

REVOLUTIONARY ASYNCHRONOUS MODULAR WEB FRAMEWORK FOR NODE.JS

`npm install --save bigpipe`

`http://bigpipe.io`



FACEBOOK

Introduced on June 4, 2010

<http://goo.gl/53azKc>



Swaagie



Swaagie



Swaagman





Swaagie
Martijn Swaagman



3rd-Eden
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observe.it

GOALS

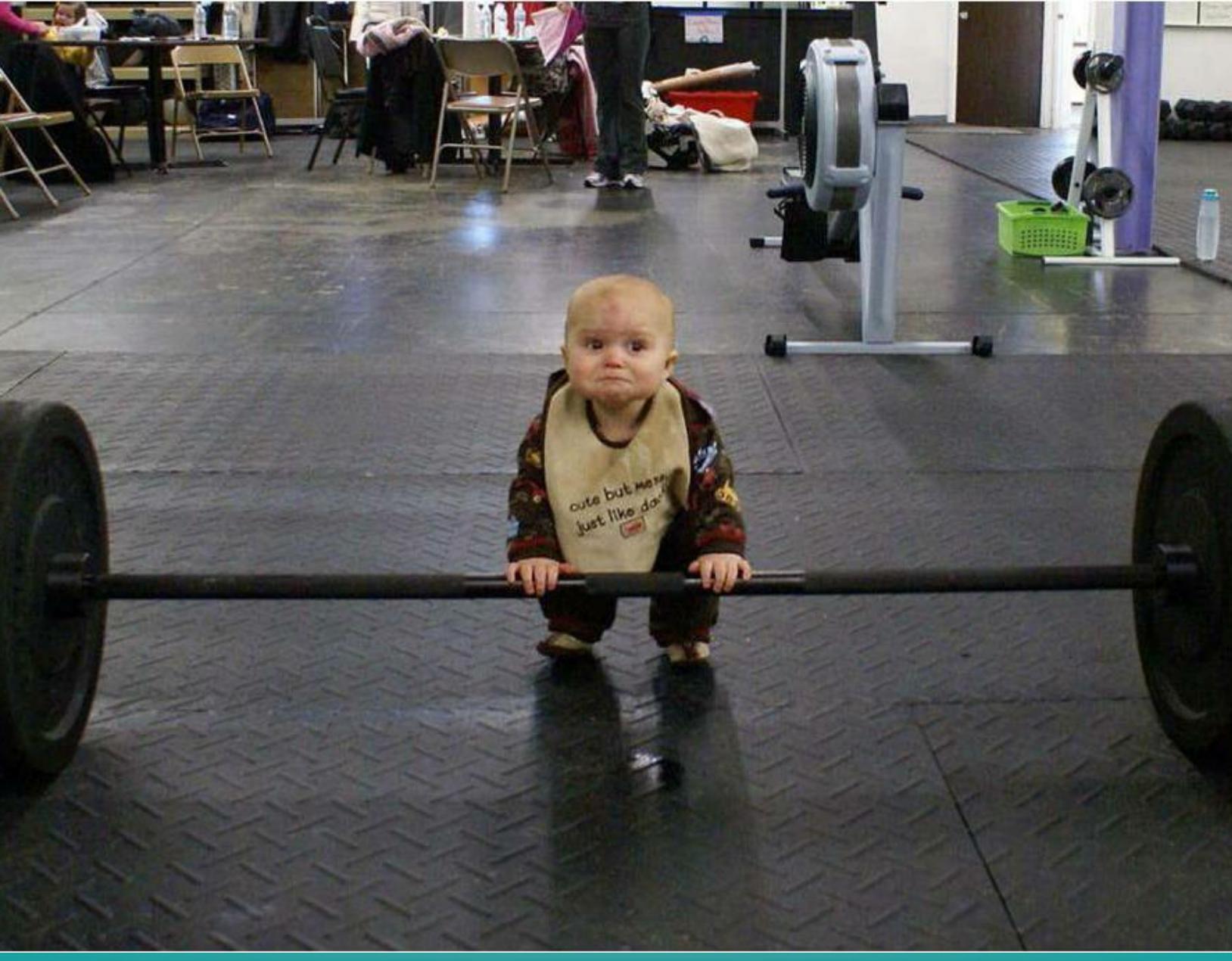
Fast user experience, *performance*

Component *reusability*

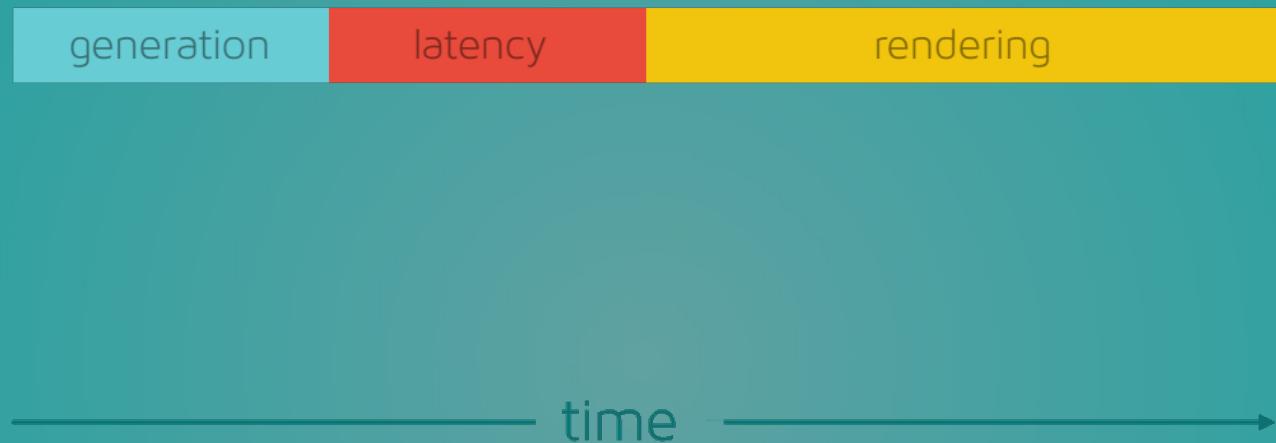
Reduce and share server/client *workload*



