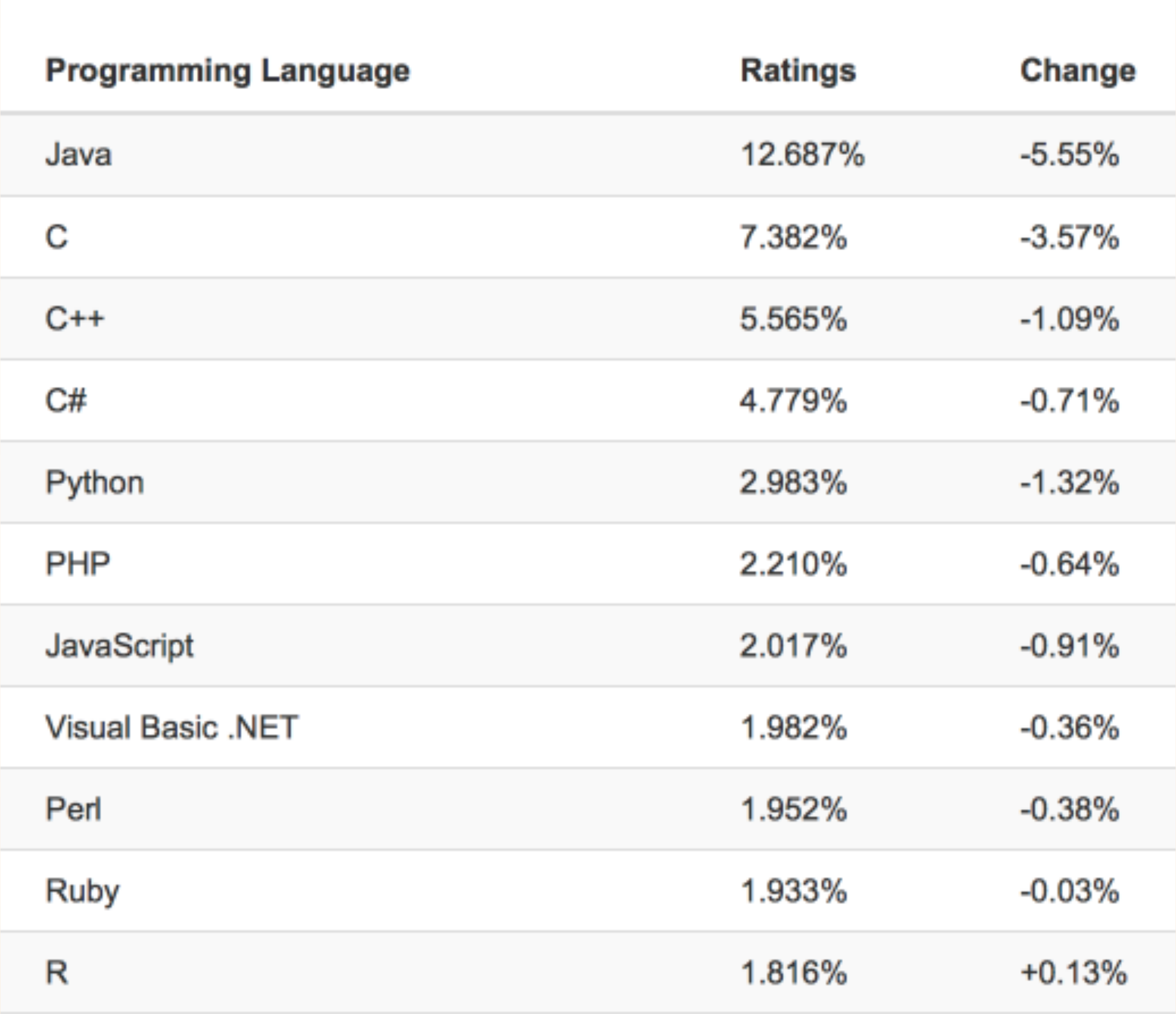
SERVERLESS

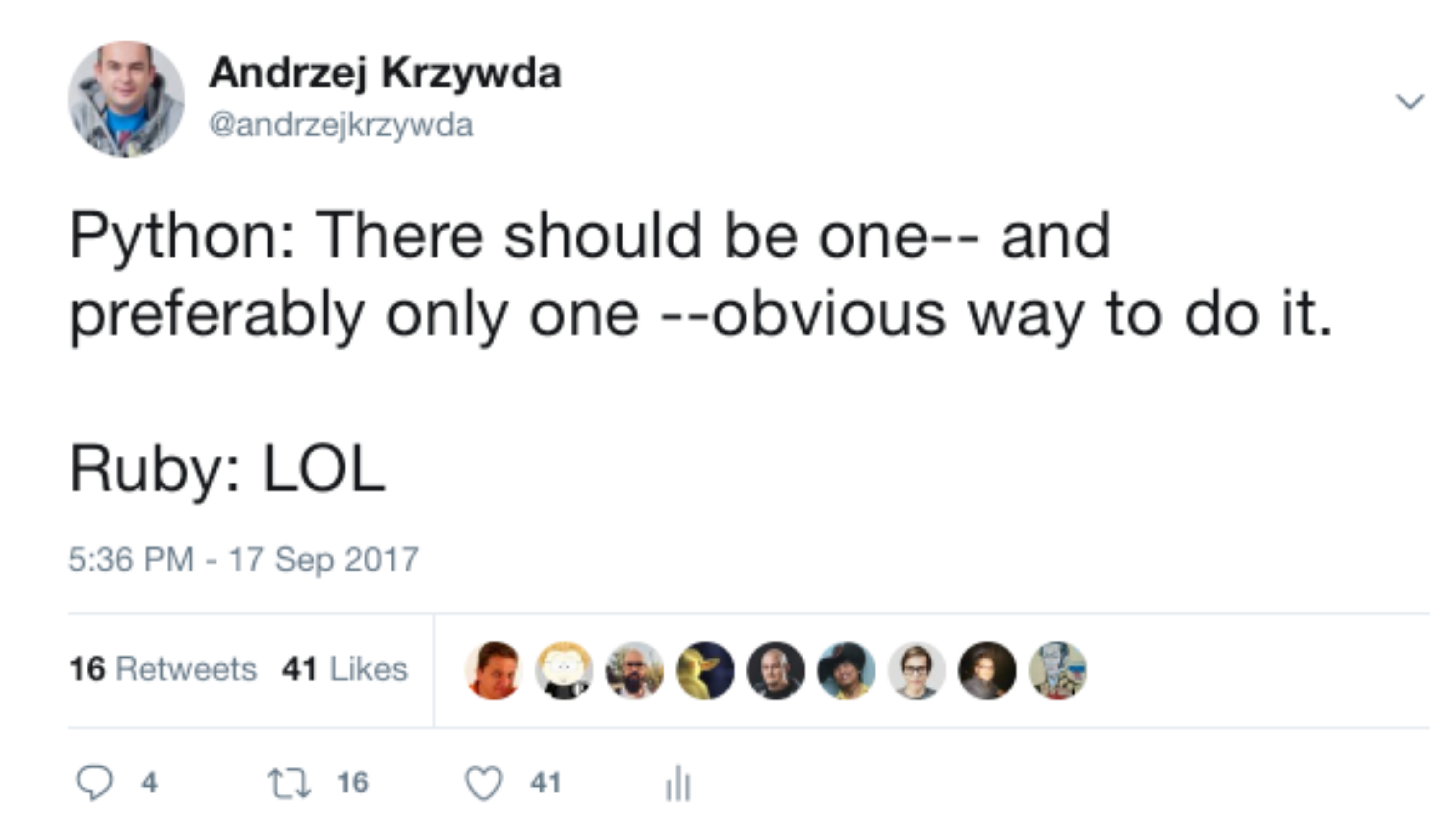
Andrzej Krzywda

Arkency

DEVTALK TRIO



Programming Language	Ratings	Change
Java	12.687%	-5.55%
C	7.382%	-3.57%
C++	5.565%	-1.09%
C#	4.779%	-0.71%
Python	2.983%	-1.32%
PHP	2.210%	-0.64%
JavaScript	2.017%	-0.91%
Visual Basic .NET	1.982%	-0.36%
Perl	1.952%	-0.38%
Ruby	1.933%	-0.03%
R	1.816%	+0.13%



