Building “serverless” Software with AWS Lambda

by Jonathan Knapp

What is “serverless”?

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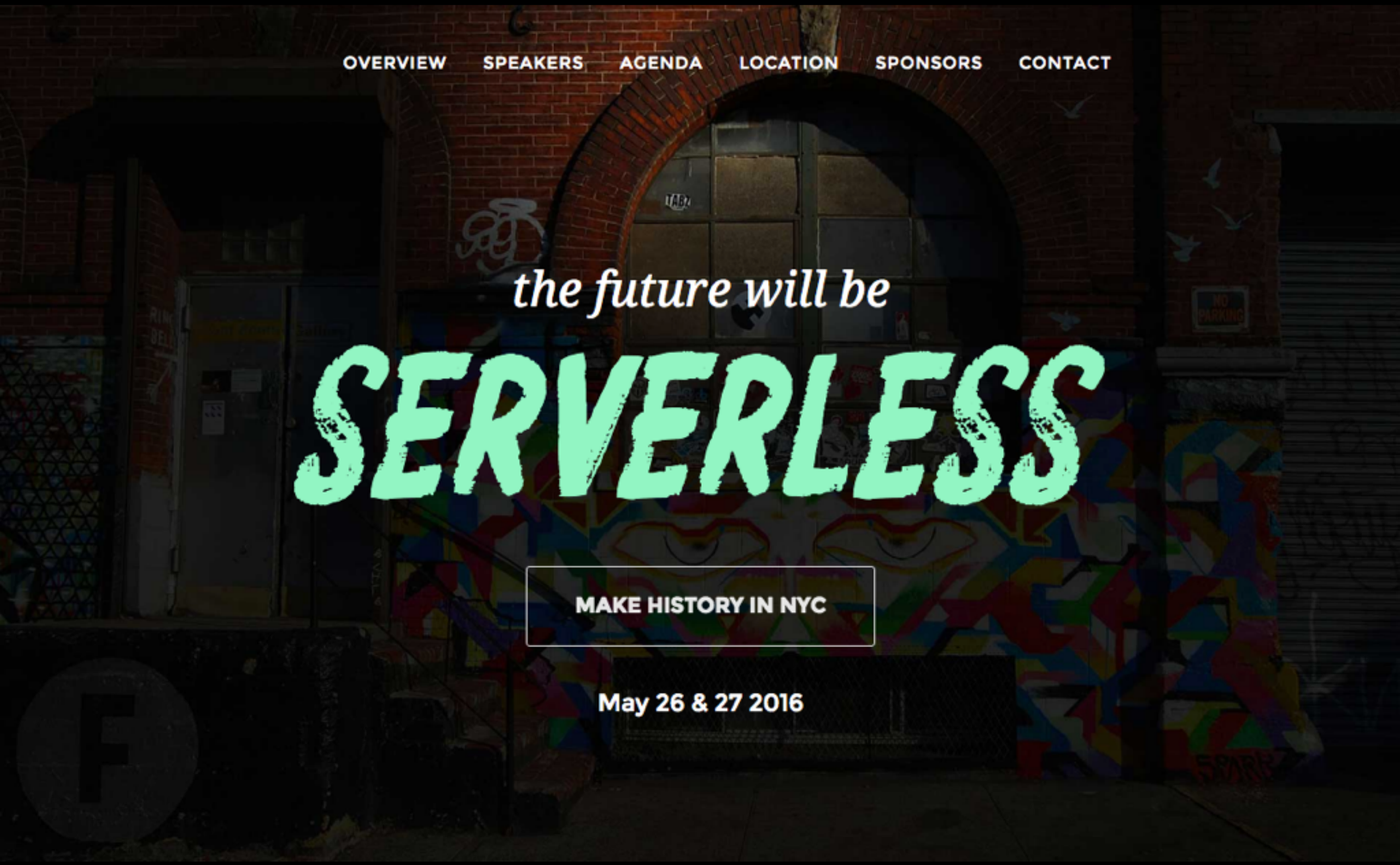
It’s a buzz word.