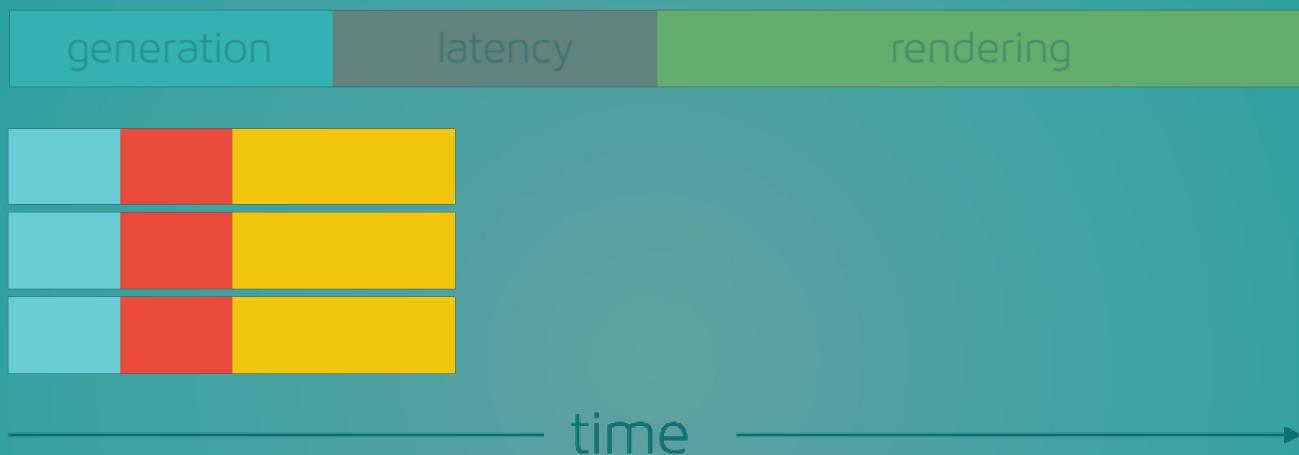




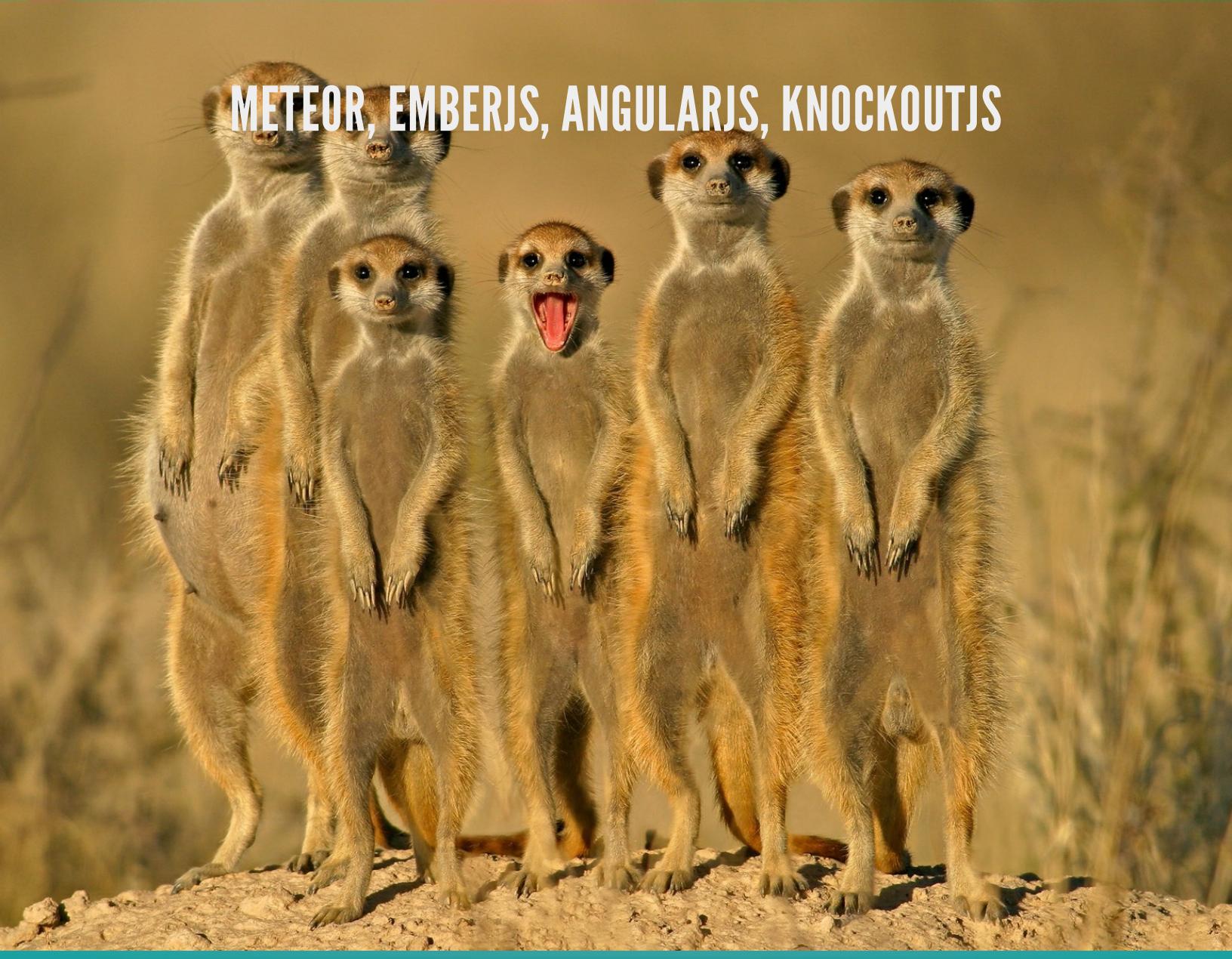
DOING IT SYNC



DOING IT ASYNC



METEOR, EMBERJS, ANGULARJS, KNOCKOUTJS



RICH USER INTERFACES

header

feed of products

recommended

PAGELET



PAGE





OPEN SOURCE EXAMPLE OF A BIGPIPE POWERED SITE

BROWSENPM.ORG

<https://github.com/nodejitsu/browsenpm.org>

PUBLIC NPM

METEOR PACKAGE PAGE ($\pm 30\%$)

METEOR PACKAGE PAGE (100%)

PAGELETS ARE MODULES

```
'use strict';

var Pagelet = require('bigpipe').Pagelet;

//  
// Alternatively, only depend on Pagelet  
//  
Pagelet = require('pagelet');
```

PAGELETS ARE EXTENDABLE

```
var Pagelet = require('bigpipe').Pagelet;  
  
Pagelet.extend({  
  //  
  // Custom properties here  
  //  
}).on(module);
```

PAGELETS HAVE VIEW TEMPLATES

```
$ npm install --save handlebars
$ ..
$ echo '<aside><h1>{{ title }}</h1></aside>' > sidebar.hbs
$ vim index.js
```

```
'use strict';

var Pagelet = require('bigpipe').Pagelet;

Pagelet.extend({
  view: 'sidebar.hbs',
  error: 'unavailable.jade', // optional

  get: function get(done) {
    return done(null, { title: 'my sidebar' });
  }
}).on(module);
```

