AWS Meetup - Roma

15 Oct 2016

CI & CD ON AWS

Build and deliver products using AWS

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XPEPPERS

WHAT ARE CI AND CD ?

- Continuous Integration: ?
- Continuous Delivery: ?

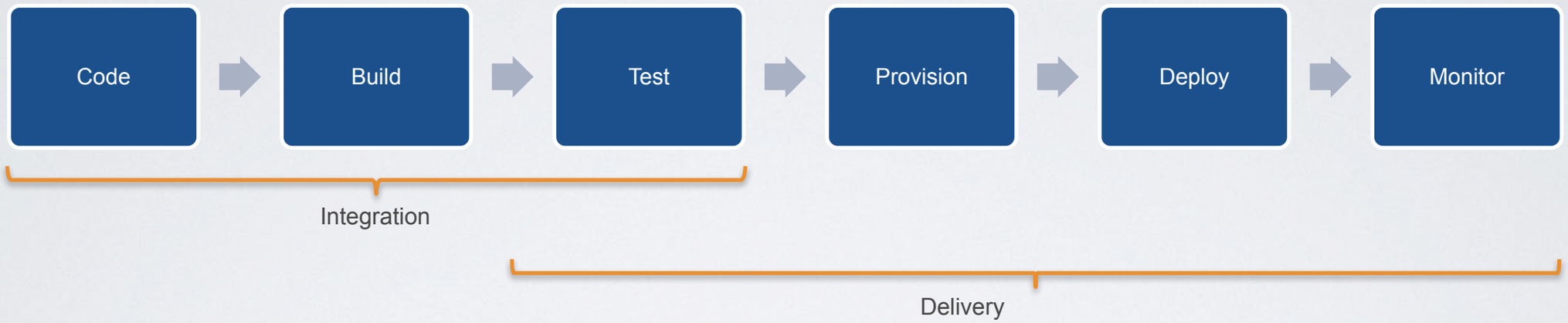
WHAT ARE CI AND CD ?

- **Continuous Integration:** every time somebody commits any change, the entire application is built and a comprehensive set of automated tests is run against it.

- **Continuous Delivery:** more than just a new delivery methodology. It is a whole new paradigm for running a business that depends on software.

