

# Sistemas Reactivos

## Programación

## Reactiva

Ingeniería de  
Software

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FCEFyN

Facultad de  
Ciencias Exactas  
Físicas y Naturales



UNC

Universidad  
Nacional  
de Córdoba

# Agenda

Sistemas Reactivos

Programación Reactiva

MVVM

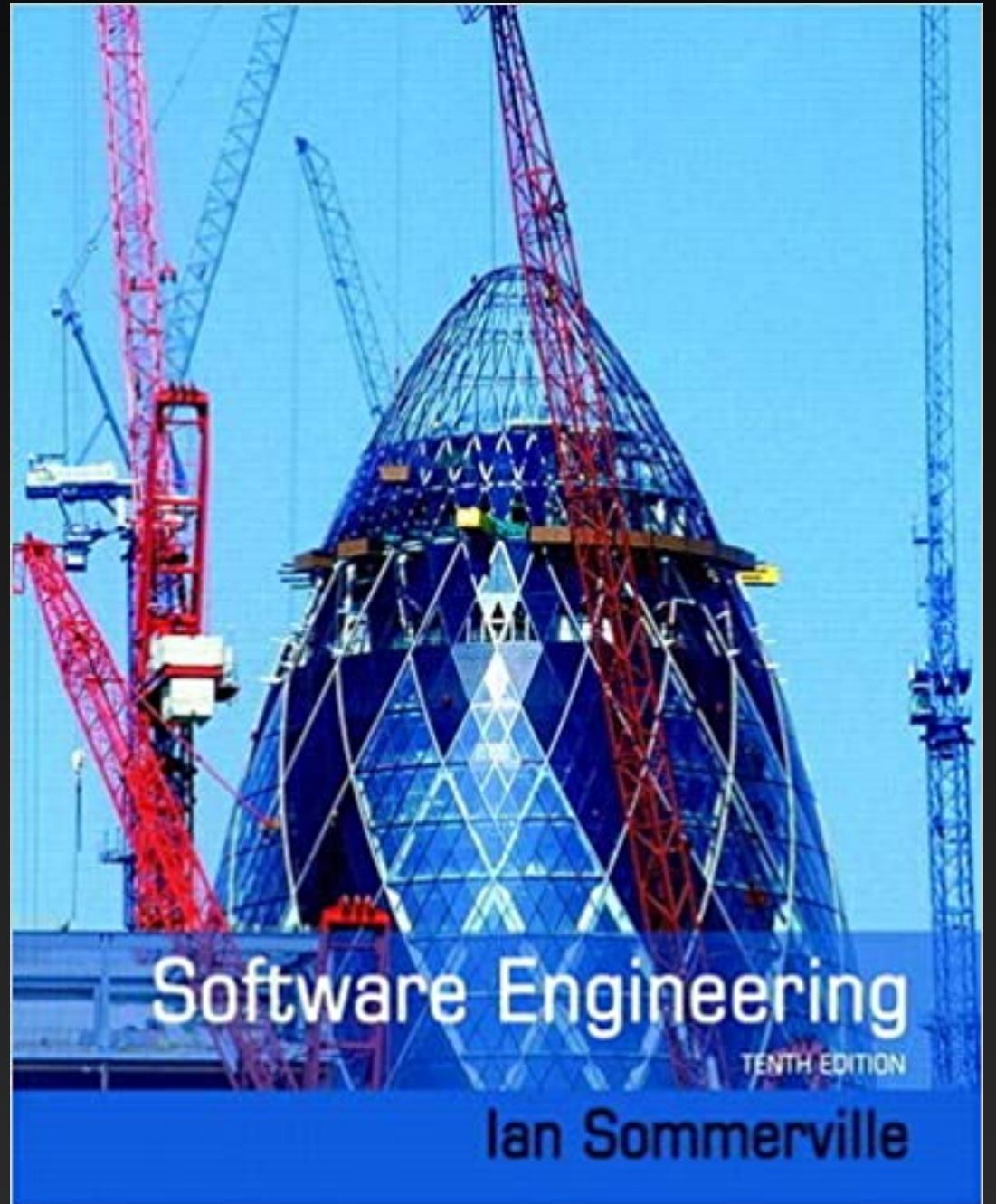
MicroFrontend

Ejemplos y Demos

Cap 17:

## **Distributed Software Engineering**

### **17.3.4 Distributed component architectures**



Cap 18:

