIS Dynaware

- ❖ A client-server application for vehicle dynamics simulation , data management and animation in the automotive industry.

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e(fx)clipse – Real Apps

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- ✧ A client-server application for vehicle dynamics simulation , data management and animation in the automotive industry.
- ✧ State-of-the-art technology: OSGi-based application using e(fx)clipse to combine e4 and JavaFX.

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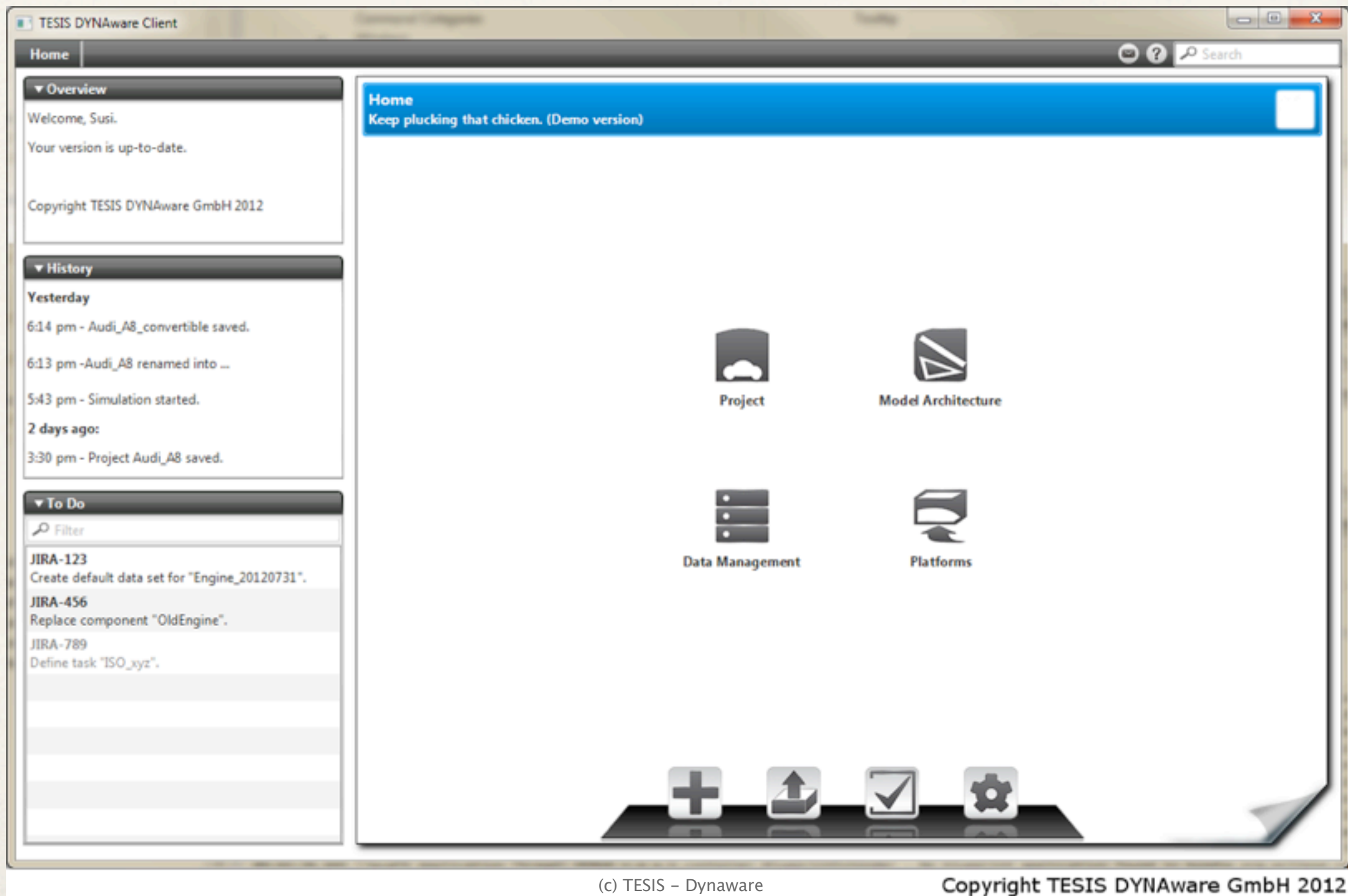
e(fx)clipse – Real Apps

TESIS Dynaware

- ✧ A client-server application for vehicle dynamics simulation , data management and animation in the automotive industry.
- ✧ State-of-the-art technology: OSGi-based application using e(fx)clipse to combine e4 and JavaFX.
- ✧ Makes heavy use of JavaFX‘ styling and data binding capabilities

