



devfest

Poland 2020

Are Web Components the Betamax of web development?

Horacio Gonzalez
@LostInBrittany



@LostInBrittany



Who are we?

Introducing myself and
introducing ~~OVH~~ OVHcloud

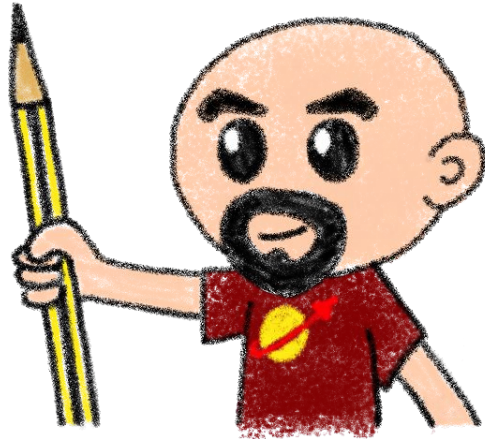


Horacio Gonzalez



@LostInBrittany

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



OVHcloud: A global leader



Web Cloud & Telecom



Private Cloud



Public Cloud



Storage



Network & Security



30 Data Centers
in 12 locations



34 Points of Presence
on a 20 TBPS Bandwidth Network



2200 Employees
worldwide



115K Private Cloud
VMS running



300K Public Cloud
instances running



380K Physical Servers
running in our data centers



1 Million+ Servers
produced since 1999



1.5 Million Customers
across 132 countries



3.8 Million Websites
hosting



1.5 Billion Euros Invested
since 2016



P.U.E. 1.09
Energy efficiency indicator



20 Years in Business
Disrupting since 1999

OVHcloud & Poland



- Klabo family comes from Poland
- OVHcloud data center in Warsaw
- OVHcloud office in Wroclaw



Sometimes I feel a bit grumpy

The stories of the grumpy old speaker...



On Web Components tour since 2014



Web components == Revolution



Image: bu.edu

Building a world brick by brick



Images: [BitRebels](#) & [Brickset](#)

Is the promise unfulfilled?



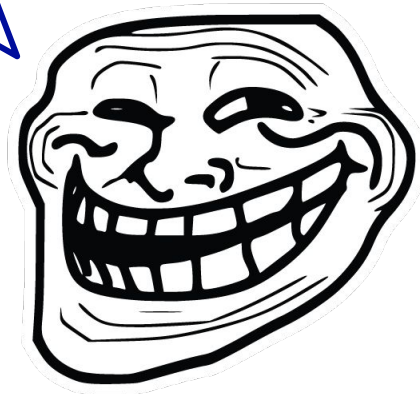
It's 2019 now, where is your revolution, dude?



And, even worse, several months ago



Hey, dude, your Web Components thing is like Betamax
Even if it was a better solution, market has already chosen,
React has won, as VHS did...