## **Service-oriented Software Engineering**

# Sistemas Reactivos

Manifiesto Reactivo

2014

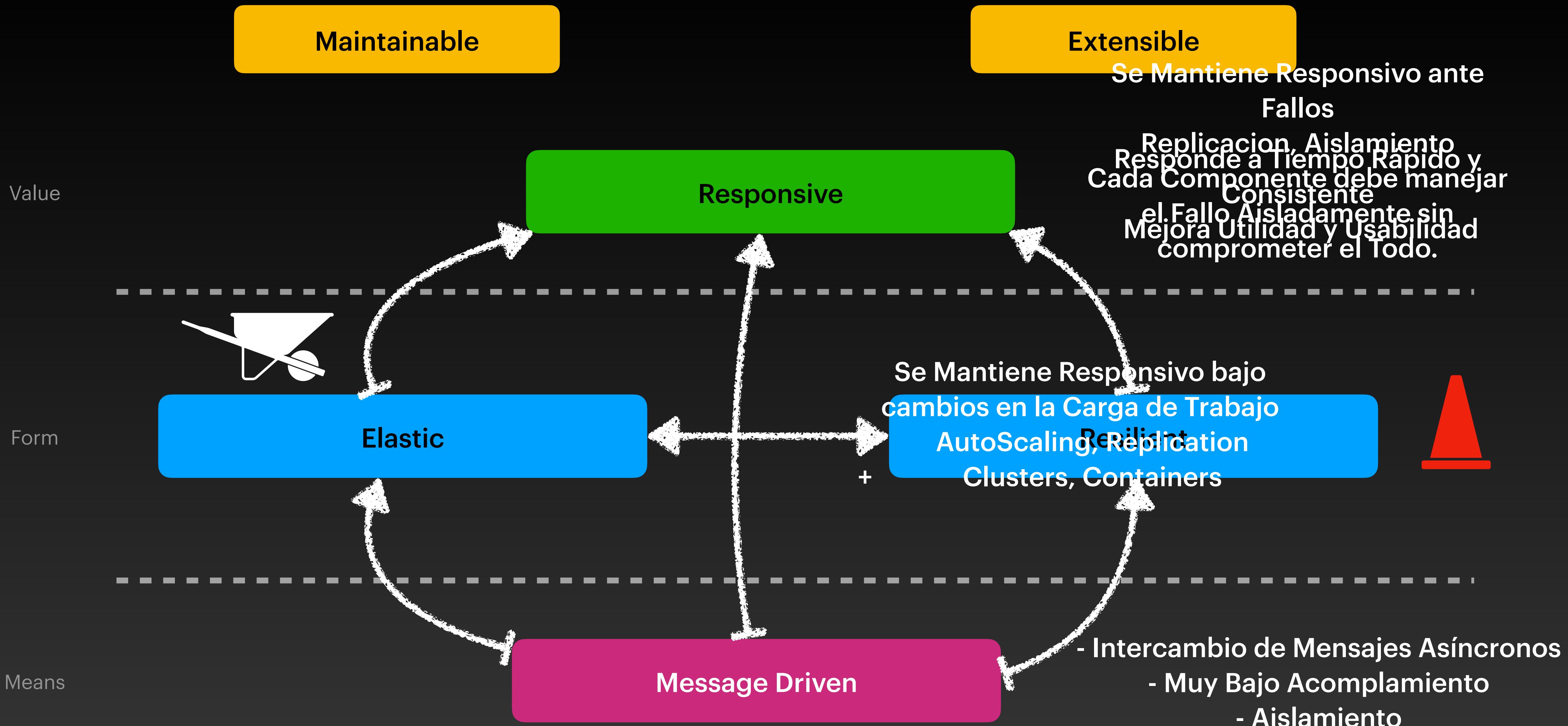
**Se Buscan...**

Mas Robustos

Mas Flexibles

Bajo Acomplamiento

Escalables



# Programación Reactiva

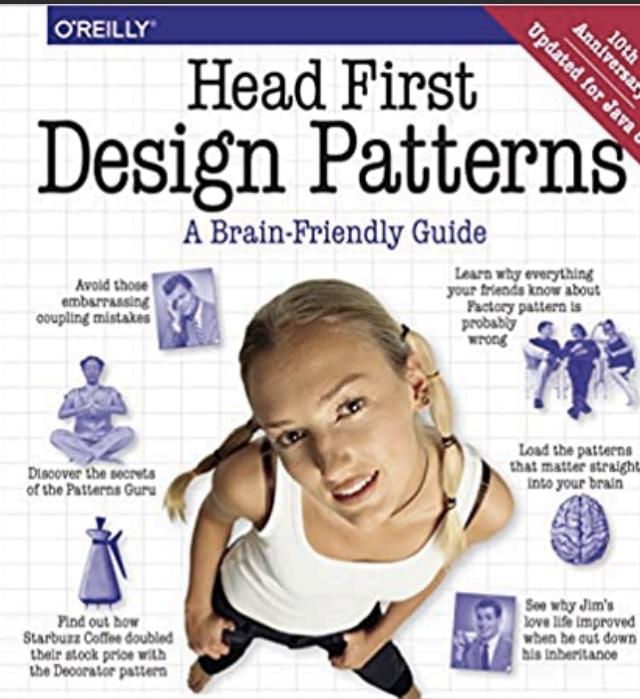
(Functional) Reactive Programming

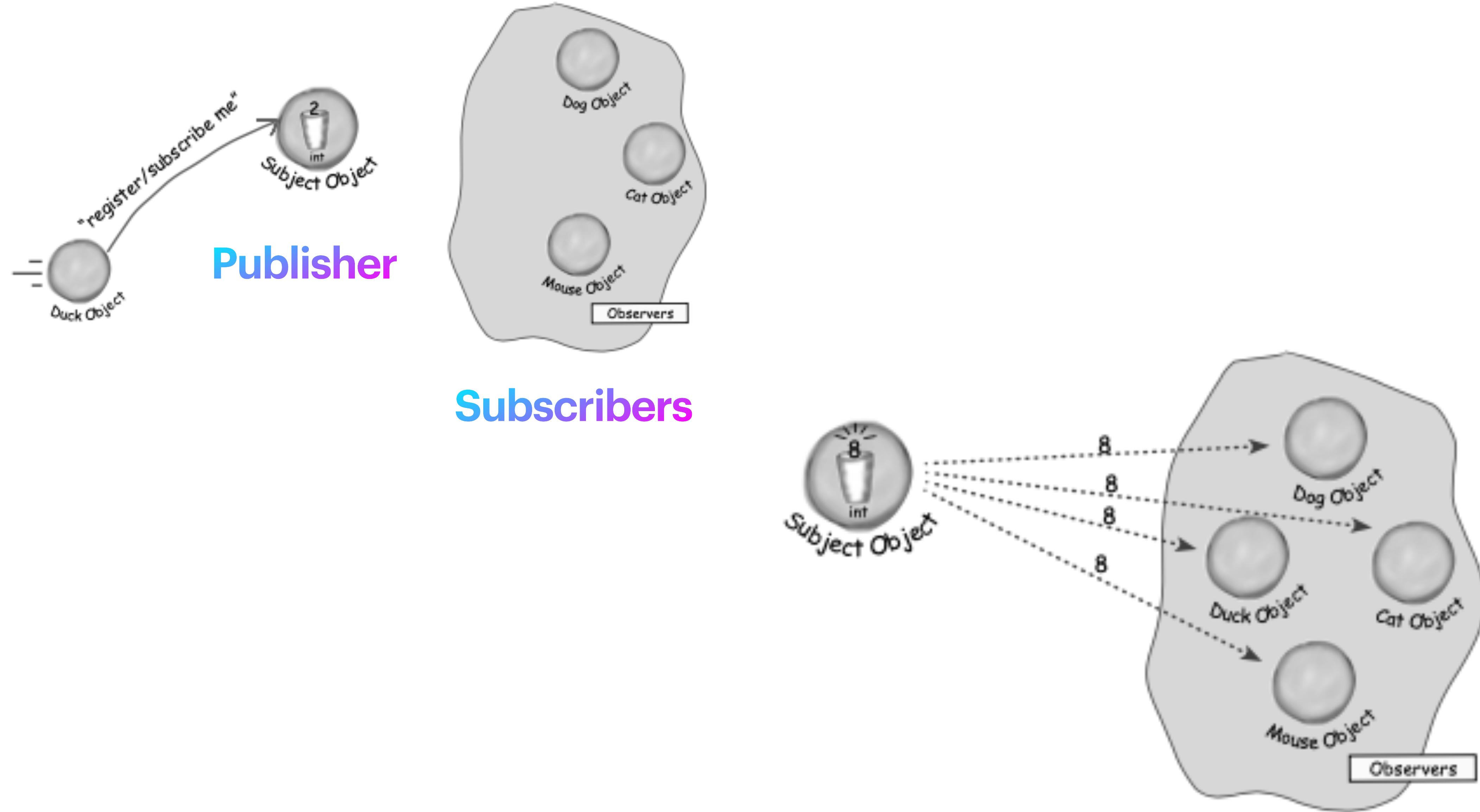
# Es un Paradigma!

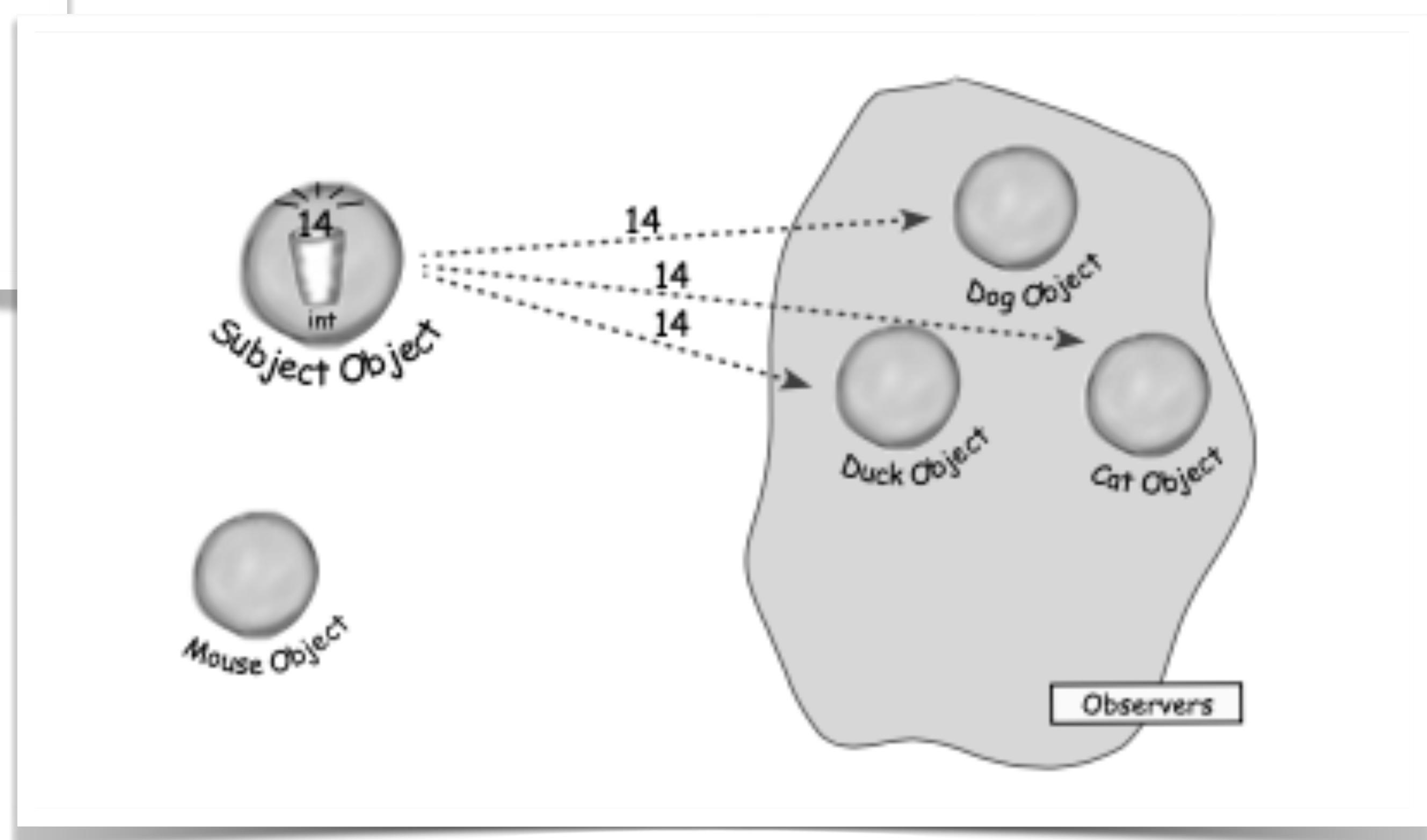
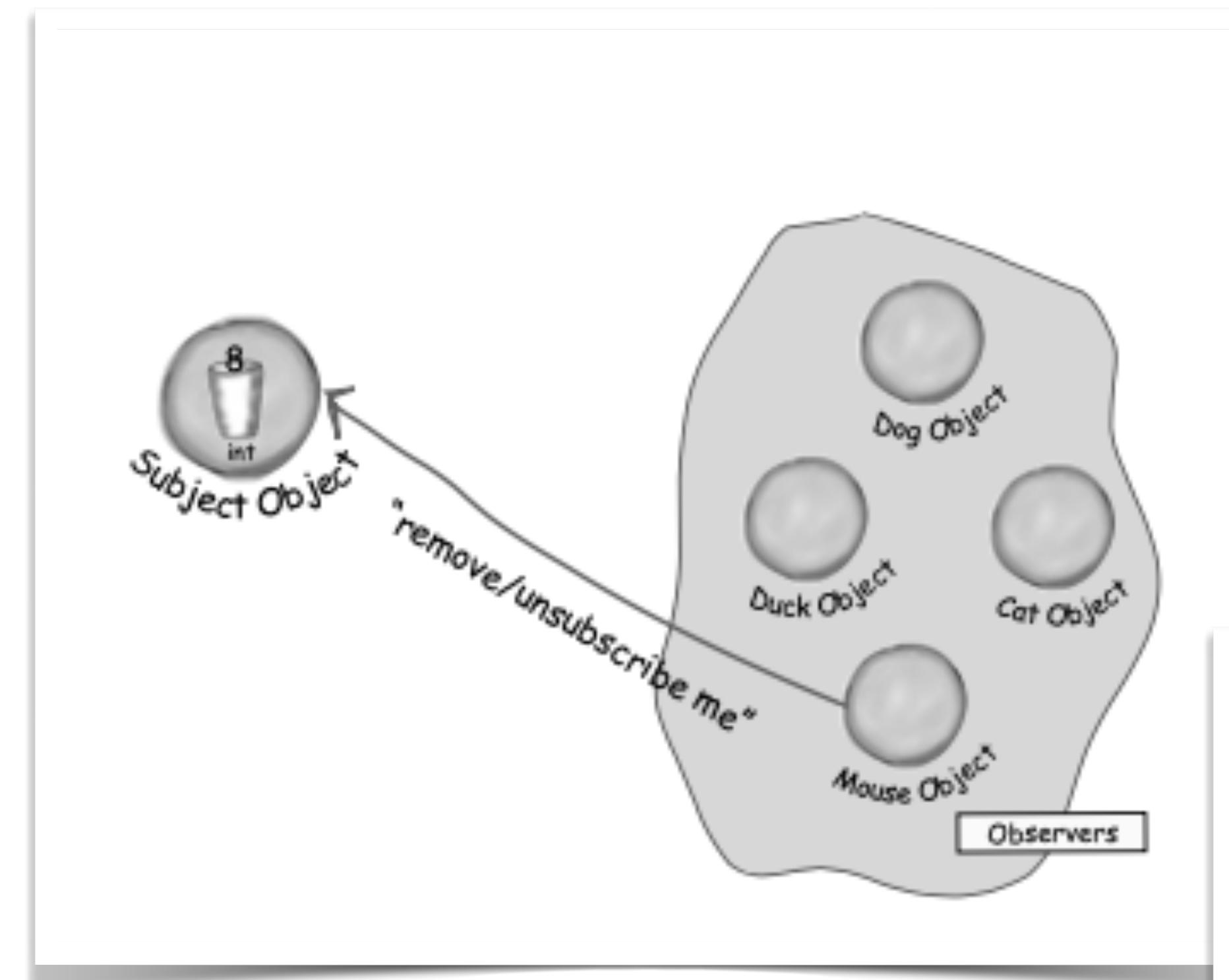
El estilo de Programación es: DECLARATIVO