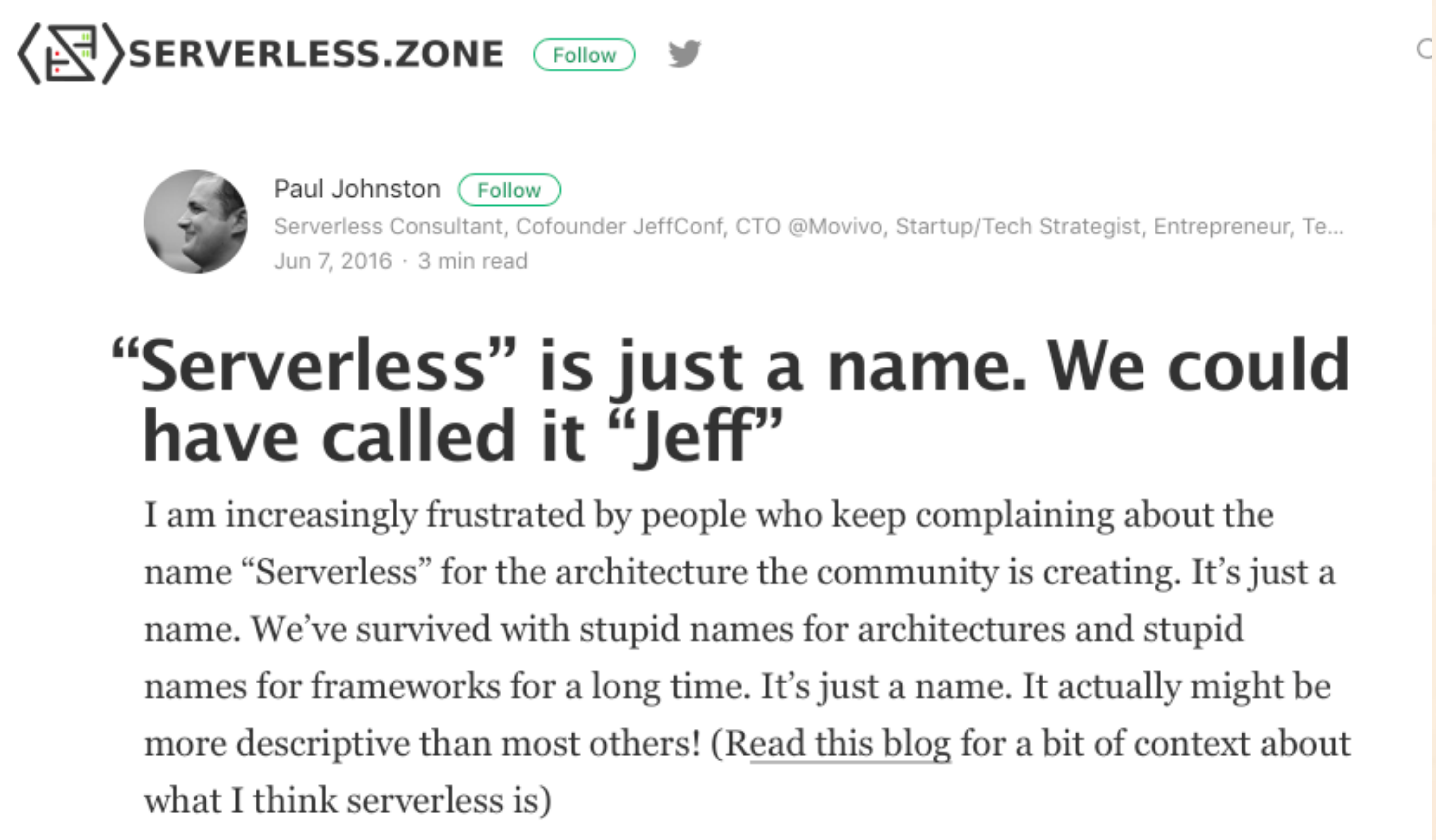
Andrzej Krzywda
@andrzejkrzywda

Python: There should be one-- and preferably only one --obvious way to do it.

Ruby: LOL

5:36 PM - 17 Sep 2017

16 Retweets 41 Likes



Paul Johnston

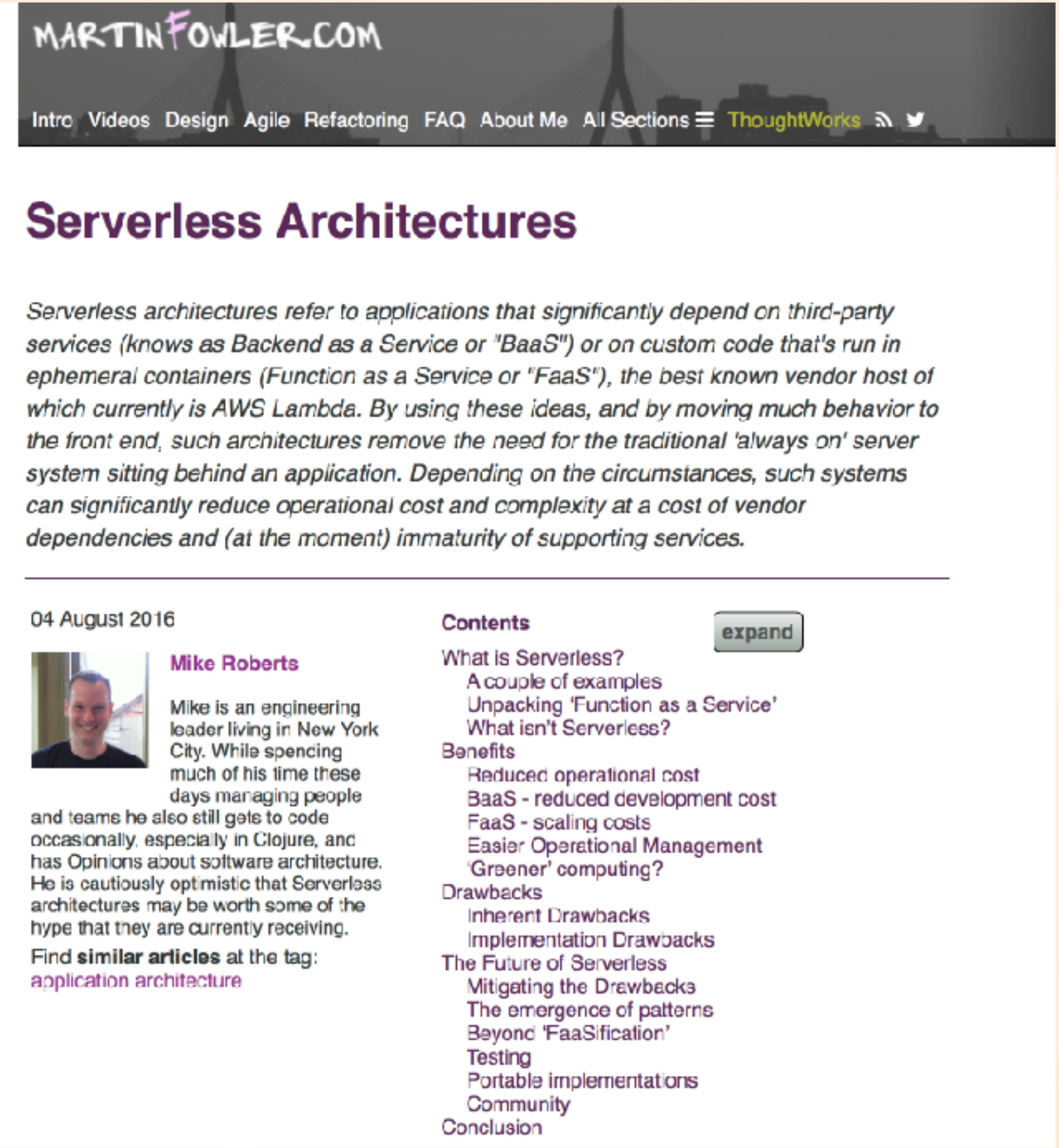
Serverless Consultant, Cofounder JeffConf, CTO @Movivo, Startup/Tech Strategist, Entrepreneur, Te...

