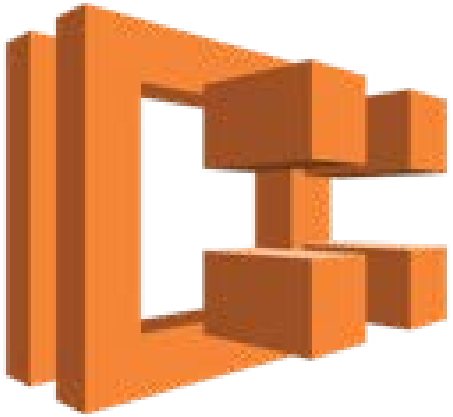
Getting started with AWS Lambda and Serverless

AWS Compute offerings

Amazon EC2
Virtual servers in the Cloud



Amazon ECS
Container management service for running Docker containers on EC2

Amazon Lambda
Serverless compute platform for stateless code execution in response to events

Let’s talk about Lambda!

Serverless compute platform for stateless
code execution in response to events

Benefits of AWS Lambda

AWS Lambda
526 points | cpenner461 | 3 years ago | 163 comments | (http://**aws**.amazon.com/**lambda**/)

Show HN: Chromeless – Headless Chrome Automation on **AWS Lambda**
385 points | schickling | 2 months ago | 90 comments | (https://github.com/graphcool/chromeless)

AWS Lambda Is Not Ready for Prime Time
315 points | sebg | a year ago | 137 comments | (https://www.datawire.io/3-reasons-**aws**-**lambda**-not-ready-prime-time/?utm_content=buffer5d2eb&utm_medium=social&utm_source=twitter.com

Cheap Recurring Payments with Stripe and **AWS Lambda**
299 points | sl8r | 4 months ago | 124 comments | (http://normal-extensions.com/2017/05/05/simple-recurring/)

New for **AWS Lambda** – Environment Variables and Serverless Application Model
264 points | luhn | 10 months ago | 83 comments | (https://**aws**.amazon.com/blogs/**aws**/new-for-**aws**-**lambda**-environment-variables-and-serverless-application-model/)

Introducing Apex – Serverless Architecture with **AWS Lambda**
234 points | johanbrook | 2 years ago | 40 comments | (https://medium.com/@tjholowaychuk/introducing-apex-800824ffaa70)

AWS Lambda as a back end for a single-page app
229 points | arange | 2 years ago | 73 comments | (http://lg.io/2015/05/16/the-future-is-now-and-its-using-**aws**-**lambda**.html)

Use **AWS Lambda** to self-host the comments for your blog
226 points | jarmitage | a year ago | 121 comments | (https://jimpick.com/2016/05/05/introducing-**lambda**-comments/)

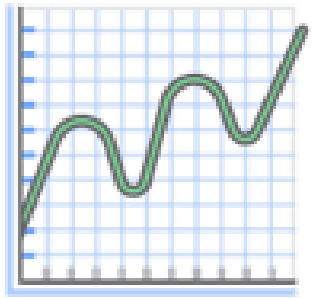
Ask HN: How was your experience with **AWS Lambda** in production?
215 points | chetanmelkani | 3 months ago | 155 comments

I would like to hear from people who have used **AWS Lambda** in production, how was there experience with it. It would be great if you have references to project repositories.

Gordon: a tool to create, wire and deploy **AWS Lambda**s

More important benefits

No servers to manage

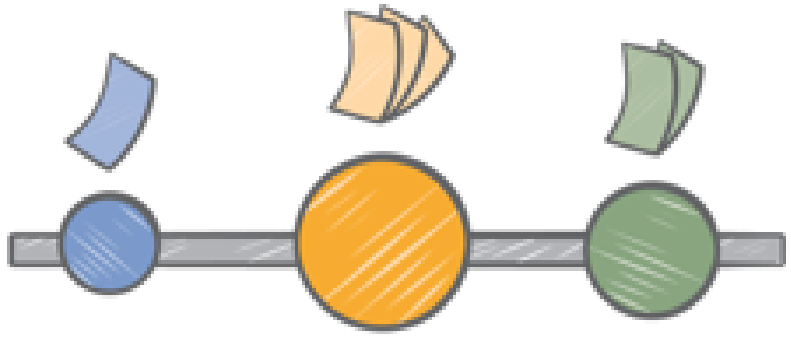


Continuous scaling

No idle/cold servers

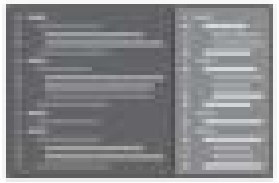
Pay per request

- Buy compute time in 100ms increments
- Low request charge
- No hourly, daily or monthly minimums
- No per-device fees
- Never pay for idle



