

# A BEAUTIFUL WORLD: ASYNC FLAVORED

HOW  IS RUNNING THE MACHINES  
& PROCESSES OF TODAY AND TOMORROW





## RESOURCES USED HERE

The git repo: [goo.gl/tLBuf1](https://github.com/tlbuf/tlbuf)



# A LITTLE ABOUT ME

- Developer for 10 years, since Internet Explorer 7
- Java developer by day
- Javascript developer by night



# WHATS THE BIG IDEA?

- Node is a platform built for getting it done quickly and then maintaining and adding features with ease. The nature of the language and its features are powerful tools for implementing your project.



# IN THE JAVASCRIPT WORLD SOME EXCITING NEW THINGS ARE HAPPENING

- Strong typing, RxJS



# ITS HAPPENING EVERYWHERE NOW

- Reactive programming has an implementation in most major languages



# JAVASCRIPT'S AWESOME STORY

- Humble beginnings in 2009
- Now a vibrant ecosystem with strongly-typed features and flavors
- JS Showed us what a single thread could do

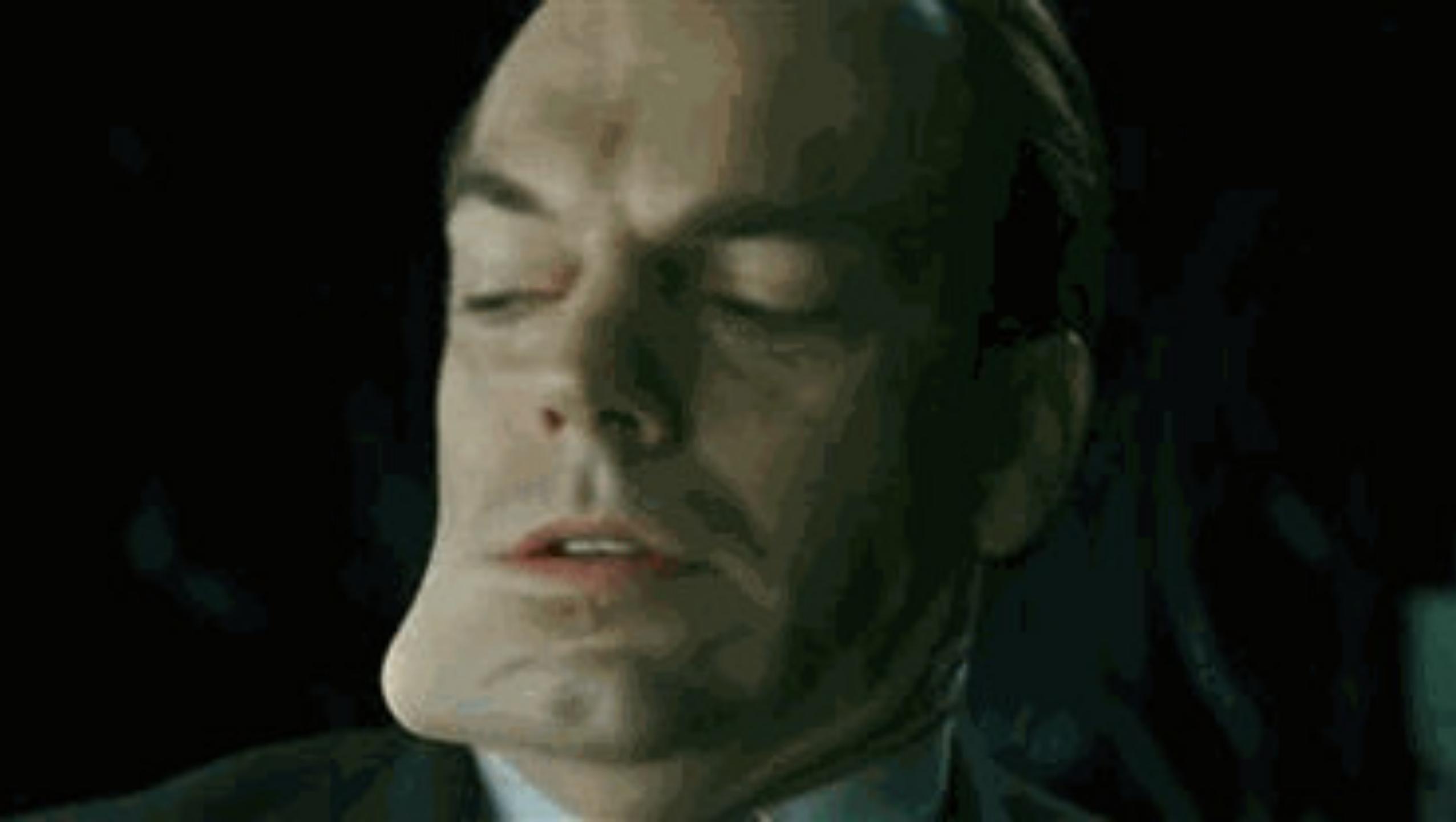


# THINGS I THINK ARE COOL ABOUT JS NOWADAYS



```
1 var Human = function Human() {
2   var name;
3 };
4
5 var Computer = function Computer() {
6   var id;
7 };
8
9 var One = function One(name) {
10   this.human = new Human();
11   this.human.name = name;
12 };
13
14 var Agent = function Agent(id) {
15   this.computer = new Computer();
16   this.computer.id = id;
17 };
18
19 var smith = new Agent(1);
20 var neo = new One("Tom Anderson");
21
22 smith = neo; // no problem...
```

THE OLE' DAYS,  
WEAKLY-  
TYPED





```
1 // TypeScript
2
3 interface Computer {
4     id: number
5 }
6
7 interface Human {
8     name: string
9 }
10
11 class One implements Human {
12     name: string;
13
14     constructor(name: string) { this.name = name; }
15 }
16
17 class Agent implements Computer {
18     id: number;
19
20     constructor(id: number) { this.id = id; }
21 }
22
23 let neo: One = new One("Tom Anderson");
24 let smith: Agent = new Agent(1);
25
26 smith = neo; // produces compile-time error!
