



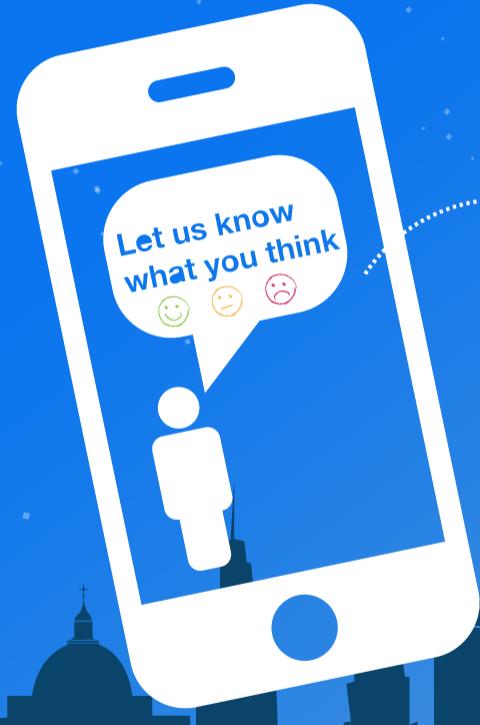
GOTO Copenhagen 2019
Conference Nov. 18 - 20

Azure Serverless for Developers

Julie Lerman



@julielerman



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and ask questions.**

Yes, there's a server ... somewhere



Serverless Functions

Single Purpose

Event-driven

Hosted infrastructure

Focus on your code

Serverless Functions

Single Purpose

Short lead time, simple deployment

Event-driven

Built-in triggers

Hosted infrastructure

Don't worry about implementation details

Focus on your code

Focus on your code

What Your Boss Wants to Know

Autonomous ➤ Quick to build

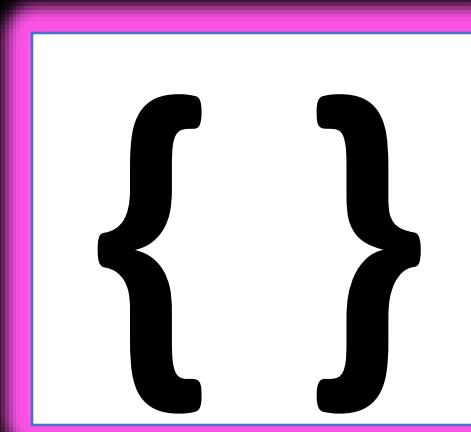
Deploy with minimal side-effects

Pay only for execution time

DevOps

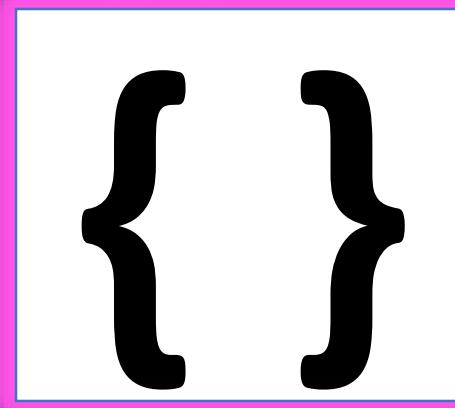
Scaling

Security

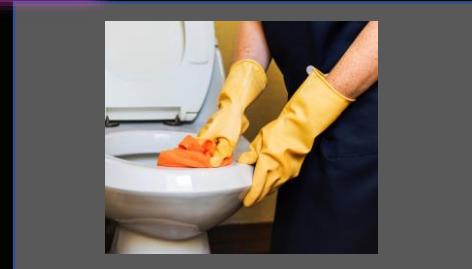
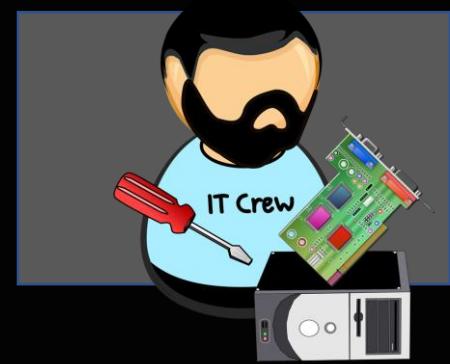


