

Google Web Toolkit

Today and Beyond

Dmitry Buzdin



Why GWT?

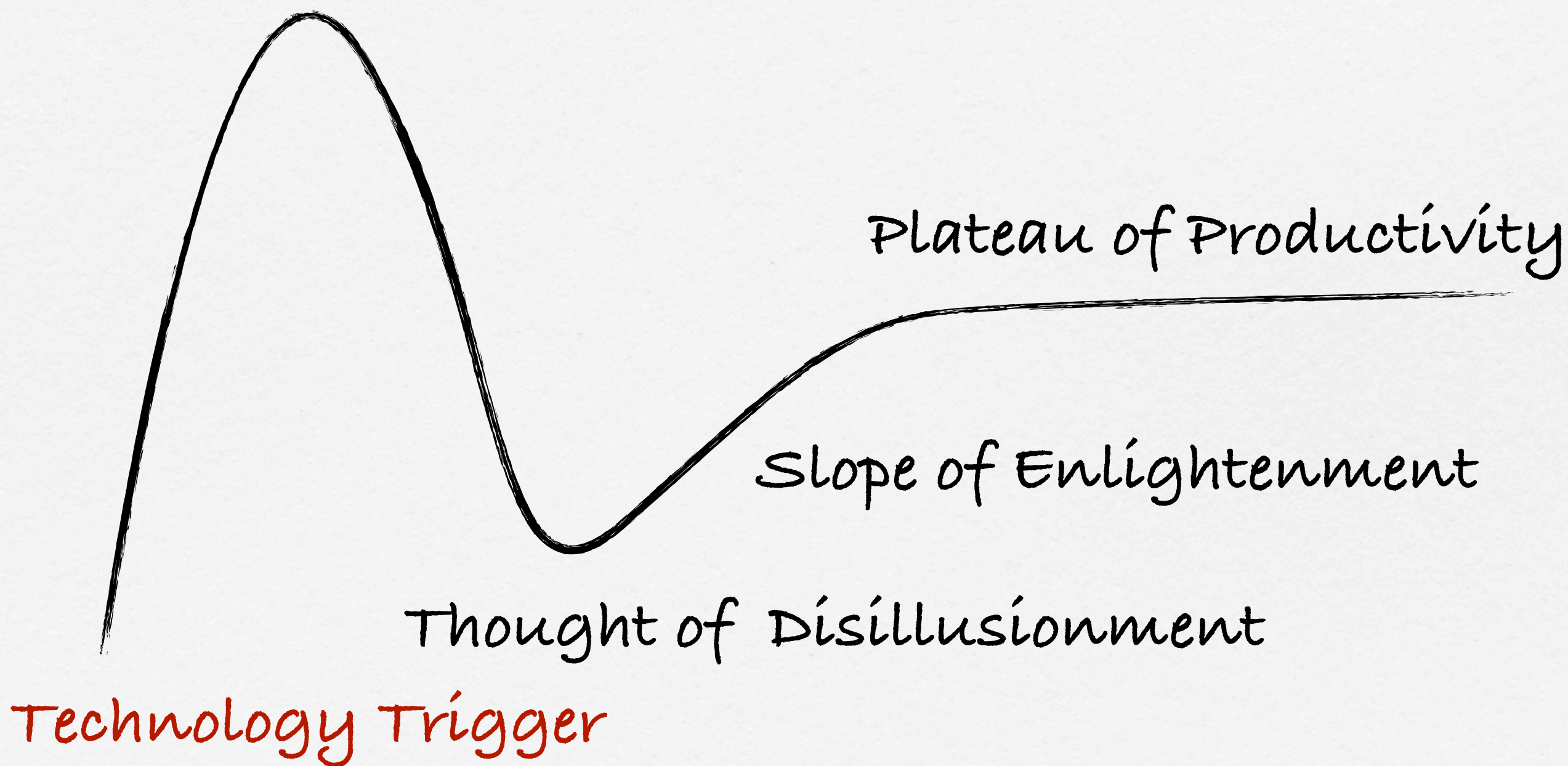


□ PAST

□ PRESENT TIME

□ FUTURE*

Peak of Inflated Expectations



A blue, spiral-bound notebook is shown from a top-down perspective. The spiral binding is at the top edge. The word "Past" is written in a large, white, serif font in the center of the page.

