**CI/CD on AWS Cloud using Bitbucket, AWS Code build & Code Pipeline using Beanstalk & RDS**

STEPS

1. Create a IAM role with and assign these policies

a. AWSElasticBeanstalkWebtier

b. AdministratorAccess- AWSElasticBeanstalk

c. [AWSElasticBeanstalkRoleSNS](https://us-east-1.console.aws.amazon.com/iamv2/home?region=us-east-1#/policies/details/arn%3Aaws%3Aiam%3A%3Aaws%3Apolicy%2Fservice-role%2FAWSElasticBeanstalkRoleSNS)

d. [AWSElasticBeanstalkCustomPlatformforEC2Role](https://us-east-1.console.aws.amazon.com/iamv2/home?region=us-east-1#/policies/details/arn%3Aaws%3Aiam%3A%3Aaws%3Apolicy%2FAWSElasticBeanstalkCustomPlatformforEC2Role)

1. Create a beanstalk application environment and provide application information
2. Create a Key Pair for the beanstalk instance for login.
3. Choose VPC, Subnet, application server i.e tomcat, httpd etc, nodeJS, JAVA, Python etc.
4. Ex. Application stickiness: - refers to a configuration setting for load balancers that ensures that a user's requests are consistently routed to the same instance within an environment for the duration of a session.
5. Rolling update: it is a deployment strategy that gradually replaces the old version of your application with a new version, minimizing downtime and ensuring that some instances are always running and serving traffic. So, if 10 ec2-instance are behind LB give 10% capacity to reflect on one instance at a time.
6. Create RDS for and select the database as per your application need like

Choose Mysql 8.0.35 version, password autogenerated, VPC, automated backups, Security-Group, Instance type etc and create the database in free tier.

Now Beanstalk had created 2 ec2-instance as per our instructions, make sure application ec2 instance can access RDS instance on 3306 port number so, edit security group of RDS Security group allow traffic from beanstalk app instance.

1. Check RDS DB access by login into EC2-instance login using git bash

May install mysql agent to connect with db:-

# dnf search mysql

# dnf install mariadb105

# mysql -h vprords.c7ikkki6mm6l.us-east-1.rds.amazonaws.com -u admin -p

Enter password => show databases; => exit

1. Download db backup from here using wget <https://raw.githubusercontent.com/hkhcoder/vprofile-project/aws-ci/src/main/resources/db_backup.sql> => import the backup using this command.

# mysql -h vprords.c7ikkki6mm6l.us-east-1.rds.amazonaws.com -u admin -pCBGGaQJY9wvoa3lTsPEG accounts < db\_backup.sql

# mysql -h vprords.c7ikkki6mm6l.us-east-1.rds.amazonaws.com -u admin -pCBGGaQJY9wvoa3lTsPEG accounts

# show tables; => user, role etc tables can be see easily.

1. **Bitbucket.org:**

Create Account & repository.

**Keys**: generate SSH keys => copy public key to bitbucket account => SSH config file for bitbucket

**Migrate from GITHUB to BITBUCKET Repo:**

Clone source code from github

Remove github remote URL

Add Bitbucket repo URL

Push the code. => use these commands

ssh-keygen

vprobit\_rsa.pub = name to public and private keys

ssh -T [git@bitbucket.org](mailto:git@bitbucket.org) = It checks if your SSH key is correctly set up and authenticated with Bitbucket

cd /tmp/

clone [git@bitbucket.org:awscicd80/vproapp.git](mailto:git@bitbucket.org:awscicd80/vproapp.git) = clone test

cd vproapp/

cd /tmp/

cat vproapp/.git/config

vim vproapp/.git/config

cd /d

mkdir githubcode

cd githubcode/

git clone https://github.com/hkhcoder/vprofile-project.git

cd vprofile-project/

cat .git/config

git checkout aws-ci

git branch -a

git fetch --tags

cat .git/config

git remote rm origin = remove content of github.

git remote add origin git@bitbucket.org:awscicd80/vproapp.git

cat .git/config = new repo url can be seen.

git push origin –all =all code push to bitbucket

now come to codebuild AWS version of Jenkins.

**Codebuild:** It is a fully managed build service in the cloud. CodeBuild compiles your source code, runs unit tests, and produces artifacts that are ready to deploy. CodeBuild eliminates the need to provision, manage, and scale your own build servers.

We have to provide required information where you want to build the code like on ec2 instance or lambda, instance types, most important a “buildspec.yaml” file to fetch code from bitbucket and install maven and then build it.

See sample code from here:- <https://github.com/Sachinkumar80/VS-Code/blob/master/BuildSpec.yaml>

Code pipeline: - Add Source, build & deploy stage accordingly.