Monitoring

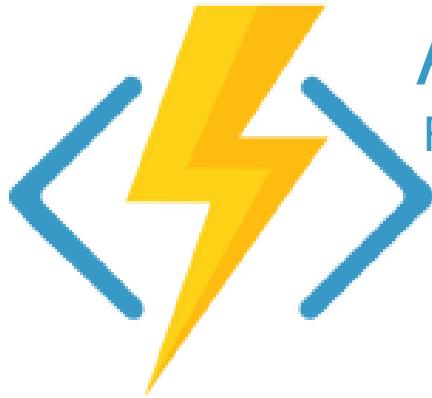
Deployment



Monthly Budget			
PROJECTED MONTHLY INCOME		ACTUAL MONTHLY EXPENSES	
Income	€ 2,500,-	Actual Income	€ 2,500,-
Salaries 1	€ 2,000,-	Actual Salaries	€ 2,000,-
Interest income	€ 500,-	Actual interest income	€ 500,-
Total monthly income	€ 2,500,-	Total monthly income	€ 2,500,-
Extra income	€ 0,-	Actual extra income	€ 0,-
Total monthly income	€ 2,500,-	Total monthly income	€ 2,500,-
EXPENSES			
HOUSING	Projected Cost	Actual Cost	Difference
Mortgage or rent:	€ 1,500,-	€ 1,400,-	€ 100,-
Phone:	€ 50,-	€ 100,-	€ 50,-
Electricity:	€ 200,-	€ 150,-	€ 50,-
Water and sewer:	€ 50,-	€ 40,-	€ 10,-
Cable:	€ 50,-	€ 48,-	€ 2,-
Waste removal:	€ 10,-	€ 10,-	€ 0,-
Carrying or repairs:	€ 100,-	€ 100,-	€ 0,-
Total monthly expenses	€ 2,500,-	€ 2,400,-	€ 100,-



