

# FAMO.US

New generation of HTML5 Web Application Framework

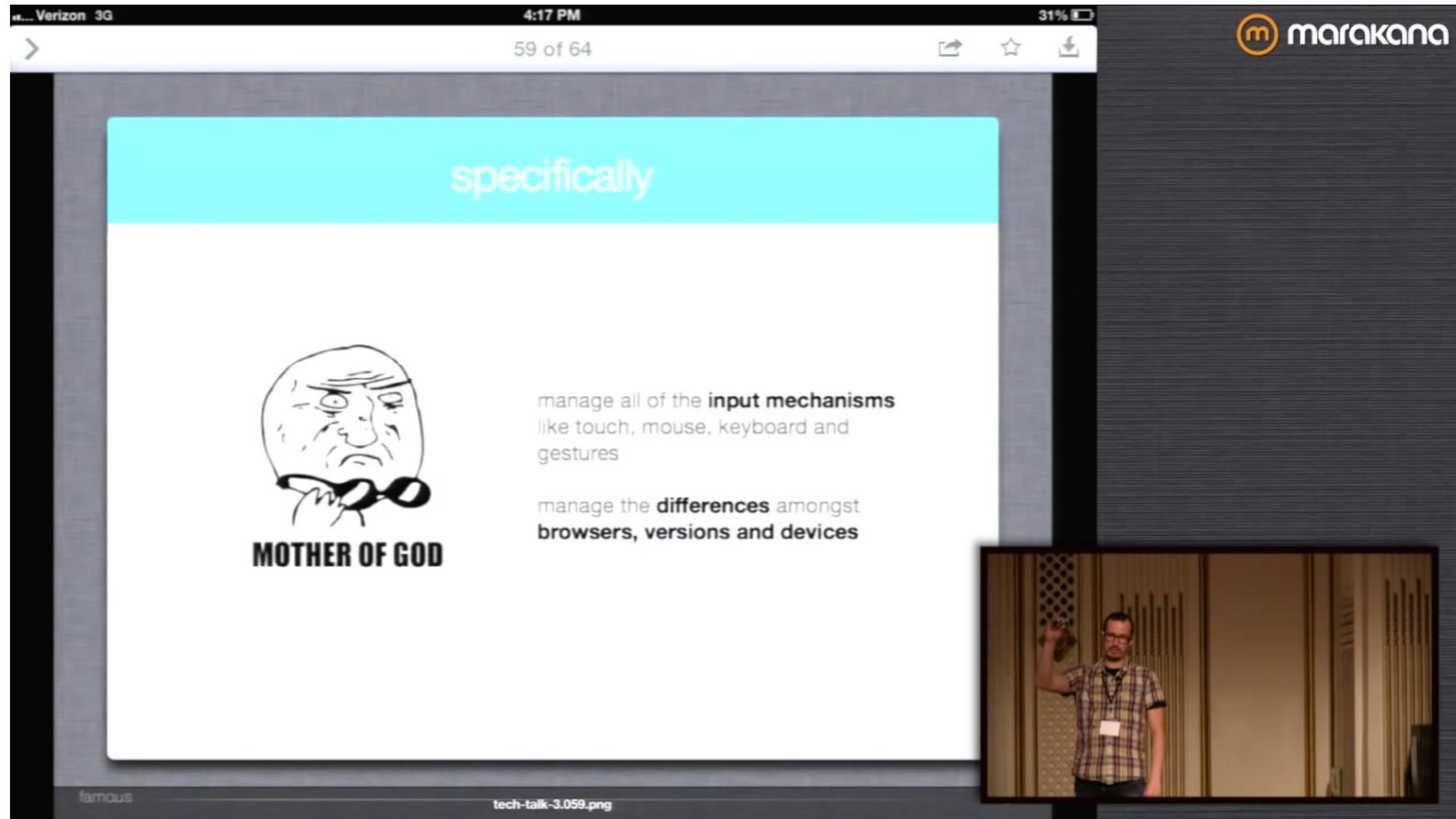
# ABOUT ME

- Hina Chen a.k.a 閃光洽
- @hinablue
- FARMER, YES! FARMER.
- JSDC 2013, 2012 Lighting Talk
- PHPConf 2012, WebConf 2013
- INK Inc. Partner
- Bounty Hunter CTO



# WHAT IS FAMOUS?

Is it famous? In Taiwan, NO.



# ABOUT 2 YEARS AGO

## HTML5DevConf 2012

<http://www.slideshare.net/befamous/html5-devconf-oct-2012-tech-talk>



**Steve Newcomb - CEO Co-funder, Famo.us.**

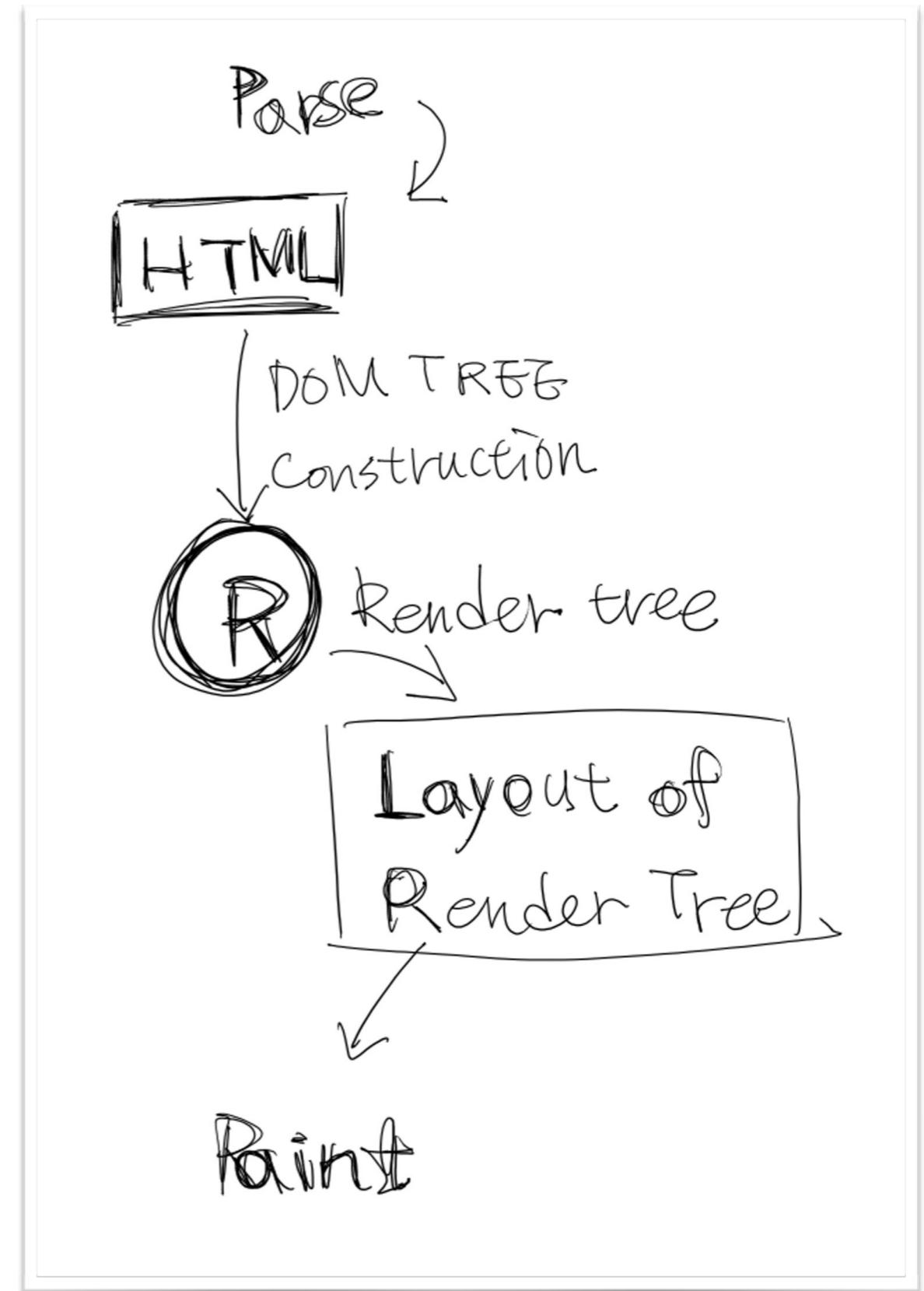
# WHAT IS FAMOUS?

