

AWS TRANSFORMATION DAY PUBLIC SECTOR LONDON

DEVOPS ON AWS

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A photograph of a brick wall, likely made of reclaimed materials, showing signs of age and wear. A metal fire escape ladder is attached to the left side. Laundry hangs from a line above the wall. The sky is clear and blue.

Why are we here today?

What we'll cover

What is DevOps?

The Amazon DevOps story

AWS Code Services

AWS DevOps Portfolio

A red British telephone box stands on a city street at night. The street is filled with motion blur from car headlights, creating long, streaky lines of light in red, yellow, and white. In the background, a multi-story building with many windows is visible, some with lights on. The overall atmosphere is one of a bustling, modern city at night.

Software moves
faster today

Why does DevOps matter?

30x

More Frequent
Deployments

200x

Shorter Lead Times

60x

Fewer Failures

168x

Faster Recovery

OMG!

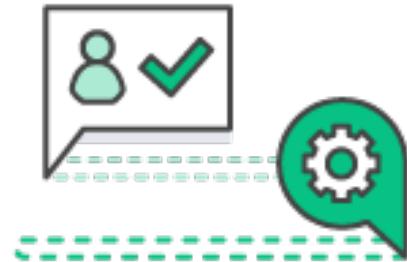
DEVOPS

What is DevOps?

- Cultural philosophies
- Practices
- Tools

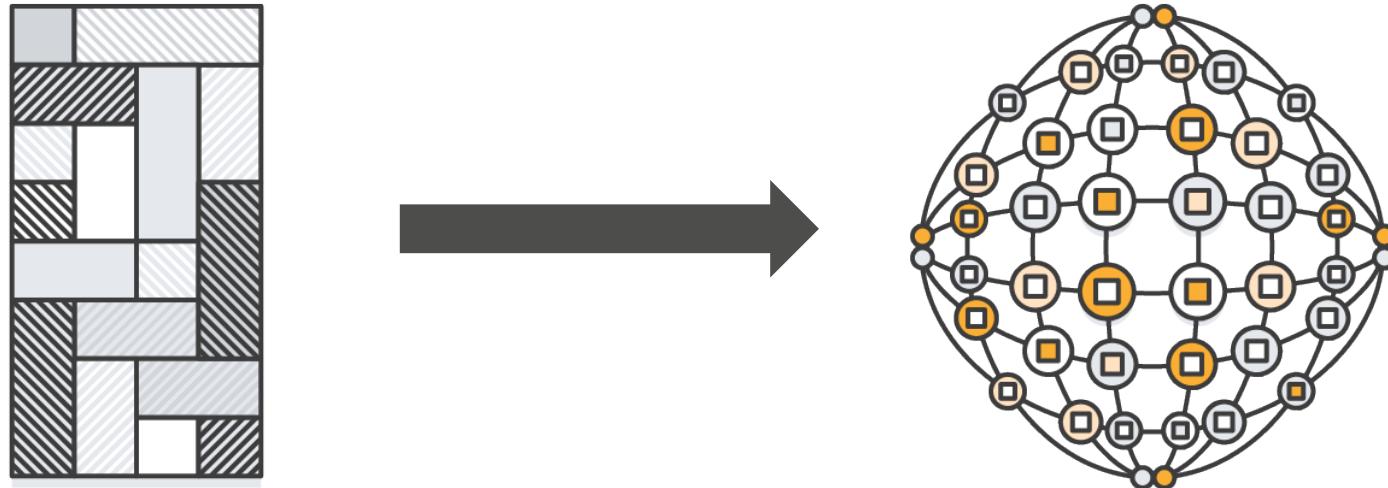
DevOps Culture

- Dev & Ops coming together
 - No more “silos”
- Shared responsibility
- Ownership
- Visibility and communication



