

# REACT.JS

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*A JavaScript library for building user interfaces*

# THE INTERNET

# World Wide Web

The WorldWideWeb (W3) is a wide-area [hypermedia](#) information retrieval initiative aiming to give universal access to a large universe of documents.

Everything there is online about W3 is linked directly or indirectly to this document, including an [executive summary](#) of the project, [Mailing lists](#) , [Policy](#) , November's [W3 news](#) , [Frequently Asked Questions](#) .

## [What's out there?](#)

Pointers to the world's online information, [subjects](#) , [W3 servers](#), etc.

## [Help](#)

on the browser you are using

## [Software Products](#)

A list of W3 project components and their current state. (e.g. [Line Mode](#) ,[X11 Viola](#) ,[NeXTStep](#) ,[Servers](#) ,[Tools](#) ,[Mail robot](#) ,[Library](#) )

## [Technical](#)

Details of protocols, formats, program internals etc

## [Bibliography](#)

Paper documentation on W3 and references.

## [People](#)

A list of some people involved in the project.

## [History](#)

A summary of the history of the project.

## [How can I help ?](#)

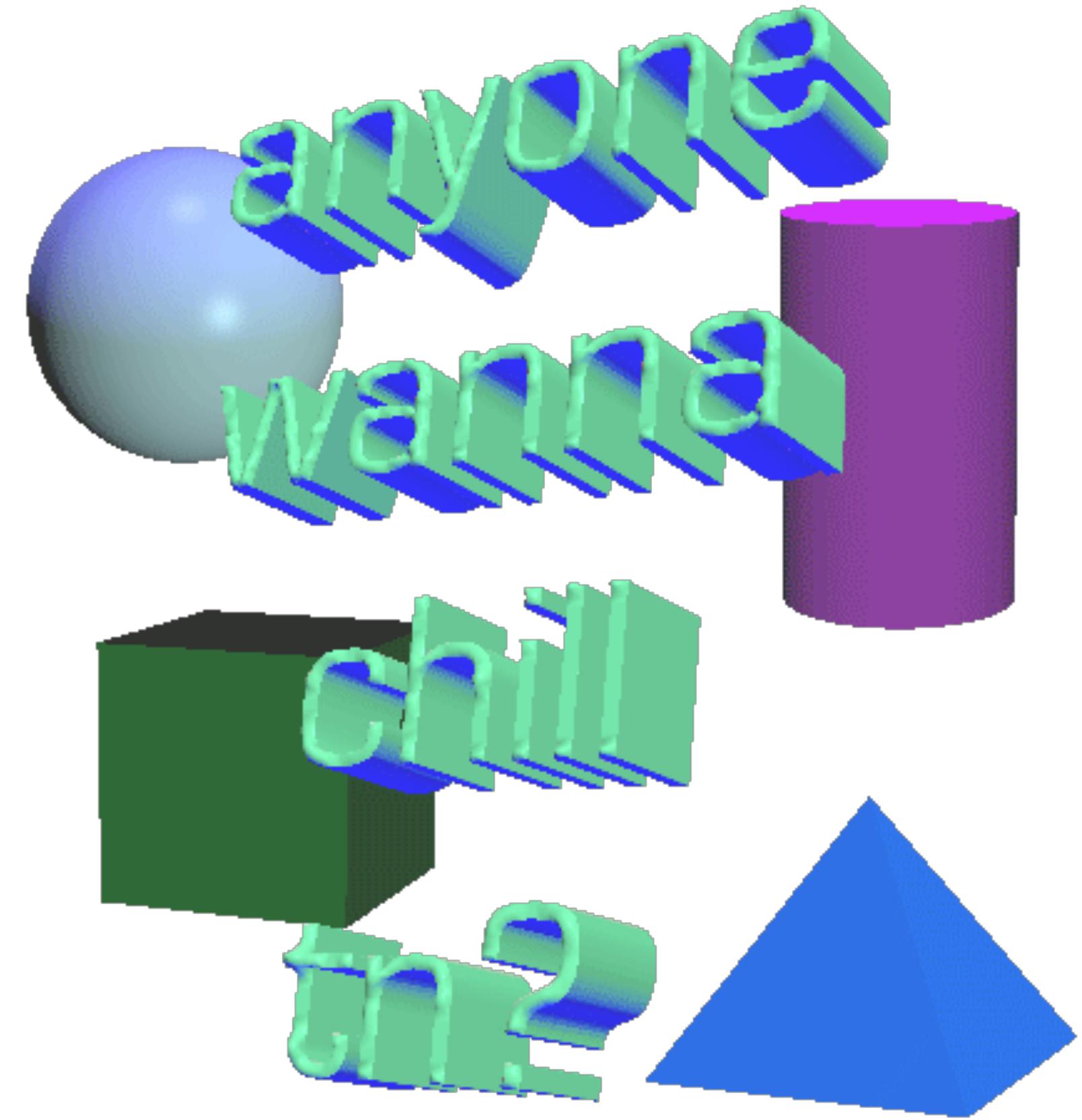
If you would like to support the web..

## [Getting code](#)

Getting the code by [anonymous FTP](#) , etc.



Welcome to my  
Homepage!



# THE INTERNET IS A SERIES OF DOCUMENTS

- **Static HTML with inline styling (gradually CSS)**
- **Some images**
- **Interactivity mostly meant linking to other pages**
- **“Brochureware”**

# BUZZWORD



# WEB 2.0



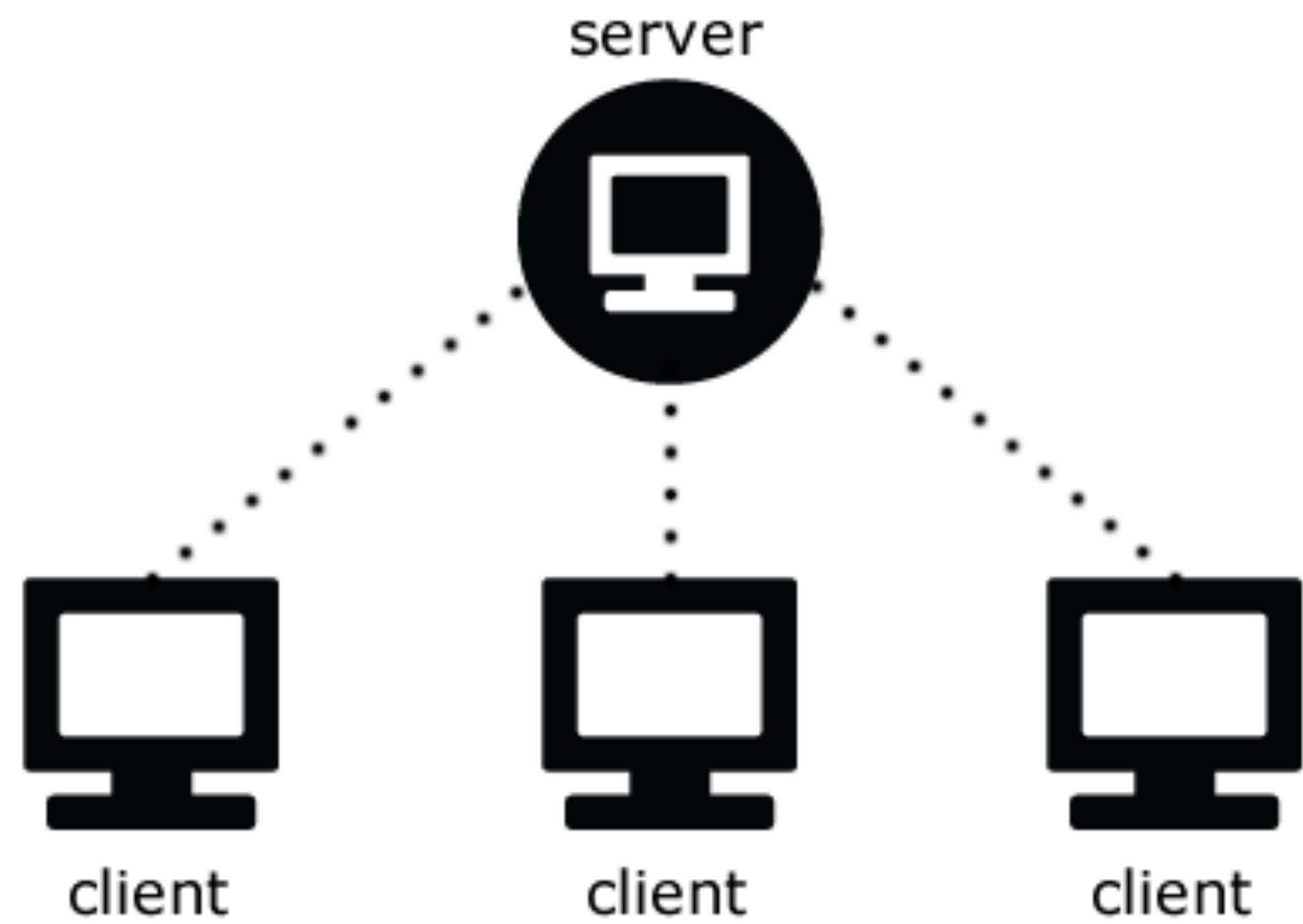
# THE INTERNET IS A SERIES OF APPLICATIONS

