AWS Developer: Introduction to AWS Lambda

UNDERSTANDING SERVERLESS FUNCTIONS



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Outline

Evolution of serverless functions

- Serverless vs. traditional architecture
- What are serverless functions
- Benefits & drawbacks

Serverless function providers

- AWS, competitors, and niche players

Demo overviews

- What are we building?
- How are we building it?

Evolution of Serverless Functions

Serverless vs. Traditional Architecture



IBM and others

Mainframes

2005

VMware

OS Virtualization

2006

AWS EC2/S3

The Cloud

1977

Apple and others

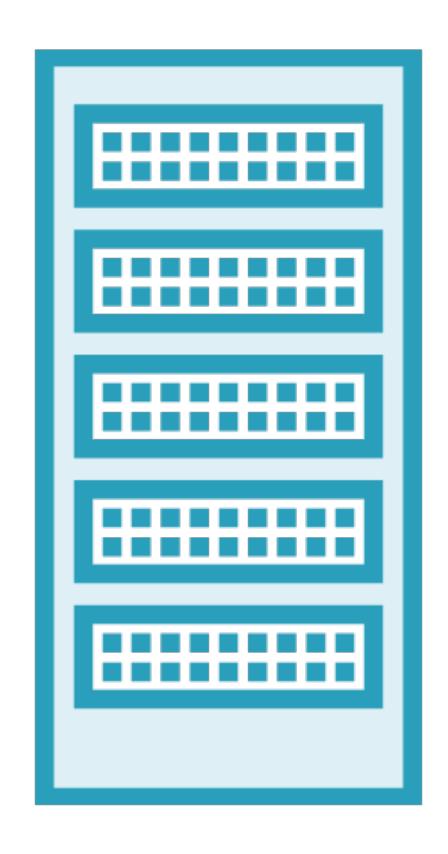
Personal Computing



