Introduction to building Polymer web components

with Alex Bowen

@alfonsob8 

alexbowen123 

What are web components?

Shadow DOM gives us the best features of iframes, style and markup encapsulation, without nearly as much bloat.

look at W3C page and inspect

We create a custom element (the actual registration of it on the DOM happens behind the scenes in that case. Polymer takes care of it.), we use HTML Template to define our custom elements template, which gets later injected into its Shadow DOM. And finally, to actually use our element, we import it with HTML Imports.

Anatomy of a web component

```
<element name="my-own-tag">
 <template>
   // HTML elements
 </template>
 <script>
   // JavaScript logic
 </script>
</element>
```

Whereas many web frameworks expose JavaScript APIs to build user interfaces, which under the hood generate a bunch of divs and spans to implement the control, Web Components are a browser-native solution and therefore do not rely on a comprehensive framework.

Create Dynamically

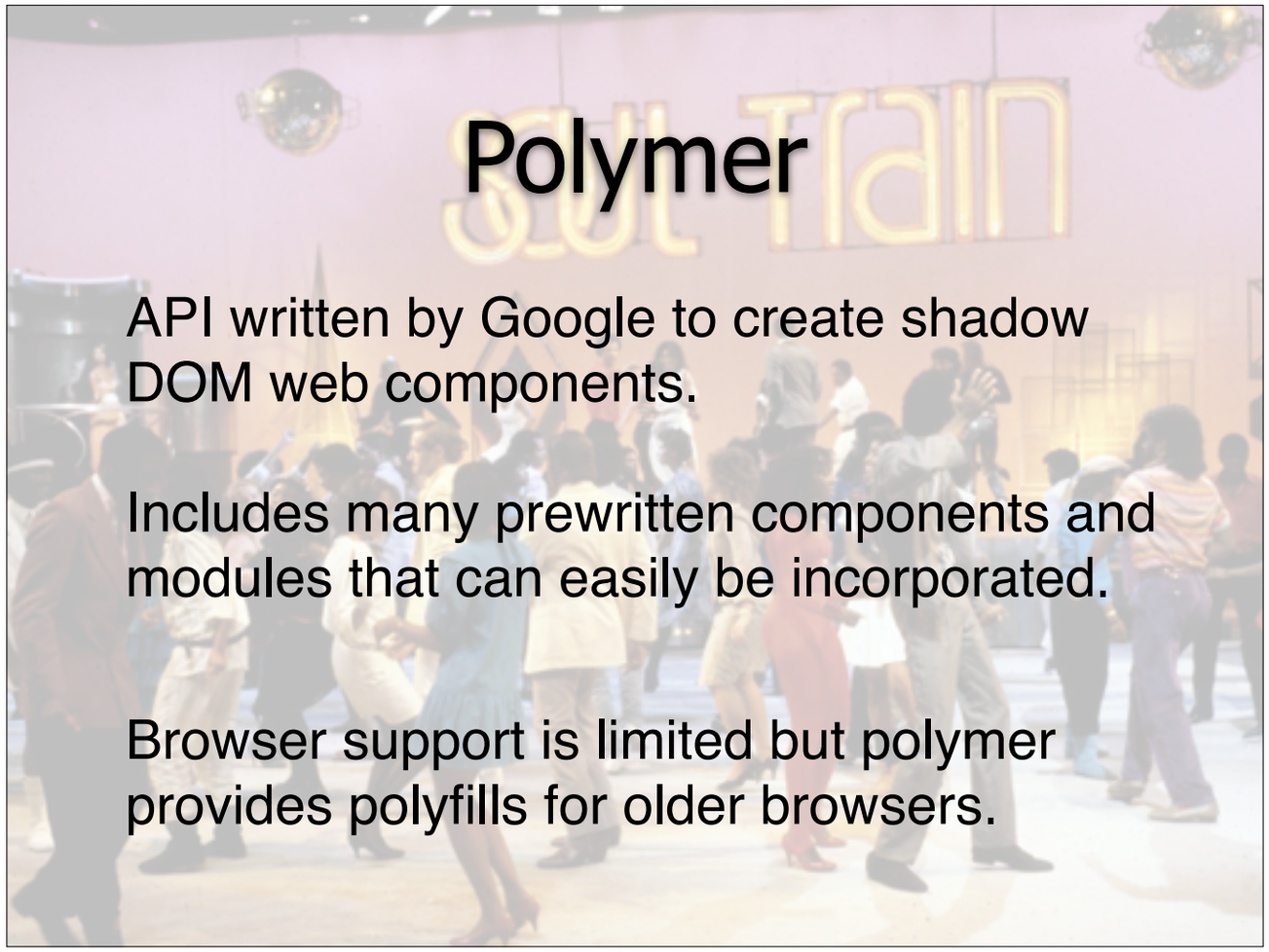
var sr = DOMelement.createShadowRoot();