http://serverlessconf.io

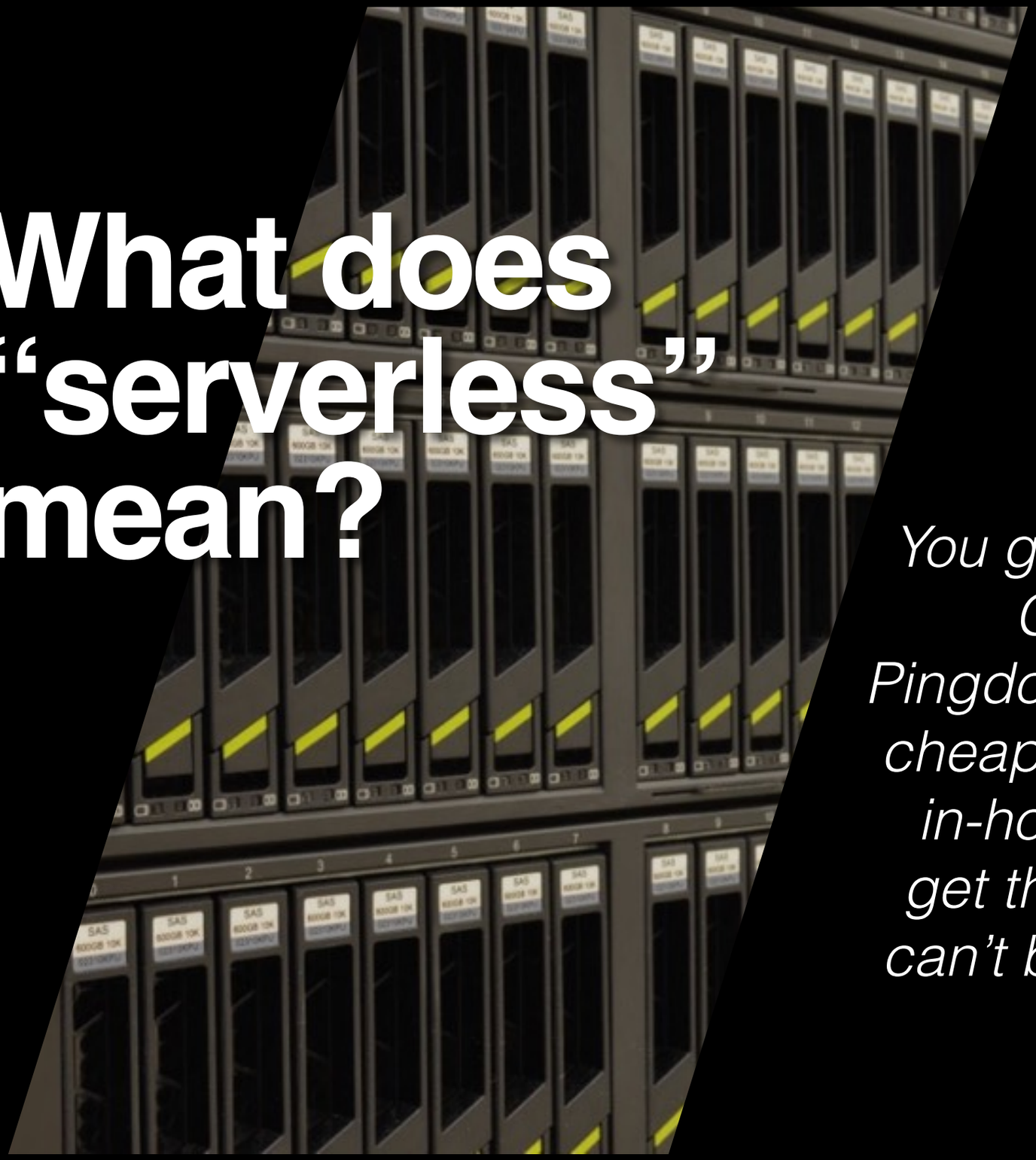
kellan
@kellan

Follow

Um, if it's #serverless why am I getting an "IOError: No space left on device"?

RETWEETS 121 LIKES 247

1:41 PM - 2 Jun 2016



What does “serverless” mean?

You get to rent engineers from Google, AWS, Pagerduty, Pingdom, Heroku, etc for much cheaper than if you hired them in-house — if you could even get them, which you probably can’t because talent is scarce.