```

NOWADAYS,  
STRONGLY-  
TYPED



# AS EXPECTED...

```
1 StronglyTyped.ts(26,1): error TS2322: Type 'One' is not assignable to type 'Agent'.
```





# RXJS AND IT'S AWESOMENESS

- RxJS is an exciting new way of thinking of JS, Streams are quickly becoming a powerful topic, especially for modeling processes in the business realm to an efficient computer processes.



THE PROGRAMMING WORLD USES IMPLICIT  
CONTRACTS, SO DO BUSINESSES, IT'S A  
PERFECT FIT.

# BUILDING A LOGISTICS MANAGEMENT PLATFORM WITH NODE & LESSONS LEARNED



The image shows a laptop screen with a dark-themed user interface. At the top is a yellow header bar with a menu icon and a power button icon. Below it is a dark grey section titled "Quick Stats" with the sub-instruction: "Knightspeed Customers, list, search, or edit a customer from this table". The main content area has four colored boxes: a red box for "Jobs Requiring Attention" showing the value "16", a yellow box for "Jobs Processed Today" showing "0", another yellow box for "Jobs Booked Today" also showing "0", and a white box for "Transactions Processed Amount Today" showing "\$0.00". Below these is a section titled "Jobs that Require Attention" with a descriptive note: "Jobs that Require Attention are Jobs that Customers have Booked and are awaiting your Approval, Jobs you need to mark Ready, or Jobs that are Completed and await Processing the payment. If you keep this list clean, you know that are in the clear operationally." It lists two items in a table:

Confirmation Number	Requested Date of Job	Requested Time of Job	Current Job Step	Customer	Actions
7361316427	Thursday, October 26, 2017	11:00 AM	CREATED	Doug	<a href="#">GO TO WIZARD</a>
9958577574	Sunday, October 22, 2017	12:00 PM	CREATED	Doug Woodrow	<a href="#">GO TO WIZARD</a>

At the bottom of the screen, the word "MacBook" is visible.



# GROUP RETROSPECTIVE

It's like group therapy, except not at all.

