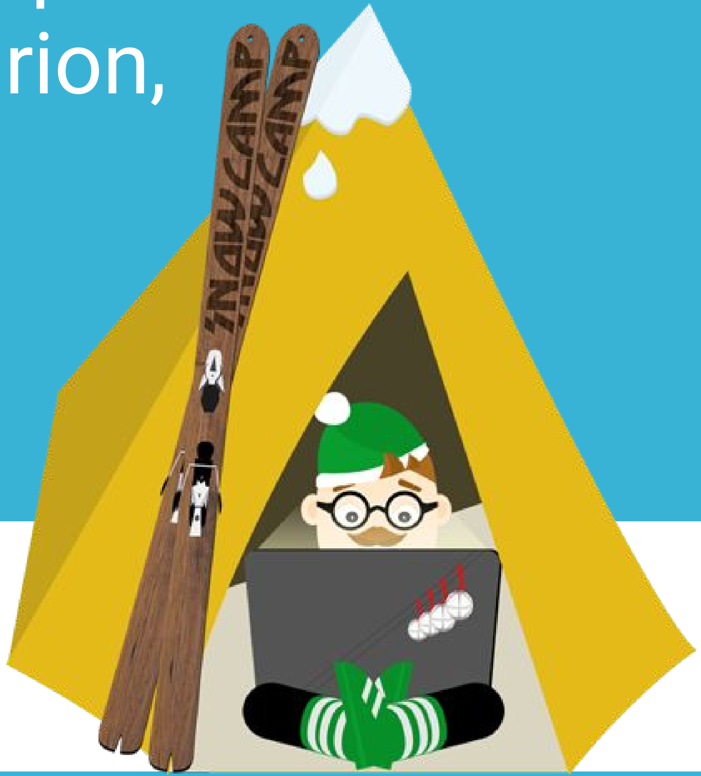
SERLi

Codenvy

Pair programming with Eclipse Che, Eclipse IDE, Eclipse Orion, Eclipse Flux and Docker



Sun Seng David TAN

@sunsengdavidtan

About Me

Sun Seng David TAN

Java developer/Team leader

Eclipse Che commiter

SERLi

Société de conseil et d’ingénierie

Innovation, Ingénierie, Formation

- 70 personnes
- JCP member
- Poitou charentes JUG leader
- OSS Contributions
- Codenvy partner

DEVOXX the java™ community conference

JavaOne MAKE THE FUTURE JAVA

Training by SERLi

JUG SUMMER CAMP

Java Community Process MEMBER

Weld

GlassFish

Se

Google Cloud Platform

sonarsource

codenvy

nuxeo

eclipse

Agenda

- Introduction to Orion, Che and Flux
- Demo 1
  - Flux on Che docker runner
  - Pair programing with Orion and Eclipse IDE
- Demo2
  - Eclipse Che extension
  - Pair programing with Orion, Eclipse IDE and Che
- DIY

Objectives

Pair programming with

- any device
- people from anywhere
- differents tools/IDEs
- simple way to start a session

Objectives

Cloud IDEs

- Same feature classic IDE
- people from anywhere
- just need a browser
- new features:
  - Pair programming,
  - Github contribution Factory

Eclipse Cloud IDEs

ORION

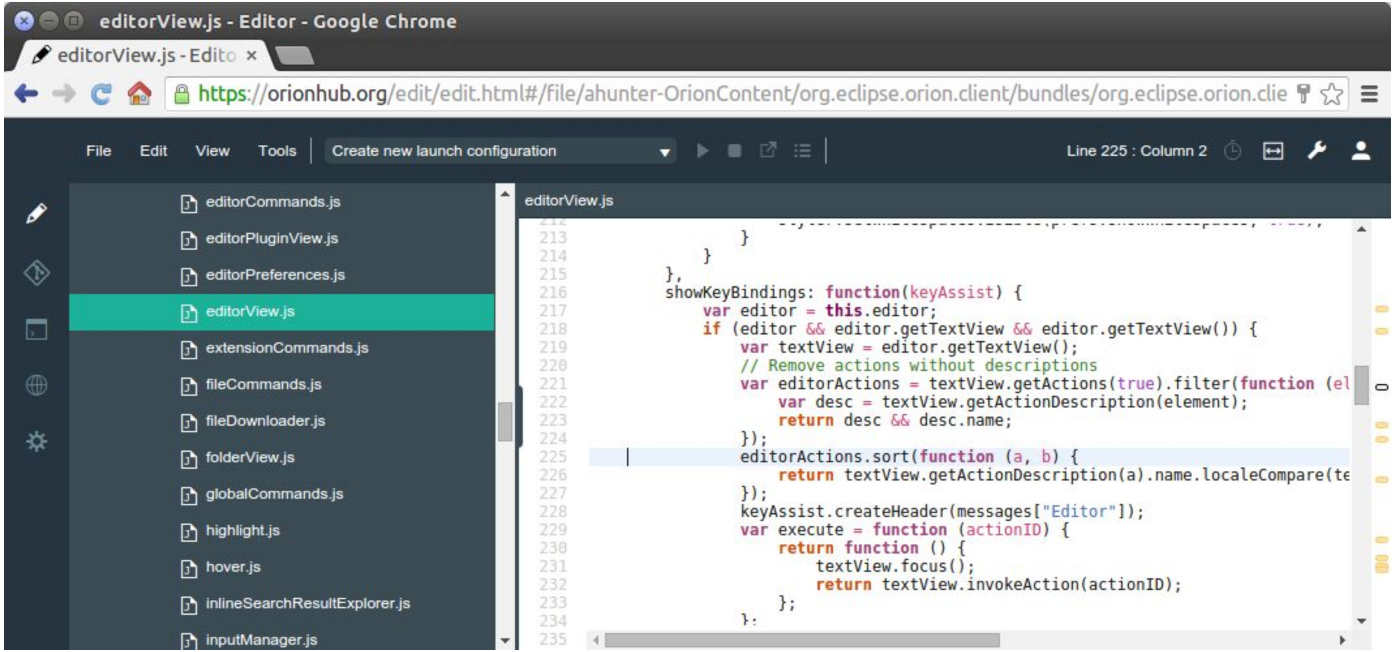
- Initial contributor: IBM
- Pure Javascript Web IDE
  - Javascript client
  - Jetty/OSGi/Eclipse server
  - Standalone editor
- Supported languages:
  - Javascript
  - HTML
  - CSS
  - 40 languages syntax highlighting
- Extendible: Code Edit

