

Application architectures in Grails

Peter Ledbrook

e: p.ledbrook@cacoethes.co.uk

t: @pledbrook

Book

Author

Scaffolded
BookController

Scaffolded
AuthorController

Domain

Book

Author

LibraryController

Views

LibraryService

Domain

Book

Author

Thank you

Only joking

**Is it always the best
architecture?**

Why do we start here?

Book

Author

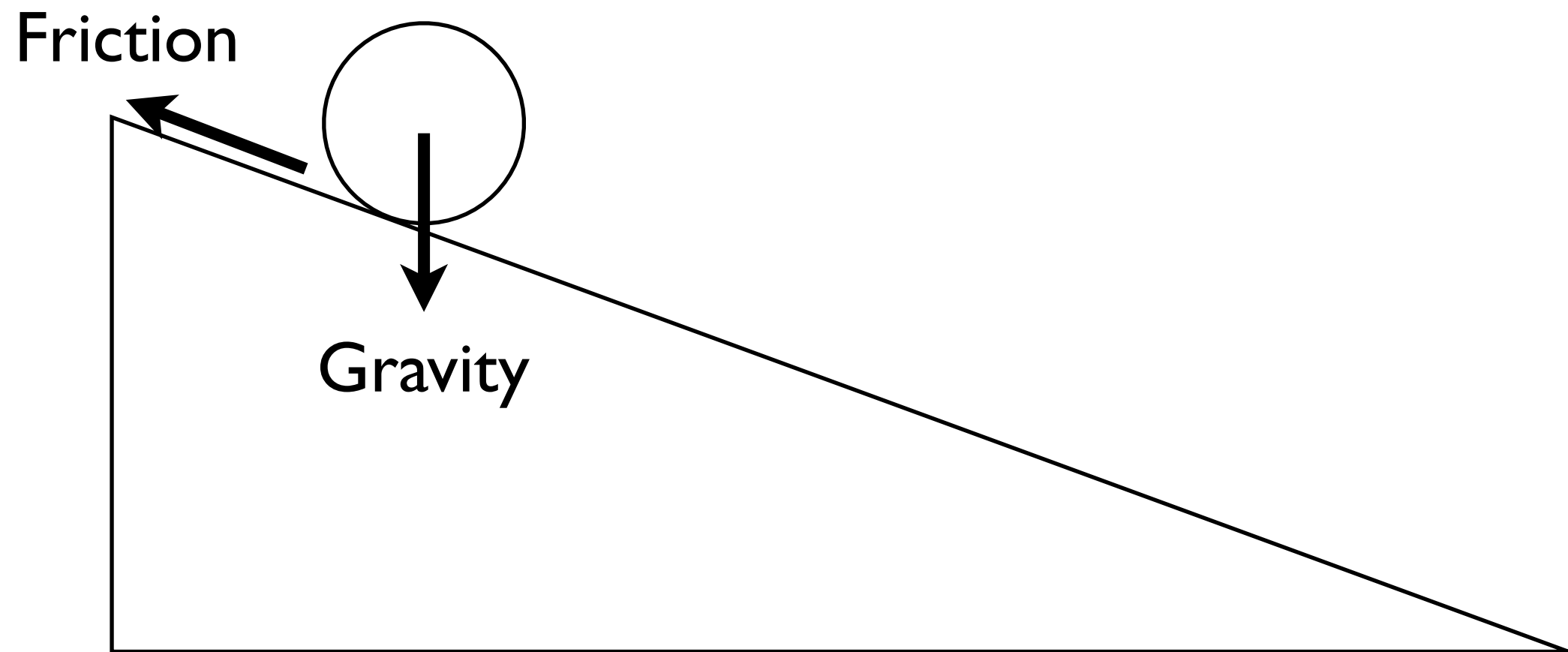
“The database is just a detail that you don’t need to figure out right away”

