

# Web Components

Usando o melhor do navegador

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# Agenda

- O que são Web Components?
- Para que servem?
- Trabalhando com Web Components
- O que vem por aí?

# O que são Web Components?

# Elementos nativos

```
<p></p>  
<input />  
<audio>...</audio>  
<video>...</video>
```

## Seus elementos

```
<profile-avatar></profile-avatar>  
<like-button></like-button>
```

# Exemplo

```
<div class="profile-avatar">  
  <a href="...">  
      
    <span class="name">...</span>  
  </a>  
</div>
```

```
<script>  
<!-- ainda tendo que indicar as informações a serem apresentadas -->  
</script>
```

```
class ProfileAvatar extends HTMLElement {
  connectedCallback() {
    this.innerHTML = `
      <div class="profile-avatar">
        <a href="...">
          
          <span class="name">...</span>
        </a>
      </div>`
  }
}
customElements.define('profile-avatar', ProfileAvatar)
```

```
<profile-avatar></profile-avatar>
```

# HTML Templates

```
<template id="profile-avatar">
  <style>
    a { color: blue }
  </style>
  <a>
    
    <span class="name">...</span>
  </a>
</template>
```

# Usando o template

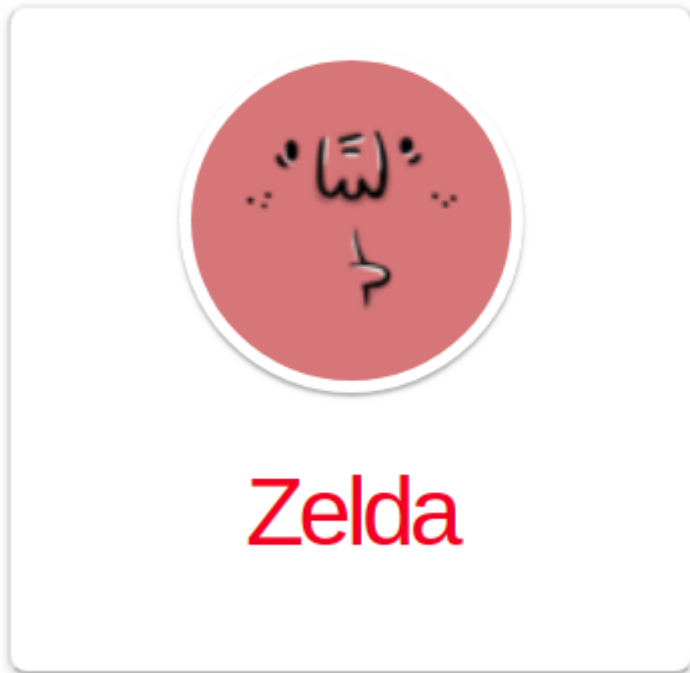
```
class ProfileAvatar extends HTMLElement {
  constructor() {
    const template = document.getElementById('profile-avatar').content
    this.appendChild(template.cloneNode(true));
  }

  connectedCallback() {
    this.querySelector('a').href = '/my-profile'
    // ...
  }
}
```

