

Web Components

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Repo with course files, accompanying YouTube videos as well as these slides:

<https://github.com/iwswordpress/>

58 in human years – 243 in tech years

Where/what were you in 1979?

My start in computing at school in **1979**

Still find tech hard!



1980: At University, I studied Chemistry and used MS-DOS, client/server main frame systems.

ZX-Spectrum computer and Jupiter Ace.



Source:Wikimedia Commons

In this talk...

- What is a Web Component?
- How do we use them?
- How we make them:
 - - with build tools (not frameworks).
 - - using frameworks.
- Using Web Components as interconnected micro apps/services.
- Use them as business widgets for not-tech users.
- Open a conversation about state of JS world...

Who uses Web Components?

- Google 20,000+.
- Google Accelerated Mobile Pages.
- Salesforce.
- Onsen UI library.
- **Ionic and Ionic/ReactJS/Angular** (Ionic Apps with Capacitor can run on iOS, Android, Web and Electron). *'Write once, run anywhere...'*

International JS Conference London 2018 – Key Note Speech

<https://www.youtube.com/watch?v=1KJQurclLdw>

Web Components & Micro Apps: Angular, React & Vue peacefully united?



International
JavaScript
Conference

**Angular, React, Vue
and Co. - peacefully
united thanks to Web
Components and Micro
Apps**

Manfred Steyer
SOFTWAREarchitekt.at



Micro Apps/Services

Micro App:

A microapp is an interactive software module designed to perform like a full coded application or website. (Wikipedia)

Micro Service:

A self-contained piece of business functionality with clear interfaces - "Do one thing and do it well".
(Paraphrased from Wikipedia)

Or...

Microservices at Amazon *Docs for all their Microservices*



Service-Oriented Architecture
(SOA)

Single-purpose

Single Purpose

Connect only through APIs

Connect only through APIs

Connect over HTTPS

Connect over HTTPS

"Microservices"

= "MICROSERVICES"



Darin Briskman

AWS Developer Evangelist

www.JSconf.demo

Create an app that **finds** all conferences, enables **booking place**, booking **flight and hotel** along with a **travel blog** of that **city**. Finally, does some very heavy calculations on which attendees one will have things in common:

- <show-all-conferences /> 'Angular'
- <select-book-place /> 'Vue'
- <book-flight-hotel /> 'React'
- <show-blog-for-city /> 'WordPress'
- <show-people-connections /> 'Web Assembly'

Business has some web dev skills to configure and connect them.

What is HTML?

`CLICK EVENT`

props

built-in click method

slot api

MY FRAME:

It is like `<a>` is syntax to create an instance of a class, `HTMLAnchorElement`, which can then have its methods and properties used:

`<a> === objA = new HTMLAnchorElement`

Thus with web components in `index.html` we can do the following:

`document.querySelector('my-webcomponent').method()`

<https://developer.mozilla.org/en-US/docs/Web/API/HTMLAnchorElement>

What is a Web Component?

```
<my-component> </my-component>  
  <script src="file.js"> </script>
```

- Must contain at least one hyphen.
- Use just like any HTML tag.
- They extend **HTMLElement** class.
- Hybrids is a non-class based library - <https://hybrids.js.org/>
<https://www.webcomponents.org/>
<https://custom-elements-everywhere.com/>
(Making sure frameworks and custom elements can be BFFs)