NO DB - May 2012

Robert “Uncle Bob” Martin

Domain-driven Design

Think Physics

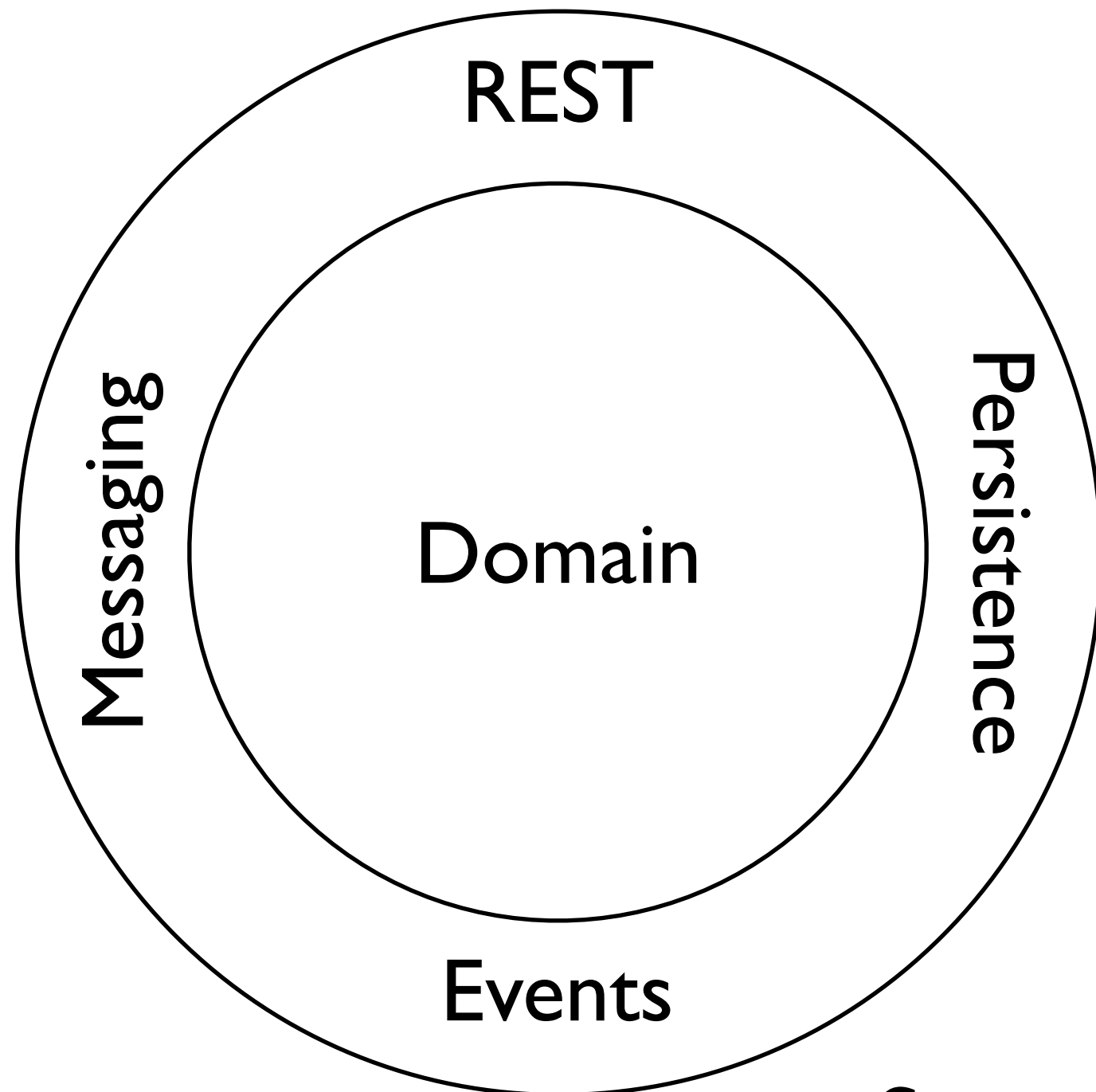




from Wikimedia Commons

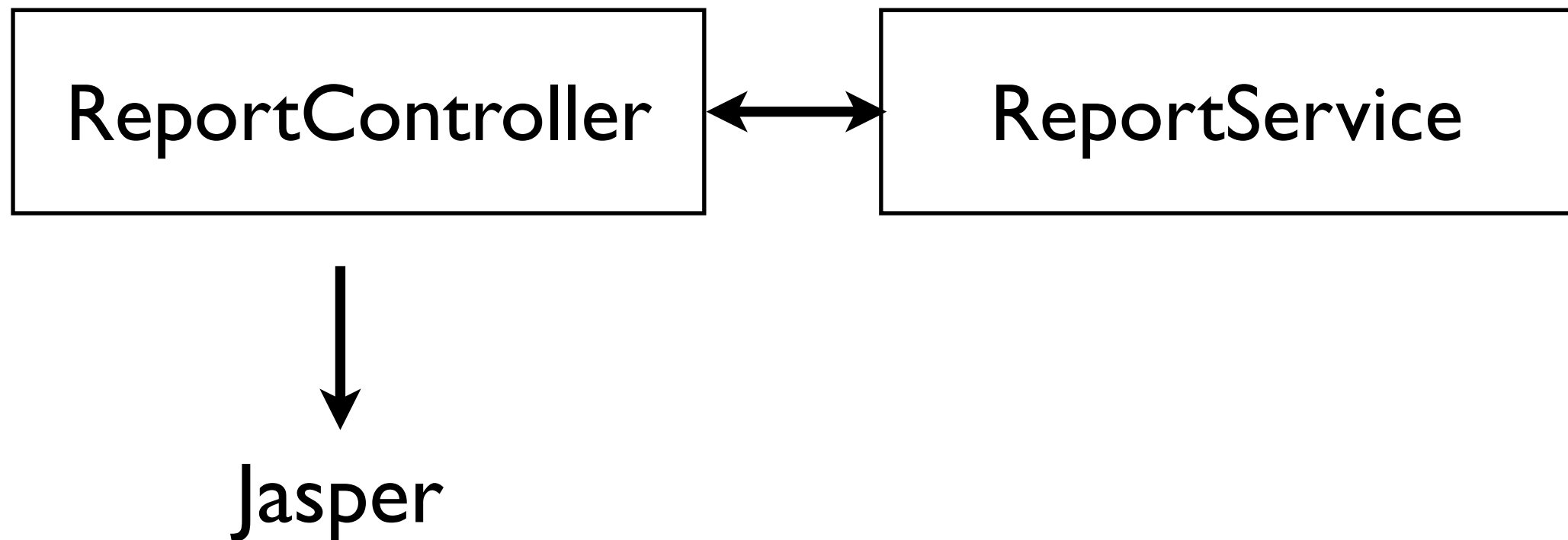
**Remember: you're
trying to solve a
business problem**

The Life Preserver

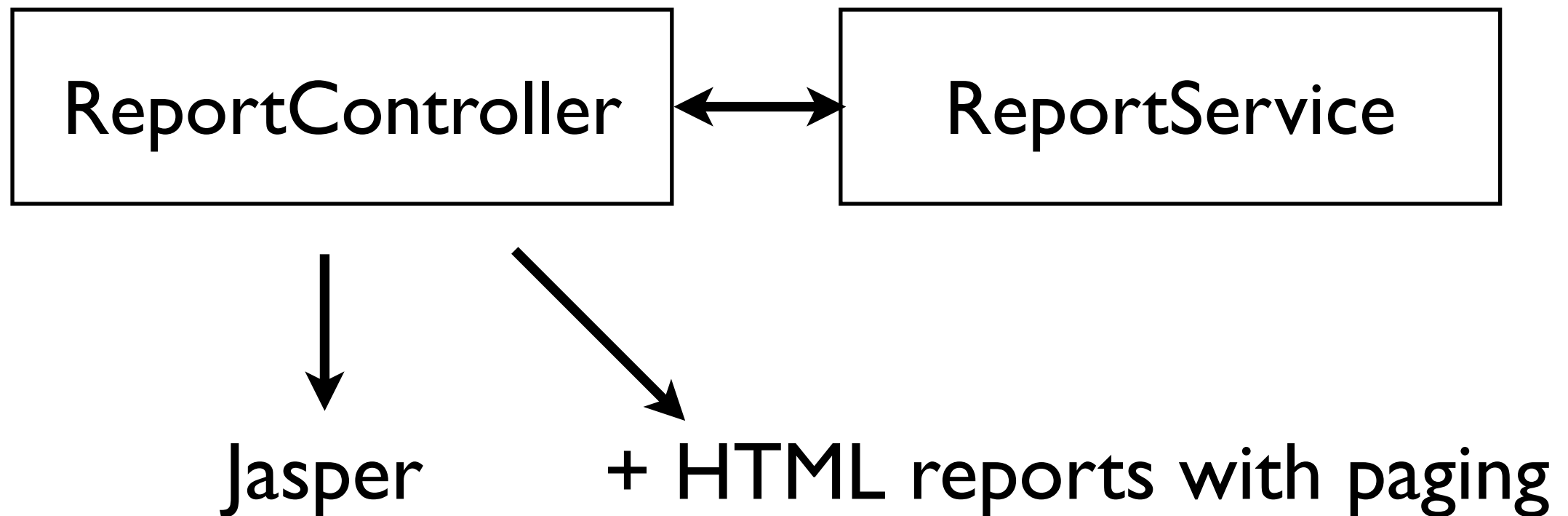


Courtesy of Simplicity Itself

An example - reporting



An example - reporting



Breakage!

An example - reporting



It's a command object!

An example - reporting

```
class ReportController {  
    def print(PublisherReport report) {  
        JasperRenderer.render report  
    }  
  
    def json(PublisherReport report) {  
        render report as JSON  
    }  
  
    ...  
}
```

