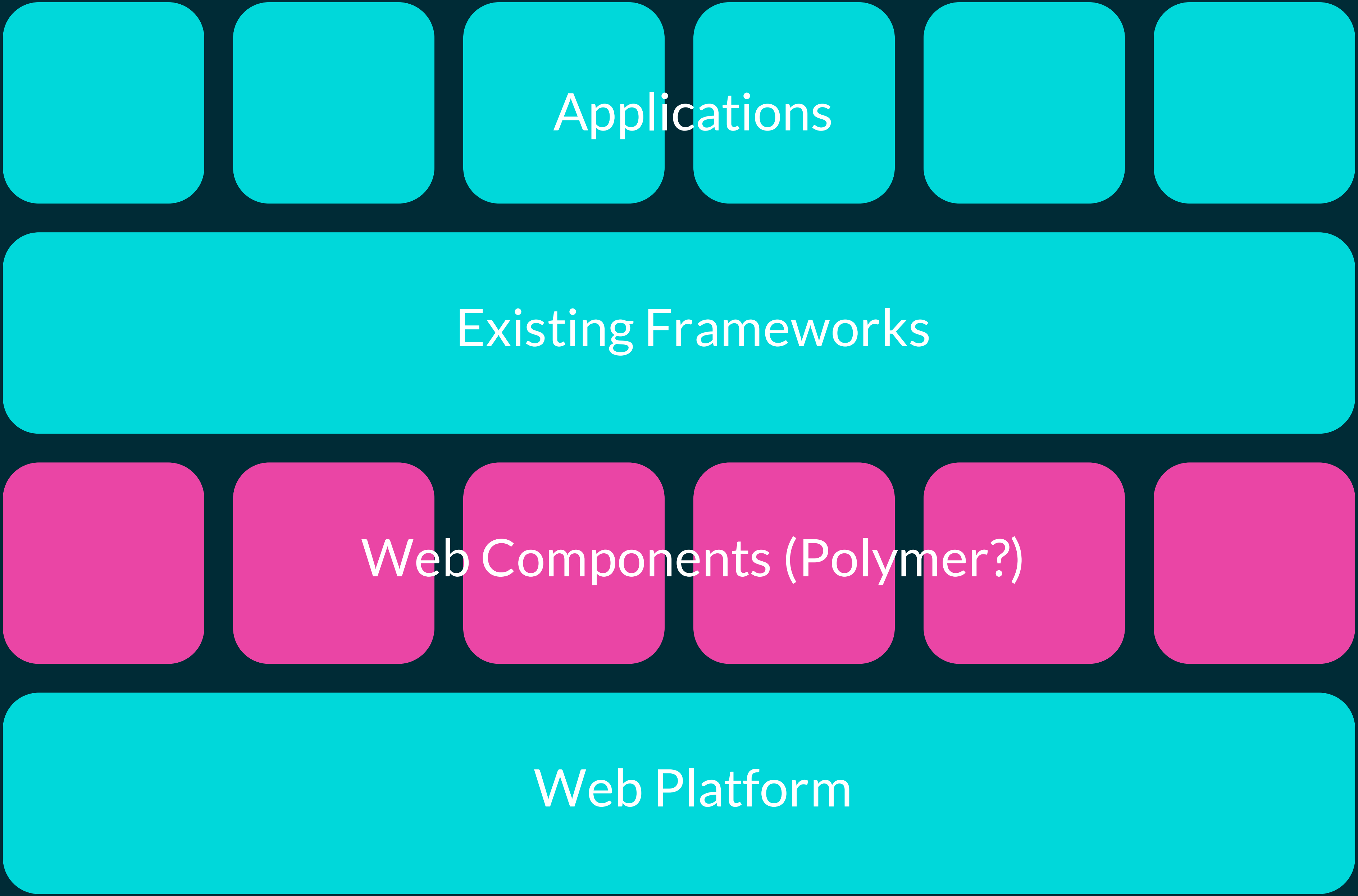
POLYMER & WEB COMPONENTS

GETTING STARTED WITH POLYMER

Pete Johanson / @petejohanson



Applications

Existing Frameworks

Web Components (Polymer?)

Web Platform

IT'S
NOT
A
FRAMEWORK

NO PANACEA

CONSIDERATIONS

- Progressive Enhancement Challenges
- Server Side Rendering?
- Browser Support

EXISTING APPROACHES

```
<head>
  <link rel="stylesheet" href="//code.jquery.com/ui/1.11.4/themes/smooth
  <script src="//code.jquery.com/jquery-1.10.2.js"></script>
  <script src="//code.jquery.com/ui/1.11.4/jquery-ui.js"></script>
  <script>
  $(function() {
    $( "#menu" ).menu({ disabled: true });
  });
  </script>
</head>
<body>

<ul id="menu">
    <li>Item 1</li>
    <li>Item 2</li>
</ul>
```

