

MEAN STACK DEVELOPMENT

Using open source tools



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MEAN STACK DEVELOPMENT

- What does it MEAN?
- A highly opinionated development stack
- Examples
- What's next?

WHAT DOES IT MEAN?



Open-Source Full-Stack Solution For MEAN Applications

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MongoDB

ExpressJS

AngularJS

Node

~~MongoDB~~

PGREST

~~ExpressJS~~

IOJS

~~AngularJS~~

EMBER

~~Node~~

SAILS



PGREST

IOJS

EMBER

SAILS

Full Stack Javascript Development



Why JavaScript?

Why JavaScript?

Javascript has come a long way since 1998

Why JavaScript?

Javascript has come a long way since ~~1998~~
2006

1998

2006

2015

```
1 (function(jQuery) {  
2     use strict;  
3  
4     var orderType = "test";  
5     var orderItems = [];  
6     jQuery('#orderButton').click(function  
7         // TODO: Make this work  
8     })  
9 })(jQuery);
```

```
1 import {order} from orderLib;  
2  
3 class OrderView {  
4     constructor(options) {  
5         this.model = options.model  
6         this.template = options.template;  
7     }  
8  
9     render() {  
10        return _.template(this.template, this.model.toObject());  
11    }  
12 }  
13  
14 class OrderModel {  
15  
16 }
```

ECMAScript 6

- ES6 Modules
- Class syntax
- => and Function generators
- Available today



Traceur

ES6 to ES5 transpiler

<https://github.com/google/traceur-compiler>

(yes, it's on Google's github account)

io.js

<https://iojs.org>

Like node but better

A HIGHLY OPINIONATED DEVELOPMENT STACK



CLOUD9

An open-source IDE...

The screenshot displays the Cloud9 IDE interface. At the top, the menu bar includes 'Cloud9', 'File', 'Edit', 'Find', 'View', 'Goto', 'Run', 'Tools', 'Window', and 'Help'. The main workspace is divided into several panes:

- Workspace:** A file explorer on the left showing a project named 'cardblancwebsite' with subfolders like 'app', 'doc', 'heroku-client', 'node_modules', and 'utilScripts', along with various files.
- Code Editor:** The central pane shows a JavaScript file named 'pointsbank.js'. The code includes a function that handles a response and an error, and another function 'returnPoints' that extracts parameters from a request and uses them to create a 'cbpoints' object.
- Terminal:** At the bottom, a terminal window shows the command prompt 'sax1johnno@cardblancwebsite:/home/ubuntu/workspace (staging) \$'.

Additional UI elements include a 'Collaborate' sidebar on the right, a 'Share' button, and system status indicators like 'DISK MEMORY CPU' and '10:46 JavaScript Spaces: 4'.

CLOUD9

...that runs entirely on the web!

The screenshot displays the Cloud9 IDE interface. The browser address bar shows `https://ide.c9.io/sax1johnno/spop`. The main editor window shows a file named `post.js` with the following JavaScript code:

```
87 new fbGraphSDK().myGroups(access_token).then(function(groups) {
88   console.log("Groups = ", groups);
89   if (!_.has(groups, 'error')) {
90     cb(groups);
91   } else {
92     async.map(groups.data, function(item, groupCallback) {
93       groupCallback(null, item.id);
94     }, function(err, groupIdArray) {
95       var returnQuery = {
96         $or: [
97           {
98             facebook_groups: { $exists: false }
99           },
100          {
101            facebook_groups: { $in: groupIdArray }
102          }
103        ]
104      };
105      cb(err, returnQuery);
106    });
107  }
108 });
109 // cb(null, returnQuery);
110 };
111
112 module.exports = {
113   plugin: plugin,
114   filter: filter,
115   hasCriteria: hasCriteria,
116   process: process,
117   getQuery: getQuery,
```

The terminal window at the bottom shows the following output:

```
Counting objects: 13, done.
Delta compression using up to 16 threads.
Compressing objects: 100% (6/6), done.
Writing objects: 100% (6/6), 538 bytes | 0 bytes/s, done.
Total 6 (delta 5), reused 0 (delta 0)
To git@bitbucket.org:sax1johnno/spop-ghiraldi.git
 2d95e51..35af549  master -> master
sax1johnno@spop:/home/ubuntu/workspace (master) $
```