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

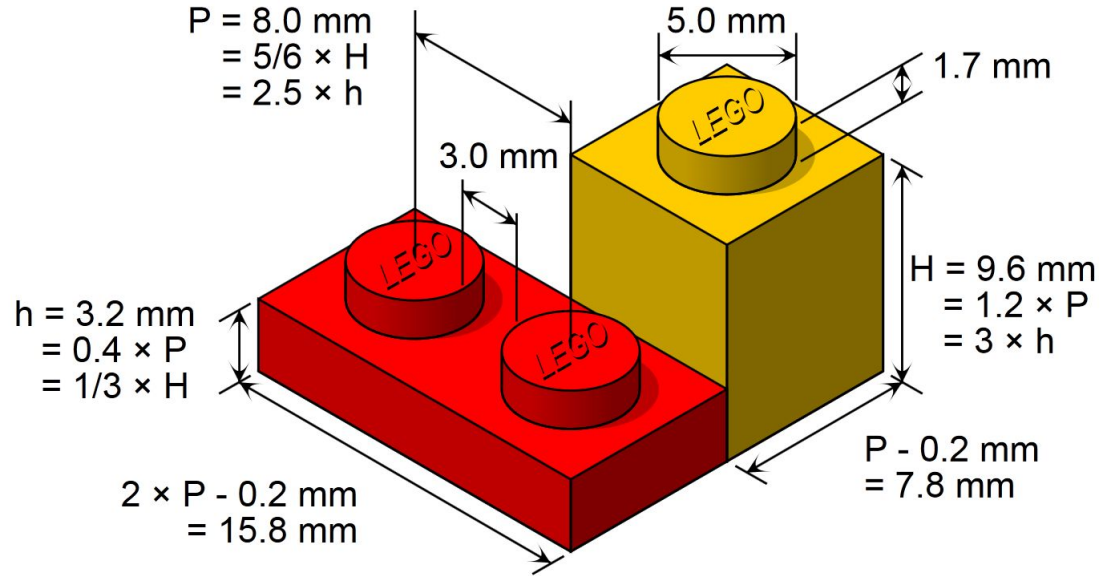
```
<template id="mytemplate">  
  <img src="" alt="great image">  
  <div class="comment"></div>  
</template>
```

```
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





Hey, old man, WTF is a Betamax?

A videocassette guide for Millenials



At the beginning there was the TV



And public saw it was good...

But how to keep your favorite show forever?



Sony VTR CV-2000 - Image credit [LabGuy's World](#)

The VTR was born, somewhere in the 1960s

From videotape to videocassette...



Sony U-matic - Image credit [MKH Electronics](#)



U-matic cassette - Image credit [PSAP](#)

And then to mass market, sometime in the 1970s

Each vendor proposed their solution



Sony's Betamax - Image credit [PSAP](#)



JVC's VHS - Image credit [PSAP](#)

Cassettes aren't so different from JS frameworks after all...



VHS