Se basa en el Patrón de Diseño Observer y PubSub

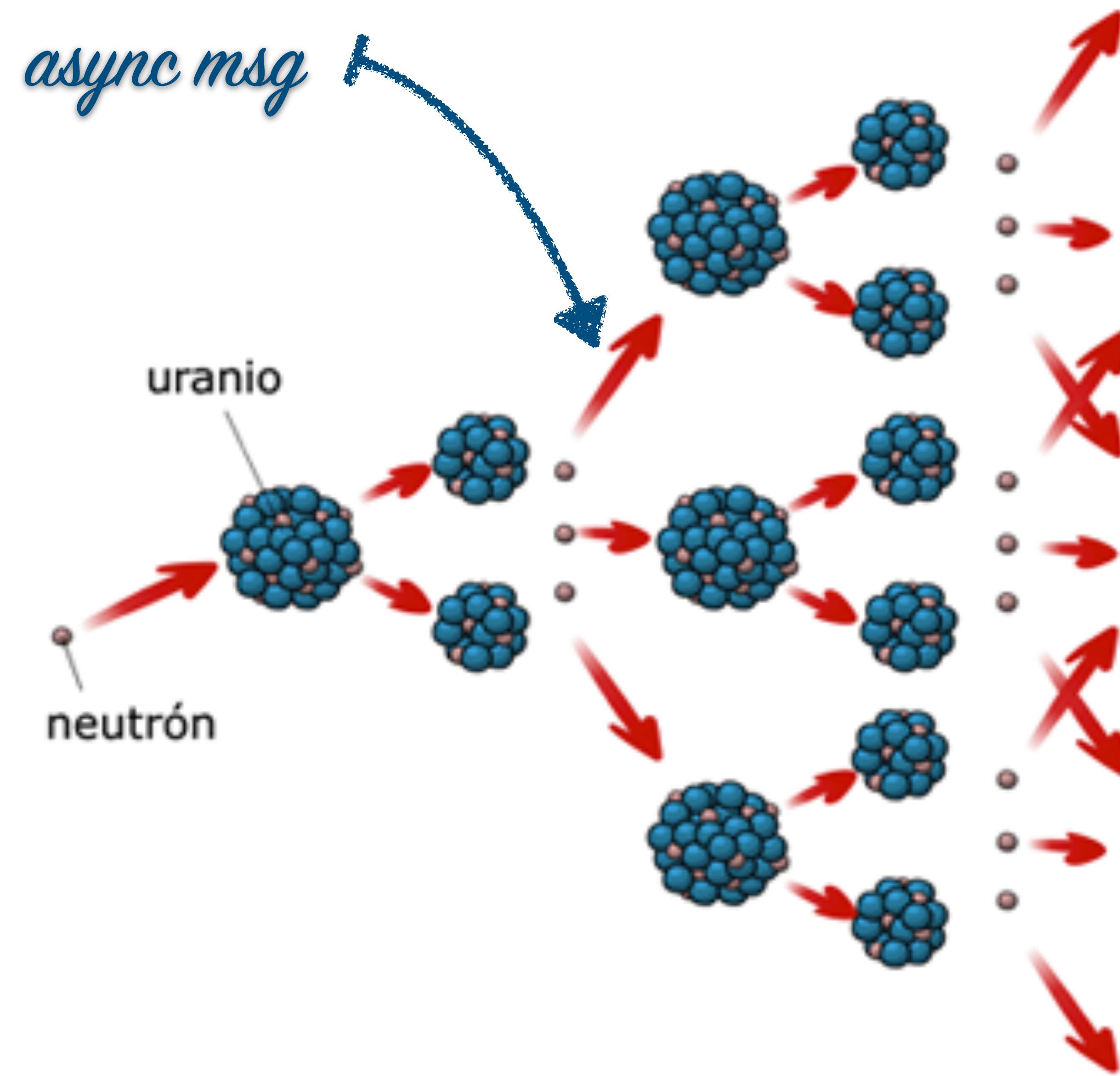
# Publisher - Subscriber Patern







# Concepto

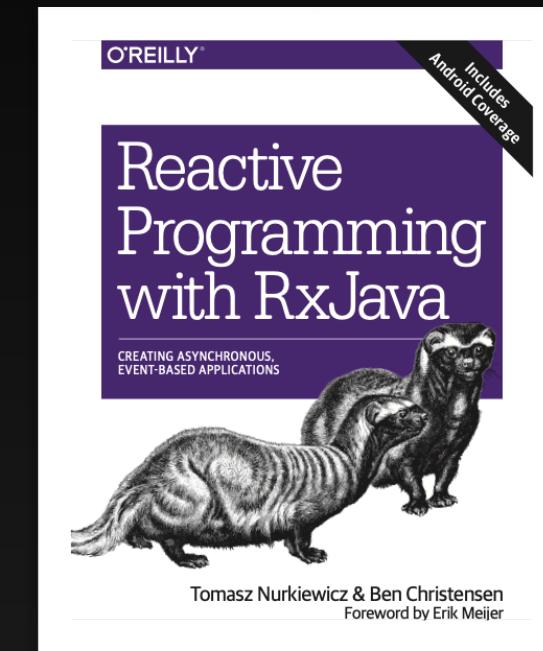


# Sabores



# ReactJS, AngularJS, VueJS, MeteorJS

## ReactiveX: RxJava, RxJS(Observables)



## Project Reactor Java(Mono y Flux)

Spring-Boot: Programación Reactiva

<https://www.youtube.com/watch?v=2HevdEu3EMM>

**Patrones de diseño. Patrón Observer, Publish-Subscribe**

<https://www.youtube.com/watch?v=6JlZ2EprNUA>

## (FRP) -> Scala, Elm, Haskell

# Ventajas de RP

Bajo Acoplamiento (Modularidad)

Escalabilidad

- Code - Bugs

+ Fast Dev

+ Eficientes I/O y CPU

KISS : Keep It Simple Stupid!



# Desventajas

- Puede ser en algún momento

Difícil de Debug(Race

Condition)

- Riego de Sobrecarga(Back

Pressure)



**MVC - MVVM - MV\***(Todes?)

# MVC?



## ¿Que problema tiene?

Si se toca el **pupo** y luego la **oreja izquierda** entonces **tírate abajo a la derecha**.

Pero si se limpia el **botín**, te la va a picar. **Quédate parado en tus Nikes!!**

Por otro lado, si cambia de ritmo en la trayectoria, seguro va a la **izquierda a media altura**.

Sin embargo, si ves que tomó distancia hasta afuera del area grande, fuerte al **diome.. va como piña**.

Asimismo, fíjate una cosa... que si mira 4 veces al arbitro, hace lo que quieras, porque seguro pasa por arriba del travesaño, de frente mar...



