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What Is CI / CD?

1. **Software Development Best Practice**

   Continuous Integration, Continuous Delivery / Deployment.

2. **Make Small Changes & Automate Everything!**

   Small, incremental code changes. Automate as much as possible e.g. code integration, build, test and deployment.

3. **Why Is It so Cool?**

   Modern companies like AWS, Netflix, Google and Facebook have pioneered this approach to releasing code, successfully applying thousands of changes per day.

Benefits of the CI / CD Approach

Automation Is Good!

Fast, repeatable, scalable, enables rapid deployment.

Manual Is Bad!

Slow, error prone, inconsistent, unscalable, complex.

Small Changes

Test each code change and catch bugs while they are small and simple to fix.

Continuous Integration Workflow

Shared Code Repository

Multiple developers contributing to a shared code repository like Git. Frequently merging or **integrating** code updates.

Automated Build

When changes appear in the code repository this triggers an automated build of the new code.

Automated Test

Run automated tests to check the code locally before it is committed into the master code repository.

Continuous Delivery & Deployment Workflow

Code Is Merged

After successful tests, the code gets merged to the master repository.

Manual Decision

Humans may by involved in the decision to deploy the code. This is known as **Continuous Delivery**.

Prepared For Deployment

Code is built, tested and packaged for deployment.

Or Fully Automated

The system automatically deploys the new code as soon as it has been prepared for deployment. This is known as **Continuous Deployment**.

INTRODUCTION TO CI/CD

AWS Developer Tools

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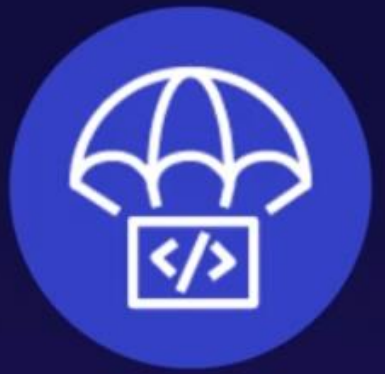
CodeCommit

SOURCE & VERSION CONTROL

Source control service enabling teams to collaborate on code, html pages, scripts, images and binaries.



CodeDeploy

AUTOMATED DEPLOYMENT

Automates code deployments to any instance, including EC2, Lambda and on-premises.

CodeBuild

AUTOMATED BUILD

Compiles source code, runs tests and produces packages that are ready to deploy.

CodePipeline

MANAGES THE WORKFLOW

End-to-end solution, build, test, and deploy your application every time there is a code change.

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3 Exam Tips

1

Continuous Integration

Integrating or merging the code changes frequently - at least once per day.
Think **CodeCommit**.

2

Continuous Delivery

Automating the build, test and deployment functions.
Think **CodeBuild and CodeDeploy**.

3

Continuous Deployment

Fully automated release process, code is deployed into Staging or Production as soon as it has successfully passed through the release pipeline.
Think **CodePipeline**.

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AWS Whitepaper:

Practicing Continuous Integration & Continuous Deployment on AWS

Explains the features and benefits of using continuous integration, continuous delivery (CI/CD) and AWS tooling in your software development environment.