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Azure
Functions



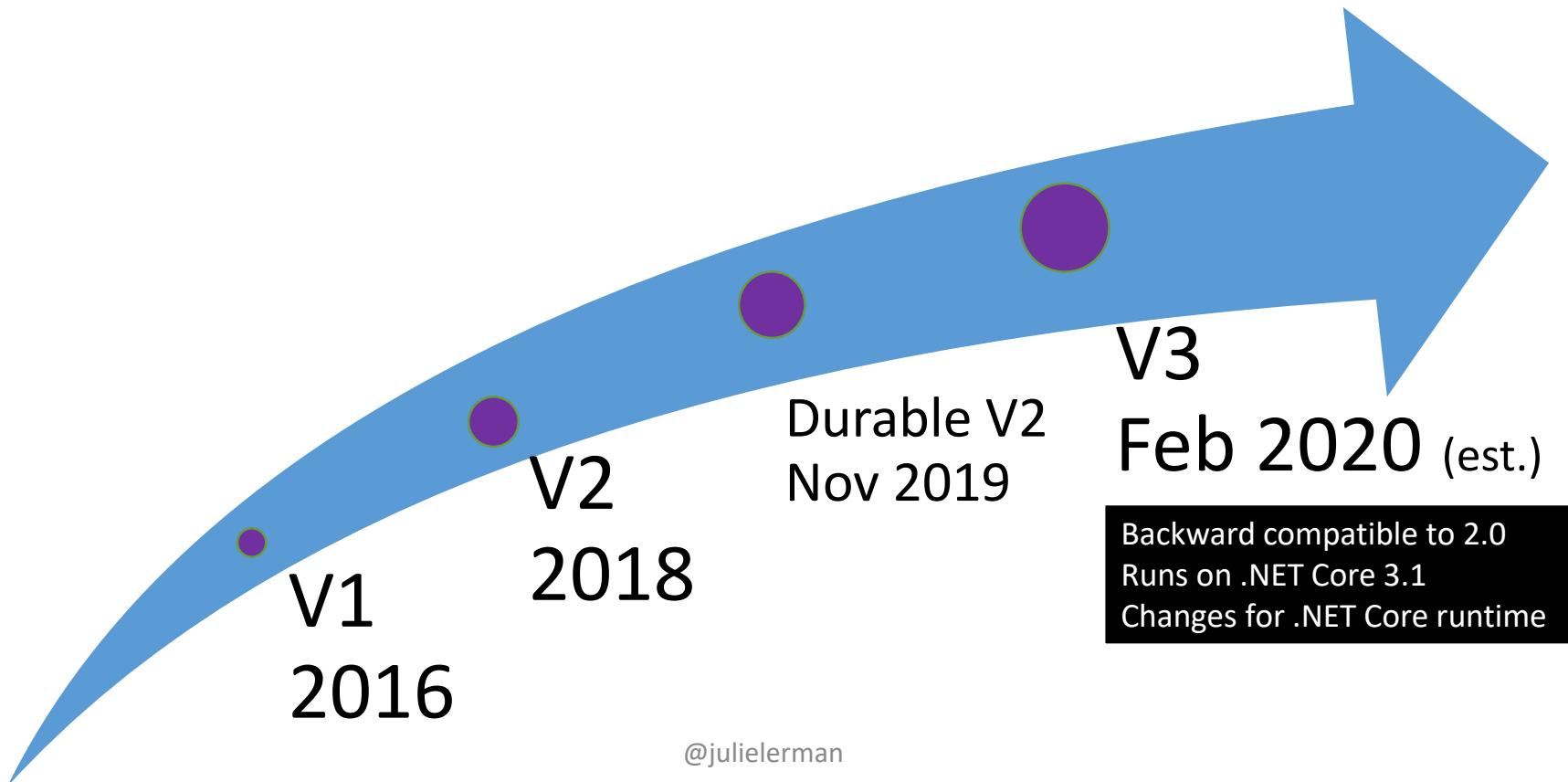
Google Cloud Functions



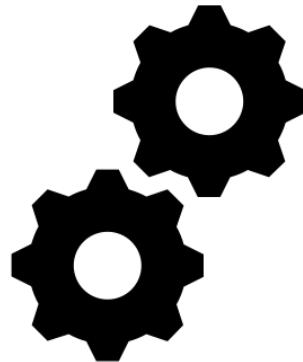
AWS Lambda

IBM Cloud Functions, Alibaba Function Compute, Iron Functions,
Auth0 WebTask, Oracle Fn, Kubeless (Kubernetes)

Azure Functions Has Traction

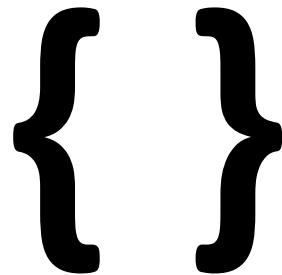


Infrastructure



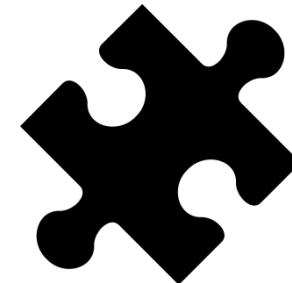
Convention + config

Your business logic



Your only real effort

External APIs



Convention + config

C#

C#
Script

JavaScript

Java

Bring your own language

F#

Python

Powershell

TypeScript

Experimental:

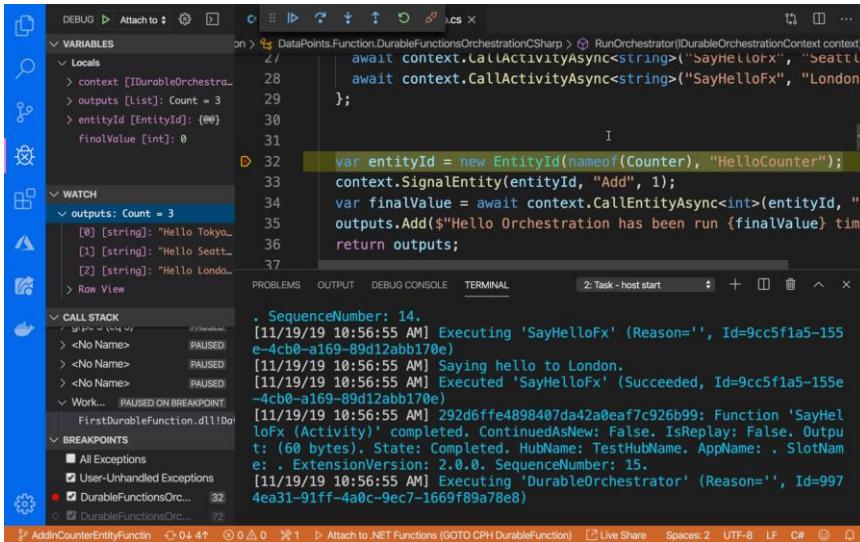
PHP

Bash

batch cmd

Build, debug & deploy

Required: .NET Core SDK, Azure Functions Core Tools, storage emulator or Azure storage access