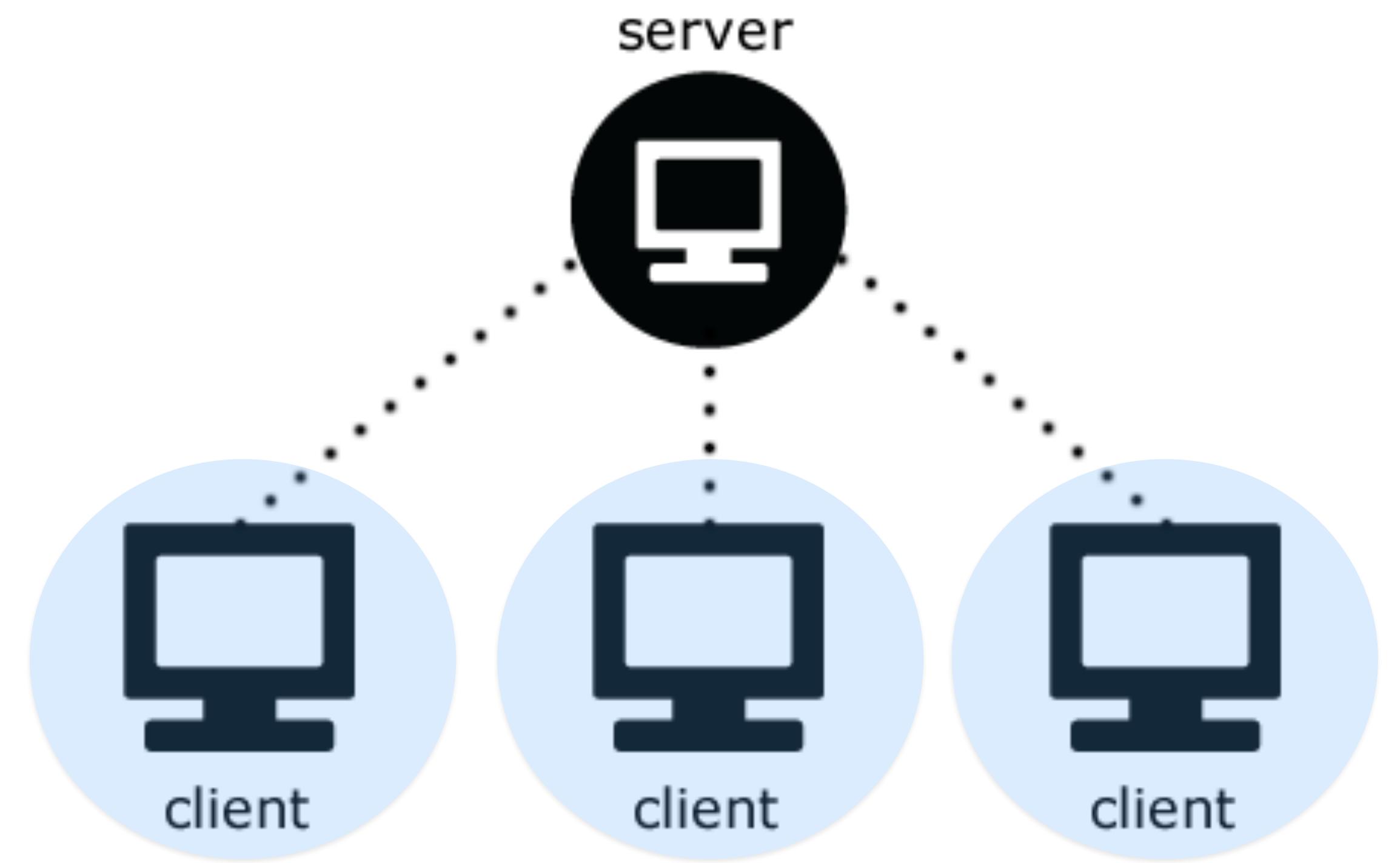
- True interactive applications like Gmail and Google Maps arrive.
- Applications do not refresh; facilitate tons of user events, hardware.
- The browser becomes a maturing application platform.
- “Software”