Eclipse Che

- Initial contributor: Codenvy
- Modular Web IDE
  - GWT client
    - embedding Orion and Codemirror
  - Java server
    - Rest API
    - Eclipse JDT patched
    - Docker runners (and workspaces 4.0)
- CLi + Eclipse plugin
- Supported languages:
  - Java
  - Javascript, php, Go, etc ...

https://orionhub.org

ORION



```
        }
    }
},
showKeyBindings: function(keyAssist) {
    var editor = this.editor;
    if (editor && editor.getTextView && editor.getTextView()) {
        var textView = editor.getTextView();
        // Remove actions without descriptions
        var editorActions = textView.getActions(true).filter(function (el
            var desc = textView.getActionDescription(element);
            return desc && desc.name;
        });
        editorActions.sort(function (a, b) {
            return textView.getActionDescription(a).name.localeCompare(te
        });
        keyAssist.createHeader(messages["Editor"]);
        var execute = function (actionID) {
            return function () {
                textView.focus();
                return textView.invokeAction(actionID);
            };
        };
```

Eclipse Cloud IDEs

ORION

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Eclipse Che

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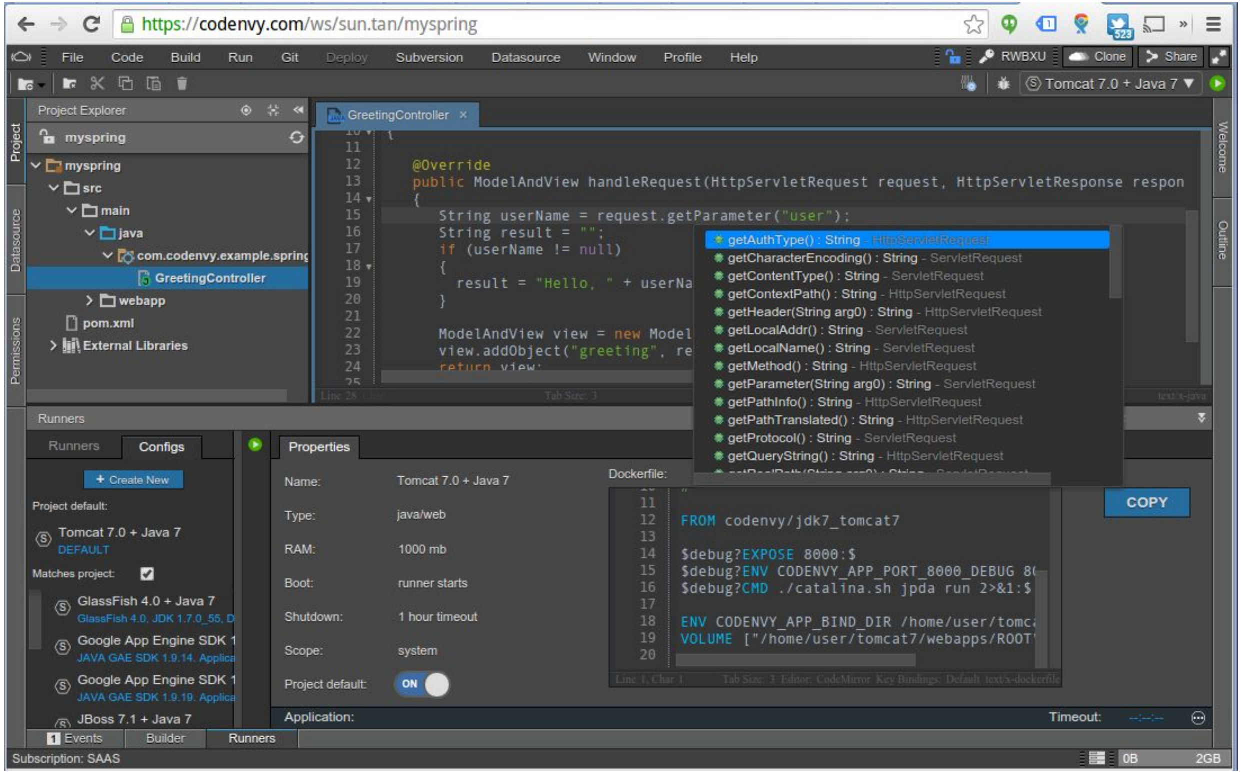
  - Javascript, php, Go, etc …