Size: 7 3/8" x 4 1/8"

Length: SP: 2 hours, LP: 4 hours, EP: 6 hours



Betamax*

Size: 6 1/8" x 3 3/4"

Length: SP: 2 hours, LP: 4 hours, EP: 6 hours



8mm / Hi-8

Size: 3 3/4" x 2 3/8"

Length: SP: 2 hours, LP: 4 hours



VHS-C

Size: 3 5/8" x 2 1/4"

Length: SP: 30 minutes, LP: 90 minutes, EP: 120 minutes

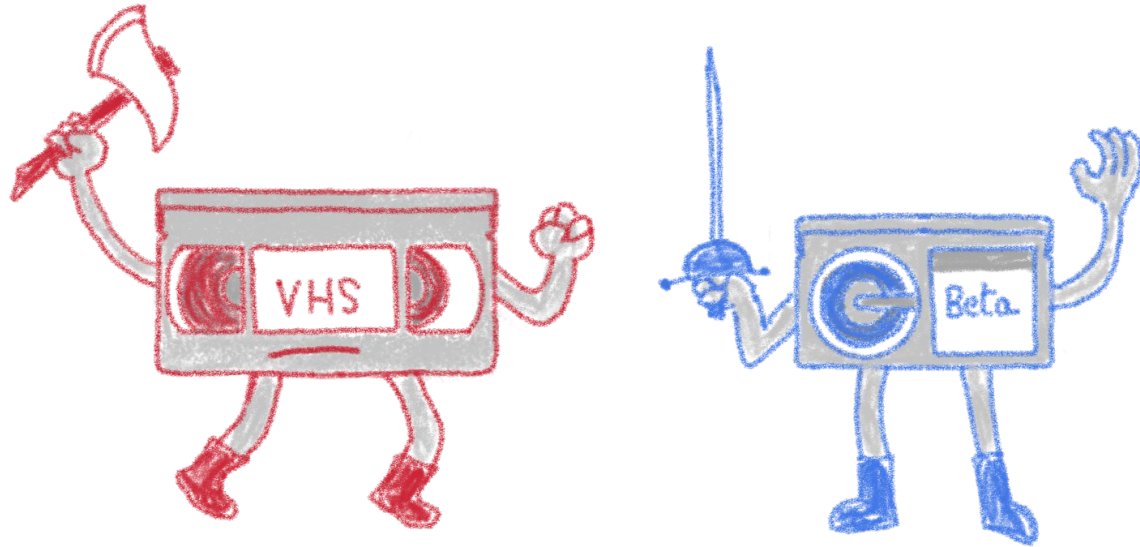


Mini DV

Size: 2 5/8" x 1 7/8"

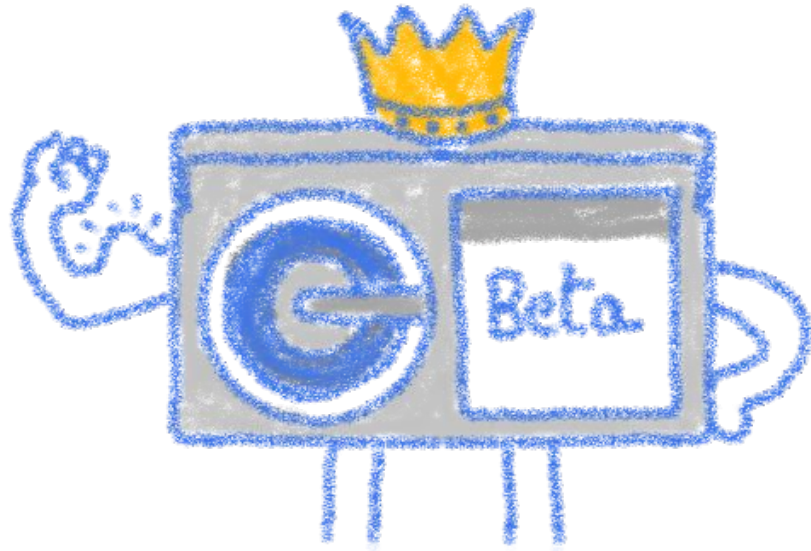
Length: SP: 60 minutes, LP: 90 minutes

There was a format war



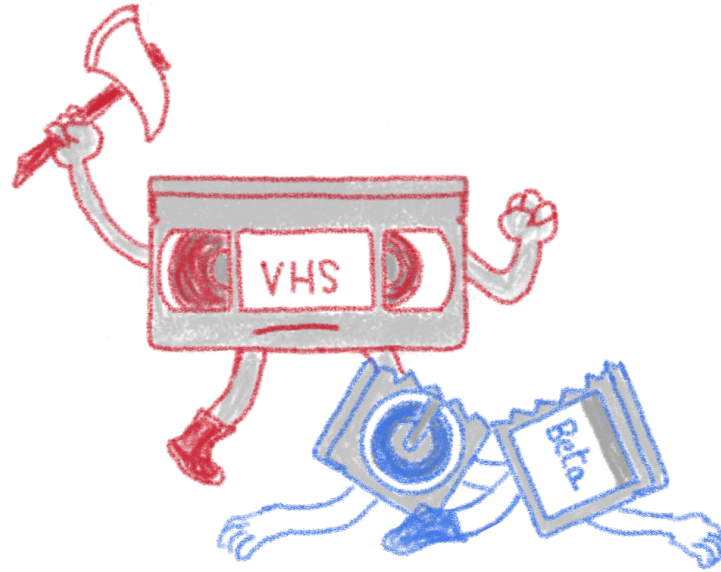
So fierce that it has its own [Wikipedia page](#)

Betamax was a superior format



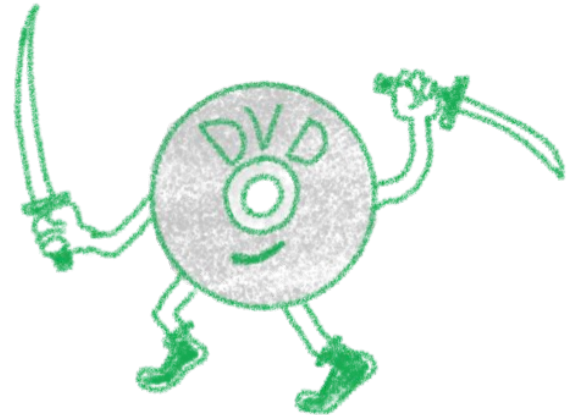
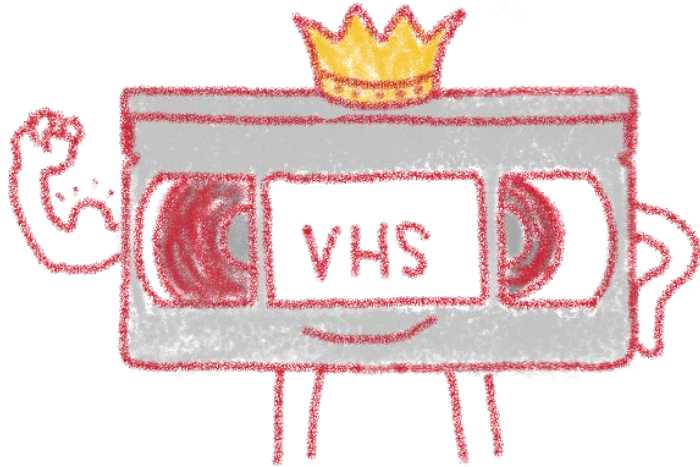
Higher quality recorders, better resolution, slightly superior sound, and more stable image

But the market decided otherwise



And Betamax, even if superior, failed...

As usual, the winner took it all

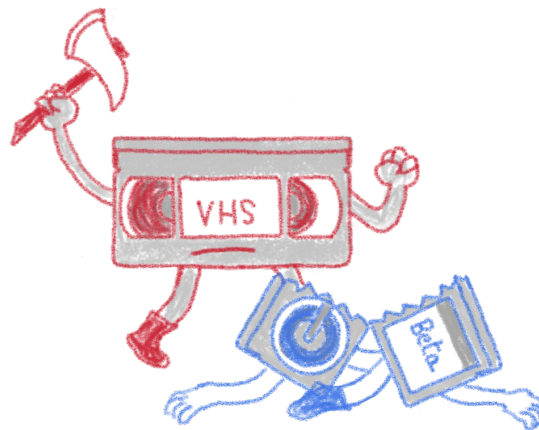


