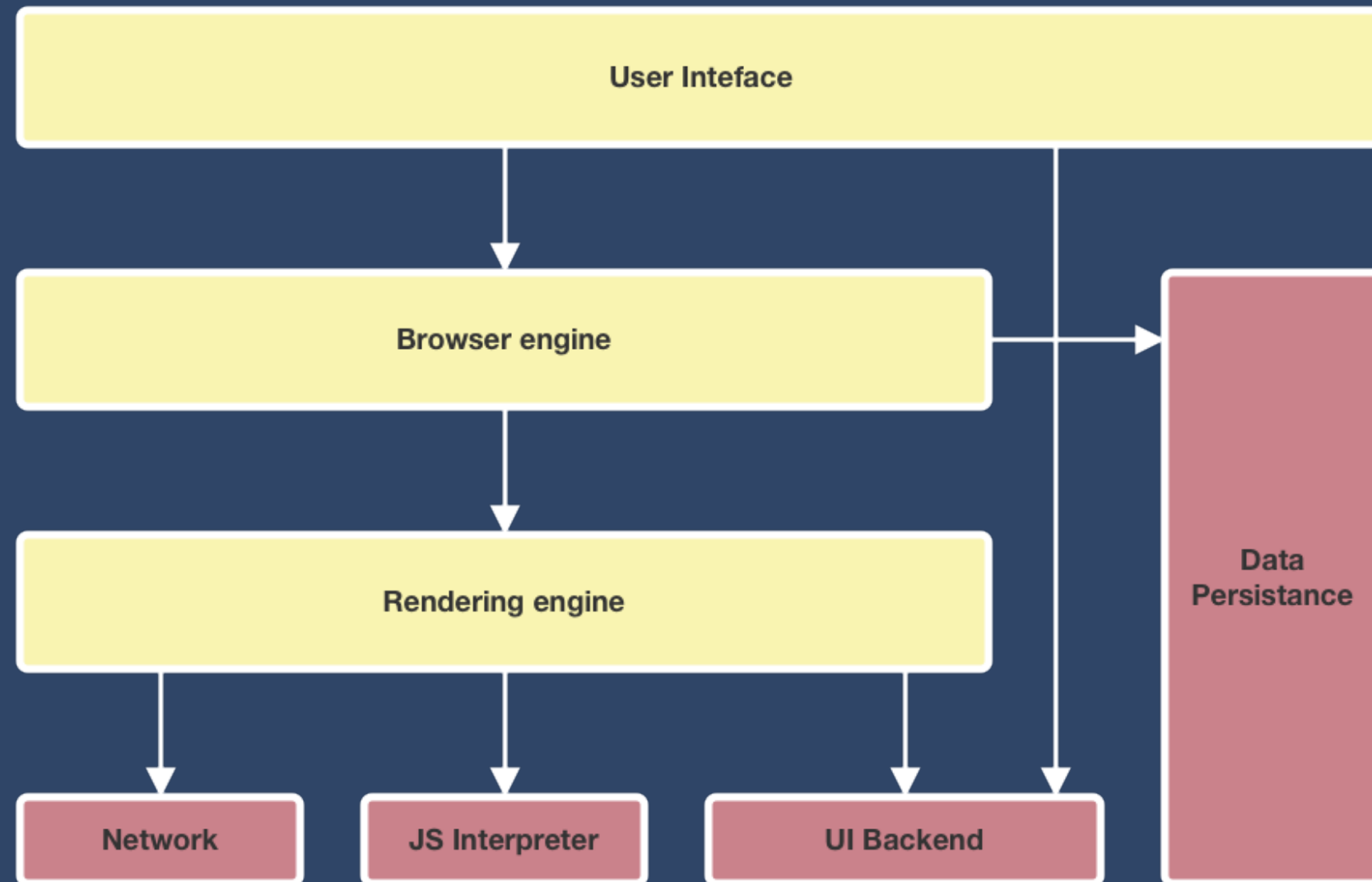


# **03 Frontend**

**Awesome or overkill**

**How work the web**

# What is a browser



# Javascript Engine

Javascript interpreter

- SpiderMonkey
- JavascriptCore
- Chrome V8

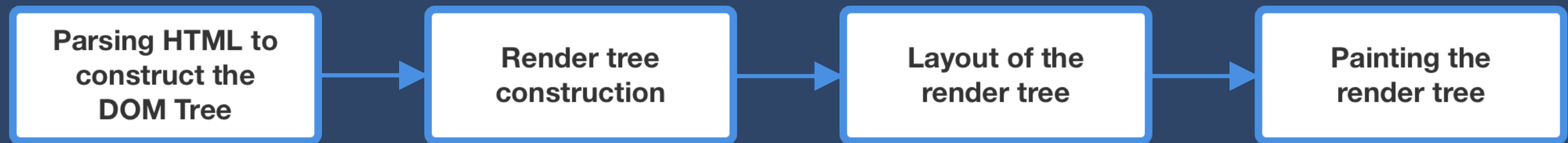
# Data Storage

- localStorage
- IndexedDB
- WebSQL
- FileSystem

# Browser & Renderer Engine

## HTML + CSS Renderer

- Gecko/Quantum
- Wekkit
- Blink



# What is DOM





```
<!DOCTYPE html>  
<html>  
  <body>  
  
    <h1>My First Heading</h1>  
    <p>My first paragraph.</p>  
  
  </body>  
</html>
```

```
<!DOCTYPE html>
<html lang="en"> event défilable
  <head> ... </head>
  <body id="top" class="post-template-default single single-post postid-159225 single-format-standard category-article"> event
    <a id="skip-nav" class="skip-nav screen-reader-text" href="#maincontent">Skip to main content</a>
    <div id="top-of-site-pixel-anchor"></div>
    <header id="site-header" class="site-header"> ... </header> flex
    <div id="all-site-wrap" class="all-site-wrap">
      <script> ... </script>
      <main id="post-159225" class="instapaper_body h-entry e-content">
        <article>
          <header id="maincontent" class="mega-header mega-header-article header-with-bottom-gradient header-breadcrumbs"> ... </header>
          <div class="header-gradient-after"> ... </div>
          <div class="page-wrap page-wrap-single">
            <div class="article-and-sidebar on-light"> grid
              <div class="article-content"> ... </div>
              <aside class="entry-unrelated sidebar">
                <div id="all-ads"></div>
              </aside>
            </div>
          </div>
        </article>
      </main>
      <div class="related-ads-comments-wrap"> ... </div>
    </div>
    <div class="site-footer footer-newsletter"> ... </div>
    <div class="footer-colophon-wrapper"> ... </div>
    <div class="site-footer footer-partners"> ... </div> grid
    <svg width="0" height="0" display="none" xmlns="http://www.w3.org/2000/svg"> ... </svg>