Jun 7, 2016 · 3 min read

"Serverless" is just a name. We could have called it "Jeff"

I am increasingly frustrated by people who keep complaining about the name "Serverless" for the architecture the community is creating. It's just a name. We've survived with stupid names for architectures and stupid names for frameworks for a long time. It's just a name. It actually might be more descriptive than most others! (Read this blog for a bit of context about what I think serverless is)

https://serverless.zone/serverless-is-just-a-name-we-could-have-called-it-jeff-1958dd4c63d7



Serverless Architectures

Serverless architectures refer to applications that significantly depend on third-party services (knows as Backend as a Service or "BaaS") or on custom code that's run in ephemeral containers (Function as a Service or "FaaS"), the best known vendor host of which currently is AWS Lambda. By using these ideas, and by moving much behavior to the front end, such architectures remove the need for the traditional 'always on' server system sitting behind an application. Depending on the circumstances, such systems can significantly reduce operational cost and complexity at a cost of vendor dependencies and (at the moment) immaturity of supporting services.

04 August 2016

Mike Roberts

Mike is an engineering leader living in New York City. While spending much of his time these days managing people and teams he also still gets to code occasionally, especially in Clojure, and has Opinions about software architecture. He is cautiously optimistic that Serverless architectures may be worth some of the hype that they are currently receiving.

Find **similar articles** at the tag: application architecture

Contents

SERVERLESS

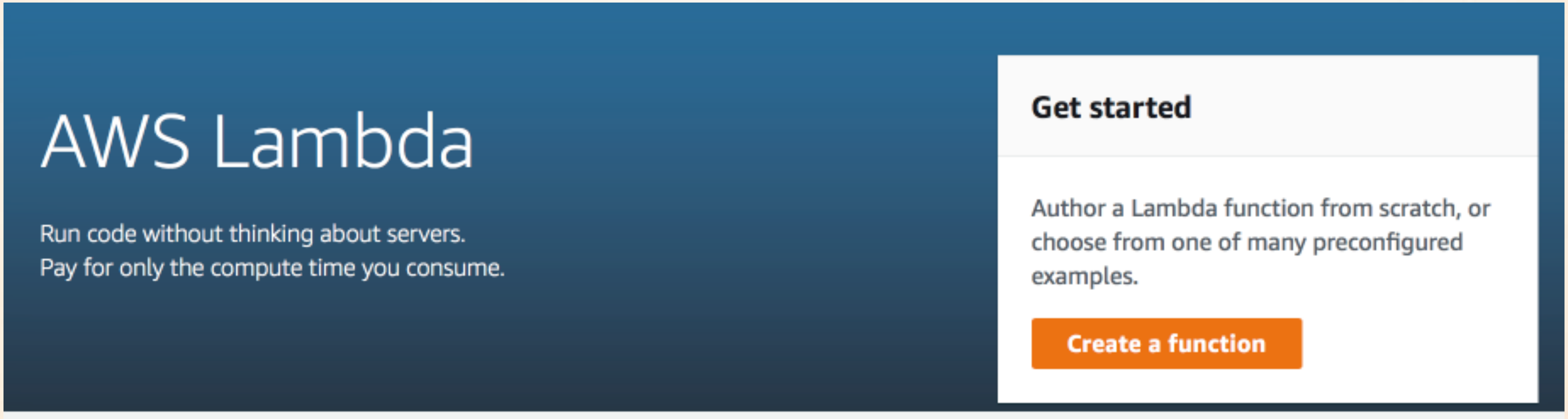
- AWS Lambda
- Azure Functions
- Google Cloud Functions

1 FUNCTION/METHOD
PER
1 MICROSERVICE

SERVERLESS

==

REDUCING MAINTENANCE

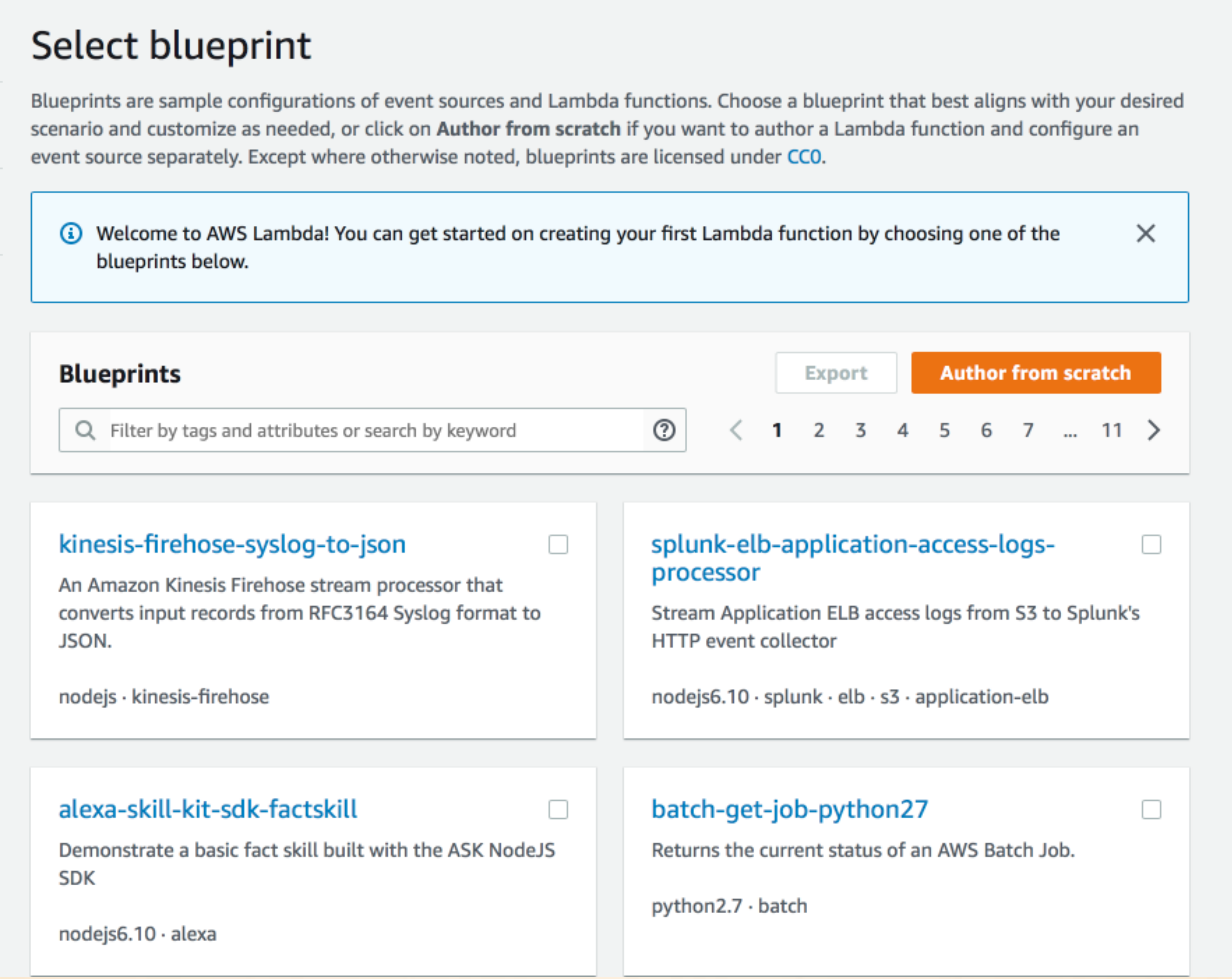


AWS Lambda

Run code without thinking about servers.
Pay for only the compute time you consume.

Get started

Author a Lambda function from scratch, or choose from one of many preconfigured examples.



Select blueprint

Blueprints are sample configurations of event sources and Lambda functions. Choose a blueprint that best aligns with your desired scenario and customize as needed, or click on **Author from scratch** if you want to author a Lambda function and configure an event source separately. Except where otherwise noted, blueprints are licensed under CC0.