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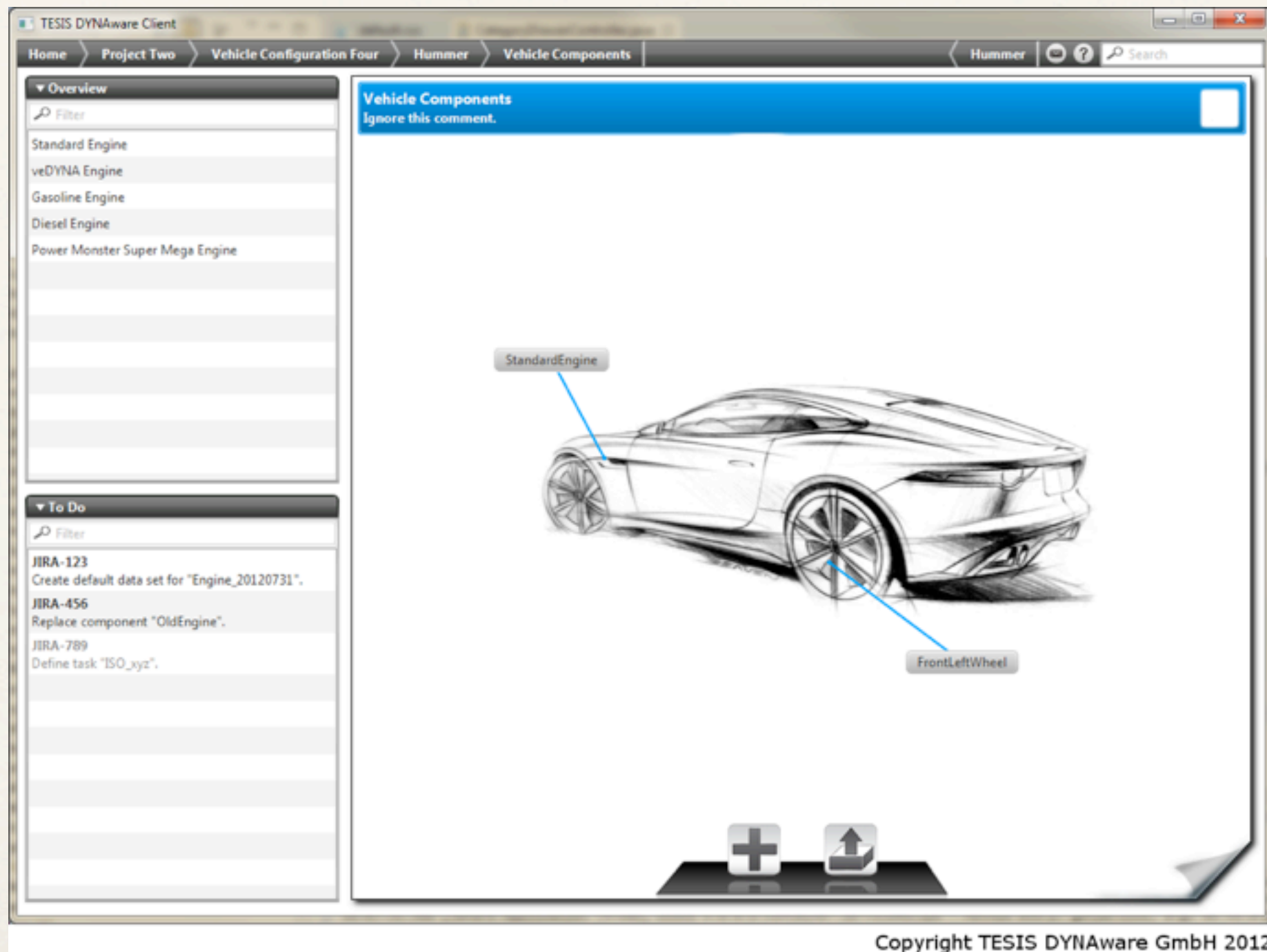
e(fx)clipse - Real Apps TESIS Dynaware



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TESIS DYNaware Client

Home > Project Two > Vehicle Configuration Three > TESIS Truck > Vehicle Components > Data Item One

Items

Filter

- Data Item One
- Data Item Two
- Data Item Three
- Data Item Four
- Data Item Five

To Do

Filter

- JIRA-123
Create default data set for "Engine_20120731".
- JIRA-456
Replace component "OldEngine".
- JIRA-789
Define task "ISO_xyz".

Data Item One
Ignore this comment.

Here's a table of vehicle data...

First Column	Two Column	Third Column
First 0	Second 0	Third 0
First 1	Second 1	Third 1
First 2	Second 2	Third 2
First 3	Second 3	Third 3
First 4	Second 4	Third 4
First 5	Second 5	Third 5
First 6	Second 6	Third 6
First 7	Second 7	Third 7
First 8	Second 8	Third 8
First 9	Second 9	Third 9

ARGON Help

All items in the item bar on the left are draggable. Grab as many as you want and drop them in the center area.

If you like this demo version, do not hesitate to buy your software engineer a drink.

The dock in the bottom area provides you with actions on the objects of the current page.

Take a look into the PDF manual for further help.

