

DevOps on AWS



**Why are we
here today?**



Software moves
faster today

Why does DevOps matter?

30x

More Frequent
Deployments

200x

Shorter Lead Times

60x

Fewer Failures

168x

Faster Recovery

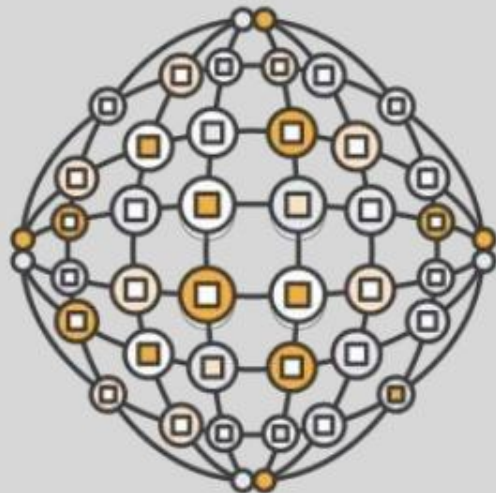
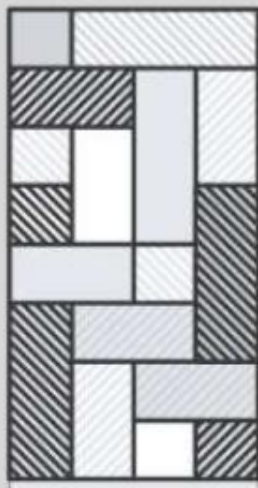
DevOps Culture

- 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



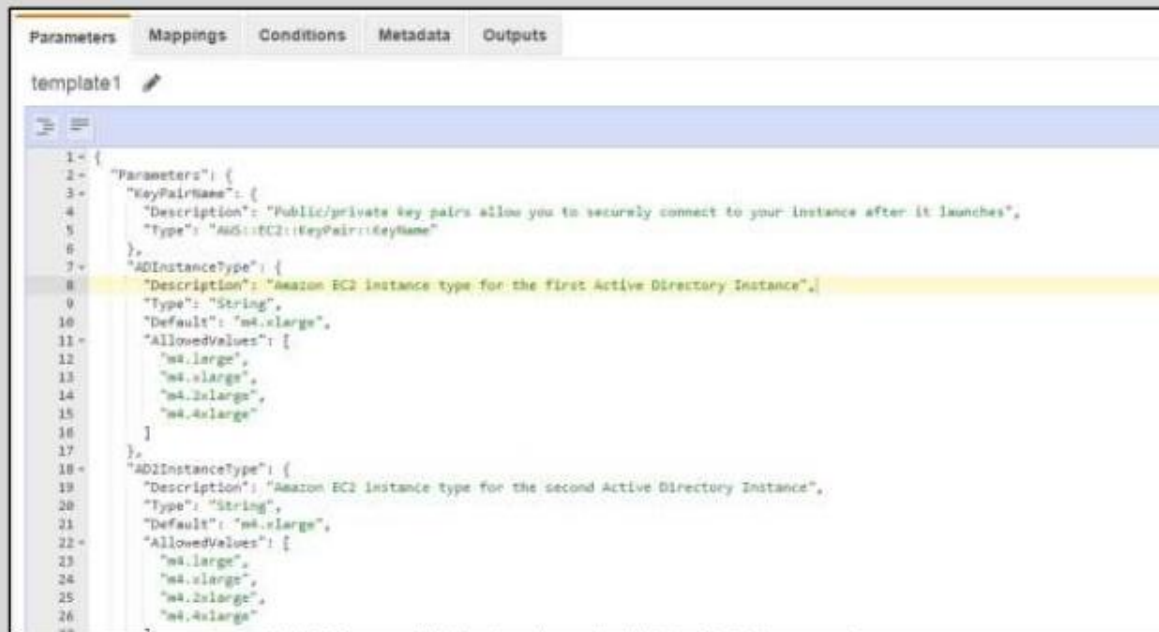
DevOps Practices

- Continuous Integration
- Continuous Delivery & Deployment



DevOps Practices

- Infrastructure as Code
 - Model your AWS resources using code



```
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  }
```