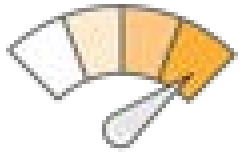
Free tier: 1 million requests, and 400,000 GBs of compute every month, for every customer.

Working with Lambda



Bring your own code

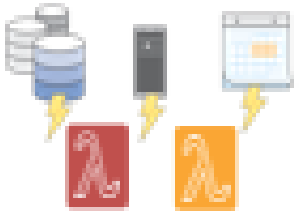
- Node.js, Java, Python, C#
- Bring your own libraries (even native ones)



Simple resource model

- Select power rating from 128MB to 1.5GB
- CPU and network allocated proportionately
- Metrics show usage

Working with Lambda



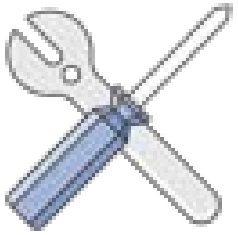
Flexible use

- Call or send events
- Integrated with other AWS services
- Build serverless ecosystems

Flexible authorization

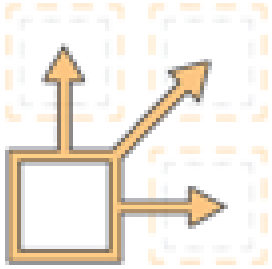
- Securely grant access to resources, including VPCs
- Fine-grained control over what can call your functions

Working with Lambda



Programming model

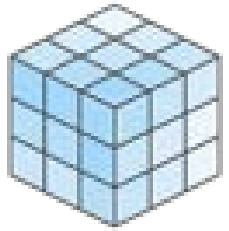
- Built-in AWS SDK
- Front end is Lambda
- Use processes, threads, /tmp and sockets normally



Authoring functions

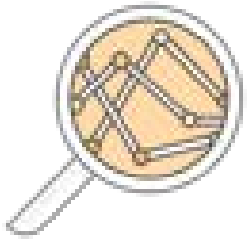
- Author directly with WYSIWYG editor in console
- Package code as .zip and upload to Lambda or S3
- Plugins for Eclipse and Visual Studio
- Command line tools

Working with Lambda



Stateless

- Persist data using Amazon S3, RDS, Elasticache or non-relational database
- No affinity to infrastructure (can’t login to host)



Monitoring and logging

- Built in metrics for requests, latency, errors and throttles
- Built in logging with CloudWatch

Common use cases

Data triggers

- Trigger functions on data updates in S3, SNS, etc.

Big data

- Real time processing of streaming data updates using Kinesis.

Control systems

- Customize responses and workflows to state changes within AWS.