http://codenvy.com

Eclipse Che

3.x



```
{

    @Override
    public ModelAndView handleRequest(HttpServletRequest request, HttpServletResponse respon
    {
        String userName = request.getParameter("user");
        String result = "";
        if (userName != null)
        {
          result = "Hello, " + userNa
        }

        ModelAndView view = new Model
        view.addObject("greeting", re
        return view;
```

```
getAuthType() : String - HttpServletRequest
getCharacterEncoding() : String - ServletRequest
getContentType() : String - ServletRequest
getContextPath() : String - HttpServletRequest
getHeader(String arg0) : String - HttpServletRequest
getLocalAddr() : String - ServletRequest
getLocalName() : String - ServletRequest
getMethod() : String - HttpServletRequest
getParameter(String arg0) : String - ServletRequest
getPathInfo() : String - HttpServletRequest
getPathTranslated() : String - HttpServletRequest
getProtocol() : String - ServletRequest
getQueryString() : String - HttpServletRequest
```

Name: Tomcat 7.0 + Java 7

Type: java/web

RAM: 1000 mb

Boot: runner starts

Shutdown: 1 hour timeout

Scope: system

Project default: ON

Application:

Timeout: --:--:--

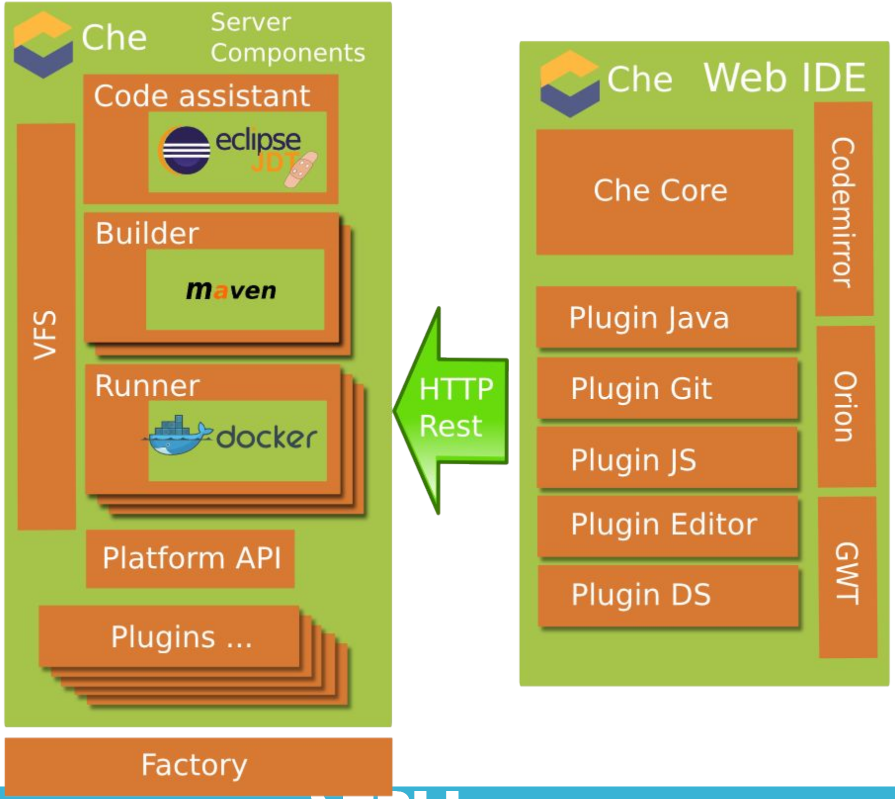
Dockerfile:

```
FROM codenvy/jdk7_tomcat7

$debug?EXPOSE 8000:$
$debug?ENV CODENVY_APP_PORT_8000_DEBUG 8(
$debug?CMD ./catalina.sh jpda run 2>&1:$

ENV CODENVY_APP_BIND_DIR /home/user/tomc
VOLUME ["/home/user/tomcat7/webapps/ROOT"
```

Line 1, Char 1 Tab Size: 3 Editor: CodeMirror Key Bindings: Default text/x-dockerfile

@sunsengdavidtan @CodenvyHQ @serlifr SERLI {☁} Codenvy #eclipseche #eclipseflux #orion #eclipse

