

STHLM.JS



Stencil 101

Introduction to a web components library like no other

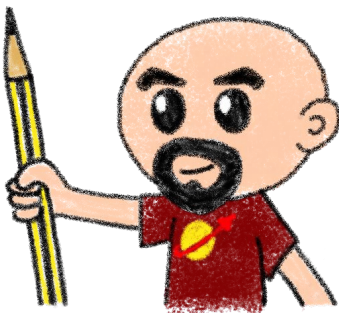


Horacio Gonzalez
@LostInBrittany



Who are we?

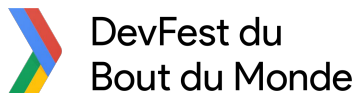
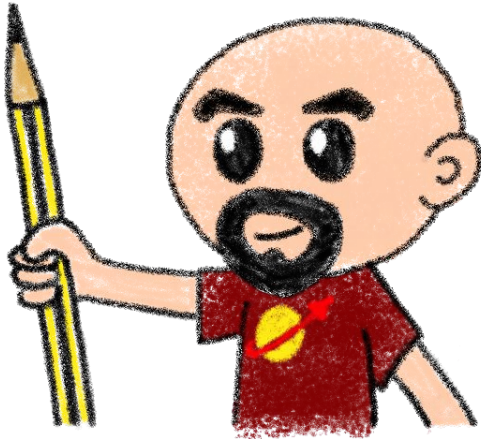
Introducing myself and
introducing ~~OVH~~ OVHcloud



Horacio Gonzalez

@LostInBrittany

Spaniard lost in Brittany,
developer, dreamer and
all-around geek

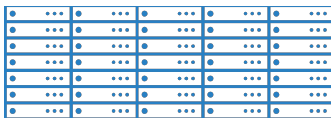


OVHcloud: A Global Leader

200k Private cloud
VMs running

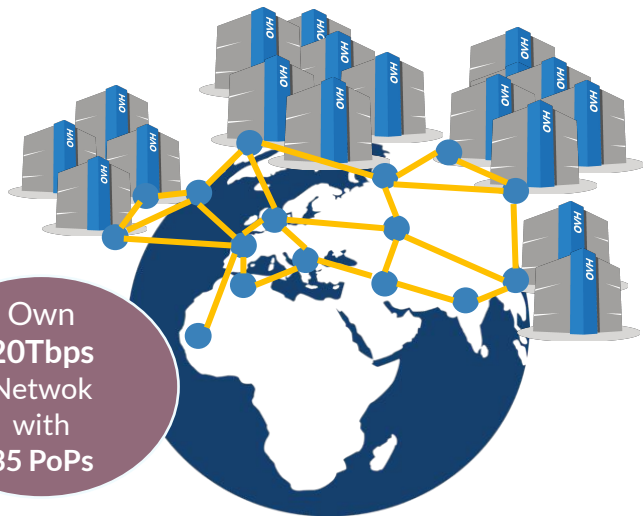


Dedicated IaaS
Europe



Hosting capacity :
1.3M Physical
Servers

360k
Servers already
deployed




Own
20Tbps
Network
with
35 PoPs

30 Datacenters


> 1.3M Customers in 138 Countries

OVHcloud: Our solutions




Cloud

- VPS
- Public Cloud
- Private Cloud
- Serveur dédié
- Cloud Desktop
- Hybrid Cloud




Mobile Hosting

- Containers
- Compute
- Database
- Object Storage
- Securities
- Messaging



Web Hosting

- Domain names
- Email
- CDN
- Web hosting
- MS Office
- MS solutions



Telecom

- VoIP
- SMS/Fax
- Virtual desktop
- Cloud Storage
- Over the Box

The 3 minutes context

What the heck are web component?



Web Components



Web standard W3C

Web Components



Available in all modern browsers:
Firefox, Safari, Chrome

Web Components



Create your own HTML tags
Encapsulating look and behavior

Web Components



Fully interoperable

With other web components, with any framework

Web Components



CUSTOM ELEMENTS



SHADOW DOM



TEMPLATES

Custom Element



To define your own HTML tag

```
<body>
  ...
  <script>
    window.customElements.define('my-element',
      class extends HTMLElement {...});
  </script>
  <my-element></my-element>
</body>
```

Shadow DOM



To encapsulate subtree and style in an element

```
<button>Hello, world!</button>
<script>
var host = document.querySelector('button');
const shadowRoot = host.attachShadow({mode: 'open'});
shadowRoot.textContent = 'こんにちは、影の世界!';
</script>
```

Hello, world!



こんにちは、影の世界!