2014

AWS Lambda 2014

Serverless



Mainframes

- Large space requirement
- Installation
- Maintenance
- Cost
- Inflexibility









Personal Computing / Minicomputers

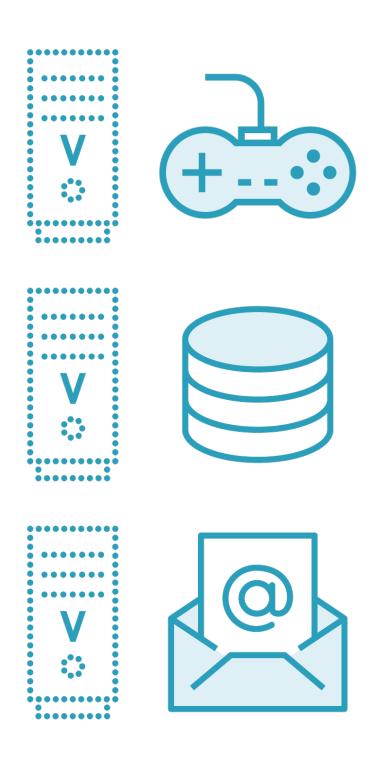
Lower barriers to entry

Reduced cost

Increased distribution

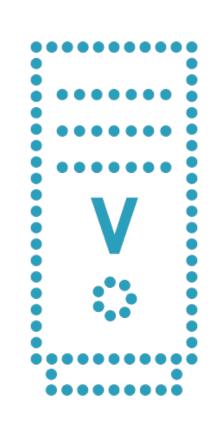
Virtualization and Hypervisors

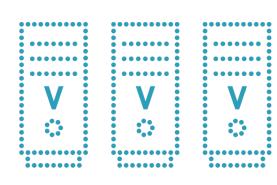




The Cloud - Amazon EC2



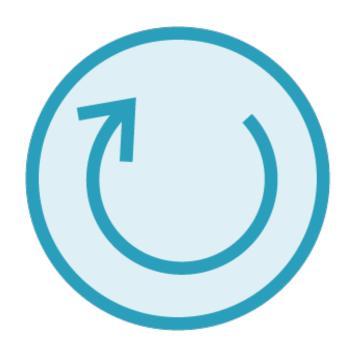








Serverless Functions



Event driven



Code focused

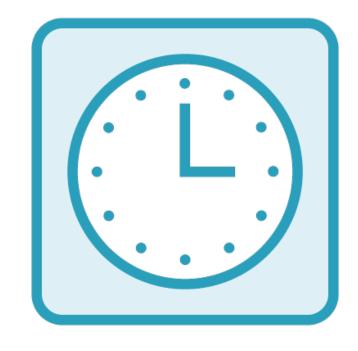


Managed machines

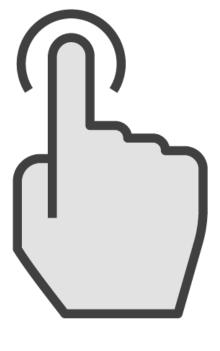
Event Examples



File uploads



