AWS Lambda in Golang

HOW TO START

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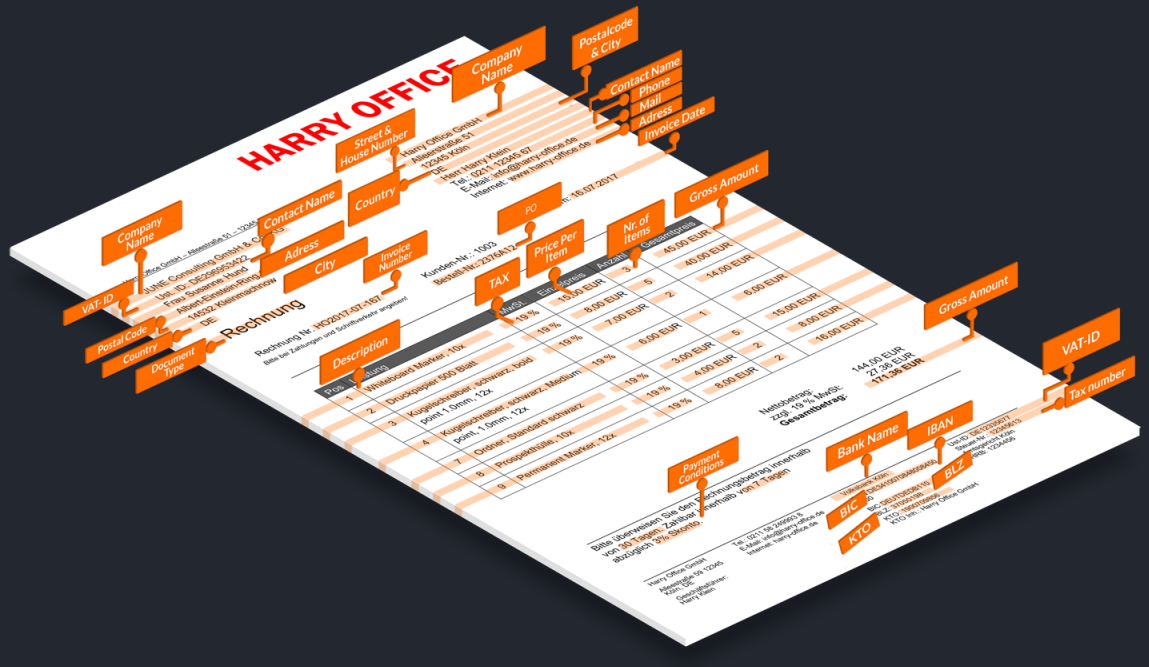
WOJCIECH BARCZYŃSKI

- Lead Software Engineer
- Golang Warsaw Organizer
- Hobby: Kubernetes/CloudNative evangelist; teacher/trainer

Hypatos

SMACC.io = **Hypatos.ai**

Problem SMACC solves



Hypatos

SAP

Microsoft Dynamics

DATEV

SMACC

WHY SERVERLESS

1. Cut costs
2. Simplify
3. Generate/Prepare and cache

experience in LykeHQ

SMACC / Hypatos

1. Kubernetes/CloudNative

Agility. We own it. Observability.

