

DevOps Overview

04/23/2018

Part I - DevOps Definition

These are my opinions of what DevOps means:

- I've been doing this a long time
- There are very few new ideas
- Learning new things all the time

Part I - DevOps Definition

DevOps has three components:

- Automation - if it is to be done more than once automate
 - Continuous Integration / Continuous Delivery
- Development - DevOps work is mostly just different development
- Culture - bring “Operations” and “Developers” together
 - *Us* vs. *Them* is wired into us
 - DevOps is part of the team NOT another team
 - Accept the fact that some people are Developers and some people are Operations

Part I - DevOps Definition

Why is DevOps more important in the “Cloud”?

- The Cloud allows for *really* fast change
- “Everything fails all the time” - Werner Vogels
- Treat Cloud resources like cattle not family pets (mostly)
- Elasticity for most things

Part II - DevOps in AWS

What is Amazon Web Services?

- Region - a geographic cluster of the smaller parts.
 - About 15 available to regular people
 - 6 in North America including GovCloud
- Availability Zones - a group of data centers
 - Very well connected to the other AZs in region
 - Usually about 3 AZs / Region. Us-east-1 has 6
- Many, many, many services and more coming
 - VPC, EC2, S3, RDS ...

Part II - DevOps in AWS

Tools, Libraries and CloudFormation

- The automation of AWS
 - Everything at AWS is done via API calls
 - CloudFormation - list of resources to create and manage
 - Boto3 - Python library for automation of almost everything
 - Tools / Libraries / Utilities that build on Boto3
 - Zappa
 - Things like awslogs
 - My 2 favorites Stackility and LambdaTool

Part II - DevOps in AWS

A Demo of Some of the Services

- Trivial application that does bit.ly, tinyurl.com thing
 - Highly elastic solution in 2 data centers
 - Totally automated
 - Demonstrates some of the most important services
 - Does NOT use some of the really important services:
 - RDS, SQS, ECS, etc.
 - Is NOT engaged by continuous integration / continuous delivery

Part II - DevOps in AWS

A Demo of Some of the Services - VPC

`AWS::EC2::VPC`

`AWS::EC2::Subnet`

`AWS::EC2::InternetGateway`

`AWS::EC2::RouteTable`

Part II - DevOps in AWS

A Demo of Some of the Services - IAM Roles

```
AWS::IAM::Role
```

```
AWS::IAM::InstanceProfile
```

Part II - DevOps in AWS

A Demo of Some of the Services - EC2

`AWS::EC2::Instance`

`AWS::EC2::EIP`

Part II - DevOps in AWS

A Demo of Some of the Services - Security Group

```
AWS::EC2::SecurityGroup
```

```
AWS::EC2::SecurityGroupEgress
```

```
AWS::EC2::SecurityGroupIngress
```

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A Demo of Some of the Services - S3 Bucket

`AWS::S3::Bucket`

`AWS::S3::BucketPolicy`

`AWS::EC2::VPCEndpoint`

Part II - DevOps in AWS

A Demo of Some of the Services - API Gateway / Lambda

```
AWS::Lambda::Function
```

```
AWS::Lambda::Permission
```

```
AWS::ApiGateway::RestApi
```

```
AWS::ApiGateway::Deployment
```

Links: <https://bit.ly/2JfInHA>

- [The GitHub Repo for the Presentation](#)
- [Stackility](#) and [LambdaTool](#)
- [Amazon Web Services](#)
- [Boto3](#)