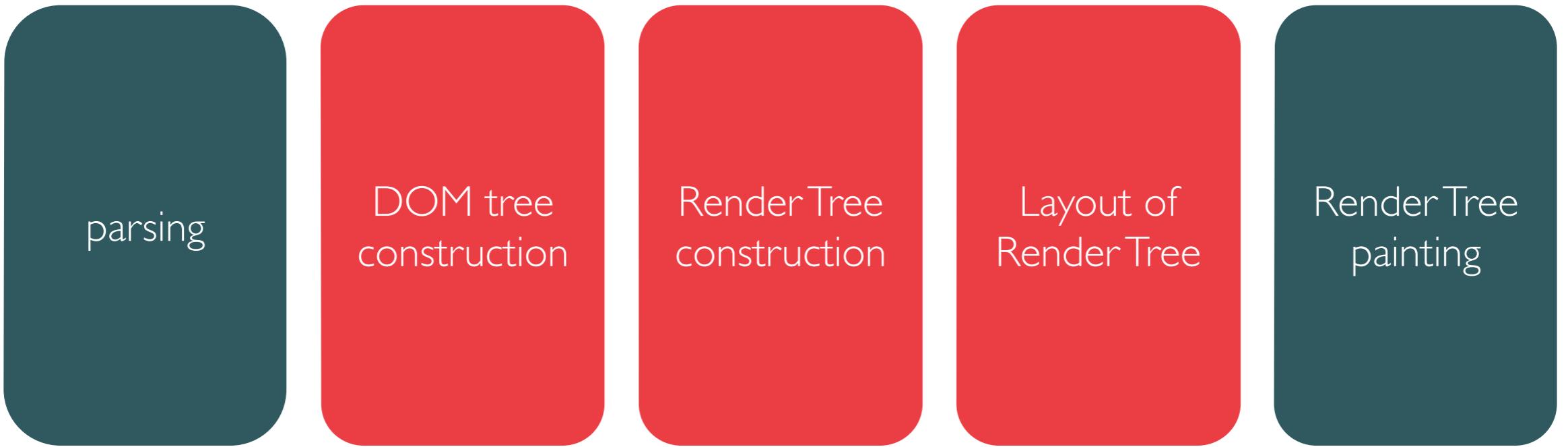
- A framework for web application
- New way to handle the HTML Elements
- Simplify the DOM render in the browser
- Solve the performance of DOM/CSS and JavaScript
- Solve the difference in browsers
- Easy to develop the web app

# DEMO PLEASE

<http://famous-bird.herokuapp.com/>

# OLD “RENDER” WebCore in Webkit



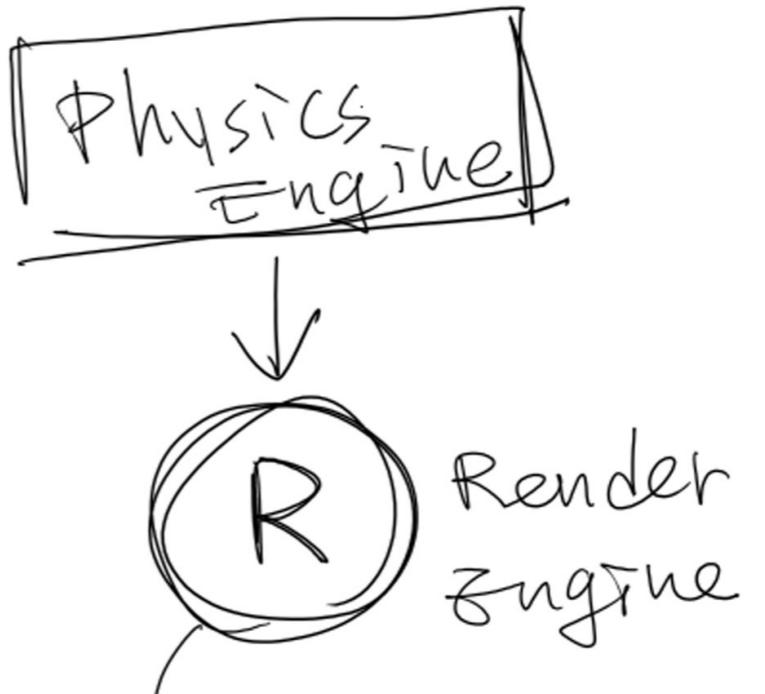


# RENDER ENGINE IN WEBKIT

Simplified render

## NEW “RENDER” Famo.us Render Tree

Parse



Paint

Physics  
Engine

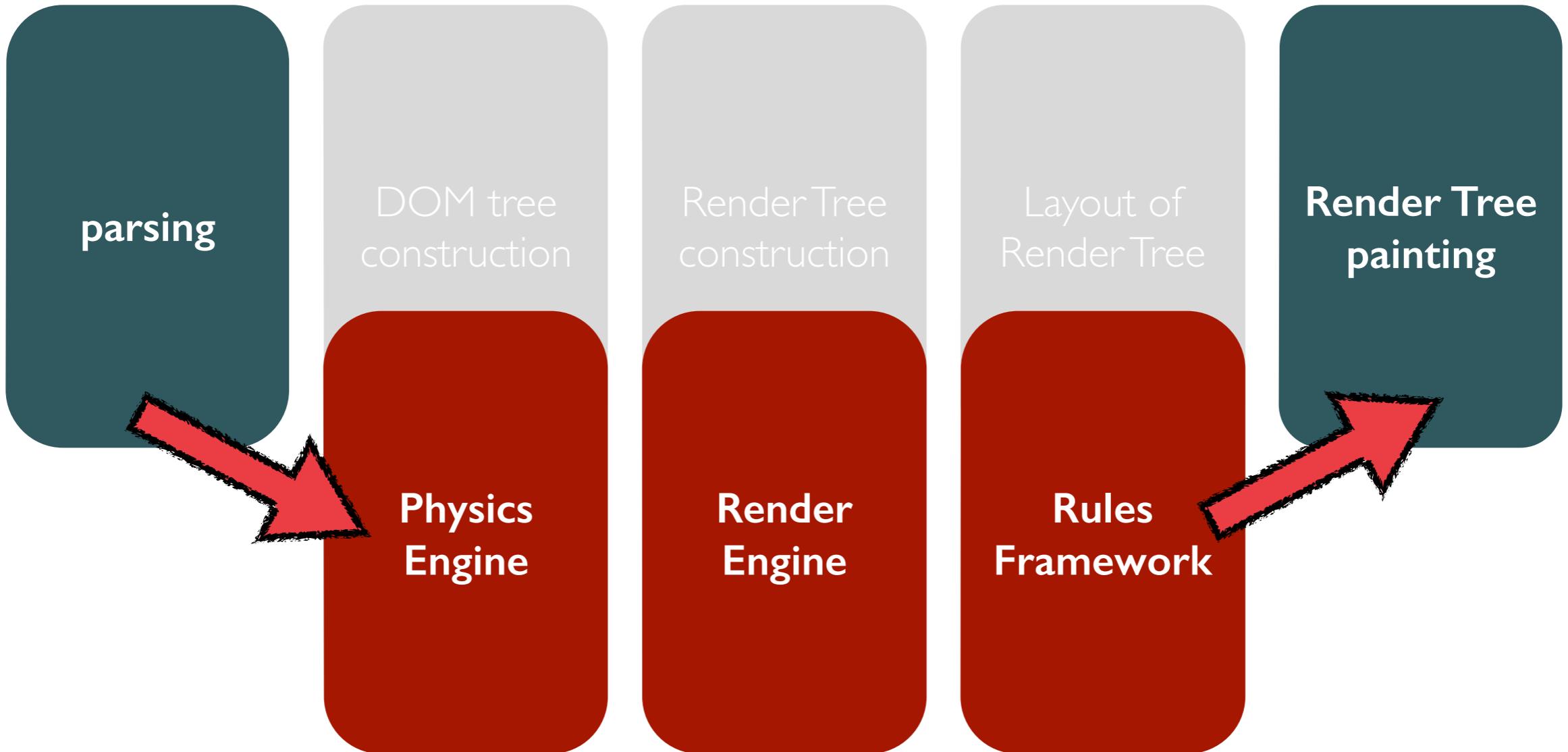
Render  
Engine

Rules  
Framework

# THE FAMOUS WAY

famo.us render engine

# WebCore



Famo.us

# WHY FAMOUS ?

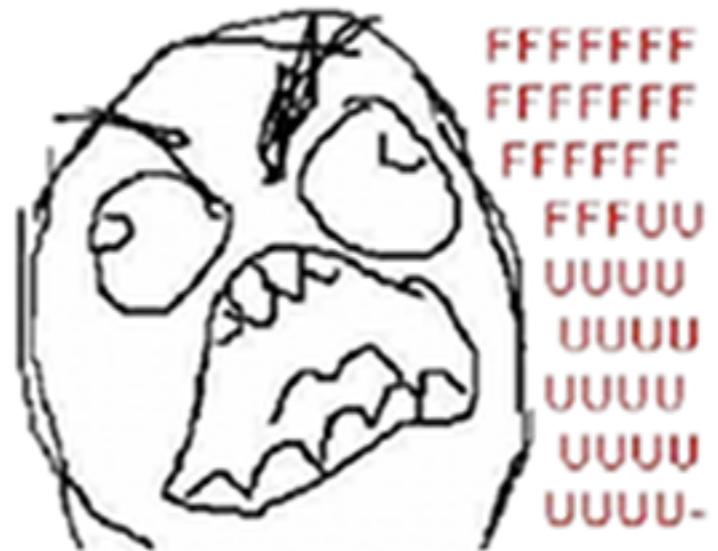
- New “RenderTree” ( an abstract DOM )
- All about JavaScript, **no HTML** (Yes, If you do not like to write HTML )
- Modifiers control everything
- Very **GOOD** performance
- A little *bad* semantic structure of DOM
- Make sure the render result are **all the same** in the browsers

「Easy to learn, easy to build, easy to maintain!」

– Jeff Pope, Sencha.