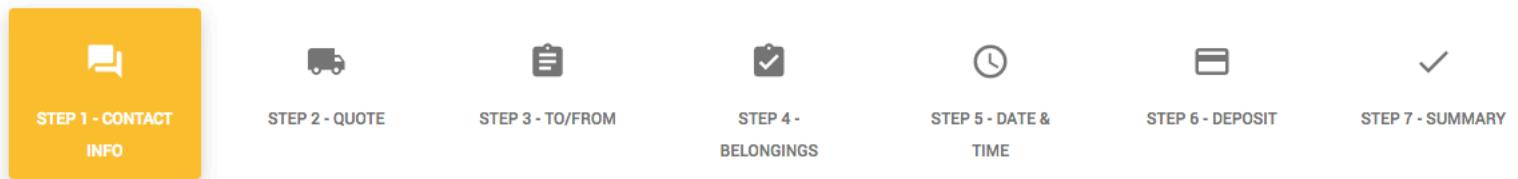


# SPECS

- Node 6.11.1
- NPM 5.5.1
- Angular 1.6.6
- Loopback 3.16.2



# USER ADDS THEIR INFO VIA THE BOOKING FORM ON WEBSITE



## Tell us about yourself

We will use this information to communicate with you every step of the way.

 First and Last Name



 Email Address



 Phone Number



< BACK

NEXT >



# WE BUILT A BIG STATE MACHINE TO MANAGE JOBS IN A PIPELINE

The screenshot shows a software application interface for managing jobs. On the left, there's a sidebar with various icons and labels: DASHBOARD, JOBS, CALENDAR, LIST, TRUCKS, TRANSACTIONS, PLACES, PEOPLE, and SETTINGS. The main area has a yellow header bar with a menu icon and a power button icon. Below the header, the title "Job Wizard" is displayed, along with customer information: Name Doug Woodrow, Phone Number (555) 123-4567, and Email doug@knightspeedmoving.com. A navigation bar at the top includes tabs for SUMMARY (highlighted in yellow), PREVIOUS STEP, NEXT STEP, and AUDIT. Below this, there are sub-tabs: BOOKING (highlighted in yellow), APPROVE, READY, IN-PROGRESS, COMPLETE, PROCESS, CANCEL, and SUMMARY. The main content area is titled "Booking Info" and contains sections for Service Type (Full Service), Requested Date of Move (Saturday, October 21, 2017), Requested Time of Move (12:00 PM), Estimated Duration in Hours (2), and Estimated Movers Needed (2).

Job Wizard

Name Doug Woodrow Phone Number (555) 123-4567 Email doug@knightspeedmoving.com

SUMMARY PREVIOUS STEP NEXT STEP AUDIT

BOOKING APPROVE READY IN-PROGRESS COMPLETE PROCESS CANCEL SUMMARY

**Booking Info**

The key info that the Customer filled out during Booking.

Service Type  
Full Service

Requested Date of Move  
Saturday, October 21, 2017

Requested Time of Move  
12:00 PM

Estimated Duration in Hours  
2

Estimated Movers Needed  
2



# LESSONS LEARNED

- Containerize *everything*
- Opinions are great, when you like them, they make you feel warm
- Sometimes you have to go enterprise
- Unify under one framework if you can



# FUTURE PLANS

- Docker & Swarm for Deployment
- Spring IO for enterprise-ready opinions
- React & React Native