CQRS

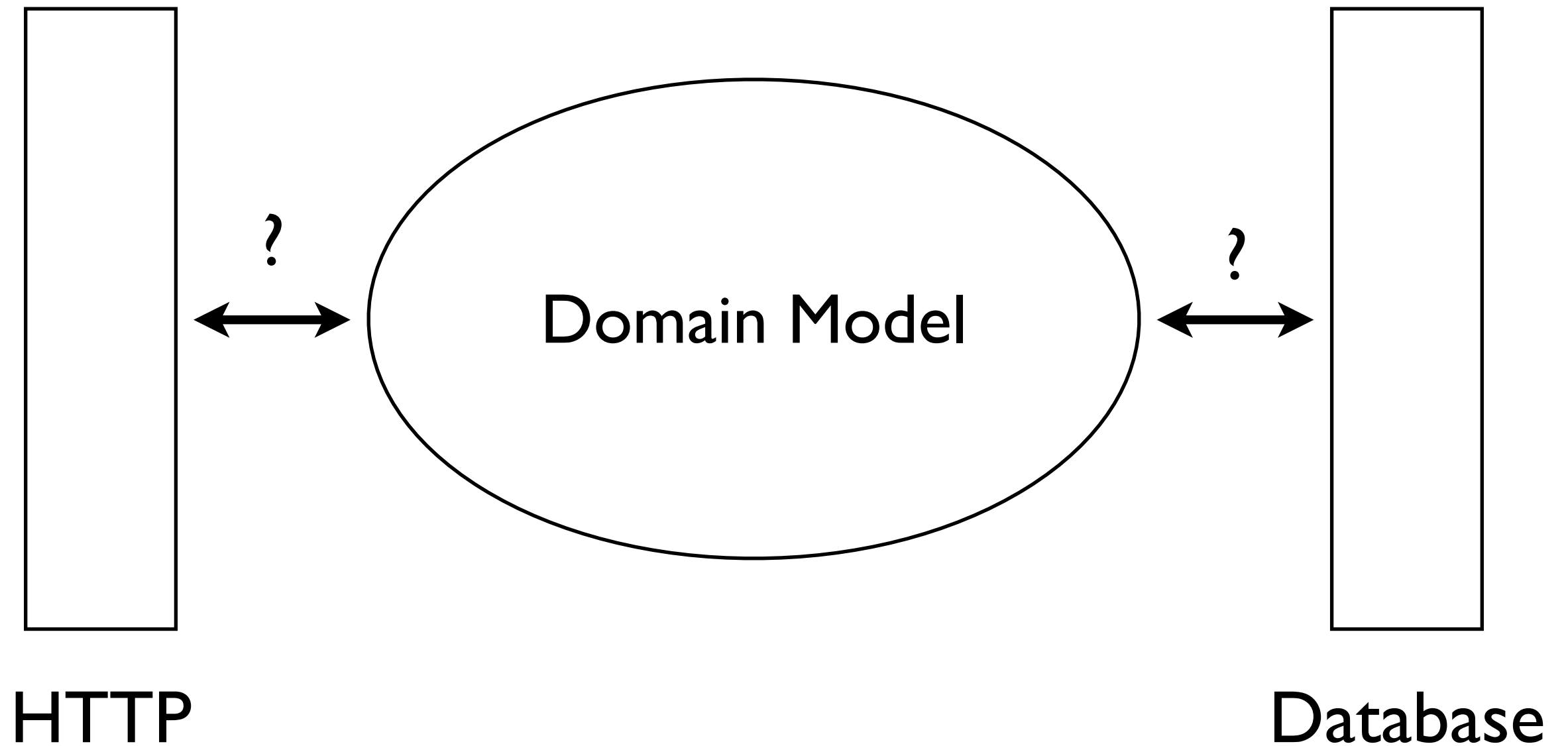
Command

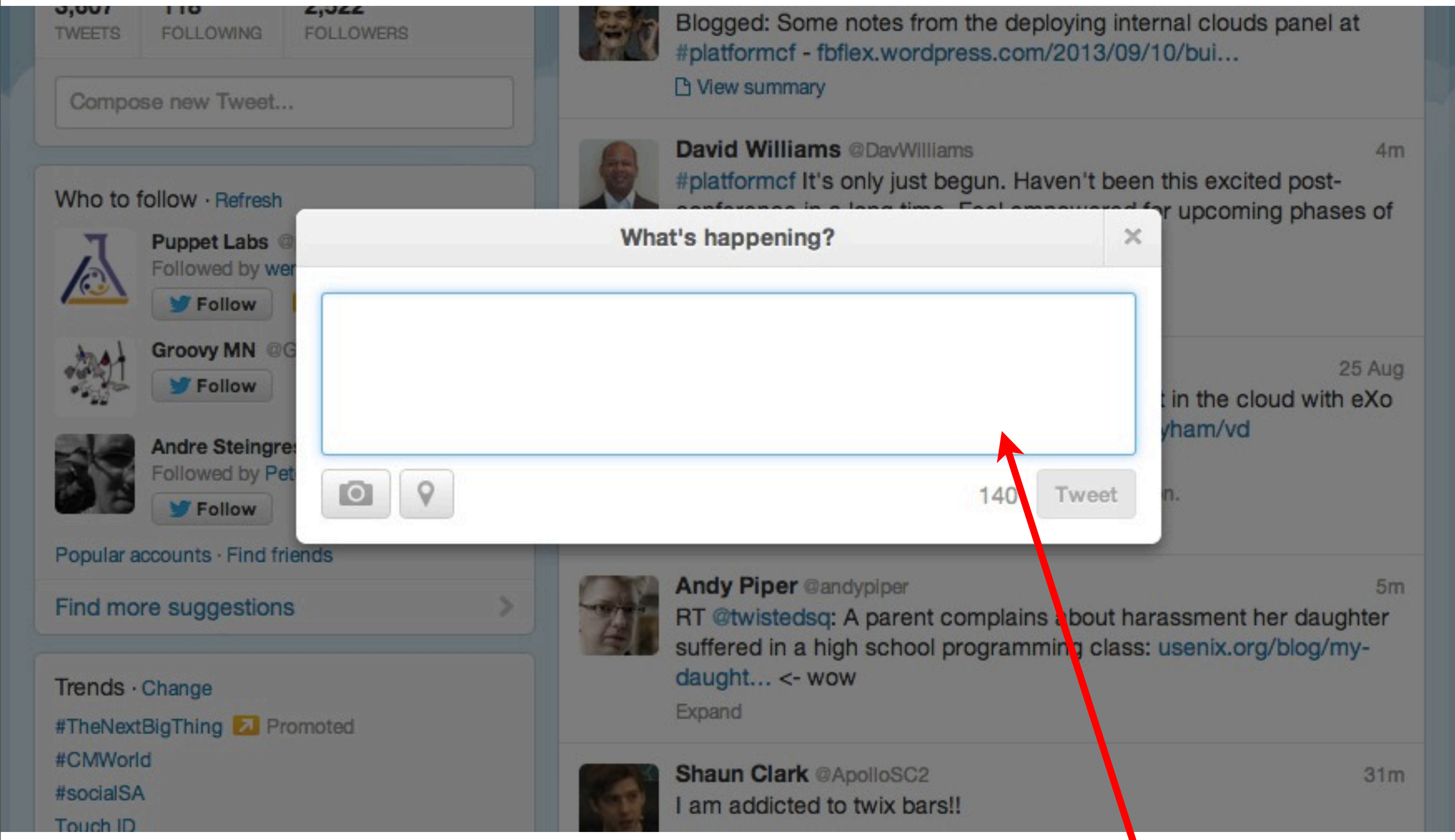
Query

Responsibility

Segregation

What is my domain?





Post content



pledbrook

View my profile page

3,607

TWEETS

118

FOLLOWING

2,522

FOLLOWERS

Compose

Who to follow · Refresh



Puppet Labs @puppetlabs

Followed by wendydevolder and o...

Follow

Promoted



Groovy MN @GroovyMN

Follow



Andre Steingress @asteingr

Followed by Peter Niederwieser an...

Follow

Popular accounts · Find friends

Find more suggestions

Trends · Change

#TheNextBigThing Promoted

#CMWorld

#socialSA

Tweets



Tomas Lin @tomaslin

1m

Blogged: Some notes from the deploying internal clouds panel at #platformcf - fbflex.wordpress.com/2013/09/10/bui...

View summary



David Williams @DavWilliams

4m

#platformcf It's only just begun. Haven't been this excited post-conference in a long time. Feel empowered for upcoming phases of cloud era!

Retweeted by Andy Piper

Expand



eXo Platform @eXoPlatform

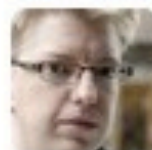
25 Aug

Your open source social-collaboration intranet in the cloud with eXo Cloud. Start it now! cards.twitter.com/cards/4yham/vd

Promoted by eXo Platform

Followed by GR8Conf, Andrew Eisenberg and chanezon.

View promotion

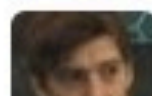


Andy Piper @andypiper

4m

RT @twistedsq: A parent complains about harassment her daughter suffered in a high school programming class: usenix.org/blog/my-daught... <- wow

Expand



Shaun Clark @ApolloSC2

30m

I am addicted to twix bars!!

Rich clients

Once upon a time...

Flash

Java

Knockout.js

AngularJS

Backbone.js

It's all about the
Javascript!

Moustache

Underscore.js

jQuery.js

Google I/O 2012

400 million

Android activations to date

Apple WWDC 2012

365 million

iOS devices sold to date

An aside

If the whole Java client thing had worked out, would you use it for every web application you wrote?

Would you use it for Wikipedia?

