Internet Explorers:
Introduction to Node.js

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#TWInternetExplorers

Workshop Structure

1. Introduction to Node.js Slides

2. Code & Workshop

3. Example: Chat App

Introduction to Node.js

1. Brief History of Node

2. Strengths & Weaknesses

3. NPM & Package.json

4. Preparing Your Environment

1. Brief History of Node

Node.js was originally written in 2009 by Ryan Dahl. He saw how difficult it was to make real-time web servers that are also scalable to millions of users.

To solve this problem, he combined:
- Google's V8 JavaScript engine;
- a server event loop;
- a low-level asynchronous IO API;

… and released on an open source MIT license!
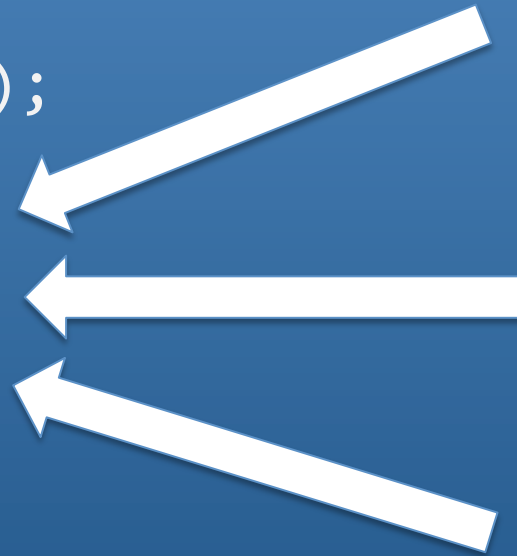
Ryan Dahl's Original Talk and Demo:
https://youtu.be/ztspvPYybIY

Synchronous

```
puts( "What is your name? " );
var name = gets();
puts( "Hello " + name );
```

Asynchronous

```
puts( "What is your name? " );

on_gets( function( name ) {
  puts( "Hello " + name );
} );
```

2. Strengths & Weaknesses

Asynchronous is efficient. V8 is fast. High concurrency on basic hardware.

Async code can be confusing to debug. CPU intensive code can be slow.

Built-in I/O framework designed for the web.

Node.js is lean and requires modules for any useful logic.

JavaScript is easy to learn, flexible, designed for event based code and has a huge community.

JavaScript is weakly typed and poorly designed code can lead to bugs, memory leaks and security issues.

3. NPM & Package.json

The Node Package Manager is a tool for downloading modules and deploying applications:

```
$ npm install gulp -g
```

Over 300,000 modules in the public community. Compared to 100,000 for PHP and 50,000 for Nuget.

NPM uses `package.json` to define dependencies.

Directory Structure

```
./app.js
./package.json        Optional
./node_modules/…      Not source controlled
```

```
$ npm install

$ node app
```

4. Preparing Your Environment

Command line tools can be downloaded from https://nodejs.org/en/download/ for all major platforms.

Node.js Tools for Visual Studio extension: https://beta.visualstudio.com/vs/node-js/

Ubuntu Package Manager:
```
$ sudo apt-get install nodejs
$ sudo apt-get install npm
$ sudo ln -s /usr/bin/nodejs /usr/bin/node
```

Questions?

Next: Code & Workshop