Continuous Delivery - Jez Humble, David Farley

CI/CD AWS TOOLS



CODECOMMIT

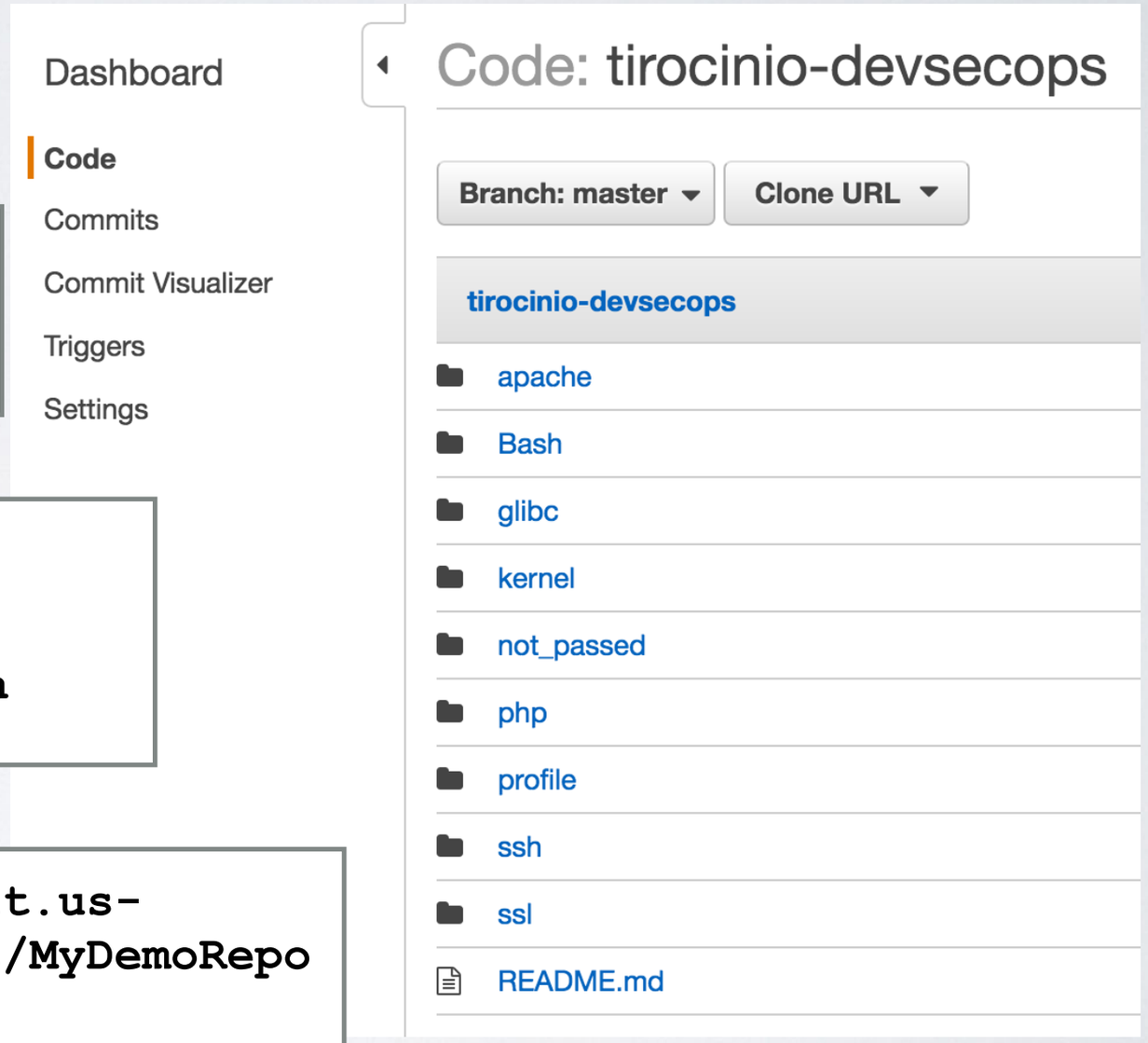
- Fully managed.
- Repositories of any size and any file type.
- Has highly available repositories.
- Choose the region where your repository should reside.
- Supports the standard functionality of Git
- Online code tools to browse, edit, and collaborate on projects.

CODECOMMIT

```
$ ssh-keygen
Generate public/private rsa key pair.
```

```
Host git-codecommit.*.amazonaws.com
User APKAEIBAERJR2EXAMPLE
  IdentityFile ~/.ssh/codecommit_rsa
```

```
git clone ssh://git-codecommit.us-
east-1.amazonaws.com/v1/repos/MyDemoRepo
my-demo-repo
```



CODEPIPELINE

- Graphical user interface to create, configure, and manage your pipeline Fully managed.

- Parallel Execution

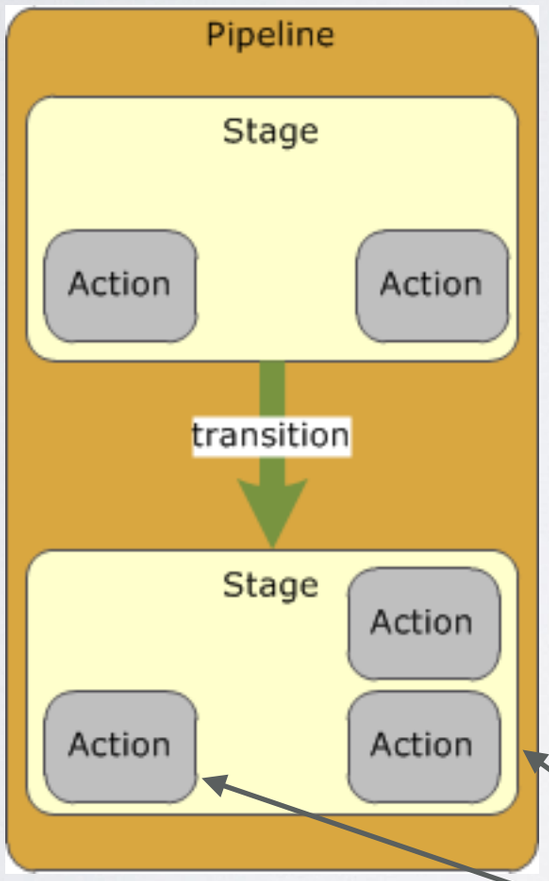
- Integration with CodeDeploy, Lambda, S3, CodeCommit, Beanstalk, Opsworks and third-party tools

- Custom action, manual approval, retry,

https://aws.amazon.com/codepipeline/product-integrations/

CODEPIPELINE

Pipeline



Actions

Source
Specify where source code is stored.