ⓘ Welcome to AWS Lambda! You can get started on creating your first Lambda function by choosing one of the blueprints below. ✕

Blueprints

kinesis-firehose-syslog-to-json □

An Amazon Kinesis Firehose stream processor that converts input records from RFC3164 Syslog format to JSON.

nodejs · kinesis-firehose

splunk-elb-application-access-logs-processor □

Stream Application ELB access logs from S3 to Splunk's HTTP event collector

nodejs6.10 · splunk · elb · s3 · application-elb

alexa-skill-kit-sdk-factskill □

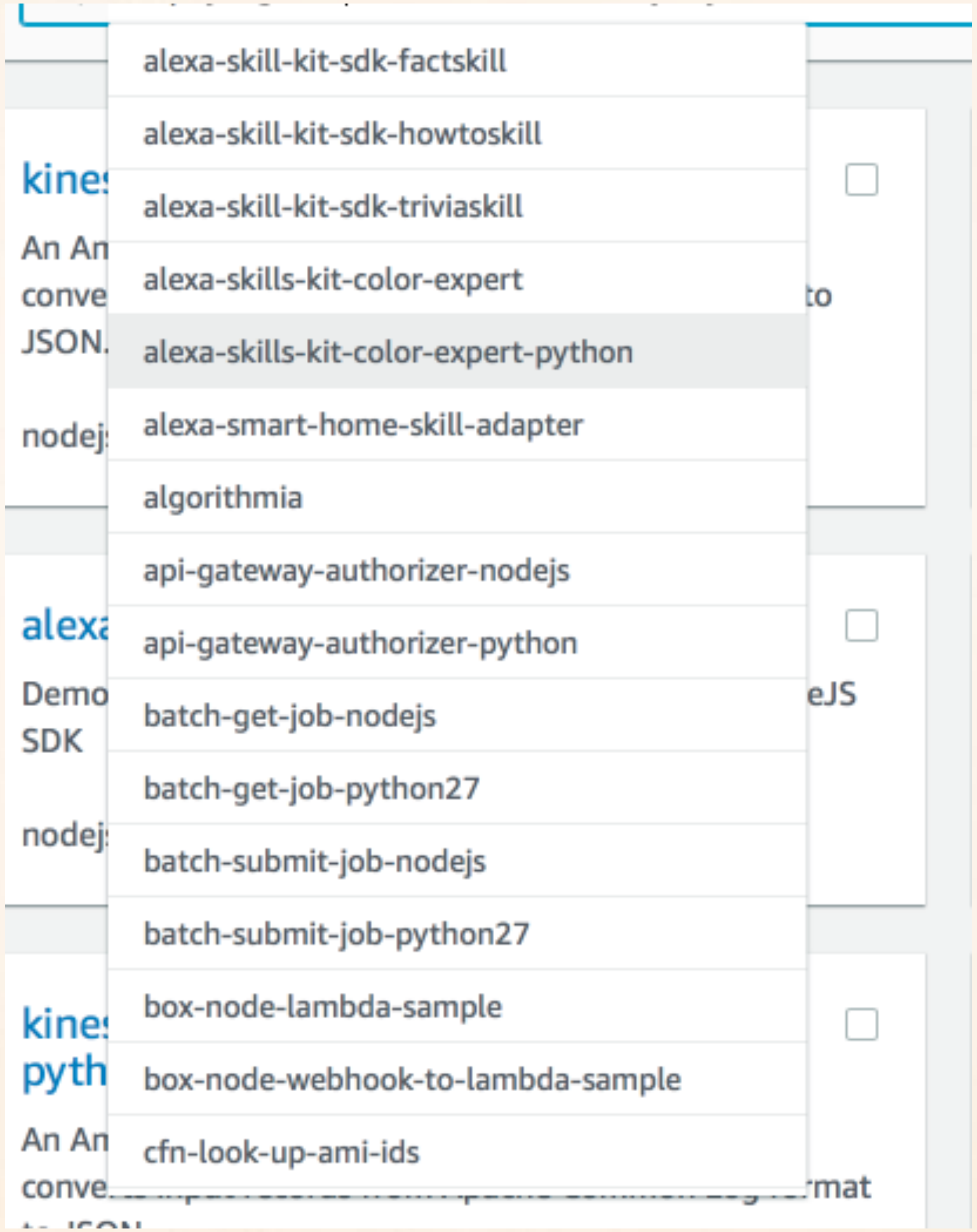
Demonstrate a basic fact skill built with the ASK NodeJS SDK

nodejs6.10 · alexa

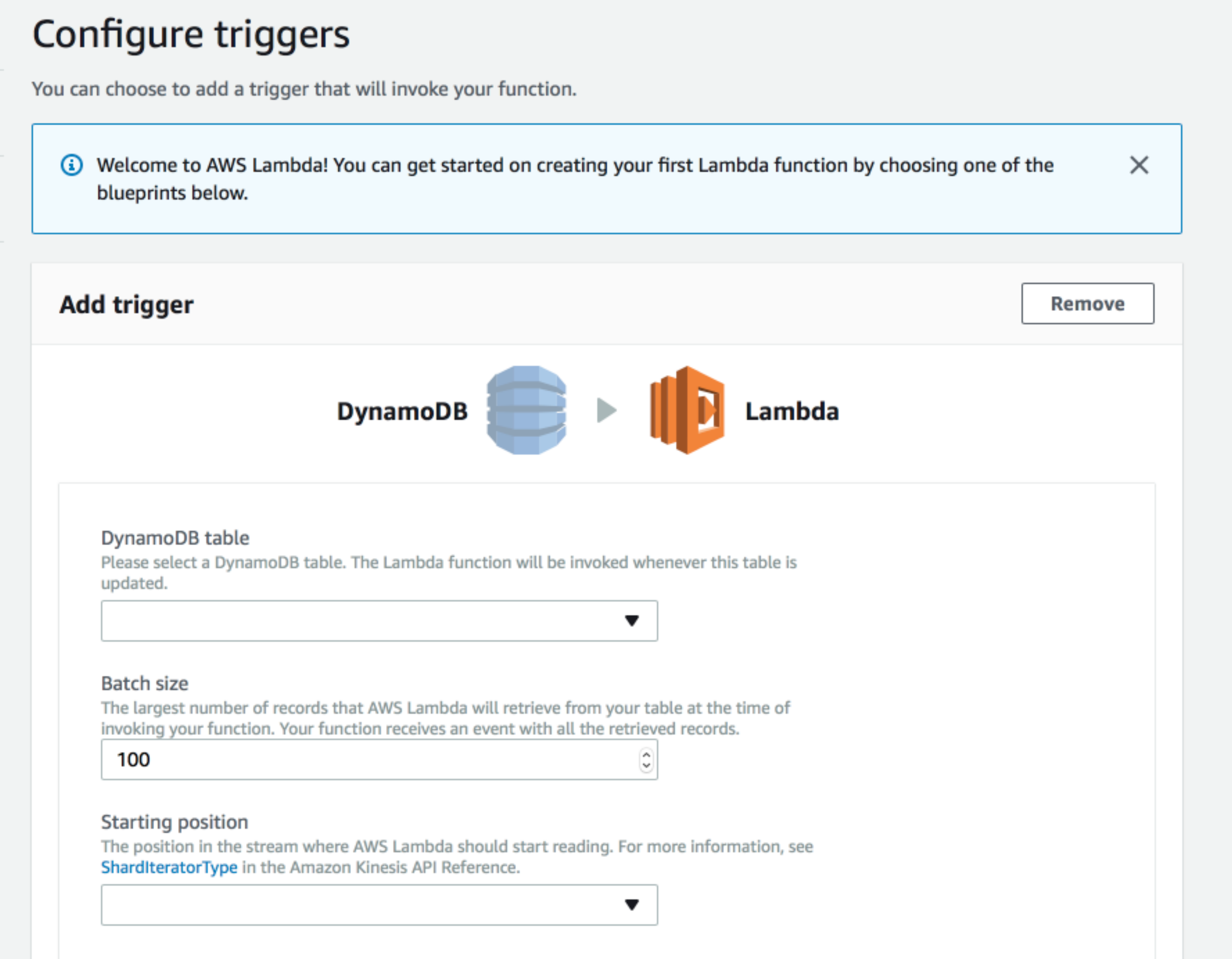
batch-get-job-python27 □

Returns the current status of an AWS Batch Job.

python2.7 · batch



- alexa-skill-kit-sdk-factskill
- alexa-skill-kit-sdk-howtoskill
- alexa-skill-kit-sdk-triviaskill
- alexa-skills-kit-color-expert
- alexa-skills-kit-color-expert-python
- alexa-smart-home-skill-adapter
- algorithmia
- api-gateway-authorizer-nodejs
- api-gateway-authorizer-python
- batch-get-job-nodejs
- batch-get-job-python27
- batch-submit-job-nodejs
- batch-submit-job-python27
- box-node-lambda-sample
- box-node-webhook-to-lambda-sample
- cfn-look-up-ami-ids



Configure triggers

You can choose to add a trigger that will invoke your function.