POLYMER

```
<head>
    <link rel="import" href="paper-item/paper-item.html">
    <link rel="import" href="paper-menu/paper-menu.html">
<head>

<body>
    <paper-menu selected="1">
        <paper-item>Item 1</paper-item>
        <paper-item>Item 2</paper-item>
    </paper-menu>
</body>
```

FEATURES

- Declared Properties
- Local/Light DOM
- Data Binding
- Events
- Scoped Styles and Custom CSS Properties

DECLARED PROPERTIES

```
Polymer({
    is: 'my-gravatar',
    properties: {
        email: String,
        size: {
            type: String,
            value: ''
        },
        /* ... */
    }
});
```

COMPUTED PROPERTIES

```
Polymer({
    is: 'my-gravatar',

    properties: {
        email: String,
        size: String,
        imgsrc: {
            type: String,
            computed: 'computeImageSource(email, size)'
        }
    },

    computeImageSource: function(email, size) {
        return ...;
    }
});
```

CHANGE NOTIFICATION

Needed for two-way data binding

```
Polymer({
    is: 'my-chooser',

    properties: {
        choice: {
            type: String,
            notify: true,
        }
    },
});
```

LOCAL (SHADOW) DOM

```
<dom-module id="my-gravatar">
    <template>
        <img src="{{imgsrc}}">
    </template>
    ...
</dom-module>
```

AUTOMATIC NODE FINDING

```
<dom-module id="my-gravatar">
    <template>
        <img id="gravatar">
    </template>
    <script>
        Polymer({
            is: 'my-gravatar',
            ready: function() {
                this.$.gravatar.src = '//gravatar.com/avatar/abcdef';
            }
        });
    </script>

</dom-module>
```

DOM MANIPULATION

Local DOM

```
var toLocal = document.createElement('div');
var beforeNode = Polymer.dom(this.root).childNodes[0];
Polymer.dom(this.root).insertBefore(toLocal, beforeNode);
```

Light DOM

```
Polymer.dom(this).appendChild(document.createElement('div'));
var allSpans = Polymer.dom(this).querySelectorAll('span');
```

LIGHT DOM

```
<dom-module id="my-strongbad">
    <template>
        <strong><content></content></strong>
    </template>
    ...
</dom-module>
```

```
<my-strongbad>Deleted!</my-strongbad>
```

DATA BINDING

```
<dom-module id="my-gravatar">
    <template>
        <input type="text" value={{email::input}}></input>
        <input type="text" value={{size::input}}></input>
        <img src="{{imgsrc}}">
    </template>
    ...
</dom-module>
```

ONE-WAY VS TWO-WAY BINDINGS

```
<template>
    <my-gravatar email="[[email]]"></my-gravatar>
</template>
```

```
<template>
    <my-chooser choice="{{choice}}"></my-chooser>
</template>
```

ONE-WAY BINDING

Host-To-Child

```
<template>
    <my-gravatar email="[[email]]"></my-gravatar>
    <input type="text" value="{{email::input}}">
</template>
<script>
    Polymer({
        is: 'my-element',
        properties: {
            email: String,
        },
    });
</script>
```

TWO-WAY BINDING

Bi-directional between child and host

```
<template>
    <my-chooser choice="{{type}}"></my-chooser>
</template>
<script>
    Polymer({
        is: 'my-element',
        properties: {
            type: String,
        },
    });
</script>
```

EVENTS

- Declarative event listeners
- Annotated event listeners
- Custom Event Firing

DECLARATIVE EVENT LISTENERS

```
Polymer({
    is: 'x-custom',

    listeners: {
        'tap': 'regularTap',
        'special.tap': 'specialTap'
    },

    regularTap: function(e) {
        alert("Thank you for tapping");
    },
    specialTap: function(e) {
        alert("It was special tapping");
    }
});
```

ANNOTATED EVENT LISTENERS

```
<button on-click="buttonClick">Click Me</button>
```

EVENT FIRING

```
<dom-module id="x-custom">
    <template>
        <button on-click="handleClick">Kick Me</button>
    </template>

    <script>

        Polymer({
            is: 'x-custom',

            handleClick: function(e, detail) {
                this.fire('kick', {kicked: true});
            }
        });

    </script>
</dom-module>
```

STYLING

SCOPED STYLES

```
<template>
    <style>
        :host { /* Selector to style the host DOM element */
            display: block;
        }

        .content-wrapper > ::content .warning { /* Light DOM */
            color: red;
        }
    </style>

    <div class="content-wrapper"><content></content></div>
</template>
```

CROSS SCOPE STYLES

"Theming"