# HOW ABOUT FAMOUS

- Easy to learn 
- Easy to build 
- Easy to maintain 

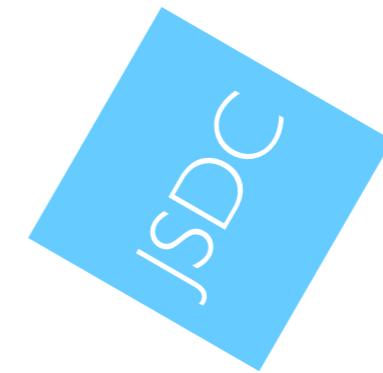


# CHALLENGE

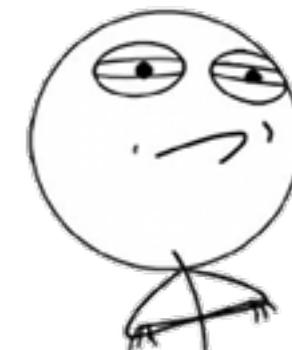
```
<div class="container">
  <div class="animate cube" style="width: 100px;
height: 100px; background-color: #3366ff;">
    <span class="text">JSDC</span>
  </div>
</div>
```

```
.cube {
  animation-duration: 3s;
  animation-iteration-count: infinite;
  animation-name: rotate;
}
```

```
@keyframes rotate {
  from {
    transform: rotate(0deg);
  }
  to {
    transform: rotate(180deg);
  }
}
```



**CHALLENGE ACCEPTED**



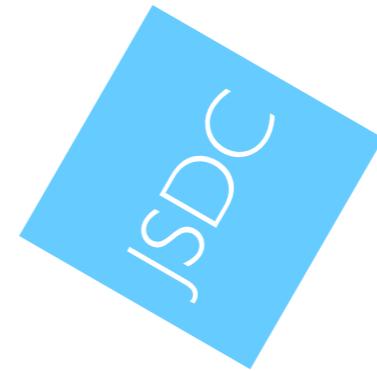
# IN FAMOUS

```
var initialTime = Date.now();

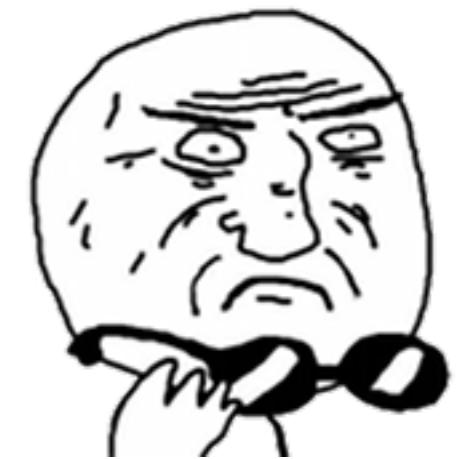
/**
 * ( 180 * Math.PI / 180 ) / 3
 */

var Modifier = new Modifier({
  transform: function() {
    return Transform.rotate(0, Math.PI / 3 *
(Date.now() - initialTime) % 3, 0);
  }
});

var Surface = new Surface({
  classes: ['cube'],
  content: 'JSDC'
});
```



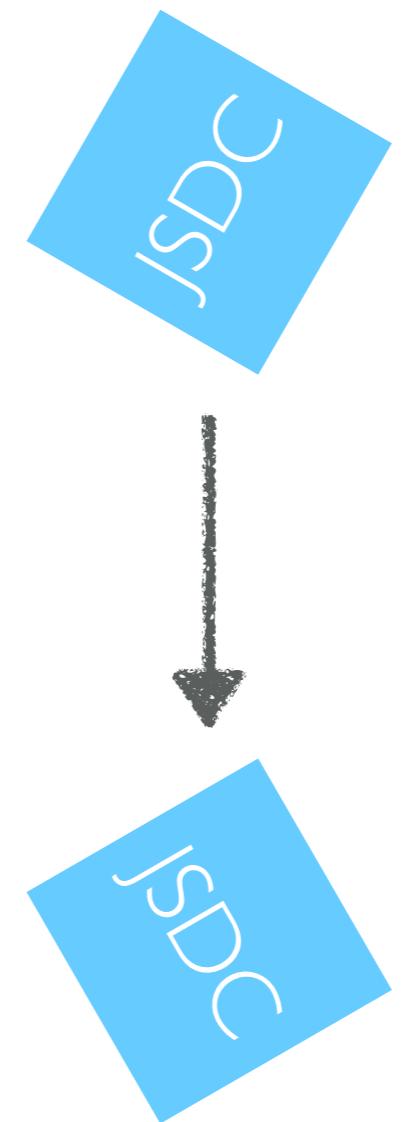
MOTHER OF GOD...



# CHALLENGE

```
<div class="container">
  <div class="animate cube1" style="width: 100px;
height: 100px; background-color: #3366ff; transform:
rotateZ(60deg);">
    <div class="animate cube2" style="width: 100px;
height: 100px; background-color: #3366ff; transform:
rotateZ(120deg);">
        <div class="animate cube3" style="width: 100px;
height: 100px; background-color: #3366ff; transform:
rotateZ(240deg);">
            <span class="text">JSDC</span>
        </div>
    </div>
  </div>
</div>
```

```
$('.cube1').on('click', function(event) {
  $(this).css('transform', 'rotateZ(180deg)');
});
$('.cube3').on('click', function(event) {
  $(this).css('transform', 'rotateZ(120deg)');
});
```

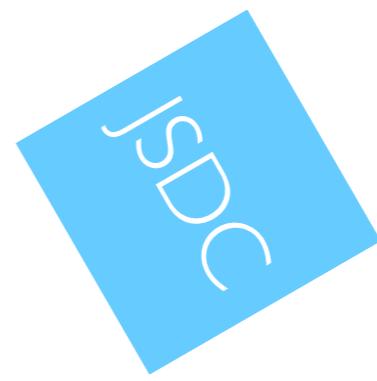
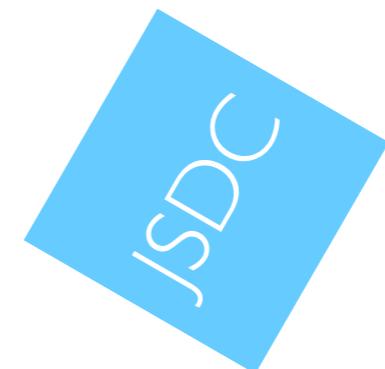


**CHALLENGE ACCEPTED**

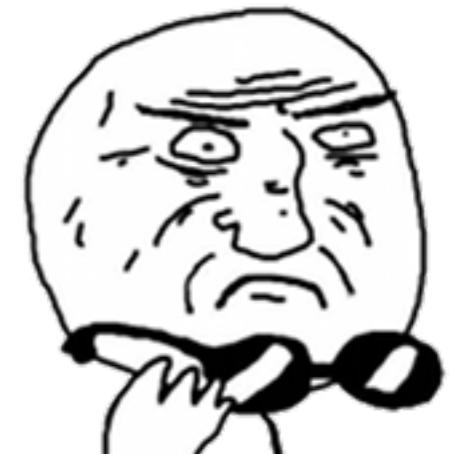


# IN FAMOUS

```
var Modifier1 = new Modifier({  
  transform: Transform.rotate(0, Math.PI / 3, 0)  
});  
  
var Surface1 = new Surface({  
  classes: ['cube'],  
  content: 'JSDC'  
});  
  
Surface1.on('click', function() {  
  Modifier1.transformFrom(Transform.rotate(0,  
  Math.PI, 0));  
});
```



MOTHER OF GOD...

