

WHITEPAPER ON **CI/ CD/ DEVOPS**



INTRODUCTION

8KMiles is a Born in cloud company focused on helping organizations in their cloud transformation initiatives. Our automation framework helps organizations seamlessly integrate Identity Management, Big Data and Statutory compliance into their Cloud. Our team of Amazon certified experts located globally aid customers to manage their cloud transformation smoothly. All our customer engagements are driven by synergetic combination of our automation framework, deep expertise gathered over 350+ customer engagements, partnership with AWS developed over many years of engagements at various levels, Expertise brought through domain specific acquisitions and over 100+ certified consultants.

ABSTRACT

The key objective of this whitepaper is to bring clarity over the meaning of DevOps in real time along with its key components. At 8K Miles, we understand the Cloud and Our team of engineers/architects have years of hands-on experience in designing and deploying mobile, big data and cloud custom application solutions. Our DevOps team ensures you to gain the flexibility and agility that the Cloud promises.

DEVOPS INTRODUCTION

Over the last few years, the overwhelming response of agile model evolution has started to converge towards infrastructure under the label

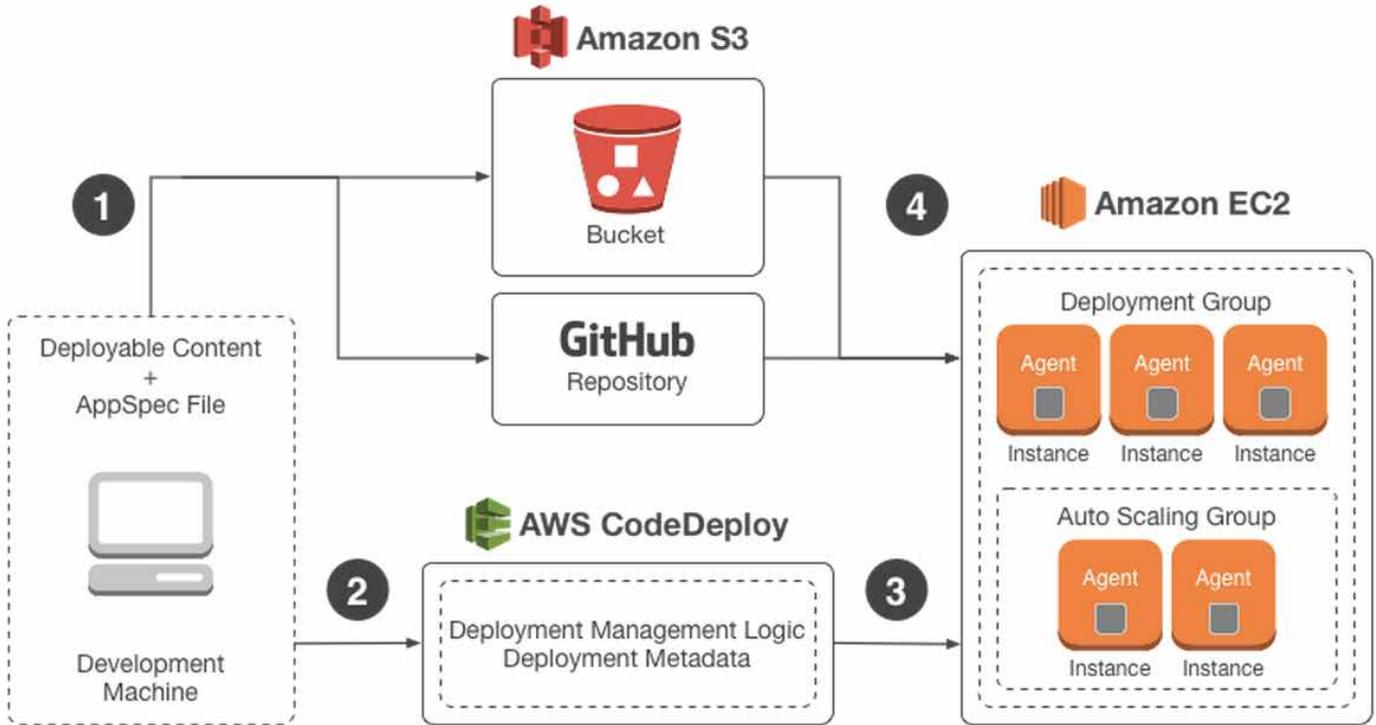
DevOps. Agile software development primarily focuses on the collaboration between the business and its developers, whereas DevOps focuses on the collaboration between developers, IT operations and security teams. Here, the IT operations include system administrators, database administrators, network engineers, infrastructure architects, and support personnel. An Agile software development provides business agility, while DevOps provides IT agility thus enabling reliable, predicable and efficient deployment of applications.