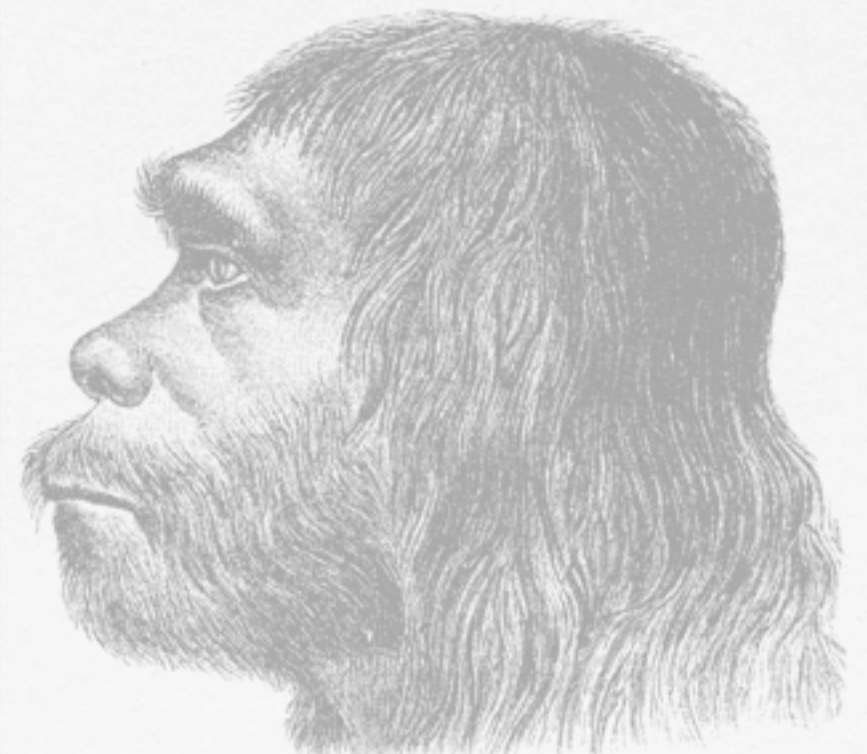
Past


```
#!/usr/bin/perl
```

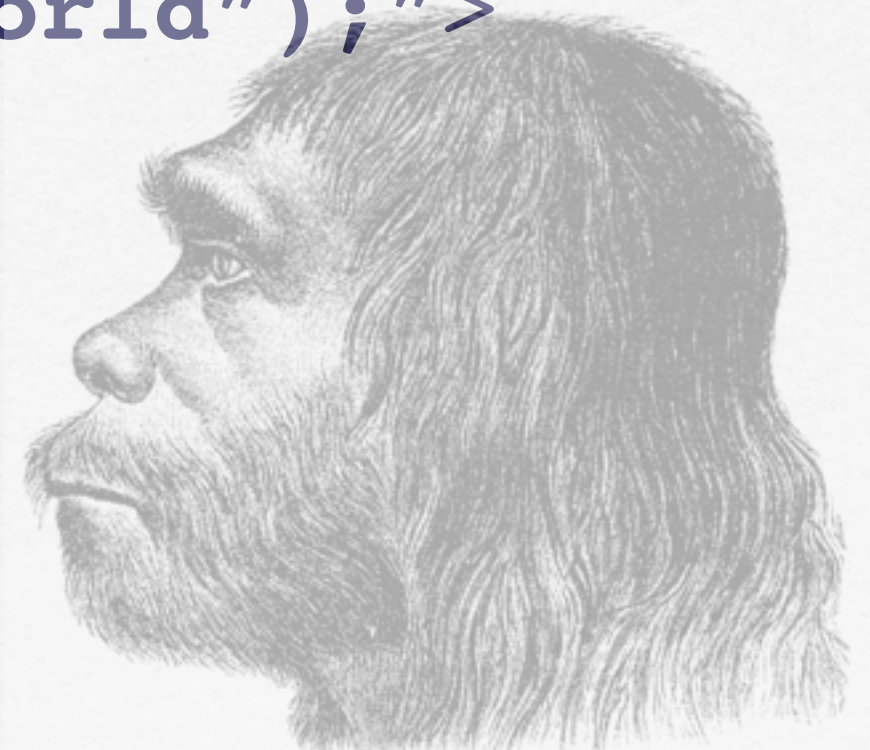
```
print "Content-type: text/html\n\n";  
print "<html><head>\n";  
print "<title>Web App</title>\n";  
print "</head>\n";  
print "<body><b>Hello World</b>\n";  
print "</body>;
```




```
<HTML>
<HEAD>
<TITLE>Web App</TITLE>
<%! String message = "Hello, World"; %>
</HEAD>
<BODY>
<b><%= message%></b>
</BODY>
</HTML>
```

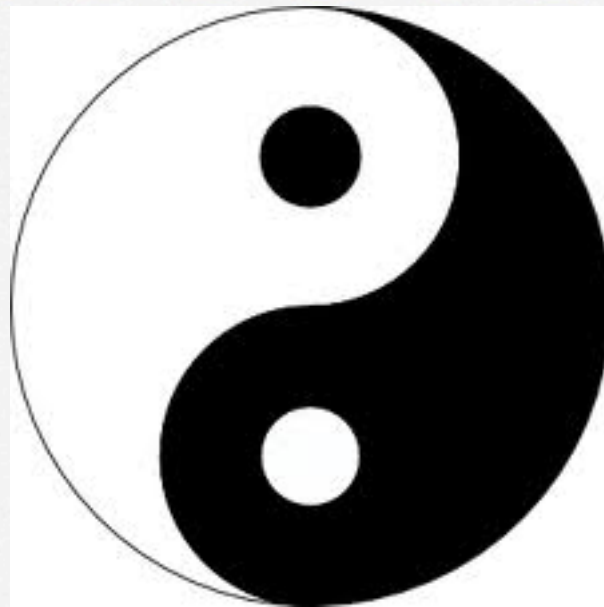



```
<HTML>
<HEAD>
<TITLE>Web App</TITLE>
<%! String message = "Hello, World"; %>
</HEAD>
<BODY>
<b onclick="alert('Hello, World');">
<%= message%></b>
</BODY>
</HTML>
```



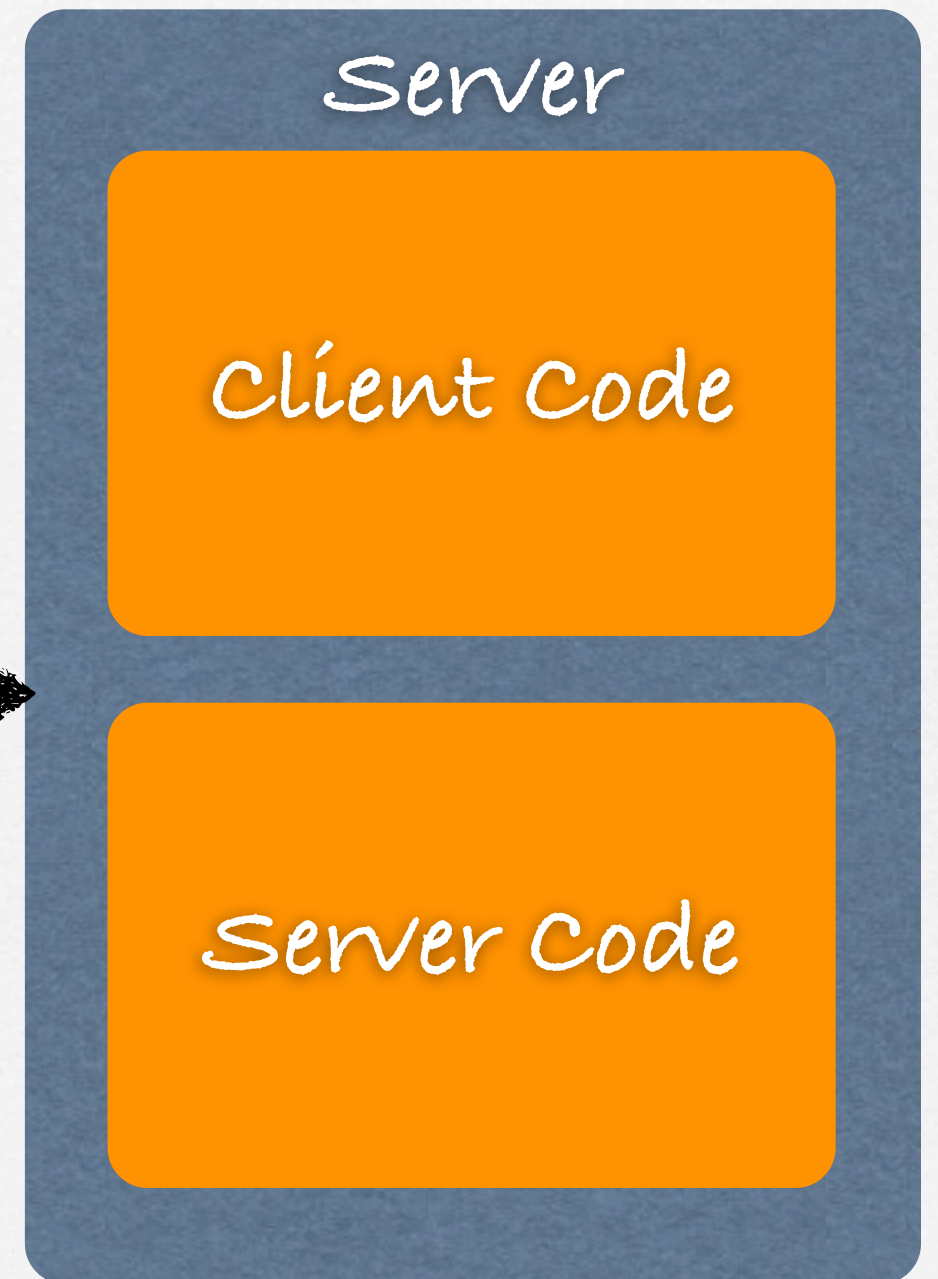
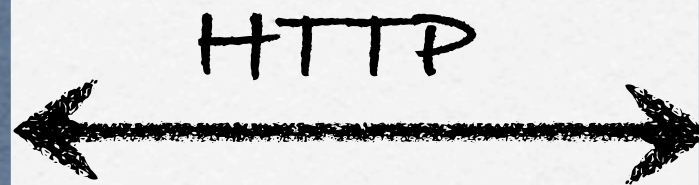
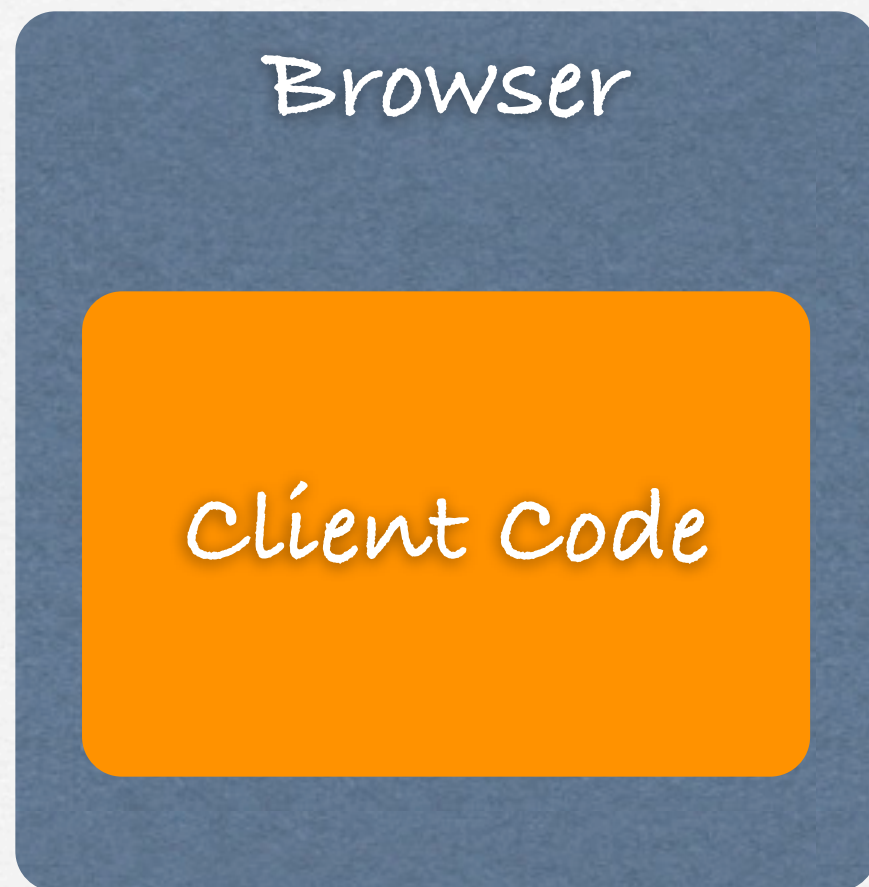
Native App