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



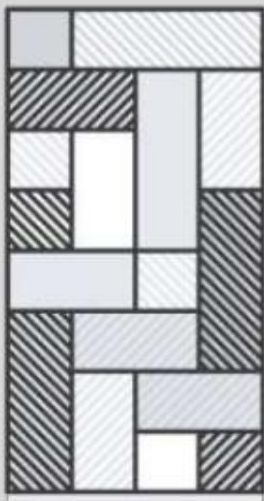
Speed

The image shows the interior of a large, ornate Victorian-era building, likely a museum. A wide, grand staircase with a decorative metal railing leads up to a second floor. The architecture features high ceilings, large arched windows, and intricate stonework. Several people are seen walking on the stairs and on the ground floor, providing a sense of scale to the massive space. The lighting is warm, highlighting the architectural details.

A look back at
development at
Amazon..

Development transformation at Amazon: 2001-2009

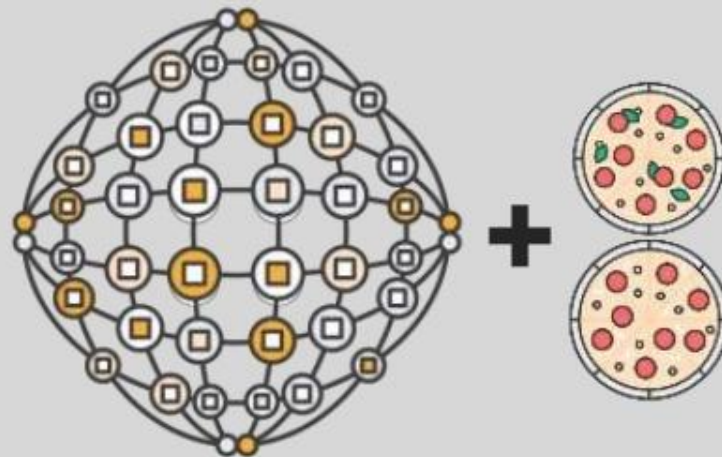
2001



monolithic architecture +
hierarchical organization



2009



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.