Scheduled times



API requests

Serverless Benefits and Challenges



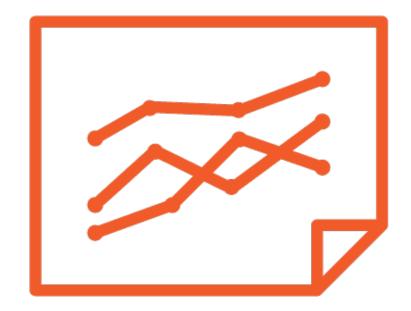
Benefits

Cost and utilization

Managed machines

Service integrations

Scaling



Challenges

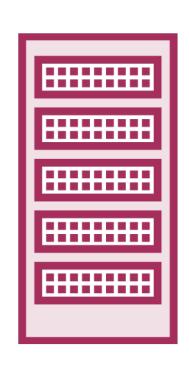
Debugging

Control

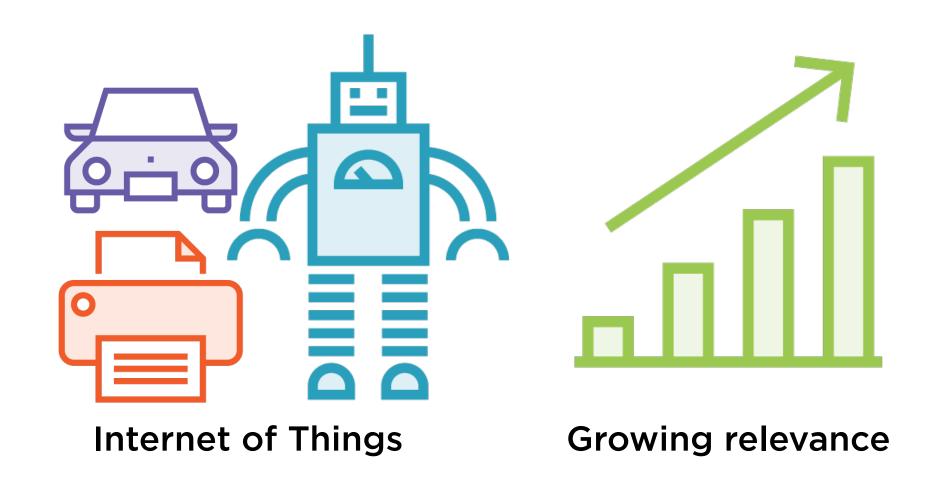
Cutting edge quirks



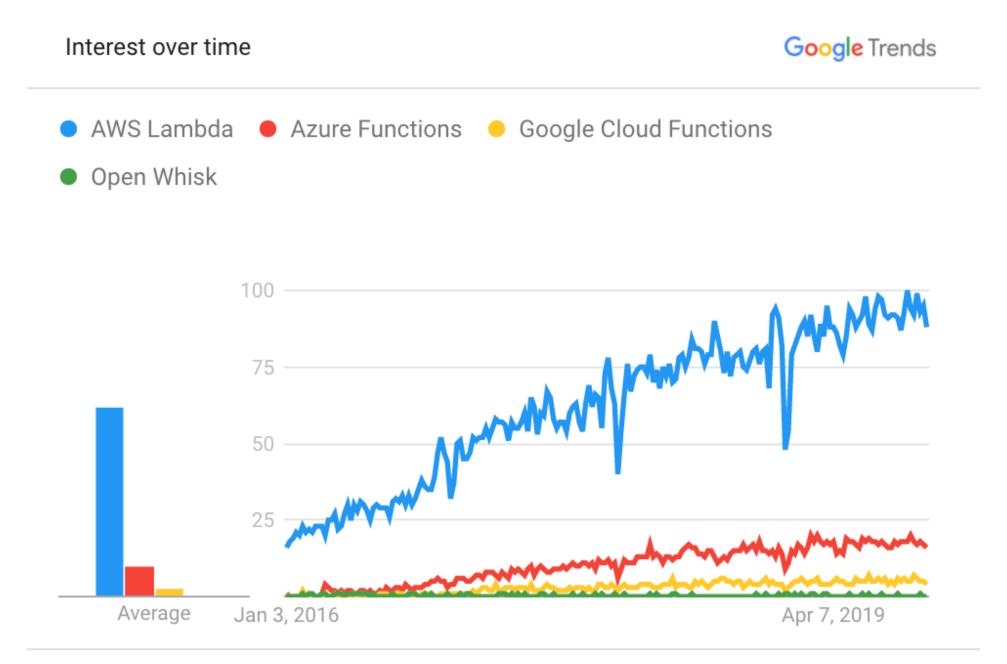
Why Learn Lambda?



Managed infrastructure

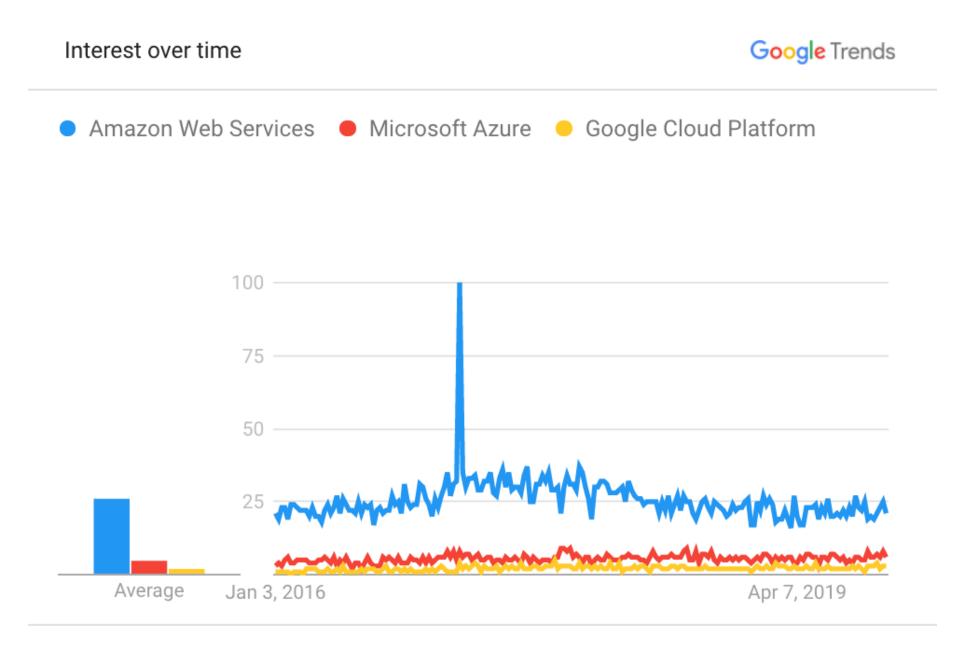


Lambda's Growing Relevance



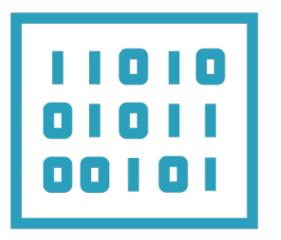
Worldwide. 1/1/16 - 11/1/19. Web Search.

AWS and Competitors



Worldwide. 1/1/16 - 11/1/19. Web Search.

How Is Lambda Used?



