

# REINVENTING RXJS

HI 

# I'M MAX GALLO

ABOUT ME:        

PRINCIPAL ENGINEER



TWITTER: @\_MAXGALLO  
MORE: MAXGALLO.IO



# HERE'S THE AGENDA

1. INTRODUCTION
2. REINVENTING RXJS
3. DEEP DIVE SCHEDULERS

# INTRODUCTION

# INTRODUCING RXJS

PART OF THE REACTIVE X FAMILY

API FOR ASYNCHRONOUS PROGRAMMING  
WITH OBSERVABLE STREAMS

# REINVENTING THE WHEEL

BY

# TAKING THINGS APART



# REINVENTING RXJS



```
1 const { from } = require('rxjs');
2 const { map, filter } = require('rxjs/operators');
3
4 const observable = from([1, 2, 3, 4, 5])
5   .pipe(
6     map(x => x + 1),
7     filter(x => x % 2 === 0),
8     map(x => x - 1),
9   );
10
11 observable.subscribe(
12   val => console.log('odd: ', val),
13   error => console.error(error),
14   () => console.log('Completed!'),
15 );
16 // odd: 1, odd: 3, odd: 5, Completed!
```

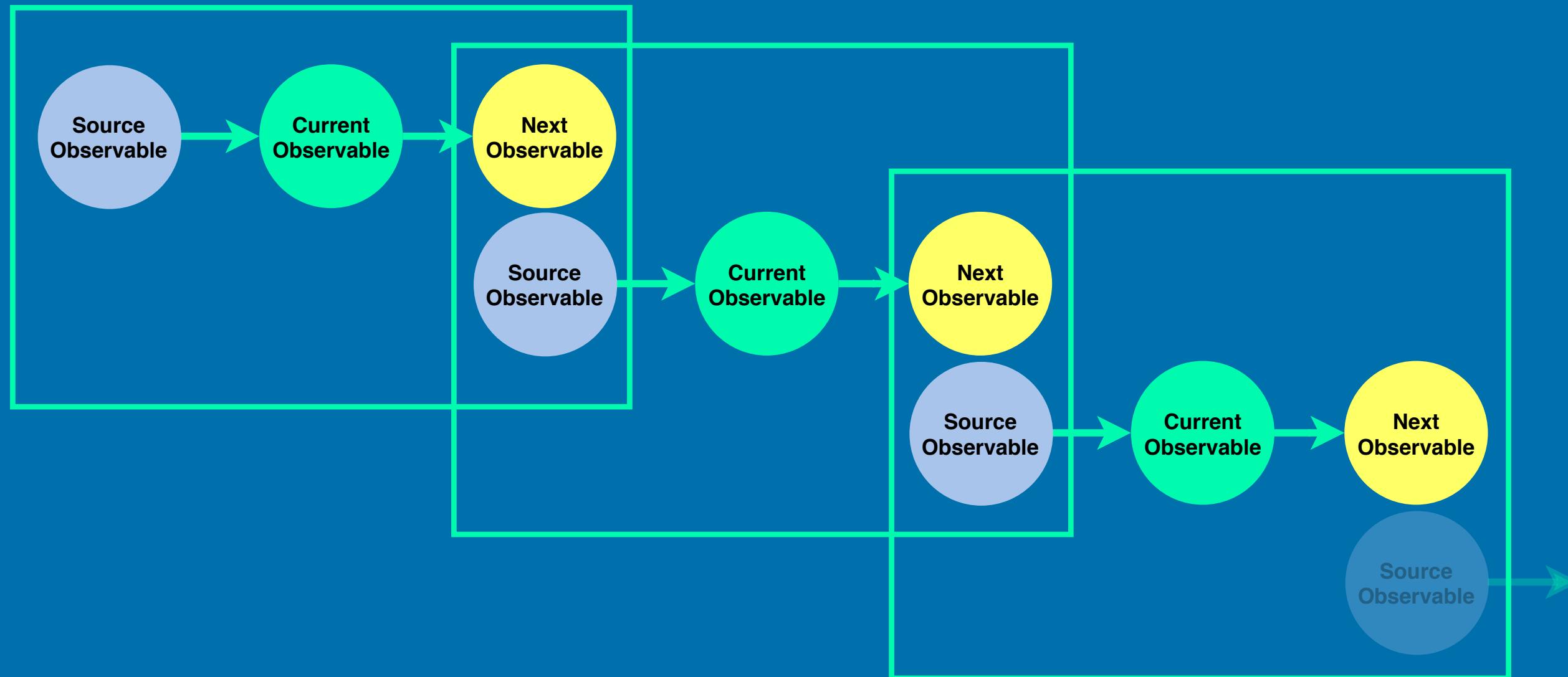
# RXJS CODE FIRST IMPRESSIONS

- › SYNTAX IS LIBRARY SPECIFIC
- › EXPLICIT SUBSCRIPTION
- › OBSERVABLE TC39 STAGE 1
- › PIPELINE OPERATOR TC39 STAGE 1



LET'S REINVENT RXJS

# RXJS OPERATORS



OPERATOR 1 → OPERATOR 2 → OPERATOR 3

# RXJS FROM THE INSIDE

- › MADE OF **REUSABLE PARTS** › **STREAMS**
- › **STANDARD CONTRACT** BETWEEN PARTS
  - › **CUSTOM OPERATORS**
  - › **LAZY EVALUATION**
- › **SYNCHRONOUS** BY DEFAULT › **SCHEDULERS**

# DEEP DIVE SCHEDULERS

**SCHEDULERS IN RXJS ARE THINGS  
THAT CONTROL THE ORDER OF EVENT  
EMISSIONS (TO OBSERVERS) AND THE  
SPEED OF THOSE EVENT EMISSIONS.**

- ANDRÉ STALTZ

**ORDER OF EVENT EMISSIONS**  
**SPEED OF EVENT EMISSIONS**

```
1 const {  
2   from, merge,  
3   asyncScheduler,    // ASYNC scheduler  
4   queueScheduler,   // QUEUE scheduler  
5   asapScheduler,    // ASAP scheduler  
6 } = require('rxjs')  
7  
8 const asyncObservable = from(['async'], asyncScheduler)  
