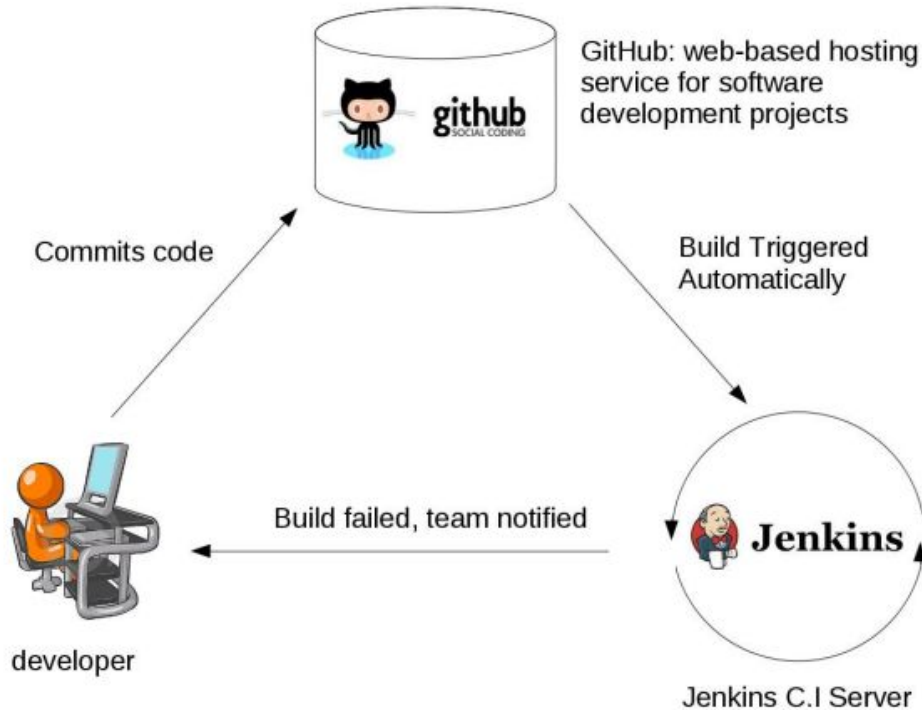


# Continuous Integration

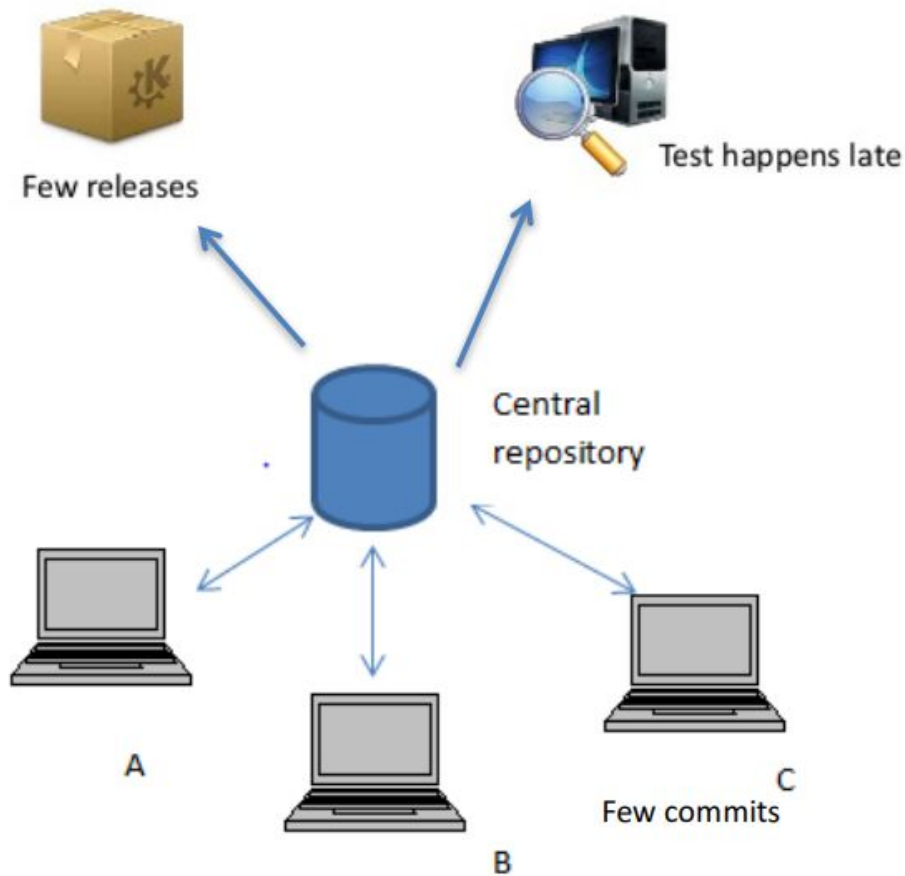


# Jenkins



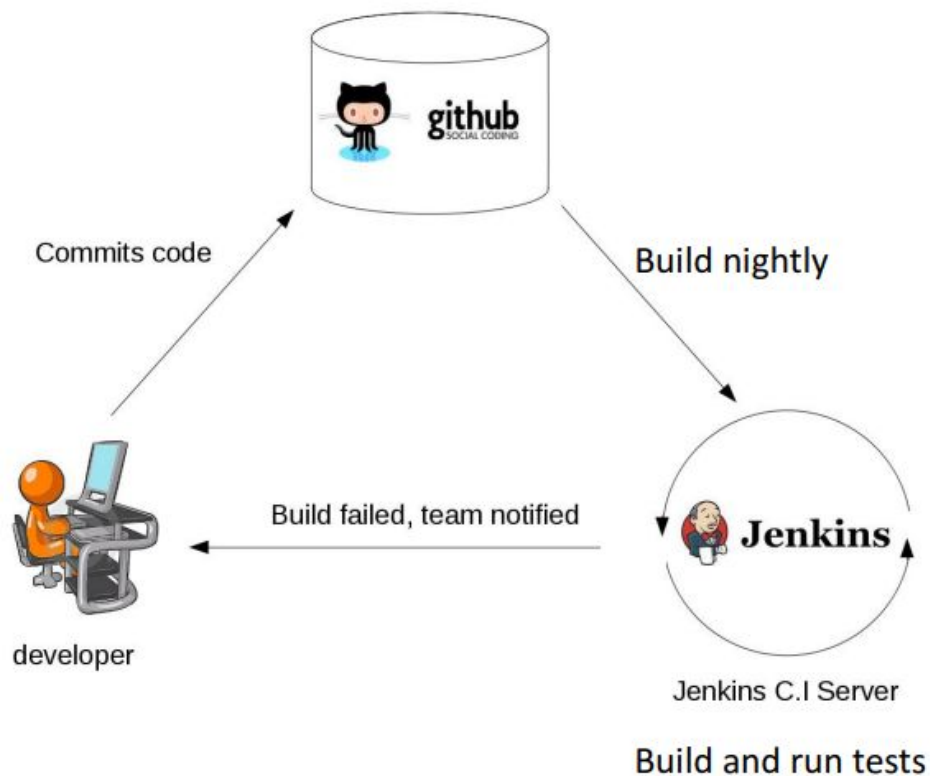
## What is Continuous Integration?

- Developers commit code to a shared repository on a regular basis.
- Version control system is being monitored. When a commit is detected, a build will be triggered automatically.
- If the build is not green, developers will be notified immediately.



