

Jenkins Continuous Integration

VISHWANATH M S

VISHWACLOUDLAB.ORG

Concepts of Jenkins

- Jenkins is an open source continuous integration tool written in Java. The project was forked from Hudson after a dispute with Oracle.
- Continuous integration server – **detects** changes in Subversion, **performs** tasks, **repeatedly**. (Build, Test, Deploy, Test, Package)

And what is continuous integration?

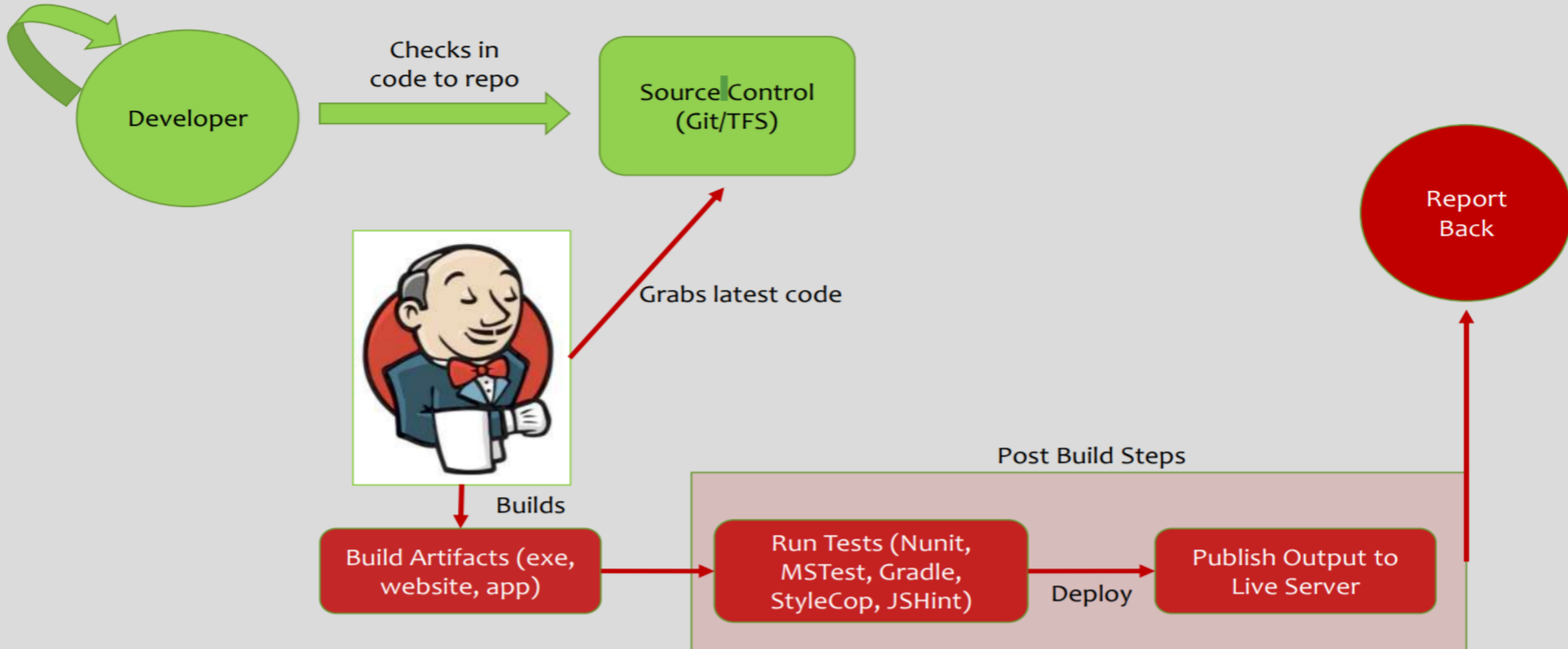
- Continuous Integration (CI) is a development practice that requires developers to integrate code into a shared repository several times a day. Each check-in is then verified by an automated build, allowing teams to detect problems early.