9 const queueObservable = from(['queue'], queueScheduler)  
10 const asapObservable = from(['asap'], asapScheduler)  
11  
12 const observable = merge(  
13   asyncObservable  
14   queueObservable,  
15   asapObservable,  
16 );  
17  
18 observable.subscribe(console.log)  
19  
20 console.log('→ Subscribed!')
```

# CONSOLE

```
1 const {  
2   from, merge,  
3   asyncScheduler,    // ASYNC scheduler  
4   queueScheduler,   // QUEUE scheduler  
5   asapScheduler,    // ASAP scheduler  
6 } = require('rxjs')  
7  
8 const asyncObservable = from(['async'], asyncScheduler)  
9 const queueObservable = from(['queue'], queueScheduler)  
10 const asapObservable = from(['asap'], asapScheduler)  
11  
12 const observable = merge(  
13   asyncObservable  
14   queueObservable,  
15   asapObservable,  
16 );  
17  
18 observable.subscribe(console.log)  
19  
20 console.log('→ Subscribed!')
```



- 1 queue
- 2 → Subscribed!
- 3 asap
- 4 async

QUEUE / ASAP / ASYNC / ANIMATIONFRAME

# QUEUE / ASAP / ASYNC / ANIMATIONFRAME

```
requestAnimationFrame(task)  
|  
Promise.resolve().then(task)  
|  
|
```

```
|  
|  
synchronous  
|  
|  
setInterval(task, delay)
```

ORDER OF EVENT EMISSIONS

QUEUE / ASAP / ASYNC / ANIMATIONFRAME

**ORDER** OF EVENT EMISSIONS

QUEUE / ASAP / ASYNC / ANIMATIONFRAME

**SPEED** OF EVENT EMISSIONS

/ VIRTUALTIME /

# VIRTUAL TIME SCHEDULER

( HANDS ON  EXAMPLE )

# WE MADE IT





# DISASSEMBLE

TAKE THINGS APART TO UNDERSTAND  
WHAT'S GOING ON



# REINVENT

BUILD YOUR OWN VERSION



# LEARN

BUILD MEANS LEARN



# SHARE

TELL OTHERS WHAT YOU DID

DISASSEMBLE / REINVENT / LEARN / SHARE

TWITTER @\_MAXGALLO  
OTHER MAXGALLO.IO

THANK YOU



SLIDES [GITHUB.COM/MAXGALLO/TALK-REINVENTING-RXJS](https://github.com/maxgallo/talk-reinventing-rxjs)