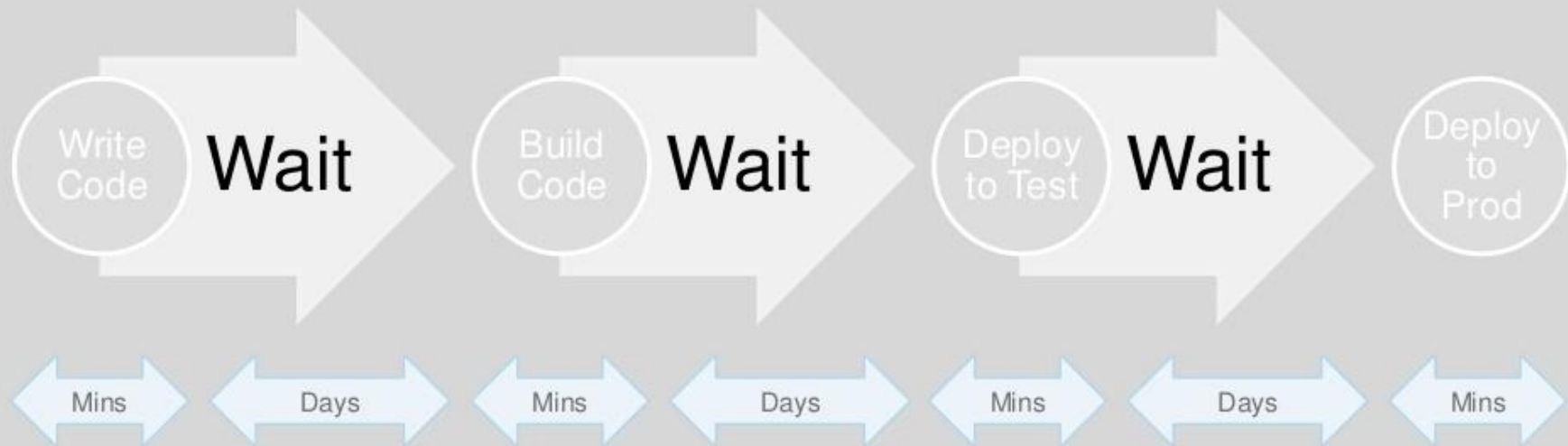


We ran a
study to find
out where
inefficiencies
might still exist

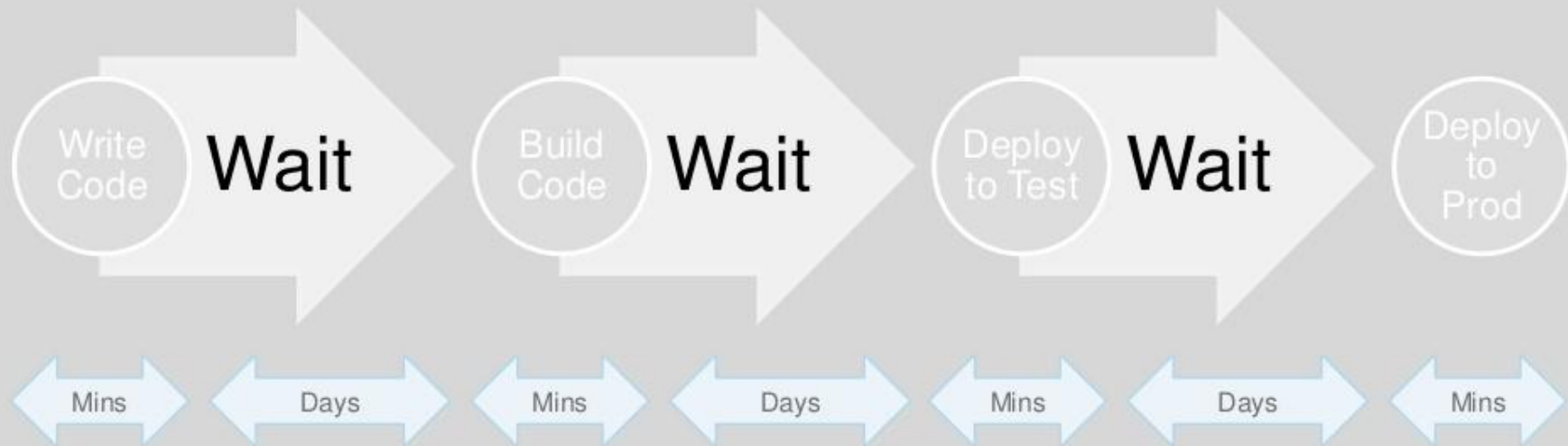
We were just waiting.