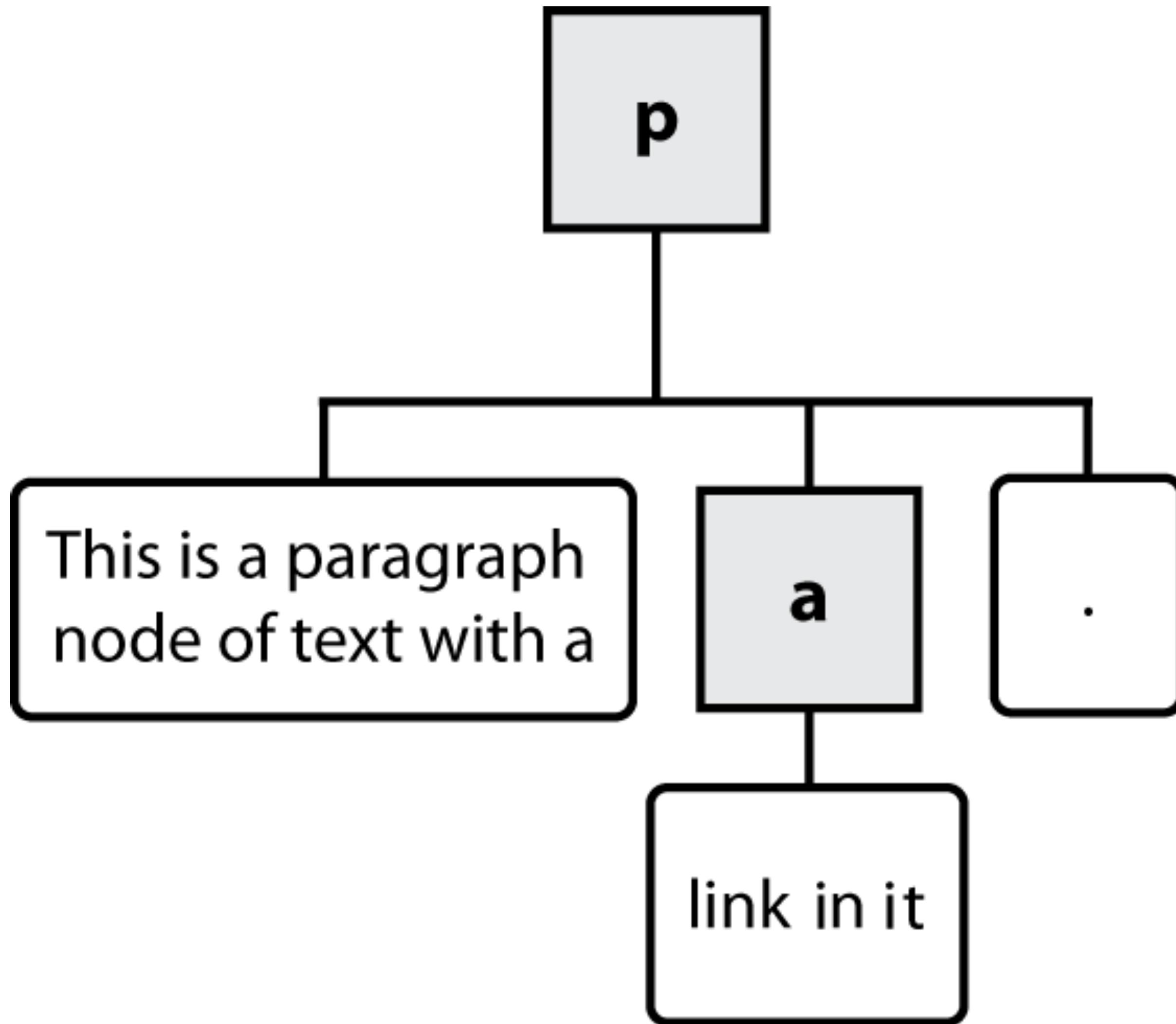
# DRIVEN BY JAVASCRIPT

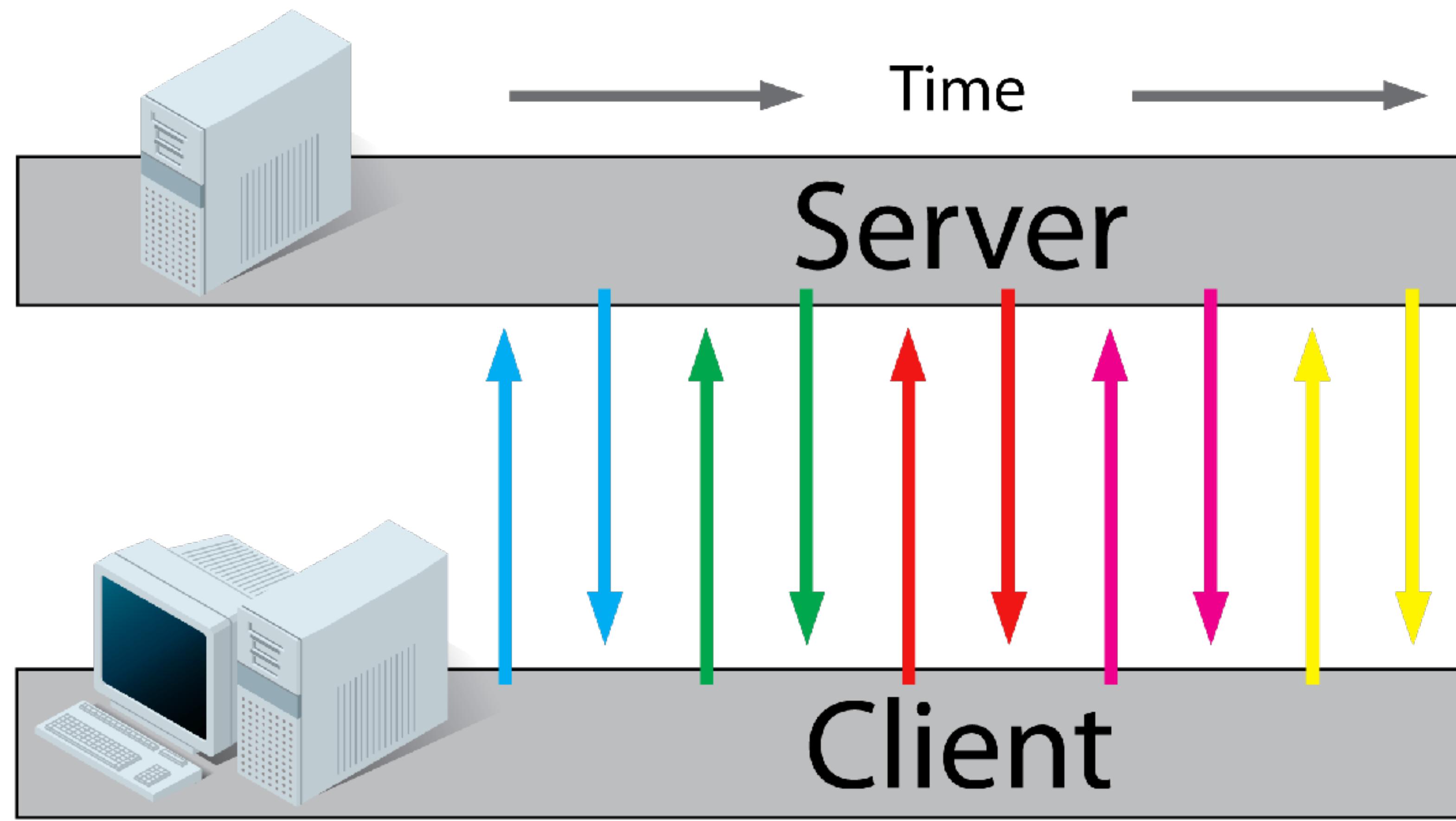
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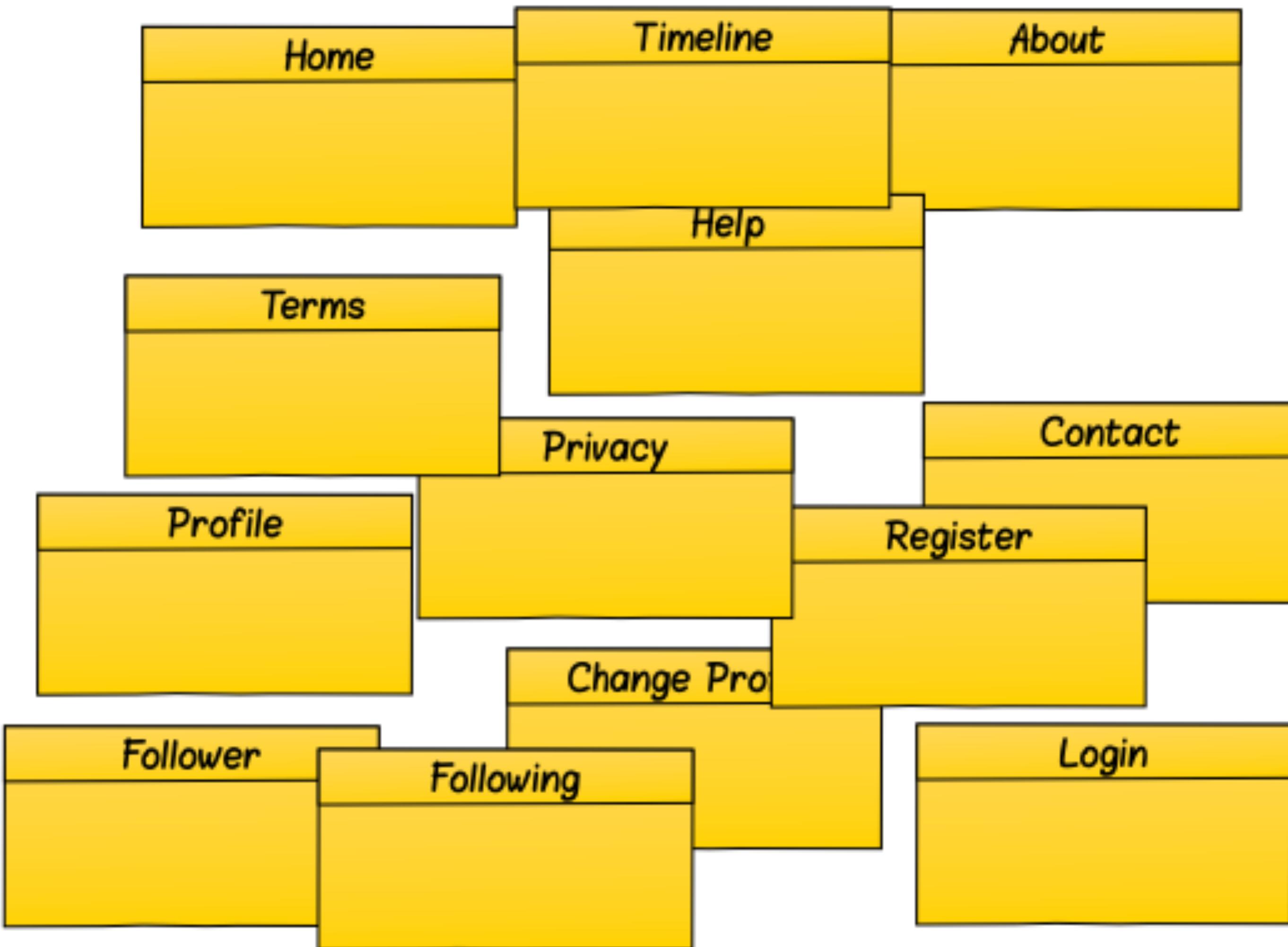
*The little language that could*