Serverless backends

- Execute server-side backend logic

A more specific use case: Lambda + S3

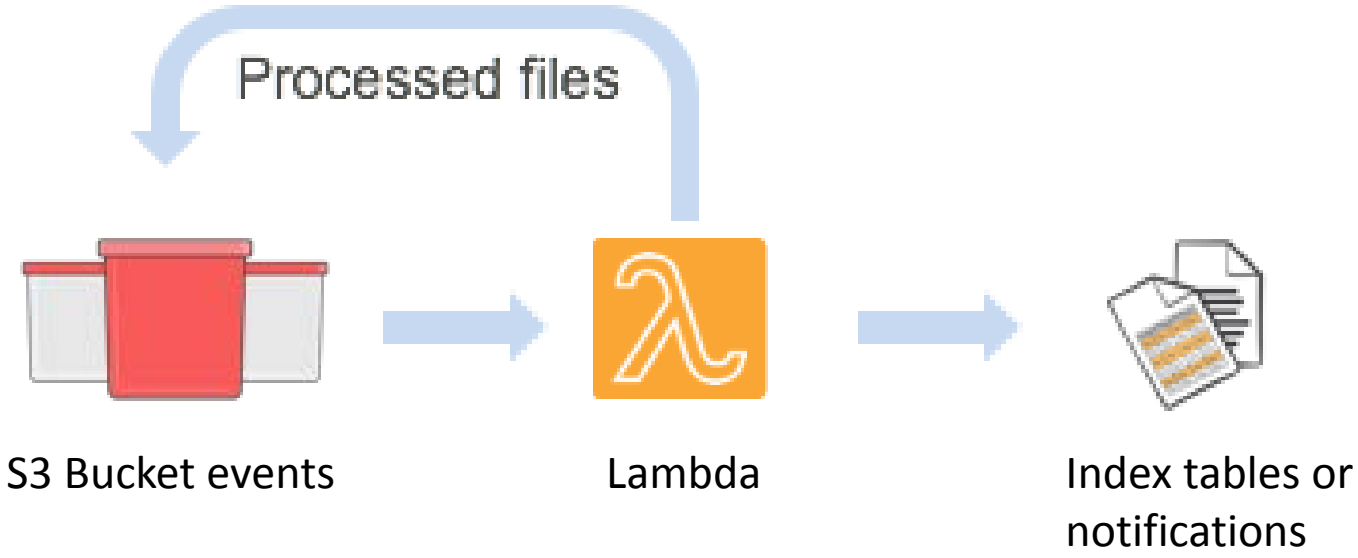
Dynamic data ingestion with Lambda + S3

Customers using S3 and Lambda

THOMSON REUTERS · CMP.LY · NETFLIX · The Seattle Times · FireEye

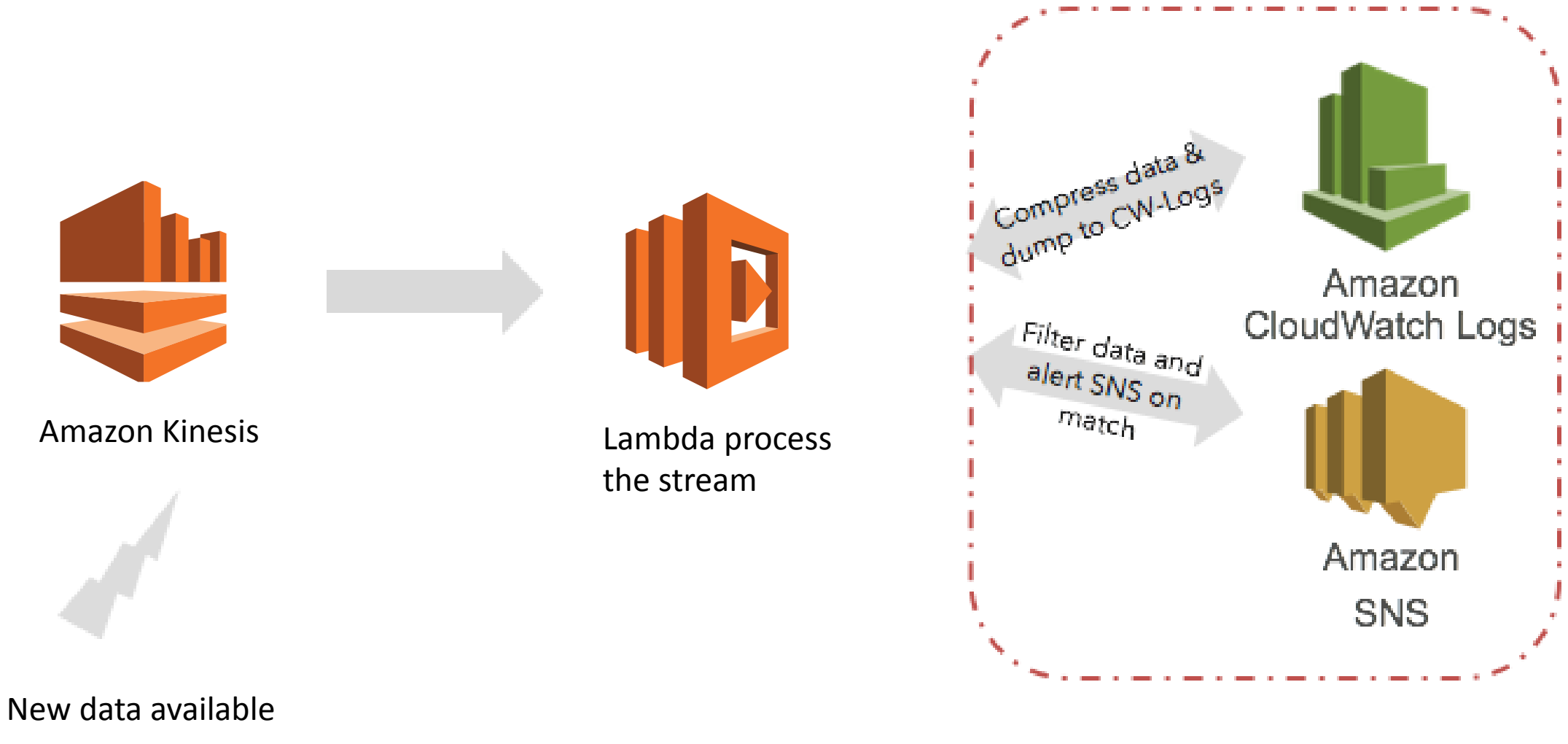
Apply custom logic to process content being uploaded into Amazon S3