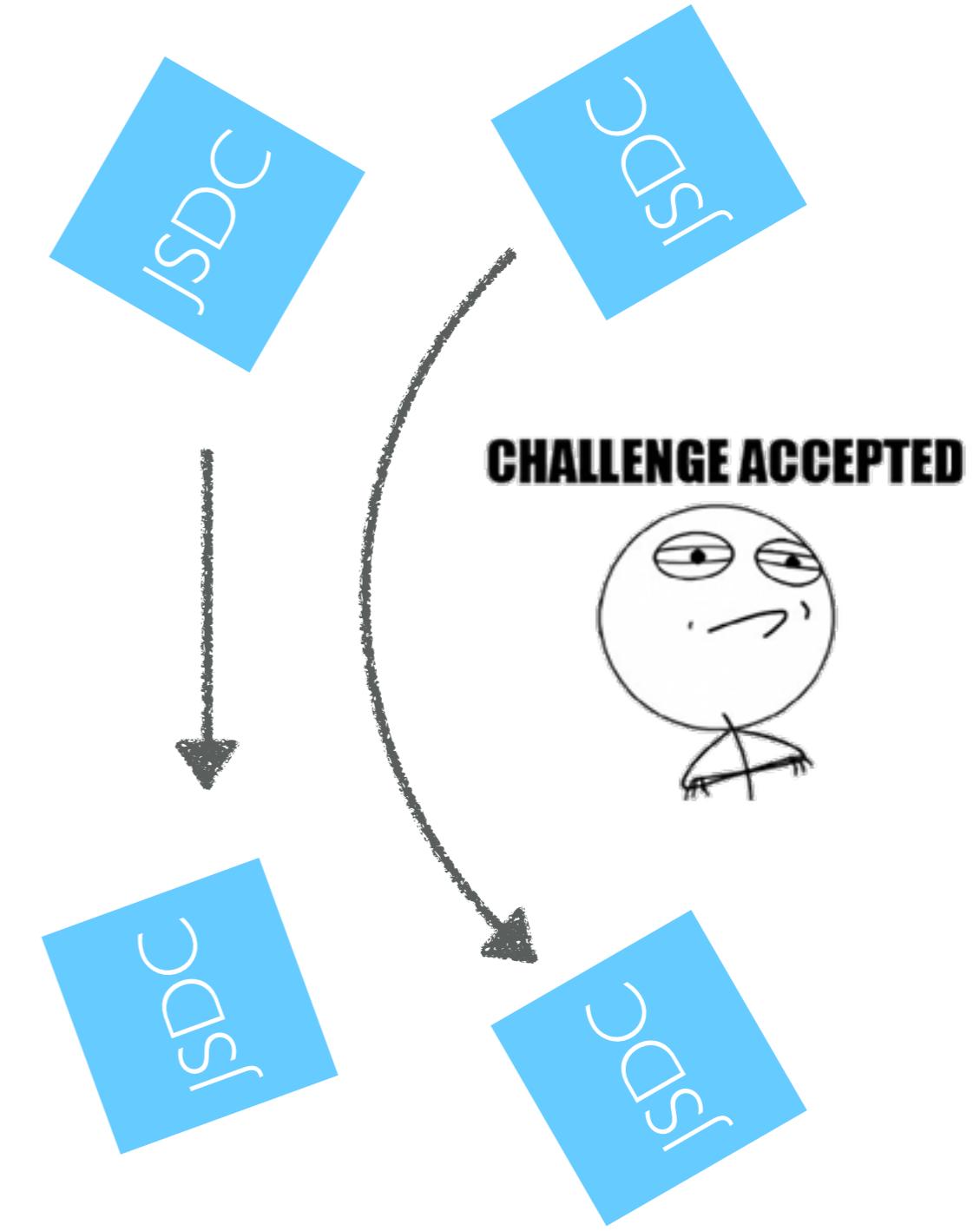


# CHALLENGE

```
<div class="container">
  <div class="animate cube1" style="width: 100px;
height: 100px; background-color: #3366ff; transform:
rotateZ(60deg);">
    <span class="text">JSDC</span>
  </div>
  <div class="animate cube2" style="width: 100px;
height: 100px; background-color: #3366ff; transform:
rotateZ(120deg);">
    <span class="text">JSDC</span>
  </div>
</div>
```

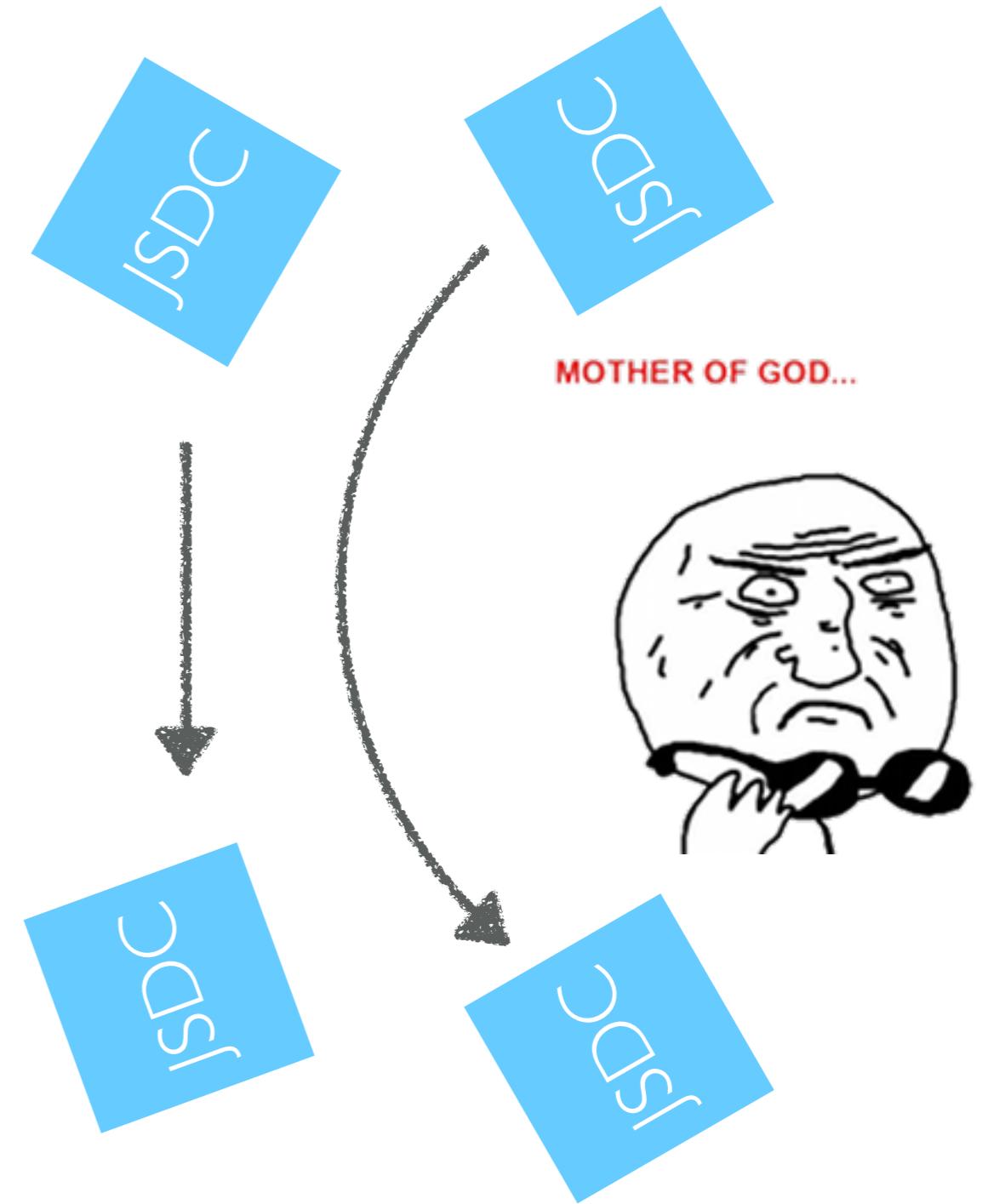
```
var $elem = $('.cube1');

$( {deg: 0}).animate({deg: 120}, {
  duration: 2000,
  step: function(now) {
    $elem.css('transform', 'rotateZ(' + now + 'deg)');
  }
}, function(event) {
  $('.cube2').css('transform', 'rotateZ(180deg)');
});
```