# V

# C

# M

MVVM

Declaración

Binding



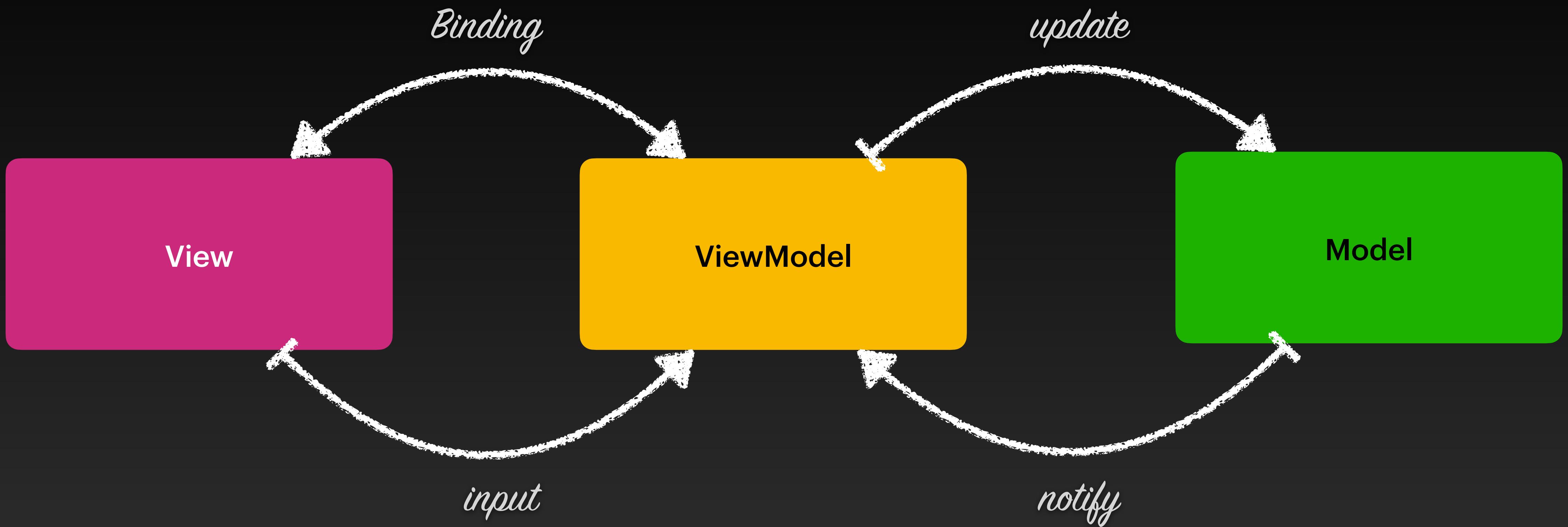
@porliniers



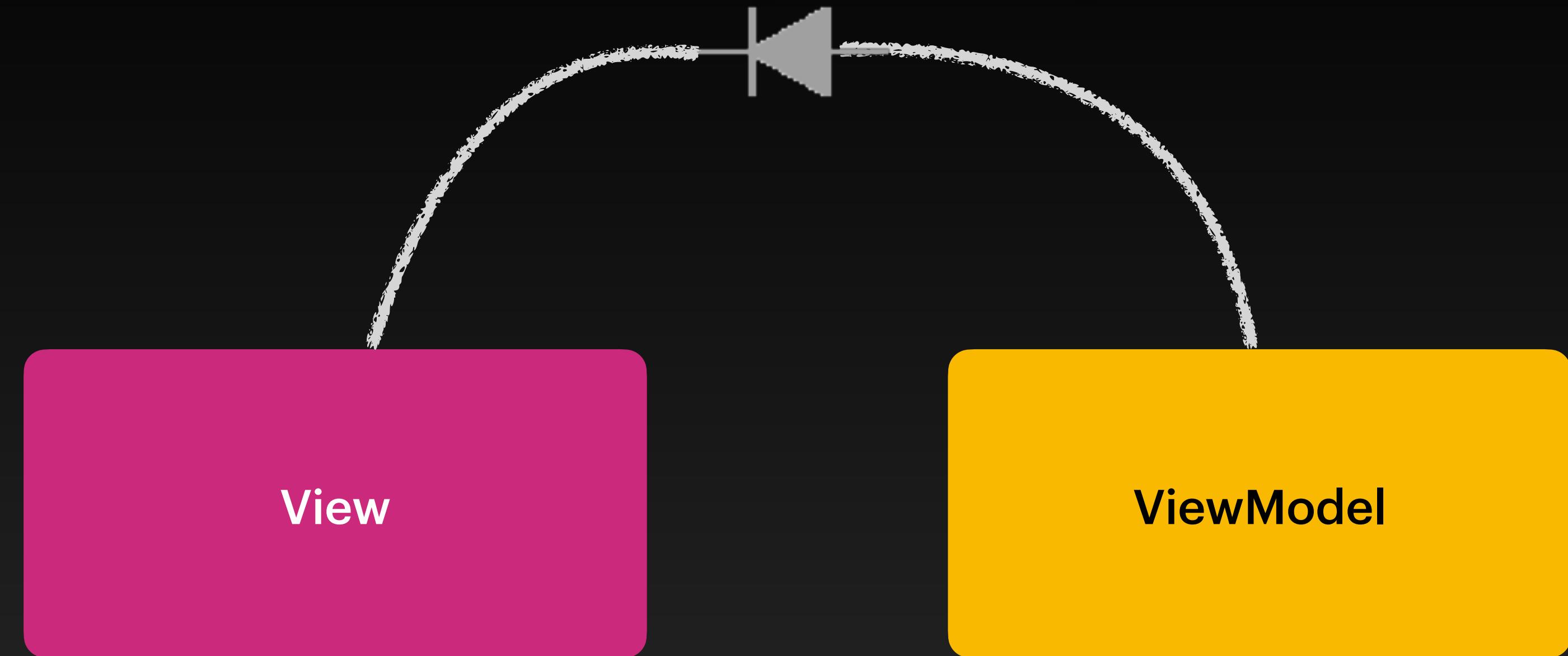
V

VM

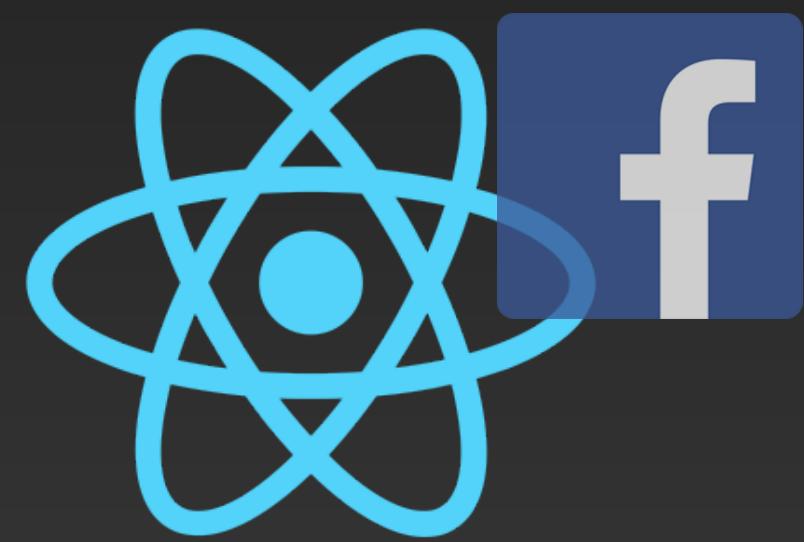
M



*One Way Data Binding*



*Reactive Views*



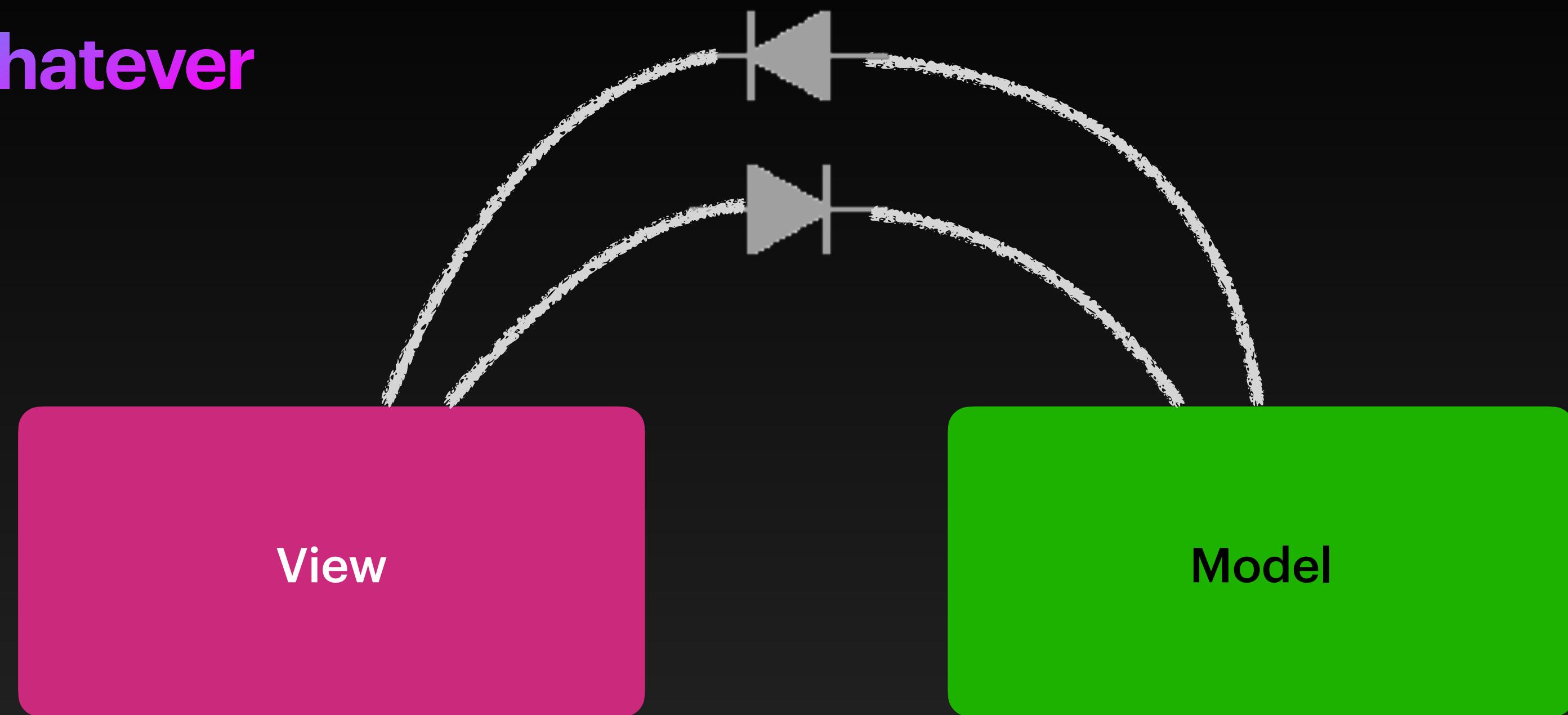
React

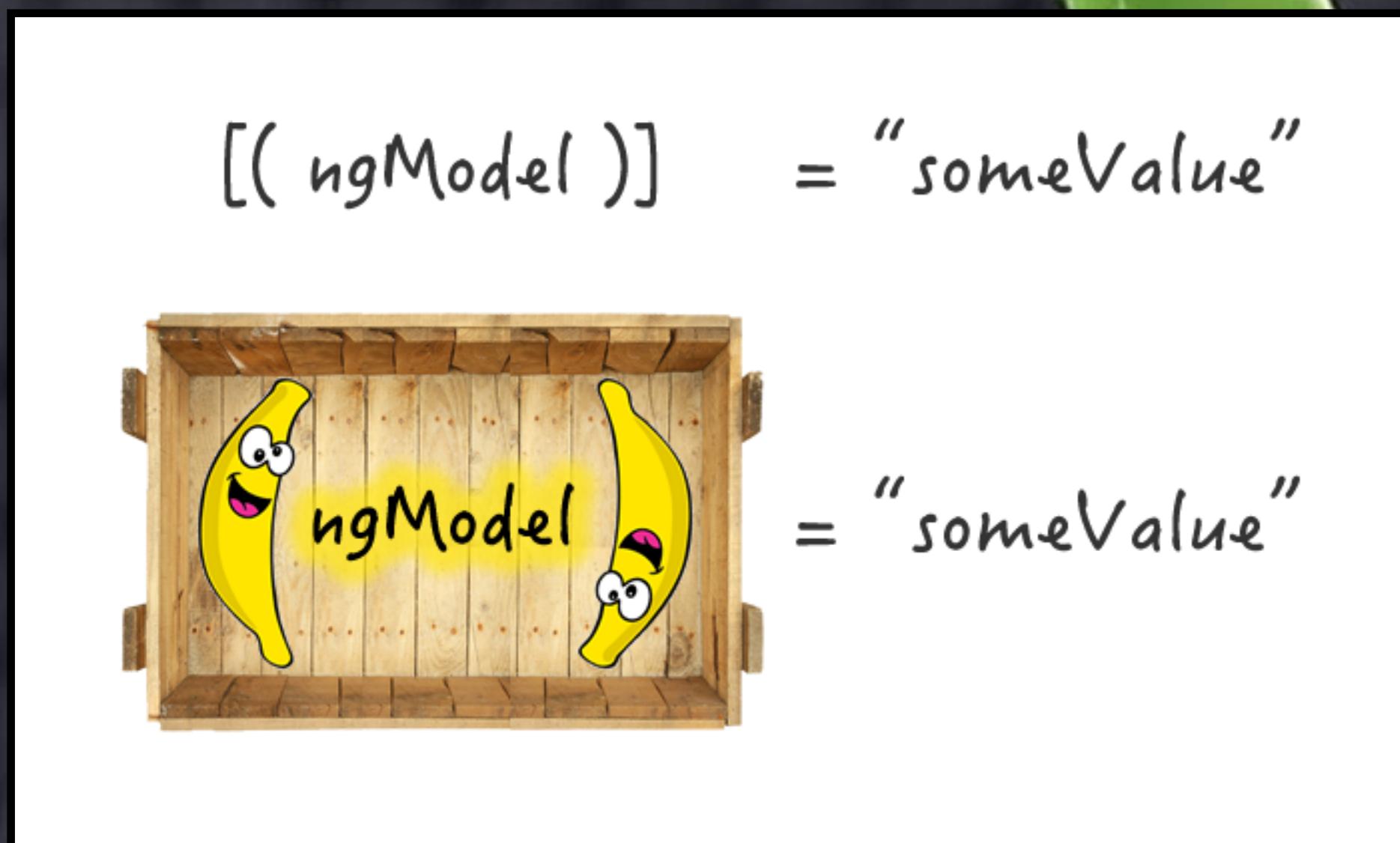


# MVW

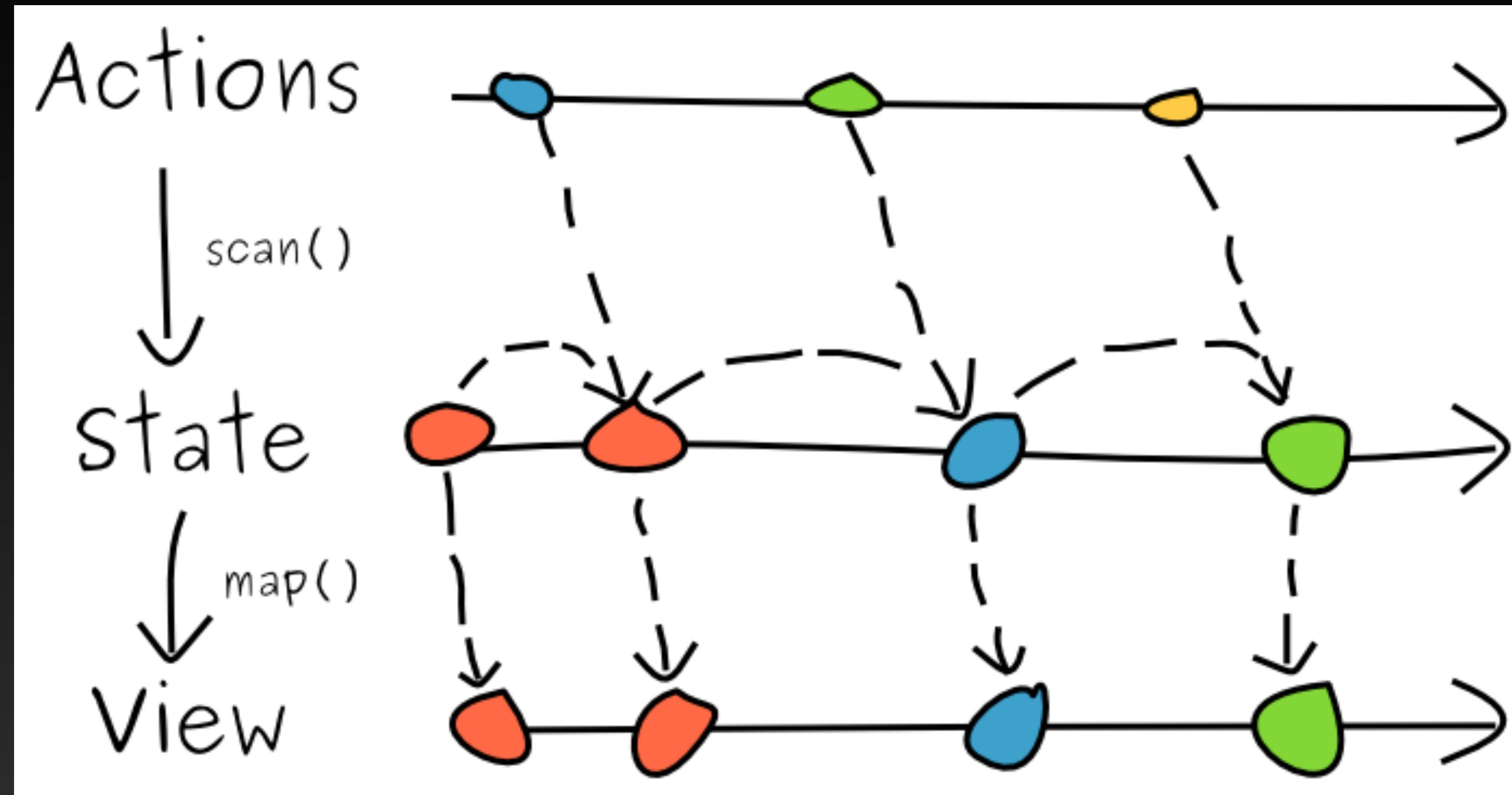
## modelo-vista-whatever

*Two Way Data Binding*





# Redux-React





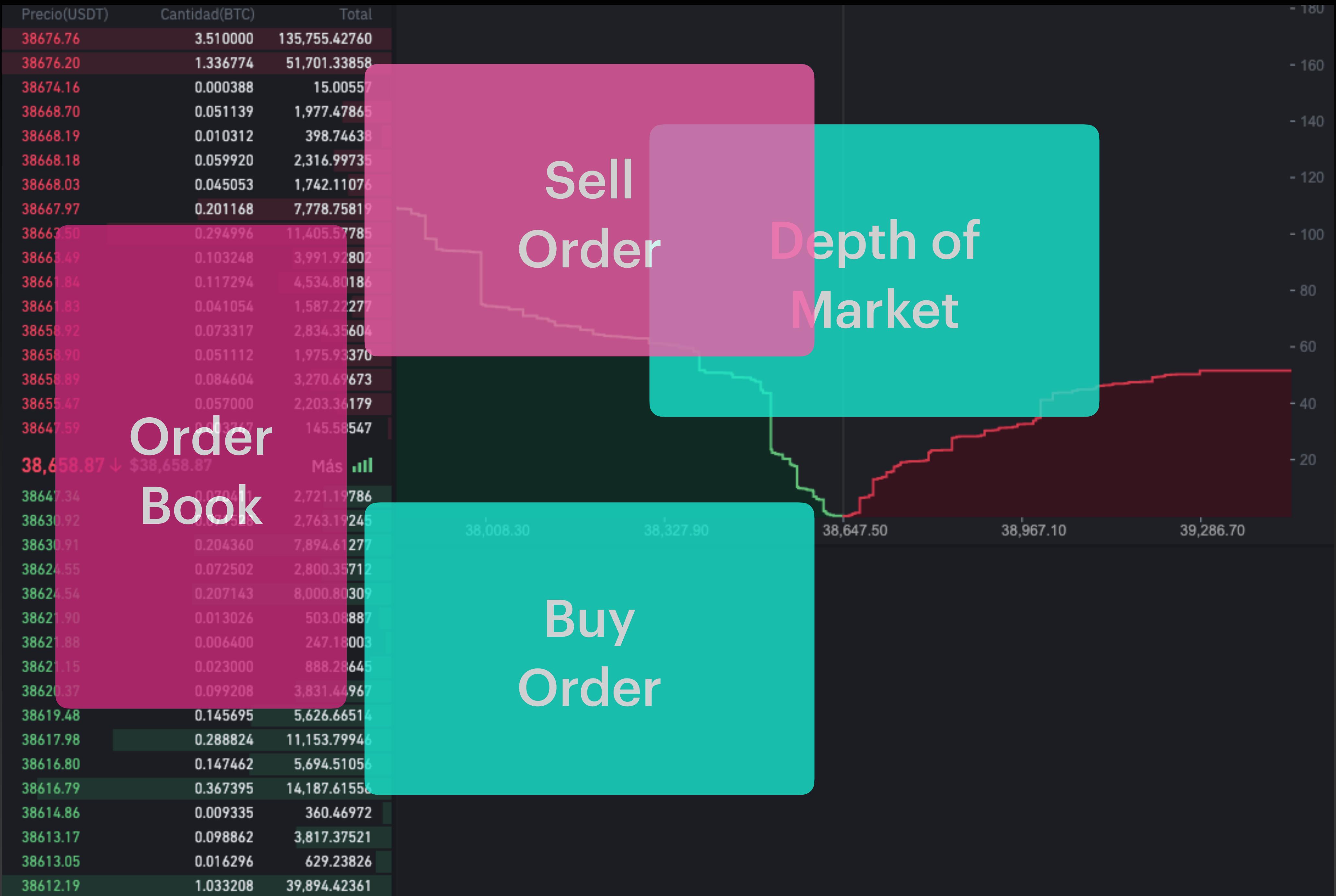
# Entremos en Calor!!





# BINANCE

exchange the world



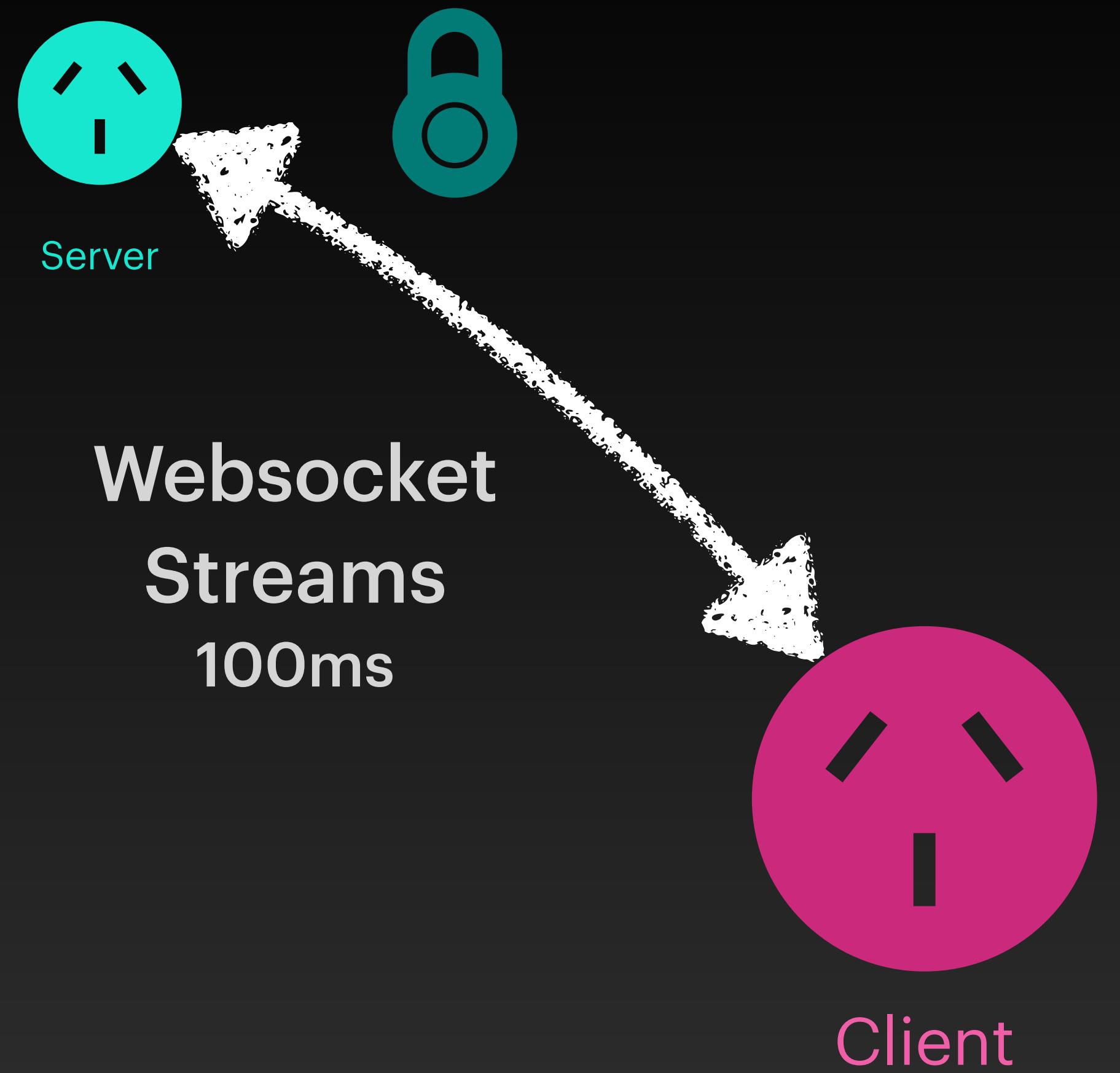
Precio(USDT)	Cantidad(BTC)	Total
38676.76	3.510000	135,755.42760
38676.20	1.336774	51,701.33858
38674.16	0.000388	15.00557
38668.70	0.051139	1,977.47865
38668.19	0.010312	398.74638
38668.18	0.059920	2,316.99735
38668.03	0.045053	1,742.11076
38667.97	0.201168	7,778.75819
38663.50	0.294996	11,405.57785
38663.49	0.103248	3,991.92802
38661.84	0.117294	4,534.80186
38661.83	0.041054	1,587.22277
38658.92	0.073317	2,834.35604
38658.90	0.051112	1,975.93370
38658.89	0.084604	3,270.69673
38655.47	X 0.057000	= 2,203.36179
38647.59	X 0.003767	= 145.58547
<b>38,658.87</b>	↓ \$38,658.87	Más
38647.34	0.070411	2,721.19786
38630.92	0.071528	2,763.19245
38630.91	0.204360	7,894.61277
38624.55	0.072502	2,800.35712
38624.54	0.207143	8,000.80309
38621.90	0.013026	503.08887
38621.88	0.006400	247.18003