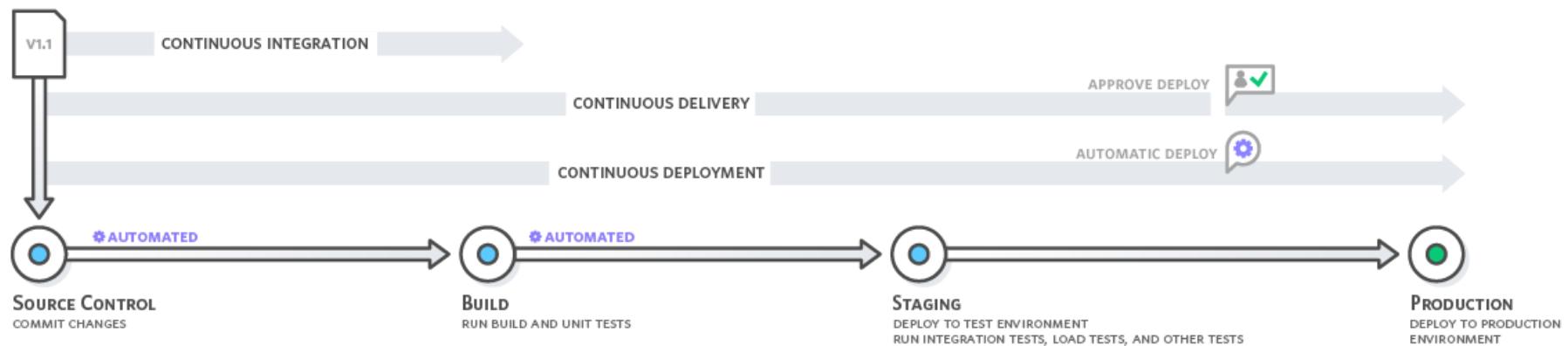
DevOps Practices

- Microservices architecture
 - Moving away from large “monolithic” architectures to smaller decoupled services