Eclipse Che 3.x

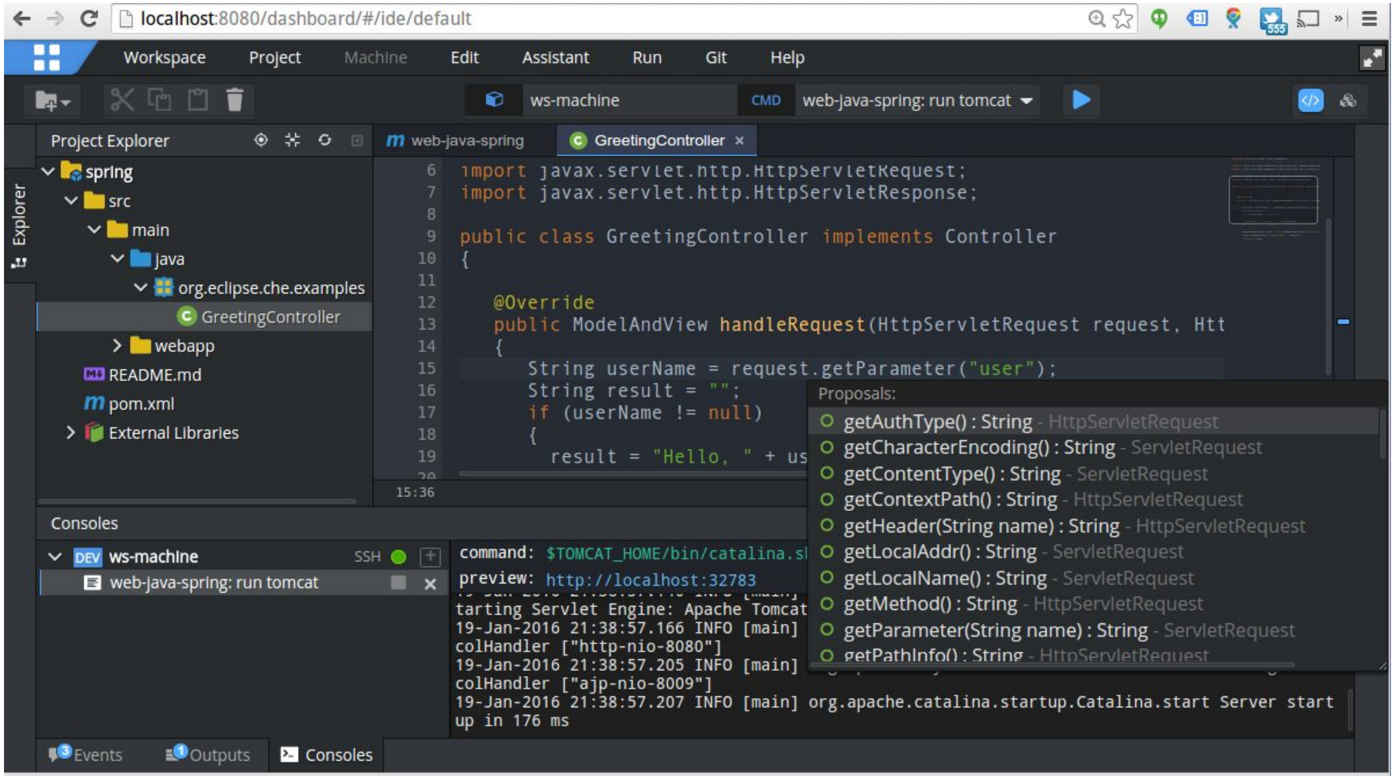


Che 4.0-beta

Eclipse Che

Eclipse Che

4.0 (beta)

