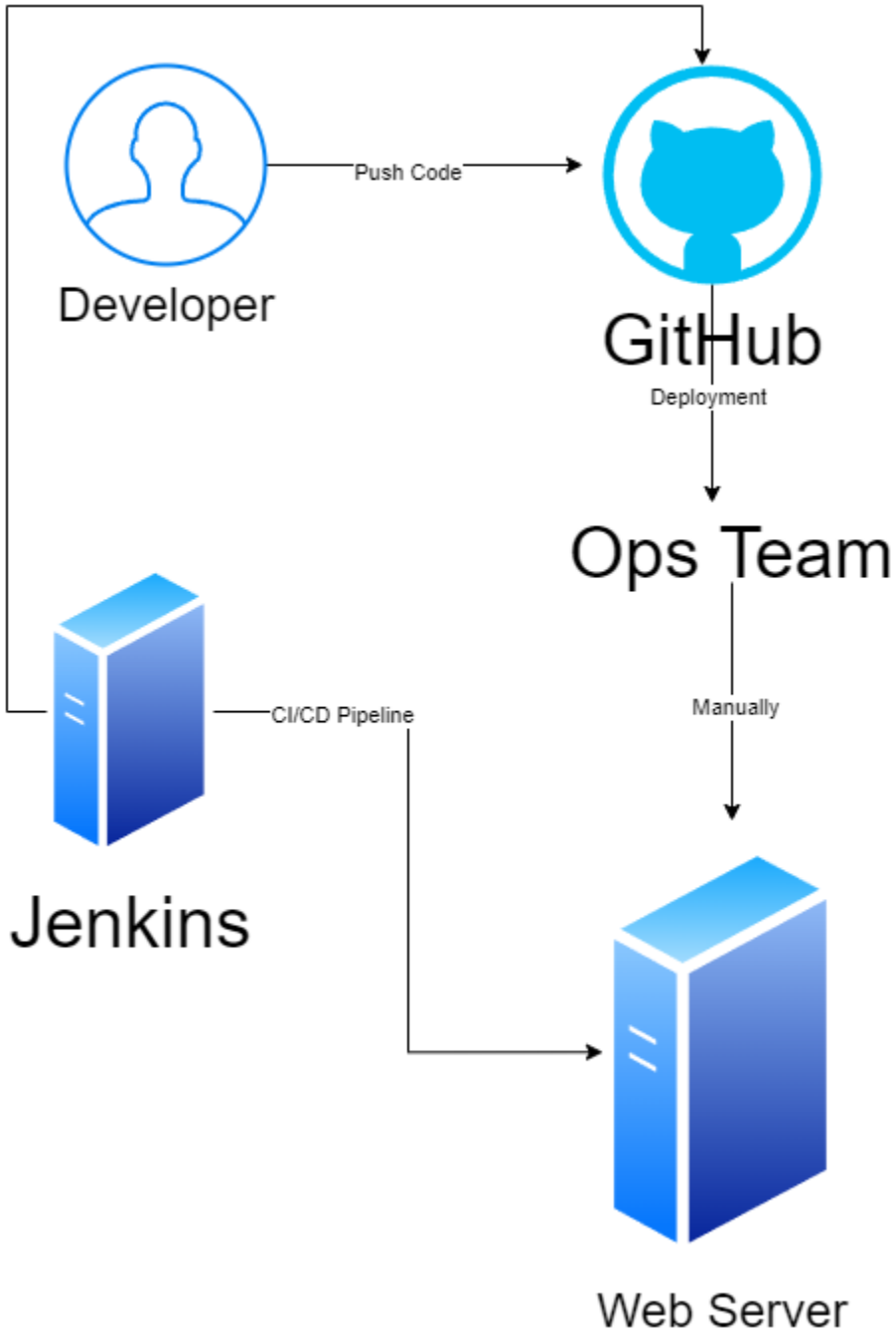
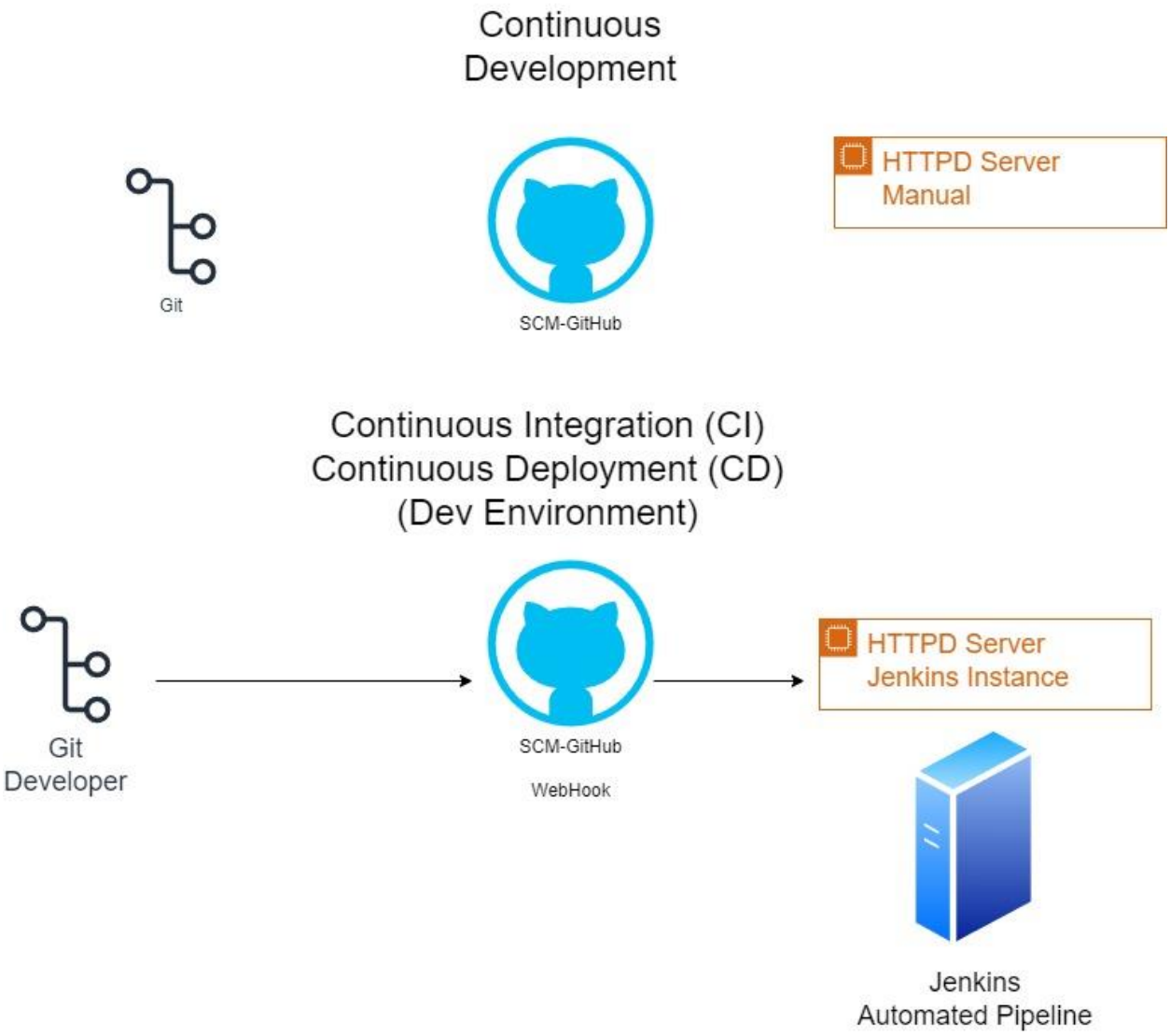
**Create fully automated CI/CD Pipeline and deploy applications**