Visual Studio, VS Code, Eclipse

A screenshot of the Microsoft Azure Portal. It shows the 'GoToFunctions - NotifySubscribers' function app. The 'index.js' file is open in the code editor, containing JavaScript code for sending messages to subscribers. The portal also shows the 'Function Apps' and 'Functions' sections.

Azure Portal

```
func new --name MyHttpTrigger --template "HttpTrigger"

func start

az functionapp create --resource-group myResourceGroup --consumption-plan-location westus --name <APP_NAME> --storage-account <STORAGE_NAME> --runtime <language>
```

CLI: [dotnet or maven] + Azure CLI + AF CLI

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Azure Function App

Application Settings

Azure Function

Trigger Binding

Configuration

- HTTP
- Event Grid
- Blob storage
- Queue storage
- Table storage
- Azure Cosmos DB
- Azure Service Bus
- Azure Event Hub
- SendGrid
- Twilio SMS
- Excel table
- Outlook message

A Trio of Azure Functions

HTTPTrigger

Request query
("He ate!")

Output to

HTTPTrigger

Request query
(cell phone #)

Output to

Collection 1:
SampsonAte

Collection 2:
Subscribers

Cosmos DB Trigger

*Input: Read from subscriber collection

*Output: SMS to subscribers

Cosmos DB Database

bit.ly/afjulie

Include your country code
DO NOT INCLUDE + SIGN

GDPR concerns? I swear to delete the database after the session!

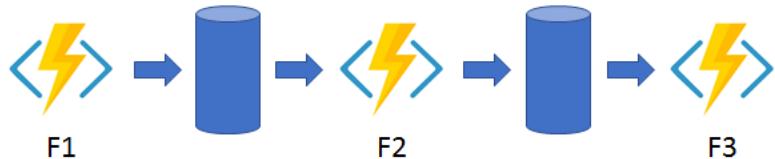
Durable Functions Durable Entities

State is auto-magically persisted (default: in Azure Web Storage)

An extension on top of Azure Functions

- Orchestrate stateful functions

E.g., chained functions:



- Define stateful entities
- Use in functions or durable functions

Exploring the Azure Functions Durable Entities Preview

November 2019 MSDN Magazine

msdn.microsoft.com/magazine/mt833553

VS/VS Code Azure Functions Extension

Templates

IDE benefits e.g. debugging, source control, etc.

Runtime local hosting

Browse Portal functions (w some interaction)

Easy (zip file) deployment

Another Tool in Your Toolbelt

Hosting/deployment implementation is handled

Focus on your logic

Quick "to market"

Pay for minimal compute time

Stateless but durable extensions allow for orchestration, etc

Integrates easily with many Azure services & external, too

Great tooling for build/debug/deploy

Resources

The code from these demos are at github.com/julielman/ServerlessFall2018

Julie's Pluralsight Author Page bit.ly/2t6m83w

Creating Azure Functions to Interact with Cosmos DB (Jan 2018 MSDN Mag)
msdn.microsoft.com/magazine/mt846723

Replacing a Bulky API with Azure Functions (May 2018 MSDN Mag)
msdn.microsoft.com/magazine/mt846723

Azure CosmosDb: aka.ms/CosmosDb

Azure Functions: aka.ms/Azure/Functions

Exploring the Azure Functions Durable Entities (Nov 2019 MSDN Mag)
msdn.microsoft.com/magazine/mt833553

What is Serverless Architecture? What are its Pros and Cons?, Faizan Bashir
hackernoon.com/what-is-serverless-architecture-what-are-its-pros-and-cons-cc4b804022e9



Please

**Remember to
rate this session**

Thank you!