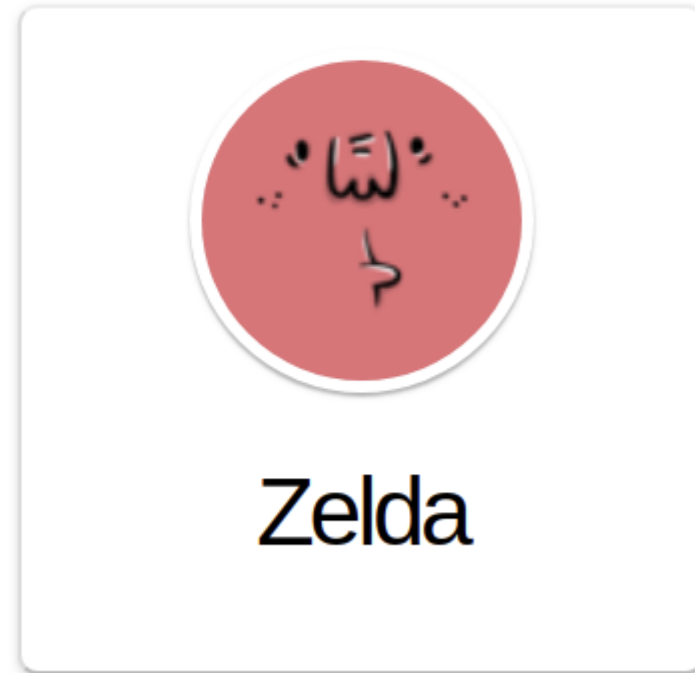


```
h1 { color: red; }
```

## Exemplo 1



## Exemplo 2



# Shadow DOM

```
class ProfileAvatar extends HTMLElement {  
  connectedCallback() {  
    const content = ...  
  
    const shadow = this.attachShadow({mode: 'open'})  
    shadow.appendChild(content)  
  }  
}
```

# Web Components

- Conjunto de especificações da W3C
  - Custom Element
  - Shadow DOM
  - Templates

**Para que  
servem?**

# Compartilhar componentes


## Featured elements

[Browse elements](#)

**outline-designer**

@lrnwebcomponents Monorepo for NPM based element definitions


---

 elmsln

**purr-sist**

Web component wrapper around persistence services


---

 bahrus

**xtal-state**

Web component wrapper around the history api

---

 bahrus

## Featured collections


[Browse collections](#)

**polymorph-components**

13 items

Polymer components that look native on each platform we used

---


 moduware

**smarthtml-elements-core**

7 items

High Quality Custom Elements Web UI Framework

---


 HTMLElements

**vaadin-core**

46 items

An evolving set of free, open source web components for building mobile and

---

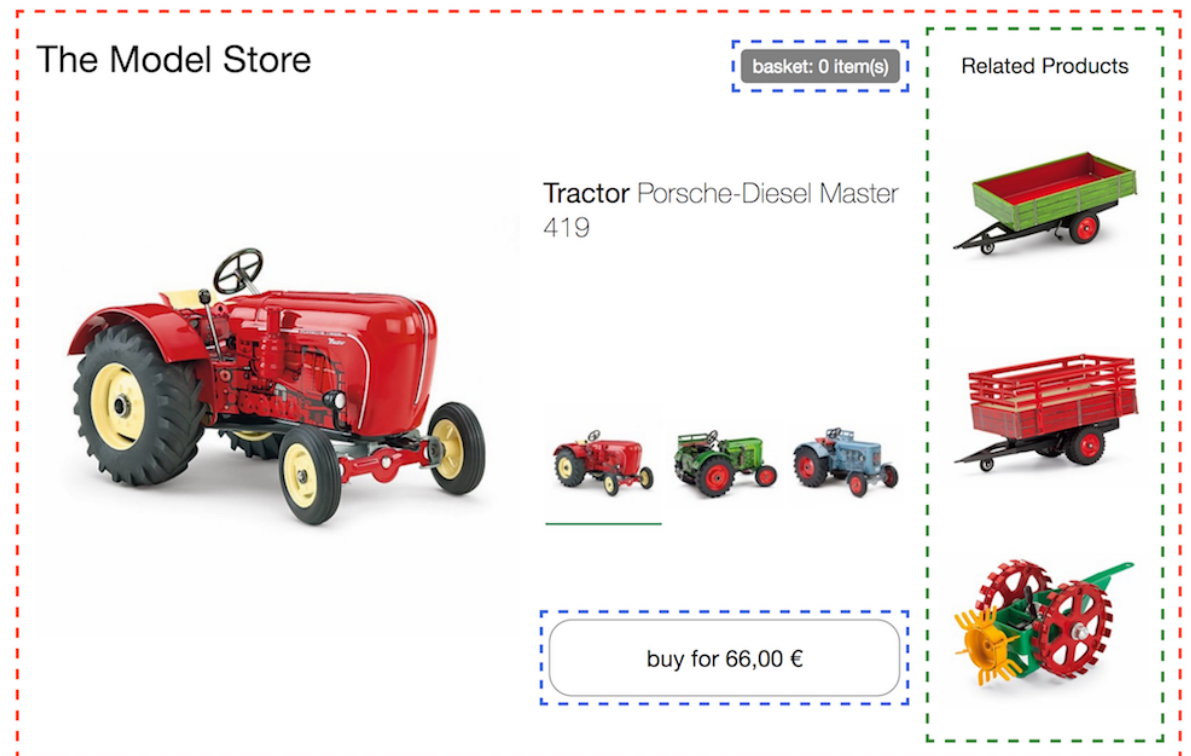
 vaadin

# Criar aplicações

```
<ytd-app style="--ytd-masthead-height:56px;">  
  <yt-activity-manager class="style-scope ytd-app">  
  </yt-activity-manager>  
  <yt-guide-manager id="guide-service" class="style-scope ytd-app">  
  </yt-guide-manager>  
  <yt-gfeedback-manager class="style-scope ytd-app">  
  </yt-gfeedback-manager>  
</ytd-app>
```