Graphics
Games
Spreadsheets
Offline usage
Hardware integration
Computations



Web App

Form editing
Internet Shop
No installation
Cross OS
Public apps
Static





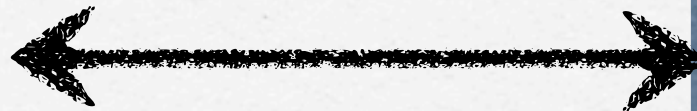
- ☐ Rich user experience
- ☐ Near-native performance
- ☐ No page reloads
- ☐ Working offline
- ☐ Advanced UI controls
- ☐ Drag & Drop etc.

Rich Internet Applications

Browser

Client Code

HTTP/JSON



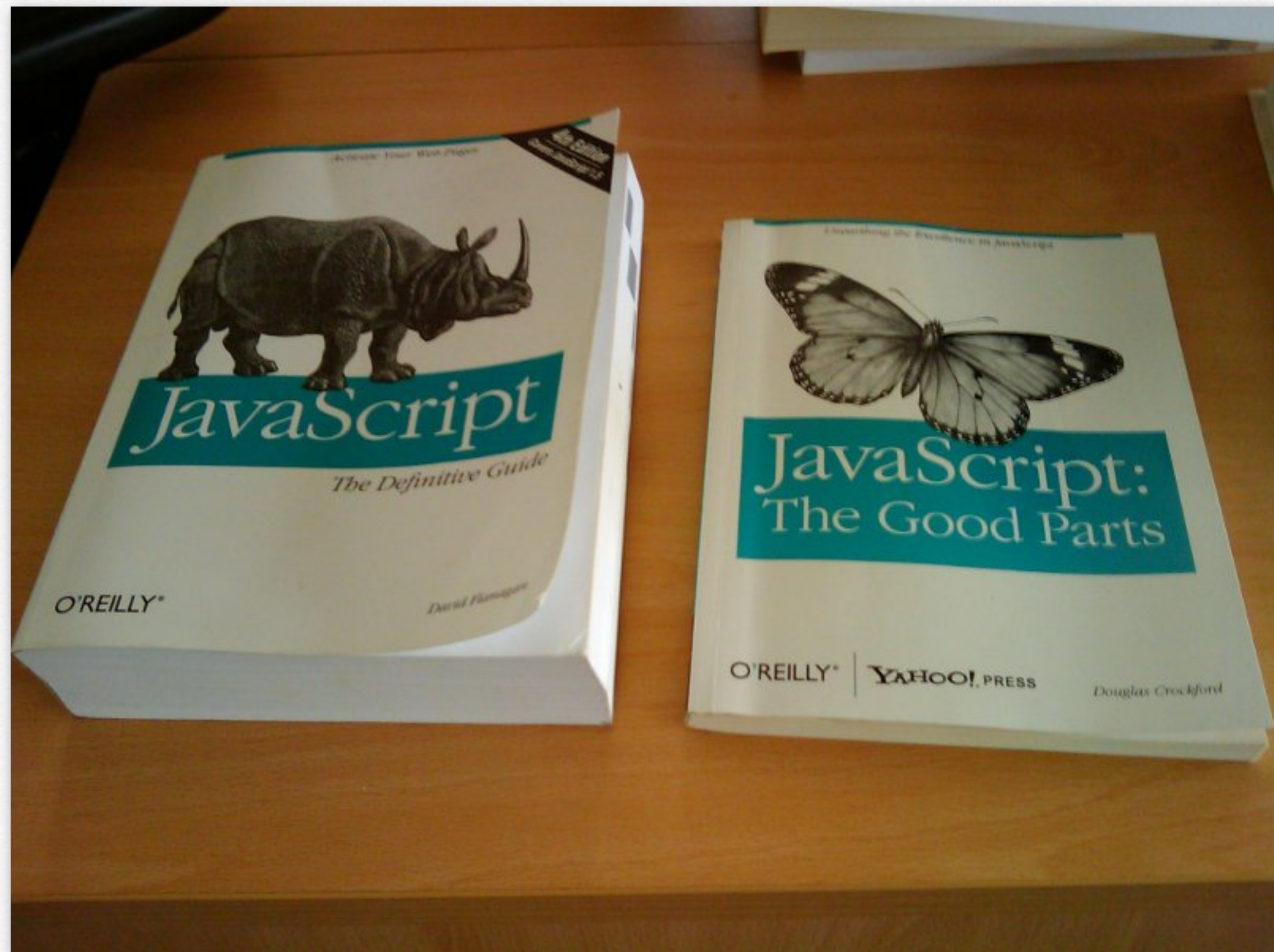
Server

Server Code



?

- ❑ No evolution
- ❑ Should be preprocessed
- ❑ Not really cross-platform
- ❑ No static typing
- ❑ No mature tools
- ❑ A lot of surprises...