COMMUNICATION

PROPS DOWN

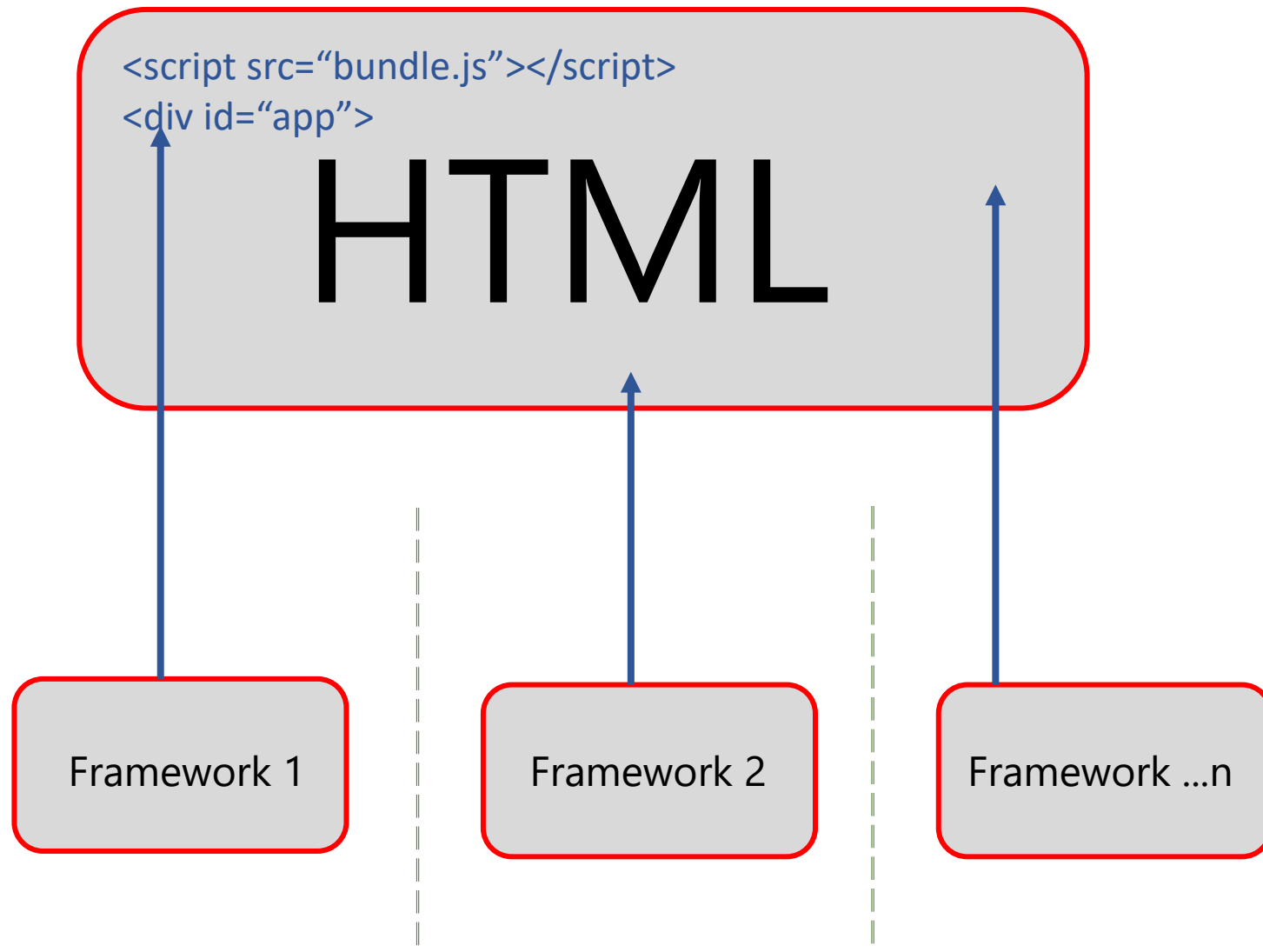
Demo: 06-library/01-ndc-show-post

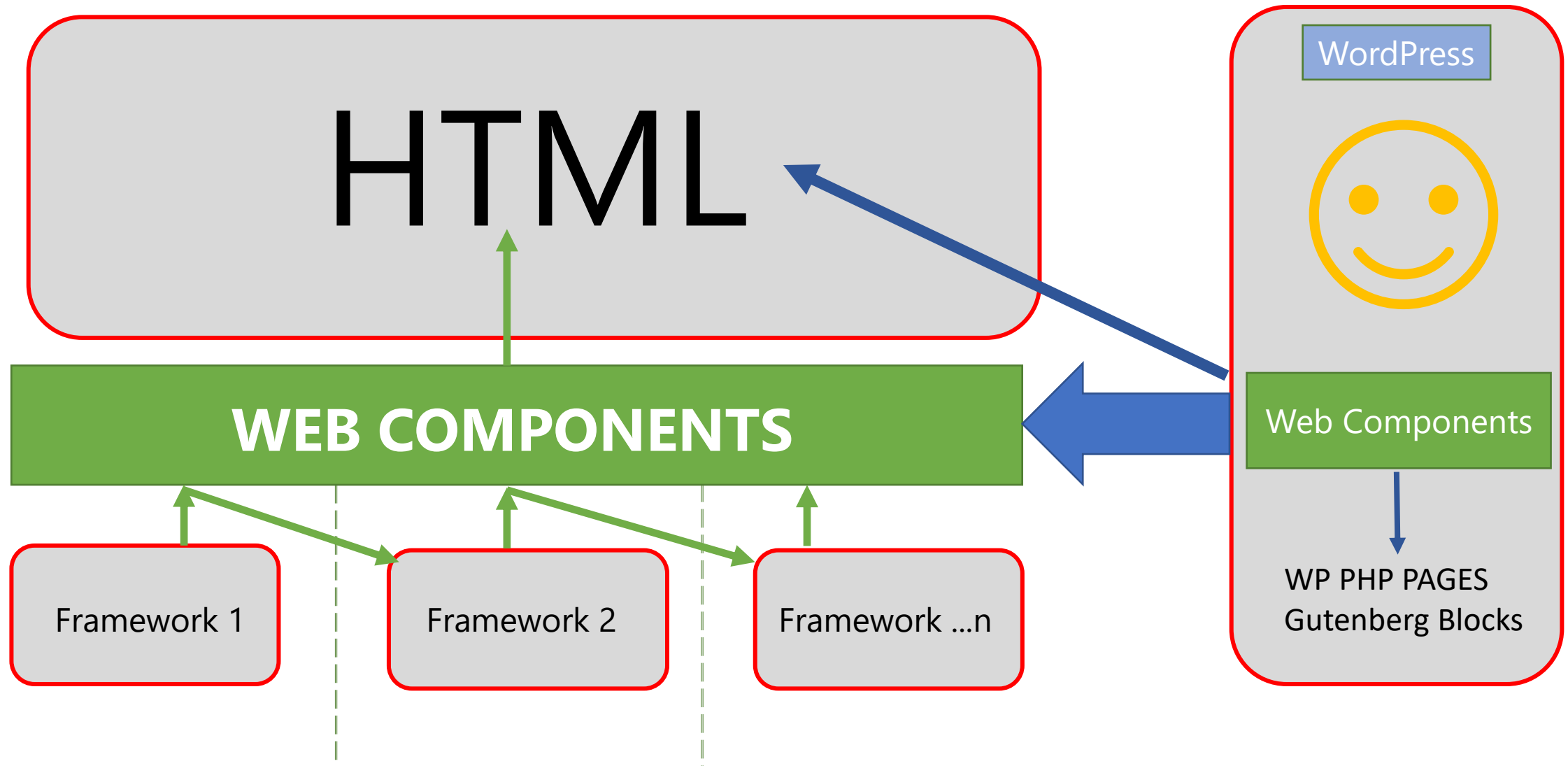
EVENTS UP

Demo: 05-events/15-child-to-parent

We use JS Custom Events to send event and data.

NB Methods and properties on components can be directly accessed.
This would be a design choice as components tend to use props down events up, rather than sibling to sibling.





Types of components

These are only limited by JS.

We will look at couple of UI components and many more highly functional components that have built in:

- Fetch requests.
- Lazy loading and dynamic loading (scripts/components).
- Storing JSON in IndexedDB and rendering it via templates.
- Authentication and storage of JSON Web Tokens.
- Added offline capability and 'instant' pages.

Let's see an example: <https://49plus.co.uk/udemy-webcomponents/>
(Vanilla JS)

Build tools

JS compilers (not frameworks):

- Stencil JS (Part of Ionic)

- Lit Element/Lit HTML

- Svelte

- Open WC

Wrappers:

- Vue, Angular, React etc have builds that add a web component wrapper.

Deployment

How to deploy Web Components as a third party:

- In HTML pages as we have seen.
- NPM
- In Angular, Vue, React etc. There are well documented procedures.

(<https://stenciljs.com/docs/framework-bindings>)

Framework integration...

Your thoughts...

SUMMARY

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