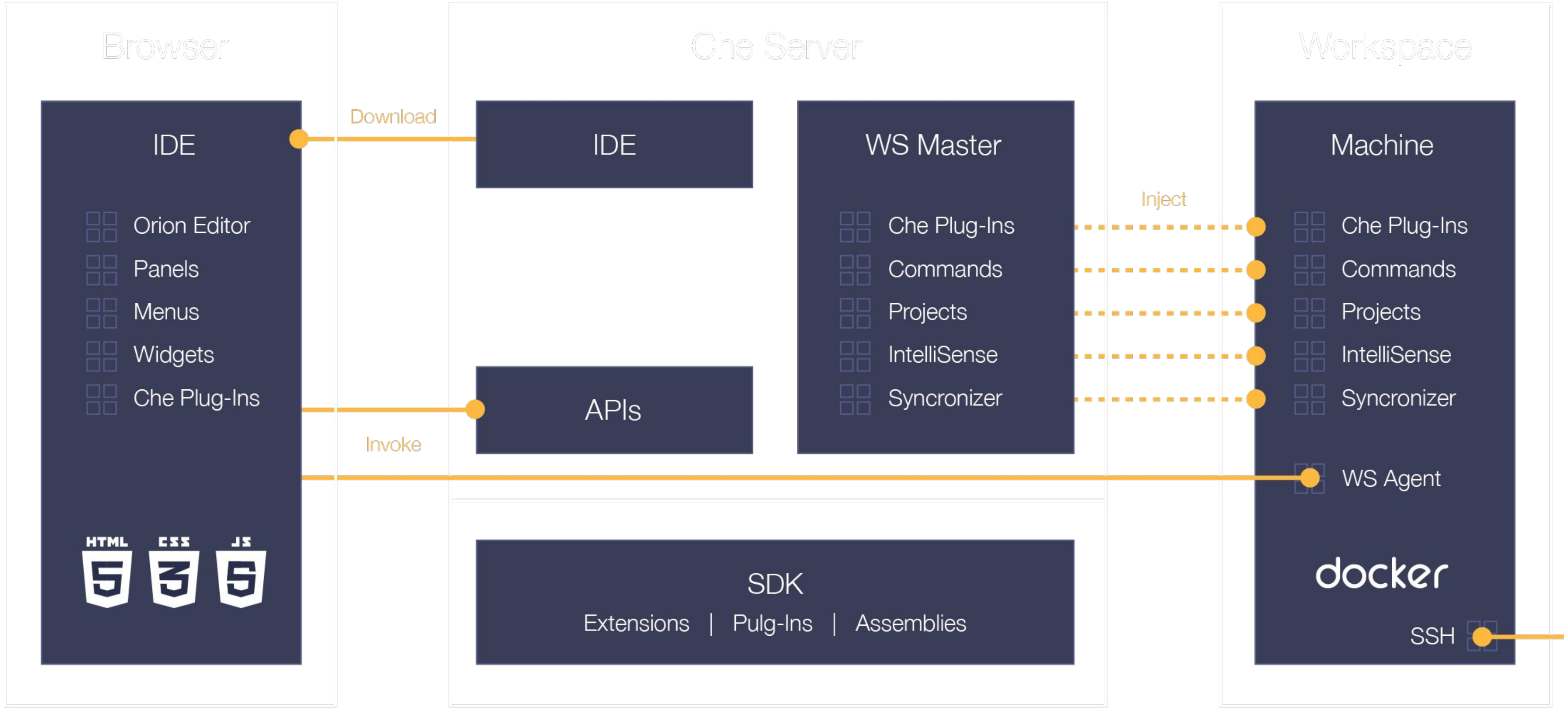

localhost:8080/dashboard/#/ide/default
Workspace
Project
Machine
Edit
Assistant
Run
Git
Help
ws-machine
CMD
web-java-spring: run tomcat
Explorer
Project Explorer
spring
src
main
java
org.eclipse.che.examples
GreetingController
webapp
README.md
pom.xml
External Libraries
web-java-spring
GreetingController
15:36
Proposals:
getAuthType() : String - HttpServletRequest
getCharacterEncoding() : String - ServletRequest
getContentType() : String - ServletRequest
getContextPath() : String - HttpServletRequest
getHeader(String name) : String - HttpServletRequest
getLocalAddr() : String - ServletRequest
getLocalName() : String - ServletRequest
getMethod() : String - HttpServletRequest
getParameter(String name) : String - ServletRequest
getPathInfo() : String - HttpServletRequest
Consoles
DEV ws-machine
SSH
web-java-spring: run tomcat
Events
Outputs
Consoles

```
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

public class GreetingController implements Controller
{

   @Override
   public ModelAndView handleRequest(HttpServletRequest request, Htt
   {
      String userName = request.getParameter("user");
      String result = "";
      if (userName != null)
      {
        result = "Hello, " + us
```

```
command: $TOMCAT_HOME/bin/catalina.sl
preview: http://localhost:32783
tarting Servlet Engine: Apache Tomcat
19-Jan-2016 21:38:57.166 INFO [main]
colHandler ["http-nio-8080"]
19-Jan-2016 21:38:57.205 INFO [main]
colHandler ["ajp-nio-8009"]
19-Jan-2016 21:38:57.207 INFO [main] org.apache.catalina.startup.Catalina.start Server start
up in 176 ms
```