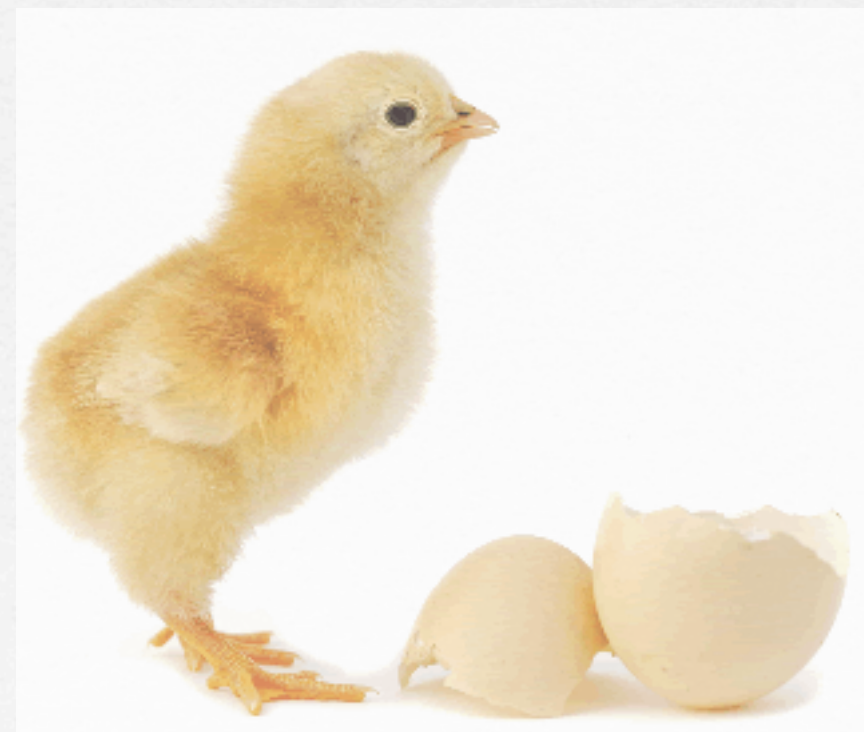


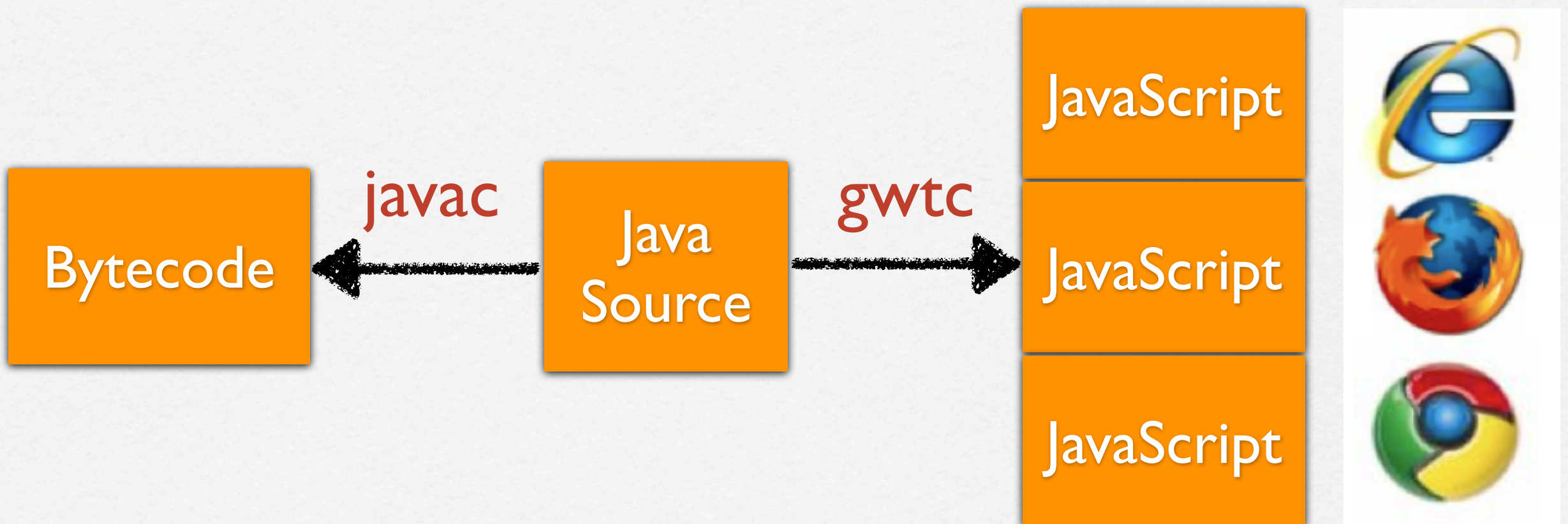
but there is only JavaScript...

Let's compile something to
JavaScript!



Google Web Toolkit
open sourced in 2006





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```
public void onModuleLoad() {  
    helloWorld();  
    final Button sendButton = new Button("Send");  
    final TextBox nameField = new TextBox();  
  
    public static void helloWorld() {  
        Window.alert("Hello World!");  
    }  
}
```

```
function $onModuleLoad(this$static) {  
    var closeButton, dialogBox, dialogVPanel, errorLabel,  
    $wnd.alert('Hello World!');  
    sendButton = $Button(new Button, 'Send');  
    nameField = $TextBox(new TextBox);  
}
```



```
function $onModuleLoad(this$static) {  
    var closeButton, dialogBox, dialogVPanel, errorLabel,  
        $wnd.alert('Hello World!');  
    sendButton = $Button(new Button, 'Send');  
    nameField = $TextBox(new TextBox);
```