SMACC.io / Hypatos.ia

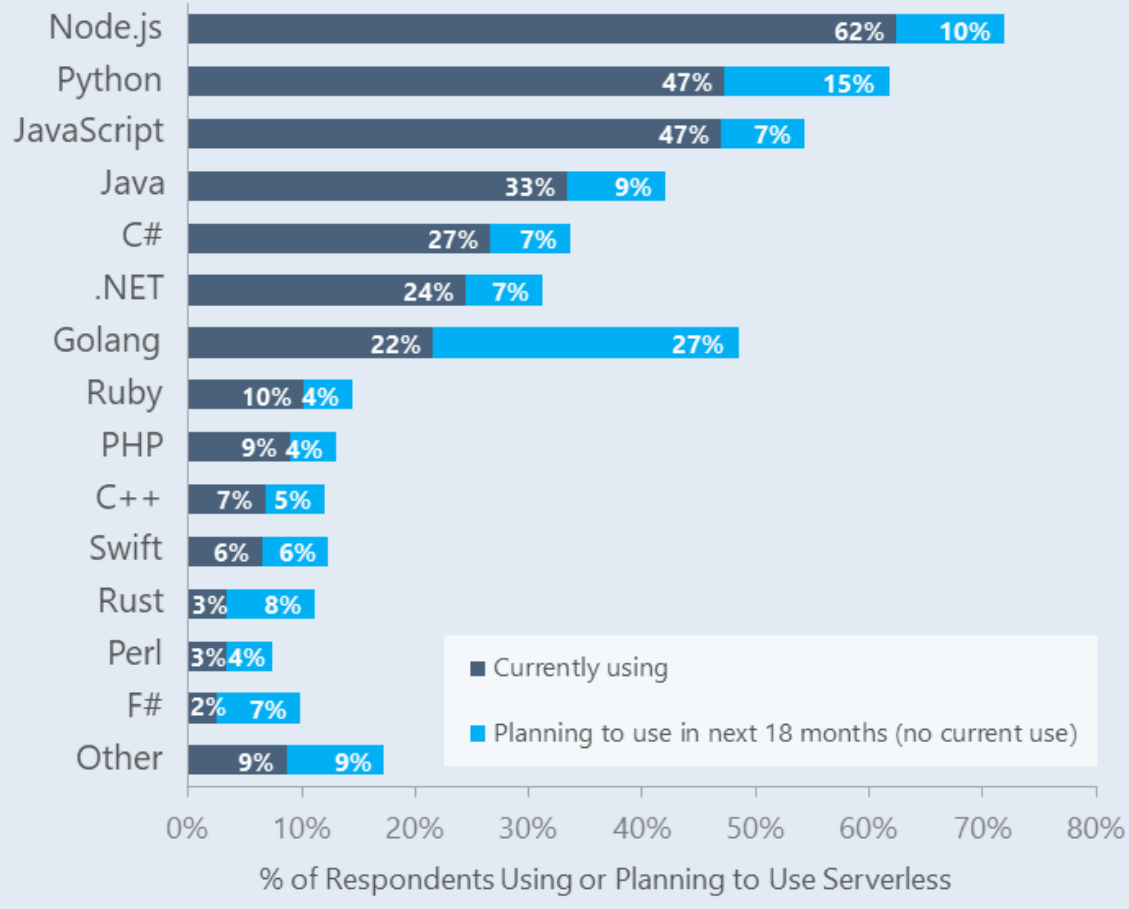
1. Kubernetes/CloudNative
2. XaaS
3. Looking into Serverless

WHY GO?

- Readibility
- Performance [1][2]
- Cheap Concurrency [3]

[1] go vs nodejs [2] acloud benchmark [3] Cost reduced

Functions Written in Different Languages: Currently and in Next 18 Months



Source: The New Stack Serverless Survey 2018. Q. Which languages do you use or plan to use in the next 18 months when writing functions? n=324.

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DISADVANTAGES

- Binary size
- Complied no way to edit
- Might have slower start [1]

[1] Some users report slow start times

HOW TO START

It is easy:

- serverless framework
- go dep
- amazon sam CLI

HOW TO START

```
$ npm install -g serverless
$ go get github.com/tools/godep
$ brew tap aws/tap; brew install aws-sam-cli
```

DEMO - GENERATE CODE

```
$ serverless create -t aws-go-dep
```

Definicja binary per handler

DEMO - DEPLOY

```
$ make build
$ make deploy
```

DEMO - RUNNING LOCALLY

1. Prepare: `template.yaml` for *sam*
2. Execute:

```
$ sam local start-api
$ sam local start-api --env-vars env.json
```

DEMO - RUNNING LOCALLY

```
$ curl  http://127.0.0.1:3000/hello
$ curl  http://127.0.0.1:3000/hello/natalia
$ curl  http://127.0.0.1:3000/hello?name=natalia
```

DEMO - GENERATE EVENTS

```
$ sam local generate-event
$ sam local generate-event s3  put > put_s3.json
$ sam local invoke "HelloWorldFunction" -e put_s3.sjon
```

DEMO - HANDLERS

```
func ()
func () error
func (TIn), error
func () (TOut, error)
func (context.Context) error
func (context.Context, TIn) error
func (context.Context) (TOut, error)
func (context.Context, TIn) (TOut, error)
```

AWS docs on valid handlers

DEMO - CONTEXT

```
ctx context.Context

# from ctx to lambdacontext
lc, _ := lambdacontext.FromContext(ctx)
```

see implementation

TESTING

- units
- integration locally, e.g., with dynamodb-local
- localstack.cloud
- in the cloud

GUIDE

- time is $$
- Golang:
  - Pass by value small data types
  - Pointers for large ones
  - Goroutines for, e.g., init

UNKNOWN

- how to asses the resources [1]
- how to integrate with our prometheus stack
- Can we take the lesson to onPrem?