ⓘ Welcome to AWS Lambda! You can get started on creating your first Lambda function by choosing one of the blueprints below. ✕

Add trigger

DynamoDB table

Please select a DynamoDB table. The Lambda function will be invoked whenever this table is updated.

▼

Batch size

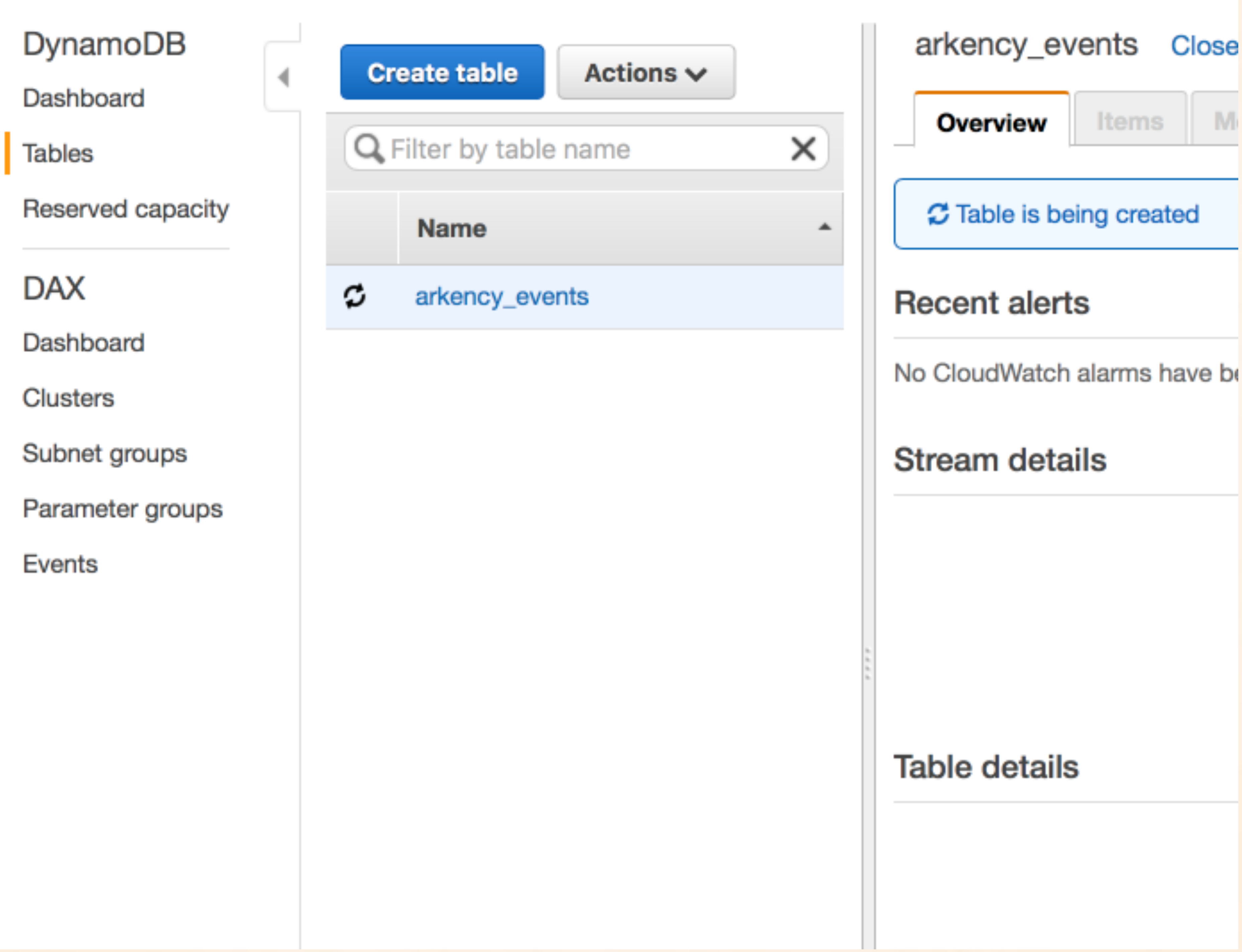
The largest number of records that AWS Lambda will retrieve from your table at the time of invoking your function. Your function receives an event with all the retrieved records.

100

Starting position

The position in the stream where AWS Lambda should start reading. For more information, see ShardIteratorType in the Amazon Kinesis API Reference.