Shared templates

HandlebarsViewResolver

or

GSP

```
<hbt:render template="..." />
```


AJAX + JSON endpoints

enabler for async

**What's the need for
SiteMesh & GSP then?**

Aside 2

Don't be afraid to use Ruby/Node.js tooling

Compass/SASS

Bower

Grunt

Yeoman

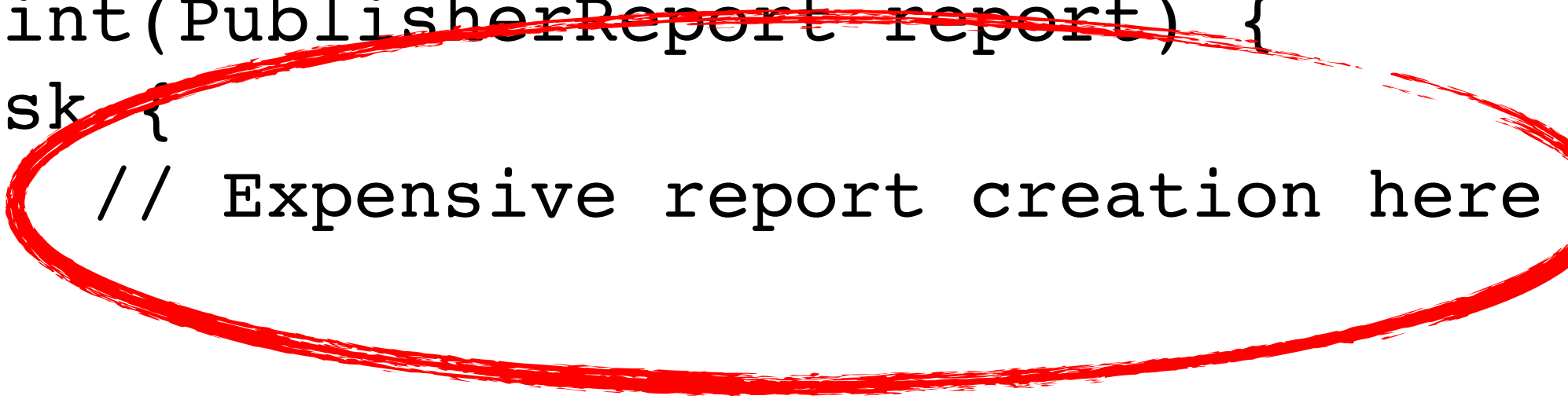
Async

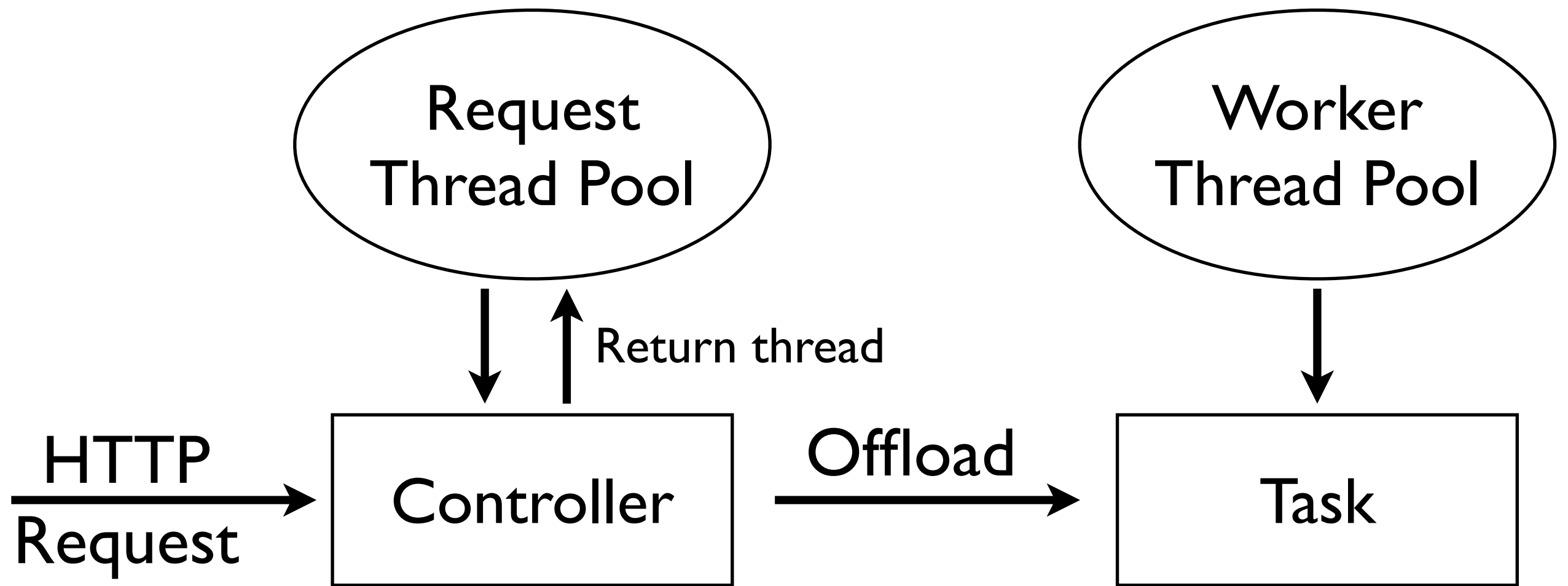
for scalability

Grails Promise API

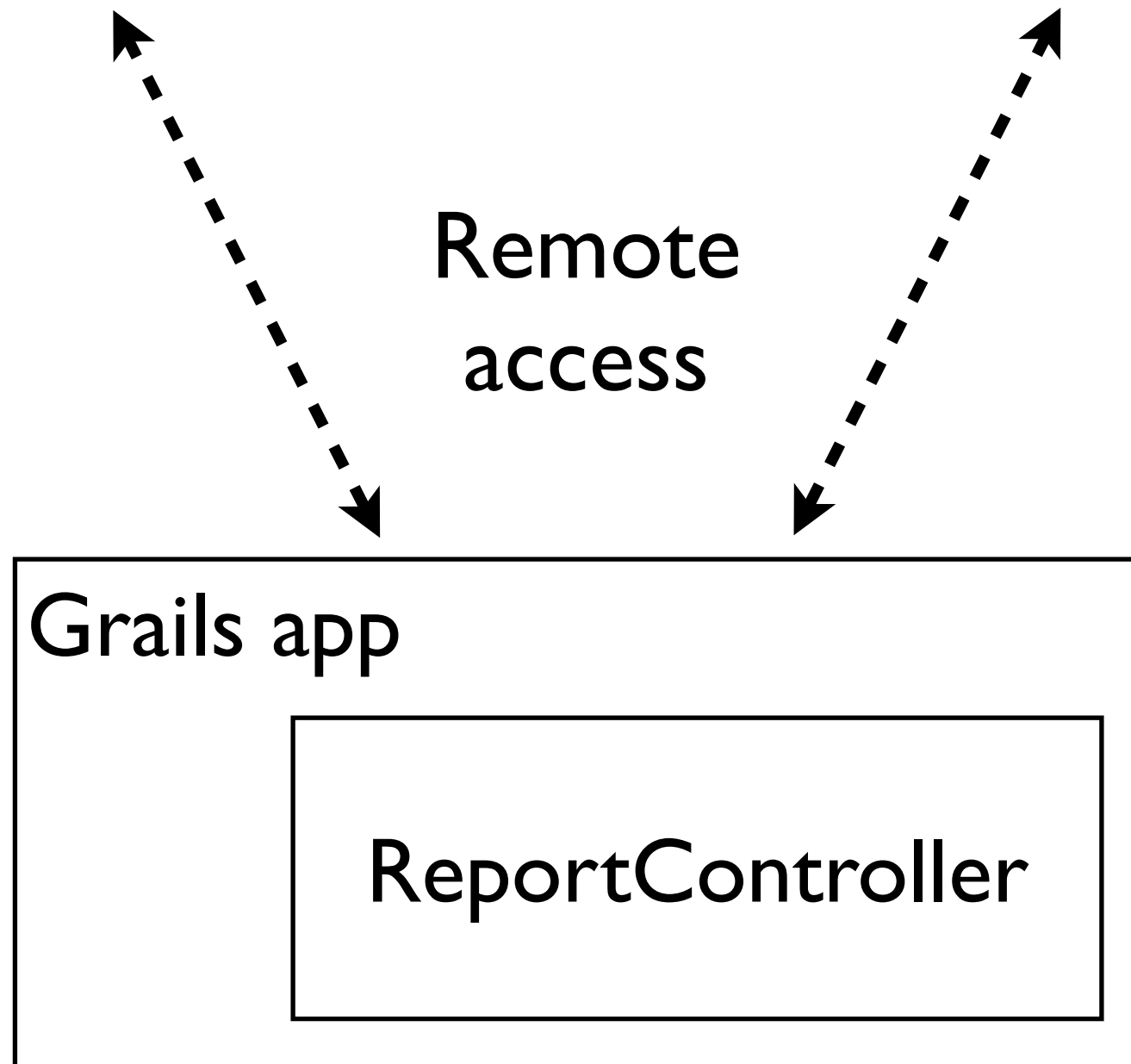
```
import static grails.async.Promises.*

class ReportController {
    def print(PublisherReport report) {
        task {
            // Expensive report creation here
        }
    }
    ...
}
```

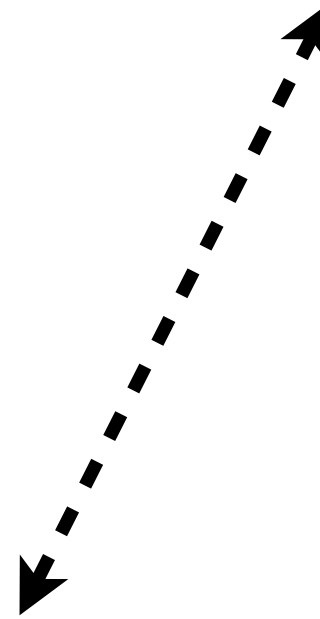
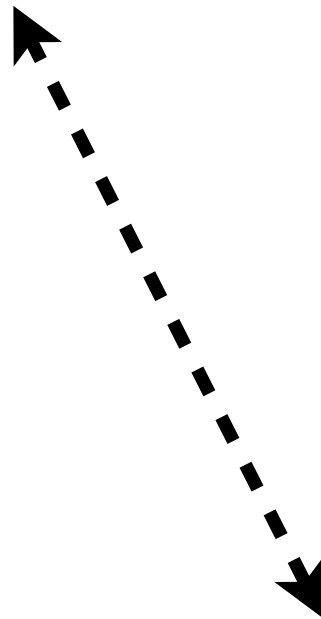




**Make efficient use of
server resources**



Remote
access



Async controllers

```
import static grails.async.Promises.*

class ReportController {
    def tagService
    def postService

    def home() {
        tasks tags: tagService.tagsWithCount()
            trends: tagService.trendingTags()
            timeline: postService.timeline(
                params.userId)
    }
    ...
}
```

Async controllers

```
import static grails.async.Promises.*

class TagService {
    def remoteTagService

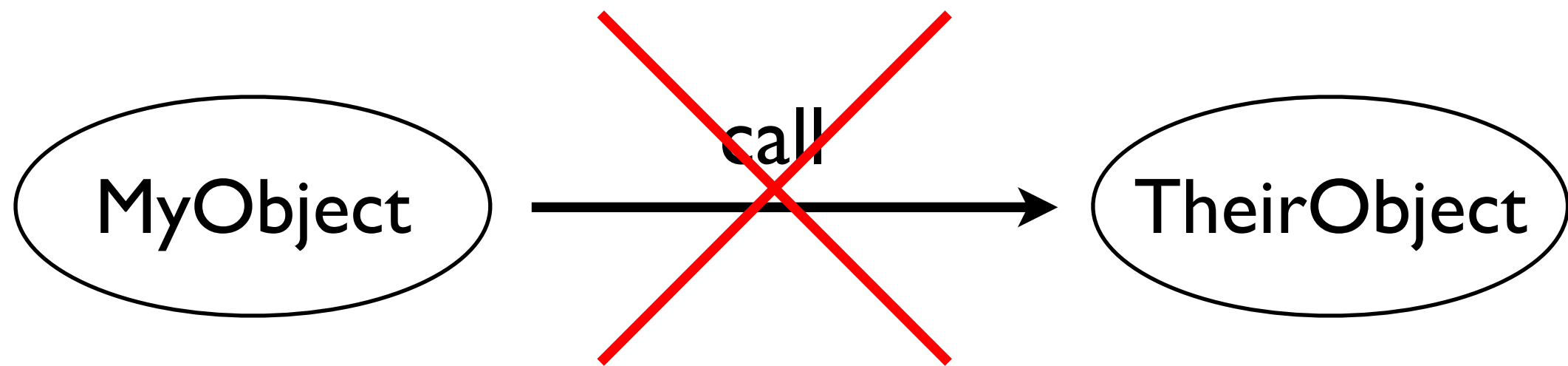
    def tagsWithCount() {
        task {
            remoteTagService.tagsWithCount()
        }
    }
    ...
}
```