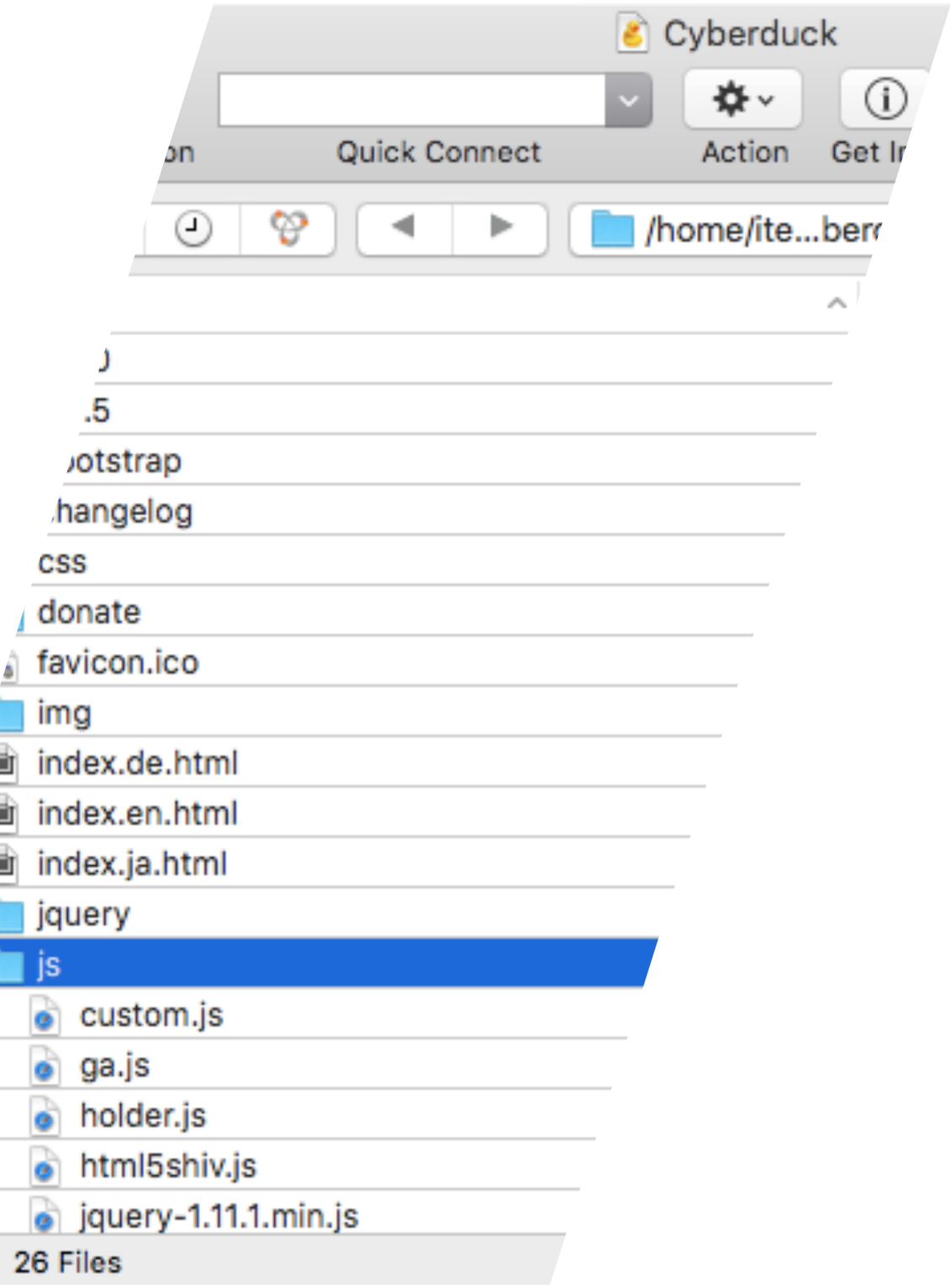
- Charity Majors

Hi,
I’m Jon.

www.cofffeeandcode.com

Remember when…

1. Write code
2. Upload to FTP
3. See results



Things got slow.

