Laboratory Practice Report

Version control (CodeCommit) and continuous deployment (CI/CD)

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 Departamento de Electrónica, Sistemas e Informática (DESI)

Cloud Architecture *(Arquitectura en la Nube)*

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Computer System

# Introduction

Code versioning is a method that has been implemented in almost all organizations due to it is a simple way to revert changes in several processes. Talking about applications, it is a method to have excellent control in the code developed by dev teams; it helps to have a good control about the activities made by each team member. Also, in case of any failure or code released accidently, it can be reverted easily and no impacting other areas in the application. The same thing applies to any document or process that is documented, it can be saved as version, in case, something is lost or modified by mistake, it can be recovered faster.

Deployments are complicated when they are handled manually because it can come with human mistakes. For that reason, it is so important to automate them, it can be scheduled on specific date and time, or it can schedule each time that any code is added to a specific folder. In this laboratory, deployment is going to be scheduled now it is merged to GitHub on master branch, Code Pipeline is going to be triggered to deploy our application in elastic bean.

# Theoretical Framework

Version control (VC) [1] is the practice to of tracking and managing changes to software code, documents, processes, etc. It is regular used by third party tools that help the companies to have more control under the important assets. In addition, it helps to the teams to manage and achieve the main goal that is to successfully complete an activity that everyone is participating and avoiding mistakes providing a tool to go back on specific point or version.

Git bash [2] is a free and open-source distributed version control system. It can be used by anyone without additional cost.

GitHub [3] is a free version control system. It is one of the most popular tools implemented by users and organizations, it can have public and private repositories to be created. It has an option to have an enterprise account to add more options to do a version control easily.

CodeCommit [4] is a private version control system provided by AWS. As part of AWS, it provides security and highly scalable. It is based on git open-source version.

Repository [5] is a place where you can store your code, files, and each file revision. It helps to have everything in one place providing versions of each modification made on each file.

# Architectural diagram

Diagram of the implemented architecture.

# Practice Development

This section should present the development of the practice chronologically. It should be clear enough to understand the practice. Images, diagrams, or photographs can be included in this section, but it's important not to abuse or represent the development as a sequence of photographs.

# Problems and Solutions

List all the problems encountered during the development of the practice and how they were resolved.

# Experiments and Results

This section should explain each of the experiments conducted and their results. The results should be properly interpreted to understand their significance and why they are considered good or bad. Diagrams, photographs, or images can be included in this section to help represent the results.

# Cost analysis

Explain the cost of the implemented solution, justifying the chosen solution based on costs. Should detail monthly and annual costs.

# Conclusions

The conclusions should be a reflective work presenting the knowledge gained from the experiments, results, and the theoretical framework presented. Invalid conclusions include: "I learned a lot!", "I really liked the practice", "everything worked correctly." (1 or 2 paragraphs)

# Bibliography

In IEEE format.