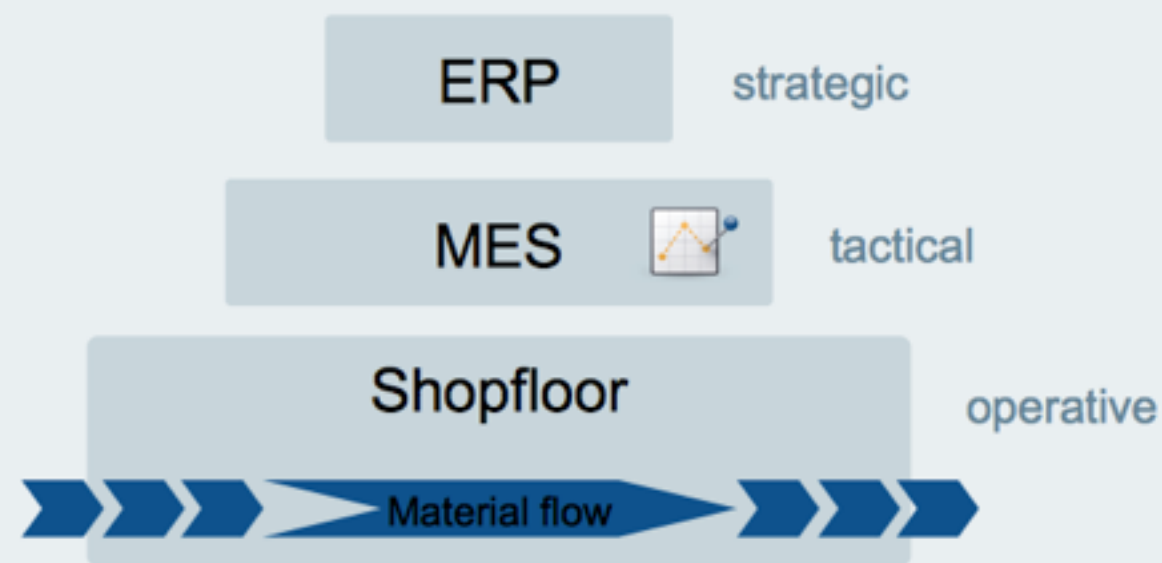
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e(fx)clipse – Real Apps xetics MES

Flexible and Scalable Manufacturing Execution System (MES)

MES in a factory environment



- ❖ Collection of machine and process data
- ❖ Life Monitoring of material flow
- ❖ Control of machine execution
- ❖ Optimization of material flow and machine settings
- ❖ Reporting