    <svg class="visually-hidden" width="0" height="0"> ... </svg>
    <script type="text/javascript"> ... </script>
    <script type="text/javascript"> ... </script>
    <script src="https://css-tricks.com/wp-content/plugins/bbpress-live-preview-css-tricks/includes/assets/js/scripts.min.js?ver=1.0.0"></script>
    <script type="text/javascript"> ... </script>
    <script src="https://css-tricks.com/wp-content/plugins/wp-polls/polls-js.js?ver=2.75.2"></script>
    <script type="text/javascript"> ... </script>
    <script src="https://css-tricks.com/wp-content/plugins/jetpack-markdown-live-preview-comments/js/markdownify.js?ver=1"></script>
    <script src="https://css-tricks.com/wp-content/plugins/jetpack/modules/widgets/search/js/search-widget.js?ver=7.3.1"></script>
    <script src="https://css-tricks.com/wp-includes/js/wp-embed.min.js?ver=5.1.1"></script>
    <script type="text/javascript"> ... </script>
    <script src="https://css-tricks.com/wp-content/plugins/jetpack/_inc/build/sharedaddy/sharing.min.js?ver=7.3.1"></script>
    <script> ... </script>
    <script type="text/javascript" src="https://stats.wp.com/e-201922.js" async="async" defer="defer"></script>
    <script type="text/javascript"> ... </script>
    <script src="https://css-tricks.com/wp-content/themes/CSS-Tricks-17/js/min/global-concat.min.js?v=3.2"> ... </script>
    <script> ... </script>
    <script async="" src="https://static.codepen.io/assets/embed/ei.js"></script>
    
  </body>
</html>
```

# HTML > DOM



```
<!DOCTYPE html>
<html>
<body>
  <template>
    <h2>Flower</h2>
    
  </template>
</body>
</html>
```



```
<!DOCTYPE html>
<html>
<body>

</body>
</html>
```

# DOM API



```
// Get HTML element
var idElement = document.getElementById("intro");
var tagElement = document.getElementsByTagName("p");
var classElement = document.getElementsByClassName("intro");
var element = document.querySelector("#intro");
// Modify HTML Content
element.innerHTML = "New Heading";
// Modify CSS
element.style.color = "blue";
```