Amazon S3, GitHub

Build
Specify how application should be built.

Jenkins and other providers

Test
Specify how application should be tested.

Jenkins, Ghost Inspector and other providers

Deploy
Specify how application should be deployed.

AWS Elastic Beanstalk, AWS CodeDeploy

Invoke
Specify custom function to invoke.

AWS Lambda

Parallel actions

CODEDEPLOY

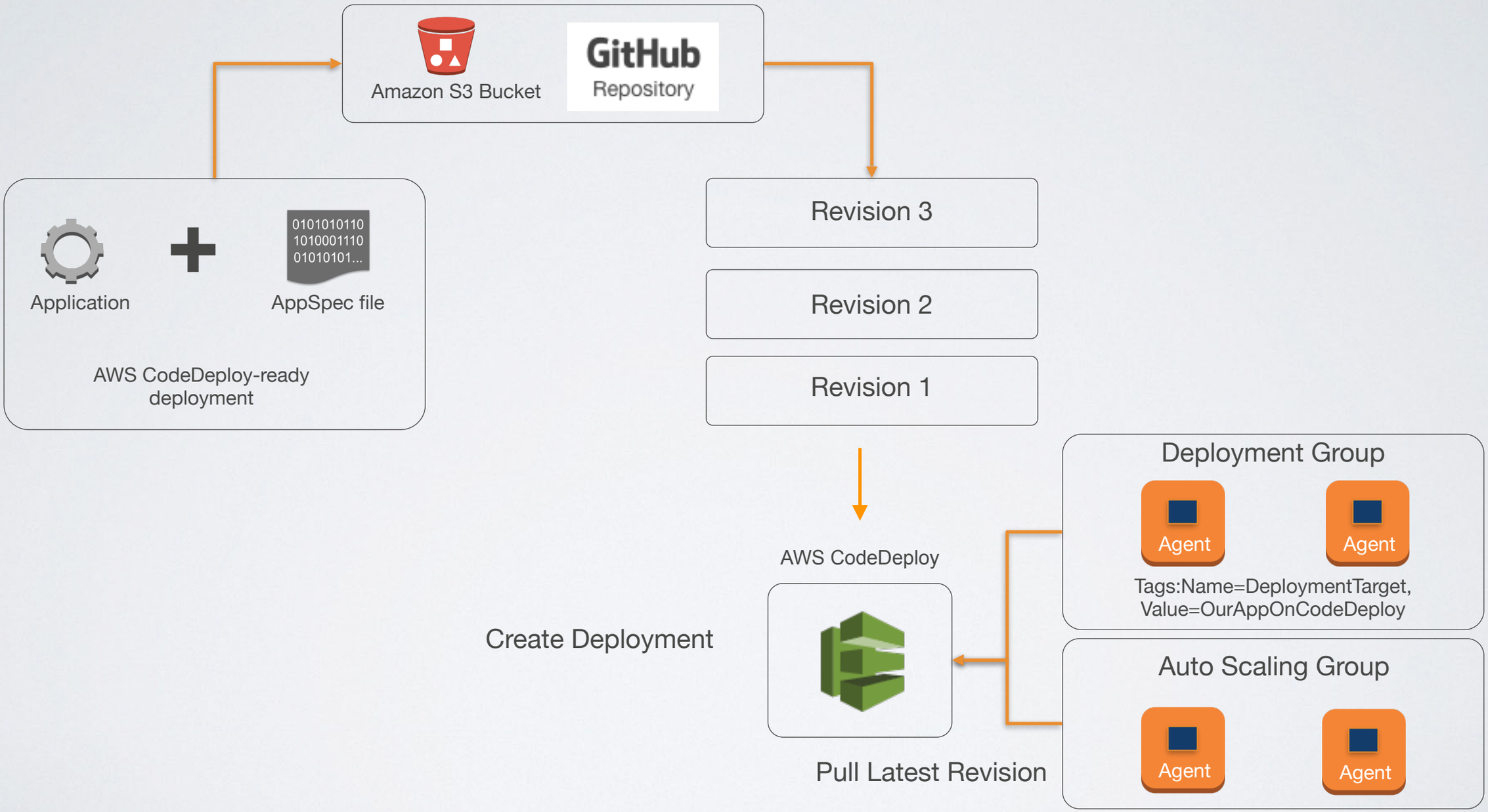
- Coordinates application deployments to Amazon EC2 instances.