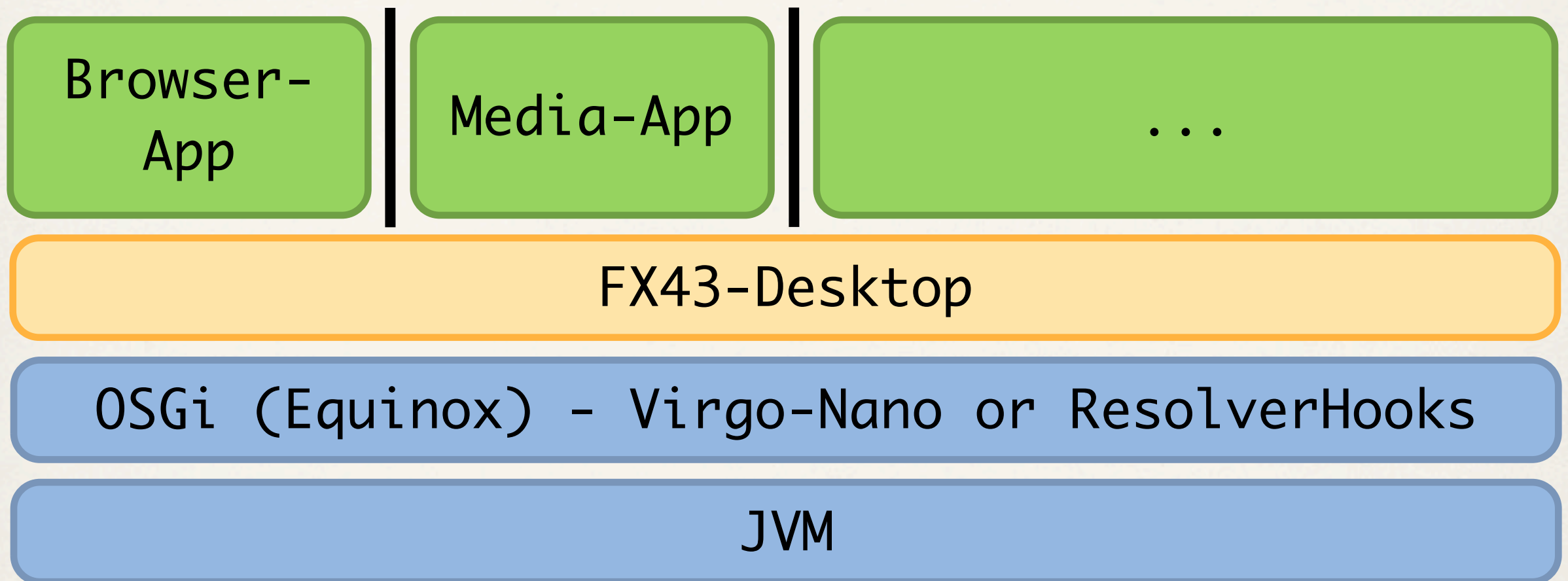
e(fx)clipse - Real Apps xetics MES

Client/Server Architecture

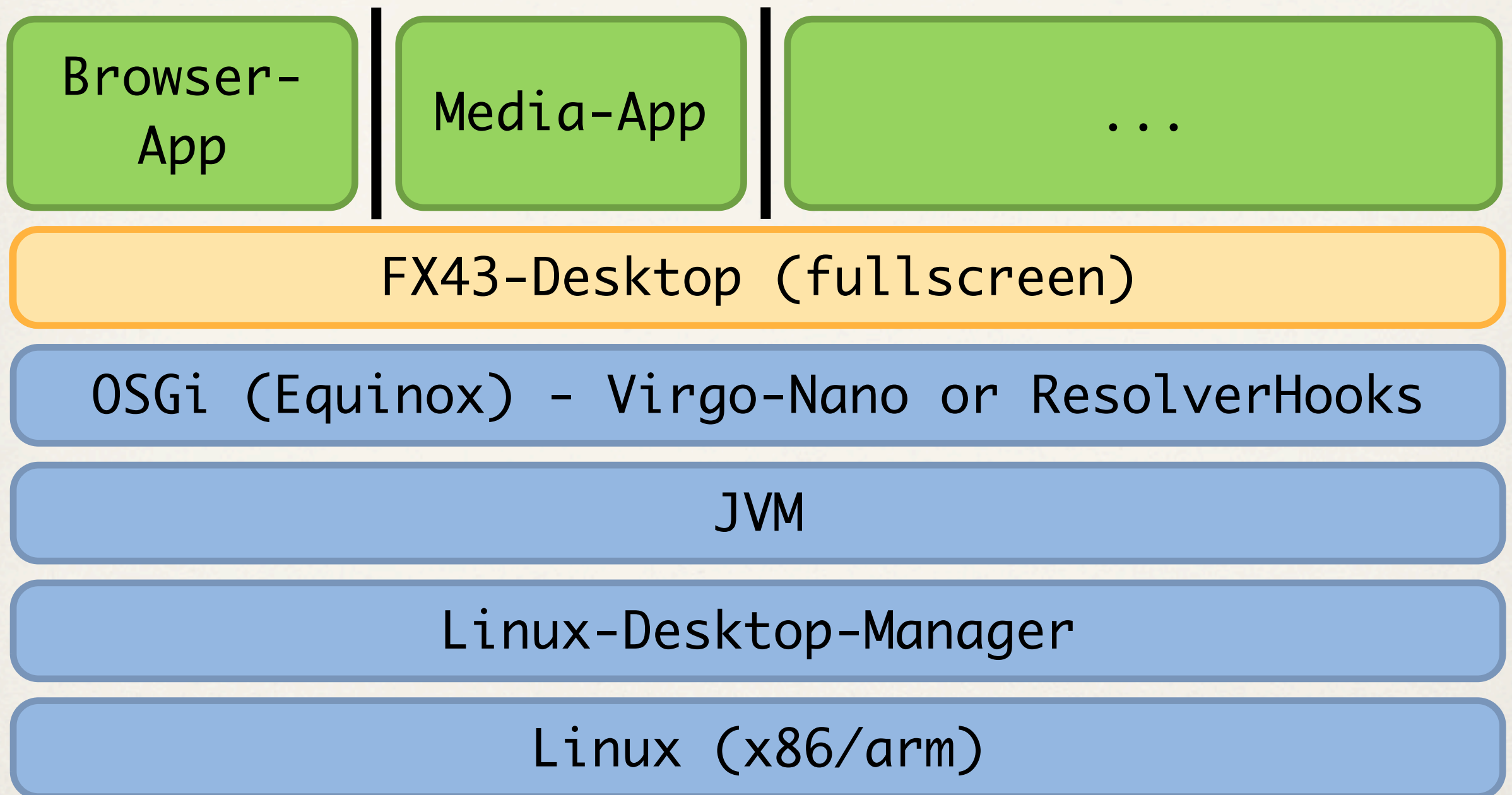
- ❖ JEE 6 based Application Server
- ❖ Client: Eclipse4 RCP with JavaFX rendering
- ❖ Client and Server are extendable by Apps
- ❖ App represents a production (MES) feature
- ❖ Apps can be installed by user