C9 ARCHITECT

<http://github.com/c9/architect>

```
// auth.js

/* All plugins must export this public signature.
 * @options is the hash of options the user passes in when creating an instance
 * of the plugin.
 * @imports is a hash of all services this plugin consumes.
 * @register is the callback to be called when the plugin is done initializing.
 */
module.exports = function setup(options, imports, register) {

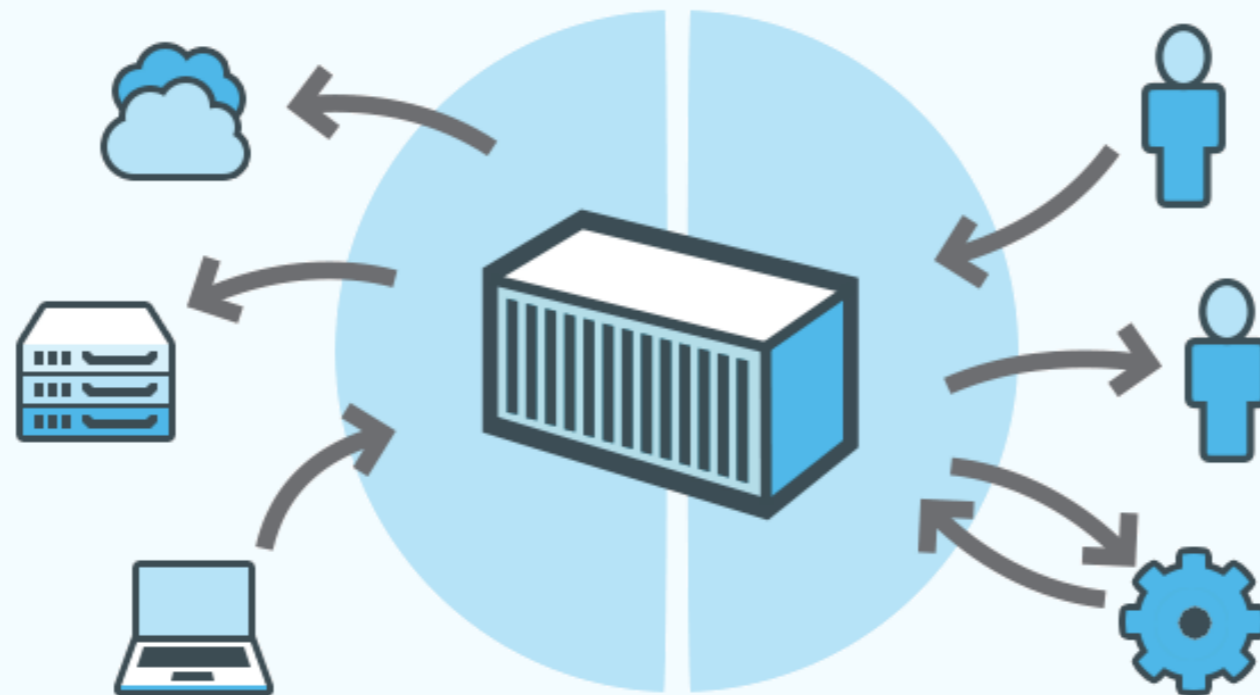
  // "database" was a service this plugin consumes
  var db = imports.database;

  register(null, {
    // "auth" is a service this plugin provides
    auth: {
      users: function (callback) {
        db.keys(callback);
      },
      authenticate: function (username, password, callback) {
        db.get(username, function (user) {
          if (!(user && user.password === password)) {
            return callback();
          }
          callback(user);
        });
      }
    }
  });
};
```




What Is Docker?

An open platform for distributed applications



Docker Engine

A portable, lightweight application runtime and packaging tool.

[Learn More](#)