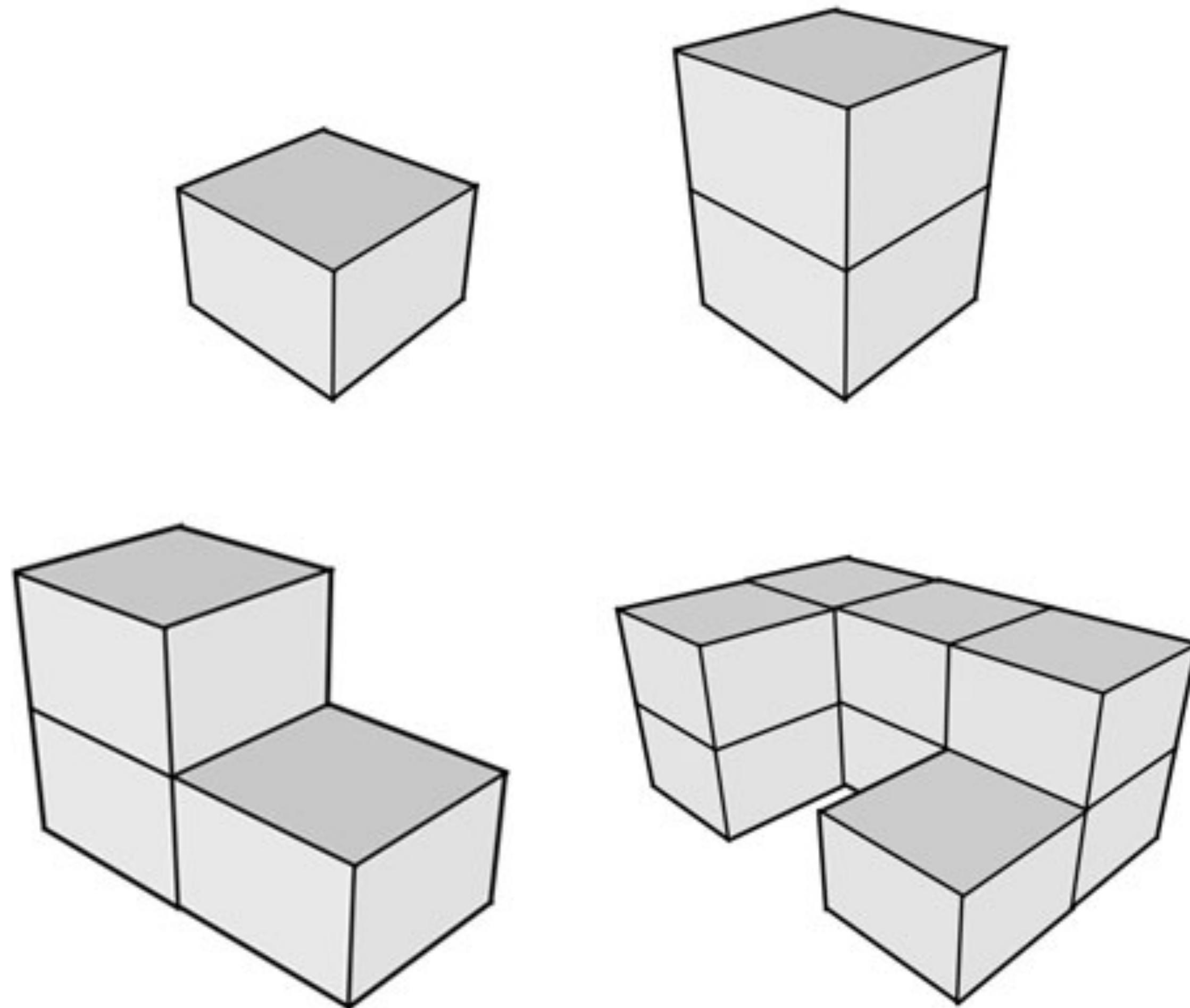












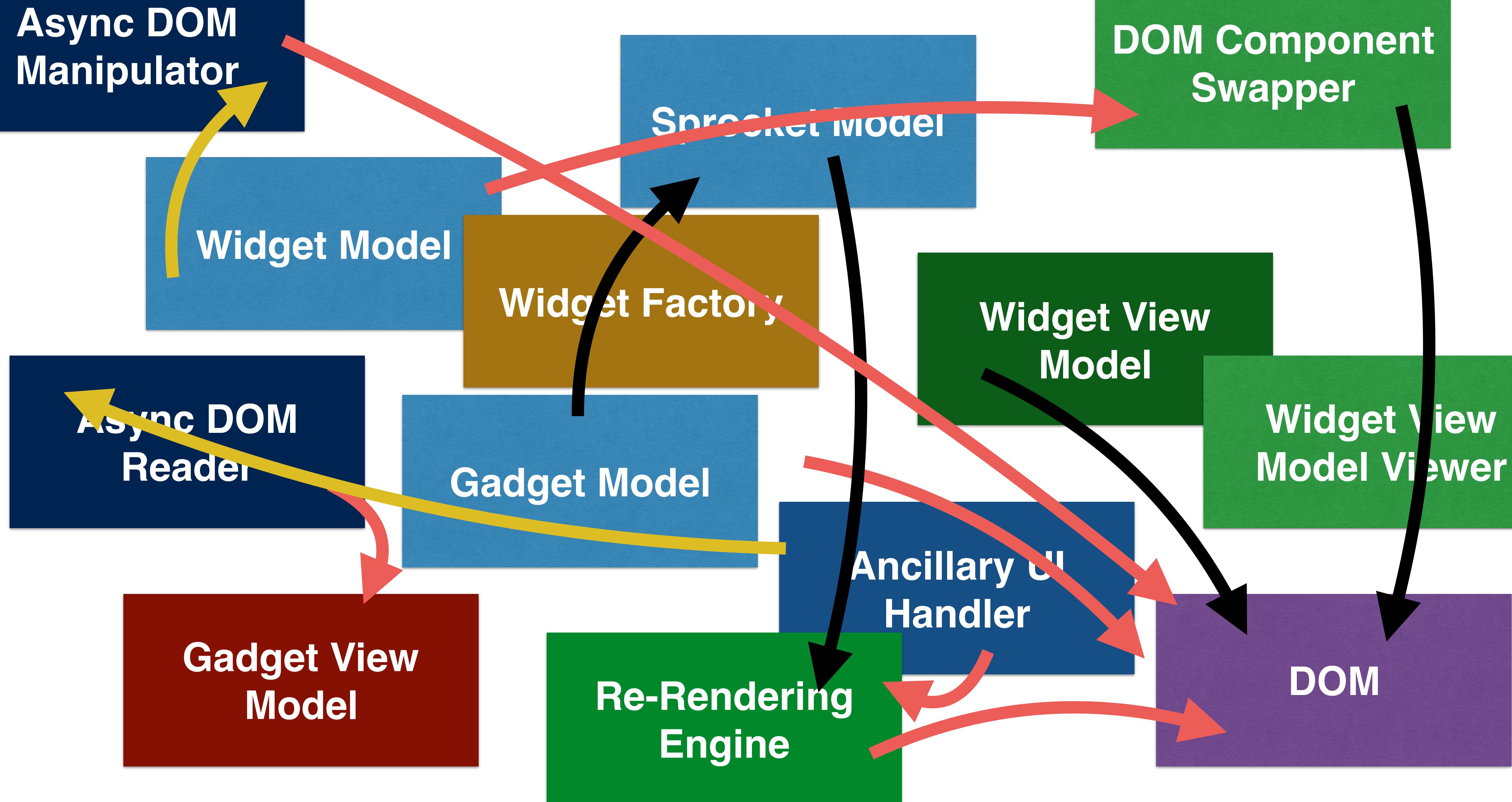
# SERIOUS SOFTWARE IS SERIOUS

- Must be easily understood.
- Must be easily maintained.
- Must scale.
- Must work.