# IN FAMOUS

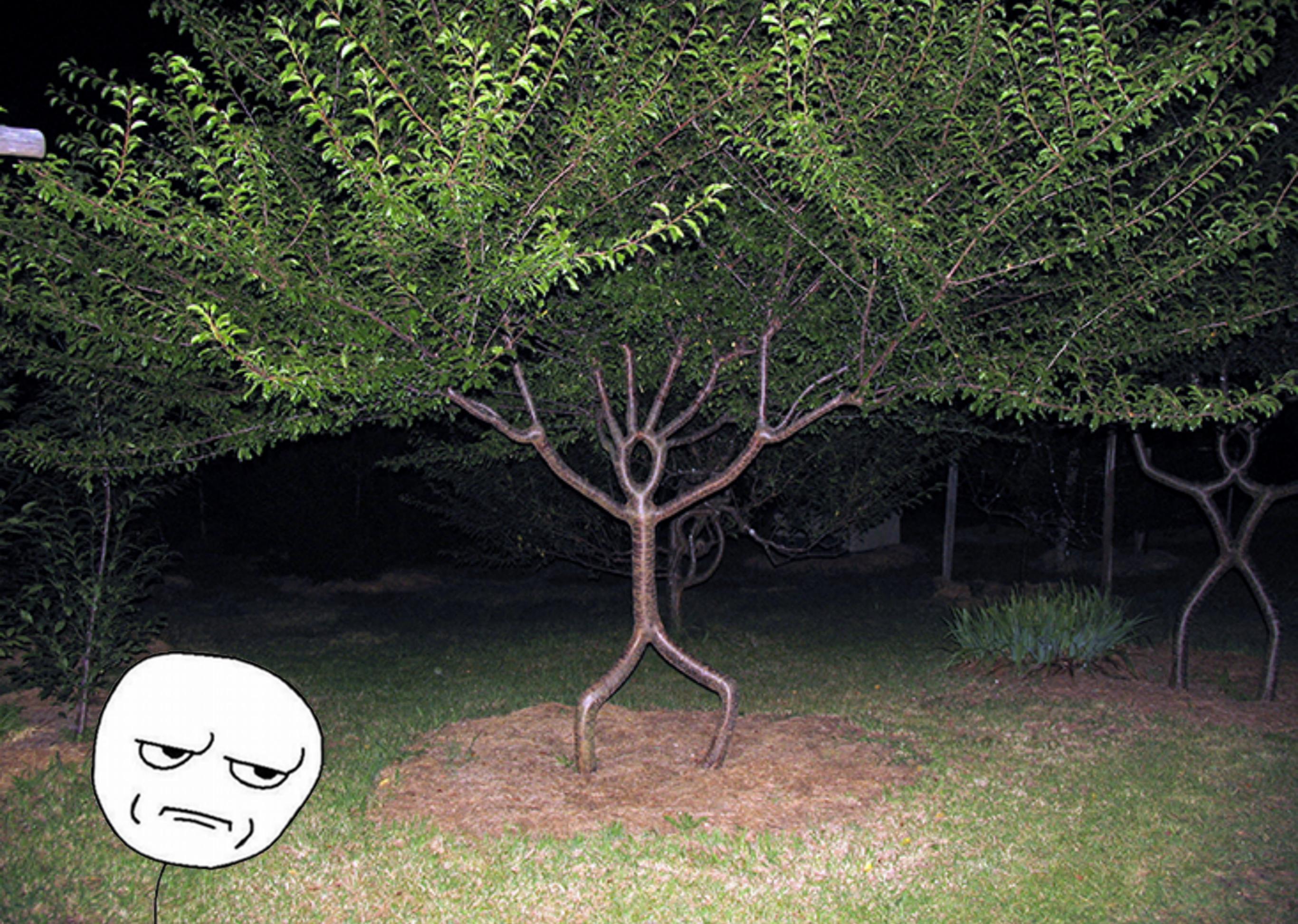
```
var Transitionable = new Transitionable([0, Math.PI /  
3, 0]);  
  
var Modifier1 = new Modifier({  
  transform: Transitionable  
});  
  
var Surface1 = new Surface({  
  classes: ['cube'],  
  content: 'JSDC'  
});  
  
Transitionable.set(  
  Transform.multiply(Transitionable.getFinal(),  
  Transform.rotate(0, Math.PI * 2 / 3, 0)),  
  2000,  
  function() {  
    /* Rotate the Cube 2 */  
  }  
);
```





All JavaScript,  
NO HTML.  
(If you want)

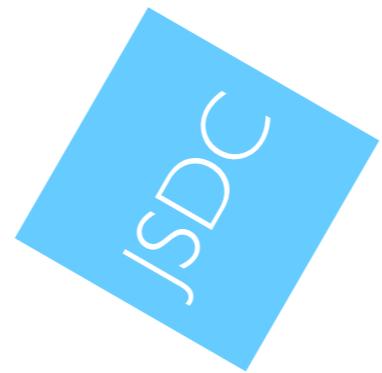
# RENDER TREE



# IN HTML WAY

All in DOM

```
<div class="container">
  <div class="animate cube" style="width: 100px; height: 100px; background-color: #3366ff; transform:
  rotateZ(60deg);">
    <span class="text">JSDC</span>
  </div>
</div>
```



# IN FAMOUS WAY

## JavaScript

```
var mainContext = Engine.createContext();

var mod = new Modifier({
    size: [100, 100],
    transform: Transform.rotateZ(60 * Math.PI / 180) /* radians = degrees * (pi/180) */
});

var surf = new Surface({
    classes: ['animate', 'cube'],
    content: '<span class="text">JSDC</span>',
    properties: {
        backgroundColor: '#3366ff'
    }
});

var view = new View();
view.add(mod).add(surf);

mainContext.add(view);
```

# IN FAMOUS WAY

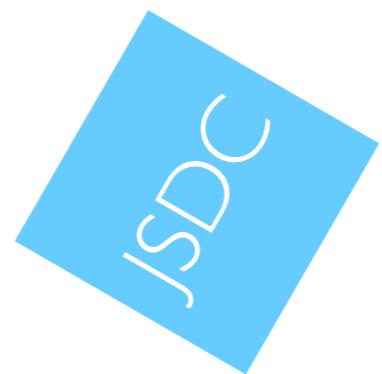
All in DOM

```
<body>  
</body>
```

# IN FAMOUS WAY

After render

```
<div class="famous-container">
  <div class="famous-surface animate cube" style="width: 100px; height: 100px; -webkit-transform-origin: 0% 0%; -webkit-transform: matrix3d(0.5, 0.866025403784439, 0, 0, -0.866025403784439, 0.5, 0, 0, 0, 0, 1, 0, 0, 0, 0, 1); background-color: #3366ff;">
    <span class="text">JSDC</span>
  </div>
</div>
```