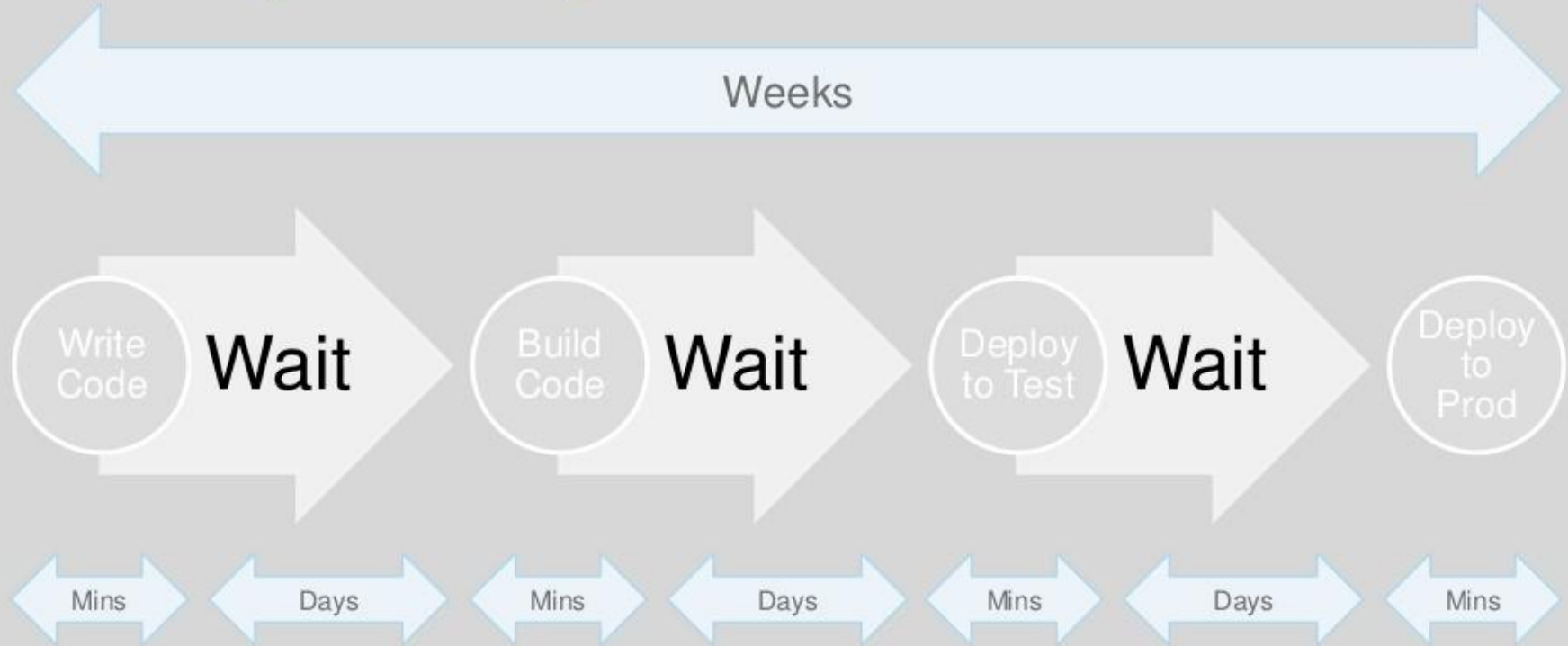
We were just waiting.



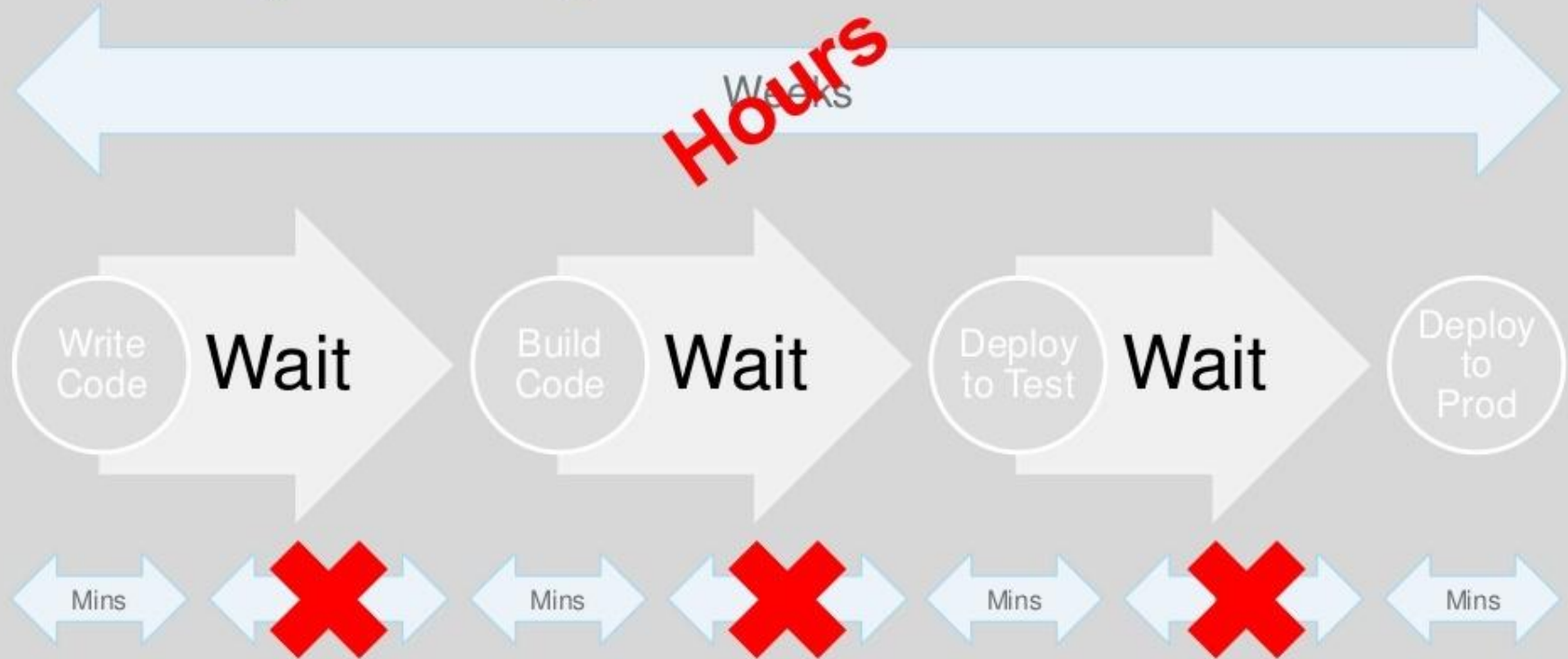
We were just waiting.