Until a new arrival entered in scene, the DVD...
But that's another story for another talk

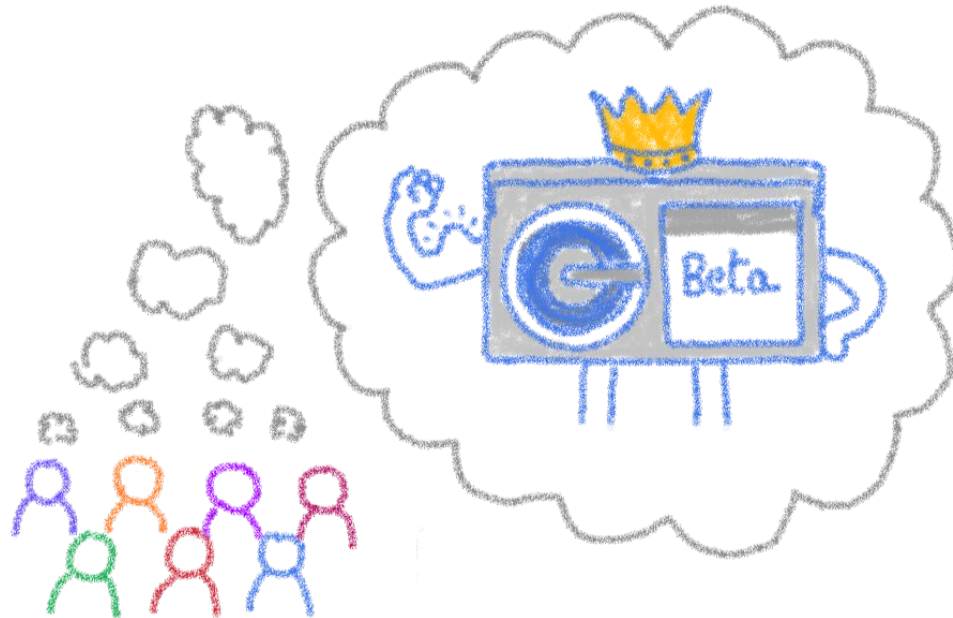


Why did Betamax failed?

Spoiler: it isn't so simple...

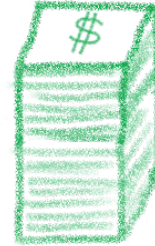
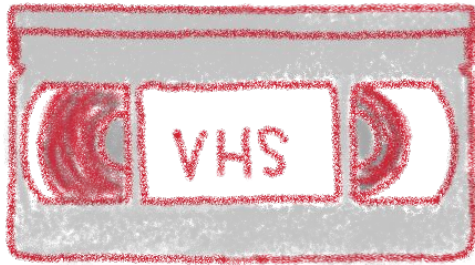


Betamax was believed to be superior



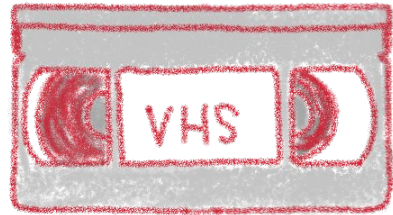
In the minds of the public and press

But consumers wanted an affordable VCR



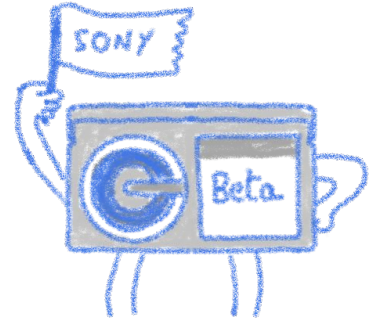
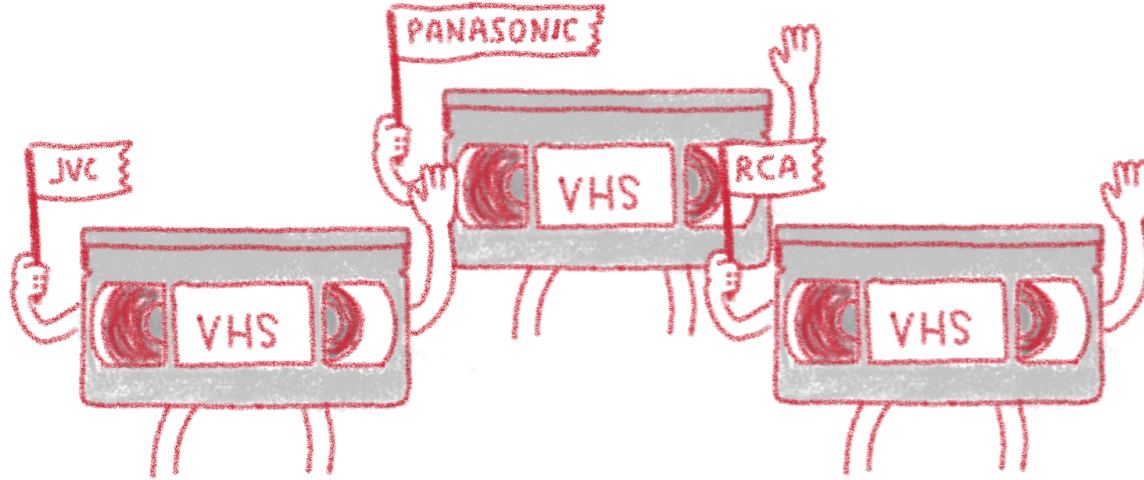
Betamax costed hundreds of dollars more

They also wanted to record a full movie



Originally Betamax cassettes only recorded 1 hour

And compatibility weighted on VHS side

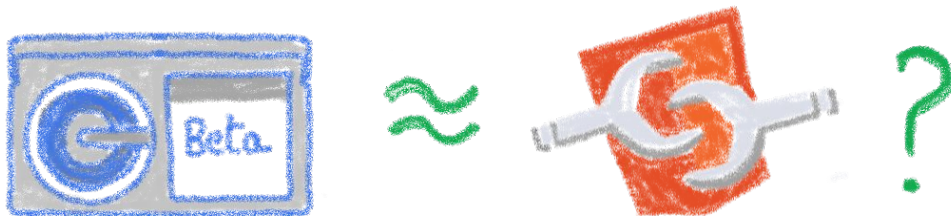


Many licences offered VHS VCRs

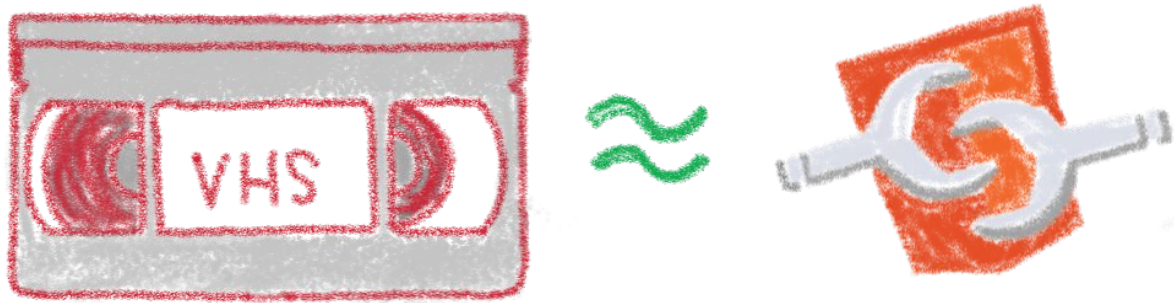
Are Web Components like Betamax?



A perceived superior alternative destined to fail?

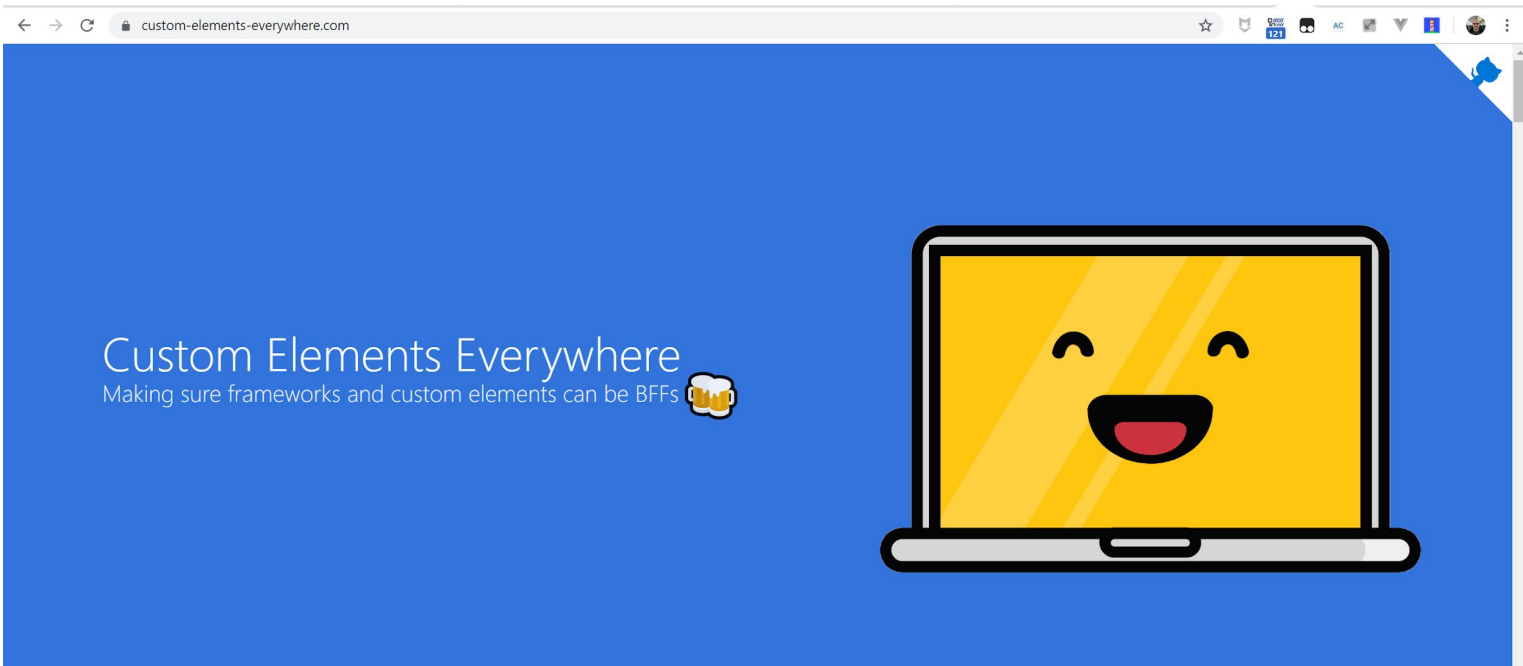