# Micro frontends

- Compor aplicações
  - [micro-frontends.org](https://micro-frontends.org)
- Ferramentas:
  - OpenComponents
  - plastic-bag



Team Product 

Team Checkout 

Team Inspire 

# Trabalhando com WebComponents



# Vanilla

- Ecosystem JS
  - Webpack
  - Babel
  - TypeScript
- Lifecycle
  - constructor
  - connectedCallback
  - attributeChangedCallback (observedAttributes)
  - disconnectedCallback
- Polyfills



# The magical, reusable web component compiler

Stencil combines the best concepts of the most popular frontend frameworks and generates 100% standards-based Web Components that run in any modern browser. Built by the [Ionic Framework](#) team.

- ✓ Typescript support
- ✓ A tiny virtual DOM layer
- ✓ JSX support
- ✓ Asynchronous rendering pipeline
- ✓ One-way data binding
- ✓ Simple component lazy-loading



## Simple

With intentionally small tooling, a tiny API, zero configuration, you're set.



## Performant

6kb min+gzip runtime, pre-rendering, and the raw power of native Web Components.



## Future proof

Build versatile apps and components based 100% on web standards. Break free of Framework Churn.

# Polymer Project

We work on libraries, tools, and standards to help developers build a better web

→ [BLOG](#)



PRE-RELEASE

## LitElement

A simple base class for creating fast, lightweight web components.



PRE-RELEASE

## PWA Starter Kit

Starter templates for building full-featured Progressive Web Apps from web components.



PRE-RELEASE

## lit-html

An efficient, expressive, extensible HTML templating library for JavaScript.



PRE-RELEASE

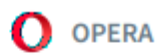
## Material Web Components

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

## Browser support



CHROME



OPERA



SAFARI



FIREFOX



EDGE

### HTML TEMPLATES

✓ STABLE

✓ STABLE

✓ STABLE

✓ STABLE

✓ STABLE

### CUSTOM ELEMENTS

✓ STABLE

✓ STABLE

✓ STABLE

✓ STABLE

✓ POLYFILL

● DEVELOPING

### SHADOW DOM

✓ STABLE

✓ STABLE

✓ STABLE

✓ STABLE

✓ POLYFILL

● DEVELOPING

### ES MODULES

✓ STABLE


✓ STABLE

✓ STABLE

✓ STABLE

✓ STABLE

LIBRARY	SCORE	BASIC TESTS	ADVANCED TESTS
Angular 6.0.1	100%	16/16	14/14



LIBRARY	SCORE	BASIC TESTS	ADVANCED TESTS
React 16.2.0	71%	16/16	0/14



LIBRARY	SCORE	BASIC TESTS	ADVANCED TESTS
Vue 2.5.13	100%	16/16	14/14



O que vem por  
aí?

# Outra versão? Sem previsão

- Custom Elements: 2 versões
  - v0, v1
- Angular: 136 versões
- React: 173 versões
  - 0.0.1, 0.0.2, 0.0.3, 0.2.0, ... 0.14.7, 15.0.0, ..., 16.7.0-alpha.2

# Aumento do suporte


- Polymer
  - lit-element
  - lit-html
- Vue
  - Wrapper
  - Build target
- Svelte
  - Componentes com opção `tag`



# Empacotar WebAssembly



 unity WebGL

Tanks! 

**Obrigada(o)!**

**Perguntas?**

# Referências

- [caniuse.com](https://caniuse.com)
- <https://www.webcomponents.org/>
- <https://cli.vuejs.org/guide/build-targets.html#web-component>
- <https://svelte.technology/guide#custom-elements>
- <https://micro-frontends.org/>
- <https://medium.com/coinmonks/develop-w3c-web-components-with-webassembly-d65938284255>
- <https://itnext.io/the-promise-of-webcomponents-webassembly-ad26af56fcf1>