Template



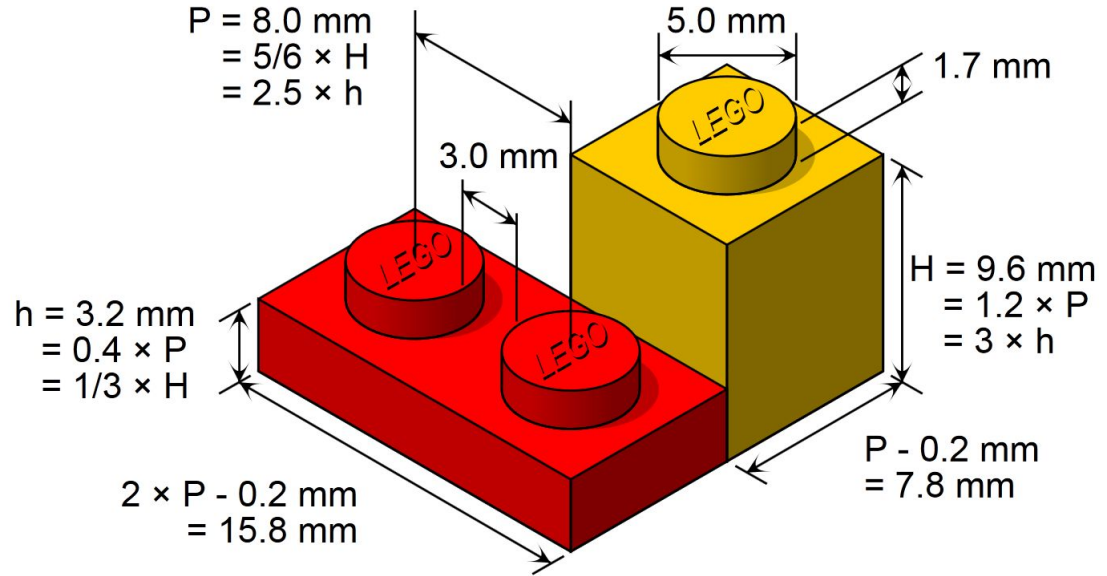
To have clonable document template

```
<template id="mytemplate">  
  <img src="" alt="great image">  
  <div class="comment"></div>  
</template>
```

```
var t = document.querySelector('#mytemplate');  
// Populate the src at runtime.  
t.content.querySelector('img').src = 'logo.png';  
var clone = document.importNode(t.content, true);  
document.body.appendChild(clone);
```

But in fact, it's just an element...

- Attributes
- Properties
- Methods
- Events



Aren't the multiple Web Components libs a sign of failure?

If the standard worked, people would use Vanilla, wouldn't them?



Web component standard is low level



At it should be!

Standard == basic bricks

Standard exposes an API to:

- Define elements
- Encapsulate DOM



Libraries are helpers



They give you higher-level primitives

Different high-level primitives



Each one tailored to a use

Sharing the same base



High-performant, low-level, in-the-platform
web components standard

Libraries aren't a failure of standard



They happen by design

Stencil

Powering Ionic 4+



Not another library



Docs Resources Blog   

Build. Distribute. Adopt.

Stencil is a toolchain for building reusable, scalable Design Systems.
Generate small, blazing fast, and 100% standards based Web
Components that run in every browser.

GET STARTED

WHY STENCIL?



Powering design systems and
cross-framework components at



amazon

PORSCHE

arm

Panera


 Microsoft

A Web Component toolchain

A mature technology

ionic @Ionicframework · Jan 23
Ionic Framework 4.0 is here! 🎉

- ⚙️ Web Components = Stability + Compatibility
- ⚡ Better performance & startup times
- 👤 Made for developers & their preferred tooling
- 🎨 Powerful theming & CSS variables
- 🔮 Future-proof development, built in
- 📄 New 4.0 docs



Introducing Ionic 4: Ionic for Everyone
Today I am thrilled to announce the 4.0 release of Ionic Framework, lovingly known as "Ionic for Everyone." 🎉 Ionic 4 represents the culmination of blog.ionicframework.com



ionic @Ionicframework · Jan 24
Happy (belated) Birthday Ionic 4.0 🎂

Now it's time to celebrate a new version of Ionic...