▼



	Name
↻	arkency_events

arkency_events

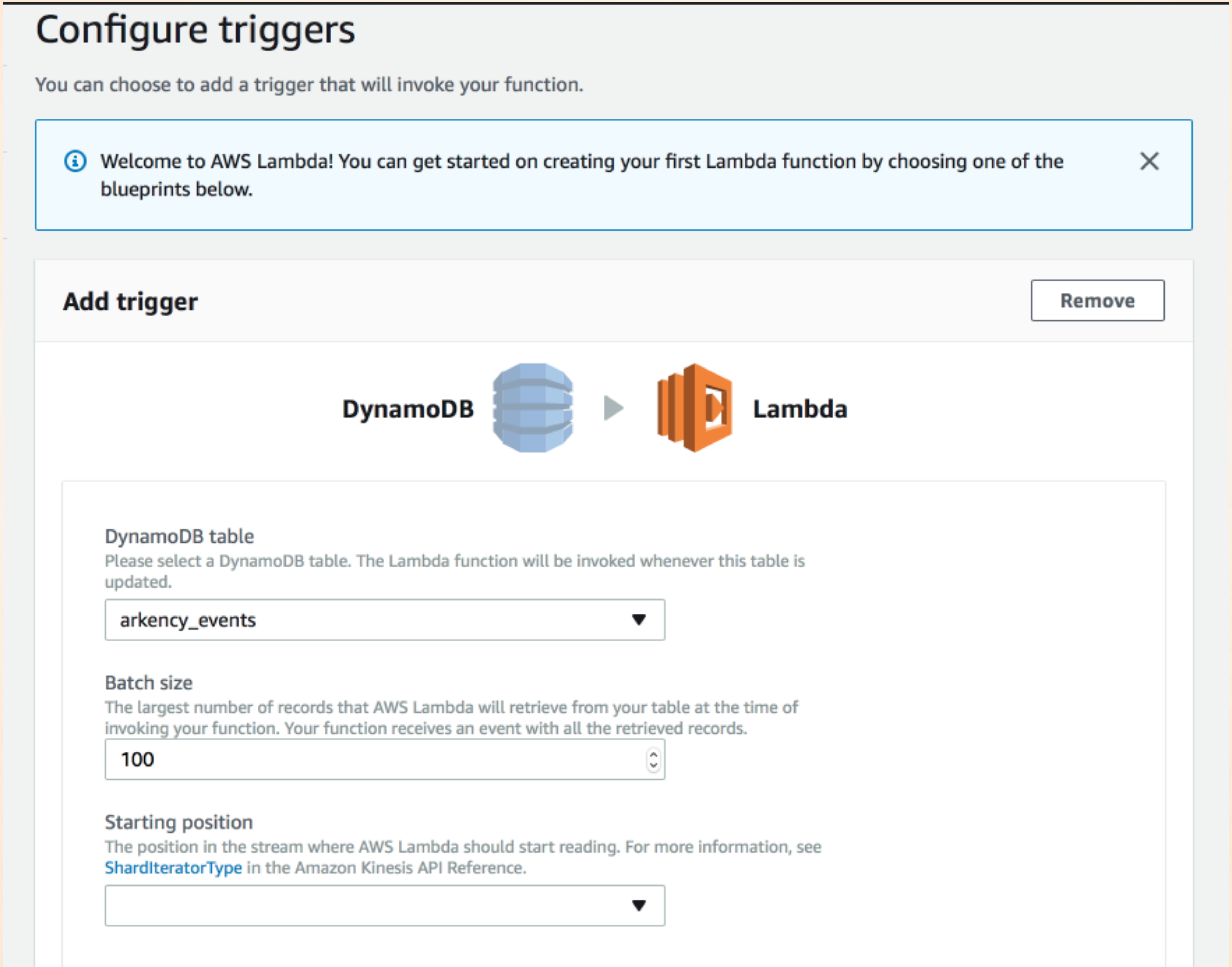
↻ Table is being created

Recent alerts

No CloudWatch alarms have be

Stream details

Table details



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arkency_events ▼

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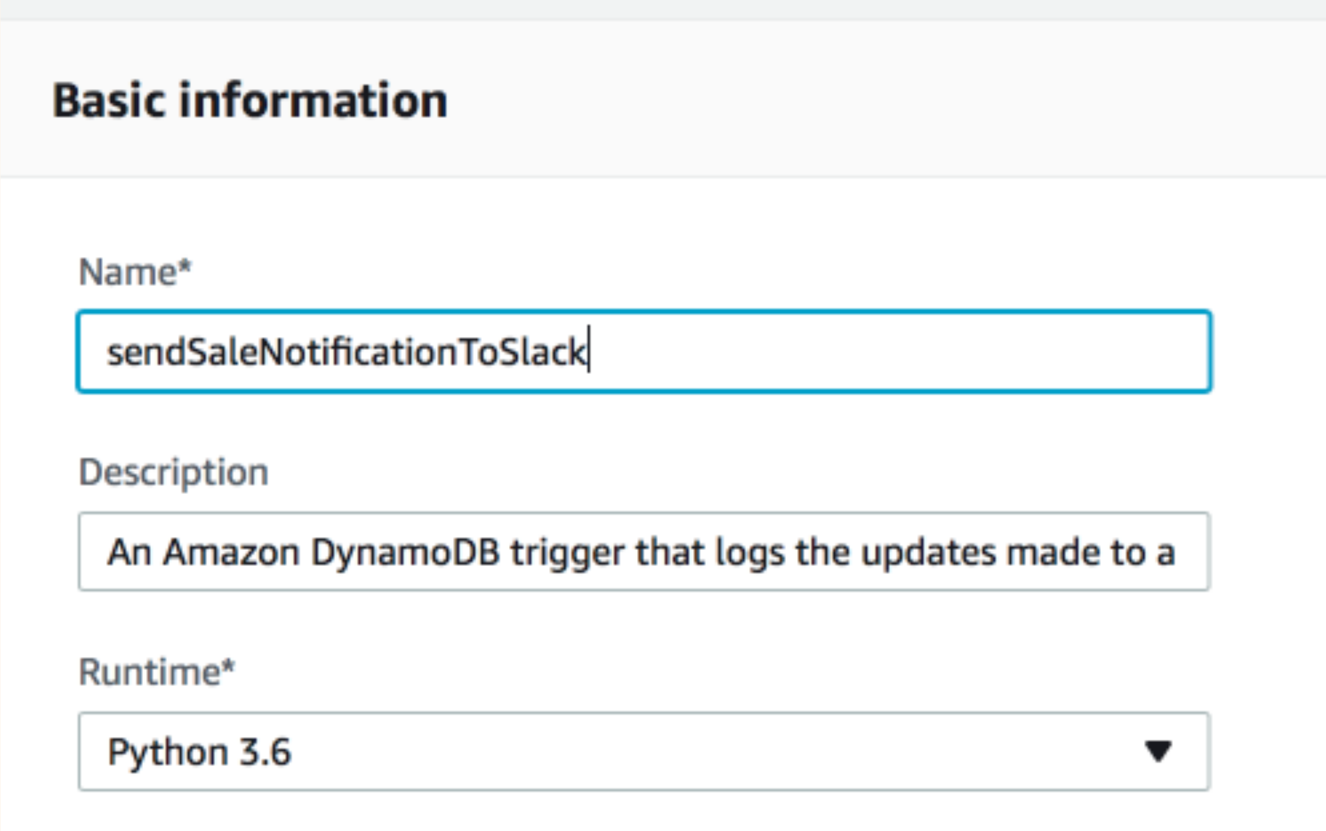


Basic information

Name*

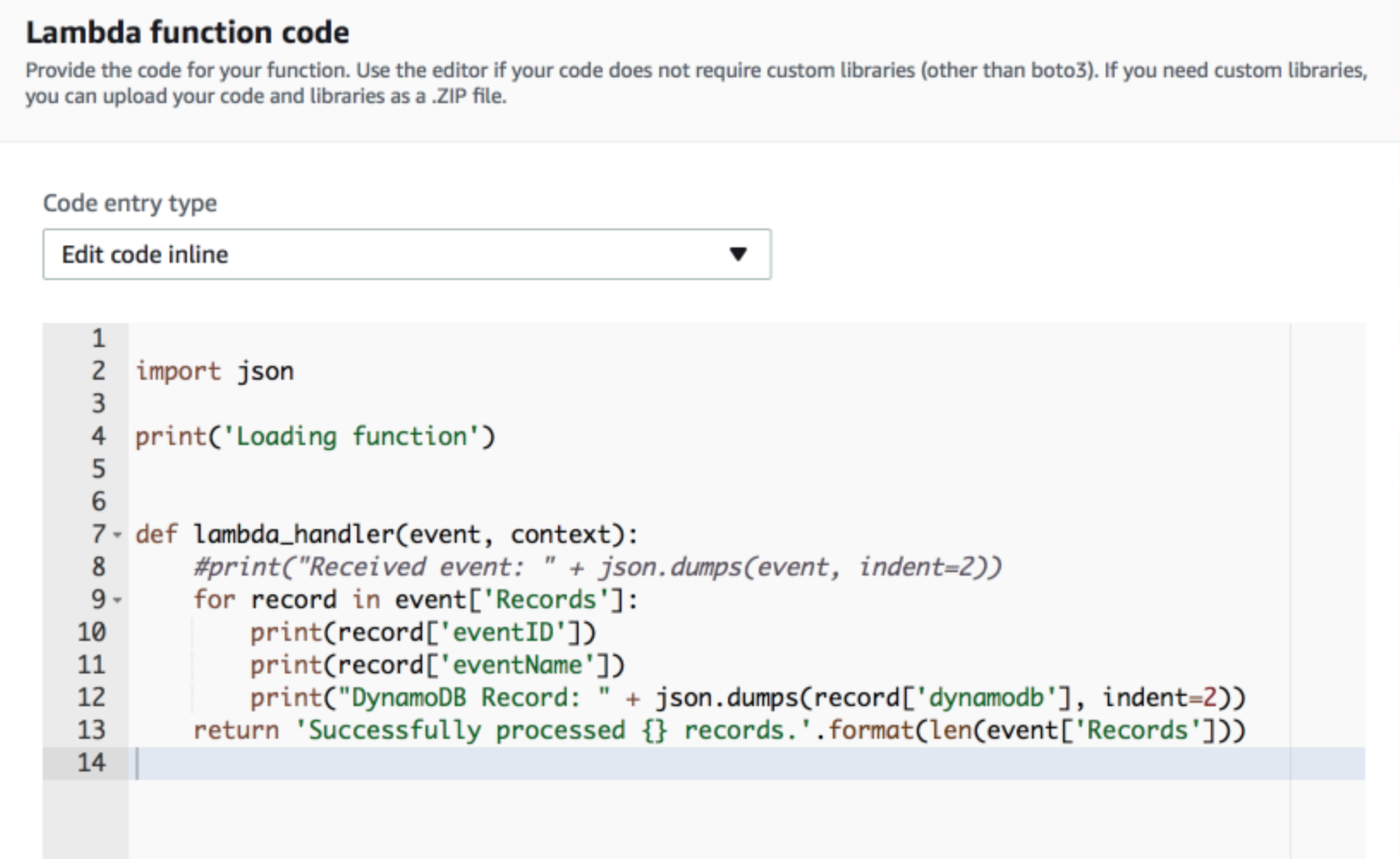
sendSaleNotificationToSlack

Description

An Amazon DynamoDB trigger that logs the updates made to a

Runtime*

Python 3.6 ▼



Lambda function code

Provide the code for your function. Use the editor if your code does not require custom libraries (other than boto3). If you need custom libraries, you can upload your code and libraries as a .ZIP file.