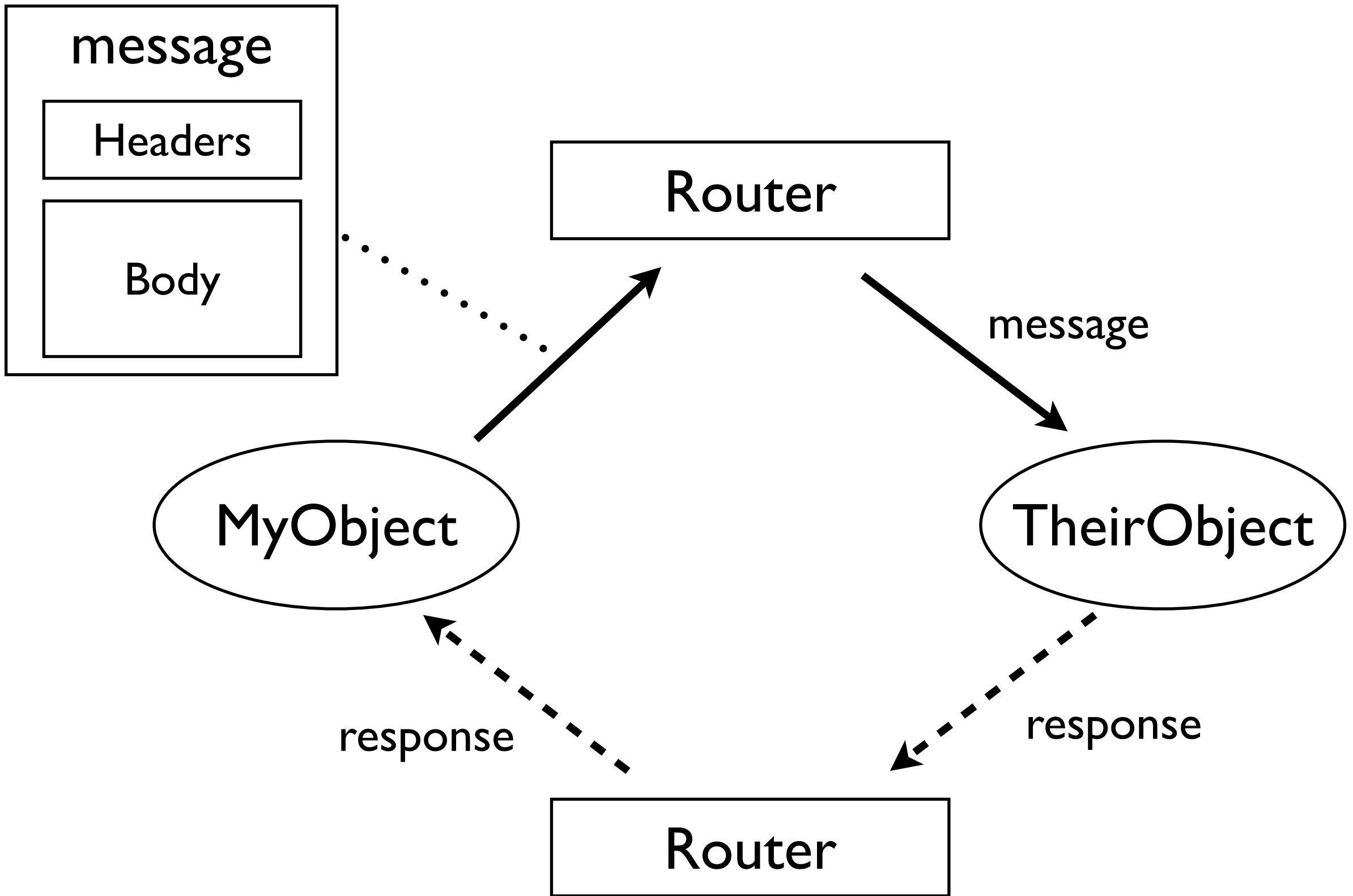
Rich domain model +
Promises API/GPars?

