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
```

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A Demo of Some of the Services - EC2

```
AWS::EC2::Instance

AWS::EC2::EIP
```

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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
```

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

```
AWS::Lambda::Function

AWS::Lambda::Permission

AWS::ApiGateway::RestApi

AWS::ApiGateway::Deployment
```