askAcc

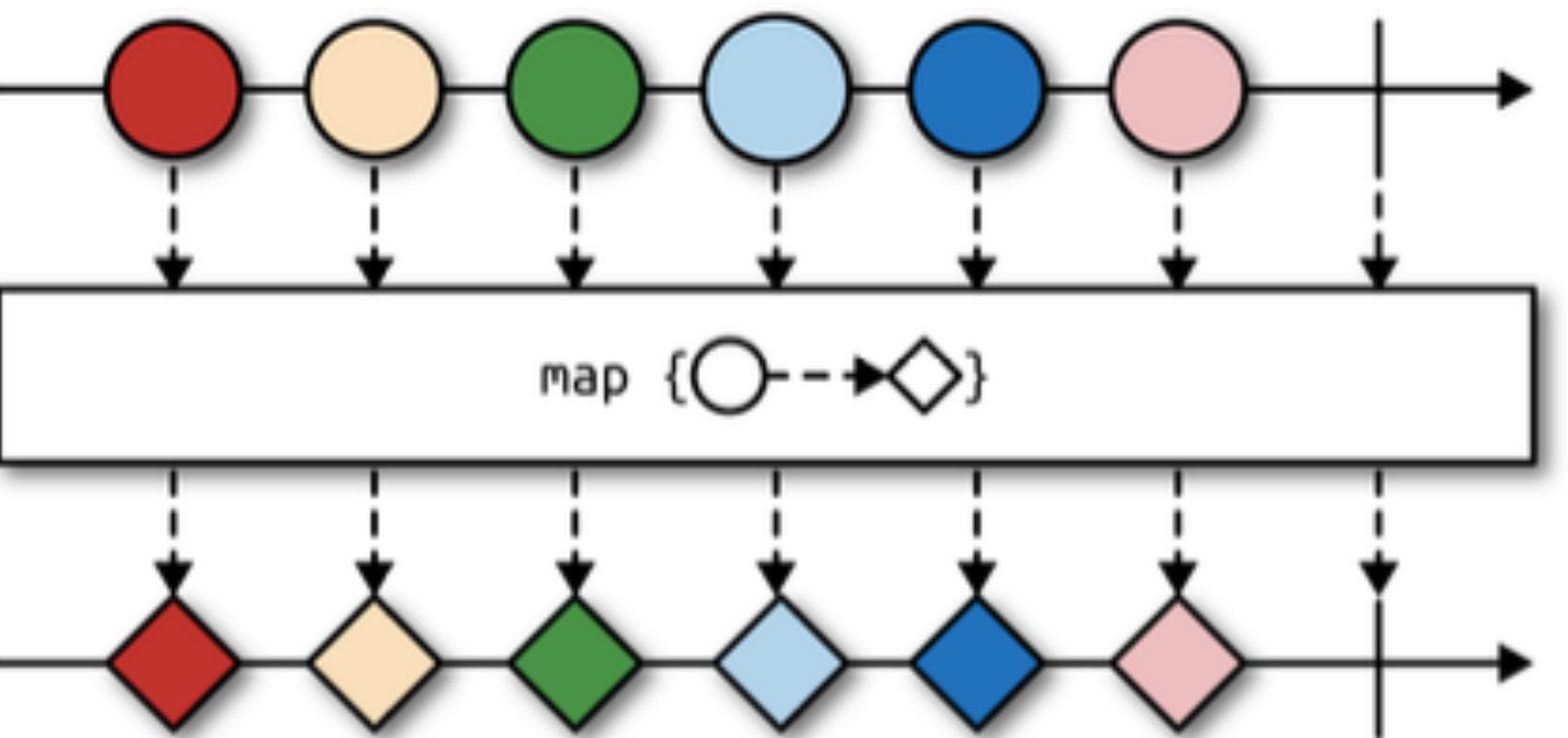
bidAcc

# ¿Cuántas Lineas de Código?

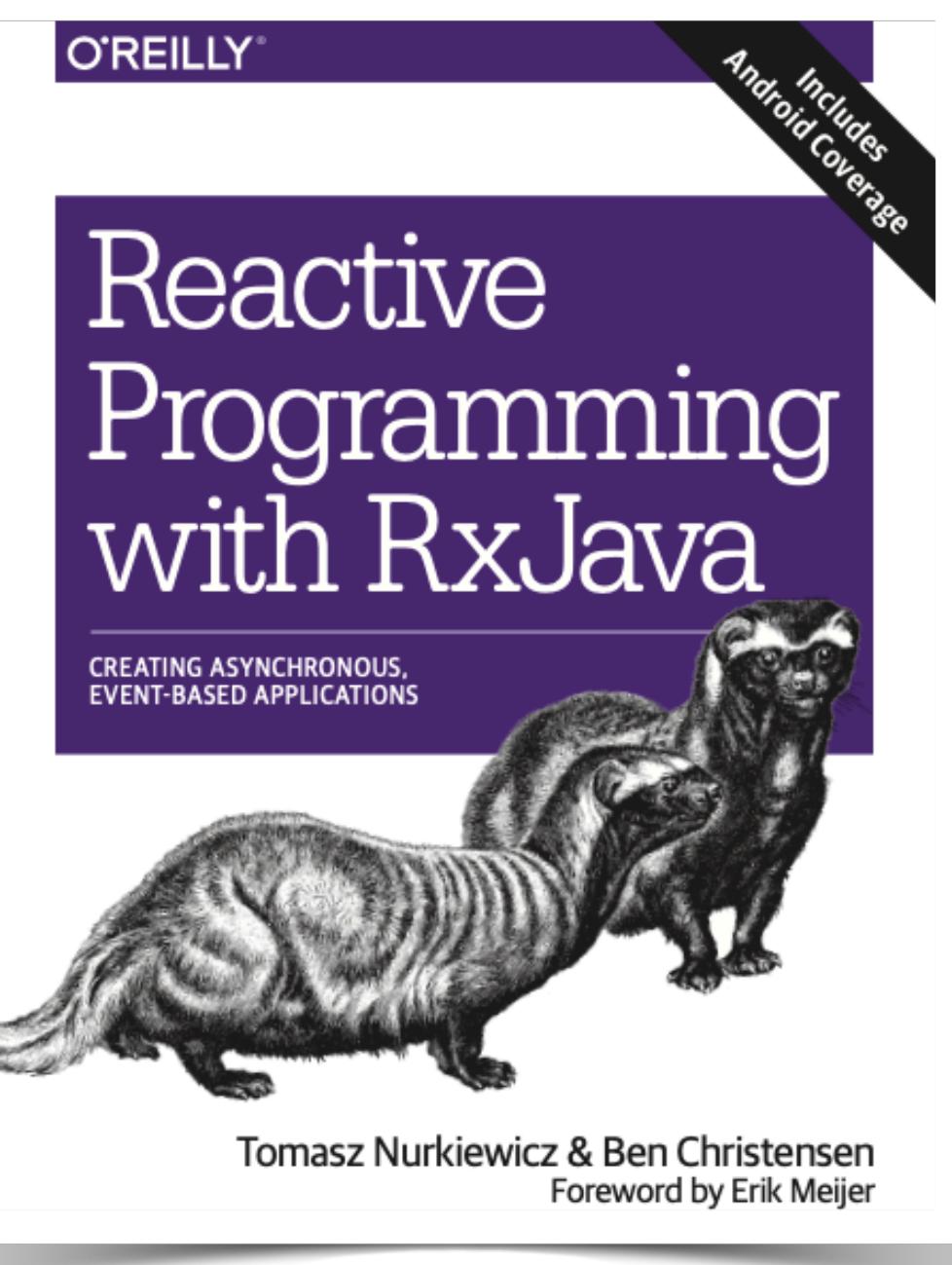
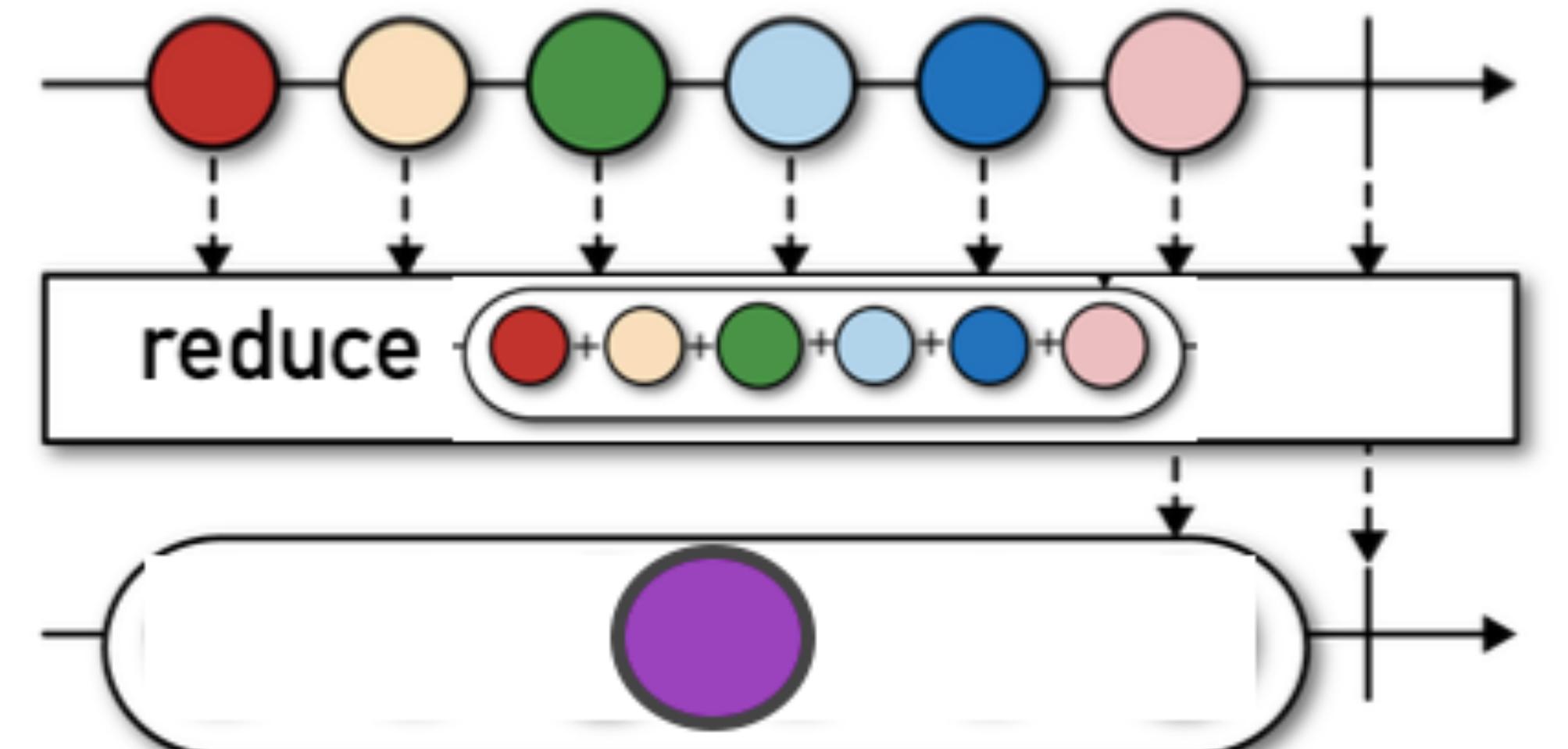