Shadow root is protected from the parent document
by an invisible barrier called the Shadow Boundary

sr.AC(doc.QS('#template')).content.cloneNode(true);

The document fragment returned by createShadowRoot is known as the Shadow Root.

The shadow boundary creates the encapsulation and prevents CSS and Javascript from parent DOM



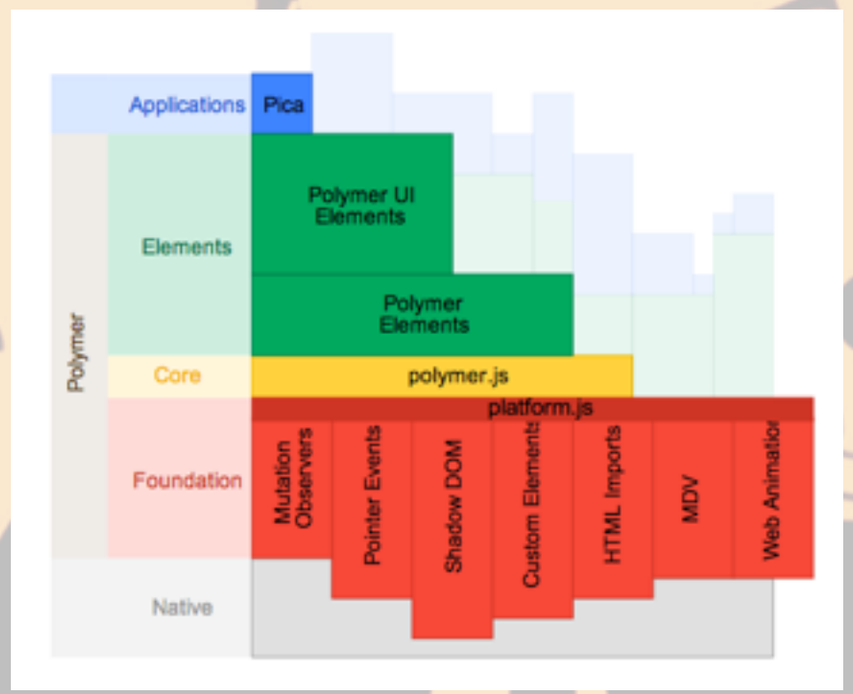
- an api to the 4 building blocks of web components. polymer implements all these under the hood but provides a declarative way to do this
- We will see this shortly when we code our example
- more support more polyfills more javascript and IE8 no

Polymer polyfills

HTML imports
Custom Elements
Shadow DOM
Model Driven Views
Web Animations
Pointer Events

- a way to include and reuse HTML documents inside of other HTML documents.
- enables developers to define and use custom DOM elements.
- provides encapsulation in the DOM.
- provides AngularJS-like data binding.
- APIs to implement complex animations.
- unifies events for mouse, touch and pen.

