SWT to JavaFX Migration

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Structure

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Terminology

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Terminology

SWT

- Standard Widget Toolkit

JavaFX

- Oracle Standard Java UI Toolkit

SWTonJavaFX

- SWT Implementierung mit JavaFX

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Terminology

Eclipse RCP

- Rich Client Platform

e(fx)clipse

- Tooling (IDE)
- Runtime (JRE, OSGi, RCP, EMF)

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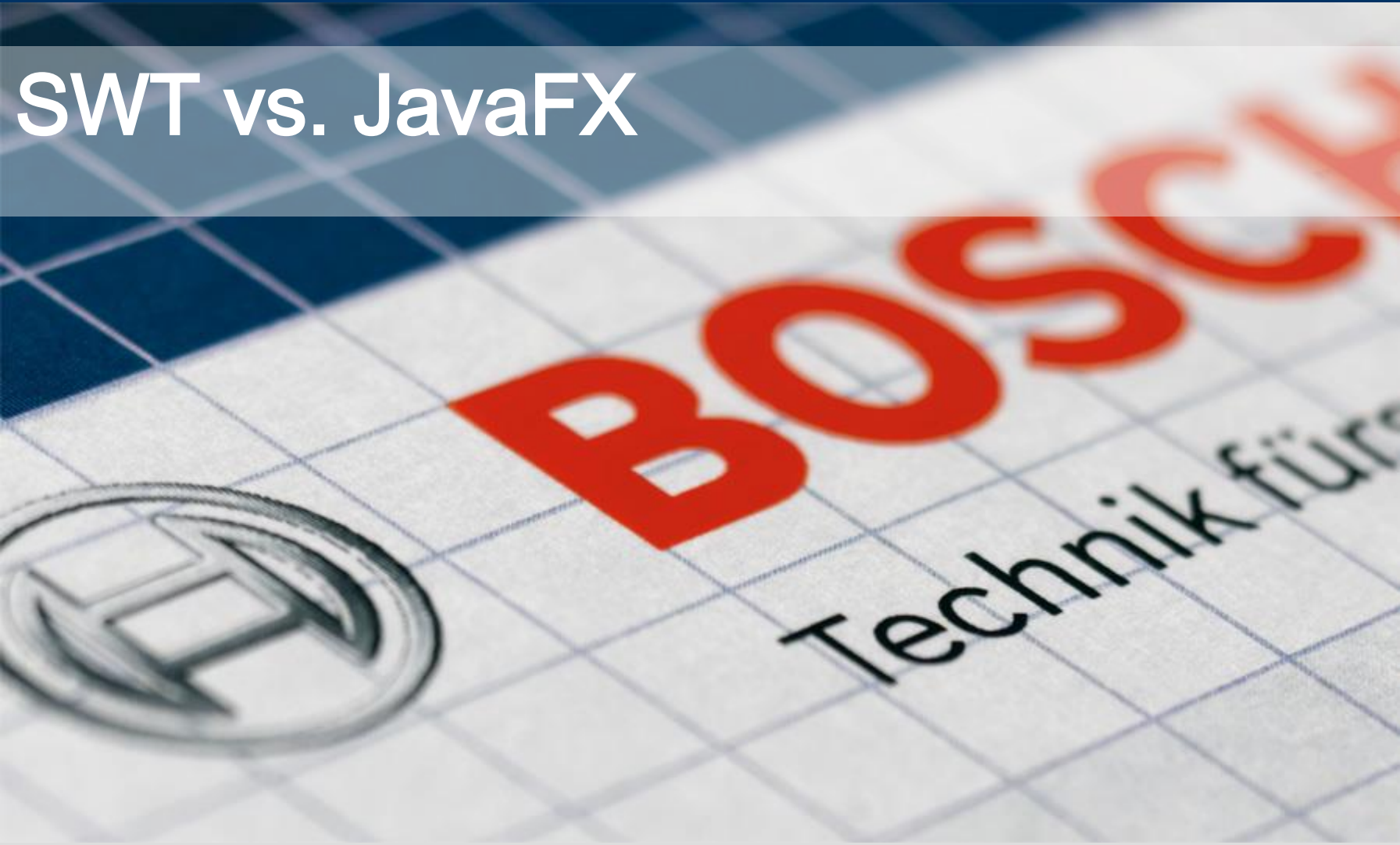
SWT vs. JavaFX



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SWT vs. JavaFX

SWT Downsides

- Few people
- Platform dependent
- Usage of native widgets
- CSS incomplete
- Resource Management

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SWT vs. JavaFX

JavaFX Advantages

- Part of Java
- Multimedia-Platform
- Usage of the Graphics Engine
- Support of Transitions
- Complete CSS Support
- Graph instead of “Canvas”
- Declarative UI

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Migration Basics

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Migration Basics

Plain SWT -> Plain JavaFX

```
public class Main {

    public static void main(String[] args) {
        // build UI

        while (!shell.isDisposed()) {
            if (!display.readAndDispatch()) {
                display.sleep();
            }
        }

        // shutdown
    }
}
```


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Migration Basics

Eclipse RCP

- **Target Platform**
- **Product**
  - Feature Dependencies
  - Product / Application
  - Classloader-Delegation
- **Application Model**
  - SWT Addons
- **Plug-in Dependencies**

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Migration UI

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Migration UI

Controls

- Replace SWT Controls with JavaFX Controls

```
org.eclipse.swt.widgets.Label
org.eclipse.swt.widgets.Text
org.eclipse.swt.widgets.Button
```

```
javafx.scene.control.Label
javafx.scene.control.TextField
javafx.scene.control.Button
```

- Mind the constructor parameter

```
Label label =
    new Label(parent, SWT.NONE);
label.setText("My Label");
```

```
Label label =
    new Label("My Label");
parent.getChildren().add(label);
```


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Migration UI

Layout

```
@PostConstruct
public void postConstruct(Composite parent) {
        parent.setLayout(new GridLayout(3, true));
        ...
        GridDataFactory.fillDefaults().applyTo(label);
```

```
@PostConstruct
public void postConstruct(GridPane parent) {
        ...
        GridPane.setConstraints(label, 0, 0);
        GridPane.setMargin(label, new Insets(5.0));
```


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Migration UI

Interactions & Event Handling

```
button.addSelectionListener(new SelectionAdapter() {
        @Override
        public void widgetSelected(SelectionEvent e) {
                ...
        }
});
```

```
button.setOnAction(event -> ...);
```


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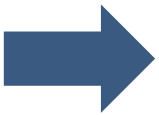
Migration UI

CSS Styling

- No simple CSS Styling (*applicationCSS*)
- Only theme-styling via CSS
- Themes as OSGi declarative services

```
Text {
    color: green;
}
```



```
.text-field {
        -fx-text-fill: green;
}
```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Further Information

- **SWT to JavaFX migration**
  Dirk Fauth
  - https://blog.codecentric.de/en/2015/02/swt-javafx-migration-eclipse-rcp-cookbook/

- **Migrate E4 RCP from SWT to JavaFX using SWTonJavaFX**
  Christoph Keimel
  - http://www.kware.net/?p=64

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