Che 4.0-beta

Eclipse Che



Browser

IDE

- Orion Editor
- Panels
- Menus
- Widgets
- Che Plug-Ins

HTML 5 CSS 3 JS 5

Download

Invoke

Che Server

IDE

APIs

WS Master

- Che Plug-Ins
- Commands
- Projects
- IntelliSense
- Syncronizer

SDK

Extensions | Pulg-Ins | Assemblies

Inject

Workspace

Machine

- Che Plug-Ins
- Commands
- Projects
- IntelliSense
- Syncronizer

WS Agent

docker

SSH

Eclipse Flux

FLUX

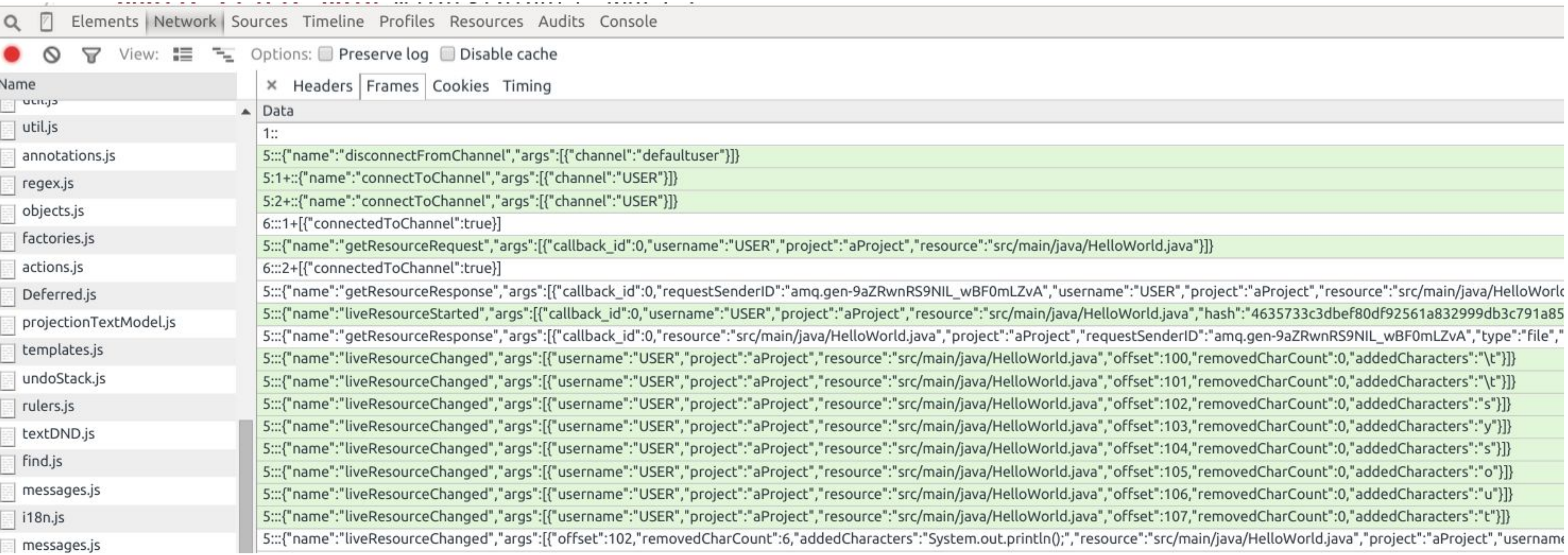
- Initial contributor: Pivotal
- To connect developer tools in the Cloud
- Message based architecture
  - Central server to relay message
  - Participants with plugins to talk each other
- Available demos: https://www.eclipse.org/flux/
  - Real time live edit
  - Eclipse JDT on Eclipse Orion
  - (v)fs synchronization

Eclipse Flux Communication

FLUX

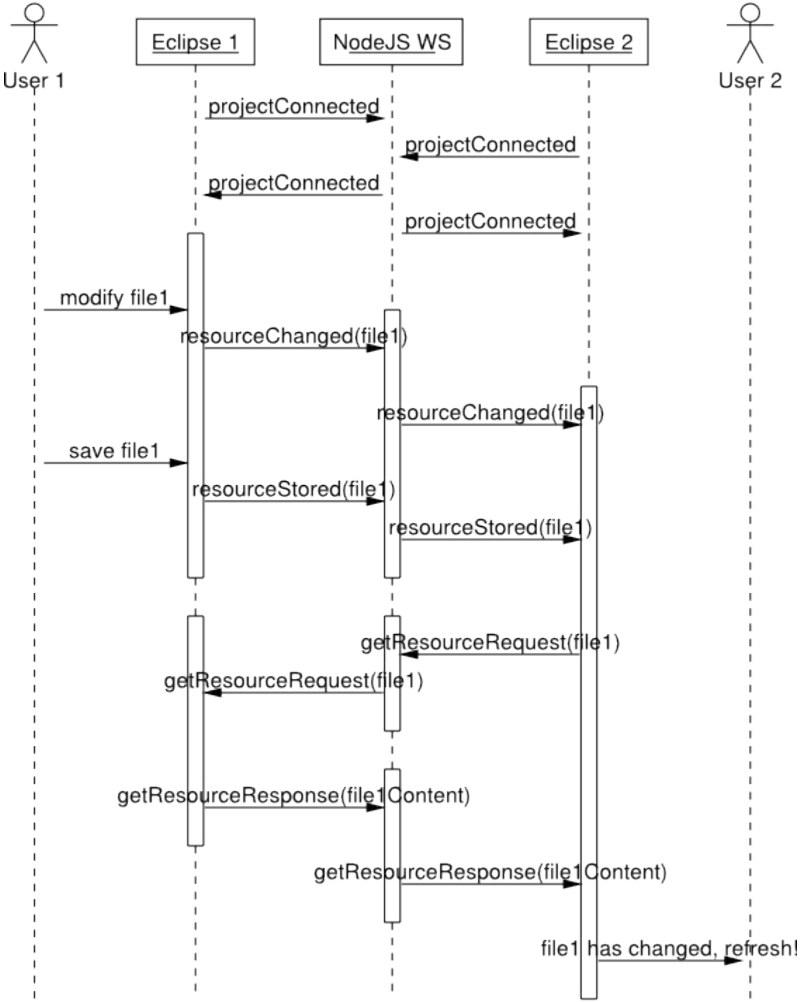
- Communication
  - Message based (RabbitMQ)
    - Basic structure
      - Message name
      - Content in json
    - broadcast or to 1 participant
    - Exchanging well known messages
  - Expose Web socket (socketio)