ANSIBLE

docker

MySQL

puppet labs

Gulp

mongoDB

Capistrano

RabbitMQ

PostgreSQL

CHEF

RVM

VAGRANT

Can we make it easier?

Yes, we can.

Create a custom search interface to the SEC's Reg A, Form C, and Form D filing information.

Parse html & xml pages.
Avoid IP traffic restrictions.
Store information for searching.
Archive files to S3.

RAILS
ALL THE THINGS!
memegenerator.net

Project Goals

1. Know when errors occur
2. Handle spikes in traffic
3. Avoid IP blacklisting and play nice with Edgar servers
4. Small, focused codebase
5. Easy to maintain

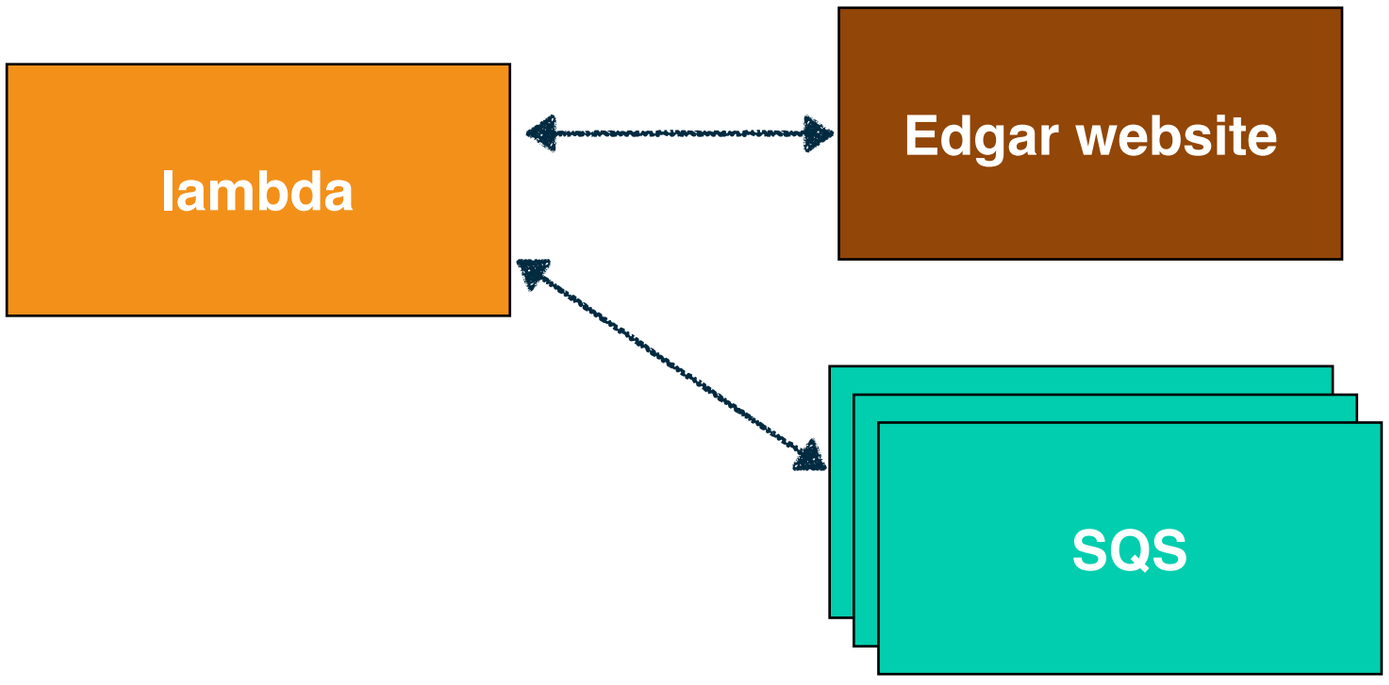
Architecture Composition

- Lambda - Background and async job processing
- ElasticSearch - Data storage and search interface
- S3 - Storage and web hosting of archived form filings
- SES - Email notifications and support requests
- SQS - Queueing of data processing requests
- CloudWatch - Logging and monitoring
- Rollbar - Error logging and alerting
- DigitalOcean - Public website hosting