PAGELETS HAVE STYLE

```
Pagelet.extend({  
  css: 'list.styl'  
}).on(module);
```

```
ul  
  &.foo  
    list-style: none  
    padding: 0
```

```
[data-pagelet="sidebar"] ul.foo {  
  list-style: none;  
  padding: 0;  
}
```

Discussion shadowRoot/scoped style:
<http://goo.gl/45PYnV>

PAGELETS CONTAIN LOGIC

```
'use strict';

var Pagelet = require('bigpipe').Pagelet;

Pagelet.extend({
  account: require('./accountModel'),

  get: function get(done) {
    this.account(function fetched(error, data) {
      return done(error, data);
    });
  },

  post: function get(body, files, next) {
    this.account(body, function processed(error) {
      return next(error);
    });
  }
}).on(module);
```

PAGELETS CAN DO RPC

Full real-time remote procedure calls

```
'use strict';

var Pagelet = require('bigpipe').Pagelet
, accounts = require('./accounts');

Pagelet.extend({
  name: 'accounts'

  RPC: ['search'],

  search: function search(reply, arg) {
    accounts.search(function (error, data) {
      reply(error, data);
    });
  }
}).on(module);
```

DISTRIBUTE PAGELETS

```
$ npm install carousel-pagelet
```

```
'use strict';

var path = require('path')
, Pagelet = require('carousel-pagelet');

//  
// Manually export extended instance.  
//  
module.exports = Pagelet.extend({  
  css: path.join(__dirname, 'custom.styl'),  
  js: path.join(__dirname, 'alternative-behavior.js')  
});
```



PAGE CONTAINS PAGELETS

```
'use strict';

var Page = require('bigpipe').Page;

Page.extend({
  pagelets: {
    'pagelet-1': 'path to pagelet',
    'pagelet-2': require('custom-pagelet')
  }
}).on(module);
```

PAGE DOES ROUTING

```
'use strict';

var Page = require('bigpipe').Page;

Page.extend({
  path: '/url/:param/:name'
}).on(module);
```

(x)RegExp based routing

```
Page.extend({
  path: /^\/foo\/bar/i
}).on(module);
```

```
Page.extend({
  path: '/^\/(?<named>[\d.]+)\/foo/'
}).on(module);
```

PAGE ALSO HAS VIEW

```
<!doctype html>
<html class="no-js">
<head>
  <%- bootstrap %>
</head>
<body>
  <div data-pagelet="sidebar"></div>

  <section class="documentation">
    <article data-pagelet="bigpipe"></article>
    <article data-pagelet="pagelet"></article>
    <article data-pagelet="client"></article>
  </section>
</body>
</html>
```

PAGE RENDERS ASYNC

```
'use strict';

var Page = require('bigpipe').Page;

Page.extend({
  path: '/',
  view: 'index.ejs',
  mode: 'async',

  pagelets: {
    'pagelet-1': 'path to pagelet',
    'pagelet-2': require('custom-pagelet')
  }
}).on(module);
```

PAGE RENDERS PIPELINED

```
'use strict';

var Page = require('bigpipe').Page;

Page.extend({
  path: '/',
  view: 'index.ejs',
  mode: 'pipeline',

  pagelets: {
    'pagelet-1': 'path to pagelet',
    'pagelet-2': require('custom-pagelet')
  }
}).on(module);
```

PAGE RENDERS SYNC

```
'use strict';

var Page = require('bigpipe').Page;

Page.extend({
  path: '/',
  view: 'index.ejs',
  mode: 'sync',

  pagelets: {
    'pagelet-1': 'path to pagelet',
    'pagelet-2': require('custom-pagelet')
  }
}).on(module);
```

BASE IMPLEMENTATION

```
<html>
<head>
  <meta charset="utf-8">
  <script src="{pipe.js}"></script>
  <noscript>
    <meta http-equiv="refresh" content="/?no_pagelet_js=1">
  </noscript>
  ...
</head>
<body>
  ...
  <header data-pagelet="header"></header>
  <section data-pagelet="feed"></section>
  <footer data-pagelet="recommended"></section>
  ...
</body>
</html>
```

FLUSH PAGELET

```
<code data-pagelet-fragment="login" style="display:none"><!--  
  <section class="row">  
    <form method="post" action="/" class="fivecol">  
      ..  
    </form>  
  </section> -->  
</code>  
<script>  
  pipe.arrive("login", {  
    "css": ["/b04d448dd7b67c3bdb2a75ff79198c840df88954.css"],  
    "js": [],  
    "id": "0FWH-EFC8MTOQ-OLXRO9HG5H2-992RO1OR",  
    "rpc": [],  
    "authorized": true,  
    "streaming": false,  
    "data": {}  
  });  
</script>
```

CATAPOODLE !!!