🎉 **RELEASE CANDIDATE FOR IONIC 5.0.0 IS OUT** 🎉

Learn how to test and see what's new in this major release



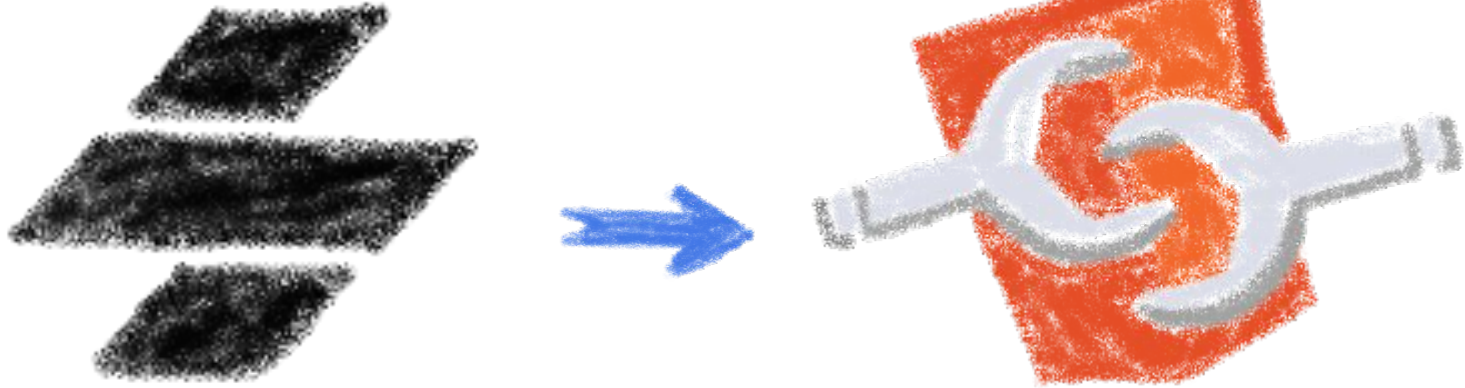
IONIC FRAMEWORK V5
Release Candidate

ionic 5.0.0 Release Candidate
The Release Candidate for Ionic 5.0.0 is finally here 🎉🎉! As you've probably heard already, Ionic 5 will bring major design updates and lots...
ionicframework.com

11 109 326

Ionic 4 released on year ago, powered by Stencil!

A build time tool



To generate standard web components

Fully featured

- Web Component-based
- Asynchronous rendering pipeline
- TypeScript support
- Reactive Data Binding
- Component pre-rendering
- Simple component lazy-loading
- JSX support
- Dependency-free components



And the cherry on the cake

SSR

Server-Side Rendering

Stencil leverages the web platform

Stencil doesn't fight the web platform. It embraces it.



Simple

With intentionally small tooling, a tiny API, and zero configuration, Stencil gets out of the way and lets you focus on your work.



Lightweight

A tiny runtime, pre-rendering, and the raw power of native Web Components make Stencil one of the fastest compilers around.



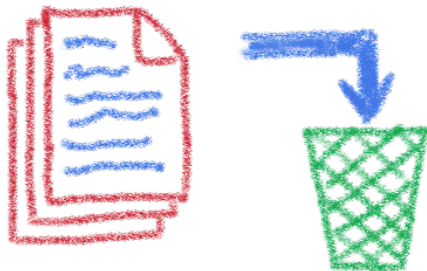
Future proof

Build cross-framework components and design systems on open web standards, and break free of Framework Churn.