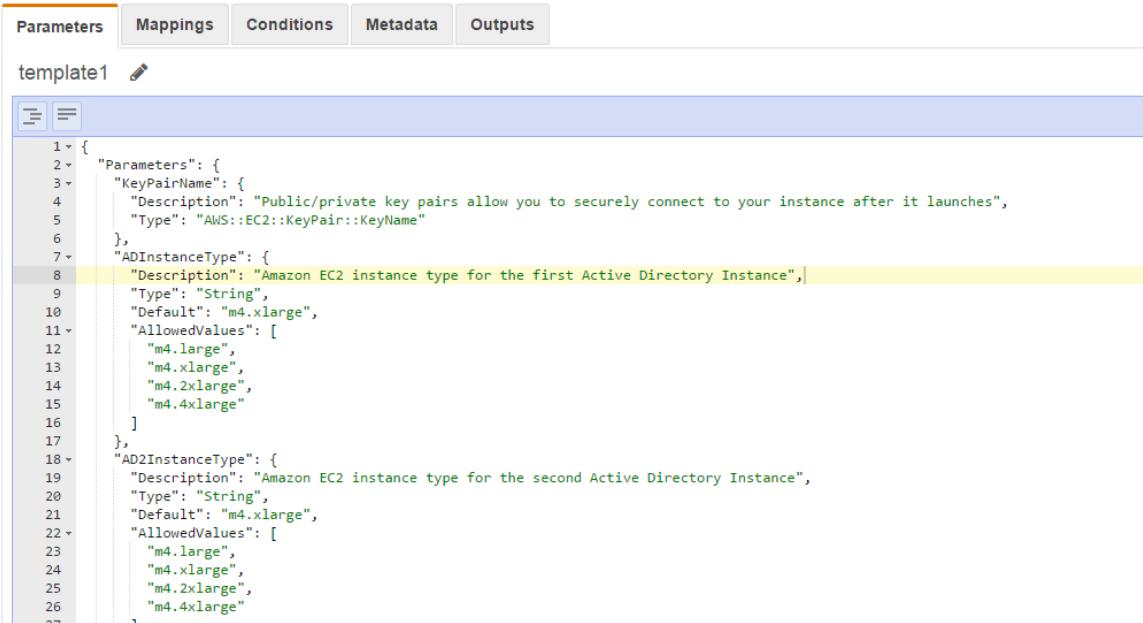
DevOps Practices

- Continuous Integration
- Continuous Delivery & Deployment



DevOps Practices

- Infrastructure as Code
 - Model your AWS resources using code



The screenshot shows the AWS CloudFormation console's template editor. The top navigation bar includes tabs for Parameters, Mappings, Conditions, Metadata, and Outputs. The current tab is 'Parameters'. Below the tabs, the template name is 'template1' with a pencil icon for editing. The main area displays the AWS CloudFormation JSON template:

```
1: {
2:   "Parameters": {
3:     "KeyPairName": {
4:       "Description": "Public/private key pairs allow you to securely connect to your instance after it launches",
5:       "Type": "AWS::EC2::KeyPair::KeyName"
6:     },
7:     "ADInstanceType": {
8:       "Description": "Amazon EC2 instance type for the first Active Directory Instance",
9:       "Type": "String",
10:      "Default": "m4.xlarge",
11:      "AllowedValues": [
12:        "m4.large",
13:        "m4.xlarge",
14:        "m4.2xlarge",
15:        "m4.4xlarge"
16:      ]
17:    },
18:    "AD2InstanceType": {
19:      "Description": "Amazon EC2 instance type for the second Active Directory Instance",
20:      "Type": "String",
21:      "Default": "m4.xlarge",
22:      "AllowedValues": [
23:        "m4.large",
24:        "m4.xlarge",
25:        "m4.2xlarge",
26:        "m4.4xlarge"
27:      ]
28:    }
29: }
```

The 'ADInstanceType' parameter is highlighted with a yellow background, indicating it is currently selected or being edited.

DevOps Practices

- Monitoring and Logging
 - Track and analyze metrics and logs
 - Understand real-time performance of infrastructure and application



Benefits of DevOps



Improved Collaboration

Benefits of DevOps



Improved Collaboration



Rapid Delivery

Benefits of DevOps



Improved Collaboration



Rapid Delivery



Reliability

Benefits of DevOps



Improved Collaboration



Rapid Delivery



Reliability



Security

Benefits of DevOps



Improved Collaboration



Rapid Delivery



Reliability



Security



Scale

Benefits of DevOps



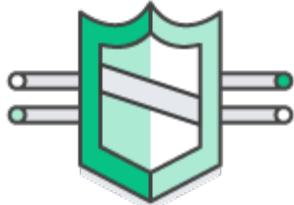
Improved Collaboration



Rapid Delivery



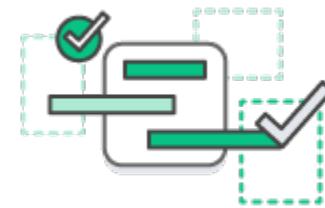
Reliability



Security



Scale



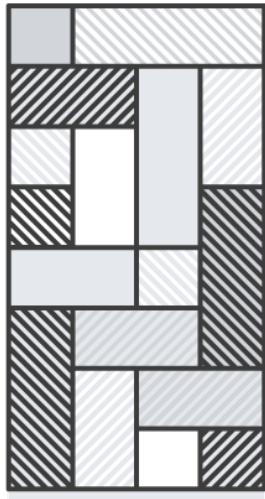
Speed



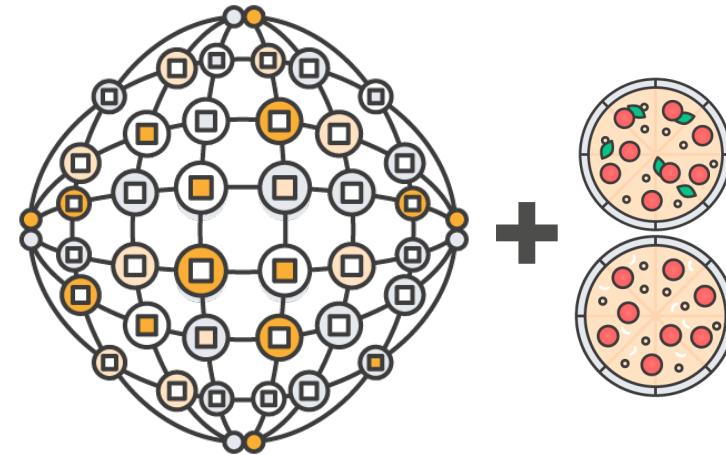
A look back at
development at
Amazon..

Development transformation at Amazon: 2001-2009

2001



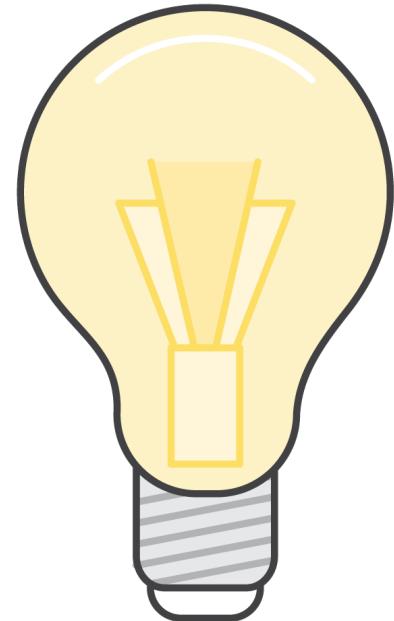
2009



monolithic architecture +
hierarchical organization

Decoupled services +
2 pizza teams

Things went much better under this model and teams were releasing faster than ever, but we felt that we could still improve.