Why do we need it?

- **To integrate more frequently, detect errors quicker, improve quality and reduce cost**
- **Co-ordinate the running of tasks as part of workflows.**
- **Compile, test and package, deploy, script, verify, build vm's**

How does Jenkins typically fit into my work?

Works on his machine



Terminology

- **Job** - a unit of work for a project
- **View** - user defined collection of jobs or a workflow
- **Master** - the central Jenkins master, does job scheduling
- **Slave** - executes one or more jobs within slots (executors)

Terminology - Continued

- **Workspace** - the working area where a job is carried out
- **Plugin** -

Jenkins Main User Interface

The screenshot displays the Jenkins web interface. At the top, the 'Jenkins' logo is on the left, and a search bar, user 'corvus', and 'log out' link are on the right. Below the header, a navigation bar includes 'Jenkins - Gate' and a 'ENABLE AUTO REFRESH' button. A left sidebar contains links for 'New Job', 'People', 'Build History', 'Edit View', 'Delete View', 'Project Relationship', 'Check File Fingerprint', 'Manage Jenkins', 'Query and Trigger Gerrit Patches', 'My Views', and 'Job Config History'. The main content area features a tabbed interface with 'Gate' selected. Below the tabs is a table of build jobs. The table has columns for status (S), weather icon (W), job name, last success, last failure, and last duration. The jobs listed include 'glance', 'glance-merge', 'glance-pop8', 'keystone', 'keystone-merge', 'keystone-pop8', 'keystone-pylint', 'nova', 'nova-merge', 'nova-pop8', 'quantum', 'quantum-pop8', 'quantum-pylint', 'swift', and 'swift-merge'. Each job row includes a green status icon, a weather icon, a link to the job, and a link to the last build. The bottom left sidebar shows the 'Build Queue' (empty) and 'Build Executor Status' (showing two idle executors).

S	W	Name	Last Success	Last Failure	Last Duration
		glance	15 hr (#93283)	5 days 15 hr (#89277)	2 min 3 sec
		glance-merge	15 hr (#115)	1 mo 2 days (#78)	3 sec
		glance-pop8	15 hr (#289)	16 days (#205)	6.5 sec
		keystone	12 hr (#400)	13 hr (#390)	1 min 45 sec
		keystone-merge	12 hr (#292)	6 days 15 hr (#257)	4.6 sec
		keystone-pop8	12 hr (#335)	6 days 15 hr (#310)	9 sec
		keystone-pylint	12 hr (#400)	6 days 15 hr (#383)	22 sec
		nova	3 hr 44 min (#121720)	19 hr (#121717)	8 min 19 sec
		nova-merge	3 hr 44 min (#215)	21 hr (#194)	1 min 0 sec
		nova-pop8	3 hr 44 min (#1588)	21 hr (#1567)	1 min 9 sec
		quantum	9 hr 37 min (#52)	9 days 9 hr (#50)	9.1 sec
		quantum-pop8	9 hr 37 min (#38)	N/A	4.4 sec
		quantum-pylint	9 hr 35 min (#31)	N/A	20 sec
		swift	21 hr (#119345)	1 mo 17 days (#119327)	14 sec
		swift-merge	21 hr (#16)	N/A	3.3 sec

Installing Jenkins

- [Jenkins-CI.org](https://jenkins-ci.org)
- [Chocolatey.org](https://chocolatey.org)
- Prerequisites: JAVA

External Integration

- Auto Update GH issues or JIRA tickets
- Create Documentation on the fly
- Recom: Doxygen
- Call any external API (Custom).

Using Nodes

- Jenkins has a Master/Slave architecture
- You can add as many nodes as needed.
- These can be generic or environment specific
- These can be used also for testing as nodes could be on a different OS.

DEMO

Project/Job Creation

- First Job with simple Shell Script.
- Run Job on particular Group of Slave/Master
- Sample Job with ANT & GITHUB