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DEVOPS

- What is DevOps?

- What is it trying to solve?

- How do we implement it?

Development

Responsibilities

- Development

- Designing

- Testing

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Development

Issues

- It is a lengthy and cumbersome process.

- Allows bugs to accumulate.

- Slow to release code changes.
  - Competitors may release features faster.

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Operations

Responsibilities

- Managing Servers

- Scaling

- Security

- Backups

Operations

Issues

- Teams may work in isolation.
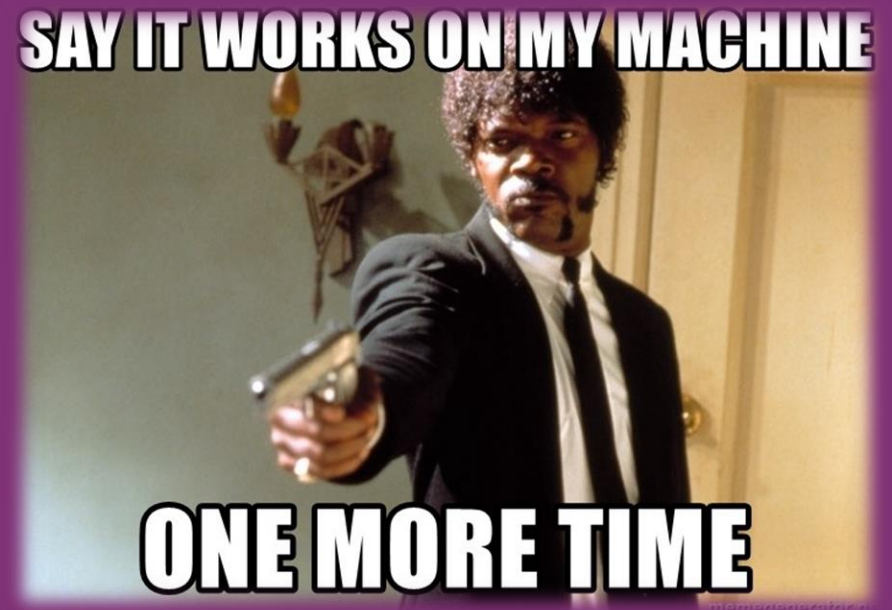 - Breakdown in communication.
  - Conflict.

Operations

Missed Deployment windows

Operations

Issues

- Teams may work in isolation.
  - Breakdown in communication.
  - Conflict.

- Deploying code changes can be a lengthy process
  - Significant production impact

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Concept

- Continuous Integration (CI)

- Continuous delivery and deployment (CD)

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Continuous Integration

- Regularly merging code to a centralized version controlled repository.

    Cultural component

- Automatically build and test.

    Automated component

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Continuous Integration (DevOps) Goals

- Debug and fix code quicker.

- Improve quality of software released.

- Reduce time taken to get code into production.