*“Let’s put the day’s  
hotels on the DOM node”*

Cowboy Coder, 2010



**"WAT THE (\*@#^\$ EVEN IS  
ASYNC\_SUB\_RENDERER\_COMPONENT  
\_FACTORY\_SYNC\_CHECK???"**

***—DEVE LOPER JR.***

**"UM... I'M NOT SURE ANYMORE"**

***—COWBOY CODY***



# BACKBONE.JS

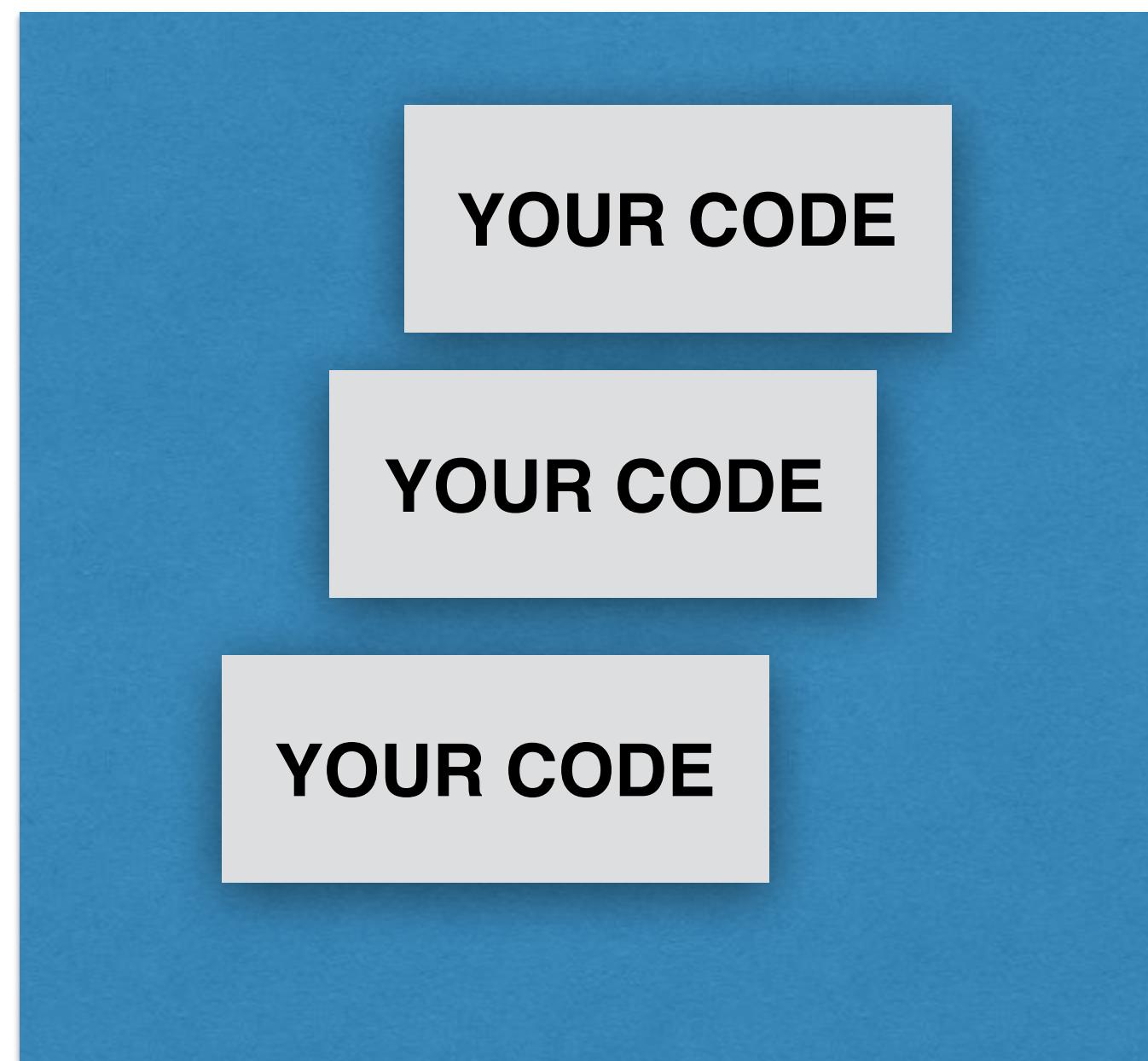


# APPLICATION FRAMEWORK

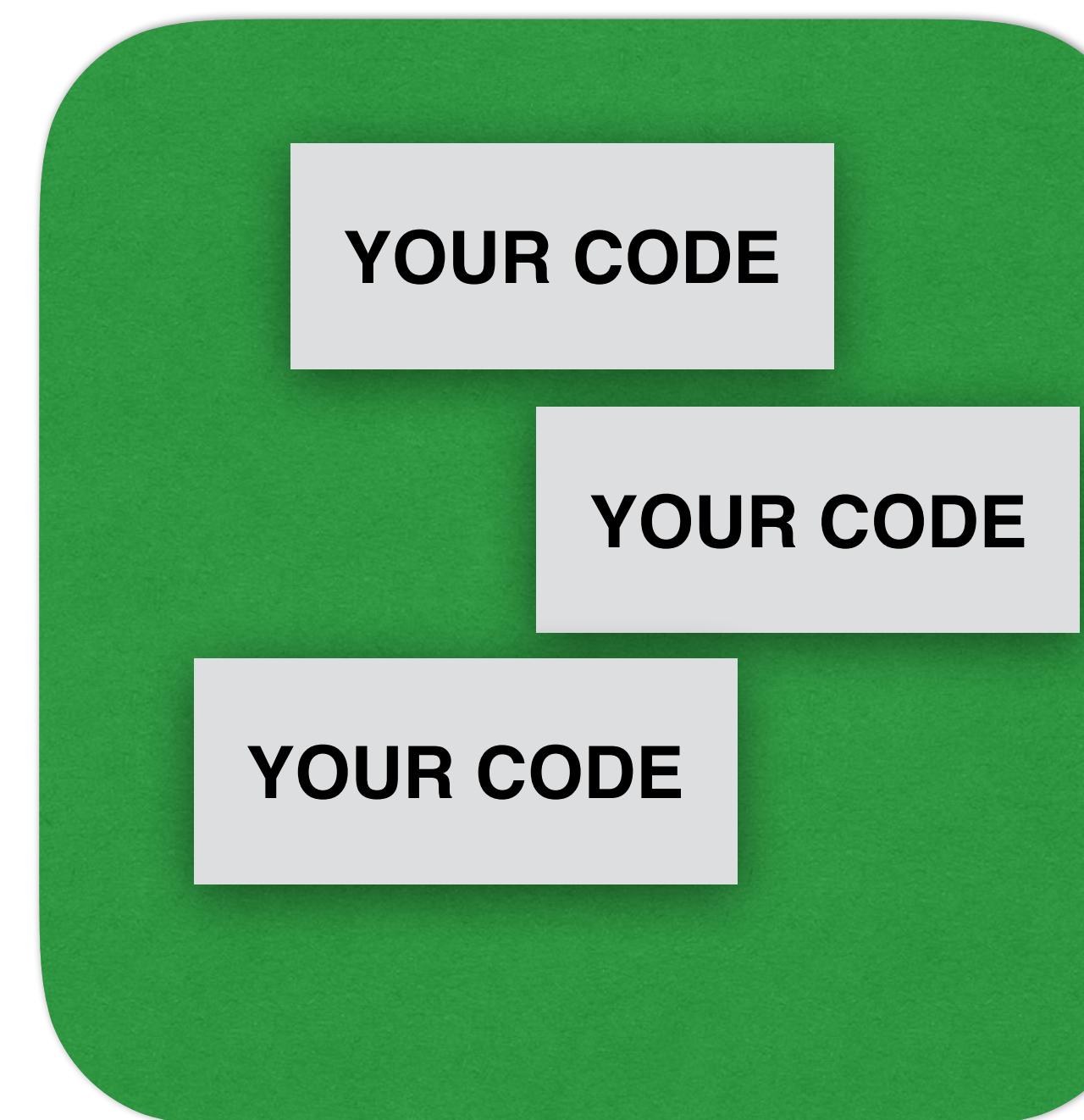
- Provides generic functionality and environment.
- Establishes reusable patterns and architecture.
- Allows focus on product-specific code.
- Suggests solutions to platform's major problems.