It could be even the opposite...



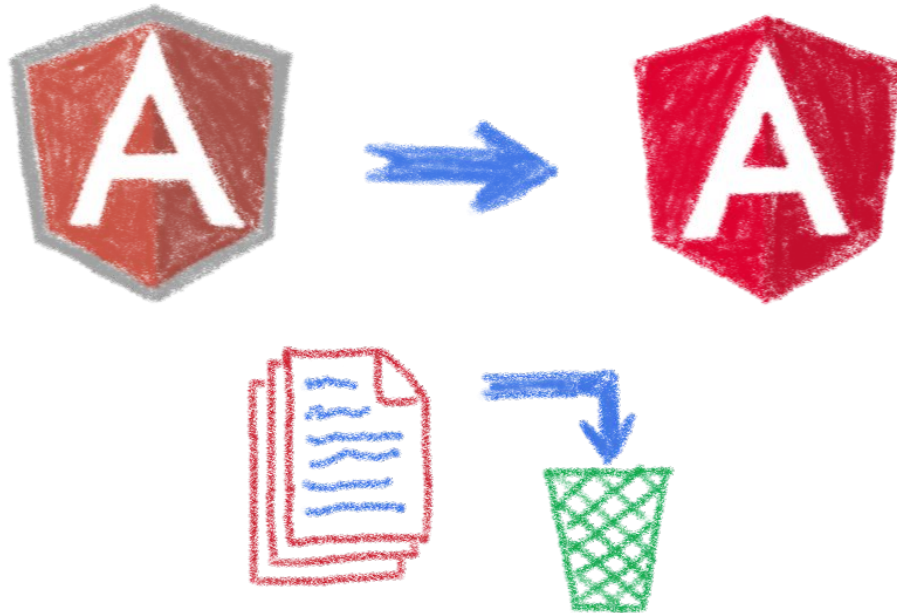
Web components are maybe the VHS of JS

Compatibility is on Web Components side



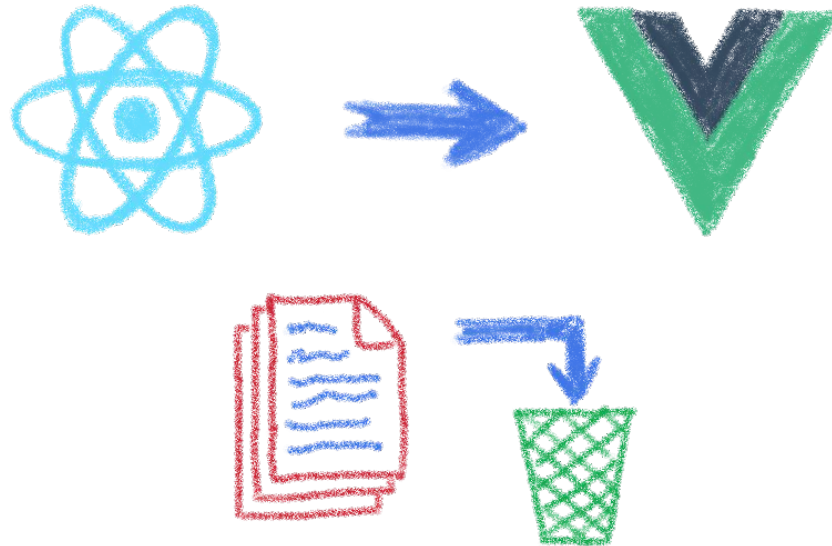
Web Components everywhere, baby!

Do you remember AngularJS?



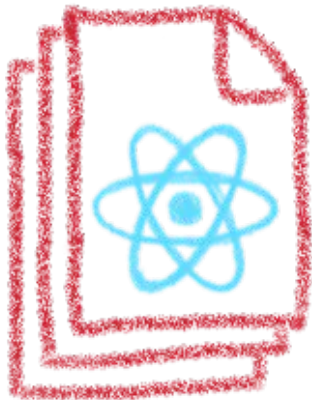
And all the code put in the trash bin
when Angular arrived...

The pain of switching frameworks?



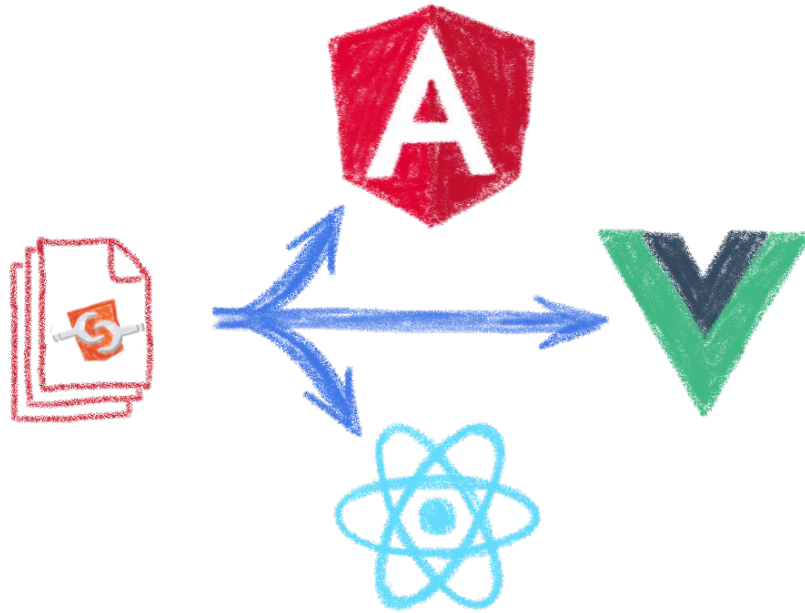
Rewriting once again your code...

The impossibility of sharing UI code?



Between apps written with different frameworks

Web Components change that



In a clean and standard way

They are indeed a revolution



But it's a silent one...

They are there, in everyday sites



Max Lynch ✓

@maxlynch

Following

Looks like Twitter tweet embeds are now shipped as Web Components? This is how WC's will take over: as plumbing most won't even realize they are using