We were just waiting.



We were just waiting.





**We built tools to
automate our software
release process**



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

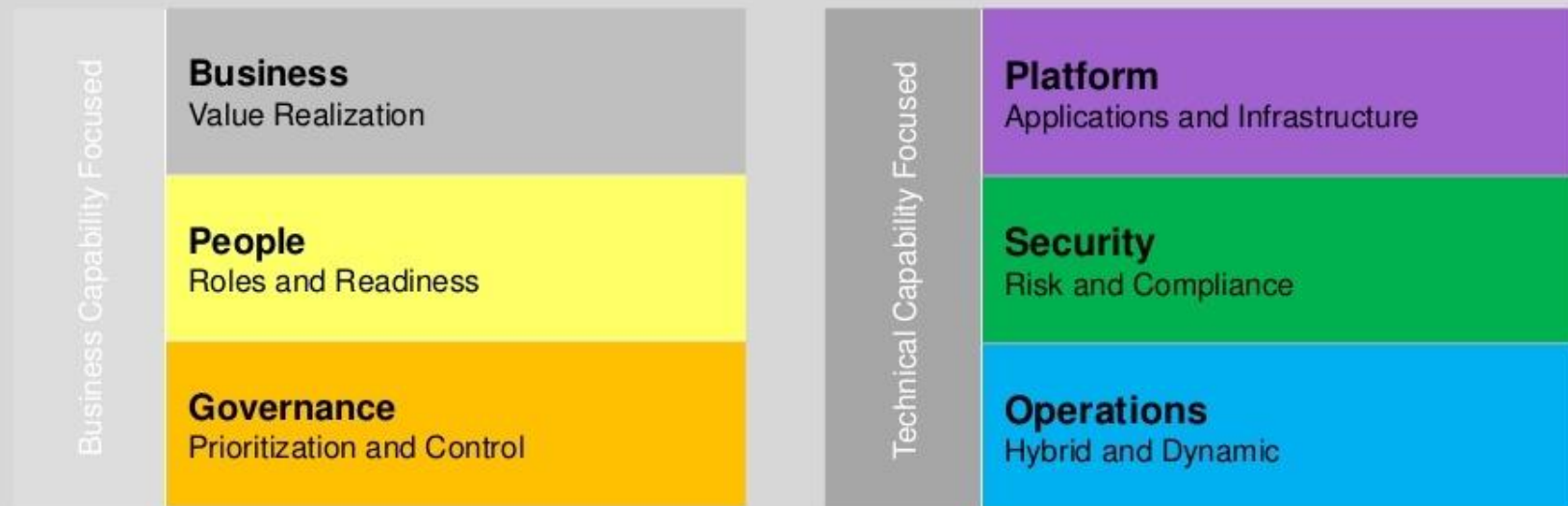
Where do you

START

?

