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 do we make them:
- - with build tools (not frameworks).
- - using frameworks.
- Using Web Components as interconnected micro apps/services.
- 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

Connect only through APIs

Connect over HTTPS

"Microservices"

Darin Briskman
AWS Developer Evangelist

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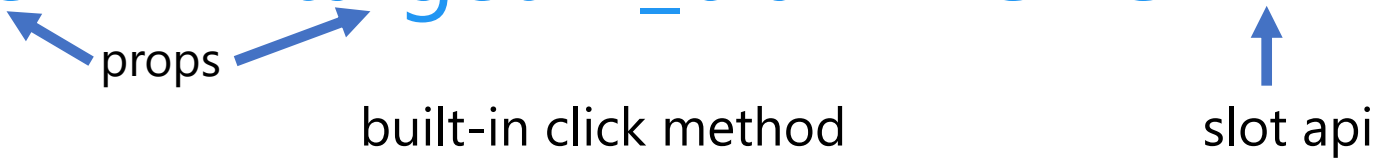
Web Components

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?

<a href="#" target="_blank>CLICK EVENT</a>



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

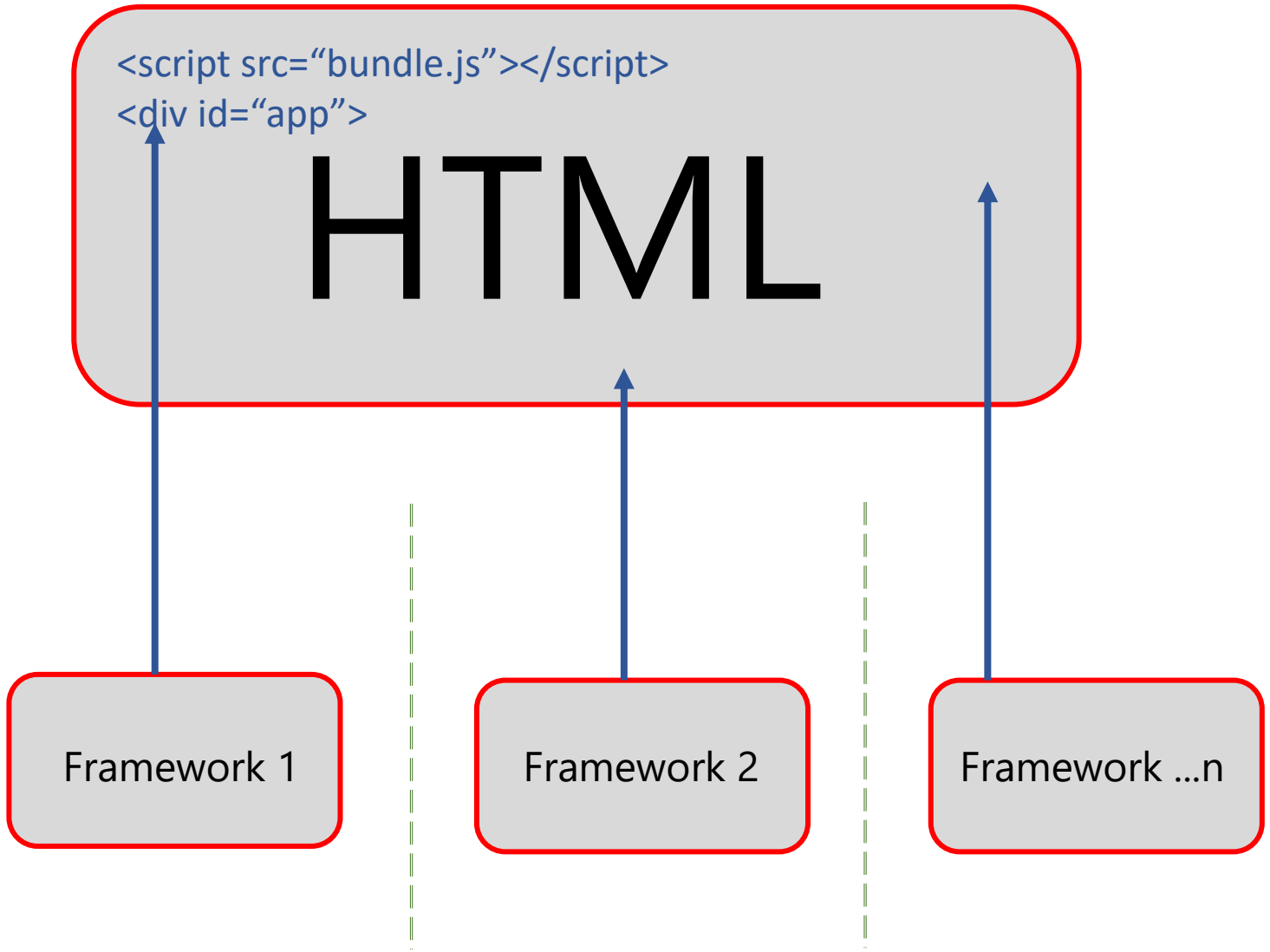
Demo: 06-library/01-ndc-show-post

EVENTS UP

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

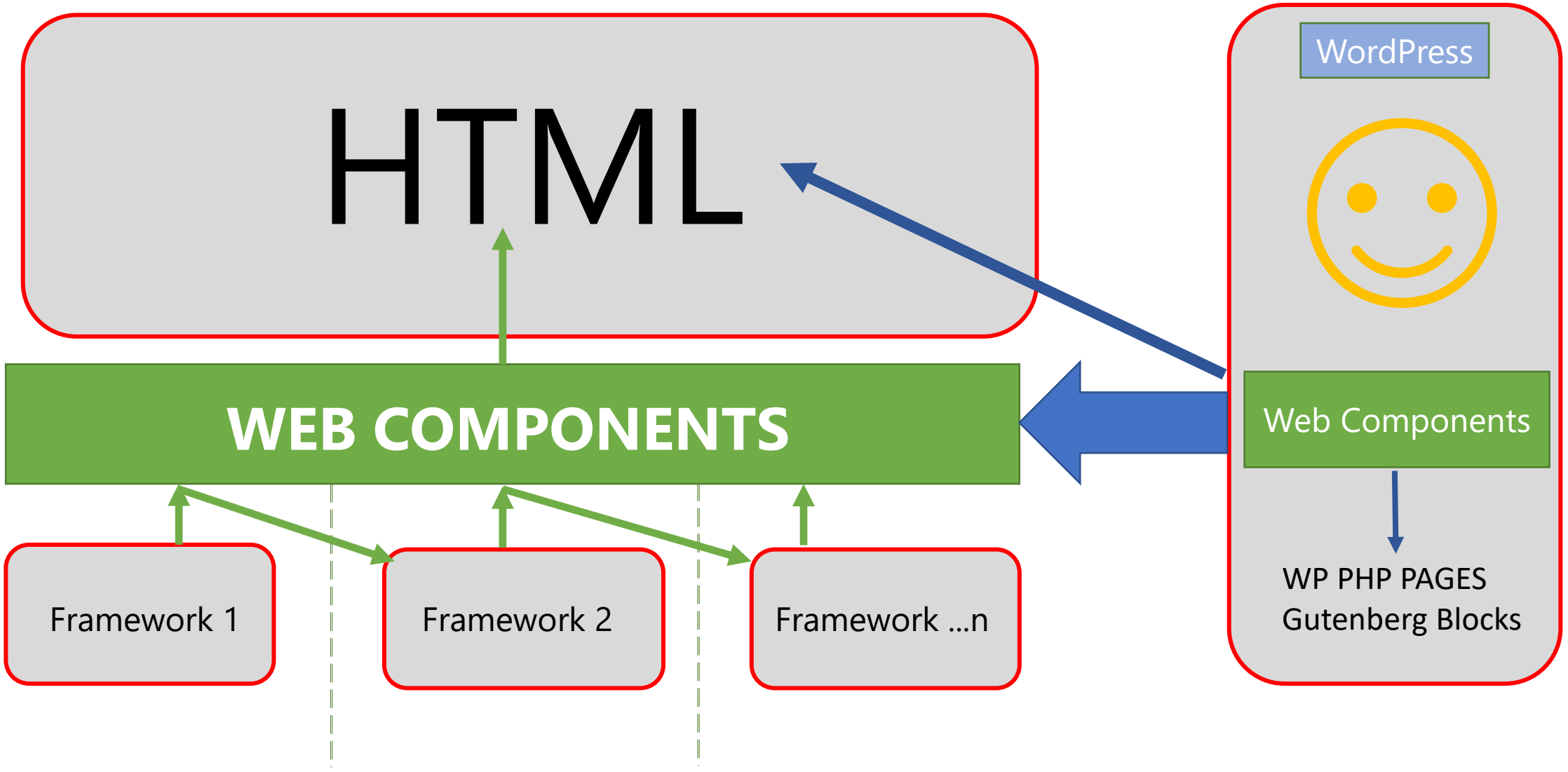
We use JS Custom Events to send event and data.

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

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.

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)

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

Craig West
wpjs.co.uk
craig@wpjs.co.uk