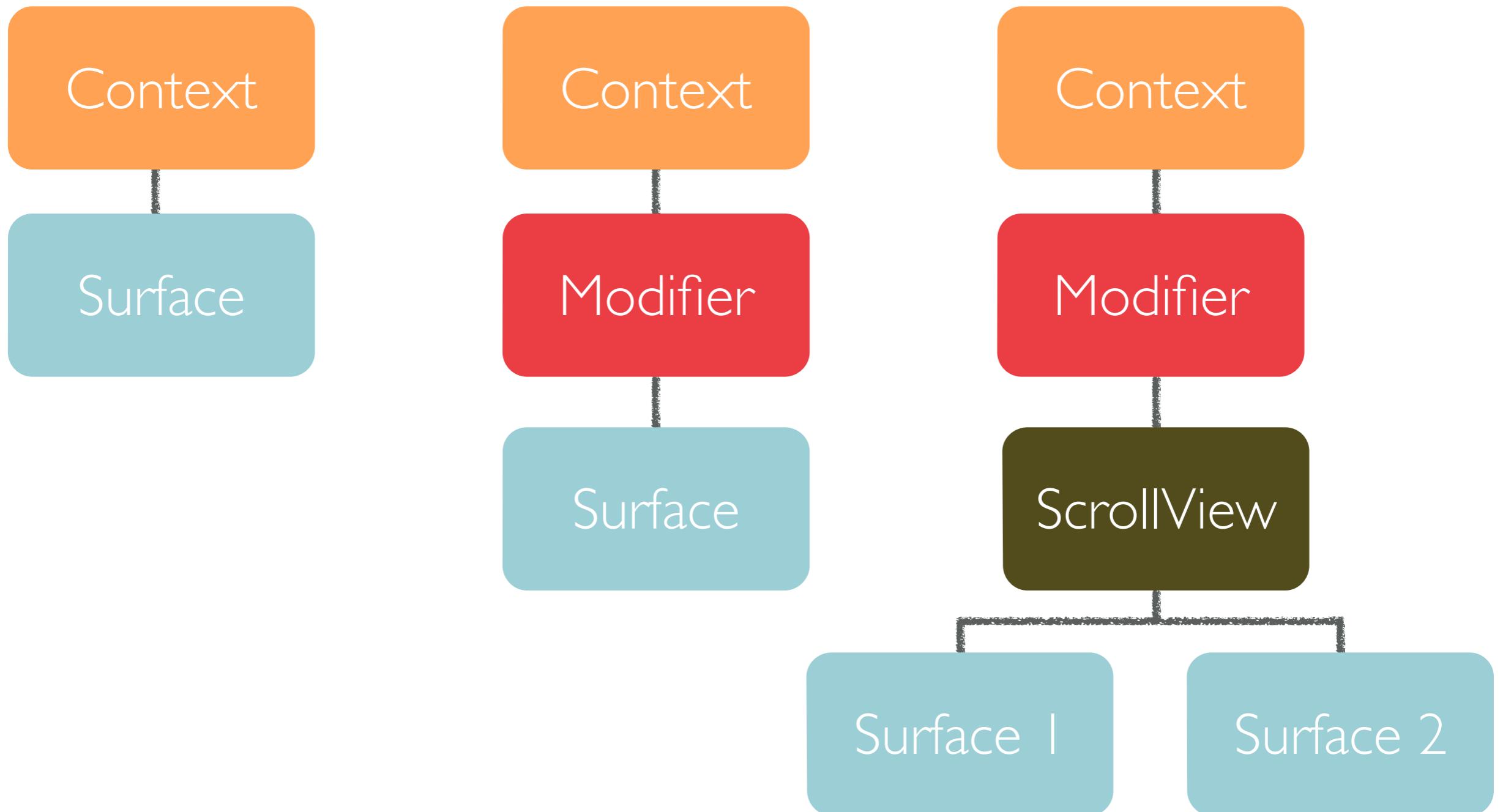


All JavaScript,  
NO HTML.  
(If you want)

# DEMO PLEASE

<http://codepen.io/hinablue/pen/itpuf>

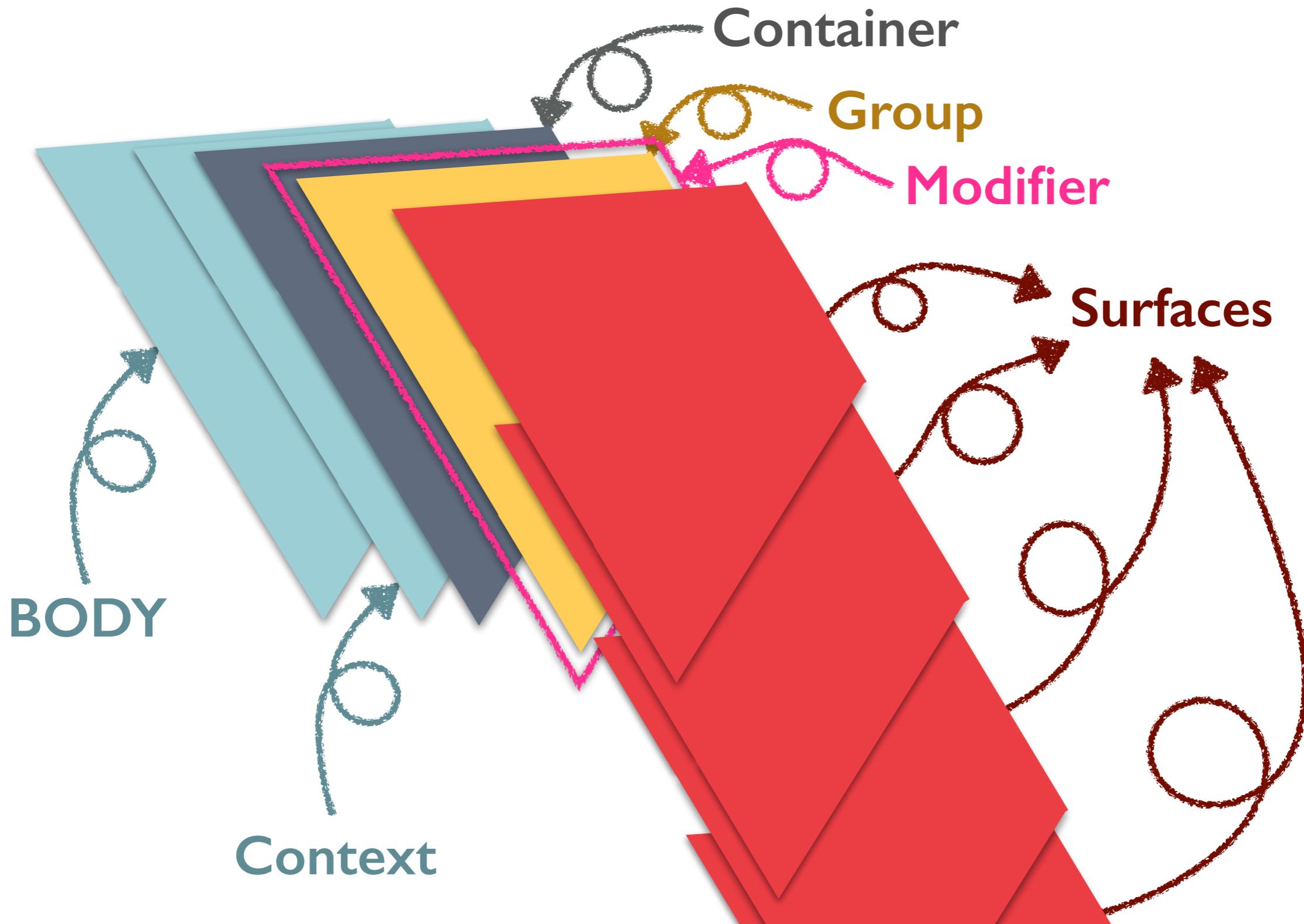
# RENDER TREE STRUCTURE



# RENDER TREE PERFORMANCE

- Keep DOM structure simple and clean
- Less Refflows and Repaints in browser
- Use EventsHandler to handle all the events
- Calculate with JavaScript, paint and animate with CSS3
- Math Library
- Provide a Physics Engine to do more simulate feature

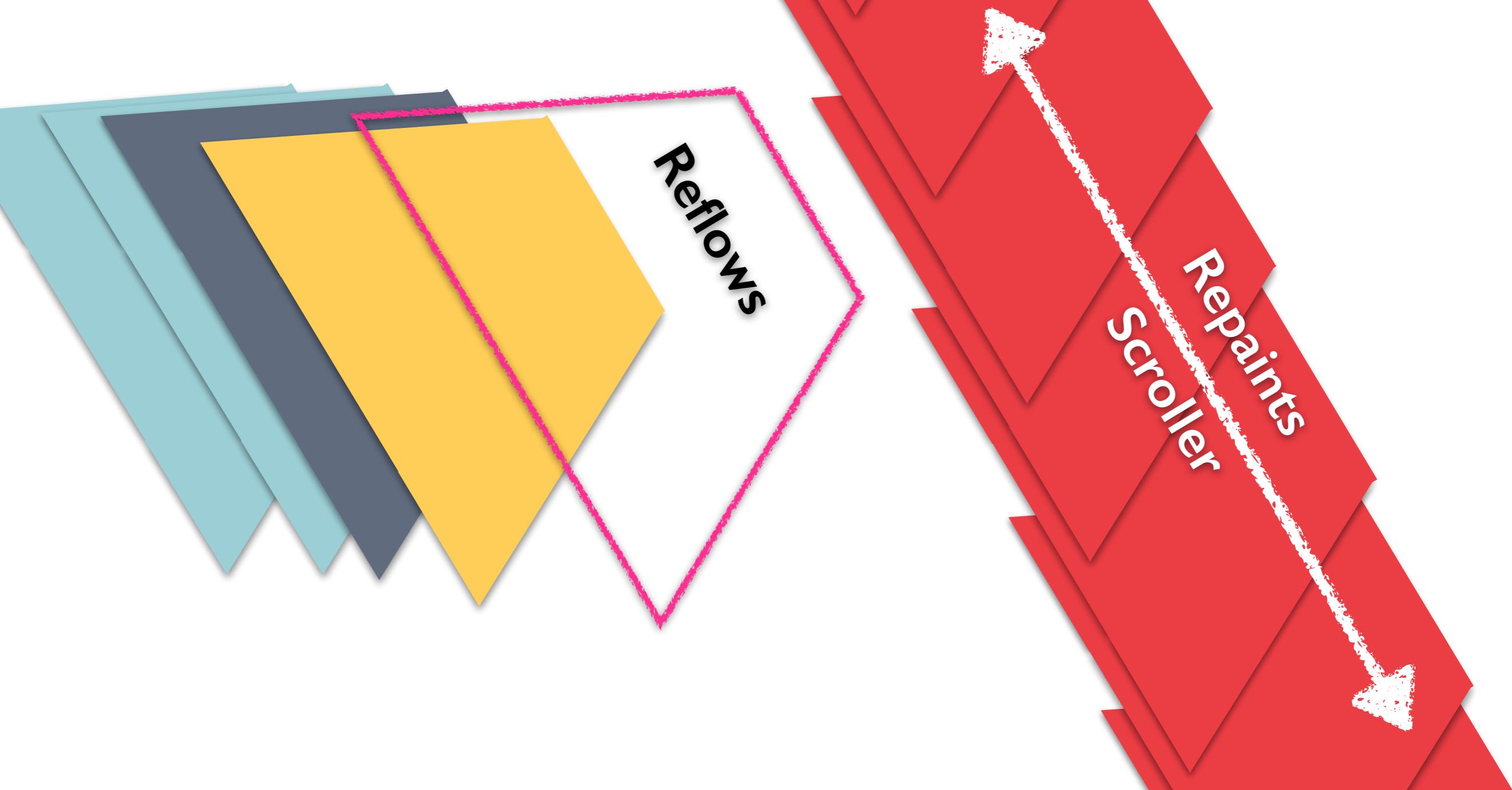
# RENDER TREE IN DOM



# REFLOWS & REPAINTS

- Very fast Reflows and Repaints
- No Repaints, if not necessary

# RENDER TREE IN ACTION



HOWTO FAMOUS?