e(fx)clipse - FX43



e(fx)clipse - FX43

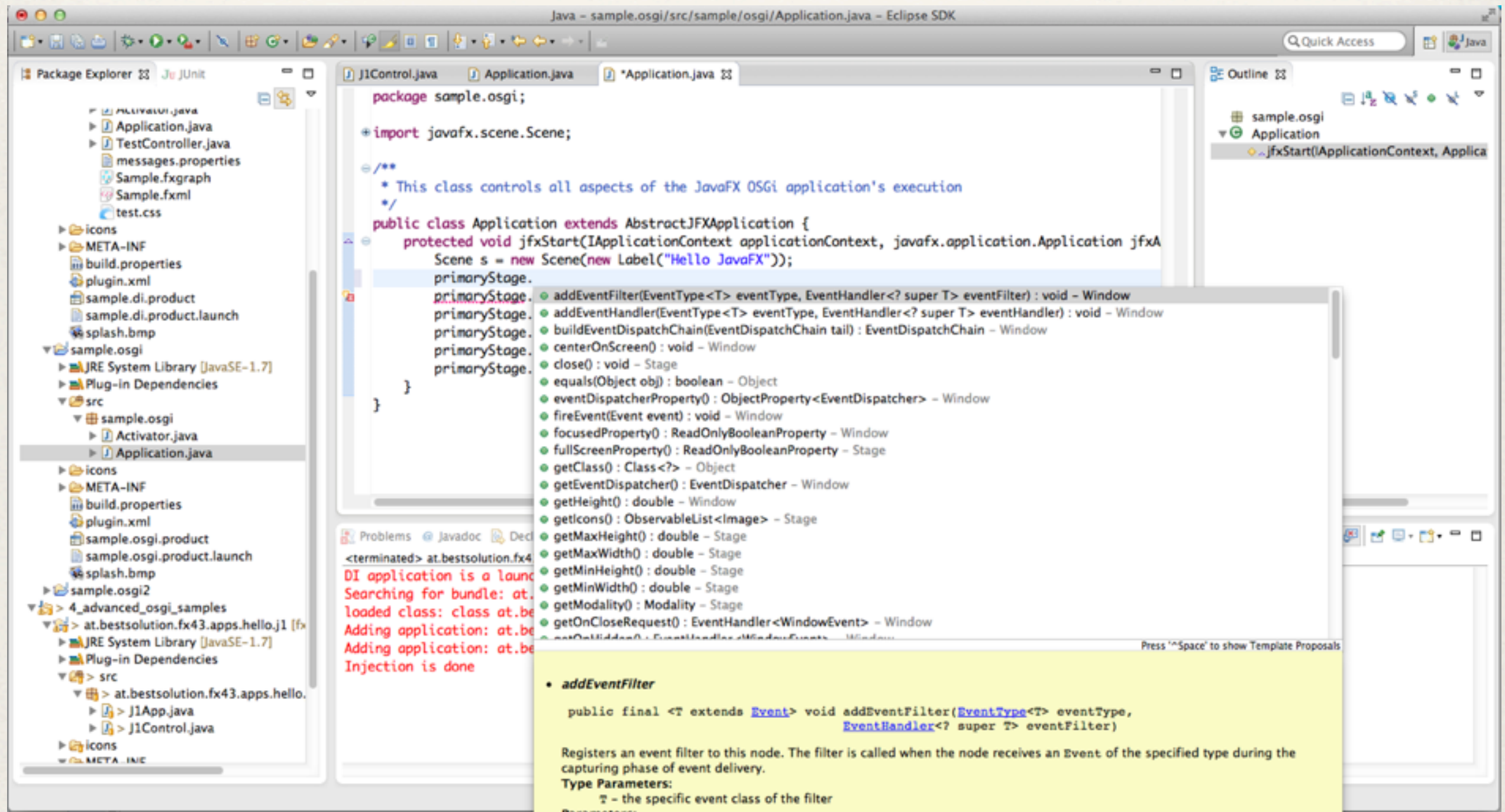


e(fx)clipse - Runtime