# Framey™

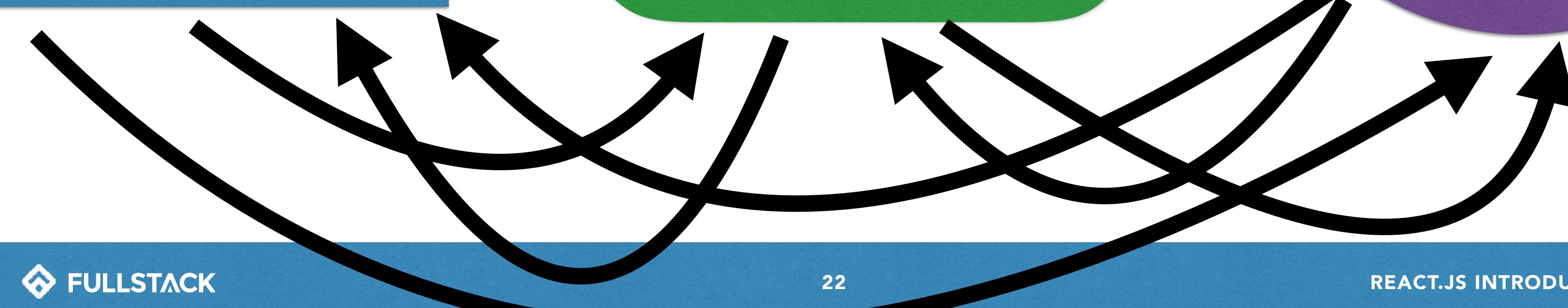
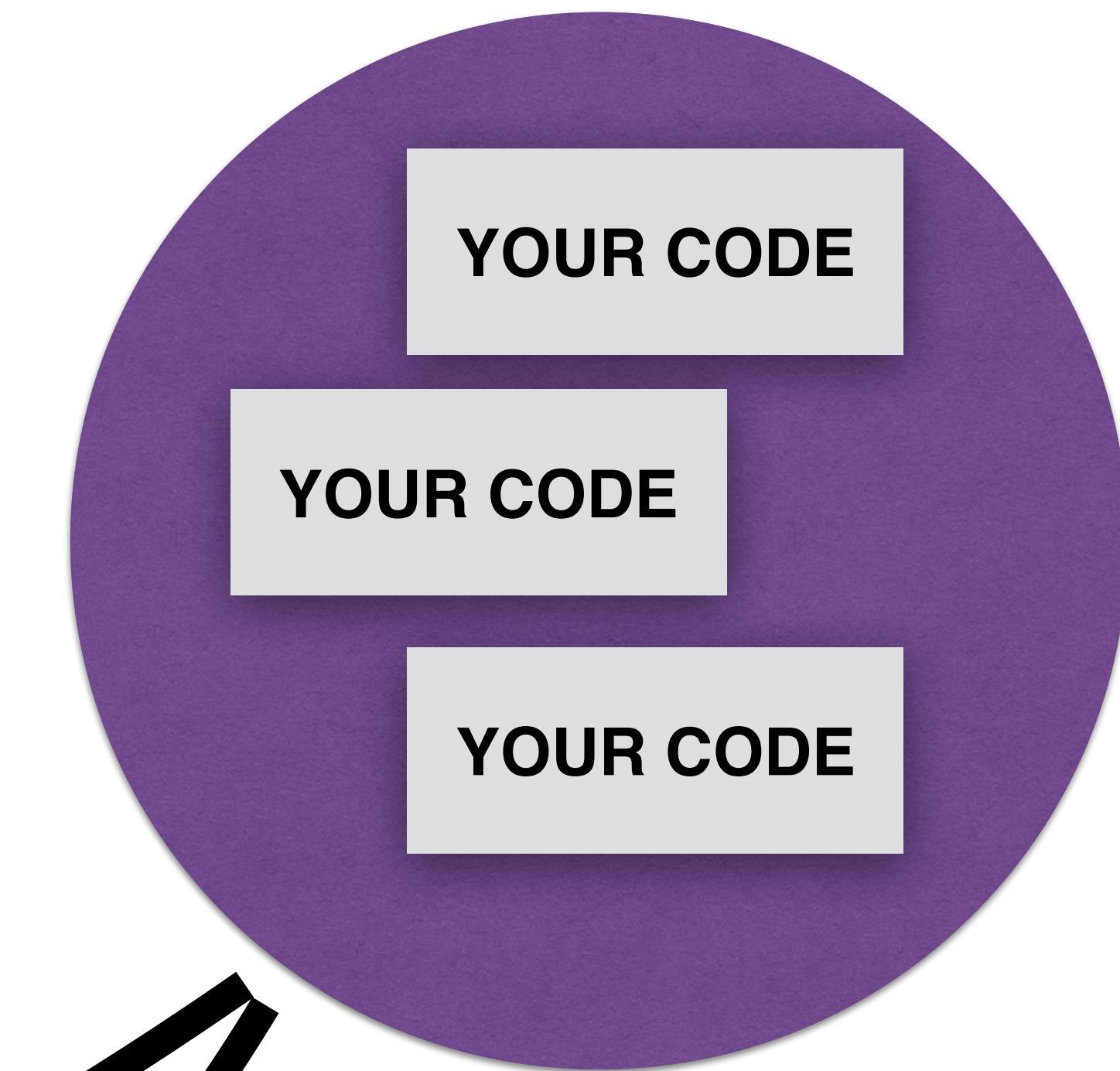
## Foo Pieces



## Bar Pieces



## Baz Pieces



**"WE USE FRAMEY™. CAN YOU MAKE A PANEL SHOWING THE USER'S FAVORITE WIDGETS?"**

***—N. G. NEER***

**"SURE, THAT'S JUST A FOO WIRED TO A BAZ. GIMME A COUPLE HOURS."**

***—DEVE LOPER JR.***

**SO EVERYTHING IS OKAY  
FOREVER, RIGHT?**

# NOPE!

- **(Some) Problems we face**

- Portability & reusability ("um, I know Framey™... how do I make Foos in Boxy™? What's that, Boxy™ doesn't have Foos!?)")
- Performance
- Managing state and asynchronicity

# PORABILITY & REUSABILITY

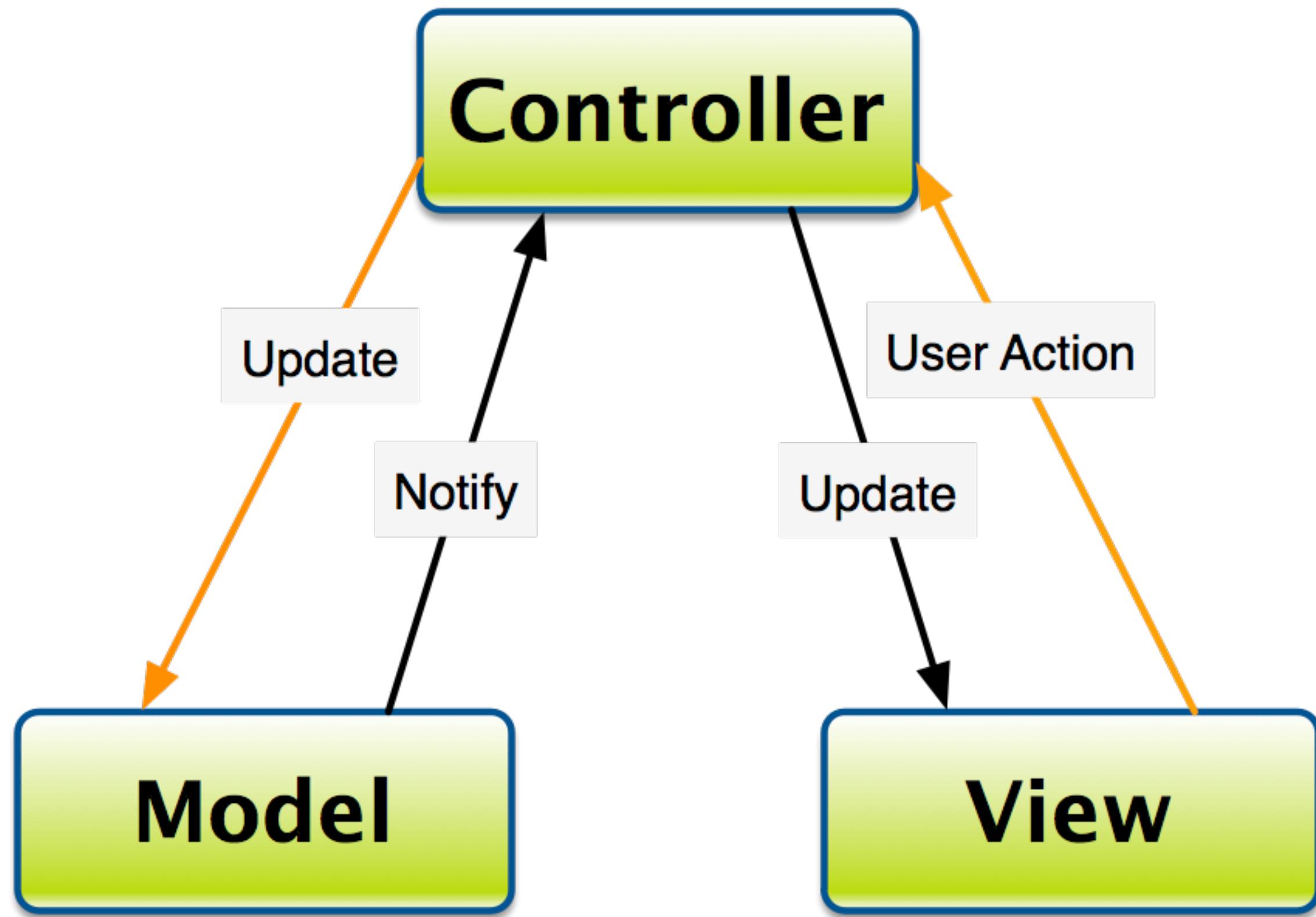
- **Code written within a specific framework often has to conform to that framework and/or use domain-specific languages that aren't portable outside that framework**
- **Difficult to move and re-use existing code when technologies change**
- **Here in internet-town, technologies change a lot, and quickly!**