Architecture



platform.js contains polyfills

Polymer Alternatives

Biosonic (Ind)

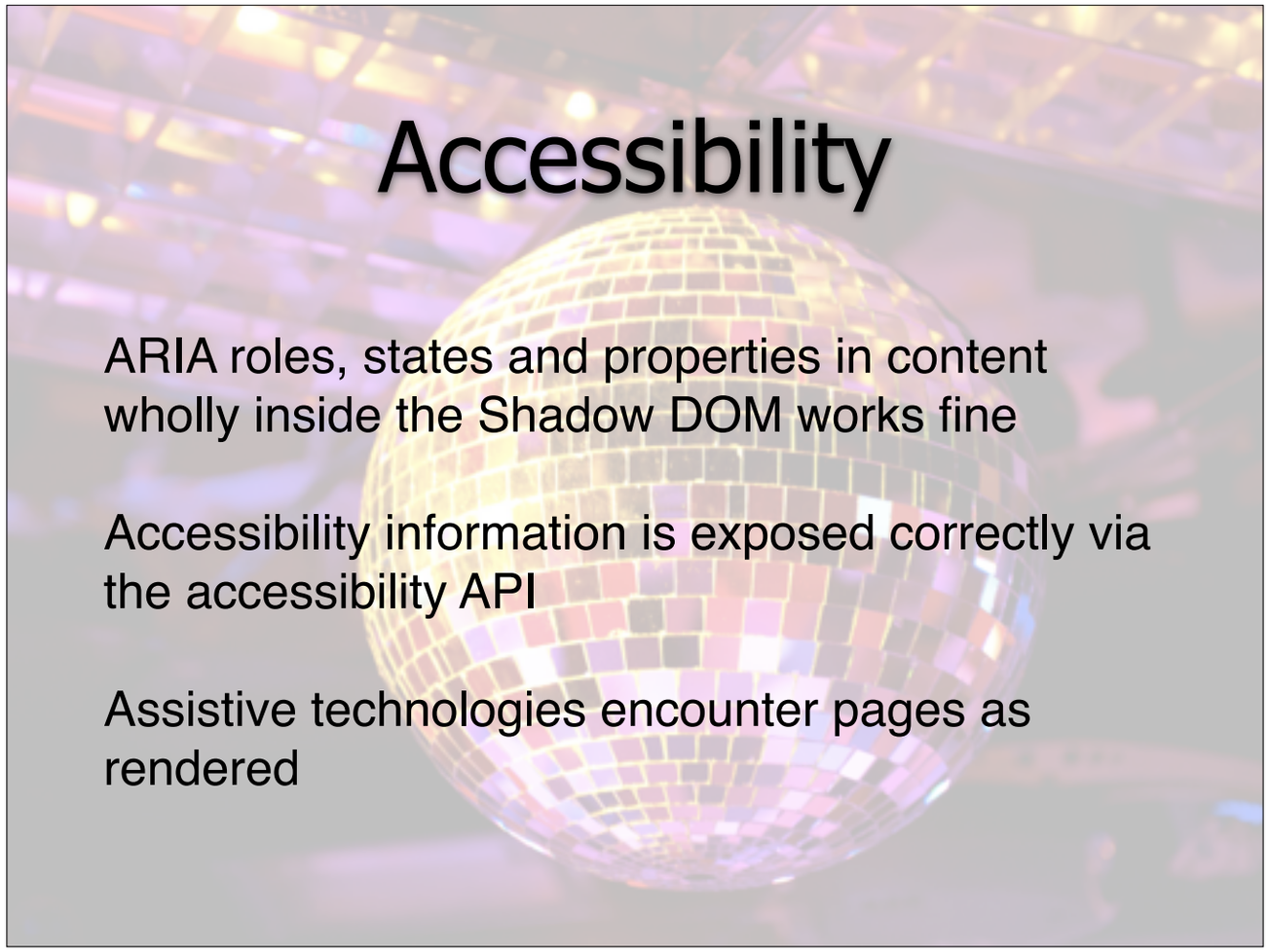
http://bosonic.github.io/

X-Tag (Mozilla)

http://www.x-tags.org/

UI Web Package (Dart)