Code entry type

Edit code inline ▼

```python

import json

print('Loading function')


def lambda_handler(event, context):
    #print("Received event: " + json.dumps(event, indent=2))
    for record in event['Records']:
        print(record['eventID'])
        print(record['eventName'])
        print("DynamoDB Record: " + json.dumps(record['dynamodb'], indent=2))
    return 'Successfully processed {} records.'.format(len(event['Records']))

```

SERVERLESS
FUNCTION AS A SERVICE

- Cloud
- Functional programming
- Domain-Driven Design

CLOUD

INFRA/CLOUD

- Dedicated servers
- Virtual machines
- Microservices / BC?
- Kubernetes
- Serverless (function per service)

ARE MICROSERVICES COOL?

FUNCTIONAL PROGRAMMING

- immutability
- functions
- input/output
- provable(?)
- academic (?)

WHEN IS FP USEFUL?

DOMAIN-DRIVEN DESIGN

DOMAIN DRIVEN DESIGN

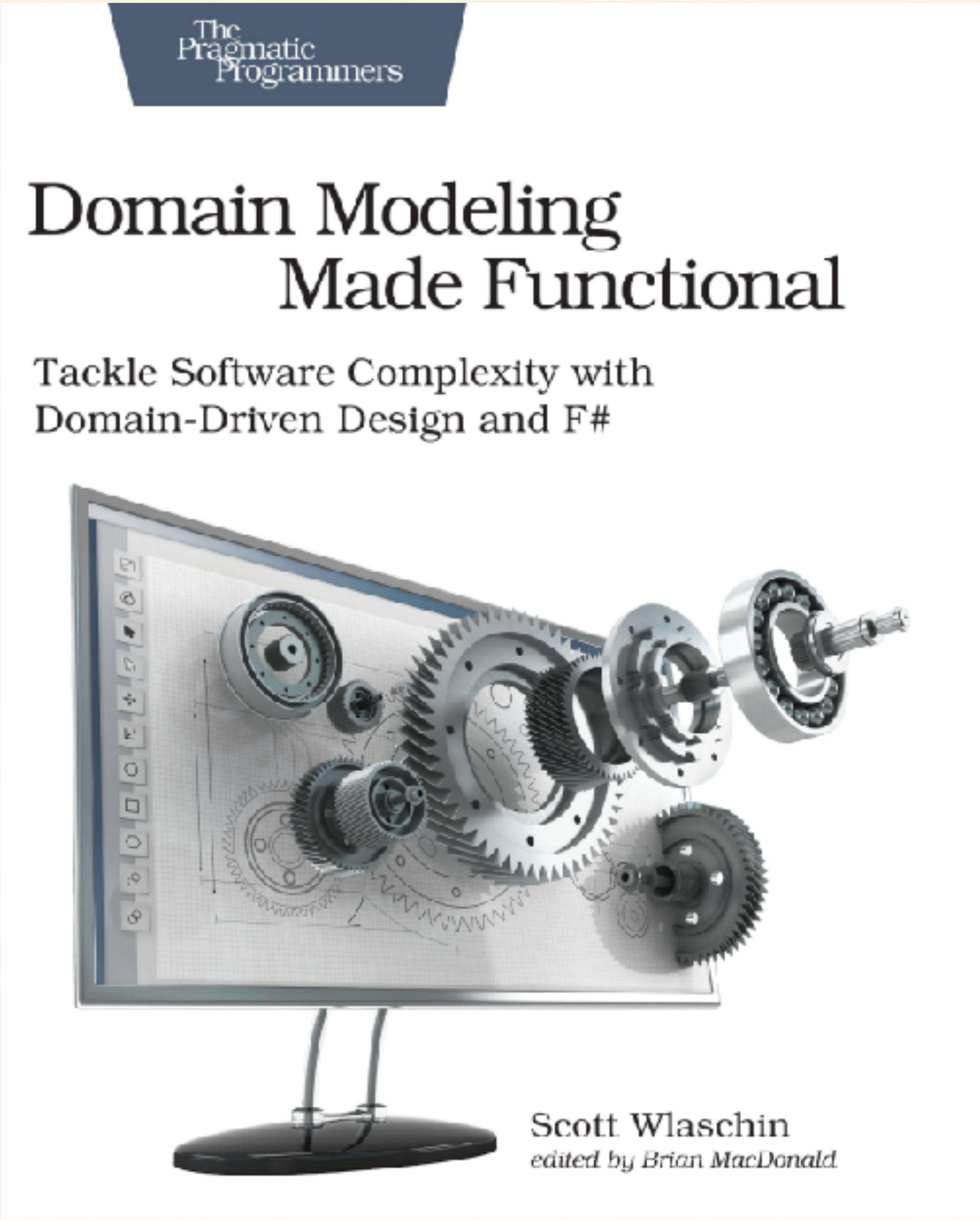
- Bounded contexts
  - Inventory, Invoicing, Accounting, SocialMedia
  - Aggregates, sagas, read models
  - Event-driven
  - Event store

CQRS

- Writes (commands)
  - CancelOrder
- Reads (queries)
  - OrdersList

FP+DDD

- aggregates as functions
- read models as functions
- process managers as functions



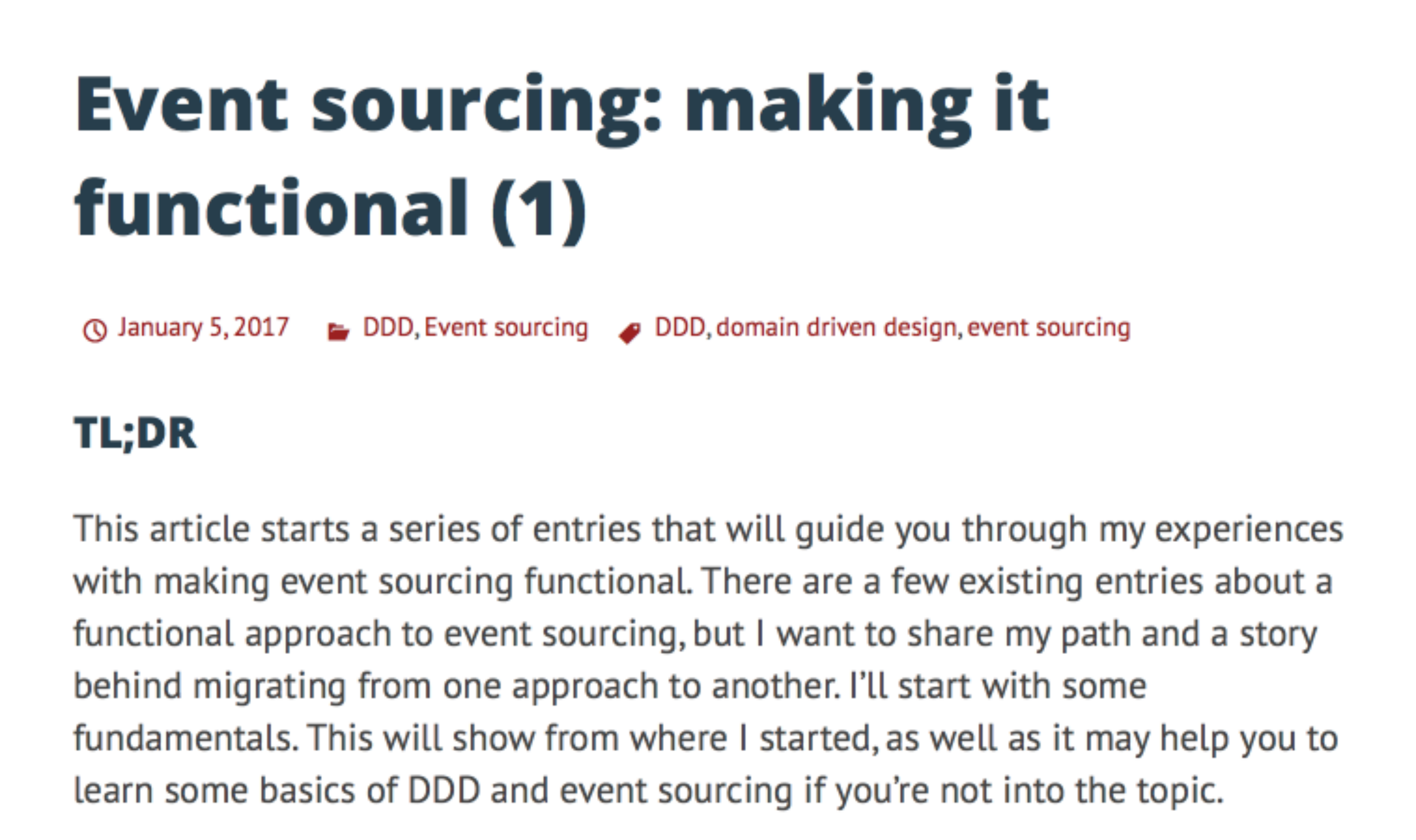
The Pragmatic Programmers

Domain Modeling Made Functional

Tackle Software Complexity with Domain-Driven Design and F#

Scott Wlaschin

edited by Brian MacDonald



Event sourcing: making it functional (1)