- Deploy from a GitHub repository or from any local codebase.

- Manage deployments across environments, upgrade applications, and perform rolling updates.

- Supports Linux and Windows deployments.

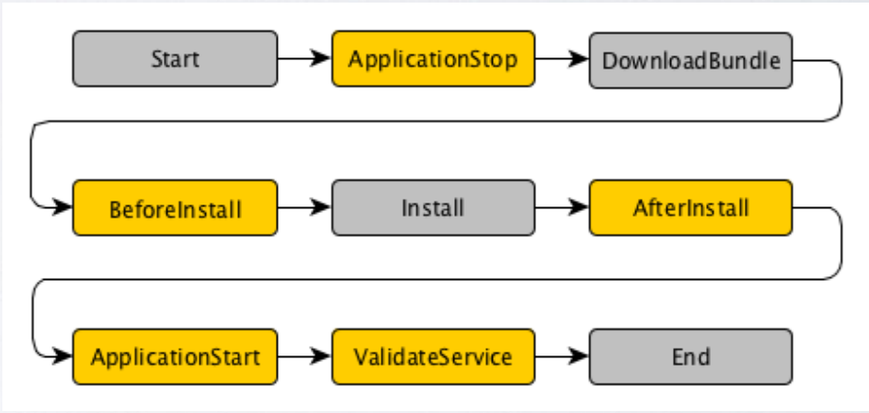
CODEDEPLOY


Amazon S3 Bucket
GitHub
Repository
Application
0101010110
1010001110
01010101...
AppSpec file
AWS CodeDeploy-ready
deployment
Revision 3
Revision 2
Revision 1
Deployment Group
Agent
Agent
Tags:Name=DeploymentTarget,
Value=OurAppOnCodeDeploy
Auto Scaling Group
Agent
Agent
AWS CodeDeploy
Create Deployment
Pull Latest Revision

CODEDEPLOY

```
version: 0.0
os: linux
files:
  - source: Config/config.txt
    destination: /webapps/Config
  - source: source
    destination: /webapps/myApp
hooks:
  BeforeInstall:
    - location: Scripts/UnzipResourceBundle.sh
    - location: Scripts/UnzipDataBundle.sh
  AfterInstall:
    - location: Scripts/RunResourceTests.sh
      timeout: 180
  ApplicationStart:
    - location: Scripts/RunFunctionalTests.sh
      timeout: 3600
  ValidateService:
    - location: Scripts/MonitorService.sh
      timeout: 3600
      runas: codedeployuser
```

Hooks



CODEDEPLOY

Application Stop

```
#!/usr/bin/python

import boto3
import urllib2
import time

CONNECTION_DRAINING_TIMEOUT = 60

print "Get metadata for instance"
instance_id=urllib2.urlopen('http://169.254.169.254/latest/meta-data/instance-id').read()
availability_zone=urllib2.urlopen('http://169.254.169.254/latest/meta-data/placement/availability-zone').read()
region = availability_zone[:-1]

asg = boto3.client('autoscaling',region)

print 'Trying to move instance ' + instance_id + ' in stand-by'
res_asg_of_instance = asg.describe_auto_scaling_instances(InstanceIds=[instance_id])
name_asg_of_instance = res_asg_of_instance['AutoScalingInstances'][0]['AutoScalingGroupName']
state_of_instance = res_asg_of_instance['AutoScalingInstances'][0]['LifecycleState']
if (state_of_instance == 'InService'):
      res_enter_in_standby =
asg.enter_standby(InstanceIds=[instance_id],AutoScalingGroupName=name_asg_of_instance
ity=True)
      print 'Instance ' + instance_id + 'entering in stand-by'
      print res_enter_in_standby
      time.sleep(CONNECTION_DRAINING_TIMEOUT)
      exit(0)
if (state_of_instance == 'Standby'):
      print 'Instance ' + instance_id + ' already in stand-by'
      time.sleep(10)
      exit(0)
else:
      print 'Instance ' + instance_id + ' is in ' + state_of_instance + ' ignoring ...'
      exit(0)
```