```
function qI(a) {  
    var b,c,d,e,f,g,h,i,j,k;  
    $wnd.alert(_T);  
    h = RC(new GC, aU);  
    g = TG(new LG);
```


- ☐ ~~No evolution~~
- ☐ ~~Should be preprocessed~~
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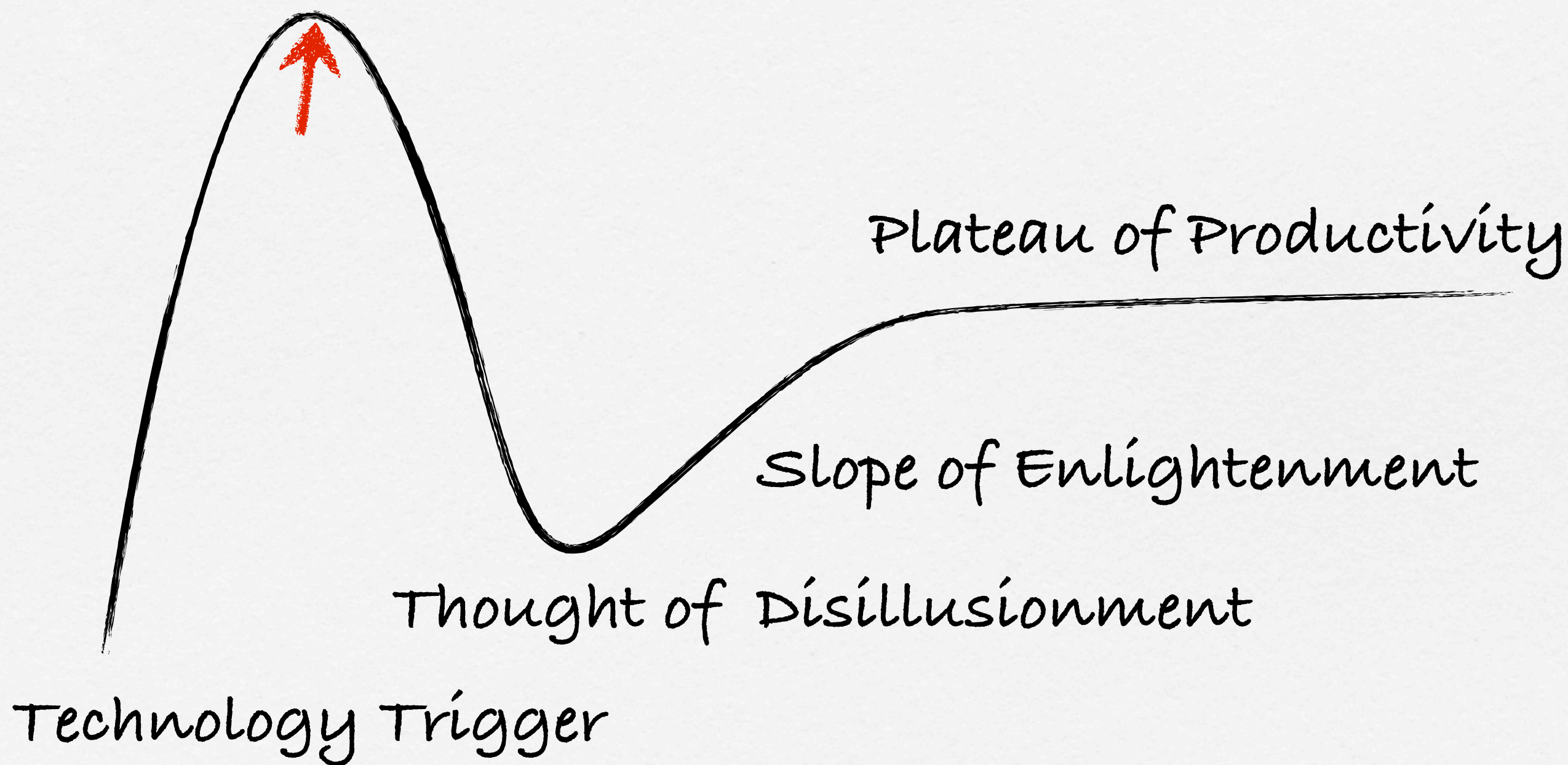
	EN	DE	FR
Gecko	JavaScript	JavaScript	JavaScript
Webkit	JavaScript	JavaScript	JavaScript
IE	JavaScript	JavaScript	JavaScript

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- ☐ ~~Should be preprocessed~~
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Peak of Inflated Expectations



- ❑ Slow compilation

- ❑ Fear of cross-compiling

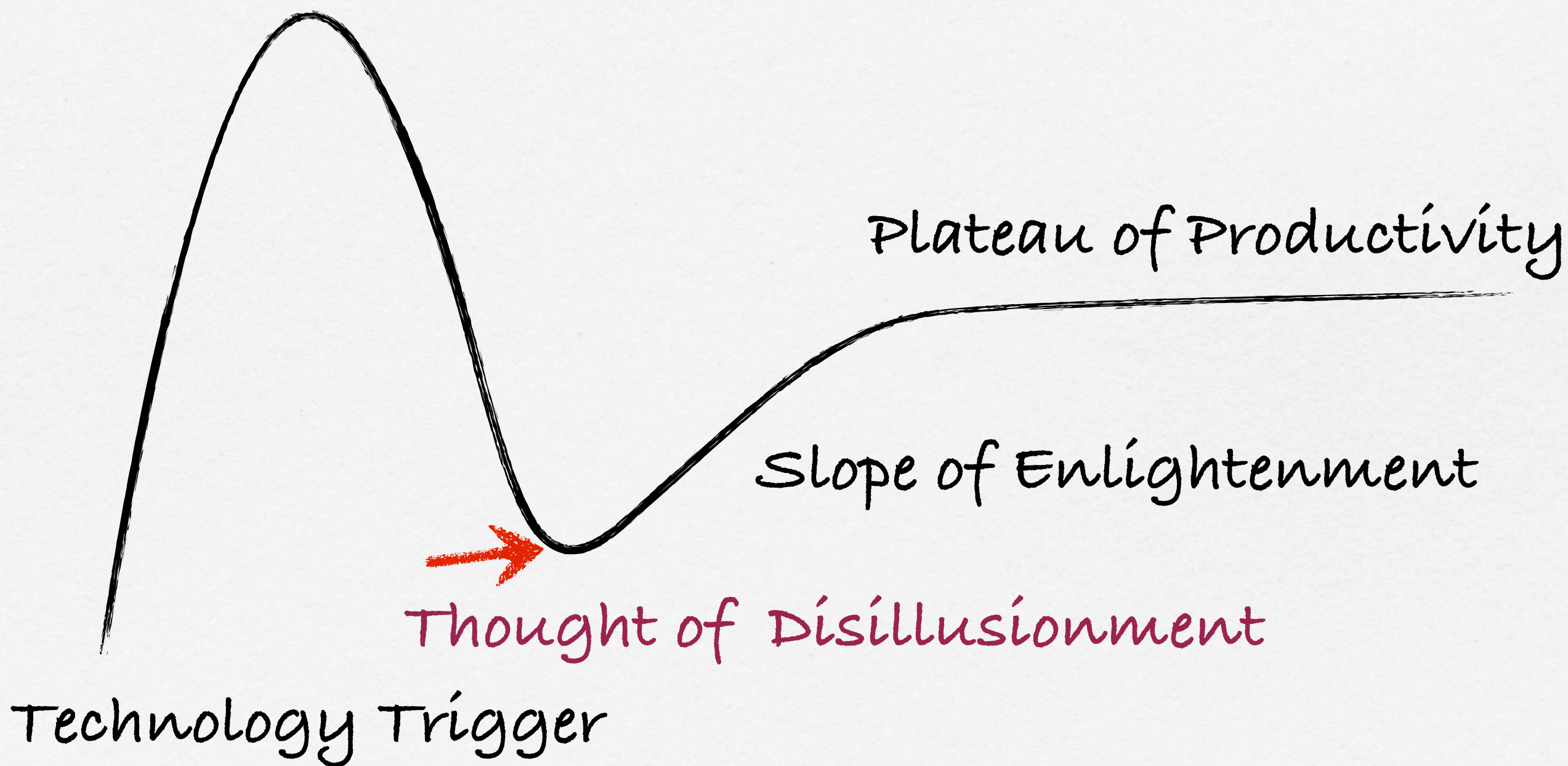
- ❑ SEO

- ❑ Complex

- ❑ Uncomplete

- ❑ JS Engines

Peak of Inflated Expectations



A blue, spiral-bound notebook with a silver-colored metal spiral binding along the top edge. The cover has a fine, pebbled texture. The words "Present Time" are printed in a large, white, serif font, centered horizontally and slightly below the vertical center of the cover.

Present Time



Welcome back, [foo@example.com](#)
[Sign Out](#) [About](#)

Mailboxes

[foo@example.com](#)

[Inbox](#)

[Drafts](#)

[Templates](#)

[Sent](#)

[Trash](#)

Sender	Email	Subject	1 - 20 of 64 older >
markboland05	mark@example.com	URGENT -[Mon, 24 Apr 2006 02:17:27 +0000]	
Hollie Voss	hollie@example.com	URGENT TRANSACTION -[Sun, 23 Apr 2006 13:10:03 +0000]	
boticario	boticario@example.com	fw: Here it comes	
Emerson Milton	emerson@example.com	voce ganho um vale presente Boticario	
Healy Colette	healy@example.com	Read this ASAP	
Brigitte Cobb	brigitte@example.com	Hot Stock Talk	
Elba Lockhart	elba@example.com	New Breed of Equity Trader	
Claudio Engle	claudio@example.com	FWD: TopWeeks the wire special pr news release	
Dena Pacheco	dena@example.com	[fwd] Read this ASAP	
Brasil s.p	brasils@example.com	Renda Extra R\$1.000,00-R\$2.000,00/m?s	
Parker	parker@example.com	re: Make sure your special pr news released	
derbvktqr	derbvktqr@example.com	Forbidden Knowledge Conference	

URGENT -[Mon, 24 Apr 2006 02:17:27 +0000]

From: markboland05

To: foo@example.com

Dear Friend,

I am Mr. Mark Boland the Bank Manager of ABN AMRO BANK 101 Moorgate, London, EC2M 6SB.

I have an urgent and very confidential business proposition for you. On July 20, 2001; Mr. Zemenu Gente, a National of France, who used to be a private contractor with the Shell Petroleum Development Company in Saudi Arabia. Mr. Zemenu Gente Made a Numbered time (Fixed deposit) for 36 calendar months, valued at GBP?30, 000,000.00 (Thirty Million Pounds only) in my Branch.I have all necessary legal documents that can be used to back up any claim we may make. All I require is your honest Co-operation, Confidentiality and A trust to enable us sees this transaction through. I guarantee you that this will be executed under a legitimate arrangement that will protect you from any breach of the law. Please get in touch with me urgently by E-mail and Provide me with the following;

The OIL sector is going crazy. This is our weekly gift to you!

Get KKPT First Thing, This Is Going To Run!

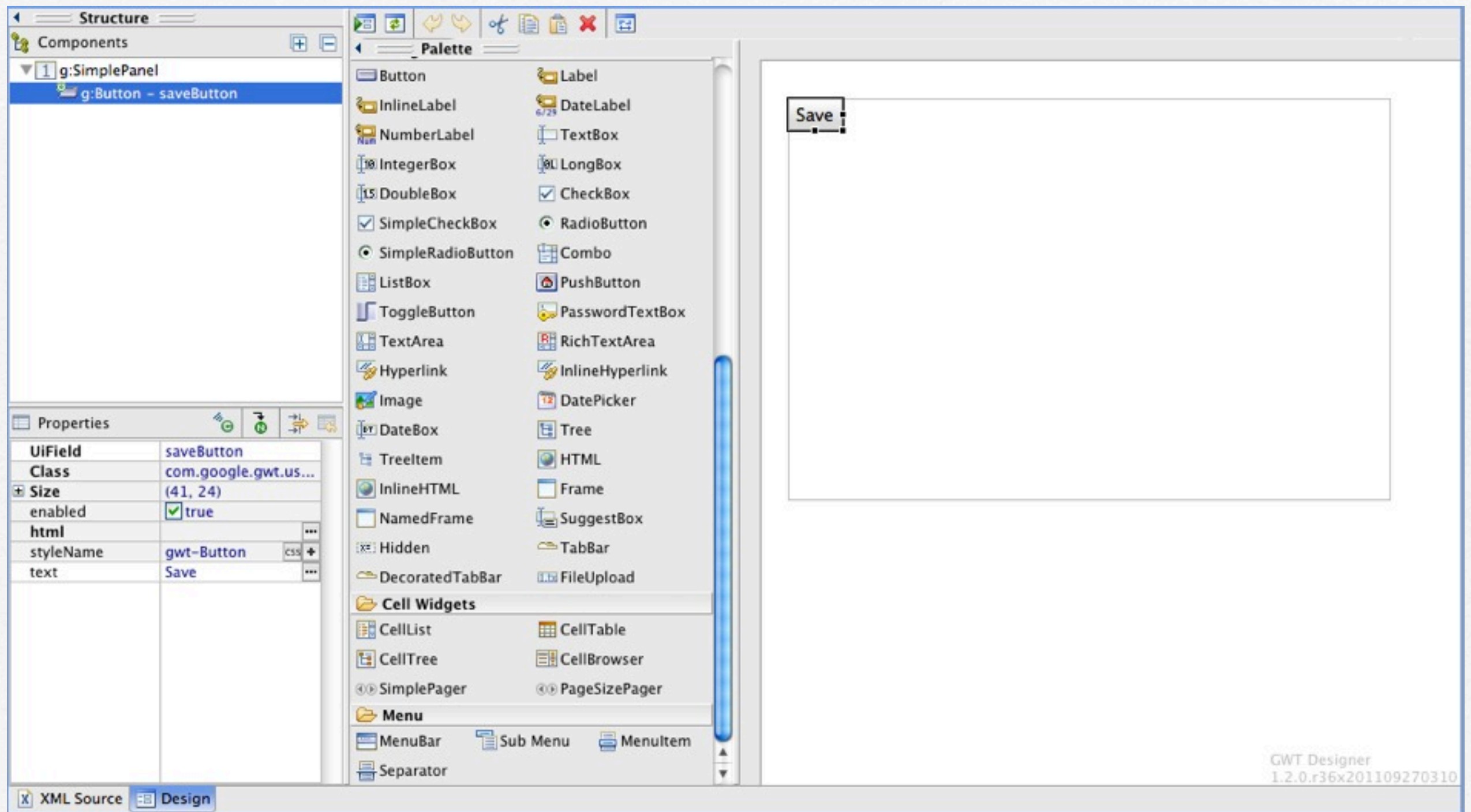
[Tasks](#)

[Contacts](#)