T H E   F U T U R E   O F   T H E   A M E R I C A N   H O M E   I S   C O M I N G

E A R L Y   2 0 1 8



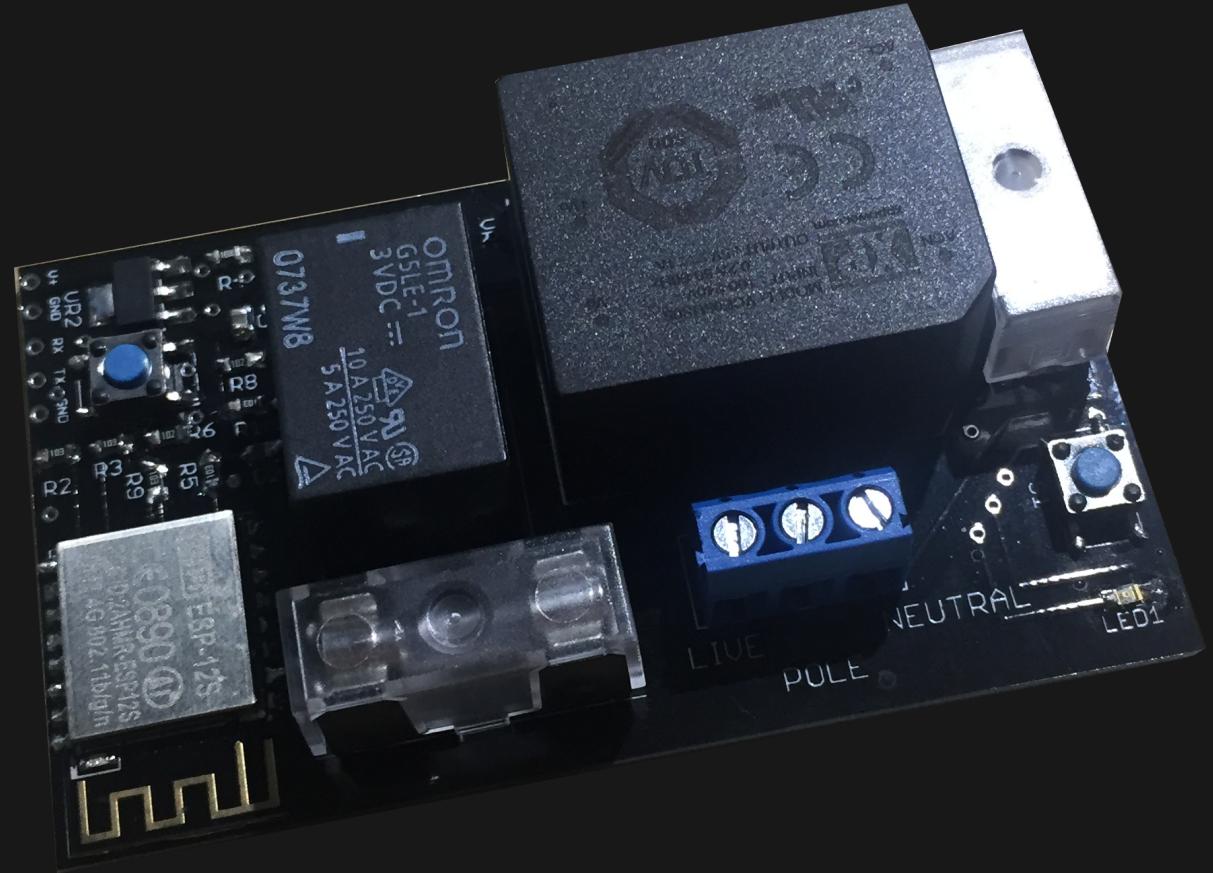


# WE SAW AN ISSUE

- Price of single automated outlet is around \$40
- Aiming to get that down to \$10
- Built a solution that is powered by Node