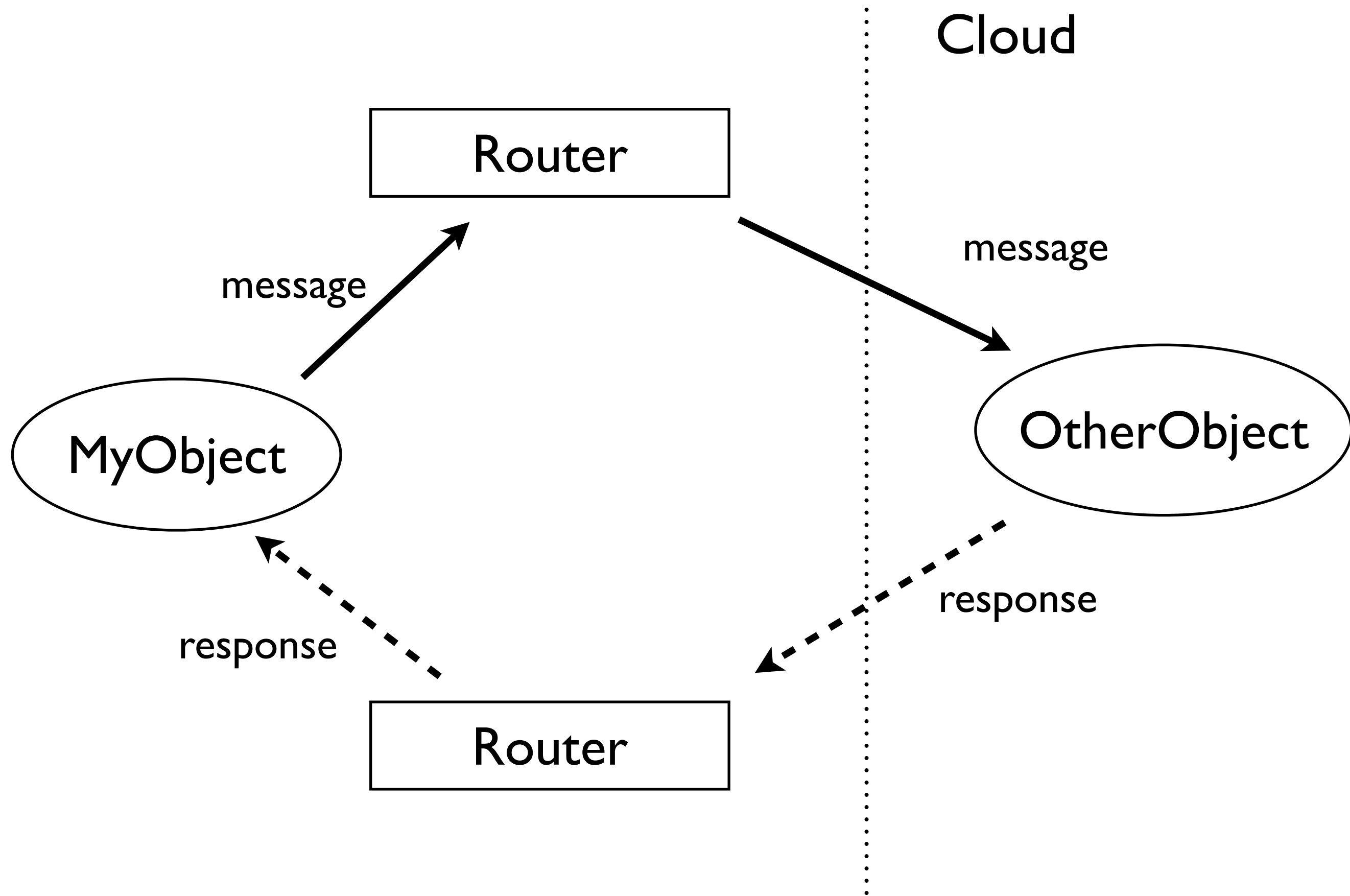
GPars supports

- Dataflow
- Communicating Sequential Processes (CSP)
- Actor model

Messaging







Internal

Events

Spring Integration

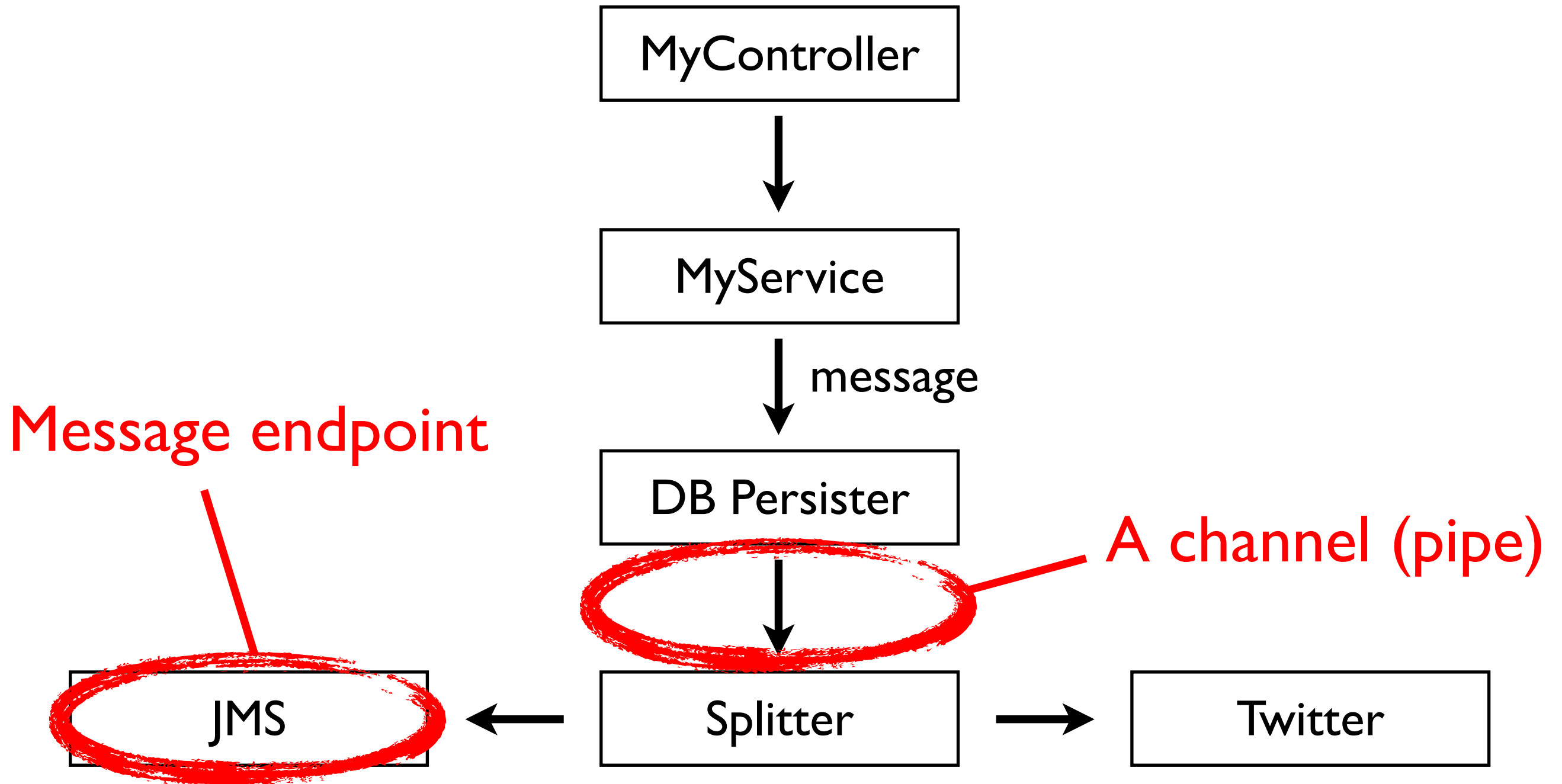
Apache Camel

External

JMS

RabbitMQ

Spring Integration



Spring Integration Groovy DSL

```
def builder = new IntegrationBuilder()

def ic = builder.doWithSpringIntegration {
    messageFlow("flow") {
        filter { it == "World" }
        transform(inputChannel: "transformerChannel") {
            "Hello " + it
        }
        handle { println "**** $it ****" }
    }
}

ic.send "flow.inputChannel", "World"
ic.send "transformerChannel", "Earth"
```



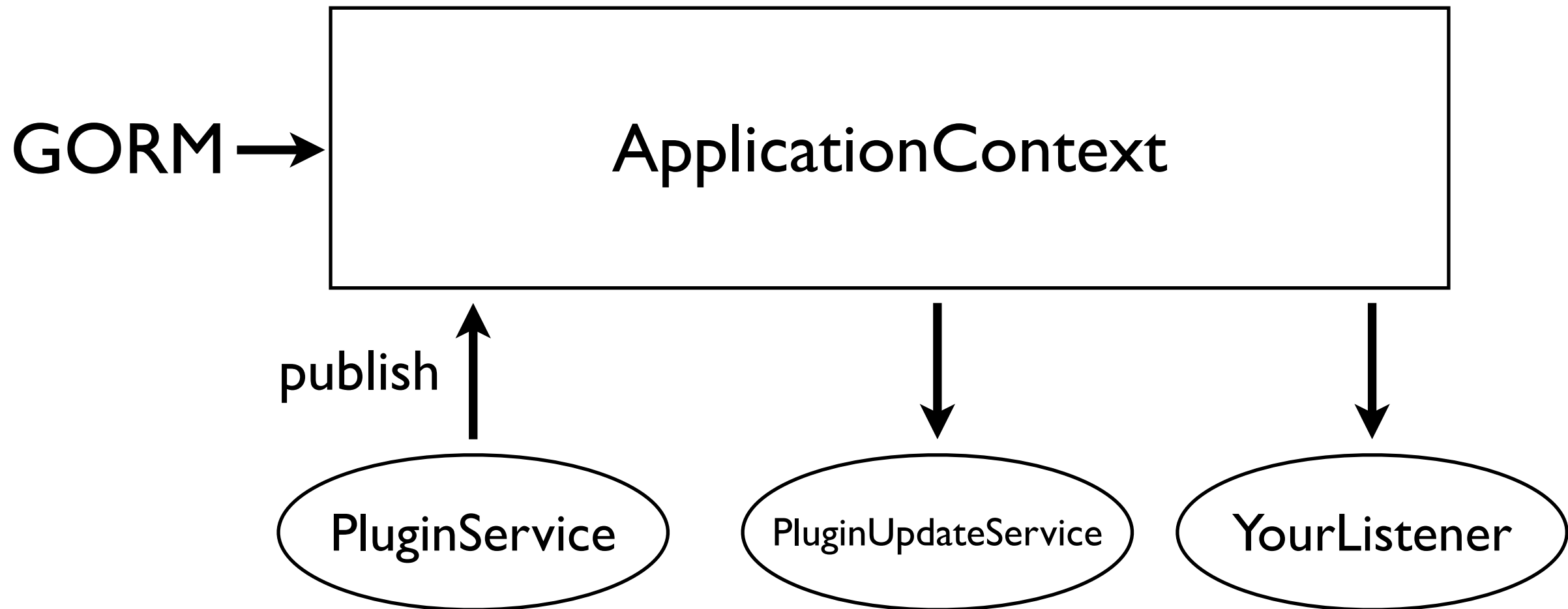
Debugging

Code comprehension

Performance (kind of)