- Watermarking / thumbnail creation
- Transcoding
- Indexing and de-duplication
- Aggregation and filtering
- Pre processing
- Content validation
- WAF updates

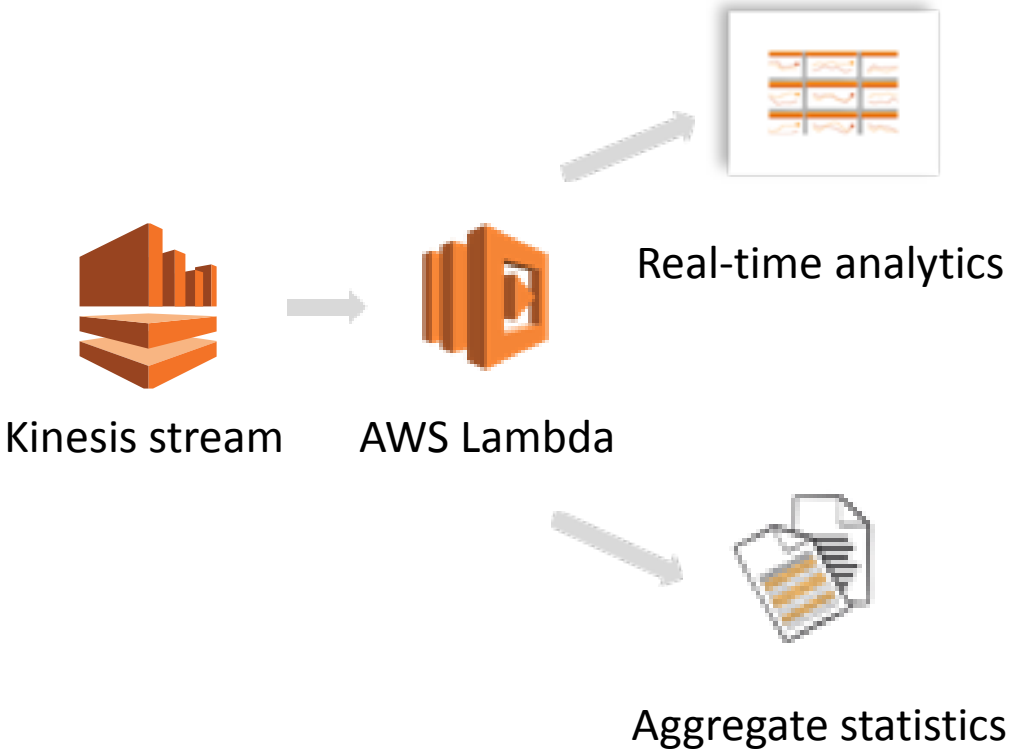


Lambda and Kinesis

Dynamic data ingestion with S3 + Kinesis