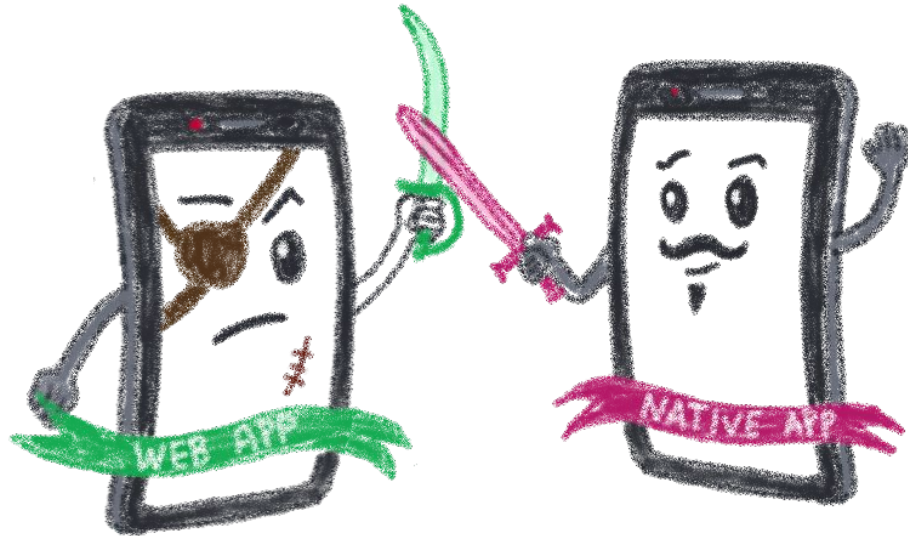
Working with the web, not against it

The Stencil story

A company tired of putting good code in the bin



Once upon a time there was a fight



Between native apps and web app on mobile

A quest to the perfect solution



Hybrid apps, leveraging on web technologies

A company wanted to do it well



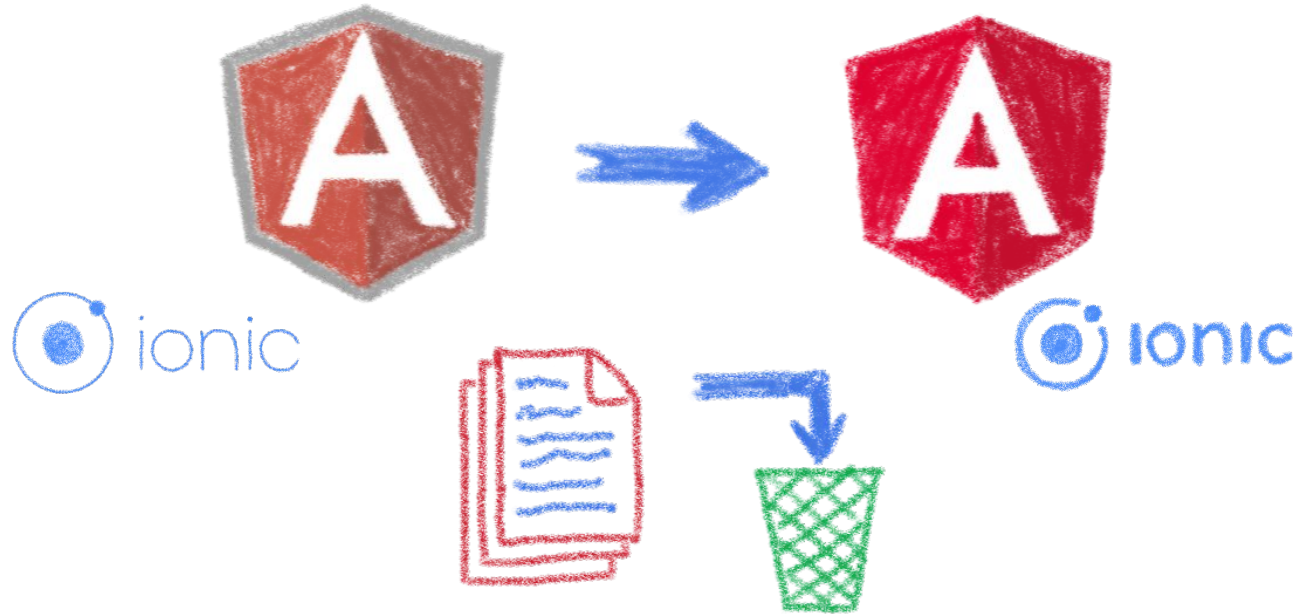
The perfect technology for mobile web and hybrid apps

The time is 2013



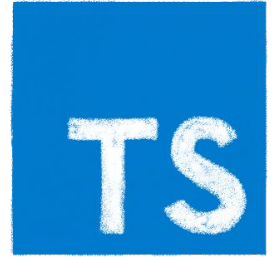
So what technology would you use?

Really soon after launch...



Hey folks, we are killing AngularJS!

What did Ionic people do?



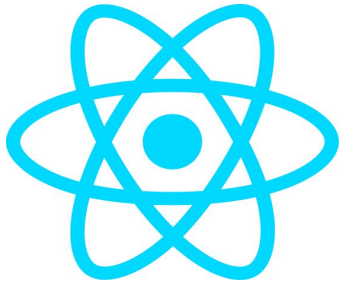
Let's put everything in the trash bin and begin anew

But times have changed...



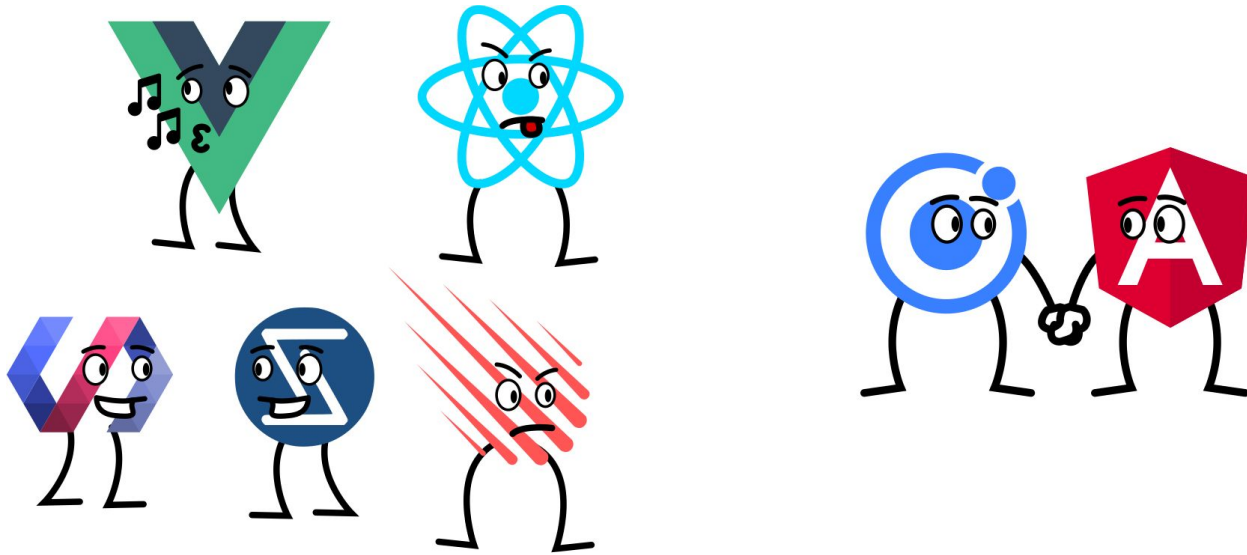
In 2013 Angular JS was the prom queen

Times have changed...



