Cloud Tech: Your new bag of tricks

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Agenda

• What’s *really* changed?

• Some new Tricks

• The Plan of Attack
Evolving to a SoE / SoR Mindset

- Responsive Web UIs
- Mobile Platforms
- Systems of Engagement
- Public Cloud
- Public APIs
- Social Media / Collaboration
- Information
- Processes
- Systems of Record

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Everything Old is New Again
Except Disco... what were you people thinking?

This isn’t cool or new anymore

Now it has these added features!

Hey, we have this cool new thing!

What if we took those core things...

Hey, we have this cool new thing!

Hey, we have this cool new thing!

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REST & Statelessness Programming

• REST APIs – The Language of Cloud
  – REpresentational State Transfer
  – Open (don’t need to develop a plugin)
  – Just Google “[thing you want to use] REST API” and GO!

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HTTP Verbs

GET
PUT
POST
DELETE
Thinking Asynchronously

Brian: Hi
Me: Hi
Brian: How are you?
Me: Fine, thanks
Brian: Can I ask you a question?
Me: Yes
Brian: It's a really quick question, shouldn't take more than five minutes
Me: Ok, what is it
Brian: Ok, here's the question I want to ask you…

JUST ASK THE QUESTION ALREADY!!!!!

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fs.readdir(source, function(err, files) {
  if (err) {
    console.log('Error finding files: ' + err)
  } else {
    files.forEach(function(filename, fileIndex) {
      console.log(filename)
      gm(source + filename).size(function(err, values) {
        if (err) {
          console.log('Error identifying file size: ' + err)
        } else {
          console.log(filename + ' : ' + values)
          aspect = (values.width / values.height)
          widths.forEach(function(width, widthIndex) {
            height = Math.round(width / aspect)
            console.log('resizing ' + filename + ' to ' + height + 'x' + height)
            this.resize(width, height).write(destination + 'w' + width + '_ ' + filename, function(err) {
              if (err) console.log('Error writing file: ' + err)
            })
          })
        }
      })
    })
  }
})
MVC – Model / View / Controller

MODEL

VIEW

CONTROLLER

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MVC – Model / View / Controller
MVC – Model / View / Controller
Modern Javascript
More than just scrolling text and blinking lights this time

```javascript
var server = net.createServer(function (socket) {
    socket.end("goodbye\n");
});

// grab a random port.
server.listen(function() {
    address = server.address();
    console.log("opened server on %j", address);
});
```

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JSON Uses JavaScript Syntax

Because JSON uses JavaScript syntax, no extra software is needed to work with JSON within JavaScript.

With JavaScript you can create an array of objects and assign data to it like this:

```
var employees = [
    {"firstName":"John", "lastName":"Doe"},
    {"firstName":"Anna", "lastName":"Smith"},
    {"firstName":"Peter", "lastName":"Jones"}
];
```

The first entry in the JavaScript object array can be accessed like this:

```
employees[0].firstName + " " + employees[0].lastName;
```

The returned content will be:

```
John Doe
```
Node.js® is a platform built on Chrome's JavaScript runtime for easily building fast, scalable network applications. Node.js uses an event-driven, non-blocking I/O model that makes it lightweight and efficient, perfect for data-intensive real-time applications that run across distributed devices.