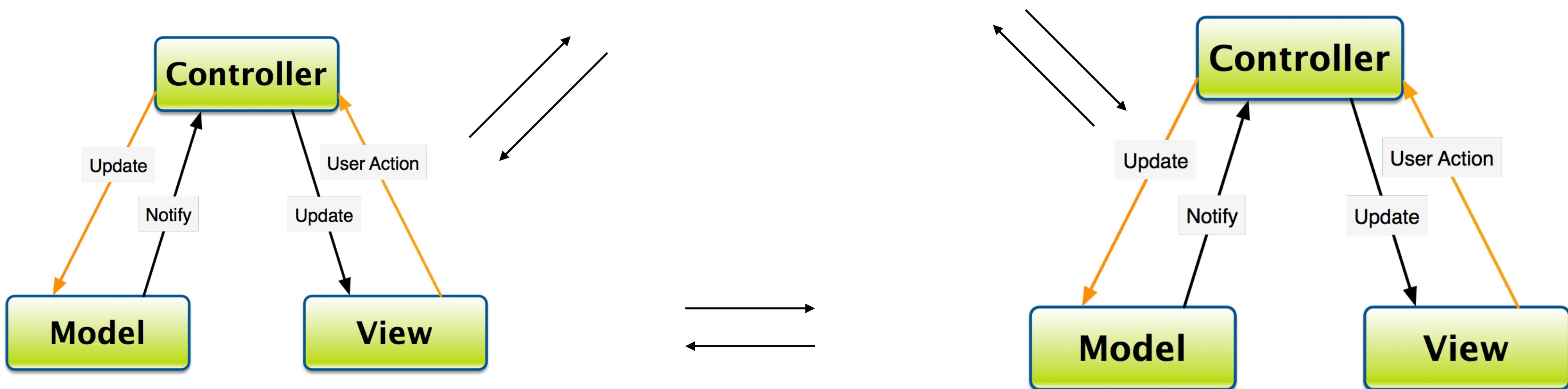
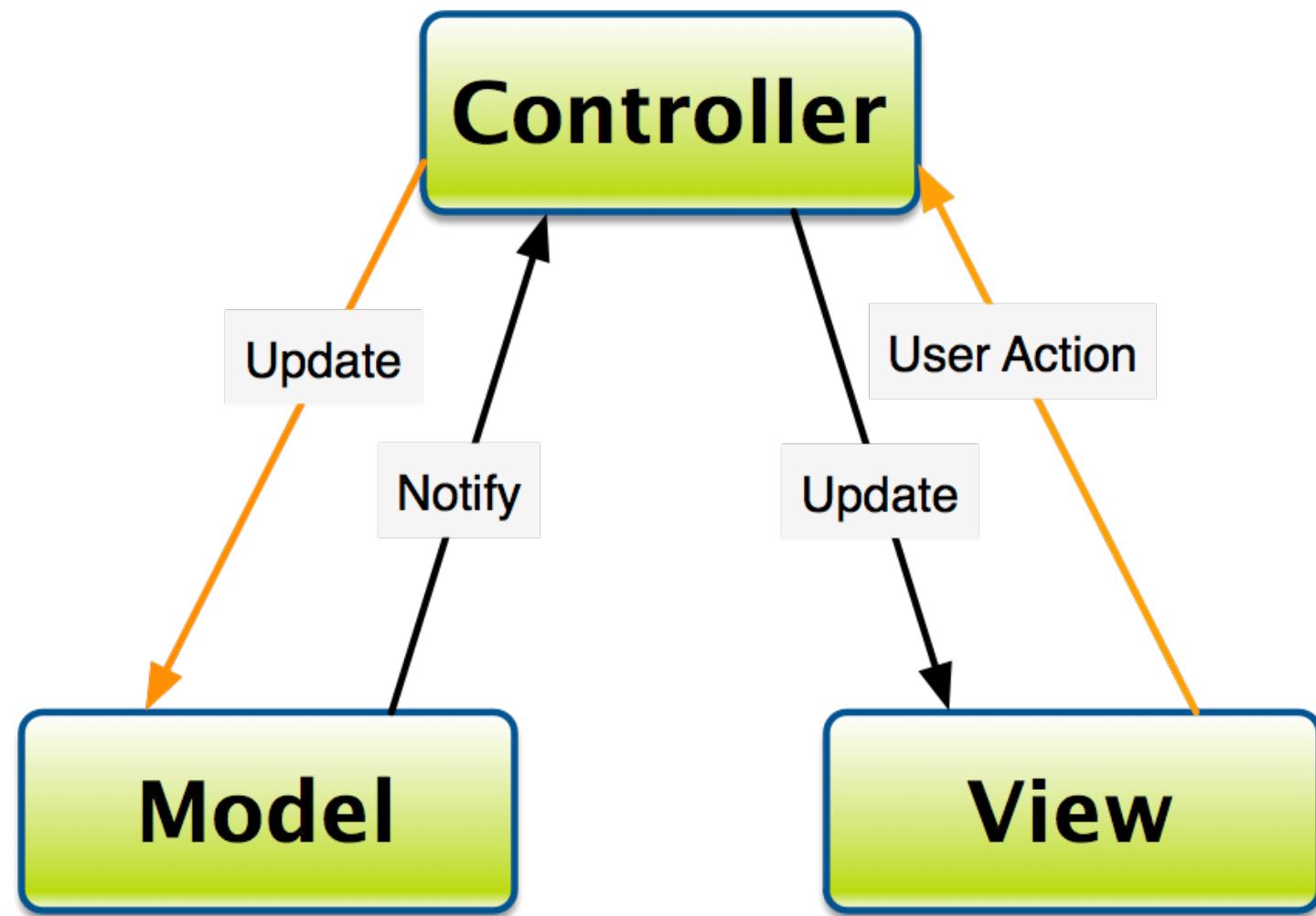
# PERFORMANCE

- Technically speaking, the DOM never imagined that web apps would get this big
- Consequently, mutating the DOM is an expensive operation - each interaction requires things like re-draws, stylesheet recalculation, etc
- User interfaces for web apps need to change the DOM, sometimes a lot

# STATE

- **Most web frameworks up until recently have been built on the MVC pattern**
- **The introduction of shared mutable state makes the state of your application difficult to predict**
- **Existing patterns of data-binding in the DOM can make reacting to a change difficult to predict**