```
public ViewImpl() {  
    SimplePanel simplePanel = new SimplePanel();  
    Button button = new Button("Save");  
    button.addClickListener(this);  
    simplePanel.add(button);  
    initWidget(simplePanel);  
}
```



```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE ui:UiBinder SYSTEM "http://dl.google.com/gwt/DTD/
xhtml.ent">
<ui:UiBinder xmlns:ui='urn:ui:com.google.gwt.uibinder'
  xmlns:g='urn:import:com.google.gwt.user.client.ui'>
  <g:SimplePanel>
    <g:Button ui:field="saveButton" text="Save"/>
  </g:SimplePanel>
</ui:UiBinder>
```


```
<ui:style>
```

```
  .outer {
```

```
    background: #eee;
```

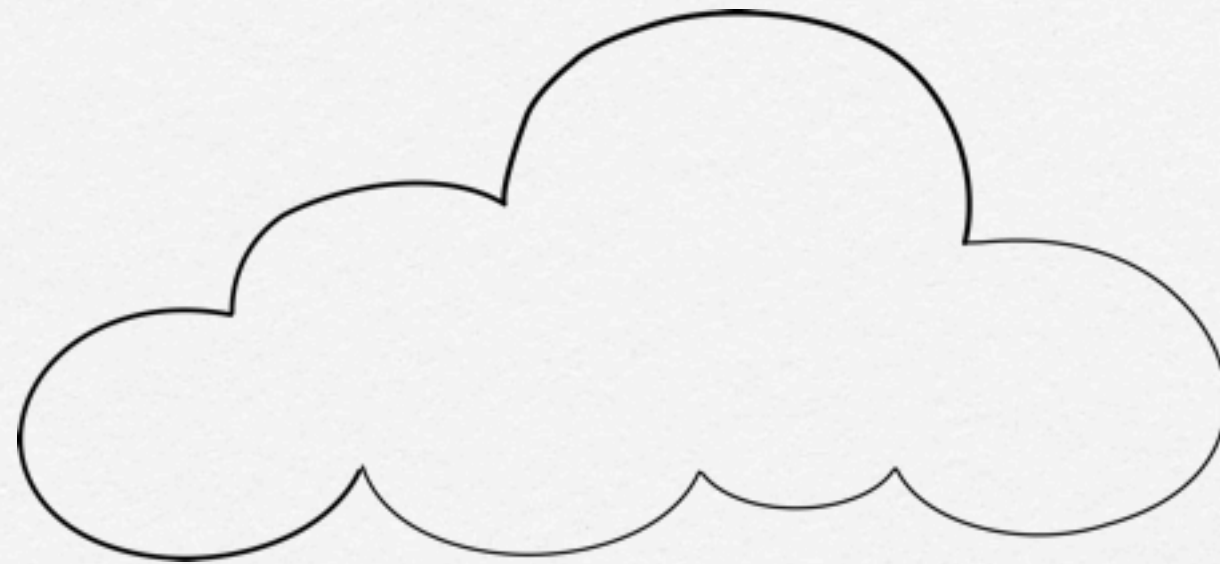
```
  }
```

