



Working With Large GWT Apps

Harald Pehl
GWTCon 2015



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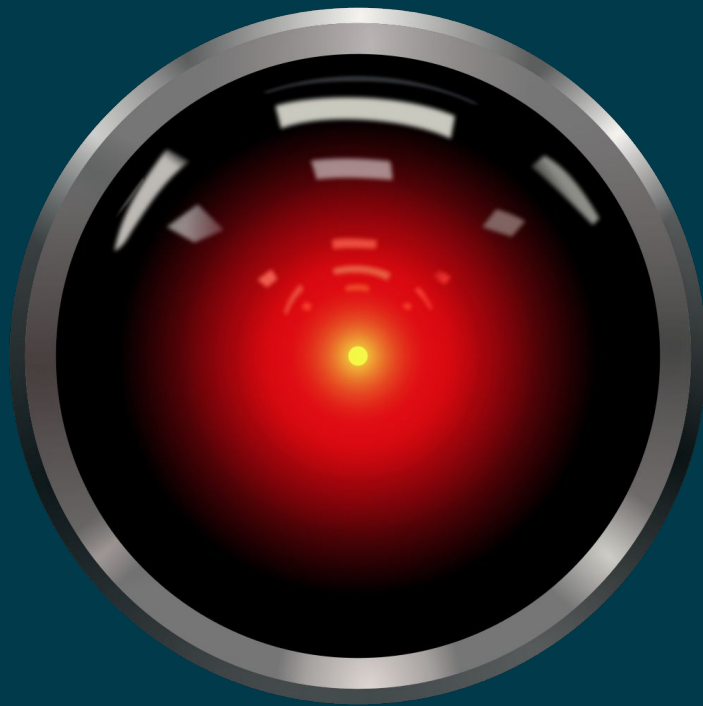
About Me

Harald Pehl

Senior Software Engineer - Red Hat

@haraldpehl - <http://hpehl.info> - <http://github.com/hpehl>

WildFly Management Console



Quick Demo

<http://localhost:9990>

Timeline

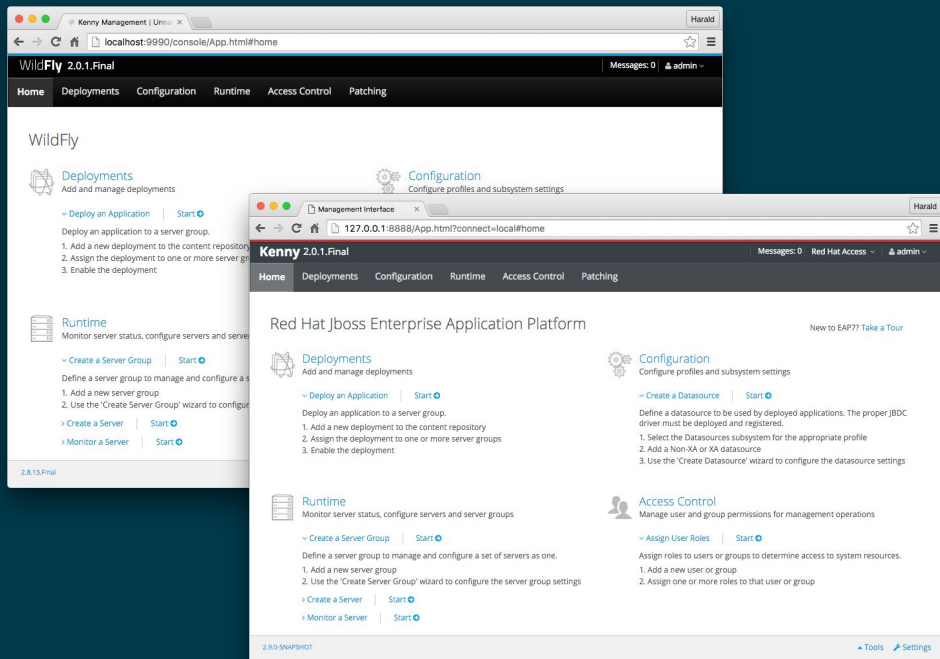


Codebase

Language	Files	Blank	Comment	Code
Java	1570	32450	29950	124772
CSS	18	1327	291	14804
XML	99	184	179	3963
JavaScript	45	616	787	2905
Less	10	557	95	2522
Maven	15	126	201	1895
HTML	74	76	21	809
Python	1	41	20	204
Shell	7	24	7	45
Sum	1839	35401	31551	151999