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Continuous Delivery

- Automated deployment to a test environment.
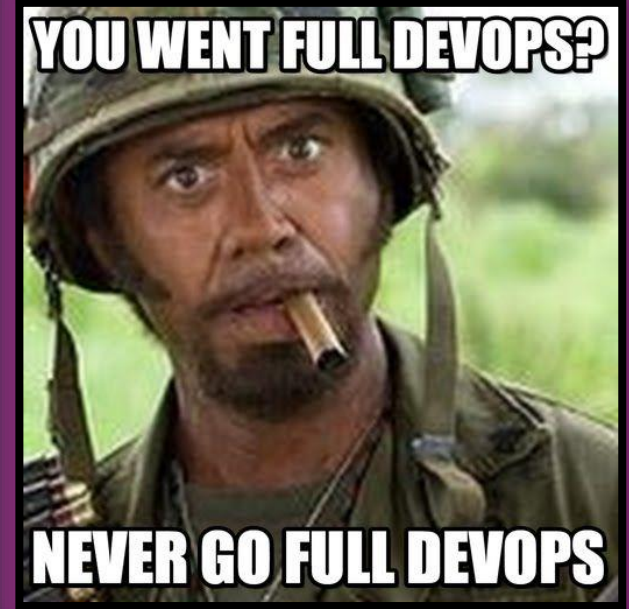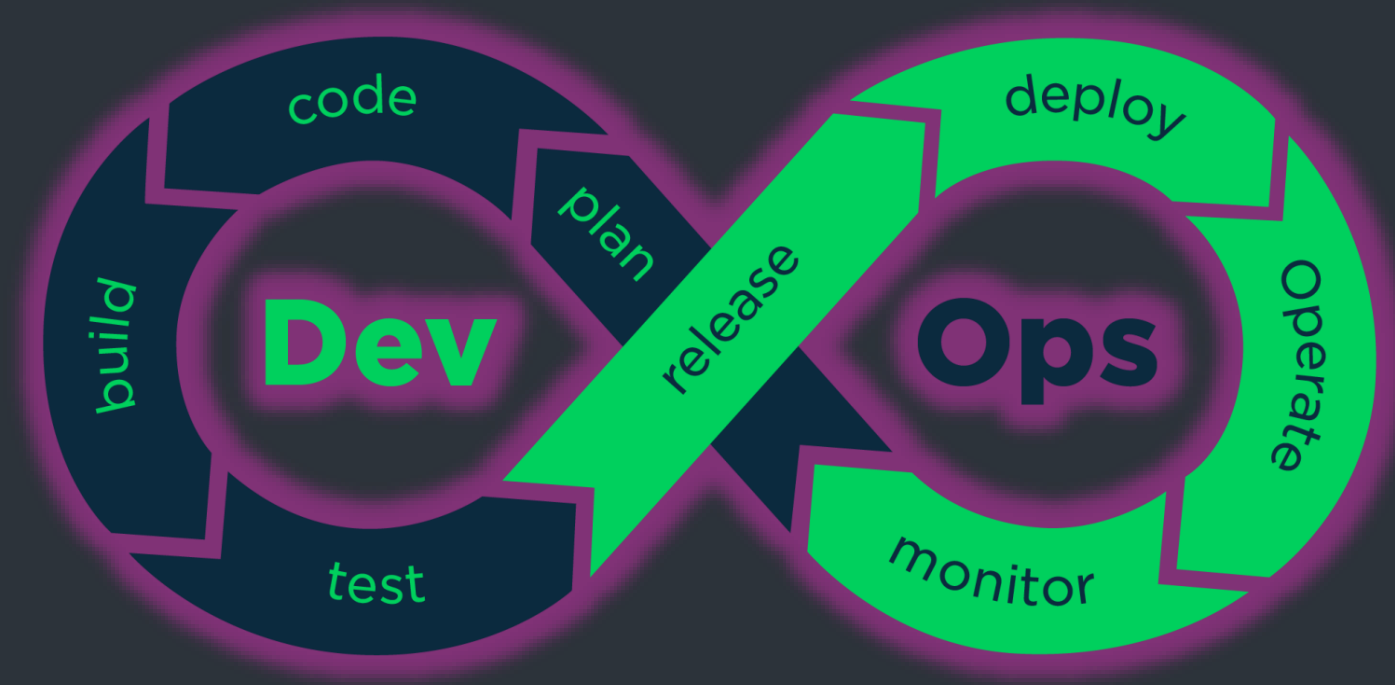
- User acceptance testing.

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Continuous Deployment

- Deployment to production.

!!! DO NOT AUTOMATE THIS STAGE !!!

- Should include manual approval.

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More DevOps Goals

- Address the gap between the development and operations teams

- Understand what's happening at every phase of the development life cycle.

- Shorten the development life cycle by getting code to production quicker.

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Implementation

- **AWS CodeStar** - An orchestration tool which creates and integrates AWS service in order to quickly develop, build and deploy applications on AWS.

- **AWS CodePipeline** – automates the build, test, and deploy phases of your release process every time there is a code change, based on the release model you define.

- **AWS CodeCommit (Source)** - central version controlled repository.

- **AWS CodeBuild (Build + Test)** - Fully managed build service which compiles your source code, runs unit tests, and produces artifacts that are ready to deploy.

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Implementation Continued

- **AWS CloudFormation (Deploy)** - Models and set up your Amazon Web Services resources so that you can spend less time managing those resources and more time focusing on your applications.

- **AWS ElasticBeanstalk (Deploy)** – Manages the infrastructure that runs the application.

- **Amazon CloudWatch (Monitoring)** - Monitors resources and applications.

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Let's Get To The Demo!

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DevOps Demo

What we're going to do

1) Create a basic pipeline and Cloud9 IDE with AWS CodeStar.

2) Add a production stage.

3) Add manual approval before the production stage (requires 2nd IAM user for approval).

4) Configure immutable deployments for the production environment to reduce down time.

5) Create an approval rule for pull requests on code commit.

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DevOps Demo

Link to Demo

https://youtu.be/k9WpRUVGRv0?t=704