Day2

Wednesday, September 7, 2022 12:14 PM

DevOps

Combination of development and Operations

Set of practices and methodologies designed to combine production/writing of code and the process of deploying and maintaining that code in one streamlined process

Primary Goals of DevOps:
- speed up the life cycle of development
- save money
- release updates faster

5 steps Generally Associated with DevOps

1. Source Code Control
2. Testing Automation
3. Deploy to a staging Area
4. Acceptance testing
5. Deployment to production

> We want to automate these steps

Adoption of Agile practices can provide a stepping stone for a working devops pipeline

This pipeline consists of Continuous Integration, Continuous Delivery, and Continuous Deployment
CI/CD/CD

Continuous Integration

The process of consistently pushing/merging code into a central repository

As well as reviewing new code to ensure that it integrates well with existing code

This step is an entire team mentality, and its achieved when all members of the dev team are consistently merging their changes

Benefits of CI:
- Ensures the entire team has up to date code
- Detect broken builds quickly
- Automatically test your code on pushes
- Reduce the risk adding new code to an established code base
- Overall reduce the amount of bugs

Continuous Delivery

Allows for the building, management, test and production like deployment of an application to be automated

Dependent on Continuous Integration
- It will take the code posted to the repo
. build it, test it, and put on a production like environment automatically

After further testing on the test environment the app is ready to deploy with a single button press

Benefits:
- Reduced risk once it hits production
- Predictible progress
- frequent feedback

Continuous Deployment

A fully automated pipeline

You push to a repo, it gets built, tested, deployed to test, and pushed to production automatically

Benefits:
- Even faster development process, no pauses for deployment
- New releases are less risky, promotes smaller changes, can be fixed more easily, allows for quicker feedback
- Increased communication and regular stream of improvement is seen as positive by clients

Risks/ Downsides:
- Developing a pipeline requires more upfront investment
- Documentation of processes is required
- Pipeline will need ongoing maintenance
- feature flags are required for coordination between departments

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Maven Review:
Build tool which helps build java projects
and manage dependencies in Java projects

When Maven builds a project it searches for
dependencies in two places:

- Locally typically at $HOME/.m2/repository
- Then in the maven repository

Maven will output a .jar .war or .ear

Three built in life cycles for Maven:
- Default handles project deployment
- Clean handles project cleaning
- site documentation

Steps to building a project:
Validate → Compile → Test → Package → Integration → Verify → Install → Deploy

Jenkins: self contained, open source automation server
can be used to automate the, building, testing, and deployment
of software

Can be installed standalone or with tools like docker

Jenkins Projects / Jobs
- Each Job is a repeatable set of steps that automate
  some task
- You trigger these jobs automatically or manually
- When a job is triggered it creates a build

Jobs have a status called heath denoted by weater conditions
- 81% or more build pass sunny
- 61% to 80% partially sunny
- 41% to 60% cloudy
- 21% to 40% raining
- < 20% storming

Each build has a color associated:
- Blue: success

Each build has a color associated:
- Blues success
- Yellow unstable
- Red failure
- Gray no builds/aborted build

SonarCloud/SonarLint

Code quality analysis tools

Check your code for different issues related to:
- readibility
- security
- maintainability

Helps produce higher quality code, and creates standardization

These tools will look for code smells
- issues that may not be bugs, but could cause other issues such as maintainability

Vunerabilities: security issues

Bugs: actual issues

Other CodeSmells / Maintainability
- Confusing and hard to maintain code
- Repeated instances of code
- Unused imports
- Empty code blocks
- Unaddressed automated comments

SonarCloud is a webbased solution and you connect your github repo. Every time you push it generates a new report

SonarLint is a Linter you can install in your IDE

Just provides further code suggestions and Linting