**Build a CI/CD Pipeline**



**Deploy a Amazon Linux Instance, Add http(80), https (443), 8080 in inbound port**

**Install HTTPD Server**

yum update -y

yum install -y httpd

systemctl start httpd

systemctl enable httpd

Create a index.html file, add content, save it in /var/www/html/ folder

Check it by your public IP address

**Go to Apache Server and add necessary permission**

ls -la /var/www/html/ (only root has permissions)

ls -al /var/www/html/

sudo groupadd www-data

sudo newgrp www-data

sudo useradd Jenkins

passwd jenkins

sudo chown jenkins:www-data /var/www/html/

ls -al /var/www/html/

sudo chown jenkins:www-data -R /var/www/html/

ls -al /var/www/html/

sudo chmod 2771 /var/www/html/

sudo chown -R jenkins:www-data /var/www/html

sudo chmod -R 755 /var/www/html

ls -al /var/www/html/

**Install git**

yum install git -y

**Configure Git**

```
$ git config --global user.name "John Doe"

$ git config --global user.email johndoe@example.com
```

**Generate SSH key in Linux Machine Add SSH Key in GitHub**

ssh-keygen

cd /root/.ssh/

ls

eval "$(ssh-agent -s)"

Copy Private Key: ssh-add ~/.ssh/id_rsa

cat ~/.ssh/id_rsa.pub

Copy the key and add this in GitHub

Clone the repo using SSH URL

Edit the Code and Push it to GitHub to test

**GitHub – Create a Repo**

Create a Repo

Add a file in master branch

**Go to GitHub account and Create webhook**

Go to the GitHub Repo

Select Settings, Select Webhooks

Click Add

Enter jenkinsurl:8080/github-webhook/ in Payload URL: (example: http://52.70.89.157:8080/github-webhook/)

Select content type application/json

Which events: let me select individual events

Pull and Pushes

Click Add

Add a file and GitHub and pipeline will start building

**Install Jenkins**

https://www.jenkins.io/doc/tutorials/tutorial-for-installing-jenkins-on-AWS/

sudo yum update –y

sudo wget -O /etc/yum.repos.d/jenkins.repo https://pkg.jenkins.io/redhat-stable/jenkins.repo

sudo rpm --import https://pkg.jenkins.io/redhat-stable/jenkins.io-2023.key

sudo yum upgrade -y

sudo dnf install java-17-amazon-corretto -y

sudo yum install jenkins -y

sudo systemctl enable jenkins

sudo systemctl start jenkins

sudo systemctl status jenkins

Go to ipaddress:8080

sudo cat /var/lib/jenkins/secrets/initialAdminPassword

Install default plug-ins

Enter password

**Create Jenkins Pipeline**

Click New Item1 > Enter name, select Freestyle project

scroll down, select git, copy and paste the repo URL

Enter main or master branch

Scroll down and select **GitHub hook trigger for GITScm polling**

Scroll down to Select Build Steps

Click Execute shell and add the command below

rm -rf /var/www/html/*

cp * -r /var/www/html

Scroll down to select apply /save

## Testing:

Run the Pipeline by clicking on Build now

Edit code in local git, push code

git add .

git commit -m “added files”

git push origin master

### VIM Editor

Press : (colon) to open the prompt bar in the bottom left corner of the window.

Type q! after the colon and hit Enter to exit without saving the changes

### Jenkins

## Build Triggers

- [ ] Trigger builds remotely (e.g., from scripts) ?
- [ ] Build after other projects are built ?
- [ ] Build periodically ?
- [x] GitHub hook trigger for GITScm polling ?
- [ ] Poll SCM ?

## Build Environment

- [ ] Delete workspace before build starts
- [ ] Use secret text(s) or file(s) ?
- [ ] Add timestamps to the Console Output
- [ ] Inspect build log for published build scans
- [ ] Terminate a build if it's stuck
- [ ] With Ant ?

## Build Steps

**Execute shell** ?

Command

See the list of available environment variables

```
rm -rf /var/www/html/*
cp * -r /var/www/html
```

**GitHub WebHook**