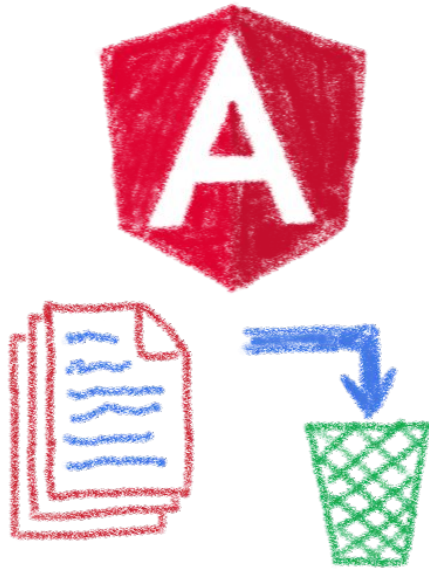
In 2017 Angular is only one more in the clique

Angular limits adoption of Ionic



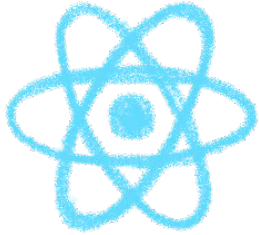
Devs and companies are very vocal about JS Frameworks

What did Ionic people do?



Let's put everything in the trash bin and begin anew...
But on which framework?

What about web components?



A nice solution for Ionic problems:
Any framework, even no framework at all!

But what Web Component library?



hybrids



snuggsi ツ



smart
HTML ELEMENTS



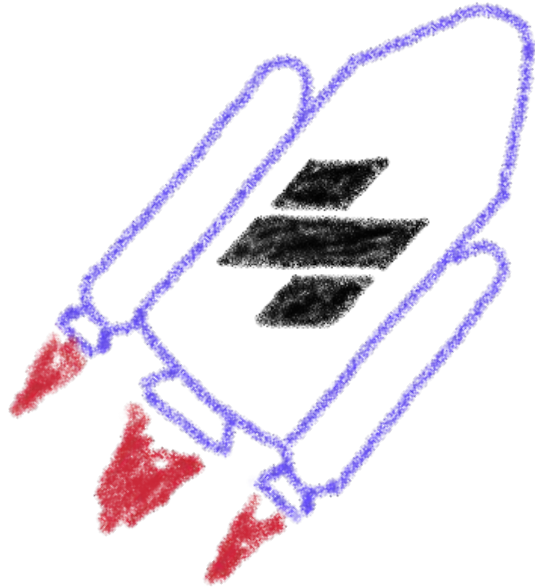
slim.js



SkateJS

There were so many of them!

Let's do something different



A fully featured web component toolchain
With all the bells and whistles!

Ionic rewrote all their code again



Ionic 4 is fully based on Ionic

Now Ionic works on any framework



Or without framework at all

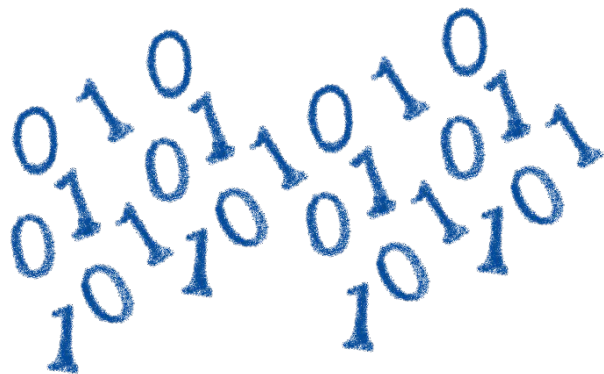
And we have Stencil



To use it in any of our projects

Hey dude, enough stories!

We are here to see some code!



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Hands on Stencil

Simply use npm init

```
npm init stencil
```

Choose the type of project to start

```
? Pick a starter › - Use arrow-keys. Return to submit.  
  
› ionic-pwa      Everything you need to build fast, production ready PWAs  
  app           Minimal starter for building a Stencil app or website  
  component     Collection of web components that can be used anywhere  
Updating Stencil
```


