Large Scale JavaScript on Client and Server

Module 1: What is Large Scale JavaScript?

Shawn Wildermuth
Wilder Minds LLC
@shawnwildermuth

pluralsight
hardcore dev and IT training

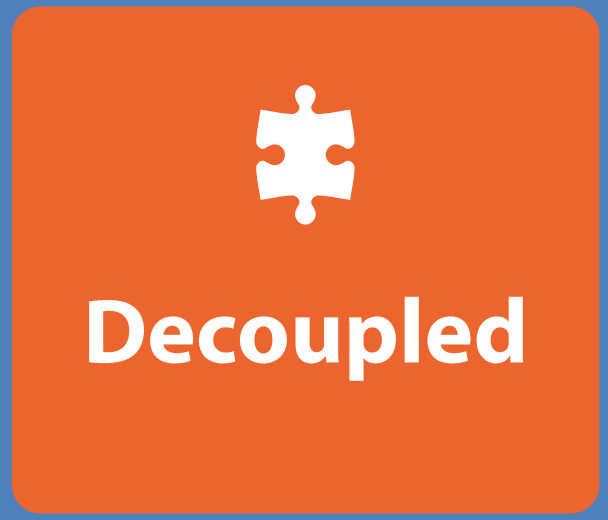
Agenda

- **What is Large Scale JavaScript?**
  - How Large is Large?
  - What's Wrong with JavaScript?
  - DOM-Centric Development
  - JavaScript Libraries vs. Frameworks
  - Impact of Rich JavaScript Applications
  - The Solution
  - Meta-Languages

How Large is Large?

10K+

12 Members



6+ 'Modules'

THIS CAN BE APPLIED TO **ANY SIZE** APPLICATION

BUT IS MOST USEFUL FOR LARGE JAVASCRIPT CODEBASES

> Everything should be made as simple as possible, but not simpler.

— Probably Albert Einstein

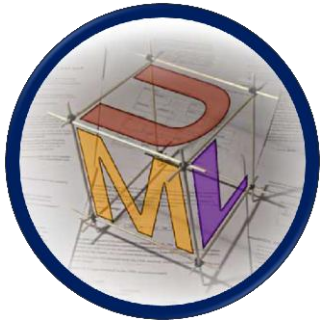
JAVASCRIPT ISN'T DESIGN FOR SCALE

The phrase "Script" is a clue

JAVASCRIPT IS MISSING KEY FEATURES

LACK OF PACKAGING

TOO EASY TO USE GLOBAL NAMESPACE



PROTOTYPICAL INHERITANCE

IMMATURE TOOLING

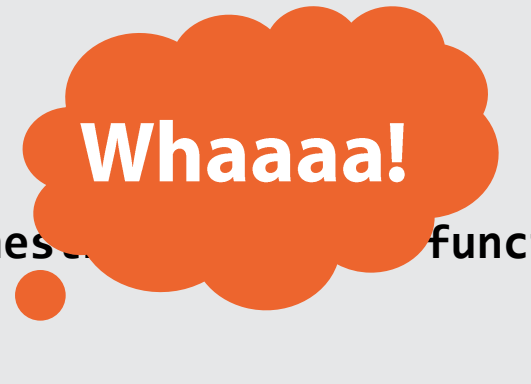
What is Wrong

6,000 More Lines

```
$(document).ready(function () {
  $(".btn").click(function (e) {
    // Some Code
  });

  $("audio").audioPlayer();

  $("#myDialog").dialog();

  $(".approve-comment").click(function (event) {
    var id = $(event.target).attr("commentid");
    $(event.target).hide();
    $.post('/stories/approvecomment?commentid=' + id)
      .success(function (data) {
        if (data) {
          $("#change-status-" + id).text("Comment approved!");
          $("#change-status-body-" + id).hide(500);
```

JavaScript Callback Hell

```
$(document).ready(function () {
  $(".btn").click(function (e) {
    $.get("/foo", function (r) {
      if (r.success) {
        $.get("/bar", function (b) {
          if (b.success) {
            $.post("/quux", { id: 1, body: "nes                    function (p) {
              if (p.success) {
                alert("Wahoo!");
              } else {
                log("bad things happen to good coders");
              }
            });
          }
        });
      }
    });
  });
});
```

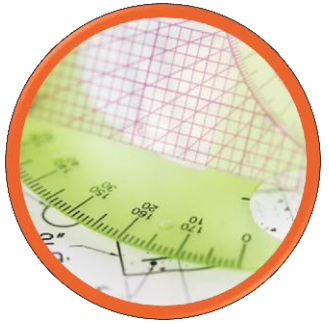


FRAMEWORKS AND LIBRARIES

They aren't the same

FRAMEWORKS

KNOCKOUTJS



ANGULARJS

BACKBONE

EMBERJS

SCALABLE JAVASCRIPT IS NOT A PRODUCT OF A FRAMEWORK

BUT FRAMEWORKS CAN MAKE IT SIMPLER TO BUILD

The Solution

Maintainable

Modularized
Separation of Concerns

Scalable

Compose-able
Loosely Coupled

Testable

Encapsulate
Test Facades

“DON’T SINGLE PAGE APPLICATIONS (SPA) SOLVE THIS FOR ME?”

> Single Page Applications are a misnomer. Apps should include as many pages as necessary, but no more than that.
>
> — Me

Rich Web Applications*

** I use this phrase to mean the same thing as SPA without the implied nature of an actual single page*

META LANGUAGES

ES6

COFFEESCRIPT

TYPESCRIPT

DART

EcmaScript 6

```
class Horse extends Animal {
  constructor(name) {
    super(name);
  }

  move() {
    ...
    super.move();
  }
}
```

CoffeeScript

```
class Horse extends Animal

  constructor: (@name) ->

  move: ->
    alert "Gallops..."
    super 5
```

TypeScript

```
class Horse extends Animal {

  // Property (public by default)
  name: string;

  // Constructor
  // (accepts a value so you can initialize engine)
  constructor(name: string) {
    this.name = name;
  }
}
```

Dart

```
class Horse extends Animal {

  // Constructor
  Horse(this.name);

  void move() {
    super.move();
  }

}
```

Summary

- **What is Large Scale JavaScript?**
  - The idea of what is ‘Large Scale’ is subjective but you can use good technique in either case.
  - JavaScript alone isn’t up to the challenge of large scale problems.
  - Good development practices can solve many of the ills of large scale JavaScript.
  - The key is to be Maintainable, Scalable and Testable.
  - Frameworks and Metalanguages can help, but have to be backed with good development practices!