fx43 sample

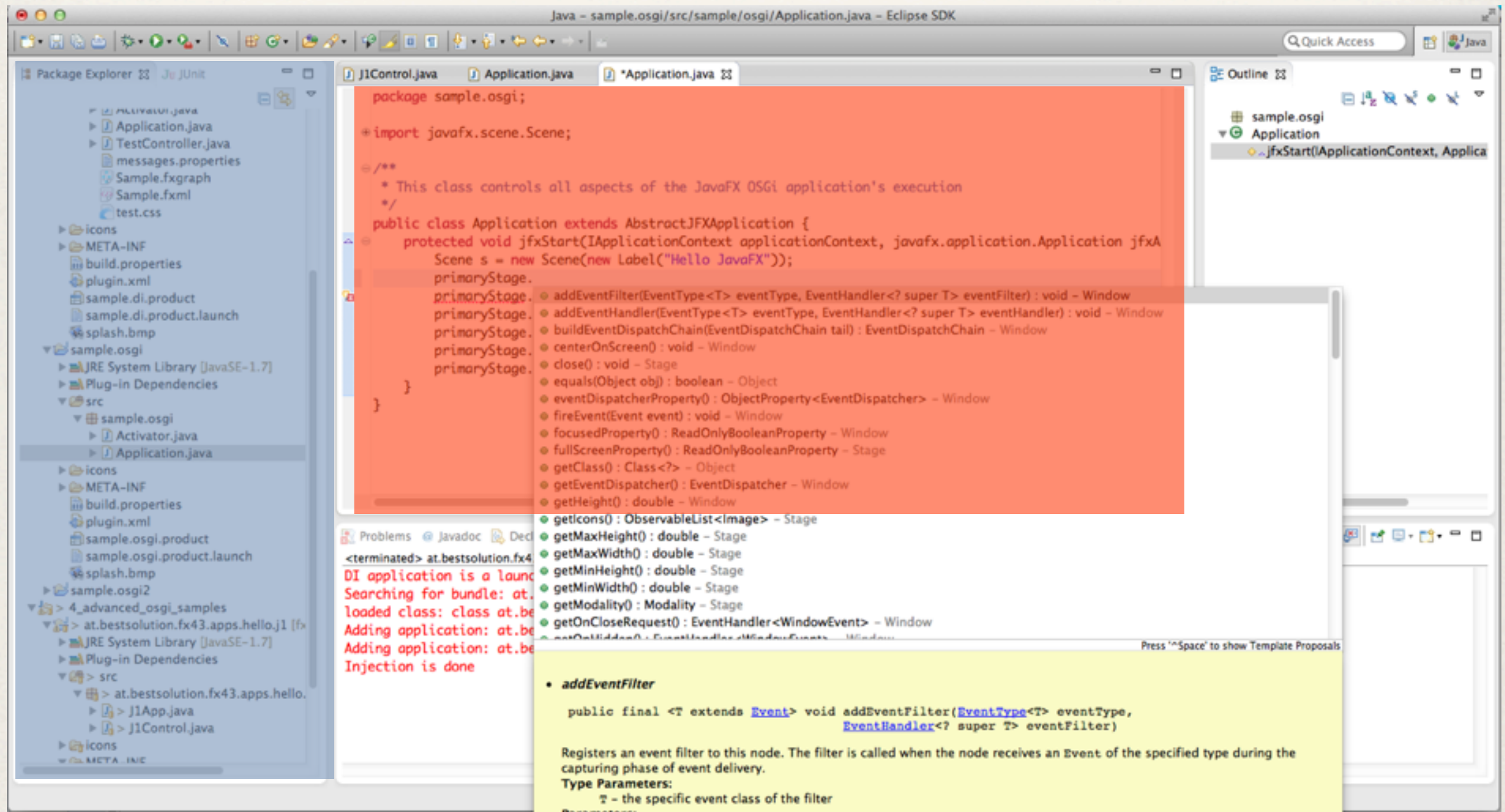
- ✧ Launch application
- ✧ Dynamically Install new app