# jQuery



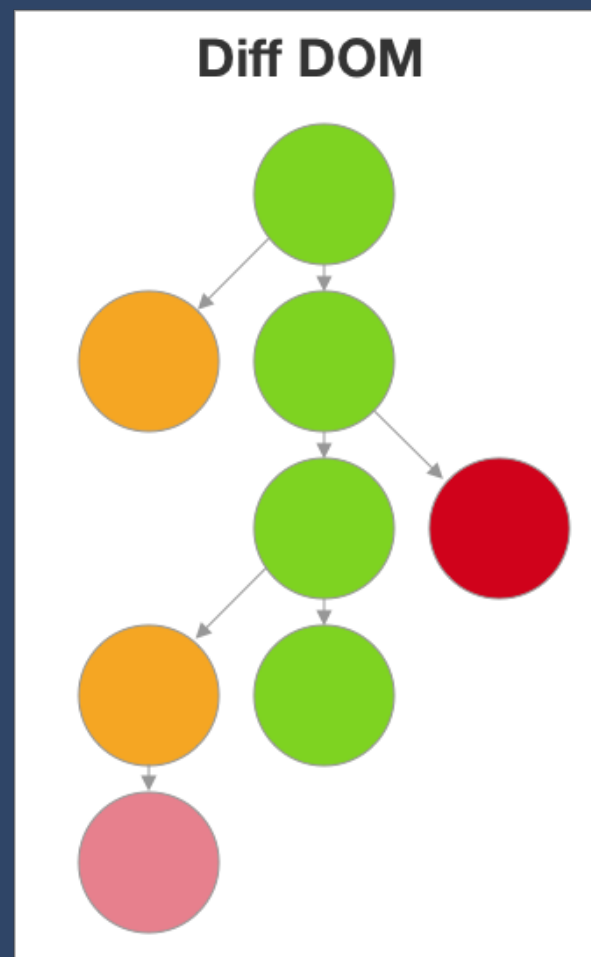
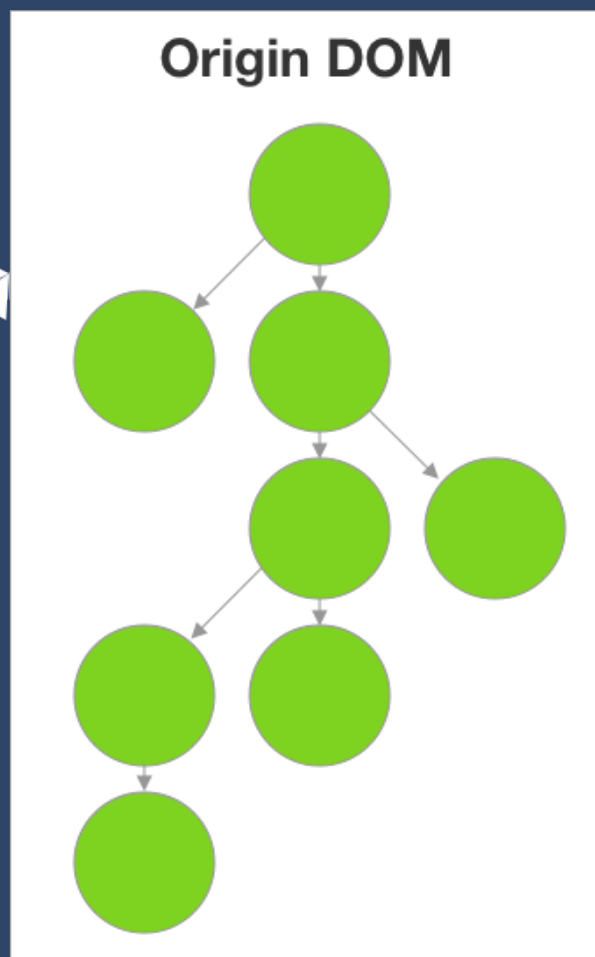
```
$(document).ready(function(){  
    $("p").click(function(){  
        $(this).hide();  
    });  
});
```