Events

Event bus - ApplicationContext



Event bus - ApplicationContext

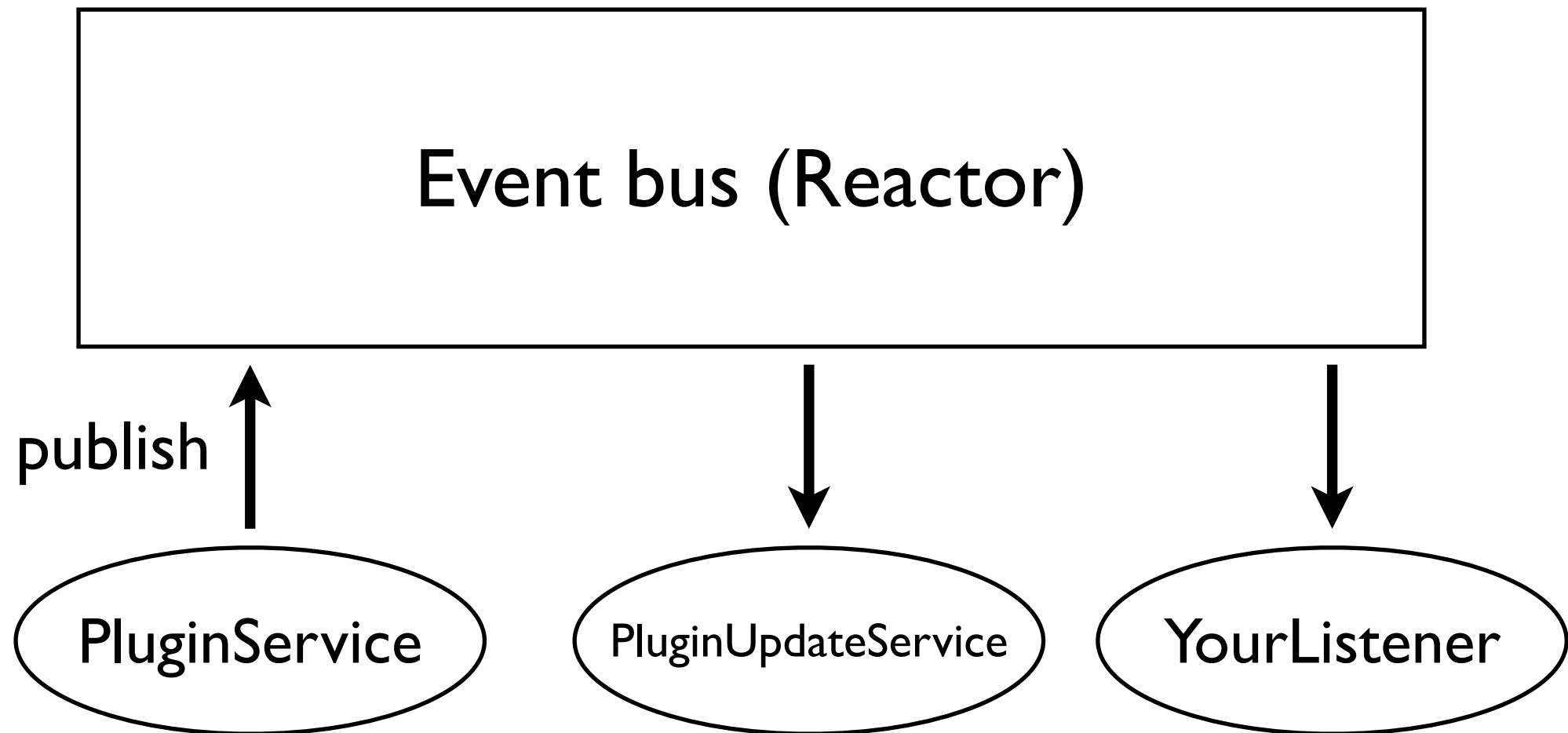
```
class PluginService {  
    def publish(PluginDetails info) {  
        ...  
        publishEvent(new PluginUpdateEvent(...))  
    }  
}
```

```
class PluginUpdateService implements  
    ApplicationListener<PluginUpdateEvent> {  
  
    def onApplicationEvent(PluginUpdateEvent e) {  
        ...  
    }  
}
```

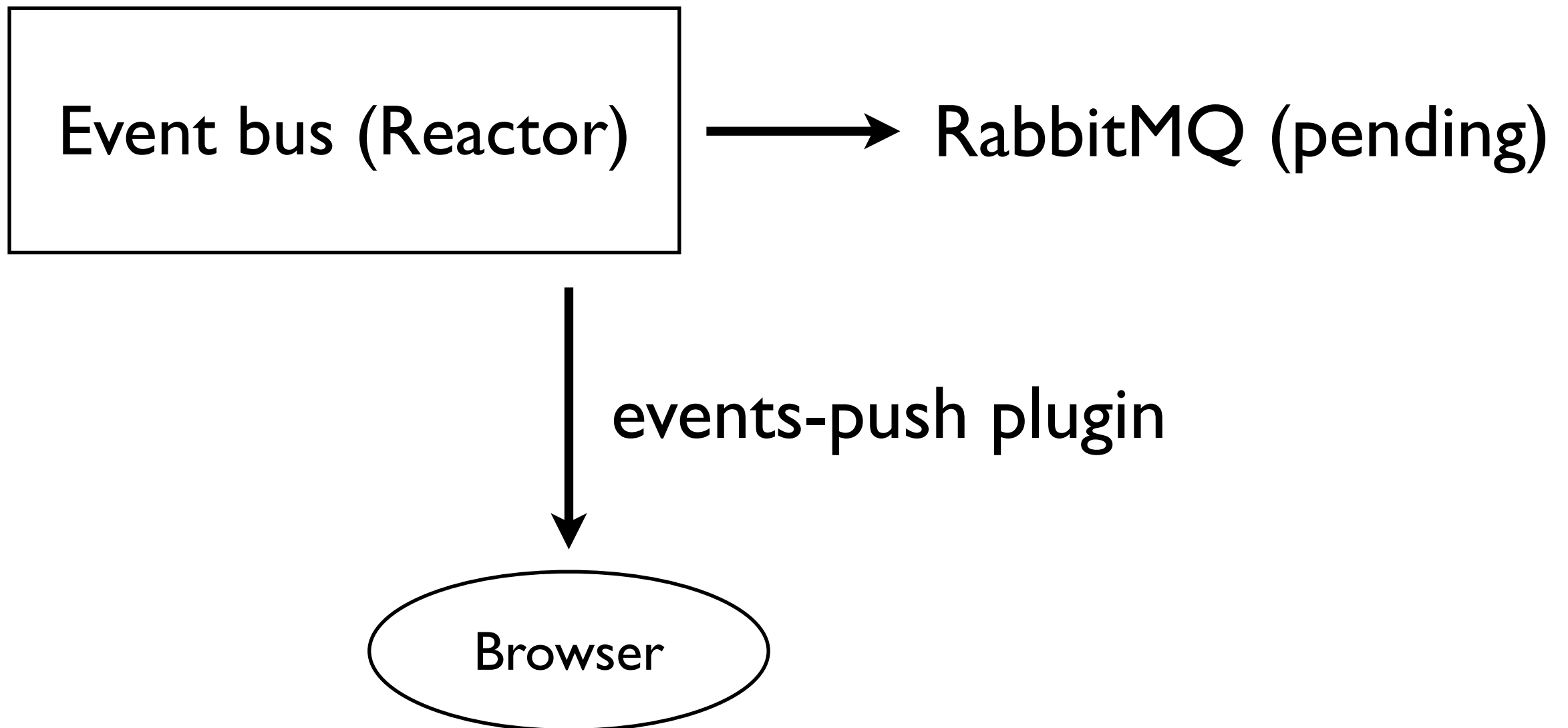
Immutable “messages”

```
@groovy.transform.Immutable  
class PluginUpdateEvent {  
    String name  
    String version  
    String group  
    ...  
}
```


Event bus - (grails-)events



Event bus - (grails-)events



Event bus - (grails-)events

```
class PluginService {  
    def publish(PluginDetails info) {  
        ...  
        event "pluginUpdate", info  
    }  
}
```

```
class PluginUpdateService {  
    @Selector  
    def pluginUpdate(PluginDetails info) {  
        ...  
    }  
}
```

AppEvents.groovy

```
includes = [ "push" ]
```

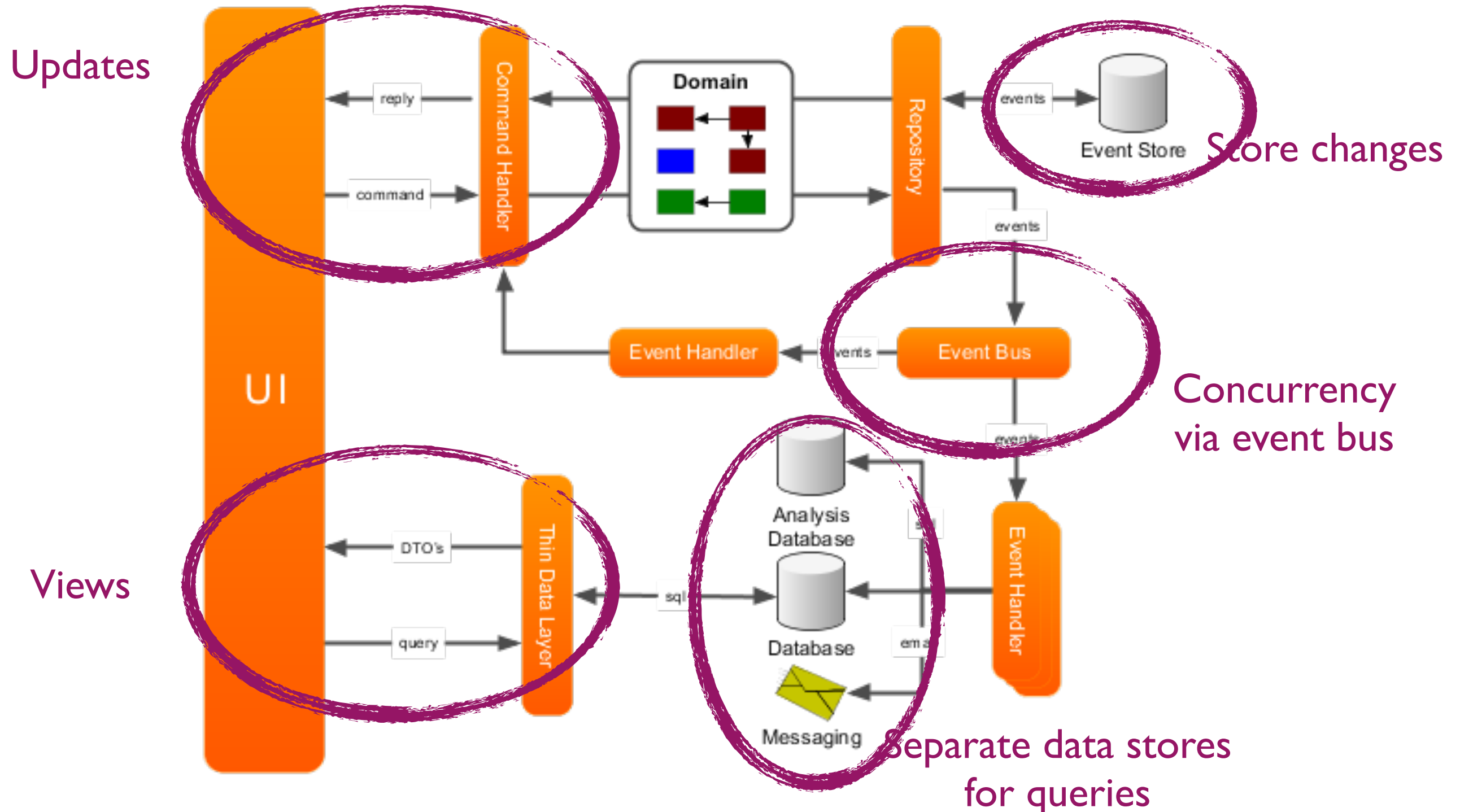
```
doWithReactor = {  
    reactor( "grailsReactor" ) {  
        ext "browser", [ "pluginUpdate" ]  
    }  
}
```

