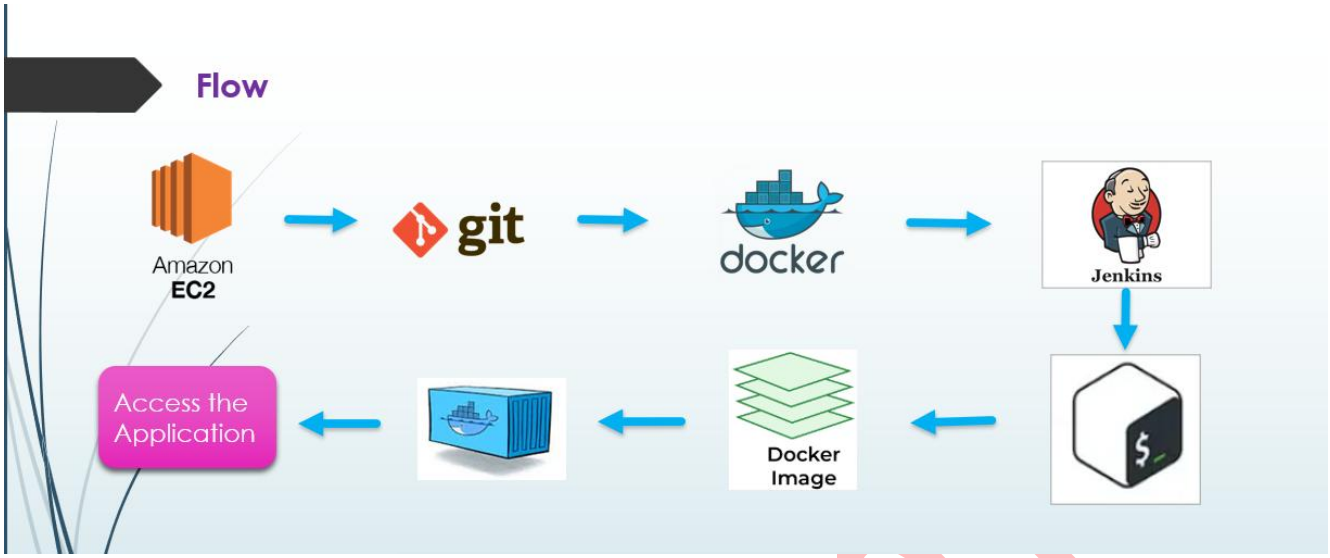

CI/CD Pipeline with Jenkins and Docker on AWS EC2

Infrastructure Setup

1. **Provision Two EC2 Instances:**
    - **Jenkins Server:** Hosts the Jenkins master instance.
    - **Docker Agent:** Acts as a Jenkins agent to build and deploy the application using Docker.
    - **Additionally, configure both machines as nodes in a Docker Swarm cluster for container orchestration. i.e: Total 4 EC2 instances are required.**

Configuration Steps

2. **Install Jenkins on the Jenkins EC2 Instance:**
    - Set up the Jenkins master server.
    - Secure the Jenkins instance and install required plugins.
3. **Configure the Docker EC2 Instance as a Jenkins Agent:**
    - Install Docker and Docker Compose.
    - Connect the agent to the Jenkins master.

4. **Application Setup:**
    - Create a Docker image for a Flask application and a MySQL/PostgreSQL database.
    - Use Docker Compose to orchestrate and run both containers on the agent machine.

CI/CD Pipeline Implementation

5. **Create a Jenkins Pipeline:**
    - Set up a scripted pipeline in Jenkins.
    - Automate the following steps:
        - Clone code from the Git repository (triggered on push to the main/master branch).
        - Build the Docker image.
        - Deploy the containers using Docker Compose or Docker Swarm.
        - Run tests (if applicable).
        - Send email notifications.
6. **Webhook Integration:**
    - Configure a webhook in the Git repository to trigger the Jenkins pipeline on every push to the main/master branch.

7. **Email Notifications:**
    - Configure Jenkins to send email notifications to the development team after each pipeline run.
    - Include details for both successful and failed builds.

--- ALL THE BEST ---