# COOL TOOLS

- Famous/Browserify-Seed
- Famous/generator-famous
- Famous-Webpack-Seed

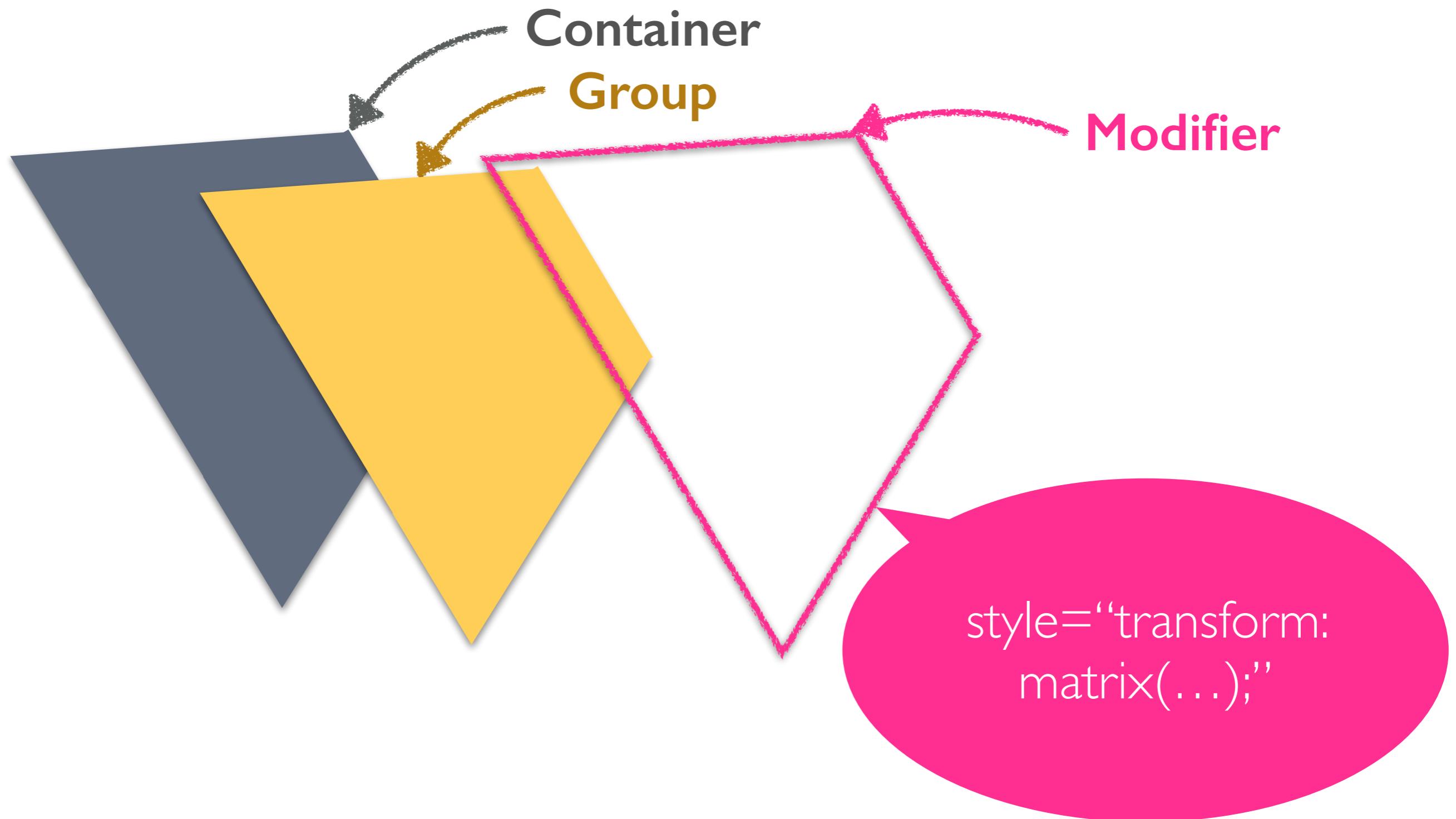
DEMO PLEASE

MODIFIER IS KING!

# MODIFIERS

- Modifier can modify **EVERYTHING**
- Modifier can modify modifiers with Modifier Chain
- Modifier can modify *modifiers* and modify his own children of modifier with Modifier Chain
- Modifier and ModifierChain are little different between Famo.us and famo.us-Angular

# MODIFIER IS ATTRIBUTE



# MODIFIER IS WAT !?



# MODIFIER'S WAT!

- Modifier **MUST** have a context, like Surface or etc
- Modifier can **NOT** allocate
- Modifier can only use the Transitionable or the object in roles
- Modifier and StateModifier is **MORE different** from Famo.us ~0.2.x
- Modifier in the render tree is an RenderNode just the same with others but “isModifier” property is **“true”**
- RenderNode usually can get the Modifier, if use “`.get()`” method