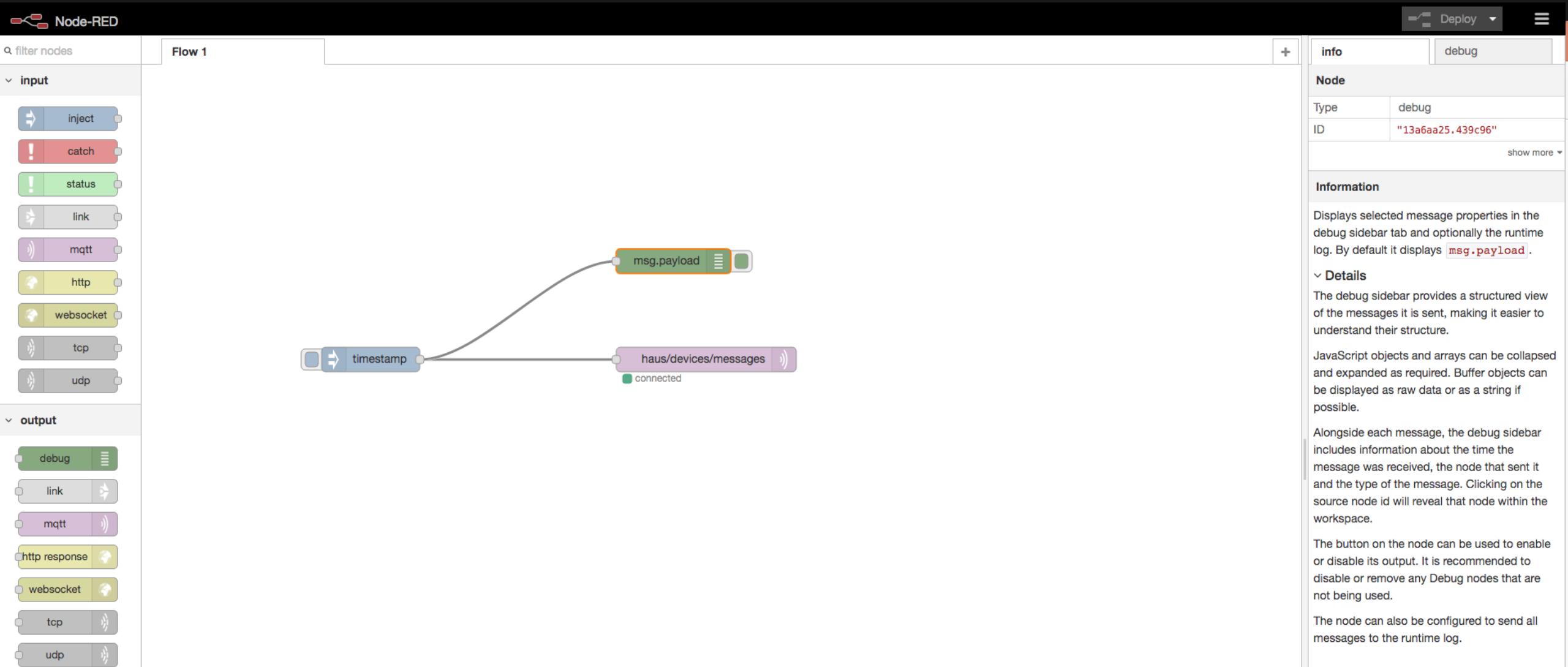
# OUR HARDWARE SETUP

- Arduino-based ESP8266, Wi-Fi enabled
- Wrote our own firmware
- MQTT Sub/Pub
- \$8 without case





# OUR SOFTWARE SETUP





# OUR SOFTWARE SETUP

```
Attempting to connect with SSID: Haus, Password: 2398260148
```

```
...?
```

```
Booting MQTT (2/2)
```

```
Setting broker properties, URL: 10.0.0.2, Port: 1883
```

```
SUCCESS: MQTT is booted and online
```

```
Subscribing to topic: haus/devices/messages
```

```
----- MODULE ONE -----
```

```
| Device Configuration:
```

- | - Pairing ID: 222fe9de-548b-43b6-9e61-06ca968aacc7
- | - Device ID: b0912c1b-888d-4c3d-b556-ca15a68b6f38

```
| WiFi Configuration:
```

- | - Local IP: 10.0.0.3

```
| MQTT Broker Configuration:
```

- | - Subscribed to Topic: haus/devices/messages
- | - Publishing to Topic: haus/devices/b0912c1b-888d-4c3d-b556-ca15a68b6f38

```
-----  
Proceeding to loop...
```

```
Message in mailbox with content: testing
```



# NODE IS MAKING IOT FUN

- Having a great time with IoT in Node, things just work
- Node is a powerful iteration framework
- Passionate community gives us the ability to produce quickly



# TAKEAWAYS

- Nothing new here, just demonstrating a point
- Node is a platform with small boundaries, low-inhibition developing
- In order for trillions sensors by 2022, our platform to innovation needs to be clear and concise



# THAT'S IT!

Thanks for coming out!