Stream data processing

Easy & scaleable APIs

Photo processing

Web applications

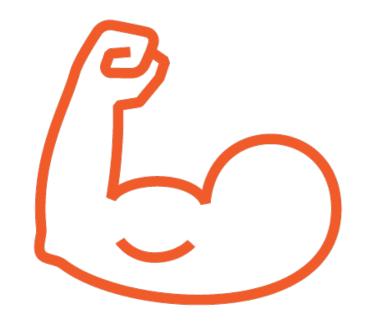






Serverless Function Providers

Prominent Serverless Function Providers



Market leaders: AWS, Microsoft Azure



Other players: <u>iron.io</u>, Cloudflare, OpenFaaS

Market Leader Comparison

AWS Lambda

Node, Python, Java, C#, PowerShell, Ruby, Go, user-provided runtimes

Built-in versioning

HTTP endpoints via API Gateway

15 minute running time limit

1000 concurrent functions (soft limit)

Azure Functions

Node, Python, Java, C#, PowerShell, F# PHP, batch, bash, other executables

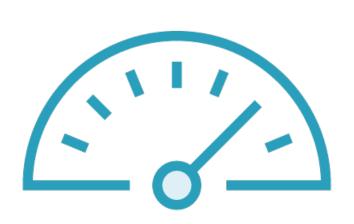
No built-in versioning

HTTP endpoints via API Management

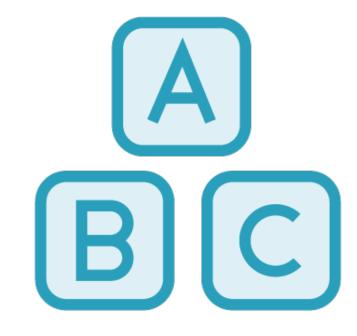
10 minute limit (option for unlimited)

10 concurrent instances

Niche Providers







Cloudflare Workers



OpenFaaS

Demo Overviews

Globomantics Pet Care - Our Demo Client



Needs:

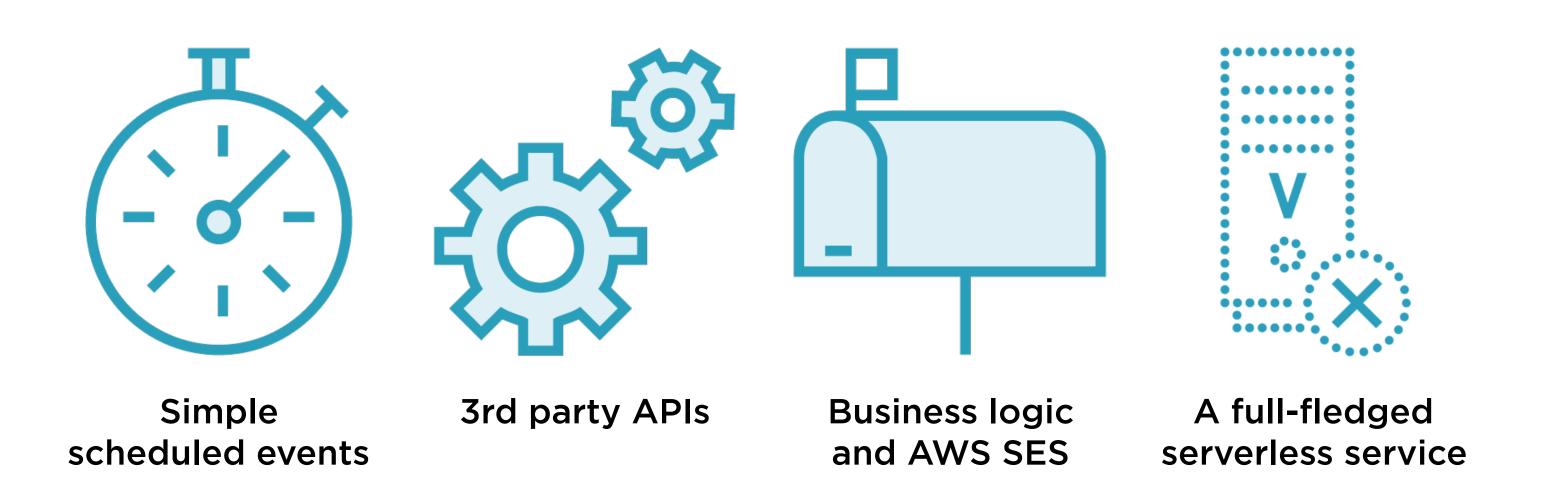
Website uptime monitoring

Social media automation

Custom business reminders

New customer service

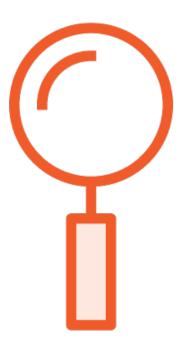
Our Four Lambda Projects



