

# CLOUD DEVOPS ENGINEER

PROJECT CASE STUDY

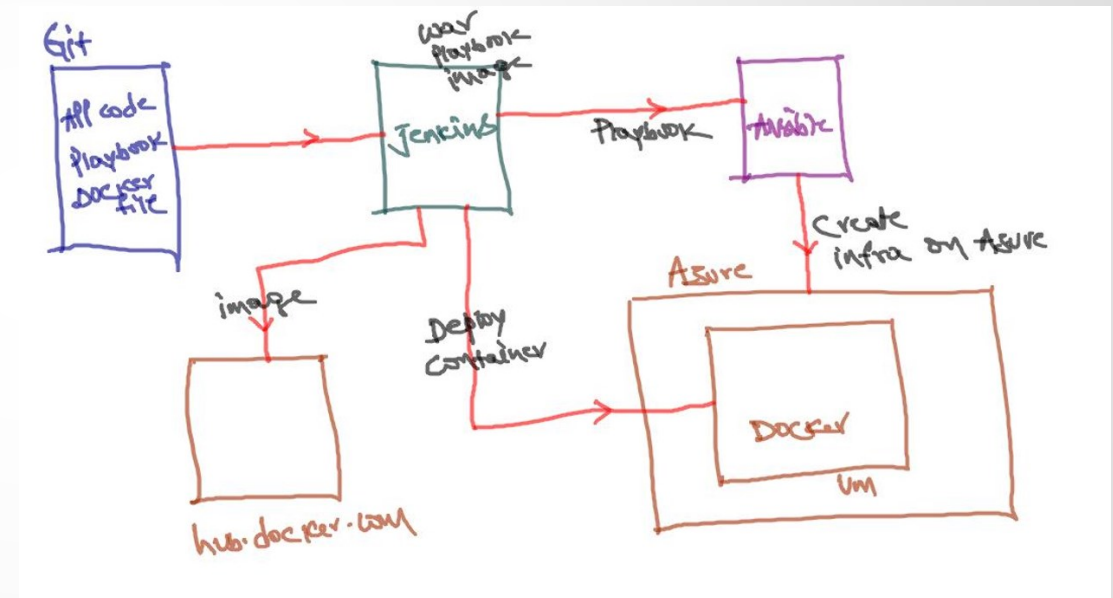


## BUSINESS REQUIREMENT

- At Wolkentech Pvt Ltd, there was a separate team that provided dedicated Jenkins pipelines with a stable master-slave node setup, but the environment was only used for quality assurance (QA), staging, and production environments. The development environment was still very manual, and the team needed to automate it to gain as much flexibility as possible while accelerating the development effort. This is the reason they decided to build a CI/CD pipeline for DevOps. And the open source version of Jenkins was the obvious choice due to its flexibility, openness, powerful plugin-capabilities, and ease of use.

## SOLUTION:

- Build a multi-staged Java build pipeline that takes from the phases of pulling dependencies from JAR repositories like Maven, compiling Java codes, running the unit tests, packaging into a JAR/WAR file, and deploying to a cloud server.
- Construct a multi-pipeline automating the tasks of executing Ansible playbooks to deploy the required infrastructure for Application.
- Design a complete end-to-end DevOps pipeline that pulls the infrastructure resource files and configuration files stored in SCM like GitHub and executing the scripts through various runtime programs.



## IMPLEMENTATION:

### Part-1

- Create Jenkins multi-server environment in Azure using Terraform

## IMPLEMENTATION:

### Part-2:

- Phase 1: Simple Java WebApplication
- Phase 2: Containerize the webapplication using Dockerfile
- Phase 3: Pushing Code and Dockerfile to GIT
- Phase 4: Deploy a Change
- Phase 5: Create a Ansible Playbook to Automate Machine Setup with Docker Engine
- Phase 6: Push Ansible code to the same Git
- Phase 7: Deploy Your Ansible Playbook to Azure and Test it
- Phase 8: Workflow Automation with Jenkins

## IMPLEMENTATION:

### Pipeline Steps

- Fetch Application Code and Ansible Playbook to workspace
- Build Application Code
- Build the Docker Image
- Push the Docker image to [hub.docker.com/Azure Container registry](https://hub.docker.com/Azure Container registry)
- Store artifacts and Ansible playbook in workspace
- Run Ansible playbook to deploy infra to Azure
- Deploy Docker container to Docker host VM