Customers using Lambda + Kinesis

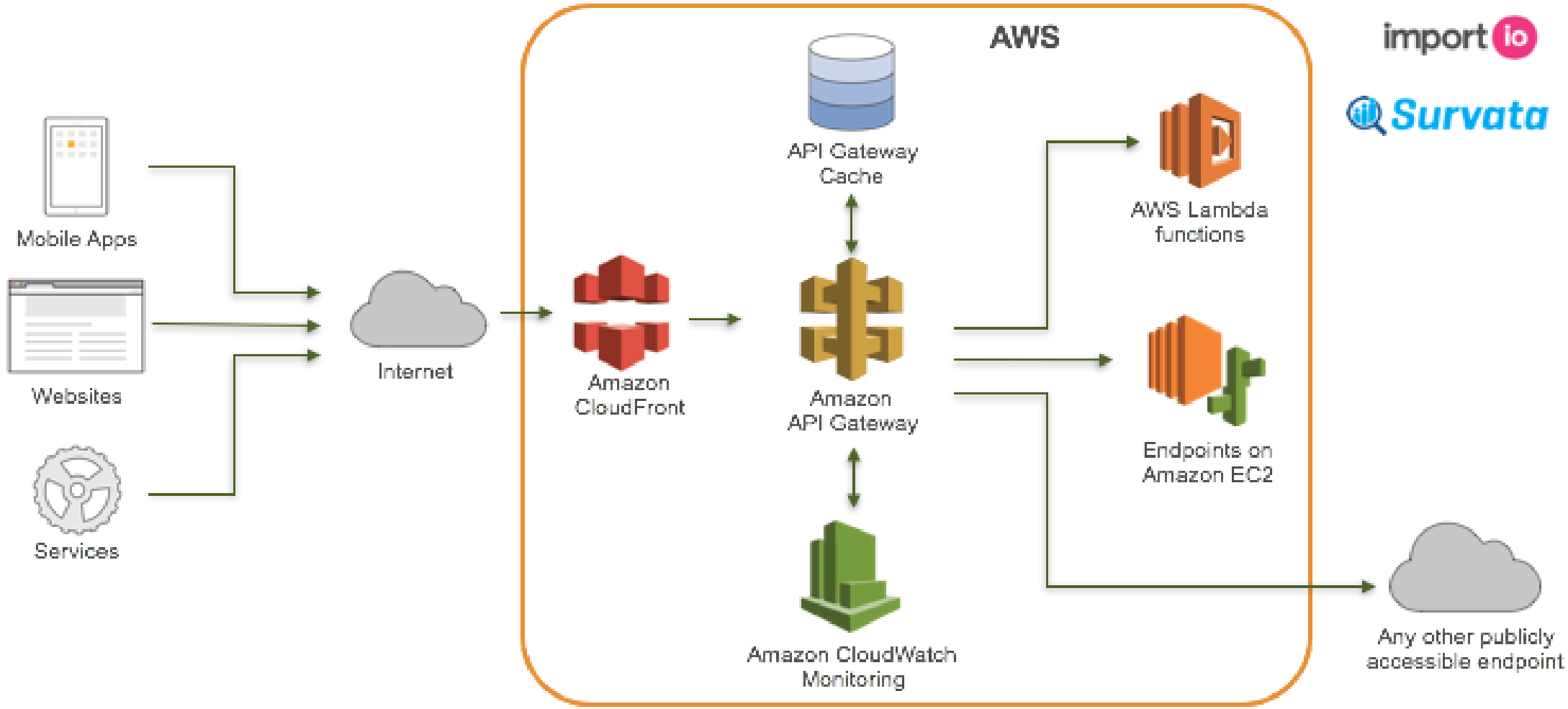


Apply custom logic to process data being uploaded through Kinesis stream

- Client activity tracking
- Metrics generation
- Data cleansing
- Log filtering & routing
- Indexing and searching
- Live alarms and notifications