Hands on Stencil

And the project is initialized in some seconds!

```
✓ Pick a starter > component
✓ Project name > sthlm-j
✓ All setup in 17 ms

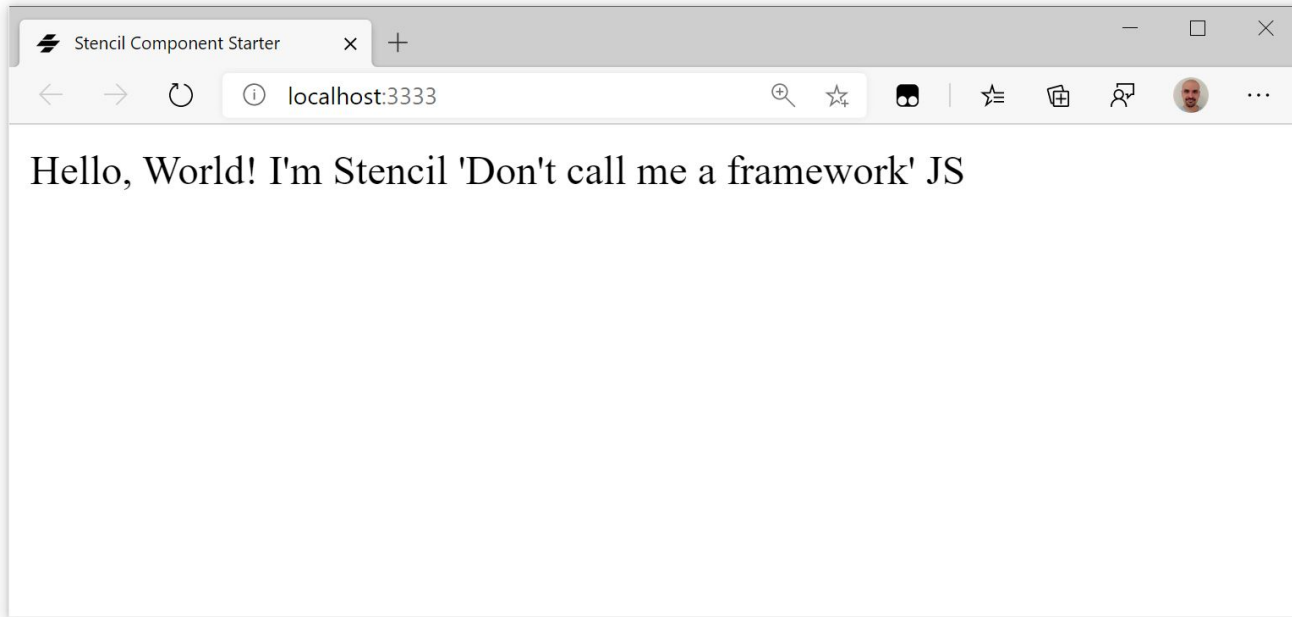
$ npm start
  Starts the development server.
$ npm run build
  Builds your components/app in production mode.
$ npm test
  Starts the test runner.

We suggest that you begin by typing:
$ cd sthlm-js
$ npm start

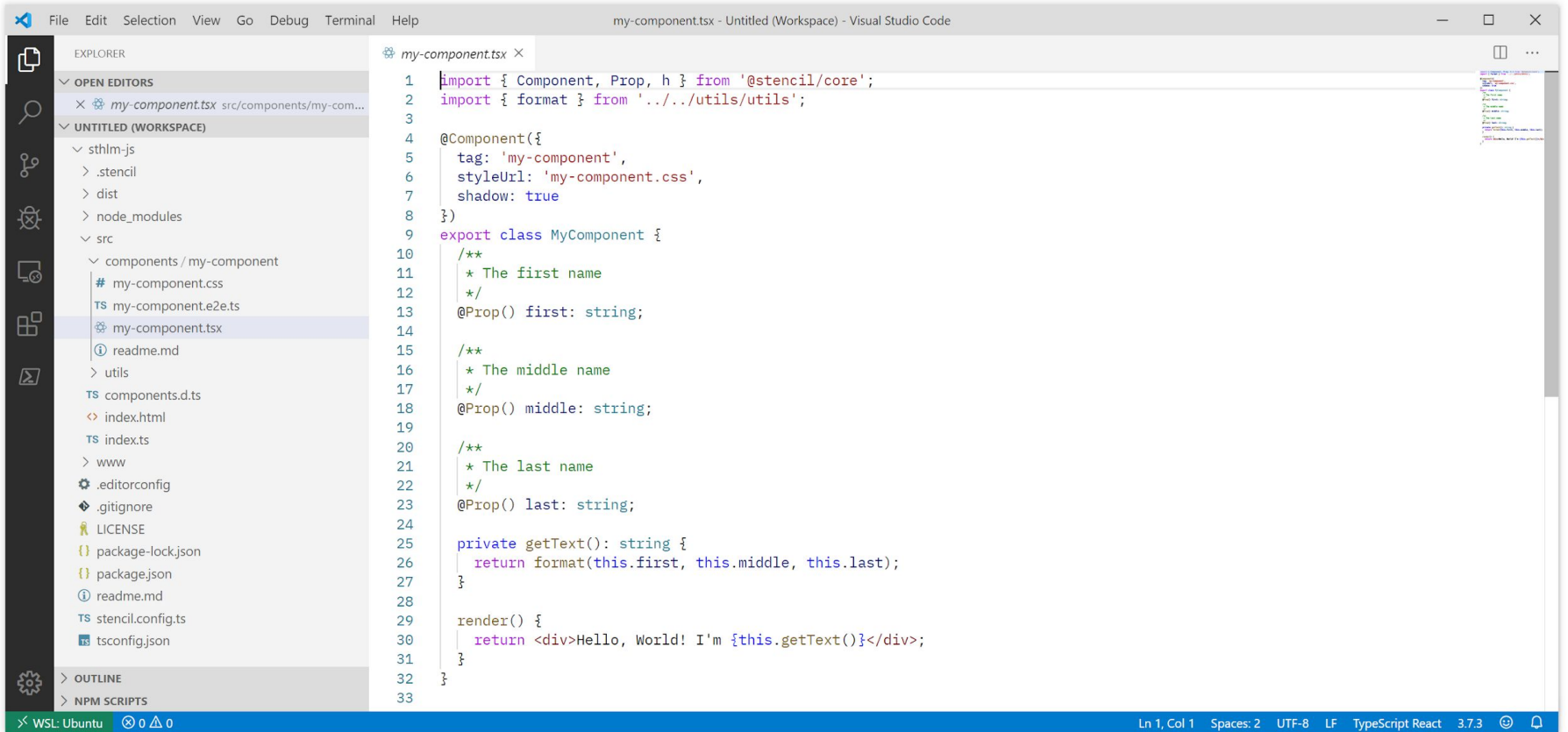
Happy coding! 🍌
```