# **What is Shadow DOM**

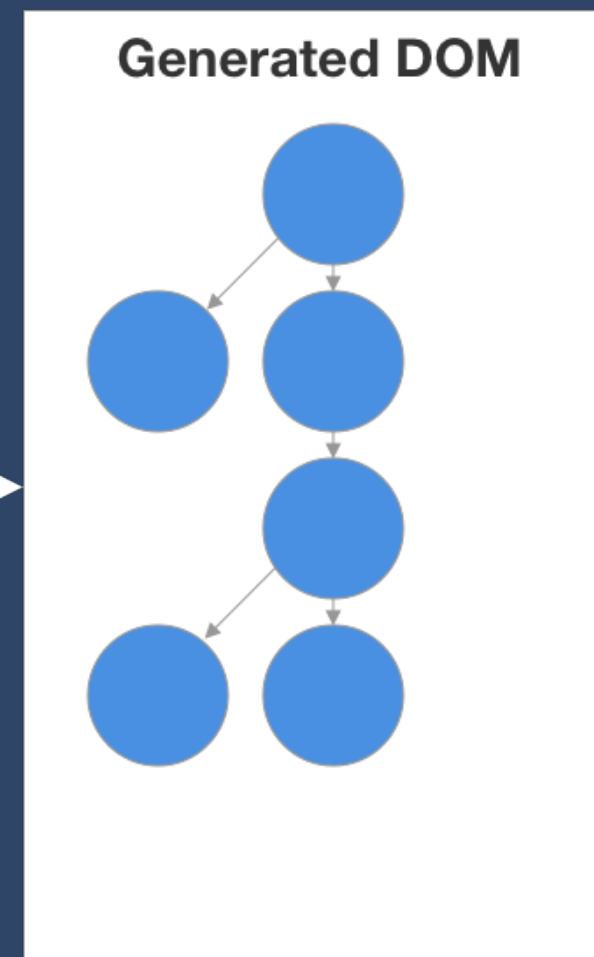
Example

# **What is Virtual DOM**





Apply



# Frameworks

**Angular**



- Created by a google engineer for making internal google project
- 2010: The birth of AngularJS
- 2014–2015: The Great Rewrite
- 2016: The Panic Period
- 2017–2018: Emerging from the rubble
- Now Version 7

- Framework
- Shadow Dom
- Architecture MVC
- 2 way data-binding
- Dependency injection
- Routing
- Testing

# Basics



```
<!doctype html>
<html ng-app="helloApp">
  <head>
  </head>
  <body>
    <h1>Introduction à AngularJS</h1>

    <div ng-controller="helloCtrl">
      <h2>Hello world!</h2>
    </div>

    <script src="https://ajax.googleapis.com/ajax/libs/angularjs/1.2.16/angular.min.js"></script>
    <script src="app.js"></script>
  </body>
</html>
```

# Controller



```
helloApp.controller('helloCtrl', ['$scope', function ($scope) {  
    $scope.name = 'world';  
}]);
```



```
<div ng-controller="helloCtrl">  
    <label>Nom :</label>  
    <input type="text" ng-model="name">  
    <br />  
    <h2>Hello Introduction à AngularJS!</h2>  
</div>
```

# Directives

```
<!doctype html>
<html ng-app="helloApp">
  <head>
  </head>
  <body>
    <h1>Introduction à AngularJS</h1>

    <div ng-controller="peopleCtrl">
      <label>Afficher les personnes ?</label>
      <input type="checkbox" ng-model="showPeople">
      <ul ng-show="showPeople">
        <li ng-repeat="person in people">

          </li>
      </ul>
      <p ng-hide="showPeople">Il n'y a personne de visible.</p>
    </div>

    <script src="https://ajax.googleapis.com/ajax/libs/angularjs/1.2.16/angular.min.js"></script>
    <script src="app.js"></script>
  </body>
</html>
```



# Routing (HTML)

```
<!doctype html>
<html ng-app="helloApp">
  <head>
  </head>
  <body>
    <h1>Introduction à AngularJS</h1>

    <div id="menu">
      <ul>
        <li><a href="#/">Hello</a></li>
        <li><a href="#/people">Liste des personnes</a></li>
      </ul>
    </div>
    <hr />

    <div ng-view></div>

    <script src="https://ajax.googleapis.com/ajax/libs/angularjs/1.2.16/angular.min.js"></script>
    <script src="https://code.angularjs.org/1.2.16/angular-route.min.js"></script>
    <script src="app.js"></script>
    <script src="controllers.js"></script>
  </body>
</html>
```

# Routing (JS)

```
var helloApp = angular.module('helloApp', ['ngRoute', 'helloAppControllers']);

helloApp.config(['$routeProvider', function($routeProvider) {
  $routeProvider.
    when('/', {
      templateUrl : 'hello.html',
      controller: 'helloCtrl'
    }).
    when('/people', {
      templateUrl : 'people.html',
      controller: 'peopleCtrl'
    }).
    otherwise({
      redirectTo : '/'
    });
}]);
```

**VueJS**



- Library
- Virtual DOM + Shadow DOM
- Component based
- HTML syntax
- Easy to learn