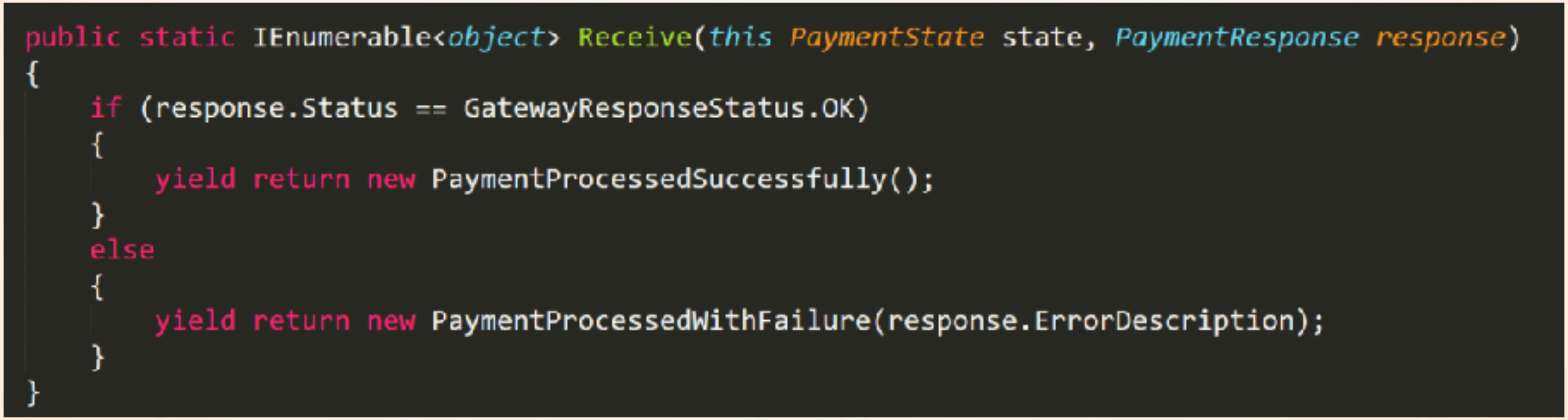
January 5, 2017 DDD, Event sourcing DDD, domain driven design, event sourcing

TL;DR

This article starts a series of entries that will guide you through my experiences with making event sourcing functional. There are a few existing entries about a functional approach to event sourcing, but I want to share my path and a story behind migrating from one approach to another. I'll start with some fundamentals. This will show from where I started, as well as it may help you to learn some basics of DDD and event sourcing if you're not into the topic.

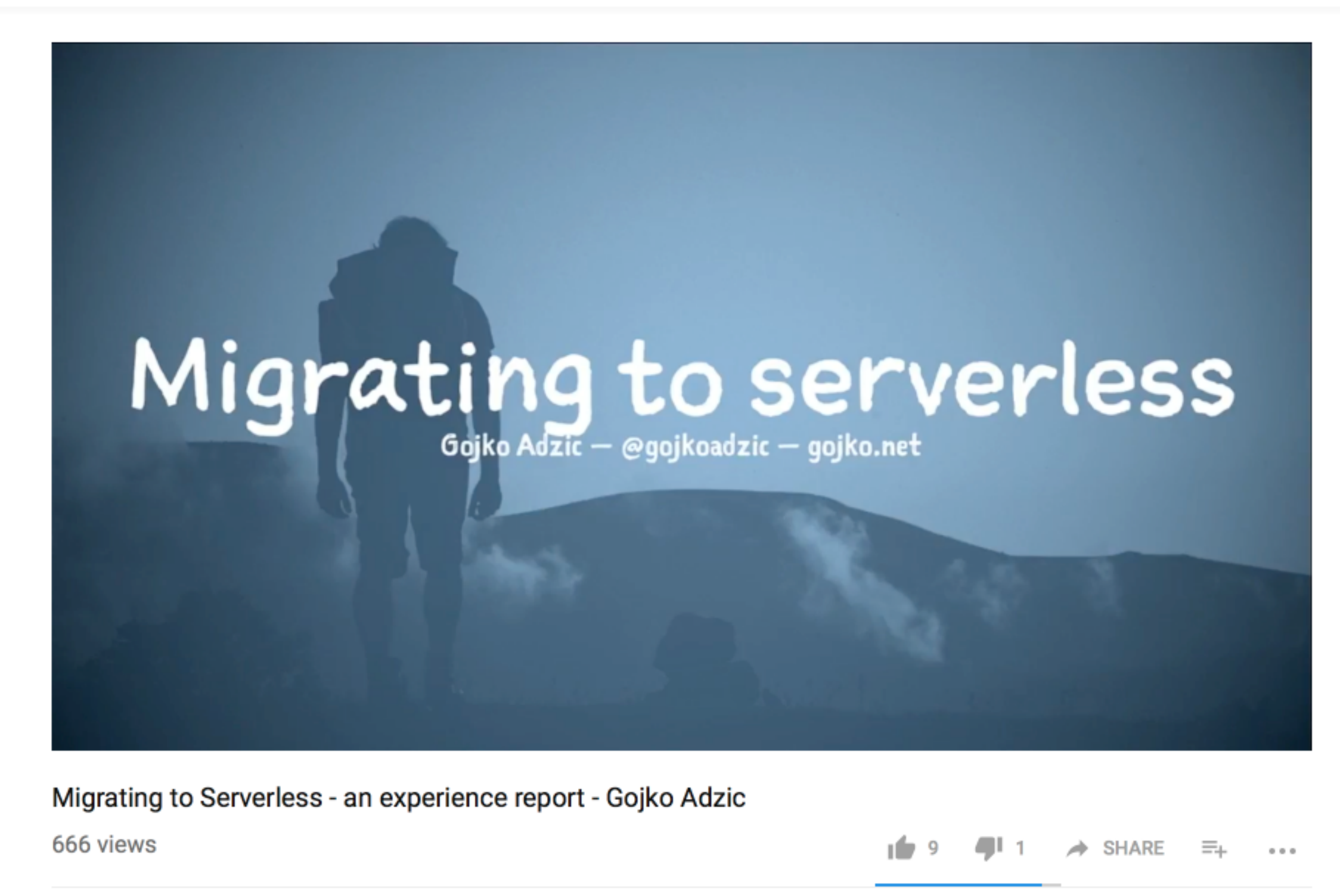
SZYMON KULEC

- dotnet
- architecture
- DDD
- performance
- mechanical sympathy



```
public static IEnumerable<object> Receive(this PaymentState state, PaymentResponse response)
{
    if (response.Status == GatewayResponseStatus.OK)
    {
        yield return new PaymentProcessedSuccessfully();
    }
    else
    {
        yield return new PaymentProcessedWithFailure(response.ErrorDescription);
    }
}
```

IS SERVERLESS PRODUCTION-READY?



Migrating to Serverless - an experience report - Gojko Adzic

666 views

https://www.youtube.com/watch?v=i2gEbw_jzfY

NO NEED TO WORRY ABOUT

- scaling
- monitoring
- recovery
- versioning
- logging

HOW TO TEST?

TESTING
VS
MONITORING

IS SERVERLESS THE FUTURE?

SERVERLESS

==

REDUCING MAINTENANCE

SCAFFOLDING

- Python
- JavaScript
- Java
- Scala

THE NEW WAVE OF PROGRAMMERS REVOLUTION

NEW WAVE OF PROGRAMMERS

- 2004 - rails
- 2015 - JS frontends
- 2020 - serverless?

POLYGLOTS

THANKS!