SERVING PAGES AND PAGELETS

CREATING YOUR FIRST BIGPIPE INSTANCE

```
var BigPipe = require('bigpipe');

var bigpipe = BigPipe.createServer(8080, {
  pages: __dirname + '/pages',
  dist: __dirname + '/dist'
});
```

DEMO TIME

DEMONSTRATING ASYNC

► in an iframe

SVG ELEMENT AS PAGELET

```
'use strict';

require('bigpipe').Pagelet.extend({
  view: 'view.ejs',

  mode: 'svg',      // Set pagelet mode to SVG for correct NameSpaceURI.

  attributes: {},   // Element SVG attributes.

  delay: 1000,       // Default fake delay of 1 second.

  get: function(render) {
    var pagelet = this;

    setTimeout(function ready() {
      render(null, { attributes: pagelet.attributes });
    }, pagelet.delay);
  }
}).on(module);
```

YELLOW BACKGROUND

```
'use strict';

require('../base').extend({
  name: 'background',
  delay: 2000,
  attributes: {
    fill: "#f7df1e",
    height: 630,
    width: 630,
    x: 0,
    y: 0
  }
}).on(module);
```

<https://github.com/bigpipe/EmpireJS>

BIGPIPE SERVER OPTIONS

```
var BigPipe = require('bigpipe');

var bigpipe = BigPipe.createServer(443, {
  pages: __dirname + 'pages',
  dist: __dirname + '/dist',

  key: fs.readFileSync('ssl.key'),
  cert: fs.readFileSync('cert.key'),
  spdy: { /* SPDY configuration */ },

  redirect: 80
});
```

BIGPIPE PLUGINS

```
'use strict';

bigpipe.use('ack', {
  // Only ran on the server.
  server: function (bigpipe, options) {},
  // Runs on the client, it's automatically bundled.
  client: function (bigpipe, options) {},
  // Optional library that needs to be bundled on the client.
  library: '',
  // Plugin options, Bigpipe.options will be merged in.
  options: {}
});
```

BIGPIPE MIDDLEWARE

```
'use strict';

var BigPipe = require('bigpipe')
, serve = require('static-serve')
, connect = require('connect');

var bigpipe = BigPipe.createServer(8080, {
  pages: __dirname + '/pages',
  dist: __dirname + '/dist'
});

bigpipe.before('static', serve());
bigpipe.before(connect.favicon(__dirname + '/favicon.png'));
```



Windows Phone
Services: **OVERHAULED!**



U-HAUL



CLIENT SIDE LIBRARY

```
'use strict';

pipe.once('<name>::render', function initialized(pagelet) {
  //
  // You can access the initialised pagelet here
  //
});
```

LIBRARY FEATURES

```
'use strict';

pipe.once('<name>::render', function initialized(pagelet) {
    // Render pagelet
    pagelet.render('<strong>hi</strong>');

    // Submit form over real-time connection
    pagelet.submit(document.forms[0]);

    // Call RPC methods
    pagelet.search('foo', done);
});
```

PRIMUS

```
'use strict';

..
charts.append = function append(data) {
  ..
}

pipe.once('charts::render', function initialized(pagelet) {
  pagelet.stream.on('data', charts.append);
});
```

Seamless switching between websocket libraries
Plugin support and custom encoders
Additional fixes and automatic reconnect that works

primus.io

WHAT ELSE IS THERE?

Compiler: manages and optimizes CSS/JS
dependencies

Fortress: docker-like containers for client-side code

Low level components: fusing, temper, fabricator,
etc.

THE SOLVED PROBLEMS

Fast user experience, performance

Component reusability

Reduce and share server/client workload

TRY IT



FUTURE GOALS

Quickling or turbo links
Pagelet & page cache
Streaming/diff-able CSS/JS
Benchmarking

THANK YOU!

Documentation: <http://bigpipe.io>

BigPipe: <http://github.com/bigpipe/bigpipe>

Pagelet: <http://github.com/bigpipe/pagelet>

Pipe.js: <http://github.com/bigpipe/pipe.js>

Primus: <http://github.com/primus/primus>



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