Community *and* Product Version

Different Look & Feel
Slightly different feature set
Up to **seven** years support & maintenance for the product version



Dependencies



What works for us

```
com.gwtplatform::gwt-*  
com.google.gwt.inject::gin  
com.google.guava::guava-gwt  
com.allen-sauer.gwt.log::gwt-log
```

Architecture

Maven Module == GWT Module
Annotation Processors
Code Splitting
Stick to GWT

MVP
Async Flow
Circuit
Composition over Inheritance

Spin Offs

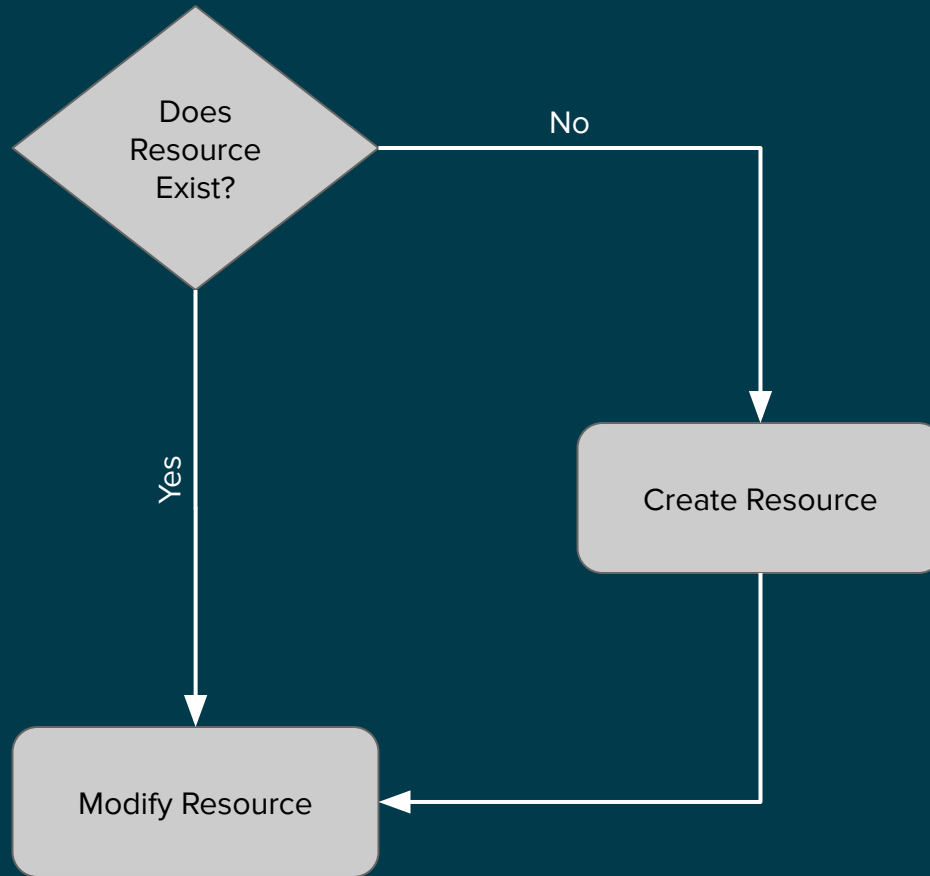
Async Flow (<https://github.com/hal/core/tree/master/flow>)

Circuit (<https://github.com/hal/circuit>)

Async Flow

Escape from “callback hell”

Execute multiple asynchronous calls in a coordinated manner



```

class Lookup implements Function<FunctionContext> {

    public void execute(final Control<FunctionContext> control) {
        Operation op = new Operation.Builder(READ_RESOURCE_OPERATION, address).build();
        dispatcher.execute(new DMRAction(op), new AsyncCallback<DMRResponse>() {

            public void onFailure(final Throwable throwable) {
                control.getContext().push(404);
                control.proceed();
            }

            public void onSuccess(final DMRResponse dmrResponse) {
                control.getContext().push(200);
                control.proceed();
            }

        });
    }
}

```

```

class Add implements Function<FunctionContext> {

    public void execute(final Control<FunctionContext> control) {
        int status = control.getContext().pop();
        if (status == 404) {
            dispatcher.execute(new DMRAction(new Operation.Builder(ADD, address).build()), new FunctionCallback(control));
        } else {
            control.proceed();
        }
    }
}

class Modify implements Function<FunctionContext> {

    public void execute(final Control<FunctionContext> control) {
        ModelNode op = new ModelNodeAdapter().fromChangeSet(address, changedValues);
        dispatcher.execute(new DMRAction(op), new FunctionCallback(control));
    }
}