e(fx)clipse – MyIDE



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e(fx)clipse – MyIDE

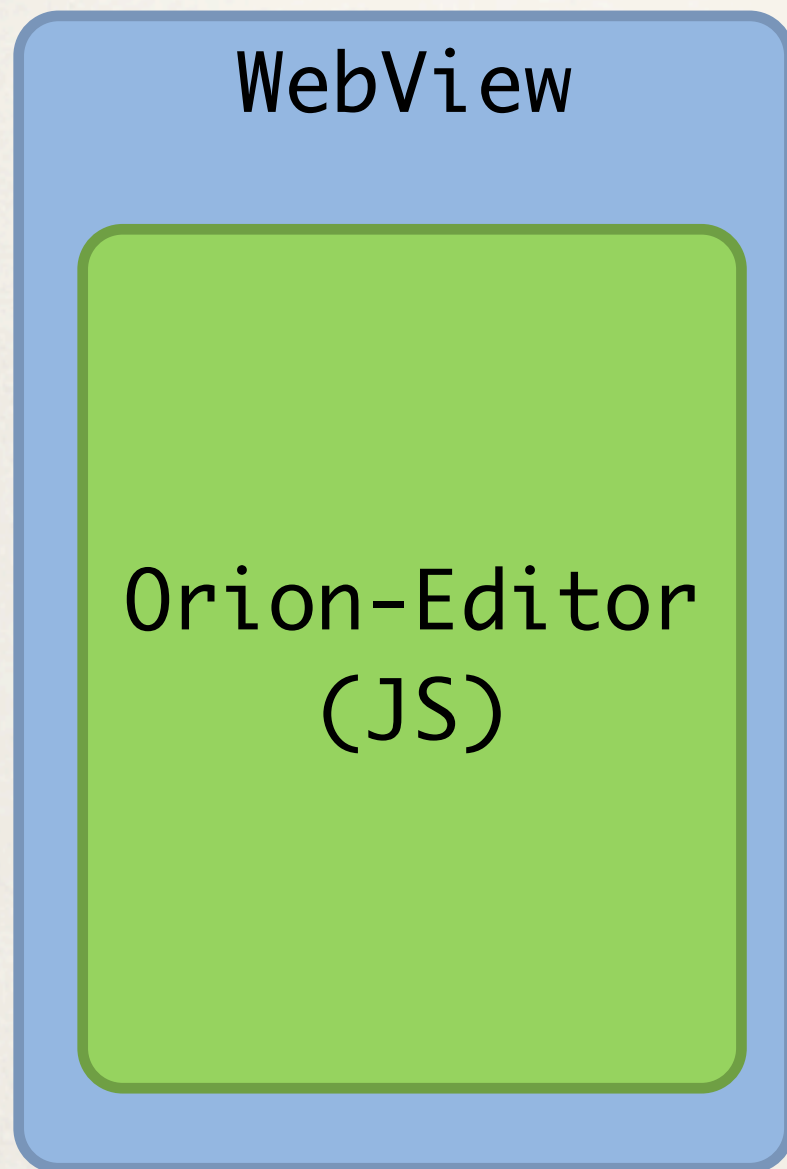


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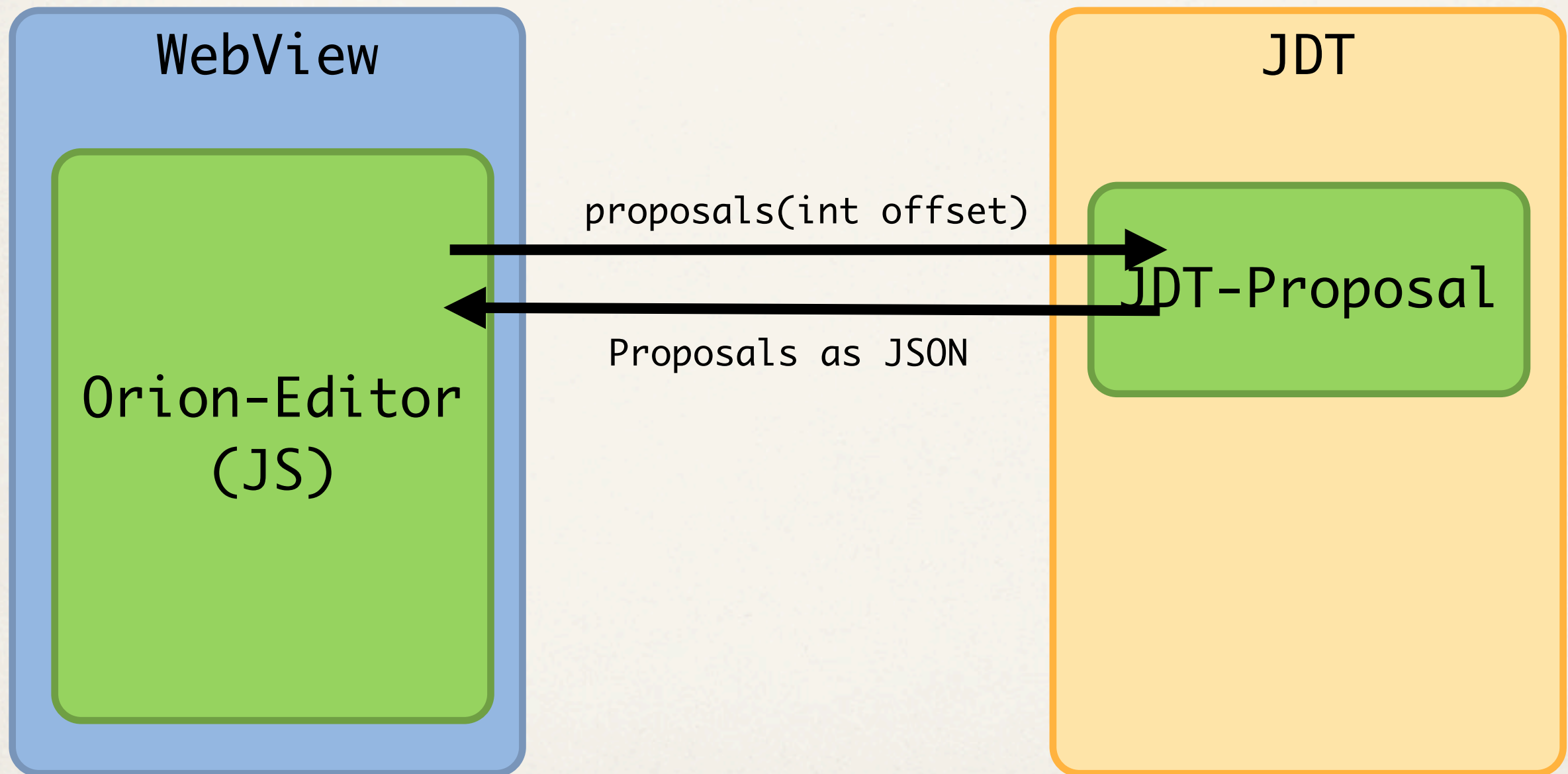
e(fx)clipse – Runtime