Lambda powered APIs

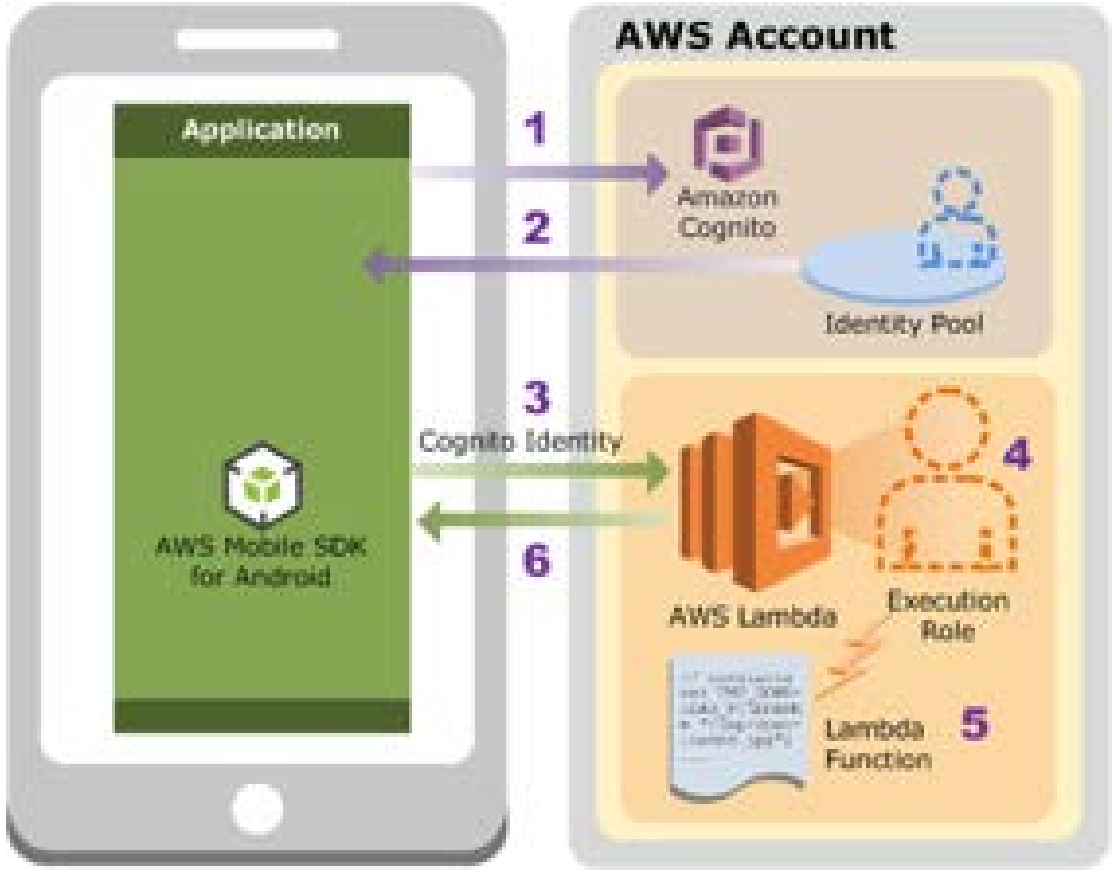
An API call flow



Lambda + Cognito and mobile apps

Building mobile backends with Lambda

- No backend experience? No problem.
- You can use Lambda as the backend for mobile apps!
- Easy personalization for users and devices



Other use cases

Scheduled events (cron)

- Start or stop an environment at a specific time
- Log cleanup
- Batch data jobs
- Alarm clock
- Infrastructure automation
- Scheduled backups

Backup and disaster recovery

- Cross-region replication
- Off-site backups
- But! Validation of backups can be hard.
  - Set rules on Lambda to define what needs to be checked and backed up
  - Alert on validation failure

Other resources

- Randall <3s Lambda!
  - @jrhunt on Twitter
  - Tons of examples and projects here: https://github.com/ranman
- AWS documentation: http://docs.aws.amazon.com/lambda/latest/dg/welcome.html
- Tons of compute blog posts: https://aws.amazon.com/blogs/compute/category/aws-lambda/

Thanks!