```
▼<div id="posts" class="entry-content section-paragraph post">
  ▶<p>_</p>
  ▼<div style="margin: auto">
    ▼<twitter-widget class="twitter-tweet twitter-tweet-rendered" id="twitte
      display: block; transform: rotate(0deg); max-width: 100%; width: 500px; m
      tweet-id="1072527151092678657"> == $0
    ▼#shadow-root (open)
      <style type="text/css">.SandboxRoot { display: none; max-height: 100
      ▼<div data-twitter-event-id="0" class="SandboxRoot env-bp-350" style=
        ▼<div class="EmbeddedTweet EmbeddedTweet--cta js-clickToOpenTarget
          target="https://twitter.com/maxlynch/status/1072527151092678657" da
            "twitter-widget-0" lang="en" data-twitter-event-id="4">
              ▼<div class="EmbeddedTweet-tweetContainer">
```

9:22 PM - 11 Dec 2018

48 Retweets 163 Likes

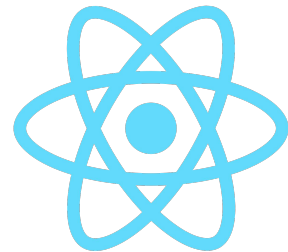


9 48 163

More than you can imagine

@LostInBrittany

The components architecture won



Components, components everywhere

Web components ARE platform



Truly part of the platform...

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](#) [Twitter](#) [GitHub](#) [RSS](#)

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

@LostInBrittany

 OVHcloud

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 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

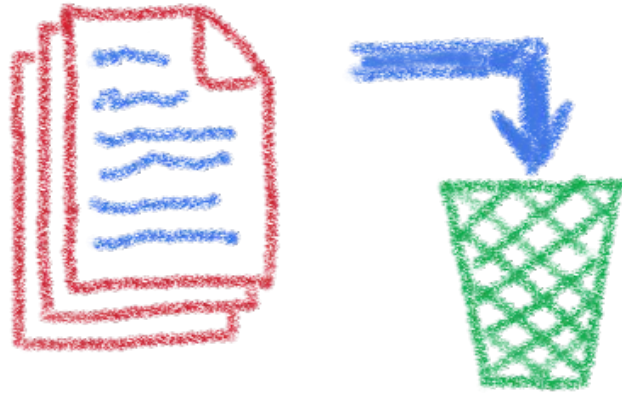
🔄 109

❤ 326



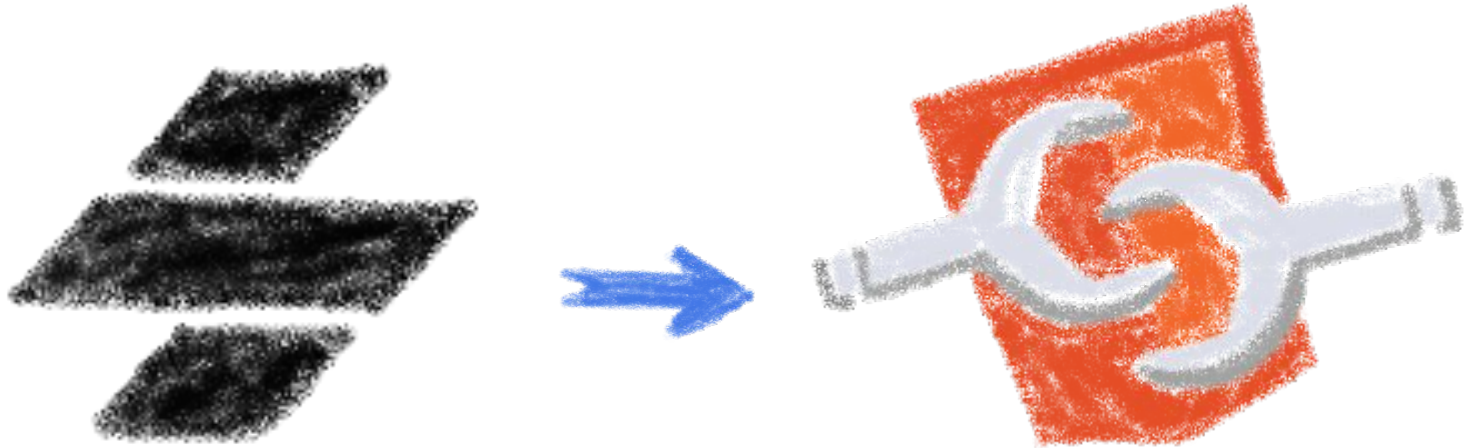
Ionic 4 released on year ago, powered by Stencil!

Built by the Ionic team



Tired of putting good code in the trash bin...

A build time tool



To generate standard web components

Fully featured



- Web Component-based
- Asynchronous rendering pipeline
- TypeScript support
- One-way 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



Polymer

Is the old player still alive?

Polymer evolved again in 2018



Image: © Nintendo

Polymer 3 was here!

What's Polymer status today?



Relationship Status:

Interested in:

Looking for:

- Single
- In a Relationship
- Engaged
- Married
- It's Complicated**
- In an Open Relationship
- Widowed

Well, how could I say... it's complicated

It seems it's going to be deprecated...



Polymer Library

The Polymer library is our original web components library. Version 3.0 of the Polymer library brings web components into the mainstream, embracing JavaScript modules and npm.

Update your apps and elements for seamless interop with popular frameworks and tools and easy access to the full JavaScript ecosystem.

[WHAT'S NEW](#)

[UPGRADE GUIDE](#)

Welcome to the future...

Starting a new project? Try our next-gen products, headed for release in the coming months:

LitElement

An ultra-light, highly performant custom element base class with a simple but expressive API.