Starting the development server

```
npm start
```



Let's look at the code



```
1 import { Component, Prop, h } from '@stencil/core';
2 import { format } from '../utils/utils';
3
4 @Component({
5   tag: 'my-component',
6   styleUrls: 'my-component.css',
7   shadow: true
8 })
9 export class MyComponent {
10   /**
11    * The first name
12    */
13   @Prop() first: string;
14
15   /**
16    * The middle name
17    */
18   @Prop() middle: string;
19
20   /**
21    * The last name
22    */
23   @Prop() last: string;
24
25   private getText(): string {
26     return format(this.first, this.middle, this.last);
27   }
28
29   render() {
30     return <div>Hello, World! I'm {this.getText()}</div>;
31   }
32 }
33
```

Some concepts

```
import { Component, Prop, h } from '@stencil/core';
import { format } from '../utils/utils';

@Component({
  tag: 'my-component',
  styleUrls: 'my-component.css',
  shadow: true
})
export class MyComponent {

  @Prop() first: string;
```

Decorators

Some concepts

```
@Prop() first: string;  
  
@Prop() middle: string;  
  
@Prop() last: string;  
  
@State() nickname: string;
```

Properties and States

Some concepts

```
render() {  
  return <div>Hello, World! I'm {this.getText()}</div>;  
}
```

Asynchronous rendering using JSX

Some concepts

```
@Prop() value: number;

@Watch(value)
valueChanged(newValue: boolean, oldValue: boolean) {
  console.log(`The new value is ${newValue}, it was ${oldValue} before`);
}
```

Watch

Some concepts

```
@Event() actionCompleted: EventEmitter;

someAction(message: String) {
  this.actionCompleted.emit(message);
}
```

Emitting events

```
@Listen('actionCompleted')
actionCompletedHandler(event: CustomEvent) {
  console.log('Received the custom actionCompleted event: ', event.detail);
}
```

Listening to events

Some concepts

```
@Method()  
async sayHello() {  
  this.hello = true;  
}  
  
render() {  
  return (  
    <Host>  
      <h2>{ this.hello ? `Hello sthlm.js` : ''}</h2>  
    </Host>  
  );  
}
```

Asynchronous public methods

Some concepts

```
@Component({
  tag: 'my-component',
  styleUrls: ['my-component.css'],
  shadow: true
})
export class MyComponent {
```

Optional Shadow DOM

Stencil for design systems

Because web components really shine for that



What the heck is a design system?