Eclipse Flux Websocket



```
Data
1::
5:::{"name":"disconnectFromChannel","args":[{"channel":"defaultuser"}]}
5:1+::{"name":"connectToChannel","args":[{"channel":"USER"}]}
5:2+::{"name":"connectToChannel","args":[{"channel":"USER"}]}
6:::1+[{"connectedToChannel":true}]
5:::{"name":"getResourceRequest","args":[{"callback_id":0,"username":"USER","project":"aProject","resource":"src/main/java/HelloWorld.java"}]}
6:::2+[{"connectedToChannel":true}]
5:::{"name":"getResourceResponse","args":[{"callback_id":0,"requestSenderID":"amq.gen-9aZRwnRS9NIL_wBF0mLZvA","username":"USER","project":"aProject","resource":"src/main/java/HelloWorlc
5:::{"name":"liveResourceStarted","args":[{"callback_id":0,"username":"USER","project":"aProject","resource":"src/main/java/HelloWorld.java","hash":"4635733c3dbef80df92561a832999db3c791a85
5:::{"name":"getResourceResponse","args":[{"callback_id":0,"resource":"src/main/java/HelloWorld.java","project":"aProject","requestSenderID":"amq.gen-9aZRwnRS9NIL_wBF0mLZvA","type":"file","
5:::{"name":"liveResourceChanged","args":[{"username":"USER","project":"aProject","resource":"src/main/java/HelloWorld.java","offset":100,"removedCharCount":0,"addedCharacters":"\t"}]}
5:::{"name":"liveResourceChanged","args":[{"username":"USER","project":"aProject","resource":"src/main/java/HelloWorld.java","offset":101,"removedCharCount":0,"addedCharacters":"\t"}]}
5:::{"name":"liveResourceChanged","args":[{"username":"USER","project":"aProject","resource":"src/main/java/HelloWorld.java","offset":102,"removedCharCount":0,"addedCharacters":"s"}]}
5:::{"name":"liveResourceChanged","args":[{"username":"USER","project":"aProject","resource":"src/main/java/HelloWorld.java","offset":103,"removedCharCount":0,"addedCharacters":"y"}]}
5:::{"name":"liveResourceChanged","args":[{"username":"USER","project":"aProject","resource":"src/main/java/HelloWorld.java","offset":104,"removedCharCount":0,"addedCharacters":"s"}]}
5:::{"name":"liveResourceChanged","args":[{"username":"USER","project":"aProject","resource":"src/main/java/HelloWorld.java","offset":105,"removedCharCount":0,"addedCharacters":"o"}]}
5:::{"name":"liveResourceChanged","args":[{"username":"USER","project":"aProject","resource":"src/main/java/HelloWorld.java","offset":106,"removedCharCount":0,"addedCharacters":"u"}]}
5:::{"name":"liveResourceChanged","args":[{"username":"USER","project":"aProject","resource":"src/main/java/HelloWorld.java","offset":107,"removedCharCount":0,"addedCharacters":"t"}]}
5:::{"name":"liveResourceChanged","args":[{"offset":102,"removedCharCount":6,"addedCharacters":"System.out.println();","resource":"src/main/java/HelloWorld.java","project":"aProject","username
```

Flux Websocket communication (Google Chrome dev tools)


User 1
Eclipse 1
NodeJS WS
Eclipse 2
User 2
projectConnected
projectConnected
projectConnected
projectConnected
modify file1
resourceChanged(file1)
resourceChanged(file1)
save file1
resourceStored(file1)
resourceStored(file1)
getResourceRequest(file1)
getResourceRequest(file1)
getResourceResponse(file1Content)
getResourceResponse(file1Content)
file1 has changed, refresh!

Eclipse flux

Eclipse Flux server

- NodeJS
- RabbitMQ
- (Mongo DB)
- Npm
    - flux
    - flux orion
    - Socket.io

FLUX

Eclipse IDE

- flux plugin

https://github.com/eclipse/flux

Running Flux in Che
Demo

Demo 1

- Use Docker to launch Flux
- Launch embedded Orion and Eclipse IDE
- Running on a Eclipse Che docker runner

```
RUN wget https://github.com/eclipse/flux/archive/master.zip && unzip master.zip
RUN sudo npm install
ENV VCAP_APP_HOST 0.0.0.0
RUN wget https://gist.githubusercontent.com/sunix/a9a1037e257da5d0a600/raw/3ff8a910f3400d19775bb562c89524518ac6f2d2/startup-all-in-one.js.patch
RUN patch -p0 < startup-all-in-one.js.patch
```

```
CMD sudo service rabbitmq-server start && npm start
```

```
FROM codenvy/jdk7
RUN sudo apt-get install -y nodejs-legacy npm
RUN sudo -E bash -c "echo \"deb http://www.rabbitmq.com/debian/ testing main\" >> /etc/apt/sources.list"
RUN sudo wget https://www.rabbitmq.com/rabbitmq-signing-key-public.asc
RUN sudo apt-key add rabbitmq-signing-key-public.asc
RUN sudo apt-get install -y rabbitmq-server
```