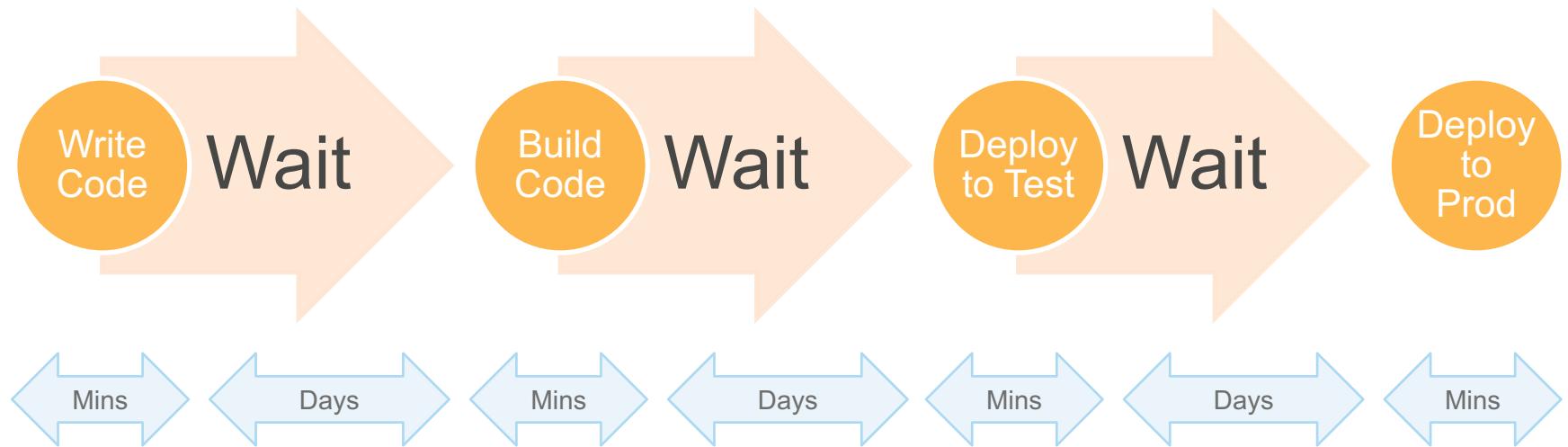


We ran a
study to find
out where
inefficiencies
might still exist

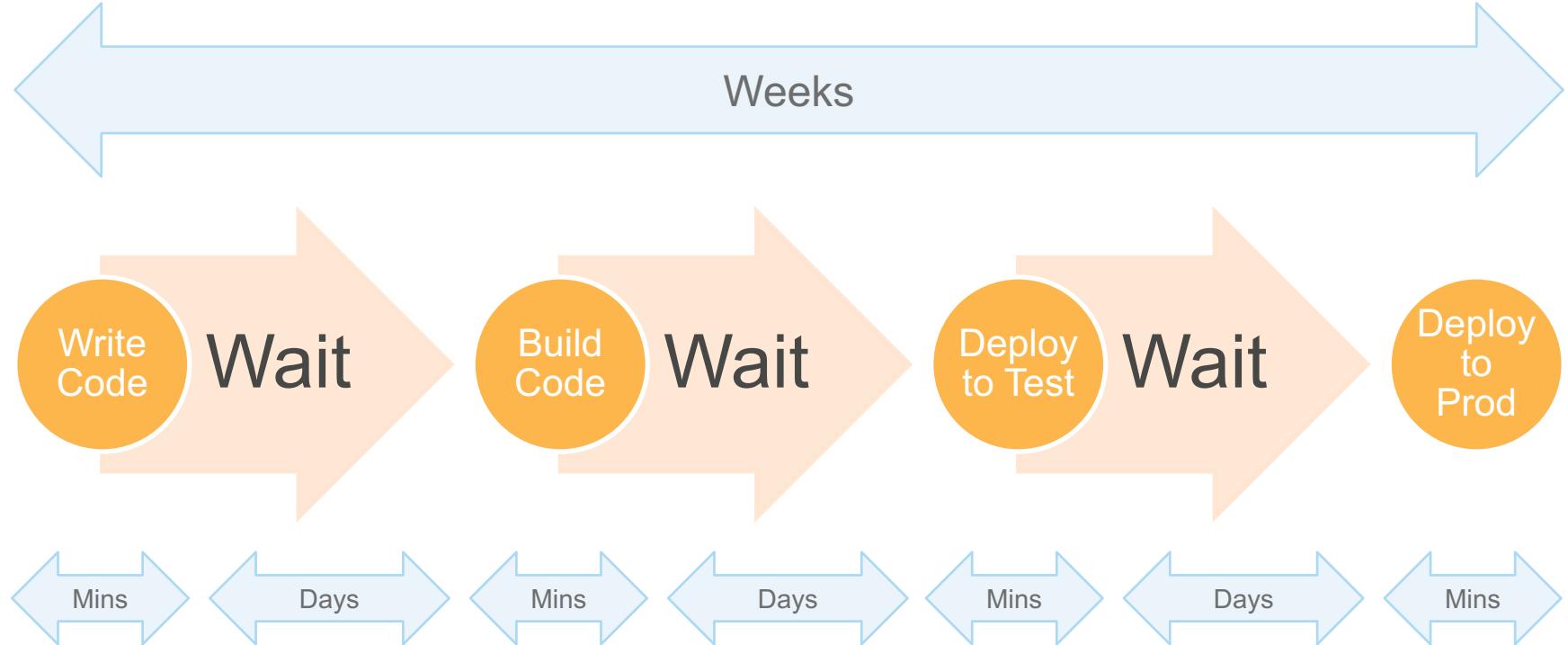
We were just waiting.