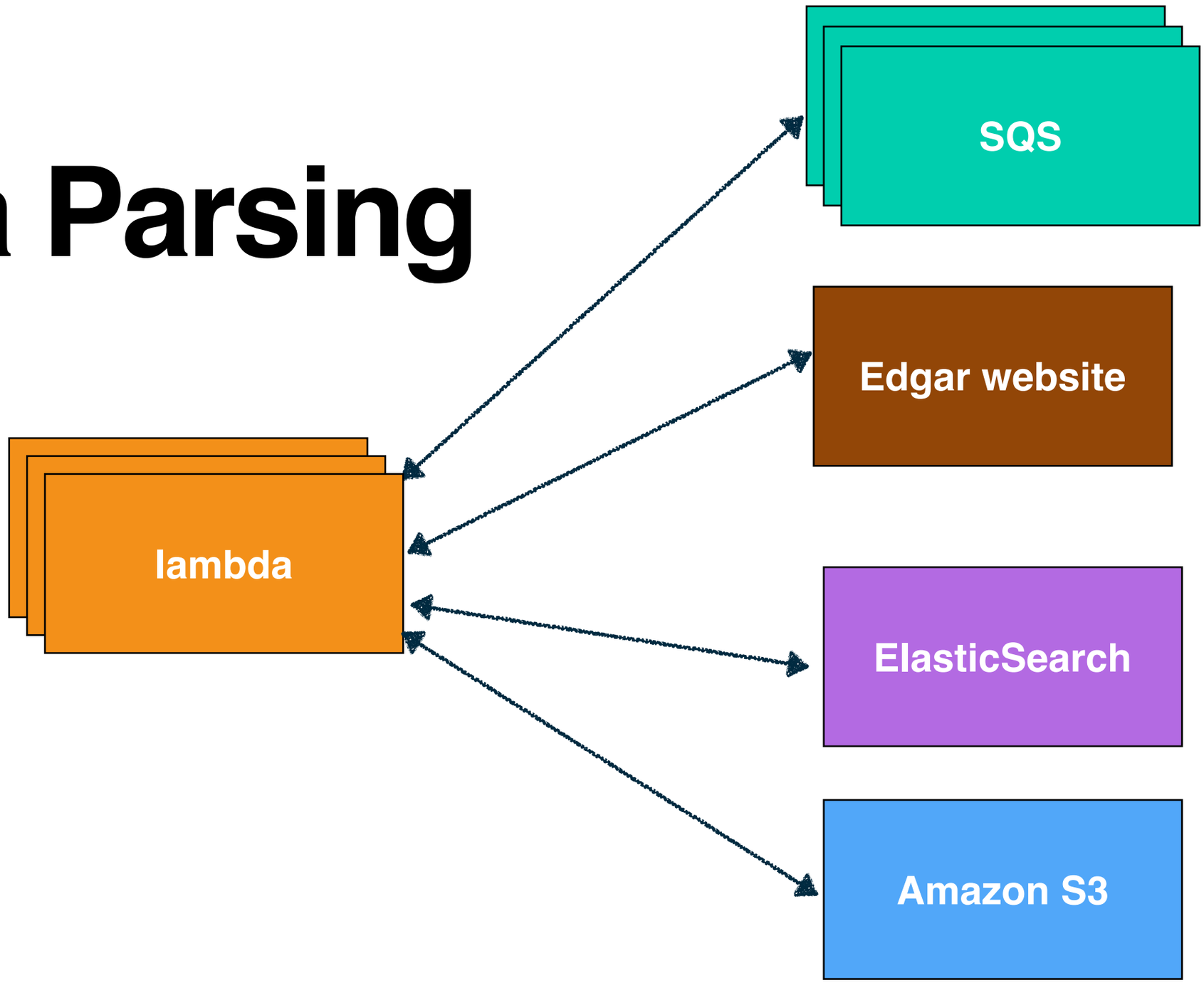
Data Parsing

1. Lambda job runs every 5 minutes
2. Request new filings from Edgar
3. Parse results and enqueue identifier for later processing
4. Processing Lambda jobs run via cron and pull items from queue for processing
5. Resulting data sent to ElasticSearch, files to S3
6. Remove items from queue
7. Errors logged and developers alerted

Data Parsing



Data Parsing



The Website

- Request data from ElasticSearch
- Render HTML pages

Success

We met our goals for the Disclose Quest project and were able to deliver an application that was easy to maintain, could scale automatically, and was easy to understand.