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 CodeCommit

AWS Code Services

Software Release Steps:



AWS CodeBuild

AWS Code Services

Software Release Steps:



Third Party
Tooling

AWS Code Services

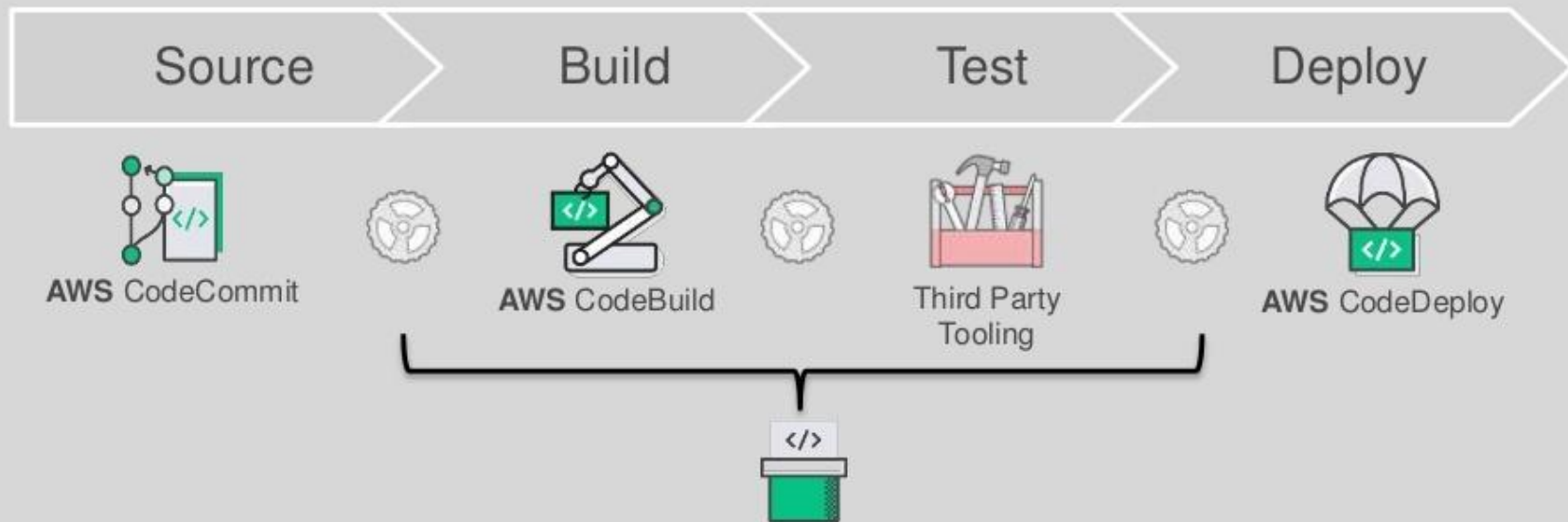
Software Release Steps:



AWS CodeDeploy

AWS Code Services

Software Release Steps:



AWS CodePipeline

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AWS Code Services

Software Release Steps:



AWS CodeStar

Source

Build

Test

Deploy



AWS CodeCommit



AWS CodeBuild



Third Party
Tooling



AWS CodeDeploy



AWS CodePipeline

AWS DevOps Portfolio

Software Development and
Continuous Delivery Toolchain



AWS CodeCommit



AWS CodeStar



AWS CodeBuild



AWS CodeDeploy



AWS CodePipeline

Infrastructure
as Code



AWS CloudFormation



AWS OpsWorks



AWS Config

Monitoring
& Logging



Amazon CloudWatch



AWS CloudTrail

Platform
as a Service



AWS Elastic Beanstalk

Key points

- **Automation is your friend.** It reduces human error, improves quality and speeds up processes.
- **Collaboration builds better products.** Silos increase complexity, and slow things down.
- **This doesn't mean you can't have governance!** Flexible processes can help teams deliver quickly and consistently.

Thank you