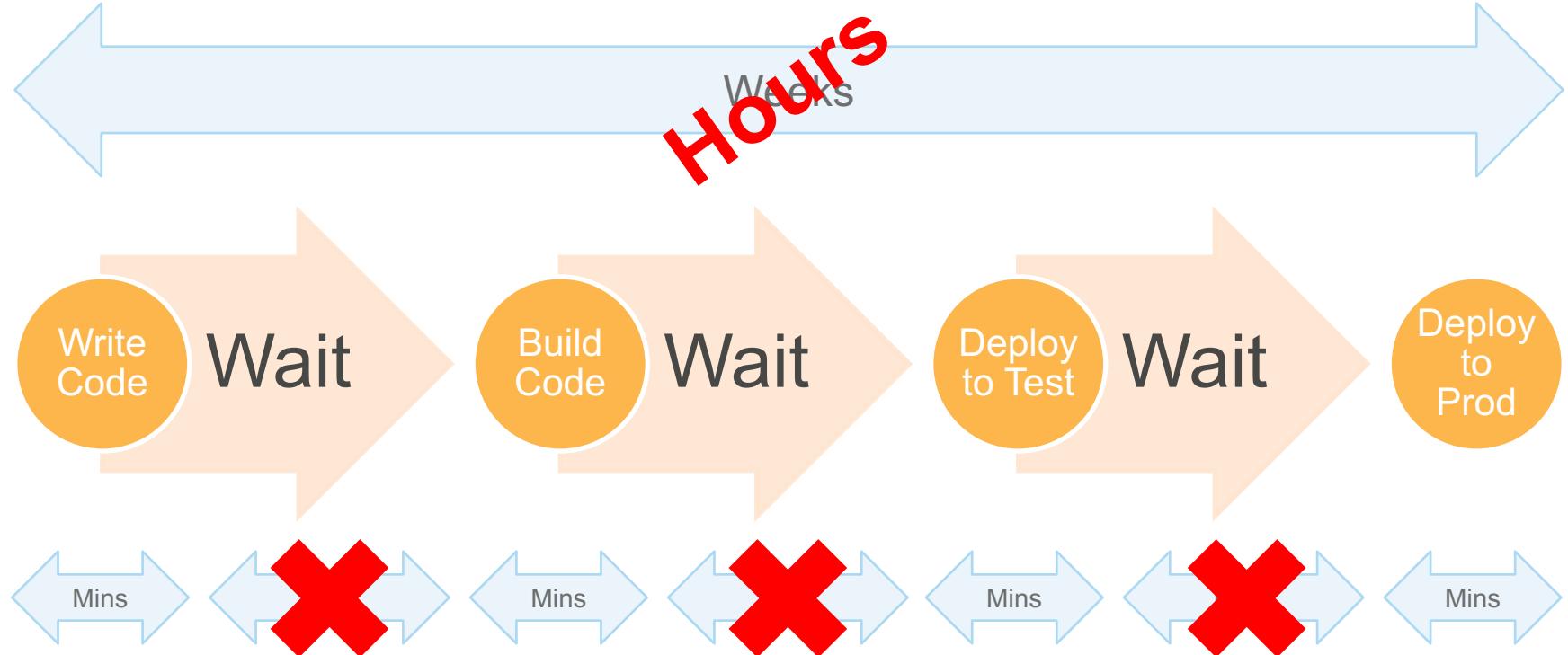
We were just waiting.