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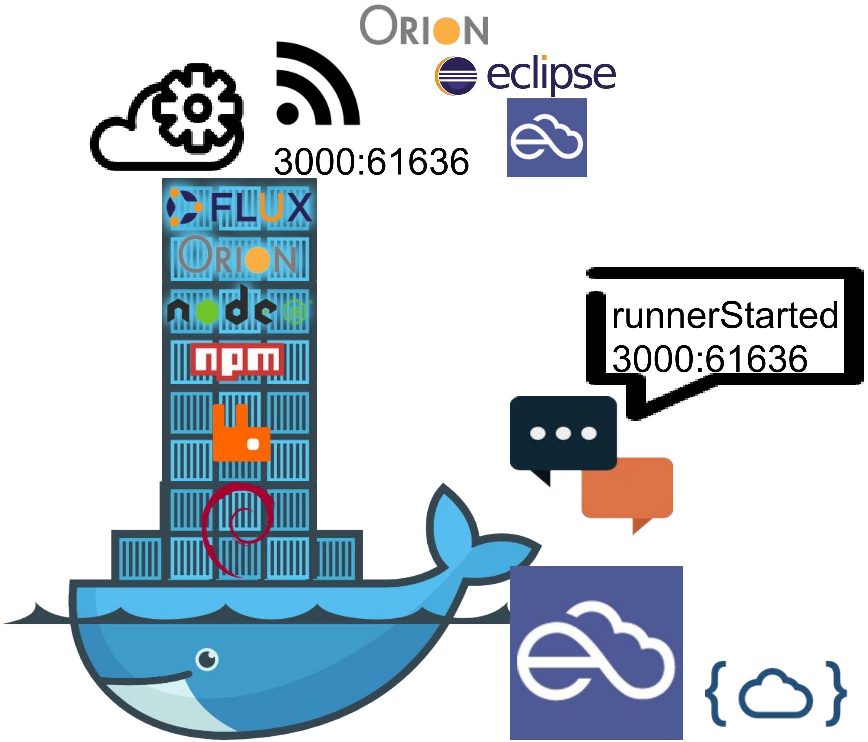
Running Flux in Che Dockerfile

```
FROM  sunix/flux

CMD sudo service rabbitmq-server start && npm start
```

Running Flux in Che Dockerfile

```
FROM codenvy/jdk7

RUN sudo -E bash -c "echo \"deb http://www.rabbitmq.com/debian/ testing main\" >> /etc/apt/sources.list"
RUN sudo wget https://www.rabbitmq.com/rabbitmq-signing-key-public.asc
RUN sudo apt-key add rabbitmq-signing-key-public.asc
RUN sudo apt-get update
RUN sudo apt-get install -y rabbitmq-server nodejs-legacy npm

EXPOSE 3000
ENV CODENVY_APP_PORT_3000_HTTP 3000

RUN wget https://github.com/eclipse/flux/archive/master.zip && unzip master.zip
RUN sudo npm install
ENV VCAP_APP_HOST 0.0.0.0
RUN wget https://gist.githubusercontent.com/sunix/a9a1037e257da5d0a600/raw/3ff8a910f3400d19775bb562c89524518ac6
2d2/startup-all-in-one.js.patch
RUN patch -p1 < startup-all-in-one.js.patch

CMD sudo service rabbitmq-server start && npm start
```

Running Flux in Che Demo



runnerStarted
3000:61636

Demo2: Eclipse Che extension

- ○ Connect Che to Flux
- ○ Detect started Flux Docker runner

github.com/sunix/che-plugin-flux-live-edit

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Run it yourself CheFlux Docker

```
docker run --privileged -it
  -p 8080:8080
  -p 49152-49162:49152-49162
  -v /home/ec2-user/.che/:/home/user/.che
     sunix/cheflux
```

https://github.com/sunix/che-plugin-flux-live-edit/blob/master/cheDocker/Dockerfile

Run it yourself
.che/che.properties

```
api.endpoint=http://codenvy.sunix.org:${SERVER_PORT}/che/api
sys.resources.min_port=49152
sys.resources.max_port=49162
project.base_icon_url=http://codenvy.sunix.org:${SERVER_PORT}/ws/_app/projecttype/
runner.java_webapp.host_name=codenvy.sunix.org
runner.sdk.code_server_bind_address=codenvy.sunix.org
runner.sdk.host_name=codenvy.sunix.org
runner.javascript_grunt.host_name=codenvy.sunix.org
runner.javascript_gulp.host_name=codenvy.sunix.org
runner.docker.host_name=codenvy.sunix.org
runner.docker.application_link_template=http://codenvy.sunix.org:%d
runner.docker.web_shell_link_template=http://codenvy.sunix.org:%d
oauth.github.redirecturis= http://codenvy.sunix.org:${SERVER_PORT}/che/api/oauth/callback
runner.slave_runner_urls=http://codenvy.sunix.org:${SERVER_PORT}/che/api/internal/runner
builder.slave_builder_urls=http://codenvy.sunix.org:${SERVER_PORT}/che/api/internal/builder
```

Work in progress

- Cursors
    - send cursor position of each participant
    - display the cursor
- Che 4.0 integration
    - flux would be run as a command
    - notification from plugins ?
- Poc to mature code
    - Same Java API in Eclipse and Che
    - Refactoring + Clean code

SERLi

Questions

SerliFr

@SerliFr
@sunsengdavidtan
@CodenvyHQ

Serli

Thank you www.serli.com

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@sunsengdavidtan

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