Web Components

Craig West

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!

Source:Wikimedia Commons

Source:Wikimedia Commons

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…

International JS Conference London 2018 – Key Note Speech

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

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...

aws DEV DAY 2018

Microservices at Amazon

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

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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:

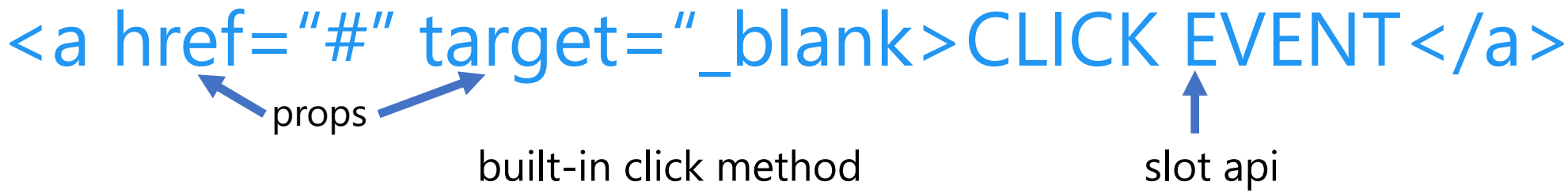
- <show-all-conferences /> ‘Angular’
- <select-book-place /> ‘Vue’
- <book-flight-hotel /> ‘React’
- <show-blog-for-city /> ‘WordPress’
- <show-people-connections /> ‘Web Assembly’

Web Components

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...'*

What is HTML?



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></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