Reactive  
View



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Precio(USDT)	Cantidad(BTC)	Total
38676.76	3.510000	135,755.42760
38676.20	0.336774	51,701.33858
38674.16	0.000388	15.00557
38668.70	0.051139	1,977.47855
38668.49	0.010312	398.74638
38668.18	0.059920	2,316.99735
38668.03	0.045053	1,743.11074
38667.97	0.201168	7,778.75819
38663.50	0.294996	11,405.57785
38663.49	0.103248	3,991.92802
38661.84	0.117294	4,534.83186
38661.83	0.041054	1,587.22277
38658.92	0.073317	2,834.35604
38658.90	0.051112	1,975.93370
38658.89	0.084604	3,270.69673
38655.47	0.057000	2,203.36179
38655.47	0.003777	145.58547
<b>38,658.87</b>	<b>↓ \$38,658.87</b>	
38647.34	0.070411	721.19786
38630.92	0.071528	2,763.19245
38630.91	0.204360	7,794.61277

reduce()

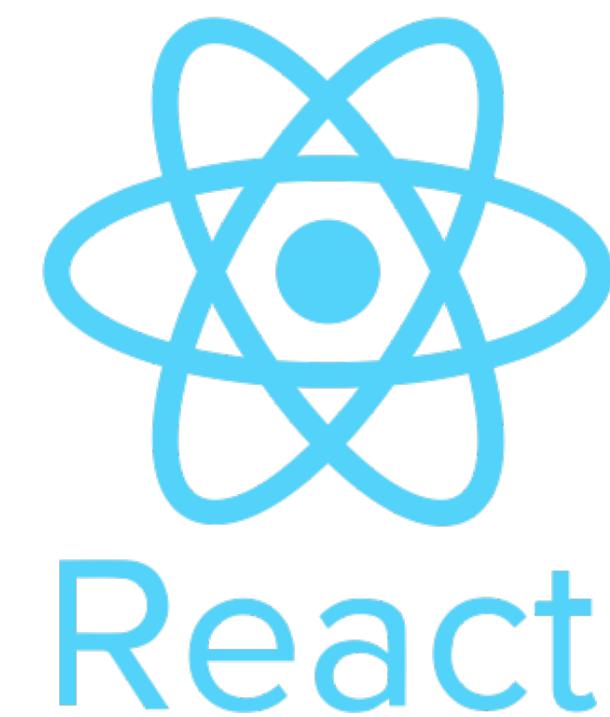
askAcc = a.map(a => a[0] \* a[1]).reduce((acc, curr) => acc + curr);



<https://github.com/danilopaez/ReacFlix>

git checkout vue

# Break!



METEOR



<https://github.com/danilopaez/ReacFlix>

git checkout t1

## *Binding*

View

```
{{ A }}
```

ViewModel

```
A() {  
    return Session.get('a');  
},
```

Model

```
Session = {  
    a : 1  
}
```



<https://github.com/danilopaez/ReacFlix>

git checkout t2

**¿Metemos  
Cuchillo?**



# Tracker

## Autorun

```
function(){
```

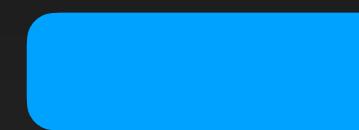
```
.....
```



```
.....
```



```
.....
```



```
.....
```



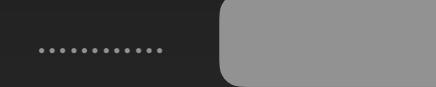
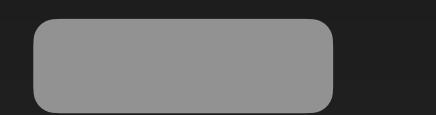
```
}
```

## Reactive Sources



## Computation

```
function(){ .....
```



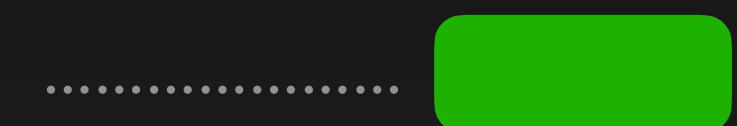
```
}
```

# Tracker

Autorun

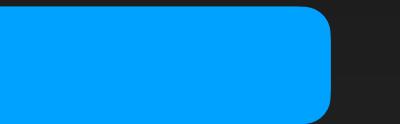
```
function(){
```

```
.....
```



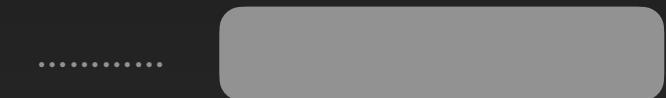
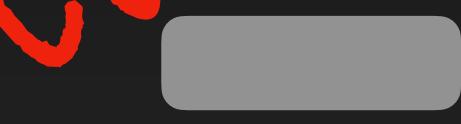
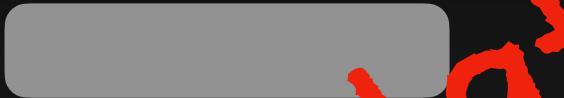
```
}
```

Dependency



Computation

```
function(){ .....
```



```
}
```



```
.....
```

```
.....
```

```
}
```

*invalidate*

ReRun!!

```
function(){
```

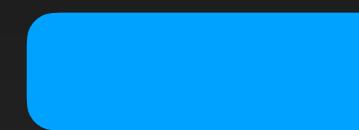
```
.....
```



```
.....
```



```
.....
```

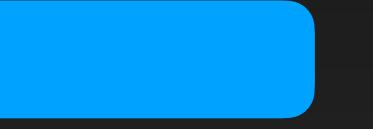


```
.....
```

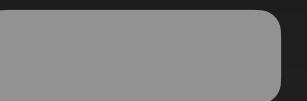


```
}
```

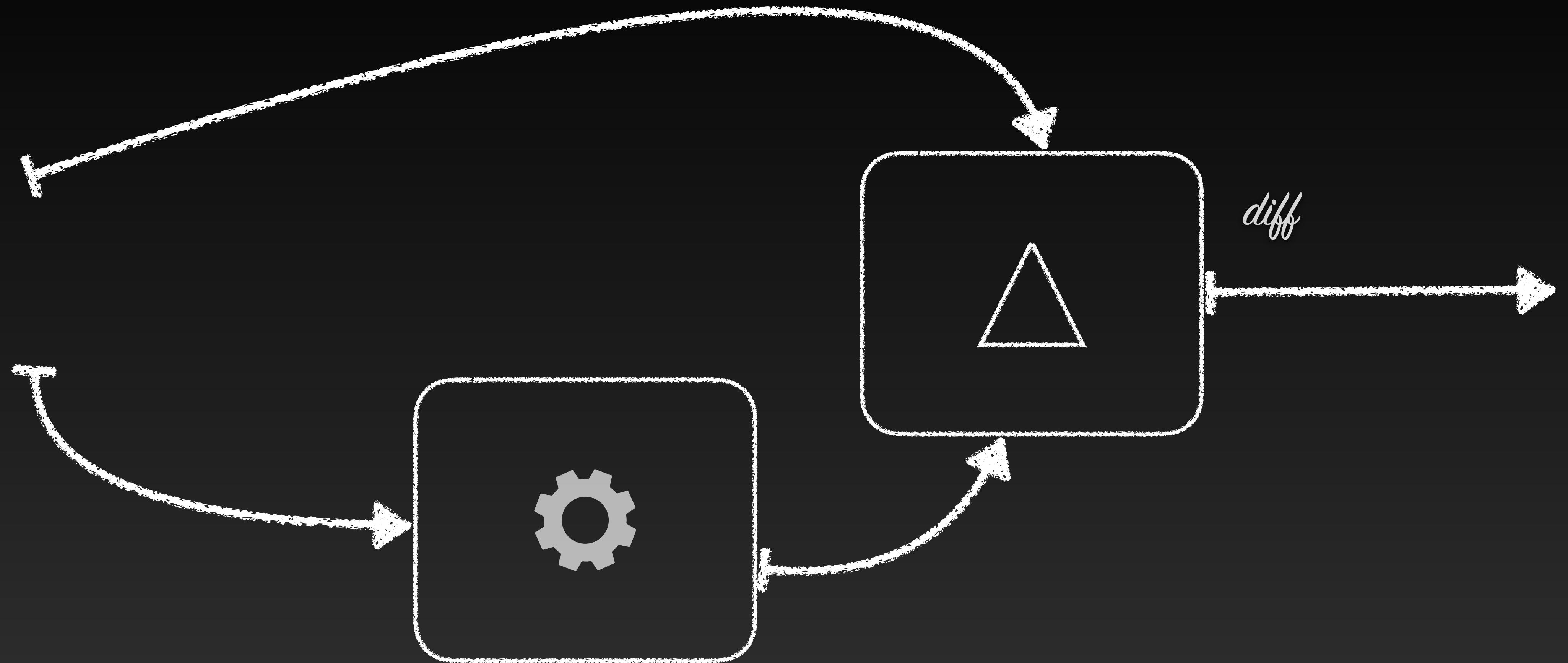
## Dependency



```
function(){
```



```
}
```



*Computation*



<https://github.com/danilopaez/ReacFlix>

git checkout covid



<https://github.com/danilopaez/ReacFlix>

git checkout t3

# MicroFrontend

Frameworks

## *The Monolith*

Database : Backend : Frontend

The Shop Team

Database : Backend : Frontend

Frontend Team

Backend / DevOps Team

## *Microservices*

Database : Backend : Frontend

Frontend Team

Aggregation Layer (e.g. BFF, GraphQL, ...)