https://www.dartlang.org/articles/web-ui/

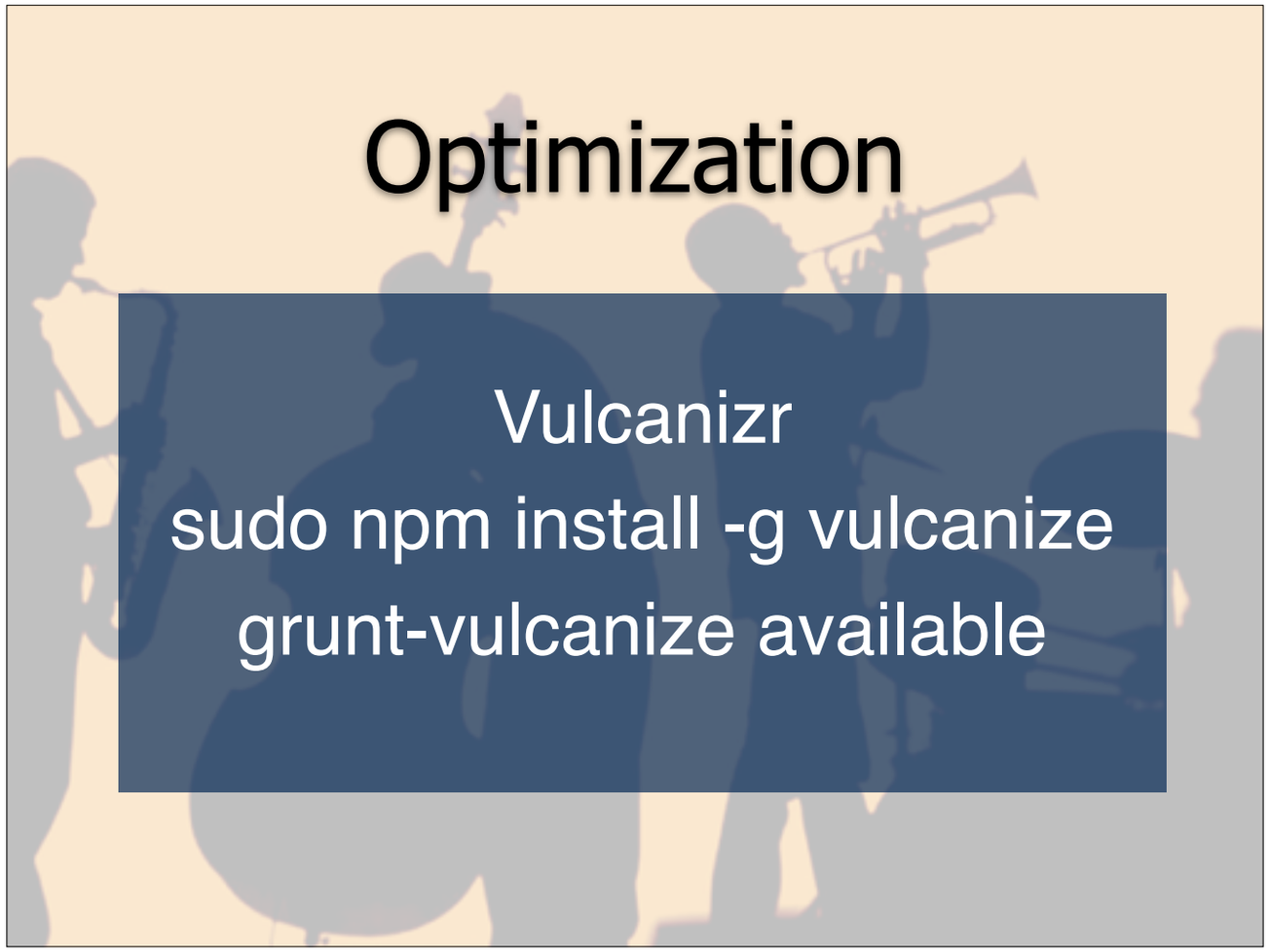


The accessibility information is exposed correctly via the accessibility API

Screen readers can access content in the Shadow DOM without issue

meaning the entire document is read as “one happy tree”

Optimization



if you have many web components on a page in an application obviously you can be importing many assets and hence http requests

Useful links

http://webcomponents.org/

http://w3c.github.io/webcomponents/explainer/

https://github.com/addyosmani/polymer-grunt-example

https://github.com/yeoman/generator-polymer/

git clone https://github.com/alexbowen/imageLinks.git

3 or 4 min break