```
</ui:style>
```

```
<g:ScrollPane addStyleNames="{style.outer}">
```

```
  ...
```

```
</g:ScrollPane>
```

HTML



HTML



- ☐ LocalStorage
- ☐ Media
- ☐ Canvas 2D Context
- ☐ Geolocation


```
Storage storage = Storage.getLocalStorageIfSupported();  
storage.setItem("key", "value");
```

```
Geolocation geolocation = Geolocation.getIfSupported();  
geolocation.getCurrentLocation(  
    new Callback<Position, PositionError>() {  
        ...  
    });
```


- Touch events
- UI Components
- Deferred Binding



```
SimplePanel panel = new SimplePanel();  
    panel.addHandler(new TouchMoveHandler() {  
        public void onTouchMove(TouchMoveEvent event) {  
            }  
    }, TouchMoveEvent.getType());
```


Enterprise

- Java Persistence API support
- Data Binding
- Bean Validation JSR303

Compile Time Validation

□ Java

□ CSS

□ Resources

□ UI XML


```
public interface MyBundle extends ClientBundle {  
    Stylesheet stylesheet();
```

```
    public static interface Stylesheet extends CssResource {  
        String highlight();  
    }  
}
```

```
.highlight {  
    background-color: #7fff00;  
}
```



```
@def myColor #7fff00;  
@import otherStylesheet;  
  