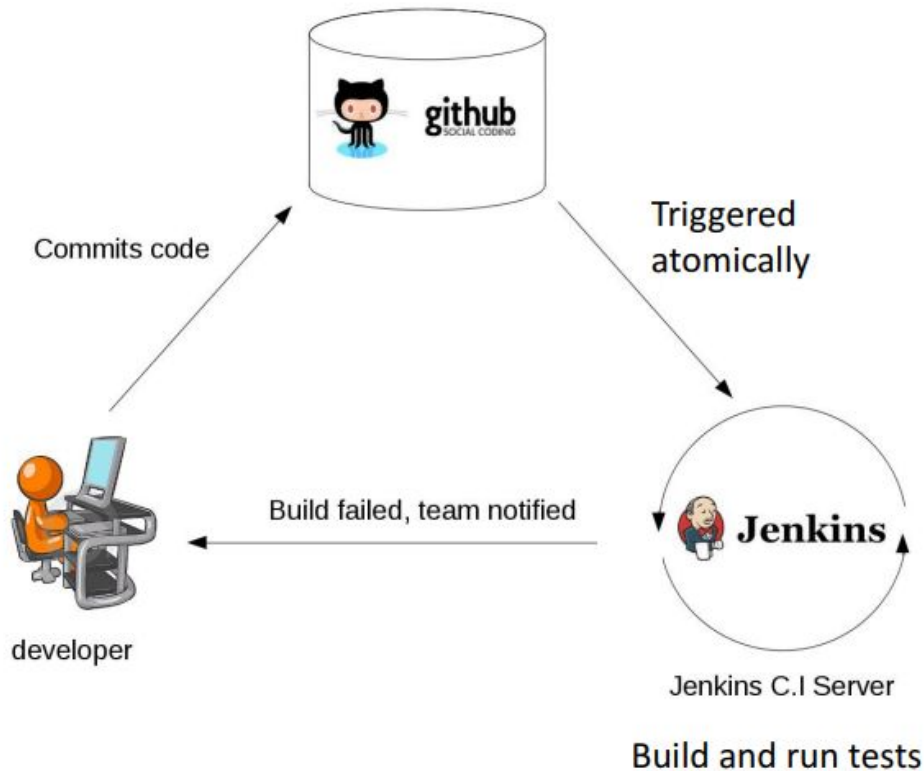
### Stage 1:

- No build servers.
- Developers commit on a regular basis.
- Changes are integrated and tested manually.
- Fewer releases.



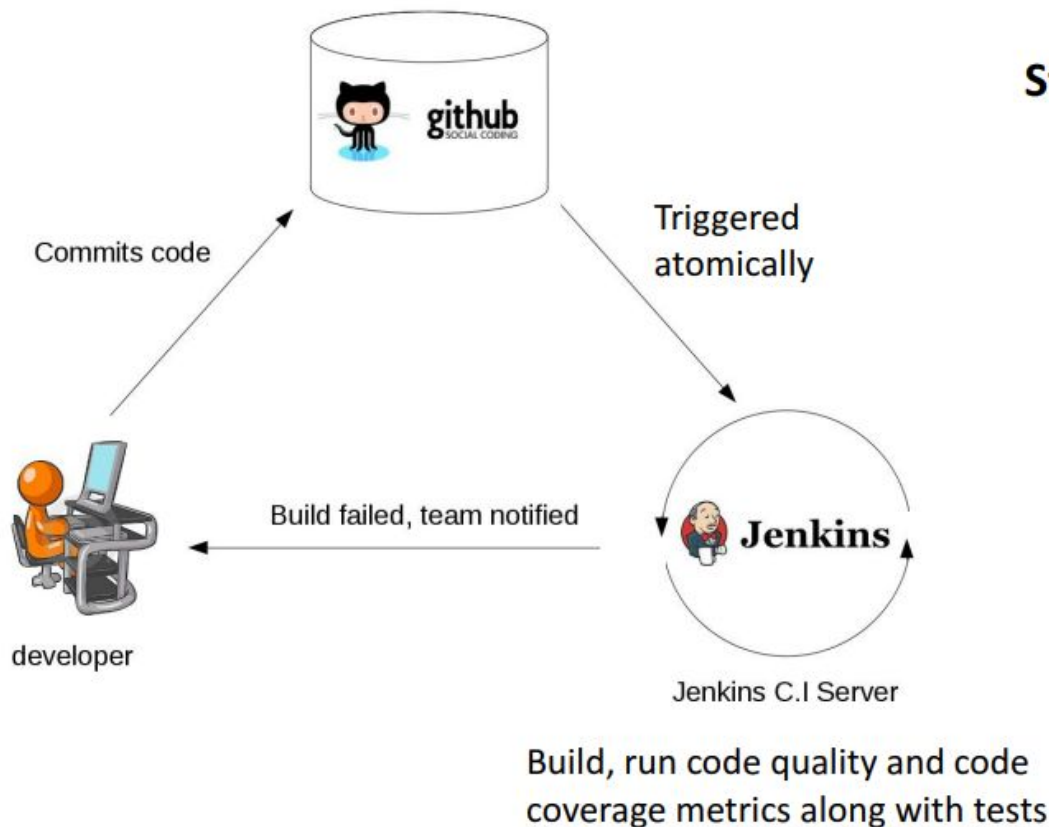
## Stage 2:

- Automated builds are scheduled on a regular basis.
- Build script compiles the application and runs a set of automated tests.
- Developers now commit their changes regularly.
- Build servers would alert the team members in case of build failure.



### Stage 3:

- A build is triggered whenever new code is committed to the central repository.
- Broken builds are usually treated as a high priority issue and are fixed quickly.



## Stage 4:

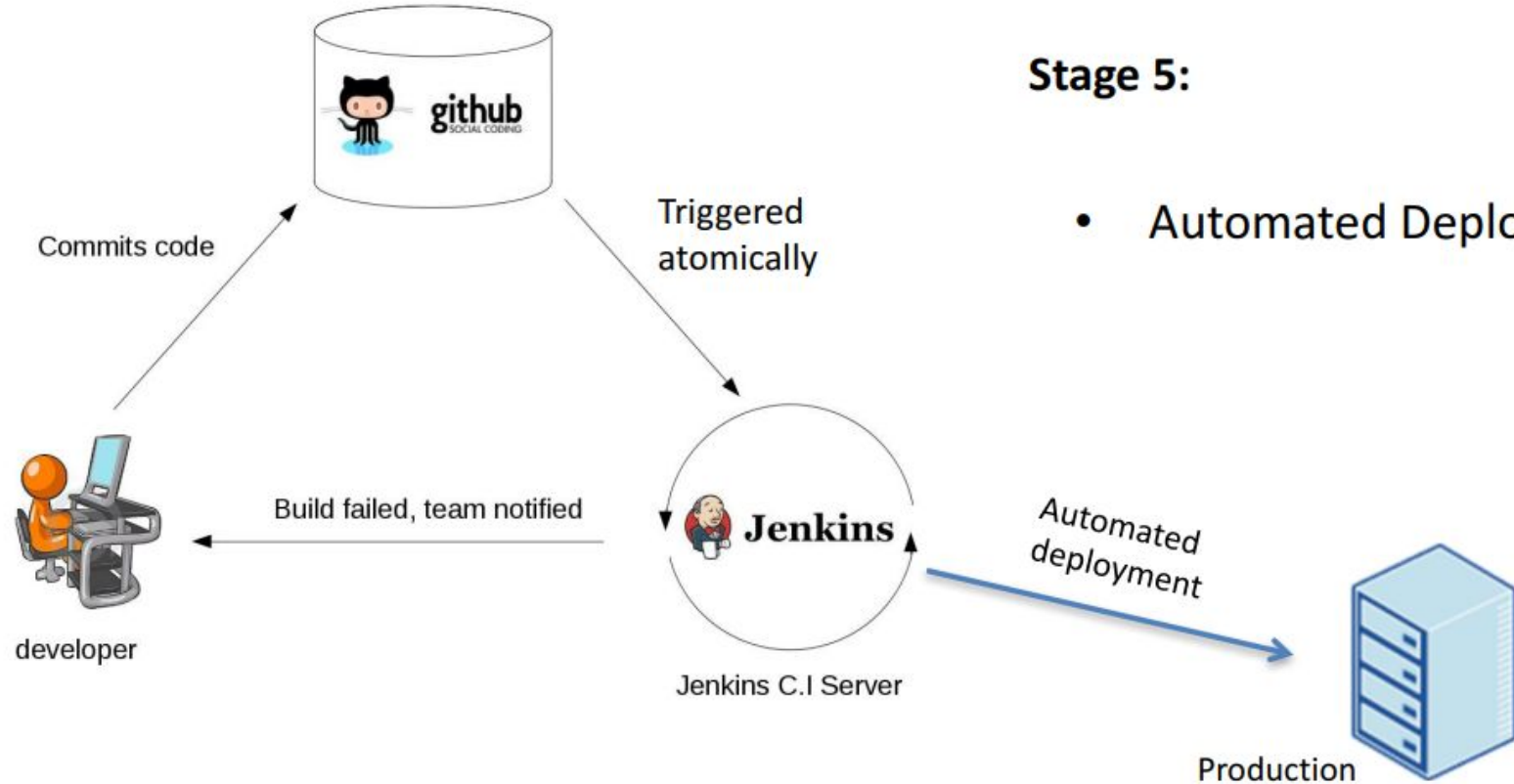
- Automated code quality and code coverage metrics are now run along with unit tests to continuously evaluate the code quality.

