

# WEBCOMPONENTS

## INTRODUCTION

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- Software Engineer
- Instructor
- Speaker



[www.fihlon.ch](http://www.fihlon.ch) | [github.com/McPringle](https://github.com/McPringle) | [hackergarten.net](http://hackergarten.net)

# AGENDA

Intro

Specifications

Status

Demo

Wrap-up

## INTRO

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“Web Components are a set of standards currently being produced by Google engineers as a W3C specification that allow for the creation of reusable widgets or components in web documents and web applications. The intention behind them is to bring component-based software engineering to the World Wide Web. The components model allows for encapsulation and interoperability of individual HTML elements.”

Wikipedia

- New W3C Standard
- Allows reuse of components
- The standard is divided into four specifications:
  - Templates
  - Shadow DOM
  - Custom Elements
  - Imports
- A Web Component uses well-known technologies:
  - HTML
  - CSS
  - JavaScript

## SPECIFICATIONS

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# TEMPLATES

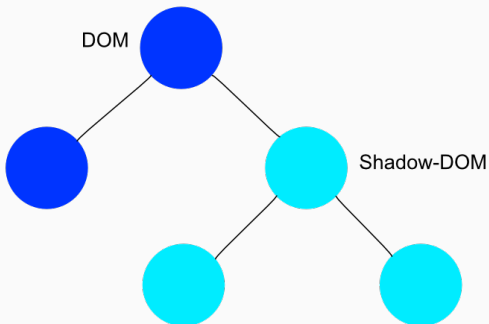
- Defines HTML parts to be reused any number of times
- Define reusable parts directly inside of HTML documents
- Is defined by the new `<template>` tag
- Can be added to the DOM using JavaScript
- Unlimited number of templates possible

```
1 <template id="my-template">
2   <div>
3     
4   </div>
5 </template>
```



# SHADOW DOM

- Create an independent sub-DOM
- Not accessible from “outside” of the sub-DOM
- Avoids DOM collisions between components
- No side-effects of CSS or JavaScript between components
- Can be added to the DOM using JavaScript
- Unlimited number of Shadow DOMs possible



## CUSTOM ELEMENTS

- Connect template and shadow DOM
- Define reusable components
- Create own tags to produce readable HTML
  - own tags need to include a hyphen
- Apply styles inside of the custom element
- Use JavaScript for interaction
- Throws lifecycle events:
  - created, ready, attached, detached, attributeChanged

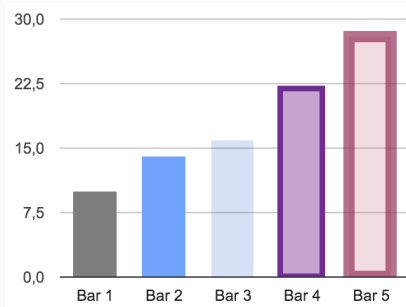
```
1 <google-hangout-button />
```



# IMPORTS

- Outsourcing of HTML parts
- Create own HTML files for components (higher reusability)
- Add components to HTML documents using imports

```
1 <link rel="import" href="google-chart.html">  
2 <google-chart type="column" data="chart.json" />
```



STATUS



	Chrome	Opera	Firefox	Safari	IE/Edge
Templates	✓	✓	✓	✓	✓
Shadow DOM	✓	✓	▲	▲	✗
Custom Elements	✓	✓	▲	✗	✗
Imports	✓	✓	▲	✗	✗

## Polyfills

```
1 bower install webcomponentsjs
2 npm install webcomponents.js
```

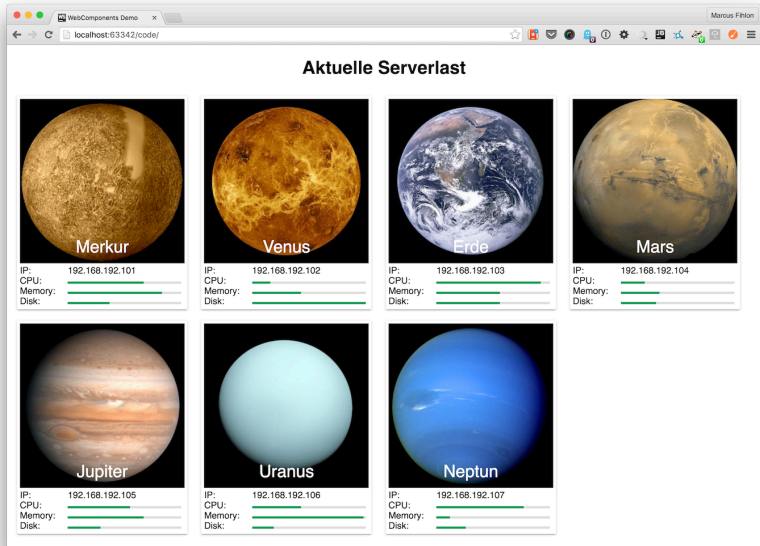
## Libraries

- Polymer
- X-Tag
- Bosonic

DEMO



# SCREENSHOT OF DEMO APPLICATION



## WRAP-UP

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### Web Components...

- are **declarative** and **reuseable**
- are **combinable** and **extensible**
- are **interoperational** – DOM = common demoninator
- allow **encapsulation** – scoping
- increase **productivity** and **accessibility**
- are **standard**
- support **thinking in components**

# QUESTIONS