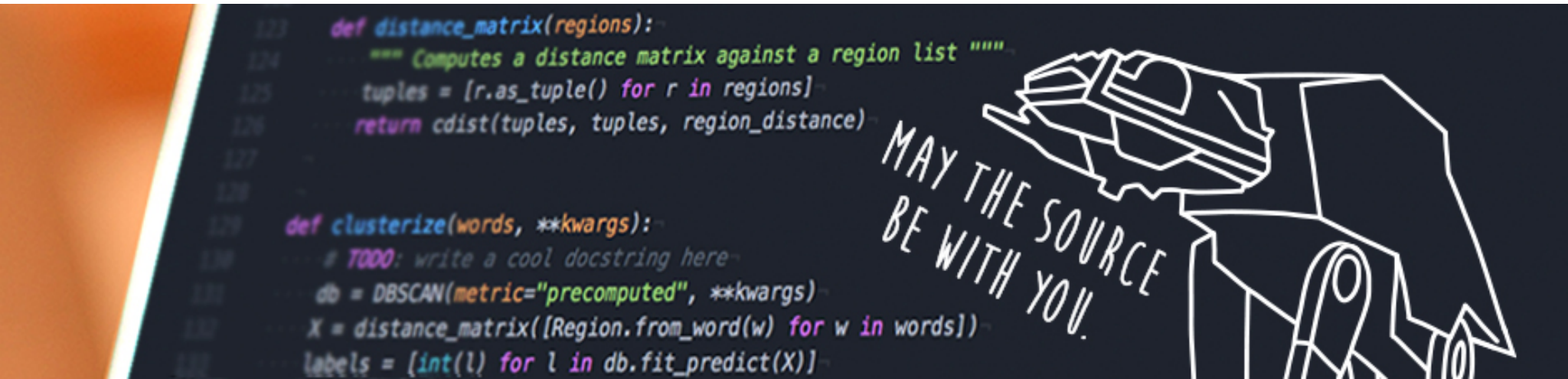
[1] aws-lambda-power-tuning

SUMMARY

- Golang is a fast and simple to read language
- Easy to use, give it a try :)
- Later check more complex examples

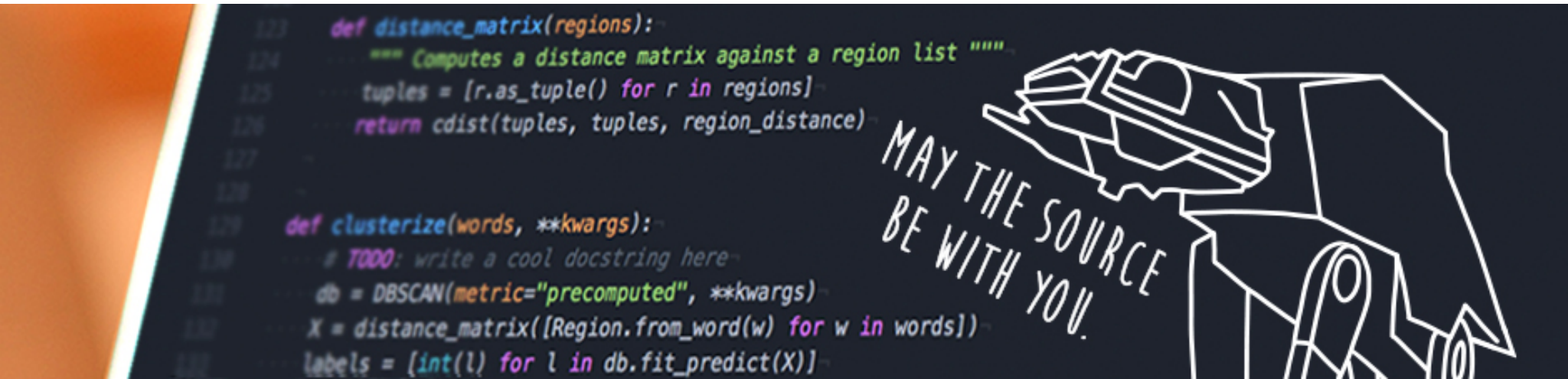
github.com/wojciech12/talk_serverless_in_golang

Next talk: kubeless?



THANK YOU. QUESTIONS?

We are hiring.



BACKUP SLIDES

Hypatos

Go

PYTORCH

TensorFlow™

amazon web services™

Azure

INTERESTING

- Golang on Kubeless
- Golang Plugins and Lambda Layers
- golang and GraalVM
- AWS Fargate