Other Project Examples

1. Use API Gateway to handle html form submissions.
2. Recreate website resources every X minutes, days, weeks,
3. Create one-off API endpoints without bloating your codebase.
4. Store / monitor 3rd party api web hook responses.

Tooling

SERVERLESS FRAMEWORK

THE SERVERLESS APPLICATION FRAMEWORK

SERVERLESS.COM

POWERED BY

amazon web services™

Buyer Beware

AlexMcConnell commented 10 days ago

It works on Serverless 4.2. It breaks on Serverless 5+. Serverless is just updating so fast that it's difficult to keep up with.

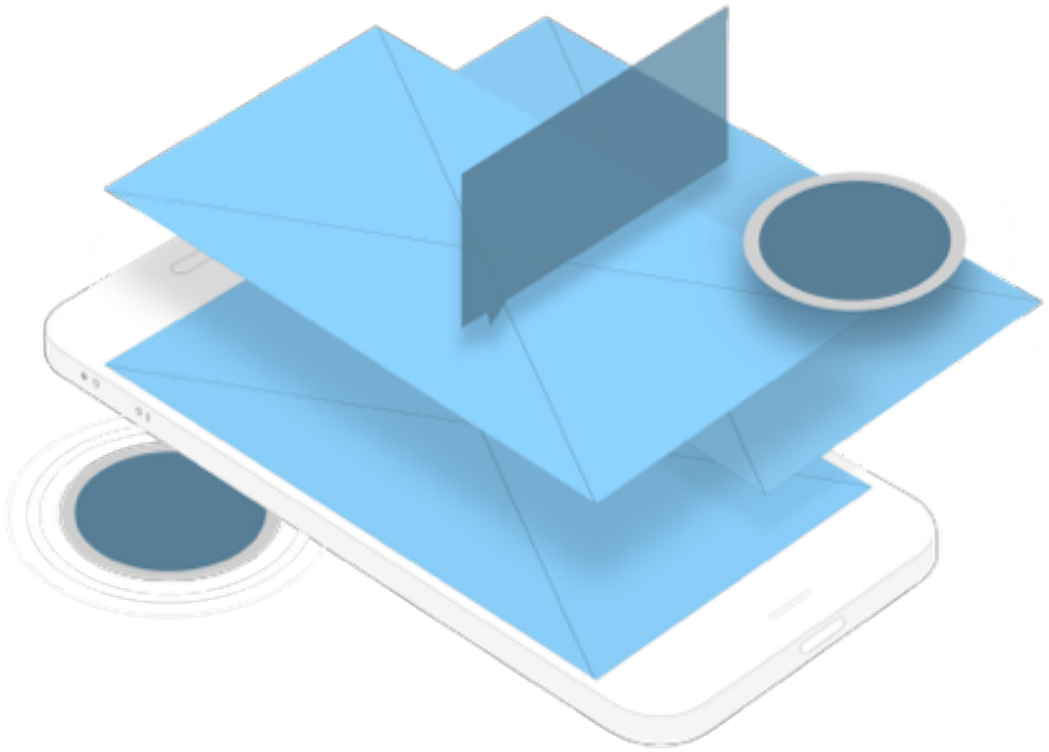
Tools To Go “serverless”

Apex
Zappa
Gordon
iron.io
Microsoft Azure

Lessons Learned

- Log vigorously
- Use error notification service or setup CloudWatch alerts
- AWS API Gateway could be much better
- API Gateway works with Swagger definition files (kind of)
- Think of you application as distinct parts
- Learn IAM roles and how to tie services together

