

**IoT, Serverless,
and Node.JS
(what does full-stack
even mean these days?)**



About Me

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Obligatory cat slide



The Original (circa 2008-ish) "Full Stack"

- Node.js on the Server
- JS in browsers
- That's it.

But in 2013...

- Rick Waldron got this neat idea to control an Arduino with Node.js using node-serialport.
- Johnny-Five was born
- Node crawled out of the sea of traditional servers and into, well, everything!

Now

- Johnny-Five runs on over 40 platforms
- We have cheap, easily accessible microcontrollers that run Linux
- We have JS engines that run in much smaller spaces (i.e. the space of the flash of many microcontrollers)

And it's not just the microcontrollers!

- We're starting to rewrite the tools and processes in Node.JS
- Writing code in Electron apps
- Flashing AVR chips with AVRGIRL
- Using node-serialport, noble, and j5 to control **all the things**

Examples

- AVRGIRL as a replacement for the Arduino IDE for J5
- Tessel 2, RPi, BBB-- tiny Linux machines!
- Espruino, Duktape, JerryScript-- tiny JS engines!

We've gone from controlling a tethered Arduino Uno to controlling a litany of devices in Node.js in **only 4 years.**

So how exactly does
Serverless
fit in with all this?

Serverless 101

- Yes, there's still servers.
- IaaS taken a step further
- Instead of setting up runtimes and configuring your env, you're writing and deploying code



Node.JS and Serverless

- It's handled by all the large providers, and the default language for some of them
- Serverless is run-on-demand and async by nature, which may be why providers flocked to support it
- Either way, it's a really handy architecture for IoT

IoT <3's Serverless

- Offload (or defer) as much processing power from (or to) your IoT device as you like
- Node.JS all the things!
- Instead of focusing on spinning up your Node servers and configuring them, focus on your functionality

Demo: The Status Bar

- GitHub Webhooks and IOpipe webhooks
- Filter to Lambda, which feeds an SQS
- Tessel 2 fetches from SQS and lights up to show events

So what is a Full-Stack these days?

- I guess it depends on what you're building!
- The Status Bar is "Full-Stack" in that it's Node.js all the way down
- The 2008 Full-Stack holds up, too

The Future

- IoT and Serverless will eventually lead to skynet
- Node.JS developers will have brought about our NodeBot overlords
- The term Full-Stack will continue to evolve with the use of Node.JS on more and more platforms

Thanks for listening!

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