- ❖ Resource Browsing: JavaFX-TreeView
- ❖ Compilation, Autocomplete, ... : Eclipse JDT
- ❖ Editing: WebView (Orion-Editor with JS-Java-Bridge)

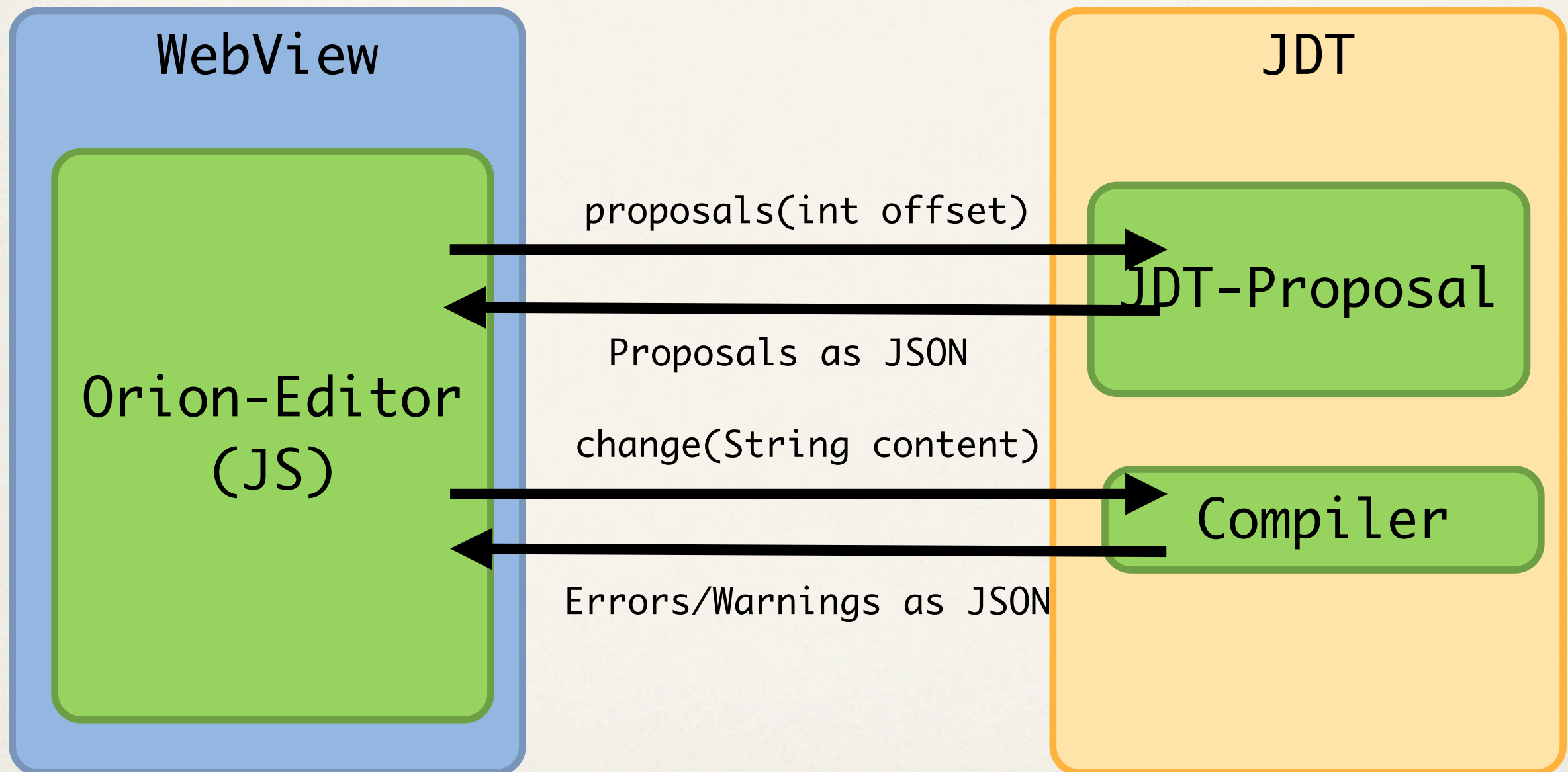
e(fx)clipse - Runtime



e(fx)clipse - Runtime



e(fx)clipse - Runtime



e(fx)clipse - Runtime

fx-ide sample

- ✧ Launch IDE
- ✧ Create FX-App
- ✧ Open Ensemble

e(fx)clipse – Runtime

- ✧ Credits:
 - ✧ Oxygene Icons from KDE (LGPL)
 - ✧ TESIS Dynaware
 - ✧ xetics.com
- ✧ Resources
 - ✧ www.efxclipse.org
 - ✧ www.bestsolution.at
 - ✧ Twitter: @tomsontom