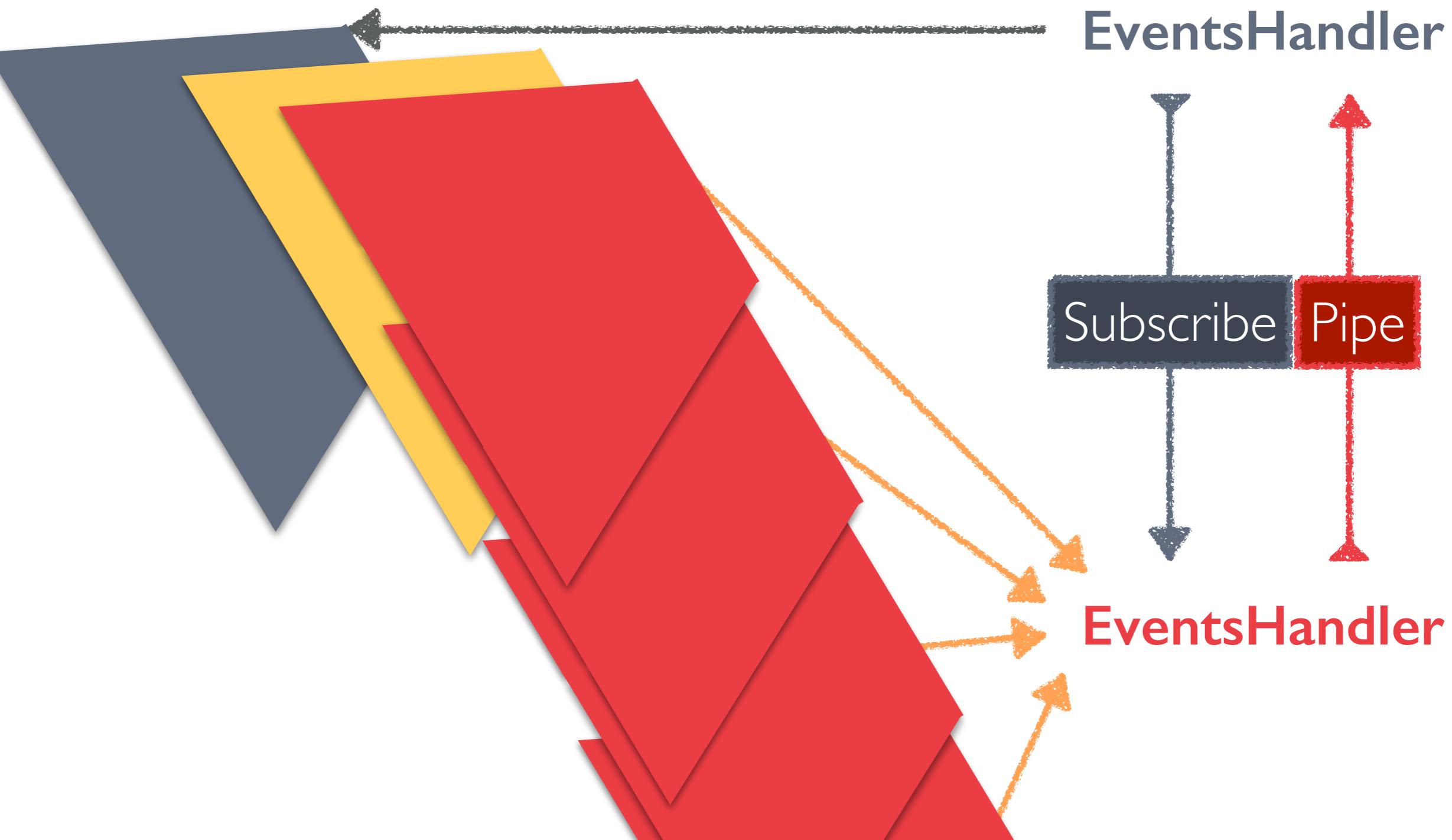
# DEMO PLEASE

<http://jsfiddle.net/arayi/gjdgbfr/>

# EVENT HANDLER

- Defined your own events
- Use pipe/subscribe to transmit the events
- Not depend on DOM
- Multiple events

# EVENT IN RENDER TREE



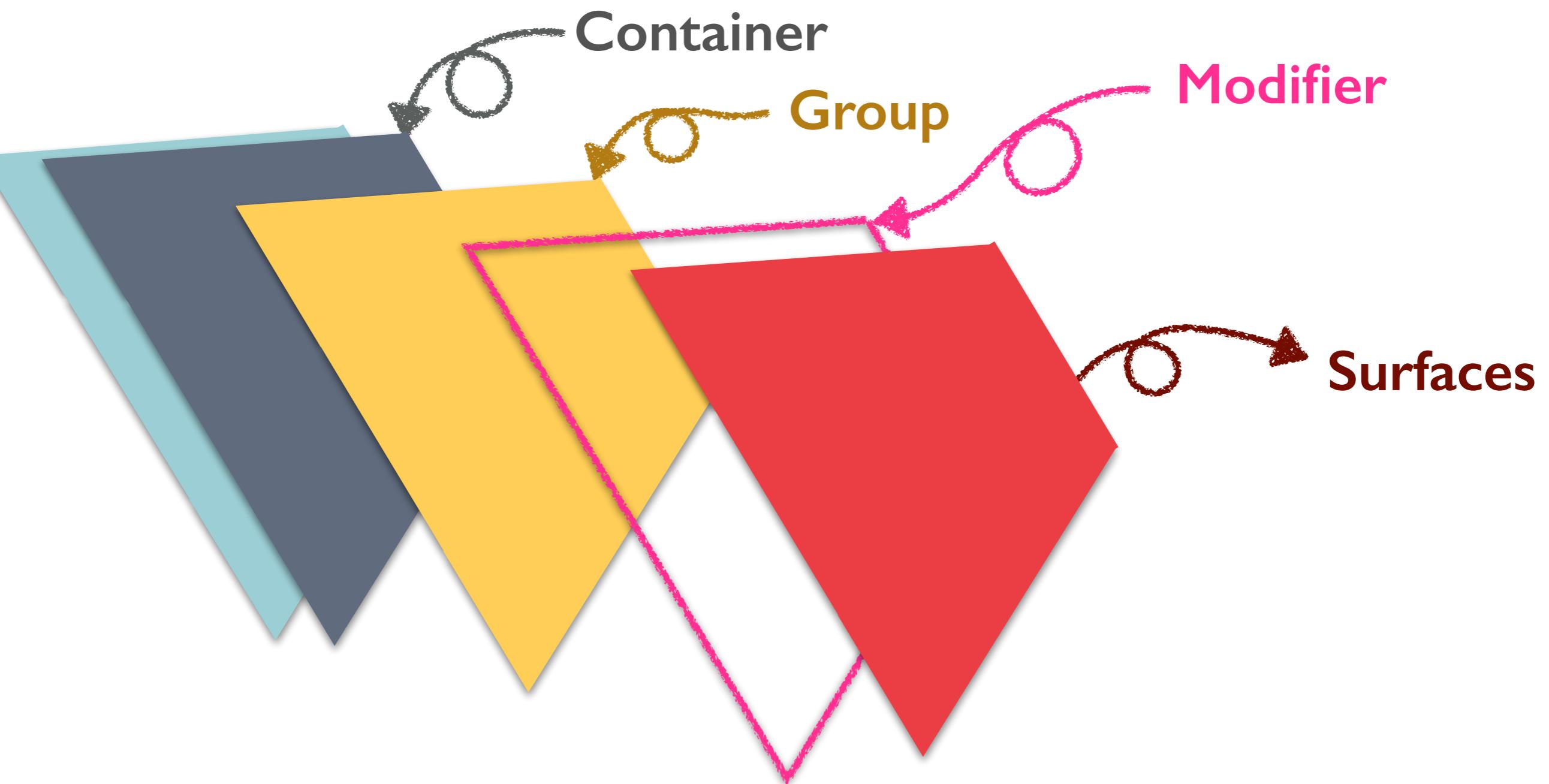
# DEMO PLEASE

<http://codepen.io/hinablue/pen/itpuf>

# VIEW AND WIDGET

- Modifier + Surface
- Modifier + View
- Modifier + Widget
- Modifier + ElementAllocator
- View + View
- View + Widget

# CREATE YOUR OWN VIEW



# DEMO PLEASE

<http://famous.hinablue.me/SlideShow/>

# LIBRARY

- Math
- Transform
- Transition
- Physics Engine
- Device Input
- Element Allocator

# DEMO PLEASE

[http://periodic.famo.us/?source=NL\\_062314](http://periodic.famo.us/?source=NL_062314)

# WAT,WAIT, AGAIN !?



# INTERGRATIONS

# FAMOUS-\*

- Famous-Angular
- Famous-React

# FAMOUS-ANGULAR

- Not very good documentation (Actually, you can find more in source code)
- You must follow the Famo.us render tree rules.
- `<fa-` directive is not really compatible with others.
- `fa-` Events and `ng-` Events can use together, but not recommend.
- Customize directive in Famo.us is too hard to use if you are Angular beginner.

# DEMO PLEASE

<http://goo.gl/5fMRKc>

# FAMOUS-REACT

- Not stable for now

# DEMO PLEASE

<http://famous.github.io/famous-react/>

# MORE INTEGRATION DEMOS

- MeteorJS + famo.us
- Famono
- famous-views for Meteor
- Pete Hunt, famous-react
- Firebase with Famo.us
- Backbone, source code from famous demo
- [Video] famo.us + D3.js
- [Video] Leap Motion

FUTURE

中文社群 FAMOUS.TW

<https://www.facebook.com/groups/famous.tw>

THANK YOU

# LINKS

- Web App Performance, a story of becoming famo.us
- Unlike Facebook, Famo.us thinks HTML5 rocks. Here is why.
- Famo.us Cracks The Secret Of High-Performance Apps By Tapping Another Dimension
- Famo.us Reveals More Details About Its HTML5 Turbo-Charger
- Famo.us describes how it created a magical user interface for the web

# LINKS

- [Viewing Chrome's Paint Cycle](#)
- [Minimizing browser reflow](#)
- [Rendering: repaint, reflow/relayout, restyle](#)
- [REFLOWS & REPAINTS: CSS PERFORMANCE MAKING YOUR JAVASCRIPT SLOW?](#)
- [Improve Rendering Performance with Chrome Dev Tools](#)
- [Scrolling Performance](#)

# LINKS

- <http://codepen.io/befamous/>
- <https://hackpad.com/Famo.us-links-kPsHMaDFboE>
- <https://github.com/famous>
- <http://famous-bird.herokuapp.com/>
- <http://www.famospace.com>
- <http://codepen.io/hinablue/pen/itpuf>
- <https://famo.us/blog/modifiers-affect-subtrees/>
- <http://periodic.famo.us/>
- <http://demo.famo.us/lightbox/>
- <http://demo.famo.us/paper/>
- <http://famous.hinablue.me/SlideShow/>

# LINKS

- <https://github.com/zackbrown/flickrous>
- <http://thomasstreet.com/famous-angular-google/>
- [https://github.com/continuata/fa\\_tutorial1/](https://github.com/continuata/fa_tutorial1/)
- <https://github.com/hinablue/famous.tw>
- <https://github.com/hinablue/famous.tw/issues>
- <https://www.facebook.com/groups/famous.tw>