Resources



01. AwesomeServerless

https://github.com/anaibol/awesome-serverless

02. Operational Best Practices #SERVERLESS

https://charity.wtf/2016/05/31/operational-best-practices-serverless/

03. Serverless

http://serverless.com/

04. aws-auth-helper

https://github.com/CoffeeAndCode/aws-auth-helper

05. whatdoeslambdasupport.com

http://whatdoeslambdasupport.com

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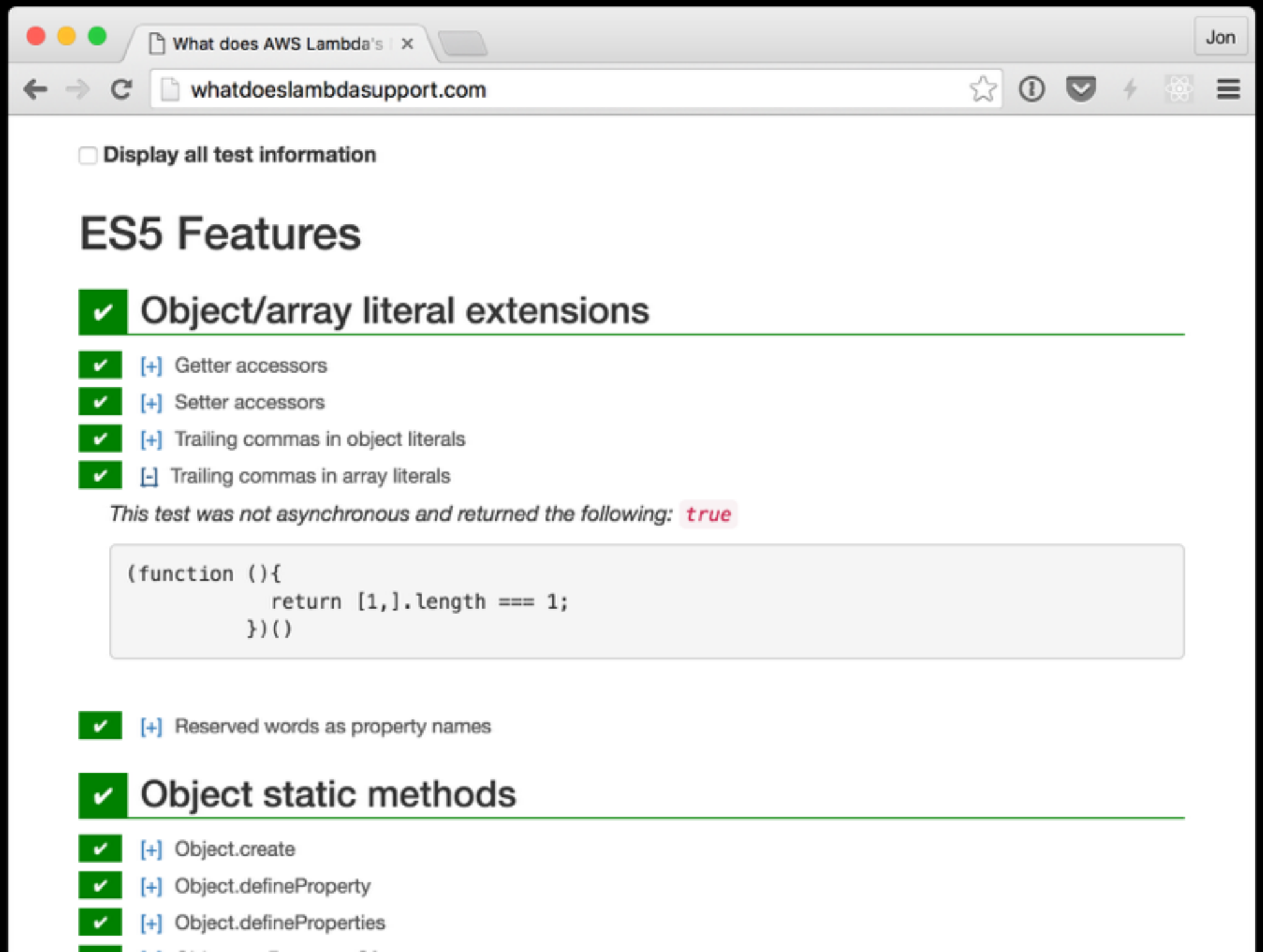

Thanks!

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