Is the code coverage increasing?

Do we have fewer and fewer build failures?

## Stage 5:

- Automated Deployment





- **Continuous Integration**

The practice of merging development work with the main branch constantly.

- **Continuous Delivery**

Continual delivery of code to an environment once the code is ready to ship. This could be staging or production. The idea is the product is delivered to a user base, which can be QAs or customers for review and inspection.

- **Continuous Deployment**

The deployment or release of code to production as soon as it is ready.



To install Jenkins on a Windows machine, follow these steps:

Download the Jenkins installer:

- Go to the official Jenkins website at <https://www.jenkins.io/download/>.
- On the "Windows" tab, click the "Long-term support" version or the latest stable release.
- Download the Windows installer file with the extension ".msi".

Run the Jenkins installer:

- Locate the downloaded .msi file and double-click on it to run the installer.
- If prompted by the User Account Control (UAC), click "Yes" to allow the installation to proceed.

Choose the installation directory:

- In the Jenkins installation wizard, click "Next" to proceed.
- Select the destination folder where Jenkins will be installed. The default location is typically recommended, but you can choose a different folder if desired.
- Click "Next" to continue.

- Choose the service account:
- Select the user account under which Jenkins will run as a service.
- You can either choose the default "Local System" account or specify a different user account.
- Click "Next" to proceed.
- Choose the port:
- Select the port number on which Jenkins will run. The default port is 8080, but you can change it if necessary.
- Choose optional features:
- Select any additional features or plugins you want to install alongside Jenkins.
- It's recommended to leave the default selections unless you have specific requirements.
- Click "Next" to proceed.
- Ready to install:
- Review the installation settings you have chosen.
- If everything looks correct, click "Install" to start the installation process.
- Complete the installation:
- Wait for the installation to finish. It may take a few moments.
- Once the installation is complete, you will see a message indicating the success of the installation.
- Click "Finish" to exit the installer.
- Access Jenkins:
- Open a web browser and navigate to <http://localhost:8080> (or the custom port you specified).
- Jenkins will prompt you to unlock the application by providing an initial administrative password.

- Retrieve the initial administrative password:
- Go back to the installation directory you selected in step 3.
- Look for a file called "initialAdminPassword" within the directory.
- Open the file using a text editor and copy the password.
- Unlock Jenkins:
- Paste the copied password into the Jenkins web interface and click "Continue".
- Customize Jenkins:
- On the "Customize Jenkins" page, select the installation option that suits your needs.
- You can either install the suggested plugins or choose specific plugins manually.
- Click "Continue" to proceed.
- Create an admin user:
- Fill out the required information to create an admin user for Jenkins.
- Make sure to remember the username and password for future logins.
- Click "Save and Finish" to complete the setup.
- Jenkins is ready:
- On the "Instance Configuration" page, confirm the Jenkins URL and click "Save and Finish".

**THANK YOU**