Current Version: v0.10.35
Frameworks and Toolkits

The stuff you’re always going to use should always be there

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Express

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Express

Express server listening on port 3000

Welcome to Express

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```html
<!doctype html>
<html ng-app>
  <head>
    <script src="https://ajax.googleapis.com/ajax/libs/angularjs/1.3.10/angular.min.js"></script>
  </head>
  <body>
    <div>
      <label>Name:</label>
      <input type="text" ng-model="yourName" placeholder="Enter a name here">
      <hr>
      <h1>Hello {{yourName}}!</h1>
    </div>
  </body>
</html>
```
Angular
Framework for client-side JavaScript, useful for building powerful single-page documents. Directives and Controllers

Rapid development of modern interfaces using cloud resources

Users: MSNBC, NASA, Vevo, Google, Weather.com, Kijiji

Baked-in testability

What it’s good for: Putting a pretty front end to web resources. Models for Web Services. Last-mile filtering/massaging of data.

What it’s NOT good for: Control freaks.

Also: the most adorable online tutorial ever. Ever.
(shaping up with Angular.js - https://www.codeschool.com/courses/shaping-up-with-angular-js )
Angular

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NoSQL Databases

Remember those JSON objects? Here’s a good place to keep them.

InfoQ has released a video of Twitter’s Kevin Weil speaking at Strange Loop earlier this year on how the company uses NoSQL. Weil is quick to point out that Twitter is heavily dependent on MySQL. However, Twitter does employ NoSQL solutions for many purposes for which MySQL isn’t ideal. According to Weil, Twitter users generate 12 terrabytes of data a day - about four petabytes per year. And that amount is multiplying every year. Read on for our notes on Weil’s talk.
Life With Bluemix

Services // The building blocks of any great app

Watson
Build cognitive apps that help enhance, scale, and accelerate human expertise

- Concept Expansion (IBM BETA)
- IMARS-image-tagger (IBM BETA)
- Language Identification (IBM BETA)
- Machine Translation (IBM BETA)
- Message Resonance (IBM BETA)
- Question Answer (IBM BETA)
- Relationship Extraction (IBM BETA)
- Speech Recognition (IBM BETA)

Complete your session evaluation.
Node-RED
Even *I* can do this
Node-RED
Even *I* can do this

A selection of the nodes available

**Transform**
- JS Functions
- Mustache Templates

**Network**
- HTTP
- TCP
- UDP
- MQTT

**Social**
- Twitter
- Twilio
- Email
- IRC
- XMPP

**Hardware**
- Raspberry Pi
- BeagleBone Black

**Storage**
- Filesystem
- MongoDB
- MySQL
- PostgreSQL

**Analysis**
- Sentiment
- Statistics
SWAGGER
Admit it, you kind of want to use it, just on name alone

SWAGGER
The World's Most Popular Framework for APIs.

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Good documentation isn’t difficult. It’s ~fancy~
## pet: Everything about your Pets

<table>
<thead>
<tr>
<th>Method</th>
<th>URL</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POST</td>
<td>/pet</td>
<td>Add a new pet to the store</td>
</tr>
<tr>
<td>PUT</td>
<td>/pet</td>
<td>Update an existing pet</td>
</tr>
<tr>
<td>GET</td>
<td>/pet/findByStatus</td>
<td>Finds Pets by status</td>
</tr>
<tr>
<td>GET</td>
<td>/pet/findByTags</td>
<td>Finds Pets by tags</td>
</tr>
<tr>
<td>DELETE</td>
<td>/pet/{petId}</td>
<td>Deletes a pet</td>
</tr>
<tr>
<td>GET</td>
<td>/pet/{petId}</td>
<td>Find pet by ID</td>
</tr>
<tr>
<td>POST</td>
<td>/pet/{petId}</td>
<td>Updates a pet in the store with form data</td>
</tr>
<tr>
<td>POST</td>
<td>/pet/{petId}/uploadImage</td>
<td>uploads an image</td>
</tr>
</tbody>
</table>

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**SWAGGER : Swings both ways**

**PUT** /pet

**Update an existing pet**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Value</th>
<th>Description</th>
<th>Parameter Type</th>
<th>Data Type</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>body</td>
<td></td>
<td>Pet object that needs to be added to the store</td>
<td>body</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Parameter content type: application/json

**Response Messages**

<table>
<thead>
<tr>
<th>HTTP Status Code</th>
<th>Reason</th>
<th>Response Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>Invalid ID supplied</td>
<td></td>
</tr>
<tr>
<td>404</td>
<td>Pet not found</td>
<td></td>
</tr>
<tr>
<td>405</td>
<td>Validation exception</td>
<td></td>
</tr>
</tbody>
</table>

Click to set as parameter value
Your Next Steps

• Find a problem
• Sketch
• Research
• Build!
Design and Priority Considerations

• Keep tech out of the first few rounds of whiteboarding.

• If you can’t find a good tutorial, your internet is probably broken.

• Things change. Keep everyone in the loop.

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