Hello.vue

×

```
1 <template>
2   <p>{{ greeting }} World!</p>
3 </template>
4
5 <script>
6   module.exports = {
7     data: function () {
8       return {
9         greeting: 'Hello'
10      }
11    }
12  }
13 </script>
14
15 <style scoped>
16   p {
17     font-size: 2em;
18     text-align: center;
19   }
20 </style>
```

Line 21, Column 1

Spaces: 2

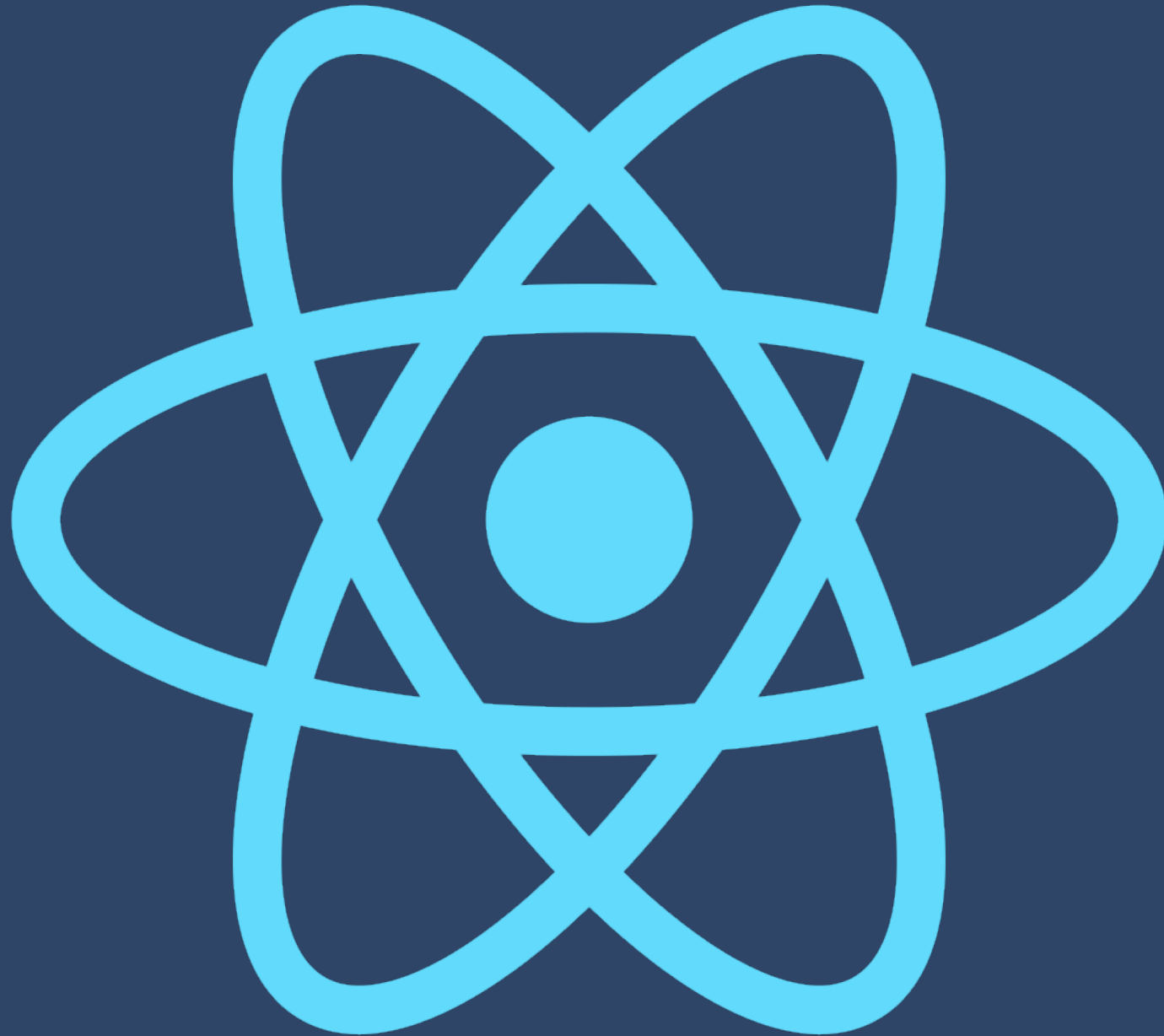
Vue Component

- Vuex
- VueRouter

# Tooling

- Nuxt.js

# React





- Library
- Virtual DOM + Shadow DOM
- Component based
- JS syntax
- Not easy to maintain

- Redux
- reactive flow

# Tooling

- React Native
- Preact
- Next.js