Components

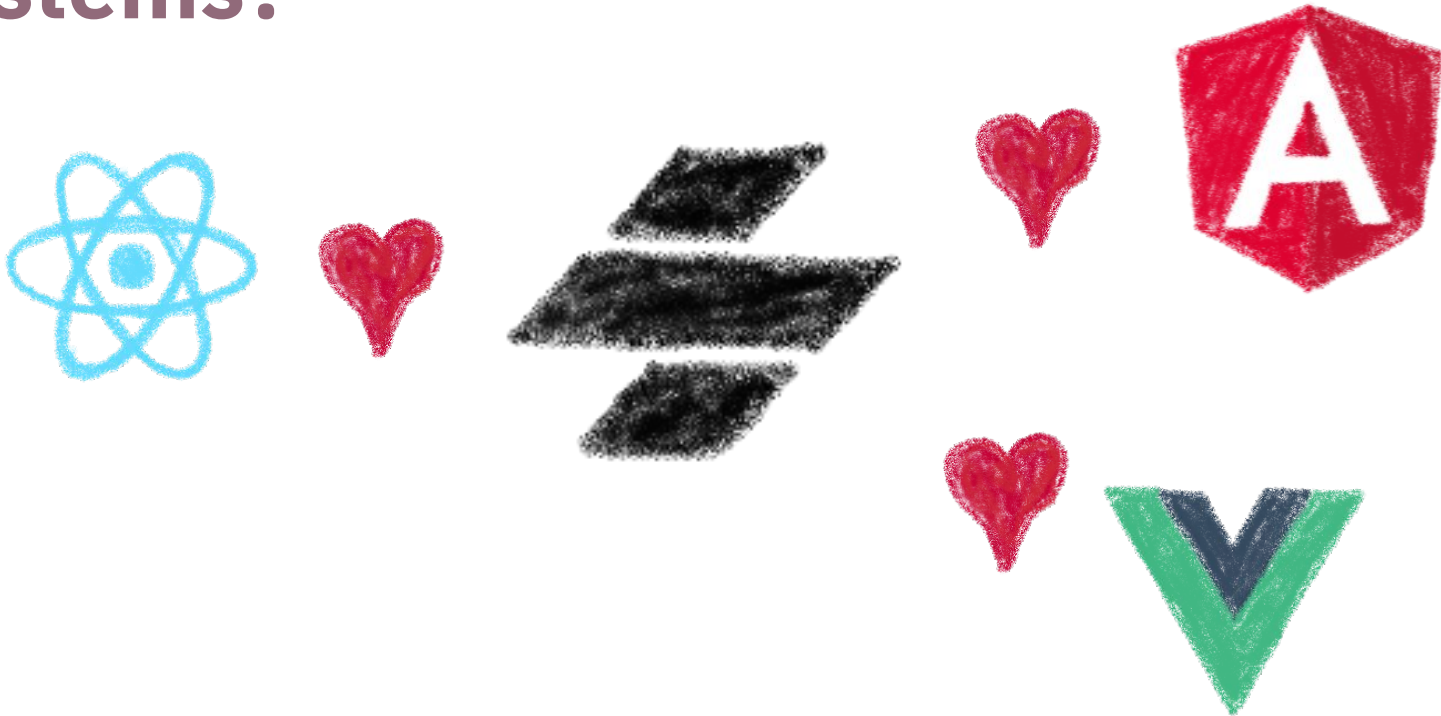
Patterns

No more time spent
rewriting once again
the same base UI elements

Visual language

Design artifacts
&
Code implementation

Why Stencil is so good for design systems?



Web Components work everywhere!

One more thing...*

Let's copy from the master

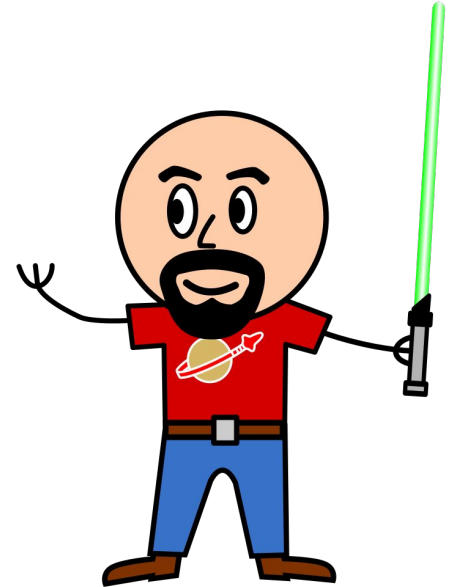
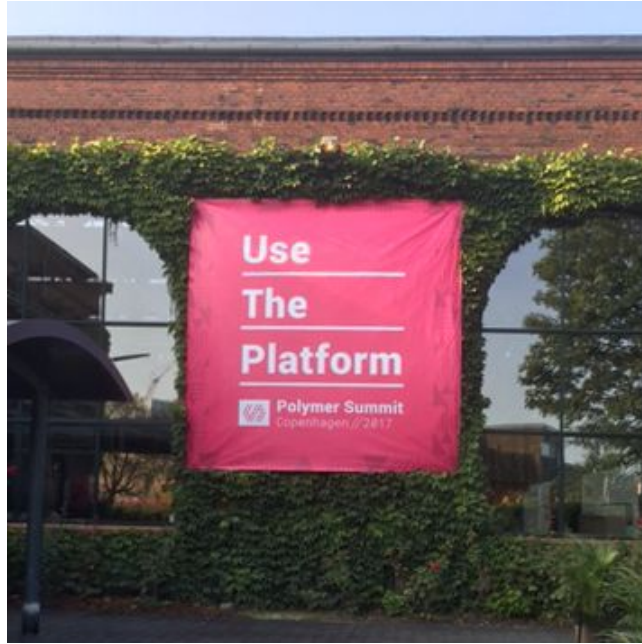


Stencil is not so important



WebComponents ARE

Use the Platform, Luke...



WebComponents ARE native

Do you love your framework?



Oh yeah, we all do

Would you marry your framework?



Like until death...

How much does cost the divorce?



Do you remember when you dropped AngularJS for Angular?

Why recode everything again?



Reuse the bricks in your new framework

Lots of web components libraries



slim.js

LitElement



hybrids



snuggsi ツ



SkateJS



smart
HTML ELEMENTS



stencil

For different need and sensibilities

And some good news



Angular Elements



Vue Web Component
Wrapper

Frameworks begin to understand it

So for your next app

Choose a framework, no problem...

But please, help your future self

Use Web Components!