Lambda Canary



Set run interval

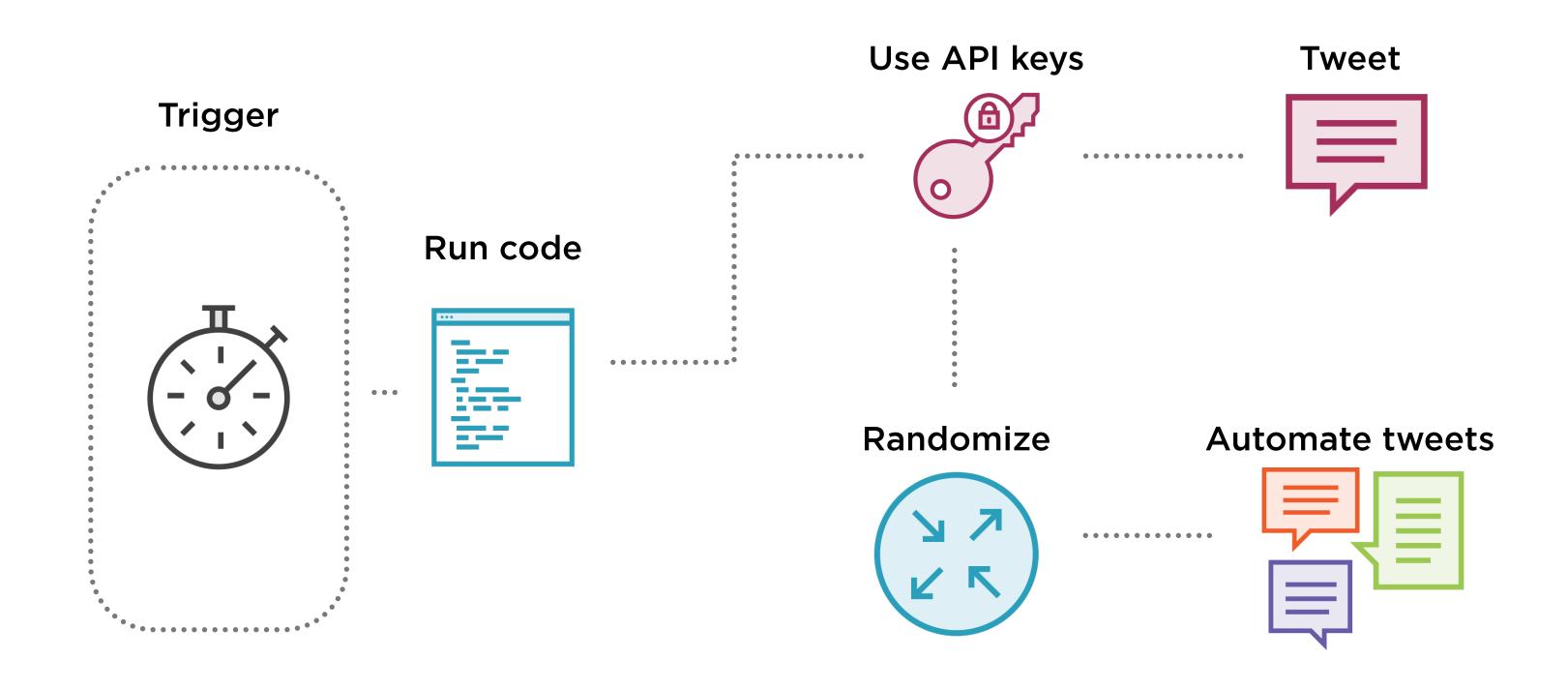


Function reviews website

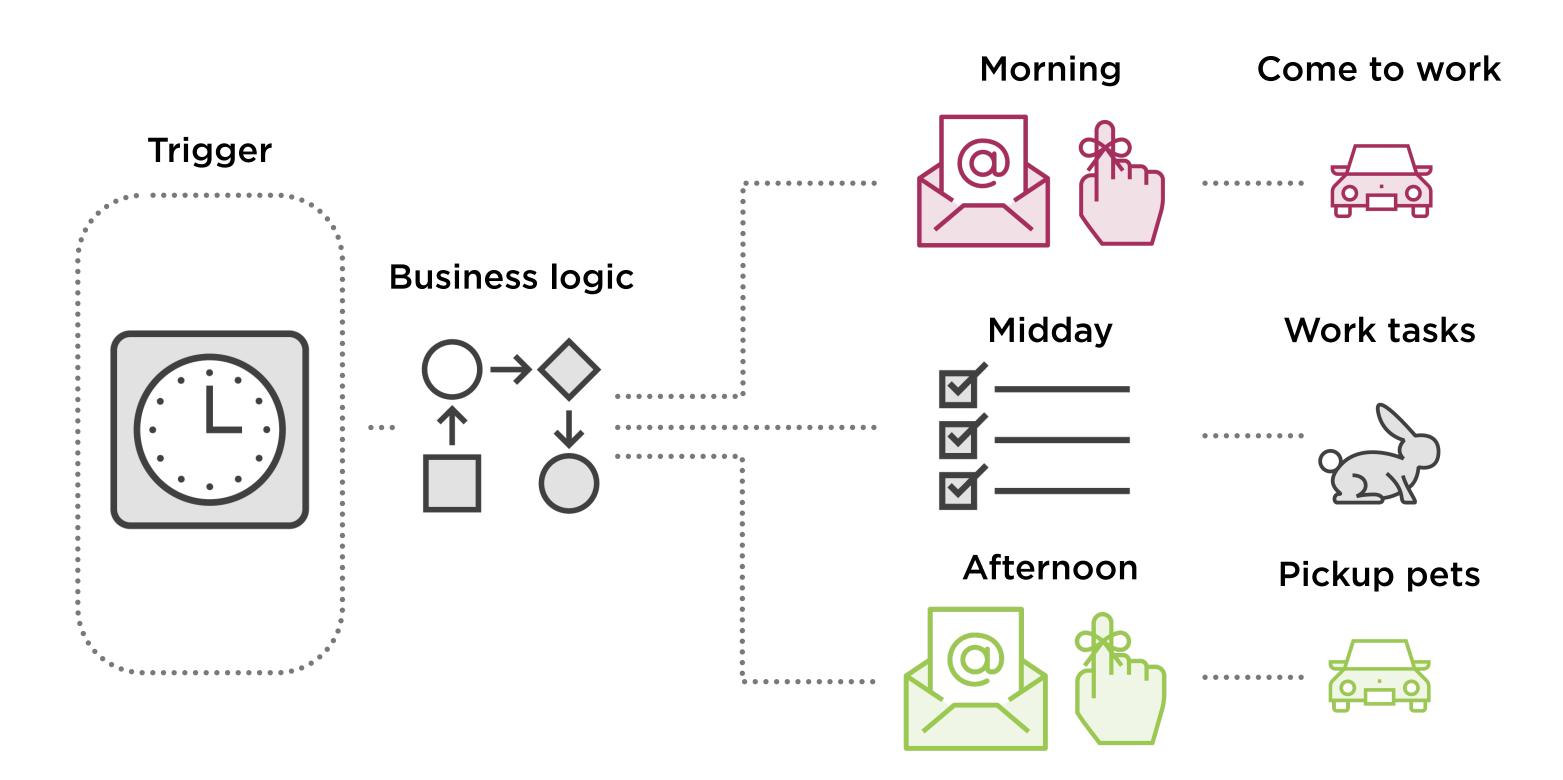


Website status recorded

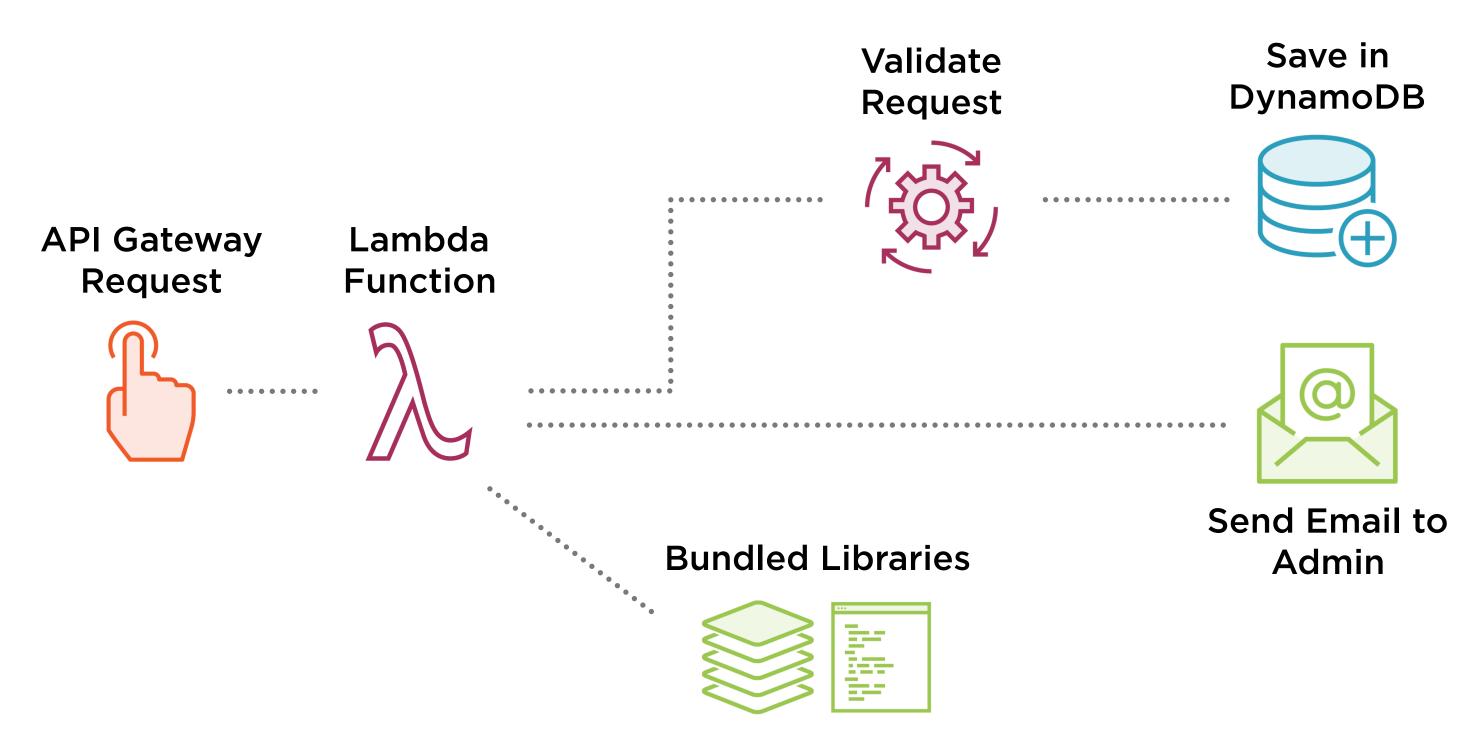
Twitter Bot



Workflow Automation



New Customers Service



Summary

What we covered

- Context of Serverless functions
- Current landscape
- When to (not) use Serverless
- Introduced our projects

What's next?

- AWS crash course