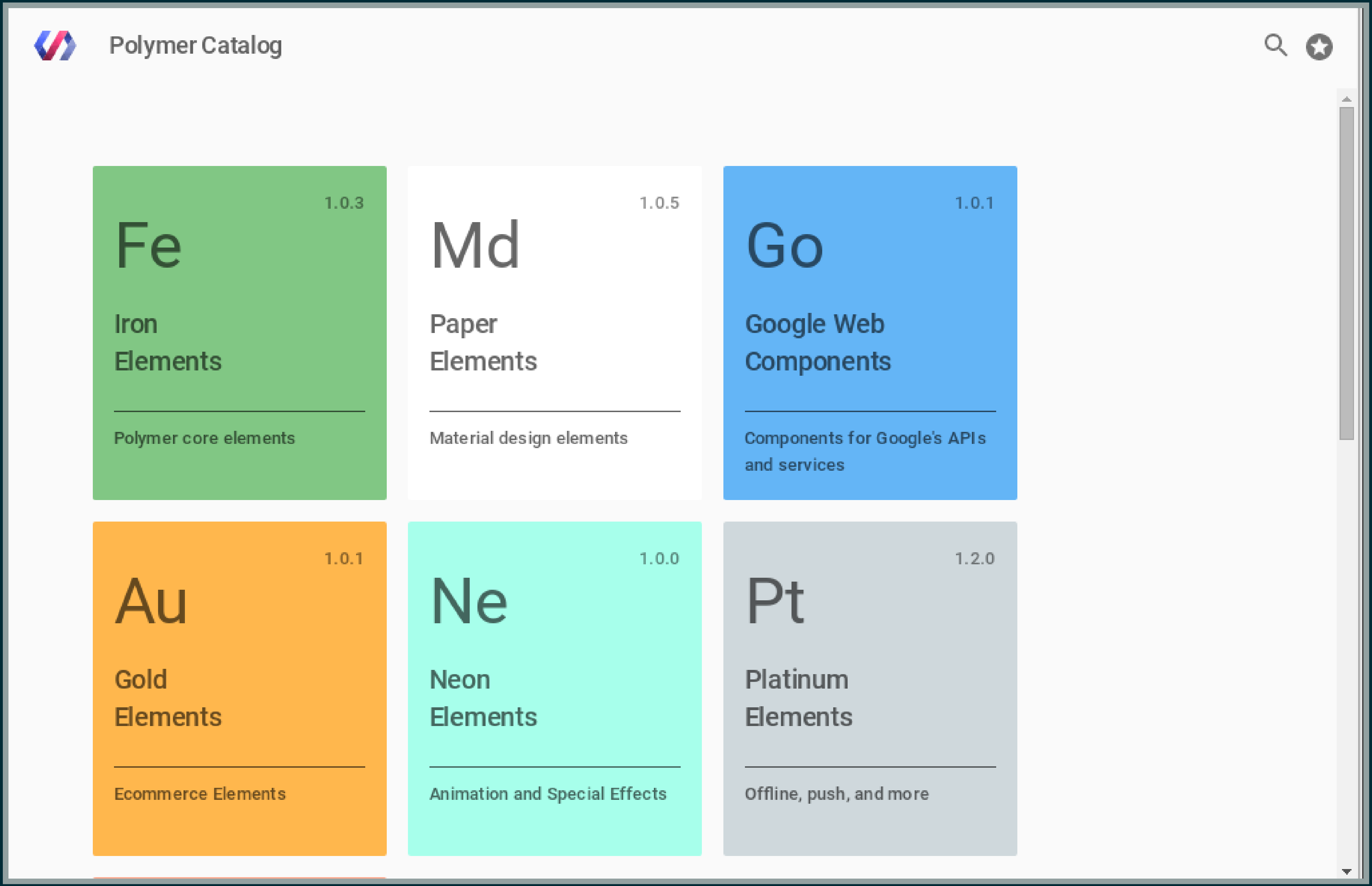
```
<template>
    <style>
        :host { /* Selector to style the host DOM element */
            display: block;
        }

        .content-wrapper > ::content .warning { /* Light DOM */
            color: var(--my-element-warning-color, red);
        }
    </style>

    <div class="content-wrapper"><content></content></div>
</template>
```

CSS MIXINS

```
<template>
    <style>
        :host { /* Selector to style the host DOM element */
            display: block;
            @apply(--my-element-theme);
        }
    </style>
</template>
```

```
<style>
    :host {
        --my-element-theme {
            background-color: green;
        }
    }
</style>
```

ELEMENT CATALOG



Polymer Catalog

1.0.3
Fe
Iron Elements
Polymer core elements

1.0.5
Md
Paper Elements
Material design elements

1.0.1
Go
Google Web Components
Components for Google's APIs and services

1.0.1
Au
Gold Elements
Ecommerce Elements

1.0.0
Ne
Neon Elements
Animation and Special Effects

1.2.0
Pt
Platinum Elements
Offline, push, and more

POLYMER STARTER KIT

- Best Practices Baked In
- Build
- Offline Support
- Testing

```
$ wget https://github.com/PolymerElements/polymer-starter-kit/releases/d
$ unzip polymer-starter-kit-1.0.3.zip
$ cd polymer-starter-kit-1.0.3
$ npm install && bower install
$ gulp serve
```

SLIDES

http://petejohanson.github.io/nerdsummit-2015-polymer