We were just waiting.



We were just waiting.





We built tools to
automate our software
release process

Deployment service

No downtime
deployments

Health checking

Versioned artifacts
and rollbacks



Pipelines

Automated actions and transitions; from check-in to production

Development benefits:

- Faster
- Safer
- Simplification & standardization
- Visualization of the process

This has continued to work out really well:

With the first 12 months:

- Thousands of service teams across Amazon
- Building microservices
- Practicing continuous delivery
- Many environments (staging, beta, production)

50 million deploys

This has continued to work out really well:

Every year at Amazon, we perform a survey of all our software developers. The 2014 results found only one development tool/service could be correlated statistically with happier developers:

Our pipelines service!

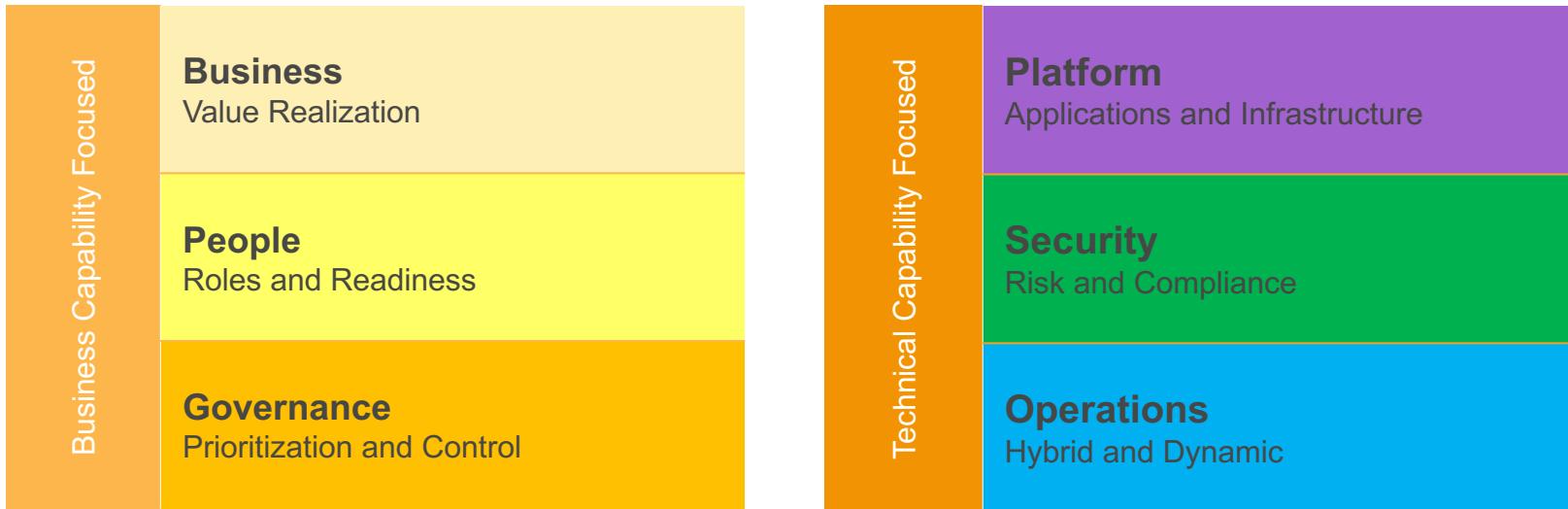
continuous delivery == happier developers!

Where do you

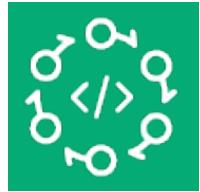
STAR?

Beyond Technology

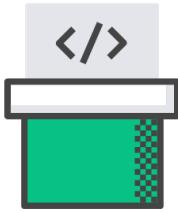
DevOps is firstly about people, roles and processes and finally about technology.