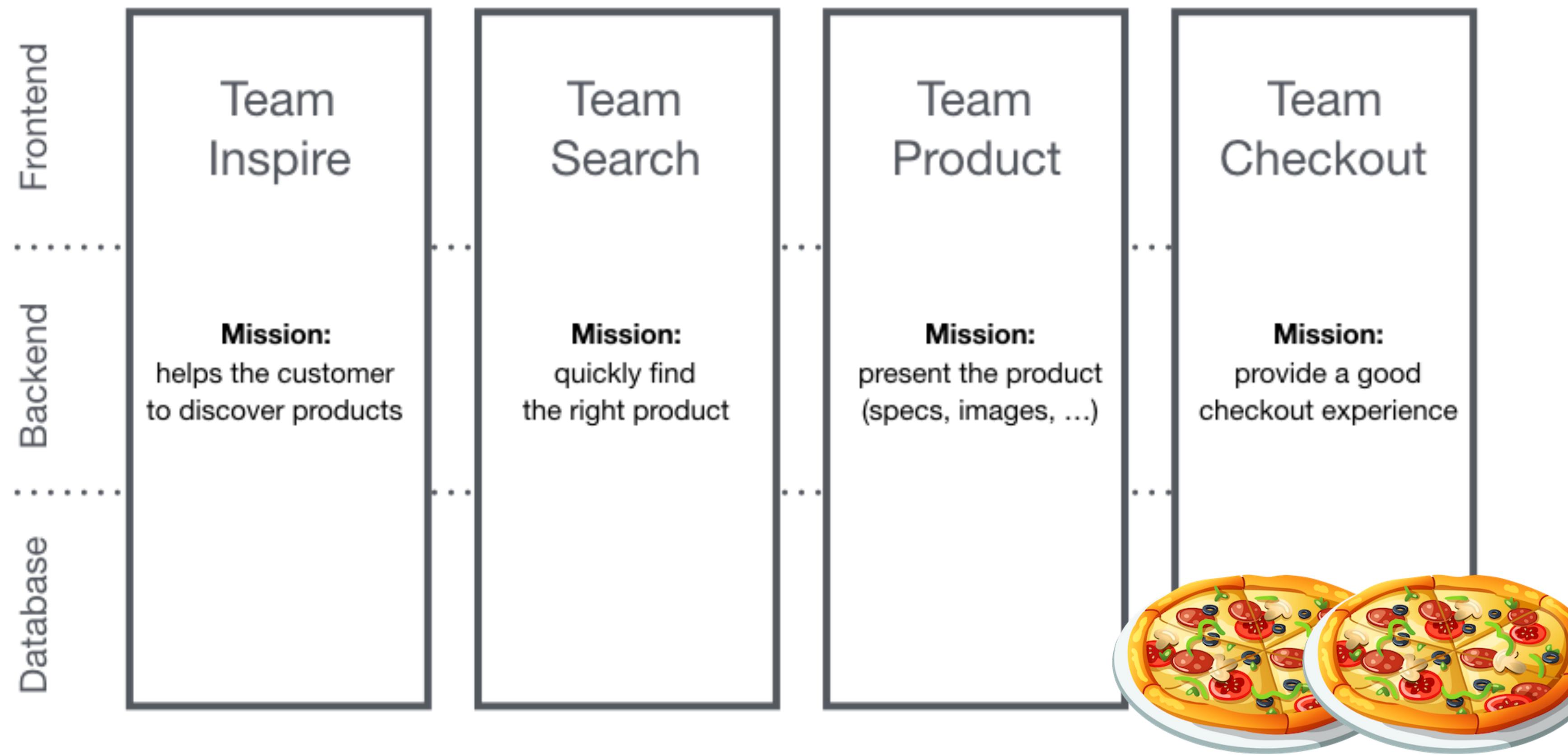
Product Service

Reco Service

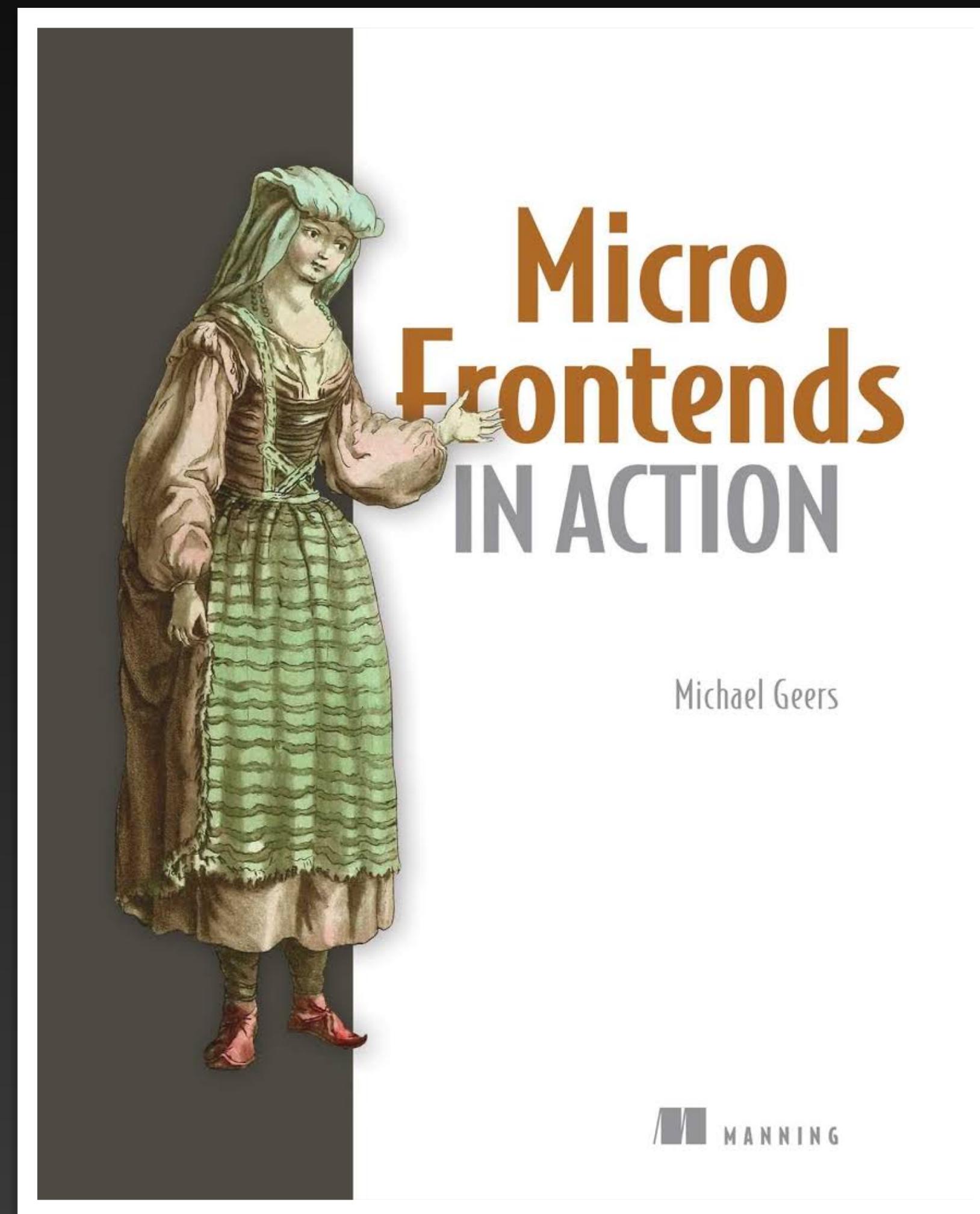
Basket Service

Payment Service

# *End-to-End Teams with Micro Frontends*

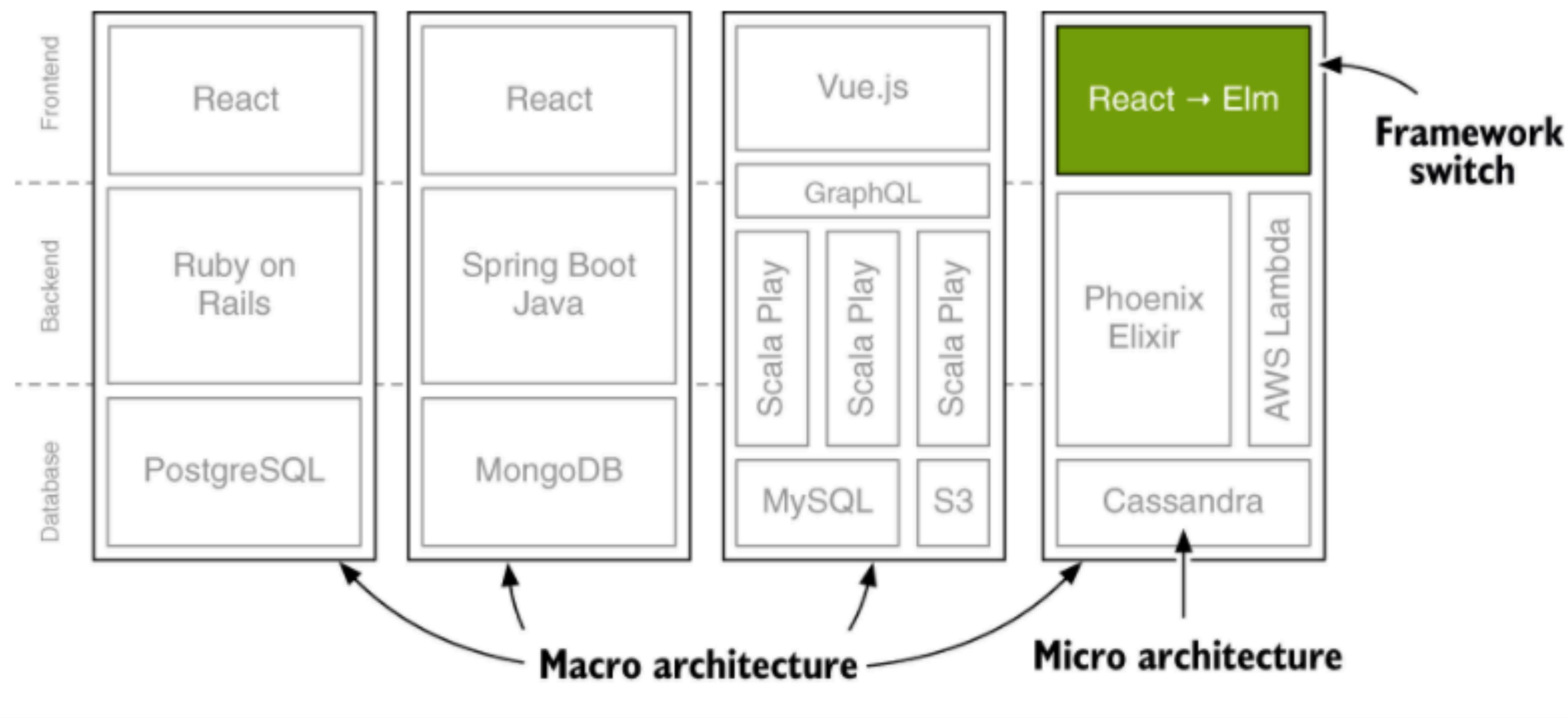


# MicroFrontend 2016

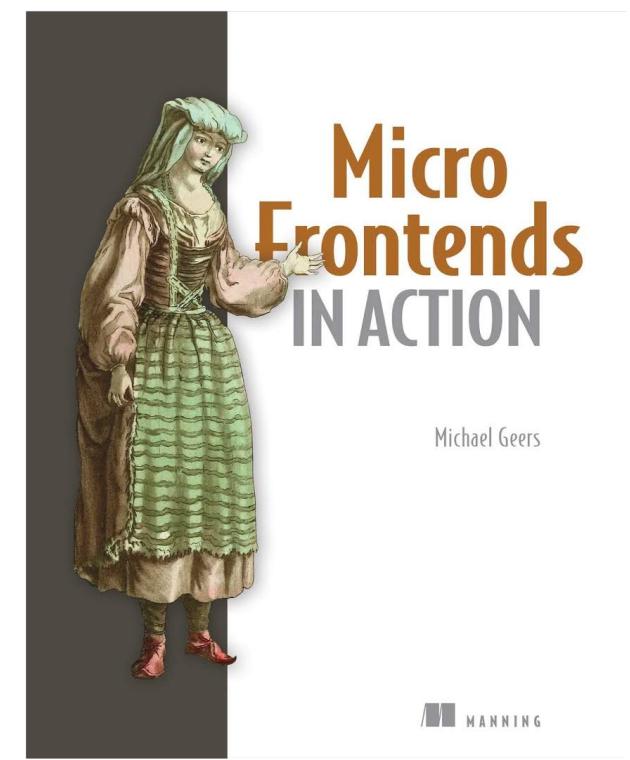


2020-10

**Figure 1.11** Teams can decide about their internal architecture (micro architecture) on their own as long as they stay in the boundaries of the agreed upon macro architecture.



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Michael Geers

## The Model Store



Tractor Porsche-Diesel Master  
419



basket: 0 item(s)

buy for 66,00 €

## Related Products



Team Product A

Team Checkout ☢

Team Inspire ▼

¿Preguntas?

# Muchas Gracias

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