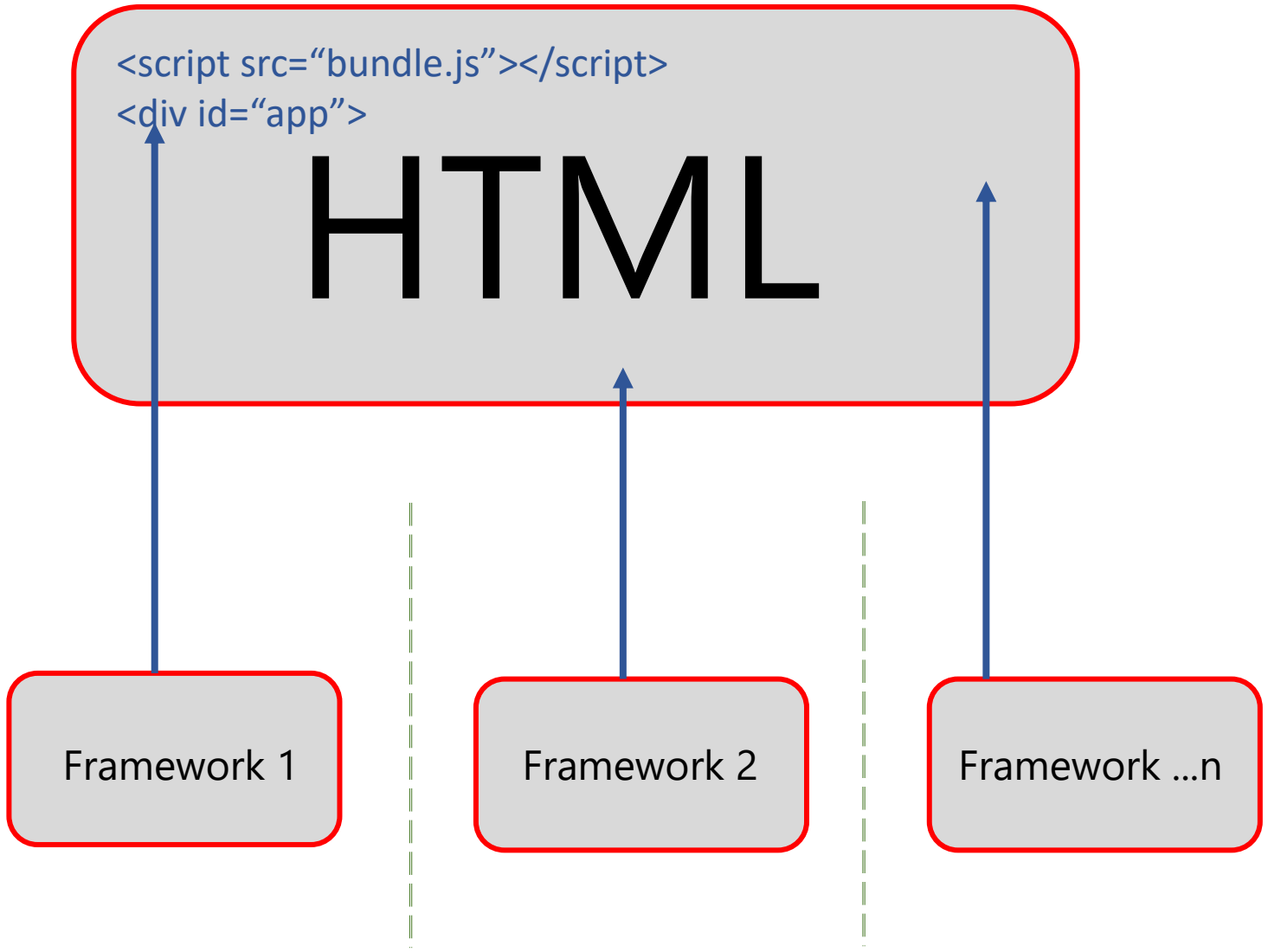
Demo: 06-library/01-ndc-show-post

EVENTS UP

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

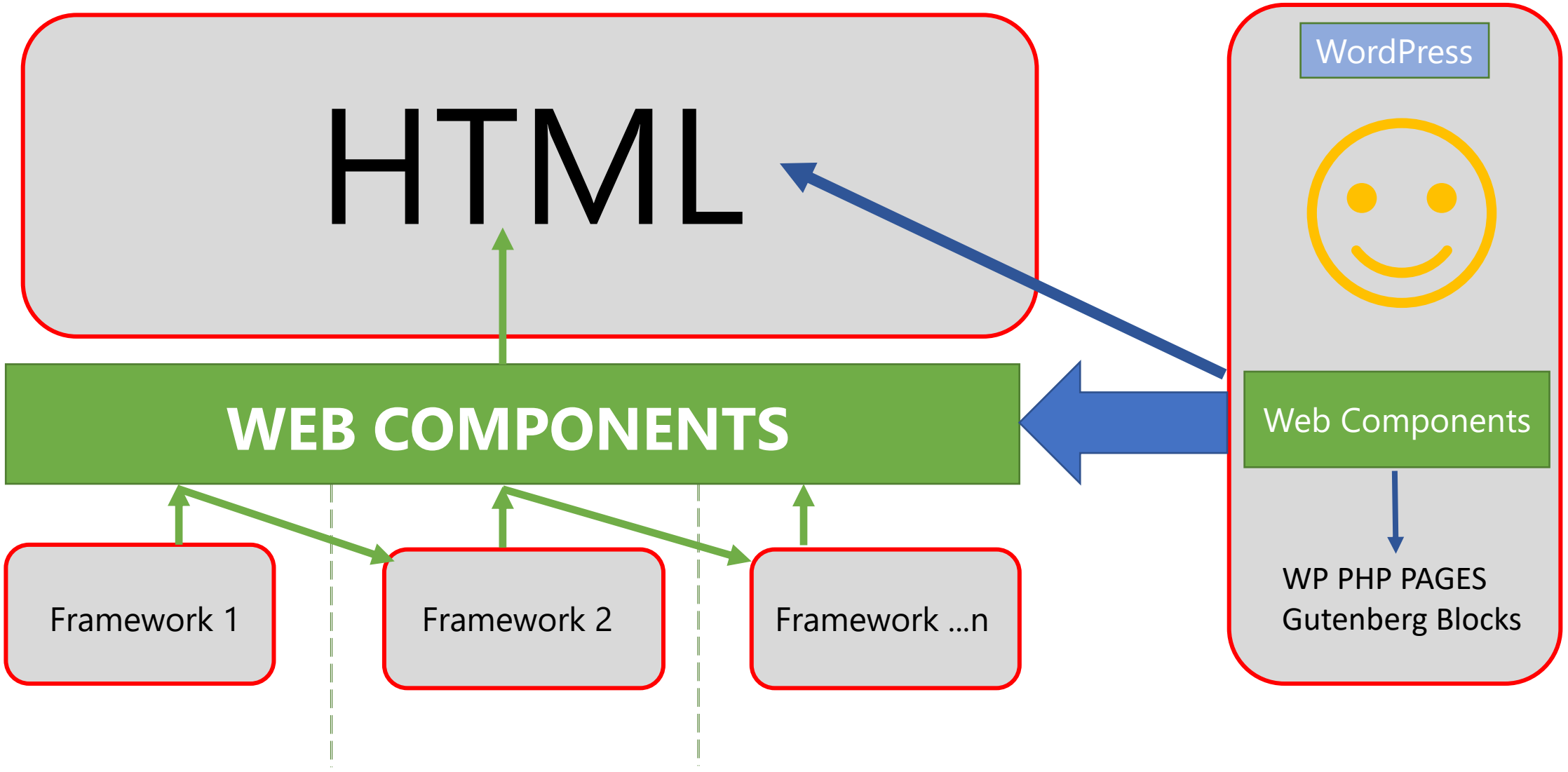
We use JS Custom Events to send event and data.

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.


<script src="bundle.js"></script>

HTML
Framework 1
Framework 2
Framework ...n

WordPress


HTML
WordPress
WEB COMPONENTS
Web Components
Framework 1
Framework 2
Framework ...n
WP PHP PAGES
Gutenberg Blocks

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.

SUMMARY

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