Docker Hub

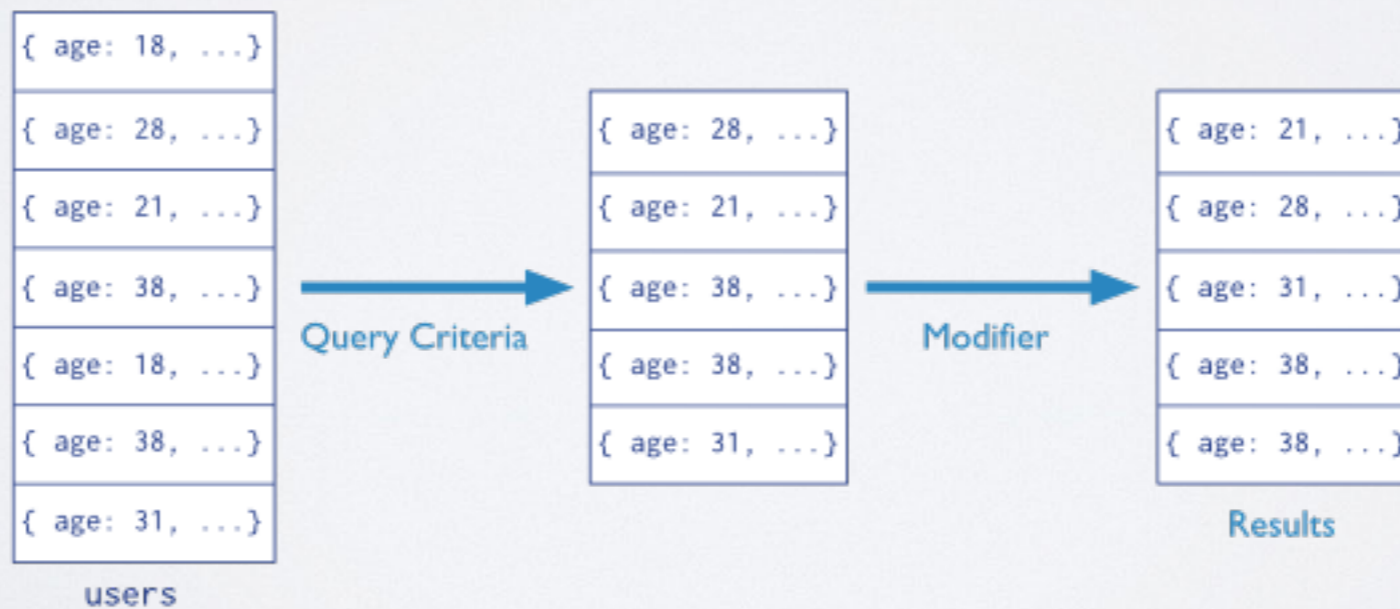
A cloud service for sharing applications and automating workflows.

MONGODB

```
{  
  name: "sue",  
  age: 26,  
  status: "A",  
  groups: [ "news", "sports" ]  
}
```

← field: value
← field: value
← field: value
← field: value

Collection Query Criteria Modifier
db.users.find({ age: { \$gt: 18 } }).sort({age: 1 })





```
1. <!doctype html>
2. <html ng-app="app">
3.   <head>
4.     <script src="https://ajax.googleapis.com/ajax/libs/angularjs/1.3.13/angular.min.js"></script>
5.     <script src="components.js"></script>
6.     <script src="app.js"></script>
7.     <link rel="stylesheet" href="bootstrap.css">
8.   </head>
9.   <body>
10.    <tabs>
11.      <pane title="Localization">
12.        Date: {{ '2012-04-01' | date:'fullDate' }} <br>
13.        Currency: {{ 123456 | currency }} <br>
14.        Number: {{ 98765.4321 | number }} <br>
15.      </pane>
16.      <pane title="Pluralization">
17.        <div ng-controller="BeerCounter">
18.          <div ng-repeat="beerCount in beers">
19.            <ng-pluralize count="beerCount" when="beerForms"></ng-pluralize>
20.          </div>
21.        </div>
22.      </pane>
23.    </tabs>
24.  </body>
25. </html>
```

Express

```
var express = require('express');
var router = express.Router();

// middleware specific to this router
router.use(function timeLog(req, res, next) {
  console.log('Time: ', Date.now());
  next();
})
// define the home page route
router.get('/', function(req, res) {
  res.send('Birds home page');
})
// define the about route
router.get('/about', function(req, res) {
  res.send('About birds');
})

module.exports = router;
```

OTHER STUFF

Jade

SASS

git


Gulp

Mocha

SHOW ME!!! I!! I!! SHIFTY-I

WHAT'S NEXT?

MICRO-SERVICES ARCHITECTURES




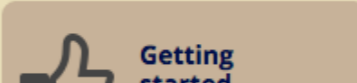
Seneca
A Micro-Services toolkit for Node.js

Built it Now, Scale it Later!

This toolkit lets you write clean code that you can scale without needing to refactor. Start with everything in one process, and split it all out onto multiple systems when you need to.

Here's a [micro-service \(video\)](#) that generates identifiers. You send the micro-service JSON objects. It responds with a new JSON object.

 Download & install

 Getting started

The background features a colorful geometric pattern of overlapping hexagons in shades of red, blue, purple, and yellow.

Amazon Lambda



MEAN is not just for websites



CYLON.JS



NodeBots

Robots powered by JavaScript



ionic

THE NODE



COPTER

QUESTIONS?

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