

DEPLOYMENT 1

Brayan Molina



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KURA LABS COHORT 3



Documentation and observations:

Jenkins Installation

- Network security group needs to be configured to open ports 22,80,8080 for EC2 instance.
- Access to Jenkins via web browser requires public DNS name from Ubuntu EC2 and the port number Jenkins was configured on (8080).
- Installation of Jenkins requires JRE since Jenkins is a Java based application.
- Jenkins requires account creation for access or can enter as guest.
- Jenkins requires access to secret password located in a specific directory. 'Cat' to show txt file containing password.

Jenkins Build and Test

- Jenkins build and test was done through the jenkinsfile in application directory.
 - The build stage outlined in jenkinsfile requires virtual environment to be installed and runs the flask application in the virtual environment.
 - The test stage outline in jenkinsfile runs a framework called pytest to return errors in code based on failures found in the python application. (i.e if you write `4 == 5`, pytest will return this as a failure in your code).
- Using the provided repository link, Jenkins checks for any pull requests on the main branch and schedules a build for that branch (compiles all code).

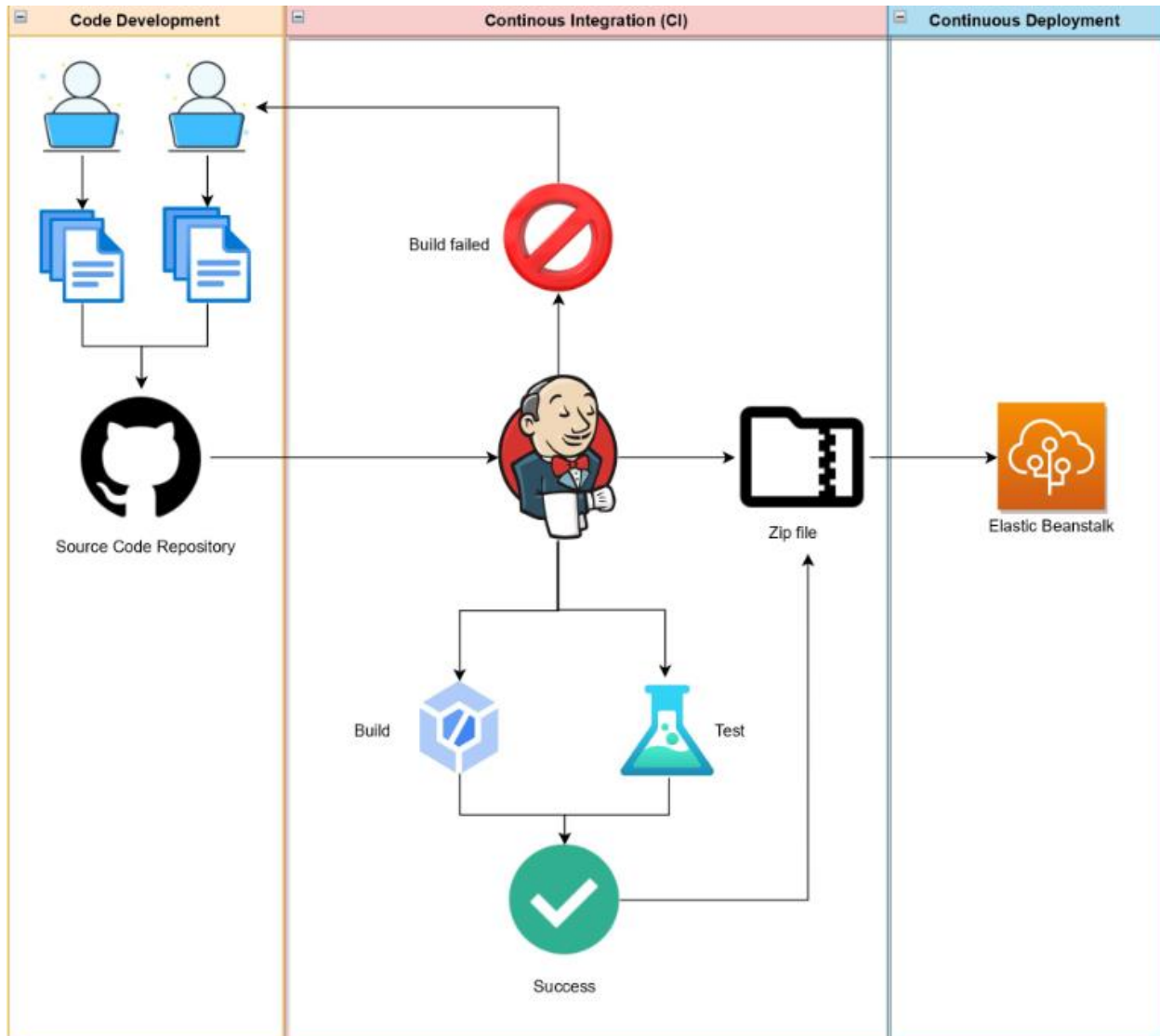
Elastic Beanstalk

- Compression of zip files needs to be done to not include parent directory for Elastic beanstalk to successfully deploy the application. (i.e `kuralabs_deployment_1/application.py` as opposed to `application.py` being the zip file)
- Load balancer and EC2 instance was made when deploying on EBS.
- CloudWatch alarm was initiated to keep track of logs and metrics related to our deployment.
- A Procfile was generated to configure the WSGI.
- Health status failures I encountered:

<i>Error</i>	<i>Cause</i>
<i>ModuleNotFoundError: No Module named 'application'</i>	Zip file for application.py incorrectly formatted.
<i>TemplatenotFound(template)</i>	Subdirectories were not compressed correctly when running zip command. The Templates subdirectory specifically was not compressed.
<i>TemplatenotFound(home.html)</i>	Subdirectories were not compressed correctly when running zip command. The Templates subdirectory specifically was not compressed.



Pipeline diagram:



Key takeaways:

- The deployment was done manually rather than continuous. A plugin could be used to automate the process to Elastic beanstalk for continuous deployment.
- Any failures in building and testing the code should return feedback. A feedback loop will help identify errors.
- The build and testing occurred based on the instructions provided in the jenkinsfile.



Improvements:

- Use of plugins in Jenkins would be able to upload successful build of source code to Elastic Beanstalk for a more fluid CI/CD process.
- Creating a script to properly zip the necessary files and dependencies.
- Creating a script for automating Jenkins installation would be helpful in configuring other EC2 instances.