AWS Code Services



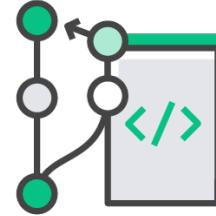
AWS CodeStar



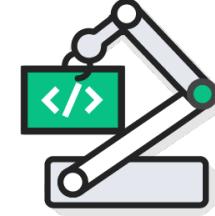
AWS CodePipeline



AWS CodeDeploy



AWS CodeCommit



AWS CodeBuild

AWS Code Services

Software Release Steps:



AWS Code Services

Software Release Steps:



AWS CodeCommit

AWS Code Services

Software Release Steps:



AWS CodeBuild

AWS Code Services

Software Release Steps:



Third Party
Tooling

AWS Code Services

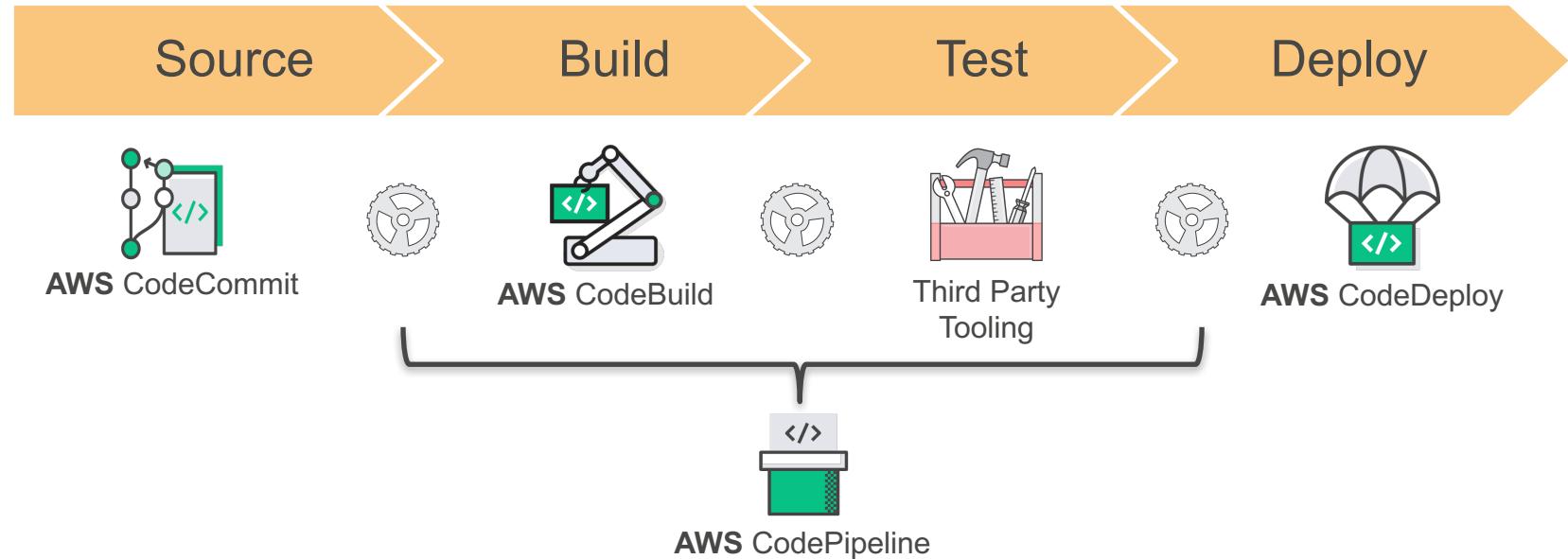
Software Release Steps:



AWS CodeDeploy

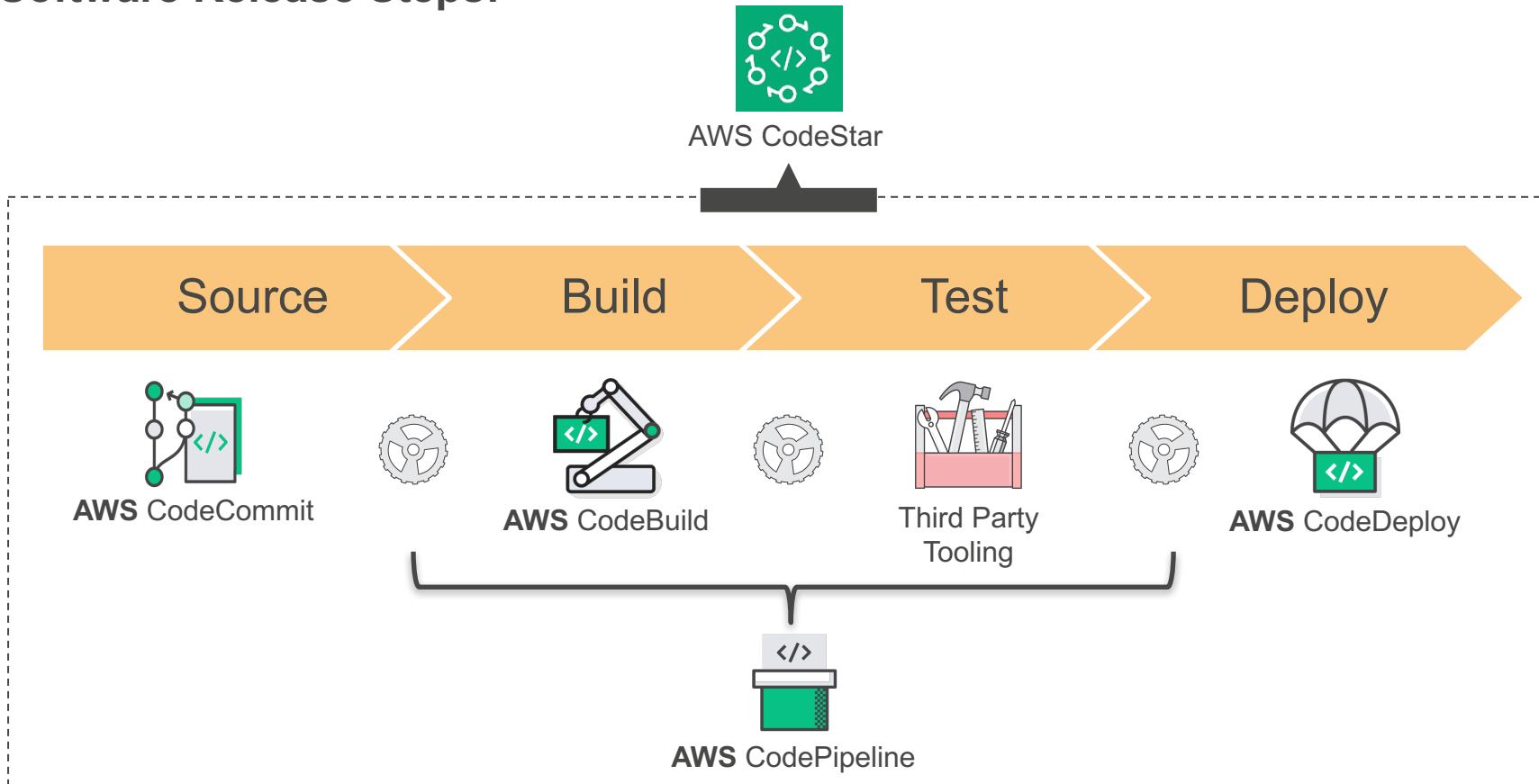
AWS Code Services

Software Release Steps:



AWS Code Services

Software Release Steps:



AWS DevOps Portfolio



AWS CodeCommit



AWS CodeStar



AWS CodeDeploy



AWS CodePipeline



AWS CloudFormation



AWS OpsWorks



AWS Config



Amazon CloudWatch



AWS CloudTrail



AWS Elastic Beanstalk

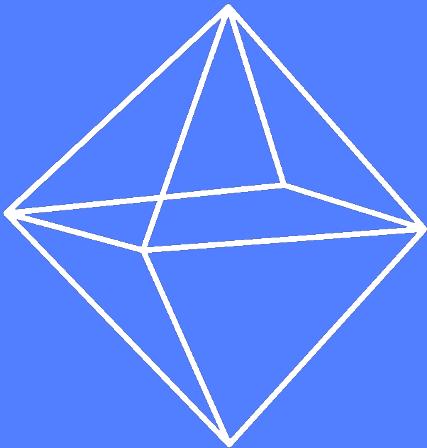
More info

Get started with AWS CodeStar at:

<https://console.aws.amazon.com/codestar>

Learn more at:

<https://aws.amazon.com/codestar>



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THANK YOU!