PWA Starter Kit

Your one-stop shop for building Progressive Web Apps that make the most of the modern web.

Material Web Components

Pixel-perfect realizations of Google's Material Design spec that work anywhere on the web.

Technically yes... and that means good news!

Let's try to see clearer



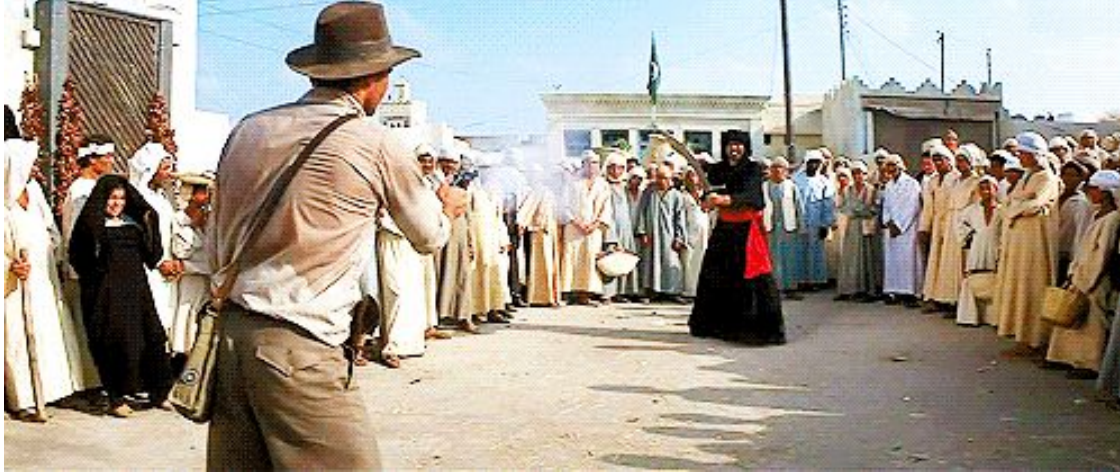
Let's dive into Polymer history...

A tool built for another paradigm



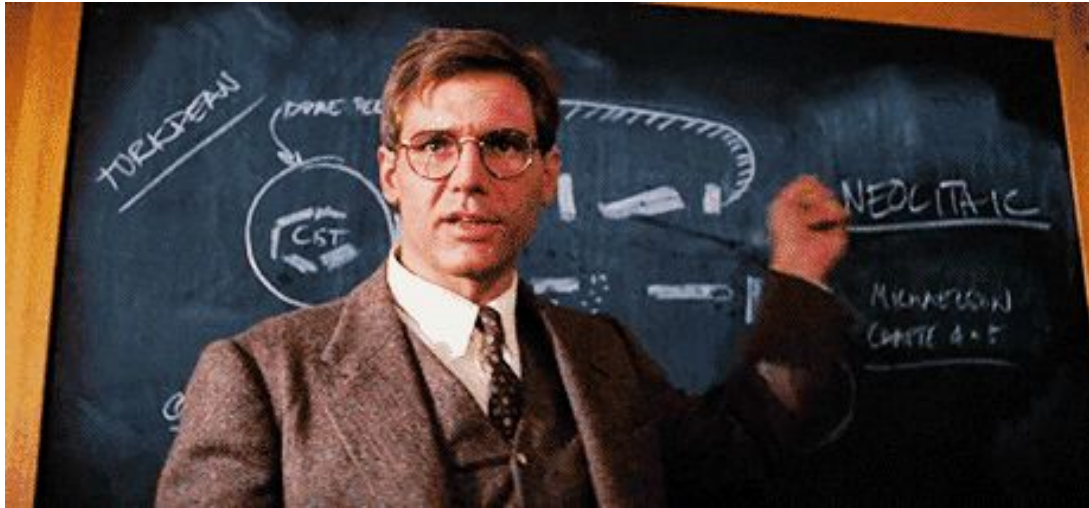
No web component support on browsers
No React, Angular or Vue innovations

No so well suited for the current one



The current platform is way more powerful
The state of art has evolved

Let's learn from its lessons



The current platform is way more powerful
The state of art has evolved

And let it rest...



There will have no Polymer 4...

So Polymer as we know it is dead...



But the Polymer Project is indeed alive!

But I have invested so much on it!



What to do?

That's why web components are top



You can keep using all your Polymer components and create the new ones with a new library... And it simply works!

And without metaphors?



About the Polymer Project

As front-end engineers in the Chrome team, our mission is to make the web better.

We work on libraries & tools

to help developers unlock the web's full potential, taking advantage of cutting-edge features like Web Components, Service Workers and HTTP/2.

We experiment with new patterns

for building faster and smaller web applications.

We advocate for standards

helping ensure that web developers have a strong voice in the process.

Polymer Project != Polymer library
Polymer Project well alive
Polymer library was only one library



LitElement

New kid on the block

Born from the Polymer team



For the new web paradigm

Modern lightweight web components



LitElement

A simple base class for creating fast, lightweight web components

→ [GET STARTED](#)

About

Fast, lightweight web components

LitElement is a simple base class for creating fast, lightweight web components that work in any web page with any framework.

Using lit-html

For rendering, LitElement uses [lit-html](#)—a fast HTML templating library. To build an app out of LitElement components, check out [PWA Starter Kit](#).

Who are we?

LitElement is brought to you by developers on the Google Chrome team with the input of web developers at organizations big and small around the world.

For the new web paradigm

@LostInBrittany

 OVHcloud

Based on lit-html



Next-generation HTML Templates in JavaScript

lit-html lets you write HTML templates in JavaScript, then efficiently render and *re-render* those templates together with data to create and update DOM:

```
import {html, render} from 'lit-html';

// A lit-html template uses the `html` template tag:
let sayHello = (name) => html`<h1>Hello ${name}</h1>`;

// It's rendered with the `render()` function:
render(sayHello('World'), document.body);

// And re-renders only update the data that changed, without
// VDOM diffing!
render(sayHello('Everyone'), document.body);
```

An efficient, expressive, extensible
HTML templating library for JavaScript

Do you know tagged templates?



```
function uppercaseExpression(strings, ...expressionValues) {
  var finalString = ''
  for ( let i = 0; i < strings.length; i++ ) {
    if ( i > 0 ) {
      finalString += expressionValues[i - 1].toUpperCase()
    }
    finalString += strings[i]
  }
  return finalString
}

const expressions = [ 'Milan', 'Codemotion Milan', 'Thank you'];

console.log(
  uppercaseExpression`
  I am so happy to be in ${expressions[0]} for ${expressions[1]} !
  ${expressions[2]}, ${expressions[1]}!
`
)
```

Little known functionality of template literals

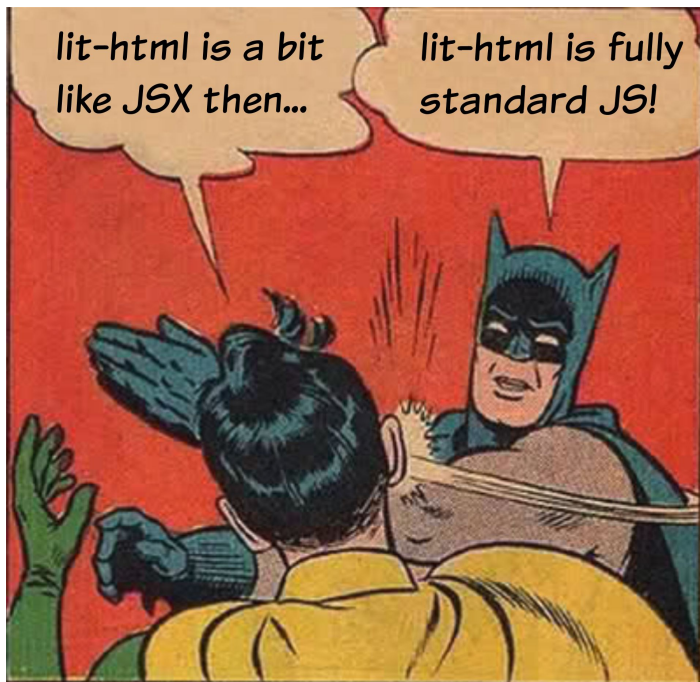
lit-html Templates



```
let myTemplate = (data) => html`  
  <h1>${data.title}</h1>  
  <p>${data.body}</p>  
`;  
;
```

Lazily rendered
Generates a TemplateResult

It's a bit like JSX, isn't it?



The good sides of JSX... but in the standard!

LitElement



```
import { LitElement, html } from 'lit-element';
// Create your custom component
class CustomGreeting extends LitElement {
  // Declare properties
  static get properties() {
    return {
      name: { type: String }
    };
  }
  // Initialize properties
  constructor() {
    super();
    this.name = 'World';
  }
  // Define a template
  render() {
    return html`<p>Hello, ${this.name}</p>`;
  }
}
// Register the element with the browser
customElements.define('custom-greeting', CustomGreeting);
```

Lightweight web-components using lit-html



One more thing...*

Let's copy from the master

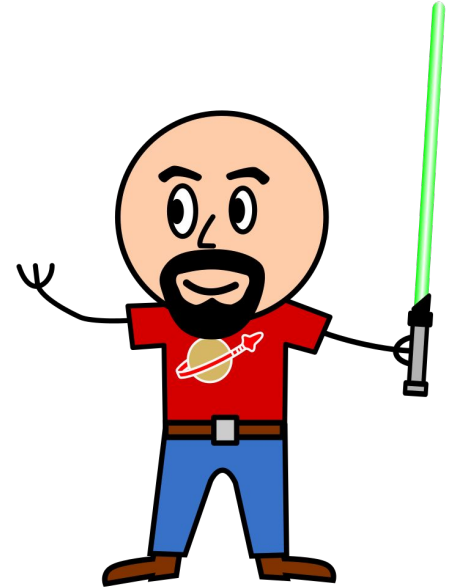
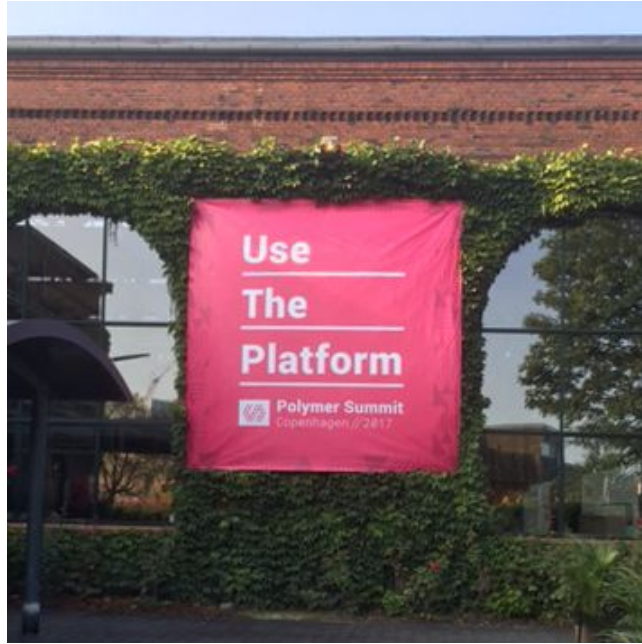


Polymer is not important



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



hybrids

LitElement



snuggsi ツ



SkateJS



smart
HTML ELEMENTS



slim.js



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!





Conclusion

That's all, folks!