```

```
new Async<FunctionContext>(Footer.PROGRESS_ELEMENT).waterfall(  
    new FunctionContext(),  
    new Outcome<FunctionContext>() {  
        public void onFailure(final FunctionContext context) { ... }  
        public void onSuccess(final FunctionContext context) { ... }  
    },  
    new Lookup(), new Add(), new Modify());
```


Circuit

Inspired by Flux (part of React.js framework)

Unidirectional data flow

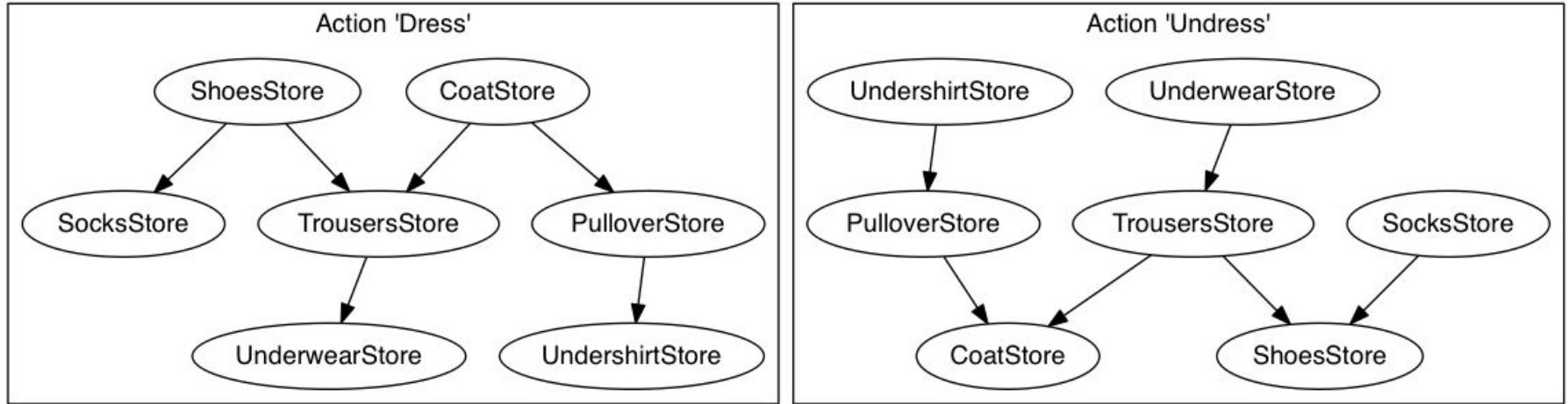
Based on

- a single dispatcher

- stores with optional dependencies

- actions

Store Dependencies



@Store

```
public class TrousersStore {
```

```
    @Process(actionType = Dress.class, dependencies = UnderwearStore.class)
```

```
    public void dress(Dispatcher.Channel channel) {
```

```
        dispatcher.execute(new DMRAction(op), new AsyncCallback<DMRResponse>() {
```

```
            public void onFailure(final Throwable throwable) { channel.ack(throwable); }
```

```
            public void onSuccess(final DMRResponse dmrResponse) { channel.ack(); }
```

```
        });
```

```
    }
```

```
    @Process(actionType = Undress.class, dependencies = {CoatStore.class, ShoesStore.class})
```

```
    public void undress(Dispatcher.Channel channel) { channel.ack(); }
```

```
}
```

```
public class Dress implements Action {}
```

```
public class Undress implements Action {}
```

```
Dispatcher dispatcher = new DAGDispatcher();  
dispatcher.dispatch(new Dress());
```

UI

No UIBinder

Vanilla GWT Widgets

Cell Widgets

Styled with external CSS (PatternFly)

Builder like APIs

```

Widget layout = new MultipleToOneLayout()
    .setHeadline(title)
    .setDescription(resourceDescription.get(DESCRIPTION)))
    .setMasterTools(tools())
    .setMaster(table())
    .addDetail("Attributes", formPanel())
    .addDetail("Properties", propertyEditor().asWidget())
    .addDetail("Security", saslSecurityEditor.asWidget())
    .addDetail("Security Properties", securityProperties.a
    .addDetail("Policy", saslPolicyEditor.asWidget())
    .build();

```

HTTP Connectors

The configuration of a HTTP Upgrade based Remoting connector.