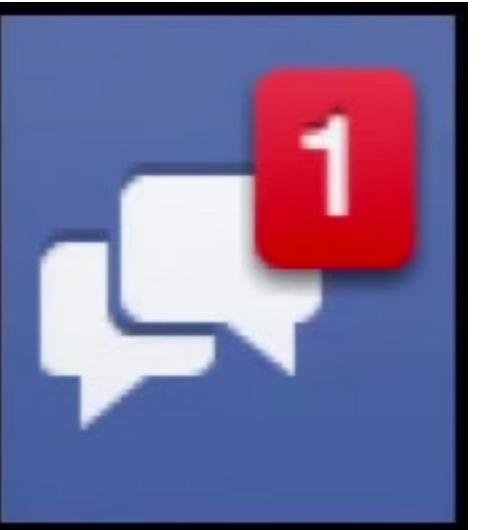






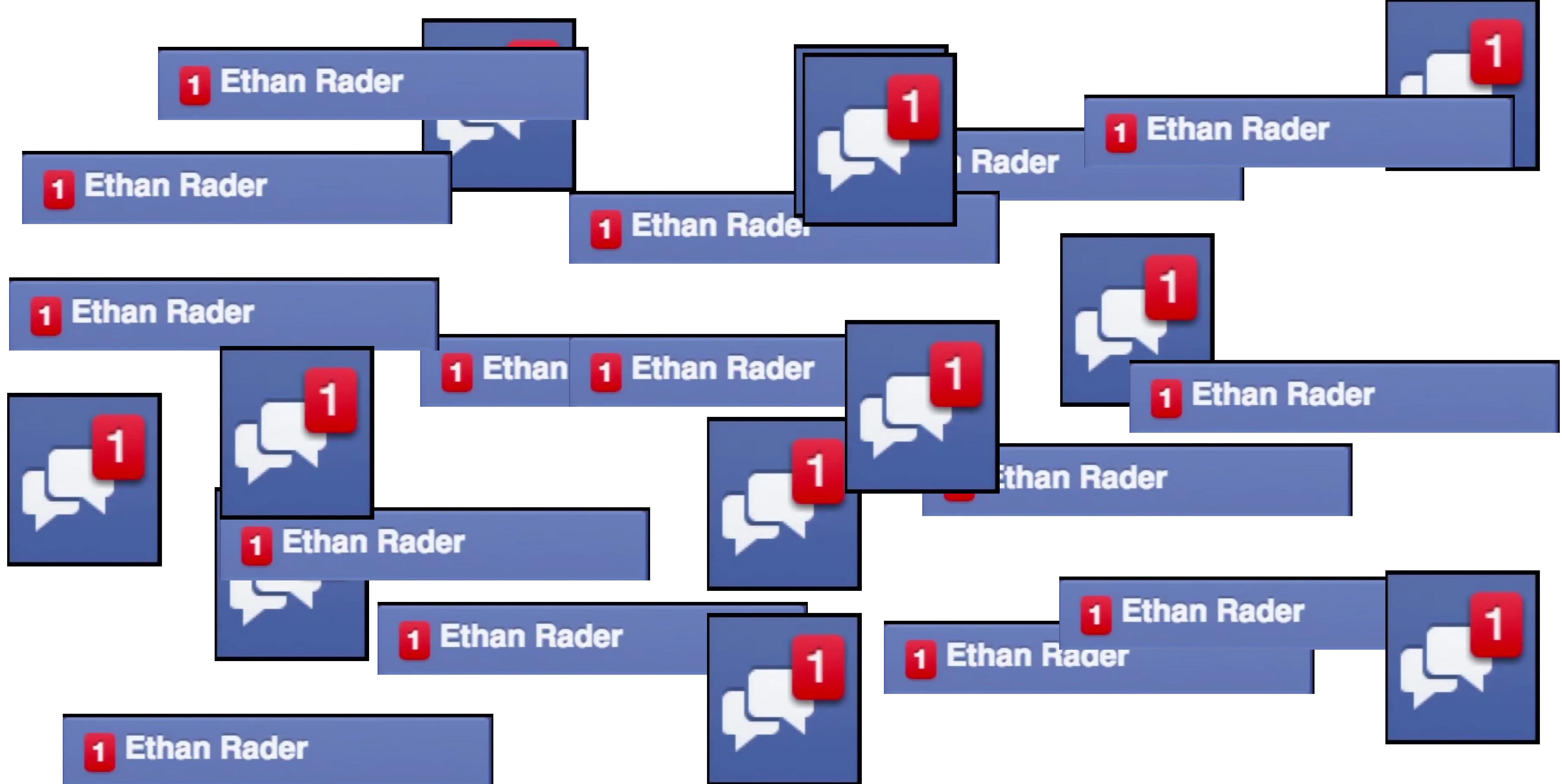
# 1 Ethan Rader

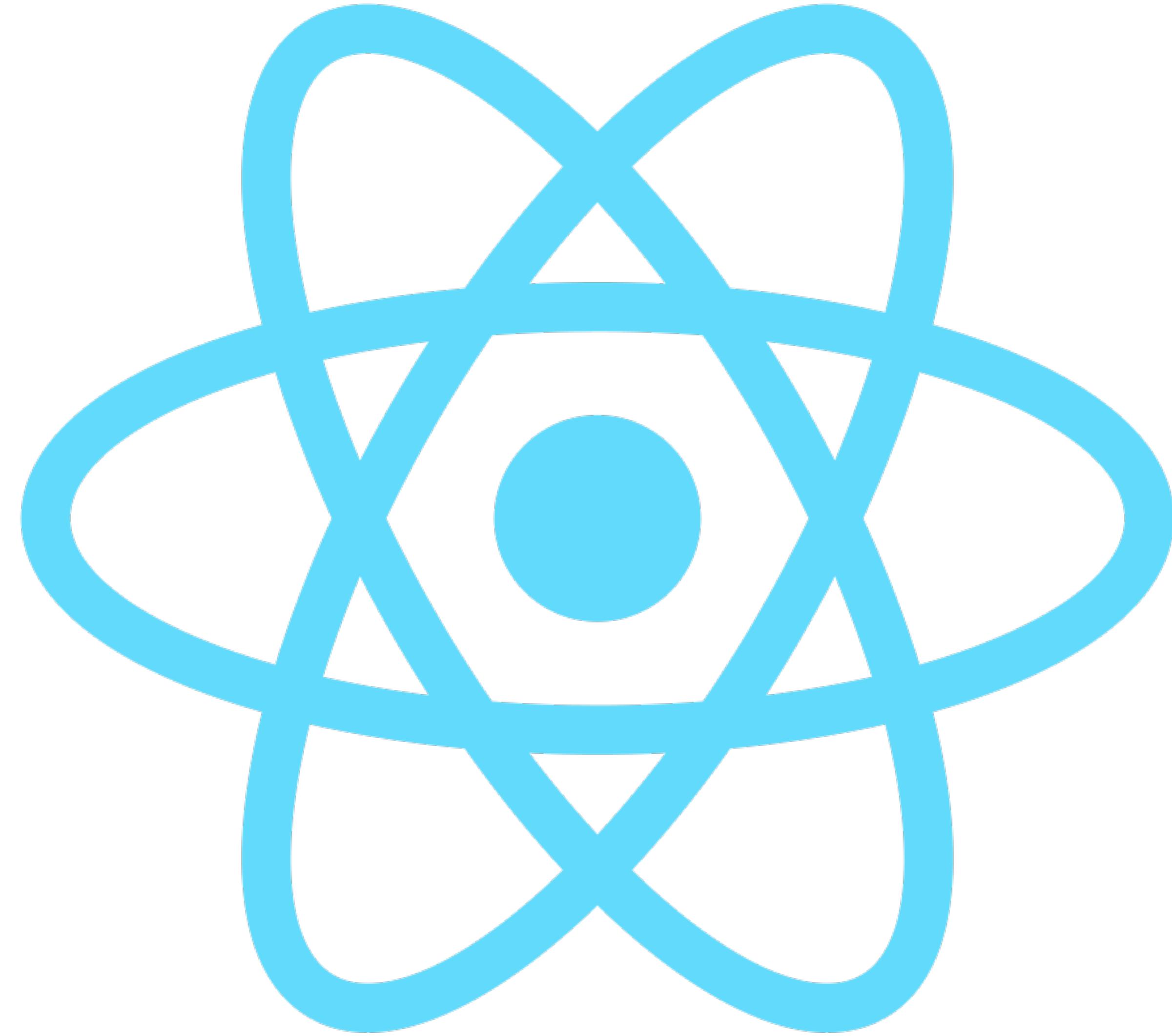
```
var unreadMessageCounts = {};
function onNewMessage(msg) {
  var unreadCount = ++unreadMessageCounts[msg.threadId];
  $('#messageCount' + msg.threadId).text(unreadCount);
}
```



```
var unreadMessageCounts = {};
var unreadThreadCount = 0;

function onNewMessage(msg) {
  var unreadCount = ++unreadMessageCounts[msg.threadId];
  if (unreadCount === 1) {
    unreadThreadCount++;
    $('#unreadThreads').text(unreadThreadCount);
  }
  $('#messageCount' + msg.threadId).text(unreadCount);
}
```





# REACT

- **No data-binding: instead, data flows in one direction**
- **Just like a 90's era web page...only just for your client!**
- **state => view**
- **Minimize DOM manipulation by rendering to a Virtual DOM before rendering to the Real DOM**



# GETTING STARTED WITH REACT

