What is MLOps

Machine learning operations (MLOps) are a set of practices that automate and simplify machine learning (ML) workflows and deployments. MLOps is an ML culture and practice that unifies ML application development (Dev) with ML system deployment and operations (Ops). Your organization can use MLOps to automate and standardize processes across the ML lifecycle. These processes include model development, testing, integration, release, and infrastructure management.

 AWS services

1.AWS Sagemaker

Sagemaker is the machine learning PaaS of the AWS machine learning stack and provides end to end ML services for building, training, and deployment of the machine learning model. Sagemaker offers Jupyter Notebook instances as a service that can be launched with a single click, however, you can also carry out your work right from Sagemaker’s GUI console without a notebook.

## i) Build

This is where you set up the environment to train your model. You can navigate to the Sagemaker section of AWS, and configure Notebook Instances with the required Sagemaker instance type and S3 bucket for connecting with your data.

## ii) Train

Once your model is built, it has to be trained with the data and for this purpose all the EC2 compute is provisioned by the Sagemaker in the background.

## iii) Deploy

Sagemaker is surely going to make the life easy since for deployment we just need to write single line of code as below or by a single click from the console.

xgb\_predictor = xgb.deploy(initial\_instance\_count=1,instance\_type=’ml.m4.xlarge’)

Another useful feature of Sagemaker is that it allows to deploy multiple versions of the ML models so that data scientists can perform A/B testing.

2.AWS CodeCommit

AWS CodeCommit is a version control service that allows you to create your own GIT repositories.

CodeComit is useful in the project where there are many data scientists working together, specially on AWS Sagemaker. The good thing is that it supports all the exteral GIT commands and easy integration with other GIT tools.

3.AWS CodePipeline

AWS CodePipeline is a fully managed service for continuous delivery of code changes in a fast and quality manner. It helps you design an end to end pipeline with builds, testing and deployment of the code in an automatic way. It is very useful when you need to iteratively deploy changes of your machine learning model in production quite often.

4.AWS CodeBuild

AWS CodeBuild is a fully managed service for building source code, perform test and create packages of code ready to be deployed. It allows you to scale multiple builds simultaneously.

CodeBuild is a very important enabler in creating the completely automated CI/CD pipeline buit using AWS CodePipeline.