Include railsEvents.js

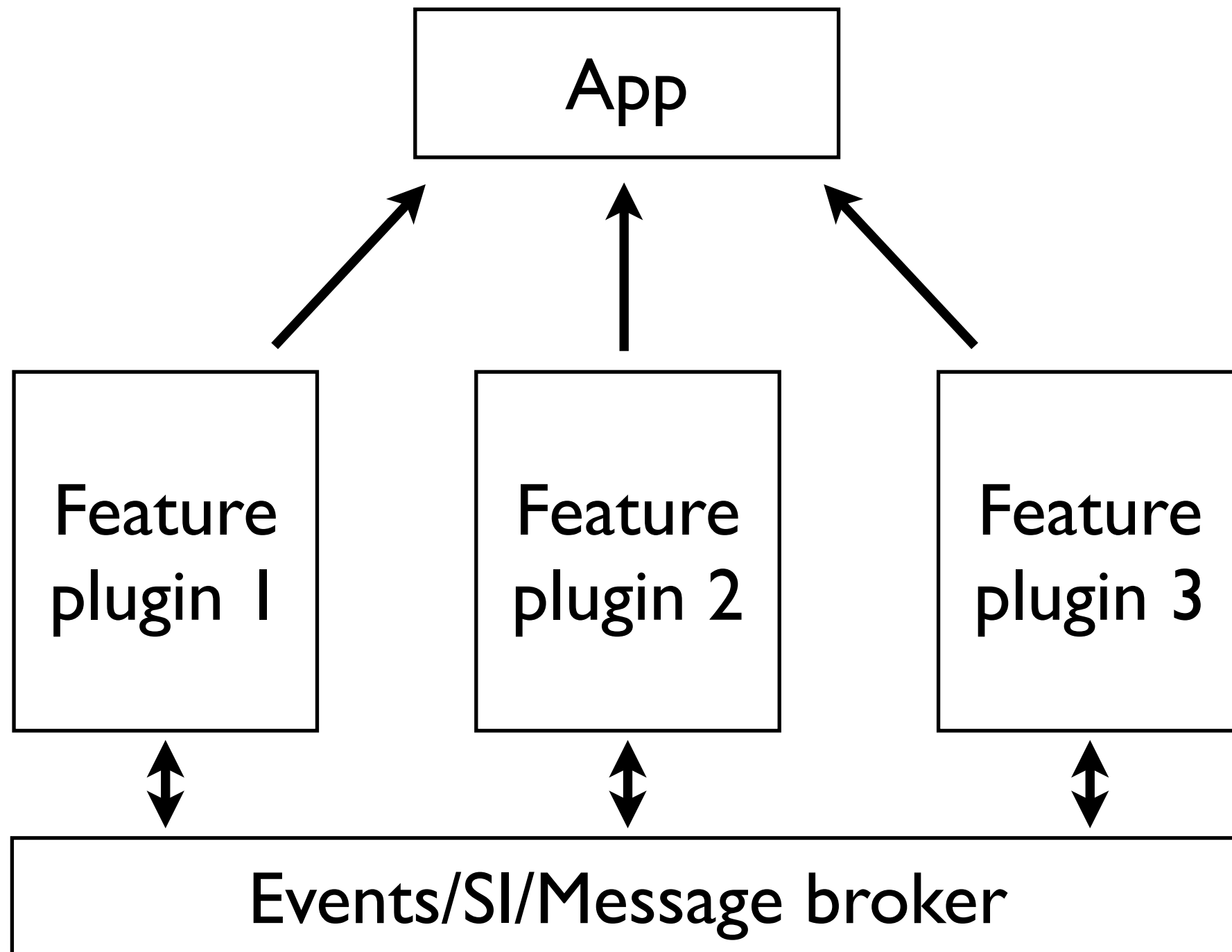
```
window.railsEvents = new rails.Events(baseUrl)

railsEvents.on("pluginUpdate", function(data) {
    // do something
});
```

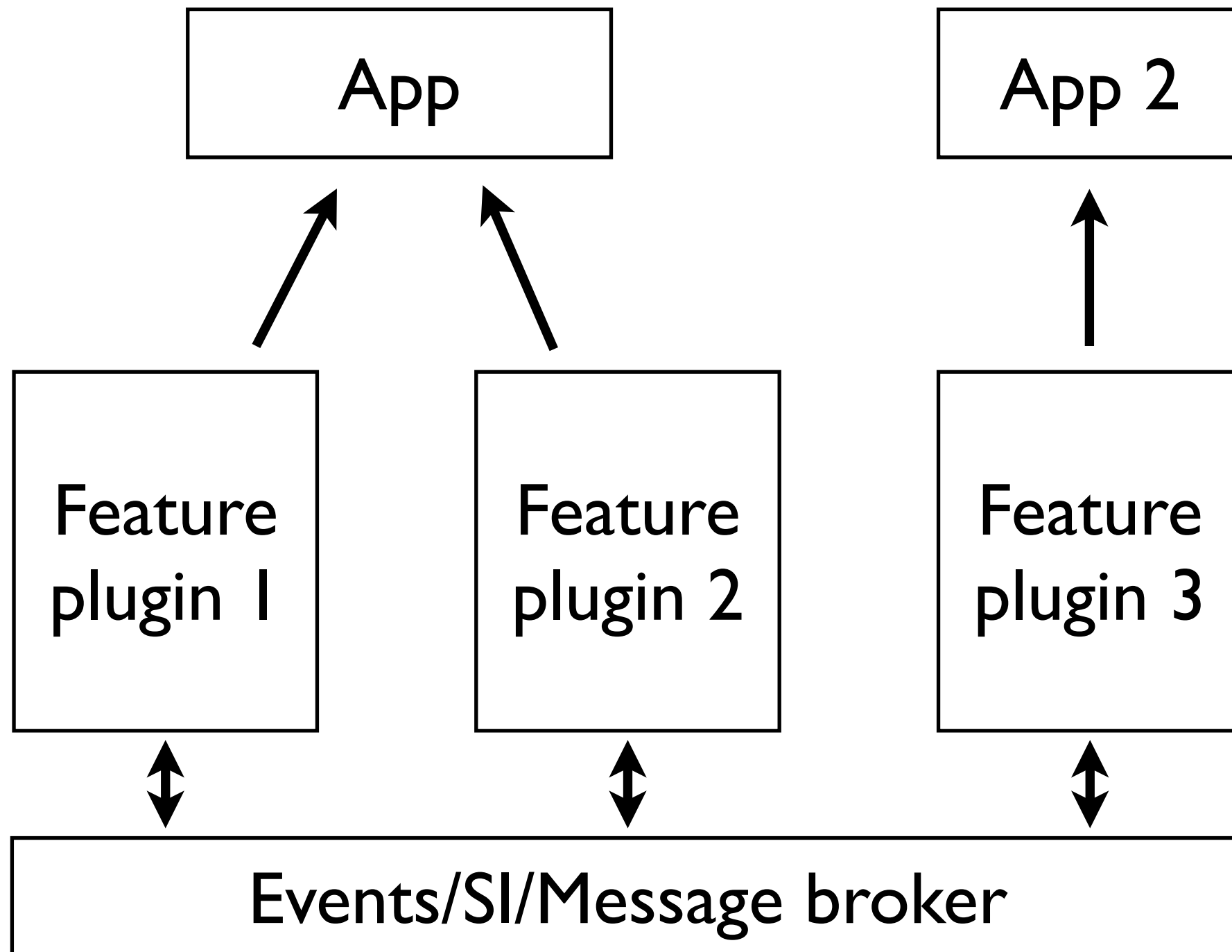
A CQRS architecture



Plugin Architectures



Plugin Architectures



Ultimately, think about
what you need...

...don't just go the
“standard” route
automatically

Thank you