.highlight {  
  @if user.agent safari {  
    background-color: myColor;  
  }  
}
```


☐ Obfuscation

☐ Dead code elimination

☐ Inlining

☐ Normalization

☐ Finalizing

Reducing Roundtrips

- ❑ Strong caching
- ❑ Merging of images
- ❑ Embedding static resources

MVP
Framework

RPC Stack

Web Tools

JS API

SDK

Widget
Library

Java to JavaScript Compiler



gin

gquery

gwt-dnd

gwt-presenter

mvp4g

resty-gwt

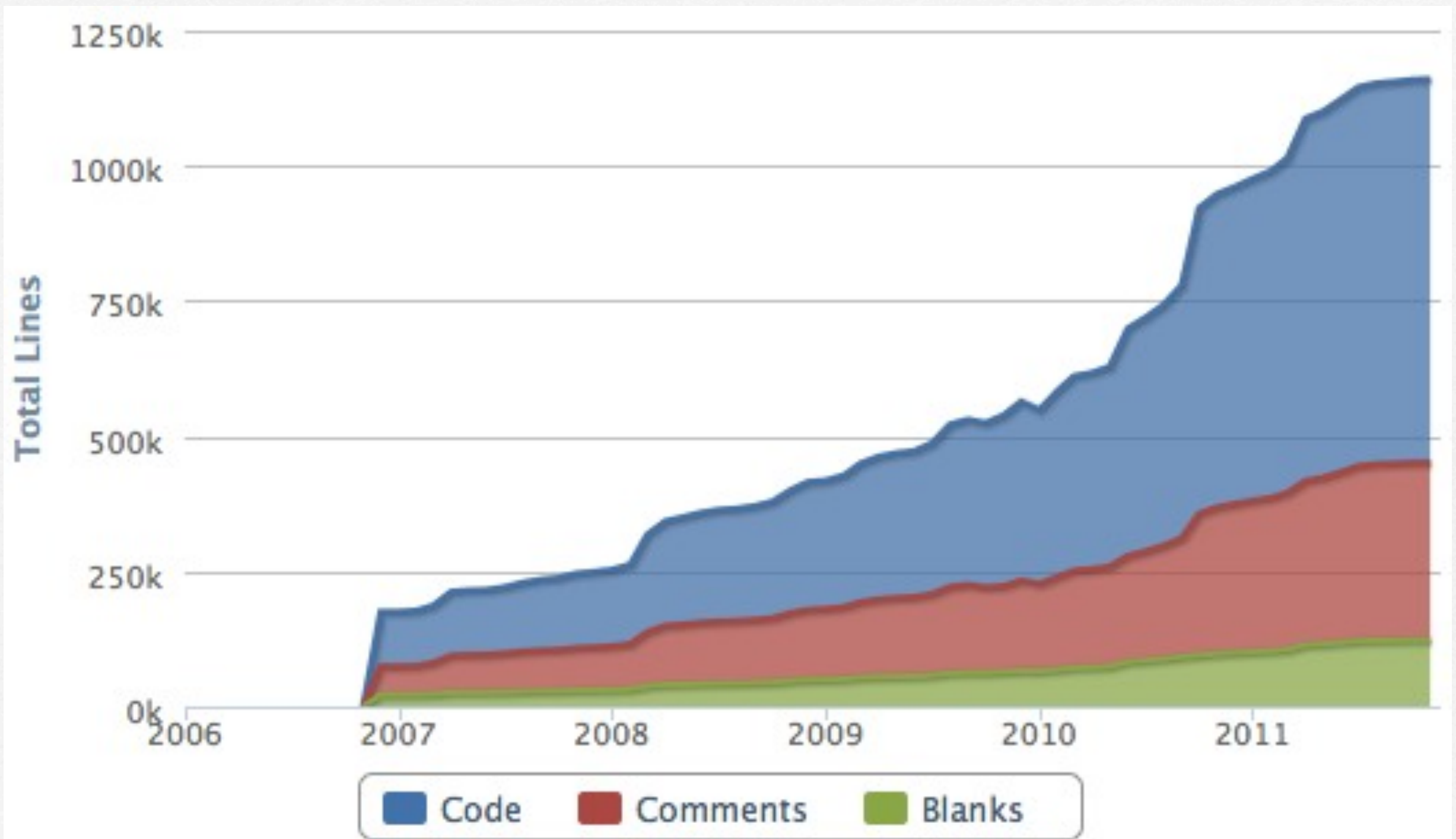
gwt-p

gwt-openlayers

gwt-mobile-webkit

gxt

smart-gwt

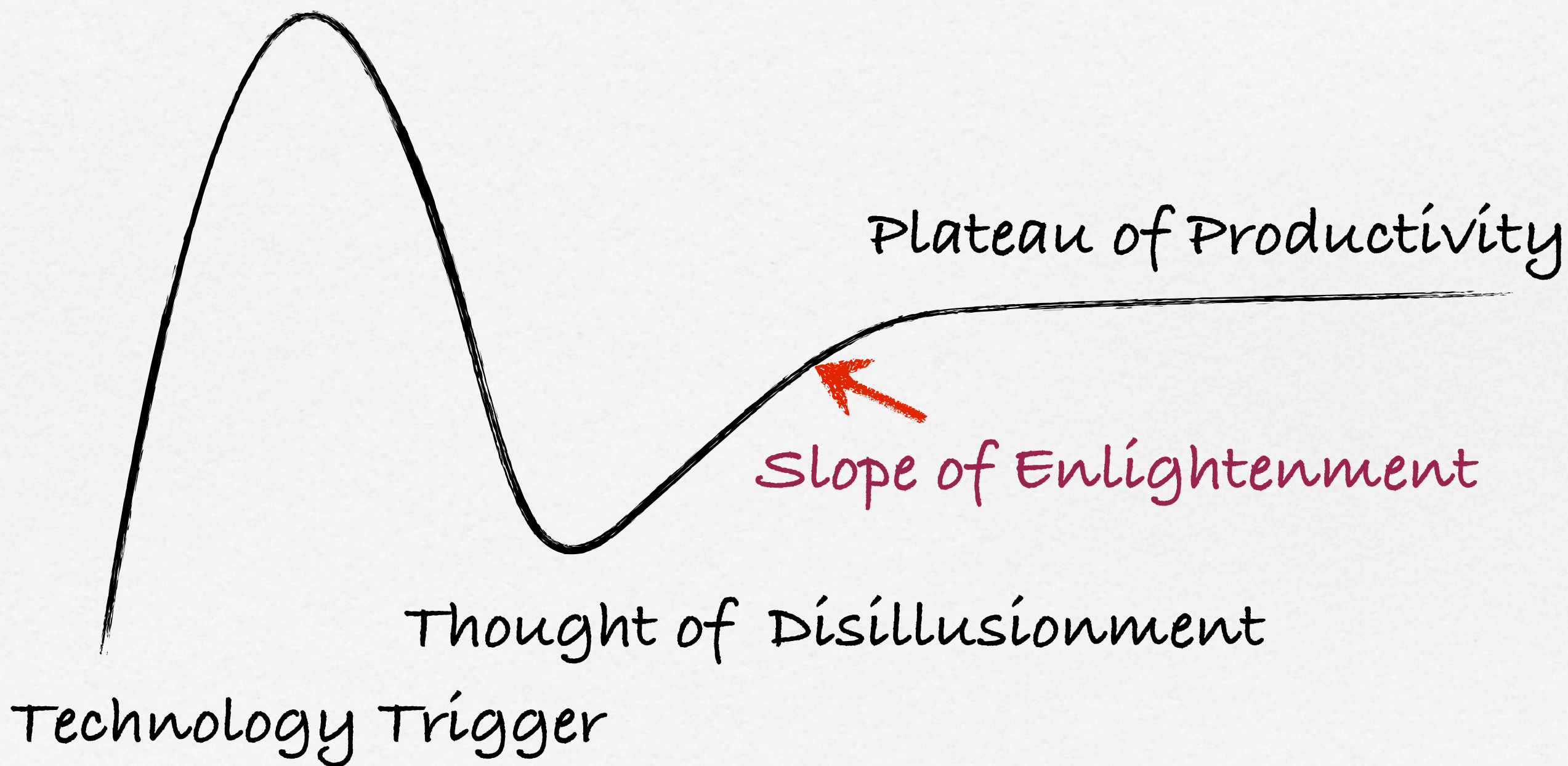


<http://www.ohlloh.net/p/gwt>

- High Entrance Cost
- Not lightweight
- Too many options

Key UI Enterprise Technology

Peak of Inflated Expectations



Future*



JSF ~~VS~~



JavaScript ~~VS~~





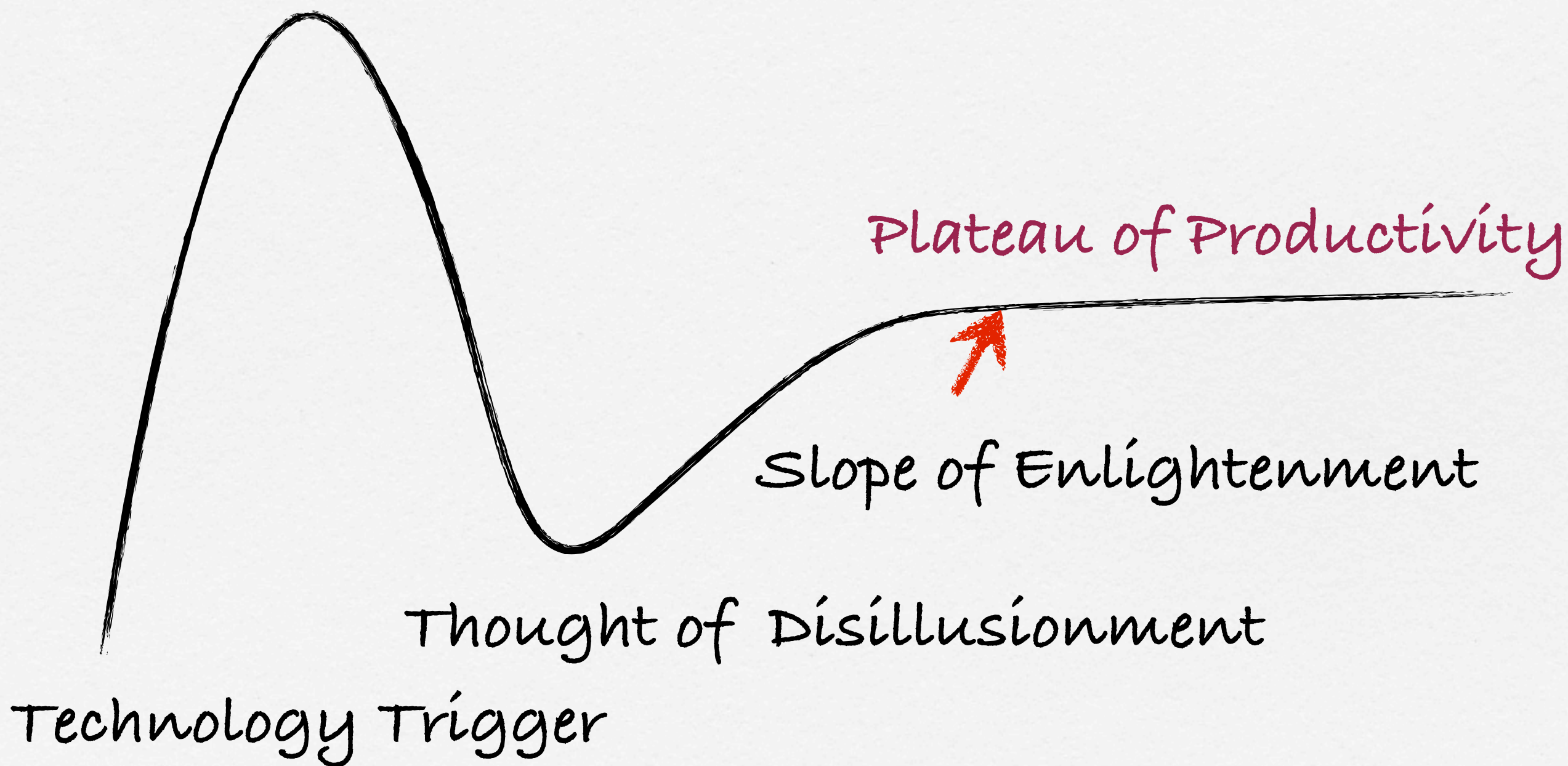
VS



Backbone.js



Peak of Inflated Expectations



You will *not* be programming
in JavaScript by 2017



Choose the right tools for the job

A spiral-bound notebook with a white page. The spiral binding is at the top, and the page is mostly blank except for the text at the bottom.

Thank You!

@buzdin

buzdin@gmail.com

<http://code.google.com/webtoolkit/>