Add

Remove

Name

http-remoting-connector

« < 1-1 of 1 > »

Attributes

Properties

Security

Security Properties

Policy

[Need Help?](#)

[Edit](#)

Authentication provider:

Connector ref: default

Sasl protocol: remote

Security realm: ApplicationRealm

Server name:

Lessons Learned

KISS

Use what's there

Composition over inheritance

Do not fear code duplication

Factor out only if necessary



THANK YOU

@haraldpehl

<http://hpehl.info>

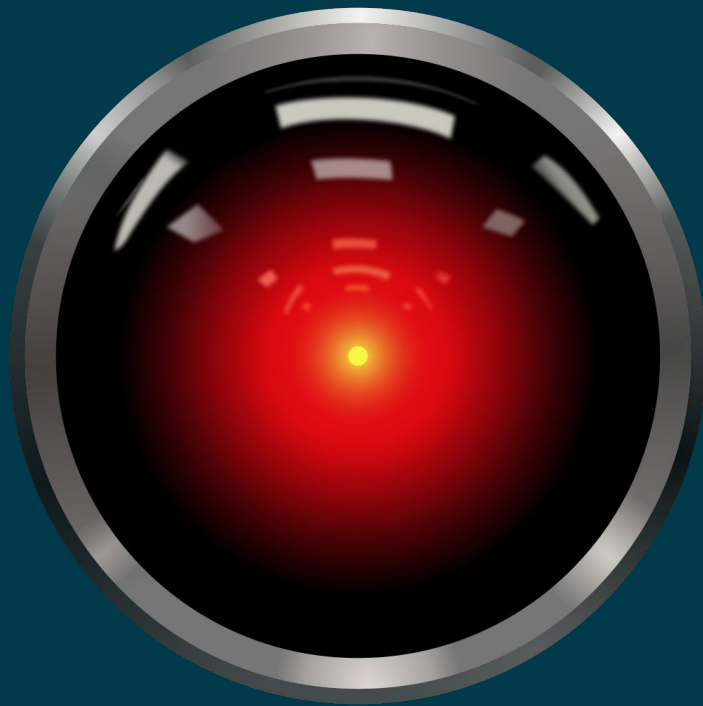
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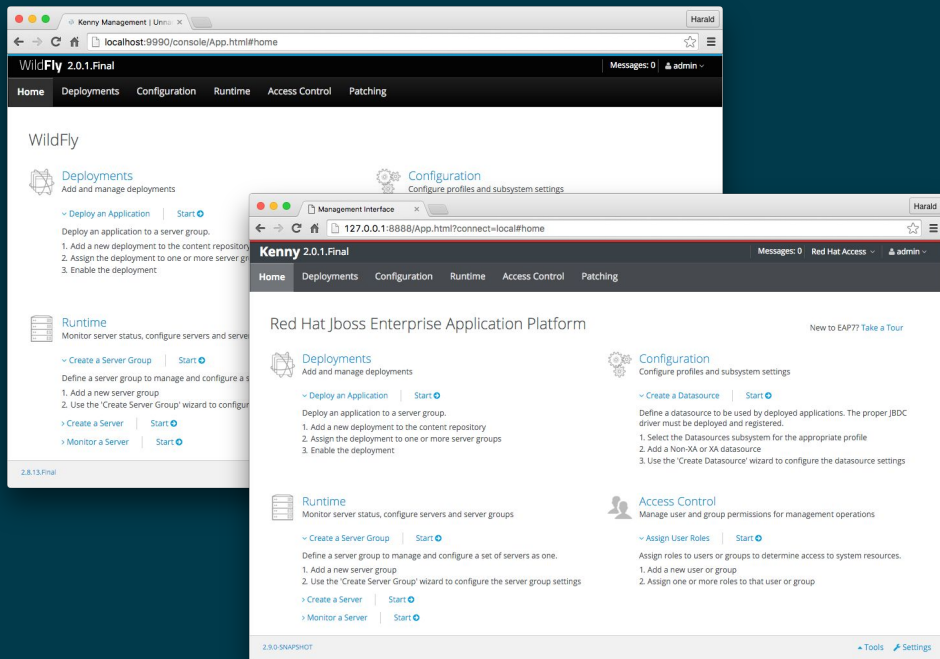
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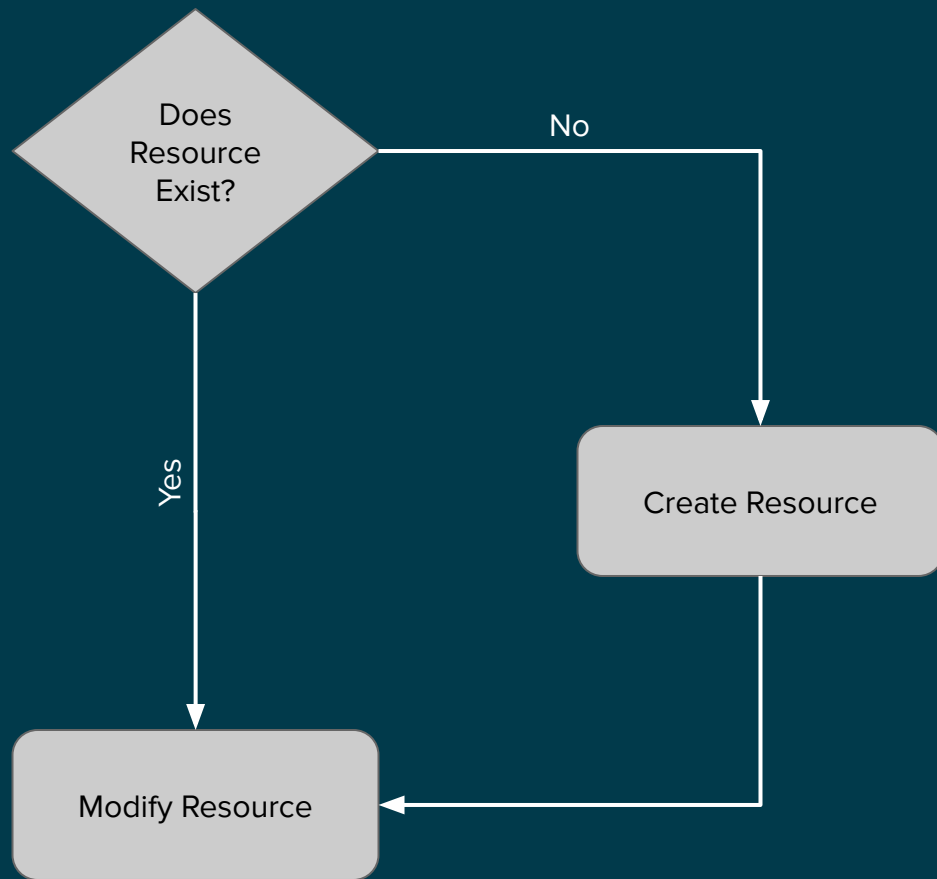
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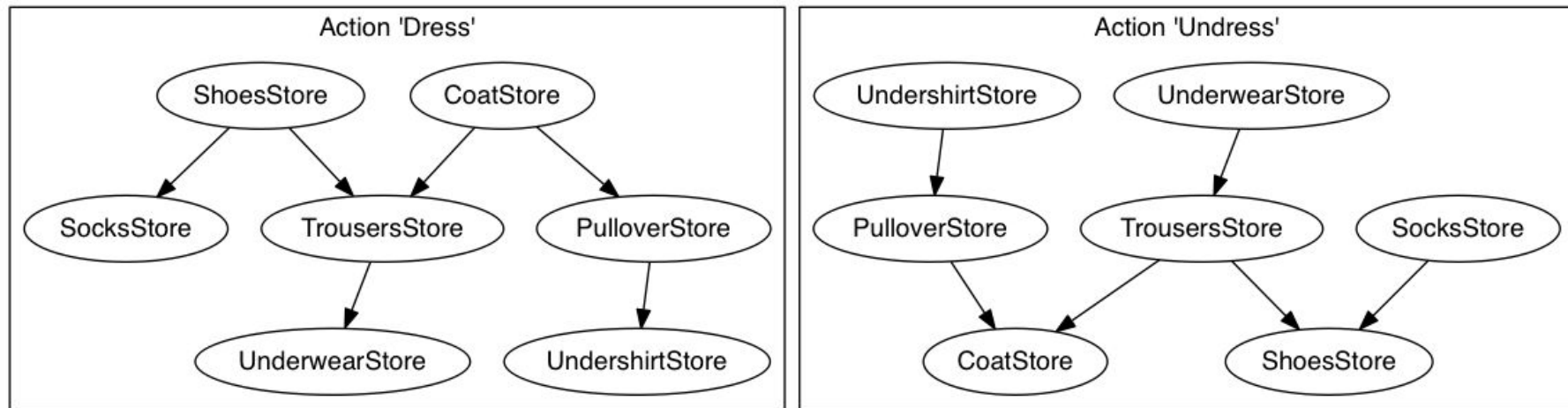
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