there is a best way

BLUE/GREEN DEPLOYMENT

AND

CANARY RELEASE

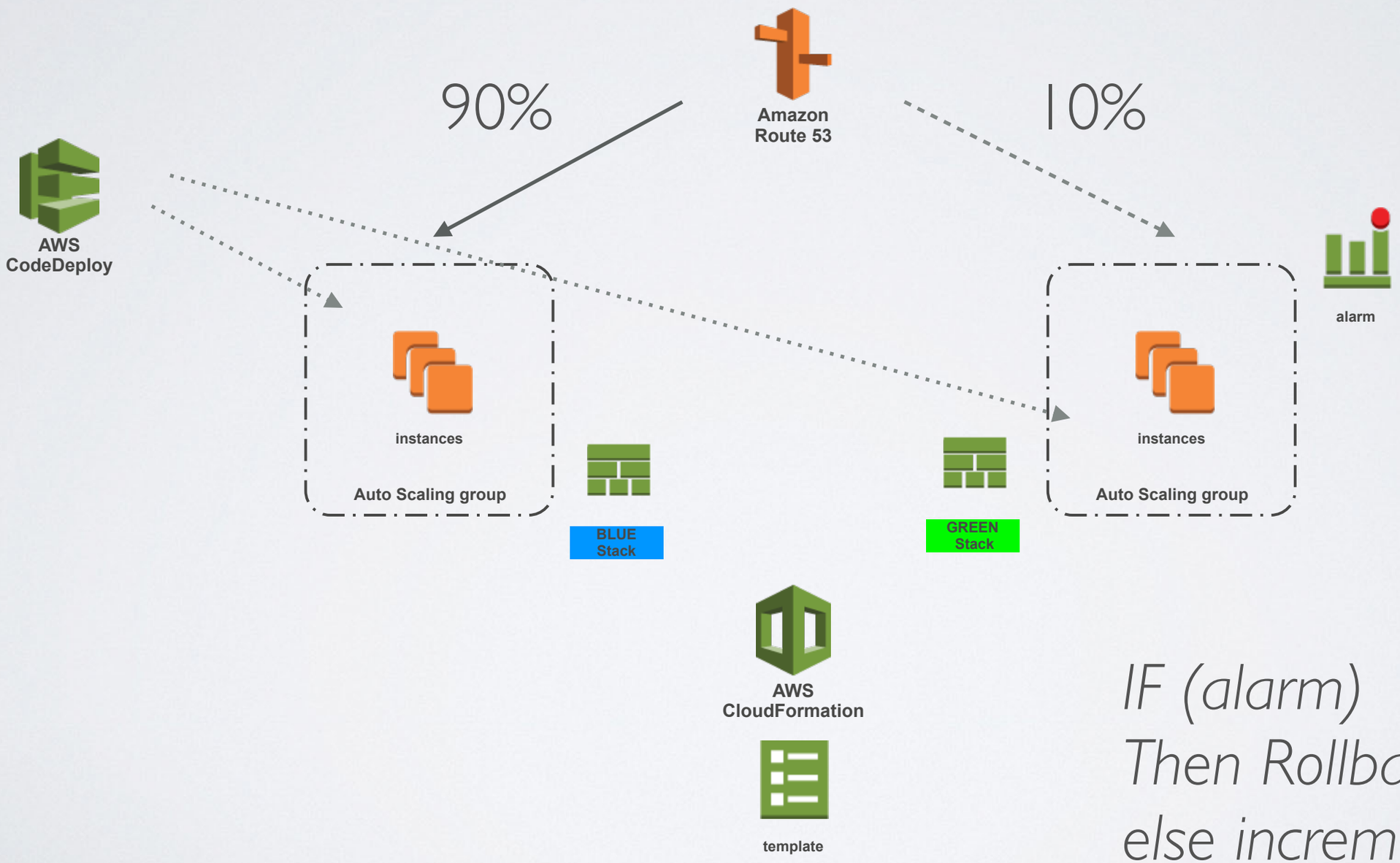
TWO CONSTRAINTS: YOUR DATA AND OTHERS SYSTEMS!

CLOUDFORMATION

- Simplify infrastructure management in the cloud
- Perform predictable, repeatable, and automated deployments.
- Easily control and track changes to your infrastructure.
- Simply JSON or YAML formatted text file that describes the AWS infrastructure

Infrastructure as Code = Cloudformation + Chef/Puppet/Ansible

BLUE/GREEN DEPLOYMENT



IF (alarm)
Then Rollback
else increment %

GRAZIE!
Q&A

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