DevOps practices vary according to the nature of the task. With application development, DevOps focuses on code building, code coverage, unit testing, packaging, and deployment. With infrastructure, on the other hand, DevOps focuses on provisioning, configuration, orchestration, and deployment. But in each area the underlying principles of version management, deployment, roll back, roll forward, and testing remains the same.

Continuous deployment is another core concept in DevOps strategy. Its primary goal is to enable the automated deployment of production-ready application code. By using continuous delivery practices and tools, software can be deployed rapidly, repeatedly, and reliably. If a deployment fails, it can be automatically rolled back to previous version. Our award winning cloud service provider AWS has numerous tools along with best practices that any organization can leverage to implement continuous deployment such as CodeDeploy and CodePipeline.

AWS CODEDEPLOY

A prime example of this principle in AWS is the code deployment service "AWS CodeDeploy". Its core features provide the ability to deploy applications across an Amazon E2C fleet with minimum downtime, centralizing control and integrating with your existing software release or continuous delivery process.



Here's how it works:

- Application content is packaged and deployed to Amazon S3 along with an Application Specific (AppSpec) file with defines a series of deployment steps that AWS CodeDeploy needs to execute. The package is called a CodeDeploy "revision."
- You create an application in AWS CodeDeploy and define the instances to which the application should be deployed (DeploymentGroup). The application also defines the Amazon S3 bucket where the deployment package resides.
- An AWS CodeDeploy agent is deployed on each participating Amazon EC2. This agent polls AWS CodeDeploy to determine what and when to pull a revision from the specified Amazon S3 bucket.
- The AWS CodeDeploy agent pulls the packaged application code and deploys it on the instance. The AppSpec file containing deployment instructions is also downloaded.

AWS CODEPIPELINE

Like AWS CodeDeploy, AWS CodePipeline is a continuous delivery and release automation service that aids smooth deployments. You can design your development workflow by checking in code, building the code, deploying your application into staging, testing it, and releasing it to production. You can either integrate third-party tools into any step of your release process or can use AWS CodePipeline as an end-to-end solution. With AWS CodePipeline, you can rapidly deliver features and updates with high quality through the automation of your build, test, and release process.

AWS CodePipeline has several benefits that align with the DevOps principle of continuous deployment:

- Rapid delivery
- Improved quality
- Configurable workflow
- Easy to integrate

AWS CLOUDFORMATION

A good example of how the DevOps principles are used in practice is AWS CloudFormation. By using AWS CloudFormation templates, you can define and model AWS resources that can be created and updated. These templates are written in a format called JavaScript Object Notation (JSON). The templates require a specific syntax and structure based on the types of resources being created and managed. By using templates, you can provision infrastructure in a repeatable and reliable way. This is also referred to as Infrastructure as Code.

Following are the benefits of AWS CloudFormation

- Uses DevOps Principles
- Supports a Wide Range of AWS Resources
- Declarative and Flexible
- Infrastructure as Code
- Customized via Parameters
- Visualize and Edit with Drag-and-Drop Interface
- Integration Ready

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